

Canadian Association of Geographers

# ANNUAL MEETING

May 28 - June 2, 2012



L'Association canadienne des géographes

## CONGRÈS ANNUEL

28 Mai - 2 Juin, 2012

Wilfrid Laurier University  
University of Waterloo

*In conjunction with the*

**Canadian Cartographic  
Association**

and the

**Association of Canadian  
University Planning  
Programs**

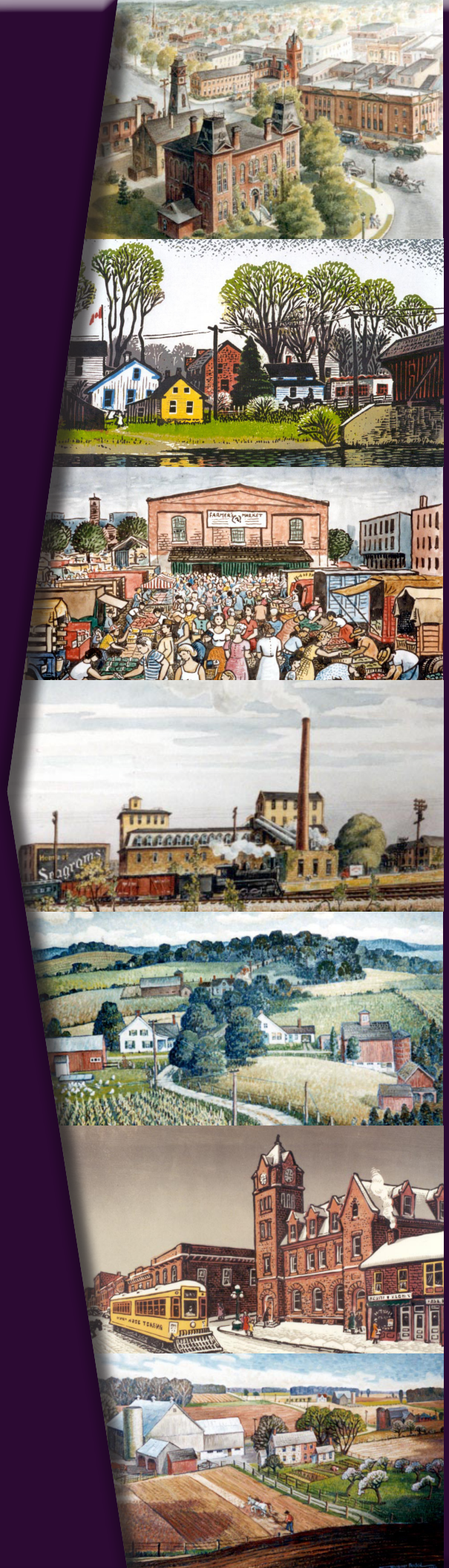


*en conjonction avec*

**L' Association  
canadienne de  
cartographie**

et

**L'Association des  
programmes  
universitaires canadiens  
en urbanisme**



**Toward Integration | En route vers l'intégration**

**Program /Programme 2012**

**Cover Illustrations Courtesy of the  
Robert Langen Art Gallery, Woldemar Neufeld Collection  
Wilfrid Laurier University**

**Woldemar Neufeld (1909 - 2002)**

As a young boy living in pre-Revolutionary Russia, Woldemar Neufeld would sit with his engineer father and examine his beloved mentor's drawings and designs. This inquisitive nature helped to set the foundations for Neufeld's later artistic career.

Born on November 10, 1909 in Waldheim, southern Russia to prosperous Mennonite parents, Neufeld enjoyed a happy and carefree childhood. At the age of ten, Neufeld expressed his desire to become an artist. Unfortunately, his aspirations were cut short by the outbreak of the Russian revolution and subsequent political execution of his father Heinrich Neufeld in 1920.

The years following his father's death were filled with upheaval, and devastation for the Neufeld family. In 1923, his mother Eliese Reimer married Jacob H. Janzen, a leading Mennonite minister and within a year the large blended family emigrated to the community of Waterloo, Ontario.

Now settled in a secure and enriching environment, Neufeld began to focus on his artistic career. He attended Waterloo College, now known as Wilfrid Laurier University from 1927 to 1930 and after graduation enjoyed a productive career as a commercial artist. He opened an art studio at 62 King Street South in Waterloo, helped establish the Kitchener-Waterloo Society of Artists, and studied in the evenings at the Ontario College of Art in Toronto.

Following the encouragement of Canadian painter Homer Watson, Neufeld left Canada to pursue formal artistic training. He enrolled in The Cleveland Institute of Art from 1935 to 1939 and was awarded the prestigious Agnes Gund Scholarship for his portfolio of Canadian sketches and paintings. Longing to be in New York City, Neufeld moved to the city in 1945 and devoted himself to documenting the area and working with children in the settlement house movement.

In 1949, Neufeld and wife, Waterloo-born Peggy Conrad, decided to move their young family to New Milford, Connecticut. It is here that Neufeld established his final working studio, gallery and summer art school. In this tranquil setting, Neufeld excelled at his technique and produced a variety of ambitious block prints, oils and watercolours.

His works of art are included in such collections as the Berkshire Museum, Massachusetts; Conrad Grebel College, Ontario; Library of Congress, Washington; New Milford; Historical Museum, Connecticut; South Street Seaport Museum, New York; The Cleveland Museum of Art, Ohio; The Metropolitan Museum of Art, New York; The New Britain Museum of American Art, Connecticut; Vancouver Art Gallery, British Columbia; and Wilfrid Laurier University, Ontario.

In the fall of 1988 Woldemar Neufeld was awarded an honorary Doctor of Letters degree from Wilfrid Laurier University.

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# Wilfrid Laurier & University of Waterloo

*words of welcome | mots de bienvenue*

We are pleased to host the CAG 2012 in Waterloo. The CAG this year will be a unique event. Two geography departments and two universities are hosting the event. At Wilfrid Laurier we have celebrated the 50th anniversary of the Department of Geography and Environmental Studies, and the 100th anniversary of the University. This year the Department of Geography and Environmental Management at the University of Waterloo will celebrate its 50th anniversary. Having our friends and colleagues from across Canada and from abroad join us for the CAG is a wonderful reflection of these celebrations.

For those who do not know our region, you will find a mix of urban areas, rural landscapes and small towns, very old places and very new activities. The region has a rich cultural heritage that began with the people of the Six Nations, followed by Mennonite and German settlers. Today Waterloo represents the full cultural diversity that we see in Canada. With two universities and a range of industries that span financial services, high tech, manufacturing and agriculture, you will find that Waterloo embodies many of the transitions, challenges and opportunities that characterize southern Ontario and indeed many other parts of Canada.

Integration is the theme for the CAG this year. It is a word that helps reflect the broad and varied nature of what we do, it is a key part of what geography is, and it symbolizes the nature of the questions and challenges geographers embrace and study and the solutions we often propose.

You will find an extensive program of presentations, lectures and field trips. These not only build on the unique attributes of our region but bring knowledge and ideas from research across Canada. It's great to have you join us. We welcome you to Waterloo and we look forward to an exciting CAG conference.

Kevin Hanna

Chair, Geography and Environmental Studies  
Wilfrid Laurier University

Peter Deadman  
Chair, Geography and Environmental Management,  
University of Waterloo

Nous sommes heureux d'accueillir le congrès 2012 de l'ACG ici à Waterloo. Le congrès de cette année sera un événement unique. Deux départements de géographie et deux universités accueillent l'événement. À l'Université Wilfrid Laurier, nous venons de célébrer le 50<sup>e</sup> anniversaire du département de géographie et études environnementales, ainsi que le 100<sup>e</sup> anniversaire de l'Université. Cette année, le département de géographie et gestion de l'environnement de l'Université de Waterloo célébrera à son tour son 50<sup>e</sup> anniversaire. Accueillir nos amis et collègues de partout au Canada et de l'étranger à l'occasion du congrès 2012 de l'ACG est une formidable manière de souligner ces deux anniversaires.

Pour ceux qui ne sont pas familiers avec notre région, vous y découvrirez un mélange de zones urbaines, de paysages ruraux et de petites villes; des lieux très anciens ainsi que des activités tout à fait nouvelles. La région possède un riche héritage culturel qui débuta avec les membres des Six Nations, suivis des mennonites et des colons allemands. De nos jours, Waterloo représente toute la diversité culturelle que l'on retrouve au Canada. Comptant deux universités et un éventail d'industries allant des services financiers, à la haute technologie, en passant par l'industrie manufacturière et l'agriculture, vous constaterez que Waterloo incarne un grand nombre des transitions, défis et opportunités qui caractérisent le sud de l'Ontario, et même beaucoup d'autres régions du Canada.

L'intégration est le thème du congrès de l'ACG cette année. C'est un mot qui reflète bien la nature vaste et variée de ce que nous faisons. L'intégration constitue aussi un élément clé de ce qu'est la géographie et elle symbolise la nature des questions et des enjeux que les géographes étudient, de même que des solutions qu'ils proposent.

Vous trouverez un vaste programme de présentations, conférences et visites sur le terrain. Celles-ci ne s'appuient pas seulement sur les attributs uniques de notre région, mais rassemblent des connaissances et des idées tirées de la recherche effectuée partout au Canada.

C'est un grand plaisir de vous compter parmi nous. Nous vous souhaitons la bienvenue à Waterloo pour un passionnant congrès 2012 de l'ACG.

Kevin Hanna  
Président, Département de géographie  
Université Wilfrid Laurier

Peter Deadman  
Président, Département de géographie et gestion de  
l'environnement  
Université de Waterloo



# Welcome from CAG President

Dear Toward Integration Participants:

As President of the Canadian Association of Geographers, it is my pleasure to welcome you to the 2012 Annual Meeting of the Canadian Association of Geographers.

This year's conference is being hosted by the Departments of Geography of the University of Waterloo and Wilfrid Laurier and is on the Wilfrid Laurier campus in that fertile region of South Western Ontario. You will be a hop, skip and a jump from Toronto, so close to Stratford that it would be a shame to miss a play and a dinner at one of Stratford's fine restaurants, and not far either from the home of the Shaw festival in Ontario's wine country, the Niagara peninsula. Motown/Motor City is just across the border. Waterloo is fascinating for its Six Nations (Woodland Cultural Centre, not far from Waterloo in Brantford Ontario) and Mennonite (St Jacob's The Mennonite Story) presence. And Windsor with its strong French Canadian and Métis heritage, its well managed green spaces, its diversified but formerly heavily automotive economy, is worthy of a geographer's thoughtful gaze. We are meeting in conjunction with and under the aegis of the Congress of Humanities and Social Sciences as we do every two or three years. We are fortunate in that our meeting is being held in conjunction with the annual meetings of the Canadian Cartographic Association (CCA) and the Association of Canadian University Planning Programs (ACUPP).

Canadian Association of Geographers meetings are notable for their friendliness and the many opportunities they offer for exchange, debate and discussion. Speakers representing a breadth of interests will present and discuss the latest topics in their research fields. This year's meeting has a great diversity of topics from food, land use, modeling, climate change, GIS, health, artistic expression, Indigenous issues, to development and much, much more. Students are an important component of our annual meetings and often find in them support and important future opportunities. Whether student, faculty or professional, I am sure that the conference will provide many opportunities for exchanging ideas on your research ventures and for forging new collaborations.

This week-long conference would not have been possible without the sustained dedication of the many individuals involved with the Local Organizing Committee. Thanks for your commitment to this task and for the efforts made to ensure the success of the conference.

Enjoy your visit to the campus of Wilfrid Laurier University and the larger region and I hope you enjoy our Toward Integration meeting.

Best wishes,

Anne Godlewski  
President, Canadian Association of Geographers  
Président, Association canadienne des géographes

Mot de bienvenue aux participants du congrès « En route vers l'intégration » :

À l'occasion du Congrès annuel 2012 de l'Association canadienne des géographes, j'ai le plaisir en tant que présidente de l'Association canadienne des géographes de vous accueillir parmi nous.

Cette année, le congrès est organisé sous les auspices des Départements de Géographie des Universités de Waterloo et de Wilfrid Laurier et se déroule sur le campus de Wilfrid Laurier au milieu de la région fertile du sud-ouest de l'Ontario. Dans le temps de le dire, vous pourrez vous rendre à Toronto ainsi qu'à Stratford qui se trouve à deux pas et qui vous propose une soirée de théâtre et de gastronomie à ne pas manquer. Pas très loin non plus se tient le festival de théâtre Shaw dans le pays des vignobles de la région de la péninsule du Niagara, Ontario. La ville de Détroit, surnommée Motown/Motor City, est située tout près de la frontière. On compte parmi les attraits fascinants de Waterloo, les Six Nations (le Centre culturel Woodland, non loin de Waterloo à Brantford, Ontario) et les Mennonites (le village de Saint-Jacobs et la visite guidée sur l'histoire des Mennonites). Et puis, Windsor, une ville qui regorge de patrimoine canadien-français et métis, qui est dotée d'espaces verts bien aménagés et d'une économie diversifiée bien qu'elle ait été autrefois très dépendante de l'industrie automobile, vaut le détour pour tous géographes ayant un esprit curieux. Le congrès se tiendra conjointement avec et sous l'égide du Congrès des sciences humaines comme à tous les deux ou trois ans. Nous avons le privilège de pouvoir accueillir les membres de l'Association canadienne de cartographie (ACC) et de l'Association des programmes universitaires canadiens en urbanisme (APUCU) dont les congrès annuels se tiendront parallèlement au nôtre.

Les congrès de l'Association canadienne des géographes se distinguent par une ambiance chaleureuse et sympathique et offrent un lieu propice aux échanges, débats et discussions. La diversité des champs d'intérêt des conférenciers se traduit par des présentations et discussions s'articulant autour des thèmes de leurs plus récentes recherches. Cette année, une variété de sujets seront abordés dans le cadre du congrès, dont la nourriture, l'occupation du sol, le modelage, les changements climatiques, les SIG, la santé, les moyens d'expression artistique, les questions autochtones, le développement et bien d'autres sujets. À nos congrès, nous faisons une grande place aux étudiants qui peuvent profiter de l'occasion pour créer un réseau de soutien et ouvrir des perspectives d'avenir. Je suis certaine que tous les participants, autant les étudiants que les professeurs et les professionnels y trouveront leur compte, et que le congrès sera pour vous une excellente occasion de partager vos idées sur vos projets de recherche et d'établir de nouvelles collaborations.

L'organisation de ce congrès d'une semaine n'aurait pas été possible sans le dévouement généreux de la part de nombreuses personnes impliquées dans le Comité organisateur local. Je vous remercie de votre engagement et de vos efforts afin d'assurer la réussite du congrès.

J'espère que vous allez profiter pleinement de votre séjour sur le campus de l'Université Wilfrid Laurier et ailleurs dans la région et que vous passerez d'excellents moments à notre congrès En route vers l'intégration.

Je vous souhaite tous mes meilleurs vœux,

Anne Godlewski  
Présidente, Association canadienne des géographes  
President, Canadian Association of Geographers

# Welcome from the CCA President

As President of the Canadian Cartographic Association, it is my pleasure to welcome you to this conference here in Waterloo, Ontario. I would also like to thank the organizing committee at Wilfrid Laurier University and the University of Waterloo for the work done to make this event a reality.

As in past conferences, the CCA and Canadian Association of Geographers are once again teaming up to offer a wide variety of spatial information related sessions and poster presentations. This speaks to the special 'kinship' that exists between cartographers and geographers. We shall see this week, the primary tool for the spatial sciences presentation is the map, and as such delegates from both the CCA and CAG should find much common interest in what will be seen and discussed at this year's conference.

This gathering also marks a milestone for our hosting departments of Geography and Environmental Studies at Wilfrid Laurier and Geography and Environmental Management at the University of Waterloo as they are at or near their respective half-century mark in teaching the spatial disciplines. On this occasion, I would like to offer my congratulations to both on reaching this historic achievement.

I am looking forward to meeting as many of you as I can during this week, and I trust you will enjoy the many activities and presentations of this year's program

Gerald Stark

President of the Canadian Cartographic Association



En tant que président de l'Association canadienne de cartographie, c'est avec grand plaisir que je vous souhaite la bienvenue à ce congrès, ici à Waterloo (Ontario). J'aimerais aussi remercier le comité organisateur de l'Université Wilfrid Laurier et de l'Université de Waterloo pour le travail accompli afin de faire de cet événement une réalité.

À l'instar des congrès précédents, l'ACC et l'Association canadienne des géographes s'associent pour offrir une grande variété de séances et de présentations d'affiches liées à l'information spatiale. Cette collaboration témoigne de l'affinité spéciale qui existe entre les cartographes et les géographes. Nous le verrons cette semaine, la carte est le principal outil de représentation des sciences spatiales et à ce titre, les participants de l'ACC et de l'ACG devraient trouver beaucoup d'intérêts communs dans ce qui sera observé et discuté au congrès cette année.

Ce rassemblement marque aussi une étape importante pour les départements de géographie et études environnementales de Wilfrid Laurier et de géographie et gestion de l'environnement de l'Université de Waterloo puisqu'ils célèbrent cette année, et l'an prochain respectivement, un demi-siècle d'enseignement des disciplines spatiales. À cette occasion, j'aimerais offrir mes félicitations aux deux départements pour cet accomplissement historique.

J'ai hâte de rencontrer le plus grand nombre d'entre vous que possible au cours de cette semaine et je suis certain que vous apprécierez les nombreuses activités et présentations au programme cette année.

Gerald Stark

Président de l'Association canadienne de cartographie



Canadian Cartographic Association  
l'Association canadienne de cartographie

# Welcome from the ACUPP President

There has always been a strong association between planning and geography. This conference provides an opportunity to share experience and learn from each other. For all of us the concept of lifelong learning challenges us to be open to new ideas, decisions, skills and behaviours. A conference, such as this, helps us improve our qualifications, making us familiar with evolving issues and new techniques.

The Association of Canadian University Planning Programs (ACUPP) is pleased to partner with the Canadian Association of Geographers at this conference. This conference represents a long-standing tradition of planners and geographers working together.

As President of ACUPP it is my pleasure to welcome ACUPP members from across the country, but equally to welcome our geography colleagues. Please enjoy the conference, meet some new people and share some ideas.

Sincerely,  
Wayne Caldwell  
President ACUPP

Depuis toujours, il existe un lien étroit entre l'urbanisme et la géographie, et ce congrès nous offre une occasion de partager nos expériences et d'apprendre les uns des autres. Le concept d'apprentissage en continu incite chacun de nous à être ouvert aux nouvelles idées, décisions, compétences et manières de faire. Un congrès tel que celui-ci nous aide à améliorer nos qualifications, notamment en nous familiarisant avec les nouveaux enjeux et les nouvelles techniques de notre domaine.

L'Association des programmes universitaires canadiens en urbanisme (APUCU) est heureuse de s'unir à l'Association canadienne des géographes pour ce congrès. Celui-ci représente une longue tradition de collaboration entre les urbanistes et les géographes.

À titre de président de l'APUCU, il me fait grand plaisir de souhaiter la bienvenue aux membres de l'APUCU de partout au pays, ainsi qu'à nos collègues géographes. Je vous souhaite de profiter pleinement de ce congrès, de faire de nouvelles rencontres et de partager de nouvelles idées.

Cordialement,  
Wayne Caldwell  
Président de l'APUCU



# CAG 2012 Organizing Committee

Chair: Mary Louise Byrne , Wilfrid Laurier University

Special Sessions: Jean Andrey, University of Waterloo

Programme design: Pam Schaus, Wilfrid Laurier University and Faryal Diwan, University of Waterloo

Field Trips: Alex Brenning, University of Waterloo and Bob Sharpe, Wilfrid Laurier University

Local Arrangements: Mary Louise Byrne, Kevin Hanna, Michael Imort, Margaret Walton-Roberts, Pam Schaus, Wilfrid Laurier University

Web Design: Su Yin Tan, Ray Cabrera, University of Waterloo

Sponsorship: Phil Howarth, University of Waterloo

Translation: Marie-Ève Lafortune and Melanie Langlois, University of Waterloo

Other members of the organizing committee:

Hope Engel

Amber Silver

Francesca Cardwell

Sadia Afrin

Kara Schimmelfing

Huzan Dordi

Rob Feick

Jodi Axelson

Brenda Murphy

Grant Simpson

Nicole Farquharson



# Monday, May 28, 2012

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**Pre-Conference Field Trips:**

Environmental Management Niagara Escarpment;  
Satellites and Visual Environments

**CAG Executive Meeting**

9:00 to 5:00  
Arts 2E7

**Education Study Group Workshop One:  
Geography Course Development**

12:00 to 1:30  
Arts 3E8

**CCA Exec Meeting**

12:30 to 4:30  
Arts 2E5

**Ice Breaker Reception - Meet the Executive and Awards Ceremony**

Date: Monday, May 28

Time: 5:30 p.m.

Location: Turret Night Club, Student Union Building, WLU

**Description:**

This event is an excellent opportunity to catch up with old friends and colleagues and to meet fellow attendees before the CAG 2012 Annual Meeting begins. CAG Award recipients will also be announced.

The CAG Awards that will be presented are:

- Award For Scholarly Distinction In Geography
- Award for Geography in the Service of Government or Business
- Award for Service to the Profession of Geography
- Award For Excellence In Teaching Geography
- The Julian M. Szeicz Award
- The Starkey-Robinson Award
- Wiley-Blackwell New Scholar Publication Award

In addition, the following awards will be presented:

•Canadian Cartographic Association Award of Distinction for Exceptional Contributions to the CCA

•CMHC Sustainability Teaching Award will be presented to a CAG member.

*Meetings, Lunches, Workshops and Social Events*

**Tuesday, May 29, 2012**

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**Daily Activities:**

- Crossroads Challenge Scavenger Hunt and Walking Tours (Information at CAG Table)
- ESRI Display Arts 2E5
- Art Installation Arts 2E1
- Poster Sessions Arts 2E5, 30 minute sessions (10:00, 12:45 and 3:00)
- Concurrent Sessions T1-A through T4-J

*Lunch Study Group Meetings*

**Graduate Student Lunch**

Jodi Axelson  
Arts 2C16

**Study Group #1**

CWAG  
Arts 3E8

**Study Group #13**

Education  
Arts 2E7

**Suzanne Mackenzie Memorial Lecture and Reception**

**Dr. Audrey Kobayashi**, Queen's University

*"Coming to the intersection: Impossible conversations on race and gender along the road"*

Date: Tuesday, May 29

Time: 5:30 p.m. to 7:00 p.m.

Lecture Location: Lecture Arts 1E1, WLU (public lecture)

Reception Location: Turret Night Club, Student Union Building, WLU (CAG attendees only)

***Sponsored by the Canadian Women and Geography Study Group (CWAG)***

**Description:**

Recent geographical scholarship has adopted intersectional analysis as a dominant paradigm. But the journey to intersectionality has been politically fraught and methodologically challenging. This presentation recounts some of the conversations that took place along this road.

**Biography: Dr. Audrey Kobayashi**

A native of British Columbia, Dr. Kobayashi completed a B.A. (1976) and M.A. (1978) at the University of British Columbia, and a PhD (1983) at UCLA. She taught in Geography and East Asian Studies at McGill University from 1983 to 1994, when she went to Queen's University, initially as Director of the Institute of Women's Studies (1994 to 1999) and thereafter as Professor of Geography. Dr. Kobayashi has also spent time as a visiting professor at the University of British Columbia, University College London and, most recently, Canterbury University, Christchurch, New Zealand. In 1994, she was a Fulbright Fellow at the Migration Policy Institute in Washington, DC. Other positions include President of the Canadian Association of Geographers (1999-2001), and Editor, People Place and Region, Annals of the Association of American Geographers. Dr. Kobayashi is currently the president of the Association of American Geographers.

# Wednesday, May 30, 2012

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**Daily Activities:**

- Crossroads Challenge Scavenger Hunt and Walking Tours (Information at CAG Table)
- ESRI Display Arts 2E5
- Art Installation Arts 2E1
- Poster Sessions Arts 2E5, 30 minute sessions (10:00, 12:45 and 3:00)
- Concurrent Sessions W1-A through W4-J

**Lunch Study Group Meetings****Graduate Student Workshops**

Arts 2C15

**Launch of Suburban Atlas**

Markus Moos

Arts 2E7

**Study Group #15**

Historical Geography

Arts 2C16

**Study Group #6**

Health Arts

2C17

**Study Group #12**

Asia

Arts 2C3

**Department Chairs Lunch** – Hosted Jointly by Peter Deadman (UW) and Kevin Hanna (WLU) Room TBA

**ACUPP Executive Meeting** – Arts 3E9, 5:00 p.m. - 6:00 p.m.

**Wiley Keynote Address and Reception**

**Dr. Ann Dale**, Canada Research Chair in Sustainable Community Development,  
Royal Roads University

*"Synoikismos: Overcoming the Terrorism of the Either/Or"*

Date: Wednesday, May 30

Time: 5:30 p.m. to 7:00 p.m.

Lecture Location: Lecture Arts 1E1, WLU (public lecture)

Wiley Reception (follows lecture) Turret Night Club, Student Union Building, WLU (CAG attendees only)

***Sponsored by John Wiley & Sons Canada Ltd.***

**Biography: Dr. Ann Dale**

Professor Ann Dale joined Royal Roads University in August 2000 and was awarded its first Canada Research Chair (Sustainable Community Development) in 2004. She holds a B.A. in psychology and an M.A. in public administration from Carleton University and a doctorate in natural resource sciences from McGill University. She chairs the Canadian Consortium for Sustainable Development Research, is a Board member of the World Fisheries Trust, a member of the World Academy of Arts and Science and a Trudeau Alumna (2004). She was recently awarded the 2009 Bissett Alumni Award for Distinctive Contributions to the Public Sector and in 2001, the Policy Research Initiative Award for Outstanding Research Contribution to Public Policy.

*Meetings, Workshops, Social, and Special Events*

**Thursday, May 31, 2012**

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**Daily Activities:**

- Crossroads Challenge Scavenger Hunt and Walking Tours  
(Information at CAG Table)
- ESRI Display Arts 2E5
- Art Installation Arts 2E1
- Poster Sessions Arts 2E5, 30 minute sessions (10:00, 12:45 and 3:00)
- Concurrent Sessions TH1-A through TH4-J

*Lunch Study Group Meetings*

**Education Workshop Two:**

Getting Published  
Arts 2E7

**Graduate Student Workshops**

Arts 2C15

**Gordon Nelson Publication Meeting**

Arts 2C16

**Study Group #2**

Environment and Resources  
Arts 2C17

**Study Group #4**

Economic  
Arts 3E8

**CCA AGM**

Arts 2C3

**CAG Executive Meeting with Study Group Chairs**

5:00 – 6:00 , Arts 2C16

**UW and WLU Presidents' Reception**

5:00 – 7:00, WLU Theatre Auditorium

**UW 50th Birthday Party for Alumni** 5:30 - 9:00, U Waterloo Campus, South Campus Hall

**CCA Orienteering Challenge 2012**

Waterloo Park, Thursday 31 May, 6pm

CAG members and all Learned delegates are invited or even challenged to participate in the almost annual Canadian Cartographic Association Orienteering event, in conjunction with the local Stars Orienteering Club. This will take place in Waterloo Park, neatly located between the Waterloo and Wilfrid Laurier University campuses. No previous experience is needed; ideally you have some map reading skills and more importantly beer downing abilities for the pub session and awards following. Sign up at the registration desk; there will be a small charge, usually ~\$5 to cover the cost of map printing and organisation.

More details: Roger Wheate, [wheate@unbc.ca](mailto:wheate@unbc.ca)

# Friday, June 1, 2012

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**Daily Activities:**

- Crossroads Challenge Scavenger Hunt and Walking Tours (Information at CAG Table)
- ESRI Display Arts 2E5
- Art Installation Arts 2E1
- Poster Sessions Arts 2E5, 30 minute sessions (10:00 and 12:00 noon)
- Concurrent Sessions F1-A through F2-J

*Lunch Study Group Meetings***Education Workshop Three:**

Active Learning in the Geography Classroom  
Arts 2E7

**Graduate Student Workshops**

Arts 2C15

**Study Group #16**

Urban Geography  
Arts 2C17

**Environments Journal**

Arts 2C3

**CCA 2nd Executive Meeting**

12:00 p.m. - 1:30 p.m.  
Arts 2C16

**Science, Society and Policy Panel Discussion:**

Ann Dale, Canada Research Chair in Sustainable Community Development, Royal Roads University ; Penny Parks, Science and Media Centre, Ottawa; Lucie Edwards, Global Governance, Balsillie School of International Affairs, Chair: Kevin Hanna, WLU  
1:00 p.m. - 2:30 p.m.  
Arts 1E1

**CAG Annual General Meeting** (for all conference registrants)

3:00 to 5:00 Arts 1E1

**CAG Annual Banquet**

Hacienda Sarria Banquet Facility  
1254 Union St  
Kitchener, Ontario

Local and/or organic food, flamenco guitarist, jazz/swing dance band  
6:00 to midnight

Bus transportation provided ( 1 bus provided each way)

*Pick up time and location will be announced at the AGM*

*Meetings, Lunches, Workshops and Social Events*



**Saturday, June 2, 2012**

**CAG 2nd Executive Meeting**

9:00 to 12:00

Arts 2E7

**Post-Conference Field Trips**

Mennonite Landscapes

Walking Tour Elora

St. Jacobs Farmers Market

REEP Open House

# *field trips | excursion*

## **Environmental Management Challenges in an Urbanizing Watershed and the Niagara Escarpment**

Dr. Rob Milne, Wilfrid Laurier University

**Monday, May 28 (all day)**

The Niagara Escarpment Biosphere Reserve is a prominent landform in the urbanizing landscape of the Greater Toronto Area (GTA) which serves a multifunctional role for local ecosystems as well as the surrounding watersheds and urban centres. This field trip will explore the management conflicts and resolutions that come from a diverse landscape by visiting several sites where environmental issues and management strategies have been addressed by the Niagara Escarpment Commission and Credit Valley Conservation. Themes that will be addressed include landscape conservation/restoration and resource extraction, recreational use and ecological systems, wildlife habitat and urbanization. The full day trip will include field talks from local agencies and moderate hiking to experience the unique flora and geomorphology of this biosphere reserve.



## **Satellites and Visual Environments: High-tech geomatics industries in Waterloo Region**

Dr. Steve Roberts / Dr. Colin Robertson, Wilfrid Laurier University

**Monday, May 28 (all day)**

In the morning we travel by bus to Cambridge for a tour of Com Dev a local aerospace company to see their satellite production facility. In the afternoon, we visit Christie Digital Systems and/or the Communitel Hub to view immersive visualization environments. Technical staff are to be part of each of these tours to help make these visits relevant for researchers as well as entertaining and informative for interested academics from other disciplines.

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**COM DEV®**

# *field trips | excursion*

## **The Waterloo Mennonite Landscape**

Dr. Alfred Hecht, Wilfrid Laurier University

**Saturday, June 2 (all day)**

Waterloo Region is known for its Waterloo Farmers Market and it's 6000 plus conservative Mennonites, also known as the horse and buggy people. They shun the modern way of life and are committed to their religious beliefs that they are in the world but not part of it. Hence their different dress, language and value structures. This field trip will examine their way of life and their contributions to the Waterloo Region landscape.



## **Historical and Culinary Walking Tour of Elora**

Dr. Judy Bates, Wilfrid Laurier University & Dr. Alexander Brenning, University of Waterloo

**Saturday, June 2 (all day)**

Elora is a charming historical town that is known for its vibrant artistic community, beautiful limestone architecture and the Elora gorge as a significant landscape feature. After exploring the historical town on a guided tour in the morning, you will sample specially created dishes at various local restaurants and shops during a culinary walking tour.



## **St. Jacobs Farmers' Market**

Marilyn Kuntz, Laurie Maynard, Sherry Schiff  
University of Waterloo

**Saturday, June 2, 9:00 to approximately noon**

The St. Jacobs Farmers Market is Canada's largest year-round farmers' market, offering a wide range of products from local maple butter sold by Old Order Mennonites, to home décor and crafts. Participants will have an opportunity to have breakfast (not included in fees) and stroll through the market to make purchases. Note that the market is located outside the town of St. Jacobs, which itself is worth a visit (not included in this field trip) and can be accessed from the market by public transit.



## **Open House at the REEP House for Sustainable Living**

Cheryl Evans, REEP Green Solutions (519-744-9799)  
cevans@reepgreen.ca  
& Dr. Travis Gliedt, University of Waterloo (519-584-4825) tgliedt@uwaterloo.ca

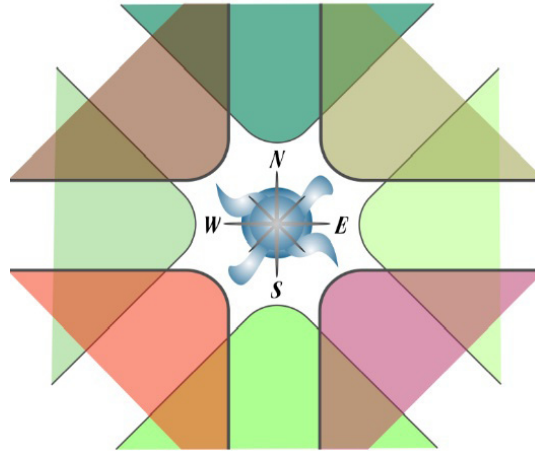
**Saturday, June 2, 10am - 2pm**

Visit the super-insulated, water-wise century brick home and education centre! A Certified Energy Advisor will be on hand to answer your home energy and water savings questions. Drop in to our Open House, Saturday June 2nd 10am - 2pm. Pre-register for our guided tours, Wednesday 6:30 - 8:30pm by calling 519-744-9799 or by clicking [http://reepgreen.ca/prog\\_house.php](http://reepgreen.ca/prog_house.php)  
Address: 20 Mill Street, Kitchener



# *field trips | excursion*

## CROSSROADS CHALLENGE SCAVENGER HUNT



## Crossroads Challenge Scavenger Hunt

Offered Daily on Mobile Device <http://crossroadschallenge.ca>

Registration at CSSE registration Desk May 27 - May 30  
(Bricker Academic Building Foyer)

and

Canadian Association of Geographers Registration Desk May 31 - June 1

Co-sponsored by: Canadian Association of Geographers (CAG), Canadian Society for the Study of Education (CSSE), Run For Life

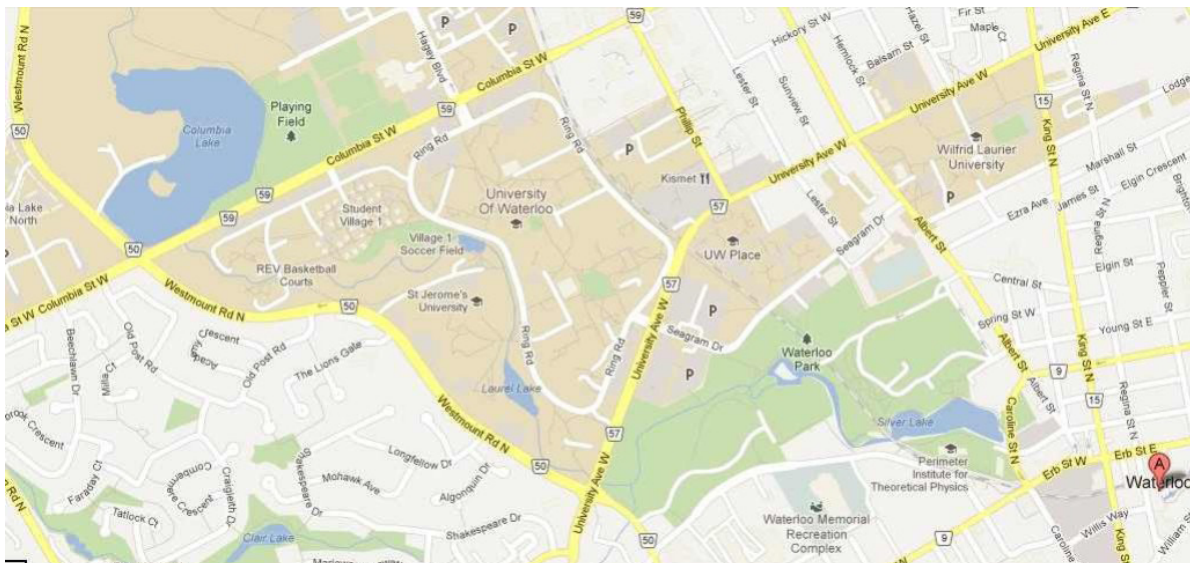
An active, fun and rewarding way to explore the University of Waterloo and Laurier campuses using your mobile device. Try one of our daily scavenger hunts or create a customized hunt for your group. Prizes for high scores!

\$5 registration fee, requires access to an iPhone, Ipad or Android device

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## CCA Orienteering Challenge 2012

Waterloo Park, Thursday 31 May, 6pm





Wilfrid Laurier University





# *campus map | carte de campus*

## Wilfrid Laurier University ACCESSIBILITY MAP



# campus map | carte de campus

University of Waterloo

## UNIVERSITY OF WATERLOO

### PARKING INDEX

#### VISITOR PARKING

All Day, Every Day  
**C, N, W, X:** \$5 per day - pay and display  
**Lot X** is free on weekends  
**HW:** Weekdays: \$2 per hour with \$10 deposit on entry. Deposit reduces throughout day. After 3 pm and weekends: \$5 coin entry  
**M:** \$6 pay and display  
**D:** Weekdays: \$2 per hour up to daily maximum of \$15. After 5 pm and weekends: \$5 coin entry  
**P:** \$4 coin entry for St. Jerome's University, Renison University College and St. Paul's University College; \$1 per hour up to a \$4 daily maximum at Conrad Grebel University College  
**OV:** \$5 coin exit  
**J, S, V:** \$5 pay and display. Pay in lot S  
**CL, UWP:** \$5 pay and display  
**A, B, EC, H, R:** \$5 coin entry

#### PERMIT PARKING

**Faculty and Staff:** A, B, H, K, L, N, O, R, T, X  
**Resident:** CL, J, S, V, UWP, T  
 Parking in any untagged lot after 4:30 pm with valid Faculty/Staff Permit

#### MOTORCYCLES

Purchase a term or day pass from Parking Services, in the COM building for use at motorcycle pads

#### ACCESSIBLE PARKING

Accessible parking for persons with disabilities is available in most lots. For details visit: [parking.uwaterloo.ca](http://parking.uwaterloo.ca)

#### SHORT-TERM PARKING

Fifteen minute parking is available on the Ring Road at Environment 2 and Ira G. Needles Hall. Meter parking is available, visit the Parking website for locations at: [parking.uwaterloo.ca](http://parking.uwaterloo.ca)

#### WATCARD PAYMENT

Available at Lot C, N, W, X, M, UWP

### BUILDING INDEX

#### BUILDING - LOCATION

**AL:** Arts Lecture Hall - G4

**B1:** Biology 1 - G4

**B2:** Biology 2 - G4

**B3:** B.C. Matthews Hall - G3

**BRH:** Brubacher House - F2

**C2:** Chemistry 2 - G3, G4

**CGR:** Conrad Grebel University College - F5

**CIF:** Columbia Icefield - G2

**CLN:** Columbia Lake Village North - B2, C1, C2

**CLV:** Columbia Lake Village - B2, C2, D2

**COG:** Columbia Greenhouses - D2

**COM:** Commissary - H3

**CPH:** Carl A. Pollock Hall - H4

**C3B:** Central Services Building - G3

**DC:** David G. Davis Computer Research Centre - H3, H4

**D2E:** Douglas Wright Engineering Building - H4

**E2:** Engineering 2 - H4

**E3:** Engineering 3 - H3, H4

**E5:** Engineering 5 - H3, H4

**E6:** Engineering 6 - H4

**ECH:** East Campus Hall - H3, H4, I3, I4

**EIT:** Centre for Environmental & Information Technology - G4

**ERC:** Energy Research Centre - G3

**H3:** Mathematics 3 - G3

**MC:** Mathematics & Computer Building - G3

**MRR:** Minota Heagy Residence - F3, G5

**MKV:** William Lyon Mackenzie King Village - E3

**HL:** Modern Languages - G4

**NT:** Ira G. Needles Hall - G4

**GR:** Graduate House - G4

**GR:** 335 Gage Street - see back page

**GR:** General Services Complex - G3, H3

**GR:** J. Hagedorn Hall of Humanities - G5

**HM:** Hilda M. Hagedorn Hall - G2

**HS:** Health Services - F4

**KDC:** Klemmer Day Care - G2

**LH:** Lyle S. Halman Institute for Health Promotion - G3

**LIB:** Dana Porter Library - G4

**EVI:** Environment 1 - G5

**E2:** Environment 2 - G5

**E3:** Earth Sciences & Chemistry - G4

**FED:** Federation Hall - F3

**GA:** 335 Gage Street - see back page

**GR:** Graduate House - G4

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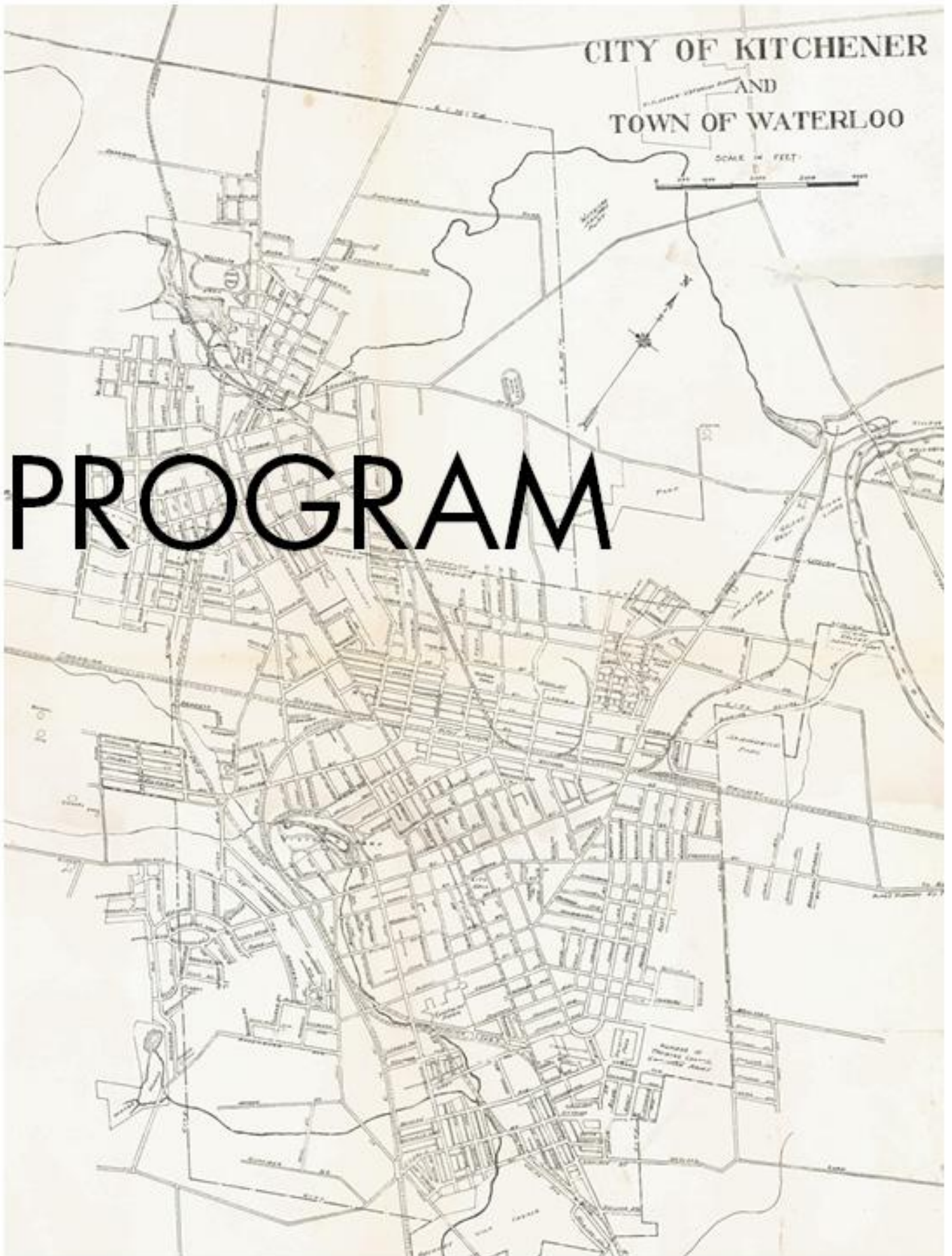


CITY OF KITCHENER  
AND  
TOWN OF WATERLOO

SCALE IN FEET



PROGRAM



All Rooms for CAG presentations are Located at Wilfrid Laurier University Campus								Paper Sessions			
Monday, May 28											
CAG Executive Meeting (9:00 to 5:00) Arts 2E7				Education Study Group Workshop One: Geography Course Development (12:00 to 1:30) Arts 3E8				Icebreaker and Awards Ceremony 5:30 The Turret			
Pre-Conference Field Trips: • Environmental Management Niagara Escarpment; • Satellites and Visual Environments			CCA Executive Meeting (12:30 to 4:30) Arts 2E5								
Daily Activities: Crossroads Challenge Scavenger Hunt and Walking Tours (Information at CAG Table) ESRI Display Arts 2E5 Art Installation Arts 2E1											
Tuesday, May 29											
	A	B	C	D	E	F	G	H	I	J	
8:30 T1	Arts 1C16	Arts 1C17	Arts 1C18	Arts 2C15	Arts 2C16	Arts 2C17	Arts 2C3	Arts 1E1	Arts 3E8	Arts 3E9	
10:30 T2	Arts 1C16	Arts 1C17	Arts 1C18	Arts 2C15	Arts 2C16	Arts 2C17	Arts 2C3	Arts 1E1	Arts 3E8	Arts 3E9	
Lunch Study Group Meeting	Study Group #13 Education Arts 2E7			Graduate Student Lunch Jodi Axelson Arts 2C16			Study Group #1 CWAG Arts 3E8				
	Poster Sessions held daily for 30 minutes at 10:00, 12:45 and 3:00 in Arts 2E5										
1:30 T3	Arts 1C16	Arts 1C17	Arts 1C18	Arts 2C15	Arts 2C16	Arts 2C17	Arts 2C3	Arts 1E1	Arts 3E8	Arts 3E9	
3:30 T4	Arts 1C16	Arts 1C17	Arts 1C18	Arts 2C15	Arts 2C16	Arts 2C17	Arts 2C3	Arts 1E1	Arts 3E8	Arts 3E9	
5:30	Suzanne Mackenzie Memorial Lecture Dr. Audrey Kobayashi, Queen’s University 5:30 to 6:30 Arts 1E1							Mackenzie Reception (follows lecture) The Turret			
Wednesday, May 30											
8:30 W1	Peters 1007	Peters 1013	Peters 1019	Arts 2C15	Arts 2C16	Arts 2C17	Arts 2C3	Arts 2C4	Arts 3E8	Arts 3E9	
10:30 W2	Peters 1007	Peters 1013	Peters 1019	Arts 2C15	Arts 2C16	Arts 2C17	Arts 2C3	Arts 2C4	Arts 3E8	Arts 3E9	
Lunch Study Group Meeting	Graduate Student Workshops Arts 2C15		Launch of Suburban Atlas Markus Moos Arts 2E7		Study Group #15 Historical Geography Arts 2C16		Study Group #6 Health Arts 2C17		Study Group #12 Asia Arts 2C3		Department Chairs Lunch – Hosted Jointly by Peter Deadman (UW) and Kevin Hanna (WLU) Room TBA
	Poster Sessions held daily for 30 minutes at 10:00, 12:45 and 3:00 in Arts 2E5										
1:30 W3	Peters 1007	Peters 1013	Peters 1019	Arts 2C15	Arts 2C16	Arts 2C17	Arts 2C3	Arts 2C4	Arts 3E8	Arts 3E9	
3:30 W4	Peters 1007	Peters 1013	Peters 1019	Arts 2C15	Arts 2C16	Arts 2C17	Arts 2C3	Arts 2C4	Arts 3E8	Arts 3E9	
5:30	Wiley Lecture Dr. Ann Dale, Canada Research Chair in Sustainable Community Development, Royal Roads University 5:30 to 6:30 Arts 1E1					Wiley Reception (follows lecture) The Turret			ACUPP Executive Meeting (5:00 -6:00) Arts 3E9		

Thursday, May 31										
	A	B	C	D	E	F	G	H	I	J
8:30 <i>TH1</i>	Peters 1007	Peters 1013	Peters 1019	Arts 2C15	Arts 2C16	Arts 2C17	Arts 2C3	Arts 2C4	Arts 3E8	Arts 3E9
10:30 <i>TH2</i>	Peters 1007	Peters 1013	Peters 1019	Arts 2C15	Arts 2C16	Arts 2C17	Arts 2C3	Arts 2C4	Arts 3E8	Arts 3E9
Lunch Study Group Meeting	Education Workshop Two: Getting Published Arts 2E7		Graduate Student Workshops Arts 2C15	Gordon Nelson Publication Meeting Arts 2C16		Study Group #2 Environment and Resources Arts 2C17		Study Group #4 Economic Arts 3E8		CCA AGM Arts 2C3
	Poster Sessions held daily for 30 minutes at 10:00, 12:45 and 3:00 in Arts 2E5									
1:30 <i>TH3</i>	Peters 1007	Peters 1013	Peters 1019	Arts 2C15	Arts 2C16	Arts 2C17	Arts 2C3	Arts 2C4	Arts 3E8	Arts 3E9
3:30 <i>TH4</i>	Peters 1007	Peters 1013	Peters 1019	Arts 2C15	Arts 2C16	Arts 2C17	Arts 2C3	Arts 2C4	Arts 3E8	Arts 3E9
5:00	CAG Exec meeting with Study Group Chairs 5:00 – 6:00 Arts 2C16			UW and WLU Presidents’ Reception 5:00 – 7:00 WLU Theatre Auditorium			UW 50 <sup>th</sup> Birthday Party for Alumni 5:30-9:00 U Waterloo Campus		CCA Orienteering Event (Waterloo Park)	
Friday, June 1										
8:30 <i>F1</i>	Peters 1007	Peters 1013	Peters 1019	Arts 2C15	Arts 2C16	Arts 2C17	Arts 2C3	Arts 2C4	Arts 3E8	Arts 3E9
10:30 <i>F2</i>	Peters 1007	Peters 1013	Peters 1019	Arts 2C15	Arts 2C16	Arts 2C17	Arts 2C3	Arts 2C4	Arts 3E8	Arts 3E9
Lunch Study Group Meeting	Graduate Student Workshops Arts 2C15		Education Workshop Three: Active Learning in the Geography Classroom Arts 2E7			CCA 2 <sup>nd</sup> Executive Meeting Arts 2C16		Study Group #16 Urban Geography Arts 2C17		Environments Journal Arts 2C3
	Poster Sessions for 30 minutes at 10:00 and 12:00 in Arts 2E5									
1:00			Science, Society and Policy Panel Discussion: Ann Dale, Canada Research Chair in Sustainable Community Development, Royal Roads University ; Penny Parks, Science and Media Centre, Ottawa; Lucie Edwards, Global Governance, Balsillie School of International Affairs Arts 1E1							
3:00			CAG Annual General Meeting (for all conference registrants) 3:00 to 5:00 Arts 1E1							
6:00			CAG Annual Banquet Hacienda Sarria Banquet Facility Local and/or organic food, flamenco guitarist, jazz/swing dance band							
Saturday, June 2										
CAG 2 <sup>nd</sup> Executive meeting 9:00 to 12:00 Arts 2E7						Post-Conference Field Trips: <ul style="list-style-type: none"><li>• Mennonite Landscapes;</li><li>• Walking Tour Elora;</li><li>• St. Jacobs Farmers Market;</li><li>• REEP Open House</li></ul>				



# Paper Sessions, CAG 2012 Towards Integration

## Concurrent Session A

### **T1-A HEALTH GEOGRAPHY (Tuesday 8:30 to 10:00, Arts 1C16)**

**With the Health and Health Care Study Group. Student Competition: MASTERS, Special Session 1 of 11**

**CHAIR: Nadine Schurrman**

1. Jessica Blewett, University of Northern British Columbia "Mapping with (Dis)abled People: Toward a Participatory, Qualitative and Holistic Approach."
2. Rory Johnston, Simon Fraser University "Examining Canadian Family Physicians' Perspectives of Their Roles and Responsibilities for Medical Tourists in Their Practices."
3. Esther McNairnay, University of Alberta, "Aging in Place."
4. Maria Mukhtar, University of Toronto Mississauga, "Promoting Successful Integration among Newcomers: Examining the Role of Settlement Service Providers' in the Provision of Socially Inclusive Programming in the Region of Peel."

### **T2-A HEALTH GEOGRAPHY (Tuesday 10:30 to 12:00, Arts 1C16)**

**With the Health and Health Care Study Group. Student Competition: PHD I - ETHNIC & ABORIGINAL HEALTH GEOGRAPHIES, Special Session 2 of 11**

**CHAIR: Theresa Garvin**

5. Rhonda Donovan, McMaster University, "Caregiving as a Vietnamese Tradition: It's Like Eating, You Just Do It."
6. Kathryn Fisher, McMaster University, "Chronic Illness in a Canadian Old Order Mennonite Community."
7. Qiqi Wang, University of Alberta, "The Lived Experience and Sense of Place among Urban and Suburban Elderly Chinese Immigrants in Edmonton."
8. Benita Tam, University of Toronto Scarborough "Psychological Distress and Seasonality among Urban Aboriginal Participants."

### **T3-A HEALTH GEOGRAPHY (Tuesday 1:30 to 3:00, Arts 1C16)**

**With the Health and Health Care Study Group. Student Competition: PHD II - ENVIRONMENTAL HEALTH, Special Session 3 of 11**

**CHAIR: Isaac Luginaah**

9. Tarun Katapally, University of Saskatchewan "How do Variations in Neighbourhood Built Environment Influence Patterns of Preadolescent Children's Physical Activity and Sedentary Behaviour?"
10. Kate Mulligan, University of Waterloo, "Is Dengue a Disease of Poverty?"
11. Tor Oiamo, Western University, "Health Effects of Combined Exposure to Noise and Air Pollution from Traffic: An Ecological Study from Windsor, Ontario."
12. Antony Chum, University of Toronto, "Socio-environmental Determinants of Cardiovascular Health."

**T4-A HEALTH GEOGRAPHY (Tuesday 3:30 to 5:00, Arts 1C16)**

**With the Health and Health Care Study Group. Student Competition: PHD III - HEALTH PROGRAMS & PRACTICES, Special Session 4 of 11**

**CHAIR: Nadine Schurrman**

13. Mengieng Ung, University of Western Ontario, "The Fight against HIV/AIDS in Cambodia: Conflicting Policy Impact on Good Intentions."
14. Michelle Vine, McMaster University "Local Level Factors Shaping the School Nutrition Environment in Ontario."
15. Francesca Cardwell, University of Waterloo, "Understanding the Role of Social Capital in Environmental Adaptation: A Case Study of Climate Change."
16. Jenna Dixon, University of Western Ontario, "Does enrolment translate to access? Evaluating the Influence of Poverty on Ghana's National Health Insurance Scheme."

**W1-A HEALTH GEOGRAPHY (Wednesday 8:30 to 10:00, Peters 1007)**

**With the Health and Health Care Study Group. Student Competition: PHD IV - CRITICAL HEALTH GEOGRAPHIES, Special Session 5 of 11**

**CHAIR: Valorie Crooks**

17. Marcie Snyder, University of Toronto Mississauga, "When you're Transitioning, You Want to Stick to what's Familiar: The Role of Aboriginal and non-Aboriginal Service Providers in Supporting Aboriginal Urban Newcomers and Frequent Movers".
18. Melissa Giesbrecht, Simon Fraser University, "Language, Place and Care: Examining Interconnections in the Context of Home Care Nursing."
19. Renate Sander-Regier, University of Ottawa, "Vitamin G at Ottawa's FWG (Fletcher Wildlife Garden)."
20. Natalie Waldbrook, Queen's University, "Challenging Normative Ideals and Expectations about Aging and Home: Understanding the Perspectives of Formerly Homeless, Older People in Toronto, Ontario."

**W2-A HEALTH GEOGRAPHY (Wednesday 10:30 to 12:00, Peters 1007)**

**With the Health and Health Care Study Group. YOUTH GEOGRAPHIES OF HEALTH, Special Session 6 of 11**

**CHAIR: John Spina**

21. Jennifer Asanin-Dean, University of Toronto Mississauga "Recruiting Marginalized Youth for Health Research."
22. Caroline Barakat-Haddad, University of Toronto Scarborough, "The Quest for Higher Socioeconomic Status and Adolescent Health Risk Behavior: A Case Study from a Migrant Population in the United Arab Emirates."
23. Nancy Fenton, University of Waterloo, "They Say Stay Away From Me, I Have Touched Peanuts: Exploring Social Exclusion among Youth with Anaphylaxis."
24. Niko Yiannakoulis, McMaster University, "A Space-time Approach to Reducing Injury Risk among Child Pedestrians."

**W3-A HEALTH GEOGRAPHY (Wednesday 1:30 to 3:00, Peters 1007)**

**With the Health and Health Care Study Group. HEALTH COMMUNITIES, Special Session 7 of 11**

**CHAIR: Natalie Waldbrook**

25. John Spina, University of Manitoba, "Space, Place, and Becoming Age-friendly: Opportunities and Challenges for Older Adults and Small Prairie Communities."
26. Theresa Garvin, University of Alberta, "Suburbs & Aging Populations: What Do We Know?"
27. Mark Skinner, Trent University, the Transformative Role of Voluntarism in Aging Resource Communities: Integrating People, Place and Community."
28. Paula Bryk, University of Waterloo, "Exploring Dimensions of a Community Nutrition Peer Program in Kitchener, Ontario."

**W4-A HEALTH GEOGRAPHY (Wednesday 3:30 to 5:00, Peters 1007)**

**With the Health and Health Care Study Group. SOCIAL GEOGRAPHIES OF HEALTH, Special Session 8 of 11**

**CHAIR: Mark Skinner**

29. Dan Harrington, University of Toronto Mississauga, "Neighbourhood-level Potential Access to Care: The Role of Physician Availability in Determining the Use of Health Care Services."
30. Joshua Evans, Athabasca University, "Painting Therapeutic Landscapes with Sound: On Land by Brian Eno."
31. Donna Appavoo, University of Waterloo, "More Than a Postal Code: Integrating Concepts of 'Place' and 'Rurality' Into Health Policy Strategies for the Treatment of Type 2 Diabetes."
32. Andrew F. Clark, McMaster University, "Barriers to Unorganized Sport Participation: A Case Study from Hamilton, Canada."
33. George G. Cravins, University of Wisconsin-La Crosse, "Putting The "Social" in the Study of Environmental Science: Epidemiology and the Case For Maintaining the "Nature-Nurture" Balance."

**TH1-A HEALTH GEOGRAPHY (Thursday 8:30 to 10:00, Peters 1007)**

**With the Health and Health Care Study Group. ABORIGINAL HEALTH, Special Session 9 of 11**

**CHAIR: Damian Collins**

34. Kathi Wilson, University of Toronto Mississauga, "Aboriginal Urbanization and Rights in Canada: Examining the Implications for Health."
35. Sonia Wesche, University of Ottawa, "Seeking Healthy Identities and Cultural Safety: Métis Women and Sexual Exploitation in Urban British Columbia."
36. Nathaniel Lewis, "Placing HIV Risk and Prevention among Men in Nova Scotia: An Intersectional Determinants of Health Approach."
37. Isaac Luginaah, Western University of Canada, "Circumcision Status and Time to First Sex among Young Men in the Context of the HIV/AIDS Epidemic in Sub-saharan Africa: The Case of Malawi."

**TH2-A HEALTH GEOGRAPHY (Thursday 10:30 to 12:00, Peters 1007)**

**With the Health and Health Care Study Group. FUTURE OF HEALTH GEOGRAPHY PANEL SESSION, Special Session 10 of 11**

**CHAIR: Theresa Garvin**

Panelists include:

38. Isaac Luginaah, Western University of Canada
39. Nadine Schuurmann, Simon Fraser University
40. Valorie Crooks, Simon Fraser University
41. Theresa Garvin, University of Alberta

**TH3-A HEALTH GEOGRAPHY (Thursday 1:30 to 3:00, Peters 1007)**

**With the Health and Health Care Study Group. PUBLIC HEALTH, Special Session 10 of 11**

**CHAIR: Josh Evans**

42. Kimberly Devotta, McMaster University, "Patient Satisfaction and Attitudes towards Breast Cancer Care: Understanding the Role of the Environment in the Care Experience."
43. Damian Collins, University of Alberta, "Air Quality at Edmonton's Outdoor Festivals."
44. Gillian Lee, University of Toronto "Exploring Links between Crime and Health in the Region of Peel."
45. Hui Luan, "WebGIS in Public Health Surveillance and Planning."

**TH4-A HEALTH GEOGRAPHY (Thursday 3:30 to 5:00, Peters 1007)**

**With the Health and Health Care Study Group. GEOGRAPHIES OF ETHNIC AND REFUGEE HEALTH, Special Session 11 of 11**

**CHAIR: Kathi Wilson**

46. Gracia Mabaya, University of Western Ontario, "The Legacy of Collective Violence: The Meaning of Health and Help-seeking Behaviors among Refugees in Canada."
47. Jenny Cho, McMaster University, "Refugee and Refugee Claimant Women's Journey to Health and Resettlement in Hamilton, Ontario."
48. Gianhi Tran, "Montreal's Minority Donors and Their Accessibility to Blood Donation Sites."

**F1-A DISABILITIES IN THE ACADEMY and SOCIETY (Friday, 8:30 to 10:00, Peters 1007) Special Session 1 of 2**

**CHAIR: Nancy Hansen**

1. Nancy La Monica and Vera Chouinard, McMaster University, "WARNING: Labels May Cause Serious Side Effects for Learning Disabled Students."
2. Keri Cameron and Vera Chouinard, McMaster University, "On Being a Princess and a Problem: Negotiating Attitudinal Barriers in Academia as a Female Student with Chronic Pain and a Chronically Ill Female Professor."
3. Valorie A. Crooks, Simon Fraser University, "Going Through the Back Door: Chronically Ill Academics' Experiences as Unexpected Workers Seeking Accommodation in Canadian Universities."

**F2-A DISABILITIES IN THE ACADEMY and SOCIETY (Friday, 10:30 to 12:00, Peters 1007) Special Session 2 of 2**

**CHAIR: Nancy Hansen**

4. Mark Anthony Castrodale, University of Western Ontario, "Space Matters: Researching Disability in Higher Education."
5. Athena Goodfellow, McMaster University, "Toward Inclusionary Geographies of Academia: Reflections on disabled graduate student experiences."

## Concurrent Session B

### **T1-B SUSTAINABLE TRANSPORTATION: ACTIVE MODES (Tuesday 8:30 to 10:00, Arts 1C17)** **With ACUPP, Session 1 of 3**

#### **CHAIR: Chuck Hostovsky**

1. Clare Wasteneys, Queen's University, "Riding a Bike is in My Bones Now: Creating a Cycling Habitus, on the Road to Sustainable Urban Transportation."
2. Rosibel Roman, Florida International University, "Unfriendly Infrastructure: The Uneven Burden of Safety Risks to Elderly Pedestrians in South Florida."
3. Patricia Collins, Queen's University, "Examining the Relationship between Active Transportation and Neighbourhood Deprivation in Kingston, Ontario: A Spatial Analysis."

### **T2-B SUSTAINABLE TRANSPORTATION: PUBLIC TRANSIT (Tuesday 10:30 to 12:00, Arts 1C17)** **With ACUPP, Session 2 of 3**

#### **CHAIR: Clarence Woudsma**

4. Craig Townsend, Concordia University, "Spatial Impacts of Public Transit Service Expansion in Vancouver."
5. Ashley Zhang, University of Waterloo, "Crafting Digital Narratives of Transit Competitiveness through Geovisualization."
6. Matti Siemiatycki, University of Toronto, "Delivering Sustainable Urban Transportation Projects through Public Private Partnerships: Limits and Opportunities."
7. Christopher Fullerton, Brock University, "A Longitudinal Study of Brock University's Highly Successful U-Pass Program."

### **T3-B SUSTAINABLE TRANSPORTATION: TOOLS (Tuesday 1:30 to 3:00, Arts 1C17)** **With ACUPP, Session 3 of 3**

#### **CHAIR: Jeff Casello**

8. Bernard Momer, University of British Columbia, "ComPASS Points to Sustainable Transportation Initiative in Kelowna, British Columbia."
9. Antonio Paez, McMaster University, "Developing a Web-based Accessibility Calculator Prototype for the Greater Montreal Area."
10. Joshua Van Loon, University of British Columbia and Rehan Waheed, Region Municipality of Waterloo, "Integrating Pedestrian Pathways into a Walkability Index for Waterloo Region – the NEWPATH experience."

### **T4-B TRANSPORT AND ECONOMY (Tuesday 3:30 to 5:00, Arts 1C17)** **With ACUPP, Special Session**

#### **CHAIR: Gerry Legare**

1. Clarence Woudsma, University of Waterloo, "Location, Logistics, and Love; Exploring Planning and Economic Development in Logistics Oriented Communities."
2. Christopher D. Higgins, McMaster University, "The Land Value Impacts of Commuter Rail in Hamilton, Ontario."
3. Sebastian Henn and Harald Bathelt, University of Toronto, "Trans-local Professionals and Localized Knowledge Flows: A Case Study of Business Travelers at Pearson International Airport, Toronto."



**W1-B OCEANS GOVERNANCE (Wednesday, 8:30 to 10:00, Peters 1013)**  
**With the Environment and Resources Study Group, Special Session 1 of 2**

**CHAIR: Jennifer Silver**

1. Monica E. Mulrennan, Concordia University, "Navigating a Seas of Uncertainty: Obstacles and Opportunities for partnering with Aboriginal Peoples in the Protection of Canada's Oceans."
2. Peter Foley, Memorial University, "New Clients and Collectivities: Alternative Regimes of Transnational Certification for Alaska Salmon."
3. Ahmed S. Khan, Memorial University, "Interactive Governance Perspective on Fisheries Rebuilding: A Case Study of the Northern Gulf Cod in Eastern Canada."
4. Noella J.Gray, Guelph University, "Fast alone and far together: Scalar framings of marine protected areas at the Convention on Biological Diversity."

**W2-B OCEANS GOVERNANCE (Wednesday, 10:30 to 12:00, Peters 1013)**  
**With the Environment and Resources Study Group, Special Session 2 of 2**

**CHAIR: Noella Gray**

5. Genevive Layton-Cartier, Concordia University, "Governance of Marine Protected Areas in Quebec: A Comparative Study of Planning Phases."
6. Veronique Bussieres, Concordia University, "Coastal Marine Protected Areas beyond Edges."
7. Nathan James Bennett and Phil Dearden, University of Victoria, "Adapting to Social but not Environmental Change? A Case Study of Marine Protected Area Communities on the Andaman Coast of Thailand."
8. Chui- Ling Tam, University of Calgary, "Spatiality and the Politics of Marine Conservation."
9. Christian Bouchard, Laurentian University, "La France de l'océan Indien et le défi d'une nouvelle gouvernance maritime."

**W3-B TECHNOLOGY, SCIENCE AND CITIZENS: GIScience 2.0 and the role of volunteered geographic information (Wednesday 1:30 to 3:00, Peters 1013) Special Session 1 of 2**

**CO-CHAIRS: Peter Johnson and Rob Feick**

1. Shayne Wright, University of British Columbia Okanagan, "Access, Engagement and Change: Characteristics for Identifying Community Participation on the Geospatial Web."
2. Michael G. Leahy, ESRI Canada, "The influence of Participation Format on VGI Creation and Collaboration in a PPGIS."
3. Jonathan Cinnamon, Simon Fraser University, "Volunteered Geographic Information and the data-divide."
4. Michael Martin, University of British Columbia, "Online Volunteerism, Geographers and the Global South: Recognizing Opportunity and Reality with Mapping across Borders."

**W4-B TECHNOLOGY, SCIENCE AND CITIZENS: GIScience 2.0 and the role of volunteered geographic information (Wednesday 3:30 to 5:00, Peters 1013) Special Session 2 of 2**

**CO-CHAIRS: Rob Feick and Peter Johnson**

5. Samantha Brennan, University of British Columbia Okanagan, "Igniting Interest in Online Participatory Mapping: VGI and Forest Fire Impacts."
6. Richard Kelly, University of Waterloo, "The Snowtweets Project: crowdsourcing snow information using social media."
7. Terri Cowan, University of Waterloo, "The Importance of Credibility and Relevance of Public Input in Community Planning."
8. Peter A. Johnson, McGill University, "How Sustainable is the Geoweb?"

**TH1-B SPATIAL MODELLING (Thursday 8:30 to 10:00, Peters 1013)**

**With CAG GIS Study Group, Special Session**

**CHAIR: Carson Farmer**

1. Carson J. Q. Farmer, University of St. Andrews, "Spatial interaction modelling of commuting flows within local labour markets."
2. Md Moniruzzaman, McMaster University, "Developing a Web-based Accessibility Calculator Prototype for the Greater Montreal Area."
3. Mario Reyes Galfan, McMaster University, "Accessibility to Urban Parks in Montreal from the Perspective of Children."
4. Kristina Cimaroli, McMaster University, "Individual and Contextual Determinants on Frequency of Blood Donation in Canada with a Focus on Clinic Accessibility."

**TH2-B GIScience (Thursday 10:30 to 12:00, Peters 1013)**

**With CAG GIS Study Group, Special Session 1 of 2**

**CHAIR: Tarmo Rimmel**

1. Tarmo Rimmel, York University, "What Constitutes a Significant Difference in Landscape Class-level Pattern?"
2. Steven Andrew Roberts, Wilfrid Laurier University, "Further Progress on Shape Metrics for Edge Analysis."
3. Jesse Van den Berg, Carleton University, "Fuzzy Classification for Eastern Ontario Land Cover Mapping."
4. Laura Duncanson, University of Maryland, "Beyond Empiricism: Exploring Mechanistic Allometric Scaling Theory With LiDAR Remote Sensing for Forest Biomass Estimation."

**TH3-B GIScience (Thursday 1:30-3:00, Peters 1013)**

**With CAG GIS Study Group, Special Session 2 of 2**

**CHAIR: Jed Long**

5. Jed Long, University of Victoria, "Measuring Dynamic Interaction Patterns in Movement Data."
6. Ryan Garnett, Lakehead University, "Mapping with the Addition of 3D Analysis: A Case Study in Pukaskwa National Park."
7. Christine Fandrich, McMaster University, "Commuter Emissions of McMaster University."
8. Connie Ko, York University, "Algorithm for processing a LiDAR point cloud to retrieve internal geometric tree crown structures."

**TH4-B APPLICATIONS AND DEVELOPMENTS IN SIMULATING LAND-USE DYNAMICS (Thursday 3:30 to 5:00, Peters 1013) Special Session**

**CHAIR: Derek Robinson**

1. Yue Dou, University of Waterloo, "Exploring Scenarios of Reducing Emissions from Deforestation and Forest Degradation in an Agent-based Model in the Brazilian Amazon."
2. Ali Ghaffari, York University, "Simple Scenarios of Transition to Organic Farming Using Geospatial and Agent Based Modeling: implications for greenhouse Gas mitigation."
3. Derek T. Robinson, University of Waterloo, "Using ABM Experiments and Scenarios to Evaluate Potential Impacts of Land-use Change on Human Well-being in Koper, Slovenia."
4. Eric J. Miller, University of Toronto, "Microsimulating Housing Markets in the Greater Toronto Area."
5. Qingxu Huang, University of Waterloo, "Exploring the Effects of Agent Heterogeneity in an Agent-based Land Market Model."

**F1-B SPATIAL EPIDEMIOLOGY AND ECOLOGY (Friday 8:30 to 10:00, Peters 1013)**  
**With CAG GIS Study Group, Special Session**

**CHAIR: Colin Robertson**

1. Colin Robertson, Wilfrid Laurier University, "Measuring Disease Landscapes: Exploring Pathogen Diversity in Surveillance Data Using Ecological Indices."
2. Olaf Berke, University of Guelph, "Geographic Epidemiology of Echinococcus multilocularis in Muskrats and Red Foxes in Lower Saxony."
3. Charles Fritz, Simon Fraser University, "Spatial Clustering of Obesity in Three Canadian Metropolitan Areas."
4. Jarin Esita, McMaster University, "Optimization of Blood Donation Clinic Resources: A Case Study of Hamilton CMA."
5. Yikalo H. Araya, York University, "Characterizing the spatial patterns of post-fire vegetation residual patches in boreal wildfires: effects of analytical scale."

**F2-B HUMAN GEOGRAPHY APPLICATIONS OF GIS AND CARTOGRAPHY (Friday 10:30 to 12:00, Peters 1013)**

**CHAIR: Su-Yin Tan**

1. Matthew Quick, University of Waterloo, "Exploring Hotspots of Drug Offences in Toronto, Ontario: A Comparison of Four Local Cluster Detection Methods."
2. Xue Luo, University of Waterloo, "Spatial Patterns of Neighbourhood Crime in Canadian Cities: The Influence of Neighbourhood and City Contexts."
3. Paula Aguayo, University of Waterloo, "Economic/Environmental Implications of a Solar Energy Potential Modelling Approach at the Building Scale."

## **Concurrent Session C**

**T1-C GEOGRAPHICAL INQUIRIES: creative practices (Tuesday 8:30 to 10:00, Arts 1C18)**  
**Special Session 1 of 4**

**CHAIR: Sophie Anne Edwards**

1. Susan Trangmar, University of Arts London, "Shifting Terrains."
2. George Lovell, Queen's University, "The Archive That Never Was: State Terror and Historical Memory in Guatemala."
3. Marc Brosseau, University of Ottawa, "Literary Geography: From Theory to Practice?"
4. Lisa Binkley, Queen's University, "Traditions + 1: Quilts at the Edge of Empire."

**T2-C GEOGRAPHICAL INQUIRIES: creative practices (Tuesday 10:30 to 12:00, Arts 1C18)**  
**Special Session 2 of 4**

**CHAIR: Sarah de Leeuw**

5. Paul Chaput, Queen's University, "The More Geography Waxes Multidisciplinary the More it is Capable of Dancing with the Arts."
6. Thomas Collins, Leeds, "A song about David Harvey? Why Sharing Artistic Practice in Geography is Crucial for New Ways of Understanding and Interacting in the University."
7. Matt Rogalsky, Queen's University (Music/Geography): John Cage Sculptures Musicales Room, Room 2E1, Arts Building- Exhbiiton/Installation
8. Matt Rogalsky, Queen's University, "Honouring Cage/Cunningham: John Cage's Sculptures Musicales."

**T3-C GEOGRAPHICAL INQUIRIES: creative practices (Tuesday 1:30 to 3:00, Arts 1C18)**  
**Special Session 3 of 4**

**CHAIR: Sophie Anne Edwards**

9. Sarah De Leeuw, University of Northern British Columbia, "Creative Expressions and Geographies of Health in Nak'adzli."
10. Julia Christensen, University of British Columbia, "Telling Stories: Research Storytelling as a Meaningful Approach to Geographical Research."
11. Sarah Rennie, Carleton University, "Extra Representation: The Work of Social Change Photography."
12. Sophie Anne Edwards, Queen's University, "Artists as Geographers: The Geographical Approach of Canadian Artists Daniel Young and Christian Giroux."

**T4-C GEOGRAPHICAL INQUIRIES: creative practices (Tuesday 3:30 to 5:00, Arts 1C18)**  
**Special Session 4 of 4**

**CHAIR: Sarah de Leeuw**

13. Amanda Thomson, University of the Highlands and Islands, "The Making of a Place: Art, Making and the Value of the More-than-written."
14. Sophie Tamas, Queen's University, "Wreckovering from Scrap: Spaces of Salvaging Loss."
15. Panel Discussion

**W1-C PARADIGMS FOR RESEARCH ON ENVIRONMENT AND NATURAL RESOURCES (Wednesday 8:30 to 10:00, Peters 1019) Special Session 1 of 3**

**CO-CHAIRS: Tom Dyck and Jennifer Fresque-Baxter**

1. Michael Imort, Wilfrid Laurier University, "All Quiet on the Undergraduate Front? Teaching Environmental Discourses to Undergraduates"
2. Jennifer Fresque-Baxter, Wilfrid Laurier University, "Exploring the Challenges in Navigating Philosophical Framings of Environment and Natural Resource Research: A Presentation For Students By Students"
3. Jennifer Daniels, Memorial University, "One River- Multiple Places? Exploring Pluralism and Resource Politics on the Gander River, Newfoundland, Canada."

**W2-C PARADIGMS FOR RESEARCH ON ENVIRONMENT AND NATURAL RESOURCES (Wednesday 10:30 to 12:00, Peters 1019) Special Session 2 of 3**

**CO-CHAIRS: Tom Dyck and Jennifer Fresque-Baxter**

4. Nicole Latulippe, University of Toronto, "The Participation of First Nation in Water Governance: An Environmental Justice Perspective."
5. Raul Pacheco-Vega, University of British Columbia, "Shifting Paradigms in Water Governance: Questioning the Validity of River Basin Councils as an Integrated Water Resources Management Strategy."
6. Nicole Klenk, University of British Columbia, "The Political Turn in Resilience Thinking."

**W3-C PARADIGMS FOR RESEARCH ON ENVIRONMENT AND NATURAL RESOURCES (Wednesday 1:30 to 3:00, Peters 1019) Special Session 3 of 3**

**CO-CHAIRS: Tom Dyck and Jennifer Fresque-Baxter**

Panelists include:

1. Culum Canally, Wilfrid Laurier University
2. Nathan Bennett, University of Victoria
3. Johanna Wandel, University of Water

**W4-C SPACE and THEORY (Wednesday 3:30 to 5:00, Peters 1019)**

**CHAIR: Ann Marie Murnaghan**

1. Dylann McLean, York University, "Clown space(s): How Professional Theatrical Clowns Conceptualize and Make Use of Geographic Spaces."
2. Emma Arnold, University of Edinburgh, "Psychogeographic Explorations of Street Art in Montreal, Canada."
3. Dragos Simandan, Brock University, "Distance, Society, and Space."
4. Simon Chilvers, York University, "The Discovery of Regional Chauvinism: Considering Indo-Canadian Relations of Knowledge Production."

**TH1-C ASSESSING PARTICIPATORY RESEARCH METHODS (NON-VISUAL) IN ENVIRONMENTAL AND RESOURCE MANAGEMENT (Thursday 8:30 to 10:00, Peters 1019)  
With Indigenous Peoples Working Group, Special Session**

**CHAIR: Monica Mulrennan**

1. Annie Lalancette, Concordia University, "Understanding the Human Dimension of an Indigenous Fishery: Potential and Limits of Some Participatory Methods."
2. Nicolas D. Brunet, McGill University, "Understanding Community Participation in the Environmental Sciences: Factors and Outcomes."
3. Murray M. Humphries, McGill University, "The Evolution of Local Participation and the Mode of Knowledge Production in Arctic Science."

**TH2-C RESEARCH, RELATIONSHIPS AND RESPONSIBILITY (Thursday 10:30 to 12:00, Peters 1019)  
Workshop Special Session**

Workshop participants include

1. Jeannette Eby, McMaster University
2. Yui Hashimoto, McMaster University
3. Allison Williams, McMaster University

**TH3-C WATER RESOURCES (Thursday 1:30 to 3:00, Peters 1019) Session 1 of 2**

**CHAIR: Patrick L. Lawrence**

1. Dan Shrubsole, University of Western Ontario, "The Practice of Integrated Water Management in Canada."
2. Thomas Dyck, "First Nations and Water: Examining the Potential Emergence of Adaptive Water Governance."
3. Matthew Hall, University of Lethbridge, "Whisky is for Drinking, Water is for Fighting: Perceptions of Irrigators towards Water Re-Allocation Strategies in Southern Alberta."

**TH4-C WATER RESOURCES (Thursday 3:30 to 5:00, Peters 1019) Session 2 of 2**

**CHAIR: Gerald Stark**

4. Candice Gartner, University of Waterloo, "Institutions of Domestic Water Provision in Cajamarca, Peru."
5. Charles Priddle, Conservation Halton, "Ontario's Conservation Authorities-A Canadian example of Integrated Water Management."
6. Nina Diane Sampson, Western University, "Natural Channel Design in Southern Ontario."
7. Patrick L. Lawrence, University of Toledo, "Toward Integration: Linking Ecology, Engineering and Environmental Planning for Enhancing and Restoring the Ottawa River at the University of Toledo, Ohio."

**F1-C USE OF PHOTOGRAPHY AND VIDEO IN GEOGRAPHICAL FIELDWORK (Friday, 8:30 to 10:00, Peters 1019) Special Session 1 of 2**

**CO-CHAIRS: David Butz and Nancy Cook**

1. Nancy Cook, Brock University, "Creating Visual Spatial Knowledge: A Case for Auto-photography"
2. D. James McLean, York University, "Participant Methodologies: The Practice and Effects of an Auto-photography Research Project with Muslims in Halifax, Nova Scotia."
3. Robert McLeman, University of Ottawa, "Online Video as a Tool for Community-based Undergraduate Research Engagement."

**F2-C USE OF PHOTOGRAPHY AND VIDEO IN GEOGRAPHICAL FIELDWORK (Friday, 10:30 to 12:00, Peters 1019) Special Session 2 of 2**

**CO-CHAIRS: David Butz and Nancy Cook**

1. Daryl F. Dagesse, Brock University, "The Use of Game Cameras for the Time Lapse Recording of Temporally Dependent Phenomena in Physical and Human Geography."
2. Shawn Mueller, Mount Royal University, "Immersive Panoramic Photography as a Tool for Geographic Investigation."
3. Bojan Furst, Memorial University, "Photography as a Method: What Can Geographers and Social Scientists Learn From Documentary Photographers."

## **Concurrent Session D**

**T1-D AFRICA: LAND ISSUES, (Tuesday 8:30 to 10:00, Arts 2C15) Special Session 1 of 3**

**CHAIR: Vincent Kuuire**

1. Chris Huggins, Carleton University, "Integrating 'realist' Political Economy and Post-modernist Approaches: Understanding State-imposed Agricultural Reform in Rwanda."
2. Ryan Snider, University of Waterloo, "Land Tenure, Ecotourism, and Sustainable Livelihoods: 'Living on the Edge' of the Greater Maasai Mara, Kenya."
3. Godwin Arku, University of Western Ontario, "You Either Pay More Advance Rent or You Move Out: Landlords Ladies and Tenants Dilemma in the Low-income Housing Market in Accra, Ghana."
4. Rita Yembilah, University of Calgary, "Contextualising Herder-local Conflicts in Ghana: A Socio-Geographical Approach."

**T2-D AFRICA: FOOD SECURITY, (Tuesday 10:30 to 12:00, Arts 2C15) Special Session 2 of 3**

**CHAIR: Godwin Arku**

5. Liam Riley, University of Western Ontario, "A Comparative Analysis of Food Security in Blantyre and Gaborone: Urban Form."
6. Alexander Legwegoh, University of Guelph, "A Comparative Analysis of Food Security in Blantyre and Gaborone: Food Choices."
7. Vincent Zubedaar Kuuire, University of Western Ontario, "Household Food Security Strategies in the Upper West Region of Ghana."
8. Kenneth Mensah, University of Guelph, "The Interface of Collaborative Governance and Adaptive Capacity in Rural Water Adaptation to Climate Change, Ghana."



**T3-D AFRICA: DEVELOPMENT, (Tuesday 1:30 to 3:00, Arts 2C15) Special Session 3 of 3**

**CHAIR: Isaac Luginaah**

9. Joanne Moyer, University of Manitoba, "Learning, Faith and Sustainability: Considering the Work of Faith Based Organizations in Kenya."
10. Paul Mkandawir, University of Western Ontario, "Growing Up Alone: Vulnerability of Orphans to HIV/AIDS in Northern Malawi."

**T4-D MULTI-CULTURALISM and the NATION (Tuesday 3:30 to 5:00, Arts 2C15)**

**CHAIR: Dan Shrubsole**

1. Amiram Gonen, The Hebrew University of Jerusalem, "Geographical identity and the choice of burial place."
2. Kelly A. McClinchey, Wilfrid Laurier University, "Conceptualizing Sense of Place through Multi-ethnic Narratives at a Multicultural Festival."
3. Carmen Teeple Hopkins, University of Toronto, "No, it's not laïcité! Let's talk about a Spatialized Material Sexularism"

**W1-D FOOD STUDIES (Wednesday 8:30 to 10:00, Arts 2C15)**

**CHAIR: Sharmalene Millard**

1. Kristen Lowitt, Memorial University, "Results of a Household Seafood Survey from the Bonne Bay Region on Newfoundland's West Coast."
2. Bruce Frayne, University of Waterloo, "Pathways of Food: Mobility and Food Transfers in South African Cities."
3. Phil Mount, Guelph University, "Visualising the Structures and Governance of Alternative Food Networks in Ontario."
4. Melanie Bedore, University of Ottawa, "The Role of Place-based Policy in Addressing American Urban Food Problems."

**W2-D ECONOMIC and URBAN CHANGE IN ASIA (Wednesday 10:30 to 12:00, Arts 2C15)**

**With Geographies of Asia Study Group, Special Session 1 of 1**

**CHAIR: David Edgington**

1. Terah Sportel, University of Guelph, "Coconut Crisis in Kerala, India? Mainstream Narrative and Alternative Perspectives."
2. Vojdani Fooroughsadat, Islamic Azad University of Shahre-e-rey branch, "Investigation of Climatology Effects the Development of Rural in the Gonabad city in Iran."
3. Kamonashish Haldar, "Rapid Urbanization and Impacts on Urban Ponds: An Anatomy of Khulna City, Bangladesh."
4. Tapan Kumar Dhar, University of Waterloo, "How Flexible Design Promotes Resource Efficiency for Housing: A glimpse of Khulna City, Bangladesh."
5. Hao Li, University of Waterloo, "Urban System and Spatial Structure of Henan Province, China: Preliminary Study."

**W3-D GEOGRAPHIES OF ASIA (Tuesday 1:30 to 3:00, Arts 2C15)**  
**With Geographies of Asia Study Group, Special Session 2 of 3**

**CHAIR: David Edgington**

6. Romila Verma, University of Toronto, "The Politics of Headwater: Transboundary Conflict resolution through Integrated Watershed Management."
7. Creighton Connolly, Memorial University of Newfoundland, "Gray Zones in the Global Trade and Traffic of Electronic Waste."
8. Erin Joakim, University of Waterloo, "The 2006 Yogyakarta, Indonesia Earthquake: Assessment of Long-Term Disaster Recovery."
9. David William Edgington, University of British Columbia, "Japan's Triple Disaster of March 2011: Response and Recovery in Soma, Fukushima."

**W4-D GEOGRAPHIES OF ASIA (Tuesday 3:30 to 5:00, Arts 2C15)**  
**With Geographies of Asia Study Group, Special Session 3 of 3**

**CHAIR: David Edgington**

10. Muhammad Jamal Nasir, University of Peshawar, "Human Perception and Response to climate change: A case study of Balambat Tehsil, District."
11. Li Yu, University of Lethbridge, "Leaves Falling Back to Their Roots: Internal Return Migrants in China."
12. Tim Reiffenstein, Mount Allison University, "How do American Law Degrees Benefit Japanese Legal Professionals?"
13. Sabin Ninglekhu, University of Toronto, "Landownership, Citizenship and the Sukumbasi: Performance of the Right to the City."

**TH1-D GEOGRAPHIES OF LATIN AMERICA AND THE CARIBBEAN (Thursday 8:30 to 10:00, Arts 2C15)**  
**Environmental and Social Change, Session 1 of 2**

**CHAIR: Fabiola Sosa-Rodriguez**

1. Sara Koopman, University of British Columbia, "Making Space for Peace: International Accompaniment in Colombia."
2. Robert J. McCalla, Saint Mary's University, "The 'New' Panama Canal and its impact on Caribbean Transshipment."
3. Christian Abizaid, University of Toronto, "Living with Environmental Change: Long-term Social and Economic Consequences of Floodplain Dynamics in the Peruvian Amazon."
4. Joseph Wasylycia-Leis, University of Winnipeg, "Striving for Sustainability amid Single-Industry Dependence: Community Resilience and Vale in Itabira, Brazil."

**TH2-D GEOGRAPHIES OF LATIN AMERICA AND THE CARIBBEAN (Thursday 10:30 to 12:00, Arts 2C15)**  
**Water and Waste Management, Session 2 of 2**

**CHAIR: Bob McCalla**

5. Raul Pacheco-Vega, University of British Columbia, "Geographies of Urban Waste Production in Latin America: Scale, Space and Policy Compared Through the Cases of Mexico, Brazil and Argentina."
6. Nathalie Gravel, Université Laval, "The Politics of Drought in the Brazilian Northeast."
7. Fabiola Sosa-Rodriguez, University of Waterloo, "Impacts of Water-management Decisions in Mexico City's Survival."
8. Luis F. Silva Jimenez, University of Western Ontario, "A Shift from Government to Governance: Integrated Water Resource Management in the Lerma-Chapala Basin, Mexico".

**TH3-D CURRENT RESEARCH IN ENVIRONMENTAL ASSESSMENT (Wednesday, 1:30 to 3:00, Arts 2C15)**  
**With the Environment and Resources Study Group and by the EIA Effectiveness Project,**  
**Special Session 1 of 2**

**CHAIR: Peter Usher**

1. Alan Diduck, University of Winnipeg, "On the Need for Strategic and Cumulative Effects Assessments in Hydropower Development in Uttarakhand, India."
2. Bram Noble, University of Saskatchewan, "Strategic Environmental Assessment for Arctic Energy Resource Planning and Development: Opportunities and Risks."
3. Heidi Walker, University of Manitoba, "Public Participation in Strategic Environmental Assessment in Kenya."
4. Kevin Hanna, Wilfrid Laurier University, "Criteria for Effective Environmental Assessment."

**TH4-D A PANEL DISCUSSION ON THE FUTURE OF ENVIRONMENTAL ASSESSMENT IN CANADA**  
**(Wednesday, 3:30 to 5:00, Arts 2C15)**  
**With the Environment and Resources Study Group and by the EIA Effectiveness Project,**  
**Special Session 2 of 2**

**CHAIR: Kevin Hanna**

Panelists include:

1. Bram Nobel, University of Saskatchewan
2. Peter Usher, Environmental Consultant
3. Ann Dale, Canada Research Chair in Sustainable Community Development, Royal Roads University

**F1-D GEOGRAPHIES OF PRODUCTION AND CONSUMPTION: On the cultural and political economy of ethics and sustainability (Friday 8:30 to 10:00, Arts 2C15) Special Session 1 of 2**

**CHAIR: Roberta Hawkins**

1. Jennifer Silver, University of Guelph, "Contextualising the Cultural Economy of the Sustainable Seafood Movement."
2. Michael Chrobok, York University, "Food Desert or Food Oasis? Humber Summit, Toronto in the Eyes of Its Residents."
3. Tomasz Wierzba, Brock University, "Producing Cultural Space: Exploring the Relationship between discourse and cultural policy in St. Catharines, Ontario."
4. Jeff Boggs, Brock University, "Can Cultural Industry Policies Be Understood as Ethical Consumption Policies?"

**F2-D GEOGRAPHIES OF PRODUCTION AND CONSUMPTION: On the cultural and political economy of ethics and sustainability (Friday 10:30 to 12:00, Arts 2C15) Special Session 2 of 2**

**CHAIR: Jennifer Silver**

5. Dominique Schmidt, University of Guelph, "Relationships, Strategies, and Challenges in Canada's Market-based Seafood Governance Network."
6. Trina Hamilton, University of Buffalo, "Canada as Contested Haven: Constructing Ethical Spaces for the Global Diamond Trade."
7. Roberta Hawkins, University of Guelph, "The Paradoxes of Ethically Branded Bottled Water."
8. Adrienne Johnson, Clark University, "The Biopolitics of Global Palm Oil Companies."

## Concurrent Session E

### **T1-E INTERSECTIONALITY: From theory to practice—PANEL (Tuesday, 8:30-10:00, Arts 2C16) With the Canadian Sociological Association, Special Session**

**CHAIR: Fran Klodawsky**

1. Janet Siltanen and Fran Klodawsky, Carleton University, "Practicing Intersectionality - Insights From a City-focused Feminist Organization."
2. Suzanne Lenon, University of Lethbridge, "Queering Intersectionality: Field Notes from Alberta."
3. Munya Kabba, University of Toronto, "The Dialectical Tension Between Justice and Solidarity in Feminism: Race, Class, and Gender Interaction as Sites for Reconstructing Critical Feminist Politics."

### **T2-E PANEL DISCUSSION: FEMINISTS TAKING UP SPACE (Tuesday 10:30 to 12:00, Arts 2C16) Special Session**

**CHAIR: Alison Mountz**

Panelists include:

- |  |  |
|--|--|
| 1. Alison Mountz, Wilfrid Laurier University | 3. Imogen Tyler, Lancaster University    |
| 2. Caroline Desbiens, Université Laval       | 4. Jennifer Hyndman, York University     |
| Beverley Mullings, Queen's University        | 5. Ishan Ashutosh, Ohio State University |
|  | 6. Jenna Loyd, Syracuse University       |

### **T3-E GEOGRAPHIC EDUCATION (Tuesday 1:30 to 3:00, Arts 2C16) With the Geographic Education Study Group, Special Session 1 of 2**

**CHAIR: Bob Sharpe**

1. Joseph Leydon and Sally Turner, University of Toronto Mississauga, "Title: 'Engaging First Year Geography Student through Field Trips: Challenges and Rewards.'"
2. Ewa Dabrowska, Wilfrid Laurier University, "Connecting Students with Greenspace: Reflections on the Experience of Designing and Teaching Field-based Urban Geography Courses."
3. John Meligrana, Queen's University, "Lessons on Developing and Organizing International Planning Educational Field Trips."
4. Greg Atkinson, Tarleton State University, "Incorporating Elements of Universal Design in Teaching Geography to Non-Geographers."

### **T4-E GEOGRAPHIC LITERACY (Tuesday, 3:30 to 5:00, Arts 2C16) With the Geographic Education Study Group, Special Session 2 of 2**

**CHAIR: Mary-Louise Byrne**

5. Christopher William Charman, Wilfrid Laurier University, "Geographic Literacy: A Benchmark Study of Ontario Secondary School Students Approaching Graduation."
6. Lynn Moorman, Mount Royal University, "On the Road to a Geoliteracy Strategy for Canada: Capacity Building in the Canadian Council for Geographic Education (CCGE)."
7. Mryka Hall-Beyer, University of Calgary, "Online teaching of Remote Sensing: a Technical Nightmare or a Natural Fit?"
8. Yaïves Ferland, Université Laval, "Geospatial learning With Mobile Serious Games."

**W1-E WEATHER and SOCIETY (Wednesday, 8:30 to 10:00, Arts 2C16) Special Session**

**CHAIR: Brian Mills**

1. Amber Silver, University of Waterloo, "Risk Communication and Decision-making: The Role of Current Communications Technologies Before, During, and After the Goderich, Ontario Tornado."
2. Jason Grek-Martin, Saint Mary's University, "Moving on From Hurricane Juan: Devastation and Division in Halifax's Point Pleasant Park."
3. Jennifer K. Vanos, Health Canada, "Long-term influences of Synoptic Climatology and Air Pollution Interactions on Daily Mortality in 12 Canadian cities."
4. Sadia Afrin, University of Waterloo, "The Effects of Winter Weather Conditions on High-Crash Days in the Southern Ontario."

**W2-E HAZARDS (Wednesday, 10:30 to 12:00, Arts 2C16)**

**CHAIR: Brenda Murphy**

1. Anne Tadjell, University of Waterloo, "The Impact of Social Media in Disaster Relief Campaigns"
2. Jason N. Goetz, University of Waterloo, "Exploring Natural and Anthropogenic Controls of Landslide Occurrence on Vancouver Island Using Generalized Additive Models."
3. Mohammad Hosein Nadersefat, University of Iran, "The highway influences of between of Tabriz and Ormurie."

**W3-E CLIMATE CHANGE and SOCIETY (Wednesday, 1:30 to 3:00 Arts 2C16) Session 1 of 2**

**CHAIR: Amber Silver**

1. Christopher G. Fletcher, University of Waterloo, "Integrating Climate Science and Policy: A New Geographer's Perspectives."
2. Brenda L. Murphy, Brantford Campus, "Knowledge Mobilisation and Community Resilience: Closing the Loop in Interdisciplinary Climate Change Research."
3. Chloe Brown, Simon Fraser University, "The Politics of Climate Change in a Resource-Dependant Small Town: The Case of McBride, British Columbia."

**W4-E CLIMATE CHANGE and SOCIETY (Wednesday, 3:30 to 5:00 Arts 2C16) Session 2 of 2**

**CHAIR: Amber Silver**

4. Shireen Aslam, University of Waterloo, "Translating Intent Into Action: How We Can Promote Behavioural Change in the Interest of Sustainability and Measure the Results."
5. Yukari Hori, University of Toronto Scarborough, "Assessing the Impacts of Climate Change in Subsistence Harvesting for a Remote First Nations Community in the James Bay Region of Northern Ontario, Canada."



**TH1-E CLIMATE CHANGE and MOUNTAIN/WINTER TOURISM (Thursday, 8:30 to 10:00, Arts 2C16)**  
**With Interdisciplinary Centre on Climate Change UW, Special Session 1 of 4**

**CHAIR: Dan Scott**

1. Robert Steiger, alpS-Centre for Climate Change Adaptation Technologies, "Climate Change Impacts on Skiing Tourism in Austria."
2. Matthew Robert Winton, University of Waterloo, "A Reassessment of the Climate Change Vulnerability of the Ski Industry in Colorado and California."
3. Daniel Scott and Kate Vivian, University of Waterloo, "Skier Response to Climate Vulnerability and Change in New England."
4. Marc Pons, Technical University of Catalonia and Observatory of Sustainability of Andorra, "Climate Change impacts on the winter tourism in the Pyreness."

**TH2-E ENVIRONMENTAL CHANGE and TOURISM (Thursday 10:30 to 12:00, Arts 2C16)**  
**With Interdisciplinary Centre on Climate Change UW, Special Session 2 of 4**

**CHAIR: Dan Scott**

5. Daniel Scott, University of Waterloo, "The Implications of Sea Level Rise for Coastal Tourism in the Caribbean."
6. Christopher J. Lemieux, Wilfrid Laurier University, "Last Chance Tourism in Protected Areas: management implications and emerging ethical considerations."
7. Jackie Dawson, Ottawa University, "Cruise Tourism in Arctic Canada: Navigating a Warming Climate."
8. Zainab Moghal, University of Waterloo, "Assessing Climate Change Vulnerability and Adaptive Capacity of Tourism Destinations: Comparing Indicator and Community –Based Approaches."

**TH3-E TOURISM CLIMATOLOGY (Thursday, 1:30 to 3:00, Arts 2C16)**  
**With Interdisciplinary Centre on Climate Change UW, Special Session 3 of 4**

**CHAIR: Dan Scott**

9. Michelle Rutty, University of Waterloo, "Examining Thermal Range of Tourism Microclimates."
10. Micah Joel Hewer, University of Waterloo, "Weather and Camping in Ontario Parks."
11. Daniel Scott, University of Waterloo, "Comparing the Tourism Climate Index and Holiday Climate Index in Major European Urban Destinations."

**TH4-E TOURISM CLIMATOLOGY (Thursday, 3:30 to 5:00, Arts 2C16)**  
**With Interdisciplinary Centre on Climate Change UW, Special Session 4 of 4**

**CHAIR: Dan Scott**

12. David Perkins, University of Northern Carolina at Chapel Hill, "Forecasting Tourist Decisions Using Weather and Climate References."
13. Chris de Freitas, University of Auckland, "Gauging the Sensitivity of Tourism Climate Change by Way of an Integrated Thermal Bioclimatic Assessment Scheme."
14. Robert Steiger, alpS-Centre for Climate Change Adaptation Technologies, and Daniel Scott, University of Waterloo "Using a Sensitivity Analysis to Compare Ski Area Vulnerability to Climate Variability and Change."

**F1-E PROTECTED AREAS (Friday 8:30 to 10:00, Arts 2C16) Session 1 of 2**

**CHAIR: Jodi Axelson**

1. Windekind C. Buteau-Duitschaeffer, Wilfrid Laurier University, "Exploring Governance Structures, Institutions and Collaboration for Protected Area Development: A History of Quebec Protected Areas."
2. Jaclyn Diduck, University of Manitoba, "The Urban Forest in Winnipeg: Considering Our Value Attachment to Trees."
3. Maureen Reed, Affiliation, "Embracing Learning and Social Learning: Biosphere Reserves as Exemplars of Changing Conservation Practices."

**F2-E PROTECTED AREAS (Friday 10:30 to 12:00, Arts 2C16) Session 2 of 2**

**CHAIR: Shishir Handa**

4. Claudia Notzke, University of Lethbridge, "The Status of Wild/Feral Horses in Protected Areas-A Cross-Cultural Perspective."
5. Julia Premauer, University of Manitoba, "Cross-cultural Mediation and Power in Co-Government: The Bridging Role of Indigenous Park Staff in a Colombian National Park."
6. Mojgan Rasouli, University of Waterloo, "Public Participation in World Heritage Planning: The Evolution of a Concept."

## **Concurrent Session F**

**T1-F REMOTE SENSING (Tuesday 8:30 to 10:00, Arts 2C17) Session 1 of 2**

**CHAIR: Phil Howarth**

1. Joni Storie, University of Winnipeg, "Using Radar Data For Detecting Historic Wetlands: A Review."
2. Jennifer Hansen, University of Waterloo, "Seasonal Shallow Freeze-thaw Monitoring Using Ground Penetrating Radar."
3. Shira Ellen Gerstein, University of Waterloo, "Land Use Change and Hydroclimatological Modifications over the 20th Century on the Canadian prairies."
4. Li Shen, University of Saskatchewan, "Oceanography of *Skeletonema costatum* Harmful Algal Blooms in the East China Sea Using MODIS and QuickSCAT Satellite Data."

**T2-F REMOTE SENSING (Tuesday 10:30 to 12:00, Arts 2C17) Session 2 of 2**

**CHAIR: Phil Howarth**

5. Angela Cheng, Queen's University, "Accuracy Assessment in Change Detection: A Study with stimulated images."
6. Marilyne Jolliveau, Brock University, "Understanding vineyard variability using spatial analysis."
7. Li Dongong, University of Waterloo, "Using Remote Sensing and GIS technologies for soil Carbon management."
8. Dion Jack Wiseman, Brandon University, "Application of UAV Image-based Land Cover Classifications for Rangeland Management."

**T3-F CONFLUENCES OF THOUGHT: the physical geography of urban hydro-scapes (Tuesday 1:30-3:00, Arts 2C17) Special Session 1 of 2**

**CO-CHAIRS: Peter Ashmore and Belinda Dodson**

1. Matthew Evenden, University of British Columbia, "Urban Rivers and the problem of scale in environmental historical geographical perspective."
2. Rebecca Lave, Indiana University, "Converging Flows: Building a Critical Physical Geography of Rivers and Streams."
3. Jennifer Bonnell, University of Guelph, "Toronto's Don River: A History of a Constructed Landscape."

**T4-F CONFLUENCES OF THOUGHT: the physical geography of urban hydro-scapes (Tuesday 3:30-5:00, Arts 2C17) Special Session 2 of 2**

**CO-CHAIRS: Peter Ashmore and Belinda Dodson**

4. Tenley M. Conway, University of Toronto-Mississauga, "Seeing the People through the trees: Exploring the role of people in shaping biophysical components of the urban environment."
5. Joy Parr, University of Western Ontario, "Not God's Water: Naskup BC and Iroquois ON."
6. Peter Ashmore, University of Western Ontario, "Geomorphology and explanation of urban rivers."

**W1-F POLAR SYSTEM DYNAMICS AND CLIMATE (Wednesday 8:30 to 10:00, Arts 2C17)  
With Cold Region Research Centre WLU, Cold Regions Special Session 1 of 4**

**CHAIR: Mike English**

1. Olav Slaymaker, University of British Columbia, "Norway's Polar Presence: the Legacy of Nansen and Amundsen."
2. Bryan Mood, Mount Allison University, "Volume Loss of the Saskatchewan Glacier: Glacier-Temperature Dynamics Observed Through Raster Analysis."
3. Janine Baijnath, University of Waterloo, "Assessing the Atmospheric Circulation Response to Snow Albedo Feedback in Climate Change."

**W2-F REMOTE SENSING OF THE CRYOSPHERE (Wednesday 10:30 to 12:00, Arts 2C17)  
With Cold Region Research Centre WLU, Cold Regions Special Session 2 of 4**

**CHAIR: Richard Kelly**

4. Daniel Xia, University of Waterloo, "Regional Ranking of Sea Ice Anomalies in the Canadian Arctic."
5. Homa Keyrollah Pour, University of Waterloo, "Remotely Sensed Lake Water Surface Temperature Data to Improve Weather Forecasting in Cold Regions."
6. Ryan Ahola, University of Waterloo, "A Comparison of X-band Radar Observations with Forward Backscatter Model Estimates of Snow-covered Terrain in the Hudson Bay Lowlands, Manitoba."
7. Wenxia Tan, University of Waterloo, "Sea Ice Melt Process in Canadian Arctic Archipelago: 1989 to 2010."

**W3-F COLD REGIONS HYDROLOGY I (Wednesday 1:30 to 3:00, Arts 2C17)**  
**With Cold Region Research Centre WLU, Cold Regions Special Session 3 of 4**

**CHAIR: Jonathan Price**

8. Nicole Farquharson, Wilfrid Laurier University, "Characterizing the Hydrological Responses of Lakes to Climate Change Using Water Isotope Tracers in Wapusk National Park."
9. Lauren MacDonald, University of Waterloo, "Multiple Drivers Lead to Nutrient Regime Shifts in Coastal Tundra Ponds of Wapusk National Park (Manitoba, Canada)."
10. Kaleigh Eichel, University of Waterloo, "Nutrient Uptake and Primary Productivity Responses to Enrichment in Subarctic Shallow Tundra Ponds."
11. Jessica Mendoza, University of Waterloo, "The Effects of Drying on Mineralization Potential of Nitrogen and Phosphorus in Subarctic Pond Sediments of Churchill, Manitoba."

**W4-F COLD REGIONS HYDROLOGY II (Wednesday 3:30 to 5:00, Arts 2C17)**  
**With Cold Region Research Centre WLU, Cold Regions Special Session 4 of 4**

**CHAIR: Dirk de Boer**

12. Pete Whittington, University of Waterloo, "Impact of Mine Dewatering on Peatlands of the James Bay Lowland: The Role of Bioherms."
13. Matthew Elmes, Wilfrid Laurier University, "Developing Baseline Organic Contaminant Concentrations using Lake Sediment Cores in the Peace-Athabasca and Slave River deltas."
14. Jana Tondur, Wilfrid Laurier University, "Integrating Water Isotope Tracers and Algae to Implement a Long-term Aquatic Monitoring Program for Lakes in Old Crow Flats, Yukon Territory, Canada."
15. Xiaoyong Xu, University of Waterloo, "Assimilation of Remote Sensing Data into Hydrological Models: A Review."

**TH1-F CLIMATOLOGY (Thursday 8:30 to 10:00, Arts 2C17)**

**CHAIR: Colin Laroque**

1. Monica Vaswani, York University, "Assessing the Seasonal, Spatial and Temporal Wind Speed Trends Over Ontario from 1980 to 2010 Using the North American Regional Reanalysis Data."
2. Ghasem Azizi, University of Tehran, "The Sources and Variations of Dust Storm Over West of Iran."
3. Shishir Handa, York University, "Effects of Urbanization on Surface Water and Energy Budget in Toronto."
4. Junzhu Li, University of Waterloo, "Analyzing the Spatial Pattern of Vegetation-climate Relationships Using a Geographically Weighted Regression Approach."
5. Dongmei Chen, Queen's University, "Spatial Interpolation: How Much Spatial Variation it Can Capture for Surface Temperature Mapping."

**TH2-F BIOGEOGRAPHY (Thursday 10:30 to 12:00, Arts 2C17)**

**CHAIR: Mary-Louise Byrne**

1. Nicholas Sidhu, Wilfrid Laurier University, "Using Isotopes to Characterize Periphyton in the Old Crow Flats, Yukon, for Hydroecological Monitoring and Paleolimnological Applications."
2. Taly Dawn Drezner, York University, "Reproductive Effort increases in a Keystone Desert Species."
3. Emma L. Davis, Mount Allison University, "To Plant or Not to Plant: Assessing the Fitness of Commonly Planted Shelterbelt Species under Future Climate Scenarios."
4. Christopher Malcolm, Brandon University, "Habitat Selection of Slimy Sculpin (*Cottus cognatus*) with Respect to Depth, Temperature, and Dissolved Oxygen in Clear Lake, Riding Mountain National Park, Manitoba."
5. Vito Lam, University of Waterloo, "Effects of Tillage Practices in Phosphorus in Soil and Tile Drainage from Agricultural Fields."

**TH3-F ENVIRONMENTAL CHANGE (Thursday 1:30 to 3:00, Arts 2C17)**

**CHAIR: Chris Malcolm**

1. Don Allin, University of Waterloo, "The Effects of Wildfire on the Geochemical Composition and Phosphorus Speciation of Cohesive Sediment in the Crowsnest River, Alberta."
2. Geoff G. L. Kershaw, Dalhousie University, "Canoeing the Clearwater: A Dendrochronology study Quantifying Long-term Aerial Pollution Downwind of the Alberta Oil Sands."
3. Joseph Piwowar, University of Regina, "Changes in Growing-Season Phenology in the Northern Mixed- Grass Prairie."
4. Kevin W. Turner, Wilfrid Laurier University, "Identifying Drivers of Hydrological Change in Old Crow Flats, Yukon Territory, Canada"

**TH4-F ENVIRONMENTAL MODELLING (Thursday 3:30 to 5:00, Arts 2C17)**

**CHAIR: Mryka Hall-Beyer**

1. Assunta Saliola, University of Toronto, "Object-based Segmentation for the Delineation of Individual Tree Crowns and Canopy Gaps."
2. Jurjen van der Sluijs, Brandon University, "Using an Unmanned Aerial Vehicle for the Development of high resolution Digital Elevation Models for localized areas."
3. Yuestas David, York University, "Effect of Increased Density of Green Roofs on Low Flows."
4. Cristian Suteanu, Saint Mary's University, "From IF to F: The Role of Clustering, Classification and Mapping Processes for Digital Earth's Information Integration Objective."

**F1-F ENVIRONMENTAL MODELLING (Friday 8:30 to 10:00, Arts 2C17)**

**CHAIR: Joe Piwowar**

1. Karunakaran Suthakar, University of Jaffna, "Extracting Natural Drainage Patterns From Elevation Data for Identifying Incongruent Land Uses in Jaffna, Sri Lanka."
2. Abdullah BaMasoud, Wilfrid Laurier University, "The Predictive Accuracy of Shoreline Change Rate Methods on Point Pelee, Ontario (1931-2008)."
3. Matthew D. Adams, McMaster University, "Application of Land Use Regression for Predicting Fine Particulate Matter Concentrations in Hamilton Ontario, Canada: Short-Term Mobile Data Collection for Long-Term Concentration Estimation."
4. Michael Bitton, Louisiana State University, "A New Beach-Dune Cycle of Foredune Evolution, Examples from Gulf County, Florida."



**F2-F INTEGRATING GLOBAL CLIMATE MODELS INTO LOCAL POLICY AND DECISION MAKING  
(Friday, 8:30 to 10:00, Arts 2C17)**

**With the University of Toronto Climate Lab, Special Session**

**CHAIR: Bill Gough**

1. Tanzina Mohsin, University of Toronto Scarborough, "Statistical Downscaling of General Circulation Model Outputs."
2. Jerry Yu Jien, University of Toronto, "Simulation and Validation of Sea Surface Temperature at the Main Development Region for Tropical Cyclones in Eastern North Pacific Ocean Using the Third Generation of the Canadian Global Climate."
3. Peter Quincy Ng, University of Toronto, "Quantifying Tree Species Diversity Potentials of Forests in Southern Ontario under Climate Change."
4. Bill Gough, University of Toronto, "Extending the sea-ice baseline climatology of Hudson Bay using coastal temperature variability."

## **Concurrent Session G**

**T1-G RESOURCE MANAGEMENT (Tuesday 8:30 to 10:00, Arts 2C3)**

**CHAIR: Ryan Bullock**

1. Annie Lalancette, Concordia University, "Uncovering Potential Social Impacts of Fisheries Management: Lessons from the Torres Strait Tropical Rock Lobster Fishery."
2. Jonaki Bhattacharyya, University of Waterloo, "Lessons for Culturally Rooted Management: Contributions from Indigenous Perspectives on Free-Roaming Horses."
3. Chris Callahan, Queen's University, "The Relationship between Collaborative Planning and Sustainable Development in the First Nations Community- Planning Context."
4. David J. Connell, University of Northern British Columbia, "Helping to Conserve the Ancient Cedars of BC's Inland Rainforest: A Socio-economic Study of Non-timber Forest Values and Uses."

**T3-G INDIGENEITY, IDENTITY, (DE)COLONIALIZATION, and EDUCATION (Tuesday 1:30 to 3:00, Arts 2C3) Special Session 1 of 2**

**CHAIR: Laura Schaepli**

1. Anne Godlewska, Queen's University, "Turning the Tables: Measuring to Reveal Neo-liberal Values."
2. Laura Schaepli, Queen's University, "Reasonable Accommodation and Indigenous Peoples: Unawareness in Public Perceptions of Indigeneity in Quebec."
3. Marie- Hélène Beaudry, Université Laval, "A Step towards the Integration of Indigenous Perspectives in Geography Lessons in CEGEPs."
4. Paul Chaput, Queen's University, "The Geographies of the Native Studies Curriculum in Ontario High Schools: Deconstructing Indigenous Stereotypes."
5. Leela Viswanathan, Queen's University, "Planning, Pedagogy, and the Colonial Present."

**T4-G INDIGENEITY, IDENTITY, (DE)COLONIALIZATION, and EDUCATION (Tuesday 3:30 to 5:00, Arts 2C3) Special Session 2 of 2**

**CHAIR: Laura Schaeffli**

6. Susan DeLisle, Queen's University, "Locating Colonialism in Education."
7. Blake Hawkins, University of Northern British Columbia, "Decolonizing Educational Spaces: An Early Stage Investigation of Schools in Kitimat, B.C."
8. Heather Sanguins, Wilfrid Laurier University, "Using Stories about Relocation to Teach and Learn Indigenous Understanding of Place."
9. Christina Hovey, Queen's University, "Planning for the Memorialization of the Residential School System: A Case Study of the Woodlands Cultural Centre, Brantford (ON)."
10. Tyler McCreary, York University, "Reclaiming Aboriginal Knowledge and Remembering Colonial Histories through Reinterpreting Ethnographic Film."

**W1-G GEOGRAPHIC/SPATIAL DATA (Wednesday 8:30 to 10:00, Arts 2C3)  
With CAG Indigenous Peoples Working Group, Special Session**

**CHAIR: Pavlos Kanaroglou**

1. Leanne Hindmarch, Scholars Portal, "Scholars GeoPortal: Improving Geospatial Data Access for Ontario Researchers and Students."
2. Pascal V. Calarco, University of Waterloo, "Research Data Management at the University of Waterloo: How Can Librarians Help?"
3. Yunwei Dong, University of Waterloo, "Spatial Data Quality Assessment for the Telecommunication Domain."
4. Soheil Boroushaki, California State University Northridge, "Implementing Ordered Weighted Averaging (OWA) Operators in ArcGIS Using ModelBuilder."

**W2-G ABORIGINAL WOMEN'S EXPERIENCES OF THE LAND (Wednesday, 10:30 to 12:00, Arts 2C3)**

**CHAIR: Sarah de Leeuw**

1. Claudine Boucher, Université Laval, Bringing Back Life: Childbirth and Inuit Women's Sense of Place and Belonging."
2. Laurence Simard-Gagnon, Université Laval, "Lived territories: a tale of Inuit women's contemporary subsistence and belonging."
3. Monica E. Mulrennan, Concordia University, "Sea Space, Home Place: connections of Indigenous Torres Strait Islander Women to Sea."

**DISCUSSANT: Caroline Desbiens, Université Laval**

**W3-G DISCOURSES IN DECOLONIALIZATION (Wednesday 1:30 to 3:00, Arts 2C3)**

**CHAIR: Phil Mount**

1. Aftab Erfan, University of British Columbia, "Everyday Spaces and Everyday Processes as Sites for Community Healing: Learning from Action Research with the Gwa'sala-'Nakwaxda'xw First Nations."
2. Katherine MacDonald, York University, "The Mythology of Territory."
3. Yaïves Ferland, Université Laval, "La toponymie autochtone du Nord Canadien."
4. Dan Kellar, "Being the Change, Decolonial Settler Education Systems in South-Western Ontario."

**W4-G COLONIAL PROCESSES, INDIGENOUS CONSERVATION LAW, and PLACE-BASED CULTURE AND CONTEXTUALITY (Wednesday 3:30 to 5:00, Arts 2C3) Special Session (Panel)**

**MODERATOR: Annie Booth**

1. Annie Booth, University of Northern British Columbia
2. Bruce Muir, West Moberly First Nations
3. Roland Wilson, West Moberly First Nations

**TH1-G TOURISM (Thursday, 8:30-10:00, Arts 2C3) Session 1 of 2**

**CHAIR: John Sinclair**

1. Zainub Ibrahim, University of Waterloo, "Assessing Tourism Plans."
2. Sarah Quinlan Cutler, Wilfrid Laurier University, "The Inca Trail as a secular pilgrimage."
3. Susan Dupej, York University, "The Everydayness of Tourism Production: Home as a Site of Agritourism."
4. Daniel Olsen, Brandon University, "Faded Signs, Broken Dreams: The life Cycle of Tourism in Rural Communities."

**TH2-G TOURISM (Thursday, 10:30-12:00, Arts 2C3) Session 2 of 2**

**CHAIR: Daniel Olsen**

5. John Sinclair, University of Manitoba, "Including Local Voices in the Rapid Development of the Indian Himalaya."
6. Jessica Dunkin, Carleton University/Bryan S. R.Grimwood, University of Waterloo, "Mobile Habitations of Canoescapes."

**TH3-G GOVERNANCE AND CITIZEN INVOLVEMENT (Thursday 1:30 to 3:00, Arts 2C3)**

**CHAIR: Prateep Nayak**

1. James (Jim) Huebner, University of Waterloo, "Governance, Interdisciplinarity, and the Problem of Citizen Engagement in Local Government."
2. Ahmed Allahwala, University of Toronto Scarborough, "New Regionalism and the Politics of Competitive Multiculturalism."
3. Hugh Charles Simpson, University of Waterloo, "Solving Wicked Problems: The Role of the Community in Improved Decision-Making."
4. Valentina Capurri, Ryerson University, "From Residents to Taxpayers: Rob Ford and the 2010 Mayoral Campaign in Toronto."

**TH4-G IMAGE-ING CHANGE: Using participatory visual research methods to explore social, health, and ecological change (Thursday 3:30 to 5:00, Arts 2C3)**

**With the Environment and Resources Study Group, Special Session**

**CO-CHAIRS: Nathan Bennett and Heather Castleden**

1. Evan S.Castel, University of Toronto, "Form, Stigma, Inequality and Health: Empowering Social Housing Through Visual Research Methods."
2. Nathan James Bennett, University of Victoria, "A History of Change: Using Photovoice to Explore Social and Ecological Change in the Marine Environment."
3. Vanessa Sloan Morgan, Dalhousie University, "Digital Storytelling as a Research Tool to Engage with Huu-ay-aht Youth: Envisioning a Post-Treaty Era."
4. Ashlee Cunsolo Willox, Guelph University, "Re-Storying Research: Digital Storytelling as a Participatory Indigenous Method for Climate-Health Research."

**F1-G GEOGRAPHICAL RESEARCH INVOLVING INDIGENOUS PEOPLES (Friday, 8:30 to 10:00, Arts 2C3)**

**With CAG Indigenous Peoples Working Group, Special Session**

**CHAIR: Anne Godlewska**

1. Nicolas Houde, Université du Québec à Montréal, "Research Design in a Collaborative Setting: The Example of Nisawitatan Kitaskino."
2. Caroline Desbiens, Université Laval, "How Would You Put It? Divergent Narratives and Uncommon Languages between University and Indigenous Community Researchers."
3. Bryan S. R. Grimwood, University of Waterloo, "Six P's for Enacting Relational Ethics: Recursive Patterns in Community-based Participatory Research of an Arctic Riverscape."
4. Marcie Snyder, University of Toronto, "Establishing Respectful Research Relationships: Working Together Toward Positive Change."
5. Heather Castleden, Dalhousie University, "Insights from the Canadian Geographer's Special Issue on Community-based Participatory Research Involving Indigenous Peoples."

## **Concurrent Session H**

**T1-H LABOUR, MOBILITY, INEQUALITY (Tuesday, 8:30 to 10:00, Arts 1E1) Session 1 of 2**

**CHAIR: Katherine Perrott**

1. Giselle Valarezo, Queens University, "Harvesting Consciousness: The Impact of Seasonal Labour on the Transnational Political Identity of Guatemalan Migrants to Canada."
2. Marshia Akbar, York University, "Constructing Gender in Diverse Work Places: A Case Study of Self-employed Bangladesh Muslim Women in Toronto."
3. Kay-Ann Williams, Queen's University, "Immigrant Civic Engagement via Organized Social Networks: Case of Jamaican Immigrants in the Greater Toronto Area."
4. Peter Hall, Simon Fraser University, "Diverse Integrations: Pathways to Immigrant Employment in the Port-logistics Sector."

**T2-H LABOUR, MOBILITY, INEQUALITY (Tuesday, 10:30 to 12:00, Arts 1E1) Session 2 of 2**

**CHAIR: Peter Hall**

5. Harald Bauder, Ryerson University, "International Mobility of Segmented Labour: The Case of Academics."
6. Andrea Choi, Queen's University, "Stubborn Demographics: Women and visible minorities in Canadian geography departments."
7. Katherine Perrott, University of Toronto, "The Social and Spatial Distances of Intimate Labour and Implications for Urban Planning."

**T3-H BROKERING BODIES (Tuesday, 1:30 to 3:00, Arts 1E1)**

**With the International Migration Research Centre at WLU**

**CHAIR: Margaret Walton-Roberts**

1. Phillip Kelly, York University, "Brokering Data: The TIEDI project and the Statistical Construction of Immigrant Settlement Experiences."
2. Janine Rose, York University, "Place and Capital in the Migration-Development Nexus: The Case of Jamaican Immigrant Organizations in Toronto."
3. Johanna Reynold, York University, "Regulating family: DNA-testing and the Process of Family Reunification for Refugees in Canada."
4. Julie Young, York University, "Border-city sanctuary: Collaborative Refugee Advocacy in Windsor (ON)-Detroit (MI)."
5. Ishan Ashutosh, Ohio State University, "The International Organization for Migration and the Borders of South Asia."

**T4-H WHY DO WE STILL NEED A CENSUS? (Tuesday, 3:30 to 5:00, Arts 1E1)**

**With Canadian Population Society and the International Migration Research Centre at WLU**

**CHAIR: Margaret Walton-Roberts**

Panel discussion including

1. Rod Beaujot, University of Western Ontario
2. Daniel Hiebert, University of British Columbia
3. Susan McDaniel, University of Lethbridge
4. Damaris Rose, Institut national de la recherche scientifique
5. Richard Wright, Dartmouth College

**W1-H TERRITORIAL IDENTITY FORMATION and POLITICAL STRUGGLE IN SOUTH ASIA (Wednesday, 8:30 to 10:00, Arts 2C4) Special Session**

**CHAIR: Margaret Walton-Roberts**

1. Terah Sportel, Guelph University, "Identity Formation in Historical Political Perspective: An Exploration of Coconut Labour in Kerala."
2. Garry Fehr, University of the Fraser Valley, "Formalising Dominant Caste Identity with Joint Forest Management: A comparison of Three Villages in MP."
3. Tanzil Islam, York University, "Self-Barbarianization and Self-Civilization: State Resistance and Identity Construction in the Chittagong Hill Tracts."
4. Simon Chilvers, York University, "The Economics of Integration and Disintegration: A Study of 'Regions' in the Indian Union."



**W2-H IDENTITY, BELONGING, IMMIGRATION (Wednesday, 10:30 to 12:00, Arts 2C4)**

**CHAIR: Nicolas Houde**

1. Tamir Arviv, University of Toronto, "Jewish-Israeli Immigrants in the GTA: Identity, Belonging, and Transnational Citizenship."
2. Yesuf Abdela, University of Alberta, "The Lived Experience and Sense of Place among Somali-Canadians in Edmonton."
3. Suzanne Huot, University of Western Ontario, "An Alternative to Successful Integration: Problematizing a Dominant Discourse through Critical Exploration of Francophone Immigrants' Experiences in London, Ontario."

**W3-H ISLAND DETENTIONS (Wednesday, 1:30 to 3:00, Arts 2C4)**

**With International Migration Research Centre, Special Session**

**CHAIR: Rob Feilder**

1. Alison Mountz, Wilfrid Laurier University and Balsillie School, "The Island Detention Project."
2. Emily Mitchell-Eaton, The Militarization of US Immigrant Detention: Islands, Power and Push-back."
3. Kate Coddington, Syracuse University, "Conceptualizing detention on Christmas Island: Mobility, Containment, Bordering, and Exclusion."
4. R. Tina Catania, Syracuse University, "Resisting the Violence of Island Detention: Connecting Migrant Protests on Guam, Lampedusa, and Christmas Island."
5. Jenna Lloyd, Syracuse University, "Where is Remote? Conceptualizing the Isolation of Detention."

**W4-H REVOLTING SUBJECTS (Wednesday, 3:30 to 5:00, Arts 2C4)**

**With the Canadian Sociological Association and the International Migration Research Centre at WLU**

**Introduction: Alison Mountz**

1. Keynote address by Dr. Imogen Tyler, Lancaster University, UK.

**TH1-H GEOGRAPHIES OF MIGRATION AND DEVELOPMENT (Thursday, 8:30 to 10:00, Arts 2C4)**

**With the International Migration Research Centre at WLU, and the Diversity, Migration, Ethnicity and Race Study Group. Migration and Development I: Geographies of Economic Migration and Remittances Special Session 1 of 4**

**CHAIR: Margaret Walton-Roberts**

1. Dr. Sandeep Kaur Bhatia, Central University of Punjab, "Macro Economic Impact of Remittances in South Asia: A Panel Data Analysis."
2. Mohammad Moniruzzaman, Wilfrid Laurier University, "Transnational Migrants' Remittances as a new form of Development Finance in Crisis."
3. Marinel Mandres, Wilfrid Laurier University, "International Migrant Remittances in Serbia: Unilateral Flows, Investment Strategies, and Local Impacts."

**TH2-H GEOGRAPHIES OF MIGRATION AND DEVELOPMENT (Thursday, 10:30 to 12:00, Arts 2C4)**  
**With the International Migration Research Centre at WLU, and the Diversity, Migration, Ethnicity and Race Study Group. Migration and Development II: Environmental Migration and Development Special Session 2 of 4**

**CHAIR: Belinda Dodson**

4. Jonathan Crush, Balsillie School of International Affairs, Queens University, "Migration, Development, Food Security: Missing Links."
5. Prateep Kumar Nayak, University of Manitoba, "Environmental Change and Rural-Urban Migration: Implications for Human-Environment Connections in Marginalised Coastal Communities of India."
6. Robert McLeman, University of Ottawa, "Environmental Influences on International Migration to Canada."

**TH3-H GEOGRAPHIES OF MIGRATION AND DEVELOPMENT (Thursday, 1:30 to 3:00, Arts 2C4)**  
**With the International Migration Research Centre at WLU, and the Diversity, Migration, Ethnicity and Race Study Group. Migration and Development III: Migration Governance and Diaspora Engagement in Development Special Session 3 of 4**

**CHAIR: Robert McLeman**

7. Tina I.L. Marten, University of British Columbia Okanagan, "A Critical discourse analysis of skilled worker migration under the British Columbia Provincial Nominee Program."
8. James Robson, "The Impact of International Migration on Customary Governance Systems and the Future for Community: A Case Study from Oaxaca, Southern Mexico."
9. Abel Chikanda, Queens University, "Engaging the Zimbabwe Diaspora for Development: Possibilities and Obstacles to Engagement."

**Th4-H GEOGRAPHIES OF MIGRATION AND DEVELOPMENT (Thursday, 3:30 to 5:00, Arts 2C4)**  
**With the International Migration Research Centre at WLU, and the Diversity, Migration, Ethnicity and Race Study Group. Migration and Development III: Extending the debate. Special Session 4 of 4**

**CHAIR: Jonathan Crush**

10. Wei Xu, University of Lethbridge, "A Reflection on Geographic Research: From Ideas to Geographic Reality."
11. Belinda Dodson, University of Western Ontario, "Applying a Gender Lens to Migration and Development Discourse: Insights from Southern Africa."
12. Margaret Walton-Roberts, Wilfrid Laurier University, "Questioning the Migration-development Nexus in the Case of India."

**F1-H ECONOMIC GEOGRAPHY: learning and innovation (Friday, 8:30 to 10:00, Arts 2C4)**

**CHAIR: Raul Pacheco-Vega**

1. Carolyn Hatch, University of Toronto, "Learning From Users: How Knowledge of (Rather Than Knowledge About) Yields Better Market Insight."
2. Richard Shearmur, INRS, "KIBS Use and Innovation: The Return of Geographic Hierarchies?"
3. A.F. Farahani, Simon Fraser University, "Socio-cognitive Regional Learning: Introducing a New Framework for Understanding Regional Learning."
4. Zara Vololona, Université du Québec, "Croissance régionale de l'emploi, récurrences spatiales et cycles économiques que disent les données?"

**F2-H CHALLENGES IN THE CREATIVE ECONOMY (Friday, 10:30 to 12:00, Arts 2C4) Special Session**

**CHAIR: Karen King**

1. Karen King, University of Toronto, "Understanding Occupation Employment Transitions in the Canadian Labour Force: An Analysis of the Survey of Income and Labour Dynamics, 1993 to 2008."
2. Zara Matheson, University of Toronto, "Benchmarking the Creative Economy in Rural Ontario."
3. Kevin Stolarick, University of Toronto, "The Cultural Location Index."
4. Taylor Brydges, University of Toronto, "Dundas West a Neighbourhood in Transition: Exploring the Stages of Neighbourhood Development in Toronto, Ontario."

## **Concurrent Session I**

**T1-I Planning, Publics and Progress (Tuesday 8:30 to 10:00, Arts 3E8)  
With the Historical Geography Study Group, Special Session 1 of 4**

**CHAIR: Robert Lewis**

1. Jordan Baker, McMaster University, "Following the Paper Trail: Toward a Historical Geography of Automobility in Ontario."
2. Bridgette Kelly, McGill University, "Building nationalism: Urban Planner, Modernism and the Production of Montreal."
3. Patrick Vitale, University of Toronto, "The Monroeville Doctrine: Making Science Suburban."

**T2-I Circulation, Cities and Health (Tuesday 10:30 to 12:00, Arts 3E8)  
With the Historical Geography Study Group, Special Session 2 of 4**

**CHAIR: Matthew Farish**

4. Matthew Evenden, University of British Columbia, "Pure Water for War: Chlorinating Vancouver's Water Supply."
5. Nick Lombardo, University of Toronto, "The Regulation of Pilgrims in Bombay as Prestige Centre: The Musafirkhana in the Urbs Prima."
6. Ann Marie F. Murnaghan, University of Manitoba, "Spaces of Nature, Places for Children: The Playground Movement at the Turn of the Twentieth Century in Toronto, Canada."

**T3-I Labour and Leisure, between Culture and Nature (Tuesday 1:30 to 3:00, Arts 3E8)  
With the Historical Geography Study Group, Special Session 3 of 4**

**CHAIR: Robert Lewis**

7. Michael Ekers, University of Toronto, "Towards an Ecological Fix: Unemployment and Forestry Relief Work in Depression-Era Canada."
8. Michael Ripmeester, Brock University, "Making Space for Intangibility: Exploring the Historical Geographies of Intangible Heritage."
9. Geoffrey Shifflett, University of Waterloo, "Place Making in Muskoka Tourist Literature, 1860-90."
10. Robert Summerby-Murray, Dalhousie University, "The Post-industrial Marsh: Environmental Change and Cultural Construction in the Coastal Marshlands of the Bay of Fundy."

**T4-I Colonialism, Neocolonialism, and the Shaping of Canada (Tuesday 3:30 to 5:00, Arts 3E8)**  
**With the Historical Geography Study Group, Special Session 4 of 4**

**CHAIR: Matthew Farish**

11. Ken Favrholt, Chair, History of Cartography Interest Group, Canadian Cartographic Association  
"Mapping Sovereignty in the Oregon Country: The Impact of the War of 1812."
12. Ryan Katz-Rosene, Carleton University, "Materiality Informs Subjectivity Informs Materiality: An Environmental History of Alberta's Bituminous Sands."
13. John Rose, Queen's University, "Without Reservation: The Chatham-Kent Community Network and Caldwell First Nation Land Dispute."
14. Justin Stefanik, Carleton University, "Reading Prairie Fire: Colonial Environmental Degradation Narratives and the Production of Palliser's Triangle."

**W1-I Urban Sustainability (Wednesday 8:30 to 10:00, Arts 3E8)**  
**With ACUPP, Special Session**

**CHAIR: Laura Taylor**

1. Virginia Maclaren, University of Toronto, "Advances in Monitoring and Measuring Urban Sustainability."
2. Christopher De Sousa, Ryerson University, "Emerging Issues in Sustainable Brownfield's Redevelopment: A Critical Review of Best Management Practices in the United States."
3. Ria Brown, University of Waterloo, "Comparing urban environmental theories: deriving best practices for local policies and plans."
4. Megan Kevill, University of Waterloo, "The influence of urban morphology on ecological landscape urbanism: a comparative study of urban design projects in Amman, Jordan and Seoul, Korea involving the revitalization of previously covered urban streams."

**W2-I Urban Planning (10:30 to 12:00, Arts 3E8)**  
**With ACUPP, Special Session**

**CHAIR: Virginia Maclaren**

1. Laura Taylor, York University, "Green Sprawl: Landscape and the Ideology of Nature in Exurbia"
2. Gerda R. Wekerle, York University, "Land Use Conflicts: Planning, Social Movements and Governance."
3. Zahra Jaffer, University of Waterloo, "Importing Planning Expertise: Adapting the Vancouver Model in Abu Dhabi."

**W3-I HISTORICAL TORONTO (Wednesday 1:30 to 3:00, Arts 3E8)**  
**Special Session**

**CHAIR: Phillip Gordon Mackintosh**

1. Phillip Gordon Mackintosh, Brock University, "The Farm-like City: The Globe, Historiography, and Toronto, 1860-1900."
2. Charles Hostovsky, University of Toronto, "The Toronto Waste Crisis: An Historical Geography."
3. Richard Anderson, York University, "Helium Dreams and Modernist Skies: The R-100 Airship visits Toronto, August 1930."
4. Paul Hess, University of Toronto, "The Construction of Public Space in the Modernist Suburb: A Toronto Case Study."

**W4-I HERITAGE CONSERVATION DISTRICTS ARE USEFUL PLANNING INITIATIVES (WORKSHOP)**  
**(Wednesday, 3:30 to 5:00, Arts 3E8)**  
**With Heritage Resource Centre, UW, Special Session organized by Kayla Jones and Robert Shipley, University of Waterloo**  
**CHAIR/MODERATOR: Kayla Jones**

**TH1-I GEOGRAPHIES OF THE 19th and EARLY 20th CENTURIES (Thursday, 8:30 to 10:00, Arts 3E8)**  
**CHAIR: Don Lafreniere**

1. Ihor Stebelsky, University of Windsor, "From Empire to Nation Building: The Role of the Geographer Stepan Rudnytsky in the Imagining of Ukraine in the Context of Austro-Hungarian and Russian Empires and the Competing Movement for the Restoration of Poland before 1917."
2. Meaghan Sawka, University of Winnipeg, "A Manitoban flâneur in the White City: W.J.Sisler's Diary of the Columbian Exposition."
3. Ashley Young, Lakehead University, "Sport Fishing on the Nipigon River: Uncovering History through Cartographics."
4. Shane McCorristine, Scott Polar Research Institute, "Have You Heard the Northern Lights? Superstition and Science in 19th Century Arctic Exploration."

**TH2-I INNER CITIES, SCHOOL CLOSURES (Thursday 10:30 to 12:00, Arts 3E8)**  
**With ACUPP, Special Session**

**CHAIR: Ranu Basu**

1. David L.A. Gordon, Queen's University, "Gordon Stephenson, Heritage and Urban Renewal in Kingston Ontario."
2. Mark Seasons, University of Waterloo, "Evaluating the impacts of school closures in inner city communities."
3. Kevin Wonnell, Lakehead University, "Lessons learned during the closure and redevelopment of a neighbourhood school site in Thunder Bay, Ontario."
4. Alan G Phipps, Windsor University, "How to fight school closures."

**TH3-I SUBURBAN DECLINE AND RENEWAL: Critical Reflections (Thursday 1:30 to 3:00, Arts 3E8)**  
**Special Session 1 of 2**

**CHAIR: Will Poppe**

1. Pablo Mendez, University of British Columbia, and Markus Moos, University of Waterloo, "Revisiting Popular Notions of City and Suburb: The Case of Canada's Three Largest Metropolitan Areas."
2. Robert S Fiedler, York University, "Rethinking decline in Toronto's postwar suburban spaces: the Lily Cup betwixt and between."
3. Valerie Preston, York University, "Housing vulnerability in the Suburbs: The Challenges of Neoliberalism."
4. Douglas Young, York University, "Suburban renewal in Toronto's tower neighbourhoods: no place for planning?"

**TH4-I SUBURBAN DECLINE AND RENEWAL: Critical Reflections (Thursday 3:30 to 5:00, Arts 3E8)**  
**Special Session 2 of 2**

**CHAIR: Douglas Young**

5. Virpal Kataure, Wilfrid Laurier University, "The Housing Choices of Second Generation South Asians Living in Brampton's Ethnic Enclaves."
6. Jonathan Osborne, Western University, "Immigrants in Toronto's Inner Suburban High Rise Apartments: Further Analysis of the United Way of Toronto's Vertical Poverty Data."
7. Ondine Park, University of Alberta, "Suburbs Aren't a Thing, They're a Logic."
8. Rebecca Osolen, University of Toronto, "The Comparative Urbanism of Gated Communities: A Global Discourse on Urban Fragmentation."

**F1-I URBAN QUALITY OF LIFE IN CANADA (Friday, 8:30 to 10:00, Arts 3E8) Special Session**

**CHAIR: Allison Williams**

1. Yui Hashimoto, McMaster University, "Utilizing a Feminist Geography Lens to Understand Food Insecurity for Lone Mothers in Hamilton, Ontario."
2. Dylan Simone, McMaster University, "Acquiescent? Looking at Other Things? Who Cares About Air Quality in Hamilton?" Peter Kitchen, McMaster University, "Measuring Social Capital in Hamilton, Ontario."
3. Jeanette Eby, McMaster University, "Perceptions of Quality Life: A Qualitative Analysis of Hamilton's Neighbourhood Hubs."

**F2-I NEIGHBOURHOOD INEQUALITY (Friday, 10:30 to 12:00, Arts 3E8)**

**CHAIR: Chris Fullerton**

1. Derrek Eberts, Brandon University, "Neighbourhood Variation in Perceived Quality of Life in Brandon, Manitoba."
2. Hugh Millward, Saint Mary's University, "Predictors of Satisfaction with Life: Urban-Rural Variation in Halifax, Canada."
3. Derek M.D. Silva, University of Ontario Institute of Technology, "Urban Revitalization: A Quantitative Examination of the Social Impact UOIT's Faculty of Social Science & Humanities has made to Downtown Oshawa."
4. Robert Alan Walks, University of Toronto, "The Geography of Household Debt in Canadian Cities."

## Concurrent Session J

### **T1-J THE NEW MINERAL RUSH IN CANADA (Tuesday, 8:30 to 10:00, Arts 3E9)**

#### **Special Session 1 of 2**

#### **CHAIR: Arn Keeling**

1. Zoë Barrett-Wood, University of Guelph, "Health implications for Aboriginal Communities Experiencing Mine Development: A Meta-narrative Knowledge Synthesis."
2. Warren Bernauer, York University, "Negotiating Relationships between Inuit Communities and the Mining Industry: What Happened to the Right to Say "No"?"
3. Ben Bradshaw, University of Guelph, "Heterogeneous Experiences with Mining: A Case Study of Baker Lake, Nunavut."
4. Jean-Sébastien Boutet, Memorial University, and John Thistle, Labrador Institute of Memorial University, "The Second Red Gold Rush: Iron Ore Mining in the Quebec- Labrador Borderlands."

### **T2-J THE NEW MINERAL RUSH IN CANADA (Tuesday, 10:30 to 12:00, Arts 3E9)**

#### **Special Session 2 of 2**

#### **CHAIR: John Thistle**

5. Peter Siebenmorgen, University of Guelph, "Establishing Baselines of Community Well-Being in Ontario's Ring of Fire."
6. Arn Keeling, Memorial University, "Ghost Towns and Zombie Mines: The Future History of Mining in Northern Canada."

### **T4-J TOURISM, LIVELIHOOD and CONSERVATION (Tuesday, 3:30 to 5:00, Arts 3E9)**

#### **Special Session 1 of 1**

#### **CHAIR: Sanjay Nepal**

1. Sanjay Nepal, University of Waterloo, "Linking Conservation, Livelihood and Tourism: Comparative Perspectives from India and Nepal."
2. Heidi Karst, University of Waterloo, "Development & Tourism in Bhutan: The Case for a Sustainable Livelihoods Approach."
3. Khaled Alshboul, University of Waterloo, "Local Community Involvement in Jordan's Tourism Development."
4. Geoffrey Wall, University of Waterloo and YANG Zhaoping, Xinjiang Tourism Development and Planning Research Center, Xinjiang Institute of Ecology and Geography, Chinese Academy of Sciences, "World Heritage: Perspectives from China on a tourism brand."

### **W2-J CONSUMPTION and WASTE (Wednesday, 10:30 to 12:00, Arts 3E9)**

#### **CHAIR: Clare Wasteney**

1. Jasmine Ing, University of Calgary, "DIY and the Spatially Conscious Consumer."
2. Michelle Porter, Memorial University, "Recycling From the Margins."
3. Yvonne Rollins, University of Western Ontario, "Reduce, Re-use, Recycle, Recover: Consequences of the Fourth R for Municipal Waste Policy Coalitions."
4. Nebiyu Baye Alene, University of Toronto, "The Rationalities and Techniques of Urban Service Delivery Reforms: A case Study of Waste Collection in Addis Ababa, Ethiopia."



**W3-J BUSINESS GEOGRAPHY: Retail and Corporate Focus (Wednesday 1:30 to 3:00, Arts 3E9)**  
**Special Session 1 of 2**

**CO-CHAIRS: Tony Hernandez and Murray Rice**

1. Brian Ceh, Ryerson University, "Triangulating the Geography of Food Deserts for Large Cities."
2. Lu Wang, Ryerson University, "Changing geographies of ethnic food retailing in Toronto."
3. Tony Hernandez, Ryerson University, "The Location Decision Imperative: the evolution of retail location decision support in Canada."
4. Stephen Swales, Ryerson University, "The Evaluation of Business Improvement Areas (BIAs) in the City of Toronto."
5. Murray D. Rice, University of North Texas, "Knowledge, Influence, and Firm-Level Change: A Geographic Analysis of Board Membership Associated with Canada's Growing and Declining Businesses."

**W4-J BUSINESS GEOGRAPHY: Resource and Industrial Foci, Curriculum Discussion (Wednesday 3:30 to 5:00, Arts 3E9)**  
**Special Session 2 of 2**

**CO-CHAIRS: Murray Rice and Tony Hernandez**

6. William Reginald Horne and Todd Stubbs, Lakehead University-Orillia, "Early Canadian Auto Entrepreneurs and the Failure of the All Canadian Car: A Study of Spatial Logics in Business Decision Making."
7. Klaus Edenhoffer, Simon Fraser University, "Corporate Dinosaurs and the Restructuring of British Columbia's Forest Industry: The Case of Canfor 1980-2010."
8. Spencer Barnes, University of Western Ontario, "Finding stability in a volatile housing market: protecting personal real estate investments through neighbourhood level diversification."

**TH1-J ENERGY FUTURES (Thursday, 8:30-10:00, Arts 3E9)**  
**Special Session 1 of 3**

**CHAIR: Geoff Lewis**

1. Siamak Khorrami, University of Waterloo, "Customers and Technology: a Definite Mutual Relationship Required for the Success of Smart Grid Projects."
2. Elena Kraljevska, University of Waterloo, "Cutting Carbon by Insulating the Building Envelope: How far should We Go?"
3. Paul Parker, University of Waterloo, "Effectiveness of Advice Giving Strategies during Home Energy Evaluations."
4. Raul Pacheco-Vega, University of British Columbia, "Conceptualising the Water-energy Nexus: What is the State of the Literature in Canada?"

**TH2-J ENERGY FUTURES (Thursday, 10:30-12:00, Arts 3E9)**

**Special Session 2 of 3**

**CHAIR: Paul Parker**

5. Andrew Blakey, University of Waterloo, "Investigating the Validity of Neighbourhood-wide Solar Resource Estimates."
6. Ted Sherk, University of Waterloo, "Residential Solar Energy Adoption in a Community Context: Perceptions and Characteristics of Potential Adopters in a West Toronto Neighbourhood."
7. Akansha Halbe, University of Waterloo, "Environmental Innovations in the Hotel Sector-A Green Energy Perspective."
8. Kirby Calvert, Queen's University, "The Geography of Renewable Energy: Implications for Energy Transition Management."

**TH3-J ENERGY FUTURES (Thursday, 1:30 to 3:00, Arts 3E9)**

**Special Session 3 of 3**

**CHAIRS: Paul Parker and Rob Feick**

9. Tanya Christidis, University of Waterloo, "Wind Power developments: How policy and the planning process can influence opinion."
10. Chad Walker, University of Western Ontario, "What smell?: Socio-political factors and Ontario's wind energy development"
11. Emmanuel Songsore, Western University, "Community response to Wind Energy Development in Ontario."
12. Geoffrey Lewis, University of Waterloo, "Mapping realizable renewable energy potential in Canada."

**TH4-J FORESTRY AND FOREST TOWNS (Thursday, 3:30-5:00, Arts 3E9)**

**CHAIR: Alexander Brenning**

1. Ryan Bullock, University of Saskatchewan, "Are Community Forestry Principles at Work in Ontario's County, Municipal, and Conversation Authority forests?"
2. Emily Catherine Galley, University of Western Ontario, "Remaking a Forestry Town: the Multi-faceted Challenges of Transition and Capacity-building in Port Alberni, BC."
3. Alex Martin, University of Northern British Columbia, "Peopling the Firm: The Importance of Local Managers in the Economic Geographies of Forest-dependent Communities."
4. Victoria Kramkowski, York University, "Landscapes in Transition: Planning for Multi-scale Challenges, Uncertainty and Long-term Futures in Post-productivist Forest-dependent Regions."

**F1-J RURAL DEVELOPMENT (Friday 8:30 to 10:00, Arts 3E9)**

**CHAIR: Anna Jasiak**

1. Wayne J. Caldwell, University of Guelph, "Peak Oil, Climate Change, Rural Communities and Planning for the future."
2. Karen Heisler, Simon Fraser University, "Exploration and Expectations: Corporate Social Responsibility and Rural Development."
3. Simon Berge, University of Guelph, "Co-operatives as an Alternative Distribution System to supply healthy local foods for rural economic development."
4. Xinzhen Zhao, University of Lethbridge, "Provision of Ecosystem, a Study of Landowners in South Saskatchewan River Basin."

**F2-J RURAL PLANNING (Friday 10:30 to 12:00, Arts 3E9)  
With ACUPP**

**CHAIR: Kevin Hanna**

1. James Robson, University of Manitoba, "What's in a Name? The Search for Common Ground in Kenora, Northwest Ontario."
2. Dena Farsad, York University, "Toward (Dis)Integration? The Political Economy of Aggregate Resources and Consequences for Regional Planning in Southern Ontario."
3. David J. Connell, University of Northern British Columbia, "Teaching Land Use Planning with Case Studies: Benefits of Engaging Students in 'Real' Planning Issues and Contexts."
4. Anna Kalnina, University of Waterloo, "Effectiveness of Planning Legislation and Policies in Protecting Natural Heritage Features."

## **Additional Sessions**

### **Environmental Studies Association of Canada (ESAC)**

**ESAC 2012 Workshop Session: (Thursday May 31, University of Waterloo, EV3 3406 from 8:45-10:15)  
With the Environment and Resources Study Group, Regional Governance for Sustainability and Resilience: Implications for theory and practice.**

1. Paivi Abernathy & Kathryn Jamstremski, University of Waterloo, "Comparative study of Biosphere Reserves and Model Forests in Canada as innovative place-based governance models facilitating change towards sustainability."
2. Paivi Abernathy, University of Waterloo & Maureen Reed, University of Saskatchewan, "Social Learning and networking in Canadian Biosphere Reserves."
3. Scott Slocombe, Wilfrid Laurier University, Regional governance and sustainability through biosphere reserve designation: the Kluane region revisited."
4. Colleen George, University of Saskatchewan, "Fostering Strength, Innovation, and Adaptive Capacity within Regional NPOs/NGOs in Atlantic Canada: Successes and Opportunities."

**ESAC** - In partnership with the Environmental Studies Association of Canada, the Communities of Practice in Ecosystems Health (CoPEH) Ontario Node is holding a day-long symposium, Wednesday, May 30th on EcoHealth approaches, research, pedagogy, and future directions.

An additional **ESAC** Panel Session on Climate Change and Human Rights is being held Thursday May 31st.

**ESAC EcoHealth Day Panel 1: What is EcoHealth? ( 9:00 – 10:30 AM, EV3 4408)**

**Moderators: Ashlee Cunsolo Willox (University of Guelph) and Sherilee Harper (University of Guelph)**

1. David Waltner-Toews, University of Guelph, "Introduction to EcoHealth."
2. Ashlee Cunsolo Willox and Sherilee Harper, University of Guelph, "EcoHealth in Practice: A Case Study from Northern Canada."

**ESAC EcoHealth Day Panel 2: Teaching EcoHealth Principles and Approaches (10:45 – 12:15 PM, EV3 4408)**

**Moderator : Karen Morrison (University of Guelph)**

This is a workshop format, with break-out groups, activities, and participant interaction

**ESAC EcoHealth Day Panel 3: Panel Discussion: The Language of Health (1:30 – 3:00 PM, EV3 4408)**

**Moderator: Donald Cole (University of Toronto)**

1. Cate Dewey, University of Guelph, Title tba
2. Second presenter tba

**ESAC EcoHealth Day Panel 4: Having it All: Future Directions in EcoHealth (3:15 – 4:45 PM, EV3 4408)**

**Moderators: Martin Bunch (York University) and Karen Morrison (University of Guelph)**

This is a workshop format, with break-out groups, activities, and participant interaction, specifically focussed on priority-setting and future directions of EcoHealth approaches, work, and research

**ESAC Panel: Climate Change and Human Rights: Local Voices, Global Responsibilities (10:30 to 12:00, EV3 3408), Thursday May 31.**

**Moderator: Ashlee Cunsolo Willox, University of Guelph and Ian Mauro, Mount Allison University**

1. Margaretha Wewerinke, European University Institute, Italy, "Climate Change, Human Rights, and International Law."
2. John Crump, UNEP/GRID-Arendal, Canada, Ilan Kelman Centre for International Climate and Environmental Research-Oslo, Norway, Alyssa Johl, Center for International Environmental Law, USA, and Robin Bronen, Alaska Immigration Justice Project, USA, "Many Strong Voices: Climate Change and Resilience in the Arctic and Small Island Developing States."
3. Brook Meakins, The Law Office of Brook Gwendolyn Meakins, USA, "When Two Worlds Collide: Preparing for Climate-Induced Relocation."
4. Ian Mauro, Mount Allison University, "The medium is the method: Using Digital Video to Assess Climate Change and Human Rights in Northern Canada."

**Canadian Historical Association and CAG Sessions, University of Waterloo,  
Math and Computing Building, Room 2054,**

**Applications of Historical GIS: From Urban Populations to Environmental Change, (Wednesday May 30th, 10:30 to 12:00)**

**Facilitators: Sherry Olson, Department of Geography, McGill University and Michael Del Vecchio, Department of History, Western University**

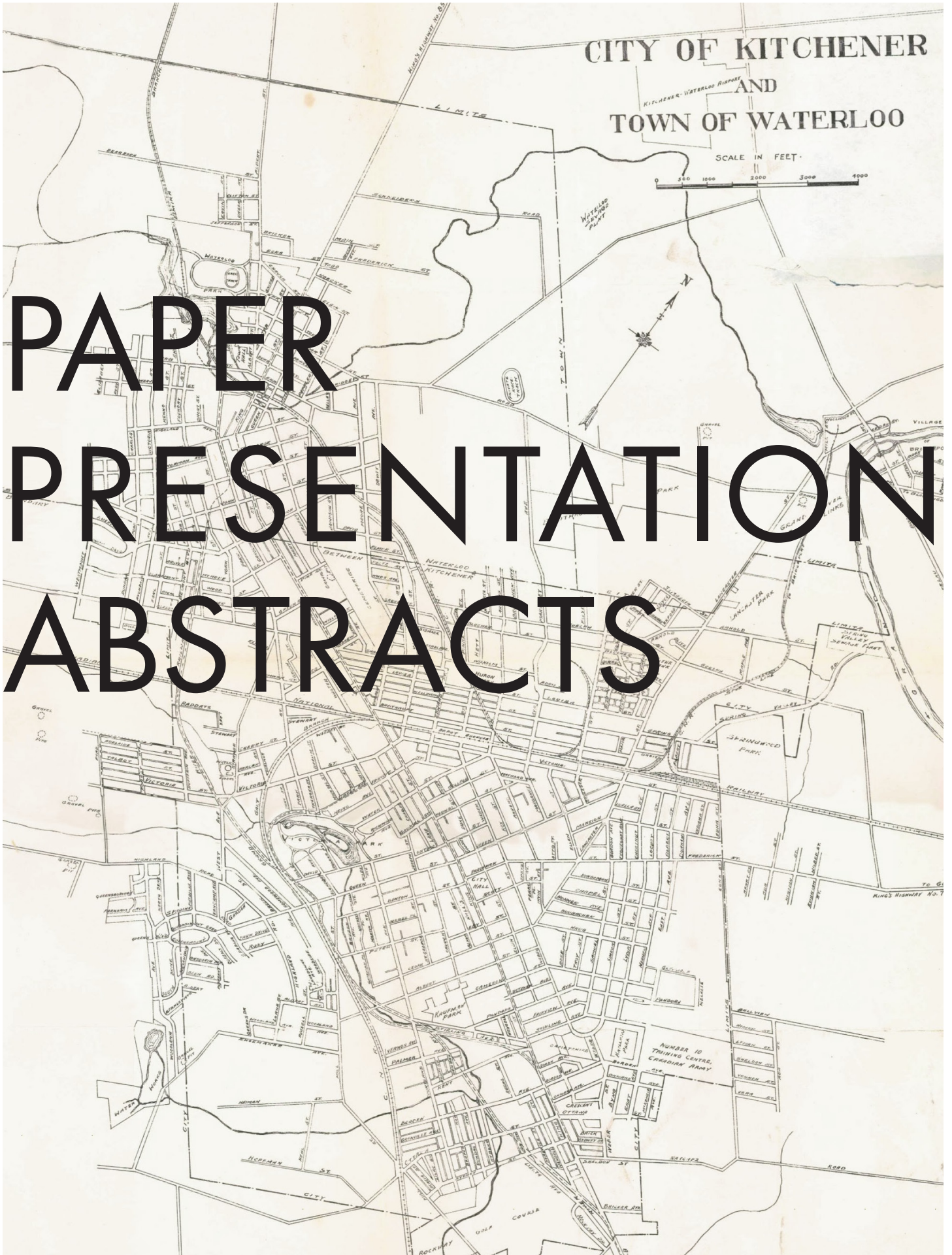
1. Don Lafreniere and Jason Gilliland, Department of Geography, University of Western Ontario, "Advancing the Narrative: An H-GIS Epistemology for the Study of Victorian Canada."
2. John Lutz, Department of History, University of Victoria, Don Lafreniere and Jason Gilliland, Department of Geography, University of Western Ontario, "Chronotopes: Time, Race, and pace in Victorian Victoria, 1861-1911."
3. Joshua MacFayden, Department of History, University of Western Ontario, "The Fertile Crescent: Land Cover and Land Use Change in Prince Edward Island after the 'Golden Age,' 1871-1901."
4. Jim Clifford, Department of History, York University, "Researching East London's Urban Environmental History Using Historical GIS."
5. Robert Summerby-Murray, Department of History, Dalhousie University, "The Halifax H-GIS Project: long term views of a changing coastal environment."

CITY OF KITCHENER  
AND  
TOWN OF WATERLOO

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PAPER  
PRESENTATION  
ABSTRACTS





**The Lived Experience and Sense of Place Among Somali-Canadians in Edmonton**

By Yesuf H. Abdela, University of Alberta

This paper will present some preliminary findings from a qualitative study on the lived experience and sense of place among Somali-immigrants and their families in Edmonton. It focuses on how familial and intergenerational relationships affect the development of sense of place among research participants. The study employs grounded theory. Data was collected through one-on-one interviews and through analysis of existing policies. Findings of this research will strengthen the existing scant knowledge of Somali immigrants lived experience and sense of place and will fill the gap in our understanding of intergenerational and familial context of immigrants integration in Canada.

**Comparative Study of Biosphere Reserves and Model Forests in Canada as Innovative Place-based Governance Models Facilitating Change Towards Sustainability**

By Paivi Abernethy, Kathryn Jastremski, University of Waterloo

This paper provides an analysis of two different mechanisms that facilitate change towards sustainability in Canada. Biosphere Reserves and Model Forests are innovative collaborative governance models that foster sustainability and resilience at the landscape scale. In 1978, the first Canadian UNESCO mandated biosphere reserve was founded in Quebec, followed one year later by a second initiative in Alberta. In all, sixteen biosphere reserves can be found in Canada today. The Model Forest Program (MFP) is a Canadian-sponsored initiative announced in 1992 at the United Nations Conference on Environment and Development (UNCED). There are presently more than fifty model forests all around the world, and fourteen are located in Canada. Both of the models have been part of the Canadian landscape for several years now, and their overlapping mandates provide an opportunity to explore possible lessons learned in addressing challenges in promoting conservation and fostering sustainability in different regions.

This paper is divided into two sections: First, an analysis of the context of emergence and mandates of Biosphere Reserves and Model Forests (in Canada now under the Forest Communities Program) is presented, highlighting their uniqueness. Second, using sustainability and resilience criteria in document analysis, the paper compares how these organizations have attempted to fulfil their respective mandates. This study underlines the differences in capacities of the implementing organizations, the significance of differences in context, and the importance of participation in the realization of their mandate. Special attention is directed towards aspects such as knowledge creation (research), social learning and network development that facilitate community resilience. Conclusions of this paper point out possible paths to improving sustainability governance and concrete,

**Living With Environmental Change: Long-term Social and Economic Consequences of Floodplain Dynamics in the Peruvian Amazon**

By Christian Abizaid, University of Toronto

Consensus is mounting around the fact that humans will have to adapt to a changing environment, yet the need for closer examination of the adaptive capabilities, especially among the rural poor and other vulnerable groups in developing countries, persists. The Upper Amazon, with its long history of settlement and its dynamic rivers, provides a unique opportunity to examine the process of human adaptation in a setting in which people have continuously had to live with environmental change for generations. This paper draws on insights from fieldwork conducted in 3 riverine communities along the Ucayali River, in Peru, to examine the social and economic implications of a massive meander cutoff that occurred in 1997. Data gathered in 2002-03 served to identify the ecological changes derived from the cutoff and resulting short-term livelihood adjustments at the village level. Data from 2011 are used to assess how the challenges and opportunities that emerged in the short-term played out over time. Implications about the prospects for climate change adaptation and for poverty alleviation policy are discussed.

**Application of Land Use Regression for Predicting Fine Particulate Matter Concentrations in Hamilton Ontario, Canada: Short-Term Mobile Data Collection for Long-Term Concentration Estimation.**

By Matthew.D. Adams, D. Corr, P.S. Kanaroglou, McMaster University

We developed land use regression models to estimate PM<sub>2.5</sub> concentrations for Hamilton, Ontario, Canada. Multiple models were derived to estimate short-term and long-term concentrations. Air pollution data included both mobile monitoring and stationary monitoring data. Mobile data were used as the dependent variable. Mobile monitoring data were one-minute averages, collected along both major and minor roads. These data were collected throughout Hamilton capturing the spatial variability in land uses. Stationary data were obtained from four of the Ontario Ministry of the Environment's stationary air quality monitors, and these data were one-hour averages. Model predictor variables included: Percentage of seven land use classes within buffers; length of highway, major, and minor roads within buffers; population density; and lengths to major land features. Buffer sizes ranged from 50- 6400 m. Models were estimated with a combination of the most predictive covariates, while maintaining low multicollinearity. The PM<sub>2.5</sub> concentration estimates were evaluated by determining the agreement between predicted and actual values for the stationary monitors. A comparison is made between the quality of prediction, between mobile data, which were standardized to the stationary monitors and mobile data without standardization. We demonstrate the utility of mobile air pollution data standardization to stationary monitoring data, for the estimation of long-term concentrations across a spatially variable landscape.

**The Effects of Winter Weather Conditions on High-Crash Days in the Southern Ontario**

By Sadia Afrin, Jean Andrey, University of Waterloo

Traffic crashes are randomly distributed over times and places. The focus of the study is the high-crash days that have more crashes than a chosen threshold crash value, at least 1.5 standard deviations greater than the average daily-crash-frequency. The objective of the study is to measure the influence of adverse weather conditions and other issue related to timing, such as day of week, on the occurrences of high-crash days in both urban and rural areas of the Southern Ontario. The study used traffic collisions data and daily weather-condition data from three study areas Toronto, London and Rural South Western Ontario for the winter seasons of 2003-2007. In total, the study applied three logistics regression models to quantify the effects of the different environmental risk factors at 95% confidence level. The results indicate that visibility obstructions (fog and/or blowing snow), moderate to heavy snowfall accumulations (2 to 10 cm/day) and weekdays are significantly associated with the probability of a high-crash day occurrence, having the odd ratios of 2.36 to 2.99, 4.40 to 35.41, and 1.46 to 5.58, respectively. Overall, the study highlights the driving risks involved in acute winter weather conditions and the need for carefully designed safety interventions.

**Economic/Environmental Implications of a Solar Energy Potential Modelling Approach at the Building Scale**

By Paula Aguayo, Su-Yin Tan, University of Waterloo

This research applies Airborne Laser Scan (ALS) data for modelling the solar energy potential of building rooftops at the University of Waterloo main campus. Lidar data were used to extract the outline of building features and to obtain the latitudinal and topographic attributes required for solar potential estimation and analysis using a GIS approach at the local scale. The first stage of this work involved building detection, outline extraction, and solar potential analysis using the ArcGIS solar radiation tools. After deriving a radiation isolation map of the campus area, we estimated the total energy that could be potentially harvested by each building rooftop. The estimation was defined in both economic terms and environmental implications, such as the amount of CO<sub>2</sub> potentially released into the atmosphere when generating a comparable amount of energy from burning fossil fuels.



### **A Comparison of X-band Radar Observations with Forward Backscatter Model Estimates of Snow-covered Terrain in the Hudson Bay Lowlands, Manitoba**

By Ryan Ahola, Andrew Kasurak, Joshua King, Richard Kelly, University of Waterloo,

Understanding the freeze-thaw dynamics of tundra soil and vegetation is important for enhancing knowledge of local snow processes and ecosystem cycling. Variation in the thermodynamic state of soil can impact runoff and ecosystem productivity during melt. From a remote sensing perspective, characterizing radar backscatter of tundra landscapes can help to improve radar methods for retrieval of snow water equivalent (SWE) currently under development.

This paper explores X-band radar response of soil and vegetation surfaces from satellite (9.65 GHz) and ground-based scatterometer (9.6 GHz) measurements in Churchill, Manitoba, as part of a 2010-2011 Cold Regions Hydrology High Resolution Observatory CoReH2O science support campaign. Satellite observations of the landscape obtained from TerraSAR-X show a conservative range of variations compared with in situ scatterometer observations. Ground-based scatterometer observations show greater backscatter variations that are largely a response to increased sensitivity to micro-scale water, ice and soil characteristics. A relatively simple empirical surface  $\delta$ .

### **Constructing Gender in Diverse Work Places: A Case Study of Self-employed Bangladeshi Muslim Women in Toronto**

By Marshia Akbar, York University

The study explores self-employed Bangladeshi Muslim women's gender roles in diverse paces of work in Toronto. The theoretical perspectives of the study are rooted in two contemporary debates. The first debate is about how the social construction of gender is linked to places of production and social reproduction. The second debate is related to the construction of gender identities of Muslim immigrant women in some television and print media. Through linking these two debates, the study opens up the possibilities to recognize the diverse roles of Muslim women in places of production and social reproduction that go beyond essentialist assumptions regarding Muslim women's gender identities. The study approaches the debates through a case study of Bangladeshi Muslim women's involvement in ethnic businesses in Toronto. The study examines how gender roles in ethnic businesses vary in different spatial contexts (in public places and at home) and to what extent socio-cultural factors such as culture and religion influence women's roles in ethnic businesses. The inquiries of the study are explored through qualitative research methods consisting of interviews, questionnaire survey and participant observation. Drawing upon the narratives of Bangladeshi Muslim women, the study critically analyzes the theoretical underpinning of women's productive and reproductive work by emphasizing multiplicity and diversity in gender roles in different work places.

### **The Rationalities and Techniques of Urban Service Delivery Reforms: A Case Study of Waste Collection in Addis Ababa, Ethiopia**

By Nebiyu Baye Alene, University of Toronto

Advocated by a wide range of institutional actors that includes governments, the World Bank, international organizations and NGOs, practices such as decentralization and privatization are increasingly being employed in urban service delivery reforms in developing countries (Fredericks, 2006). These reforms have been regarded as positive and progressive attempts to provide more choice for local communities (see for example Post, et.al, 2003; Massoud, et.al, 2003; Kaseva and Mbuligwe, 2005). On the other hand, they have been viewed as part of a discourse of neo-liberalism that attempts to enlarge capitalist exploitation by giving emphasis to economic efficiency and by putting into practice urban policies that fosters city spaces to become places for market-oriented economic growth (see Mayer, 2007). In any case, considerable research has been carried out to investigate the processes and outcomes of such urban service delivery reforms (see for example Halla and Majani, 1999; Ogu, 2000; Baud and Post, 2004; Batterbury and Fernando, 2006) and yet there has been little research done within the field of urban planning that examines the rationalities and techniques of urban service delivery reforms that take place in most cities of the Global South. I do this by investigating issues such as how local governments of developing cities, in the course of urban service delivery reform, identify and make visible existing conditions from governing activities as an urban problem and how this way of addressing urban problems justifies the need of governing.

**New Regionalism and the Politics of Competitive Multiculturalism**

By Ahmed Allahwala, University of Toronto Scarborough (UTSC)

As the main destination for the majority of immigrants, Canada's large city-regions have been identified as important sites for policy innovation and development in the context of immigrant employment and labour market integration. This paper explores the rise of civil society-based regional governance initiatives associated with the Greater Toronto Civic Action Alliance (formerly known as the Toronto City Summit Alliance) as part of a wider civic regionalist movement in Canada. More specifically, the Toronto Region Immigrant Employment Council (TRIEC), one of Civic Action's most prominent and successful governance initiatives, serves as a case study to explore how questions of ethno-cultural diversity have been strategically linked to new regionalist ideas of competitiveness, collaborative governance, and policy innovation. By tracking immigrant labour market integration policies, newspaper articles, stakeholder statements and events, and other policy reports from 2000 to 2010, the paper highlights the activism of TRIEC in the broader context of state restructuring and continental economic integration. The paper suggests that the articulation of a new – and explicitly regional – politics of competitive multiculturalism is historically and politically linked to wider processes of state restructuring and rescaling and a simultaneous withdrawal of the federal and provincial state from questions employment equity.

**The Effects of Wildfire on the Geochemical Composition and Phosphorus Speciation of Cohesive Sediment in the Crowsnest River, Alberta.**

By Don Allin, M. Stone, University of Waterloo

In 2003, the Lost Creek fire severely burned nearly 2100 ha in the headwaters of the Oldman River basin in southern Alberta. While several studies have documented the effects of wildfire on catchment hydrology, sediment production and nutrient yield, little is known about the geochemistry and particulate phosphorus forms (speciation), of fire-modified suspended materials found in impacted watersheds. This study examines the effects of wildfire on the geochemical composition and phosphorus speciation of cohesive suspended sediment in fire impacted rivers. The research was designed to compare the geochemical and nutrient properties of suspended solids in burned and reference (unburned) watersheds over a two year period along a downward gradient from the wildfire impacted headwaters of the Crowsnest River. The concentration of major elements (Si, Al, Ca, Mg, Na, K, Fe, Ti, Mn and P) and physical characteristics (SSA, d<sub>10</sub>, d<sub>50</sub>, d<sub>90</sub>) of collected sediments were determined using x-ray fluorescence and laser diffraction, respectively. Particulate P fractions were determined using a sequential extraction technique to elucidate between non-apatite inorganic P, apatite P, and organic forms of P. The effects of wildfire on phosphorus speciation and its implications for water resource management in downstream environments will be discussed.

**Local Community Involvement in Jordan's Tourism Development**

By Khaled Alshboul, University of Waterloo

Tourism is considered the second largest and the fastest growing economic sector in Jordan. Historically, particularly during the period between 1958 and 1990, the Ministry of Tourism in Jordan pursued a top-down approach to tourism planning. More recently, with the emergence of many non-governmental organizations interested in the preservation of historic archeological and cultural sites of Jordan, a gradual shift in tourism development planning has occurred. The National Tourism Strategy (NTS) 2004-2010 of Jordan aims to double tourism receipts by 2010 and puts emphasis on strengthening the role of local communities in the participation and decision making processes related to tourism. Local communities have been given the priority to establish, run, manage and own small to medium size businesses. This paper will examine the evolution of tourism planning process in Jordan in the context of changing local (Jordan), regional (Middle East) and global political economy discourses. In particular, this paper will examine the context for strengthening community involvement in tourism planning in Jordan, and evaluate existing opportunities for local communities to engage in tourism development activities.

**Helium Dreams and Modernist Skies: The R-100 Airship Visits Toronto, August 1930.**

By Richard Anderson, York University

In August 1930 the giant British airship, R-100 visited Canada and flew over Toronto. No large airship had ever visited the city before, but the city's photographers seemed to have a very clear idea of what sort of image they wanted to capture: the airship above the city's upstart skyscrapers. The presentation asks why this convergence took place, and considers what we may learn about the iconography of landscape by studying the imagery which accompanied the visit of the airship.

**More Than a Postal Code: Integrating Concepts of 'Place' and 'Rurality' into Health Policy Strategies for the Treatment of Type 2 Diabetes**

By Donna Appavoo, Mary Louise McAllister, University of Waterloo

The importance of place as a concept is far removed from the recognized list of influential factors typically included in conventional Canadian health policy approaches. Somewhat more acknowledged is the importance of rurality, but usually it is only narrowly considered, associated with considerations of distances involved in rural health services delivery. This is an oversight in policy analyses, however, because concepts of both place and rurality informed as they are by local agriculture-based economies, lifestyles and culture are important determinants of health in rural Canada. Effective policy recognition and integration of these factors into public policy decision-making would offer more refined and effective rural health care strategies. Type 2 diabetes, for example, is a rapidly expanding health issue, particularly in the non-urban regions of the country. This paper explores how the incorporation of factors such as place and rurality into health policy can serve to foster more effective strategies for dealing with type 2 diabetes, using a case study of an agriculture-based region of South-western, Ontario. The analytical framework supported by secondary academic literature, government documents, and participant-observation draws on health geography with a focus on considerations of rurality, place, intra-place diversity and dynamics.

**Characterizing the Spatial Patterns of Post-fire Vegetation Residual Patches in Boreal Wildfires: Effects of Analytical Scale**

By Yikalo H. Araya, Tarmo K. Rimmel, York University

Wildfires typically contain a large number of unburned residual patches of various size, shape and composition. These residual vegetation patches can encompass substantial areas of fire footprints; thus understanding the processes responsible for post-fire residuals genesis provide insights for effectively emulating forest disturbances in harvesting operations. Characterizing the occurrence of post-fire residuals and their spatial patterns and variability at multiple spatial resolutions is imperative to examine the effects of analytical scales on spatial patterning. This study focuses on eleven fire events, each one ignited by lightning, in the northern Ontario boreal forest; none of the fires were suppressed. We examine the occurrence and spatial pattern of residuals within fire disturbed landscapes at five spatial resolutions (4, 8, 16, 32, and 64 m). The existence of residual patches is studied using the Random Forest algorithm to determine the geo-environmental variables that are believed to influence their occurrence. The spatial patterns are studied based on selected metrics (related to size, shape, configuration and number) that are believed to have little redundancy among them. We assess the effects of analytical scale (i.e., spatial resolution) on characterizing the spatial patterns and determining the importance of the characterizing variables. Our preliminary results show that firebreak features (distance to wetlands and fire footprint edge) were among the most important predictor variables. We also expect that the patterns and variable importance would vary along the gradient of scales.

**You Either Pay More Advance Rent or You Move Out: Landlords/ Ladies and Tenants Dilemma in the Low-income Housing Market in Accra, Ghana**

By Godwin Arku, Isaac Luginaah, Paul Mkandawire, Vincent Kuire, The University of Western Ontario

Policy-makers worldwide are concerned about severe housing problems experienced in cities of the developing world. This paper examines the rental housing situation in Accra, Ghana. It presents findings of a qualitative investigation of the experiences of property owners (n=21) and tenants (n=23) in an informal private housing market that caters to the housing needs of an expanding section of Accra residents but lacks an institutional framework for regulating landlord/lady tenant relations. The specific focus of the investigation is on perceptions of an intensifying tenancy management practice called advance rent system. Overall, the findings reveal severe rental housing pressures and conflicting relations between renters and property owners rooted in asymmetrical perceptions regarding the advance rent system. The paper describes the conditions that shape landlords/ ladies behaviours toward renters and their reactions to what are generally perceived as fraudulent tenure terms that property owners arbitrarily impose on tenants in this market. The paper concludes by suggesting policy recommendations to mitigate constraints plaguing a dysfunctional rental market system.

**Psychogeographic Explorations of Street Art in Montreal, Canada**

By Emma Arnold, University of Edinburgh

Using visual and psychogeographic methodologies, this research explores the diversity and ephemeral nature of street art in several Montreal neighbourhoods: Griffintown, Mile End, Plateau Mont-Royal, and St-Henri. This research reveals a richness of street art, highlighting the diversity of creativity within a subculture often maligned and misunderstood. Photographic documentation demonstrates the variety of techniques and media used and the variety of surfaces and substrates which receive artistic treatment. Much of the street art explored represents a significant departure from the spray-painted style writing of its graffiti roots. While the latter has had an unfortunate association with criminal activity and territorial marking, the street art movement has evolved into a creative reclamation of public urban space. The choice of many artists to remain anonymous, for both artistic and legal reasons, may also signify an anti-capitalist philosophy and dissatisfaction with commercial art markets and the politics of public art. This research draws on literature in cultural geography, environmental aesthetics, and urban studies. It touches particularly on issues of exclusion; suggesting a voluntary exclusion from commercial art and a response to exclusion from public space. While street artists are often lamented for the lack of regard for public and private property, this research also suggests that there is in fact a hidden code of respect for the urban landscape. Though street art is at times contested, reading the street art of cities can offer much insight into urban planning, how cities allow for creative expression, and the changing nature of neighbourhoods.

**Jewish-Israeli Immigrants in the GTA: Identity, Belonging, and Transnational Citizenship**

By: Tamir Arviv, University of Toronto

My study address theoretical gaps in the current literature on immigration, transnationalism, urban settlement patterns and placemaking practices among transmigrant groups in Canadian cities. Globalization, immigration and transnationalism are changing the face of urban society, and this has been particularly true in Canadian cities such as Toronto, Vancouver, Calgary and Montreal, and their suburbs (Statistics Canada, 2007b; Murdie and Texeira, 2006). These new urban realities are accompanied with epistemological and methodological shifts that alter the ways in which migration and immigrants are understood. Research that emphasize transnationalism and "diaspora discounts centrality of assimilation to a single nation-state, and sees deterritorialized, imagined forms of identity and belonging in a global context. Immigrants are portrayed as active social agents who maintain familial, social, economic, religious, political, and cultural links across national borders, which provide them with resources that are not available within a single nation-state, and allow them to reconstruct their shared identity and belonging in their new place of settlement (Faist, 2010; Levitt and Jaworsky, 2007; Kivisto, 2001; Portes et al., 1999, Smith & Guarnizo 1998; Basch et al. 1994, Glick Schiller et al. 1992). Still, studies on immigration, globalization, transnationalism and diaspora often neglect the ways in which an ongoing political conflict in the country of origin affects immigrants identities, transnational links, placemaking practices, and experiences of acceptance and security in their new locale. My research addresses these gaps in the literature by providing a case study of Jewish-Israeli immigrants in the GTA " a group which is highly diverse and relatively small (around 50,000 individual who comprise one quarter of the GTA Jewish population). I am interested in the ways in which the Israeli-Palestinian conflict at home and growing anti-Zionist criticism in global, Canadian and Toronto-based communities affect the immigrants attachments to their national, religious and ethnic racial identities, their attitudes towards Zionism, and their everyday experiences of belonging and security in the city. I am also interested in how these political issues intersect with the group spatial practices, such as the construction of Israeli places in the city and the appropriation of public space for Israeli events.

**Geomorphology and Explanation of Urban Rivers**

By Peter Ashmore, The University of Western Ontario

Geomorphologists explanations of river morphology and characteristics have become increasingly focused on sophisticated mechanical models of processes and temporal development. Quantitative predictions are possible given sufficient information on boundary conditions. These models are applicable to urban rivers but fail to predict morphology reliably because of physical and engineering circumstances and limitations. But beyond this, a physical-only explanation fails to reveal a complete understanding why rivers may have the form that they have in these environments. Admittance of the significant influence of historical, political, economic and cultural contingencies, and of other forms of knowledge, is necessary for a more complete understanding of fluvial dynamics.

### The International Organization for Migration and the Borders of South Asia

By Ishan Ashutosh, The Ohio State University

For the past thirty years, the International Organization for Migration (IOM) has increasingly regulated South Asian migrant mobilities within the region as well as to Europe, Australia, and the Middle East. An inter-governmental agency headquartered in Geneva, the IOM in South Asia has worked alongside governments, non-governmental agencies, and regional bodies, such as the South Asian Association for Regional Cooperation, to manage the heterogeneous flows of South Asian migrations engendered by climate change, development, and conflict. While the IOM's initial activities in South Asia consisted of assisting the repatriation of Bangladeshi migrants during the Gulf War of 1990-91, today the IOM conducts a number of activities that include border management, remittance distribution, assisted voluntary return, and health initiatives. This paper investigates the role of the IOM in managing migration flows in South Asia and its relation to the figure of the migrant, whose movements and settlements mark the borders of colonial and post-colonial South Asia. I focus on the IOM's activities in Bangladesh and Sri Lanka to argue that the regulation of migrant mobilities by the IOM in South Asia attempt to direct political and economic transnational flows towards the state. In the case of Bangladesh, I will discuss the IOM's involvement in the repatriation of Bangladeshi workers in the Persian Gulf, and more recently, in Libya. In Sri Lanka, I will examine the IOM's role in post-conflict migration management since the government formally declared an end to the country's civil war in 2009.

### Recruiting Marginalized Youth for Health Research

By Jennifer Asanin-Dean, University of Toronto, S.J. Elliott, University of Waterloo

The recruitment of youth as research participants can be challenging due to debates surrounding the level of competence of youth and the strict ethical protocol used to ensure participant safety. These issues are further complicated when working with marginalized youth populations. Based on a qualitative study of adolescent body weight in low socioeconomic status neighbourhoods in Southern Ontario, we discuss lessons learned from engaging youth in health research. Our study involved the use of in-depth interviews both at participants homes and in community space, go along interviews with participants in their neighbourhoods, a community mapping exercise, and direct body measurements. In this presentation we discuss our experiences on this project including the lengthy ethics process, failed and successful recruitment strategies, working with community partners, and participant engagement in the research process. We highlight some of the techniques used to recruit participants such as mail advertisement, community flyers, information booths, snowball sampling, video and website consent processes, various forms of compensation, and creative scheduling. Recommendations and steps forward for researchers working with marginalized youth are discussed.

### Translating Intent into Action: How We Can Promote Behavioural Change in the Interest of Sustainability and Measure the Results

By Shireen Aslam, University of Waterloo

When discussing issues of climate change mitigation and sustainability, it is often agreed that environmental problems (e.g. urban air pollution, loss of biodiversity, water shortages, etc.), are rooted in human behaviour (Steg & Vlek, 2008). However, although there appears to be a great presence of pro-environmental attitudes (reported to be at the highest degree ever recorded), there fails to be any evidence of comparable pro-environmental activity (Costarelli & Colloca, 2005). That is, although there is interest in adopting sustainable practices, we often see little environmental action. This can be regarded as an intent-action disconnect. Two challenges that facilitate this problem will be reviewed: 1) the risk of climate change is communicated in a way that either inhibits or activates behavioural response and 2) when measuring environmental action, what is measured often does not align with what is outlined in public policy, or is much more narrow in scope than the broader problem discussed. In understanding the complexity behind translating intent into action, this presentation will summarize and critique the current state of research on this issue, and discuss how policy makers can use this knowledge for more informed decision making. In closing, recommendations for future research directions will be provided.

**Incorporating Elements of Universal Design in Teaching Geography to Non-Geographers**

By Greg Atkinson, Tarleton State University

Universal Design (UD), first applied to the use commercial products and architecture to accommodate a wide spectrum of users, is now being used in an educational setting in an attempt to positively impact student learning. Within this context, UD promotes the use of multiple means of representation, expression, and engagement in the delivery of content to students. These principles were adopted in the production of enhanced summaries that reinforced, complemented, and augmented information presented in the assigned textbook in the teaching of a first-year, university level, online offering of Introductory Human Geography that was solely populated by non-geographers. Preliminary evidence suggests that not only did the enhanced summaries greatly improve student perception and attitudes of the course, but also had a tangible effect in improving mastery of geographic content.

**The Sources and Variations of Dust Storm Over West of Iran**

By Ghasem Azizi, Morteza Miri, University of Tehran

In recent years dust storm has known as one of the environmental hazards in Iran. This study try to analysis dust storm spatial and temporal variations, recognizing the conditions for its formation and also understanding of its sources and entrance pathway to the western half of Iran. The data used covered a 30 year's period (1979-2008) and include: three hours dust data in synoptic stations, brightness temperature, MODIS 11-12µm bands in order to detection of dust, visibility data, wind speed and direction, geopotential height in atmosphere upper levels, and GADS data for tracking the wind pathway. The results show that July, May and June presented the most frequency. During the day, the most occurrence of dust occurred between 9 am to 6 pm. frequency of dust is decreased from west to east and from south to north in the study area. The border regions between Syria and Iraq (warm seasons) and the western Iraq and East and Northern Saudi Arabia (cold seasons) are two main dust sources for study area. Also, in warm seasons the main pathway for entered dust in study area is from northwest and in the cold season is south northern path.

**Assessing the Atmospheric Circulation Response to Snow Albedo Feedback in Climate Change**

By Janine Baijnath, Christopher Fletcher, University of Waterloo

Snow albedo feedback (SAF) amplifies the climate warming response to increasing atmospheric CO<sub>2</sub> concentrations. As the climate warms, the spatial extent of snow is reduced through snowmelt, exposing darker underlying surfaces which absorb more incoming solar radiation further increasing warming. However, there is a large spread in the projections of SAF strength from the Coupled Model Intercomparison Project Phase 3 (CMIP3) general circulation models (GCMs), which is primarily controlled by each model's effective snow albedo. Furthermore, SAF strengths in the CMIP3 models are associated with regional scale surface temperature, soil moisture, sea level pressure and near-surface wind responses. However, a physical mechanism has not been identified that links SAF to these circulation responses. We therefore conduct a set of numerical sensitivity experiments using the Geophysical Fluid Dynamics Laboratory, Atmospheric Model 2.1 (GFDL AM2.1) that investigates the role of SAF in a more controlled environment. We compare our results with that from the CMIP3 GCMs to understand the influences of SAF strength on the atmospheric circulation.

### Following the Paper Trail: Toward a Historical Geography of Automobility in Ontario

By Jordan Baker, McMaster University

Due to widespread road and bridge construction historical infrastructure continues to define our mobility, as governments maintain and preserve the transportation corridors that have influenced and changed how people view time, space, and geography. This presents an opportunity for historical geographers, as there are often voluminous collections of archival material associated with the construction, improvement, and maintenance of roads, highways, and bridges. This paper will examine these archival possibilities through an exploration of the historical records of the Ontario Department of Highways and the Ministry of Transportation and Communications, precursors to the present day Ministry of Transportation of Ontario. This material, located at the Ontario Archives, includes maps, blueprints, and correspondence from throughout the twentieth century, and has the potential to reveal how engineers, urban planners, policy makers, and everyday citizens viewed, influenced, and were influenced by the development of transportation infrastructure. Through this I will examine how we can piece together historical interpretations of automobility that reveal the myriad of ideas different people and policy makers could have concerning space, mobility, ownership, and public responsibility. This offers tremendous possibilities for those interested in networks, public works, and mobility from a historical geography perspective.

### Identifying Unmet Mental Health Needs in Immigrant and Refugee Communities in the Central West LHIN

By Navindra Baldeo, Michaela Hynie, York University

Research shows that newcomer populations face unique challenges in accessing mental health care services upon settling in Canada. This project investigates the various kinds of mental health care services available to immigrant and refugee populations in the new geography of the Central West Local Health Integration Network (CW-LHIN). There is an exploration of the numerous pathways and barriers that are associated with accessing these services. The project employs multiple methods, the first of which includes in-depth interviews with both local service providers and users. Focus groups are also used, and were conducted with community members from groups with needs that were identified as underserved. A GIS spatial analysis was also conducted to map available services in the LHIN by services offered, distribution of community members by ethno-cultural characteristics, and by other dimensions of diversity. Some initial findings indicate that there are no ethno-specific services for LGBTQ subgroups, and no specific services for those with disabilities. Few organizations offered ethno-specific services in languages other than English. Many services for the Black community are Christian, and while Islamic services target South Asians, Muslim Black community residents are left with few options. As well, disability was typically only considered in the context of the elderly and there has been little discussion of services for youth. Data from both interviews and focus groups are currently being analyzed. A final report will integrate findings from interviews, focus groups, GIS analysis and an environmental scan of the literature.

Project funded by CERIS and conducted in partnership with York University and the Central West LHIN

### The Predictive Accuracy of Shoreline Change Rate Methods on Point Pelee, Ontario (1931-2008)

By Abdullah BaMasoud, Wilfrid Laurier University

Shoreline retreat has significant consequences for Point Pelee National Park's (PPNP) eco and economic systems. For the regional conservation authority and Parks Canada to design and implement plans to protect the park's shores, it is necessary to identify a methodology that best describes annual shoreline change rates specific to each of the park's two sides. Three methods are compared in terms of accuracy in predicting the known 2008 shoreline position using airphoto-based shoreline data from 1931, 1959, 1977, 1985, 1990 and 2000. The three methods are end point rate (EPR), linear regression (LR) and Lake Level Predictor (LLP), a linear equation that uses lake level as a predictor of shoreline position. To evaluate these methods, the accuracy of predicting the 2008 shoreline position in the two sides is compared to the actual 2008 shoreline position. In eastern PPNP, mainly consisting of glacial till and clay/silt sediments, LR method performed the best. In western PPNP, mainly consisting of sandy sediments, EPR performed the best. Lake Level Predictor method performed better in western PPNP than in eastern PPNP, underscoring the relationship between lake level and shoreline position in western PPNP. In eastern PPNP, the northern part exhibited the highest EIP, likely related to direct human interferences in adjacent area known as Marentette Beach. The case study illustrates that EPR can provide better estimates of future shoreline position than LR when there are outliers that distort the LR forecast. Human interferences in neighboring areas may lead to high uncertainty in EPR predictions.



### Finding Stability in a Volatile Housing Market: Protecting Personal Real Estate Investments through Neighbourhood Level Diversification.

By Spencer Barnes, The University of Western Ontario

The purchase of a home is often the single largest financial investment in many people's lives. Housing should be viewed as not only a necessity of life, but also as an important financial decision that needs to accurately represent propensity towards risk. Economic theory has overwhelmingly found that diversification through geographic location and property type can hedge a portfolio of assets against risk. Institutional level portfolio diversification can substantially reduce investment risk, yet individual home purchasers are unable to diversify in the same way. However, the risk and return in private residential housing varies dramatically between neighbourhoods, even within an individual city. The challenge is identifying such neighbourhoods. The question is whether a spatial analysis of different neighbourhood socioeconomic status (SES) characteristics can enable individuals to diversify housing risks on a macro or neighbourhood level. My study attempts to identify what neighbourhood level SES characteristics lead to more price stable environment for investors, mortgage professionals, and individual home owners in the Greater Toronto Area (GTA). A Capital Asset Pricing Model is used to determine risk adjusted returns for housing in different neighbourhoods of the GTA. Risk adjusted returns are then integrated into a multivariate regression model that explicitly controls for spatial autocorrelation and spatial dependence to identify which SES variables can provide protection against housing risks. Individuals and institutions who are better able to choose the risks they are exposed to in the housing market will have more financially stable futures.

### The Quest for Higher Socioeconomic Status and Adolescent Health Risk Behavior: Case Study from a Migrant Population in the United Arab Emirates (UAE)

By Caroline Barakat-Haddad, Rania Dghaim, Zayed University, University of Toronto Scarborough

This research examines health risk behaviors among the UAE adolescent migrant population. The UAE is a federation of seven emirates that has experienced unprecedented growth in the past forty years. Using oil revenue, the UAE continues to reduce reliance on oil and to diversify its economy from a conventional, labour-intensive economy to one based on knowledge, technology and tourism. In doing so, the UAE relies on a large expatriate population to transfer their skills and to build these sectors. These expatriates seeking financial gains are usually allowed into the country on a work permit. Although their socioeconomic status varies, many face challenges related to access to healthcare, proper housing, and various environmental changes. This research reports on data collected under the National Study of Population Health in the UAE (NSPHUAE) (2007 – 2009) study. A comprehensive large-scale cross-sectional survey was administered on expatriate families with children that attend public and private schools in the seven emirates. The survey collected data related to the general health status and lifestyle of this sub-population, exposures to a range of health determinants, demographics, and medical diagnoses. Findings reveal significant differences in health risk behaviors among the UAE adolescent population in relation to socioeconomic and demographic features, including gender, ethnic category, Emirate, monthly family income, school type attended, paternal education, and property tenure. In general, the quest for relatively higher socioeconomic status appears to come with a trade-off for health risk behaviors among the UAE migrant adolescent population; this appears to be more notable for male migrants.

### Health Implications for Aboriginal Communities Experiencing Mine Development: A Meta-narrative Knowledge Synthesis

By Zoe.Barrett-Wood<sup>1</sup>, B. Bradshaw<sup>1</sup>, C. Davison<sup>2</sup>, T. Fabro<sup>3</sup>, C. Janes<sup>3</sup>, D. Dokis<sup>4</sup>, S. de Leeuw<sup>5</sup>, C. Knotsch<sup>6</sup>, S. Mackay<sup>7</sup>  
; 1. University of Guelph, 2. Queen's University, 3. Simon Fraser University, 4. Western University, 5. University of Northern British Columbia, 6. (NAHO), 7. (AECOM)

This multi-disciplinary meta-narrative knowledge synthesis aims to fill a knowledge gap regarding the impacts of mine development on Aboriginal community health in Canada. The project team\* chose a meta-narrative approach over a traditional knowledge synthesis approach in order to uncover and analyse the diverse and even conflicting meta-narratives (MNs), or storylines, that exist in relation to this topic. Over 1400 knowledge sources, ranging from academic articles to speeches and letters written by Aboriginal individuals, were reviewed and 19 MNs, ranging from the identification of the impacts themselves to the factors that enhance or minimize their magnitude, were defined. The MNs include indirect health impacts arising from changes to cultural practices,



intra-community connections and families as well as direct impacts in the realms of occupational and environmental health. The MNs were used to develop a landscape of existing knowledge, in which the varying degrees of research efforts for each MN were revealed and the contextual differences amongst the MNs, related to their associated research traditions, time periods and sources of inspiration, were assessed. The MNs, in conjunction with a range of knowledge translation tools, were used to address concerns and questions solicited from the project's community partner, the hamlet of Baker Lake in Nunavut. \*The members of the project team include researchers from across the country, Inuit Tuttarvingat of the National Aboriginal Health Organization, the Inuit community of Baker Lake in Nunavut, and AECOM, an engineering and environmental planning consultancy.

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Presenter: Harald Bauder

Session/Séance: **T2-H**

### **International Mobility of Segmented Labour: The Case of Academics**

By Harald Bauder, Ryerson University

Academia is a segmented labour market. On the one hand, many of us enjoy job stability, relatively high wages and fulfilling careers. On the other hand, a growing group of sessional and early-career faculty are employed on a temporary basis, work for low wages and suffer from insecure futures. What happens when academics migrate to another country? Are they deskilled and is their labour devalued like that of many other skilled migrants who enter Canada and other industrialized countries? Or does mobility constitute a pathway for secondary academic labour into the primary academic sector that offers tenure-track jobs? In this presentation, I present the preliminary results of a study of internationally mobile university-based researchers and academics in Canada and Germany. A particular focus of personal interviews has been on how mobility can lead to the accumulation of valuable social and cultural forms of capital in addition to the acquisition of skills (human capital). The project further examines differences between origin groups, natural and social sciences, gender identities and the contexts of Canada and Germany as destinations. I interpret the results in the relation to a wider political economy framework that considers labour market segmentation, the neoliberalization of the academic workplace, and social practices of distinction.

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Presenter: Marie-Hélène Beaudry

Session/Séance: **T3-G**

### **« Un Pas Vers l'intégration des Questions Autochtones dans Les Cours de Géographie des Cégeps »**

By Marie-Hélène Beaudry, Caroline Desbiens, Université Laval

À l'heure du Plan Nord du Gouvernement du Québec et de l'augmentation de la présence autochtone dans toutes les sphères de la société, les Autochtones et les non autochtones doivent réapprendre à vivre ensemble dans un Québec total. Dans l'atteinte de cet objectif, l'éducation géographique au niveau collégial a son rôle à jouer et ne peut plus soutenir la désinformation des étudiants sur les questions autochtones; pas après 400 ans de cohabitation des peuples sur un même territoire. Dans le cadre de cette recherche, les enseignants de géographie au collégial seront questionnés afin de mettre en lumière ce qui est enseigné ou ce qui n'est pas enseigné dans les classes sur les thématiques autochtones. On cherchera aussi à comprendre les motifs de ces choix d'enseignement. Des leaders autochtones et métis seront sollicités afin de cerner ce que constitue le « minimum » que chaque étudiant devrait apprendre sur le sujet dans le cadre de sa formation collégiale en sciences humaines. Une fois l'information compilée et analysée, des ateliers éducatifs seront créés et diffusés sous forme de projet pilote. L'appréciation de ces activités sera aussi collectée pour, en fin de parcours, concevoir un guide d'information et de sensibilisation aux réalités autochtones à l'intention des enseignants de géographie des cégeps.

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Presenter: Melani Bedore

Session/Séance: **W1-D**

### **The Role of Place-based Policy in Addressing American Urban Food Problems**

By Melani Bedore, University of Ottawa

Place-based policymaking is seen as a dynamic way for cities to address 'wicked problems'. Such a framework recognizes the importance of collaboration between local actors, new policy mixes and tools, and capitalizing on local knowledge (Bradford, 2005). American cities such as Baltimore, Maryland are employing place-based policy approaches to address urban food issues such as food deserts, food insecurity, child and adult obesity, and abandoned lands that might be used for urban agriculture. Drawing from thirteen targeted interviews with key Baltimore food policy leaders, this presentation explores the importance of place-based policy frameworks to theorizing urban policy innovation.

**Adapting to Social but not Environmental Change?: A Case Study of Marine Protected Area Communities on the Andaman Coast of Thailand**

By: Nathan James Bennett, Phil Dearden, University of Victoria

The importance of marine conservation cannot be understated as the health of marine ecosystems, habitats, and species continue to decline. Marine protected areas offer one important tool for conservation. However, local communities often rely on marine resources for livelihoods and survival. This conundrum often results in conflict between local communities and marine protected area conservation. Further complicating this situation, global climate change has significant impacts on important marine ecosystems such as coral reefs and mangroves. Due to their dependence on the ocean, coastal and island communities are also particularly vulnerable to climate-induced changes in the marine environment. As such, the capacity of communities to adapt to both conservation initiatives and to the impacts of climate change should be assessed and planned for. Adaptive capacity is a measure of a community's resilience to changes both social and ecological. This paper will explore results from interviews and surveys that examined the adaptive capacity of 7 island communities near marine protected areas on the Andaman coast of Thailand. In conclusion, we question whether the communities demonstrated high levels of adaptability to social change but not to environmental change. We explore reasons why this might be and the implications for conservation initiatives.

**A History of Change: Using Photovoice to Explore Social and Ecological Change in the Marine Environment**By Nathan James Bennett<sup>1</sup>, Phil Dearden<sup>1</sup>, 1. University of Victoria; Piyapat (Por) Nakornchai<sup>2</sup>, 2. Project IMPAACT, Phuket, Thailand

Coastal communities are subject to a wide array of ecological and social changes to which they must constantly adapt. Climate change is one of the most significant changes affecting coastal communities and the marine environment on which they often depend for their livelihoods. Yet the relative perceived importance of climate change as it relates to broader social and ecological changes remains largely unquestioned. However, a community's perception of risk has significant implications for a community's willingness and ability to adapt to both current and future changes. We used Photovoice to open a dialogue with communities about changes in the marine environment and in marine dependent communities on the Andaman Coast of Thailand. This research is one aspect of a larger study on the coast of Thailand that focuses on the adaptive capacity of coastal communities to climate change and to conservation. This presentation will explore both substantive results of the Photovoice process as well as methodological insights.

**Co-operatives as an Alternate Distribution System to Supply Healthy Local Foods for Rural Economic Development.**

By Simon Berge, Wayne Caldwell, University of Guelph

Co-operatives as an Alternate Distribution System to supply healthy local foods for rural economic development. Consolidation within the food system has limited access to healthy food in areas known as food deserts. This proposal seeks to examine the co-operative business model as a means to provide healthy, local food to these food deserts and under serviced, rural areas. By looking to the advantage of combining local food with short food supply chains in a co-operative manner this research will determine the opportunities and challenges that exist for co-operatives in the current local food market. By accessing local food markets co-operatives can provide healthy foods to areas with poor food distribution and keeping more food expenditure within the local economy. This research will examine the current state of Ontario co-operatives through case studies and financial analysis determining the barriers and opportunities that exist within the local food market. A tool kit will be produced to outline marketing strategies, common challenges and financing models for capital investment.

### Geographic Epidemiology of Echinococcus multilocularis in Muskrats and Red Foxes in Lower Saxony

By Olaf Berke, C. Jardine, D. Pearl, Z. Poljak, University of Guelph

Alveolar Echinococcosis is an emerging infectious disease of public health concern. The cause of the zoonosis is the small fox tapeworm *Echinococcus multilocularis*, which thrives among the canine and rodent populations of endemic areas in the northern hemisphere. Spatial epidemiology contributes to proper understanding of its aetiology. Regional muskrat prevalence from 43 districts in Lower Saxony (Germany) from 2007 to 2009 was spatially analyzed. The overall prevalence in 2963 muskrats was 2.6%, CI = (2.0%, 3.2%). Choropleth maps visualize the regional variation 0% to 22%. Disease clustering was investigated by means of Moran's I and found to be very low:  $I = 0.06$ . However, a disease cluster was identified using the flexible shaped spatial scan test. The cluster covered 9 regions with a relative risk of 2.9 in the same area were previously a cluster in foxes was identified. Furthermore a geographic correlation study revealed that risk factors for muskrat prevalence were the past muskrat prevalence (1995-1999), the past prevalence in foxes (2003-2005), as well as the regional landscape elevation. While previous prevalence levels in muskrats and foxes are reasonable due to the tapeworm's lifecycle, landscape elevation might be an indicator yet unknown risk factors. In conclusion, the geographic correlation of the fox tapeworm prevalence in muskrats and foxes has implications for human risk monitoring, as muskrats and humans are intermediate hosts of the tapeworm and might share a common root of infection.

### Negotiating Relationships Between Inuit Communities and the Mining Industry: What Happened to the Right to Say "No"?

By Warren Bernauer, York University

Many Inuit in Baker Lake contend that they have never agreed to have uranium mined on their homelands and historically, Inuit in Baker Lake have demonstrated strong and relatively-unified opposition to mining on their territory. This is most apparent in the community's response to Urangesellschaft's proposal to mine the Kiggavik uranium ore body: over 90% of the community voted no to Urangesellschaft's proposal. Regardless, local, regional and territorial governance structures have recently issued policies that support uranium mining, bypassing the issue of community approval in the process. This paper is based on policy document analysis, interviews conducted in the community of Baker Lake in 2010 and 2011, and a variety of secondary sources. It reviews the development of uranium policy in Nunavut, with a focus on the manner in which the issue of community support has recently been bypassed. This is followed by an analysis of several factors which are currently impeding the ability of Baker Lake Inuit to say no to uranium mining, using the review of AREVA's contemporary proposal to mine the Kiggavik uranium ore body as a case study. Factors considered include the structure of the environmental review process, the structure of the uranium industry's consultations with the community and the alleged neutrality of administrators, academics and other Qallunaat working in the Kivalliq.

### Macro Economic Impact of Remittances in South Asia: A Panel Data Analysis

By Sandeep Kaur Bhatia, Central University Of Punjab

Remittances are becoming the important source of development particularly for developing economies. These remittances are also playing their major role in reducing poverty, achieving stable financial system etc. Keeping in view of the importance of remittances in developing world, this paper has studied the impact of remittances on GDP, poverty reduction, investment, and openness of South Asian countries (Bangladesh, India, Pakistan and Sri Lanka) through panel data model over the period 1981-2010. The panel data model can be estimated by restricted (pooled) model, fixed effect model and random effect model. F-test and Hausman test has also been carried out to select these models suggesting that fixed effects model's results are better than other models. As per the fixed effects model, the impact of remittances on economic development of South Asian Countries is negative but statistically significant. The impact of remittances on economic development has observed in indirect manner i.e. on domestic investment and on human development. Their coefficients are positive and significant suggesting important contribution of these variables towards economic development as well as important channels of remittances. Therefore, the study suggested that favorable investment climate through appropriate infrastructure should be developed. And also, remittances have a significant impact on poverty reduction in these countries. Hence migration should be encouraged from developing to developed countries which will lead to the better development of the developing economies like South Asian economies.

**Lessons for Culturally Rooted Management: Contributions From Indigenous Perspectives on Free-Roaming Horses**

By Jonaki Bhattacharyya, University of Waterloo

Free-roaming horses (*Equus ferus caballus* L.) also called wild or feral have been a focal point for controversy and power struggles over land use in the Chilcotin region of British Columbia, Canada for over 120 years. To some people, the free-roaming horses of the Brittany Triangle (Tachelached, near the Nemiah Valley in Xeni Gwet in First Nation territory) are iconic wildlife, symbolic of local wilderness values. To others the horses are invasive pests that threaten forage availability for cattle, range health, and native wildlife habitat. Little peer-reviewed research exists to elucidate the unique ecological impacts and social relationships of free-roaming horses in the Brittany Triangle, or to support management decisions concerning the horses. This research explores how scientific analysis, local knowledge, and socio-cultural perspectives regarding the ecology and cultural role of free-roaming horses in the Brittany Triangle and Nemiah Valley region of BC can be integrated to inform conservation planning and land use management. This transdisciplinary study took an exploratory approach over six years of site visits. Methods included quantitative assessment of plant community composition and variance in grazing habitat of free-roaming horses, participant observation among host communities, semi-structured key informant interviews, and extensive observation of free-roaming horses in the Brittany Triangle. The study identifies two important elements that indigenous perspectives can contribute to management and planning frameworks: 1) recognition of the agency that wild animals and the land itself have in relationships with humans; and 2) a sense of collective responsibility towards the land and wild animals.

**Traditions + 1: Quilts at the Edge of Empire**

By Lisa Binkley, Queen's University

In 1974, renowned Canadian printmaker and artist, Kim Ondaatje, in conjunction with the Agnes Etherington Art Centre at Queen's University, created a travelling quilt exhibit, *Traditions + 1*. Designed to elevate the traditional practice of quilting from artefact to artistry, the exhibit combined old and new quilts. The combination of old and new quilts embodied the dialogue between past and present: the production of a collective memory, the power of the past on the process of modernity, and the compression of time and space due to the advancements in technology. However, since *Traditions + 1*, the implicit nuances that permeated the travelling quilt exhibit have been overlooked. In the early 1970s, Canada was in a state of transition: culturally, socially, and politically. The increased global migration of people and economic trade was having a profound influence on Canadian identity. Together, the old and new quilts attempted to form a collective voice, not only by uniting and elevating the art of quilting, but also by inspiring a national sense of cohesion. This paper will argue that though the collection did illuminate attention to quilting, it served as an emotional thread, binding together the historic Canadian imaginary.

**A New Beach-Dune Cycle Of Foredune Evolution, Examples from Gulf County, Florida**

By Michael C. A. Bitton, Louisiana State University

This study examined the relationship between foredunes with different exposures to wave and wind energy, and differing long-term erosion and accretion rates. The purpose of this study was to quantitatively increase our understanding of beach-dune interactions and enhance current conceptual models. Topographic and vegetation surveys were conducted on coastal foredunes in this scarcely developed region of the Florida panhandle. Historical profile surveys and aerial photography were incorporated to analyze and understand changes to the profiles. Foredune vegetation diversity increased with foredune height, and in Gulf County, the tallest foredunes were found on shorelines with low erosion rates, and therefore allowed time for mature species development. These established foredunes' greatest sediment source was from antecedent foredunes which were developed when the spit was initially prograding past these points. Rapidly prograding locations had marked differences in vegetation and those were the locations where multiple new foredune ridges were forming, with sediment derived from the prograding beach, and can be anticipated to be a precursor to larger foredunes. Evidence from Gulf County demonstrates that incorporation of synchronization, vegetation, and the antecedent geology are crucial additions to current beach-dune models for this region. A new quantitatively supported conceptual model of foredune evolution is presented.

**Investigating the Validity of Neighbourhood-Wide Solar Resource Estimates**

By Andrew Blakey, R. Feick, University of Waterloo

Public interest in green technologies such as rooftop photovoltaics has garnered interest recently due to government incentives and concerns over climate change. In urban environments, rooftops are an ideal location for photovoltaic panels due to their size, convenient location, and potentially unobstructed view of the sun. Determining feasibility using these parameters relies on the availability of a surface model with high spatial detail to determine the area, aspect, slope, and local shading of roof faces. This is typically sourced from Lidar-derived digital surface models. In the absence of these data, many existing solar resource estimation applications rely on averaged neighbourhood estimates in their calculations. This may lead to over- or under-estimation of solar potential for individual buildings. This presentation investigates the statistical properties of roof-based solar estimates for selected neighbourhoods in Toronto. Results are compared to neighbourhood-wide estimates to determine what proportion of rooftops fall within an acceptable range. In addition to this, rooftop homogeneity at the sub-neighbourhood level is explored to detect any trends in the resource estimates of similar roof structures, potentially allowing for group estimates to be made.

**Mapping With (Dis)abled People: Towards A Participatory, Qualitative And Holistic Approach**

By Jessica Blewett, Neil Hanlon, University of Northern British Columbia

(dis)Able people are frequently faced with considerable barriers to their mobility when navigating the built environment. At least 11 percent of British Columbians have a physical disability, yet little is known about barriers and their impacts. Even less is known about the impacts of seasonal barriers in northern communities. In this presentation of preliminary results of a master's thesis research, we consider the relationship between (dis)Able people and barriers in Prince George, British Columbia. The research employs a unique approach that integrates participatory, G.I.S. and qualitative research techniques to uncover seasonal barriers for (dis)Able people, and explores the diverse impacts these barriers have on the lives of individuals. We will outline the salient aspects of place that influence the study, provide an overview of the unique research methodology and specific methods employed. This is followed by a presentation of key findings using quotes, photographs and maps. We will conclude with a broader discussion of how these findings help us to begin thinking more critically about the complex geographies of disablement.

**Can Cultural Industry Policies be Understood as Ethical Consumption Policies?**

By Jeff Boggs, Brock University

This paper recasts cultural industry policies as nationally-mandated ethical consumption policies. Canada's book trade provides the case study. Key policies shaping Canada's Anglophone book trade include restrictions on foreign ownership, direct subsidies to book publishers, direct subsidies to authors and the provision of collective infrastructure such as BookNet Canada. These policies are justified as a way to create a media environment rich with Canadian content. Adherents of this position view these policies as necessary to insure the creation and maintenance of an authentic Anglophone Canadian identity. This identity essentially a public good is allegedly threatened by rapacious foreign-controlled firms. Others view these same policies instead as corporate welfare engineered by trade associations and Federal ministries to protect the material interests of domestic authors, publishers, distributors and retailers. Sometimes this critique is extended by arguing that these policies also subsidize the cost of written works consumed by relatively wealthy, educated readers. While these positions could be seen as mutually exclusive, it is probably more fruitful to treat them as poles on a continuum, if not simultaneous truths. Contrasting these positions with the ethical purchasing literature might advance policy or theory. In particular, these policies might be better understood as insuring the sustainability of a key cultural activity. Infusing such language into debates about cultural industry subsidies might move us beyond the antagonistic deadlock between cultural nationalists and political economists, allowing meaningful reform that recognizes the legitimate concerns of all parties.

**Toronto's Don River: A History of a Constructed Landscape**

By Jennifer Bonnell, University of Guelph

Since the early 1800s and likely before, Toronto's Don River has been subject to human modification its course adjusted, wetlands drained, sediment loads diverted. In the last decades of the nineteenth century, the industrialization of the lower river and its attendant pollution problems brought about the Don River Improvement Project, which saw the river straightened and canalized in its lower reaches. These modifications were situated within the political and economic realities of their time, and influenced by dominant ideas about human relationships with nature. In this way, imagined futures for the lower donlands as an industrial hub for the evolving city; the interests of powerful stakeholders such as the Canadian Pacific Railway; and public perceptions of the area as a diseased and unproductive landscape shaped the nineteenth-century river just as surely as the dredgers and pile-drivers that carved its new course. This presentation explores the history of the Don River as a form of socio-nature, a landscape formed in part by bio-physical processes, and in part by changing human systems, interventions, and ideas about the natural world.

Moderator: Annie Booth

Session/Séance: **W4-G****Colonial Processes, Indigenous Conservation Law, and Place-Based Culture and Contextuality**

By Annie Booth, University of Northern British Columbia, Bruce Muir and Roland Willson, West Moberly First Nations

In this panel the three speakers will examine the interrelated issues of resource extraction from traditional lands over which West Moberly First Nations holds inherent and established treaty and Aboriginal rights and the failure of colonial processes such as environmental assessment and other consultative processes to understand and accommodate the First Nations' rights and concerns. Dr. Booth will present on her research with West Moberly First Nations and Halfway River First Nation, which examined their concerns with consultative processes. She will suggest changes necessary for First Nations to feel heard within such processes. Mr. Muir will speak about the intersection of Indigenous land use planning and conservation of species and the concerns West Moberly holds regarding their ability to practice their inherent cultural treaty rights surrounding access to and allocation of culturally important species. Finally, Chief Willson will examine the current industrial resource development pressures occurring in West Moberly's Stewardship lands (Dane nanè), and the challenges and cumulative threats their culture faces, surrounded by a perfect storm of industrial development.

Presenter: Soheil Boroushaki

Session/Séance: **W1-G****Implementing Ordered Weighted Averaging (OWA) Operators in ArcGIS Using ModelBuilder**

By Soheil Boroushaki, California State University Northridge

Spatial decision-making problems typically involve a set of decision alternatives that are evaluated on the basis of multiple and incommensurate criteria. Central to GIS multicriteria analysis is the integration of geographical data and judgments to provide an overall assessment of the decision alternatives. This is accomplished by a multicriteria decision rule. This presentation focuses on the implementation of the Ordered Weighted Averaging (OWA) decision rule in ArcGIS using ModelBuilder. OWA is a family of multicriteria evaluation operators that generalizes the Boolean overlays and the weighted linear combination procedures. Due to the non-linearity of OWA procedures, it was not possible to implement OWA within ArcGIS using its capabilities. This presentation will show an innovative approach using new capabilities of ModelBuilder that introduced in ArcGIS 10 to implement OWA. This generic structure can be used for tackling a wide range of spatial decision and management problems in various research domains of geosciences.

**La France de l'océan Indien et Le défi d'une Nouvelle Gouvernance Maritime**

By Christian Bouchard, Université Laval

Dans l'océan Indien, la France exerce sa souveraineté sur dix petits espaces insulaires que sont La Réunion et Mayotte, les archipels de Crozet, de Kerguelen et de Saint-Paul & Amsterdam, ainsi que Bassas da India, Europa, Juan de Nova, les Glorieuses et Tromelin, ces cinq derniers formant les îles éparses. Peuplée de seulement un million d'habitants et ne possédant que 10 560 km<sup>2</sup> de superficie terrestre, cette France de l'océan Indien est d'abord maritime comme en témoigne sa zone économique exclusive de quelque 2,7 millions de km<sup>2</sup>.

D'ailleurs, la conceptualisation même de la France de l'océan Indien découle de la nécessité pour la France, les différentes collectivités de la région et l'ensemble des acteurs privés et associatifs de travailler ensemble en ce qui a trait aux affaires maritimes dans ce vaste espace océanique. C'est ainsi que, dans la foulée des livres bleus européen (2007) et national (2009), vient d'être publié en décembre 2011 le Livre bleu sud océan Indien qui constitue la politique maritime intégrée de la France dans le sud océan Indien. Il s'agit notamment de mettre en place une nouvelle gouvernance maritime qui se matérialisera par la création d'un conseil maritime ultramarin du bassin sud océan Indien. Il s'agit d'une évolution importante qui replace la mer et les affaires maritimes au cœur de cet espace résolument marin. Comme nous le verrons, les enjeux sont importants tant pour la France que pour la France de l'océan Indien qui cherchent à mieux se positionner dans cette région du monde.

**Bringing Back Life: Childbirth and Inuit Women's Sense of Place and Belonging**

By Claudine Boucher, Université Laval

Since the 70s, childbirth has been synonymous with loneliness, estrangement and loss of tradition for Inuit women of the Canadian Arctic, who have had to travel great distances in order to give birth in southern hospitals. These evacuations have affected parturient women, families, and communities: an event which used to be a joyful occasion to be celebrated by entire communities has been turned into a medical emergency, requiring the intervention of western medicine. Some argue that health policies in general have been used in the Canadian north to achieve a very subtle yet devastating level of colonial rule. By devaluing Inuit knowledge and practices of health and healing, they contributed to infuse communities with a sense of powerlessness that led to social, familial and cultural hardships. This situation has been partially reversed in the late eighties, when three maternities (Puvirnituq, 1987, Inukjuak, 1998 and Salluit, 2004) have opened their doors to pregnant women of the region. In these facilities, women are assisted by midwives "Inuit and non-Inuit" in a way that hopefully brings together Inuit and Western knowledge about birth, in accordance with the wishes of the mothers themselves. This paper discusses how giving birth at home affects Inuit women's experience of their own land and shapes meanings and identities that are tied to it. It is also an illustration of how affirmative actions such as these "by and for Inuit women" lead to cultural healing and greater autonomy on multiple scales, including the political.

**The Second Red Gold Rush: Iron Ore Mining in the Quebec-Labrador Borderlands**

By Jean-Sebastien Boutet and John Thistle, Labrador Institute of Memorial University

The current rapid expansion of iron ore mining projects along the Quebec-Labrador border raises important questions about the viability and long-term sustainability of mineral-based economic development across the Canadian subarctic. Boosted by strong projections in the global demand for steel, mining interests are predicting (just as the Iron Ore Company of Canada did in the 1950s during the first red gold rush) that new iron reserves, new employment opportunities, and generous public royalties will provide benefits for as long as a century. This paper seeks to contextualize the current major expansion in iron ore mining, including the redevelopment of abandoned mining sites, by situating these developments in a longer story of industrial transformation and historical change in the Quebec-Labrador borderlands.



**Heterogeneous Experiences with Mining: A Case Study of Baker Lake, Nunavut**

By Ben Bradshaw, Kelsey Peterson, University of Guelph

The Meadowbank gold mine has generated new experiences for the people of Baker Lake, Nunavut. Mine development has impacted many aspects of community life, some positively and some negatively, though it is also clear that individual experiences with, and opinions of, these impacts have varied greatly. Despite this variation, mechanisms designed to mitigate impacts from, and capture the benefits of, mine development (e.g. Inuit Impact and Benefit Agreements (IBAs)) have been utilized as if there is a homogenous experience with mining. Through interviews with residents of Baker Lake in summer 2011, a diversity of individual experiences were identified. Baker Lake residents hold varying opinions on the impact of mine income, the impact on local businesses, family and community well-being and the future of Baker Lake youth, among many other examples. However, the institutional disconnect between the experience of mining and its regulation, which is a function of Inuit-determined institutional arrangements, was invoked by many Baker Lake residents as a widespread, notable impact of the mine in that it has limited Hamlet involvement in impact mitigation and negatively affected the capture of benefits for local residents (especially with respect to infrastructure). In this way, these arrangements have added to, rather than ameliorated, historical processes of disempowerment.

**Igniting Interest in Online Participatory Mapping: VGI and Forest Fire Impacts**

By Samantha Brennan, Jon Corbett, University of British Columbia Okanagan

Developments in the past decade in volunteered geographic information, crowdsourcing and mash-ups have allowed mapping to step away from its formal technocratic roots and into a realm where maps are made and populated by non-experts. Increasingly, there is a realization that expert points-of-view are not always the best-informed and that local knowledge about a place, situation or phenomenon can be highly valuable. Our project began as an attempt to engage the general public with visualizations of a high profile forest fire that occurred near Kelowna, British Columbia in 2003. Making use of the Google Maps API and developing into Geolive, the map quickly expanded into a database and patchwork of multiple knowledges and experiences. Visitors to the website have the chance to tell their stories and engage with one another and their knowledge is positioned equally, even against more officially produced stories. It begins to demonstrate the variety of ways that forest fires affect people, whether emergency volunteers, firefighters, or evacuees and allows community members to speak for themselves. This presentation will examine the online tool in detail as well as discussing challenges in participation, potential therapeutic value, and working with community.

**Literary Geography: From Theory to Practice?**

By Marc Brosseau, University of Ottawa

Engagement with literature is now a well-established, almost normalized, part of social and cultural geography disciplinary scope. From the mid-seventies, many currents of the discipline have contributed the interpretation of literary works. The advent of the so called new cultural geography and the concomitant acceleration of interdisciplinary exchanges approaches have confirmed both the legitimacy and relevance of resorting to literary text to enhance or further our understanding of space, place and spatiality. However, very few geographers have taken to pursue some of the lessons of literary geography to the next level: developing more creative or literary like writing practices to further the exploration of geographical themes. After making a rapid review of development of literary, this paper illustrate how the movement known as Geopoetique has tried to bridge this very gap by organizing field excursion and writing workshops designed to explore creatively the meaning and subjective powers of different places and settings (from city back alleys to the tidal shores of the Saint-Laurent). Writers, artists, literary critics and, sometimes, geographers take part in these creative meetings in search of alternative ways to question the world around us.



### **The Politics of Climate Change in a Resource-Dependent Small Town: The Case of McBride, British Columbia**

By Chloe Brown, Simon Fraser University

Rural British Columbia (BC) has recently been confronted by changing economic, industrial, and environmental conditions. At the same time, new provincial carbon-neutral initiatives have put pressure on BC's resource-based communities to change during this period of volatility. McBride is a resource-based community in BC currently endeavoring to become carbon neutral while also trying to restructure its struggling economy. This research asks what challenges McBride faces in transitioning carbon neutrality and what alternative carbon-neutral strategies are feasible. It also looks at the politics of scale by asking how these alternative strategies work at the local level and what role the 'local' plays in carbon neutrality in general. McBride has many opportunities to transition into a green economy: it has abundant potential renewable energy resources within run-of-the-river, bioenergy, wind, and solar energy. But McBride faces the enormous hurdles of not having enough human and financial capital to reach these goals, and working through the red tape of higher levels of governance, like BC Hydro, to try to put these things in place. McBride needs to first understand what, carbon neutrality, means and get support from different levels of government, while at the same time adapting these urban-focused policies to the unique characteristics of a small rural town like McBride. The largest obstacle facing McBride in transitioning toward a sustainable and carbon-neutral economy is political: there is a strict divide between community members on how the local government and community forest should be managed and where McBride's economy should be heading.

### **Comparing Urban Environmental Theories: Deriving Best Practices for Local Policies and Plans**

By Ria Brown, Geoff Lewis, University of Waterloo

With an increasing proportion of the population living in urban areas, the environmental impacts of cities need to be well understood in order to properly design policies to address them. Many cities around the world have created policies, plans and programs trying to reduce their resource and energy use and waste production. The planning and policy literature is full of explorations of the environmental issues presented by urbanism and theories on ways to mitigate them. However it is not clear how much theory and practice coincide. This paper reviews existing and emerging theories on reducing the impact of cities in order to extract best practices that may direct local government action. Several theories are explored including sustainable development, eco cities, biophilic cities, green urbanism, bioregionalism, landscape urbanism, new urbanism, smart growth and resilient cities. Based on this review, it is clear that the concept of sustainability, though still not defined in a universally accepted way, underlies most theories. Most also agree on the major areas of urban environmental concern and the best ways to approach resolving them, but this apparent agreement appears to stem to a great degree from conventional wisdom, rather than from scientific evidence.

### **Understanding Community Participation in the Environmental Sciences: Factors and Outcomes**

By Nicolas D. Brunet, Gordon M. Hickey, Murray M. Humphries, McGill University, Macdonald Campus

Improved local participation in the development of scientific knowledge has broad appeal. Community participation in science, when done appropriately, has been found to provide opportunities for leveling underlying power differentials between researchers and local stakeholders and obtaining important experiential or traditional knowledge on studied phenomena, among other outcomes. However, a review of literature points to a lack of debate regarding the disciplinary differences which have been found to influence the level of community participation initiatives. Most of the literature on participation has emerged from fields such as health science, human geography or anthropology that necessarily engage humans as part of their research process. The objective of this research was to better understand the processes and outcomes associated with community research partnerships in environmental sciences. The research involved the use of grounded theory approaches, semi-structured interviewing, participant observations of an International Polar Year funded collaboration of researchers and the Vuntut Gwitch'in community of Old Crow, Yukon. Preliminary evidence shows that the forces that shape partnerships from the researchers' perspective are often different but indirectly linked to that of local stakeholders. For instance, local stakeholders valued an in-depth understanding of research objectives and associated field methods. Meanwhile, researchers identified the amount of time spent in the community outside the actual research process (informal interactions) as critical in developing partnerships. Understanding these factors and outcomes will provide new evidence as to the development of more effective academic programs and funding mechanisms for stakeholder participation in science.

**Dundas West a Neighbourhood in Transition: Exploring the Stages of Neighbourhood Development in Toronto, Ontario**

By Taylor Brydges, University of Toronto

What makes a neighbourhood change? In the study of gentrification, a gap in the literature is a detailed account of the stages of development that occur in a gentrifying neighbourhood. Using a case study of the neighbourhood Dundas West in the City of Toronto, this presentation will introduce a five stage model of neighbourhood development. This research utilizes new media sources namely Twitter and local blogs as a method to capture both social and commercial neighbourhood development. This five stage model pays particular attention to the influence of local actors on the trajectory of neighbourhood change. The first stage of the model evaluates the preconditions for development, while the second stage traces the early emergence of commercial establishments which signals the start of neighbourhood change. In the third stage, increased commercial development forms a neighbourhood identity which supports the emergence of a local scene. It is in the fourth stage where the gentrification and change to mainstream consumption opportunities such as Starbucks emerge, and finally, the fifth festivals stage completes the cycle.

**Exploring Dimensions of a Community Nutrition Peer Program in Kitchener, Ontario**

By Paula Bryk, University of Waterloo

A peer-led community nutrition program was developed by the Region of Waterloo Public Health Department to teach food skills, such as meal planning and food preparation on a budget, and nutrition knowledge to participants in Waterloo Region. Operating at 15 sites across the region, including 7 sites in Kitchener, Ontario, this programming aims to encourage healthy eating and healthy weights. A peer-led approach is utilized to educate and influence the behaviour of participants. While open to the general population, the program aims to target vulnerable populations by locating in community centres in lower socio-economic neighbourhoods. This research looks at the food purchasing and consumption patterns of the participants when they're at home, to determine if and to what extent the community nutrition programming positively influences the eating habits of participants. Attention is also paid to the role of each family member in influencing food decisions.

**Are Community Forestry Principles at Work in Ontario's County, Municipal, and Conservation Authority Forests?**

By Sara Teitelbaum, Université du Québec à Montréal, Ryan Bullock, University of Saskatchewan

Ontario's County, Municipal and Conservation Authority forests have received little attention within the academic literature on community forestry. These Agreement Forests, as they were once called, are a product of the early 20th century and have been under local government management since the 1990s. We investigated the extent to which community forestry principles are at work in these forests. Three principles, participatory governance, local benefits and multiple forest use are analyzed using a socio-economic indicator framework and survey data collected from nearly all of these forest organizations (80% response rate). Results indicate that most of these organizations do display attributes associated with community forestry principles, including a local governance process, public participation activities, local employment and multiple-use management. Traditional forestry employment is less strong than in similar studies of Crown land community forests, however there is an important emphasis on non-timber activities. County, Municipal and Conservation Authority forests represent a unique approach to local governance of multi-use forests that reflects the specific geographic and socio-economic context in which it resides.

**Coastal Marine Protected Areas Beyond Edges**

By Veronique Bussieres, Monica E. Mulrennan, Concordia University

In Canada, as elsewhere, complex jurisdictional are often responsible for the fragmentation of coastal and marine environments. As a result many current and projected Marine Protected Areas (MPAs) are located adjacent to the coast, seaward of the critical transition zone between terrestrial and marine ecosystems. Coastal areas are also significant as historical and contemporary sites of cultural exchange initially involving various Indigenous groups, later as places of contact with Euro-Canadians, and today as tourist destinations and sites of human settlement. The twin concepts of ecological and cultural edges capture the richness and increased diversity of this transition zone and its associated enhanced resilience (Turner, Davidson-Hunt and O Flaherty, 2003). These concepts are consistent with Indigenous understandings of coasts as continuum between land and sea. Here, we discuss the strengths and weaknesses of this concept in the context of coastal MPAs, highlighting its implications for management and governance. We focus on the Wemindji Protected Areas Project, an initiative of the James Bay Cree First Nation of Wemindji, to explore alternative arrangements for ensuring protection of the biological and cultural richness and complexity of coastal zones. Our findings highlight the value of a conceptual framework that regards coasts as dynamic zones of ecological and cultural exchange, involving respectful and reciprocal relations between humans and wildlife.

**Exploring Governance Structures, Institutions and Collaboration for Protected Area Development: A History of Québec Protected Areas**

By Windekind C. Buteau-Duitschaever, Wilfrid Laurier University

The purpose of this research is to provide a history of protected area development, in the context of protected area creation, planning and management, within the province of Québec. Focus is placed on institutional arrangements and governance structures between various stakeholder groups, such as, but not limited to: government agencies, environmental NGOs and local communities. Data was gathered through a document analysis of government documents and scholarly work using various archives, primarily; the National Assembly of Québec Library and Archives and libraries at Laval University, University of Québec at Chicoutimi, McGill University and the James Gordon Nelson Fond and George Francis Funds at Wilfrid Laurier University. The information collected from these archives was supplemented by preliminary meetings with government staff responsible for the Québec provincial park system. Preliminary document analysis suggests that protected area development within the province has been largely influenced by international institutions rather than national or provincial institutions; is influenced by the large provincial natural resource economic sectors of Québec; and that stakeholders other than resource industry have recently been incorporated in various forms of planning and management for protected areas within the province.

**Research Data Management at the University of Waterloo: How Can Librarians Help?**

By Pascal V. Calarco, J. Friddell, J. Haas, E. LeDrew, K. Szigeti, University of Waterloo

There is a growing need for data management services for researchers. The Canadian International Polar Year program provided leadership in this area by requiring researchers to implement a data management plan; preserving and making data available helps research move forward and prevents research data from being under-utilized or lost because of poor management. Proper data management involves: preservation; accessibility; confidentiality; intellectual property rights; and, information technology issues. Increasingly, data are produced by collaborations that span borders, adding complexity to management issues. Given that librarians have experience in preserving and making information available, they are in a position to collaborate with researchers in providing data stewardship locally, nationally, and internationally. The Association of Research Libraries and the Digital Library Federation, both headquartered in Washington, D.C., cosponsored the 2011-2012 eScience Institute which helped U.S. and Canadian academic libraries develop strategic agendas with researchers to frame their support for data management. The University of Waterloo team of librarians and scientists has created a strategic agenda as an outcome of the Institute that will allow for collaboration with scientists and administrators in addressing data management issues and providing support to researchers. The lessons for data management developed as a result of consultations throughout the University of Waterloo and through workshops involving the eScience Institute are reviewed as guidance for scientists who collect data and who wish to ensure that their efforts are preserved for future generations

**Peak Oil, Climate Change, Rural Communities and Planning for the Future**

By Wayne J. Caldwell, University of Guelph

(ACUPP Stream) Peak Oil and Climate change will significantly impact rural Canada. Concurrently, these two issues have the potential to fundamentally change rural communities (transportation, employment, agriculture, etc.). From a certain perspective the responses to climate change and peak oil are connected, in that adaptation and mitigation of climate change can partially be addressed through a thoughtful response to energy supply and demand. This presentation will identify potential impacts of Peak Oil and Climate Change on rural communities and provide practical strategies that will help ensure that rural communities are prepared with an appropriate response. Both of these issues stress the need for strategies of resilience and policy that reflect the diversity of rural Canada.

**The Relationship Between Collaborative Planning and Sustainable Development in the First Nations Community-Planning Context**

By C. Callahan, L. Viswanathan, G. Whitelaw, Queen's University

The purpose of this research will be to gain an understanding of the relationship between two planning approaches in the context of First Nations Community Planning. The two planning approaches are collaborative planning and sustainable development. Collaborative planning attempts to break down power imbalances during stakeholder and public consultation meetings so that pure undistorted communication can be achieved. Sustainable development is a dynamic process, which plans for current generations and their resources while not placing future generations and their resources in jeopardy. Both planning bodies, due to lack of practice, need to be incorporated into First Nations Community Planning from an ethical perspective. A literature review will be completed to provide the context in which First Nation community-based land use planning has been occurring. The literature review will also provide theory behind sustainable development, collaborative planning, traditional ecological knowledge and post-colonial planning. Next, a document analysis of 14 existing First Nations plans will be presented through thematic review. The findings from the literature review and thematic review will produce a preliminary set of evaluation criteria based on Baer's evaluative planning model. The hybrid evaluation criteria will then be used to reevaluate 3 First Nations community plans. The results of the evaluations will be compared. Finally, recommendations will be presented to provide an understanding between the relationships of collaborative planning and sustainable development in the context of First Nation community plans.

**The Geography of Renewable Energy: Implications for Energy Transition Management**

By K. Calvert, M.J. Blair, W.E. Mabee, Queen's University

The spatial qualities of emerging renewable energy (RE) resources are significantly different from the spatial qualities of the energy resources that currently dominate national fuel mixes. These differences represent the primary forces of change to socio-technical regimes within jurisdictions that are actively integrating RE into their fuel mix. Failure to acknowledge and adapt to these differences increases the risks of unintended social and environmental burdens associated with RE projects, and compromises the capacity of government to manage these projects and communicate effectively with stakeholders. The spatial qualities of RE remain underexplored and the energy transition management literature is silent on their current and potential influence over the efficacy of existing modes of RE governance. The purpose of this paper is to address these gaps in our understanding. A review of literature and preliminary research conducted in Ontario, Canada are combined to identify key points of divergence in the spatial qualities of current and emerging primary energy resources. The impacts of these differences on current forms of organization and management are highlighted, including aspects related to scales of management; spatial planning; and knowledge resources. These findings make it clear that managing the transition to RE generation capacity can be effected using models of geo-governance, which recognize the unique spatial properties and the multi-scalar and trans-boundary nature of the policy problem (the geo aspect) and extend beyond formal government and market apparatuses (the 'governance' aspect)

**On Being a Princess and a Problem: Negotiating Attitudinal Barriers in Academia as a Female Student with Chronic Pain and a Chronically Ill Female Professor**

By Keri Cameron, Vera Chouinard, McMaster University

In this presentation we explore challenges in dealing with attitudinal barriers to inclusion in academia from the perspectives of a female student with chronic pain and a chronically ill female professor. Using an autoethnographic approach, we consider our experiences of being assigned devaluing identities as women needing accommodation in academia as a result of chronic pain and chronic ill health. We argue that gender and the (in)visibility of impairment are important in understanding such ascribed identities and their social meanings. These identities and meanings are, in a contradictory fashion, both internalized and contested. Struggling for inclusion thus involves self-devaluation and a sense of feeling out of place in academic places of life as well as efforts to reassert more affirming senses of self as entitled to accommodation and inclusion. In reflecting on our experiences of attitudinal barriers in academic places, we also consider how the different ways we are positioned in academic relations of power shaped our efforts to contend with attitudinal barriers to inclusion.

**From Residents to Taxpayers: Rob Ford and the 2010 Mayoral Campaign in Toronto**

By V. Capurri, Ryerson University

In this presentation, I discuss the 2010 mayoral campaign in Toronto, Ontario, focusing in particular on the language adopted by then City Councilor Rob Ford, who ended up winning the election and becoming mayor. By examining Ford's press releases and speeches throughout the campaign, my main interest is in analyzing how Ford almost avoided completely addressing Torontonians as residents of the city while repeatedly focusing on those who are taxpayers and consumers. While this emphasis on so called contributors to the city well-being may be considered part of a trend common all across Canada and the Western world, I argue that its consequences are quite severe insofar as they systematically exclude a significant section of the city population. At a moment when socio-economic polarization is gaining strength in our cities, it is problematic at best when the potential mayor of Canada's largest city consciously makes the decision to exclusively address a subsection of the city population thus ignoring those who, for one reason or another, are not taxpayers. Such a decision results in a city that is further divided between deserving and undeserving residents, seriously impacting on notions of urban citizenship and participation, and further contributing to polarizing the population.

**Understanding the Role of Social Capital in Environmental Adaptation: A Case Study of Climate Change**

By Francesca Cardwell, Susan J. Elliott, University of Waterloo

Global environmental change, including climate change, is now widely regarded as a significant threat to human and ecosystem health, to the point where we no longer talk about mitigation; rather, we refer collectively to adaptation. Further, the world's most vulnerable populations (the poor, women, marginalized populations) will experience the greatest impacts of global environmental change. A recent suggestion focuses on the role that the underlying sense of belonging and connectedness to a social group can play in increasing adaptation to global environmental change. This presentation will discuss the Partnership for LIFE (Living in Fragile Environments) research program, designed to investigate the role of social capital in communities faced with the prospect of health impacts of climate change. This research aims to address three specific objectives: 1) to investigate knowledge, attitudes and practices (KAP) around climate change; 2) to document current levels of social capital; and 3) to implement, in partnership with key community stakeholders, an intervention designed to address the health impacts of climate change. The results of the KAP of climate change pilot study (recently undertaken in Southern Ontario) will be discussed, specifically in the context of how the pilot study informs the broader protocol of the research program.

**Form, Stigma, Inequality and Health: Empowering Social Housing Through Visual Research Methods**

By Evan S. Castel, University of Toronto

The home is a pivotal site for the expression of self, with visual cues of architectural design, construction quality, ornamentation, age, physical condition, and individual customization contributing to a highly symbolic and deeply communicative language of status and individuality. Social housing presents a special case where the dynamic of state ownership and management largely denies residents the opportunity for individualization and self-expression in the built environment. Instead, in much of North American social housing an idiosyncratic built landscape – a certain identifiable “look” – has emerged from a complex interaction of design choices, functional demands, and economic pressures on construction and upkeep. These visual cues are “read” by both residents and outsiders and are tightly coupled to the perceived stigma of social housing, itself linked to a multiplicity of societal challenges including housing dissatisfaction, low social cohesion, neighbourhood isolation, crime, anxiety and depression. Visual research methods help unpack this relationship by offering residents participatory tools for questioning, imagining and re-democratizing the built environment of social housing. I offer an exploration of potential visual opportunities for examining how the language of built form is written, edited and read by participants including residents, neighbours, non-residents, and policymakers.

**Insights from The Canadian Geographer's Special Issue on Community-Based Participatory Research Involving Indigenous Peoples**

By Heather Castleden, Dalhousie University

Community-based participatory research (CBPR) has become widely touted as an ideal response and way to engage in research with Indigenous peoples that embraces community values and creates true research partnerships. CBPR with Indigenous peoples, organizations, and communities reflects an attempt to create the relationships necessary to engage in research that is: respectful towards Indigenous peoples by valuing their knowledge on all matters; relevant to Indigenous issues; reciprocal, in that Indigenous peoples benefit in tangible ways and two-way processes of learning occur; and a responsible approach that empowers Indigenous peoples through active and rigorous participation (Kirkness & Barnhardt, 2001). The release of the draft 2nd Edition of the Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans (TCPS) combined with recent controversies and concerns about the conduct of geographers working with Indigenous people, have prompted much reflection and discussion in recent years on issues of research methodologies, ethical considerations and community capacity. A special issue of The Canadian Geographer (release date April 2012), devoted to CBPR involving indigenous communities, provides some insights on the challenges involved as well as how more meaningful research partnerships between university researchers and indigenous communities might be achieved. This paper identifies highlights from the contributions to this Special Issue.

**Space Matters: Researching Disability in Higher Education**

By Mark Anthony Castrodale, The University of Western Ontario

Social and physical spaces can represent the ways in which dominant, non-disabled values and practices create spaces of exclusion (Hughes & Paterson 1997). Schools may represent places where students with disabilities can be categorized as Other and are subsequently treated in harmful ways (Kumashiro 2000). Students with disabilities attending postsecondary institutions often lack adequate academic supports, and encounter campus environments that are not accepting (Wilson, Getzel & Brown 2000). This research discusses the need for additional spatial inquiry on the lived experiences of students with disabilities in higher educational institutions. Photographs, narratives, and higher educational research are presented and interwoven to discuss how universities often represent sites that spatially marginalize and exclude students with disabilities.

**Resisting the Violence of Island Detention: Connecting Migrant Protests on Guam, Lampedusa, and Christmas Island**

By Kate Coddington, R. Tina Catania, Emily Mitchell-Eaton, Jenna Loyd, Syracuse University, Alison Mountz, Wilfrid Laurier University

The international proliferation of island detention sites demonstrates a range of strategies of political violence directed towards migrants. These strategies often emerge from an apparently disembodied geopolitical toolbox of mobile borders, territorial excision, regional migration agreements, and privatization of migrant management practices. Yet, they result in acts of embodied political violence, including the deaths and disappearance of migrant bodies, militarization, and isolation. As we discovered through the research of the Island Detention Project, migrants in these places are engaging in strategies of resistance that include embodied violence to counter the effects of ostensibly disembodied political strategies. In this paper, we argue that apparently disembodied geopolitical strategies produce embodied political violence directed at migrants detained on islands, which migrants in turn resist through their own acts of embodied violence. We develop this argument with cases drawn from research in Lampedusa, Guam, and Christmas Island. Migrants in Italy resist the political violence of repatriation agreements and push-back policies with the embodied violence of self-harm and political protest of their lack of human rights. These protests have resulted in migrants suffering additional violence at the hands of the state. Migrants in Guam counter the political violence of expanding border control tactics by seeking new modes of entry, often experiencing physical exploitation as victims of sex trafficking and wage slavery. The militarized conditions of Guam, which are extremely difficult to challenge politically, contribute to the vulnerabilities to harm and violence that migrants face. Migrants in Australia resist the political violence of offshore processing strategies and island excision with hunger strikes, mock burials, and self-harm, and publicize these actions through social networking both in and outside of detention sites.

**Triangulating the Geography of Food Deserts for Large Cities**

By Brian Ceh, Tony Hernandez, Daniel Boyko, Ryerson University

Food deserts are often thought to occur within proximity of the central city. While this is more likely to occur in small or medium-sized North American cities different opportunities and outlooks exist for large cities. With a decline in small, independent grocers over the past several decades in favour of larger, mixed grocery operations the availability of healthy food within Canadian cities is being questioned. Small and medium-sized Canadian cities seem more susceptible than larger cities to the impact that large food stores of notable distance to one another have on consumer food choice. In Toronto, for example, neighborhoods such as Greektown, Little Portugal, and Little India have many independently operated food stores offering a mix of healthy food choices. These types of opportunities are not as frequent in places such as Lethbridge, Regina, or Windsor. This study explores niche grocers within the food desert concept. More specifically, when local or neighborhood grocers are added to the formula of regional and national grocers do food deserts exist in cities such as Toronto? The findings show that when small, independent grocers are not included in food desert analysis spatial gaps in food opportunities seem to exist. Conversely, the inclusion of small, independent grocers in this study reveal that almost all food desert gaps that would exist seem to disappear or lessen in spatial extent. Studying niche grocery stores is important in defining the context and extent food desert geographies.

**The More Geographywaxes Multi-disciplinarity the More it is Capable of Dancing with the Arts.**

By Paul J.A. Chaput, Queen's University

My people will sleep for a hundred years. When they awaken it is the artists who will give them back their spirit. -Louis Riel 1885

(Métis leader executed by the foreign governments of Canada and Ontario.)

Although referred to as Louis Riel's prophecy, I would argue the above is a statement by a passionately, spiritual, philosophical and artistic being who appreciated the inevitability of the role of the arts in reconnecting peoples with their 'spirits'. The growing role of the arts in geography is fuelled by the same inevitability; geographers are increasingly augmenting the written word by turning to the arts in all its multi-dimensional aspects. Using my interpretation of Riel's 'prophecy' I will discuss the impact of the Aboriginal Peoples Television Network's Series Finding Our Talk: A journey through Aboriginal languages, launched in 2000, on the revitalization of Indigenous languages. I will also address other evidence of a cultural renaissance among the Indigenous peoples as reflected in the unprecedented success of such Indigenous arts showcases as the ImagiNative Film Festival.



**The Geographies of the Native Studies Curriculum in Ontario High Schools: Deconstructing Indigenous Stereotypes.**

By Paul JA Chaput, Queen's University

The geographies of the Native Studies Curriculum in Ontario High Schools: Deconstructing Old Stereotypes. Over half of BC's Indigenous communities have a youth suicide rate of zero (Chandler and Lalonde 1998); the aggregate suicide rate for Canadian youth is 12 per hundred thousand (Statistics Canada 2000-2004). The delivery of Native Studies courses in Ontario high schools has doubled in 2007-2008 and in 2008-2009. Drawing on the findings of Chandler and Lalonde and the analysis of Ministry of Education in Ontario (MOE) I will connect the dots linking these two statements to argue that, contrary to the stereotype that Indians are lazy, irresponsible, and don't like school (Shaughnessy, 1978; Mieder 1993; Merskin 2012), the response of Indigenous educators to the opportunity to create Native Studies courses in Ontario high schools is evidence of a burgeoning cultural renaissance and helps explain the failure of external solutions to closing the GAP between mainstream attendance and drop out rates and those of Indigenous high school students.

**Geographic Literacy: A Benchmark Study of Ontario Secondary School Students Approaching Graduation**

By Christopher William Charman, Wilfrid Laurier University

The health of Geography as an independent academic discipline has become an issue of intense debate in past years. Underlying this is a documented body of evidence that would tend to suggest geographic literacy among the general population is severely lacking. As geographic education, especially at the secondary level, is further marginalized, the situation can only become worse. Perhaps since geography is so pervasive and integral to everyday life, it is taken for granted. Unless a concerted effort is made to reverse this course of thinking, geographic education as we know it may disappear, as it subsumed by other disciplines and becomes a series of added extras, no longer taught by those with strong geographic backgrounds. The goal of this paper is to establish a meaningful benchmark for geographic literacy in students approaching grade 12 graduation. Current literature serves as a basis for developing a working definition of Geographic Literacy. Several previous attempts at evaluating geographic literacy are examined with respect to their methods, target population and findings. Based upon these, the development of a modified survey instrument is discussed, along with its initial application and the results there of.

**Spatial Interpolation: How much Spatial Variation It Can Capture for Surface Temperature Mapping**

By Dongmei Chen, Queen's University

Temperature surface is often generated from measured temperature values at weather stations through spatial interpolation. Due to the limited number and distribution of weather stations, the spatial pattern of temperature surfaces may be distorted. In this study interpolated temperature surfaces are generated using different interpolation methods from weather stations of Ontario and temperature sensor network near Kingston area. To illustrate the spatial variation of temperature, surface temperature extracted from remotely sensed data is also used in comparison. This study highlights the potential bias and limitation of spatial interpolation methods and offers some suggestions and potential methods of integrating remotely sensed data with ground-measured temperature data.

**Accuracy Assessment in Change Detection: A Study with Simulated Images**

By Angela Cheng, Dongmei Chen, Queen's University

Accuracy of change detection in remote sensing is often measured using the traditional error matrix at both time stamps for each image classification. The accuracy of the resulting change detection image is then derived based on the accuracy of error matrices for both images. It is assumed that the error matrix of the change detection will reflect error propagation of both matrices. However, this approach may not reflect the errors related to change and does not show where these errors exist. In this study, simulated images were used for change detection. Known classification and registration errors were added to those images. Accuracy assessment with different sampling sizes was conducted. The error matrix of each image was compared to the change detection error matrix to study whether actual spatial and quantitative errors was accurately reflected.



### Engaging the Zimbabwe Diaspora for Development: Possibilities and Obstacles to Engagement

By Abel Chikanda, Queen's University

Zimbabwe has lost a substantial proportion of its medical doctors over the past two decades through emigration. The resulting staffing shortages have been blamed for the declining quality of health care in the country's public health institutions. As the movement of medical doctors from the country continues to gather pace, researchers and policy makers alike have expressed concern on the impacts of the movements, particularly on the attainment of the millennium development goals (MDGs). At the same time, recent migration literature has brought attention to some of the benefits that can accrue to migrant sending states through engaging their diasporas for development. Drawing upon research undertaken with emigrant Zimbabwean medical doctors, this paper examines the ways in which the medical diaspora could potentially contribute to the re-development of the country's health delivery system. The paper argues that while engaging the medical diaspora represents a meaningful way of utilising the professional expertise of the diaspora, and of turning the medical brain drain into a brain gain, significant challenges could potentially limit its effectiveness in Zimbabwe. Diaspora engagement should be pursued alongside other measures that ensure the long-term supply and retention of medical doctors in the country.

### The Discovery of Regional Chauvinism: Considering Indo-Canadian Relations of Knowledge Production

By Simon Chilvers, York University

This presentation is in two parts, both speaking to the theme of connecting 'theory' and 'practice' by reflecting upon how researchers position themselves/are positioned in relationship to different on-going struggles in spatially-distanciated locales. The first part narrates the personal experiences of the author, who, from an Ontario university, performed research during the 2000's in village India. Acquiring the most basic understanding of issues important to researched populations involved a number of departures from what commonly is viewed as 'methodological best practice'. On reflection, 'outsider' status appeared relatively more valuable than that of being an 'insider' when it came to dealing with social institutions in Canada and India (though not without certain tensions). The second part reflects upon how the research project questions became reformulated as the author gained a relatively privileged access to organisations concerned with protracted popular struggles. This essentially self-reflexive presentation concludes by summarising how the basic human geographical concepts the study began with (region, state, language, religion, amongst others) were challenged as a result of fieldwork experiences. In turn, this meant that new research possibilities emerged, in collaboration with grassroots intellectuals.

### The Economics of Integration and Disintegration: A Study of 'Regions' in the Indian Union

By Simon Chilvers, York University

This paper explores the conference theme of 'integration' in South Asia. The subcontinent on the eve of Partition in 1947 represented a mix of different political units and populations with little in common save their bitter experiences of colonial authority. This paper tracks the development of the Indian Union, created from several willing and unwilling territories in the late 1940s and early 1950s. It tracks the various strategies that initially sought to provide a measure of autonomy for different regions to centralising tendencies of the late 1950s and 1960s, before considering the fate of the 'national project' after the 1975-7 Emergency. An assessment of the present-day dynamics of regional formation, whereby a token measure of political autonomy appears locked within an iron cage of strengthening federal powers, concludes the presentation. Posited by way of explanation for the changing fortunes of 'regions' in the Indian Union as expressed by everything from the evidence of militant struggles to concepts in school textbooks are the dynamic contradictions in relations between different classes in the subcontinent, and their cross-border linkages. The presentation, in this respect, summarises select themes from an edited volume recently prepared by the author together with colleagues from the Indian Formation Research Society.

**Refugee and Refugee Claimant Women's Journey to Health and Re-settlement to Hamilton, Ontario**

By Jenny Cho, McMaster University

Refugee women are more vulnerable to gender-specific violence and persecution during forced migration and are also more likely to experience poorer health outcomes and access to health services during the resettlement process compared to their male counterparts. In keeping with the goals of feminist geographical tradition, this study seeks to investigate refugee women's experiences of health and well-being through a gender-based analysis. A combination of in-depth interviews and focus groups were conducted with various health and social service providers (n=9) who currently work with the local refugee population and with refugee women (n=50) from various source countries, and multiple refugee designations having resettled in Hamilton, Ontario. Results from the study demonstrate that contextual factors such as socioeconomic status, ethnicity, immigration class, gendered roles and expectations, social support networks, social exclusion help explain differential accessibility and utilization of healthcare services for refugee women. Broader policy changes made at the national level have profound and sometimes immediate effects on the quality and quantity of services available for refugees in Hamilton. As Hamilton continues to receive higher proportions of refugees in comparison to other immigration classes for primary settlement as well as secondary settlement due to its close geographic proximity to Toronto, it will become increasingly important to understand the unique experiences of refugees including gender-based differences in order to effectively meet their health and social service needs in a manner that honours Canada's commitment to the Geneva Convention.

**Stubborn Demographics: Women and Visible Minorities in Canadian Geography Departments**

By Andrea Choi, Queen's University

In 2002, The Canadian Geographer published a special section on Equity for Women in Geography. The collection of articles identified a number of the institutional, cultural and systemic barriers encouraging the maintenance of whiteness within the academy, and more specifically, within the discipline of geography. One of the studies found Canadian geography departments had a disproportionately low number of faculty members who are visible minorities. Female visible minority faculty in geography departments were poorly represented at less than two percent. This paper revisits the concerns presented in 2002 regarding the presence of women and visible minorities in geography and evaluates the demographic shift/lack of shift within Canadian geography departments over the last decade.

**Telling Stories: Research Storytelling as a Meaningful Approach to Geographical Research**

By Julia Christensen, University of British Columbia

During my research on homelessness in the Northwest Territories, I was troubled by a significant disconnect I encountered between the emotive, personal narratives of homelessness that I gathered, and conventional approaches to research dissemination. In search of a way to engage more meaningfully with research collaborators as well as the broader public, I turned to my creative writing work. I hoped that I might write about homeless geographies in a more visceral way, creating emotional geographies of public significance in doing so (Johnston and Pratt 2010, 133). In this presentation, I draw from my efforts at research storytelling to discuss a method of dissemination that offers new potential for thinking about, interacting with, and sharing research. However, I also discuss the ways in which combining creative writing with academic research has been an uneasy fit, forcing me to question how to tell a good story while giving adequate space to both my positionality as a non-Indigenous researcher doing research with Indigenous communities, and the role that academic research has played in story development. Drawing on these challenges, I offer an understanding of what research storytelling is, what it isn't, and the possibilities it presents for research and writing in geography. Johnston, C., and G. Pratt. 2010. Nanay (Mother): A testimonial play. *Cultural Geographies* 17(1): 123-133.

**Wind Power Developments: How Policy and the Planning Process can Influence Opinion**

By Tanya Christidis, University of Waterloo

The number of wind power developments has been increasing across Canada. In Ontario specifically, the Green Energy Act has resulted in a wind power capacity that far exceeds what has been developed in other provinces. As wind development has progressed, groups of concerned citizens have formed across the province, rallying to stop proposed wind power developments. This talk will begin by reviewing wind power policies across Canada as well as discussing which types of policies can facilitate wind power development and which types can result in citizen disapproval. Following this, the factors leading to either positive or negative opinions of wind power will be examined through a review of academic literature and popular media. Opinions of wind power developments are nuanced and complex at both the community and individual level, but it is speculated that community engagement in the planning process heavily influences opinions. Policies like the Green Energy Act in Ontario are more likely to lead to negative opinions of wind power developments because of their top-down approach. Suggestions on how to mitigate negative opinions of wind power developments through policy and the planning process will be made based on a review of both the literature and case studies of successful wind power developments.

**Food Desert or Food Oasis? Humber Summit, Toronto in the Eyes of Its Residents**

By M. Chrobok, York University

In recent years, a growing body of literature has emerged on the subject of food deserts, areas in cities where residents are said to have a limited ability to access healthy, good quality food. Previous studies, particularly those undertaken in Canada, have focused primarily on mapping the locations of food retailers across cities as a means of measuring such accessibility. Little attention has been given to uncovering how urban dwellers themselves conceptualize food access. Using structured interviews conducted with 30 residents of Humber Summit, Toronto, this research examines whether differences in local food environment perceptions and experienced degree of food access exist among people of European and non-European origins living in a conventionally-defined food desert. The results show that a significant distinction exists along ethnic lines in terms of how individuals view Humber Summit: most people of European origins sensed the neighbourhood to be a food desert, while those of non-European origins did not. This research underscores the highly subjective nature of the food desert phenomenon.

**Socio-environmental Determinants of Cardiovascular Health: Towards Novel Preventive Strategies through Modifications of the Built Environment**

By Antony Chum, University of Toronto

**Objectives:**

Conventional cardiovascular disease (CVD) preventive strategies typically involve the modification of individual-level behavioural and biological risk factors. Given the emerging body of studies that has established the impact of residential neighbourhoods, independent of individual level risk factors, on cardiovascular diseases, alternative CVD preventive strategies may be informed by further studies into these place-health associations. The purpose of this study is to help bridge the gap between public health and urban planning by investigating the causal pathways through which the built environment may impact CVD outcomes.

While CVDs remain the leading cause of death worldwide, public health practitioners may consider new preventive strategies through modifications of the built environment; however, further research to elucidate specific place effects on CVD is required. Towards this goal, our study titled 'Neighbourhood Effects on Health and Well-being' is developed, and it implements a cross-sectional survey of 2412 adults across 87 random neighbourhoods in Toronto, Canada. While neighbourhood deprivation has been positively associated with incidences of coronary heart disease, myocardial infarctions, and heart disease mortality, the specific causal pathways underlying neighbourhood social determinants of CVD are not well understood.

**Methods:**

Drawing on survey data and GIS analysis of commercially available and administrative data, we analyze a diverse range of place characteristics and its impact on CVDs: traffic, noise, land-use, crime rates, parks/recreational space, housing disrepair,

neighbourhood deprivation, and the food environment. Multilevel logistic regressions are used to disentangle the contextual effect of neighbourhoods from compositional characteristics on myocardial infarction (MI) and other CVDs. In these models, we control for respondents' individual-level risk factors to understand the unique contribution of neighbourhood factors.

#### Innovations:

While literature concerning place-effects on health has primarily looked at residential neighbourhoods, this project analyzes participants' work locations to examine the combined impact of residential and workplace neighbourhoods on CVDs. While the majority of studies use census tracts as proxy for neighbourhoods, there is little evidence that they are appropriate. To address this issue, we use multiple neighbourhood boundaries to investigate scalar effects.

#### Conclusions:

In summary, the analyses indicate that socio-environmental contexts, including the lack of access to food stores, presence of fast food restaurants, higher rate of violent crimes, living near high traffic and noise exert significant effects on MI and other CVDs, even after controlling for individual demographic risk factors. Access to parks and recreational spaces is significant for MI only, but not for other CVDs. The presentation will relate our major findings to policy ramifications for both public health and urban planning. We will highlight emerging planning, design and architectural innovations, through key examples, that may be useful starting places to forge productive coalitions between health professionals, planners, architects, builders, urban designers, and transportation officials to ameliorate these socio-environmental risks.

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Presenter: Kristina Cimaroli

Session/Séance: **TH1-B**

#### **Individual and Contextual Determinants on Frequency of Blood Donation in Canada with a Focus on Clinic Accessibility**

By Kristina Cimaroli, Antonio Páez, K. Bruce Newbold, Nancy M. Heddle, McMaster University

This paper investigates the effects of demographic determinants and clinic accessibility on the frequency of blood donation in Canada excluding the province of Quebec, providing a national assessment of blood donor correlates at the individual level. The stability of Canada's blood supply is influenced by a variety of factors including donor age, gender, and place of origin. Further exploration of these demographic factors in addition to clinic accessibility may help to explain why a limited number of repeat donors are currently contributing, with many donors giving blood only once a year. Blood products are used for transfusion in many routine procedures as well as emergency medical care, and repeat donors are vital to maintain a safe and secure blood supply. Individual donor and clinic information is obtained from the Canadian Blood Services 2008 national dataset, with contextual data from the 2006 Canadian Census. Discrete choice models are used to assess the effects of these variables on frequency of blood donation across the country, highlighting the importance of clinic accessibility. The analysis is prepared for major Census Metropolitan Areas in Canada. Results may contribute to service optimization and targeted advertising, ultimately aiming to encourage the eligible population to donate.

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Presenter: Jonathan Cinnamon

Session/Séance: **W3-B**

#### **Volunteered Geographic Information and the Data-divide**

By Jonathan Cinnamon, Nadine Schuurman, Simon Fraser University

This paper describes a pilot study conducted in South Africa, which used volunteered geographic information (VGI) protocols and a geospatial Web interface to obtain geographic information related to the public health problem of injury in a 'data-poor' setting. This study was designed in response to the inability to collect these data using more traditional injury data collection mechanisms in this setting. As a pragmatic response to this gap in available data, emergency medical services (EMS) paramedics were asked to volunteer their knowledge of high-incident injury locations in Cape Town. Volunteers interacted with a GeoWeb interface, which recorded their suggested injury locations and further information pertaining to injury events at the sites. It was assumed that this informed user group - due to their attendance at injury events - would be able to shed light on high-incident injury locations, which might help to inform injury prevention activities. This paper describes this pilot study within larger contexts; how it aligns and diverges with other VGI projects, and how this type of 'facilitated VGI' project could help to address the 'data-divide' - the reality of very poor data availability in low-resource settings. If the veracity of data collected using these protocols can be confirmed, VGI may have a role to play in increasing the availability of georeferenced data in these settings.

**Researching East London's Urban Environmental History Using Historical GIS**

By Jim Clifford, York University

Historical GIS was essential for researching the environmental and social history of the Lower Lea Valley on the eastern edge of nineteenth century London (England). The region transformed from wetlands and farms to a patchwork of large and small factories, housing districts, garbage dumps and a few remaining pockets of marshlands. Understanding this spatial transformation was essential for the wider research project on the relationship between the environmental and social histories in the region. The detailed maps held at the British Library and the London Metropolitan Archives, provided the sources to create a GIS database tracking suburban and industrial development from the late eighteenth century to the early twentieth century. The database helped answer key questions on the development of the region. It demonstrated, for example, a close relationship between the slowing of industrial growth in the early twentieth century and the environmental degradation of particular streams. Secondly, it was possible to show a close correlation between housing districts built on partially reclaimed marshes, high levels of social distress, and high rates of infant mortality. Beyond these discoveries, the process of creating a historical GIS database was an essential research methodology. It would be very difficult for historians to read, interpret, and compare dozens of maps, engineer's reports and public health documents to this level of detail without GIS software. This process provided an in-depth knowledge of the changing spatial context and provides a unique foundation for historical analysis of the social, political and environmental conditions in West Ham.

Presenter: Andrew F. Clark

Session/Séance: **W4-A****Barriers to Unorganized Sport Participation: A Case Study from Hamilton, Canada**

By A.F. Clark, D.M. Scott, McMaster University

Sport is an integral part of a healthy, active lifestyle for people, but in Canada and many other places around the world there is a lack of sport participation. This lack of sport participation is a contributing factor to the general inactivity of the Canadian population, which can cause many health problems such as asthma, heart disease and obesity. This study will be a preliminary analysis of data collected as part of the Hamilton Active Living Study (HALS) in the city of Hamilton, Ontario during the summer of 2010. The survey was a comprehensive look at the active lifestyle of the Hamilton population, which included questions about exercise, walking, bicycling, active video games, and sports. The questions about sport ask about an individual's participation in sport as well as the barriers that prevent participation. The preliminary analysis of the HALS dataset will use inferential statistics to answer 3 research questions. First, how much sport participation is there in Hamilton? Second, what barriers to sport exist and are any barriers more prevalent than others? Third, do traditional barriers, such as income, age, gender, and weight, impact sport participation?

Presenter: Kate Coddington

Session/Séance: **W3-H****Conceptualizing Detention on Christmas Island: Mobility, Containment, Bordering, and Exclusion**

By Alison Mountz, Balsillie School for International Affairs and Wilfrid Laurier University, Kate Coddington, R. Tina Catania, Jenna M. Loyd, Syracuse University

Detention is a pressing empirical, conceptual, and political issue. Detained populations, detention facilities, and industries have expanded globally. Detention is also a fundamentally geographical topic, yet largely overlooked by geographers. In this paper, we detail an empirically and conceptually driven rationale for our advocacy of more geographic research on detention and discuss the specific spatial tactics embedded in landscapes of detention. Drawing on the emerging, interdisciplinary field of detention studies, we argue that detention be conceptualized as a series of geographical processes. Operating through these processes are contradictory sets of temporal and spatial logics that structure the seemingly paradoxical geographies underpinning detention. These logics include containment and mobility, bordering and exclusion. The series of processes, logics, and paradoxes that fuel the contemporary practices and expansion of detention are neither necessarily chronological nor exclusive in nature. On the contrary, we argue that it is precisely the overlapping and integrated nature of these processes, practices, and logics that accounts for the intensification of detention and the complexity of conducting research on the topic. We trace these logics through an emergent literature, synthesizing and analyzing important geographic themes and exploring them through experiences drawn from field research conducted on detention of asylum seekers on Christmas Island, Australia.

**Air Quality at Edmonton's Outdoor Festivals**

By Damian Collins, M. Parsons, C. Zinyemba, University of Alberta

Edmonton markets itself as "Canada's Festival City", and each year hosts an array of outdoor public events, particularly during the summer months. This research sought to measure exposure to airborne fine particulate matter (PM<sub>2.5</sub>) at three summer festivals. Such exposure is a well-documented public health hazard, and was considered likely to occur at festivals for two reasons. First, tobacco smoking is essentially unregulated in these environments. Second, festivals include temporary food establishments, which potentially emit fine particles from equipment such as barbeques and grills. Data collection involved observing sources of smoke while logging PM<sub>2.5</sub> readings in real-time with portable equipment. On average, 20 smokers were observed in close proximity every hour. PM<sub>2.5</sub> levels were characterized by brief but intense spikes separated by long periods of low readings. High readings were most often associated with proximity to cooking establishments. Mean levels near these establishments are sufficient to present moderate health risk. Peak levels often exceed recommended guidelines, and may threaten the health of food preparers and festival-goers queuing for food. The paper concludes by identifying options for improving outdoor air quality in festival settings.

**Examining the Relationship Between Active Transportation and Neighbourhood Deprivation in Kingston, Ontario: A Spatial Analysis**

By Patricia Collins, Queen's University

Active transportation (AT) is any form of human-powered transportation (e.g., walking, cycling) to a destination. This study examined the spatial relationship between AT activity and neighbourhood deprivation in Kingston, Ontario. Telephone surveys were conducted with a random sample of  $n=1400$  adults (response rate=21%). Respondents indicated whether they had engaged in any AT, and in what form, in the week prior to the survey. Respondents also provided residential postal codes. Mean respondent age was 51 years; 44% were full-time employed, 23% were retired, and 62% had household incomes under \$80,000. Valid postal codes were provided by  $n=1265$ . Among these,  $n=917$  were AT users (86% walkers, 14% cyclists) and  $n=348$  were non-users. The survey catchment contained 188 dissemination areas (DAs), and respondents residential locations were mapped using GIS. Spatial clustering was greater among non-users than users; 28% of non-users lived in one of eight DAs, while 7% of users lived in one of three DAs. Similarly, AT type revealed greater spatial clustering in residential locations for cyclists than walkers. DAs within the highest quintile of deprivation had the highest proportion of users (27.9% to 34.0%), while DAs within the second highest quintile had the lowest proportion of users (7.5% to 11.3%). Most respondents engaged in walking as a form of AT, yet the majority of these individuals were not residing in Kingston's dense urban core, where one might expect to observe greater concentration of AT-engaged residents. This study also demonstrated a nuanced relationship between neighbourhood deprivation and AT engagement.

**A Song About David Harvey? Why Sharing Artistic Practice in Geography is Crucial for New Ways of Understanding and Interacting in the University**

By Tom Collins, University of Leeds

Marcel Proust's dictum that the real voyage of discovery consists not in seeking new landscapes but in having new eyes holds the important message that the quest to see differently lays at the heart of an awaking relationship with the world, a world of new understanding and vision. I contend that artistic practice in geography finds particular resonance with this message, both in laying out new ways of seeing in space and place, but also in the way which artistic practice can communicate and share an opening up ourselves that can foster new and productive relationships between people. The institutional conditions for this to occur are challenging however, and I lay out here a few of the challenges we face, but I contend that creativity can be both academically and socially rewarding as a way of opening up the communicative and emotional landscape of learning, sharing and knowledge making. Why shouldn't we express ourselves in geographically creative ways?

**Teaching Land Use Planning with Case Studies: Benefits of Engaging Students in 'Real' Planning Issues and Contexts**

By David J Connell, Kerry Pateman, University of Northern British Columbia

This presentation is based on the authors' experiences of using case studies as the primary teaching resource for a senior level undergraduate course on land use planning. The set of cases were constructed as educational resources to engage students in 'real' planning for the use and conservation of land that enhance the social, economic, and environmental well-being of rural communities in British Columbia. The set of rural and regional land use planning case studies cover a range of issues and contexts, including: interface lands between Crown Lands and rural settlements, mining, First Nations on-reserve, forestry, regional urban centres (with limited growth), and agricultural reserve lands. Each case study presents a comprehensive analysis of the objectives, issues, stakeholders, and outcomes of how a planning process was carried out. Essential to these cases is a short 'story' that gives some data, prompts a series of questions, and leads to a decision point. The authors will discuss how these case studies have been used to immerse students in situations they are likely to face as professional planners and in decision-making processes that need to be solved. Through active learning, these case studies help bridge the gap between planning theory and professional practice.

**Helping to Conserve the Ancient Cedars of BC's Inland Rainforest: A Socio-economic Study of Non-timber Forest Values and Uses**

By David J Connell, Jonathon Hall, Jessica Shapiro, University of Northern British Columbia

The ecological significance of over one-thousand year old 'ancient cedar' stands of British Columbia's inland rainforest as a globally unique ecosystem is a relatively new discovery. Unfortunately, this discovery came after many land use policies were set and licenses issued for timber harvesting. This means that efforts to assess the non-timber values are playing catch-up. In this presentation we will discuss the results of on-going efforts to assess the non-timber socio-economic values and uses of the ancient cedars. These efforts include a study of forest values held by area residents and a study of the economic potential for eco-tourism in the area. The results of these studies suggest that the benefits of non-timber uses are far greater than timber uses and that land use policies should be changed to align with the highest and best use of these unique forest stands.

**Gray Zones in the Global Trade and Traffic of Electronic Waste**

By Creighton Connolly, Memorial University

This paper examines the processing and trading practices within the in/formal economy surrounding electronic waste (e-waste) in Singapore and its surrounding region by asking two main questions: first, it asks how the international trade networks for electronic waste are formed, organized and regulated by considering who and what are the actors enabling the trade; second, it considers the extent to which legality is or is not a characteristic of these practices. It builds on previous work demonstrating that there are no clear boundaries between the illegal or the in/formal and evaluates the (in)effectiveness of legislative measures employed at varying levels of jurisdiction to regulate the trade in e-waste. The Basel Convention is the international treaty that supposedly regulates the international trade and traffic in hazardous (including electronic) waste, yet there are several shortcomings in the Convention which leave room for exploitation. This work was conducted through three months of in-depth, qualitative ethnographic fieldwork in Singapore, Malaysia and Batam, Indonesia. A key finding of this paper is Singapore's role as a global source of secondhand electronics to developing regions, which flies in the face of mainstream publications criticizing e-waste flows to the developing world, and is not accounted for in the Basel Convention



**Seeing the People Through the Trees: Exploring the Role of People in Shaping Biophysical Components of the Urban Environment**

By T.M. Conway, University of Toronto- Mississauga

A historic lack of focus on urban areas by physical geographers and ecologists alike has left major gaps in our knowledge of the processes shaping biophysical conditions within cities. Yet, understanding processes and patterns associated with natural features in urban landscapes is crucial given the ever expanding urban population and important services many of these features provide. Recent research within urban ecology often conceptualizes cities as gradients of people or activity, with higher densities or intensities associated with fewer species and/or ecological services. However, reducing the complexity of modern metropolitan areas to simple gradients overlooks the complex interactions between the underlying physical conditions, built form, policy, social, and economic factors that drive biophysical patterns within urban areas. This presentation will examine the idea of cities as ecosystems and the specific role of community groups and individuals within those systems, whose small-scale decisions often drive the larger patterns we see in cities. In particular, methodological approaches and the related challenges of studying human drivers of biophysical features in urban landscapes will be discussed. Examples will be drawn from studies of socio-ecological interactions focused on urban forest patterns within the Greater Toronto Area.

**Creating Visual Spatial Knowledge: A Case for Auto-photography**

By Nancy Cook, David Butz, Brock University

Human geographers have recently been exposed both to critiques of an epistemology of vision and calls for the increased use of visual methods. In response, qualitative researchers are searching for new visual techniques that allow them to avoid the spectres of objectivism and appropriation that haunted earlier approaches. In this paper we make a case for one of those emerging techniques: auto-photography. We recently used auto-photography in a study of the impacts of road accessibility on social organisation in a village in northern Pakistan, and found that the technique allows us to access and construct spatial knowledge in ways that address epistemological concerns about visuality. It does so by locating the process of representation with participants, making them the subjects rather than objects of vision. In this context, participants narratives about their photographs constitute local, subjugated knowledge produced by an unseen community whose lives and struggles remain largely invisible. These narratives highlight participants editorial decisions about what they photographed and why, thereby providing important insights regarding the social construction of visual knowledge.

**The Importance of Credibility and Relevance of Public Input in Community Planning**

By Terri Cowan, University of Waterloo

Volunteered Geographic Information (VGI) describes geographic information contributed by citizen scientists in the web environment. The advent of Web 2.0 has allowed citizens to become online data producers leading to the popularity of social media. As online interaction continues to replace face-to-face social interaction, Volunteered Geographic Information presents an opportunity for the web-based interactions to serve as a web-based method of public participation in the formal planning process, however, uncertainty about the credibility and representativeness of volunteered geographic information has been a hindrance. Similarly, traditional methods of public participation, such as public consultations, town hall meetings etc., which are often characterized by an overrepresentation of opponents as opposed to proponents and demographic differences between the participants and the community members, are also faced with difficulty in determining the credibility and representativeness of participants contributions. Contributions are often motivated by personal interests and NIMBYism rather than the interest of the entire community. Based on these observations, I will discuss the importance of credibility and representativeness in public participation. In light of the numerous quality control measures that have been developed by researchers in response to the credibility issues associated with VGI, I will recommend measures that should be put in place to assess the credibility and representativeness of contributions through the use of VGI public participation. In the absence of a facilitator in VGI public participation, relevance is a factor that is also addressed.



**Putting the "Social" in the Study of Environmental Science: Epidemiology and the Case for maintaining the "Nature-Nurture" Balance**

By Georges G. Cravins, University of Wisconsin

Over the past three decades, Western academia has witnessed a proliferation of programs, institutes and degrees devoted to the study of the environment. Quite commonly, there has been a two-pronged approach to the formal study of environment in most colleges and universities in the Anglophone world: one set of programs which is based in the natural sciences, including in physical geography, biology, and chemistry; another set of programs which is usually based in the social sciences and the humanities. In some universities, environmental programs reflect this bifurcation, with options in "environmental studies" and "environmental science". With respect to "environmental science," the focus has clearly been on study of phenomenon which can be measured, tested, and quantitatively analyzed. Due to academic specialization, a typical academically-trained "environmentalist" is often someone whose analysis is narrowly-focused and limited to an analysis of immediate, directly measurable causes. My own experience teaching and working with both students and faculty specializing in environmental science has demonstrated the crucial need to place the social environment – that composite of experiences which are created and orchestrated by human society – at the center of environmental study. The particular focus of this research is disease etiology. It is argued that in the study of disease, too much emphasis is placed on the immediate analysis of bio-chemical elements, and too little attention is given to the social-environmental factors which often dramatically determine the level and seriousness of major modern human diseases, including Type II diabetes, cardiovascular diseases, and cancers.

**Going Through the Back Door: Chronically Ill Academics Experiences as Unexpected Workers Seeking Accommodation in Canadian Universities**

By V.A. Crooks, S-D. Stone, M. Owen, Simon Fraser University

Framed around the notion that chronically ill academics are unexpected workers in an able-bodied work environment, we draw on 35 interviews with Canadian academics with multiple sclerosis (MS) to explore their experiences of seeking accommodation, including in gendered ways. This analysis shows that getting accommodation needs met is not a straightforward process for many academics with MS, who find they sometimes have to go through the back door. It is also found that seeking accommodations is highly dependent on whether or not one has disclosed having MS to others and the institutional supports that exist to assist disabled faculty members. The analysis advances understanding of how chronically ill employees within a particular organizational culture do (or do not) get their needs accommodated, thereby adding to the literature on the relationship between organizational culture, disability accommodation, and workplace diversity.

**Many Strong Voices: Climate change and resilience in the Arctic and Small Island Developing States**

By John Crump, UNEP/GRID; Ilan Kelman, Centre for International Climate and Environmental Research, Alyssa Johl, Center for International Environmental Law, Robin Bronen, Alaska Immigration Justice Project

The Intergovernmental Panel on Climate Change (2007) identified the Arctic and Small Island Developing States as among the regions most vulnerable to rapid climate change because of their close ties to land and sea environments.

While communities in both regions have adapted to changing conditions in the past, it is not clear that those experiences and abilities will suffice to deal with ongoing social and environmental changes. These regions are barometers of global environmental change. They are considered critical testing grounds for the ideas and programmes that will strengthen the adaptive capacities of human societies confronting climate change.

To develop links between these regions, UNEP/GRID-Arendal and the Center for International Climate and Environmental Research - Oslo (CICERO) are co-coordinating the Many Strong Voices (MSV) programme. MSV's goal is the wellbeing, security, and sustainability of communities and provides a platform for people in these regions to tell their stories to the world. Lessons learned will support policy development at local, regional, and international levels. They will provide decision makers in the two regions with the knowledge to safeguard and strengthen vulnerable social, economic, and natural systems.

The paper will examine three interconnected aspects of MSV:

- Rationale – addressing the ethical issue of unequal distribution of climate change impacts;
- Research – climate change, relocation and human rights; and
- Reaching Out – Indigenous youth from the Arctic and SIDS telling their stories through the Portraits of Resilience photography project.

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Presenter: Jonathan Crush

Session/Séance: **TH2-H**

### **Migration, Development, Food Security: Missing Links**

By Jonathan Crush, Balsillie School of International Affairs and Queen's University

Over the last decade, two issues have risen to the top of the international development agenda: Food Security; and Migration and Development. Each has its own international agency champions, its own international gatherings, its own national line ministries and its own voluminous body of research and scholarly publications. There is, in other words, a massive institutional, substantive and discursive disconnect between these two development agendas. The reasons are hard to understand since the connections between migration and food security seem obvious. Indeed, one cannot be properly understood and addressed independently of the other. This paper explores the nature of this missing link and the implications for thinking and prescriptions about food security, migration and development.

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Presenter: Sarah Quinlan Cutler

Session/Séance: **TH1-G**

### **The Inca Trail as a Secular Pilgrimage**

By S. Quinlan Cutler, Wilfrid Laurier University

Much of the research linking pilgrimage and tourism is done with a focus on religion, only recently has literature on secular pilgrimage in tourism emerged. This research contributes to these new discussions on secular pilgrimage by examining the experiences of hikers along a globally recognized tourist road, the Inca Trail in Peru. The hikers are identified as secular pilgrims who face both physical and mental challenges along their journey through various Peruvian landscapes towards the World Heritage Site of Machu Picchu.

Data sources used to investigate this include the collection of experiential reactions during the hike using the Experience Sampling Method, post-travel interviews and open-ended questionnaires, and the collection of photographs taken by hikers during their Inca Trail experience in Peru.

Results indicate that great meaning and importance is ascribed to hiking the Inca Trail, assigning a sacred nature to this experience. This pilgrimage becomes a way in which to connect with history, the self, and fellow hikers within a fluid space of great natural and cultural importance.

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Presenter: Ewa Dabrowska

Session/Séance: **T3-E**

### **Connecting Students with Greenspace: Reflections on the Experience of Designing and Teaching Field-based Urban Geography Courses.**

By Ewa Dabrowska, Wilfrid Laurier University

This paper reflects on the experience of designing and teaching problem-oriented, field-based upper level urban geography courses using mixed methodologies. In particular, it focuses on the limits and opportunities of applying a blended-learning approach. This analysis considers student participation in 20 research projects conducted in different environments. The results revealed that mixed methods could be successfully implemented to encourage student engagement through their participation in a wide range of community programs. It concludes with some critical comments about the challenges students face adjusting to the demands of field-based studies.

**The Use of Game Cameras for the Time Lapse Recording of Temporally Dependent Phenomena in Physical and Human Geography**  
By Daryl F. Dagesse, Brock University

The technological evolution of cameras from film based recording devices to digital devices has changed the way temporally dependent processes in human and physical geography can be recorded. Without resorting to expensive equipment and elaborate setups, time lapse photography has typically required the photographer to either remain on station for extended periods or make repeated site visits. In either case the resultant data stream is necessarily temporally fragmented thus limiting its usefulness. The advent of readily available inexpensive cameras (trail cameras or game cameras) capable of remotely collecting either still images or video largely circumvents these limitations. Capable of being set up and left in the field for extended periods, these cameras may be left to unobtrusively record otherwise unseen events, triggered either by built in digital timers or motion sensors. Large volumes of data may be recorded on large capacity digital recording media thus reducing the need for frequent visits to retrieve data. Set up time in the field can be further extended with the use of solar panel technology. The use of multiple cameras and digital manipulation of either images or video facilitates 3D viewing thus adding interpretive value to the data.

**One River - Multiple Places? Exploring Pluralism and Resource Politics on the Gander River, Newfoundland, Canada**  
By Jennifer Daniels, Memorial University

In this presentation, I use a critical-constructivist lens to explore various understandings and enactments of resources on the Gander River, central Newfoundland. The presence of different kinds of resources suggests that the river is experienced not only through multiple senses-of-place; it is also performed as multiple places. For decades geographers have emphasized that places consist of networks of socio-spatial relations, arguing that identity is highly intertwined with these relations. Yet, in the vast majority of environmental governance and natural resource geography literature such relationality is not extended to the bio-physical landscape. Further, rarely is serious consideration given to questions of materiality of resources. Without critically engaging with materiality and relationality, discussions surrounding local resource politics will continue to privilege the one place multiple perspectives on its modality, while negating the co-existence of other possible realities. The performance of various identities by First Nations and non-Aboriginal river users through their day-to-day, embodied practices reveal that these resource geographies cannot be conceived solely through rationalist, straightforward realist terms. Articulating these practices is critical in bringing alternative places into better view and drawing into question the appropriateness of typically technocratic and rationalist resource management approaches.

**Effect of Increased Density of Green Roofs on Low Flows**  
By Yuestas David, T. Drezner, T. Remmel, York University

Green roofs are effective in reducing runoffs, particularly for low precipitation events. They are often evaluated based on cost benefits with regards to energy savings, but seldom investigated on their hydrological significance at larger spatial scales. How does their ability to store and evaporate water from low precipitation events, which would otherwise be an input to streams, affect river flow in the watershed? This question is investigated using data collected for the green roof at York University by the Toronto Region Conservation Authority (TRCA) from 2003-2005. Precipitation and runoff data for the first two years are used to calibrate the Soil Conservation Service Curve Number (SCS-CN) method by which runoff is predicted for the third year. The agreement between the predicted and observed runoff rates for the third year, allows the calibrated method to be applied for modeling outcomes of retrofitting green roofs on all flat rooftops in the watershed. The abstracted quantity of water by the green roofs is compared to flow volumes of rivers in the watershed. It is hypothesized that a dense network of green roofs would decrease low flows for small streams in the watershed.

**To Plant or Not to Plant: Assessing the Fitness of Commonly Planted Shelterbelt Species Under Future Climate Scenarios**

By Emma L. Davis, Colin P. Laroque, Mount Allison University, Ken Van Rees, University of Saskatchewan

Shelterbelts have played an important role in prairie agriculture since the late 1800s; however, little is known about how these shelterbelts may be affected by climate change. The objective of this study was to determine if shelterbelt species express a common radial-growth signal within and between trees. The study focused on the annual tree-ring growth of the nine most common shelterbelt species of the Canadian Prairies. Tree core samples were collected near Saskatoon, Saskatchewan using traditional dendrochronological methods. The standardized growth of each species was compared with historical homogenized climate data in order to determine the key monthly climate variables impacting each species. Prior to this analysis, little was known about the suitability of six of these nine species for dendrochronological purposes. It was found that all species crossdate at a significant level, and that the three most dominant climate factors are able to account for up to 37% of the annual variation in tree-ring growth. The findings of this study suggest that all nine species are suitable, to varying degrees, for future dendrochronological research in the Canadian Prairies as well as having implications for shelterbelt systems elsewhere in the world. The top four species based on the four ranking criteria (interseries correlation, mean sensitivity, climate explanatory power, and commonality) were white spruce, acute willow, caragana, and Manitoba maple.

**Cruise Tourism in Arctic Canada: Navigating a Warming Climate**

By J. Dawson, Ottawa University, E.J. Stewart, Lincoln University, M.E. Johnston, Lakehead University; C.J. Lemieux, Wilfrid Laurier University

Compounding the environmental change currently taking place in Arctic regions, including rising mean temperature and decreased sea ice extent, is an unprecedented increase in development interest due to the region's relatively abundant and now accessible renewable and non-renewable resources, geographically strategic location for international shipping, and natural assets attractive to tourism. The emergence of new development opportunities is both promising and concerning for local residents considering the economic possibilities and the potential environmental and cultural impacts. In addition to community-based risks and opportunities, the rapid emergence of a cruise economy in Arctic Canada also has significant regional and federal implications considering issues of sovereignty and security and because the current regulatory and policy environments are not sufficient to deal with recent changes. This paper presents the results of the Cruise Tourism in Arctic Canada (C-TAC) research project a study that examined the environmental, cultural, and policy implications of a rapidly emerging cruise tourism economy in the Canadian Arctic. Between 2009 and 2011, over 325 interviews and five workshops were conducted with local residents of Canadian Arctic communities (Ulukhaktok, Cambridge Bay, Gjoa Haven, Pond Inlet, Kuujuaq, and Nain), cruise operators, and relevant government officials.

**Gauging the Sensitivity of Tourism Climate to Change by Way of an Integrated Thermal Bioclimatic Assessment Scheme**

By Chris de Freitas, Andreas Matzarakis, University of Auckland

As climate can be a key factor in attracting visitors, any change in climate may affect the value of this tourism resource; but we are unable to adequately predict future climate. Sensitivity assessment circumnavigates this problem and informs planning decisions without knowing precisely the magnitude of change that might occur. The impact will depend on the net effect of the changed variables as well as the climate of the region in question. Two schemes for integrating thermal bioclimatic variables are used to assess sensitivity to change in Australia and New Zealand. The approach produces integrated indices in the form of the ASHRAE thermal sensation scale (TSN) and Physiologically Equivalent Temperature (PET). Gridded data for a 30-year period is used to produce monthly maps and charts. The results describe the net effects of various climate scenarios. The changes for the winter result in net increases one to two TSN stress levels or about 5°C PET. The findings show that quantification of the thermal impact of changed climate cannot be adequately assessed using temperature alone. The mapped results identify areas of high sensitivity as well as the extent to which potential impact on climate appeal for tourism will be negative or positive.

**Creative Expressions and Geographies of Health in Nak'adzli**

By Sarah de Leeuw, University of Northern British Columbia

Indigenous geographies, including First Nations reserves in British Columbia, are often (and especially in non-Indigenous authored materials) conceptualized and written about as deficient, marginalized, and unhealthy spaces. Certainly the evidence is irrefutable that Indigenous people in Canada and around the world live with the most significant burdens of ill-health as compared with non-Indigenous peoples. Indigenous peoples also face devastating socioeconomic circumstances, which are in many cases the results of colonialism and racism, and ameliorating these historic and contemporary injustices should be a pressing concern for all Canadians. There is also, however, a growing critique of what some Indigenous scholars suggest is the pathologization of Aboriginal peoples and places. This paper presents the results of one effort to document, through the use of creative arts, an array of strengths and histories linked to health (broadly defined) in the northern First Nations community of Nak'adzli. The paper also discusses the therapeutic benefits experienced by community participants working with creative arts and, secondarily, outlines how the methods of the research project prompted participating medical students (who self-describe as privileging biomedical models of health inquiry and intervention) to destabilize normative assumptions about First Nations geographies and about health research and education more broadly.

**Locating Colonialism in Education**

By Susan DeLisle, Queen's University

Her paper titled Locating Colonialism in Education argues that by presenting Indigenous Canadians as marginalized citizens of the Canadian state in educational curriculum, along with nationalistic discourses, manufactures the ideological basis for the grounded reality of the Canadian state through a colonial appropriation and denial of Indigenous original grounded sovereignties. While Indigenous peoples are certainly marginalized in Canadian society today, to present them only in this light is a colonial denial of the many Indigenous sovereignties that existed across Canada, and impedes engagement with Indigenous assertions of the continued existence of these sovereignties today.

**How Would You Put It ? Divergent Narratives and Uncommon Languages Between University and Indigenous Community Researchers**

By Caroline Desbiens, Université Laval

Over the last year, I have been taking part in community-based participatory research (CBPR) with the Innu community of Mash-teuiatsh, in the Lac-St-Jean area (Québec). Entitled Tshishipiminuâ Our River, the project centres on the Peribonka river and interfaces Innu occupation of this landscape with hydroelectric development by Alcan and Hydro-Québec. My motivation for participating in this research was to develop a counter-point to the dominant narrative surrounding hydroelectric development in Québec, with a view to expand critical perspectives on the Quiet Revolution based on the Innu/Innu experience of this period, which coincided with the building of dams on many of their patrimonial rivers. As the project progressed, cross-fertilization of conceptual frameworks between community and university researchers became a primary tool for crafting new histories for rivers such as the Peribonka and the Manicouagan which, for non-aboriginal Québécois, hold a highly symbolic function in narratives of progress and territorial development, both regional and provincial. CBPR yielded many productive avenues for problematizing national history in Québec and pushing it into new areas. In this presentation, I will explore how in addition to supporting aboriginal autonomy and agency participatory research practices provided the ground for transformation and innovation in representing Québec's historical geography.

### **Emerging Issues in Sustainable Brownfields Redevelopment: A Critical Review of Best Management Practices in the United States** By Christopher De Sousa, Ryerson University

This presentation synthesizes the lessons learned from over two dozen brownfield projects planned and developed throughout the United States that incorporate sustainability features. These projects include 10 completed best management case studies and 16 Brownfields Sustainability Pilots funded by the US Environmental Protection Agency. Specifically, the presentation explores the sustainability features that were implemented; examines the barriers to both brownfield reuse and the implementation of sustainability features; and derives a series of lessons learned, including innovative policies, programs, and/or funding mechanisms that helped make projects work.

The research is based on structured interviews with multiple stakeholders involved in the 10 Best Management Projects and coordinators from each Sustainable Brownfields Pilot, along with a comprehensive review of relevant project plans and reports.

On the whole, there is a growing interest in "trying out" sustainability on brownfields, particularly among city governments and nonprofits. While technical assistance is useful for advancing and implementing sustainability-oriented features, there is an absence of tools to guide developers and an over reliance on sustainability champions to move projects forward. If we want to get the private sector serious about sustainability over the long term, then we need to broaden the incentives and disincentives being employed.

### **Patient Satisfaction and Attitudes Towards Breast Cancer Care: Understanding the Role of the Environment in the Care Experience** By Kimberly Devotta, John Eyles, McMaster University

With the creation of Regional Cancer Centres in Ontario, the experience of seeking out and receiving care has grown to incorporate health services that exist on a variety of spatial scales, in both formal and informal environments. This study focuses on the role of geography in health behaviors and care experiences. Individual interviews were conducted with patients (n=23) attending the Juravinski Cancer Centre in Hamilton, Ontario about their care experience in their community, and the location and organization of the centre. Questions about community support services, travel to the regional centre, clinical layouts, as well as perceived accessibility to information sources and health care providers, guided the interviews. Rosenstock's (1966) health belief model and Bandura's (1986) social cognitive theory informed the analysis of patient satisfaction and produced attitudes of compliance. Patients were generally satisfied with their interactions with health care providers and the design and location of the centre. Parking and wait times were the most cited examples of poor experiences. Patients made sense of their care experience through routinization fixed times and predictable intervals of travel and appointment schedules. Satisfaction with accessibility to health care providers when at home (i.e. call-in services) appeared to impact at-home adherence to medication and suggested lifestyles changes. Uptake of community support services depended on perceptions of need, suitability and proximity. Patients understanding of their care experiences highlight the need to give greater consideration to geography and the physical environment in the future planning of breast cancer care service

### **How Flexible Design Promotes Resource Efficiency for Housing: A Glimpse of Khulna City, Bangladesh** By: T. K. Dhar, Md. Sk. Hossain, K. R. Rahaman, University of Waterloo

Flexible housing potentially exceeds the accepted definition of sustainability. Flexibility in housing refers the adaptable capability to meet the spatial and functional changes in future. Thus flexible housing comprises the long-term sustainability and committed to reduce resource and energy use. The level of flexibility, now-a-days, has become an arguable issue that obviously depends on the local aspects " the available material, technology, building industry, housing policy and so on. Dutch architect J. Habraken suggested the idea~support and infill system to increase flexibility and adaptability in mass housing. This concept is widely important in the developing countries like Bangladesh where resource scarcity stays at its pick. Here support represents the elements that are relatively permanent e.g. the base-building or hard aspect including common services and infill as soft aspect i.e. the elements having shorter life in unit level and detachable from base-building. Since last two decade, the prominence of residential development in the city indicates the exploration of architectural practice. Such changes like renovations, extension, re-design are taking place considerably to meet the current demand which has a great impact on resource and energy use.

An effective layout of support appreciating all possible changes within its limit to incorporate infill element, is most urgency in Khulna city. That's why long term flexibly is quite necessary as a committed service of professionals. The study investigates firstly from the cases those have gone at least one masonry changes, how and in what extent a layout design (especially on support) is affected and what are the reasons behind it? Secondly, what are the responses of recent practices to this aspect in Khulna city? The study finally attempts to set a design guideline for residential buildings to enhance flexibility to accommodate future changes and new circumstances which are inevitable due to population increase and resource scarcity.

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Presenter: Alan Diduck

Session/Séance: **TH3-D**

### **On the Need for Strategic and Cumulative Effects Assessments in Hydropower Development in Uttarakhand, India**

By A.P. Diduck, University of Winnipeg, D. Pratap, DAV PG College, A.J. Sinclair, University of Manitoba

India continues to experience strong economic growth and a concomitant increase in the demand for power. In meeting this demand, the central government has placed a high priority on hydroelectricity, and has encouraged expansion of the hydropower sector in the country's mountainous states. The state of Uttarakhand has adopted a similar growth-oriented policy, seeking rapid expansion in hydropower capacity to serve socio-economic objectives in the state and to supply the national grid. Certain high-altitude river systems have been selected for intense development, with multiple projects being proposed for individual catchment areas. For example, in the Alaknanda catchment area at least ten medium-sized projects have been approved or proposed, ranging in size from 55 to 520 MW. Each of these is a run-of-the-river project, using the natural flow and elevation drop of the river to generate electricity, thereby eliminating the need to impound and flood large tracts of land. Although such projects are relatively benign compared with large-scale, conventional hydro projects, they still create various adverse environmental, social and economic impacts. India's environmental assessment regulatory regime is moderately successful in preventing or mitigating adverse effects identified during the assessment of individual projects. However, given the rapid expansion of the hydro sector in Uttarakhand and the intensity of development in certain catchment areas, strategic and cumulative effects assessments should be mandatory for hydropower development in that state and others seeking aggressive growth in their hydropower sectors.

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Presenter: Jaclyn Diduck

Session/Séance: **F1-E**

### **The Urban Forest in Winnipeg: Considering Our Value Attachment to Trees**

By Jaclyn Diduck, A. John Sinclair, University of Manitoba

Ecologically, Canada's urban forests have an influential role on local environmental systems and conditions. Urban trees are effective in reducing air temperature, increasing air humidity, reducing wind speed, absorbing air pollutants and particulate matter, reducing carbon dioxide, and reducing noise levels among other benefits. As the urban centers continue to experience population growth and expand in size, each new development alters the relationship and interactions between humans and urban forest ecosystems making their management complex. In addition, little research has been carried out that helps us to understand the values people attach to urban forests and the importance of considering such values when making management decisions. This study adopted a qualitative research approach, collecting data through multiple methods including site tours, participant journals containing open and closed ended questions, photo elicitation and follow-up semi structured interviews in order to understand residents expressed values, preferences and learning processes in relation to Winnipeg's urban forest ecosystems. The results indicate that perceptions of the urban forest, how it is defined, used, and valued varies greatly among residents. However, by using an exploratory approach it was possible to develop an understanding of what residents consider to be the urban forest, while documenting which values they prioritize in relation to the urban forest and why. In numerous circumstances the participants individual learning process and development of values held towards the urban forest was influenced at a young age and their learning has continued. The research concludes by documenting the insights obtained from participants for the sustainable management of the urban forest within the city of Winnipeg.



### Does Enrolment Translate to Access? Evaluating the Influence of Poverty on Ghana's National Health Insurance Scheme

By J. Dixon, I. Luginaah, The University of Western Ontario

As of 2004 Ghana implemented a progressive national level health insurance program, designed to provide health coverage to even the poorest citizens. While relatively low annual premiums have helped to improve health care access, as compared to the previous pay-per-use model, the National Health Insurance Scheme (NHIS) has still to overcome many challenges to achieve the stated goal of health equity. Using data from focus group discussions and in-depth interviews collected during the summer/fall of 2011 in Ghana's Upper West Region, this paper looks at how many of the realities imbedded the daily lives of Ghana's poor counteract access to health care. Analysis suggests that poverty still plays a pervasive role in deterring access to health care, regardless of NHIS coverage. As Ghana's Upper West Region currently deals with endemic levels of poverty, this study's findings are relevant for a large proportion of its inhabitants. Findings will be discussed with an emphasis on policy recommendations.

### Applying a Gender Lens to Migration and Development Discourse: Insights from Southern Africa

By Belinda Dodson, The University of Western Ontario

Migrant remittances have become something of a mantra in development discourse in recent years, with governments, multilateral organizations and various development agencies enthusiastically embracing their development potential. Feminist scholars have identified a number of problematic characteristics of both the academic and the policy strands of this increasingly entrenched mantra. One is the prioritization of productive over non-productive investments of financial remittances, which overlooks the significance of remittances to household reproduction. A second is the emphasis on economic over social remittances and thus on an economic definition of development itself. Third is the widespread representation of female migrants as more reliable remitters than male migrants. Drawing on long-term research on gender, migration and remittances in Southern Africa, this paper applies evidence from that region to examine the applicability of these critiques to that context. Through a comparison of male and female migrants remittance practices, together with remittance expenditure by households sending male or female migrants, the paper's findings support the emerging feminist critique of migration and development discourse. They also demonstrate the importance of gender-based analysis to understanding remittance practices and formulating policies that do not implicitly discriminate against female migrants.

### Spatial Data Quality Assessment for the Telecommunication Domain

By Y. Dong, University of Waterloo

In telecommunication enterprise environment, spatial data transformation is an inevitable step toward data sharing and data integration, especially in certain cases, spatial information is collected and manipulated in a CAD legacy system. Therefore, in order to ensure the appropriated used and the usefulness of spatial information, data quality assessment should be implemented and documented in a meaningful way by data providers and developers. Not only spatial data measurement should be carried out to examine the original dataset in CAD system, but also this information should be available to users as uncertainty awareness extension of GIS function. This research study reviews the current standards applied in spatial data quality measurement. Data quality indicators and dimensions are examined to develop a data quality assessment model for spatial information in telecommunication network infrastructure domain. The fundamental divergence between CAD and GIS data model are presented. The uncertainty of the spatial in CAD legacy system is documented. Data quality information is distributed and presented to users as a report. Meanwhile, real time data quality verification is developed using Oracle Spatial technology that users are able to retrieved quality information on sufficient levels of granularity. By doing so, this paper proposes a spatial data quality assessment framework to the telecommunication domain, focusing on measurement of spatial quality in CAD to GIS data transformation processes.



**Using Remote Sensing and GIS Technologies for Soil Carbon Management**

By Li Dongrong, Tant Su-yin, University of Waterloo

Soil sequestration has a critical role both as a source and sink of greenhouse gases. Due to the global significance of the soil organic carbon (SOC) pool, it is clear that policy decisions dealing with soil management should also consider physical and chemical factors of the surrounding environment. In this study, ordinary least square regression analysis, spatial autocorrelation analysis, and spatial regression methodologies were adopted to explore the relationships of SOC and environmental factors in mainland United Kingdom (UK). The environmental factors included in this analysis were land-surface temperature, slope, land cover type, water retention, and soil pH. For the spatial regression analysis, datasets were analyzed at both pixel-scale and zonal levels, while both showed similar spatial patterns. According to the results of this case study, land cover with long-standing healthy vegetation/biomass effectively mitigates SOC decomposition, while soil moisture content plays a positive role in SOC maintenance. SOC concentration was lower in sites with high temperature and alkaline conditions, whereas slope did not have a significant relationship with SOC.

**Caregiving as a Vietnamese Tradition: 'It's Like Eating, You Just Do It'**

By Rhonda Donovan, Allison Williams, McMaster University

While families play an enhanced role in caring for seriously and terminally-ill kin in the home, it is often at the expense of their physical and emotional well-being. Access to specialised palliative care services which can reduce the burden of care is limited; this is exacerbated for minority populations who face challenges in accessing health care due to cultural barriers. While the need to increase support is critical, it is essential to ensure that this support is appropriate for the people it is intended to serve. This study provides the first view of the caregiving phenomenon in the case of serious illness from the perspectives of Vietnamese families. We used in-depth interviews and observations to understand the experiences of 18 active and bereaved Vietnamese family caregivers in Ontario, Canada. Data were analysed thematically to describe the cultural and social factors by which caregiving is influenced. The results show that caregiving is deeply embedded within traditional cultural frameworks; it is often gender-specific, all-consuming, and is done with little support. However, this tradition is under threat due to the changing social and cultural milieu of Vietnamese families; increased support that is appropriate and timely could increase their capacity to provide care.

**Exploring Scenarios of Reducing Emissions from Deforestation and Forest Degradation in an Agent-based Model in the Brazilian Amazon**

By Yue Dou, Peter Deadman, Ray Cabrera, University of Waterloo

Tropical deforestation and forest degradation represent the second largest source of global greenhouse gas emissions. These emissions are significant in the Brazilian Amazon region where slash-and-burn remains a widely used agriculture technology. Reducing emissions from deforestation and forest degradation (REDD) has been suggested and implemented, via funding compensation-based benefits to rural populations. However, the effectiveness of REDD schemes will depend on the profitability of alternative land uses. Agent-based models (ABM), such as LUCITA, are tools that can be used to explore land use dynamics by simulating land users decision making. Here, we use LUCITA to explore households land use decisions by adding the loose compensation-based incentive and three scenarios (local timber rent price scenario, Chicago climate exchange market price scenario, and opportunity cost price scenarios) under the REDD mechanism. The simulation will be utilized to explore the most effective scenario for REDD and how household agents can maximum their utility under each scenario. The results can reference REDD implications.

**Reproductive Effort Increases in a Keystone Desert Species**

By TD Drezner, York University

The protected saguaro cactus is a tall columnar plant that branches to increase reproduction. The age and height at which this occurs is assumed from one area, but unknown for the species' range-wide. I sample four geographically and environmentally distinct populations to ascertain the average ages and heights of plants when branching begins. Heights across the four sites vary from 4.38-5.46 m, and ages range from 78-139 years (individuals live 150-200 years). Interestingly, the youngest and shortest do not correspond to the same site, nor do the tallest and oldest averages. Age of the start of branching appears to be related to variations in growth rate, which are related to summer rainfall. Greater summer rainfall encourages faster growth, which results in taller plants at the onset of branching. Ample winter rain appears to encourage earlier branching. Thus, the height at the start of branching appears to be a function of winter and summer rain, which are often working in opposition. In addition, branches develop above the point on the plant where fruiting begins. Thus, as the plant grows upwards there is essentially a reproduction line (at a given height) below which no reproductive structures form.

**Beyond Empiricism: Exploring Mechanistic Allometric Scaling Theory with LiDAR Remote Sensing for Forest Biomass Estimation**

By Laura Duncanson, R. Dubayah, University of Maryland

LiDAR remote sensing is the premier technology for forest height and aboveground biomass (AGBM) estimation. LiDAR-derived forest height and crown density are typically used to model field observations of AGBM. These field observations, in turn, are calculated using species-specific allometric equations. These allometric equations are developed empirically through destructive sampling of trees, and are limited by sample size. Allometric scaling theory, conversely, was developed based on the first principles of space filling and has been demonstrated to accurately relate tree biomass to the tree size distribution regardless of latitude or elevation. This research derives tree size distribution (height and crown diameter) from high-resolution discrete return LiDAR data from the Sierra Nevada in California. We both test mechanistic allometric scaling equations over a range of topographic conditions, and apply them to biomass estimation. This research may alleviate the dependence on field data collection that currently hampers accurate large area biomass mapping.

**The Everydayness of Tourism Production: Home as a Site of Agritourism**

By Susan Dupej, York University

Increasingly, farms are opening their doors to the public as an agritourism attraction in order to supplement agricultural operations and maintain a reasonable income in order to stay on the farm. Agritourism is unique in that it merges tourist and home space: it is a destination for agritourists a commercialized, commodified, market oriented vehicle for producing profit and home to the people that live there a sphere of reproductive care, routine, and daily life, including work. The meeting of these two spaces challenges traditional understandings of tourism as being opposite to everyday life: for farm families involved in agritourism, tourism is everyday life. In this paper, I explore how tourism frames and organizes the everyday lives and spaces of farmers in Southern Ontario. I draw on 27 interviews with farmers from my PhD research to show that tourism is more than an economic diversification strategy and livelihood; it is a way of life involving ordinary spaces, mundane practices and banal activities. Preliminary findings suggest that for farmers, tourism redefines working at home, frames family life, encourages creativity, creates political struggle, and poses significant financial risk. The farmer's perspective of the everyday spatialities of tourism offers a cultural interpretation of economic processes, which broadens understandings of what constitutes tourism.

**First Nations and Water: Examining the Potential Emergence of Adaptive Water Governance**

By Thomas Dyck, Wilfrid Laurier University

Many First Nation communities across Canada are confronting multi-level water challenges related to resource capacity, engagement, equity, and uncertainty due to climate change, of which play a role in the quality, quantity, and access of water resources. Solutions to fully address the water challenges confronting First Nations remain elusive due in part to a mismatch between governing institutions and water related contexts (i.e., social, cultural, economic, and ecological). The concept of water governance is a useful lens to explore this gap. Increased attention has been given to the importance of water governance arrangements that are flexible and adaptive in addressing multi-level challenges. Drawing from the concept of institutions, this presentation examines a theoretical approach to understanding and improving the adaptability of water governance. With specific reference to water challenges confronting First Nations, insights into the role institutional attributes (e.g., institutions that promote diverse sets of values, involve local participation, and operate at multi-levels, etc.) may have in facilitating or constraining adaptive water governance will be explored. Improving our understanding of the role institutions have in facilitating or constraining the adaptability of water governance will contribute practical and policy relevant solutions to the water related challenges confronting First Nations.

**Neighbourhood Variation in Perceived Quality of Life in Brandon, Manitoba**

By Derrek Eberts, D. Ramsey, Brandon University

This paper reports on a major study of health and quality of life in Brandon, Manitoba. In addition to establishing a series of quantifiable measures of health and quality of life in the city, we sought to discover if there were any geographical variations at the neighbourhood level. In summer 2010, approximately 2,500 randomly selected households were surveyed on a variety of indicators of well-being and quality of life, from which 518 usable surveys were returned. In addition to questions compiled from widely-used standardized health and quality of life instruments, a series of questions probed specific aspects of neighbourhood and community satisfaction. Using postal code information, the responses were linked to Brandon's neighbourhoods. The results are presented here.

**Perceptions of Quality Life: A Qualitative Analysis of Hamilton's Neighbourhood Hubs**

By Jeanette Eby, Peter Kitchen, Allison Williams, McMaster University

This paper examines perceptions of Quality of Life in Hamilton, Ontario, Canada at the neighbourhood scale, from the perspective of residents and community stakeholders. Eight focus groups were conducted focusing on a broad discussion of quality of life in neighbourhood hubs, areas characterized by high levels of poverty. Residents of five neighbourhood hubs participated in six focus groups. These themes were highlighted as significant to neighbourhood quality of life: 1) housing quality and affordability; 2) diversity and cultural integration; 3) crime and safety; 4) community engagement and recreation; 5) green space and the physical environment, and; 6) transportation. Two focus groups were then conducted with key informants, who provided recommendations for improving quality of life, and discussed relevant policy issues such as employment and income security. The focus group results resonate with local research and action in Hamilton, including a new Neighbourhood Development Strategy. This research advocates for decision-makers to support and work alongside resident-led community development efforts. The hub model, as well as Hamilton's neighbourhood-based research and community development approach, may assist social researchers, civic leaders and governments across Canada and the globe as they work to improve quality of life in their own communities.

**Corporate Dinosaurs and the Restructuring of British Columbia's Forest Industry: The Case of Canfor 1980-2010**

By Klaus Edenhoffer, Roger Hayter, Simon Fraser University

During the Fordist boom decades BC's forest economy was dominated by horizontally and vertically integrated corporate giants. The severe recession of the early 1980s, however, exposed these Fordist giants as dinosaurs, inefficient producers of cheap commodities in a high cost environment. Over the next three decades, during a period of considerable volatility, these dinosaurs disappeared, except for Canfor. While big corporations still dominate BC's forest economy they are less integrated, less foreign and have less control over the timber supply than the dinosaurs of old. There has also been modest growth of small firm controlled segments in BC's forest economy. This paper addresses the broad contours of the evolutionary trajectories in the industrial organization of BC's forest industries since 1980, highlighting the case of Canfor, today BC's largest forest company. Conceptually, the paper is based on the resource industry life-cycle model (RILCM) that integrates industry and resource cycle dynamics and on Porter's concept of generic strategies. Empirically, the analysis uses longitudinal data collected from Canfor's annual reports and explains its survival in terms of an emphasis on cost reduction, rationalization and consolidation, location assets in BC's interior, and geographic diversification. In BC Canfor's production system is highly automated, commodity focused and if still a dinosaur it is slimmer than previously in functions and jobs.

**Japan's Triple Disaster of March 2011: Response and Recovery in Soma, Fukushima**

By David William Edgington, University of British Columbia

The north-eastern region of Japan was inundated by devastating tsunami flood waters following a magnitude 9.0 earthquake off its Pacific coastline on March 11, 2011. This presentation analyzes the immediate response and recovery programs in the city of Soma (population 38,000), a coastal community in Fukushima Prefecture. Soma is also about 43 kilometres (27 miles) north of Fukushima Daiichi Nuclear Power Plant, the site of the nuclear accident that followed the tsunami. The tsunami was measured to have been 9.3 meters or higher in Soma, and it reached up to approximately 4 km inland. Flooded areas included Soma Port and the Matsukawaura Bay area, up to the (elevated) Route 6 Soma Bypass. Based on field research in 2011, the presentation covers the response and recovery programs in place in Soma in the first 9 months after 3.11, how this compares to other affected communities in the Tohoku region, comparisons with Japan's devastating earthquake disaster in Kobe, and the lessons for vulnerable communities in North America."

**Artists as Geographers: the Geographical Approach of Canadian Artists Daniel Young and Christian Giroux**

By Sophie Anne Edwards, Queen's University

Daniel Young and Christian Giroux are collaborative artists who produce sculpture, public art and film installations. They describe their work as "the product of an ongoing conversation concerning the modernity of the mid-century, the production of space and the built environment" ([http://cgdy.com/?page\\_id=12](http://cgdy.com/?page_id=12)). In 2011 they were awarded the \$50,000 Sobey Art Award recognizing pre-eminent contemporary Canadian art. While many geographers are drawing upon the arts to bring a creative, interdisciplinary scope to their geographical inquiry, the artists Young and Giroux draw upon the geographical, influenced both by their conceptual geographical focus on the built environment, and Young's academic background in geography. In this mixed methods presentation, drawn from conversations and interviews with Daniel Young and using images and film excerpts of their work, the geographical dimensions of their art and the implications of such a geographical-creative praxis is examined.

**Nutrient Uptake and Primary Productivity Responses to Experimental Nutrient Enrichment in Subarctic Shallow Tundra Ponds**

By Kaleigh Eichel, Merrin Macrae, Roland Hall, University of Waterloo, LeeAnn Fishback, Churchill Northern Studies Centre

The response of subarctic shallow tundra ponds, in particular, the different responses of the benthic and the planktonic communities, to increased nutrient levels under climate warming scenarios remains poorly understood. This study used an experimental microcosm approach that mimicked a shallow tundra pond in the Hudson Bay Lowlands (HBL). The study characterized nutrient removal rates in water and the productivity response of the benthic and planktonic communities to elevated nutrient concentrations in the water in the presence and absence of pond sediments. Nutrient enrichment scenarios included nitrate, ammonium, nitrate + phosphate, and ammonium + phosphate. Nutrient concentrations declined in the presence of sediments and rapidly returned to pre-enrichment levels within 72 hours for nitrate and ammonium and within 28 hours for phosphate. In the absence of sediment, nutrient concentrations were unchanged from amendment concentrations for nitrate and ammonium, and decreased less rapidly for phosphate. Planktonic algal biomass (as Chl a concentration) increased when phosphate was added with either nitrate or ammonium, indicating that the planktonic community may be limited by phosphorus or phosphorus and nitrogen. The benthic algal biomass (as Chl a concentration) did not respond to any of the nutrient amendments. However, the rapid uptake of nitrate and ammonium indicates nitrogen limitation of the benthic biofilm, which is consistent with evidence that nitrogen-fixing cyanobacteria are abundant in the benthic mat. The different responses of the benthic and planktonic communities to nutrient enrichment suggest that climate warming may change the ecological structure of subarctic shallow tundra ponds.

Presenter: Michael Ekers

Session/Séance: **T3-I****Towards an Ecological Fix: Unemployment and Forestry Relief Work in Depression-Era Canada**

By Michael Ekers, University of Toronto

Recently, several authors have advanced the concept of an ecological fix, suggesting that the neoliberal trend of commodifying nature represents a new fix for the accumulation crisis of capital. Strangely, this debate has emerged without any reference to David Harvey's understanding of spatio-temporal fixes. I argue that David Harvey's work is invaluable for developing an understanding of an ecological fix. Rather than look at the neoliberal conjuncture, I suggest that it is more appropriate to focus on the 1930s Depression. In Canada, the federal state sunk large sums of capital into the forested landscapes in order to address the mounting unemployment crisis and the environmental legacy of industrial forestry. Unemployed men were enrolled into relief camps established at emerging Forest Experimentation Stations. These Stations reflected a changing scientific understanding of forest ecology and a growing emphasis on reforestation and sustained-yield production. The labour of relief personnel contributed to regeneration experiments, the establishment of plantations, and forest-stand management, thus materializing a new environmental vision of professional foresters. Reflecting on this history, I suggest that an understanding of an ecological fix must focus on the intersection of labour, environmental knowledge.

Presenter: Matthew Elmes

Session/Séance: **W4-F****Developing Baseline Organic Contaminant Concentrations using Lake Sediment Cores in the Peace-Athabasca and Slave River Deltas**By Matthew Elmes<sup>1</sup>, Stacey van Opstal<sup>1</sup>, Johan Wiklund<sup>2</sup>, Brent Wolfe<sup>1</sup>, Roland Hall<sup>2</sup>, Erin Kelly<sup>3</sup>

1. Wilfrid Laurier University, 2. University of Waterloo, 3. Government of the Northwest Territories

The perceived negative effects of oil sands development has become a major environmental issue of international concern. In the Peace-Athabasca and Slave River deltas, a key unknown is the relative contributions of industrial versus natural sources of oil sands-derived contaminants. In this study, sediment cores were collected from flood-susceptible lakes along the Athabasca (AR1-3) and Slave (SD2) rivers to determine baseline concentrations of polycyclic aromatic compounds (PACs). Our approach is to reconstruct the paleohydrology of these sediment cores using physical, geochemical and chronological analyses to enable accurate interpretation of PAC stratigraphic profiles. Organic carbon and nitrogen elemental and isotopic results for the AR2 and AR3 sites show high variability. Peaks in C/N ratios within the sediment cores are interpreted to reflect increases in allochthonous materials due to river flooding. Chronological analyses (<sup>210</sup>Pb, <sup>137</sup>Cs) are ongoing but the geochemical results are promising for reconstructing the paleohydrology at these sites. In the Slave River Delta, organic carbon and nitrogen elemental and isotopic results for SD2 are also highly variable and C/N ratios, in particular, provide a record of flood frequency. These results and a preliminary sediment core chronology indicate the past century was marked by decadal-long intervals of flooding at SD2, including the 1940s and 1990s. PAC analyses on these intervals will provide an opportunity to compare PAC concentrations prior to, and after the onset of oil sands development in 1967. These data will be critical for identifying baseline organic contaminant concentrations, which are needed for future studies and monitoring programs.

### Everyday Spaces and Everyday Processes as Sites for Community Healing: Learning from Action Research with the Gwa'sala-'Nakwaxda'xw First Nations

By Aftab Erfan, University of British Columbia

Tsulquate reservation on the northern tip of Vancouver Island is home to some 500 indigenous British Columbians. It stands as a reminder of Canada's colonial history, where a people were forcibly relocated and continue to live in relative segregation with structural, psychological, and economic challenges largely unimagined by most other Canadians. In recognition of the trauma that underlies the conditions on this and other reservations, the Canadian Truth and Reconciliation Commission is hosting community hearings around the country. Yet a one-time symbolic event is hardly adequate as a space for healing of such deep wounds. What possibilities for healing exist within indigenous communities, within the spaces and processes of everyday life? I ask in my doctoral research. Working in a tradition of action research alongside band members on Tsulquate, I participate in experiencing, observing and shaping a Comprehensive Community Planning process and its implementation. I reflect on ways in which the plan acknowledges and addresses the need for healing alongside the more tangible needs of the community: building safe homes, raising healthy children, eating good food. Based on this multi-year engagement I present insights on the potential for therapeutic planning and ideas on how it can be done in practice.

### Optimization of Blood Donation Clinic Resources: A Case Study of Hamilton CMA

By Jarin Esita, Antonio Paez, K. Bruce Newbold, Nancy M. Heddle, McMaster University, John Blake, Dalhousie University

Blood in Canada is donated by a volunteer base that is increasingly challenged, through a combination of demographic aging and immigration, to meet the needs of the health sector. Canadian Blood Services, the agency with the mandate to manage blood products in Canada with the exception of Québec, is therefore actively involved in the development of programs to help increase the number of donors, to improve the retention of existing donors, and to increase the frequency of donation of repeat donors. An important factor that influences blood donation is the accessibility to clinics. Accessibility to clinics is determined by the location of clinics, the resources allocated to each clinic in terms of number of beds and hours of operation, and the distribution of the population in the areas serviced by the clinics. The objective of this research is to investigate, given a set of fixed sites for clinic locations and population characteristics, the potential for increasing the donor yield as a function of accessibility. A case study is presented of the Hamilton Census Metropolitan Area, in Canada. Using donor and clinic data provided by Canadian Blood Services, and census information, an objective function is derived by estimating a generalized linear model of donations. The objective function is maximized globally using Genetic Algorithm techniques, subject to total resources available for clinic operations. The results suggest that an optimized allocation of resources to clinic sites has the potential to increase the donor yield by approximately 30% of the current donor base.

### Painting Therapeutic Landscapes with Sound: 'On Land' by Brian Eno

By Joshua Evans, Athabasca University

Geographers seeking to shift the study of health from a focus on mapping disease to a more holistic understanding of well-being have found the therapeutic landscape concept to be a useful heuristics, or metaphor, for thinking about the dynamics between wellness and place. To date, the therapeutic landscape tradition has been visually-orientated and silent with regard to sound despite the fact that music is used in a range of medical settings and is an important tool in complementary medical practice. Moreover, music, like literature, is colored by health-related themes. It follows that musical recordings, like literary works, may yield insight into therapeutic landscapes. To demonstrate, this paper explores the connections between ambient music and therapeutic landscapes. Ambient music is renowned for its ability to alter environments and affect the mind and body. It is an artistic and imaginative articulation of therapeutic landscapes in this regard. The paper explores such articulations using non-representational theory and the music of Brian Eno. Eno's sound paintings exemplify the intent of ambient music: to transform everyday places into emotive landscapes. Moreover, the interplay of insecurity/security and tension/release in these sonic landscapes underscores the significance of risk and uncertainty in the therapeutic landscape experience.

**Pure Water for War: Chlorinating Vancouver's Water Supply**

By Matthew Evenden, University of British Columbia

In the course of the Second World War, The Greater Vancouver Water District began to treat Vancouver's water supply with chlorine. Previously, no chlorine or other additives had been used in the delivery of water from local reservoirs. The water was deemed of high quality and purity. The shift in policy and practice emerged out of discussions between the Canadian federal government and US military authorities, concerned about the health of US naval personnel in port. The modification of the water supply in this fashion met with entrenched resistance from the provincial government, Vancouver city council and a range of citizens who railed against the despoliation of their naturally pure water. Very little evidence of support for the policy exists, though a grudging acceptance resulted. The chlorine debate offers a revealing episode in the emergence of modern scientific and cultural notions of purity, health, and nature, as well as of the operations of sanitary services in wartime. Far from an isolated episode, the chlorine debate built on a long history of cultural perceptions of nature and water in Vancouver and framed post-war debates over public health and fluoridation.

**Urban Rivers and the Problem of Scale in Environmental Historical Geographical Perspective**

By Matthew Evenden, University of British Columbia

Assumptions about and definitions of scale vary across the natural and social sciences and any attempt to seek points of conversation or convergence must face the difficulty directly. Whereas scale may be defined in terms of physical principles in the biogeosciences, in human geography it depends also on definitions of human perception and activity both of which are famously subject to problems of positionality and historical change. Focusing in particular on urban-riverine relationships, with a view to understanding mutual influences and interactions, this paper asks what might be the plausible ways to define an urban river in terms of scale that might at least make conversation across the natural and social sciences possible. Drawing on historical and comparative examples, I will identify some of the major breakpoints in the emergence of modern urban rivers in the western world and note both the variety of cases and the commonality of conditions that have produced contemporary urban rivers.

**Commuter Emissions of McMaster University**

By Christine Fandrich, Antonio Paez, McMaster University

This paper explores the commuting patterns and emissions of the staff, faculty, and students of McMaster University in Hamilton, Ontario. It is important to look at the emissions created by the commuters, since this is a contributor to a university's carbon footprint. A sample population was created from responses of a survey conducted in September 2010. The survey contained many attributes such as mode choice of commuters, the number of days commuted per week and demographic information of commuters. In order to obtain an accurate representation of the commuter emissions for the population of McMaster University, the sample population was divided into profiles that separated groups of commuters based on demographic information and mode choice. Postal codes were used to generate the total distance traveled by each commuter based on their mode choice using a network analysis in ArcMap. Sample weights were applied to determine the percentage of staff, faculty, and students to determine the number of commuters in each profile. The average commuting distance was computed for each profile, which allowed the investigation of total emissions, by commuters to McMaster University based on mode choice and personal attributes. The findings can be used towards McMaster University's future eco footprint and can be used in the future by the university and other organizations to see how different programs are benefitting the environment because this research creates a baseline for future use.



### Socio-Cognitive Regional Learning: Introducing a New Framework for Understanding Regional Learning

By A. F. Farahani, A. Hadizadeh Esfahani, Simon Fraser University

Since the introduction of the learning economy concept, learning has enjoyed an exceptional rise in the literature on regional economic development. Following this line of research by economic geographers has led to the introduction of regional learning as a framework for understanding how economic development proceeds within territories. But this origin has resulted in a partial perspective that has decreased the possibility of exploiting the concept of learning more broadly: Learning is more than product based technologic learning and a region is more than its economy. In this paper a new perspective on regional learning will be introduced to expand the goal of regional learning from competitiveness to a broader multilateral development goal. We will first review the existing literature on regional learning and identify two schools of thought on this issue: Knowledge Based Regional Learning and Societal Regional Learning. Attention will be given to the low profile of Socio-Cognitive or Human Centered Regional Learning in both of the existing schools of thought. A model for the latter interpretation of regional learning will be built based on the concept of shared mental models developed in the organizational learning literature.

### Characterizing the Hydrological Responses of Lakes to Climate Change Using Water Isotope Tracers in Wapusk National Park

By Nicole M. Farquharson<sup>1</sup>, Lauren A. MacDonald<sup>2</sup>, Brent B. Wolfe<sup>1</sup>, Roland I. Hall<sup>2</sup>, Thomas W.D. Edwards<sup>2</sup>, Jon N. Sweetman<sup>3</sup>; 1. Wilfrid Laurier University, 2. University of Waterloo, 3. Parks Canada

The Hudson Bay Lowlands (HBL) has experienced pronounced warming during the past ~50 years. Wapusk National Park (WNP) was created in 1996 to protect a representative area of the HBL and is dominated by >10,000 shallow lakes. These lakes provide key habitat for wildlife, yet little information is available on how they have responded and will continue to respond to climate change. To address this knowledge gap, water isotope tracers were used to examine the hydrological response of ~40 shallow lakes in WNP, spanning three ecotypes (coastal fen, interior peat plateau-palsa bog and boreal spruce), to seasonal and annual changes in meteorological conditions. Samples for water isotope composition were collected from the study lakes during the spring, summer and fall of 2010 and 2011. Seasonal patterns in hydrological conditions for lakes in each of the three ecotypes were similar during 2010 and 2011. The boreal spruce lakes were consistently isotopically-depleted and maintained positive lake-water balances throughout the ice-free season. Conversely, lakes in the other ecotypes displayed greater evaporative enrichment during mid-summer and, in some cases, underwent complete desiccation during 2010. Most lakes showed late season isotopic trajectories towards the Global Meteoric Water Line indicating strong influence of rainfall to the lake-water balances. Overall, lakes in the coastal fen and interior peat plateau-palsa bog ecotypes may be most vulnerable to the effects of climate change, if future conditions are characterized by a longer ice-free season and greater evaporation relative to precipitation.

### Spatial Interaction Modelling of Commuting Flows Within Local Labour Markets

By Carson J. Q. Farmer, A. S. Fotheringham, University of St Andrews

One of the most promising approaches to mitigating land-use and transportation problems is continued research on urban commuting. Indeed, a better understanding of the determinants of commuting will ultimately lead to a better understanding of the complexities of employment, housing, and many urban spatial processes. In order to understand the commuting process, it is important to examine the milieu within which commuting takes place: the local labour market (LLM). In this paper, we examine the interplay between commuting and LLMs through the use of regionalization techniques and spatial interaction models. We show that LLM characteristics play a significant role in intra-regional commuting patterns and that a failure to account for LLM conditions may seriously hinder the applicability of models of commuting. Specifically, we find that there are many different LLMs across Ireland, and that these LLMs characterize the commuting patterns of population sub-groups. By incorporating these LLMs into models of commuting, we find that the distance decay component of these models capture a combination of geographical distance and regional differentiation due to LLM boundaries, leading to 'functional' distance decay. This concept of functional distance decay is an important one and indicates that in addition to the configuration of origins and destinations, distance decay is also dependent on the spatial structure of LLMs, or more generally, the totality of surrounding conditions within which spatial interaction takes place.



**Toward (Dis)Integration? The Political Economy of Aggregate Resources and Consequences for Regional Planning in Southern Ontario**

By Dena Farsad, York University

Integrative land use planning is regarded as ideal and sustainable because it incorporates different activities, stakeholders, as well as social, political, and economic perspectives. The establishment of land-use policies in Ontario, including the Provincial Policy Plan and Growth Plan, suggest that the province has begun moving in this direction. However, contradictions exist within and between policies, with often negative consequences for regional planning. The purpose of this research is to explore whether regionally integrated land-use planning is possible in the context of aggregate development in Southern Ontario. Specifically, resource policy (i.e. State of Aggregate Resources Study, 2009) is analyzed to reveal the ways in which discourse is used to facilitate and promote this activity. The concern here is that the overall message of the SAROS reports focuses on safeguarding production and protecting deposits from competing land uses such as agriculture, residential, infrastructure, and environmentally significant areas. Five narratives are analyzed: sustainability (e.g. long-term planning); contribution to Ontario's GDP; the need for growth (i.e. growth as a measure of economic development); importance of close-to-market production; and finally, the scarcity of the resources in relation to demand. Cumulatively, these narratives reveal a certain partiality towards aggregate development, which invariably impact land-use planning.

**Mapping Sovereignty in the Oregon Country: The Impact of the War of 1812**

By Ken Favrholt, Canadian Cartographic Association

The War of 1812 resulted in a curious event that influenced the geopolitical landscape of the Oregon Country on the west coast of North America. The sale of John Jacob Astor's Fort Astoria from the Pacific Fur Company to the North West Company in fall 1813 was not affected following the War by the Treaty of Ghent's which reverted all captured lands and possessions to their pre-War status. But Astor gave up on his empirical plans and the NWC remained in possession of the region until the Hudson's Bay Company took over in 1821. Despite the joint occupancy of the Oregon Country for three decades, the reality was British domination over the region until large numbers of American settlers entered the region in the early 1840s.

This paper and Powerpoint presentation will look at the changing cartography of the Oregon Country through maps of the period from 1806 (before the War) to 1846 when the international boundary was finally established along the 49th parallel that settled the sovereignty of the region.

**Formalising Dominant Caste Identity with Joint Forest Management: A Comparison of Three Villages in MP**

By Garry Fehr, University of the Fraser Valley

The idea of dominant caste was first used in the literature by Srinivas as a way to recognize village identity based upon the numerically strong caste in a village. Since then, Dumas has shown that caste dominance is more strongly correlated to the caste group which owns the majority of the land. More recently, Anderson has argued that caste dominance often resides in the caste that controls the selling of irrigation water as caste limits the trading of water between castes. This paper compares three forest dependent villages in Madhya Pradesh of varying caste composition. In these villages, control of the village level Joint Forest Management committee enables the dominant caste to control access to significant forest resources and dominate political positions. This not only captures highly valued economic benefits for a single caste, but it can also formalise external recognition of an elevated status for the dominant but lower caste that is contested by less powerful but traditionally higher castes.

**They Say Stay Away From Me, I Have Touched Peanuts: Exploring Social Exclusion Among Youth With Anaphylaxis**By Nancy Fenton<sup>1</sup>, Jennifer Asanin-Dean<sup>2</sup>, Sara Shannon<sup>1</sup>, Susan Elliott<sup>1</sup>

1. University of Waterloo, 2. University of Toronto

In 2006, three years after the tragic death of Sabrina Shannon the Province of Ontario passed Sabrina's Law, which requires schools to have anaphylaxis policies, to reduce allergen exposure, and to train all staff in the event of severe allergic reactions. Yet, anaphylaxis has recently been acknowledged as an emerging health risk and individuals with severe allergies trying to navigate school environments are at risk, particularly socially. In this research we worked with Sara Shannon, Sabrina Shannon's mother, to investigate the role of Sabrina's Law in decreasing the social exclusion of affected children. Using in-depth interviews with 20 youth and their parents, we explored the experiences of isolation, stigmatization, ostracization and exhibition among youth with anaphylaxis. While many elements of social exclusion still exist in various settings and across multiple scales, the results suggest that the implementation of Sabrina's Law has resulted in a reduction of experiences of exclusion. We suggest that Sabrina's Law has served to not only protect the safety of youth in the school setting, but has also begun to normalize anaphylaxis and lessen the stigma associated with this emerging health risk.

**La toponymie Autochtone du Nord Canadien**

By Yaïves Ferland, Université Laval

La toponymie des régions faiblement peuplées du Nord des provinces jusqu'à l'Archipel arctique canadiens connaît une transformation accélérée depuis trois décennies. La valorisation d'une toponymie autochtone qu'on étudie, négocie puis adopte officiellement rejoint une volonté d'affirmer une souveraineté gouvernementale ou déléguée sur divers niveaux de nouveaux territoires, dont les statuts et les compétences variés ne sont pas définitifs. La toponymie devient un autre argument dans le développement économique, culturel, social et environnemental du Nord. La compréhension des noms d'entités géographiques, avec leurs positions, étendue et limites variables, selon les langues et l'échelle, au gré d'usages significatifs parfois saisonniers, pose de nombreux problèmes conceptuels, culturels, politiques et pratiques. Les conditions et circonstances de ce renouveau toponymique imposent des restrictions mais aussi permettent de nouvelles opportunités. Par exemple, les anthroponymes commémoratifs britanniques attribués aux grandes îles et détroits de l'Arctique au XIX<sup>e</sup> siècle demeurent intouchables et ne se comparent pas aux appellations relevées ou inventées localisant des activités traditionnelles ou actuelles et des circonstances endogènes aux milieux naturels de vie des autochtones. Par des expériences de dénomination ou re-nomination à travers l'histoire, allant de cueillir et cartographier des noms anciens jusqu'à remplacer et diffuser de nouveaux toponymes dans l'usage, les autorités gouvernementales et les représentants locaux ont initié et élaboré bien de moyens pour traiter les difficultés et répondre adéquatement à des besoins parfois contradictoires. Nous brosserons un tableau actuel critique des méthodes et conséquences de l'opération administrative de cette toponymie autochtone du Nord canadien.

**Geospatial Learning with Mobile Serious Games**

By Yaïves Ferland, Margot Kaszap, Université Laval

The positive impacts of new digital technologies on mobile devices are questioned in terms of elementary education objectives to meet for the development of geospatial competencies. The role and effects of using serious games in context should be considered too. A comparison must be done between different technology devices (e.g., pen-and-paper vs. smartphone) to verify if that really makes a difference in learning geography at a specific developmental stage and at a certain level in the educational curriculum. Within the GeoEduc3D research project, two different software games dedicated to learning on site were experimented respectively in rural and urban fieldtrips, both with small groups of children at grades 5-6 (about 10-12 years old). They have been prepared and documented, with rules and description files (as for a geocaching play) for observation and collect of data (taking location notes by tagging on digital maps), with the support of GPS and augmented reality. The conceptual frame considers both cognitive learning styles and socio-constructivist method adapted to teach the social universe curriculum, which encompasses geography, history, and economics. The danger to elude remains to look too heavily at the child's funny adaptation to the mobile gadgets and contingent capabilities of reaction to the game (involving transferable psychomotor skills) instead of the substantial learning of some disciplinary matter (geospatial awareness and onsite map reading competencies). Results show that behavioural aspects of the game (competition, cooperation, attention, interaction) appears more efficient in multimodal realities (concrete and virtual) to capture, analyze, and synthesize geospatial information.

**Rethinking Decline in Toronto's Postwar Suburban Spaces: the Lily Cup Betwixt and Between**

By Robert S Fiedler, York University

In Toronto, tales of a city divided into three, of a city-suburban divide, and the spectre of suburban decline, have all gained prominence in public discourse in recent years. Here, as in other urban regions in North America, suburban space is ubiquitous and therefore presumed to be a familiar and known quantity. Yet, as actual places, suburban areas within an amalgamated Toronto remain enigmatic. Uneven spatial development is apparent and cartographies of socioeconomic difference reveal an increasingly polarized metropolitan city, but conventional city-suburban distinctions are unsettled in the fleeting spaces of subaltern cosmopolitanism found across Toronto's postwar suburbs. For a brief time before brownfield redevelopment, the Lily Cup factory in southwest Scarborough was used as a temple and banquet hall by Bangladesh Canada Cultural Society. Though a transitory moment in one site's transformation, the Lily Cup's recent history and demise reveal how unnoticed places and unloved spaces are lost in the process of remaking Toronto's postwar suburbs. This paper asks whether the particular histories of development and (sub)urbanity already present in Toronto's postwar suburban spaces have a place in present strategies of reurbanization.

**Chronic Illness in a Canadian Old Order Mennonite Population**

By Kathryn Fisher, Bruce Newbold, McMaster University

This study aims to improve our understanding of the social (non-genetic) determinants of chronic illness by comparing two adult groups in rural Waterloo, Ontario, Canada: Old Order Mennonites (OOMs) and non-Mennonite farmers. We study the same determinants relevant to populations across the globe, using well-established measures, but focus on the OOMs because their homogeneous, distinct and isolated lifestyle can more clearly expose the influential determinants. Comparing Waterloo OOMs with non-Mennonite farmers eliminates locale as a causal agent, thereby focusing on the lifestyle differences. We hypothesized that OOMs may have lower chronic illness rates due to lifestyle features including strong community/family ties, healthy behaviours (e.g., no smoking) and strong religious beliefs. Both populations were surveyed in 2010 to obtain information on chronic conditions and 12 health determinants. Survey results suggest that the prevalence of certain chronic conditions may be lower in OOMs, including allergies, arthritis, back problems and colon/bowel disorders. Logistic regression results largely reflect the broader literature, with health in both populations being shaped by age, income, childhood disease history and body mass index. The results also point to a number of determinants important in shaping health in one group but not the other, and these often reflect areas with large cultural differences.

**Integrating Climate Science and Policy: A New Geographer's Perspectives**

By Christopher G. Fletcher, University of Waterloo

In the spirit of "Toward Integration", in this contribution I will share thoughts and experiences from my first 18 months as a climate scientist integrating into the Geography community. As an example, I will cite an ongoing collaborative project at the interface of science and policy. This work examines the paradoxical situation whereby policy measures designed to improve our air quality may also be causing the rate of global warming to accelerate. Simply put, so many aspects of climate science have policy relevance, and so many policy decisions will impact climate either directly or indirectly, that an integrated research approach is essential. Geographers are uniquely placed to lead in this area, by seamlessly bridging the intellectual, cultural and language divides that have previously hindered the integration of science and policy. I will conclude by discussing two other examples of policy-relevant climate modelling and analysis studies being conducted by my research group, and the potential for future collaborations with scientists and policy specialists.

**New Clients and Collectivities: Alternative Regimes of Transnational Certification for Alaska Salmon**

By P. Foley, K. Hebert, Memorial University

This paper examines the new clients and collectivities that are animated and organized through processes of environmental certification. It investigates the dynamics and significance of the composition of these categories in the case of the Alaska wild salmon industry. A host of public-private collaborations at a range of scales formed the basis for the initial certification of Alaska salmon fisheries to standards set by the Marine Stewardship Council (MSC) in 2000, but these alignments shifted over the following decade as the industry approached reassessment for MSC certification and developed its own alternative certification system. Explaining the emergence of alternative certification regimes requires attention to the political economy of place, production, and trade. We argue that the fixing of certificatory subjects and objects entailed by processes of client formation exposes the fissures and competing interests in the export-oriented industry, but also opens possibilities for new modes of collective action by industry participants.

**Investigation of Climatologically Effects the Development of Rural in the Gonabad City in Iran**

By Vojdani Fooroughsadat, Nemat Nasrin, Islamic Azad University of Shahre-e-rey

Climatology is natural temporal hazards which appears in many regions of the world and rapidly threaten the groundwater recourses. In view of climatology, all regions of the global face with the occurrence of draught but characteristics of draught varies in different climates. The main origin of draught is the reduction of precipitation. If the draught causes the reduction of surface run off and ground water table hydrological draught appears. The principle aim of this research is the investigation of the draught effects on the development of rural in the Gonabad city. To achieve this objective, short term climate data in Gonabad, climatic index, standardized precipitation (SPI), were selected to evaluate draught in Gonabad. The results of the research shows that draught appeared as mild in the years 1993, 1996, 2000 and 2002. But it was intensive in 1999 and 2001. The results of this situation were the reduction of agricultural products of region and immigration of the rural to the cities. Considering the negative effects of draught, long term planning is essential to neutralize, the destructive effects of this phenomena, Development programs of the region should be relied to the potential of the water recourses of the city and the programs should be laid upon this axis.

**Pathways of Food: Mobility and Food Transfers in Southern African Cities**

By B. Frayne, University of Waterloo

Using recent multi-city survey data, the analysis demonstrates that informal rural urban and urban urban food transfers make important contributions to the food budgets of chronically food-insecure, poor households in the rapidly urbanising cities of Southern Africa. The paper outlines why dealing with food and nutrition security is a priority and multi-faceted urban development challenge, and argues for development policy and planning that seeks to enhance these widely prevalent household linkages by supporting urban (and rural) livelihoods. Given the links between food and nutrition security on the one hand, and human development and wealth generation on the other, using a food lens is one useful way of devising approaches to urban development that are people-centred and pro-poor, which is important in the Southern African context of widespread rural urban migration and pervasive urban poverty.

### Using Photos to Tell Our Stories: Linking Participatory Photography With Classroom Curriculum to Explore Environmental Change With Youth

By Jennifer Fresque-Baxter, Wilfrid Laurier University

When it comes to environmental change, youth have important stories to tell. They have thoughts, feelings and experiences that matter. As youth are the future scientists and community leaders that will play a key role in environmental governance in Canada, incorporating the youth perspective is critical for research, management and policy-making. Engaging youth as active co-producers of environmental change knowledge requires unique and creative approaches. This presentation examines a participatory photography project undertaken with high school students in the Northwest Territories. Working with local teachers, this project linked participatory photography research methods with classroom curriculum in the areas of literacy and social studies and created opportunities for youth to engage in environmental change research directly. The goal of the project was to provide youth with a voice to share their thoughts, feelings and experiences by using photos as a storytelling mechanism. Both collaborative and interactive, the project explored the relationships youth have with their lands and waters, and the impacts that a rapidly changing landscape has on their identity, well-being and livelihood. The presentation will highlight empirical findings from the project, and offer both methodological and pedagogical insights for researchers, teachers and policy-makers.

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Presenters: Jennifer Fresque-Baxter, Thomas Dyck

Session/Séance: **W1-C**

### Exploring the Challenges in Navigating Philosophical Framings of Environment and Natural Resource Research: A Presentation for Students by Students

By Jennifer Fresque-Baxter, Thomas Dyck, Jason Prno, Wilfrid Laurier University, Samantha Berdej, Mark Andrachuk, University of Waterloo

Constructivism. Positivism. Critical theory. Research paradigms. What do these terms mean and how do we use them in research praxis and academic inquiry? At the outset of their research program, many graduate students are encouraged to reflect upon and determine their research philosophy and to incorporate this into research planning. Navigating the landscape of research paradigms, however, can be daunting for graduate students. Being able to critically reflect on the nature and construction of knowledge in research is an integral part of academic inquiry. Thus, examinations into the use of different research paradigms are valuable, as the paradigms that are employed by researchers will influence all aspects of the research process; from design and methods selection to data analysis and interpretation. Research paradigms define for researchers what falls within and outside the limits of legitimate inquiry (Guba and Lincoln 1994). The purpose of this paper is to reflect on the challenges of navigating the philosophical landscape and integrating related concepts into graduate research. We particularly reference this challenge with respect to research in the areas of environment and natural resources. We offer insights to new and seasoned students alike, and recommendations for both research and pedagogical praxis.

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Presenter: Charles Fritz

Session/Séance: **F1-B**

### Spatial Clustering of Obesity in Three Canadian Metropolitan Areas.

By Charles Fritz, Nadine Schuurman, Scott Lear, Simon Fraser University

Overweight and obesity prevalence was estimated at 59% among Canadian adults in 2004. The financial burden of overweight and obesity was a combined (CAD) 4.3 billion, approximately 2.2% of all healthcare costs. The purpose of this study is to explore spatial patterns of low and high Body Mass Index (BMI) and Waist circumference (WC) in adults over age 35 and determine whether those individuals are significantly spatially clustered. Multiple spatial cluster analysis methods were employed to analyze individuals in 55 neighbourhoods of varying income and community classification in Metropolitan areas of Quebec City, Hamilton, and Vancouver. Clustering was assessed on the global and local scale. For global clustering, K-function, Global Moran's I, and Kernel Density Estimation were Used. Local spatial clustering was assessed using the Spatial Scan statistic and Anselin's Local Moran's I. Results show that individual weight status is locally clustered but vary between the two methods used. The relationship from this experiment begs us to consider other methods of analysis, such as multiple linear regression or hierarchical generalized linear models, to assess more specific elements of the objective and perceived built environment. Future analyses will explore the potential built environment correlates of both low and high weight status

**A Longitudinal Study of Brock University's Highly Successful U-Pass Program**

By Christopher Fullerton, Brock University

"U-Pass programs," which involve providing students with the ability to ride public transit for free in return for their paying an annual ancillary fee with their tuition, have grown considerably in popularity in recent years. This funding is then used to improve transit service to the participating college or university. Studies conducted in the US have found that U-Pass programs can bring many benefits for program stakeholders, yet little research has investigated the positive and negative impacts of such programs in Canada. Filling this research gap is important in order to ensure that post-secondary student groups, public transit agencies and other stakeholder groups are better informed of the potential benefits and challenges that such a program could bring about within their particular travel and operating contexts. Through the use of survey and interview data compiled in a longitudinal study between 2006 and 2010, this paper chronicles the highly successful implementation of Brock University's "U-Pass" program. The study found that students' place of residence played a key role in shaping their levels of participation in the U-Pass program and their perceptions of necessary program improvements. It also identified several changes that could potentially lead to improved service efficiencies for the three transit agencies taking part in the program and, ultimately, further transit ridership increases among students.

**Photography as a Method: What Can Geographers and Social Scientists Learn from Documentary Photographers**

By Bojan Furst, Memorial University

Photography and social sciences have grown up together and the two very much followed a pattern of uneasy sibling relationships. As they both matured, they seem to have drifted apart. In academia, photography has often been misused and it could be argued that it is now mistrusted - hence strict ethical guidelines that make visual ethnographic research all but impossible in Canada. At the same time, documentary photographers have been struggling with issues of representation, ethical questions arising from their practice as well as from rapid change in image capturing technology. In this paper, I argue that the time has come for a family reunion. Strengths of scholarly research and deep theoretical thinking compliment documentary photographers' innovations and experiments in their documentary practice and potentially, taken together, could make for a powerful research tool in any geographer's toolkit.

**Accessibility to Urban Parks in Montréal from the Perspective of Children**

By Mario Reyes Galfan, Antonio Paez, Catherine Morency, McMaster University

Parks are key components of urban environments. In addition to their intrinsic environmental value, parks serve a number of valuable social functions. In particular, urban parks help promote physical activity and thus help reduce the risk of obesity and other adverse health outcomes. In order to enjoy the beneficial opportunities for activities in parks, users must have reasonable access to these resources. Previous research has explored the question of inequality in accessibility to parks, as this may be a limiting factor in terms of usage, and a source of disparities in health outcomes. A starting point for inquiries about park utilization and the potential benefits of urban green spaces must begin with an assessment of their geographical accessibility. Of particular interest, in terms of potential users of parks, are children. The geographical range of children is limited by their ability to traverse space using non-motorized or public modes of transportation, and by their dependence on adults for other forms of motorized mobility. The objective of this research is to measure accessibility to urban parks from the perspective of children traveling by non-motorized modes. Our aim is to evaluate the relationship between the distribution of children population and the conditions of accessibility to urban parks, in order to understand the potential for use and possible spatial disparities in the distribution of valuable environmental resources. The case study is of the City of Montréal, and the implementation of accessibility is supported by a geographically detailed analysis of the travel behaviour of children.

**Remaking a Forestry Town: The Multifaceted Challenges of Transition and Capacity-building in Port Alberni, BC**

By Emily C. Galley, Western University

This paper aims to explore the difficult transition beyond forestry-dependence in Port Alberni, British Columbia.. Dozens of rural communities in British Columbia have historically been socially, economically and culturally dependent on the health and prosperity of the province's forestry sector. In the wake of decades of restructuring within the industry, many forestry-dependent

communities are now attempting to reshape their local economies in order to remain viable in the face of massive job-loss, extensive social problems and cultural dislocation. The process of socio-economic transition in these communities has tended to be aggravated by their historical relationship of dependency with the forest industry, one whose legacy includes low levels of educational achievement and a lack of local economic diversity. I argue that in order to understand the contemporary challenges of community capacity building, it is crucial to appreciate the place-specific character of the profound social and cultural changes stemming from economic decline and transition. Additionally, I will provide a critical examination of the process of community transition and to interpret key constraints, current failures, and future opportunities which are laden in it.

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Presenter: Candice Gartner

Session/Séance: **TH4-C**

### **Institutions of Domestic Water Provision in Cajamarca, Peru**

By Candice Gartner, University of Waterloo

The northern highlands of Peru have been marked by intense competition for natural resources since the Spanish colonial era. With the prevalence of international mining companies for nearly two decades in the province of Cajamarca, recent shortages in domestic water sources have generated growing concerns among residents over the quality and quantity of their drinking water. In response to the approval of a major expansion of gold mining activities, popular resistance culminated in November of 2011 in the largest protest in the modern history of the region. This presentation is focused on the various institutions of domestic water provision representing urban, semi-urban and rural locales. Drawing from a series of group interviews held with impoverished women, secondary sources, and key informant interviews, the interactions and characteristics of three variegated institutions of domestic water provision and their users are examined.

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Presenter: Ryan Garnett

Session/Séance: **TH3-B**

### **"Mapping with the Addition of 3D Analysis: A Case Study in Pukaskwa National Park."**

By Ryan Garnett, Lakehead University

Wilderness perception mapping is an important tool for understanding the spatial distribution and variation associated with human perceptions associated to wilderness. However the methodology has been limited to 2 dimensional representations of complex landscapes. This study developed a modified approach to Wilderness Perception Mapping that incorporated the third dimension to analyze locations of visual impact. The locations identified with the traditional and modified Wilderness Perception Mapping methodologies were used as a basis for comparison between the two Wilderness Perception Mapping methodologies and with the established wilderness zone identified by Pukaskwa National Park. The methodology from the traditional Wilderness Perception Mapping was utilized in conjunction with 3D analysis techniques to spatially identify potential wilderness areas based on visual ability. When compared to the traditional Wilderness Perception Mapping methodology, viewshed analysis within a GIS generated spatial locations of potential wilderness which significantly increased wilderness areas. Further viewshed analysis was conducted to implement natural visual barriers from forested areas and compare the results to the previous two analyses, which resulted in increased potential wilderness areas within Pukaskwa National Park. The modification of the Wilderness Perception Mapping methodology provided a framework and toolset for analyzing human perceptions in natural managed environments.

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Presenter: Theresa Garvin

Session/Séance: **W3-A**

### **Suburbs & Aging Populations: "What Do We Know?"**

By Theresa Garvin, University of Alberta

As our population ages, there is a growing interest in the process of aging-in-place and enabling community-dwelling older adults to remain active within their communities. Meanwhile, more and more evidence is accumulating that suggests that these aging Canadians both currently live in suburban environments, and are highly likely to want to remain in those environments as they get older. This presentation provides early results of a scoping review that sought to compile and evaluate applied and academic evidence related to aging and the built environments as it pertains to community-dwelling, older adults living in suburban environments. Specifically, our work asked: What do we need to know in order to design, build, and retrofit the suburban environments of Canada's largest prairie cities to facilitate both current and future healthy aging-in-place of their citizens? Preliminary results show that there is a very small, but growing, peer-reviewed body of literature on suburbs and aging and research is primarily being conducted in the fields of health, urban studies and transportation. Much more information appears in the grey literature, however most of this work merely mentions suburban aging challenges in passing, rather than focusing specifically on this issue.



### **Fostering Strength, Innovation, and Adaptive Capacity within Regional Non-Government Organizations in Atlantic Canada: Successes and Opportunities**

By Colleen George, Maureen G. Reed, University of Saskatchewan

Non-government actors are commonly the creators and conveyers of innovative ideas and norms. Although non-government organizations have a long history, it was not until the 1970s that they began to play an influential role in shaping policy and practice. The Stockholm Environment Conference in 1972 marked a turn in environmental and sustainable development governance, where mainstream theoretical perspectives, including environment and development issues, shifted towards the involvement and empowerment of non-government actors. The Man and the Biosphere Programme was launched in the early 1970s as an international interdisciplinary research agenda focusing on building the capacity to address complex ecological challenges while taking into account social and economic concerns. Biosphere Reserves serve as 'living labs' where environment and sustainability practices can be implemented on the ground. Modeled after the Biosphere Reserve Concept, the Canadian Model Forest Program was launched in the early 1990s to attend to the need for sustainable forest management. These programs are implemented at the regional level and, although they differ in aspects including organizational structure, mandates, and funding, they share critical concerns over regional natural resource management and sustainable development. Interestingly, while some of these regional organizations do extremely well, others have struggled to succeed. For this study, we considered the biosphere reserves and model forests found in Atlantic Canada to determine what organizational characteristics, including governance structure, partnerships and networking strategies, outreach, education and expertise, translate into strength, innovation, and adaptive capacity within each regional model and where there are future opportunities for success. Using critical and deconstructive methodologies, we employ document analysis and interviews with stakeholders and important local actors to explore the successes and opportunities within each organization. Using SWOT analysis, we suggest that capacity barriers within these regional non-government organizations include accountability structures, funding, networking, communication, professional expertise, and broader political support.

### **Land Use Change and Hydroclimatological Modifications Over the 20th Century on the Canadian Prairies**

By Shira Ellen Gerstein, University of Waterloo

The 20th century was a period of agricultural expansion in the Canadian prairies. As a result the relationship between the land and climate was modified. The once dry, plains environment, which hosted a diversity of prairie plant species was transformed. Replacing it is a relatively homogenized region of cropped land dominated by water intensive crops. Due to the recent nature of this conversion, enough climatological data is available for a comparison of climate conditions on the prairies before and after the change. This study used an available land use dataset and the 20th Century Reanalysis dataset to investigate five climate variables over the two different land cover types. The data was divided into five twenty year periods beginning in 1900 and ending in 1999. Areas of intense and sparse agriculture were isolated and each of the climate variables was averaged over those areas. The following details emerged from the analysis. Temperature, atmospheric pressure, and atmospheric water vapour content were on average greater on cropped fields than over natural prairies. Cropland relative humidity was more volatile, likely due to the influences of irrigation and the increase in temperature. These changes may have contributed to the greater than average result in convective available potential energy over the cropped prairies. In order to be more certain that the changes which were recognized in this study are actually caused by land cover change, further modelling research must be undertaken.

### **Simple Scenarios of Transition to Organic Farming Using Geospatial and Agent Based Modeling: Implications for Greenhouse Gas Mitigation**

By Ali. Ghaffari, M. Bunch, R. MacRae, J. Zhao, York University

Geographic information systems (GIS) can spatially analyze data to predict changes within space and, through simulation, over time. Spatial prediction and modeling is relatively straight forward using GIS, but is complicated by the time dimension. In this research, a GIS is loosely coupled to an Agent Based Model (ABM) which has been applied to simulate land use change in an Ontario sub-watershed. The objective is to study the transition to organic farming over a period of 30 years, and its effect on greenhouse gas (GHG) emission changes. We present the application of a REPASt platform, a free and open source geospatial Multi-agent Model (a.k.a. an Agent-based Model or ABM). The combination of geospatial analysis and use of ABM is a new way to solve complex problems involving multiple decision makers on the landscape, and helps to address the time dimension



in geospatial modeling problems. ABM can model complex dynamic systems, their evolutionary changes and, importantly, can predict possible sustainable system configurations. As a part of this research, open source tools were developed to integrate ABM and GIS environments, specifically with respect to data transport and the coupling of GIS and REPAST tools. We defined different scenarios to estimate GHG emissions in an agricultural watershed over 30 years. Preliminary results indicate several potential configurations that encourage transition to organic agriculture, and concomitant changes in greenhouse gas production. This output will guide our exploration of more complicated scenarios.

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Presenter: Mehdi Gharakhlou

Session/Séance: **TH2-G**

**Geotourism, a New Glance to Develop the Persian Gulf Tourism. (Case study: Qeshm Island)**

By: Mehdi Gharakhlou, University of Tehran

Abstract this paper investigates the Persian Gulf geotourism that is one the important part of the tourism activities in Iran. Natural environment offers many tourism attractions, and the prosperity of the tourism is related to applying rare ordinary resources. In this field natural geology phenomenon are studied from geology and tourism points of view. The special events in geological periods in the earth have caused different geological incidents in Iran. The Persian Gulf Islands and beaches covered with many of these geological and related phenomenon. Qeshm Island is one the most valuable regions in relation to geotourism in Iran. It has been introduced as the only geopark in the Middle East by UNESCO. The goal of this research is to study Geotourism in the Qeshm Island as unique phenomena. The objective of this article is to provide a voice and vital information for government official and for the public in general. Archival materials, census data, and result of some recently studied projects are analyzed to report the research design and finding of investigation. The result of this study attempts to reflect the provision of a safe, healthy, living and working environment securing human dignity and social participation, in an inclusive and sustainable manner. In addition, provision of accessible and affordable infrastructure and basic services for all to reduce differences in the quality of life in these areas with a view to future expanding demands, and also sharing of the finding in decision making and local operations.

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Presenter: Melissa Giesbrecht

Session/Séance: **W1-A**

**Language, Place, and Care: Examining Interconnections in the Context of Home Care Nursing**

By M. Giesbrecht, V.A. Crooks, K.I. Stajduhar, Simon Fraser University

Language plays an important role in the delivery of health care. At the same time, the way that language is used is inherently linked to place. Currently, Canada is experiencing a shift in the places where care is being provided, namely from institutional settings like hospitals to diverse community settings such as the home. However, little is known about how language and the physical and social aspects of place interact to influence how health care is delivered and experienced in the home environment. This presentation will draw on the findings of ethnographic participant observations conducted during home care nursing visits and semi-structured interviews conducted with British Columbian family caregivers, care recipients, and home care nurses to explore the intersection of language, place, and care. Findings from these datasets demonstrate the spatiality of spoken language, how the social place of the care environment informs decisions regarding language use, and other aspects of the language-place-care intersection. Furthermore, these findings exemplify how language and place mutually influence the experiences and delivery of home health care. The presentation concludes with a discussion on the importance of considering the language-place-care intersection in order to gain a better understanding of health care interactions in diverse settings.

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Presenter: Anne Godlewska

Session/Séance: **T3-G**

**Turning the Tables: Measuring to Reveal Neo-liberal Values**

By Anne Godlewska, Queen's University

The author describes a research/learning venture designed to challenge assumptions about the quality of education offered Canadians: Assessing Awareness of Indigenous peoples. She begins by tracking the neo-liberal preoccupations in education and the ways in which these serve to marginalize Aboriginal peoples and cultures, even as their proponents advocate for Aboriginal people. She then focuses on the larger questions of university climate and cultural continuity for Indigenous students and pointing to the results of the first university survey of Aboriginal Awareness suggests that it is likely that post-secondary institutions across Canada are deeply implicated in uneducating Canadians.

**Exploring Natural and Anthropogenic Controls of Landslide Occurrence on Vancouver Island Using Generalized Additive Models**

By Jason N. Goetz, Alexander Brenning, University of Waterloo, Rick H. Guthrie, Hemmera

Empirically-based models of landslide distribution and susceptibility are currently the most commonly used approach for mapping probabilities of landslide occurrence and their association with natural and anthropogenic environmental factors. In general, these models statistically estimate susceptibility based on the predisposition of an area to experience a landslide given a range of environmental factors, which may include land use, topography, hydrology and other spatial attributes. New innovative statistical approaches include the generalized additive model (GAM), a non-parametric regression technique, which is used in this study to explore the relationship of landslides to topography, rainfall and land use on Vancouver Island, British Columbia. The analysis is based on an inventory of 639 landslides of winter 2006/07, a 20-m CDED digital elevation model, Landsat TM-derived land use and land cover, geostatistically interpolated antecedent rainfall patterns, and the main lithological units of surface geology. In order to assess the relative contribution of each of these data sources to the overall model fit, predictive performances were compared using spatial cross-validation estimates of the area under the ROC curve (AUROC), and variable selection frequencies as measures of variable importance were determined. In addition to topographic variables, land use (e.g., deforestation) and roads showed a strong association with landslide occurrence, followed by rainfall patterns and the very general lithological classification as less important controls of landscape-scale landslide activity in this area.

**Geographical Identity and the Choice of Burial Place**

By A. Gonen, The Hebrew University of Jerusalem

The choice of burial place is often related to identity of a deceased person. Ascribed identities, such as family, clan, tribe, ethnicity, religion and nationality often predetermine or guide the choice of burial place. So are achieved identities such as socio-economic status, political stature or creative accomplishment. Another set of identities, often going unnoticed, are the geographical ones. The more common geographical identity is that of place of residence. Most deceased persons chose to be buried in the town or village where they have been living in the latter part of their life. Being buried where one has lived before passing away is very often regarded as a natural and self-evident right. Such a right is often the basis for bringing home for burial the corpse of a person who happened to die away from his usual place of residence. Soldiers, tourists and business persons, when dying away from their place of residence are being brought back for burial. In the age of a developed network of air traffic, coffins are quite often part of the airborne cargo. But geographical identity goes farther than that. Geographical identity of a person can also be that of the place where he or she were raised and matured "a kind of hometown identity being expressed with full strength in burial more so than in daily life. Home coming at burial is indeed quite a widespread phenomenon in modern times in which urbanization and regional migration have carried people away from their hometown and home village to develop their adult life in other places but their hometown identity and the ongoing attachment to that place has brought them back at the end of life. With transnational immigration becoming a widespread phenomenon in modern times homecoming at burial means carrying by land, by sea and currently by air a deceased person's corpse for burial in the country of origin, leading to a widespread phenomenon of "posthumous repatriation." Bangladeshi immigrants dying in Britain pay much money to be buried in their home country. So do Mexican immigrants in the USA and North African immigrants in France. In such cases, posthumous repatriation is combined with hometown as well as ascribed identity, mostly associated with family. Another geographical identity governing the choice of burial place, but very restricted in occurrence is that of life project: Archeologists near their major excavation site, renaissance architects in the cathedral or church they had designed or doctors with the native people they have cured, or mountaineers on the mountain they have climbed. With tourism and second vacation homes becoming prevalent recently the geographical identity related to landscape cherished becomes another factor in the decision where to be buried. Many people accumulate more than one geographical identity through life and toward the end have to decide which identity should determine the choice of burial place. The spread of cremation has eased many of the identity conflicts on this matter by allowing for parts of ashes to be buried or spread in all those places that form one's composite identity.

**Gordon Stephenson, Heritage and Urban Renewal in Kingston Ontario**  
By David L.A. Gordon, Michelle Nicholson, Queen's University, Canada

Just before Gordon Stephenson left Canada to move to Perth in 1960, he completed the Planning Study of Kingston, Ontario with George Muirhead. Stephenson was an urban planning consultant and director of the University of Toronto's graduate programme during the previous five years. In the summers, he conducted some of Canada's first urban renewal studies for Halifax (1957), Kingston (1958-60), London (1960) and Ottawa (1958-68).

The Kingston study is a landmark in Canadian planning history. Most urban renewal studies from the 1940s and 1950s suggested extensive clearance of "obsolete" neighbourhoods. This report was one of the earliest in North America to suggest widespread renovation of historic buildings and selective infill with new construction. Stephenson's report set the stage for extensive heritage preservation in Kingston, including the recent designation of its Rideau Canal fortifications as a UNESCO World Heritage site.

The paper will draw upon interviews with Stephenson's local collaborators, primary sources in Kingston, Perth WA and the National Archives of Canada. It will explain the unusual aspects of the 1960 report and place it in context with other urban renewal studies of the late 1950s.

**Extending the Sea-ice Baseline Climatology of Hudson Bay Using Coastal Temperature Variability**  
By Bill Gough, University of Toronto

The sea-ice record for Hudson Bay has been largely derived from satellite observations from 1969 to the present. However coastal temperatures have been recorded in the Bay on a continuous basis since 1940. By examining subtle variations of these observations we propose a method for extending the sea ice record to well before 1969. Preliminary results indicated that day to day variability at Churchill Manitoba responds very differently during September (an ice free month) to months in which there is complete sea ice coverage (winter and spring). Two other potential indicators will also be presented. variations in diurnal temperature range and comparison of temperature observations from opposite sides of the Bay at the same latitude.

**Assessing the Effectiveness of Guelph Citizens' Actions in Landscape Protection**  
By Nathalie Gravel, Université Laval

This paper explores some contradictions in natural resource management arising from the presence of real estate promoters that makes Guelph one of Canada's fastest growing cities. How can a strong urbanization process turn farmlands into extended asphalted tracts of land after years of good governance in what is known a green and smart city? How can such a turn of events occur in a region where civic interests are known to be amply represented and where important gains in environmental protection were made in the past? As a result of new urban pressures the landscape of the Guelph urban fringe is being homogenized with detrimental impacts on both culture and nature. Citizens groups have opposed the destruction of some of the best farmlands in Ontario, as well as the loss of agricultural and rural heritage. Why does the issue of urban sprawl represent a lost battle for these groups of actors?

**Toward Inclusionary Geographies of Academia: Reflections on Disabled Graduate Student Experiences**  
By Athena Goodfellow, McMaster University

This presentation focuses upon recent and ongoing participatory action research conducted by and with university graduates with learning disabilities. I suggest how the inclusion of persons with disabilities in research and in academia opens new terrains in disability geographies. This presentation reflects upon the presence and importance of the 'disabled' voice in academic scholarship and how engaging the disability community through participatory research can ensure that the diverse voices of our community are heard. In conclusion, I suggest how geographers can move towards more inclusionary participatory

**The Politics of Drought in the Brazilian Northeast**

By Nathalie Gravel, Université Laval

Rather than depending on the Brazilian state's water allocation infrastructure strategy, rural citizens' networks from the semi-arid Brazilian Northeast have proposed water-management alternatives in the form of rain harvesting and efficient agroecological practices. Among these, the One Million Cisterns Project, which involves the construction of small-scale rainwater collection infrastructures by community members, has shown that individual cisterns improve the quality of life of rural residents (hygiene, food preparation, health, and diet) and allow for agricultural diversification. This was made possible under the Lula government. With the re-election of the Workers' Party (PT) in 2010 with Dilma Rousseff as president, hopes were high that the One Million Cisterns Project partnership between the federal government and the NGO umbrella ASA Brasil (Articulação no Semi-Árido Brasileiro) would continue. A year later, Rousseff's "Water for All Program" seems to propose dealing with water scarcity through other means, primarily by excluding civil society from the decision-making process. What does the future hold for environmental governance in the semi-arid Brazilian Northeast?

**Fast Alone and Far Together: Scalar Framings of Marine Protected Areas at the Convention on Biological Diversity**By Noella J. Gray<sup>1</sup>, Rebecca Gruby<sup>2</sup>, Lisa M. Campbell<sup>1</sup>, Shannon Greenberg<sup>2</sup>

1. University of Guelph, 2. Duke University

Marine protected areas (MPAs) continue to be promoted as the preferred mechanism for the protection of marine biodiversity. Recent ethnographic work has examined how MPAs are conceptualized, implemented, and contested in particular places; this paper supplements such work by considering how MPAs were legitimated and contested by a variety of actors at the 10th Conference of the Parties of the Convention on Biological Diversity (CBD-COP10), held in Nagoya, Japan in October 2010. Based on the results of a collaborative event ethnography at CBD-COP10, we explore the ways in which actors used scalar strategies and framings to define MPAs. Global framings were used to characterize MPAs as the product of a scientific exercise and to emphasize the need for more MPAs to meet global conservation targets. National framings were used to highlight North-South inequities and justify additional financing. Local framings were used to emphasize the importance of rights, resource use, and governance. Finally, the regional scale was touted both as a means of finding legitimate governing bodies for global science-driven agendas as well as a way for local groups to leverage resources. Although MPAs dominate the marine conservation agenda, this should not be equated with a singular vision of global marine governance. MPAs act as a boundary object, bringing together diverse groups with divergent agendas and scalar strategies, yet providing a common element through which to engage.

**Mobile Habitations of Canoescapes**

By Jessica Dunkin and Bryan S. R. Grimwood, University of Waterloo

This paper explores the relationship between tourism mobilities and dwelling through a consideration of modes of habitation practiced during recreational canoe travel. Intersections and tensions between two case studies, one historical and one contemporary, are taken as points of departure. First, we travel back to the annual meetings of the American Canoe Association, peripatetic events that took place at different sites around New York, Ontario, and New England between 1880 and 1903. These meetings were two-week affairs that brought middle-class urbanites from throughout east-central North America to recreate, socialize, and race canoes. This case study draws on newspaper reports, memoirs, and photographs to uncover everyday practices that (re)produced home while away. The second case follows wealthy canoeists who travelled north in July 2010 to experience the Thelon River in Arctic Canada. These tourists took part in an 11-day journey of 270 kilometres with an experienced guide and outfitter. Mobile ethnography is paired with supplementary qualitative information to access the modes of habitation that anchored these canoeist experiences of the North. A comparative analysis across cases revealed three recurrent practices of habitation: constructing camp, navigating/wayfinding, and documenting. The presentation will include a detailed examination of the corporeal and material dimensions of these practices.

**Six P's for Enacting Relational Ethics: Recursive Patterns in Community-based Participatory Research of an Arctic Riverscape**  
By Bryan S.R. Grimwood, University of Waterloo

The Thelon River traverses roughly 900 kilometres across the indigenous homelands of Dene, Mātis, and Inuit in Sub-Arctic and Arctic Canada. The riverscape is also an emblematic wilderness; a place desired and consumed by canoe tourists, for example, for its perceived qualities of naturalness and remoteness. While commemorative status as a Canadian Heritage River has inscribed certain natural, cultural, and recreational values into its moral geography, suggestions that the Thelon is a place of edges speak to its indeterminate, fluid, and relational configurations. Drawing on a case study of this Arctic riverscape, which prioritized community-based participatory research with Inuit residents of Baker Lake, Nunavut, as well as clients of a canoe-based guiding company in the Northwest Territories, this presentation identifies and describes six modes and/or attributes for enacting relational ethics within lived-space experiences of the Thelon. These modes/attributes include power, place, perception, partnership, philosophy, and practice. Although derived from an investigation of recursive patterns within a particular suite of community, theoretical, reflexive, interpretive, and empirical contexts, the six P's can serve as helpful guideposts for nurturing reciprocal and trusting partnerships between indigenous communities and university-trained researchers (and other visitors to northern areas). The presentation draws specific attention to these possibilities using illustrative moments from the case study research.

**Australian Housing Policy, Misrecognition and Indigenous Homelessness**

By Daphne Habibis, University of Tasmania

Policy initiatives in remote Indigenous Australia aim to improve Indigenous health and well-being, and reduce homelessness. But they have divided Indigenous communities because they impinge on aspirations to remain on homeland communities, require mainstreaming of Indigenous housing and transfer Indigenous land to the state. The paper uses recognition theory to argue the misfit between Indigenous and mainstream models of housing is a form of misrecognition whose effects may undermine achievement of policy goals.

Drawing on a national study on Indigenous population mobility involving interviews and analysis of administrative data, the paper argues misrecognition can result in departing the family home as a culturally sanctioned form of resistance to state control. This population mobility is associated with homelessness because it takes place in the context of housing exclusion. Policy implications include developing models of intercultural professional practice and a capacity building approach to local Indigenous organisations.

**Environmental Innovations in the Hotel Sector- A Green Energy Perspective**

By Akanksha Halbe, University of Waterloo

According to the World Economic Forum (2009), key measures to reducing carbon emissions in the hotel sector are accelerating action to implement highest degree of energy efficient technology and speeding up deployment rate of renewable energy. Hotels are seeking means to reduce energy costs in the long term by exploiting opportunities in energy efficiency, conservation and renewable energy. However, hotel characteristics such as size, ownership, location, services, clientele and organizational policies also play a significant role in decision-making of adopting these sustainable innovations. While few organizations proactively adopt clean energy systems and operate efficiently, others are uncertain on how to implement these technologies and leverage the benefits to achieve a triple bottom line. Hence, this research aims at exploring factors that affect decision-making related to energy-efficient and renewable energy technologies in the hotel sector. The study is based on the conceptual framework of the theory of Diffusion of Innovations. Key decision-makers in the hotel industry mainly developers, owners and managers are interviewed to gain a better understanding of the decision-making in both committed (early adopters) and less committed (late adopters) hotels and the relative importance of agents such as environment champions and structures such as sustainability committees in the hospitality industry.

**Rapid Urbanization and Impacts on Urban Ponds: An Anatomy of Khulna City, Bangladesh**

By Kamonashish Haldar, Khan Rubayet Rahaman, Saiful Azim

Ponds have significant imperative impact on biodiversity maintenance and conservation in urban areas. Urban ponds are also offering scenic beauty, environmental sustainability, supply of sweet water, supplying fish for local consumption, balancing extreme heat in the local communities and so on. Ponds of an urban area are in Bangladesh and especially in the coastal areas are being considered as major sources of water for multipurpose activities such as drinking, washing, bathing, gardening and others. These ponds are also used as water retention points during the rainy season. However, with the rapid urban growth and spatial expansion, number of ponds is decreasing at an alarming rate. Already a large number of ponds are filled to keep pace with the development purposes since 2000 in Khulna city to accommodate tremendous housing demand. As a result, severe water logging condition as well as flooding occurs in the urban areas because of poor natural drainage system. This paper aims to identify major impacts of urbanization on ponds and how does it affect the built environment. The paper also focuses the decreasing rate of urban ponds over time through a qualitative research method. We have interviewed local people aged in between 40 to 60 years to know their experiences about urban ponds. They have also pictured the number of disappeared ponds in their own community over time. We have summarized the information and have tried to show how fast the important urban water bodies are disappearing in coastal cities where urban ponds are very important as a source of sweet water in Bangladesh.

### Whisky is for Drinking, Water is for Fighting Perceptions of Irrigators Towards Water Re-Allocation Strategies in Southern Alberta

By Mathew Hall, Henning Bjornlund, Wei Xu, University of Lethbridge

Water scarcity has become a reality in the South Saskatchewan River Basin (SSRB) of Alberta when most of the basin was closed in 2006. Alberta's Water for Life (WFL) strategy relies on the use of market-styled reallocation to ensure that future demand can be met. Since roughly 70% of consumptive water use is designated for the irrigation sector, it is important to understand how irrigators perceive various policy options for water re-allocation or water sharing. The goals of this research are to investigate how irrigators perceive market-based water reallocation strategies, and to identify the most important factors influencing those perceptions. The research methodology involved interviews with irrigators in the region as well as telephone surveys with private irrigators and members of irrigation districts. The theory of planned behaviour was used to identify factors influencing irrigators adoption of market based re-allocation mechanisms and other policy options for water sharing with urban users and the environment. It is expected that the results will indicate irrigators in the region are heterogeneous displaying different value orientations based on their demographic characteristics, farm characteristics, management practices, and geographic location within the SSRB.

### Diverse Integrations: Pathways to Immigrant Employment in the Port-logistics Sector

By P. Hall, A. Farahani, K. Johnston, C-M. Yeak, Simon Fraser University

The port-logistics sector consists of a network of activities that begin at the waterfront and that extend to suburban distribution centres. Jobs are created in stevedoring, trucking and warehousing, as well as in data entry and logistics planning. Despite increasing virtual, corporate and functional integration within these supply chains, employment in port-logistics remains highly fragmented. This creates multiple points of interaction between workers with different employment circumstances, raising a premium on communication skills but also creating conditions for labour market segmentation. Since the late 1980s, the BC Lower Mainland port-logistics industry has undergone rapid growth and profound transformation. Although still under-represented relative to the immigrant share of overall employment in Vancouver CMA, between 1991 and 2006 the share of immigrants increased from one-fifth to one-third of all port-logistics workers. Furthermore, different immigrant populations are concentrated in specific industry and occupational segments. Examining how immigrants find employment in a single but diverse sector can add to our overall understanding of immigrant labour market outcomes. This paper reports on research supported by Metropolis BC. Census microdata identifies immigrant employment patterns and outcomes. Employment life-histories of immigrants and key informant interviews uncover the training, search, recruitment and hiring processes behind the Census numbers.

### Online Teaching of Remote Sensing: A Technical Nightmare or a Natural Fit?

By Mryka Hall-Beyer, University of Calgary

An online course teaching intensive graduate-level remote sensing was developed in 2010 and has been presented twice, using the Blackboard LMS platform and Adobe Presenter/SCORM content, and Idrisi Taiga as remote sensing software. This course prioritizes practical image analysis but also development of technical writing skills. I explore the successes and difficulties. Goals were 1) asynchronicity to allow working students (especially those doing field work) to complete the course, 2) the ability to address students varying background knowledge and technical expertise, and 3) to provide a balance between technical support, peer collaboration and encouraging individual problem-solving. Post-course surveys and evaluation shows these to have been met. Unplanned benefits included the ability to adapt the course's modular structure to provide mini-courses tailored to student needs outside of the course itself, and also to provide a long-term study platform for students preparing their oral exams and thesis defences. Main difficulties centred around some students preferring in-person discussion, but these were addressed successfully. The course is an integral part of the Masters of GIS Program, one of the , basics and beyond, courses offered to incoming students in the Program,Âs three core areas of remote sensing, GIS and spatial statistics.

**Canada as Contested Haven: Constructing Ethical Spaces for the Global Diamond Trade**

By Trina Hamilton, University of Buffalo

Over the past decade, Canada has quickly cornered the so-called ethical diamond market. Canadian diamond producers and retailers have traded on Canada's reputation as an environmental and human rights leader and utopian visions of a pristine arctic landscape in their marketing of Canada as an ethical space for diamond production. These purity narratives are often specifically contrasted with blood and conflict diamond portrayals of Africa. The ethical diamond market is subject to continuous contestation, however, and alternative narratives, such as an African empowerment narrative backed by hip hop star Russell Simmons and DeBeers, are challenging Canada's status as an ethical haven for diamond production. This paper will explore the evolution of ethical diamond narratives and their associated geographic imaginaries, and the lessons of this evolution for consumer-led governance more generally.

**Effects of Urbanization on Surface Water and Energy Budget in Toronto**

By Shishir Handa, Richard Bello, York University

For the snow-free seasons from April through November 2010 and 2011, the evaporation from a naturalized field at the Kortright Conservation Area comprised 95% and 91% of precipitation respectively. In contrast, the evaporation from a gravel roof of an airplane hangar at Downsview Park evaporated only 24% and 23% of precipitation in the same two years. Excess precipitation was funneled into runoff through the storm drain system on the roof generating runoff coefficients of 76% and 77% in the two years respectively. Although individual months at the natural site generated precipitation excesses as large as 71% these were offset by months when evaporation exceeded precipitation by a factor of 3 by drawing on groundwater. On average, water available for runoff only comprised 5% and 9% of precipitation for the two years respectively. Average energy balance components indicate Bowen ratios of 0.53 and 0.34 for the field in contrast to those for the impervious gravel roof with values of 4.2 and 4.8 in 2010 and 2011 respectively. The effects of urbanization on both the water and energy balances are quite profound but exhibit large monthly variations which are influenced by the timing of precipitation and energy supply.

**Criteria for Effective Environmental Assessment**

By Kevin Hanna, Wilfrid Laurier University, Bram Noble, University of Saskatchewan

Effectiveness is a long-standing issue in Environmental Assessment (EA) research and practice-the theme is fundamental to the continued development and improvement of EA, and is essential to understanding its contributions to environmental management-whatever those contributions may be. However, systematic evaluations of the actual impacts and influence of EA on environmental quality and policy are uncommon, and the Canadian context is no exception. This presentation presents the results of a project undertaken to develop criteria for measuring the efficacy of EA processes. A Delphi method was used to create a set of 9 macro criteria that can be used for evaluation and audit of EA systems in Canada and other jurisdictions.



**Seasonal Shallow Freeze-thaw Monitoring Using Ground Penetrating Radar**

By Jennifer Hansen, Jon Paul Jones, Tony Endres, University of Waterloo, Colby Steelman, University of Guelph

Recent advances in geophysical methodologies have shown how high-frequency Ground Penetrating Radar measurements can be used to non-invasively characterize dynamic freeze-thaw processes. GPR allows for high resolution, spatial and temporal characterization of cryotic soils. This new technique lends itself to understanding the complexities of hydrological processes in cold regions. Frozen ground processes control, to a large extent, global and regional climates and hydrologic processes. For instance, soil frost formation can significantly reduce the amount of deep percolation and subsequent groundwater recharge by up to 25 percent. For this work, two full seasons of GPR data, winter freezing, spring thaw, summer and fall, have been collected. We are using this data to characterize the onset of freezing and the migration and dynamic changes of the frost table. Interpretations of the velocity changes of the direct ground wave, gathered from common mid-point surveys during cryotic soil formation are also being used to qualitatively identify the presence of shallow ice. We are also tracking the migration and thickness of the frost table throughout the winter by identifying the reflectors produced from the transition between frozen and non-frozen soil. Transition zones produce reflectors due to the contrasts between dielectric permittivities of ice and sand, 3 and 80. From these reflectors we quantitatively assess the thickness, and presence of the ice throughout the full two seasons. This data will be used to assess the nature of the apparent geophysical responses by comparing observed responses of freeze-thaw with simulated processes.

Presenter: Dan W. Harrington

Session/Séance: **W4-A****Neighbourhood-level Potential Access to Care: The Role of Physician Availability in Determining the Use of Health Care Services**By D.W. Harrington<sup>1</sup>, K. Wilson<sup>1</sup>, S. Bell<sup>2</sup>, J. Ruthart<sup>1</sup>  
1. University of Toronto Mississauga, 2. University of Saskatchewan

Research on access to health services has traditionally focused on demographic, socioeconomic, and need-based factors. The result is a relative lack of knowledge regarding environmental and place-based determinants of health care use. Further, much of what we do know comes from studies conducted at international, national, and regional scales. The local neighbourhood is an important unit of analysis because it represents a level or scale at which individuals interact closest with the health care system (e.g. family physicians, local hospitals, walk-in clinics etc.). This study analyzed survey data collected at the neighbourhood (n=1,635) using logistic regression to explore the role of neighbourhood-level potential access (i.e. physical availability of health care resources) on realized access (i.e. contact with a primary care physician [PCP]) in two Canadian cities: Mississauga and Saskatoon. Results identify an important role for predisposing (e.g. age, sex), enabling (e.g. having a family doctor) and need factors (e.g. presence of chronic conditions). Living in a well-served neighbourhood, however, was found to have a stronger effect on PCP contact for residents of Saskatoon (OR=1.50, p).

Presenter: Yui Hashimoto

Session/Séance: **F1-I****Utilizing a Feminist Geography Lens to Understand Food Insecurity for Lone Mothers in Hamilton, Ontario**

By Y. Hashimoto, A. Williams, McMaster University

Traditional food insecurity research has focused on quantitatively measuring and assessing food insecurity in order to improve health interventions and outcomes. However, this research lacks an understanding of food insecurity from a social justice perspective, which has the goal of attempting to dismantle the barriers to improving quality of life. Through a case study of Hamilton, Ontario, this presentation employs qualitative methods (n=1 focus group; n=7 face-to-face interviews) and a feminist approach to attempt to understand food insecurity for lone mothers in two neighbourhoods characterized by a low socio-economic status (SES). The presentation also explores the role of community-based food services and programs (CBFSPs) in achieving food security. Preliminary themes from the qualitative data include: the geographic and temporal extent to which mothers go to acquire food; knowledge, considerations, and strategies of food acquisition; reliance on informal social networks; caring for and loving one's children; and understanding that improving food security for lone mothers requires addressing structural inequalities. Furthermore, mothers' suggestions of how to address these structural inequalities, as well as how to improve CBFSPs will be discussed.

**Learning from Users: How Knowledge of (Rather than Knowledge About) Yields Better Market Insight**

By Carolyn Hatch, University of Toronto

The importance of demand as a key feature in an innovation system, as well as the role of 'sophisticated buyers' in providing producers with a wider and deeper view of the market, have been acknowledged in the literature. More recently, Grabher (2008) has suggested that for certain highly customized products, the ability of producers to harness knowledge of (rather than about) the customer in order to draw a more informed conclusion on actual and potential markets, is crucial to innovation. This paper draws on a case study of the Canadian 'contract' (or office) furniture manufacturing sector to investigate the degree to which various levels of user-producer involvement shape the innovative trajectory of manufacturing firms. As expected, preliminary findings show that firms who employ an inductive approach, characterized by a high level of user-engagement, are more competitive in the marketplace; yet relational proximity is found to be more important than physical proximity. The empirical analysis entails a sector-wide survey questionnaire (N=220; 46% response rate) as well as 30 in-depth interviews with senior managers from a subset of leading firms. This study connects to ongoing work in economic geography to contribute to our knowledge of user-producer interaction in the innovation process.

**Decolonizing Educational Spaces: An Early Stage Investigation of Schools in Kitimat B.C.**

By Blake W Hawkins, Sarah DeLeeuw, University of Northern British Columbia

Many First Nations students in British Columbia are educated within western-styles of curriculum. Contemporary educational spaces result in higher than average rates of First Nations students dropping out and/or not reaching similar rates of success when compared with non-Aboriginal populations. Anchored in an early stage case-study of Kitimat B.C., and drawing upon historic literatures and contemporary government documents, I investigate what might be understood as more rigid and non-holistic style of learning and educating, which have been detrimental to many Indigenous people. From this case study, it will be argued that it does not have to be the only form of spaces found in the school system. The possibility of a differing space, one more in tune with the locality of Kitimat and the Haisla people, will be explored in this paper. I hypothesize and discuss that such a system would acknowledge problematic aspects of the social and material spaces currently in Kitimat schools and then attempt to value pedagogies from non-Western systems of knowing. This paper is a starting point to discuss the importance of decolonizing educational spaces in Kitimat and British Columbia more broadly.

**The Paradoxes of Ethically Branded Bottled Water**

By Roberta Hawkins, University of Guelph

Bottled water sales have increased globally at an alarming rate in recent years, mostly in regions where reliable and clean tap water is already available. This increase coincides with a growing consumer awareness of the damaging environmental impacts of bottled water and a serious global water crisis where billions of people lack access to safe water. Trying to bridge these apparent paradoxes is a set of ethically branded bottled water products. These bottled water brands encourage the consumption of bottled water as one means of solving global water crises. The brands make a donation to a development organization addressing water issues each time a bottle of water is purchased. Through this process consumers are encouraged to save lives and engage in alleviating the world water crisis. In examining the Ethos Water initiative, I explore the contradictions inherent in the bottled water industry becoming a solution for water issues that it has played a key role in producing. I argue that this framing simplifies the complexities of the world water crisis and emphasizes ineffectual individual actions as the solution to a multifaceted problem.

**Exploration and Expectations: Corporate Social Responsibility and Rural Development**

By Karen Heisler, Simon Fraser University

In 2009, the Prospectors and Developers Association of Canada (PDAC), a mineral exploration and mining association, launched the e3Plus corporate social responsibility (CSR) program. The e3Plus framework has become a part of the expanding catalogue of CSR programs to guide companies to satisfy public expectations of corporate behaviour ([www.pdac.ca/e3plus](http://www.pdac.ca/e3plus)). In this paper, I will explore the expectations of communities and the CSR activities of mineral exploration companies in northwest British Columbia. Increased exploration activity in the region has raised expectations that companies will support the social and economic advancement and capacity building of communities whose lives are affected by exploration ([www.pdac.ca/e3plus](http://www.pdac.ca/e3plus)). Benefits from CSR programs, in the form of corporate donations to local communities, preferential procurement and hiring practices, and investments in community infrastructure are becoming a norm for mineral exploration companies doing business in the region. I argue that increased reliance on corporate funding for community development is problematic because companies are often distributing benefits as a strategic investment in order to secure a social license to operate from communities. The efforts of industry associations to standardize company CSR activities are increasing the role of corporate actors in community development.

**Trans-local Professionals and Localized Knowledge Flows: A Case Study of Business Travelers at Pearson International Airport, Toronto**

By Harald Bathelt, Sebastian Henn, University of Toronto

In the knowledge-based economy, the competitiveness of firms depends on their ability to engage in and benefit from creating and circulating knowledge both with their regional environment and beyond. While studies in economic geography have for a long time been particularly interested in analyzing the role of spatial proximity in the creation and transfer of new knowledge, relying primarily on local factors has been found to bear the risk of over-embeddedness, affecting the competitiveness of individual firms and even entire clusters. In addition, as wider economic networks develop connected through relational ties, permanent spatial proximity is no longer a prerequisite for ongoing knowledge creation. Rather, temporary gatherings either based on physical proximity (i.e. trade fairs) or virtual proximity (i.e. Internet-based communities) can also support interactions between economic agents over great distances and play an important role for processes of inter-firm communication, learning and the corresponding creation and dissemination of knowledge. An increasingly important, albeit largely unexplored form of knowledge generation based on temporary gatherings occurs in the vicinity of central nodes of the global air traffic network, i.e. international airports, which establish infrastructures and generate opportunities for temporary face-to-face meetings. In the present knowledge-based economy, these airports and their related infrastructures, such as airport hotels or convention centers, form important meeting environments for technical experts and decision-makers of multinational corporate networks and professional communities who take part in short-term strategy meetings or conventions for the purpose of developing their business further. By the means of establishing focal points of intensive short-term exchange between these related agents, such airport environments constitute important catalysts of new geographies of knowledge creation and circulation. The paper analyzes the role of international airports as sites that generate important economic knowledge flows by bringing together managers and other professionals from different locations around the world in more detail. Using the example of Pearson International Airport in Toronto, it aims at exploring the scale of such face-to-face-encounters, the type of trans-local communities involved, the importance of these short-term meetings and the nature of the specific ecology of information and communication processes involved. Our research draws on available statistics, information about close-by meeting places and interviews with the organizers and participants of such meetings to explore the extent and nature of these temporary face-to-face encounters.

**The Location Decision Imperative: The Evolution of Retail Location Decision Support in Canada**

By Tony Hernandez, Matthew Emmons, Ryerson University

Retail location decisions typically involved substantial levels of capital investment and corporate inertia and as such have been characterised as both high risk and long-term. Once made a company has to live with the consequences of their location decision making activities. The paper provides the final report findings from a comprehensive survey of decision support amongst a large cross-section of major retail and service companies in Canada. The study builds on research undertaken over a decade ago and provides a longitudinal perspective on how retail location decision support has changed over time. The findings from the online survey and follow-up interviews with decision makers highlight the widespread adoption of GIS amongst major Canadian businesses and the broad array of datasets and techniques used to support location decisions. The research highlights on-going challenges in terms of the integration of GIS within the final corporate decisional outcomes. Specifically, raising many questions as to the role of GIS within decision. While GIS has become increasingly procedurally embedded within decision processes the survey respondents note challenges in terms of using GIS to strategically drive decision horizons. Instead, experience, intuition and gut-feel, what can be termed the art of decision making, remains a key driving force over the science of GIS and data and model-driven approaches. This in turn prompts concerns over the development, management and retention of organizational knowledge with regard to location decision activities.

**The Construction of Public Space in the Modernist Suburb: A Toronto Case Study**

By Paul Hess, University of Toronto

This paper explores the creation and spatial structuring of public and private space in the Toronto's suburbs following World War II. It adds to the public-space literature where authors theorize about the increasing privatization and regulation of public space in the neoliberal city, the diminishing role of public space in providing an arena for political exchange, and the increase in class-based control over public space (e.g. Blomley 2010, Mitchell 2003, Loukaitou-Sideris and Ehrenfeucht 2009), but all this work focuses on urban settings. In the suburbs, with the controlled space of malls and gated communities, the project of privatization is seen as having been already won (Kohn 2004, Grant and Curran 2007). The paper re-examines issues of suburban public space through the lens of apartment dwellers. I argue that, rather than being planned out, the production of new public space was central to post-war suburban planning. These spaces, however, were associated with creating settings for family life, and apartment dwellers were systematically separated from them. Current apartment dwellers do live in highly privatized realms, but not as the result of neoliberal logics. Instead, they do so because of patterns of property division that were integral to the planning of the modernist suburb.

**Weather and Camping in Ontario Parks**

By Micah J. Hewer, University of Waterloo

Climate and weather have a major influence over nature-based tourism seasonality, and act as central motivators involved in the travel decisions of tourists. This study contributes to the understanding of weather sensitivity for different tourism segments across varying climate zones world-wide, and to more informed park tourism planning and climate change adaptation in Ontario. Using a survey-based approach, this study identified and compared the stated weather preferences and weather related decision-making of campers from two different provincial parks in Ontario, Pinery and Grundy Lake. Temperature preferences between the two parks were strikingly similar. However, differences in weather related decision-making were statistically significant, showing campers at Pinery to be more sensitive to weather. Heavy rain and strong winds were found to be the most influential weather aspects in relation to camper decision-making. Overall, parks which are beach-oriented, closer to tourism generating areas and are characterised by visitors with shorter than average lengths of stay, will be most sensitive to weather and future climate change. As such, it will be important for parks that rely on similar tourism generating markets as Pinery, and share similar park characteristics, to place a greater planning emphasis on climate change adaptation.

**The Land Value Impacts of Commuter Rail in Hamilton, Ontario**

By Christopher D. Higgins, McMaster University

Residential housing values are one of the best ways to understand and measure the benefits incurred by rail rapid transit systems. This paper explores the degree to which the proximity to rapid transit has been capitalized in the case of GO Train commuter rail service in the City of Hamilton. Due to its inner-city location and a lack of on-site parking, the Hamilton GO Centre provides an interesting opportunity to assess the impact of commuter rail on residential home values within walking distance of the station. Using a hedonic regression model of single-family home sales from 1987 to 2004, this study isolates the impact of commuter rail in residential housing values after the inauguration of peak-period GO Train service to downtown Hamilton in 1996. The research finds that despite an overall decrease in property values for homes located in Hamilton's downtown core, those within 800 metres of the station enjoy a measurable price bonus over otherwise comparable properties elsewhere in the city. These results suggest that despite operating in corridors that traditionally host rail freight traffic, commuters value the accessibility benefits GO Transit provides in a heavily congested region, making station-areas potential candidates for capturing future residential intensification.

**Scholars GeoPortal: Improving Geospatial Data Access for Ontario Researchers and Students**

By: Leanne Hindmarch, Dan Jakubek, Jennifer Marvin, Scholars Portal

The Ontario Council of University Libraries (OCUL) is a consortium of Ontario's 21 university libraries. OCUL enhances information services in Ontario and beyond through collective purchasing and shared digital information infrastructure, collaborative planning and assessment, research, partnerships, and communication. OCUL is currently developing a new service known as the Scholars GeoPortal (<http://geo.scholarsportal.info>). This data storage and discovery tool will provide a secure repository for geospatial files and include an integrated online mapping tool to improve the accessibility and ease of use of georeferenced data. This paper will provide an introduction to the portal project, including visuals and/or a live demonstration of Scholars GeoPortal Beta (launched August 25, 2011). It will offer an overview of the issues this project takes into consideration, including technology, data collections, metadata, and integration with teaching, learning, and research. In addition, it will discuss the expected impact of the portal at Ontario universities, assessment plans, and future development goals.

**North Again for Gold**

By Dawn Hoogeveen, University of British Columbia

This presentation traces the implications of gold mining in the Northwest Territories and Nunavut. The title North Again For Gold refers to the new gold rush yet borrows from Edgar Laytha's 1939 book that discusses a gold mining boom that began seventy years previous in the same lands. I examine the socio-political factors that account for mining legislation in the region and discuss how regulation has (re)configured property rights in tandem with mineral exploration booms. In doing so, I address how the legacies of gold mining inform the new gold rush and patterns of resource dispossession by calling into question the spatial politics of meta-struggles such as power imbalances between aboriginal and Inuit peoples, the state, and mining companies. My concern is how the law does or does not function to protect aboriginal and Inuit rights and how social justice may or may not manifest through modern treaty processes. The legal geographies of gold exploration are impacted by modern land claim agreements and respective implementation efforts. Some of these agreements, such as the Nunavut Land Claim Agreement signed in 1993, predate the current surge in gold prices that has led to a dramatic increase in gold exploration and Nunavut's first gold mine. This presentation critiques gold exploration now and then in light of shifts in northern regulatory environments.

**"No, it's Not Laïcité! Let's Talk About a Spatialized Material Sexularism"**

By Carmen Teeple Hopkins, University of Toronto

As of April 11, 2011, any woman in France who wears the niqab or burqa in public is subject to a fine of 150 euros or a course on French citizenship. This paper asserts that while arguments for French laïcité justify bans on the burqa and niqab, the French constitution does not define it. Laïcité is therefore vulnerable to political interpretation and the April 2011 law must be seen in the backdrop of heightened and intensified global Islamophobia post-9/11. The purpose of the paper is to expose the dehumanizing tendencies of the French state in a postcolonial context. I take Joan Scott's notion of the sexular as a starting point, and elaborate on Banu Gökarişel and Katharyne Mitchell to examine how the neoliberal individual cannot wear the burqa or niqab. In France, these women are dispossessed from accessing social services. Utilizing content analysis, I examine newspaper articles between April and December 2011 to demonstrate that Muslim women are experiencing heightened amounts of violence in France. I conclude that Muslim women's opposition to the law and political activism is criminalized; I call this, spatialized material sexularism.

**Assessing the Impacts of Climate Change on Subsistence Harvesting for a Remote First Nations Community in the James Bay Region of Northern Ontario, Canada**By Yukari Hori, Benita Tam, William A. Gough, University of Toronto at Scarborough, Elise Ho-Foong, AECOM Canada Ltd., Jim D. Karagatzides, Georgian College, Eric N. Liberda, Ryerson University, Leonard J.S. Tsuji<sup>5</sup>, University of Waterloo

In Canada, unique food security challenges are being faced by indigenous people living in remote-northern communities from the impacts of climate change on subsistence activities. The subsistence lifestyle is the cornerstone of the regional mixed economy, and important to the health of First Nations. Our study used traditional environmental knowledge (TEK) to investigate whether there was a temporal relationship between extreme climatic events in the summer of 2005, and fish die-offs in the Albany River, northern Ontario, Canada. Also, TEK was utilized to examine a potential shift in subsistence fish species distribution due to climate change. TEK coupled with climate data revealed temporal relationships between extreme climatic events in 2005, and fish die-offs in the Albany River. Thus, climate change can directly impact food security by decreasing the number of fish through mortality and indirectly through population dynamics by impacting the yield of fish subsistence harvests in the future. By contrast, TEK did not reveal northward expansion of novel fish species in the Albany River or fish distributional contraction in the western James Bay region. Additional climate change and food security research is required so that subsistence harvesters have more information on which to proactively plan adaptive strategies.

**Early Canadian Auto Entrepreneurs and the Failure of the All Canadian Car: A Study of Spatial Logics in Business Decision Making**

By William Reginald Horne and Todd Stubbs, Lakehead University-Orillia

Every successful business has to make critical spatial decisions. This paper compares the decisions of two Canadian entrepreneurs, R. Samuel McLaughlin and James B. Tudhope, and their interactions with the American automobile industry. Both were the sons of British immigrants who had started carriage manufacturing companies in southern Ontario. Both joined the family business and in 1907 introduced a line of automobiles. McLaughlin began manufacturing Buick cars while Tudhope chose the comparable Everitt in 1909. When the U.S. parent company went out of business, Tudhope continued manufacturing his car as the all Canadian Tudhope, a project that quickly went under and was sold to the American Fisher Body Company. In 1915 Tudhope decided to return to his area of expertise and bought McLaughlin's carriage works. McLaughlin used the money to start building Chevrolets. In 1918 McLaughlin sold his business to General Motors, staying on as president of the Canadian operations. Fisher was bought by GM in 1919 and the old Tudhope factory closed. In this paper we explore the factors that led to the very different results for these two automobile entrepreneurs. We argue that Tudhope's strategy of selling an all Canadian car in a protected national market ultimately failed to offer a compelling and viable business alternative to the developing spatial logic of the American auto industry in Canada.

**The Toronto Waste Crisis: An Historical Geography**

By Charles Hostovsky, University of Toronto

Toronto's municipal solid waste (MSW) has become a pariah since planners started exporting to communities outside of the city to Michigan, and now Southwold Township near London. Massive public protests against the import of Toronto's MSW from several candidate communities led to interference with the Integrated Waste Management Plans by three successive Ontario Premiers who thwarted the city's attempt to site their own landfill; despite the expenditure of over \$150 million and 20 years of Environmental Impact Assessments for several sanitary landfill projects. Upon historical reflection, we can see there is nothing new about this waste crisis or the export of waste outside the cities boundaries. The first crisis occurred in the late 19th century, followed by massive expenditures on waste disposal technologies in the early 20th century to deal with rapidly growing quantities. Export of most of Toronto waste outside its boundaries is also not new, when most MSW began internment in 1983 at the Keele Valley landfill in York Region. Recent research by the author and his graduate student has determined that the political economy of the waste crisis, and not environmentalism, is the main driver of aggressive recycling and composting programs in Toronto and other Ontario municipalities in a waste disposal capacity crisis. A quantitative analysis of five municipalities studied showed a strong correlation between dwindling disposal capacity and rapidly increasing waste diversion rates over time.

**Research Design in a Collaborative Setting: The Example of Nisawitatan Kitaskino**

By Nicolas Houde, Université du Québec à Montréal

It has been suggested that for a long time, research has not served the interests of Indigenous peoples and has even worked at times as an instrument of oppression. An approach now generally promoted to decolonize research is one that is collaborative, deeply involving both Indigenous communities and university researchers throughout the process, from the identification of research questions through to the reporting of results. In line with this approach, Atikamekw Sipi, a tribal council from central Québec, and I jointly designed Nisawitatan Kitaskino, a collaborative project aimed at both reaching university-based and Atikamekw-based objectives. This paper aims to explain how the research framework was built, as well as to identify the challenges faced by our team in designing the research, and why we felt that a collaborative process lead to "better" research. In the context of Nisawitatan Kitaskino, collaborative research is seen as an approach that can diversify the sources of funding while achieving multiple results for multiple purposes. It is an approach that is flexible and adaptive, allowing for testing different research strategies in order to develop methods that are locally relevant. Finally, it is an approach that requires meaningful layered participation consent in order to allow individuals to express themselves, while at the same time engaging Indigenous political organizations in the identification of sensitive information that should not be published in order to protect a vulnerable community currently negotiating a treaty with state governments. In addition to research results, Nisawitatan Kitaskino produced a research protocol that is now used as a canvas in other projects.

**Planning for the Memorialization of the Residential School System: A Case Study of the Woodland Cultural Centre in Brantford, Ontario**

By C. Hovey, L. Viswanathan, Queen's University

Memorialization can link justice and history to physical place. In this way, it can provide a bridge to a postcolonial ethic for a profession like planning. This paper examines the processes informing the memorialisation of residential schools in Canada, at the national and community levels. The focus is a case study of the Woodlands Cultural Centre (WCC), a First Nations educational centre and museum in Brantford, Ontario. The WCC is housed in what was formerly the Mohawk Institute, a residential school. The site holds history of tensions, violence, cultural erasure and genocide of First Nation cultures and peoples. At the same time processes of memorialisation, represented by its transformation into the WCC can be seen as a form of transitional justice, and offer hope for conciliation of past injustices. This community-driven version of memorialization is compared with the mainstream commemoration efforts that are being conducted at the national level through the Truth and Reconciliation Commission. This case study provides an avenue into the theory and practice of decolonization in areas including; planning, heritage conservation, memorialization, and public memory. These research findings are based on site visits to the WCC, document analysis and semi-structured interviews.



**Exploring the Effects of Agent Heterogeneity in an Agent-based Land Market Model**

By Qingxu Huang, Dawn Parker, Shipeng Sun, University of Waterloo, Tatiana Filatova, University of Twente

Agent-based model is an important tool for simulating land use and land cover change from individual behaviors and their interactions with environment because it can connect the individual heterogeneity and decision-making processes with emerged outcomes of spatial pattern. More specifically, heterogeneous economic agents in the agent-based land market model (ABLM) are one of the main driving forces behind the landscape and socio-economic dynamics. In order to understand how the variance of agent heterogeneity, in addition, how the interactions between multiple heterogeneous characteristics, affect the spatial and socio-economic patterns of urban land use change under market representation, we use a theoretical ABLM which simulates residential choices by households to evaluate these effects. In our model, we examined two sources of agent heterogeneity. One is income heterogeneity, which imposes constraints on the affordability of buying a land; the other is preference heterogeneity, which has influences on the locational choice. Different market scenarios are designed to analyze the effects of agent heterogeneity. Then, the results are compared by landscape metrics, segregation index, and estimated rent gradient. The results show that agent heterogeneity has complex interactions with market mechanisms. Although market representation has dominant influence on the results, the difference between homogeneous agents and heterogeneous agents will become larger when more market mechanisms are incorporated.

**Governance, Interdisciplinarity, and the Problem of Citizen Engagement in Local Government**

By Jim Huebner, University of Waterloo

Citizen engagement is core to democracy, but there is little agreement on the appropriate form and degree of engagement appropriate for municipalities today. Further, while voter participation continues to decline generally, online collaboration, organization, and citizen advocacy apart from government institutions is gaining momentum. The rise of citizen participation in non-government and civil service organizations (NG/CSOs) has been called the largest movement in the world, and threatens to replace the democratic, institutional function of non-responsive local municipalities. This paper explores the problem of citizen engagement in local government, and particularly the promise and problems of mass engagement through information and communication technologies (ICTs). Two phases of exploratory research are presented. First is in-depth interview research of Mayors, CAOs, and top administrators and councillors of three mid-sized municipalities. Second is a national survey of municipal councillors and top administrators. Both phases explore the problem of citizen engagement from an interdisciplinary perspective, researching the goals and actions of municipalities across three disciplines to address citizen engagement. Building on the metaphor of relationship, the research explores how strategic planning and information technologies, and particularly Participatory Citizen Relationship Management (PCiRM) may proactively help municipalities grow and guide citizen engagement to strengthen the democratic relationship between citizens and local government. Conclusions are the municipalities have a strong vision for increased, mass citizen engagement, and see technology as vital component, but lack the models and methods for achieving the vision, while the potential application of PCiRM methods resonates strongly with interviewees.



### **Integrating 'Realist' Political Economy and Post-modernist Approaches: Understanding State-imposed Agricultural Reform in Rwanda**

By Chris Huggins, Carleton University

James C. Scott's influential 'Seeing Like a State' dissects ambitious state visions of modernity and shows how the optics of bureaucratic machinery depend upon problematic processes of over-abstraction, simplification, and standardisation. Scott assumes that grand schemes, many of which had disastrous impacts and involved ruthless coercion, were not based on malice but, were animated by a genuine desire to improve the human condition (Scott, 1998: 342). While using Scott's model, my PhD research on Rwanda's massive agricultural reform unpacks the idea of improving the human condition, in order to critically examine concepts of development. Michel Foucault and other post-modernists such as Mark Duffield and Tania Li, whilst often recognising economic aspects of processes of subjectification (as do realist political economists), draw greater attention to the ways in which improving the human condition reproduces relations of paternalism between self-proclaimed architects of change, and beneficiaries. Processes of citizen participation often represent systems of discipline, through which bodies and imaginations become conditioned to a particular regime of labour and social relations. Foucault's governmentality concept allows for the identification of particular varieties of development. Fieldwork was conducted in 2011 in two Districts of Rwanda. A focus on cooperatives reveals the institutional framework of agricultural reform while hundreds of interviews with smallholders show household-level impacts and counter-strategies. Interpretation of the data reveals both the utility and limits of the Seeing Like a State model and shows how a post-modern lens can allow us to get closer to the messy complexities of the field.

Presenter: Murray M. Humphries

Session/Séance: **TH1-C**

### **The Evolution of Local Participation and the Mode of Knowledge Production in Arctic Science**

By Nicolas D. Brunet, Gordon M. Hickey, Murray M. Humphries, McGill University, Macdonald Campus

Arctic science is often claimed to have been transformed by both an intensified focus on environmental change and the increased involvement of local people, but these claims of a new research paradigm have not been empirically evaluated. We argue that the new participatory research paradigm emerging in Arctic science embodies many of the principles of the Mode 2 knowledge production framework. Using the Mode 2 thesis as an assessment framework, we examined a large sample of published research articles from 1965-2010 in the journal *Arctic* to assess whether there has been a paradigm shift in the involvement of local people, and whether a focus on environmental change is a contributor to the shift. Despite a dramatic, cross-disciplinary trend towards increased focus on global environmental change, shifts toward Mode 2 research approaches have been much more modest and gradual, with Mode 1 continuing to predominate Arctic science. Our results suggest that local people are becoming more involved in Arctic science, but this involvement is far from complete and varies systematically among disciplines, organizations and regions. A better understanding of the diverse institutional, legal and political contexts of Arctic research will inform ongoing efforts to progress the participatory research paradigm in this region.

Presenter: Suzanne Huot

Session/Séance: **W2-H**

### **An Alternative to Successful Integration Problematizing a Dominant Discourse Through a Critical Exploration of Francophone Immigrants Experiences in London, Ontario**

By Suzanne Huot, The University of Western Ontario

This paper presents findings from a critical ethnography conducted with French-speaking immigrants from visible minority groups living within the London, Ontario Francophone minority community (FMC). FMCs are officially designated Francophone communities outside of Quebec. The research objectives were to challenge assumptions embedded within discourses of successful integration, and to raise awareness of the structural barriers faced by these immigrants in negotiating identity, particularly according to the markers of language, race and gender, and enacting occupation (i.e. all that migrants do on a daily basis, not strictly their vocation) within a specific socio-geographic context. The study applied a theoretical framework incorporating concepts from Goffman and Bourdieu's theories of performance and practice and anti-racist and postcolonial feminist literature. Based on my findings I argue that the notion of successful integration described in government documents emphasizes particular modes of incorporation within various fields of practice. This paper problematizes the implied process and anticipated outcomes of successful integration. It also calls for increased attention to be paid to the diversity among and within FMCs, as well as the need to challenge processes of exclusion that hinder immigrants development of a sense of being and belonging within these communities.

**Assessing Tourism Plans**

By Zainub Ibrahim, Geoffrey Wall, University of Waterloo

This study presents an integrated, standardized approach to assessing tourism planning documents. This approach summarizes the main characteristics that should be present in tourism plans and outlines how to assess their validity. This is achieved through an extensive review of the literature on tourism planning, and other relevant bodies of literature. The composed framework for assessment examines four key areas of the plan: goals and objectives, approach to tourism planning, institutional elements, and marketing. Each of these elements is sub-divided into main sections that are to be assessed. The proposed framework can be applied to assess tourism plans of different types and destinations of different scales. It can also be applied to compare different plans, thus contributing to building a more unified literature on tourism planning.

**DIY and the Spatially Conscious Consumer**

By Jasmine Ing, University of Calgary

In recent years, our understanding of consumption has taken on a decidedly spatial twist. From environmental and health groups promoting local food to protectionist economic rhetoric, the contemporary consumer is pushed to consider not only what they are purchasing, but also where it was grown, processed, designed, fabricated, and assembled. The distance between consumers and goods is not only imposed by long journeys from field to factory and factory to shopping mall. From prepared foods to cars with the hoods welded shut, the labour of preparation, decoration, and repair of consumer goods like food and clothing that previously would have occurred in the home has been largely off-loaded onto commercial processes. Whether these processes take place locally or at a distance, on a most base level these goods are no longer locally produced or intimately connected to the consumer because this labour is not performed in the home. In this presentation, I propose a Do-It-Yourself (DIY) approach to designing and producing goods as a response to the increasing disbursed spatial and social configuration of consumer goods. By drawing attention to the personal act of buying a piece of clothing or eating a meal to the consumer, DIY highlights the political and environmental potential of changing one's consumption practices.

**All Quiet on the Undergraduate Front? Teaching Environmental Discourses to Undergraduates**

By Michael Imort, Wilfrid Laurier University

Clearly, graduate students must have an opportunity to learn about research paradigms. But what about undergraduates? Should they receive instruction on research paradigms, even if they will never proceed to graduate school to actively employ them in studies of their own? I believe that undergraduates do benefit from analyzing and understanding a variety of research paradigms so they may better contextualize research results they encounter in the media or their future professional contexts. This paper reflects on a decade of introducing second-year environmental studies students to the critical study of research paradigms in general and environmental discourses in particular. Many graduate students will either teach undergraduates or, if they enter a professional career, engage with divergent and often only implicitly stated environmental discourses. I hope that the experiences reported in this paper may be useful in making them explicit to oneself and to others. Although I review the different approaches I have employed in teaching environmental discourses and report on their effectiveness, this is not a best practices paper as the discussion examines how the perceived value of such instruction as reported by the students themselves changes over time.

**Self-Barbarianization and Self-Civilization: State Resistance and Identity Construction in the Chittagong Hill Tracts**

By Tanzil Islam, M.E.S. York University

This paper will describe how state resistance sentiments among the inhabitants of the southeastern portion of Bangladesh called the Chittagong Hill Tracts (CHT) have contributed to both the construction of their pre-colonial and postcolonial identities. In his book, *The Art of Not Being Governed*, James C. Scott's book describes a concept called self-barbarianization whereby communities resist state-making projects by fleeing to extra-state spaces and becoming self-governing communities. I will demonstrate how the availability of extra-state space during pre-colonial times gave rise to self-barbarianization in the CHT, and how these

processes are reflected in their thirteen disparate pre-colonial ethnic identities. I will then demonstrate how enclosure by state-making projects first British India, then Pakistan, and last Bangladesh have lessened the extent to which state resistance sentiments can manifest, necessitating these sentiments to manifest as self-civilization processes, which gave rise to their post-colonial subnationalist Jumma identity. I draw on colonial travel documents, secondary literature, Scott's text as well as critiques of his work in order to accomplish this. The interaction between the statemaking sentiments of dominant communities and state resistance sentiments of marginalized communities have given rise to the exclusion of the latter in contemporary Bangladeshi society. While the example of the CHT does have peculiar features, these processes of exclusion are at play in other previously self-governing hill communities throughout Bangladesh, as well as much of hilly terrain in southeastern Asia. This discussion may help to understand their contemporary situations as well.

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Presenter: Zahra Jaffer

Session/Séance: **W2-I**

### **Importing Planning Expertise: Adapting the Vancouver Model in Abu Dhabi**

By Zahra Jaffer and Luna Khirfan, University of Waterloo

Notwithstanding the role of the cross-national transfer of planning knowledge for promoting sustainable development globally, there is a dearth of in-depth research that examines the transfer process. In recent years, Vancouver has garnered international acclaim as one of the world's emerging eco-cities, and the planning model applied there has begun to be emulated and adapted in a number of foreign contexts. As the capital of the United Arab Emirates and an emerging global business center, Abu Dhabi has sought the expertise of leading Vancouverite planners in order to develop a design and regulatory framework that are culturally distinctive. This paper will examine this process of knowledge transfer with particular emphasis on the role of agency, i.e. the authority hierarchies that were formed and their impact on the adaptation of the transferred knowledge. Using in-depth interviews and an analysis of the planning documents, this paper provides a micro-level investigation of the interpersonal and the institutional relationships. Such relationships explicate the tools utilized by the transfer agents in their attempts to contextualize, adapt, and operationalize the imported knowledge. We propose a model is proposed that maps the various levels of authority and links them to the knowledge flow between the local acquiring agents and the foreign transfer agents. The application of this model to the Abu Dhabi scenario reveals a complex web of interactions between the local and the foreign planners involved across multiple institutional levels.

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Presenter: Kathryn Jastremski

Session/Séance: **ESAC- UofW**

### **Comparative Study of Biosphere Reserves and Model Forests in Canada as Innovative Place-based Governance Models Facilitating Change Towards Sustainability**

By Kathryn Jastremski, Paivi Abernethy, University of Waterloo

This paper provides an analysis of two different mechanisms that facilitate change towards sustainability in Canada. Biosphere Reserves and Model Forests are innovative collaborative governance models that foster sustainability and resilience at the landscape scale. In 1978, the first Canadian UNESCO mandated biosphere reserve was founded in Quebec, followed one year later by a second initiative in Alberta. In all, sixteen biosphere reserves can be found in Canada today. The Model Forest Program (MFP) is a Canadian-sponsored initiative announced in 1992 at the United Nations Conference on Environment and Development (UNCED). There are presently more than fifty model forests all around the world, and fourteen are located in Canada. Both of the models have been part of the Canadian landscape for several years now, and their overlapping mandates provide an opportunity to explore possible lessons learned in addressing challenges in promoting conservation and fostering sustainability in different regions.

This paper is divided into two sections: First, an analysis of the context of emergence and mandates of Biosphere Reserves and Model Forests (in Canada now under the Forest Communities Program) is presented, highlighting their uniqueness. Second, using sustainability and resilience criteria in document analysis, the paper compares how these organizations have attempted to fulfil their respective mandates. This study underlines the differences in capacities of the implementing organizations, the significance of differences in context, and the importance of participation in the realization of their mandate. Special attention is directed towards aspects such as knowledge creation (research), social learning and network development that facilitate community resilience. Conclusions of this paper point out possible paths to improving sustainability governance and concrete, practical, examples that can be shared both between these organizations and with other similar organizations.

### Simulation and Validation of Sea Surface Temperature at the Main Development Region for Tropical Cyclones in Eastern North Pacific Ocean using the Third Generation of the Canadian Global Climate Model

By Jerry Yu Jien, W. A. Gough, University of Toronto

The maximum potential intensity of tropical cyclones and its disastrous impact on socio-economic growth is directly related to the extent of the warming of sea surface temperature. Such oceanographic condition has corresponded positively with the atmospheric concentration of greenhouse gases in a coupled simulation of climate models. However, the ability of global climate models to predict future climate changes possess imbedded uncertainties extenuated by various emission scenarios of future greenhouse gas concentration. We will use the Canadian Climate Change Scenario Network to compare the performance of global climate model's performance in simulating climate variables on a thirty-year average. We will use the third generation of the Canadian Global Climate Model (CGCM3) to simulate the climate baseline of monthly sea surface temperature from 1981-2010. The monthly simulation will extend from May-November of the tropical cyclone season in the Eastern North Pacific Ocean with a spatial scale pertaining to the Main Development Region (10-20 °N and 85-140 °W), the main genesis region for tropical cyclones. Modeled sea surface temperature will be statistically compared with the observed record from the British Atmospheric Data Center. This validating exercise will provide the statistical confidence in the application of CGCM3 to project future sea surface temperature under the three greenhouse gas emission scenarios (A2, A1B and B1).

### The 2006 Yogyakarta, Indonesia Earthquake: Assessment of Long-Term Disaster Recovery

By Erin Joakim, University of Waterloo

On Saturday, May 27, 2006 at 5:56am local time, Yogyakarta and Central Java Provinces in Indonesia were struck by a 6.3 magnitude earthquake. Due to the shallow depth of the earthquake, intense ground shaking was felt for almost one minute, resulting in severe damages to the densely populated area (Elnashai et al., 2007). With an estimated death toll of over 5,700, between 40,000 – 60,000 injuries, the total destruction or damage of over 350,000 buildings, the Yogyakarta earthquake was the most devastating global disasters of 2006 (BAPPENAS et al., 2006; Munich Re, 2007). This research project provides a holistic evaluation of the long-term recovery effort using concepts of vulnerability, resilience and sustainable livelihoods. In-depth interviews with affected villagers, government officials, NGO practitioners, academics and other stakeholders were conducted in order to provide an understanding of the various issues and concerns related to the recovery process. The results indicate that although an attempt was made to integrate vulnerability reduction and sustainable livelihoods improvements during the recovery period, there remain several areas where improvements need to be made. First, although vulnerability to future earthquake events was reduced through a successful housing reconstruction effort, there was limited-to-no emphasis on exploring the root causes of poverty, marginalization and vulnerability in the region. Furthermore, although livelihoods initiatives were undertaken, successfully in many cases, many of these initiatives excluded the lowest income households, thereby perpetuating their marginalization and vulnerabilities. In terms of resilience, although some communities were able to use the earthquake event to adapt, transform and further re-develop, this resilience appears to be related to specific individuals and leaders who demonstrate the capacity to motivate and initiate new projects, and may not be reflective upon the community in general.

### The Biopolitics of Global Palm Oil Companies

By Adrienne Johnson, Clark University

The global palm oil industry has recently experienced unprecedented growth as a result of increased global demands for biofuel commodities coupled with the implementation of supportive government policies. Despite the benefits that the accelerating shift to biofuels appears to present, there is little debate that the global palm oil industry is linked to growing social and ecological dilemmas. In response to civil society pressure to reform the palm oil production system, many leading companies who develop, process and trade the commodity have initiated rigorous Corporate Social Responsibility (CSR) programs to address many of the issues that have emerged by aligning their activities with the social, economic and environmental expectations of their community stakeholders. Through CSR, companies focus on well-being and ways to improve life forms through management and regulation. By utilizing Foucault's notion of biopolitics, this paper argues that palm oil traders make a distinction between virtuous citizens and

disposable life that is obscured by the discourse of life-giving CSR programs. Although these new purveyors of life aim to improve biological life through the generation of capitalist revenue, the mechanisms underlying their accumulation strategies have harmful contradictory effects and actually take life, thereby exacerbating already vulnerable conditions in palm-growing environments.

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Presenter: Peter A. Johnson

Session/Séance: **W4-B**

### **How Sustainable is the Geoweb?**

By Peter A. Johnson

Recent advances in web-based geospatial tools (the Geoweb) have shown great promise as low-cost and easy-to-use methods to support citizen participation. Despite the broad level of interest in the Geoweb, the development, implementation, and sustainability of Geoweb tools within many organizations may be difficult. This research draws from experiences conducting Geoweb development and implementation set in community-based organizations located in the region of Acton, in rural Quebec, Canada. This research reveals the challenges to sustainability encountered in the development of Geoweb implementations. Sustainability challenges are classified into three broad categories; sustainability of tools or frameworks, sustainability of a specific Geoweb implementation, and the sustainability of participation. This presentation concludes with a call for an increased discussion of how and if the Geoweb can be made sustainable.

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Presenter: Rory Johnston

Session/Séance: **T1-A**

### **Examining Canadian Family Physicians Perspectives of their Roles and Responsibilities for Medical Tourists in their Practices**

By Rory Johnston, V. A. Crooks, J. Snyder, Simon Fraser University, S. Dharamsi, University of British Columbia

Canadians are increasingly engaging in medical tourism, the intentional movement of patients across international borders to access privately purchased medical care. Medical tours depart from treatments sought within Canada in many ways. One key difference is the shift away from the traditional gate-keeping model of care provision that underpins diagnostic and surgical care in Canada, wherein family physicians refer patients to diagnostic and surgical care providers, towards care that has a more managerial and self-directed role for the patient. We sought to better understand what Canadian family physicians see their roles and responsibilities to be for medical tourists in their practices by holding focus groups with family physicians in 6 municipalities across BC. A thematic analysis was performed with the focus group transcripts. It was found that participants perceived a lack of direction from professional bodies regarding how to best support medical tourists. This may contribute to the great deal of variation participants expressed regarding how much logistical and informational support they are willing or able to provide prospective medical tourists. This is contrasted by wide agreement that their traditional role resumed immediately upon medical tourists return to Canada, regardless of where care was sought or what procedure was obtained.

### Understanding Vineyard Variability Using Spatial Analysis

By Marilyne Jollineau, Brock University, Victoria Fast, Ryerson University

Vineyards are by nature spatially variable. Geospatial technologies, coupled with spatial analysis, can be used to better understand the spatial variability within vineyards. This study investigated the use of geospatial technologies, including global positioning systems (GPS), remote sensing and geographic information systems (GIS), to characterize the spatial variability of select vineyard variables at Stratus Vineyards in the Niagara Region of Ontario. Field and grape composition data were collected over two growing seasons to better understand the spatial characteristics within the vineyard. These data were subsequently integrated into a GIS where spatial analysis techniques were used to quantify vineyard variability. In particular, spatial interpolation and spatial autocorrelation were used to measure the spatial variability of soil moisture, vine vigour, and grape composition on two Cabernet Franc blocks and one Chardonnay block. The results of this study indicate that spatial analysis provides valuable information for vineyard managers and wine makers, adding spatial knowledge to their vineyard expertise. This information can lead to more informed vineyard management and precision grape harvesting decisions and ultimately result in improved wine quality. In a competitive wine industry, where small Niagara wineries are competing with well-established wineries in California, France and all over the world, detailed spatial information is indeed a valuable resource for wineries.

### Integrating Geography and Psychometrics Inspiring Canadians to Connect with their National Parks and National Historic Sites

By Brenda Jones, Parks Canada

Parks Canada is the guardian, guide, and storyteller of Canada's most treasured national and historic legacies legacies that are real and inspiring. Each year, Canada's national parks, national historic sites, and national marine conservation areas attract approximately 20 million Canadian and international visitors. Despite this success however, Parks Canada, is facing the challenges that stem from a changing social environment (urbanity, demographics, multiculturalism, recreation, and social values), economic restraints (competition for travel dollars, recession), and the nature and history deficits. Parks Canada is positioning itself to turn these challenges into opportunities, and is using research to inform strategic initiatives. This presentation will outline the strategic research Parks Canada is doing leveraging a segmentation system (PRIZMC2) that integrates geo-demographics and psychometrics (social values, behaviours) to understand its visitor base and potential markets, and to target its promotion, media outreach and community engagement. The presentation will also describe how a large, decentralized organization made the leap from individual local research studies to standard and strategic applications Agency-wide and the challenges we faced.

### The Dialectical Tension Between Justice and Solidarity in Feminism: Race, Class, and Gender Interaction as Sites for Reconstructing Critical Feminist Politics.

By Munya G. Kabba, University of Toronto

Drawing on the discourse theory of law and democracy, this paper introduces new critical analytic possibilities in feminist politics. Conceiving race, class and gender intersections as sites for investigating critical transformative questions, the study hope to develop ways to overcome the hurdles in Canadian feminist mobilization. Using the statement, "we cannot purchase one person's freedom with another unfreedom" as guide, this study reconstructs the logic of anti-oppression discourses as guided by post-metaphysical – non-partisan - philosophy of justice, which determines validity - rightness, truth, sincerity, and authenticity - through communicative reason. Drawing on discourses and conversations in the Canadian women's movement, the paper explicates tensions arising from the convergence of race, class, and gender anti-oppression discourses. To the degree that these anti-oppression discourses fundamentally strives to resolve the dialectic of legal and factual equality (between classes, races, and genders), the post conventional approach to law and morality – communicative reason – recommends itself as logic to achieve the shared interest and resolve the tension among anti-oppression discourses. This paper provides insights for the resisting contemporary forms of colonization, and illustrates post-conventional moral practical approach as correct regulative principle.

**Effectiveness of Planning Legislation and Policies in Protecting Natural Heritage Features**

By Anna Kalnina, University of Waterloo

Planning legislation and planning policies are the basis for woodland protection and restoration. The purpose of the research was to analyze the effectiveness of planning legislation, policies and approaches in protecting woodlands in Ontario. The starting point was to look at planning profession broadly, and consider uncertainties and subjectivity involved in decision making. Secondary data was used to evaluate planning methods, policies and tools that are available to planners in decision making process regarding woodlands. Selected Ontario Municipal Board cases illustrated various competing land uses that on occasion superseded protection of natural heritage features. In addition, an analysis was done of potential policy oversights, which may have caused degradation of woodlands. In order to determine the amount of woodlands that have been lost to other land uses, geographic information system files were manipulated to obtain the change in woodland cover. Furthermore, environmental philosophies were consulted to learn what is ethical land use, as it relates to natural heritage planning. To improve natural heritage planning, it was recommended to alter policies for northern Ontario and agricultural operations within natural heritage systems, as well as suggestions were made to achieve full protection of woodlands.

**Development & Tourism in Bhutan: The Case for a Sustainable Livelihoods Approach**

By Heidi Karst, University of Waterloo

Bhutan, the tiny mountain kingdom tucked away in the Eastern Himalayas, is a biodiversity hotspot that has a richly unique cultural heritage. Western visitors have heralded this exotic locale as the last Shangri-La. Conversely, Bhutan is on the UN list of Least Developed Countries, and poverty alleviation is high on the national agenda. A regulated high value/low impact tourism policy has been in place since 1974 to conserve the natural environment, and foreign exchange from tourism operations is helping combat infrastructure, literacy, and other development concerns in larger cities. Yet many rural farming communities, representing 69% of the total population (Gurung & Seeland, 2008), still struggle with basic quality of life issues. Scholars suggest that tourism should be viewed as a tool for development and may be an option if it fits within an existing system (McCool & Moisey, 2001; Tao & Wall, 2009). As the Bhutanese tourism industry is poised for tremendous growth in the near future, maintaining a commitment to develop in an effective and sustainable manner remains a challenge. This study analyses the current state of tourism in Bhutan, and explores the applicability of the sustainable livelihoods framework to tourism-related policy, planning and development in rural areas.

**How Do Variations in Neighbourhood Built Environment Influence Patterns of Preadolescent Children's Physical Activity and Sedentary Behaviour?**

By Tarun Katapally, Nazeem Muhajarine, University of Saskatchewan, The Smart Cities Healthy Kids Team

**Purpose:** This study is part of the Smart Cities Healthy Kids (SCHK) project in Saskatoon ([www.smartcitieshealthykids.ca](http://www.smartcitieshealthykids.ca)). SCHK aims to understand how community design and neighbourhood built environment characteristics (BE) influence children's physical activity and sedentary behaviour (SED). **Methods:** Accelerometers were used to collect physical activity data from 465 preadolescent children (10-14 years) for one week. The outcome variables are moderate to vigorous physical activity (MVPA) and SED. BE data were collected using two audit tools, neighbourhood active living potential and Irvine-Minnesota inventory. Custom built questionnaire was used to collect children's individual and household data. Multilevel models were fitted using HLM 7.

**Results:** Descriptive analyses depict robust differences in MVPA with high values in weekdays and low values in weekends for both genders, and across all ages and different neighbourhood types. MVPA is higher in neighbourhoods with lower number and lower variety of destinations. Children in neighbourhoods with higher variety of destinations are more likely to be sedentary, whereas aboriginal children and children whose family members play sports with them are less likely to be sedentary. **Conclusion:** Exposure to different environments during school days and weekends needs further investigation. Community design and BE impact on children likely varies from its previously reported impact on adults.



**The Housing Choices of Second Generation South Asians Living in Brampton's Ethnic Enclaves**

By Virpal Kataure, Wilfrid Laurier University

As newcomers make their mark through ethnic clustering in Canada's major city centres, the settlement choices of their offspring known as the second generation have become of greater interest (Mendez, 2009; Reitz, 2002). This research examines the future housing choices and residential location preferences of second generation South Asians residing in suburban ethnic enclaves, or ethnoburbs (Li, 1998). This case study examines the City of Brampton, a suburban municipality with a large number of South Asians clusters in the Greater Toronto Area. What features and priorities do second generation South Asians consider when deciding where they wish to live? How does being raised in an ethnic enclave influence future housing choices? Do their preferences lean toward relocation in urban centres or continued settlement in the suburbs? The second component of this research examines whether the educational attainment of this group influences neighbourhood choice. Telephone surveys and focus groups were conducted with second generation South Asians living in Brampton's ethnic enclaves. Key informant interviews with planners and a real estate agent also helped inform this study. Ultimately, the future residential housing choices of the growing second generation population will impact the outlook of ethnic enclaves, urban and suburban cities.

**Materiality Informs Subjectivity Informs Materiality: An Environmental History of Alberta's Bituminous Sands**

By Ryan Katz-Rosene, Carleton University

Within the last decade Alberta's bituminous sands have come to be accepted as the world's second largest reserve of petroleum. Yet the environmental history of this resource demonstrates a remarkable series of shifts in the way that people have thought about this place which we could call the bituminous sands over the millennia of human habitation in what is now Northern Alberta. This paper explores key aspects of the history of this resource, from its origins in geological formations, through its use as canoe pitch by aboriginal peoples, on to its explicit commoditization and treatment as a source of crude oil. Drawing from journalistic accounts of European explorers as well as other historical documents (such as photographs of bitumen being used as road asphalt in Edmonton in the early 20th Century), this paper tells the largely untold story of changing subjectivity and towards the bituminous sands, and the influence this has had on material realities. The paper argues that the way humans have thought of this place subjectively has been shaped by (and in turn, helps to shape) the material experience of the resource. To this end, this historical account explains and contextualizes the discursive dissonance found in today's two contradictory images of the resource the tar sands and the oil sands. In historicizing the experience of Alberta bitumen, I conclude that it may be possible (though admittedly unlikely) to transcend today's dominant ethos of maximizing the exploitation of this crude resource.

**Ghost Towns and Zombie Mines: The Future History of Mining in Northern Canada**

By Arn Keeling, Memorial University

Mining has been a critical driver of settlement and frontier expansion in northern Canada. The landscape of the provincial and territorial north is dotted with abandoned mines and communities, relics of the expansion of industrial mining activities in the north and the boom-and-bust economies characteristic of the industry. Beginning in the mid-2000s, high commodity prices spurred a rapid rise in mineral exploration and development activities in Canada. Increasingly, mining companies are not only staking new prospects, but also revisiting abandoned sites of production. This paper explores the theoretical and practical questions posed by the redevelopment of formerly abandoned mines for understanding the impact of mineral development on resource-dependent regions and the environment. Drawing on historical-geographical studies of abandoned mines across the north, I argue that regulatory framing of reclamation and redevelopment projects in exclusively technical terms obscures the fact that the colonial history of economic and environmental inequalities produced at the former mine sites persists in tandem with the reopening or remediation of former mines in Canada's territorial north. Haunted by these legacies, these zombie mines illustrate how abandonment does not constitute an end to the material and social relations generated at a site.



**Decolonial Settler Education Systems in South-Western Ontario**

By Dan Kelllar, University of Waterloo

Either through direct repression, colonial propaganda contained in their speeches or those thoughts parroted in the mainstream media and propagated in most classrooms, the government of Canada works to control the debate and the narrative around Indigenous Sovereignty and a colonial state which is, in most circumstances, occupying unceded or stolen land. The difficult task of educating the broader settler population of the historical injustices perpetuated by settler governments in what is now Canada, and the current implications of those injustices is a task that will require collaboration between Indigenous people and non-native allies. In southern Ontario, several grassroots projects undertaken by settler allies in decolonial education have taken place or are still ongoing. This paper investigates these projects through interviews with those involved as participants and organisers of these projects; a review of media bias connected to these projects; and a review of similar projects in other areas of Turtle Island.

**Building Nationalism: Urban Planners, Modernism and the Production of Montréal**

By Bridgette Kelly, McGill University

The primary objective of this research is to understand how the production of space in the City of Montréal was shaped by the development of professional planning and the political entrenchment of Québec nationalism between 1920 and 1941. The Quiet Revolution was an important period in which the narratives of nationalism and modernization were fused through specific forms of state intervention. However, modernization in Montréal occurred as early as the turn of the nineteenth century. This research project interrogates the tight association between urban modernization in Montréal and Quiet Revolution neo-nationalism. It utilizes a more complex periodization of Québec nationalism in order to begin to elucidate the manner in which contested ethno-linguistic identity shaped urban development in Montréal. Recent urban historical research has highlighted the important role played by Montréal's predominantly Francophone sanitary engineers in the public health reform movement, but has not explicitly addressed the intersection of their sites of exercise with the development of professional planning (Gagnon & Zwarich 2008; Lapointe 2010). Within the extant literature it is difficult to determine if and how the roles of public sector sanitary engineers intersected with the development of the city's planning functions. My preliminary archival research indicates that there was a certain amount of bureaucratic interaction between the public health and modern planning functions within the municipal administration that may have contributed to the genesis of its planning department before the Quiet Revolution.

**The Snowtweets Project: Crowdsourcing Snow Information Using Social Media**

By Richard Kelly, Raymond Cabrera, Josh King, University of Waterloo

Each year as much as 50% of the northern hemisphere's land surface is covered by seasonal snow. Spring snowmelt is a key renewable resource. In addition, snow accumulation is an important diagnostic variable in understanding global climate change; recent research suggests that the northern hemisphere snow season is shortening, yet uncertainties persist about how snow accumulation is changing. Model-based or satellite-derived estimates of snow mass are coarse in spatial resolution (tens of kilometres) and these estimates are very difficult to verify without large numbers of independent in situ observations. The Snowtweets project was developed to obtain crowdsourced snow depth data using social media, namely Twitter ([www.twitter.com](http://www.twitter.com)) to augment the number of in situ observations available from federal, provincial and municipal sources. Using a simple hashtag protocol on Twitter, users can send snow depth information via Twitter that a MySQL data base polls and stores local. The snowtweets data are the projected onto a GIS visualization interface (Snowbird) that renders the data against a satellite observation backdrop. The paper will explain the project and discuss the uses that are being made of the data in the context of satellite estimates of snow accumulation.

**Brokering Data: The TIEDI Project and the Statistical Construction of Immigrant Settlement Experiences**

By Philip Kelly, York University

From 2009-2012, the Toronto Immigrant Employment Data Initiative (TIEDI) played an intermediary role in the creation and mobilization of statistical knowledge concerning immigrant economic outcomes in Toronto. Working with community organizations to identify data needs, it accessed and presented such data from Statistics Canada and other government sources for agencies that lacked access or expertise to generate empirical data that would assist in their advocacy, programming or fund raising. In this way, the TIEDI project occupied a unique interstitial space between state and non-state agencies in the process of policy and programming for immigrant settlement. This paper explores some of the promises and pitfalls encountered by the TIEDI project, and more generally, the role of statistical data in the Canadian regime of immigration management, the construction of populations, and the circulation of stylized facts.

**Canoeing the Clearwater: A Dendrochronology Study Quantifying Long-term Aerial Pollution Downwind of the Alberta Oil Sands**

By Geoff G.L. Kershaw, Colin P. Laroque, Heather Castleden, Dalhousie University

The Alberta oil sands are arguably the most important economic vehicle in Canada, and the ecological impacts of the industry have yet to be assessed completely. The region east of the oil sands into Saskatchewan is downwind of this pollution source and occupied by a First Nation population concerned for the health of their territory and the future viability of their land-based lifestyle. Annual-tree growth can potentially be used as a proxy indicator of ecosystem health. In the summer of 2011, 900 tree cores were taken from three tree species (*Pinus banksiana*, *Populus tremuloides* and *Picea glauca*) along a transect following the prevailing winds between the Alberta oil sands and Clearwater River in Saskatchewan. Crossdating and radial-growth analysis techniques will be used to establish species-specific relationships with climate and atmospheric pollution, particularly sulfur emissions. Mass spectroscopy will also be used to identify the presence or absence of sulfur and mercury accumulated in tree cells. It is anticipated that a long-term reconstruction of detrimental effects on ecosystems downwind of oil sands operations can be quantified by atmospheric pollutants captured in tree cells and the suppressed growth of those trees in response to the pollutant inputs.

**The Influence of Urban Morphology on Ecological Landscape Urbanism: A Comparative Study of Urban Design Projects in Amman, Jordan and Seoul, Korea Involving the Revitalization of Previously Covered Urban Streams**

By M. Kevil, L. Khirfan, University of Waterloo

This purpose of this paper is to address the challenges and vulnerabilities that face a global phenomenon involving covering urban streams due to urban development pressures. Using a comparative study of two design projects located in Amman, Jordan and Seoul, Korea, it investigates how contemporary urban design initiatives address links between morphology and ecological landscape urbanism. This paper also considers the balance and fusion between the design goals of representation versus regeneration that attempt to transform previously covered streams to a more natural state. The methods used in this paper are visual analyses of the morphology and design projects, first hand observations using interviews and focus groups, and lastly, a review of the designs and peer reviewed publications. The analysis of these primary and secondary sources reveal that some aspects of these contemporary design projects overlook the principles of both the vernacular and the contemporary landscape urbanism theory suggesting improvements in theory and design to manage ecologies. Also, it demonstrates the unequal balance between regeneration and representation resulting in poor urban designs. Therefore, the ensuing contemporary urban spaces represent an anomaly in the morphologies of these cities as well as socially and culturally dysfunctional public urban spaces.

**Interactive Governance Perspective on Fisheries Rebuilding: A Case Study of the Northern Gulf Cod in Eastern Canada**

By Ahmed Khan, Ratana Chuenpagdee, International Coastal Network, Memorial University

Fisheries rebuilding is a wicked problem due to the ecological, economic, social, and political ramifications. We argue that for such a multifaceted problem, a governance approach is more suited than top-down management panaceas. Using the Northern Gulf cod case study in eastern Canada, we employ the interactive governance perspective to examine rebuilding challenges

and opportunities along the fish chain; namely the pre-harvest, harvest, and post-harvest stages. The main factors that limit rebuilding are ecological constraints associated with natural and anthropogenic factors, lack of rebuilding targets, on-going fishing and livelihood issues, scale mis-matches, and institutional inertia. Various changes in management measures and restructuring programs also have implications on rebuilding. Policy interventions that may lead to successful rebuilding include eco-system-based and integrated management, livelihood transition programs, attention to markets and consumer demand, and effective institutional mechanisms. Lessons from the Northern Gulf cod fisheries, especially the missed opportunities to explore alternative governing options during the transition, are valuable for rebuilding other collapsed fisheries elsewhere.

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Presenter: Siamak Khorrami

Session/Séance: **TH1-J**

### **Customers and Technology: A Definite Mutual Relationship Required for the Success of Smart Grid Projects**

By Siamak Khorrami, Paul Parker, Ian Rowlands, University of Waterloo

Smart grid technology and the associated potential changes in energy patterns are catching the attention of governments around the world. This sophisticated technology can revolutionize the way we consume and produce energy and can provide a good response to current energy and climate change challenges. While it is clear that the role of consumers is very important for the successful performance of smart grid technologies, few studies have been done to understand how consumers can be engaged more with and get benefits from smart grid technology. In this paper, we provide a review of different approaches to consumer engagement and feedback mechanisms used with this technology to set the framework for a pilot study in Milton, Ontario .

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Presenter: Karen M. King

Session/Séance: **F2-H**

### **Understanding Occupation Employment Transitions in the Canadian Labour Force: An Analysis of the Survey of Income and Labour Dynamics, 1993 to 2008**

By Karen M. King, Kevin Stolarick, University of Toronto

The changing political, social and economic landscape over the past fifty years in Canada has brought about a significant shift in the nature, organization and performance of work and the labour market. At the heart of this shift is the disappearance of traditional manufacturing employment in the goods producing sector and the growth of new employment opportunities in the burgeoning service sector has been a particularly important component in driving the reorganization of work in the contemporary economy. The growth in the service sector has resulted in the growth of both highly paid, knowledge intensive service jobs and low paid, low skilled, service jobs. Using the Survey of Labour and Income Dynamics (SLID), this paper examines workers occupational class transitions between 1993 and 2008. The research compares workers who have transitioned from one type of occupational class to another with their counterparts who have not made a transition. This study seeks to provide insight into the degree to which workers in Canada are able to transition between occupational classes and the subsequent changes to their wages and hours worked.

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Presenter: Peter Kitchen

Session/Séance: **F1-I**

### **Measuring Social Capital in Hamilton, Ontario**

By Peter Kitchen, Allison Williams, Dylan Simone, McMaster University

Social capital has been studied by academics for more than 20 years and within the past decade there has been an explosion of growth in research linking social capital to health. This paper investigates social capital in Hamilton, Ontario by way of a telephone survey of 1002 households in three neighbourhood groups representing high, mixed and low socio-economic status (SES). A Social Capital Measurement Tool (SCMT) is proposed as a straightforward way to account for differences in social capital perceptions and actions among residents. Consistent with the literature, the paper found that there was a strong association between social capital perceptions and health, particularly mental health and life stress. Social capital was greater in the high and mixed SES neighbourhoods and much weaker in the low SES neighbourhoods. With respect to social capital actions, both volunteering and voting was associated with positive overall health and mental health. Finally, the paper identified the social capital elite " respondents with high or above average perceptions and who participated in the two social capital actions " voting and volunteering. Prominent among the social capital elite in Hamilton is the health wealthy senior, a positive development for the continued social well-being of the city.

### The Political Turn in Resilience Thinking

By Nicole Klenk, University of British Columbia

Although the resilience alliance has provided a real alternative to reductionist interpretations of change and adaptation in the natural and social world, which are of limited use to address complex and uncertain policy problems, its advocacy of complex adaptive systems (CAS) theory is an attempt to forestall the advance of a plurality of non-systematic interpretations of resilience. By naturalizing and essentializing their systems interpretation of resilience on the basis of evolutionary and organismic premises, CAS advocates set a frontier between systematic approaches and non-systematic approaches to the study of resilience without acknowledging the act of exclusion this frontier represents. This rhetorical move has political significance in that the ever present possibility of alternative legitimate interpretations of resilience requires coming to terms with the lack of a final ground and acknowledging the dimension of contingency which pervades decision-making about complex and uncertain problems. It requires in other words recognizing the political practices attempting to establish a social and ecological order in the context of contingency.

### Algorithm for Processing a LiDAR Point Cloud to Retrieve Internal Geometric Tree Crown Structures

By Connie Ko, Tarmo K. Remmel, Gunho Sohn, York University

LiDAR point cloud processing serves two primary goals: 1) to group representative points into meaningful categories, and 2) to deduce physical meaning from those grouped points. This can reduce the amount of data and increase efficiencies in subsequent analyses. Our project involves processing point clouds of individual tree crowns obtained from airborne LiDAR data acquired northeast of Sault Ste. Marie, Ontario, Canada and only requires the {x,y,z} triplets obtained from the scanner for each tree. The first phase of the algorithm is to over-segment the point cloud associated with a given tree crown using a k-means classification and no user-defined seed points. The second phase of the algorithm merges clusters according to three merging criteria until the conditions no longer hold true. The third phase of the algorithm prevents clusters from over-merging by combining commission errors and splitting clusters that have high error values. The final tree crown will result in clusters of points that belong to representative branches; best fit lines can be drawn through those clusters and a primary sketch of the tree's woody structure can then be formed. The primary geometric sketch of the tree crown is useful for tree genera and species classification.

### Making Space for Peace: International Accompaniment in Colombia

By Sara Koopman, University of British Columbia

International accompaniment is a strategy used in conflict zones that puts people less at risk literally next to people that are under threat because of their work for peace and justice. Thousands of human rights workers, grassroots organizations, and communities have been protected in this way. The term accompaniment was first used for this work by Peace Brigades International (PBI), which sent the first international team to Guatemala in 1983. There are now international companions in ten countries. Colombia is the country with the largest number of international groups, with twelve. Accompaniment in Colombia is widely used to protect small farmers resisting or returning from being displaced by paramilitaries tied to large agribusiness. These campesinos are organized in what are often called peace communities. I spent 15 months in Colombia (2007-2009) holding ongoing conversations with companions about how accompaniment works, or to use PBI's slogan, how it makes space for peace. Paradoxically companions use the fact that their lives count more (because of passport/economic/racial privilege), to build a world where everyone's lives count, where it matters when a small farmer is killed in the Colombian jungle. In this presentation I will focus on how they use passport, race and economic privilege to make space. Their experiences also speak to development and humanitarian work more broadly.

**Cutting Carbon by Insulating the Building Envelope: How Far Should We Go?**

By Elena Kraljevska, University of Waterloo

This paper looks at various programs that North American and European Union countries have put in place to reduce carbon emissions within the residential sector. For years the European Union has been the leader in reducing greenhouse gas emissions not only in the residential sector, but in the industrial as well. However, the North American countries have shown a smaller impetus in this direction. The purpose of this article is to determine the amount of insulation retrofit requirements necessary to reduce atmospheric carbon emissions. To answer the question this paper looks at the current North American and European retrofit standards with respect to existing and new building structures. Specifically, this paper examines how Leadership in Energy and Environmental Design (LEED), the net-zero building, R-2000 and the Passivhaus standards are supported in Europe and in North America. To determine whether high reductions are feasible the paper identifies incentives such as tax breaks, rebates, and certification programs are available to help owners with retrofitting existing homes. As well, the paper examines whether suitable retrofit programs for older homes exist to help the homeowner upgrade the insulation within the building envelope.

**Landscapes in Transition: Planning for Multi-scale Challenges, Uncertainty and Long-term Futures in Post-Productivist Forest-dependent Regions**

By Victoria Kramkowski, York University

Forest-dependent communities face multiple challenges at various spatial and temporal scales. As a result of external economic boom-bust cycles many of these communities are exploring how they can plan as a region, utilize new forest-based industries, and build new partnerships to attain greater local autonomy. However, these regions are subject to multiple political, socio-economic, and ecological driving forces, uncertainties, value conflicts, and tensions between top-down and bottom-up approaches to planning. In this setting, cumulative environmental impacts at various scales may be insufficiently addressed, with immediate socio-economic concerns precluding planning for the long-term future and associated uncertainty.

This research examines the mechanisms by which forest-dependent regions undergoing social, economic, and environmental transitions can identify and shape a more sustainable long-term future. Specifically, I delve into the challenges of and potential for place-based long-range planning, particularly the opportunities offered by the development and use of scenarios. I examine how uncertainty and long-term futures can be planned for in forest-dependent regions in transition, and how place-based scenario development can be a component of this planning. I also look at how the potential of scenarios can be maximized through integration with current environmental planning and management approaches. Finally, I explore how existing governance structures facilitate or hinder long-range regional planning and the transformations required for such regions to more effectively address impacts, and identify and shape a more sustainable future.

**Household Food Security Strategies in the Upper West Region of Ghana**

By Vincent Zubedaar Kuire, I. Luginaah, G. Arku, Western University

Within the broad frame of development contribution of remittances to migration origin areas, this paper points to the important place of food remittances in attempts at attaining food security among households in the Upper West Region of Ghana. Remittances (mainly cash), from migration has been an important part of coping strategies among people in the area from the colonial times when migration trends were towards Ghana's Golden triangle. This study shows that along with changing migration trends in the last two decades towards the middle belt, food remittance has also become an important strategy in attempts at ensuring household food security among UWR households. Evidence from this study indicate the absence of food remittance leads the intensification of practices such as reductions in food portions and meal frequency, as well as the sale of livestock which are traditional kept as a sign of wealth. In addition to strengthening of familial ties, the presence of food remittance resource leads to the freeing up of resources that otherwise would have been invested in household feeding allowing for the use of such resources in supporting education and health.

**Understanding the Human Dimension of an Indigenous Fishery: Potential and Limits of Some Participatory Methods**

By Annie Lalancette, Concordia University

Understanding the human dimension of a fishery can be challenging, especially when dealing with complex culturally-sensitive and politically-charged issues. However, this step is crucial for management decisions to avoid unintended social impacts, maintain legitimacy and be effective. In this presentation I describe the combination of methods used to investigate motivations, values, interests, concerns and constraints as well as aspirations pertaining to resource use and economic development from the perspectives of indigenous Torres Strait Islanders engaged in the tropical rock lobster fishery in northern Australia. This fishery is about to undergo major changes as the Australian Commonwealth government prepares to transition its management from input control to an output controlled quota system for the first time. Methods include in-depth semi-structured interviews, participant observation, mind maps, preference interviews (adapted from the ParFish package developed by Walmsley et al. 2005) and scenarios. Advantages and disadvantages of these methods - on their own and in conjunction - are discussed in terms of eliciting and capturing various perspectives of Torres Strait Islanders, and of communicating these to local communities, managers, fisheries scientists and other fisheries stakeholders. While participatory tools used in this study proved to be very useful in understanding indigenous fishers' perspectives, it is argued that their effectiveness is directly linked to time spent in communities conducting interviews and building relationships and trust.

**Uncovering Potential Social Impacts of Fisheries Management: Lessons From the Torres Strait Tropical Rock Lobster Fishery**

By Annie Lalancette, Concordia University

Conflict or competition between resource users resulting from disparities in power, capacity and access to resources is salient in many fisheries worldwide. Understanding social complexities in fisheries thus requires consideration of the perspectives of different user groups as well as internal differences among groups and/or communities. The tropical rock lobster fishery in Torres Strait, Australia is about to undergo major changes as the Australian Commonwealth government prepares to transition its management from input control to an output-controlled quota system for the first time. This fishery is particularly complex due to its location between Australia and Papua New Guinea and its multiple jurisdictions. Moreover, indigenous Torres Strait Islanders must share this fishery with fishers from Papua New Guinea and non-indigenous fishers from mainland Australia. These three fisher groups differ greatly in terms of objectives, harvesting capacities and levels of political power. A reasonable understanding of the social dimension of this fishery is required if government-imposed measures are to be effective and to avoid severe unintended social impacts such as increased conflict and competition between these different groups. Potential impacts of different quota management options as foreseen by various Islander fishers, such as possible conflicts, inter-generational equity issues, and cultural impacts, are outlined. Finally, the value of engaging with different user groups and gaining insights to their perspectives is highlighted in relation to the potential social impacts of fisheries management measures.

**Effects of Tillage Practices on Phosphorus in Soil and Tile Drainage from Agricultural Fields**

By Vito Lam, M.L. Macrae, University of Waterloo, M.C. English, Wilfrid Laurier University, Y. Wang, I. O'Halloran, University of Guelph

Agricultural watersheds have been identified as a source of nutrients to surface water bodies. To reduce nutrient loading to water bodies, and consequently lessen the potential for the eutrophication of these systems, no-till management practices have been employed. No-till management practices reduce the potential for erosion and the transport of phosphorus (P) in surface runoff. However, it has been suggested that the transport of dissolved forms of P via drainage tiles may be enhanced at no-till sites due to P-stratification in surface soils and an increased density of macropores within the soil profile. It is not clear if this pattern is observed in Ontario soils, and if this persists over the entire year. This project, undertaken in the Lake Simcoe watershed, is quantifying P export rates between conventional, minimum till and no-till methods. Preliminary results demonstrate that hydrologic events (snowmelt/rainfall) trigger a rapid P-export response from drainage tiles. As expected, larger P concentrations were observed during peak discharge periods. The data also demonstrated that the ratio of P exported as particulate bound P was much greater during high flow events, while SRP values were observed to peak at approximately 0.1 mg/L on all plots. On a storm-by-storm basis, no treatment produced consistently higher P concentrations. However, conventional till exported significantly higher concentrations of SRP and TDP when compared to minimum till. This data supports our hypothesis that tillage methods play a role in modifying the export of phosphorus from agricultural landscapes.

**WARNING: Labels May Cause Serious Side Effects for Learning Disabled Students**

By Nancy La Monica, Vera Chouinard, McMaster University

Labeling is an act of asserting power; it can help and it can hurt. It is, in other words, a double-edged sword. On the one hand, diagnostic disability labeling can legitimate entitlement to accommodations; at the same time, bearing such labels can also cause harm (e.g. stigma attached to labels). This paper explores the ways in which labels create barriers for disabled students in academia. We explore the ways in which students bear the stigma of these labels in order to be eligible for disability support. Beginning with a performance of an autoethnographic anecdote, we illustrate how non-visibly disabled students internalize negative stereotypes attached to labels. In doing so, we aim to understand the contradictory and sometimes harmful effects that labeling, for purposes of accommodations, has on disabled students access to inclusionary spaces in academia. Autoethnography is a useful method to demonstrate how labels can hinder, rather than enable, students from accessing higher learning spaces. We challenge places of education to think outside the box of the labeling process to help make academic environments more equitable, inclusive places of learning for disabled students. We end by offering suggestions for more inclusionary spaces that are not stigmatizing despite their diagnostic labels.

**The Participation of First Nations in Water Governance: An Environmental Justice Perspective**

By Nicole Latulippe, University of Toronto

The quality of drinking water on reserves is inadequate compared to the services available within non-Indigenous communities in Canada (RCAP 1996). The water crisis affecting First Nations has been attributed to a regulatory gap, funding shortfalls and poor infrastructure (Phare 2009; Auditor General 2011). Coupled with the contamination and diversion of water on the traditional territories of First Nations, the water crisis can be characterized as a matter of environmental injustice. Recent scholarship has posited a three dimensional understanding of environmental justice, including, the fair distribution of environmental risks and benefits, recognition and respect for social diversity, and participation in environmental governance (Schlosberg 2004). First Nations in Canada have experienced a long history of exclusion from environmental management (Linden 2007; Borrows 2002). These exclusions have not gone uncontested; direct action showcases the self-identified rights, responsibilities and values held by Indigenous peoples with respect to water. First Nations are calling for the recognition and inclusion of their knowledge systems, laws, and practices in water governance systems. Consequently, the water crisis facing First Nations in Canada warrants analysis through distributive, representational, and procedural forms of justice. The paper concludes with opportunities for further research.

**Converging Flows: Building a Critical Physical Geography of Rivers and Streams**

By Rebecca Lave, Indiana University

Urban rivers are a paradigmatic example of nature-society interaction. Any attempt to analyze them as either physical systems or products of human action will inevitably produce partial, inadequate explanations. To understand urban rivers more fully, we need to combine physical and social research. Actually carrying out that combined research can be difficult in practice, though; like the places where fluvial systems converge, the intellectual confluences between physical and social geography can be tricky sailing. In this talk, I lay the groundwork for such transdisciplinary work by presenting a shared methodological framework for what I term a critical physical geography of fluvial systems, drawing on my fieldwork on both the geomorphology and political economy of rivers and streams.



**Toward Integration: Linking Ecology, Engineering, and Environmental Planning for Enhancing and Restoring the Ottawa River at the University of Toledo, Ohio**

By Patrick L. Lawrence, University of Toledo

Since 2005 efforts have been underway at the University of Toledo, Ohio to address a range of environmental issues and concerns associated with the 4,700 feet of the Ottawa River that runs through the main campus of the University. This portion of the river is but a small part of the 50 mile long river system and 150 square mile watershed of the Ten Mile Creek/Ottawa River watershed located in northwest Ohio and within the Maumee Great Lakes Area of Concern. The focus of planning initiatives have been on aquatic habitat conditions, storm water mitigation, beautification, public access, improved education and awareness, and the opportunities for student and community involvement and engagement. Led by the Presidents Commission on the River, this university endeavor has linked the professional expertise and skills of multiple disciplines with faculty, staff and students from academic programs as diverse as geography and planning, art, environmental science and ecology, and civil engineering. Examples of the contributions and projects completed include rain gardens, river habitat improvements, new bridge design, removal of exotic invasive species and replanting of native plants. This coordinated and cooperative work provides for excellent examples and lessons derived from an integrated planning approach building from the combined contributions of a range of disciplines and expertise in order to address fundamental environmental challenges present with the river and provide long term sustainable and productive solutions.

Presenter: Genevive Layton-Cartier

Session/Séance: **W2-B****Governance of Marine Protected Areas in Quebec: A Comparative Study of Planning Phases**

By Genevive Layton-Cartier, Monica Mulrennan, Concordia University

Marine protected areas (MPAs) have been identified as a key tool in eco-system-based management of oceans worldwide. Despite this, Canada has made limited progress in this area, with less than 1% of its oceans protected compared to almost 15% of its land. Closer investigation of the MPA establishment process and experience, from a diversity of stakeholder perspectives, is likely to be instructive for the identification of factors that would support advancement in this area. This paper presents the findings of a comparative evaluation of four MPA cases in Quebec one designated MPA (Saguenay-St. Lawrence Marine Park), two approved MPA projects (Manicouagan Peninsula and Magdalen Islands) and one proposed MPA project (Tawich) initiated by the Cree Nation of Wemindji (James Bay) in relation to governance arrangements, the evolving web of relations between and among various stakeholders, and the challenges and successes encountered during planning phases. The methodology consisted of twenty-eight semi-structured interviews conducted with key stakeholders involved in these MPA cases. Key findings indicate the crucial role of leadership at the community level, bridging organizations and social networks in initiating and advancing MPA planning. A dynamic governance framework, adaptive to the evolving circumstances of each case, is also vital.

Presenter: Michael G. Leahy

Session/Séance: **W3-B****The Influence of Participation Format on VGI Creation and Collaboration in a PPGIS**

By Michael G. Leahy, G. Brent Hall, University of Waterloo

This paper presents results from a PPGIS case study conducted in a rural region of New Zealand that involved farmers using a customized Web 2.0 application called MapChat to create irrigation maps for their farms as VGI required for subsequent group collaboration. Each participant used the software by following one of two formats of engagement: either independent interaction with the software via the Internet, or use of the software with direct in-person assistance from a researcher. Analysis of the characteristics of the data and case study outcomes reveals biases that stem from different participation formats. The results have implications for the design and implementation of PPGIS research and practice.



**Exploring Links Between Crime and Health at the Neighbourhood Level in the Region of Peel**

By Gillian Lee and D. Wilson, University of Toronto

This research examines links between crime and health at the neighbourhood level through an approach that considers both the physical characteristics of neighbourhoods and the behaviours and perceptions of residents to gain a better understanding of the interplay between individuals and their local environment that influences experiences of crime and health. This talk will present preliminary results from a mixed-methods approach that includes a social observational survey examining neighbourhood features and social interactions related to crime, safety and community well-being, and key informant interviews from three distinct communities in Brampton, Mississauga and Caledon. Findings of analysis from the social observation tool implemented in three neighbourhoods will be presented and contrasted with findings from interviews that were subsequently conducted with local experts in each neighbourhood that explored trends, challenges, opportunities and recommendations with respect to crime, safety and community health and well-being. The talk will conclude with a discussion of the implications of this work on local community-based efforts to strengthen communities through an integrated approach that explicitly links crime prevention and health promotion at the neighbourhood level.

**A Comparative Analysis of Food Security in Blantyre and Gaborone: Food Choices**

By Alexander Legwegoh, University of Guelph, Liam Riley, The University of Western Ontario

Food in sub-Saharan Africa (SSA) often falls within the realm of food for survival, thus food studies focus largely on issues of food deprivation and insecurity. Even as SSA becomes more urban, there are only limited studies that seek to capture the complex spatial and historical dynamics of food consumption changes that have occurred. As a result, consumption patterns are often assumed to be trending toward Western diets. This paper draws on people's food experiences from two case studies that were conducted simultaneously in Blantyre, Malawi and Gaborone, Botswana. The case studies will be used to demonstrate urban food consumption trends in terms of location-specific meanings embedded in foods, and in the food distribution systems that condition daily food choices in different ways in each city. The comparison raises serious questions about the simplicity embedded in the idea that food cultures in contemporary urban SSA are urbanizing or westernizing. Urban residents in Gaborone have significantly higher incomes and access diverse foodstuffs from Western standard supermarkets, yet much like residents in Blantyre people still eat traditional staples/dishes, alongside western foodstuffs. Rather than following an un-differentiated trend of Westernization, food choices and food consumption practices within Blantyre and Gaborone are fluid, dynamic, material, symbolic and hybridized. Furthermore, these processes are embedded in the geographical realities of environment, culture, and proximity to South Africa's industrialized food system.

**Last Chance Tourism in Protected Areas: Management Implications and Emerging Ethical Considerations**

By C.J. Lemieux, J.D. Dawson, Wilfrid Laurier University

Last chance tourism (LCT) is a tourism trend whereby tourists travel to endangered sites to see them before they vanish or an irrevocably transformed. Many LCT attractions are located within the world's protected areas estate. Examples include rare or endangered species and/or ecosystems (e.g., polar bears, coral reefs), species and ecosystems whose distributions are highly influenced by climate (e.g., migratory species, such as birds and other wild life), physical features (e.g., glaciers), and commemorative resources (e.g., historic sites). In fact, protected areas are often legislated specifically to permanently protect and provide opportunities to appreciate these resources. This presentation explores the management and operational challenges with respect to LCT, and provides an exploratory overview of some of the emerging ethical dilemmas that protected areas managers and planners will be confronted with in an era of rapid climate change.

**Queering Intersectionality: Field Notes from Alberta**

By Suzanne Lenon, University of Lethbridge

As both theoretical tool and political praxis committed to social justice, intersectionality examines how social formations such as gender, race, class and sexuality are enmeshed with one another in historically specific and complex ways. With its origins in black feminism and critical race theory, intersectionality has long engaged feminist scholars. There is now a growing call for queer theory and queer politics to more seriously attend to the insights and analytics of intersectionality. Specifically, activists and scholars insist on de-centring the priority given to sexuality as a single-issue analytic framework, and attend instead to the class, racial and national norms through which formations of sexuality are shaped.

This paper outlines some of the theoretical underpinnings that inform 'queer intersectionality'. More substantively, it discusses the possibilities of queer intersectionality as an approach for political engagement by and within queer communities in Alberta. In this paper, I present initial findings from my research into queer political activism in the province that seek to build and foster a multi-issue, multi-identity – that is, intersectional - queer politics in the province. The paper discusses the various challenges existent in and evoked by queer intersectionality as political practice, and offers insights for transforming feminist/queer political engagement.

**Mapping Realizable Renewable Energy Potential in Canada.**

By Geoffery Lewis, R. Feick, University of Waterloo, J. Laughren: World Wide Fund

A unique effort is underway to map the realizable potential of renewable energy in Canada. This paper presents the scope, structure, schedule, and anticipated products of this effort. The project begins with the collection of existing data and maps for renewable energy resources (e.g., wind, solar, hydro) across the country and continues by developing and applying a series of modifiers which are intended to reflect realistic constraints on the amount of each of these resources it is feasible to extract. These modifiers include location and available capacity of electricity transmission infrastructure, technology-specific production costs, and social friction. Geography and technologies are limited in the first phase, but will be expanded as the concepts are proven. The project also includes a worldwide survey of similar efforts. The result of a partnership between the University of Waterloo and World Wildlife Fund Canada, this project is focused on producing peer-reviewed science to inform the public policy debate on energy issues in our country.

**Placing HIV Risk and Prevention Among Men in Nova Scotia: An Intersectional Determinants of Health Approach**

By Nathaniel M. Lewis, Dalhousie University

Integrating perspectives from geography and health promotion, this paper considers how intersections of gender, sexuality, and place affect HIV risk and prevention among men in Nova Scotia. While there has been some work on the place-based experiences of men living with HIV, much work elides (1) the role of place (e.g., urban-rural difference) in shaping HIV risk and prevention and (2) the substantial implications of place-specific gender and cultural norms for risk behaviours, health-seeking behaviors, and the effectiveness of prevention strategies. Using quantitative data from the Canadian Community Health Survey and preliminary interviews with practitioners across the nine Nova Scotia regional health authorities, this paper first examines interregional variations in HIV incidence and compares them with those in other provinces. Second, it considers the ways in which place-based cultural and community contexts (e.g., how masculinity is constructed in certain places) might influence men's risk behaviors and health-seeking behaviors ultimately creating differences in incidence. This paper therefore calls for a renewed focus on place in regional strategies such as The Nova Scotia Strategy on HIV/AIDS and a warning against the diffusion and standardization of men's HIV prevention measures based on the experiences of metropolitan regions.

**Engaging First Year Geography Students Through Field Trips Challenges and Rewards**

By Joseph Leydon, Sally Turner, University of Toronto Mississauga

Field trips and fieldwork are essential components of an undergraduate geographic education but faced with growing enrolments and limited resources many educators have removed these activities from their first year course curricula. Where field trips are offered to first year students they tend to depend on observation rather than participatory field activities. Pedagogical literature argues that for fieldtrips to be effective they must involve direct student engagement in field activities and a written report connecting these activities to defined learning goals. Our presentation reports on the challenges of incorporating fieldwork into a large first year geography course at the University of Toronto Mississauga, and the strategies adopted to respond to these challenges. We created six different field trips, each catering to approximately one hundred students. Each field trip emphasised experiential learning through active fieldwork and individual written reports aligned to the objectives of the field trip. Prior to each trip, students were introduced to the field trip theme, methodology, and equipment through small group meetings on campus. Our field trips were met with an overwhelmingly positive student response. Students developed a better understanding of geography, a stronger class community, and a more positive relationship with instructional staff.

**Urban System and Spatial Structure of Henan Province, China: A Preliminary Study**

By Hao Li and Zhu Qian, University of Waterloo

Urban system is a group of cities which cluster in a region, with different functional divisions and various scales for each city. Henan Province's urban system optimization has important implications to the regional economic spatial structure, especially in the context of the central state's strategy of Rise of Central China. This paper uses spatial statistics such as geographic information systems and spatial econometrics to carry out the spatial analysis of Henan's urban system. The paper investigates the current economic development patterns and spatial structure of Henan Province's various cities (from locally administered municipal districts to county-level cities and counties). It then analyzes Henan Province's urban spatial structure. The study links Henan Province's urban system to its economic spatial structure. In the end, policy implications are proposed for sustainable development of the province's urban system. It proposes that urban system should lead the regional economic spatial structure's optimization in Henan.

**Analyzing the Spatial Pattern of Vegetation-climate Relationships Using a Geographically Weighted Regression Approach**

By Junzhu Li and Dr. Su-Yin Tan, University of Waterloo

Climate change has obvious impacts on vegetation density and distribution, but such relationships are complex and vary at different spatial scales. With global warming trends and human impacts on natural ecosystems, it is essential to simulate how vegetation distribution changes in response to climatic factors, such as temperature and precipitation. This project compares two statistical regression models, ordinary least squares (OLS) and geographically weighted regression (GWR) for exploring the spatial relationships between vegetation and two climatic indicators, temperature and precipitation. Results support GWR as an improvement over traditional regression models by efficient spatial autocorrelation reduction and suitable spatial scale determination.

**Measuring Dynamic Interaction Patterns in Movement Data**

By Jed A. Long, Trisalyn A. Nelson, University of Victoria

New technologies are facilitating the collection of increasingly detailed datasets on individual movement. However, existing methods for extracting meaningful information from movement data are limited in both scope and sophistication. One particular area of interest that has garnered attention in recent years is the measurement and interpretation of dynamic interaction patterns in movement datasets. Dynamic interaction can be broadly defined as inter-dependency in the movements of two (or more) individuals. While a number of methods have been developed capable of identifying specific dynamic interaction patterns defined a priori, for example flocking behaviour and single-file motion, methods for quantitatively measuring the degree of dynamic interaction present in movement datasets remain limited. In this research we aim to further develop the suite of methods available for measuring dynamic interaction patterns in movement data. The first case study looks at dynamic interaction in wildlife telemetry data for example between mating pairs of individuals. In this example, we explore the strength of dynamic interaction during the mating season. The second case study will explore athlete movement data in the context of team sports. Of interest is the measurement of dynamic interaction between offensive and defensive players, for example in order to measure how effective defensive players are at coverage. We provide avenues for further exploration in terms of dynamic interaction problems. One specific area of interest is the detection of third-party effects, when the dynamic interaction of two individuals is impacted by other objects. In conclusion, the overlying objective of this research is to develop quantitative methods for movement data that are applicable across a range of situations and applications, as demonstrated by our case study datasets. Further, we will develop and make available analytical tools for those wishing to measure dynamic interactions in their own movement datasets.

**"The Archive That Never Was: State Terror and Historical Memory in Guatemala."**

George Lovell, Queen's University

**Abstract Not Available****Results of a Household Seafood Survey from the Bonne Bay Region on Newfoundland's West Coast**

By Kristen Lowitt, Memorial University

By contributing to local diets and livelihoods, fisheries are an important part of the food security of coastal regions. Focusing on the Bonne Bay region on Newfoundland's west coast, an anonymous survey was distributed to households to gather information about patterns in local seafood consumption. The survey asked questions about frequency and types of seafood eaten; ways of eating seafood; sources of seafood; and satisfaction with availability, affordability, and quality of seafood in the community. Results show that local people strongly prefer eating seafood from Newfoundland and Labrador over imported seafood, and that local seafood is eaten most often in the summer. Local fish plants and networks of family and friends are the main ways households are accessing local seafood. However, results also show a decline in consumption of most major fish and shellfish species over the past five years. Some potential factors contributing to this declining are discussed. The paper concludes with recommendations for strengthening fisheries contribution to community food security in the Bonne Bay region.

**Where is Remote?: Conceptualizing the Isolation of Detention**

By J. Loyd, Syracuse University, A. Mountz, Balsillie School and Wilfrid Laurier University

Nation-states have been offshoring their management of asylum and migration flows, creating a dispersed infrastructure and legal ambiguity. This includes the use of islands to interdict migrant passage or prevent the making of asylum claims. The United States is not an exception, and features an onshore and offshore archipelago of detention. On the mainland, immigrants confined in civil detention are dispersed through a hodgepodge network of facilities ranging from dedicated mega immigrant detention centers to rented space in county jails. Geographic isolation has become one of the most frequently criticized conditions of the immigrant detention system in the United States. Remoteness compounds the unfreedom and harms of detention by impairing communication with loved ones and broader publics, access to legal counsel, and oversight efforts. There are many explanations for the remote locations of these facilities. Asking the question, Where is remote? is necessarily a relational question. It is

a question of process and history, of how places are made remote. To understand the history of the contemporary detention network, we developed three regional case study sites – Batavia, NY; Florence, AZ; and Oakdale, LA – through which to trace its multiple, fractured dynamics of expansion and to examine the interplay among local contingency and regional specificity of national policies. This paper presents findings that focuses on the pivotal role of Caribbean Cold War geopolitics in shaping the contemporary US detention network, which complicate many prominent explanations for the remote locations of detention.

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Presenter: Xue Luo

Session/Séance: **F2-B**

### **Spatial Patterns of Neighbourhood Crime in Canadian Cities: The Influence of Neighbourhood and City Contexts**

By Xue Luo, Su-Yin Tan, University of Waterloo

The main goal of this study is to investigate the spatial patterns of police-reported crime rates across select Canadian urban neighbourhoods and to explore their relationships with both neighbourhood- and city-level characteristics, as well as neighbourhood spatial dependence. Analyses were based on aggregated data from the 2001 Incident-Based Uniform Crime Reporting Survey (UCR2) and the Census of Population for six Canadian cities: Edmonton, Halifax, Montreal, Saskatoon, Thunder Bay and Toronto. Exploratory spatial data analysis (ESDA) was used to examine the spatial distribution of crime as well as to test for spatial dependence in the crime data. By using multilevel modelling and spatial regression techniques, neighbourhood violent and property crime rates were modeled respectively as a function of both city- and neighbourhood-level contextual variables while controlling for spatial dependence. The results show that neighbourhood variance in crime rates is not only dependent on local neighbourhood characteristics, but on the characteristics of surrounding neighbourhoods, as well as the broader city environment where neighbourhoods are embedded. These findings suggest that strategies aimed at preventing or reducing crime should be developed in light of specific local neighbourhood contexts, while taking into account social forces external to the immediate neighbourhood in wider social environment.

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Presenter: Hui Luan

Session/Séance: **TH3-A**

### **Web GIS in Public Health Surveillance and Planning**

By H. Luan, J. Law, University of Waterloo

Web GIS has been widely used in public health related fields, such as disease surveillance, risk analysis, health access and planning, and community health profiling. The Healthy Communities movement makes this Web application increasingly attractive to health planners. This paper reviews the status quo of Web GIS-enabled Public Health Surveillance Systems (PHSSs), identifies their limitations and explores the geographical inequalities in the development of these systems worldwide. Articles are restricted to the last ten years. Literature suggests that infectious disease is more in demand of Web GIS-enabled PHSSs. USA is the country benefited most from PHSSs. Besides maps, most systems can output reports, data tables, and graphs for planning purposes. Latest Web technologies have been used in developing Web GIS-enabled PHSSs, resulting in better interactions between end users and the systems. Some limitations are also discovered, including incomplete data analysis, updating and maintenance problems, and access constraints. Collaborative and public participatory Web GIS-enabled public health surveillance is identified as the main trend in the near future, which should make health data more timely and comprehensive. With such data and Web system, planners can make better policies and decisions for the planning of healthy communities.

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Presenter: Isaac Luginaah

Session/Séance: **TH1-A**

### **Circumcision Status and Time to First Sex Among Youngmen in the Context of the HIV/AIDS Epidemic in Sub-Saharan Africa: The Case of Malawi**

By Paul Mkandawire, Isaac Luginaah, Frederick Armah, Godwin Arku, Western University

In 2007, the World Health Organization and the Joint United Nations Programme on HIV/AIDS (UNAIDS) recommended that male circumcision (MC) be recognized as an additional, important strategy for the prevention of heterosexually acquired HIV infection in men, particularly in countries with hyperendemic or generalized HIV epidemics and low MC prevalence. This recommendation was based on compelling evidence that male circumcision reduces the risk of heterosexually acquired HIV infection in men by approximately 60%. This study examines the effect of circumcision status on the timing of first sexual intercourse among youth in Malawi. Results of log-normal models applied to nationally representative sample of young men (n=2459) aged 15 and 24 obtained from Malawi Demographic and Health Survey (DHS) data show that circumcision status is a significant predictor of age at first sex in Malawi. The findings seem to unravel new challenges to HIV/AIDS prevention, as it was found to be associated with early onset of risky sexual activity. The presentation discusses the need for a re-examination of existing HIV/AIDS prevention policies.

**The Legacy of Collective Violence: The Meaning of Health and Help Seeking Behaviors Among Refugees in Canada**

By Gracia Mabaya, Susan L. Ray, Beverly D. Leipert, Lilian Magalhes, The University of Western Ontario

An interpretative phenomenological approach with a purposive sample of three men and three women was employed to explore the meaning of health and the help seeking behaviors of refugees living in Canada who have experienced collective violence in their countries of origin. This paper reports on the findings obtained from this phenomenological analysis, conducted in London, ON, offering a rich yet beginning understanding of the various pre-migratory and post-migratory aspects of health and help seeking behaviours among the participants. From the participants lived experience, the eight themes generated are presented with a mediated phenomenological description that takes us deeper and further into understanding their experience with reference to Merleau-Ponty's lifeworld existentials. Of remarkable interest, the findings reveal that trauma brought upon by the experience of collective violence continues to be relived in the participants current lives in Canada. With such a sustained experience of trauma, recognizing that one needs to uncover this wound within them and seek the appropriate assistance can be a lengthy process, creating road-blocks into their integration process. Participants call for regionally-based, specific and well-structured mental health services targeting refugees who have experienced collective violence in their countries of origin.

**The Mythology of Territory**

By Katherine MacDonald, York University

Natural landscapes, and places more generally, imbued with social relations, give a material presence to territorial imaginings. Like borders, place names can inscribe geopolitics on maps, as not only do place names help shape our imagined geographies, but they can be powerful tools in asserting territorial claims and legitimizing geographical identities. The symbolic power of territory is often the focus of attention in geography when there is an element of ethnic conflict involved, and territorial erasures are often justified through (post-)colonial politics of power. Many place names in the Rupununi region of Guyana are derived directly from Makushi and Wapishana, as well as earlier groups cosmologies related through ancestor stories, as the peoples know that the ancestors left behind places for them to teach them of their past. Wherein official cartographic discourse often excludes the Other, and national territorial imaginings marginalize or erase alternative perspectives, territories acknowledged, expressed, and lived through myth operate to preserve Indigenous conceptualizations of the worlds around them. I suggest that through myth, this Indigenous re-territorialization within the south of Guyana is re-shaping the geopolitical reality of the region, thereby strengthening the customary land claims of the peoples of the Rupununi.

**Multiple Drivers Lead to Nutrient Regime Shifts in Coastal Tundra Ponds of Wapusk National Park (Manitoba, Canada)**By Lauren A. MacDonald<sup>1</sup>, Sam Fooks<sup>1</sup>, Nicole Farquharson<sup>2</sup>, Roland I. Hall<sup>1</sup>, Brent B. Wolfe<sup>2</sup>, Merrin L. Macrae<sup>1</sup>, Jon N. Sweetman<sup>1,3</sup>; 1. University of Waterloo, 2. Wilfrid Laurier University, 3. Parks Canada

Shallow Arctic tundra ponds are particularly sensitive to changes in climate and wildlife populations, but few studies have examined comprehensively their biogeochemical responses to these stressors over space and time. Wapusk National Park (WNP) has experienced pronounced climate warming over the past century and, since the early 1970s, coastal regions of the park have witnessed rapid increases in the Lesser Snow Goose (LSG) population. Based on comparisons with contemporary nutrient conditions from 19 low-disturbance coastal fen (LDCF) ponds and the paleolimnological record of WAP 20 (located in the area of LSG population expansion), we identify that WAP 20 has undergone profound changes in nutrient regimes during the 20th century. Paleolimnological results (15N, pigments) indicate that nitrogen limitation characterized the nutrient regime of WAP 20 from ~1900-1970. After ~1970, the paleolimnological record indicates nitrogen availability increased, consistent with contemporary limnological measurements of TKN at WAP 20 and the LDCF ponds. However, ~1970 also marks an increase in carbon demand at WAP 20, which is a distinguishing feature of this pond in comparison to the LDCF ponds on the basis of contemporary behaviour of  $\delta^{13}\text{CDIC}$  and  $\delta^{13}\text{CPOM}$ . Water chemistry measurements indicate that phosphorus is likely limiting at WAP 20 during mid-summer but not at the LDCF ponds. Based on these and additional analyses, and knowledge of probable causes, we attribute the first nutrient regime (~1900-1970; N limitation) to climate warming and the second nutrient regime (~1970-present; high C demand and possibly P limitation) to the increase in LSG population.

**The Fertile Crescent: Land Cover and Land Use Change in Prince Edward Island after the 'Golden Age,'  
1871-1901**

By Joshua MacFayden, University of Western Ontario

**Abstract Not Available**

**The Farmlike City: The Globe, Historiography, and Toronto, 1860-1900**

By Phillip Gordon Mackintosh, Brock University

Between 1860 and 1900 the *Globe* described Toronto for Torontonians as incorrigibly disorderly, overrun with domestic animals, steeped in muck and effluent, and clumped with garbage and carcasses. The combination produced a fetor that rendered the city more barnyard than urban. Admittedly, researching such conditions makes for sensational reading, but how believable is the reportage? In its denigration of the city environs, the *Globe* certainly propagandized for a liberal/Liberal approach to reform, dependent on both capital and bourgeois discourse for its substance. Assuming that the *Globe's* eagerness to represent the disorder of Toronto's streets to its readers was as much about axe-grinding as accuracy, what do we make of its vision of urban disorder in Victorian Toronto? This is a question of historiography and the purpose of the urban historical research. How do historical geographers believe their sources in a post-postmodern world? There are no right answers to this, but the question is worth pursuing.

**Advances in Monitoring and Measuring Urban Sustainability**

By Virginia Maclaren, University of Toronto

This paper examines current metrics for urban sustainability and related frameworks and proposes options for new directions including strengthened attention to human health and wellbeing. The metrics are drawn from the literature on indicators, indexes and performance measures for urban sustainability, green development, state-of-the-environment, quality of life, and healthy cities. The first part of the paper looks at new methodologies for developing, selecting and assessing metrics. This is followed by an overview of advances in the development of metrics for monitoring specific aspects of sustainability, such as urban regeneration and sustainability in the urban water sector. The next part focuses on the effectiveness of new technologies, such as GIS and social media, for displaying and engaging communities in conversations around sustainability metrics. The final part of the paper compares the most recent metrics being used by a selection of urban case studies from the literature and suggests reasons for similarities and differences among those measures.

**Habitat Selection of Slimy Sculpin (*Cottus Cognatus*) with Respect to Depth, Temperature, and Dissolved Oxygen in Clear Lake, Riding Mountain National Park, Manitoba**

By C.D. Malcolm, K. McLaughlin, Brandon University, T. Sallows, Riding Mountain National Park, Parks Canada

The slimy sculpin (*Cottus cognatus*) is a small, benthic fish native to Clear Lake, Riding Mountain National Park, Manitoba. The species has been suggested as an effective ecological indicator of aquatic health. Clear Lake is a 2,922 ha, oligo-mesotrophic lake, with depths reaching 34 meters, which typically stratifies in late spring and turns over in early fall. From May through September, 2010 and 2011, the locations of slimy sculpins were monitored in relation to depth, temperature, and dissolved oxygen (DO). The project aims to understand habitat selection of slimy sculpin and use the species as an indicator of the hypolimnetic health of the lake. The lake was divided into four depth strata and 40 minnow traps were set for 48 hours on a weekly basis. Over the two years 299 slimy sculpins were captured. On average 43.5% of slimy sculpin were captured in the deepest strata (> 30 m), indicating a preference for this depth; however, temporal habitat selection differed between years. In 2010, no sculpins were captured in the deepest strata after August 6, while sculpins continued to be captured to mid-September in 2011. Water temperatures in the deepest strata of the lake were similar in both years. However, in 2010 DO in the deepest strata approached 0 mg/L in early August, while in 2011 DO did not decrease below 1.26 mg/L and sculpins continued to be captured. Sculpins may have moved out of the deepest strata in 2010 due to low DO, while they were able to remain in 2011.



**International Migrant Remittances in Serbia: Unilateral Flows, Investment Strategies, and Local Impacts**

By Marinel Mandres, Wilfrid Laurier University

Remittances are a bridge between migration and development. Serbia is consistently ranked among the world's leading remittance-receiving countries. In 2010, Serbia's inward remittance flows were valued at 5.6 billion USD (10% of GDP); nearly twice the amount of inward foreign direct investment. Migrant workers wage transfers stimulate development as remittance money circulates through the economy at various geographic scales. This paper focuses upon the direction and volume of remittance flows, recipient consumption, and the socio-economic impacts of remittance income. Empirical data from secondary sources is used to identify the principal source countries of investment transfer and to measure the economic implications of these inward monetary flows. Qualitative field work provides tangible evidence of the diverse uses of remittances. Local impacts are examined through a case study of Serbia's rural and multiethnic Banat region whose population actively participates in circular migration. Remittance flows are informal (i.e. unregistered) and countercyclical; increasing during economic recessions and crises in the homeland. Remittance use depends upon the recipient's circumstances. In developing regions, remittances support family members and reduce poverty (e.g. food, medicine, education). In developed regions, they enable conspicuous consumption (e.g. trophy homes and luxury automobiles), improve farming operations, and facilitate workers permanent return.

**A Critical Discourse Analysis of Skilled Worker Migration Under the British Columbia Provincial Nominee Program**

By Tina IL Marten, University of British Columbia Okanagan

With the help of provincial labour recruitment programs, such as the British Columbia Provincial Nominee Program (BCPNP), skilled workers are admitted to Canada as economic generators. Recruited for their particular skill set, these immigrants can fast track their residency application, meaning they are granted permanent resident status faster and sooner than immigrants belonging to any other immigration class. According to the 2010 BC Provincial Nominee Program Evaluation Report, from 2005 to mid-2010 there were approximately 7770 skilled workers nominated for the fast track towards permanent residence. The program has been expanding aggressively since implementation in 2001, and in 2010 alone, there were 4,900 provincial nominee nominations (<http://www.cic.gc.ca/english/departement/media/releases/2011/2011-11-07a.asp>). That year, British Columbia met its federally legislated cap. It is expected that the cap will be increased again for 2012. Drawing from my PhD research, which investigates the migration of skilled German workers into the Okanagan Valley, British Columbia, I present a critical analysis of the discourses accompanying the BCPNP. I identify the existing discourses, illustrating their construction, dissemination and maintenance, and critically analyze the government's conceptualization of this program and its participants as beneficial to BC's regions and economy.

**Peopling the Firm: The Importance of Local Managers in the Economic Geographies of Forest-Dependent Communities.**

By Alex Martin, University of Northern British Columbia

With the cultural turn there has been greater emphasis within economic geography on the importance of the non-economic actions of firms in regional economies. This has been accomplished by examining the various roles held by companies, corporate executives, and local managers. This paper examines the importance of local managers in understanding the economic geographies of resource towns. Local managers in resource towns occupy a unique space as they hold important positions of local authority while being at the bottom of the corporate hierarchy. Within communities managers often embody the company despite having little control over corporate decision-making. Economic restructuring has led to withdrawal managers from previously held roles and responsibilities, which has important implications for planning, service provision, and leadership pools. It has also contributed to eroding community trust, social capital, and human capital. Corporate restructuring has also changed local management by shortening tenures in communities, requiring business training, and restricting the extent of community involvement. These findings are based on fieldwork conducted in Houston, Mackenzie, and Quesnel, and are part of a larger research project examining the impact of changing community-company relationships in BC's northern Interior.



**Moving on From Hurricane Juan: Devastation and Division in Halifax's Point Pleasant Park**

By J. Grek Martin, Saint Mary's University

On September 29, 2003 Hurricane Juan passed just to the west of Halifax, Nova Scotia. This Category 2 hurricane produced widespread wind damage throughout the metropolitan area, including substantial destruction within Halifax's beloved urban oasis, Point Pleasant Park. As the extent of the damage to the park became apparent, a palpable sense of loss was expressed throughout the community, which can be interpreted as an instance of solastalgia a concept developed by Australian philosopher Glenn Albrecht to describe the personal and community distress caused by an externally-derived negative change to one's home environment. Collective grief soon gave way to debate, however, as the city took swift steps to renew the park through a publically-informed (re)design competition. As the public input from the 2005 consultation process reveals, Haligonians held disparate and at times incongruent views concerning what defined the park pre-Juan, how the post-hurricane clean-up should be managed, and especially what improvements (if any) should be incorporated into the winning park design. What this vibrant debate thus reveals is both the deep emotional (solastalgic) trauma that Hurricane Juan inflicted on park-goers and the contested meanings of nature that frame public perceptions of Halifax's preeminent urban park.

**Online Volunteerism, Geographers and the Global South: Recognizing Opportunity and Reality with Mapping Across Borders**

By Michael Martin, The University of British Columbia

Finding the time to volunteer while in studying or working in academia can be difficult. The pace and pressures of life make coordinating our efforts, skills, and talents at specific places and times often inaccessible. Concurrently, those who want to volunteer often have trouble identifying the right volunteer group. Altogether, this makes engaging in volunteerism difficult. However, there is plenty of desire to volunteer based on the responses of over 80 interviews in this study. If only there was a way to connect our skills, talents and gifts to volunteerism that did not physically meeting at a particular place or time. This provides a strong background for Mapping Across Borders, an online volunteerism platform for students and professors to interact with staff of non-governmental organizations (NGOs). Mapping Across Borders offers the ability to work and learn collaboratively so that organizations on the ground in developing countries can benefit from geographic information technologies. While the basis of Mapping Across Borders, the desire of students and professors to get involved and the potential for its impact have already been established, a larger questions remain; does it overcome the challenges of time and space? Is it compelling enough for students to use it, and are those efforts useful for NGOs overseas? What other issues come from the use of Web 2.0 in volunteerism? The presentation given during this talk will investigate these questions and provide insights from interviews undertaken with students and professors across Canada and NGO staff from African countries.

**Benchmarking the Creative Economy in Rural Ontario**

By K. Stolarick, Z. Matheson, University of Toronto

This research examines the creative economy in rural communities across Ontario through a detailed benchmarking exercise. One focus community was selected from each of the five major economic regions in Ontario and compared with 10 other communities from that region on a variety of attributes. The types of data analyzed in the research include the occupational structure of the workforce and measures that characterize a community's level of creative assets. As a final measure, the report calculates each community's Creativity index which measures the overall extent to which a region has developed the conditions associated with a creative economy. The Creativity index is derived from three individual measures of a creative economy: Talent, Technology and Tolerance. This research contributes to the existing body of research on the creative economy in rural communities and allows communities not only to gauge their own performance in the creative economy, identifying strengths, weaknesses and opportunities, but also to better understand how their community fits within the larger context of the region in which they exist. This presentation will summarize some of the highlights from the final report.

**The Medium is the Method: Using Digital Video to Assess Climate Change and Human Rights in Northern Canada**

By I. Mauro, Mount Allison University

Inuit across the circumpolar Arctic are on the front lines of climate change. As sea ice, glaciers and permafrost degrade, the land and livelihoods of northern communities are put at risk, and this cumulative impact is increasingly recognized as a human rights issue. Further compounding this, climate change is opening ice covered waterways, and increasing access to minerals and other resources abundant in northern regions. Using a case study approach, this presentation will explore interconnections between climate change and mining, and new media methodologies that collect, communicate and conserve indigenous knowledge regarding human rights. This will demonstrate how video medium is the method for community-based action research and advocacy.

**Using Experiential Knowledge in River Management Decision Making, and the Impact of Scale on its Effectiveness**

By Carlie Marie Maynard, R. Pain, Durham University

It is now widely acknowledged that involving those with experiential knowledge in catchment management can have multiple benefits ranging from a more efficient decision making process to a greater sense of community ownership around projects. Within the UK and Europe, public participation in environmental management efforts is becoming increasingly popular as a result of legislative processes such as the EU Water Framework Directive and the Aarhus Convention. But to what level do we define participation and can we realistically include public knowledge as part of an accepted scientific procedure? This paper presents a review of a number of cases operating on large (catchment) scales throughout North-West Europe, some of which encountered problems and raised questions such as: How can we convince others to trust work we do that involves public knowledge? How can we account for uncertainty in that knowledge? Who should be involved and to what level? Further questions arise around the relationship between scale of a project and its success. To explore this point further, the cases have been compared to some smaller scale projects, in particular, one which involves a case study of a competence group in the catchment of the Derwent River, Northumberland, UK, who have lobbied for the repair of a broken weir within their community. Their extensive knowledge coupled with scientific analysis of flow and geomorphology (using a 2-D flow model, DELFT) allows us to investigate potential immediate and future impacts of the restoration on flow and habitat. Results of the study suggest that the co-production of knowledge process can have great value at a local scale, but an increase in the number of people affected or involved can be to the detriment of the level of involvement possible. This can have major implications for environmental governing bodies who are increasingly expected to involve participants and account for local knowledge in procedure and planning.

**The 'New' Panama Canal and its Impact on Caribbean Transshipment**

By Robert J. McCalla, Saint Mary's University

In 2014 the third set of locks of the Panama Canal are scheduled for completion. The Canal Authority forecasts that because of increased canal capacity the 2005 cargo volumes will double by 2025. The increase will be particularly dramatic with container shipping which in 2011 accounted for just over 50% of the toll revenues. Forecasts made in 2006 at the time of the expansion decision foresaw that container tonnage would increase conservatively at an annual rate of 5.6% once the expansion was complete and would increase from 98 million PCUMS in 2005 to 296 million in 2025. Ports in the Caribbean Basin, the South East of the United States and the North Coast of South America are gearing up for this increased tonnage. In the Caribbean Basin and North Coast they are expecting increases in transshipments; in the US they are expecting increased volumes of direct shipments. This paper reviews the steps ports are taking and assesses which ones stand to benefit most from the forecasted increases.

**Conceptualizing Sense of Place Through Multi-ethnic Narratives at a Multicultural Festival**

By Kelley A. McClinchey, Wilfrid Laurier University

Cultural festivals have been shown to aid migrants in understanding cultural tradition and establishing place identity. The role of cultural festivals in connecting local places with the global can be a powerful element in understanding the movement of culture. Empirical research from a cross-cultural perspective on senses of place and the role of festivals in contributing to sense of place is limited. Through an inductive approach and subjective research methods, this study examines the sense of place perceptions of ethno-cultural group leaders at a multicultural festival. Findings reveal that cultural group members had varying perceptions on the meaning of a sense of place and results are discussed in conversation with previous academic literature. The conclusion explains the need for continuing to examine ethno-cultural constructions of sense of place and for more multicultural research on the meaning of place in the context of leisure and tourism experiences. The study also examines the transnational behaviours of these cultural group members in order to determine if these characteristics influence a sense of place. Mixed perceptions existed on whether the festival contributed to a sense of place as well as whether festivals at the local level aid in the resistance of globalization processes.

**Have you Heard the Northern Lights? Superstition and Science in 19th Century Arctic Exploration**

By Shane McCorrstine, Scott Polar Research Institute

In this paper I pose some problems with the traditional indigenous/western dichotomy regarding supernatural or anomalous experiences by pointing out occasions when nineteenth-century Arctic explorers, scientists, and other travellers became enchanted by certain knowledge spaces. In accounts of attending the seance of the shaman observers adopted curiously poised positions, indicative of both scepticism and a degree of enchantment regarding indigenous claims for spirit-travelling and the origin of disembodied voices. With the Aurora Borealis, explorers and scientists engaged with first-hand accounts of unexplained auroral sounds and attempted to disenchant these claims through scientific observation. These cases add a new dimension to our understanding of scientific practice in the Arctic and assist in the deconstruction of two of the great divides of western Enlightenment traditions, namely science/indigenous knowledge and superstition/reason.

**Clown Space(s): How Professional Theatrical Clowns Conceptualize and Make Use of Geographic Spaces**

By Dylann M. McLean, York University

Drawing on research with professional theatrical clowns in Toronto, Canada this paper considers the different ways in which clowns view and make use of a variety of geographic spaces. How do clown's view Toronto? How do they read a performance space? And in what kinds of spaces (e.g., physical, virtual, imagined) do clowns come from? Within a Deleuzian affective frame and using a number of specific examples drawn from fieldwork with clown performers this paper will argue that clown space(s) are open multiplicities. Each open multiplicity contains several rhythmic trajectories within which the clown can play resulting in affects that make time whoosh past the ears. Space(s) will be considered at the scale of the City, the performance venue, and the personal inner/outer fold of consciousness.

**Participant Methodologies: The Practice and Effects of an Auto-photography Research Project with Muslims in Halifax, Nova Scotia**

By D. James McLean, York University

My research explores the politics of place-belongingness using Auto-photography with 20 Muslim men and women living in Halifax, Nova Scotia. The use of Auto-Photography invites participants into the research process as producers of knowledge with their photographs and in their narration surrounding the images. In my approach of Auto-photography, participants' photographs are central components that guide interviews into exploring the dimensions of belonging. As a set of relations and emotions that are material and imagined, anchored and mobile in past, present and future geographies, the production and negotiation of multiple belongings are lived, emotionally felt, and understood through the practices and experiences of everyday life. Auto-photography helps to intensify discussions about these practices, why we develop our belongings and what challenges, tensions or conflicts surface at their boundaries. Each participant responds and engages differently to the research process as they set out to complete their photographs and then tell their stories through them. In this paper I examine what I call Participant Methodologies as individual participants reflect on their own interpretations, approaches, challenges and motivations in the research and how these impact my own methodologies and analysis.

**Online Video as a Tool for Community-based Undergraduate Research Engagement**

By: Robert McLeman, University of Ottawa

This presentation reports findings from exploratory use of on-line video as a means of communicating results from undergraduate field research with the wider public. Students in uOttawa's 4th year Rural Sustainable Development field course conduct participatory, community-based research in the Eastern Ontario Highlands. Organized into research teams, students must identify and propose opportunities for fostering sustainable development in this socio-economically disadvantaged region through new businesses, programs or initiatives. The completed projects are shared back with the community, with hopes of promoting innovation and sustainability planning. Previously, reports were written documents that, while appreciated by community partners, did not disseminate ideas and promote collaboration/discussion widely. In 2011, students used video cameras to record stock footage during their field stay and created videos summarizing their project ideas. These were uploaded to YouTube, and the links e-mailed to community participants. The online video medium instantly proved more efficient in terms of community engagement. Dissemination was rapid, and immediately led to discussion on social media. Members of the local economic development committee screened the videos at a subsequent meeting. This paper outlines the preparation, necessary resources, methods and wider potential of online video dissemination in undergraduate research training.

**Environmental Influences on International Migration to Canada**

By Robert McLeman, University of Ottawa

Over a quarter century has passed since the term environmental refugees came into common usage. Since then, many studies have attempted to describe potential environmental stimuli for migration, offer legal definitions, and give normative prescriptions for the international community to prevent/protect environmental migrants. Some have forecasted hundred of millions will migrate because of climate change in coming decades, primarily in developing regions. The amount of empirical research on actual environmentally related migration events is surprisingly sparse, most pertaining to internal movements within countries following droughts or extreme storms. Except for cross-border movements between Mexico and the US, little empirical research has been done on how environmental factors affect current international migration. This presentation describes an ongoing multi-year project that seeks to identify if and how environmental factors overseas may be influencing international migration to Canada. Rather than large pulses of environmental refugees, the environmental signal in long-distance migration to Canada is likely more subtle, with factors such as air and water quality, food prices, and environmental amenities combining with other considerations to influence migration decisions. Considerable variability between migrant groups in terms of the influence of environment vis a vis other influences is also likely.

**Aging in Place**

By M. Esther McNairnay, T. Garvin, University of Alberta

Canadians choose overwhelmingly to age in the community, rather than in institutional settings and suburban environments are becoming a common place to age. Proximity of services, access to public transportation, and low street connectivity can create challenges for some older adults in suburban neighbourhoods. These are compounded by issues in winter cities, including risk of falls, darkness and increased isolation. The purpose of this study is to explore the experience of those choosing to age in Edmonton's newest suburban neighbourhoods, despite these barriers. Key informant semi-structured interviews (n=12) were conducted at participants suburban residences. Findings show 1) a lifecourse perspective sheds light on why some older adults choose to age at the edge of the city; 2) suburban ideals held by older residents may be related to wider neoliberal processes; and 3) the young-family-oriented suburban environment can result in a precarious sense of place for older adults.

**When Two Worlds Collide: Preparing for Climate-Induced Relocation**

By Brook Meakins, Owner and Principal of The Law Office of Brook Gwendolyn Meakins

Those most vulnerable to the impacts of climate change have already started relocating, and scientists anticipate that this number will sky rocket proportionally as climate-induced impacts intensify over the coming years. As those in low-lying island and coastal communities begin to form diasporas in faraway lands, social, political, and cultural differences must be accounted for in order to protect and preserve the human rights of those that must relocate. Approximately 6,000 Marshallese individuals currently reside in Springdale, Arkansas. That figure represents nearly ten percent of the Marshallese population from their own country. The presence of the Marshallese brings both a tremendous benefit and significant conflict to the community of Springdale, which provides a window in which to explore climate-induced or climate-motivated relocation and all of the difficulties that accompany it. This paper highlights the experience of the Marshallese in Springdale, both from a Marshallese perspective as well as the perspective of the residents and local government of Arkansas. Its methodology explores the current relocation framework from a variety of vantage points, analyzing effectiveness and adaptability. The paper analyzes the experience of this current relocation – from a delicate, severely climate-impacted coral atoll nation of the Marshall Islands to the heavy emitting, American homeland community of Arkansas – as a way of highlighting the need for a humanity-driven, human rights based relocation plan and structure for communities across the globe.

**Lessons on Developing and Organizing International Planning Educational Field Trips**

By John Meligrana, Queen's University

This paper examines the development, organization and implementation of international field trips as part of the educational program for graduate students of urban and regional planning. The unique situation of organization a field trip to China is particularly emphasized in this paper. The paper will review educational theories and literature that examine the pedagogical goals and objectives of international field trips. These ideas are then compared with the author's experience of organizing an intensive two-week field trip to Shanghai, China to examine land use development and environmental planning issues as well as student internships with China's Ministry of Land and Resources. The paper identifies and discusses the factors that contribute to a successful field trip which include: 1) home university institutional support; 2) strength of international partnerships, 3) development of background material and resources, 4) student led experiential learning opportunities, and 5) creation of student deliverables both before, during and immediately after the field trip. The paper also explores the barriers and obstacles to successful international planning educational field trips.

**Revisiting Popular Notions of City and Suburb: The Case of Canada's Three Largest Metropolitan Areas**

By Pablo Mendez, Liam McGuire, Elvin Wyly, University of British Columbia, Markus Moos, University of Waterloo

Over the past three decades, the central cities and swelling suburbs of Toronto, Montreal and Vancouver – Canada's three largest metropolitan areas have absorbed practically half of the nation's population growth. We are interested in the present socio-spatial implications of this rapid but far from homogeneous process of metropolitan expansion. In particular, we ask: what can we learn from examining these three metro-regions' contemporary geographies through the lens of classic markers of difference between city and suburb, including "automobility," middle class status and nuclear family structure, ethnic homogeneity, domesticity, population density, and period of residential development? How do these characteristics challenge or reinforce our conceptualizations of central city and inner and outer suburbs? Through factor analysis of Census data, we develop and map out a suburban typology that helps us understand the diverse character of Canada's urban and suburban social landscapes today. The assumed geographic specificity of processes of gentrification is examined, and the commonly made association between inner/mature and outer/new suburbs is similarly scrutinized.

**The Effects of Drying on Mineralization Potential of Nitrogen and Phosphorus in Subarctic Pond Sediments of Churchill, Manitoba**

By J. Mendoza, M.L. Macrae, University of Waterloo

The effects of climate change are expected to be more severe at high latitudes and may result in ecosystem shifts. Little is known about the fate of subarctic shallow water bodies under a warmer climate, but it has been suggested that they are in danger of drying due to greater evaporation rates caused by warmer temperatures and a longer thaw season. These drying patterns may impact pond biogeochemical cycles. The objective of this research was to examine the potential for drying pond sediments to mineralize nitrogen (N) and phosphorus (P). It was hypothesized that as sediments dry, there would be more mineralization due to exposure to oxygen and breakdown of cell structure of microbes. The mineralized N and P could subsequently be released to ponds following rewetting, affecting pond productivity. In a lab experiment, net nitrogen and phosphorus mineralization (N<sub>min</sub>, P<sub>min</sub>) were measured on sediments collected from two ponds in the Hudson Bay Lowland (near Churchill, MB). Samples were split into five moisture treatments (ranging from dry to saturated) and incubated at 15°C for 27 days. Sediments from both ponds rapidly mineralized N and P early in the incubations. However, this mineralized N and P was immobilized quickly and N<sub>min</sub> and P<sub>min</sub> rates were very low throughout the duration of the incubation. Sediments that were completely inundated exhibited the highest rates of mineralization, while dessicated sediment experienced low rates of mineralization (net immobilization). This experiment suggests that drying sediments are not likely to be a source of nutrients to ponds.

**The Interface of Collaborative Governance and Adaptive Capacity in Rural Water Adaptation to Climate Change, Ghana**

By K. Mensah, J. FitzGibbon, University of Guelph

Growing evidence suggests that collaborative governance with meaningful local participation is vital in building institutional adaptive capacity against climate variability and change. This paper provides an empirical assessment of institutional issues in the collaborative governance of rural water adaptation to climate change in Ghana. The research contributes to the development of participatory frameworks for resolving climate change related complexities and uncertainties in developing countries. Since the 1980s, Ghana has pursued neo-liberalization policies promoting privatization and decentralization with associated water sector reforms. While key decentralization structures are being developed the reforms of the water sector have emphasized collaborative governance and have sought to build the capacity of community water institutions to manage their local facilities. This study used a number of attributes related to scope and function of collaborative governance- origins and scale, stakeholder relationships and local participation, performance and gender, Institutional bricolage and co-existence of knowledge regimes, social learning and, livelihood requirements to assess the role of Ghana's water institutions in facilitating or undermining the capacity of rural communities to adapt to climate change. Our findings indicate that effective governance is essential to adaptive capacity of the institutions in responding to the challenges of climate change. The key characteristics of collaborative governance that contribute to adaptive capacity of institutions are: institutional flexibility, orientation to collective learning and involvement in multi-stakeholder actions and inclusion of cross-scale participation.

**Microsimulating Housing Markets in the Greater Toronto Area**

By Bilal Farooq, École polytechnique fédérale de Lausanne, Franco Chincungo, University of Toronto

This paper presents a general framework for agent-based microsimulation of housing markets within urban regions. Two generic classes of markets are defined within this framework: variable-price markets in which transaction prices are exogenously determined during the auctioning of housing units; and fixed-price markets in which prices are fixed within the short-run market clearing process and demanders of housing are price-takers. This framework has been implemented for both owner-occupied (variable-price) and rental (fixed-price) housing markets for the Greater Toronto-Hamilton Area (GTHA) within the ILUTE (Integrated Land Use, Transportation, Environment) model system. Historical simulation results obtained to date from these models for the time period 1986-2006 are presented.

**Predictors of Satisfaction with Life: Urban-Rural Variation in Halifax, Canada.**

By Hugh Millward, Saint Mary's University

This paper examines how satisfaction with life (SWL) varies in four zones of the urban-rural continuum, in the county-sized municipality of Halifax, Nova Scotia. Data are from the STAR project, which is an innovative GPS-assisted time diary survey. Global SWL varies significantly by urban-rural zones, being highest in the inner city (IC), and lowest in the outer commuter belt (OCB). Self-rated health is a significant bi-variate correlate, as are age, whether married, household size, and household income (all of which vary significantly by U-R zones). Several geographic variables co-vary significantly with SWL, particularly community belonging, unsafe after dark, and commuting time. Regional multi-variate modeling showed physical health, mental health, and community geography to be significant predictors of SWL, while socio-demographic variables had insignificant effects. Separate models for each urban-rural zone showed that SWL is more predictable at the zonal level than for the region as a whole. Physical health is an important predictor in the inner city and suburbs, preference for a different neighborhood is significant only in the suburbs, and travel-related variables are very important in both the inner and outer commuter belts.

**The Militarization of US Immigrant Detention: Islands, Power and Push-back**

By Emily Mitchell-Eaton, Jenna M. Loyd, Syracuse University

The United States immigrant detention system is intertwined with the criminal justice system and with the military. A good deal of scholarly and popular attention has been paid to the role of local counties and sheriffs and private prison firms in brokering with the federal government to provide land, cells, and services in exchange for revenues. Much less attention has been paid to the militarization of migration and the military's role in the criminalization of migration (both historical and contemporary). This paper is about the network of US military bases that have been used as part of refugee and immigration operations since the mid-1970s. It focuses on the interconnection between the military and migration in two regions - Guam and the Pacific, and Louisiana and the Caribbean in order to illustrate the importance of local power relations of military presence. Just as local support and opposition circumscribe the siting and continuing presence of US military bases, local responses also influence the placement of detention facilities and their recurring relocation. Push-back against these facilities often triggers their relocation to more isolated sites, causing them to function, literally and figuratively, as islands. Through these two regions, we explore how the US military has repurposed space to manage migration at times of 'crisis,' and subsequently how the military's 'crisis management' approach has enabled and expanded, or delimited, its use of those spaces.



**Growing Up Alone: Vulnerability Of Orphans to HIV/AIDS in Northern Malawi**

By Paul Mkandawire, Isaac Luginaah, Jamie Baxter, The University of Western Ontario

This paper seeks to contribute to the raging debate as to why orphans may be at heightened risk of HIV/AIDS in heavily-affected regions through the lenses of a well-established, informal and ad hoc labour relation known as ganyu. Based on findings of a qualitative study conducted in the township of Chibavi in Mzuzu City in Malawi the paper argues that although ganyu has deep roots in the country's colonial legacy and a contemporary semblance of an escape from deprivation, this livelihood strategy was generally closely linked with an emergent practice of sexual exchange between those with the means to recruit workers and those who offered themselves to perform the work. However, this study also shows that oversized domestic roles that orphans were generally encumbered with in the context of extremely deprived living conditions propelled them into particularly protracted ganyu engagements outside the confines of homes. While labouring in the neighbourhoods their acute sense of poverty coalesced with the stigma of being an orphan and the shame of doing work for others. These dynamics contributed to orphans unequal incorporation into ganyu relations and in ways that particularly magnified their risk of HIV/AIDS. Drawing on disciplinary perspectives from political ecology of health, this study adds to current understanding of the forces that govern the vulnerability of orphans to HIV/AIDS as configured by place environments, and also grapples with why current policy thinking does not reflect these shifts in a country with one of worst HIV/AIDS epidemics. The paper also makes relevant policy recommendations.

**Assessing Climate Change Vulnerability and Adaptive Capacity of Tourism Destinations: Comparing Indicator and Community-Based Approaches**

By Zainab Moghal, University of Waterloo

Small islands, and their climate-sensitive sectors such as tourism, are particularly vulnerable to the adverse impacts of climate change. Knowledge gaps remain in how to comparatively assess the vulnerability and adaptive capacity of tourism destination communities. My research compares an Indicator and a Community-Based Vulnerability Assessment (CBVA) approach in a site-specific tourism destination in Barbados. The first examines the viability of developing and applying a set of process-based/contextual indicators at the destination and household level by consulting community members, key informants and surrounding neighbourhoods. The second involves carrying out a CBVA with stakeholders whose livelihoods are most connected to the tourism related activities of the destination. By examining the strengths and limitations of each approach and how they might integrate, my results will inform future vulnerability and adaptive capacity assessments and adaptation planning in the region. It will also shed light on the feasibility of a sectoral approach and the scale of its assessment.

**Statistical Downscaling of General Circulation Model Outputs**

By Tanzina Mohsin, University of Toronto at Scarborough

Under the changing climate system, the local and the regional decision makers are increasingly being asked to incorporate information about future climate change scenarios in their planning processes. Demand for realistic assessments of the impacts of climate variability and climate change by the decision makers led to the development of various methodologies to bridge the gap between the accuracy of the General Circulation Models (GCMs) and what is needed for regional to local climate impact studies. The distributions of significant climatological/meteorological variables, such as temperature, precipitation etc., are often influenced by the local effects of topography and other thermal contrasts, and the coarse resolution of GCMs cannot resolve these effects. Statistical downscaling methods are among the most widely used ones, which translate the large-scale GCM information into high resolution distribution of climate variables based on empirically derived relationships. The purpose of this paper is to provide a platform on how the Statistical Downscaling approach can provide the decision makers with some degree of confidence on the projected local changes of climate variables inferred from GCM outputs. Some examples based on local temperature changes in the Greater Toronto Region will be presented in relation to this approach under different climate change scenarios.



**ComPASS Points to Sustainable Transportation Initiative in Kelowna, British Columbia**

By Bernard Momer, G. Lovegrove, E. Morrison, D. Sommar, University of British Columbia

Although the benefits of a sustainable transportation system are well understood, the traditional models aiming to increase public transportation use in medium-size cities have had limited success. Building on the notion that urban sustainability initiatives can begin at the neighbourhood level and that social and cultural factors are strong motivators of behavioural change, our research team undertook a study to evaluate the potential interest and feasibility of establishing a neighbourhood Community unlimited access transportation Pass (ComPASS) in a mature neighbourhood in Kelowna, British Columbia. ComPASS includes more than simply a discounted transit pass; it also promotes walking, cycling and other lower energy transportation modes. The survey designed in consultation with residents, community stakeholders and municipal officials indicates that 73% of the population surveyed support the program and were willing to pay, on average, \$30.50 per household per month for a ComPASS. A price analysis reveals that the actual price of a ComPASS would be in the \$15-20 per month per household. These promising results will lead to the second phase of this project where two groups of 25 families will take part in a pilot project.

**Transnational Migrants' Remittances as a New Form of Development Finance in Crisis**

By Mohammad Moniruzzaman, Wilfrid Laurier University

Migrant remittances are the most direct and measureable benefit of international migration and are a key feature of migrants transnational living. In recent years there has been a renaissance in the interest in remittances as a potential source of development finance in many developing countries. Globally these unrequited transfers are the second largest source of external finance, twice the size of Official Development Assistance (ODA) and almost as large as Foreign Direct Investment (FDI). In many developing countries remittances are the single largest source of development finance, and in some cases are equivalent to almost fifty percent of Gross Domestic Product (GDP). The volume and stability of remittances have transformed these flows into some of the most beneficial private transactions in the global economy. Evidence shows that remittances are predominantly altruistic transfers, providing less volatile and more resilient sources of external financing to developing countries. Moreover, remittances are not merely economic transactions. These private transfers provide social insurance and safety nets which reduces households vulnerability to external shocks. Analyzing the case of Bangladesh, one of a major remittance receiving countries of the world, this paper provides evidence and argues that remittances insulate and shield the receiving countries from the excesses of the global financial crisis and offer an example of migrants transnational engagement with development.

**Volume Loss of the Saskatchewan Glacier: Glacier-Temperature Dynamics Observed Through Raster Analysis**

By: B.J. Mood, J., Borneman, G. Bousada, G. Kershaw, C.P. Laroque, Mount Allison University

The recession of alpine glaciers in western Canada has proceeded unabated since the end of the Little Ice Age in the 1860s. The following paper attempts to map the recession of one of the largest alpine glaciers in the Columbia Icefield; the Saskatchewan Glacier, located near the northern border of Banff National Parks in Alberta, Canada. Using a differential global positioning system, a clinometer, and georeferencing, the proglacial valley profile, terminus, and northern trimline were mapped, creating a three-dimensional model of the glacier at its last glacial maximum. To recreate the previous extents, splining techniques were used for the observed years and a Triangulated Irregular Network (TIN) for the September 2010 position of the proglacial valley. Also, by mapping the xz and yz profile of the existing glacier, volume changes over the last 150-years was calculated at  $7.012 \pm 0.6963 \text{ km}^3$ . Annual volume loss analysis from previous glacial maximums indicates an increasing rate of annual melt water discharge. The relationship of volume loss and annual temperature data indicates a 19-year time lag ( $r(93) = 0.3325$ ,  $p < 0.01$ ) and 20-year time lag ( $r(92) = 0.3636$ ,  $p < 0.01$ ). The magnitude of volume loss per year was found to be 3.78 times greater from 1980-2010 compared to 1865-1945 melt water discharge. These results, in association with future increased air temperature, indicate that a rising annual volume loss from the Saskatchewan Glacier is to be expected.

**On the Road to a Geoliteracy Strategy for Canada: Capacity Building in the Canadian Council for Geographic Education (CCGE)**

By Lynn Moorman, Mount Royal University, Canadian Council for Geographic Education

As a member of the National Geographic Society's Geography Alliance program, the Canadian Council for Geographic Education (CCGE) shares the mandate of fostering a geographically literate (geo-literate) society. As straightforward as that might seem, there are many challenges facing a national organization that primarily serves K-12 teachers who work with disparate curricula and thirteen different Ministries of Education. Geoliteracy in itself poses its own challenges, such as creating a standard definition that captures the range of geographic thinking and expression, beyond the stereotype of recall knowledge (i.e. remembering the capitals of countries), and developing assessments that reach deep knowledge and extend across the breadth of geographic thinking. In conjunction with National Geographic's 2025 geo-literacy campaign, the CCGE has embarked on a capacity building process to optimize its support for geography education across the country, and to situate itself as a national leader and proponent for geoliteracy. While National Geographic has a mandate of achieving 80% literacy amongst 18 year-olds by 2025, the CCGE is considering what measures of success would look like in our own Canadian context. Learning from other movements which have successfully increased critical thinking in their disciplines is informing the strategic planning of the Council. It is also crucial that the voices of geography and education faculty across the country are included, and efforts towards improving and studying geoliteracy from any level of education are collaborative to meet our shared goal of geoliterate students and citizenry.

**Atlas of Suburbanisms Website Launch: <http://env-blogs.uwaterloo.ca/atlas/>**

By Markus Moos, University of Waterloo

It is well known that Canada is an urban nation. Most people now live in cities. But most growth is occurring in the suburbs of large metropolitan areas and in nearby towns and cities. The objective of the Atlas of Suburbanisms is to make publicly available research and data analysis of Canada's changing cities with an explicit focus on suburbanization. The Atlas is an output from the Global Suburbanisms research project: A SSHRC funded Major Collaborative Research Initiative, housed at the City Institute at York University. The Atlas will serve as a portal to create dialogue and share data analysis of suburbanization in Canada. The Atlas will also be a repository of socio-spatial analysis that provides an empirical account of the diversity of Canadian suburbanisms using Statistics Canada census data. The project includes quantitative and conceptual research on processes shaping the changing built form, land uses and demography of Canadian suburbs at multiple scales. The Atlas will be of interest to researchers, policy-makers, educators and the general public.

**Digital Storytelling as a Research Tool to Engage with Huu-ay-aht Youth: Envisioning a Post-Treaty Era**

By Vanessa Sloan Morgan, Heather Castleden, Dalhousie University

Research conducted on Indigenous populations has, often unknowingly, perpetuated a colonial agenda. De-contextualizing and ethnocentrically analyzing participants data contributes to this by misinterpreting and misappropriating distinctive cultural knowledge(s). Emerging audio-visual research techniques, however, are increasingly used to maintain the integrity of Indigenous perspectives. Research with Indigenous people can work towards dismantling the colonial tendency of silencing cultural distinctions. Decolonizing the research process and producing knowledge that is of value to the academy and the community can be a means of empowerment. In 2011, five Nuu-chah-nulth First Nations, including Huu-ay-aht First Nations, the British Columbian and the federal government implemented the Maa-nulth Treaty. This modern treaty reinstated a level of self-determination for the signatory First Nations. In preparation, Huu-ay-aht Council wished to understand their youths visions for the future of their Nation. Working within a community-based research partnership, this project sought to: 1) investigate the effectiveness of digital storytelling as a research method used with a group of Huu-ay-aht youth; and 2) identify and document how these youth envisioned their community post-Treaty. Findings suggest that digital storytelling is an effective methodological tool and, keeping with Huu-ay-aht oral traditions, embodies the very concepts of cultural adaptation expressed in the youth's visionary stories.

**Visualizing the Structures and Governance of Alternative Food Networks in Ontario**

By Phil Mount, University of Guelph, Peter Andree, Carleton University

This paper explores the strengths and limitations of using VUE (Visual Understanding Environment) software (<http://vue.tufts.edu/>) to illustrate the organizational structures of alternative food initiatives (many of which could be considered new food hubs) in Ontario. As part of a larger research project focused on understanding these initiatives, funded by the Ontario Ministry of Agriculture, Food and Rural Affairs, the authors developed concept maps that illustrate inputs, activities and assets, as well as different types of resources (public, private, citizen, etc.). This presentation focuses on the benefits of choosing to share research results with the use of a visual tool like VUE, as well as challenges associated with concept mapping, such as the difficulties of balancing nuance and uniformity, complexity and simplicity, while visually representing networks that often blurred the lines between governmental, public, non-profit, cooperative, multi-stakeholder and private. We address lessons we learned in this process.

**The Island Detention Project**

By Alison Mountz, Wilfrid Laurier University and Balsillie School

This paper provides an overview of the methods and findings of a five-year research project that examines the role of islands in transnational migrations. Islands are sites where migrants, authorities, advocates, and activists negotiate and navigate entry to and exclusion from sovereign territory, access to asylum, and uses of detention. The islands under study constitute an enforcement archipelago and raise the issue of onshore/offshore dynamics operating through contemporary exercises in sovereign power. The paper will outline patterns across field sites, as well as important distinctions among sites, such as colonial histories, political status, jurisdiction, and political economy.

**Learning, Faith, and Sustainability: Considering the Work of Faith-Based Organizations in Kenya**

By Joanne M. Moyer, University of Manitoba

Sustainability, global society's response to the interconnected reality of widespread poverty and environmental degradation, is essentially a learning process. To move more effectively toward this goal, a deeper understanding of learning is necessary. Non-governmental organizations (NGOs) have become a vital force within the sustainability project in recent decades, and as such, form the context for much of this learning. This research investigated learning within faith-based organizations (FBOs), a prominent, though often ignored, segment of the NGO family. Using the framework of Mezirow's transformative learning theory, the research examined learning among individuals within FBOs doing environmental and development work in Kenya, East Africa. Research findings focus on the cultural and social context of the learning, learning content and process, and the relationship between individual learning and social action and change. The research highlights, for instance, the importance of instrumental learning and related learning processes, an undervalued component of the theory. Learning by doing, through practical application and experimentation is not included as a primary learning mechanism in transformative learning theory, but is highly relevant in the Kenyan context, and may even play a significant role in facilitating transformation of higher level meaning structures. For example, learning the skills required to band birds helped staff and volunteers at a Christian conservation organization to increase their broader awareness, appreciation and commitment to environmental issues, while staff at a rural development organization were personally empowered while learning and teaching practical health, agriculture and appropriate technology skills in communities. Personal and social actions were understood by the participants as important expressions of their learning, both as a means of deepening their learning, and as an extension of their learning to others in their communities. The study concludes by considering the implications of these learning insights for the sustainability project.

**Immersive Panoramic Photography as a Tool for Geographic Investigation**

By Shawn Mueller, Mount Royal University

Panoramic photography has been with us for arguably 100 years or more. There can be little doubt that such images do in fact function in a number of popular ways to increase interest in geography and environmental concerns. Less well known is the implementation and usefulness of panoramic imagery as research tool in geographic analysis. More obscure still is the history of the panoramic image as an object of representation in the cartographic sense. Panoramic images make compelling virtual semi-immersive representations, and as such fall within the domain of hypermedia cartography. This is particularly evident when these images are presented as part of an integrated hypermedia display, replete with interactive hyperlinked annotations and documentation. The advent of new technologies such as Google Maps Streetview have made annotated hypermedia panoramic images part of our popular lexicon, even if it is underutilized by researchers. The future of this imagery is dynamic, not only in prospect but in form. Panoramic hypervideo is another development of this imagery that takes advantage of ever faster and more capable technology to produce representations that allow the viewer to rove in the scene. Independent of the constraints of fixed camera views, the viewer is free to investigate scenes of choice and such links and documentation as the authors see fit to place within their ken. It is possible, even appropriate now to speak of immersive panoramic hypervideo as an emerging analytical technique in geographic visualization.

**Promoting Successful Integration Among Newcomers: Examining the Role of Settlement Service Providers in the Provision of Socially Inclusive Programming in the Region of Peel**

By Maria Mukhtar, Kathi Wilson, University of Toronto Mississauga, Dana Wilson, Peel Children and Youth Initiative Mississauga

According to the 2006 Census, immigrants comprise almost 50 percent of the total population in the Region of Peel, Ontario. Additionally, over 20 percent of the Region's foreign-born population are recent immigrants (i.e., immigrated in the last 5 years). Upon arrival in cities, immigrants require access to a range of culturally appropriate services (e.g., health care, employment, etc.). A lack of access to such services may hinder the social integration of immigrants. Settlement Service Providers (SSPs) aim to meet the needs of newcomers with the goal of fostering their successful integration into Canadian society. The purpose of this research is to examine the perceived challenges and opportunities SSPs face in delivering socially inclusive programming to the newcomer adult and youth population living in the Peel Region. This research draws upon the results of 21 in-depth interviews conducted with executive directors (n=8) and frontline workers (n=14) within settlement service agencies throughout the municipalities of the Peel Region - Brampton, Mississauga and Caledon. The exploratory results reveal that SSPs encounter system and individual barriers to program delivery including those related to geography, financial issues and cultural sensitivity. The implications of these findings will be discussed in relation to social inclusion.

**Is Dengue a Disease of Poverty?**

By Kate Mulligan, C.J. Sinn, S.J. Elliott, University of Waterloo

Poverty has long been considered a key determinant of the world's most rapidly advancing vector-borne disease – dengue fever. In the past decade dengue has been listed by the World Health Organization as one of the world's top "Neglected Tropical Diseases," and social policy prescriptions for combating dengue tend to focus on alleviating conditions of poverty at the population level. However, the breadth and depth of the research evidence for connections between conditions of poverty and rates of dengue has not been well established. We conducted a systematic review of the research literature into the relationship between dengue fever and a variety of poverty indicators. Of 260 articles referencing dengue-poverty relationships, only 12 English-language studies empirically assessed these relationships. Within this small sample, our analysis of separate poverty indicators covering various social and economic conditions of poverty showed no clear associations with dengue rates. In this presentation we will report on the systematic review, assess the current state of dengue-poverty research, and discuss potential implications of research gaps for future research, policy and public health initiatives.

### **Navigating a Sea of Uncertainty: Obstacles and Opportunities for Partnering with Aboriginal Peoples in the Protection of Canada's Oceans**

By Monica E. Mulrennan, Concordia University

Significant portions of Canada's extensive coastline fall within the traditional territories of Aboriginal peoples; some as areas of unextinguished Aboriginal title, others as areas included within Aboriginal treaties and land claim settlements. In many such areas, Aboriginal communities maintain strong traditions of stewardship over the marine environment, and engage in subsistence harvesting activities that are recognised and affirmed under the Canadian Constitution. Addressing Canada's poor record in the protection of its oceans requires a fundamental shift in oceans governance in support of effective partnering with Aboriginal peoples. Central to this is the establishment of protected area regimes that recognise Aboriginal rights and title, build on Aboriginal institutions of tenure, knowledge and practice, and bring tangible benefits to Aboriginal communities in terms of low impact economic development opportunities, cultural heritage and environmental protection, and enhanced local authority in environmental management. This paper examines the obstacles and opportunities to advancing such partnerships. This includes an account of the uncertainties of applying the concept of Aboriginal title outside the dry land context, as well as an overview of provisions for parks and protected areas negotiated through Comprehensive Land Claims processes. International frameworks for, and experience with, indigenous partnerships in oceans governance will also be discussed in terms of their potential relevance to the Canadian context.

### **Sea Space, Home Place: Connections of Indigenous Torres Strait Islander Women to Sea**

By Monica E. Mulrennan, Concordia University

Despite an extensive literature documenting the traditional knowledge and practices of indigenous fishing societies, the focus has almost invariably been on the contribution of men, while the activities of women have tended to be overlooked or narrowly described. Serious fishing, according to reports by Cambridge Expedition leader Alfred Haddon (1912), was generally the business of Torres Strait Islander men, while Islander women were limited to simple collecting on the fringing reef of the home island. Historic accounts such as these are easily countered by later acknowledgements that women's fishing, particularly shellfish gathering, offers a more reliable source of protein than marine hunting (dugong and sea turtle) which is highly dependent on weather, and a combination of skill and chance. Indigenous women are also known to avail of a wider range of technology allowing them to exploit a greater range of resources, and are increasingly acknowledged as rich, though largely untapped, sources of ecological knowledge on the nearshore environment. This paper, based on two decades of research engagement with the women of Erub in eastern Torres Strait (northern Australia) provides some insights to the nature and extent of their fishing practices and associated knowledge. Particular attention is given the deeply felt personal attachments these women have to the sea in relation to how the sea connects and separates them from their islands of origin and how the temporal rhythms of the sea define and shape their daily lives and routines. In doing so my hope is to acknowledge and pay tribute to what Erubam women do and know in relation to sea by framing their experiences in relation to the profound connections that make sea space a home place for these women.

### **Reclaiming Aboriginal Knowledge and Remembering Colonial Histories through Reinterpreting Ethnographic Film**

By T. McCreary, York University, Ann Marie Murnaghan, University of Manitoba

In this paper, we describe a process of developing community-based curriculum resources to Indigenize local public school curriculum. Harlan Ingersoll Smith, an archaeologist at the National Museum of Canada and pioneer in documentary film and museum education in Canada, created a number of ethnographic documentaries for children in the 1920s. These films contain some of the earliest motion picture recordings of British Columbia and Alberta First Nations communities and are an important resource for First Nations history and cultural revitalization. Working in partnership with the local First Nations governments, public school boards, and traditional knowledge holders, we facilitated a process of community reinterpretation of these ethnographic films. Interviews with elders were edited together with original film footage to construct new video curricular resources around First Nations culture and history to use in the schools. These resources were then revised in consultation with interview participants and First Nations community leaders, and integrated into units focused on local First Nations education.

**Spaces of Nature, Places for Children: The Playground Movement at the Turn of the Twentieth Century in Toronto, Canada**

By Ann Marie Murnaghan, University of Manitoba

This paper examines how the Playground Movement in Toronto, Canada at the turn of the twentieth century created supervised playgrounds based on durable constructions about the naturalness of children in nature and the unnaturalness of the urban environment. Discourse and critical visual analyses are used to interrogate newspapers, city archives, photographs, propaganda, and texts about the Playground Movement from 1889 until 1926. Inspired by Michel Foucault's genealogy, the discussion begins with the discourses of the Play Movement in the United States and shows how the knowledge was imported into the Toronto context. The second part of the discussion addresses how these discourses, and the experts that created them, formed a regime of truth around the playground, exemplified in its equipment and activities. I pay particular attention to the ways that the social object of play is created and spatialized in the city at different scales, and the future repercussions of these emplacements.

**Knowledge Mobilisation and Community Resilience: Closing the Loop in Interdisciplinary Climate Change Research**

By Brenda L. Murphy, Wilfrid Laurier University, Brantford Campus

Interdisciplinary research approaches are often touted as important methodologies, particularly at the local or community level, to more fully understand the impact of climate change and develop opportunities to enhance resilience. Part of fully engaging in interdisciplinary approaches requires actively involving communities (both place-based and interest-based) throughout the research process from project design through to the mobilisation of research results. In addition, increasing attention to the need for effective knowledge mobilisation (KMB) is being required by funding agencies such as SSHRC and OMAFRA. Effective KMB is said to facilitate and enable the benefits and impacts of research to reach scholarly audiences and other interested stakeholders. Stakeholding communities occur simultaneously across multiple time-space scales and include municipalities, special interest groups and non-government organizations, private companies and industry associations, and government agencies. KMB involves knowledge dissemination, brokering, transfer and exchange and the co-production of knowledge. Key features are the frequent and on-going nature of the knowledge exchange and the designing of KMB for specific target audiences. In the case of climate change, the goal of KMB is to increase the capacities of communities to better understand how they are being affected and to pro-actively envision and implement plans that can cope with both minor perturbations and major transformations; in other words, to achieve long-term resilience and sustainability. Using insights from over a decade of work addressing risk-related problems in Canadian communities, this presentation will outline the principles of KMB and provide several examples of innovative KMB including toolkits and school curriculums.

### The Highway Influences of Between of Tabriz and Orumie

By Mohammad Hosein Nadersefat, University of Iran

The name of God The highway influences of between of Tabriz and Orumie Cities in this lack ecosystem. The Orumie tectonic lack is located in the north western Iran and between of east and west Azerbaijan states and extended more than 5000 scours meters in trend of north to south. This lack is extended large but very less depth in the world. The water of lack is very saturated by salt. The view point of variety of sediments, Geomorphology characters, compound chemistry, saline waters and another specialty is compared with another lacks. The view point of topography, the lack are surrounded all sides by mountains that extended in deferent directs and elevation. The all networks, drainage waters and rivers from every side entered to lack. The thickness sediments are 35 by 40 meters and located on the lover Cretaceou s basement rocks (Aptien) and Miocene Limestone (Miocene formation). Thus present tense the stage and formation time Orumie lack limit 30 by 40 thousand years, but to studies of around this lack, terraces are estimated those are limit 400 or 500 thousand years stage.

Also show that studies in about of lack sediment logy and that sides, the climate in the Holocene period were is arid. The Orumie lack, very sediments formed from chemical elements and very saturated from salt. Also are destructive sediments that related to fresh waters those are formed in effect of climatic changing in the glacier periods. The important sediments of this lack are more Aragonite (Fecal pills) those are bio chemistry sediments that is formed from association and accumulation of sediments on around of Artemia Salina. The pure Gypsum are formed in intern of muds. This lack is located in a situation in the Azerbaijan that its distance from the seas and waters is very far. Thus this lack effect in around of its environment is very important. In the round of lack are located cities and villages. Thus it climatically an influence is very more. Also a numerous of immigration and local birds and animals are lives in the islands of lack and are dependent this ecosystem. In addition a numbers of insects (Artemia) are lives in the lack. Thus destruction it is greatest injury for this region ecosystem.

Presenter: Muhammad Jamal Nasir

Session/Séance: **W4-D**

### Human Perception and Response to Climate Change: A Case Study of Balambat Tehsil, District Dir Lower, KPK, Pakistan

By Muhammad Jamal Nasir, Said Alam, University of Peshawar

Climate change and its impact are becoming increasingly evident in Pakistan, especially in the mountainous regions. Mountain ecosystems are sensitive indicators of global warming; even slight variations in temperature and precipitation can lead to significant change in the local climate, which can in turn drastically affect the natural environment and subsequently the local people's lives and livelihoods. Pakistan being agro-based economy is particularly susceptible to the effects of climate change. The climate change research in Pakistan is mainly focused on physical indicators i.e. precipitation, temperature water resources, glaciers etc. and Biological indicators including agriculture and natural ecosystem. Very little work is done on community perception to global warming and climate change. Considering the effect of climate change on mountain ecosystems, a case study was carried out in Balambat Tehsil, District Dir Lower to study human perception and Response to Climate Change. To achieve the objectives a survey of fifteen villages out of total 173 villages of Balambat Tehsil was conducted. The key parameters addressed during survey were include agriculture and cropping pattern, sowing, harvesting, yield and flowering time, pests / diseases, livestock, biodiversity (animals, birds) and natural environment, fuel wood use and diseases etc. The study clearly reveals that respondents are well aware of climate change, and that they perceive the climate of Balambat has changed in the past 20 years, and that this change has affected the agriculture and cropping pattern (cropping calendar, crop variety, crop yield, crop diseases), as well as an earlier blossoming of fruit trees). In addition the respondents felt that changing weather conditions also affect the natural environment and life style of local population in the form of depletion of resources, such as Forest cover, and medicinal plants. Many species of birds (e.g. wild duck, mulberry sparrow) and animals (e.g. wolf, wild dogs ) are not being sighted anymore.

Presenter: Prateep Kumar Nayak

Session/Séance: **TH2-H**

### Environmental Change and Rural-Urban Migration: Implications for Human-Environment Connections in Marginalised Coastal Communities of India

By Prateep Kumar Nayak, University of Manitoba

Environmental change is a pervasive force in a globalized world and it often has serious implications for environment and development. This paper investigates linkages between environmental change and migration, and makes an assessment of how it impacts human-environment connections. Using Chilika, a large lagoon on the Bay of Bengal in Odisha State, India, as a case, I examine environmental change as a key driver for rural-urban migration, accelerating the processes of human-environment



disconnections. I use human-environment disconnection to refer to physical, psychological, economic and political separation of people from their environment that may result from loss of access and tenure rights, loss of livelihoods, out-migration, and loss of environmental knowledge and sense of stewardship. Using evidence collected over 28 months through household and village-level surveys, combined with various qualitative and participatory research methods, the paper shows that there are two major drivers of change in Chilika: (1) the role of aquaculture development in the loss of resource access rights and the decline of local institutions, and (2) the ecological displacement and livelihood loss brought about by the opening of a new sea mouth connecting Chilika Lagoon and the Bay of Bengal. Out-migration has emerged as a key livelihood strategy resulting in occupational displacement for one-third of the adult fishers, and such livelihood strategies have led to their disconnection with the lagoon environment. I conclude with some discussion on emerging trends and future scenarios regarding human-environment connections in Chilika.

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Presenter: Gordon Nelson

Session/Séance: **Lunch TH**

### **Is There a Need to Revitalize Regional Studies and Planning in Geography?**

By Gordon Nelson, University of Waterloo

An informal discussion to generate ideas and possibly recommendations for future action. Initial short presentations will be made by attendees. Key questions are whether more regional studies are needed, why, what approaches should be made and with what anticipated results in terms of academic, professional and civic understanding and planning. Ideas on ways to promote regional studies are invited from those convinced of a need.

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Presenter: Sanjay Nepal

Session/Séance: **T4-J**

### **Linking Conservation, Livelihood and Tourism: Comparative Perspectives from India and Nepal**

By Sanjay Nepal, University of Waterloo, K. Karanth, Centre for Wildlife Studies

This paper provides a comparative examination of Indian and Nepali households dependency on protected areas (PAs), views of protected area objectives, problems caused due to wildlife conservation, and role of tourism in off-setting costs associated with wildlife conservation. The analysis is based on a household survey of 780 residents living around five protected areas in India (Kanha, Nagarhole and Ranthambore national parks) and Nepal (Chitwan National Park and Annapurna Conservation Area). The majority of residents were heavily dependent on PA resources including dead trees and wood, non-timber forest products, plants and herbs, game meat, fish, water and land for livestock grazing. The majority felt that the park was established mostly to protect wildlife, stop poaching, and promote tourism development. But responses varied widely across the five PAs. Costs associated with wildlife conservation included damage due to wild animals, confrontation with park officials, restrictions on access to resources and loss of economic opportunities. Again, there was a wide variation on how households perceived these costs. The results indicated mixed responses toward tourism, varying from very favorable in Nepal to less favorable in India. Households overall positive attitudes towards the PAs and conservation despite high losses from living around PAs suggests local residents may support conservation if their livelihood needs are met. Extending PA benefits to smaller landholders, households that are highly resource-dependent or experiencing higher income losses from human-wildlife conflicts, and less

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Presenter: Peter Quincy Ng

Session/Séance: **F2-F**

### **Quantifying Tree Species Diversity Potentials of Forests in Southern Ontario under Climate Change**

By Peter Quincy Ng, William A. Gough, Adam Fenech, University of Toronto

This study will examine the relationship between climatic variables (namely temperature and precipitation) and its effects on both forest tree species and families from past, current and future forest cover. Use of global climate models will be used to predict future climate change, and this data will be used to compare historical data against current biological potential of forests in Southern Ontario. Using the climate envelope approach, which assumes a given vegetation type under a specific temperature and precipitation, the hope is to determine potential vegetative cover under future climate change. This research will provide a useful tool as an adaptive management tool which will benefit conservation managers in planning for future changes in climate.

**Landownership, Citizenship And the Sukumbasi: Performance of the Right to The City**

By Sabin Ninglekhu, University of Toronto

This paper focuses on the practices of self-management led by squatter communities (sukumbasi) in the city. More specifically, it looks at how such everyday practices around access to basic services relate to the central demand of landownership rights performed largely through/in street protests, sit-ins, exhibitions and meetings. For this purpose, I critically document three grassroots practices of livelihood strategies through which sukumbasi communities form a network of solidarity across three different kinds of organizing: (1) Informal education and awareness program led by 'Child Development Youth Network' (CDYN), (2) women's savings and credit group led by three co-operatives that are run by sukumbasi women, and (3) access to basic services led by neighborhood associations. The youth network provides free tuition classes and awareness programs for helping children with primary education and for leadership building with an aim to produce future leaders for SPOSH-Nepal (Society for Preservation of Shelter and Homes-Nepal, federal level organizations), a federal level organization led by the sukumbasi community that demands for land-ownership. Cooperatives have allowed women to take on entrepreneurial identities, while also enabling them to provide financial power necessary to organize politics such as protest, workshops, rallies and seminars led by SPOSH-Nepal. The basic services programs of water, electricity and sanitation are important not only for material necessity of living in a more functional place, but also symbolically to step out of the stereotypes of 'dirty' and 'filthy' and take on new kinds of subjectivities of 'able' residents and 'good' citizens. The livelihood practices collectively narrate a story of creative entrepreneurship, innovative governance, and insurgent citizenship. And together they provide material conditions and political capital necessary to add legitimacy and power to the institutional voice of SPOSH-Nepal. Owning land enables them to obtain formal citizenship status (or vice versa), which, as they claim, would provide a fundamental foundation for participation in liberal and economic freedoms, rights to municipal citizenship, secure employment, a more dignified to basic services, and cultural recognition and respect. In this paper, I carefully document the network of solidarity that they form across these three different yet inter-related practices, intertwined intricately with official spheres of city governance. Critically examining such practices of solidarity and drawing its links not only to the performance of the right to the city, but also with the broader political economic conjuncture that the city is at lays bare some contentious ways through which urban inhabitants at the margins of formal power and governance are actively engaged in building the city.

**Strategic Environmental Assessment for Arctic Energy Resource Planning and Development: Opportunities and Risks**

By Bram Noble, University of Saskatchewan

Canada's Arctic environment is rich in hydrocarbon resources, and there is a renewed interest in Arctic energy development. Between 2008 and 2012, for example, Imperial Oil, BP, and Chevron have all purchased offshore areas in the Canadian Beaufort Sea. As international attention turns to the Arctic to meet global energy demands, there is increased recognition of the need to advance upstream impact assessment and decision-making to plan for energy development prior to ramping-up individual energy projects. There have been several applications of strategic environmental assessment (SEA) over the past decade in both Atlantic Canada and the international offshore energy sector; however, SEA remains uncharted territory in Canada's Arctic. The perceived benefits and risks of SEA are largely unknown. This paper examines stakeholder perceptions of the opportunities and risks of advancing SEA for offshore energy planning and development decision making in Canada's Beaufort Sea. Results indicate a number of perceived opportunities for SEA, including improved regulatory efficiency, better regional baselines and planning practices, an opportunity to assess cumulative effects, more meaningful project-based assessment, and greater certainty for industry stakeholders. At the same time there are a number of perceived risks, including foregoing anticipated development opportunities, the loss of flexibility in decision making, adding another layer of bureaucracy, and the added uncertainties of a novel approach. The implications of these findings for advancing SEA in Canada's Arctic are discussed.

**The Status of Wild/Feral Horses in Protected Areas - A Cross-Cultural Perspective**

By Claudia Notzke, University of Lethbridge

Free-ranging wild/feral horse populations are found worldwide in a variety of habitats. The animals have varied ecological impacts and socio-cultural significance which are reflected in profoundly different management approaches. Management decision-making (or lack thereof) is influenced by a tangled web of factors originating in geography, cultural mythology, economics, politics, and the life sciences. Wild horses are ecological agents in their various habitats; they are economic factors, cultural icons and political pawns. Contentious issues range from the question of what constitutes a natural ecosystem to issues of cultural relativity in different understandings of wild horses as resources in a utilitarian, symbolic or cultural-historical sense. These issues are amplified within the context of protected areas. Protected areas, for all their emphasis of wildness and dominance of nature are partly social creations and a nexus of different cultures. The wild horse as a cultural construct and ecological agent is a unique and fitting crucible to elucidate the social construction of protected areas and conservation management decision-making (and by implication the interface between culture and nature) in different cultures and different political frameworks. Pertinent issues are explored -utilizing qualitative methods- in Canadian protected areas of Aboriginal and Euro-Canadian designation, in an American National Park (Theodore Roosevelt National Park) and in Namibia's Namib Naukluft Park.

**Health Effects of Combined Exposure to Noise and Air Pollution from Traffic: An Ecological Study in Windsor, Ontario**By Tor H. Oiamo<sup>1</sup>, Isaac N. Luginah<sup>1</sup>, Xiaohong Xu<sup>2</sup>, Colin Novak<sup>2</sup>, Joy Parr<sup>1</sup>

1. The University of Western Ontario, 2. Western University

Health effects of air pollution and noise from road traffic have been demonstrated in a number of studies separately, but less is known about their potentially compounding effects. Both types of exposure can change cardiovascular parameters through stress response mechanisms. Emerging research suggests that the combined effects of air and noise pollution from traffic on health are moderated by environmental sensitivities, which can be represented as the perceived impact of noise and odour annoyances on everyday life.

This study combines traffic noise, air pollution and survey data from an area with high levels of traffic associated with the Ambassador Bridge border crossing in Windsor, Ontario. A telephone survey was administered to a stratified random sample (n=444) of residents living in the vicinity of the traffic corridor. Dispersion models based on traffic volume along this corridor were used to estimate residential exposure levels to several pollutants, including nitrogen oxides and particulate matter. Sound pressure levels (8 and 24 hour equivalents) at residential locations were estimated from environmental monitoring and modeling. The paper will discuss the association between environmental sensitivity, risk perception and levels of annoyance to noise and odour from traffic in relation to estimated levels of noise and air pollution. The findings will inform a larger study on community health and sustainable development in environments of mobility.

**Faded Signs, Broken Dreams: The Life Cycle of Tourism Signs in Rural Communities**

By Daniel Howard Olsen, Doug Ramsey, Brandon University

Tourism signs in rural areas play a very important role in attracting visitors by to visit rural towns and destinations. In many cases, these signs are the only indicators to travelers that these rural communities exist and offer important tourism amenities. However, poorly constructed, weathered or deteriorating tourism signs can create a negative image of rural communities in the minds of travelers when deciding whether or not to stop at and visit a rural community. The purpose of this paper is to discuss the life cycle of tourism signs in rural communities. Using a case study of the Westman Region of Manitoba, the focus will be on evaluating tourism signs located along major highways in Westman and discussing the possible impacts many of the neglected tourism signs might have on rural tourism development in the region.

**Immigrants in Toronto's Inner Suburban High Rise Apartments: Further Analysis of the United Way of Toronto's Vertical Poverty Data**

By Johnathan Osborne, Michael Buzzelli, Western University

Private rental housing is an under-researched but important segment of the housing market. Building on United Way of Toronto's (2011) Vertical Poverty research, this paper presents a further analysis of the data collected from the original investigation with a focus on immigrant integration, residential satisfaction and social networking. The descriptive analysis draws from 2,176 face-to-face interviews that were collected for Vertical Poverty's original sample of private rental market tenants living in Toronto's inner suburban high-rise apartment buildings. Results focus on immigrant housing circumstances by length of time in Canada and categorizes participants into very recent immigrants (< 5 years in Canada), recent (5-10 years), longer term (10+ years), and the Canadian-born. Findings are presented according to socio-demographic profiles of the sample, spatial concentrations, mobility, satisfaction with housing, and social networks. Like the original research, this study confirms and reinforces the importance of older suburban rental housing in Toronto's overall housing mix. Accordingly, this paper recommends that policy for this segment of the housing market include protection of the stock, a greater appreciation for the role of rental tenure, multi-level integration of immigration and housing policy, and improvements to the social environment of high-rise buildings and neighbourhoods where they are located.

**The Comparative Urbanism of Gated Communities: A Global Discourse on Urban Fragmentation**

By Rebecca Osolen, University of Toronto

The extensive scholarship on gated communities in diverse contexts around the world is contributing to a global discourse on what may be considered a highly divisive urban form. Following recent work to develop a postcolonial approach to comparative urbanism, this paper reviews the literature on gated communities and assesses how scholarship contributes to transcending epistemological divisions between cities in rich and poor countries. It is argued that the gated communities literature may be considered comparative urbanism, because gated communities are being built in cities around the world, and because case studies of very different urban contexts contribute to the international theoretical discourse. The gated communities literature is uncovering commonalities and variations in the features of this urban form and in what it means for residents. Both local and global influences can affect the development of gated communities in a particular city. An emerging focus in the literature is on the processes that give rise to a similar urban form in different contexts, such as how the development of gated communities is influenced by notions of global culture, and by the relational geographies of networks and flows that cities exist within and bring together.

**Conceptualizing the Water-energy Nexus: What is the State of the Literature in Canada?**

By Raul Pacheco-Vega and Hisham Zerriffi, University of British Columbia

There appears to be worldwide consensus recognition of water and energy as the top two priorities in addressing global environmental change. Cumulative empirical evidence has demonstrated the existence of inextricable linkages between water and energy and the need for potential policy interventions to address simultaneous scarcity/vulnerability problems. Earlier work on water and energy has linked water consumption and energy production (e.g. global dams), as well as energy consumption in water supply (e.g. long-range pipelines, drilling wells and purification treatment processes). This body of literature explores research questions around the water-energy nexus's. Only until recently have researchers begun to focusing on a simultaneous analysis of use/consumption of water and energy. Focusing solely on the energy policy side of water resources consumption neglects the policy issues and political dilemmas associated with groundwater depletion. Conceptualizations of the water-energy nexus's are thus so far limited by a focus on cross-resource consumption and depletion (e.g. energy used in water supply and/or water used in energy production). What seems to be missing is an overall assessment of where we are in the debates around the water-energy nexus, at least in the Canadian literature. Preliminary work (Zerriffi and Pacheco-Vega, 2011, forthcoming) has explored the water-energy nexus from an integrated water and energy poverty perspective. In this paper we broaden the scope of our analysis and map out the miscellaneous conceptualizations of the water-energy nexus in Canadian scholarly works. We explore the available body of works and map where the gaps are.

**Geographies of Urban Waste Production in Latin America: Scale, Space and Policy Compared Through the Cases of Mexico, Brazil and Argentina**

By Raul Pacheco-Vega, The University of British Columbia

Scholarship around solid waste management in the natural sciences and engineering has focused mainly on design, transport and treatment of solid waste. In the social sciences, much emphasis has been placed on the quantitative dimensions of municipal refuse production, with lesser focus on the social and spatial dimensions of waste management. Traditional wisdom on the design of policy interventions aimed at reducing garbage generation often omits the social, distributional and human aspects of garbage management. Understanding the geographies of urban waste production (Davies 2008) with a specific focus on Latin America enables us to examine how scale, space, policy intervene to create social conditions that are either propitious or detrimental to a human-led revaluation of waste. This presentation will showcase preliminary results of a cross-national comparative study aimed at understanding the social, anthropological and geographical dimensions of waste picking in 3 Latin American countries: Brazil, Mexico and Argentina. Using a comparative case study approach (Whitson 2011, Gutberlet 2008), a broad review of the literature, and a newly proposed framework to analyze the politics of garbage (Pacheco-Vega 2011), I demonstrate that Latin America offers a great laboratory to analyze the contextual determinants of the viability of solid waste reduction strategies. As each case study will show, these contextual determinants include scale, space, policy and social dimensions.

**Shifting Paradigms in Water Governance: Questioning the Validity of River Basin Councils as an Integrated Water Resources Management Strategy**

By Raul Pacheco-Vega, The University of British Columbia

Participatory, community-based approaches to natural resources management have been praised in the literature as being more democratic, equitable and thus yielding more robust results. Increasingly, we have seen a shift in the water governance/water policy literature that appears to assume that multistakeholder, consensus-building round tables (river basin councils) are the right model to govern water. While recent scholarly debates engage with the watershed as a governance unit, rather than a technical element (Cohen and Davidson 2011, Cohen 2011), overall the consensus remains on watersheds as the right unit of analysis and thus the assumption remains that watershed councils (or river basin councils) are the right model for robust, efficient water governance. This paradigm's validity is questionable. My research has found that the efficiency and efficacy of river basin councils is very much dependent on design elements, political structures, social norms and other contextual factors. Using lessons drawn from a comparison of selected case studies in Mexico, I discuss the validity of the watershed council as a paradigmatic model for water governance, and propose a preliminary set of ways in which we may want to reformulate this paradigm.

**Developing a Web-based Accessibility Calculator Prototype for the Greater Montreal Area**

By Antonio Paez, Md Moniruzzaman, Pierre-Leo Bourbonnais, Catherine Morency, McMaster University

Non-motorized transportation, and in particular walking, is considered an important complement to an active lifestyle. New technologies facilitate the provision of information to members of the public in order to allow them to make healthy and sustainable travel and residential choices. In this paper we describe the development of a web-based accessibility calculator prototype for the Greater Montreal Area in Canada. The core of this tool is a statistical model of trip length developed using the spatial expansion method. The model is used to obtain estimates of trip length for a desired profile, based on attributes such as age, gender, family structure, and mode of travel, as well as geographical location. These estimates, in turn, are used in conjunction with a business database to calculate a cumulative opportunities accessibility measure to different types of essential destinations such as schools, groceries, pharmacies, and restaurants. To simplify the use of the accessibility calculator, the model is implemented in a user-friendly way using Google Maps API v3 and a convenient interface. The accessibility calculator can be used by members of the public to measure the level of accessibility for a specific address by walking, cycling, and other modes of travel. Suggested uses are illustrated in the paper.

**Suburbs Aren't a Thing, They're a Logic**

By Ondine Park, University of Alberta

Suburbia is typically understood to be in diametric opposition to the city and urbanity. In scholarly, design, and policy celebrations of the city, cities are understood to be vibrant places of social and cultural intermingling and fostering; sites of engaging citizenly publics; and the source of creative and innovative solutions for the increasingly dire effects of globalisation. Suburbs, in contrast, are seen as part of the problem: areas of aggressive, even hostile privates, hunkering down against larger forces. However, the city, at least since industrialisation, have been sites that are spatialised differentially. Inasmuch as this is the case, suburbia is not opposed to cities, it is paradigmatically urban. This theoretical paper will investigate the spatial division of labour and the division of spatial labour as urban logics that are strategically culturally mobilized in the imaginary of suburbia. Illustrative cultural representations of suburbia will be examined.

**Effectiveness of Advice Giving Strategies During Home Energy Evaluations**

By Christina Hoicka and Paul Parker, University of Waterloo

Rather than simply measuring the extent to which households fail to achieve the technical potential of energy savings in their homes, this research examines the information exchange process and the advice strategies adopted by home energy advisors in their interactions with homeowners. Interviews were conducted with 12 home energy advisors trained by Green Communities Canada, eight of whom delivered evaluations for the Residential Energy Efficiency Project (REEP) in Waterloo Region. The interviews focused on how advisors conducted the home energy evaluation process and how they selected, prioritized and communicated recommendations to homeowners. Between 1999 and 2011, REEP delivered 13,429 home energy evaluations under the EnerGuide for Houses and ecoEnergy programs. 6,123 homeowners returned for a follow-up evaluation to confirm an improvement of the home's energy performance and possibly obtain a grant. Over half of the evaluations were delivered by the advisors interviewed. Taking a mixed methods research approach, the qualitative interviews on advice strategies and the quantitative analysis of advice following are matched by energy advisor and compared to gain greater insights into the effectiveness of advice giving and receiving in the context of a home energy evaluation.

**Not God's Water: Naskusp BC and Iroquois ON**

By Joy Parr, The University of Western Ontario

Hydro-electric megaprojects create rivers and lakes engineered to be harvested. The 'essential', 'natural' traits of these waters, their flow, their drainage patterns, their properties as habitat for fish, fauna and humans altered. This remaking of the physical environment discomfited the daily lives of local inhabitants. At some remove, it also re-orders the boundaries amongst physical, social and cultural geography. Using engineering maps and experts from local testimony, the paper will situate this remaking of God's water in the St Lawrence and Columbia drainage systems in the 1950s and 1960s.

**Forecasting Tourist Decisions Using Weather and Climate References**

By David Perkins, University of North Carolina

Tourism climatology studies complex relationships among people, business, weather, and climate within the tourism industry. This research tests these interfaces in the southeast United States at the North Carolina Zoo and Zoo Atlanta. Historical daily weather data are utilized as independent variables and paired with attendances. Weather variables include standard variables of temperature, humidity, cloud cover, and wind speed; simple composite variables of wind chill and heat index; and biometeorological variables of Physiologically Equivalent Temperature (PET), Standard Effective Temperature (SET), and Predicted Mean Vote (PMV). Three techniques are used in data analysis: correlational analysis, multiple regression analysis, and probabilistic analysis. Correlation analysis compares direct relationships between weather variables and attendance. Multiple regression analysis combines standard variables in predictive models. Probabilistic analysis studies seasonal scale climate-attendance relationships. Results indicate weather influences on zoo attendances change based upon season, social influences, and the layout or positioning of the zoo itself. There exists no annual optimal weather condition, but rather seasonal optimums. Changing public perceptions and expectations show a need for more complete annual analysis. Correlational analysis indicates that biometeorological weather variables improve attendance predictability as they provide better assessments of how humans sense their outdoor environments

### The Social and Spatial Distances of Intimate Labour and Implications for Urban Planning

By Katherine Perrott, University of Toronto

Spaces of labour are generally considered as located within the public sphere, in areas zoned institutional, commercial and industrial. There is much intimate labour (domestic work, hostessing, and sex work), however, that takes place within private, residential and physically separated spaces within a city. By examining recent literature about intimate labour in Canada, Japan and the Emirate of Dubai, I draw out a spatial analysis of inequality, where spatiality is accounted for empirically, but is less explicitly conceptualized. Through these examples, I demonstrate that spatial and social distance are mutually constituted, that urban planning and other political processes do indeed impact private spaces, and that the boundary between public and private is already blurred and needs to be further troubled. This analysis also demonstrates that social and spatial distances enable workplaces in which intimate labourers, who are primarily women, can become isolated and vulnerable to violence. In addition to exposing the processes and impacts of socio-spatial distancing, I also highlight ways in which intimate labourers disrupt those distances through resistance. This study contributes to an understanding of spatial inequality and informs urban planning theory and practice committed to social justice.

### How to Fight School Closures

By Alan G Phipps, University of Windsor

Many years ago when I began studying the closures of neighbourhood elementary and secondary schools, I would not have predicted that so many more would be and will be closed in Canada due to demographic and economic changes. I also would not have predicted that sometimes even hundreds of socially-mobilized parents or guardians or residents would so consistently fail to save their school after re-inventing arguments and strategies that they did not know had already failed elsewhere. I begin this paper by clarifying why people become upset with a school closure, and go on to speculate why some will fight a closure, whereas other similarly upset residents may not become involved. I catalogue the publicised economic reasons for closing a school, so that residents will know about the types of costs and savings data and information that they may need to request, or may have to provide themselves. After however showing that economics alone will rarely ever keep open a school, I put human faces on the officials in institutional organizations who are closing schools, and with whom residents will be fighting. I then detail and analyse the public and private strategies and activities of residents that may or may not relieve their school. Finally, I introduce a new fight for residents about the future alternative use of a school after its closure.

### Changes in Growing-Season Phenology in the Northern Mixed-Grass Prairie

By Joseph Piwowar and Evan Kraemer, The Environmental Research and Response Applications (TERRA), University of Regina

The northern extent of the mixed-grass prairie of North America is a region that is very sensitive to changes in environmental conditions. Analysis of climate data for this region shows that over the last 30 years it has been getting warmer and drier. Contrary to the expected consequences of this climatic shift, however, an analysis of vegetation growth vigour in the native prairie over the same period reveals that the grasses are becoming more productive. In this paper we explore some of the reasons why this increase in productivity is occurring by examining seasonal phenology characteristics of the Northern mixed-grass prairie. Twenty-two years (1985- 2006) of normalized difference vegetation index (NDVI) data from the Advanced Very High Resolution Radiometer (AVHRR) sensor on board the National Oceanic and Atmospheric Administration (NOAA) satellites were used to create a spatially detailed baseline of vegetation conditions. Our results show that there are significant changes in the dates when the vegetation begins to green-up in the spring and when it begins to die-back in the fall, with the net result of a longer growing season.



**Climate Change Impacts on the Winter Tourism in the Pyrenees**By Marc Pons<sup>1,2</sup>, Peter A. Johnson<sup>3</sup>, Mart Rosas-Casals<sup>1</sup>, Eric Jover<sup>2</sup>

1. Technical University of Catalonia, 2. Observatory of Sustainability of Andorra, 3. McGill University

The Pyrenean region is presented as one of the most important ski areas in Europe, covering the north of Spain, the south of France and Andorra and receiving about 11 million of skiers each year. However, the vulnerability of this ski industry to climate change impacts still remains unexplored. The main goal of this study is to analyze the potential reduction of the season length in Pyrenean ski resorts due to climate change as well as the subsequent drop in number of skiers and their expenditure. Moreover the adaptive effect of snowmaking in enhancing the snow cover will be considered. By means of a georeferenced Agent Based Model (ABM), the study aims to achieve an impact analysis at a regional scale including the activity and spatial substitution of the skiers and other behavioural responses of the skiers identified in previous literature.

**Recycling from the Margins**

By Michelle Porter, Memorial University

An exploration of an informal recycling economy that exists in St. John's, as performed through the everyday exchange of bottles between mainstream community members who give their bottles to recyclers and the marginalized individuals who transport the bottles to recycling depots in shopping carts to collect the deposit. Are these people primarily recycling or are they actually engaging in everyday community interactions? Informed by folklore interpretations of everyday space, folklore explorations of oral history and geographical interpretations of space, this study re-interprets the everyday interactions between people giving bottles and the recyclers collecting bottles as community-making performances which enact a liminal geographical space which allows community outsiders to temporarily become insiders. While there have been multiple studies involving individuals and/or groups involved in informal waste management networks that exist in developing countries, little research has focused on informal waste management networks in developed countries. Using interviews as its main tool, this project has dual aims: to support literature which calls for a people-centred approach to the planning and design of waste management policies and to explore particular questions about the recyclers themselves, including financial impact of the recycling network upon the recyclers, and the recyclers beliefs and worldviews.

**Remotely Sensed Lake Water Surface Temperature Data to Improve Weather Forecasting in Cold Regions**

By Homa Kheyrollah Pour, C.R. Duguay, University of Waterloo

Understanding the process of the lake ice/temperature interactions with climate allow for better climate modeling and weather forecasting. In most numerical weather prediction (NWP) and climate models, the effects of lakes are either entirely ignored or parameterized very roughly. Lakes influence the regional heat, moisture content and circulation of the atmosphere, and are thus known to be an important component of the climatic system. The surface heat flux over lakes depends significantly on the Lake Water Surface Temperature (LWST), which is one of the parameters that communicate information between the lake and the atmosphere in NWP and climate modeling. Obtaining in situ observations of large lakes, especially in cold regions that are covered with ice for several months of the year, is difficult and this causes numerous uncertainties. Therefore, obtaining frequent satellite-based LST measurements is a high priority that is becoming increasingly important for the NWP and climate modeling community. Remote sensing provides data with a spatial coverage that in situ measurements or lake schemes currently incorporated into weather and climate models do not capture. In this study, 1-km satellite-derived LWST products from the MODerate resolution Imaging Spectroradiometer (MODIS) aboard NASA's Earth Observing System Terra and Aqua satellite platforms, and the Advanced Along Track Scanning Radiometer (AATSR) aboard the ESA ENVISAT are evaluated against in situ LSWT measurements. Daytime and nighttime satellite data as well as calculated daily mean values are compared with in situ data provided by Finnish Environment Institute (SYKE) over 27 Finnish lakes during the open water period.

The goals of this study are to develop assimilation methods combining remotely-sensed observations and numerical lake modeling of LST and ice cover and examine the response of NWP model output (e.g. 2-m air temperature, precipitation, wind speed) when taking into account the influence of lakes.

**Cross-Cultural Mediation and Power in Co-Government: The Bridging Role of Indigenous Park Staff in a Colombian National Park**

By Julia Premauer, F. Berkes, Manitoba University

The environmental co-management literature has shown the role of bridging organizations as important for linking different knowledge systems and institutions at local, national and international levels. Co-government, as a concept used in Colombia, is not primarily about resources but about political agreement for land use planning. Co-government can be understood as a partnership arrangement that incorporates the acknowledgement of indigenous authority over territory, rights and customary institutions for land use with park management. In a Colombian national park, we explored the bridging role of indigenous park staff linking the National Parks Unit and the indigenous authorities living within the protected area, in the context of co-government negotiations. We used a multi-local ethnographic approach with semi-structured interviews, participant observation, and document analysis to investigate how co-government is conceptualized and how it is actually working on the ground. We argue that indigenous staff played two important roles: they negotiated power (i.e. in decision-making) and they mediated the cross-cultural relationship between Parks and indigenous authorities. This mediation allowed for conflict management between the Park and indigenous authorities and sought to ensure a more equitable relationship. It also led to tensions between the Park staff at the local level and Park managers at the national level. These findings suggest that when the bridging role is not assumed by a third party, it might also serve to balance some power aspects of the Parks-driven process for establishing co-government.

**Housing Vulnerability in the Suburbs: The Challenges of Neoliberalism**

By Valerie Preston, Lucia Lo, York University

In Canadian outer suburbs, reduced provincial and federal funding for social and physical infrastructure and the downloading of services coincided with rapid population growth and increasing diversification of the population. Growing elderly populations, increasing numbers of low income households, and rapid influxes of recent immigrants created new demands for services just as government spending declined. We explore the impact of these colliding tendencies by analysing the housing circumstances of the three largest vulnerable populations in York Region; recent immigrants, seniors, and low income households. These vulnerable groups seek housing in an area where owned housing predominates and the supply of subsidized and private rental housing is small. From secondary sources and census information, we learned that housing vulnerability varies among the three disadvantaged groups and across the region. Seniors are the best housed of the three groups while low incomes and a shortage of low-cost housing contribute to severe affordability problems for younger households, both Canadian-born and foreign-born. Affordability problems are most pronounced in the southern half of the region where population growth has outpaced investment in rental housing and expensive single-family dwellings are the norm. Neoliberal policies are contributing to new suburban landscapes of vulnerability.

**Ontario's Conservation Authorities - A Canadian Example of Integrated Water Management**

By Charles Priddle, Conservation Halton

The purpose of this presentation is to describe Ontario's 36 Conservation Authorities as a successful example of integrated watershed management. Conservation Authorities exemplify the theme of this year's Canadian Association of Geographers conference, towards integration. Under Section 28 of the Conservation Authorities Act each authority has the ability to make regulations prohibiting, regulating or requiring permission for development, interference with wetlands and alterations to shorelines and watercourses. Approvals are only given once it has been demonstrated that the control of flooding, erosion, dynamic beaches or pollution or the conservation of land will not be affected. To review such proposals requires Conservation Authorities to combine, interpret and make decisions based on expertise from across disciplines, including Planning, Engineering, Ecology, Enforcement and Geographic Information Systems. Further, past development has occurred within hazardous lands and staff must review proposals which balance a technical understanding of hazards with an understanding of risk management. Though not based on an academic study, this presentation will describe, through examples, how development applications are reviewed by Conservation Authority staff and how integration is required across academic disciplines. It is hoped that this presentation demonstrates the conservation authorities as a practical and valuable example of integration.

**Exploring Hotspots of Drug Offences in Toronto, Ontario: A Comparison of Four Local Cluster Detection Methods**

By Matthew Quick, J. Law, University of Waterloo

Spatial cluster detection is an exploratory spatial data analysis technique that identifies areas or groups of areas with disproportionately high risk. A number of local cluster detection methods have been developed, yet no research has critiqued these methods as they contribute to spatial studies of crime. Using 2006 drug offence data from Toronto, Ontario, four spatial cluster detection methods were studied: 1) spatial scan statistic based on Euclidean distance, 2) spatial scan statistic based on non-Euclidean contiguity, 3) flexibly shaped scan statistic, and 4) local indicators of spatial association Moran's I. It was found that all methods detected similar cluster locations in the downtown and west of Toronto. Specifically, the Euclidean spatial scan statistic found the largest and most circular clusters while the local indicators of spatial association Moran's I detected smaller and more compact clusters. The contiguity-based spatial scan statistic and the flexibly shaped scan statistic found similar sized and shaped clusters. From a practical perspective, it is reasoned that compact clusters are more appropriate for the targeting of specific and resource intensive crime prevention efforts, while larger clusters should be used as a starting point for insight into policing strategies and policy review.

**Public Participation in World Heritage Planning: The Evolution of a Concept**

By Mojgan Rasouli, Luna Khirfan, University of Waterloo

This paper traces the evolution of public participation in the debates on heritage planning in international charters especially, those that pertain to World Heritage such as ICOMOS charters, the UNESCO Convention on World Heritage, and the various iterations of the Convention's Operational Guidelines. Public participation has been debated in the planning literature and practice since Paul Davidoff's 1965 landmark article *Advocacy and Pluralism in Planning*. Nevertheless, it took over twenty years for the concept of public participation to appear in any of the ICOMOS International Charters, and specifically, until 1987 when the Charter of the Conservation of Historic Towns and Urban Areas, also known as the Washington Charter 1987, was first made public. Likewise, the documents issued by UNESCO regarding World Heritage did not, that is, until the late 1980s, address local communities, their representation, or their engagement. Adopting a longitudinal study this paper traces the unfolding of the concept of public participation and its development throughout the decades in the ICOMOS International Charters and the UNESCO Convention and Operational Guidelines on World Heritage. Through this longitudinal historic analysis, this paper reveals that the international heritage planning has lagged behind other aspects of urban and regional planning in terms of community engagement and public participation.

**Embracing Ecological Learning and Social Learning: Biosphere Reserves as Exemplars of Changing Conservation Practices**

By M. Reed, University of Saskatchewan

Biosphere reserves were first created in 1976 to help scientists, managers, and communities better understand how to conserve biodiversity and human environment interactions. Since then, biosphere reserves have evolved from a primary focus on ecological learning to a broader orientation that includes social learning. The purpose of this paper is to explain how this shift became intertwined with changing expectations about the purpose and philosophy, criteria for site selection, and assessment of effectiveness of biosphere reserves as exemplars of conservation and sustainable development. Drawing on academic reports, policy and other archived documents from the international and Canadian programs, and interviews of key participants, this paper argues that the inclusion of social dimensions of learning to earlier ecological objectives has had a dual impact. While laudably broadening perspectives on research, learning, and learners to include social science/scientists, local voices and indigenous knowledge, a heightened emphasis on social dimensions has increased the complexity of anticipated outcomes tied to governance and social goals. Biosphere reserves must now establish evaluation criteria that encompass both ecological and social dimensions of learning to reflect the broader intellectual and applied movement towards conservation and sustainable development of socio ecological systems, a shift that requires collaborative and interdisciplinary research and practice.

### **Social Learning and Networking in Canadian Biosphere Reserves**

By Paivi Abernethy, University of Waterloo, Maureen Reed, University of Saskatchewan

This research aimed to understand the current status of priorities and practices in the Canadian Biosphere Reserves (BRs) with particular reference to networking and learning strategies. It is part of a collaborative research with BR practitioners to enhance scholarly understanding and the capacity of Canadian BR practitioners to participate effectively in multi-level governance for sustainability by creating and implementing regional and national networking and social learning strategies.

UNESCO mandated BRs are civil society organizations with three main functions: conserving biological and cultural diversity; advancing sustainability; and supporting scientific research, learning, and public education. BRs serve as practical, flexible, and innovative mechanisms for sustainability governance at the landscape scale.

In total, 15 Canadian BRs were included in this research. The results are based on a combination of personal interviews, written questionnaires, and participant observation at the network-building workshop in 2011. The study participants included 15 Canadian BR coordinators, BR board members, as well as other relevant stakeholders connected to the Canadian Biosphere Reserves Association (CBRA). The aim was to identify strengths, weaknesses and possible drivers within the Canadian BR network.

We analyzed the results using Brown's (2008) collective thinking and action framework, to help us understand how knowledge-related activities in Canadian BRs fit within nested and networked knowledge systems. Brown identifies five types of knowledge: individual, local, expert, strategic, and holistic knowledge that form the collective knowledge. While BRs are making good strides in establishing their role within regional governance and all types of knowledge were identifiable in BR work, the limited strategic knowledge, harnessing the organizational knowledge both within the BR organizations and between various BRs, indicated that there is room for improvement in establishing relationships that foster learning (and thereby improve performance) with other BRs across Canada and the international network.

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Presenter: Tim Reiffenstein

Session/Séance: **W4-D**

### **How Do American Law Degrees Benefit Japanese Legal Professionals?**

By Tim Reiffenstein, Mount Allison University

Japan currently exists outside the narrative scope of recent geographical scholarship on legal internationalization, a literature that gives emphasis to the challenge of managing knowledge and practice across space. Yet given recent shifts in the Japanese legal landscape that are often bluntly characterized as Americanization, it is an opportune moment to bring a geographical perspective to bear on the Japanese context, specifically in relation to the impact of Japanese who study law in the US. Through analysis of interviews with Japanese lawyers who sojourned to the United States in order to enhance their international legal skills the paper employs a cultural circuits of capital perspective to explore the motivations for and experiences of these migrations, while also revealing their subsequent relevance in the lawyers professional careers. Its findings suggest that in the case of Tokyo-based lawyers working for both Japanese and international law firms, the credentials earned abroad appear to command greater utility than the actual skills acquired en route. The reason for this is that Japan's international legal market is still very much bifurcated with distinctive roles assigned to nationals and expats. The results point towards a number of unique management challenges that must be overcome if the incipient internationalization of the Japanese legal sector is to proceed. More broadly, whereas economic geographers have charted the global spread of Japanese management concepts in the field of manufacturing (e.g. just-in-time), there is ample space for theory to make sense of the more insulated behavior offered by advanced services.

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Presenter: Tarmo Remmel

Session/Séance: **TH2-B**

### **What Constitutes a Significant Difference in Landscape Class-level Pattern?**

By Tarmo K. Remmel, York University, Marie-Josée Fortin, University of Toronto

A landscape's spatial structure (configuration and composition) develop due to natural and anthropogenic influences. The characterization of these spatial structures and patterns can provide insights about: 1) the process(es) that generated it, 2) how it has changed through time, and 3) how different it is from landscapes at other locations. To achieve these objectives, a landscape's spatial structure can be quantified using landscape metrics and subsequently the significance of the observed landscape pattern index values needs to be assessed. Since landscape pattern indices are not statistics, their significance cannot be assessed using standard analytical tests but rather require randomization procedures. We expand on prior work with landscape-level indices to class-level indices to explore the expectation, variability, and comparison of simulated landscape patterns. We present a procedure for the robust comparison of landscape patterns via class-level metrics and outline steps that could find use in landscape pattern restoration efforts. Once a landscape's pattern is appropriately quantified, it is possible to identify whether targeted pattern index values could be met more easily in terms of adjusting a landscape's composition or configuration.

**Extra Representation: The Work of Social Change Photography**

By Sarah Rennie, Carleton University

Successful social change photographs, or images intended to raise awareness of social issues, burn into memory. Their impact is hard to avoid: one look challenges what we know and understand. As a documentary photographer, I find myself questioning the use of photographs in contemporary geographical research given rapidly evolving definitions and uses of photography. I am inspired by the dynamic, synergistic possibilities of non-representational theory and photography. Photojournalists, pressed for time and required to shoot in minutes, release the shutter when the shot looks good. By contrast, social change photographers aim to see beyond representation in composing images to expose more than what appears before their lens. This distinction is significant for thinking about photography as a practice of social change. In a discussion based on interviews with photographers from Photosensitive and other photography-based organizations, I position social change photographs as political. However, their politics are located beyond representational elements in the way audience interaction and participation play into the dissemination of the work. This opens an opportunity to consider a geography of activist or social change photography. By positioning photography within a dialectic practice of social change, I open space for an extra-representational approach that rethinks photographs as relational.

**Regulating Family: DNA-testing and the Process of Family Reunification for Refugees in Canada**

By Johanna Reynolds, York University

Refugees who come to Canada are, like other immigrant classes, eligible to sponsor direct family members (i.e. spouse, dependent children), and yet increasingly, they are being asked to prove their relationship to those they wish to sponsor through techniques such as DNA-testing. DNA-testing has been used by the Canadian government since the early 1990s in family reunification cases when other documentation is not available. This method of authenticating identity implies that the legitimacy of a family relationship (and, therefore, a family reunification claim) can be objectively determined through genetic verification. The Immigration and Refugee Protection Act states that genetic testing is used as a last resort in order to help visa officers make correct decisions about a person's identity. Immigrant-serving communities and refugee advocacy groups, on the other hand, have suggested that the policy targets people from war-torn countries disproportionately, since identification documents are often unavailable and costs are high. This paper will focus on the process of DNA collection for the reunification of refugees in Canada. I will explore the DNA-testing procedures as established by Citizenship and Immigration Canada and carried out by private labs both in Canada and abroad. I will also discuss the implications of such testing on families at various stages of their reunification process.

**Knowledge, Influence, and Firm-Level Change: A Geographic Analysis of Board Membership Associated with Canada's Growing and Declining Businesses**

By M.D. Rice, S. Tierney, D.I. Lyons, University of North Texas

This study examines the development of Canadian business by examining the connection between firm-level growth and decline and elite knowledge and influence connections that Canadian businesses use to link themselves to other corporations and cities nationally and globally. The research focuses on the inter-city linkages embodied in the boards of directors of Canada's leading corporations. Some corporations cast a wide net in bringing in a broad range of people and associated perspectives to their boards, while others invite a very limited selection of board members and backgrounds. This study finds that board member selection practices among Canadian firms can be linked directly to business growth and decline. Benchmarking board composition against firm expansion and decline in terms of inflation-adjusted annual revenue change over the 1991 to 2006 period, this study shows that growing firms are associated with directors from a much broader range of national and international cities than firms that experienced decline. Firm growth in Canada thus appears to be connected with boards encompassing diverse members from national and international locations, while firm decline appears to be associated with boards including more local and regional members. This finding has implications for business strategy and regional economic development initiatives.

**A Comparative Analysis of Food Security in Blantyre and Gaborone: Urban Form**

By L. Riley, Western University and A. Legwegoh, University of Guelph

The urban geography of southern African cities is gaining increased attention as the region rapidly urbanizes. Urban food security is central to the lives of the people living in these cities and yet it has received little scholarly attention. One of the challenges of understanding urban geography in southern Africa is its profound heterogeneity. Cities such as Johannesburg, Lusaka, and Maputo are so internally diverse as to defy characterization; by extension it is nearly impossible to characterize cities across countries with unique cultures, languages, physical environments and political histories. This paper seeks to explore the relationship between urban geography and urban food security in southern Africa by drawing together a comparison of parallel case studies that were conducted simultaneously in Blantyre, Malawi and Gaborone, Botswana. The comparison raises fundamental doubts about the inherent benefits in terms of food security associated with the more developed urban form found in Gaborone. Whereas the average household income in Blantyre is significantly less than in Gaborone, residents of Blantyre benefit from an abundance of locally produced food sold at low prices. The observations highlighted in this paper point to the importance of vulnerability as a conceptual framework for urban food security analysis, which shows that vulnerability can persist even while incomes rise and cities like Gaborone modernize.

**Making Space for Intangibility: Exploring the Historical Geographies of Intangible Heritage**

By Michael Ripmeester, Brock University

Scholars of intangible heritage define it as that part of heritage that finds expression in human doing rather than in material objects. In other words, intangible heritage has more to do with the legacy of lived experience than its identification or commemoration through tangible means. My interest in intangible heritage is tied to my ongoing research into heritage and identity building in the Niagara Region of Ontario. More specifically, I am interested the ways in which the demise of manufacturing and the rise of a creative economy have impacted the Region's working people. Richard Sennett's work on the culture of new capitalism contributes a great deal to this project. Sennett argues an increasingly fluid modernity, wherein stability is no longer venerable but archaic, has severely undermined working peoples ability to create stable or coherent life narratives for themselves, families and communities. Sennett is largely concerned with time as the key factor in these relationships. In this paper, and using examples from my current work on working people's experiences, I offer preliminary thoughts on how this living heritage is rooted in both material and symbolic spaces.

**Further Progress on Shape Metrics for Edge Analysis**

By Steven Andrew Roberts, Wilfrid Laurier University

Shape is the property of a geometric figure that is invariant under translation, rotation and scaling. Earlier efforts to use shape metrics to analyse polygonal boundaries in landscape spatial data utilized Kendall coordinates (Roberts et al., 2000). This works well for shapes that have well defined landmarks. However, the lack of a canonical dimension for the metric is a significant drawback for studying landscape boundaries that often lack unambiguous landmarks. The metric of Small and Le (2002) avoids this problem of lack of landmarks via a parametric representation. However, the shape representation introduced creates a problem for the use of this metric with geographic spatial data as there is no apparent canonical way to parameterize a closed curve. At CAG 2011 we demonstrated a specific use of this shape metric to analyse the structure of landscape feature edges by partitioning a set of boundaries between different landscape feature types into classes based only on shape as defined above. In this paper we introduce a solution to the problem of calculating unambiguous shape distances for closed curves when using the Small-Le shape metric. S. A. Roberts, G. B. Hall and P. H. Calamai, Shape-based Properties of the Boundaries between Landscape Feature Types, in P. Forer, A.G.O. Yeh and J. He (Eds.), Proceedings of the 9th International Symposium on Spatial Data Handling, Beijing, 1b.27-50, 2000 (Aug). C.G. Small and H. Le, The statistical analysis of dynamic curves and sections, Pattern Recognition, 35: 1597-1609, 2002.

**Measuring Disease Landscapes: Exploring Pathogen Diversity in Surveillance Data Using Ecological Indices**

By Colin Robertson, Wilfrid Laurier University

The intersection of ecology and epidemiology represents an opportunity for geographical analysis of disease patterns in time and space. In order to elicit how pathogens emerge and spill-over from animal to human hosts, integrated surveillance of animal and human populations may help establish mechanisms of emergence risk. While surveillance systems are increasingly relied upon to provide early warning signals of infectious disease outbreaks, linking human and animal outbreaks has been difficult

to establish empirically. In this paper we explore the use of ecological indices for analysis of frontline veterinary sentinel surveillance data obtained from a prototype animal health surveillance system in Sri Lanka which employed field veterinarians to report syndromes and diagnoses using mobile phones. Measures of diversity, abundance, and spatial dependence are focused on in order to characterize inter-relationships between diseases and syndromes among different animal populations sampled in Sri Lanka. The implications of ecologically-based surveillance are highlighted from theoretical and methodological perspectives. Results suggest that ecological measures of pathogen populations may play an important role in building emergence forecasts from integrated surveillance networks.

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Presenter: Derek. T. Robinson

Session:

**Using ABM Experiments and Scenarios to Evaluate Potential Impacts of land-use Change on Human Well-being in Koper, Slovenia**

By Derek. T. Robinson<sup>1</sup>, D. Murray-Rust<sup>2</sup>, V. Rieser<sup>3</sup>, V. Milicic<sup>4</sup>, M. Rounsevell<sup>2</sup>, 1. University of Waterloo, 2. University of Edinburgh, 3. Heriot Watt University, 4. University of Ljubljana

To overcome data limitations and gain an understanding of how land-use and land-cover change (LUCC) may affect human well-being in the Municipality of Koper, Slovenia, we use an agent-based modeling (ABM) approach to encapsulate different representations of land-use and land-cover transitions in the area. Our combination of utility theory, logistic regression, and cellular automaton-like rules provide an initial representation of the decision-making strategies used by actors in the region, given available data. Using this integrated ABM we compare the effects of different computational experiments and scenarios on changes in high productive capacity agricultural soil, the extent of noise pollution, and quality-of-life measurements, which collectively affect human well-being in the region. Results from experiments demonstrate how individual agents may affect human well-being and what potential LUCC patterns may look like under assumptions of spatial and temporal stationarity. Results from scenarios are driven by broader socio-economic storylines and demonstrate how relaxing our assumptions of stationarity may influence future LUCC patterns and well-being in the Municipality. Additional novel contributions include the incorporation of noise pollution feedbacks and an approach to empirically inform agent preferences using a conjoint analysis of social survey data.

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Presenter: James Robson

Session/Séance: **F2-J**

**What's in a Name? The Search for Common Ground in Kenora, Northwest Ontario**

By James Robson, University of Manitoba

Kenora is a small provincial city in Northwest Ontario, Canada. No longer a forestry centre of note, moves are afoot to develop a more diversified and sustainable economy driven by local needs and local decision-making. Yet any collective desire to enjoy a prosperous future is set against a backdrop of historical conflict, discrimination, misunderstanding and suspicion between local First Nation, Matis and Euro-Canadian populations. Using a range of qualitative data, we discuss whether the philosophy and vision behind common ground, a term used to front a collaborative land management initiative close to the city centre, has gained currency among the wider public. Charting the trajectory of its usage over the last decade, we discuss whether the powerful rhetoric invoked by common ground is likely to be reflected in the forging of more equitable and productive resource rights and relations between the multiple cultural groups that define life in this part of the world.

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Presenter: James Robson

Session/Séance: **TH3-H**

**The Impact of International Migration on Customary Governance Systems and the Future for Community: A Case Study from Oaxaca, Southern Mexico**

By James Robson, University of Manitoba

Focusing on the demographic and cultural impacts of three decades of rural to urban migration, this paper investigates how readily indigenous governance structures in Oaxaca, southern Mexico, have been able to adapt to changing circumstances. In doing so, the study sheds light on the incongruence between individual and collective rationality, and the problem of the maintenance of cooperation. I argue that declining participation in two key governance institutions, both of which rely on the unpaid labour of community members, is stressing local governance by increasing the costs of and controls over individual choices and collective action. Despite the emergence of trans-national institutional arrangements, which many scholars believe can forge new senses of communal belonging and identity, the study finds that changes in international migration patterns have undermined such adaptations. As local people begin to change their view of customary governance, I discuss what this could mean for community identity, development and economy in this part of the world.



**Exhibition/Installation "Sculptures Musicales"**

Along with the scheduled session discussion (T2 Session 8) an exhibition of Rogalsky's installation that develops John Cage's 1989 work *Sculptures Musicales* will be displayed in Room 2E1, Arts Building from May 29-June 2. The work examines shaping public space through invisible architectures of sound. Join Matt in Room 2E1 to view the installation on Tuesday, May 29th at 11:15 prior to the session discussion (Session 8 of the Geographical Inquiries/Creative Practices special session, 11:30 May 29th, immediately following the informal viewing). The Installation will be available for viewing from May 29-June 2nd.

**John Cage, 1989 Realization**  
 By Matt Rogalsky, Queen's University,

John Cage's 1989 work *Sculptures Musicales* is about shaping public space through invisible architectures of sound. The piece exists as a brief text score which references an idea for a sound piece described by artist Marcel Duchamp in his *Green Box* of 1934: "sounds lasting and leaving from different points and forming a sounding sculpture which lasts". In this installation version of the piece I further develop the geographical dimensions of Cage's work by creating its sustained sounds out of fragments sampled from my library of field recordings made during trips through Southeast Asia, Central and North America, and Europe. The fragments become sustained textures through the application of granular synthesis techniques which permit one to "stand still" in the middle of a sound and experience the timbre of a instant which normally would pass quickly by. Combinations of these "standing still" textures create patterns of standing waves in an enclosed space, describing forms that the audience may physically explore. 2012 marks the centenary of John Cage's birth and thus this realization is dedicated to him. It is also dedicated to his life partner, choreographer Merce Cunningham, who commissioned *Sculptures Musicales* as accompaniment for his dance *Inventions*. Along with the scheduled session discussion about the work, the installation will be displayed in Room 2E1, Arts Building from

May 29-June 2. Join Matt in Room 2E1 to view the installation on Tuesday, May 29th at 11:15 prior to the session discussion (Session 8 of the Geographical Inquiries/Creative Practices special session, 11:30 May 29th, immediately following the informal viewing).

**Reduce, Re-use, Recycle, Recover: Consequences of the Fourth R for Municipal Waste Policy Coalitions**  
 By Yvonne Rollins, The University of Western Ontario

Although reduce re-use, recycle are its most oft-cited components, the waste hierarchy in fact comprises a further two elements, namely, recover and dispose. The premise for this paper is that innovations in the management of municipal waste are attended by changing human and environmental health impacts as a result of alterations to the way waste flows through waste management systems. This paper based on a review of relevant academic and policy literature related to human health impacts and environmental implications of thermal treatment of municipal waste (that is, the processes by which energy is recovered from waste materials). I will apply insights from this literature to the case of a recently approved plan by the regional municipality of Durham, Ontario for a waste to energy (WTE) facility. My tentative conclusion is that the introduction of recovery into municipal waste management systems creates new dynamics between human and environmental health impacts, which in turn present more nuanced and context specific opportunities for policy coalitions to negotiate desired outcomes: nuanced in as much as WTE is no longer perceived of in principle as a negative component of waste management systems and is therefore no longer rejected outright with no consideration for any environmental or economic benefits that might result; and context specific in as much as whether or not WTE will ultimately be of environmental benefit depends on the nature of local waste management systems within which it will operate.

**Unfriendly Infrastructure: The Uneven Burden of Safety Risks to Elderly Pedestrians in South Florida**  
 By Rosibel Roman, Florida International University

Numerous studies have recognized and examined the factors that render elderly populations residing in urban areas vulnerable to traffic-related injuries. In South Florida, elderly pedestrians' vulnerability is well-known for being an especially glaring problem, as reflected by the disproportionately high rate at which elderly pedestrians are injured or killed by motor vehicles. Additionally, research inquiring into the socioeconomic background of these victims reveals that low-income residents and minorities make up a disproportionately high percentage of these documented cases. In delving deeper into this problem, this paper takes a cue from a growing body of work that calls for recognizing urban sociological aspects of environmental problems and expanding the scope of urban ecology in a way that incorporates questions about the everyday living spaces of urban dwellers and how they negotiate built environments. Using GIS, quantitative data, and ethnographic research, this paper surveys the urban socio-ecological implications of South Florida's car-oriented urban design converging with socioeconomic and age-related conditions of pedestrians experiencing socio-spatial marginalization.

**Place and Capital in the Migration-Development Nexus: The Case of Jamaican Immigrant Organizations in Toronto**

By Janine Rose, York University

The migration-development nexus has received increasing attention from various international organizations and sending country governments due to the significance of family remittances for developing economies and the fact that these amounts have exceeded official development assistance. But given the significance of remittances for daily survival and poverty alleviation in many sending countries, greater attention has been directed to other forms of remittances or support from migrant communities overseas. These alternative forms of support, including collective, social and investment remittances, not only move within transnational space but also extend the significance of transnational livelihoods for understanding the migration-development nexus. Using the results of preliminary research which explored the activities of Jamaican immigrant organizations in Toronto, particularly their community development projects as well as their interactions with state actors Kingston, Jamaica, this paper explores how the migration development link goes beyond financial remittances sent to families and individuals in the country of origin. Further, the geography of the nexus as it relates to the Jamaican- Canadian context/transnational space, particularly the way in which the migration development nexus is (re)produced through place, social and economic capital, will be examined.

**Without Reservation: The Chatham-Kent Community Network and Caldwell First Nation Land Dispute**

By John Rose, Queen's University

In 1998 an agreement-in-principle (AIP) was negotiated between the Department of Indian Affairs and Caldwell First Nation to settle a land dispute. In response to the AIP a non-Aboriginal organization, the Chatham-Kent Community Network (CKCN), was established. The CKCN was a self-described group of concerned citizens with an initial expressed purpose of investigating the AIP and distributing information to the non-Aboriginal community. This article examines the motives of the CKCN, and argues that it was an organization founded on principles of settler colonialism. It was designed to thwart the AIP and reinforce historical processes that deprived Caldwell First Nation of land for many years.

**Examining Thermal Range of Tourism Microclimates**

By Michelle Ruty and D. Scott, University of Waterloo

Weather and climate influence tourists destination choice, the timing of travel, travel activity and overall trip satisfaction. Weather and climate information therefore plays an important role in informing tourist travel decisions. The meteorological stations that provide climate data and weather forecasts for tourist destinations are often many kilometers away, and hence may not accurately reflect the microclimates where tourist activities take place. Coastal resorts in the Caribbean are highly climate-dependent in that climate is the principal resource upon which tourism is predicated. To assess the accuracy of common climatic information provided to tourists, microclimate measurements were taken in high traffic tourist activity areas in Barbados and compared to climate station data used by the tourism sector and the media. The microclimatic parameters measured with a laboratory-grade weather station included: air temperature, relative humidity, wind speed and globe temperature. The Universal Thermal Climate Index (UTCI) was calculated to estimate the range of thermo-physiological conditions at tourism microclimates and then compared with the official meteorological data for Barbados during the study period. The thermo-physiological conditions available was also used to estimate the thermal adaptive range of tourism resorts and attractions and assess whether Caribbean destinations are too hot for tourism.

**It's Like Showing Canada as a Heaven: Toward a Multi-Scalar Analysis of National Identity Discourses**

By Samah Sabra, Carleton University

This paper is based on immigration narratives collected through informal conversations and formal interviews over sixteen months of fieldwork with Arab Canadians living in Ottawa, Ontario. I pay particular attention to research participants depictions of their first encounters with what I call an extra-national Canadian state prior to immigrating to the country. More specifically, I offer an overview of their engagements, through such encounters, with national identity discourses defining Canada as a liberal-humanist nation that is particularly welcoming to immigrants. The focus of most scholars writing about Canadian nation-building projects has been on institutionalized forms of national identity discourses that circulate within Canada with little attention paid to how immigrant-citizens (other than the scholars in question) encounter and engage such discourses at an experiential scale both within and outside the country. In contrast, I argue that research participants depictions of their encounters with these discourses prior to immigrating to Canada illustrate the multi-scalar circulation of institutionalized Canadian national identity discourses and, thus, the need for a multi-scalar analytic lens in studies of national identity.

**Object-based Image Segmentation for the Delineation of Individual Tree Crowns and Canopy Gaps**

By Assunta Saliola, Yuhong He, John Caspersen, University of Toronto, Trevor Jones, Ontario Ministry of Natural Resources

New image analysis techniques are changing the way that forest information is extracted from imagery; object-based image segmentation is one of the techniques that may be used for forest analysis. Unlike traditional methods of image analysis, an object-based approach also takes into account the spatial characteristics of pixels in order to segment the image into meaningful multi-pixel objects. In this study, ADS40 imagery of central Ontario forest is segmented into multi-pixel objects representing individual tree crowns and canopy gaps found in the forest. Using different methods, several trials of image segmentation are performed on the forest imagery with each trial using different segmentation parameters. Each trial is analyzed in order to determine which parameters result in objects that most accurately delineate the forest features. The optimal parameters are found that satisfy the delineation of both individual tree crowns and canopy gaps in the imagery. The effective delineation of forest features creates a better foundation for the development of future forest models at broad scales.

**Natural Channel Design in Southern Ontario**

By N.D. Sampson, Western University

The definition of natural channel design in Ontario is different than the definition of natural channel design in the United States. In Ontario, natural channel design is the practice used in stream realignment and restoration projects that attempts to reconstruct channels to emulate the self-sustaining geomorphic and ecological functions of natural watercourses, according to the Toronto and Region Conservation Authority (2009), yet a standard definition does not exist across the industry. Most practitioners and permitting agencies agree that natural channel design incorporates the natural function of the channel. This presentation will address issues practitioners face in Ontario in terms of legislation, constraints, the impacts of urbanization, and what drives channel fixing projects in Ontario, compared with drivers in other parts of Canada.

**VITAMIN G at Ottawa's FWG (Fletcher Wildlife Garden) Natural Health in an Urban Green Space**

By Renate Sander-Regier, University of Ottawa

In the Netherlands, researchers have labeled it Vitamin G. In the UK, an alliance of public and environmental health organisations are promoting what they term the Natural Health Service. Healthy by Nature is what a recent forum in Canada (Vancouver, Sept. 20-23, 2011) calls it. What these groups and initiatives have in common is a focus on the critical relationship between human mental+physical health and contact with the natural environment through access to nearby green space. My PhD case study explores the impact of Ottawa's Fletcher Wildlife Garden on the volunteers involved in shaping and maintaining the space impacts ranging from physical fitness, to social well-being, to internal (mental, spiritual, developmental) health. And the effect goes two ways to include biological diversity and ecosystem vitality an inspiring example of reciprocal health in a time of environmental uncertainty.

**"Power, Place and HGIS: An Exploration of People, Place and Energy in Canada, 1900-1950"**

By Ruth Sandwell, University of Toronto

In the early twenty-first century, as people around the world take in the unwelcome news from scientists about both the limited supply of cheap fossil fuels, and the surprisingly virulent impact that large-scale burning of these fuels has had on the global environment, we are being reminded on a daily basis of the deep connections between our everyday lives – particularly the energy systems that provide us with heat, light, power, water, waste disposal and food – and the larger social and material environments within which we live.

This paper is part of a larger study ("Heat, Light and Work in Canadian Homes: A Social History of Fossil Fuels and Hydro-Electricity, 1900-1950") that seeks to provide the first nation-wide look at the varied relationships between energy use and the practices of everyday life for rural and urban Canadians in the first half of the twentieth century. This paper offers some suggestions about how and why HGIS might help us understand how new forms of energy and power transformed daily life across the entire country, albeit in place-specific ways. It draws on the preliminary stages of my own research into electricity to provide some examples of what an HGIS-informed social history of energy might look like. Finally, it presents my reflections about the ups and downs and the pros and cons of learning to use spatial data and spatial thinking to explore the relationship between people, place and energy in Canadian history.

**Using Stories About Relocation to Teach and Learn Aboriginal Concepts of Place**

By Heather Sanguins, Wilfrid Laurier University

Concerns regarding the colonial nature of education systems across Canada include lack of Aboriginal input into the curriculum and insufficient Aboriginal content in the curriculum. The minimal presence of Aboriginal creation, content, and pedagogies perpetuates and reproduces injustices for both Aboriginal and non-Aboriginal students. Narrative inquiry and oral history are culturally appropriate ways to gather content, and storytelling is a culturally appropriate way to teach and learn about Aboriginal peoples' lived experience of place. Chamberlin (2003) argues that stories are a place and a common ground in which to enhance cross-cultural understandings. As place is a central and complex concept for both geographers and Aboriginal peoples, this paper explores the interconnections of place and stories in Aboriginal communities that have been subjected to both historical and contemporary relocation. Through developing case studies, I hope to gain a better understanding of what is appropriate decolonizing education.

**A Manitoban Flaneur in the White City: W. J. Sisler's Diary of the Columbian Exposition**

By Meaghan Sawka and John C. Lehr, University of Winnipeg

The Columbian Exposition held in Chicago in 1893 was the defining cultural event of the late 19th century. Intended to showcase America's achievements in industry, science and culture, it attracted over 26 million people from throughout North America. Not only did it introduce and popularize numerous products to the world market, but its architecture and landscaping exerted a powerful influence on the appearance of growing North American cities. Among the many visitors was W. J. Sisler, a young man in his early twenties who later became a leading educator and prominent citizen of the then rapidly growing prairie metropolis of Winnipeg. Sisler's unpublished diary of his visit to the Columbian Exposition affords a rare glimpse into the impact of the event that was to resonate not only in the development of Winnipeg's architecture and design but in the progressive educational ideas later implemented by Sisler.

**Reasonable Accommodation and Indigenous Peoples: Unawareness in Public Perceptions of Indigeneity in Québec**

By Laura Schaepli, Anne Godlewska, Queen's University

Many Indigenous leaders and public figures, as well as scholars of Indigenous culture and history, assert that non-Indigenous ignorance of Indigenous realities has systematically disadvantaged Indigenous peoples in Canada, weakened Canadian society and makes it impossible to address the conditions of life for Indigenous people in Canada in a sustained or coherent way. This paper explores the nature of public unawareness of Indigenous peoples and issues in Québec, drawing from the premise that non-Indigenous perceptions of indigeneity are tied up in national and provincial identities and thus are articulated differently in each Canadian province. Using the remarkable public voice resource generated by the 2007 Reasonable Accommodation Commission, a public inquiry into Québec citizens' opinions about the nature of Québec identity and its relationship to the integration of minorities in the province, I work to untangle the complex relationship between provincial identity in Québec and public discourses around indigeneity through analysis of written briefs submitted to the Commission.

**Relationships, Strategies, and Challenges in Canada's Market-based Seafood Governance Network**

By Dominique Schmidt, Dr. Jennifer J. Silver, Ben Bradshaw, University of Guelph

In the absence of adequate national and international fisheries regulation, evidenced by the precipitous decline of global fish stocks, market-based governance strategies have surfaced as a supplement to traditional fisheries management. These include certifications and ranking schemes, consumer awareness campaigns, and supply chain contracting. Food retailers, who are well positioned to employ these sustainability strategies, have responded to pressure from advocacy groups by producing sustainable seafood commitments, first in Europe and now across Canada. Since 2009, all major food retailers in Canada have publicly pledged to offer sustainable seafood, and have thus become central players in Canada's seafood governance network. The network, also comprised of NGOs, certification bodies, fisheries regulators, and the industry, is the subject of this study, which aims to describe the respective roles, position, and motivations of the network players and to evaluate their collective ability to improve fisheries management. The study demonstrates that competition between NGOs has resulted in the proliferation of programs and standards which retailers have enabled as they seek to gain competitive differentiation through their seafood sustainability platforms. This proliferation poses a challenge because it perpetuates consumer confusion and thus drains the market of its most potent incentive for sustainable fisheries management. This case demonstrates the challenges faced by firms and NGOs as they vie for position in the sustainable seafood market while endeavouring to improve fisheries outcomes. It also reaffirms the centrality of responsible consumption in market-based governance systems.

**The Implications of Sea Level Rise for Coastal Tourism in the Caribbean**By Daniel Scott<sup>1</sup>, Murray Simpson<sup>2</sup>, Ryan Sim<sup>1</sup>

1. University of Waterloo, 2. Oxford, UK

Coastal tourism has been identified as the largest tourism market segment globally and is particularly important in Small Island Developing States. Despite the massive and continuing investment in coastal tourism properties, there has been remarkably little analysis of the implications of sea level rise (SLR) for the tourism sector. This study developed a georeferenced database of 906 large coastal resort properties in 19 CARICOM countries, and then used Advanced Spaceborne Thermal Emission and Reflection Radiometer data to generate a Global Digital Elevation Model to examine the impact of 1 meter SLR for coastal resort flooding. Nearly one-third (266) of coastal resorts were vulnerable to partial or full inundation. Applying a coarse measure of erosion associated with 1 meter SLR (the Bruun Rule) to areas with highly erodible sand beaches, revealed a far higher number of resorts (440 to 546) would be vulnerable to the impacts of SLR. The implications for coastal (re)development planning, property values, insurance costs, destination competitiveness and marketing are substantial, and would pose a significant challenge to many of these small nations, where tourism represents a mainstay of the economy.

**Skier Response to Climate Variability and Change in New England**

By Daniel Scott, Kate Vivian, University of Waterloo

Studies in several major ski tourism regions have examined the potential impacts of climate change on ability of ski area operators to provide a reliable snow-based tourism product. Far fewer studies have examined the demand-side response of ski tourists to increasingly variable snow conditions and a projected contraction in the number of operating ski areas. A survey of 572 skiers in the New England ski tourism market was conducted to examine the current behavioural adaptations of skiers to variable snow and weather conditions, as well as their stated reaction to future scenarios. The level of a skier's involvement in the sport, as well as their level of destination loyalty was found to be important determinants of their substitution behaviors (activity-time-destination), suggesting that tourism market segments will respond differently to the impacts of climate change. Implications for day-trip market and recreational property values are also discussed.

**Comparing the Tourism Climate Index and Holiday Climate Index in Major European Urban Destinations**By Daniel Scott<sup>1</sup>, Bas Amelung<sup>2</sup>, Mantao Tang<sup>1</sup>

1. University of Waterloo, 2. Wageningen, Netherlands

Climate co-determines the suitability of locations for a wide range of tourist activities, defines the length and quality of multi-billion-dollar tourism seasons, is a major emphasis of tourism marketing, and for some destinations is the principal resource that attracts tourists. A variety of techniques have been developed to evaluate climate resources for tourism, including climate indices that integrate multiple parameters in a holistic rating of climate for tourism. The most widely applied has been the Tourism Climate Index (TCI) developed by Mieczkowski (1985). The literature identifies a number of limitations with this index, which has led to the development of a second generation of climate indices for the tourism sector, by scholars and private sector meteorological services. This paper introduces a new Holiday Climate Index that is based on the developing tourist climate preference literature and overcomes the identified limitations of the TCI. The performance of the HCI and TCI across major city destinations in Western Europe under current climate and projected climate change are then compared.

**Evaluating the Impacts of School Closures in Inner City Communities**

By Mark Seasons, University of Waterloo, Bill Irwin, The University of Western Ontario

This research explores an issue that is high profile, high impact, contentious and increasingly common in Ontario's communities: the permanent closure of schools. Specifically, the school closure decision-making process is the subject of this research. School closure processes are highly (and bitterly) contested, rife with conflict, and with few exceptions, harshly criticized by school and community stakeholders. There have been many calls for change to processes that have been characterized as exclusionary, insensitive to community needs, and autocratic in nature. Surprisingly, there has been little formal evaluation of the school closure decision-making process experience in Ontario or the rest of Canada. A handful of Canadian scholars have examined the issue, usually from a political science perspective. This discussion paper evaluates historical and current school closure decision-making processes in Ontario. The research considers whether and how school closure decision-making processes could be improved through application of alternative decision-making models and frameworks with origins in urban planning theory and related fields. The paper covers four research areas. First, there is a need to understand the roles that schools play and the impacts of school closure, especially in inner city communities. Then, the reasons for school closures are examined. The paper shifts to the school closure decision-making process itself, comparing and contrasting process intent with application experiences. Finally, the paper identifies alternatives to existing school closure decision-making processes and frameworks, drawing from urban planning theory, public administration, urban geography, social innovation, and conflict resolution literatures.

**KIBS Use and Innovation: the Return of Geographic Hierarchies?**

By Richard Shearmur, INRS

Whilst the connection between KIBS (Knowledge Intensive Business Services) use and innovation is fairly well established, much less is known about the geography of KIBS supply in an innovation context. One line of argument is that geographic proximity between users and KIBS suppliers enables higher quality information exchange, which itself is conducive to innovation. Another is that the geography of KIBS supply is irrelevant, the key factor being identification, by the user, of appropriate KIBS. In this paper we first explore the extent to which different types of KIBS are associated with innovation in manufacturing firms. We then establish that it is those KIBS which are most closely associated with innovation that exhibit the highest mean distance to their users. We finally show that there is no connection, for users, between the distance to their KIBS suppliers and their propensity to innovate. These results point to a Christallerian logic whereby innovators seek out KIBS (irrespective of distance), but that mean distances tend to be longer to the more strategic KIBS suppliers (which are located in central places), reflecting the different geographies of manufacturing users and service suppliers.

**Oceanography of *Skeletonema Costatum* Harmful Algal Blooms in the East China Sea Using MODIS and QuickSCAT Satellite Data**By Li Shen<sup>1</sup>, Huiping Tong<sup>2</sup> Xulin Guo<sup>1</sup>

1. University of Saskatchewan, 2. Tongji University

The East China Sea (ECS) is threatened by frequent *Skeletonema costatum* (*S. costatum*) blooms every year which can cause severe environmental harm as well as considerable economic losses. Remote sensing is an efficient tool for monitoring these HABs and studying concerned marine conditions. The present study investigated two intensive *S. costatum* HABs in the ECS by analysis of water distribution and spatial-temporal pattern of four oceanographic parameters derived from MODIS and QuickSCAT satellite data using multiple remote sensing approaches (composite imagery interpretation, classification, and parameters retrieval). Results show that high chlorophyll-a (Chl-a) concentrations and Net Primary Production (NPP) decrease from the HAB areas toward the open sea. A peak of Chl-a ( $>10 \text{ mg m}^{-3}$ ) and NPP ( $>5000 \text{ mg} \rightarrow \Sigma \text{C} \rightarrow \Sigma \text{m}^{-2} \rightarrow \Sigma \text{d}^{-1}$ ) are considered as indicators of large-scale *S. costatum* blooms in the ECS. Low sea surface temperature (SST) (around  $23 \rightarrow \infty \text{C}$ ) are observed in *S. costatum* HAB areas. In early stages winds in terms of direction and speed can bring nutrients to facilitate the formation of *S. costatum* blooms, but then sharply change into unfavorable conditions to cause the final disappearance of HABs. This study also explored multiple oceanographic explanations in the ECS from biochemical, meteorological, physical and geological perspectives for a better understanding of such *S. costatum* HABs mechanisms.

**Residential Solar Energy Adoption in a Community Context: Perceptions and Characteristics of Potential Adopters in a West Toronto Neighbourhood**

By Ted Sherk, University of Waterloo

In the summer of 2007, a single neighbourhood in downtown Toronto contributed at least 13 percent of all residential grid tie solar photovoltaic (PV) systems sold in Ontario. On average, PV purchaser households produced 37 percent as much electricity as they consumed. This research investigates solar energy adoption in a community case study. Characteristics and perceptions of potential adopters are analyzed to better understand their motivations and barriers to adoption. Surveys were used to gather data on adopter perceptions and characteristics. A participatory research design helped identify the research topic. Two main bodies of literature community based social marketing (CBSM) and diffusion of innovations theory were used to conceptualize the adoption process and interpret the survey findings. Differences between purchasers and non-purchasers in respect of adoption behaviour were found in this study to cluster around two general themes: (1) compatibility, and (2) potential adopters trust and stake in the ability of the CSEI to reduce barriers in the adoption process. Compatibility issues range from physical attributes of solar energy systems with the homes of potential adopters, to more complex perceptual and socio demographic factors. The study takes an integrated approach by considering both social and technical aspects of solar energy adoption, together with the issues of fuel substitution and household electricity demand.



**Place Making in Muskoka Tourist Literature, 1860-90**

By Geoffrey Shifflett, University of Waterloo

This paper examines the transformation of a wilderness landscape into a tourist landscape through the establishment of transportation networks, tourist infrastructure and the creation of a marketable place identity during the formative years of tourist development. Using Ontario's Muskoka district as a case study it is shown how the creation of place identity, and through it place making, is a fundamental starting point in the building of a tourist destination. Focusing on the second half of the nineteenth-century, contemporary guides and advertising literature are examined to reconstruct the tourist landscape of the Muskoka Lakes district during these opening decades of its development from an uninhabited wilderness to one of the province's leading recreation resort regions. The results reveal that different place identities were proposed for the region, in some cases contradictory to each other, demonstrating the volatility of place meanings.

**The Practice of Integrated Water Management in Canada**

By Dan Shrubsole, The University of Western Ontario

This paper describes the current practice of Integrated Water Resource Management (IWRM) in Canada. The reasons for recent changes in senior government watershed management policies are explained. Based on available web-based materials and government publications, IWRM concepts for federal, provincial and territorial governments are identified, and similarities and differences are reviewed. The current foci of IWRM in Canada have brought together many aspects of governance, such as policy, planning and legislation, on the basis of a geographic area usually the watershed, and also have brought together people and their activities to build relationships among stakeholders. Gaps are identified in the areas of planning, implementation, monitoring and adaptive response, and management and science.

**Using Isotopes to Characterize Periphyton in the Old Crow Flats, Yukon, for Hydroecological Monitoring and Paleolimnological Applications**By N.M. Sidhu<sup>1</sup>, A.M. Balasubramaniam<sup>2</sup>, K.W. Turner<sup>1</sup>, B.B. Wolfe<sup>1</sup>, R.I. Hall<sup>2</sup>

1. Wilfrid Laurier University 2. University of Waterloo

The Old Crow Flats (OCF), northern Yukon Territory, is a region experiencing effects of climate change as suggested by recent observations. As part of a Government of Canada International Polar Year project, a long-term hydroecological monitoring program is being implemented to assess ongoing climate-driven changes to the ecosystem. Periphyton that has accumulated on artificial substrates is being explored as a hydroecological monitoring tool. Artificial substrate samplers were deployed and retrieved from 57 lakes in the OCF during the ice-free seasons of 2008 and 2009. Periphyton subsamples were analysed for organic carbon and nitrogen elemental and isotope composition, and cellulose oxygen isotope composition, to explore relationships among hydrological conditions, lake water nutrient status, and geochemical signatures. Periphyton results indicate low  $\delta^{13}\text{C}$  values characterizing snowmelt-dominated, nutrient-rich lakes. This may be due to elevated carbon isotope fractionation between dissolved inorganic carbon and the periphyton. The  $\delta^{15}\text{N}$  values of periphyton positively correspond with TN and chlorophyll *a* suggesting control due to nitrogen availability and primary productivity. These promising results suggest that carbon and nitrogen isotope measurements of periphyton may be a useful tool for tracking hydroecological changes in lakes of the OCF. Currently, cellulose oxygen isotope analyses on periphyton and surface sediments are being conducted to constrain paleohydrological reconstructions from analyses of lake sediment cores.

**Establishing Baselines of Community Well-Being in Ontario's Ring of Fire**

By Peter Siebenmorgen, Ben Bradshaw, University of Guelph

Mineral exploration and development across Canada has generated substantial wealth for mining firms, governments, servicing companies, employees, and select local residents. This sector has also generated significant health, environmental, and social problems, especially for residents of Aboriginal communities proximate to mine sites. Ontario's mineral-rich ring of fire region has tremendous potential for creating long-lasting wealth and/or persistent problems for residents of the province, particularly for the members of five remote Aboriginal communities adjacent to the primary development area. The communities in this area have expressed concern regarding the potential impacts of mineral development upon local community well-being, among other issues. In order to thoughtfully prepare for potential developments, there is a need to develop a process to track community well-being over time, ideally using indicators that are meaningful to local members. This presentation reports on ongoing research to develop initial baselines of community well-being with two remote Aboriginal communities in Ontario's ring of fire: Eabametoong First Nation and Webequie First Nation. Specifically, we highlight the process of engaging with community leaders and members to collect local values, concerns, and interests regarding mineral development, working with local researchers to develop meaningful indicators of well-being, and our approach to establishing the baseline.

**Delivering Sustainable Urban Transportation Projects through Public Private Partnerships: Limits and Opportunities**

By Matti Siemiatycki, University of Toronto

Around the world, public-private partnerships (PPPs) have become increasingly popular to deliver large-scale urban transit infrastructure projects such as subways, light rail systems, commuter railways and bus rapid transit systems. Between 1985 and 2010, over 90 urban transit projects with a capital value of more than \$60 billion have been built using PPPs. In Canada, politicians and government departments and agencies responsible for transit planning are actively exploring the prospects of using PPPs to deliver on their ambitious expansion plans. This is the case in Waterloo, Ottawa, Toronto and Vancouver. The purpose of this paper is to provide a history and overview of contemporary PPP models, map the global geography of transit PPPs to date, and reflect on the implications associated with using such mechanisms to deliver large transit infrastructure projects in Canadian cities. Drawing on a spatial analysis of transit PPPs worldwide, I show that the majority of projects have been built in Europe, with fewer delivered in North America and other world regions. Then based on select case study projects I identify key opportunities and challenges associated with using PPPs to deliver sustainable transit schemes. I conclude by identifying the conditions that must be in place in order to elevate the likelihood of a successful transit PPP.

**Practicing Intersectionality - Insights from City-focused Feminist Organizations**

By Janet Siltanen, Fran Klodawsky, Caroline Andrew, Carleton University

Intersectionality has been developing theoretically for some time, and calls for attention to methodological innovations suitable to intersectionality research are beginning to be addressed. In this paper we explore the meaning and significance of intersectionality as a situated, organizational practice - specifically as a practice of feminist organizations working with municipal governments and community-based organizations to promote gender equality at the neighbourhood and urban scales. Drawing on primary research with two organizations, we present insights from our SSHRC-funded project "Learning Through Difference" to explore how intersectionality is used as a strategic device for pushing forward equality-promoting municipal policies and programs that are attentive to gender and diversity.

**Urban Revitalization: A Quantitative Examination of the Social Impact UOIT's Faculty of Social Science & Humanities has Made to Downtown Oshawa**

By Derek M.D. Silva, Dr. Arshia U. Zaidi, University of Ontario Institute of Technology

Much of the scholarly literature has focused on the role of universities as economic catalysts for the community. While many studies have examined the economic impact of relocating university campuses into downtown cores in the United States, there is a dearth of research assessing the extra-financial relative to resources invested, i.e. the social impact, relating to mid-size urban regions in Canada. The purpose of this research is to quantitatively assess the social impact of relocating the FSSH to downtown Oshawa. The objective of these analyses are to better understand the relationship between social, economic, and community factors on revitalization of Oshawa's downtown. That being said, overarching research question is which internal revitalization variables, external revitalization variables, community revitalization variables, demographic variables, social expectation variables, economic expectation variables, and community expectation variables, are most important in predicting the perception of a positive revitalization. The results suggest that the most important factor for the perception of a successful downtown revitalization among internal and external stakeholders is the perception of a safe environment. In addition, the results also show that there is a need to ensure that the downtown core is aesthetically pleasing, culturally diverse, and vibrant and liveable, and that increased expectations do play a role in the perception of revitalization.

**Risk Communication and Decision-making: The Role of Current Communications Technologies Before, During, and After the Goderich, Ontario Tornado**

By Amber Silver, Jean Andrey, University of Waterloo

Risk communication has become a subject of considerable interest within the emergency management community over the last five years. Much of the existing literature focuses on the influence of individual-level characteristics (e.g., gender, age, income) on decision-making processes. However, few studies in the hazards literature adequately address the complex role(s) that current communications technologies play in obtaining, interpreting, and disseminating information during short-notice disasters. This paper examines two events that occurred in August, 2011 in Goderich, Ontario: the EF-3 tornado that struck the community on August 21st and a tornado warning that was posted for Goderich three days later on August 24th. Semi-structured interviews and focus groups were conducted to learn about the ways that people obtained and understood risk information, and to explore whether and how such information guided protective-action decisions during the tornado event. Upon completion of the interviews, a close-ended questionnaire (n=200) was also distributed to the general population of Goderich to assess the generalizability of some of the interview results. It was found that the August 21st warning was not widely received by residents of Goderich despite being issued 12 minutes before the tornado struck the community. Additionally, there appeared to be a notable lack of public engagement through social media on the part of emergency management personnel and other public officials. This lack of engagement represented a lost opportunity for officials to meaningfully connect with affected individuals throughout the recovery process. Implications for these findings will be explored in the context of risk communication.

**Contextualizing the Cultural-economy of the Sustainable Seafood Movement**

By Jennifer Silver, University of Guelph

Many capture fisheries have stalled or declined over the last three to four decades. Yet, Western seafood imports and per capita consumption have increased, numerous new species and products have entered the marketplace, and many retail/restaurant chains have been working to promote seafood as an ideal animal protein alternative. The objective of this paper is to discuss this apparent paradox and relate it to the burgeoning sustainable seafood movement. First, I discuss capture fisheries and the growing role of industrial aquaculture. Next, I explore international networks of actors that appear to wield increasing amounts of power in determining approaches to oceans governance and in executing them in different domestic settings. Contextualizing the ascent of market-based approaches like third-party certification and seafood wallet cards raises critical questions about the degree to which contemporary cultural-economies of sustainable seafood may work to empower actors and institutionalize networks that persist through the continued privatization and/or consolidation of ocean spaces and fisheries resources. This research draws from the trade and academic literature as well as participant observation undertaken at international events attended by many directly involved in supplying and marketing seafood to middle-class consumers.

**Distance, Society, and Space**

By Dragos Simandan, Brock University

Human geography has travelled a long distance from the days of the theoretical and quantitative revolution, to the extent that nowadays this discipline is dominated by post-positivistic thinking and non-quantitative approaches, and is celebratory of the importance of subjectivity, as evidenced in areas as diverse as work on geographical imaginations and imaginative geographies, feminist and queer theory, and non-representational theory. The notion of distance has failed to keep pace with the transformation of geography and the social sciences and this failure is reflected in its unsurprising current neglect. Can distance be turned into a concept that is pregnant with meaning? Can we update the notion in such a way so that it resonates with, and supports the centrality given to the human subject in the social sciences? Can we morph it into a useable tool that genuinely improves how we think about the human subject geographically? I shall show that the answer to these questions is positive, provided that we are willing to travel to the blurry margins of social science, and learn from how psychologists have understood to handle this concept.

**Lived Territories: A Tale of Inuit Women's Contemporary Subsistence and Belonging**

By Laurence Simard-Gagnon, Université Laval

Inuit subsistence systems and territorial experiences are currently the subject of much academic interest. Consumption and sharing of food from the land are abundantly discussed as central components of Inuit cultural identity and social cohesion, particularly in the light of increasing social, cultural, economic and environmental changes experienced in Inuit communities. The literature documenting Inuit subsistence systems is generally based on accounts and analyses of stories, knowledge, and territorial experiences that belong to the male domain particularly related to big game hunting while women's contributions to territorial occupancy and land-based practices tend to be dismissed. This paper presents a contemporary account of berry picking and use by women in Inukjuak, Nunavik, as a basis to discuss territory and land-based practices from a perspective informed by Inuit women. This account focuses on recollections of emotions and stories of sharing told by women through conversations about berries as territorial products. Through these stories and emotions, we can discern how women mobilize and reconcile closely embedded elements of Inuit and western traditions as they make their way through daily life in a contemporary world. The discussion also highlights some meanings imparted to berries and territory for Inuit women's sense of gender, identity and belonging, and allows for a deconstruction of received concepts of knowledge and territory.

**Acquiescent? Looking at Other Things? Who Cares About Air Quality in Hamilton?**

By John Eyles, K. Bruce Newbold, Peter Kitchen, Allison Williams, McMaster University

This study investigates the factors influencing perceptions of air quality in the industrial city of Hamilton, Canada. The research employs data collected via telephone surveys on 1002 adult residents in three neighbourhoods. Perceptions in the neighbourhoods were examined by individual socio-demographic factors (age, gender, marital and immigrant status, education, etc.) in addition to perceived health status and neighbourhood problems (environmental, social and safety concerns). The results of a binary logistic regression model reveals significant neighbourhood variations in perceptions of air quality, with those residing in the mountain neighbourhood being over 6 times more likely to report a 'good' perception of air quality, than those residing in the lower east city neighbourhood. In addition, factors influencing these perceptions also varied by neighbourhood. There was remarkable consistency in all three neighbourhoods when respondents were asked whether their perception of air quality affected their choice to go outside. The significance of the results are discussed in terms of both compositional and contextual factors influencing lay perceptions of air quality - focusing on how perceptions of the local environment and of neighbourhood problems (physical and social) influence these perceptions of air quality.

**Solving Wicked Problems: The Role of the Community in Improved Decision-Making**

By Hugh Charles Simpson, R.C. de Lo, University of Waterloo

Decision-making has traditionally been supported by risk analysis using scientific information. However, there has been increasing criticism of purely technical decision making processes for addressing problems involving complexity, uncertainty and ambiguity. These wicked problems, as they are known, are common in environmental settings. There is now growing recognition that solutions to wicked problems require decision making processes that involve the integration of technical information, societal values and risk perception. Wicked problems are quasi-scientific because more than scientific knowledge needs to be considered. The literature indicates that a broader risk analysis approach is needed for addressing wicked problems, and that members of affected communities need to be involved so that local experiential knowledge and societal values can be incorporated more effectively. This requires a shift from an inwardly-focused technical process to a more open process involving members of affected communities in all aspects of decision making process. The purposes of this paper are three-fold. First, concerns with traditional technical decision-making processes are discussed. Second, an alternative environmental decision-making model is presented based on insight gleaned from the literature concerning collaborative governance. Finally, opportunities are identified for making source water protection more collaborative, and integrating societal beliefs, values and perceived risk.

**Including Local Voices in the Rapid Development of the Indian Himalaya**

By John Sinclair, Yangji Sherpa, University of Manitoba

The Himalayan region of India is experiencing rapid development in tourism, agriculture, highway construction and hydro-electric development. This research describes and evaluates the role of public participation in tourism development projects in these high mountain environments, using the proposed Himalayan Ski Village (HSV) development in Manali as a case study. Qualitative data collected through semi-structured interviews, document reviews and participant observation revealed that there have been formal and informal opportunities for public participation in project development. The findings suggest that local people have been involved in project development activities, such as training for skiing, but not in the decision-making process related to the project. The majority of the participation activities were, in fact, instigated by the public including activities such as protests, court challenges and an unusual religious congregation. The findings also show that involvement in the participatory activities undertaken by the public and project proponent fostered instrumental and communicative learning outcomes.

**The Transformative Role of Voluntarism in Aging Resource Communities: Integrating People, Place and Community**

By Mark Skinner, Trent University, Greg Halseth, Neil Hanlon, University of Northern British Columbia, Alun Joseph, University of Guelph

This paper examines the importance of voluntary (non-profit) organizations, community groups and volunteers in supporting older people and sustaining community development in Canada's aging resource hinterland. The purpose is to shed light on a neglected dimension of the geography of rural change: the transformative role of voluntarism in shaping both individual and community experiences of aging in place. It focuses on the relatively new phenomenon of resource frontier aging in which people are growing old in places that have never before dealt with population aging. Findings from case studies of aging resource towns in northern BC are used to explore the forms of voluntarism that are proving the most fruitful in creating positive community development and social change within this unique context. The findings provide the foundation for developing an in-depth understanding of the evolving role of voluntarism within processes of place integration in the aging resource hinterland. The research is timely because very little attention, within research or policy, has been drawn to the interaction between aging rural people and aging rural places. It also contributes to the burgeoning interest in the geographies of voluntarism in Canada and internationally.

**Norway's Polar Presence: The Legacy of Nansen and Amundsen**

By Olav Slaymaker, Emeritus, University of British Columbia

2011 marked the sesquicentenary of Fridtjof Nansen's birth and the centenary of Roald Amundsen's successful expedition to the South Pole. Nansen's crossing of Greenland on skis (1888) and his unsuccessful Fram expedition towards the North Pole (1893-6), followed by Amundsen's expedition through the Northwest Passage in (1903-6), his conquering of the South Pole (1911) and his flying over the North Pole in the airship Norge (1926) were events which occurred at a critical time in the history of modern Norway. In 1905, the union of Norway with Sweden was dissolved and the independent kingdom of Norway emerged. The inspiration provided by Nansen and Amundsen established the priority of polar research, which is still endorsed by a nation of fewer than five million people. As evidence of Norway's polar presence, Norway has arctic territory (Svalbard and Jan Mayen Island) and antarctic territorial claims (Queen Maud Land, Bouvet and Peter the First islands). The Norwegian Polar Institute (est. 1928), with offices in Troms (Norland) and Longyearbyen (Svalbard) and research stations at Ny Olesund (Svalbard) and at Troll (Queen Maud Land), and the University Centre in Svalbard (UNIS; est. 1993) located in Longyearbyen at 78N represent some of the on-going scientific legacy of that heroic period of polar exploration.

**Regional Governance and Sustainability through Biosphere Reserve Designation: The Kluane Region Revisited**

By Scott Slocombe, Wilfrid Laurier University

Biosphere reserve designation for the Kluane National Park region, Yukon, has been raised several times in the last forty years. While world heritage status was received early, biosphere reserve designation has remained contentious. This paper will revisit the issue 20 years after the last review, and explore the potential contributions and challenges of biosphere reserve designation in the now very different governance context of settled comprehensive claims and comanagement processes, formal land use planning, and territorially devolved environmental assessment. This paper draws on document review and key informant interviews. Conceptions and roles of biosphere reserves have also changed over the last twenty years in ways which likely make them more suited to contributing to regional sustainability governance change. Conclusions explore current meanings and progress toward regional integrated planning and management for sustainability in the southwest Yukon, and the need for improved collaboration, facilitation, and social learning in developing comanagement and regionally responsive parks management.

### **Land Tenure, Ecotourism, and Sustainable Livelihoods: 'Living on the Edge' of the Greater Maasai Mara, Kenya**

By Ryan T. Snider, University of Waterloo

Since its introduction into mainstream society two decades ago, ecotourism has become an international phenomenon. Claimed by its proponents to endorse ecologically, socially, and economically sustainable travel to natural areas, ecotourism is in many ways the conceptual fusion of conservation and development. Yet, despite the optimism often associated with the phenomenon, the question of the degree to which it actually contributes to development, however defined, has become a controversial issue. Theorists and practitioners hold a variety of opinions of ecotourism, ranging from cautious optimism (Honey 2008; Ross & Wall 1999) to outright rejection (Carrier & Macleod 2005; Wheeler 2003). Unfortunately, research shows that the poorest of the poor generally bear the burden of ecotourism initiatives without receiving an equitable share of the associated benefits (Stem et al. 2003; Western & Wright 1994). In response, a sustainable livelihoods approach is proposed as a practical means of understanding the complex livelihood strategies employed by indigenous populations. While tourism research has often focused on the economic impacts of ecotourism initiatives, current livelihoods discourse suggests that the poor draw on a wide range of assets and incorporate a variety of livelihood strategies, in their pursuit of economic gain (Ashley 2002; Ashley et al. 2001; Bebbington 1999; Bennett et al. 1999; Zoomers 1999). This discourse is especially timely for pastoral populations living adjacent to protected areas in Kenya. Recent changes in government policy have promoted the subdivision of land for private ownership (Homewood et al. 2009; Leserogol 2005; Lamprey & Reid 2004), an unexpected transformation that has led to the adoption of ecotourism as a sustainable livelihood strategy. Informed by development theory, tourism theory, and property rights theory, the purpose of this research was to examine the effect of different land tenure regimes on the distribution of benefits accrued from various ecotourism initiatives, and how those benefits impact the livelihoods of the pastoral Maasai living on the periphery of the Maasai Mara National Reserve. Culturally-appropriate, participatory research methods were combined with the Sustainable Livelihoods Framework to document an indigenous perspective on livelihood sustainability. By adapting the conceptual framework to include cultural and historical capital, it served as a lens for viewing and identifying the culturally embedded meaning associated with the recent privatisation of Maasai property. These changes include: significant increases in income generated from ecotourism initiatives, an increased desire to cultivate land, an enhanced capacity for participating in the decision-making process, and greater diversification in local livelihood strategies. However, the empirical evidence also demonstrated that changing property regimes have led to the increased sedentarisation of these semi-nomadic people, resulting in modifications to their pastoral culture, reductions in their herd sizes, and the occasional obstruction of wildlife migratory patterns through the construction of permanent fences.

### **"When You're Transitioning, You Want to Stick to What's Familiar": The Role of Aboriginal and Non-Aboriginal Service Providers in Supporting Aboriginal Urban Newcomers and Frequent Movers**

By Marcie Snyder, Dr. Kathi Wilson, University of Toronto Mississauga

Over the past 50 years, the Aboriginal population in Canada has become increasingly and rapidly urbanized. This urbanization has been accompanied by high rates of mobility between reserve lands and cities, as well as within cities. While research has documented Aboriginal peoples' mobility rates, little attention has been given to how this movement impacts health or access to services, or to how service providers are responding to the needs of the urban Aboriginal population. The objective of our research is to produce a more comprehensive understanding of how Aboriginal and non-Aboriginal service providers are responding to the service and support needs of Aboriginal urban newcomers and frequent intra-city movers and to the challenges and successes that arise within the service landscape. Working in collaboration with a Winnipeg-based, Aboriginal-led organization that supports healthy urban transition, we examine the relationship between mobility and access to health, education, employment, housing, cultural, and social services. In order to explore links between mobility and service access, we conducted 20 in-depth interviews with Aboriginal and non-Aboriginal service providers and 22 in-depth interviews with Aboriginal movers in Winnipeg, Manitoba. The research findings reveal the importance of key factors that shape mobility as well as the importance of continued program development that supports urban Aboriginal movers as they strive to maintain and strengthen their quality of life.



**Establishing Respectful Research Relationships: Working Together Toward Positive Change**

By Marcie Snyder, University of Toronto

Over the past decade, I have had the opportunity to participate in several community-based participatory research projects. I spent time as a research assistant at the Institute of Urban Studies at the University of Winnipeg where my interest in Aboriginal health research grew. Here, I worked as a member of a research team, worked intimately with Aboriginal and non-Aboriginal community members, and contributed to producing research reports. These experiences inspired my PhD research, which is based on a collaborative research partnership with an Aboriginal-led organization in Winnipeg, Manitoba. Our research relationship developed in an effort to examine how frequent mobility, to and from, as well as within Winnipeg, impacts the holistic health of Aboriginal movers and how service providers respond to movers needs. This research is built upon meaningful, ethical engagement and mutually respectful interactions between all research team members, at all stages of the research process. This research privileges Indigenous thought and has combined community, university, and traditional knowledge in an effort to collectively inform action and policy that works toward positive change and achieving community visions. Our research findings have recently been released in a report that is being shared with community members, government, and the private sector.

**Community Responses to Wind Energy Development in Ontario**

By Emmanuel Songsore, Western University

The Province of Ontario has one of the most radical jurisdictions in the developed world for supporting and promoting renewable energy development. Legislatively, the Green Energy and Green Economy Act, 2009 is aimed at making Ontario a global leader in renewable energy development. Wind energy in particular represents one of the integral and controversial parts of these commitments. Several new installations have been built or announced and yet community opposition grows. Through a media content analysis of national, regional and local newspapers circulated within the province of Ontario, this study documents and analyzes issues motivating community resistance against and/or support for wind energy development in Ontario.

**Impacts of Water-management Decisions in Mexico City's Survival**

By Fabiola S. Sosa-Rodriguez, University of Waterloo.

Water-management decisions can influence city sustainability. The actions implemented based on these decisions can mitigate, and even prevent, certain water-related risks. Likewise, they can also intensify already existing dangers or generate new ones. Water-management decisions are linked to the institutions that make them, to their capacity for solving specific water related problems, and to perceptions about which water problems should take priority. Mexico City's inhabitants have been exposed to insufficient water supply, low water quality, a lack of sanitation services and catastrophic floods since the city was originally built. These risks have forced city authorities, at different times, to implement measures to prevent them. This article analyses how water-management policies have developed over the centuries, and how these policies have affected the city inhabitants, and the environment. The study uses as an example the history of water management decisions and practices in Mexico City. It also points out relevant future directions for water policy.

**Space, Place, and Becoming Age-Friendly: Opportunities and Challenges for Older Adults and Small Prairie Communities**

By John Spina, University of Manitoba

Becoming age-friendly is an effective policy approach to responding to the challenges and opportunities associated with demographic aging. The primary objective of this research was to explore the nexus between the geographic concepts of space and place and the ability of communities to become age-friendly. Qualitative interviews were completed by 24 older adults recruited from three rural communities in Manitoba, as well as 17 key informants, including representatives of the local, municipal, regional and provincial levels of government and non-governmental organizations. NVivo qualitative data analysis software was used to compare qualitative responses between: (a) older adults; and (b) older adults and key informants. The findings indicate that although the advantages of becoming an age-friendly community were recognized by respondents, bar

riers to becoming age-friendly included the program/policy environment and a range of community characteristics, impacting both individual and community health and economic development and community sustainability. Implications concern the attachments that older adults have with their communities, the costs to communities of not having programs and services for older adults in their communities, community planning initiatives, and the role of space and place on the utility of adopting Manitoba's Age-Friendly Initiative as a component of a community's sustainability program.

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Presenter: Terah Sportel

Session/Séance: **W2-D**

### **Coconut Crisis in Kerala, India? Mainstream Narrative and Alternative Perspectives?**

By Terah Sportel, University of Guelph, Rene Veron, Université de Lausanne

The Government of Kerala has identified liberalization-induced price declines of coconut as a crisis of 'unprecedented proportion' to the state. Effectively this is a simplified explanation derived from a handful of macro-level economic studies and government documents. In turn, this explanation of the crisis has evolved into a pervasive narrative. The narrative is comprised of four primary components: (1) liberalization has caused price declines of coconut oil and thus coconut, copra and other related products; (2) these price declines are a direct result of increasing imports of alternative edible oils through diminishing trade barriers; (3) cheaper palm oil imports are a direct alternative replacing coconut oil leading to decreased demand; and (4) this negatively affects farmers' livelihoods and increases their vulnerability. This paper aims to unravel this narrative and provide a more comprehensive explanation derived from alternative (local) perspectives. This is done by tracing the origins and continuity of the narrative through document review and analysis, and by exploring alternative explanations derived from in-depth field-based data (2007-2008). This paper shows that the political narrative overshadows, and thus silences, relevant alternative explanations. Of particular significance are explanations that point to production advantages in Tamil Nadu and the difficulty accessing labour in Kerala.

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Presenter: Terah Sportel

Session/Séance: **W1-H**

### **Identity Formation in Historical Political Perspective: An Exploration of Coconut Labour in Kerala**

By Terah Sportel, University of Guelph

Historically the Thandans, or coconut pluckers, have been seen as a most excluded and exploited community. This paper seeks to demonstrate that this identity changes with the political times, as it is thrown into a struggle with and against other communities and their own ideological self-understandings of their own situations. Just as the political identity has shifted over the decades, the precise forms and ways that Thandans have been exploited has varied. As this exploitation forms the material basis for the identity of the exploited, then an understanding of the contemporary political situation of Thandans can be enriched by a study of how traditional forms of exploitation have mutated in the 20th century. This paper explores the Thandan identity formation in three ways. Firstly, the basic anthropological definitions of this community are sketched. Secondly, the basic contemporary human development situation is presented. Third, the evolving situation of the Thandan identity over time is analysed. The conclusion suggests that unless a radical change in the social order and access to resources in Kerala occurs, the Thandan community will only ever exchange different forms of exclusion for one another, at the hands of the ever dominant communities.

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Presenter: Ihor Stebelsky

Session/Séance: **TH1-I**

### **From Empire to Nation Building: The Role of the Geographer Stepan Rudnytsky in the Imagining of Ukraine in the Context of Austro-Hungarian and Russian Empires and the Competing Movement for the Restoration of Poland before 1917.**

By Ihor Stebelsky, University of Windsor

This paper examines the contribution of the founder of modern Ukrainian geography, Stepan Rudnytsky, to Ukrainian nation-building. This is done by analyzing his key publications and showing how he formed a vision of Ukraine and delineated its territory to influence the perceptions of the Ukrainian public on the eve of the struggle for Ukraine's independence. His scholarly and publishing activity was conducted in Lviv, then part of the Austro-Hungarian Empire, before the declaration of Ukraine's autonomy in 1917 and independence in 1918. Rudnytsky's contribution is also viewed within the context of competing rival state-building projects in Eastern Europe that claimed the same territory, most notably the restoration of Poland and the preservation of the Russian Empire. Although Ukraine is now an independent state, Rudnytsky's conception was not fully attained, as political power and boots on the ground determined the ultimate re-drawing of the political borders.

**Reading Prairie Fire: Colonial Environmental Degradation Narratives and the Production of Palliser's Triangle**

By Justin Stefanik, Carleton University

Narratives of environmental degradation were central to the mapping, knowing and transforming of colonial environments in the 19th Century, including the Canadian Prairies. Descriptions of aboriginal resource mismanagement played a major role in shaping the environmental discourse of Palliser's Triangle and underpinned the justifications for future transformations of land use and population. The environmental practices of the Plains bands were seen as detrimental to future settlement and to the aboriginals themselves. In this paper, texts compiled from the major explorations of this period are examined to illustrate how colonial explorers read the use of prairie fire through European environmental misunderstandings of grasslands ecologies. It traces the circulation and reproduction of ideas that run through each text, formulating a story of what the land was, is, and should be in the context of perceived aboriginal land degradation. As the problematic geographical region of Palliser's Triangle did not fit easily or neatly into colonial plans of nationhood, capitalism, and Empire; it is an interesting site of contestation played out through constructions of nature, race, and land management

**Using a Sensitivity Analysis to Compare the Vulnerability of International Ski Areas to Climate Variability and Change**

By Robert Steiger, Centre for Climate Change Adaptation Technologies, Daniel Scott, University of Waterloo

Major investments in climate adaptations like snowmaking have reduced the climate sensitivity of the multi-billion dollar global ski industry in recent decades. Nonetheless climate variability can still cause economic losses and there are concerns about the long-term sustainability of some ski tourism regions in an era of global climate change. Incompatible climate impact indicators and research methods have thus far precluded analysis of comparative vulnerability of the world's major ski tourism regions and the implications for travel patterns, tourism development and real-estate investment. This paper introduces a new sensitivity analysis approach developed to facilitate inter-regional vulnerability comparisons. The sensitivity analysis utilized industry relevant impact indicators (e.g., ski season length, snowmaking requirements) and the SkiSim2 ski operations model to examine the potential impact of a wide range of potential climate futures. A total of 49 climate scenarios, using 2°C temperature increments (ranging from -4°C to +8°C) and 10% precipitation increments (ranging from -30% to +30%), were used to produce a 'climate sensitivity surface' for each ski area. The diverse case studies of Vail (Colorado, USA) and Kitzbühel (Austria) are used to illustrate the value of this comparative approach.

**Climate Change Impacts on Skiing Tourism in Austria**

By R. Steiger, University of Innsbruck

Climate change is a threat to the snow-dependent winter tourism industry in Austria. The impact of climate change on the snow reliability of 228 Austrian ski areas was investigated using a ski operation model (SkiSim 2.0). The results show that snowmaking can balance the negative impacts of climate change up to a warming of 2°C, but with high regional differences, i.e. higher and earlier impacts in the East. A multiplying of current snow production required in a warmer climate marks snowmaking as being no long-term adaptation measure for the Austrian winter tourism industry.

### The Cultural Location Index

By Kevin Stolarick, University of Toronto

Culture is an enabling sector that works in partnership and collaboration with other sectors, attracting talented people, tourists, businesses and attention from around the world. A strong cultural sector not only makes the city more appealing to residents, but also to visitors and investors. Strong cultural scenes offer the types of amenities that will attract and retain a talented workforce for all sectors. The Cultural Location Index (CLI) focuses on the cultural economy. That is to say: culture work as an occupation, and cultural products as goods or services sold on the market. It is a new metric for quantifying the cultural economy within a city. The CLI was developed to provide a quick overview of the concentration of the cultural activity in the City of Toronto, allowing areas that score well on all aspects to stand out, but it is a generic metric that would be useful across numerous geographies. Because, when it comes to understanding cultural activity and geography, no single data source can give a full picture on its own. The CLI is especially useful because it captures both the production and consumption of culture.

### Using Radar Data for Detectin Historic Wetlands: A Review T1-F

By J. Storie and S. Fraser, University of Winnipeg

Southern Manitoba has a long history of flooding with notable recent floods in 1997, 2009 and 2011. To date, the most used approaches to relieving the annual inundation risk is with engineering solutions because of their effectiveness, public perception of active problem solving by governments, and economic benefits to communities. However, a significant contributor to increased flooding risk is due to wetland loss due to drainage of wetlands for agriculture and urbanization. Reintroducing some of these wetlands within an integrated water management approach for reducing flood risk offers additional benefits such as much lower economic capital required and the ecological integrity of a region is re-established. In addition wetlands provide filtering of sediments and nutrients, carbon storage, wildlife refuge, nesting and feeding sites, and socioeconomic benefits through recreation and tourism [1-3].

In late 2012, there are plans to propose a Wetland Act to Manitoba's legislator by two provincial government agencies, Manitoba Water Stewardship and Manitoba Conservation. In addition to mapping existing wetlands for inventory and monitoring purposes to support this Act, restoring previous wetlands will also be priority. One strategy to ensure successful wetland restoration is to reintroduce wetlands where they have previously existed[4]. However, information on historic wetlands is not always readily available.

The long term goal of this project is to use polarimetric radar data to map historic wetlands in southern Manitoba. This area of interest already has an existing GIS database of historic wetland data which was produced using the original Dominion Land Survey (DLS) for 100 townships from the 19th century [5]. This data will be used to calibrate and validate results of mapping historic wetlands using polarimetric radar data. The first step to accomplishing this goal is to review the literature on how remote sensing images have been used to detect historic wetlands. Thus the objectives were to (a) determine appropriate indicators of historic wetlands, and (b) review mapping historic wetlands literature that used radar data. The structure of the past literature reviews on mapping existing wetlands using remote sensing data was used as a guideline in this study. Preliminary results showed that, of the enduring landscape characteristics identified as indicators to locate potential wetland sites, moisture and soil are most useful for our study region. There is limited research on using radar data for mapping historic wetlands, thus this review will focus on (a) mapping existing wetlands using radar and (b) mapping soil moisture using radar.

**The Halifax H-GIS Project: Long Term Views of a Changing Coastal Environment**

By Robert Summerby-Murray, Dalhousie University

This paper reports on a digitization/GIS project that explores the environmental transformations of coastlines in Nova Scotia over the past five centuries. Drawing upon diverse collections of historical maps held by project partners (Dalhousie University and the Provincial Archives of Nova Scotia in particular), the project has two key objectives: first, to develop teaching resources in historical cartography and improve access to historical maps; second, to incorporate these historical map resources into GIS analysis of changing coastal environments. The project relies on a diverse partnership of individuals exploring the use of historical geo-spatial data and the ways in which GIS opens up new forms of analysis. The initial case study of changes in Halifax Harbour from 1749 to the early twentieth century provides the focus for much of the presentation, demonstrating the richness of the map resource and the opportunities to incorporate other forms of data into the GIS in order that we demonstrate environmental and socio-cultural change over time.

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**The Post-industrial Marsh: Environmental Change and Cultural Construction in the Coastal Marshlands of the Bay of Fundy**

By Robert Summerby-Murray, Dalhousie University

Coastal marshes have been analyzed primarily from the perspective of either biophysical process change or political economy. Rarely has the cultural significance of marshes figured in the historical geography or environmental history literature. This paper argues that coastal marshlands must be viewed also as cultural constructions. The restoration and naturalization of coastal marshland environments in the early 21st century for purposes of leisure, environmental tourism, and the encouragement of species diversity suggest that there is a post-industrial cultural rationale for the maintenance of these spaces. This paper argues that viewing the coastal marshland as reflective of processes of industrialization and, more recently, deindustrialization, situates this environment more appropriately in terms of its present day cultural landscape significance. Particularly, the paper argues that the present landscape includes examples of marshlands that are post-industrial cultural constructions. The paper traces briefly the industrialization of the marshland environment, notes changes in the environment due to deindustrialization, and argues that post-industrial marshland environments contain fragments or artifacts of the industrial past as well as representing current societal conceptions of a constructed and reconstructed nature. These points are demonstrated with reference to coastal marsh environments in the Bay of Fundy.

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**From IF to F: the Role of Clustering, Classification and Mapping Processes for Digital Earth's Information Integration Objective**

By Cristian Suteanu, Saint Mary's University

Digital Earth is more than a broad, multi-dimensional project extending across disciplinary boundaries: it represents a novel approach to information management. Flexible information absorption from different sources as well as successful steering in information space both crucially depend on the effectiveness of information integration. The latter must be supple, subject to dynamic development, while maintaining rigorous control on entry points and handles meant to provide reliable access to resources. The paper analyzes different approaches to information organization, symbolically represented as IF A THEN B and F(A)=B, respectively. The implications of clustering and classification, on one hand, and mapping, on the other hand, are studied from the point of view of the integration effort that lies at the heart of Digital Earth. Analysis criteria include information flux density, structure accessibility, and potential information reorganization effort.

**Extracting Natural Drainage Patterns from Elevation Data for Identifying Incongruent Land Uses in Jaffna, Sri Lanka**

By Karunakaran Suthakar, University of Jaffna, T. Randall, Lakehead University

The availability of digital elevation data, high resolution satellite images and advanced computer algorithms have contributed significantly to the spatial and temporal analyses of environmental variables. The automatic extraction of drainage networks from digital elevation data has received considerable attention in recent years. In this paper, a natural drainage pattern (delineated from elevation points collected in the field) was compared with a large scale land use map to identify incongruent land uses in Jaffna Municipality, Sri Lanka. The elevation points were collected with a GPS and used for the preparation of a Digital Elevation Model (DEM). A drainage network was subsequently extracted from the DEM through the flow determination and network extraction using DEM hydro processing module of ILWIS GIS software 3.7. A land use/cover map was prepared from QuickBird images using Definiens Professional, Image segmentation and Classification software 5.0. The intersection of the drainage network and land use maps was used to identify incongruent land uses. This approach has been successful in identifying land use conflicts in the course of natural drainage patterns and provides useful information for flood management and land use planning in the study area.

**The Evaluation of Business Improvement Areas (BIAs) in the City of Toronto**

By Stephen Swales, Mary Makar, Wayne Forsythe, Ryerson University

Containing a total of 72 Business Improvement Areas (BIAs), the City of Toronto is not only home to the largest number of BIAs in North America but also to the very first BIA in the world. Although having common objectives, the City's BIAs vary in location, size, store composition, market orientation, and ethnic composition. Building on earlier Toronto work by the same authors, this paper analyses in detail the composition of representative types of BIAs. A combination of census, website and survey analysis, supplemented by field work, serves as the basis for evaluating and comparing the sites. It is evident that the BIAs vary substantially in character.

**The Impact of Social Media in Disaster Relief Campaigns**

By Anne Tadgell, Brent Doberstein, University of Waterloo

This research examines the use of social media in Canadian disaster relief fundraising campaigns, specifically, in the realms of advertising and donations. A mixed-methods approach was used in the research. Insight into the role of social media in these campaigns was established through a review of secondary literature, and semi-structured key informant interviews with staff of Canadian non-government organizations (NGOs) that operate relief campaigns. In addition, a total of 300 surveys were mailed out to the general public of Hamilton (n=150) and Kitchener (n=150) to understand which sub-populations tend to use social media to access these campaigns and to understand how social media influences donations to such campaigns. Survey results were compared to secondary and key informant interview data to begin to understand how social media could be better employed and made more accessible to those who wish to use these technologies. Initial results suggest a correlation between age and social media use, with the younger generations both learning about and donating to campaigns through social media more often than older members of the public. Canadian disaster relief NGOs are generally interested in expanding use of social media in future campaigns, but there remains a number of challenges that must be overcome before social media use in disaster relief campaigns becomes more widespread.

**Psychological Distress and Seasonality Among Urban Aboriginal participants**

By B. Tam, W. A. Gough, University of Toronto

The prevalence of psychological distress and seasonal affective disorder (SAD) was examined between an urban Aboriginal population sample and an urban non-Aboriginal population sample through the use of a modified 12-item General Health Questionnaire (GHQ-12) and the Seasonal Pattern Assessment Questionnaire (SPAQ). Compared to non-Aboriginal participants (n=49), urban Aboriginal participants (n=43) were approximately three times more likely to exhibit psychological distress, and approximately four times more likely to exhibit SAD. Participants that perceived their health as poor/fair were also more likely to exhibit psychological distress. These findings provide a greater understanding on the mental health status of an urban Aboriginal group; further research is required on a larger sample size.

**Spatiality and the Politics of Marine Conservation**

By Chui-Ling Tam, University of Calgary

Marine protected areas are often represented as a happy compromise between conservation and economic development in biologically unique ocean environments. As models of sustainable development, MPAs invite curtailment of harmful marine extraction in exchange for the economic benefits of tourism and environmental stewardship. As such, marine spaces once experienced as lived and harvested environments are reimagined as recreational spaces in which human livelihoods and extractive activities are altered in service to conservation. In this paper, the construction of MPAs is explored in terms of a conservation discourse promoted by powerful international environmental interests and the local developmental state. Such collaborative partnerships are mutually beneficial, but we must interrogate differential impacts that emerge in the framing and implementation of MPAs, spatial and temporal inequities of development diffusion, and power relations that constrain the ability of development subjects to become development actors. Drawing from research in Indonesia, it is suggested that the planning and implementation of MPAs must more deeply take into account the complexities of actual and perceived difference ecologically, socially, economically, politically and spatially to truly maximize the benefits of protected areas and to include marginal populations into a more nuanced understanding and strategic deployment of conservation as development.

**Wreckovering Value from Scrap: Spaces of Salvaging Loss**

By Sophie Tamas, Queen's University

When abuse survivors leave their abusers, they are supposed to enter zones of recovery, in which they come to terms with their trauma and cultivate the strength, courage, assertiveness, and personal resources required to rebuild their lives. This dominant cultural script obscures the complexity of the post-abuse process, which, according to my doctoral research, is closer to managing a chronic illness or enduring your own death. This piece suggests that recovery is an ill-fitting metaphor, and seeks more adequate ways to contain and communicate the aftermath of loss through a close examination of scrapping spaces and practices. Scrapbooking and scrapyards are heavily gendered, multi-billion dollar industries in which we manage contingency and ascribe value to loss. Drawing on images, narratives and sound gathered in scrapping spaces in Lanark County, Ontario, my presentation will reflect on the conceptual and representational tools scrap might have to offer survivors of abuse. In forthcoming stages of this project, these tools will be workshopped with a group of survivors and with a devised theatre group, in order to ground them in practical experience and in embodied gesture. The project will culminate in the development and dissemination of a community theatre production kit designed to open up discursive space for the complexity of the aftermath of trauma while raising awareness and funds for victims services.



**Sea Ice Melt Process in Canadian Arctic Archipelago: 1989 to 2010**

By W. Tan, E. LeDrew, University of Waterloo

A regional specific analysis is proposed to understand the sea ice melt processes for the CAA because of the geographic arrangement of the islands. The maximum sea ice extent for the CAA region is fixed at 100 per cent at the end of winter due to land constraint. The summer minimum sea ice extent in the CAA mainly depends on the amount of melt in spring and summer plus the regional advection of ice from the Beaufort Sea and Arctic Ocean. We provide a detailed analysis of the daily sea ice extent change for the CAA regions focusing on April to August each year for 1989-2010 observational period. The melt process has been divided into four phases: melt onset phase, quick melt phase, ice import phase and steady melt phase. These phases are significantly different from each other in terms of temporal progression. A possible ice melt mechanism is proposed to explain the four-phase process. The beginning date of the quick melt phase for a year is a good indicator of the amount of ice loss for that year. The net surface radiation accumulated within the CAA region is also significantly related to the timing of the quick melt phase.

**Green Sprawl: Landscape and the Ideology of Nature in Exurbia"**

By Laura Taylor, York University

Exurbia, spatially and ideologically, is a phenomenon worthy of study. The idea of exurbia captures a particular form of rural residential development that is tied to the central metropolitan area through workplace and social ties, and yet has a sense of place derived from its connection to the local natural environment. Exurbia is different from suburban growth areas, from small towns, or from rural areas. To a greater degree than with suburban or small town settlements, the residents of exurbia see the landscape in the light of their own expectations of it, and shape it accordingly. Exurbia can be understood as an imagined landscape, built around an ideology of nature—even as the results, ironically, often drive the transformation and abandonment of the natural landscape that they perceived as real.

This paper provides an overview of the exurban literature related to planning, from the post-war geographies of spatial distribution to the more recent surveys of individuals' motivations. It then suggests paths for additional research, based on approaches and methodologies in political ecology and landscape studies.

**The Making of a Place: Art, Making and the Value of the More-Than-Written**

By Amanda Thomson, University of the Highlands and Islands

As part of an ethnographic fieldwork element of an arts-practice led PhD that investigates becoming familiar in the context of some of the forest landscapes of the Scottish Highlands, I have spent time volunteering on a nature reserve, and shadowing ecologists, foresters and others as they've gone about their work. By having an active engagement in tasks such as bird-ringing, or brood-counting, I've learnt about the ecology and management of these places, and about how the specificity of tasks dictate movement and interaction. Place unfolds through repeated visits and different tasks, and this informs the art subsequently made. By shadowing ecologists and rangers in situ, I create space for the land itself to shape our conversations: the land, its flora, fauna, weather become active participants in our dialogues and my learning about these places, and this knowledge informs my work. At the same time, my making informs my knowledge and the familiarity I have or seek. Influenced by writings about landscape, mobility, multi-sensoriality and affect, and by, amongst others, John Wylie's notion of narrating self and landscape, I'm interested in the value of the more-than-written in the articulation of place and will present a multi-media paper which will include images of etchings, GPS drawings, bookworks, soundscapes and video. Some of the work I'll refer to can be found at <http://passingplace.com>

**Revisiting Photographic Surveys of Building Exteriors in Central Oxford, UK**

By: Mary J. Thornbush, University of Birmingham

Oxford stone is continually cleaned and repaired (restored) in a building conservation approach largely evident since the 1950s. A published book on stone restoration conveys the work of the Oxford Historic Buildings Fund between 1957 and 1974. Archival and restoration photographs taken by J. W. Thomas appear in the edited volume by W. F. Oakeshott (1975) entitled *Oxford Stone Restored*, with 44 plates in Appendix B of the book. This article addresses change apparent through repeat photography (rephotography) in 17 of the plates, conveying mostly colleges of the University of Oxford. The emphasis is on identifying visible change (at the facade scale) since restoration through photographic surveys and examining the source of such change in Oxford. Over time, buildings appear darker towards the top of their exteriors, which is mostly attributable to exposure to top-down climatic variables in conjunction with air pollution. Weathering features identified across half a century of exposure include encrustation, blistering, pitting, granular disintegration, flaking, and scaling.

**Integrating Water Isotope Tracers and Algae to Implement a Long-term Aquatic Monitoring Program for Lakes in Old Crow Flats, Yukon Territory, Canada**By J. Tondur<sup>1</sup>, K. Turner<sup>1</sup>, A. Balasubramanian<sup>2</sup>, B. Wolfe<sup>1</sup>, R. Hall<sup>2</sup>, I. McDonald<sup>3</sup>

1. Wilfrid Laurier University 2. University of Waterloo 3. Parks Canada

Lake-rich thermokarst landscapes, such as Old Crow Flats (OCF), are rapidly transforming due to climate change. This has raised concerns of the Vuntut Gwitchin First Nation and Parks Canada regarding the ecological integrity of this internationally-recognized wetland, part of which lies in Vuntut National Park. Impacts of climate change are complex and vary across the landscape, thus long-term hydroecological monitoring is essential to detect aquatic responses. In a genuine interdisciplinary and collaborative approach, this research integrates isotope hydrology with aquatic ecology to develop a robust long-term aquatic monitoring program that has been adopted by Parks Canada. In collaboration with Parks Canada, we selected 14 of 57 lakes that were previously studied during the International Polar Year from 2007-09. We sampled these lakes in 2010-11 for analysis of hydrogen and oxygen isotope composition to track hydrological conditions. Samples of biofilm accrued on artificial substrates were analyzed for diatom and pigment concentrations to measure community composition and abundance. Results indicate that the selected monitoring lakes are hydrologically diverse and encompass three lake types: snowmelt-dominated, rainfall-dominated, and evaporation-dominated. Using patterns in isotopic evolution and calculated evaporation-to-inflow ratios, we identify thresholds that can be used to monitor the response of lake water balances to climate change. We aim to use diatom and pigment data to define a predicted algal community structure and apply the Reference Condition Approach to monitor climate-driven changes in ecological conditions.

**Spatial Impacts of Public Transit Service Expansion in Vancouver**

By Craig Townsend, Concordia University

Vancouver's regional government has pursued the expansion of public transportation along with land use planning for over 30 years following the cancellation of inner city freeway plans in the early 1970s. The public transit service expansion has been led by the introduction of rapid railways (medium capacity light railways and a heavy rail commuter line radiating from the downtown core), the introduction of semi-rapid bus services, and a range of improvements to regular bus services. This paper analyzes the spatial distribution of changes to transit service frequency and the results measured in terms of per capita service. It seeks to address the question of whether the introduction of rapid and semi-rapid services resulted in transit service decreases in areas further from transit stops using an innovative Geographic Information System (GIS). The level of transit service is measured across comparable spatial units which include residential population figures in four years (1981, 1991, 2001, and 2011) and the changes between those years. The paper contributes to theories on the impacts of public transportation expansion integrated with land use policy on accessibility, and provides findings that offer guidance to planners and policy-makers.

**Montréal's Minority Donors and their Accessibility to Blood Donation Sites**

By Gianhi Tran, Marie-Soleil Cloutier, Johanne Charbonneau

In Québec, Canada, as in various western countries, maintaining a sufficient number of blood donors is a major concern. In order to increase blood supply, one of the options has been to target minority communities and their donors. The purpose of this study is to explore the accessibility of blood donation sites in Montréal. More specifically we examine if minority donors chose their blood drive venue by virtue of its geographic or cultural accessibility, or both. Using qualitative methods, 75 semi-structured interviews were conducted with donors as well as leaders of Montréal's minority communities. We found that minority donors generally behave the same way as regular donors and that proximity was a decisive factor in choosing where to donate. We have identified four spatial references from which respondents considered the accessibility of a place of donation: the place of residence, work, school, and during random travels. Despite various mobile blood collection units available, donors do not always choose the most convenient location. We found that cultural factors also influence their behaviour, such as: the cause behind a blood drive, the respect of a certain mores and customs, the presence of family and community ties.

**Shifting Terrains**

By Susan Trangmar, University of the Arts London

As a visual artist my research and practice concerns the relationship between landscapes and human presence, both urban and rural. It involves consideration of how space and time is represented through lens based media, and an understanding of practices of the everyday within a concept of the local. I will discuss 2 video artworks : Elements and In Passing, produced as part of the wider research project: Shifting Terrains. The geographical context for Shifting Terrains is a historically neglected area of environmentally fragile marshland and coastline in the South East of England which supports the extraction and nuclear power industries, agriculture, small scale tourism; the military and is also an important conservation area. Elements, a digital video and sound work, positions itself at the confluence of these activities, employing prolonged observation and listening through video and sound recording to represent the complex interrelations of topography, lived place and climate. In Passing records a trajectory of movement through the local landscape. The digital information is reassembled both durationally and spatially as a video work which draws attention to sedimented and tangled, suburban materialities clinging on to existence at the margins.

**Identifying Drivers of Hydrological Change in Old Crow Flats, Yukon Territory, Canada**

By K.W. Turner<sup>1</sup>, B.B. Wolfe<sup>1</sup>, T.W.D. Edwards<sup>2</sup>, T.C. Lantz<sup>3</sup>, R.I. Hall<sup>2</sup>, G. Larocque<sup>4</sup>, I. Wilfrid Laurier University, Waterloo, Canada; 2. University of Waterloo, Waterloo, Canada; 3. University of Victoria, Victoria, Canada; 4. McGill University, Montreal, Canada

Northern lake-rich regions have been identified as leading-edge Arctic landscapes in transition in response to climate change. Designated as a Ramsar Wetland of International Importance, Old Crow Flats (Yukon Territory, Canada; OCF) contains approximately 2700 shallow thermokarst lakes. Prompted by local concerns about the influence of changing climate on aquatic habitat, the drivers of lake water balances were elucidated from integrated analyses of meteorological conditions, remotely-sensed land cover characteristics and water isotope data collected over three years. Results highlight strong hydrological variability among lakes, classified as snowmelt-, rainfall-, or evaporation-dominated. Snowmelt-dominated lakes maintained positive water balances because these catchments have more forest and shrub land cover that generate greater snowmelt runoff than the catchments of rainfall- and evaporation-dominated lakes, which contain mainly tundra vegetation and surface water. Many rainfall-dominated lakes transitioned to evaporation-dominated hydrology during the dry summer of 2008. Isotope-inferred hydrological connectivity indicates that lake water export to rivers is greatest in two sub-catchments located in the southern area of OCF, which have relatively greater proportions of tall shrub and forested land cover. Results provide key insight into the drivers of hydrological variability in this landscape. This information provides the basis for developing future lake hydrological scenarios based on changing climatic and land cover conditions.

**The Fight Against HIV/AIDS in Cambodia: Conflicting Policy Impact on Good Intentions**

By Mengieng Ung, Paul Mkandawire, Jenna Dixon, Issac Luginah, The University of Western Ontario, Sopheap Heang, Sovannary Tuot, Sopheap Oum, KHANA, Phnom Penh, Cambodia

Although HIV prevalence amongst the general population in Cambodia has dramatically declined from 2.1% in 1998 to 0.7% in 2010, the prevalence amongst Most At Risk Population (MARF) remains elevated. In order to prevent new infections especially amongst the MARF group, a 100% Condom Use Policy was nationally implemented in 2001. However, due to years of pressure from the UN, Cambodia enacted law on suppression of human trafficking and sexual exploitation in 2008, which overtly conflicted with the goals of the 100% Condom Use Policy. Using an interpretative methodology, this paper explores how the implementation of the law on human trafficking and sexual exploitation seems to conflict with the national condom use policy and how the incompatible narratives of the two policies place significant hardships on the fight against HIV/AIDS in Cambodia predominantly amongst MARF. For instance, sex work landscape in Cambodia has been dramatically shifted away from brothels after the anti-trafficking law was introduced. As sex workers became more hidden, there was an observed decline in access to health services, notably for diagnosis and checkup of HIV/AIDS. Access to condoms and carrying condoms became problematic and often has been accused of sexual exploitation involvement. Policy implications will be discussed.

**HARVESTING CONSCIOUSNESS: The Impact of Seasonal Labour on the Transnational Political Identity of Guatemalan Migrants to Canada**

By Giselle Valarezo, Queen's University

The Temporary Agricultural Worker to Canada (TAWC) project was introduced in 2003 with the purpose of recruiting Guatemalan migrants to fill seasonal labour voids in Canada. Workers contracted through TAWC directives have received minimal scholarly attention, given the infancy of the program and the substantial focus on Mexican migrants recruited through the Canadian Seasonal Agricultural Worker Program. This dissertation illuminates the transnational political realities of Guatemalans by examining the impact that circular migration has on the subaltern migrant body. Fieldwork was conducted in two sites, the first St. Remi in Quebec, the second Santiago Sacatepequez in Guatemala. Research findings underscore the transnational nature of the flow of hegemonic (discipline, insecurity, oppression, exploitation) and counter hegemonic (empowerment, liberation, collectiveness, security) political ideas and activities between the spaces traversed by migrants. The study engages a multi-faceted ethnographic design in order to explore the spatiality of political consciousness, assessing Guatemalan migrant responses to a range of ideas and activities imparted by agencies of power. These include both the Canadian and Guatemalan governments, the International Organization for Migration, and le Fondation des entreprises pour le recrutement de la main-d'oeuvre étrangère (FERME) along with a range of transnational supporting allies. Nevertheless, the decision to (dis)engage in certain politicized conduct is largely dependent on the human agency of Guatemalan migrants, as they find the means to cope with the mounting pressures of seasonal migration. A political economy perspective allows me to engage three debates that theoretically frame the transnational political identity of Guatemalan migrants. These are: (1) processes of political transnationalism; (2) neoliberal agenda and mindsets; and (3) migrant political consciousness, with a particular emphasis on Foucauldian concepts of governmentality and Gramscian notions of hegemony and consciousness. By engaging the (re)shaping of transnational political identity as a phenomenon influenced by agencies of power, and more importantly, the human agency of subaltern migrants, my dissertation emphasizes migrant (un)willingness to embrace and/or suppress certain resources that restructure political consciousness and political action. The versatility and fluidity of transmigrant political identity reveal that the distinct realities of individuals are constructed by travelling back and forth, as seasonal labourers, between Guatemala and Canada.

**“Integrating Pedestrian Pathways into a Walkability Index for Waterloo Region – the NEWPATH Experience.”**

By Joshua vanLoon, University of British Columbia, Rehan Waheed, Planning Technician, Planning, Housing and Community Services, Region of Waterloo, Kitchener, ON

Beginning in 2008 the Region of Waterloo began an ambitious 3 year research project called NEWPATH (Neighborhood Environment in Waterloo Region: Patterns of Transportation and Health). Funded by the Heart and Stroke Foundation and research partners from across Canada, the goal was to measure the built environment as it relates to diet, physical activity transportation choices and health. The first major part of the project was the development of a Walkability surface, through the use of Network Analyst within ArcGIS. This project built on collaboration between GIS specialists at the Region of Waterloo and experts in walkability at the University of British Columbia. The resulting mapping and calculations from the project have been used in improving the extent of Regional services, as well as in enhancing the quality of life of its citizens. This presentation will present an overview of the development and application of the walkability surface, highlighting several unique enhancements to the index.

Presenter: Jurjen van der Sluijs

Session/Séance: **TH4-F****Using an Unmanned Aerial Vehicle for the Development of High Resolution Digital Elevation Models for Localized Areas**

By Jurjen van der Sluijs, Dion J. Wiseman, Brandon University

The goal of this research project is to evaluate the capability of an Unmanned Aerial Vehicle (UAV) for producing high resolution Digital Elevation Models (DEMs). A localized dune complex covering approximately 8.0 hectares in the southwest corner of CFB Shilo, Manitoba was surveyed, and DEMs derived from a Total Station (Nikon Nivo 5M) and differential GPS (Trimble ProXRS GPS) survey were compared to DEMs produced using high resolution aerial photography acquired with a UAV. The UAV imagery was processed using two alternative software applications: 1) a commercially available photogrammetric application called LISA and 2) a freeware application called Microsoft Photosynth. The results indicate that the UAV performed well with reference to the total station (RMSE of 0.18 m) and differential GPS (RMSE of 0.21 m). Furthermore, the UAV imagery allowed for a greater sampling interval than what could be realized with the differential GPS, and covered a much greater area than what the total station could reasonably survey. The traditional photogrammetric software outperformed the freeware application, whereby LISA produced a DEM of higher accuracy (RMSE of 0.18 m and 0.21 m) than Photosynth (RMSE of 2.9 and 4.7 m). In conclusion, UAV imagery provides a viable alternative for the creation of DEMs of localized areas; however, the accuracy is greatly dependent on the image processing application used.

Presenter: Jennifer K. Vanos

Session/Séance: **W1-E****Long-term Influences of Synoptic Climatology and Air Pollution Interactions on Daily Mortality in 12 Canadian Cities**

By Jennifer K. Vanos, Sabit Cakmak, Health Canada, Laurence S. Kalkstein, University of Miami

As humans, we respond to the whole suite of external elements in the air around us. Spatial Synoptic Classification (SSC) identifies seven air mass types (categories), and integrates five variables of an atmospheric situation (air and dew point temperatures, wind velocity, cloud cover, air pressure) that affect human health and thermal comfort. Offensive air mass types (i.e.: result in increased heat and cold deaths) are categorized as dry or moist tropical (heat), and dry polar (cold). The goal of this study is to complete a large-scale investigative analysis in 12 large Canadian cities from 1981-2009, in both summer and winter seasons. Initially, we evaluate the synoptic climatological conditions associated with high and low air pollution levels within urban areas. Secondly, we assess the climate-air-mortality relationships and interactions using a distributed lag model, with further separation of the effects of air pollution and air mass type on mortality. Preliminary investigations have shown overall statistically significant increases in the frequency of the most oppressive summertime air mass (moist tropical). Additionally, we have identified extreme ozone concentrations in the presence of a dry tropical air mass in the summer, and higher fine particulate matter levels under a dry moderate air mass in the winter. This study will be the most extensive regional comparison of air mass-air pollution-mortality relationships ever completed in Canada. We will gain further understanding of climate-air-health synergies in mid-to-high latitude cities, which will complement SSC studies prevalent in U.S. cities.

**Politics of Diaspora Driven Development: Multiple Realities from Indian Punjab**

By Vekkal John Varghese, Tallin University

The Punjabi diaspora is known for its private spending on public good unlike many of its Indian counterparts. The diaspora philanthropy and development initiatives at their ancestral villages often seeks their justification in arguments like civic duty, loyalty to village, gratitude payback, sense of identity and so on, but also bolstered apparently by the Sikh religious and moral philosophy. Such spending has resurfaced in the literature as a strong testimony of their bifocal living and the intense connection the diaspora maintain with the homeland. My paper would be an attempt to look beyond this discourse of nostalgia and see the politics behind philanthropy/development investments by the diaspora, alongside the heightened attempts on the part of the home society to attract diaspora resources for local development. My analysis will be based on a few villages in the doab region of Punjab with considerable diaspora investments and a few diasporic individuals from the U.K who are making philanthropic investments in the same region. I will argue that there is a visible mismatch between the perceptions of the diaspora and the local society on such investments and are engrossed in diverse layers of ambivalences and contestations. If a mix of admiration and suspicion defines the local attitudes, the diaspora discourses, withstanding its internal tensions, often punctuates the ruptures in writing its success stories over the landscape of Punjab

**Assessing the Seasonal, Spatial and Temporal Wind Speed Trends Over Ontario from 1980 to 2010 Using the North American Regional Reanalysis Data**

By Monica Vaswani, Richard Bello, Kaz Higuchi, York University

Wind plays a host of roles both meteorologically and within society. It is one of the primary mechanisms involved in redistributing energy around the globe, it is a transporter of atmospheric pollutants and disease and it also has numerous repercussions for industries such as agriculture, forestry and marine transportation. Wind also provides some promising solutions for renewable energy in the future. Speaking to the potential effects of climate change, both scientists and policy makers are becoming increasingly concerned with how extreme weather may be affected by a climatic shift and subsequently how trends in extreme winds could change accordingly. Any such changes could have repercussions for Ontario, James Bay and the surrounding Great Lakes region both environmentally, socially and economically. Trends in both mean and extreme wind speeds are examined for this geographic area using the North American Regional Reanalysis Model (NARR), a high resolution model producing outputs every 3 hours at a spatial resolution of 32km. Surface wind speeds at 10m above ground level are analysed over a 31 year period spanning from 1980 to 2010 in order to study trends and variability in both the mean and extreme wind speeds on a seasonal basis. The data provides convincing evidence for areas demonstrating statistically significant long-term trends which lends insight as to how wind speeds may change in the future. Linkages to changes in surface conditions and other dynamical factors are examined.

**The Politics of Headwater: Transboundary Conflict Resolution Through Integrated Watershed Management**

By Dr. Romila Verma, University of Toronto

With depleting freshwater volumes and increasing demand, sharing this precious resource between countries, communities and sectors has become a challenge. This is especially evident in the context of the highly volatile and tenuous relationship between India and Pakistan. Their political and cultural dynamics make the situation more complex. Therefore, the focus of this article is to understand the river regime of the Indus River shared by both the countries. The headwaters, which is located in India plays a key role in determining the water quality and quantity on the lower riparian zone, which is located in Pakistan. It also examines the historical context of the conflict within the framework of Indus River Treaty (IWT) brokered by the World Bank. The recommendation is to create a corridor between India and Pakistan based on the principals of Integrated Watershed Management.

**Local Level Factors Shaping the School Nutrition Environment in Ontario**

By M.M. Vine, McMaster University, S.J. Elliott, University of Waterloo

Objective: To explore the perspectives and experiences of stakeholders involved in a regional school nutrition program in Ontario in order to identify local level factors affecting sustainability.

Methods: Interview data were collected from a range of key informants (n=32), including personnel from public health, local NGOs, teachers, volunteers, and principals. Open-ended questions explored themes related to nutrition program implementation, including program objectives, enablers and barriers, and capacity. Data were coded and analyzed thematically using NVivo 8.0 software.

Results: Interview data generated three key themes: 1) funding model; 2) internal resource capacity; and, 3) reporting guidelines. First, the current funding model requires that schools fundraise to cover operating costs, placing high-needs schools at risk due to their lack of resource capacity. Second, limited internal resources and high volunteer turnover impacts the vitality of the program. Third, stringent food and nutrition guidelines prohibit schools from accepting food donations not considered "healthy." Conclusions: Major program infrastructure barriers threaten the sustainability of these programs. Multi-sectoral collaboration is needed between provincial policy makers, regional organizations, and local schools to improve the availability, accessibility, acceptability and adequacy of food served in programs that support healthy nutrition environments.

**Planning, Pedagogy, and the Colonial Present**

By Leela Viswanatha, C. Hovey, Queen's University

This paper examines how colonization is normalized through education and then reinforced through professionalized education and the construction of the expert such as in the professional practice of planning. The practice of urban and regional planning has many different meanings but has conventionally been associated with the allotment and treatment of lands. This paper will attempt to shed light on the fact that planning narratives, although dominated by stories about progress, development and city building, which have contributed to dominant understandings of nation building, also involve contemporary planning narratives which for the most part build upon discourses of settler colonialism. Theoretical and empirical studies of postcolonialism have examined how colonized groups have subverted power through their opposition of colonial constructs and by replicating or reinventing existing norms with new meanings and on their own terms. In bringing together research on professional planning, pedagogy and practice with First Nations in northern and Southern Ontario, this paper asks how can planners and educators can learn from and uphold Indigenous ontological and epistemological constructions and philosophies of place and enhance First Nations power and authority to practice their spatial cultures. What will it take to decolonize planning pedagogy and practice?

**The Monroe Doctrine: Making Science Suburban**

By Patrick Vitale, University of Toronto

In September 1969, The Times Express, the weekly newspaper based in Pittsburgh's burgeoning suburb of Monroeville, ran a special issue devoted to the Borough's emergence as a major research center. The newspaper carried its usual byline, Serving the nation's research center. At first glance, visitors to the nation's research center would have seen yet another congested commercial artery lined with strip malls. But, traveling beyond busy Route 22 into the surrounding hills, they would have found the research and development facilities of Pittsburgh's leading industrial firms. Throughout the 1950s and 60s numerous companies and private developers developed research centers and office buildings in Monroeville and other nearby suburban communities. This paper sketches out why these firms considered suburban space conducive to industrial research and how the formation of industrial research facilities in the suburbs was part of a long-standing process of industrial suburbanization that enabled the reproduction of the conditions for capital accumulation. In addressing these questions, it contributes to the emerging focus of historians of science and technology on cities and suburbs as sites of scientific research.



**'Croissance régionale de l'emploi, recurrences spatiales et cycles économiques : qu'en disent les données?**

By Zara Vololona, Université du Québec

À travers une analyse exploratoire spatiale, le papier étudie les disparités régionales au Canada en termes d'emploi de 1995 à 2010. Notre méthode utilise les données provenant de l'Enquête sur la Population Active (EPA) de Statistique Canada au niveau des régions économiques (RE) et des régions métropolitaines de recensement (RMR) du Canada. L'analyse est basée sur la mesure d'autocorrélation spatiale globale (Moran, 1950) et locale (Anselin, 1995) et tient compte des effets spatiaux d'entraînement (rétroaction et débordement) sur la croissance régionale de l'emploi. Le résultat permet d'étudier les associations spatiales particulières, de repérer des patrons spatiaux selon les cycles économiques et de vérifier si l'intensité des effets spatiaux varie dans le temps.

L'innovation de la recherche repose sur l'analyse spatiale des variations temporelles de l'emploi liées à la conjoncture (cycle) économique. Cette approche se distance notamment des autres approches utilisant les données des recensements. L'analyse cherche à identifier des patrons spatiaux au Canada et à cerner leur récurrence en fonction des cycles économiques.

**Challenging Normative Ideals and Expectations about Aging and Home: Understanding the Perspectives of Formerly Homeless, Older People in Toronto, Ontario**

By Natalie Waldbrook, Queen's University

The aging population has been a dominant theme in health geography over the last three decades. The aging population, and rising levels of poverty in Canada since the 1970s suggests that more baby-boomers will have been homeless in their lifetime than in previous generations of older people. However, theories such as aging-in-place tend to assume that older people have the material and non-material resources to choose where and how they live in older age. To date, health geographers have generally overlooked the perspectives of older people who did not follow a normative life course and are now aging in non-traditional settings. In my PhD dissertation, I use the example of formerly homeless, older people to challenge these normative ideals and expectations about aging and home. I present the preliminary results from a survey (N=50) and the findings from qualitative follow-up interviews (n=29) that were conducted with formerly homeless, older people in Toronto, Ontario between January and August 2011. My presentation focuses on how this vulnerable segment of the older population perceives their past homelessness to be affecting their current health and well-being. My presentation focuses on participants' experiences of aging with limited financial resources, weak family and social support networks, dealing with trauma and stigmatization, recovering from addictions, and living alone or in non-traditional settings like supportive housing facilities. The perspectives of socio-economically marginalized older people can help our existing theories on aging to become more inclusive and reflective of the diverse older population living in Canada.

**What Smell?: Socio-political Factors and Ontario's Wind Energy Development**

By Chad Walker and Jamie Baxter, Western University

Like many areas of the world, Ontario has expanded wind energy capacity over the past decade. In contrast to other places however, this rapid growth has caused some controversy across the province. Concerns range and include visual disturbance, human health problems, economic cost, and wildlife issues. Conversely, those in support of wind energy including the provincial Liberals continue to tout the supposed benefits including greenhouse gas reduction, cleaner air and job creation. In some areas this conflict has gone so far as to disrupt otherwise peaceful communities- sometimes pitting neighbour against neighbour. Using qualitative methods, we decided to investigate this complex issue on the community scale in southwestern Ontario. Our research has discovered a case which is not commonly seen in the literature and is virtually non-existent in the popular media. The success story we found in the Port Burwell area (Erie Shores Wind Farm) is one we feel is very important to be told. Among other things it is clear that many social and/or political forces may be playing an important role in the acceptance (or lack thereof) of wind turbines. Implications of the research, including the future of effective policy and planning practices will be discussed.

**Public Participation in Strategic Environmental Assessment in Kenya**  
By Heidi Walker, A. John Sinclair, Harry Spaling, University of Manitoba

Strategic environmental assessment (SEA) is an emerging and promising tool for integrating sustainability principles into policies, plans and programs in developing countries such as Kenya. Such promise, however, lies in the effectiveness of the public participation programs that are implemented at the core of SEA processes. This research examined completed Kenyan SEA processes and compared procedures to standard practice, with particular emphasis on public participation. Two selected SEA cases were studied in depth to explore the extent of participation, the learning outcomes of participation, and whether the learning outcomes lead to social action for sustainability at the community level. Document reviews, focus group discussions, and semi-structured interviews with community members, environmental practitioners, and government officials provided evidence of variability in who and how the public participates in SEA in Kenya. A few examples demonstrating learning for sustainability at the community level are identified; however, it is apparent that a number of factors still hinder opportunity for meaningful engagement and, consequently, for the facilitation of learning outcomes.

**The Geography of Household Debt in Canadian Cities**  
By Alan Walks, University of Toronto

The rise of household debt among nations of the developed world has garnered increasing scholarly attention. Rising indebtedness has implications for the health and welfare of individuals and families, the social stability of local communities, and the spatial concentration of social problems. It increases the vulnerability of homeowners to local housing and labour market conditions, and if the level of leverage is very high, threatens the solvency and living standards of local communities. However, very little is understood regarding how levels of household indebtedness are spatially distributed within or across cities, and how private debt maps onto the geography of race, class, housing, urban form, and other social variables, especially outside of the US and UK. It remains unknown whether higher and unsustainable levels of indebtedness are associated with urban growth or decline, suburbanization or gentrification, immigration and racialization, or greying. In this paper I examine the spatial distribution of household debt in Canadian cities at both the metropolitan and neighbourhood scales. It examines how levels of household debt relate to a number of key socio-demographic and housing variables from the census, including those related to changes occurring over the 2000s. It simultaneously models the geography of debt at the metropolitan and neighbourhood scales using multi-level hierarchical linear modeling methods, and in doing so, it identifies the key drivers and correlates of household debt and the scales at which they operate. I conclude by discussing the implications of the empirical findings for the evolving social geography of the restructuring city.

**World Heritage: Perspectives from China on a Tourism Brand**  
By Geoffrey Wall, University of Waterloo, Zhaoping Yang, Chinese Academy of Sciences

In China, most World Heritage sites are found in the more developed east and central parts of the country and the west, which possesses rich natural and cultural resources, is greatly under-represented. Xinjiang, the largest province in China located in the northwest of the country, currently has no such designated sites. Accordingly, steps are being taken to rectify this situation and to prepare nomination documents. The successful nomination of sites involves a political process that is backed by the provision of scientific evidence to support the application process. In the case of Xinjiang, arguably for political reasons in a province with substantially minority populations, priority is being given to the nomination of natural sites. The specifics of the sites under consideration have changed over time in response to feedback and, for the moment, have resulted in the preparation of nomination documents for Xinjiang Tianshan a massive area containing some of the world's highest mountains and snowfields that is sandwiched between two extensive deserts, with well-developed vertical ecological zones, many endangered species, and a very small permanent population. Paradoxically, therefore, nomination is being sought to protect vast natural areas (that are currently not under major threat), supported by a development ideology that will encourage tourism in areas that have few permanent residents. However, perhaps the limited number of residents will actually ease the development of tourism in comparison with more highly-populated zones with cultural resources, where conflicts are more likely to emerge.

**An Introduction to Ecohealth**

By David Waltner-Toews, University of Guelph and Veterinarians without Borders/ Vétérinaires sans Frontières - Canada

Ecohealth (ecosystem approaches to health) emerged in the early 1990s in the wake of the 1987 World Commission on Environment and Development (The Brundtland Report) and the 1992 United Nations Conference on Environment and Development (the Rio Conference). Beginning with the simple and intuitively attractive notion that one could apply health concepts to ecosystems (including those that are human-dominated), the field has matured over the past two decades as research scholars, managers, policy-makers and development workers grappled with rapid, simultaneous, interacting, unstable, and unevenly distributed social, economic, climatic, and ecological changes. Advances in ecohealth research and practice have been informed by insights from complexity theory and systems sciences, and feedback from research interventions, case studies and emerging global events (such as pandemics). Recent comprehensive summaries on ecohealth focus on sets of guiding questions and principles rather than diagnoses and prescriptions. With the ultimate goal of improving human health and wellbeing, these principles include systems thinking, transdisciplinarity, public participation, ecological sustainability, gender and social equity, and the imperative to translate knowledge into effective action.

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**Questioning the Migration-development Nexus in the Case of India.**

By Margaret Walton-Roberts, Wilfrid Laurier University

Based on various research projects in India, this paper offers a geographically comparative approach to the links between migration and development in two Indian states (Kerala and Punjab). The observations reveal evidence of some outcomes that contradict easy assumptions about the positive link between migration and development. In the case of India the important question may not be; does migration lead to development? Because invariably it does lead to various types of positive development, the more difficult question to answer, however, is what kind of development, and to whose benefit?

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**Changing Geographies of Ethnic Food Retailing in Toronto**

By Lu Wang, Ryerson University, Haoran Zhang, Ryerson University

The presentation is based on a larger research program that examines immigrant consumer behaviour in various consumption areas and the spatial and temporal changes in consumer choice and ethnic retail structure from 2001/2002 to 2011/2012. It reports preliminary analysis results on the changing locational patterns of ethnic food stores in the Toronto Census Metropolitan Area in relationship with the changing settlement patterns of co-ethnic population. Two ethnicities the Chinese and South Asian are examined as case studies, chosen on the basis of the size of the community, the prevalence of the group in ethnic food retailing and the availability of data which at this point only permits to focus on broadly defined cultural groups. The study adds to the literature on immigrant settlement, ethnic economy and retail geography and yields important planning and policy implications.

**The Lived Experience and Sense of Place Among Elderly Chinese Immigrants of Different Neighborhoods in Edmonton**

By Qiqi Wang, University of Alberta

Chinese people have settled in Edmonton for over 100 years and have experienced major spatial expansion from a traditional Chinatown to suburban neighborhoods. This study focuses on elderly Chinese immigrants in Edmonton and explores the people-place relationship at the neighborhood level. The pilot study finds that the neighbourhoods in Chinatown and the neighbourhoods in suburbs construct different lifestyles of elderly Chinese immigrants in many aspects such as living arrangement, daily activities, and social networks. This study employs a strategy of case study to compare and contrast perceptions and experiences of place between two groups of elderly Chinese immigrants: those who live in Chinatown and those who live in southwest neighborhoods. In-depth interviews will be conducted with 40 elderly Chinese immigrants in Edmonton, half from Chinatown residences and half from suburban neighborhood residences. The research findings will identify qualities of supportive neighborhoods for immigrant seniors, thereby satisfying the needs of Chinese elderly immigrants and improve their future quality of life.

**Riding a Bike is in My Bones Now: Creating a Cycling Habitus, on the Road to Sustainable Urban Transportation**

By Clare Wasteneys, Queen's University

Bike-friendliness is a key component of sustainable urban transportation, with interrelated goals of minimizing car dependency and greenhouse gas emissions. This paper shares insights from longitudinal research in Guelph, Ontario, where an innovative high school program is tackling the difficult challenge of empowering teenagers to adopt cycling for transportation. Consistent with theories of behaviour change, the Community Environmental Leadership Program (CELP) uses a holistic, experiential approach that engages the head, heart and hands of participants to create a cycling habitus. CELP Bike Week includes classroom-based teaching and cycling skills training with on-road application of skills riding bikes throughout the city to meaningful urban destinations. This intensive, holistic approach enables teenaged participants, some of whom were non-cyclists, to become comfortable with the practice and image of cycling for transportation. The supportive group structure helps transcend internalized psycho-social and gendered barriers to riding a bicycle to school or work, at a time in life when social pressures to drive a car are compelling. Through interviews before, immediately after and 6-8 months after Bike Week, the research explores the extent to which the program has effectively changed the habits of participants and created a young cadre of cyclists and urban cycling advocates.

**Striving for Sustainability Amid Single-Industry Dependence: Community Resilience and Vale in Itabira, Brazil**By Joseph Wasylycia-Leis, Patricia Fitzpatrick, University of Winnipeg, Alberto Fonseca<sup>2</sup>, Universidade Federal de Ouro Preto

This research seeks to understand the impact large-scale mining corporations have on the well-being and sustainability of single-industry communities. This question is considered when examining Vale, a multinational mining corporation, in the Brazilian community of Itabira, Minas Gerais. Resilience theory, which examines the capacity of social-ecological systems to cope with complexity and change, serves as the analytical framework for this research. This work aims to understand the ability of Itabira to reconcile the social, ecological and economic challenges associated with large-scale mining with the need to generate a sustainable form of community well-being. Data collection involved a literature review, direct-observation in the community, and semi-structured interviews with twenty-nine individuals representing seventeen stakeholder groups. Recent changes to environmental licensing are making inroads towards addressing the environmental performance of Vale in Itabira, while the global evolution of corporate social responsibility in the mining sector provides the company avenues for social commitment. Despite this, there remain concerns in Itabira over air quality, water-use, and community health among others. It also clear that mineral wealth has not yet translated into an entirely healthy urban fabric or the guarantee of a sustainable socio-economic future for the community. Redressing these concerns requires understanding how Vale fits into Itabira's governance regime and clarifying responsibilities of government and corporate actors.

**Land Use Conflicts: Planning, Social Movements and Governance**

By Gerda R. Wekerle, York University

Conflicts over land use have become flashpoints on the rural-urban peripheries of large cities. By analyzing concrete planning practices from a multi-disciplinary and grounded perspective, this paper seeks to contribute to a more critical scholarship on planning conflicts. An examination of planning practices related to land use change requires planning scholars to pay closer attention to the wider origins and dynamics of land use conflicts rather than focusing primarily on processes of conflict resolution within the boundaries and mechanisms of the planning system itself. Mobilizations against proposals to change land uses are studied as siting conflicts, environmental movements, citizen planning, challenges of local knowledge to expert knowledge, and as NIMBYist attempts to retain privilege. Land conflicts on the urban-rural periphery often highlight the centrality of place in social movement mobilization and the uses of planning as discourse and expertise. In this paper, I examine recent contentions over land use change in southern Ontario based on case studies conducted by me and my students. I review the contributions of theories of social movements, siting conflicts, political ecology, urban politics, governance, critical urban theory and interpretive policy analysis to our understanding of land conflicts. In comparing recent case studies, I examine the genealogies of oppositional movements and their common features. I analyze the scaling up of social movement mobilizations from the defence of specific places to regional, national and international networks. I address the shifting discourses of the state and implications of increasing state intervention in regional planning and green energy initiatives.

**Seeking Healthy Identities and Cultural Safety: Metis Women and Sexual Exploitation in Urban British Columbia**

By Sonia Wesche, University of Ottawa

Research on the specific and distinct health concerns of Metis women is limited. This paper investigates the links between identity, cultural safety and health for Metis women. Participatory fieldwork was conducted in three urban centres in British Columbia, Canada to explore aspects of resilience, health service provision and health promotion for Metis women at risk of sexual exploitation. Methods included interviews (n=12) with women who self-identified as Metis and as being at risk of sexual exploitation, and focus groups (n=20) with health and social service providers. Results indicated that layered cultural identities have a significant influence on both the vulnerability and resilience of Metis women. A majority of participants perceived that learning about their Metis roots and developing their Metis identity contributed to self-empowerment and improved health and well-being. Cultural safety for Metis women is multi-faceted, and relates to the following aspects: approach, practitioners, services, physical space, and resources. Improving cultural awareness and including Metis women as collaborators may help to address individual and systemic barriers to Metis women's health.

**Impact of Mine Dewatering on Peatlands of the James Bay Lowland: The Role of Bioherms**

By Pete Whittington, Jonathan Price, University of Waterloo

The James Bay Lowland host one of the largest wetland complexes in the world in part due to the low permeability of marine sediments that suppress groundwater seepage losses. Dewatering of an open-pit diamond mine in the area has depressurized the regional bedrock aquifer. Bioherms, fractured limestone outcroppings formed from ancient coral reefs that protrude to the peatland surface lack this mantle of low permeability sediments, and provide a direct connection between the peatland (surficial) and regional (bedrock) aquifers. Well transects and piezometer nests were installed around 7 bioherms in the depressurized zone and one in a non-impacted zone (control) to monitor the water table drawdown and change in hydraulic gradients around the bioherms. Water tables in the impacted bioherms decreased between 2 and 4 m in the first four years of dewatering. The drawdown in the bioherms caused a localized water table drawdown in the peat surrounding the bioherms that extended to ~30 m from the edge of the bioherm during a dry period. Under wet conditions drawdown was similar to that at the control site. Hydraulic gradients in the peat (which typically are very small) increased over the field seasons and in a few locations exceeded 1. These gradients represented significant losses to the local, near bioherm, system as at many of the locations surrounding the bioherms vertical seepage losses ranged between 1 and 4 mm/day, which are similar to the seasonal average evaporative water loss of ~3 mm/day. The bioherms are acting as efficient drainage nodes; however, their influence is localized to the peat immediately (< ~30 m) surrounding them.

**Producing Cultural Space: Exploring the Relationship between Discourse and Cultural Policy in St. Catharines, Ontario.**

By Tomasz Wierzba, Brock University

Cultural policy today is increasingly thought of as a cure-all to the socio-economic woes of cities. This discourse has re-defined the relationship between local government and cultural spaces in St. Catharines, Ontario. In this presentation I draw on my research to discuss the impact of discursive shifts on the cultural spaces of St. Catharines. To begin, I provide an overview of my research: to understand what discourses constitute the relation between local government and cultural space in St. Catharines. In the remainder of the presentation I claim that cultural policy today has a very narrow mandate: to use culture, whatever 'culture' may be, as an instrument of economic development. Cultural policy in St. Catharines reflects this agenda as policy makers attempt to produce a Culture Plan that will not only create what seems like a 'shared cultural identity', and preserve 'cultural' heritage, but also jump-start the cultural economic engine of the City. I then discuss how the institutionalization of this discourse re-defines cultural spaces in St. Catharines, resulting in the production of pseudo-private cultural spaces that contradict the discourse of a shared cultural identity and heritage.

**Immigrant Civic Engagement via Organized Social Networks: Case of Jamaican Immigrants in the Greater Toronto Area**

By Kay-Ann Williams, Queen's University

Regardless of the privileges that full citizenship may bring, membership opportunities are still filled with contradictions for visible minorities and immigrants. Scholars cite increasing evidence that immigrants are unable to escape marginalizing jobs and face exclusion based on the placement of esteem on dispositions unique to the established economically and politically powerful Canadian. This paper explores the use of cultural and social capital as a strategy by recent middle-class, skilled, Jamaican immigrants, to navigate experienced barriers to socio-economic mobility. Recent middle-class Jamaican immigrants utilize ethnic based organizations to develop non-language cultural nuances that they believe will assist them in accessing jobs commensurate with their skills and credentials. I argue that the realization of their marginalized positions destabilizes their identity as middle's class elites and, while they do experience improvement in their labour market outcomes, they do not necessarily recover the lifestyles and socio-economic privileges they expected when migrating to Canada. This experience has also held implications for the ways in which they conduct civic engagement. There is more heightened awareness of civic duty towards advocating for groups based on race and ethnicity and a stronger interest or investment in empowering individuals and their communities through their membership with ethnic organizations. I rely on Bourdieu's (1986) expanded theorization of capital, which argues for how cultural and social capital facilitate access to economic capital and improved socio-economic positioning. This theoretical framework is particularly useful in demonstrating that groups use resources, such as their networks, to retain or improve their economic position.

**Re-Storying Research: Digital Storytelling as a Participatory Indigenous Method for Climate-Health Research**

By A. Cunsolo Willox, S.L. Harper, V.L. Edge, University of Guelph

In 2009, the Rigolet Inuit Community Government in Nunatsiavut, Labrador undertook a multi-year, community-driven project dedicated to examining the impacts of climate change on health and well-being in the community. Desiring to find engaging and locally-appropriate data-gathering methods, this project piloted the use of digital storytelling as a participatory visual method to holistically illustrate the impacts of climate change on health and well-being from the lived experiences and oral stories of community members. The digital dialogues created in the community formed an innovative and powerful platform for engaging participants, and for understanding the impacts of climate change on health. Digital storytelling also emerged as a research method capable of creatively engaging individuals and communities in the research process while simultaneously gathering rich visual narrative data. This presentation will discuss the process of using digital storytelling as a participatory research method sensitive to and respectful of place-based, environmental, and oral knowledge, as well as an avenue for sharing health information important to the community. Digital stories created by Rigolet community members will be screened, and lessons learned about piloting the use of digital storytelling both as a participatory data-gathering method and a locally-appropriate and culturally-relevant health communication strategy will be shared.

**Aboriginal Urbanization and Rights in Canada: Examining the Implications for Health**

By Kathi Wilson, Laura Senese, University of Toronto Mississauga

Aboriginal urbanization has increased dramatically in Canada over the last half century. The urbanization of the Aboriginal population has numerous implications for the assertion of as they have historically been tied to reserves. Through their impacts on the broader social determinants of health, spatial access to Aboriginal rights may have implications for the health of Aboriginal peoples living in urban areas. This research examines the relationships between rights and urbanization, and the ways in which they are implicated in the health of urban Aboriginal peoples living in Toronto, Canada. In-depth interviews focused on conceptions of and access to Aboriginal rights in the city and perceived links with health were conducted with 36 Aboriginal people who had moved to Toronto from a rural/reserve area. Participants conceived of Aboriginal rights largely as the rights to specific services/benefits and to respect for Aboriginal cultures/identities. There was a widespread perception among participants that these rights are not respected in Canada, and that this is heightened when living in an urban area. Disrespect for Aboriginal rights was perceived to negatively impact health by way of social determinants of health. The research findings are discussed in the context of policy implications and future areas of research.

**Here Today, Gone to Mayo: Community Reactions to Mine Closure and Redevelopment in the Yukon**

By Alexandra Winton, Memorial University of Newfoundland

The Keno City Well Never Goes Dry is a slogan which seemed foolishly optimistic for an un-incorporated hamlet like Keno City (population 25). However, the town is surrounded by some of the richest silver deposits in the world and for nearly 80 years was the heart of the United Keno Hill mining district. In 1989 the mines closed and hundreds of miners and their families left the area overnight. A handful of people remained, capitalizing on the alpine scenery and mining history to attract tourists to the area. High mineral prices caused the mine to reopen in 2011, lending truth to the old town slogan. The Keno Hill site epitomizes the cyclical nature of the mining industry and is a prime example of the increasingly common mineral redevelopment occurring in the North. My work examines how the revival of Keno Hill has affected local identity, memory and sense of place. Such emotional impacts are often neglected in modern mine assessments, but they strongly affect community cohesion and local opinions about development. I explore the relationships between local residents, First Nations, mine employees and government as they deal with the social and environmental change brought on by this new era of northern mining.

**A Reassessment of the Climate Change Vulnerability of the Ski Industry in Colorado and California**

By M. Winton, D. Scott University of Waterloo, R. Steiger University of Innsbruck

Climate change is considered one of the primary threats to the sustainability of ski tourism and mountain tourism destinations around the world. Studies in several countries project the ski industry will be impacted by shorter ski seasons, greater snowmaking requirements, a contraction in the number of ski operators, declining ski demand, and a critical need for ski operators and ski destinations to examine their adaptive capacity. Many of these studies suffer key limitations, such as the omission of snowmaking capacity, leaving the conclusions highly questionable. This study utilizes the SkiSim2 model to reassess the implications of projected climate change for two major ski tourism destinations in the Western US (Vail, Colorado and Lake Tahoe, California) where previous studies projected major impacts when snowmaking was not considered. Historical climate data (1961-1990) and the stochastic weather generator LARS-WG are used to examine the impact of climate change scenarios, representing the full uncertainty of Global Climate Model projections in the region, for ski season length and snowmaking requirements. Comparisons with previous studies and implications for ski tourism development and planning will be discussed.



**Application of UAV Image-based Land Cover Classifications for Rangeland Management**

By Dion J. Wiseman, Jurjen van der Sluijs, Terrence McGonigle, Pamela Rutherford, Brandon University

The objective of this research was to assess the utility of a small, autonomous Unmanned Aerial Vehicle (aUAV), as an alternative to ground-based surveys, for 1) monitoring the density and distribution of leafy spurge, and 2) identifying critical habitat for the endangered prairie skink. UAV imagery was acquired in June and July of 2011 and 2012 for a series of experimental plots measuring 60 x 60 m or 50 x 150 m at Canadian Forces Base Shilo, Manitoba. A standard handheld digital camera and modified digital camera were secured to the airframe of a UAV and used to acquire very high resolution standard colour and near infrared imagery. The imagery was georeferenced and mosaicked to produce a single four channel image of each site. An unsupervised classification was used to identify spectrally unique clusters that were then aggregated into land cover categories. Results indicate that as many as 16 different land cover classes could be accurately identified, with significant changes occurring from the 2011 to 2012 field seasons. When compared to detailed field maps, the image-based classifications accurately delineated the extent of flowering spurge at densities greater than 25 stems m<sup>-2</sup>, while variations in density above this threshold could be detected. The identification of critical skink habitat was also facilitated by plotting capture sites on the resulting land cover classifications.

**Lessons Learned During the Closure and Redevelopment of a Neighbourhood School Site in Thunder Bay, Ontario**

By Kevin Wonnell, T. Randall, Lakehead University

The case study of a school closure is considered in this project assessing the neighbourhood's response to its closure in 2002 and its ultimate redevelopment in 2011. Understandably, residents expressed concern over the loss of the school and what it meant for their neighbourhood and petitioned heavily to save it. This particular closure occurred during a period of comparatively high rates of school closures observed in the Lakehead Public Board (13 schools closed between 2005 and 2009), largely due to demographic changes in older neighbourhoods and also to the perception that the Ministry of Education was moving towards a model of larger format super schools instead of smaller, neighbourhood-centred schools. Sentiments towards the closure and its redevelopment were measured using a mixed-methods approach. A response rate of 34% to a mail-back survey was achieved and 5 interviews were completed with residents who had played a significant role during the public consultation processes. Survey results indicate a mixed response from the respondents concerning the overall redevelopment and involvement of the community throughout the process. Lessons learned include having a redevelopment plan set in place prior to closure, as well as proper inclusion of the community throughout the process.

**Location, Logistics and Love; Exploring Planning and Economic Development in Logistics Oriented Communities**

By Clarence Woudsma, University of Waterloo

In this paper, the focus is on the policy and planning for local development in communities which have embraced the challenges and opportunities related to logistics activity. These are communities that may be innovatively addressing the externalities and impacts of local freight activity, or are placing logistics at the forefront of their local economic development strategies. In contrast to the more traditional policy and planning practice of regulate and restrict, here, we critically discuss communities that have worked to understand, accommodate, and benefit locally from their engagement with logistics. Case study examples are drawn from the spectrum of community size and function from Peel Region in the GTA to Cornwall, Ontario. The central questions explore the degree to which their logistics orientation is by choice or by circumstance and further questions surround the complexity of decision making involved in choosing whether to be logistics oriented in the 21st century. Insights from the case studies are explored in the context of current planning initiatives such as the development of freight supportive land use guidelines in Ontario.

**Access, Engagement and Change: Characteristics for Identifying Community Participation on the Geospatial Web**

By Shayne Wright, Jon Corbett, University of British Columbia Okanagan

The Geospatial Web (Geoweb) is increasingly being used to facilitate community participation in spatially bounded issues. As Sui and Delyser (2011) note: Advances in geospatial technologies during the past ten years have enabled ordinary citizens with little formal training to participate in the production of geographic data and knowledge through diverse forms of user-generated content and volunteered geographic information. Fields spanning urban planning, citizen science and participatory GIS share recognition of the expanding potential of the Geoweb to solicit and support community participation. Past research across these fields has identified varying definitions, manifestations and assessments of participation. The term is articulated in a broad variety of ways, ranging from concepts such as citizen power (Arnstein 1969) through to citizens as sensors (Goodchild 2007). This presentation reports on a case study in British Columbia's Central Okanagan region that has explored dialogue potential on the Geoweb to support community participation. Participatory action research was employed to design and test an online participatory mapping and discussion tool in collaboration with a community non-governmental organization, the university and the members of the growing local food movement. Participation was characterized and assessed by analyzing three participant positions access, engagement and reflexive change. These observed categories occurred with declining frequency and differentiated the participants along a participation continuum.

**Regional Ranking of Sea Ice Anomalies in the Canadian Arctic**

By Daniel Xia and Ellsworth LeDrew, University of Waterloo

Variability and change of Arctic sea ice is a critical component of the study of Arctic climate change. Remotely sensed passive microwave data can be used to document spatial sea ice anomalies from the period of 1978 to the present. In this research, 1978 to 2006 SSM/I images from NSIDC are subjected to time series analysis to examine the sea ice trends and anomalies. Arctic regional icescapes are identified on the basis of their characteristic annual cycle of thaw and freeze-up through application of temporal mixture analysis to the sea ice images. For each of nine regions defined by the temporal mixture analysis, the annual anomalies are sorted by magnitude to highlight the regions where the temporal signals are strongest and hence provide new insights into the dynamics of the Arctic sea ice cover.

**A Reflection on Geographic Research: From Ideas to Geographic Reality**

By Wei Xu, University of Lethbridge

As a scientific discipline, geography is predominantly an empirical scientific inquiry of our physical reality and surroundings. Geographers seek to derive principles and law-like explanations deductively or inductively, and rarely attempt to understand the gap between static theoretical arguments and dynamic physical and social actualities. The shift in research paradigms is argued as a generational game and has nothing to do with improving our geographic understanding of the world. While such problems are not unique to geographic inquiries per se, a reflection on the relation between geographic knowledge, ideas, and reality is needed to question and criticize the routine activities in geographic researches. This study builds its critique based on a research project on migrant urban labor markets from a critical realist perspective.

**Assimilation of Remote Sensing Data into Hydrological Models: A Review**

By Xiaoyong Xu, Jonathan Li, University of Waterloo

Remote sensing (RS) offers an efficient tool for estimating a variety of state variables (e.g. precipitation, soil moisture, snow cover, snow water equivalent, evapotranspiration, leaf area index) which are commonly required in hydrological modelling. With the rapid increase in RS capabilities, there has been an intensive global research effort in integrating RS information and hydrological modelling over the past few decades. However, the model performance usually suffers from uncertainties in the forcing data when remotely sensed products are used only for the model input. Data assimilation techniques quantify both the observational and model errors and can lead to an optimal fit of the model solution to observations. This study reviews recent progress related to the assimilation of RS data into hydrological and land-surface models. The purpose is to present an overview of the predictive capability of land-surface and hydrological state variables in response to the assimilation of RS data. As a result, the major challenges pertinent to hydrologic RS data assimilation are identified and directions for further research efforts are recommended.

**Contextualising Herder-local Conflicts in Ghana: A Socio-Geographical Approach**

By: Rita Yembilah, University of Calgary

Conflicts between nomadic Fulani herders and local communities in West Africa are rampant and steeped in the political ecology of herder survival strategies which include the herder influx into areas non-native to them. Across West Africa, there is widespread community resistance to the herder influx accompanied by simmering conflict which sporadically degenerates into violent conflict. This study, from northern Ghana, employed a socio-spatial lens to contextualise the causes of herder-local conflict as the basis of developing targeted interventions that have a chance at success. In this presentation, I discuss my philosophy of the causes of herder-local conflicts, a philosophy underpinned by the view that fundamental differences between local and nomadic conceptions of space, place and territory, set herder-local relations off to a rocky start, paving the way for mountains to emerge from anthills.

**A Space-time Approach to Reducing Injury Risk Among Child Pedestrians.**

By Niko Yiannakoulis, McMaster University

The purpose of this research is to determine the effectiveness of school scheduling as a method of reducing the risk of collisions involving child pedestrians and motor-vehicles. We use pedestrian and motor vehicle commuting models to estimate the frequency of encounters of between child pedestrians and motor vehicles at intersections throughout the City of Hamilton, Ontario, Canada. We use a simple heuristic to identify the school-specific start times that would most reduce the frequency of encounters between motor-vehicles and pedestrians. Our analysis suggests it is possible to achieve an almost 15% reduction in total encounters between child pedestrians and motor vehicles by using space-time specific school scheduling. We note that even small changes in school start times could be sufficient to see noteworthy reductions in pedestrian exposure to traffic, and in turn, collisions. Changing school times may be an effective, inexpensive and practical tool for reducing child pedestrian injuries in urban environments. Enhanced transportation models and community-based interventions are natural next steps for exploring the use of school-specific scheduling to reduce the risk of child pedestrian injury.

**Sport Fishing on the Nipigon River: Uncovering History Through Cognitive Cartographics**

By Ashley Young, Lakehead University

Famous for its speckled trout, the Nipigon River, located north of Lake Superior, was a popular destination for gentlemen anglers who were also known as the Victorian fly fishers of the late 19th century. With the construction of the transcontinental railway, sporting retreats intensified and outfitting stations experienced an overflow of British, Canadian, and American visitors. Rail companies were fierce promoters of Canadian tourism and they produced a series of hunting and fishing brochures which featured trout fishing on the Nipigon River. By implementing cognitive cartographics, a method proposed by Denis Wood and John Fels, I have deconstructed and demythologized a travel map issued by the Canadian National Railway in 1929. Through a structured discourse analysis I have explored the social implications of the Map of Arrowhead Country (1929) and interpreted the knowledge and image it has constructed of the Nipigon region. Comparing these understandings with the existing historiography, I offer a critical history and geography of the Nipigon as it has yet to be revealed through maps.

**Suburban Renewal in Toronto's Tower Neighbourhoods: No Place for Planning?**

By Douglas Young, Will Poppe, York University

More than 1000 high-rise residential buildings were built in the City of Toronto from the 1950s to the early 1980s, many of them outside of the city centre, resulting in a remarkable post-war suburban landscape. Today, Toronto's aging suburban tower neighbourhoods are deemed due for renewal: the buildings require physical upgrades, and an increasingly impoverished tenant population is in need of enhanced community services. A mix of initiatives constitutes a new governance fix to the suburban problem: the City's Tower Renewal office works to enlist owners to a program of building renovation; anti-poverty action groups campaign for enhanced public transit and other services; urban farming advocates promote local agriculture and healthy food. Largely absent from this constellation of actors and initiatives are the City's urban planners. The current mode of urban planning in Toronto is so geared to promoting growth that, as a set of ideas and processes, planning appears incapable of participating in an evolving defacto program of suburban renewal. The case of urban planning in Toronto's suburban tower neighbourhoods provides an illustration of the changing modes and loci of neo-liberal urban governance.

**Border-city Sanctuary: Collaborative Refugee Advocacy in Windsor (ON) - Detroit (MI)**

By Julie E.E. Young, York University

In response to the creative mobility of the state and its border-control practices, Windsor (Canada) and Detroit (USA)-based advocates in the 1980s reclaimed the border for people seeking refuge by approaching it as a place of connection and working collaboratively to get Central American refugees to safety. Their work underscored the international boundary line as a strategic site for contestation of state border control policies and claims to rights and presence. While an obvious site of border control, this is also where state sovereignty over border control is often taken for granted. Indeed, the international refugee regime relies on states to decide on the right to asylum and is premised on individuals crossing boundary lines in order to find protection. Through a case study of advocacy responses to the Central American refugee crisis of the late 1980s in Windsor-Detroit, with a particular focus on the Detroit/Windsor Refugee Coalition, I argue that local actors re-conceptualized the international boundary line that both divides and joins this border city. Local sanctuary efforts created a space of refuge that spanned the boundary line, relying on cooperation between organizations and individuals on both sides of the Detroit River. They made use of the dual nature of the border to produce a different story about the boundary line and their efforts underscore the utility of working as though these two cities were one place.

### Leaves Falling Back to Their Roots? Internal Return Migrants in China

By Li Yu, Wei Xu, Jiexia Dong, Yu Zhu, Liyue Lin, University of Lethbridge

An increasing number of rural-urban migrants in China choose to return to their home of origins after spending years in the host cities. It is documented that there have been three significant upsurges of return migration in China since 1980. While these return migrants after leaving the land for a long time are faced with some unexpected challenges to cope with changing local conditions, they also create great pressures on the local governments of migrant sending regions. Previous studies also indicate that return migration is one of the main forces shaping migration processes and origins of migrants. It should be noted that theoretical and empirical researches on the development, reintegration and in-depth mechanism of return migrants in the context of transitional China are not substantial in the literature. What are the stories behind the behaviors of returnees? How are they reintegrated in the origins? What are the impacts of return migrants on local economy and society? This article attempts to address these questions based on the qualitative analysis of 30 in-depth interviews conducted in Sichuan and Jiangxi provinces. The findings of this study contribute to a better understanding of the nature and process of internal labor migration in China.

### Crafting Digital Narratives of Transit Competitiveness Through Geovisualization

By R. Feick and Jeff Casello, University of Waterloo

Sophisticated transportation models are used by many and local and regional governments to design efficient and equitable transit systems for current populations, to forecast demand for infrastructure, and to assess the impacts of land use change on future mobility needs. In many cases, it is difficult for transportation officials, policy makers and especially citizens to use the large volumes of origin-destination data that result from these models for decision making. This is particularly problematic as governments must: a) evaluate the merits of introducing substantive changes to public transit systems (e.g. new light rail, rapid bus or subway lines) in light of existing public transportation shortcomings and/or to accommodate changing urban morphology that arise from initiatives such as Smart Growth and, b) transform complex modelling outputs into meaningful digital narratives anchored in data that are useful to individuals with widely varying backgrounds and expertise. In this presentation, we explore the use of GIS-based geovisualization methods to aid understanding of model data that represent the relative costs of current and projected travel by auto and by transit within the Kitchener-Waterloo area. Particular emphasis is placed on developing hierarchical approaches that permit users to visualize, at multiple scales, spatial variations in the cost-competitiveness and the physical accessibility of public transit throughout the study area.

### Provision of Ecosystem, a Study of Landowners in South Saskatchewan River Basin

By Xinzhen Zhao, Amber Zary, Hennie Bjornlund, Wei Xu, University of Lethbridge

Ecosystem Goods and Services (EGS) is an integral part to ensure healthy aquatic ecosystems. This research analyzes the values and attitudes that rural landowners hold towards the provision of EGS in South Saskatchewan River Basin (SSRB). The variation between farming and non-farming landowners is examined. A telephone survey of 350 landowners and a follow-up web based questionnaire of young adult (18-35) landowners or children of landowners were carried out to collect demographic information and information about their value orientation, knowledge on environmental issues in SSRB, beliefs, willingness and activities to support EGS in SSRB. Current environmental policies and practices will be examined. Statistical methods were employed to explain what influences farming and non-farming landowners' perception of ecosystem services and how they should be secured. Further, emphasis will be placed on investigating the difference in opinion between the older and current generation of landowners and the young adult generation of current or future landowners. Some recommendations for policy makers will be provided about what the government should do to improve the environmental policies to gain support from landowners and make policies more efficient in providing an adequate supply of EGS to ensure a healthy environment in the SSRB.

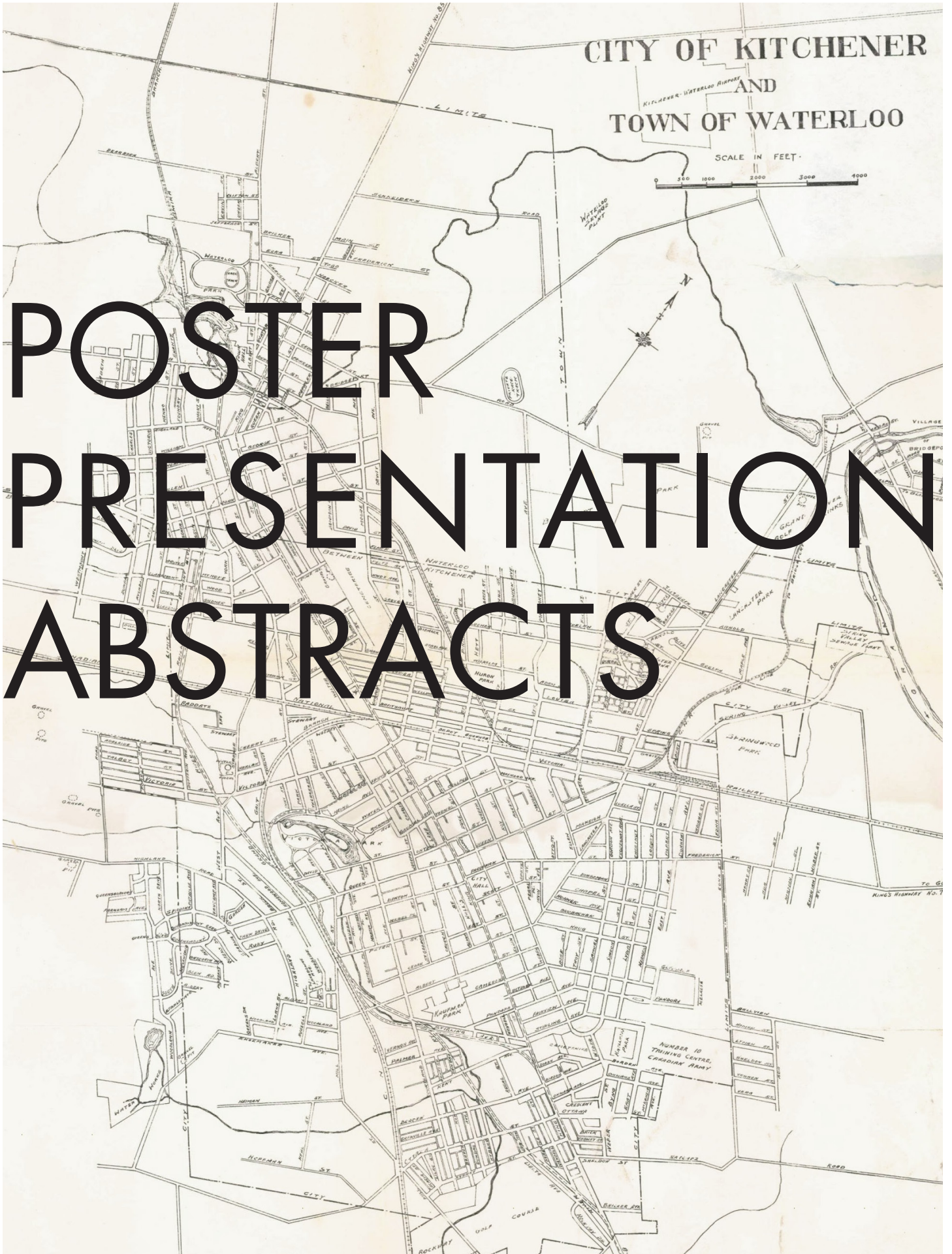


CITY OF KITCHENER  
AND  
TOWN OF WATERLOO

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POSTER  
PRESENTATION  
ABSTRACTS



Presenter: Vahid Akbar

### **Increasing the Tensions Between Iran and Western**

By Vahid Akbar

Increasing the tensions between Iran and Western Iran as one the largest countries of Middle East have considerable progress in various fields especially in the military area in the past ten years. By starting the period of the presidency of President Ahmadinejad, the big changes happened in Iran internal and external policy, including those that are on Iran's request for a change in the global management system. Such developments in Iran, was associated with the onset of USA challenges in establishing security in Iraq and Afghanistan. By benefiting of proximity to these countries, Iran could control the regional developments in its favor. But continuation of the Iranian uranium enrichment program and intensified anti-western and American positions in the both internal and external politics has caused multiplication of tensions between Iran and Western countries. By increasing these tensions, the risk of war in the region is simultaneously increased. Recent social and political crisis in the Arabic countries

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Presenter: Jody Andruszkiewicz

### **Grizzly bears: restocking the inventory**

By Jody Andruszkiewicz, University of Waterloo

*Ursus arctos horribilis* is one of North America's largest and most deadly predators. Commonly known as the Grizzly bear, this once wide-spread species occupies but a fraction of its traditional range and its numbers have dwindled appreciably. According to the Alberta Government's 2010 Status of the Grizzly Bear in Alberta report, there are an estimated 691 bears left in the province. This is down from an estimated 6000 bears that used to roam the province in 1800s. Habitat loss and increased contact with humans is the driver for the increased bear mortality. The chance sighting of a grizzly in its natural habitat makes for a truly memorable experience. However, that habitat must be protected and human- Grizzly encounters must be limited in order to protect this species from even further loss and re-populate its numbers.

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Presenter: Jotham Apaloo

### **Interactions between seasonal snow cover, ground surface temperature and topography (Andes of Santiago, Chile, 33.5°S)**

By Jotham Apaloo<sup>1</sup>, Alexander Brenning<sup>1</sup>, Xavier Bodin<sup>2</sup>; 1. University of Waterloo, 2. Universite de Savoie

Spatial variability of topography, surface type, and snow cover in mountain environments leads to heterogeneous ground thermal regimes, and thus locally variable ground surface temperature (GST). The spatial variables which affect the surface thermal regime are explored in a valley in a high altitude catchment of the Andes of Santiago. Two annual (2009-2010, and 2010-2011) GST time series are analyzed separately, and linear mixed-effects models are used to quantify the effects of site characteristics on mean GST (MGST). The effect of snow cover onset and disappearance dates on MGST is further examined through a sensitivity analysis. Elevation has the strongest effect on MGST (1°C / 100m), 30 additional days of snow cover suppress MGST by an estimated 0.1 to 0.6°C, and open-work boulder surfaces are cooler by an estimated 0.57 to 0.81°C. The sensitivity analysis corroborates the effect of late snow cover in the linear models, which can overwhelm the spatial differences in radiative effects. Positive MGST found on active rock glaciers would suggest negative thermal offsets probably related to the presence of coarse blocky material at the surface, and which may also be present outside rock glaciers. We suggest that spatial patterns of MGST can serve as a proxy for spatial patterns in the lower limit of permafrost occurrence.



Presenter: Rashaad Bhamjee

### **Characterizing Water Quality and Flow in Headwater Ephemeral Streams**

By R. Bhamjee, J. Lindsay, University of Guelph

Pollution from point and non-point source areas is a major concern with regard to water quality in headwater areas. Source water protection has been typically managed via riparian buffers of perennial and some intermittent streams, however, evidence suggests that due to stream network expansion during wet periods, these width-based buffers are overrun into the headlands. This is especially an issue as these areas often consist of agricultural landuses. Most intermittent and ephemeral streams are largely ignored when looking at water quality and source water protection. This study will look at the types, quantities and relationship of pollutants and sediments to catchment and channel characteristics and work toward a set of BMPs for protection of downstream water quality. Headward migration of the channel network will be studied using a novel inexpensive sensor network, which will also be used to study the controls on flow initiation. The sensor network has fine spatial and temporal resolutions, which are key when looking at a phenomenon that exists as both hot-spots and hot-moments on a relatively large landscape.

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Presenter: Alecia Boddie

### **Place Identity and Local Communities**

By Alecia Boddie, University of Guelph

In an increasingly globalized world where local identity is being absorbed into a global culture the importance of diversity and locality as a basis of community is increasingly valued for its contribution to the well-being of communities. In Ontario, local communities are ill equipped to deal with the preservation of place identity when faced with development. This research will investigate and develop a model set of policies and strategies to identify and manage local place identity for municipalities and local interest groups. The analysis will include: 1) an assessment of the meaning of place identity; 2) an assessment of the economic and social value of place identity to communities; 3) an assessment of factors that contribute to a unique place; 4) an environmental scan of relevant legislation; and 5) an assessment of successful and unsuccessful cases. This work increases the understanding of place identity for local communities in order for them to preserve and utilize their unique character

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Presenter: Alexander Brenning

### **Exploring Spatial Patterns in Co-op Job Distribution and Demand Using Data Mining Techniques**

By Alexander Brenning, Jason N. Goetz, Grant O'Neill, University of Waterloo

The objective of this study is to identify previously unknown spatial and temporal patterns in co-op job distribution and demand at the University of Waterloo using GIS and spatial data mining techniques. Several studies in recent years have shown the potential of such techniques in the management of university and high-school student recruitment, but there is still a clear research gap in the context of co-op job management, which increasingly requires the incorporation of spatial information into decision making. Benefits and limitations of the operational use of GIS and data mining are therefore examined in collaboration with Co-operative Education and Career Services (CECS) at the University of Waterloo, which manages the largest co-op program in Canada. Exploratory analyses were performed using association rule mining techniques revealing previously unknown relationships among spatial and non-spatial characteristics of co-op student trajectories, and Poisson regression models were applied for an assessment of future co-op job demand based on the demographics of student cohorts. We anticipate that a better understanding of past patterns and improved ability to predict future trends will enhance the efficiency of employer search by CECS staff.

Presenter: Mark Cheresna

### **Consolidating the Delivery of Service Location Information Using Open Standards and Technologies**

By M. Cheresna, P. Glenday, P. Deadman, Y. Dong, D. Dudycha, University of Waterloo

An increasingly spatially integrated society requires accurate knowledge to support business, recreational, and community functions and services. Determining service location accurately and consistently, however, is a challenge. All methods for determining service location have limitations. Address information maintained in spatial databases can become complex and is sometimes insufficient. Geometric and attribute misrepresentations of street networks impact geocoding accuracy. Although GPS can enhance the identification of service location, the technology has limitations in urban canyons and indoor environments. In addition, constant data update cycles have the potential to introduce errors. An integrated approach, which takes into consideration data availability, data accuracy, data update cycles and end user environment, is expected to improve the ability to obtain useable, accurate service location information. New standards and technologies offer solutions for many of the issues presented; however with a variety of candidate solutions, integration becomes even more complex, especially when legacy databases systems have to be supported. Rapid development of many spatial standards over the last decade, notably through the Open Geospatial Consortium (OGC), has contributed to delivery mechanisms that need to be explored. This research will address the question: "can a qualified service location be supported seamlessly in a variety of environments from a variety of devices using open standards and technologies"? The research will focus on service location in the context of the Canadian telecommunications industry. The research uses simulated service request locations as a primary source of data, secondary data from the telecommunications industry and published standards from the OGC.

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Presenter: Jayson Childs

### **Internal Structure of the Wellington Barrier Bar Derived from Ground Penetrating Radar, Northeastern Lake Ontario in Sandbanks Provincial Park**

By Jayson Childs, Brock University; John Johnston, University of Toronto Mississauga; Anthony Endres, University of Waterloo; Mary-Louise Byrne, Wilfrid Laurier University

The Wellington barrier bar separates West Lake from Lake Ontario and supports a sensitive coastal ecosystem in Sandbanks Provincial Park, Prince Edward County, ON. Ground penetrating radar (GPR) was used to construct the first subsurface stratigraphic framework of the barrier for park managers. A differential global positioning system was used for elevation and position measurements to correct GPR profiles that covered a total distance of about 700m between lakes. Preliminary analysis of GPR data shows three main subsurface sediment packages with unique GPR characteristics. The most recently deposited or upper package contains both landward and lakeward dipping GPR reflectors and areas that are chaotic. A correspondence between geomorphic zones defined on the ground surface (beach, panne, and dune) and subsurface GPR patterns are being investigated. A relatively horizontal and continuous GPR reflection separates the upper from lower package. A rising lower boundary for the lower package contributes to a thinning of the lower package inland or towards West Lake. In this lower package GPR reflectors dip towards Lake Ontario. The extent of the lowermost sediment package hasn't been determined because it is beyond the limit of GPR, but the upper boundary seems to show a subsurface feature rising from depths below the modern Lake Ontario beach to a near surface position below the leading edge of the high Back-dunes in the park. This bottom-most package appears to be an important feature with vertical relief that may have contributed to the formation of the present-day barrier.

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Presenter: Jonathan Samuel Charles Critchley

### **Integrating Geotagged Tweets with PPGIS**

By Jonathan Samuel Charles Critchley and C. Rinner, Ryerson University

We are planning to use the Argoomap tool, which allows for threaded discussion to occur. It is hypothesized that by visualizing geo-referenced thematic tweets within Argoomap, there is the potential to access valuable information relating to specific local issues, and to further incite public debate. Such a system will provide the public with an important pathway to contribute volunteered geographic information to community planning and policy-making processes.

Social media like Twitter support relational communications, allowing for wide-scale interaction between users that can be collectively resourceful and provide local knowledge that is otherwise hard to obtain. Recently, Web-based maps have been used to plot geo-referenced tweets, allowing for spatial exploration of popular topics, with filtering abilities used to limit the display of tweets to those that contain words or phrases of interest. By inviting Twitter authors to use specific keywords or hashtags, contributions to a participation event could be isolated and analyzed within PPGIS.

Presenter: Sonya De Vellis

### **Identifying Future Population Challenges and Transit-related Solutions for Mid-size Canadian Cities**

By Sonya De Vellis, University of Waterloo

Mid-size Canadian cities are expected to face significant challenges in upcoming decades that will influence their growth, function and movement. Some of these pressures include a post-oil economy, global climate change, a decline in the manufacturing sector, an aging population, and an increase in population due to immigration. My research has focused specifically on demographic changes in these cities and how transit infrastructure will adapt to these shifts. Mid-size cities are unique in that they may exhibit similar patterns of density, commercial viability and demographic diversity as large metropolitan areas, but they often lack the political support and financial resources to implement efficient transit systems that their urban counterparts possess. By analyzing municipal and strategic plans from the Region of Waterloo and comparing them to those of similar regions, I provide several transit-focused solutions for mid-size cities, which are as follows: Implement an urban growth boundary, which will protect ecologically sensitive land while encouraging greater intensification within existing suburbs, thus creating pedestrian scale development; Consider light rail transit or bus rapid transit systems, which are less expensive than subways, more suitable for lower density populations and will provide fast, efficient service; Create transit stations near "nodes," which will facilitate easier travel within important landmarks and routes; Implement car-sharing, carpooling and bike-sharing systems among employees with financial incentives; and Redesign sidewalks to be wider and well-lit with landscape buffers to facilitate easy mobility for elderly residents.

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Presenter: Tapan K.Dhar

### **Challenges to Collaborate Among Stakeholders to Plan for an Extremely Deprived Community in Bangladesh**

By Khan R. Rahaman, Md. M. Hossain, Mohammad S. Lazerjan, Tapan K.Dhar

Harijan community is an emerging part of city life everywhere in Bangladesh. However, this community is helping municipality to clean up sewerage line and likely services such as: cleaning urban streets, public buildings, and public open spaces in a traditional way. Traditionally, Harijan community is heavily involved in sweeping streets, cleaning public toilets and likely facilities, urbanites segregate them socially and the community becomes an island and untouchable community over a long period of time. Many NGOs and researchers have come forward to help this community to be an integral part of the society but failed to integrate them in the last couple of decades. However, a recent academic research project attempted to collaborate between NGO and GO partnerships to upgrade the living conditions, and to find out suitable locations for housing schemes. We faced many challenges on the way to find relocation sites inside the city as well as choosing the site and service schemes appropriate for them in a mid-sized municipality in Bangladesh. This poster shows the collaboration approaches, site selection procedures and compatible housing design schemes to relocate one of the minor and segregated communities with basic urban services and for better living environment. We have collected the data from primary sources and analyzed them with possible relocation spots as well as tentative affordable housing design. Finally, we came up with some recommendations to be followed both by municipality and private sectors to protect the value of this community and harmonizing the society for a long term benefit of the city.

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Presenter: Wenying Fan

### **A Statistical Network Model to Estimate Early Spatial and Temporal Dynamics of 2009 H1N1 outbreaks in Greater Toronto Area (GTA)**

By Wenying Fan, Dongmei Chen, Queens University

The 2009 influenza A (H1N1) pandemic has caused serious concerns worldwide due to its high mortality rate as announced by WHO and new characteristic feature, e.g. higher infection rate for youth. Theoretical and empirical models have been developed to understand the epidemic dynamics at different geographic scales. Transportation theory originated network models are applied and validated for international and national scale. However, the application of a network model is almost absent for small geographic scale, such as urban scale, possibly due to lack of social contact and commuting data that can be linked with disease diffusion. In this study, we present a hybrid approach integrating a network-based model and a Generalized Linear Model (GLM) to analyze the outbreaks of H1N1 in Greater Toronto Area (GTA). Spatial and temporal heterogeneity, socio-economic variables are counted respectively in the network model to estimate the epidemic dynamics. The GLM that consist of a linear predictive equation, a logarithm link function, and a negative binomial distribution of counted disease cases is used to estimate the statistical efficiency of the network model. As such, H1N1 outbreak occurrence data from April to June in 2009 of Great Toronto Area (GTA), which present the early stage of the epidemic, is used for fitting our model. Twofold goals are projected in this study: 1) estimate the spatial and temporal dynamics of the influenza, and 2) assert any possible validity for such application within urban scale.

Presenter: Michael P. Ferber

### **Ribbon of Green: A Digital Historical Atlas of Edmonton's Interconnected Parkland**

By Michael P. Ferber, William VanArragon, Katie Wallbaum, The King's University College

Many Edmontonians recognize their city possesses the largest interconnected parkland in North America. Unlike other urban parks such as those in New York City or Vancouver there is little scholarly research on the history of this environmental and recreational treasure. We are creating a digital atlas showcasing the historical development of the parks system. This project will utilize numerous environmental partners in Edmonton and train student history researchers, student Geographic Information System (GIS) specialists and computer science students to deliver the digital atlas. This project is funded in part from a grant by the Network in Canadian History and Environment (NiCHE), but this initial grant is seed money in the sense that the digital atlas will serve as a platform for future research and dissemination in the fields of environmental history, physical and human geography, watershed management and environmental studies.

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Presenter: Kathleen Costello Gallagher

### **Monitoring and Estimating Cycling Volumes in Canadian Cities**

By Kathleen Gallagher, University of Waterloo

My research project investigates the different methodology used for monitoring cycling in major Canadian cities and the individual approaches used by prominent researchers. These methods are then compared to the Bicycling Share of Work Trips data from the Canadian Census. The following are my Research Questions: 1. What methods are being used to monitor and estimate cycling volumes in Canadian cities and how do they compare? 2. How does the Bicycling Share of Work Trips (BSWT) from the Canadian Census compare as an estimate of cycling? 3. Can the BSWT from the Canadian Census be used to estimate bicycling share of all trips? I look at how reliable Canadian Census is in representing the share of people cycling in total. I compare the results of the Canadian Census to those from other surveys, such as the Transportation Tomorrow Survey for the Greater Toronto Area. Furthermore, I investigate which census tracts in Canadian cities have the highest share of cycling trips and attempt to find common characteristics.

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Presenter: Grant Gunn

### **Dual Frequency X- (9.6 GHz) and Ku-band (17.2 GHz) Scatterometer Observations of Snow on Lake Ice in the Hudson Bay Lowlands.**

By Grant Gunn, C. Duguay, R. Kelly, J. King, A. Kasurak, University of Waterloo

Lakes in Subarctic environments are useful proxy indicators of climate variability through changes in ice phenology. Availability of observational ice properties is hindered by the remoteness of Subarctic lakes and the decline in manual monitoring stations. The use of thermodynamic models is an ideal method to predict ice phenology, but exhibit issues in snow-on- ice parameterization due to a lack of in-situ measurements. In this study, a time series of fully polarimetric dual frequency ground-based scatterometer observations at X- and Ku-bands (9.6 and 17.2 GHz) were collected over four lake ice sites near Churchill, Manitoba, capturing various ice/ snowpack conditions. In-situ snow and ice properties collected adjacent to the scatterometer field of view are utilized as correlative data to characterize microwave interaction with snow and ice mediums, aiding in the development of snow/ice retrieval algorithms. Results indicate that backscatter at X- and Ku-bands are sensitive to increases in SWE, but are confounded by contributions from subnivean ice conditions and composition. Surface ice types (snow ice, rafted ice), bubble concentration near the ice/water interface, and pressure cracks, scatter and depolarize incident microwave radiation, complicating the isolation of scatter caused by snowpack. The preliminary findings presented are the first ground-based dual frequency X- and Ku-band backscatter collected over lake ice, and contribute to the scientific objectives of the proposed Cold Regions Hydrology High-resolution Observatory (CoReH2O), a candidate Earth Explorer mission of the European Space Agency.

Presenter: Mohammadreza Jelokhani-Niaraki

### **Web 2.0-based Semantic Spatial Multicriteria Decision Analysis (MCDA) Framework for Collaborative Decision Making**

By Mohammadreza Jelokhani-Niaraki and Jacek Malczewski, Western University

Web 2.0-based applications shift Web from a typically perceived information display medium pushing web content out to many people through the websites to a fully interactive platform that allows collaboration. They allow two-way communication; that is, a read-write web by means of which people are contributing as well as consuming information. Integrating spatial Multicriteria Decision Analysis (GIS and MCDA capabilities) into Web 2.0 participatory platforms provides an effective way to involve the public or a particular group of individuals in a collaborative spatial decision making. The Web 2.0-based spatial MCDA plays a key role in collaborative (group/participatory) spatial planning, where it provides a flexible framework for defining geographic alternatives, identifying different relevant spatial and non-spatial criteria, specifying the criteria relative importance, and evaluating the decision alternatives in a collaborative setting. The currently used collaborative spatial MCDA models have often been developed subjectively; they are based on the knowledge and understanding that arises out of the subjective viewpoints. However, the use of such models for collaborative decision making is not effective as different decision makers/participants may have different views and concerns of the same subject domain, and thus making it hard for participants to communicate and collaboratively solve the decision problem. Moreover, sharing and reusing the participatory spatial MCDA domain knowledge in these models have been hampered by their semantic heterogeneity. The semantic heterogeneity has been caused by different meanings or interpretations of data, terminologies, and models of GIS and MCDA. This study seeks to alleviate these shortcomings by structuring the participatory spatial MCDA knowledge using ontological knowledge representation formalism. The proposed Web 2.0-driven spatial MCDA advocates the ontology-based approach to formally, semantically, and explicitly formulate the underlying collaborative spatial MCDA in a shared, unified, and machine-understandable framework. The system has been implemented for solving the parking site selection problem in Tehran, Iran.

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Presenter: Derrick Hambly

### **Projected Implications of Climate Change for Road Safety in Urban Canada**

By Derrick Hambly<sup>1</sup>, Jean Andrey<sup>1</sup>, Chris Fletcher<sup>1</sup>, Brian Mills<sup>2</sup>; 1. University of Waterloo, 2. Environment Canada

The elevated risk of collision involvement associated with driving during precipitation has been well documented by the road safety community, with heavy rainfall events of particular concern. As the climate warms in the coming century, altered precipitation patterns are likely. The current study builds on the extensive literature on weather-related driving risks and draws on the climate change impact literature in order to explore the implications of climate change for road safety. It presents both an approach for conducting such analyses, as well as empirical estimates of the direction and magnitude of change in road safety for Greater Toronto and Metro Vancouver, two of Canada's largest urban areas. The signal that emerges from the analysis is that projections of greater rainfall frequency are expected to translate into higher collision counts by mid-century. The greatest adverse safety impact is likely to be concentrated on moderate to heavy rainfall days (10 mm), which are associated with more highly elevated risks today. This suggests that particular attention should be paid to future changes in the frequency and intensity of extreme rainfall events. In the next stage of the analysis, the authors will build on these findings to establish projected safety impacts for additional Canadian cities across a more complete range of weather conditions.

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Presenter: Insia Hassonjee

### **Expressing Ethnic Hybridization In the Urban Built Environment**

By Insia Hassonjee, University of Calgary

In this era of hybrid ethnicity multiculturalism may be redefined as interculturalism or hybridization where we look through a different lens of envisioning the urban built form to create a cohesive social environment for hybrid-ethnic groups. The urban built environment is rooted in two instinctive human imperatives: safety and association. Therefore, designing a socially comfortable urban built environment for multi ethnic societies in cities becomes indispensable. This research explores how ethnic groups construct meanings in their built environment, and how a hybridization of built spaces transforms the urban vernacular city. Since the neighbourhood is our most immediate public space, its built form is influenced and is reflective of the connection between this hybrid identity and place. Based on the above theoretical framework, the researcher will investigate these questions through an ethnic neighbourhood study in Calgary. The census data will be used to select the neighbourhood based on demographic changes, percentages and changes in the composition of ethnic population. The selected neighbourhood will be further studied through detailed site observations and key informant interviews with city planners, ethnic organization leaders and other stakeholders. Based on the inferences found this study will propose an intercultural or hybridized model for urban development in Calgary.

Presenter: Mathew Hoyle

### **Prairie Restoration in Lambton County, Ontario: Processes and Services**

By Mathew Hoyle<sup>1</sup>, Rob Milne<sup>1</sup>, Lorne Bennett<sup>2</sup>, Mike Nelson<sup>3</sup>, Cassandra Stabler<sup>4</sup>, Jake Lozon<sup>4</sup>, 1. Wilfrid Laurier University, 2. University of Guelph, 3. Ministry of Natural Resources, 4. Rural Lambton Stewardship

Urban development and agriculture have reduced tallgrass prairie to 1% of its historic landcover in North America. In response, ecological restoration has become an important management strategy in mitigating tallgrass prairie degradation and habitat loss on both public and private lands. Successful prairie restoration efforts emphasize both a) ecological processes (succession and fire) and b) ecological services that benefit human systems, such as pollinators for adjacent cropland. Recent studies show pollinator decline can have significant economic impacts to agriculture, highlighting the need for actions to be taken to restore pollinator species one such action is prairie restoration. This poster will present preliminary results of a joint project between Wilfrid Laurier University and the University of Guelph with the Rural Lambton Stewardship Network and the Ministry of Natural Resources that focuses on tallgrass prairie restoration in Lambton County. These research plots are situated over a series of sites that incorporate landscape variability including soil type and grassland age. The goals of the field survey include identifying: a) changes in established planted vegetation over time, including diversity and target species presence and b) the presence of indicator species such as insect pollinators, (e.g. butterfly species) and grassland birds. Results of this work will assist in improving the success of prairie restoration in the rural Lambton landscape.

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Presenter: Calvin Lakhan

### **Developing Waste Management Infrastructure in the Developing World: Private Sector Participation in the Informal Waste Economy**

By Calvin Lakhan, Waterloo-Laurier Graduate Program

The management of municipal solid waste is one of the primary challenges facing urbanized areas. This problem is particularly acute in developing economies, where burgeoning populations and under developed infrastructure has placed a considerable strain on local municipalities. In response to the lack of integrated waste management systems in developing urban areas, an informal labor movement of waste pickers/scavengers, has materialized. These individuals often supplement municipal waste collection activities, collecting materials of value from homes, streets and landfills for the purposes of resale to a recycler. While many researchers have cited the importance of the informal waste sector to municipal waste management systems, waste pickers are largely perceived as parasites, and heavily stigmatized by the community at large (Medina 2005, Jhabvala 2003, Chatterjee 2009). As such, informal waste workers are forced to operate without legal recognition or support, exposed to deleterious conditions that leave workers susceptible to physical and economic exploitation. Increasingly, the emphasis of research and attention in this area is finding a suitable role for waste pickers within the larger framework of integrated waste management. This study, in part, will build upon the existing body of literature (see: Medina (2005), Assad (1994), Neamatalla (1999)), exploring socially sustainable strategies for waste picking in developing economies. More specifically, this study will examine the role of the private sector in supporting both the informal waste sector and local governments, through financing mechanisms such as extended producer responsibility.

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Presenter: Geoff George Leslie Kershaw

### **Communicating Environmental Risks of Alberta Oil Sands, Air Pollution with Members of the Clearwater River Dene First Nation**

By Geoff G.L. Kershaw<sup>1</sup>, Heather Castleden<sup>1</sup>, Colin P Laroque<sup>2</sup>, 1. Dalhousie University, 2. Mount Allison University

The Clearwater River Dene First Nation (Saskatchewan, Canada) is downwind of major atmospheric pollution sources in the Alberta Oil Sands. In 2009, the research team became aware of the First Nation's concerns over downwind pollution risks and began a dialogue on potential research to explore the extent and impacts of pollution in their territory. The purpose of this study is to generate meaningful dendrochronology-based results and explore, best practices, for communicating environmental risks to multiple audiences of the First Nation. Annual-tree growth can be used as a proxy indicator of ecosystem health and the presence of pollutants, as trees are stationary and retain a record of environmental parameters affecting forests over many years. In the summer of 2011, dendrochronology samples were taken from three tree species (*Pinus banksiana*, *Populus tremuloides* and *Picea glauca*) along a transect following the prevailing winds between the Alberta oil sands and the Clearwater River Dene territory. Using mass spectroscopy and statistical growth response techniques, dendrochronological proxy records are being developed to quantify the presence and amount of atmospheric pollutants in the terrestrial ecology along this transect. Given the historical precedence of scientists, (poor) communication with Aboriginal peoples concerning contaminants in their territories, these data are being analyzed and results formulated with consideration for effective integrated and end-of-study Aboriginal knowledge translation strategies. This will help further inform the First Nation's policies and practices concerning the management of their environmental risks of exposure to air pollution from the oil sands.

Presenter: Lindsay Matthews

**Climate Change Impacts and Adaptations at the Community Level: The Case of Prince George, B.C. and Transportation Safety**  
By Lindsay Matthews and Jean Andrey, University of Waterloo

The past two decades have witnessed extensive research on the implications of climate change and variability for natural, built and social systems, with only limited attention to the transportation sector. This work is part of a larger study on the implications of climate change and variability for the transportation sector in the City of Prince George, British Columbia. It is intended to inform decision making at strategic, tactical and operational levels. The study focuses specifically on automobile travel during the winter months—and the related issues of snow and ice control, and weather-related collisions. This poster provides insights into the links between weather and collision risk in Prince George by comparing the risk of collision and injury during winter precipitation relative to 'normal' winter driving conditions. As expected, there are significantly more collisions during active weather than on non-weather days; however, the degree to which collision rates increase is less than in many other urban areas of Canada, suggesting that Prince George residents are relatively well adapted to winter driving, and/or that snow and ice control operations in Prince George are of superior quality. Nonetheless, observed and projected increases in winter precipitation for this region are expected to contribute to a modest increase in weather-related collisions in the coming decades. Future work will explore the linkages between winter maintenance programs and road safety patterns and trends.

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Presenter: Eric Marr

**Identifying Transportation Disadvantage and Public Transportation Opportunities in Rural Ontario**  
By Eric Marr, University of Guelph

Public transportation in the rural areas of Ontario is very rare and in most areas a personal vehicle is required for the essentials of daily life. Indeed, those residing in rural areas are structurally dependent on personal vehicles creating a situation where those unable to drive are at risk of transportation disadvantage. For instance, previous research has found that older adults, youth, low-income individuals, and the mobility impaired are all at particular risk of transportation disadvantage and thereby social/economic exclusion. Furthermore, there are additional issues associated with transportation in rural areas such as higher rates of impaired driving and concerns arising from increasing fuel prices which may be addressed through public transportation provision. This research provides a framework for identifying demographic groups at risk of transportation disadvantage in the rural areas of Ontario. This framework will then be applied to the case study of Huron County, Ontario to identify groups in need within this context. The research will also evaluate public transportation models to propose appropriate models to meet the unmet transportation needs within the rural areas of Ontario.

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Presenter: Robert Milne

**Comparative Assessment of Audio and Visual Anuran Monitoring Techniques in Two Landscapes, Ontario**  
By Robert Milne, Wilfrid Laurier University, Lorne Bennett, University of Guelph, Josh Van Wieren, Parks Canada

Monitoring protocols are designed to provide a good representation of indicators in response to specific questions. In some cases, alternative techniques are available and are adopted by different monitors. In the case of frog monitoring, two field observation strategies are commonly employed, either a visual or an audio recognition of presence and abundance. In the Credit River watershed, within the Greater Toronto Area, audio surveys have been performed at sites across the watershed since 2003, while in eastern Ontario at sites centred around St. Lawrence Islands National Park, anuran records have been collected since 2006 employing a visual protocol. To compare these two techniques, both protocols were employed at ten sites in each study area in 2011. The results indicate the visual method provided a focus on the *Rana* genus but was less successful at identifying the presence of other species. The audio surveys provided a broader measure of species diversity, while the visual surveys allowed for more specific counts of abundance. In both watersheds certain species were added to site lists that had not been recorded using the alternative protocol. Recommendations will be provided on modifications of these protocols to complete more comprehensive surveys of anuran populations.



Presenter: Matt Newman

### **Examining the Response of Wetland Vegetation Community Composition to Fluctuating Water Levels through Various Modelling Approaches.**

By Newman, M.<sup>1</sup>, Deadman, P.<sup>1</sup> and Mortsch, L.<sup>2</sup>, 1. University of Waterloo; 2. Adaptation and Impacts Research Section, Environment Canada.

The vulnerability of Great Lakes coastal wetlands to fluctuating water levels is well documented. Understanding the non-linear relationships that exist between patterns of wetland vegetation and changing water levels is becoming increasingly important, noting projected water level changes due to climate change. Three different modelling approaches were developed and compared to determine their performance in replicating the response of wetland community vegetation to changing water levels at the Long Point wetland complex, Lake Erie, ON. They include: a feed forward artificial neural network trained using randomly selected sample sites from the larger dataset; a rule-based decision model that uses a series of if-then statements related to pre-existing vegetation, water depth and wetland vegetation tolerance ranges; and a multinomial logistic regression model. Lidar data, air photos and data collected at sample sites within the Long Point complex from 2007 to 2010 via a series of transects are utilized. Input variables include: water levels, water depth, previous, existing and adjacent vegetation, as well as a digital elevation model. Model output is the determination of generalized wetland classes, which are compared to known historical wetland vegetation coverages. Challenges associated with utilizing data to inform wetland vegetation modelling are discussed.

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Presenter: Keith Nicol

### **Mapping Avalanche Hazard in Western Newfoundland**

By Keith Nicol, Memorial University, Grenfell Campus

Avalanches have accounted for a large loss of life in many communities in Newfoundland. Currently it is estimated that avalanches have killed nearly 70 people in Newfoundland and Labrador, more than any other type of geological hazard (Batterson, M. Liverman, D. Taylor, D, 2006). Over the past number of years there have been increasing numbers of close calls in the mountainous backcountry of Western Newfoundland with snowmobiles and skiers. In fact, the last fatality involved a group of snowmobilers from the Northern Peninsula who were caught in an avalanche in 2007. To increase awareness of the hazard and to illustrate to the public where avalanches are likely to occur we have been creating on line maps that illustrate the areas of greatest avalanche hazard. These maps allow the user to pan across the map and then zoom in to look at their area of interest. Mapped attributes include previous avalanches locations, start zone areas of 30-45 degrees, the groomed snowmobile trail and warmup cabins and common routes to popular destinations. Future work is planned to map and better understand avalanche runout areas.

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Presenter: Felix Nwaishi

### **Geospatial Interpolation of Soil Microbial Ecology Data: a Tool for Eco-hydrology Restoration Research**

By Felix Nwaishi<sup>1</sup>, Mohammad S. Lazerjan<sup>1</sup>, Robin Sen<sup>2</sup>, David Elliott<sup>2</sup>, Graham Smith<sup>2</sup>, and Simon Caporn<sup>2</sup>, 1. The Cold Regions Research Centre, Wilfrid Laurier University; 2. Division of Biology and Conservation Ecology, Manchester Metropolitan University

There has been a shift in conventional scientific paradigm due to technological advancement, which has led to a new frame of knowledge. This involves intra/inter-disciplinary research in which researchers work with experts from various disciplines to explore research prospects beyond the confines of their individual disciplines. Many novel studies have been carried out at the fringes or intersection of two distinct disciplines such as ecology and hydrology (eco-hydrology) which are key components of ecosystem reclamation research. Eco-hydrology is defined as, the study of the functional interrelations between hydrology and biota at catchment scale, and, a new approach to achieve sustainable management of water, (Zalewski et al., 1997). This presents an opportunity for researcher from disciplines such as hydrology, ecology, micrometeorology, and soil microbial ecology to combine their knowledge toward returning disturbed landscapes to a functional and self-sustainable ecosystem. However, one of the major challenges encountered by this group of researchers is the lack of a unified pattern of data presentation in a manner which could be comprehensible to everyone associated the research. Here we present results from a small scale interdisciplinary reclamation project which involved researchers from various fields of natural and physical sciences. A map of the study site was created and used as unified platform for data presentation. Results from conventional (culture dependent) and Molecular Ribosomal (r) DNA-based laboratory analyses of soil microbial communities (fungi and bacteria) were overlaid on the site map to make the data very comprehensible.

Presenter: Caitlin Port

### **Aggregate Site Rehabilitation in the Region of Waterloo, Ontario: Challenges and Opportunities**

By Caitlin Port, University of Waterloo

On average, less than 50 per cent of land disturbed by aggregate operations (i.e. sand and gravel pits) in Ontario is rehabilitated annually (Environmental Commissioner of Ontario's 2004/05 Annual Report). This low rate of rehabilitation is increasing the contentious nature of proposed projects and intensifying the social and environmental impacts of aggregate extraction on the landscape in Southern Ontario. The purpose of my research will be to determine the rate of aggregate site rehabilitation in the Region of Waterloo, Ontario and explore stakeholder views regarding the rehabilitation process. This study will use Ministry of Natural Resources (MNR) records and aerial photo interpretation to determine the rehabilitation rate of expired sites within the municipality. Site-visits will be used to assess the quality of the rehabilitation conducted, which will be measured by comparing completed rehabilitation with the rehabilitation plan filed with the site license application. Semi-structured interviews with industry representatives, MNR officials, municipal planners, and representatives from environmental organizations will be conducted in order to learn why rehabilitation is not occurring and the challenges faced by each stakeholder regarding the rehabilitation process. This is an ongoing Master's thesis project; the research proposal and any preliminary findings will be presented.

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Presenter: Andrei Rosu

### **Comparing Different Approaches for Estimating Population Number and Centers of Post Code Areas**

By Andrei Rosu and Dongmei Chen, Queen's University

Six-digit postcodes are commonly used to represent the spatial locations or distributions of populations in health/epidemiology and other studies due to the privacy issues. Several approaches are commonly used to map population centers and geocode postcode data. One approach involves the use of a digital road network file that matches post codes to the centre of roads. Other approaches match post code to the centroids of post code polygon boundaries. Despite their widespread use, these approaches do not always reflect the actual or potential residential locations of where individuals live. For instance, rural areas have much lower population density than urban areas and thus residencies are much less likely to be located near the centre of roads or to the centre of post code polygons. To improve upon these traditional methods, we have implemented a method that takes into consideration the geographic distribution and concentrations of populations within the post code boundaries. We compare the population number and population centers from this method and traditional methods using post code data in Ontario. It is anticipated that this approach will assist future studies to obtain more accurate spatial measures for health and other studies when postcode data are involved.

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Presenter: Rizwan Shahid

### **Integrating Spatial Analysis and System Dynamics to Model Childhood Overweight and Obesity Prevalence**

By Rizwan Shahid, Stefania Bertazon, University of Calgary

The obesity epidemic has become a grave concern among public health officials and authorities. In children, obesity prevalence has increased at a frightening rate. The rise in childhood obesity has emerged from a complex mix of modifiable and non-modifiable spatial and non-spatial risk factors including, obesogenic, environmental and lifestyle factors which are not conducive to achieving recommended daily physical activity levels. These factors may not be independent of each other or independent of space and time. A dynamic spatio-temporal model focusing on upstream variables is proposed by integrating Geographically Weighted Regression (GWR) and System Dynamics Modeling. GWR is applied to analyze the varying local spatial relationships and to identify spatial patterns in space whereas System Dynamics is used to model feedback relationships in time to explain dynamic phenomena. The use of both techniques will combine spatial models with dynamic models to simulate the flow through time as well as through space. This approach could also be applied to define characteristics of intervention methods to address childhood overweight and obesity and to set realistic goals. The identification of vulnerable neighbourhoods may pave the way towards area specific interventions.

Presenter: Megan Shannon

- **Deconstructing Place Identity? Impacts of a "Racino" on Elora, Ontario, Canada**  
By Meghan Shannon and Clare J.A. Mitchell, University of Waterloo

The heritage-scape is a socially constructed place that provides locally-crafted products, cuisine, and experiences to satisfy consumers' desire for authenticity. In this paper we question if the introduction of a functionally non-conforming structure inevitably causes an existing heritage-based place identity to dismantle (i.e. deconstruct). In 2003, a pari-mutuel race track and gaming parlour (a "racino") was introduced to the historic village of Elora, Ontario. Through content analysis we unravel (i.e. deconstruct) the social processes that lay behind this development. We find that this profit-oriented venue was widely contested by preservation-minded residents, who expressed concern that this structure would compromise Elora's heritage image. Our survey finds, however, that the majority of visitors believe that the Grand River Raceway and Slots has not impacted Elora's existing place-based identity. Key informants further reveal that image management, spatial placement and visual coherence are largely responsible for its maintenance. We conclude that a heritage-based place identity may be retained, and even enhanced, in the presence of a hegemonic discourse that is underlain by a long-standing preservationist ideology.

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Presenter: Christine Sisco

**Use of Remote Sensing for Evaluating Land Use and Functional Changes in Rural Small Town Ontario: Case Study of Wilmot Township**  
By C. Sisco and T. Randall, Lakehead University

Small rural towns in Southern Ontario have seen consistent population growth over the past two decades, particularly in the commuter-sheds of larger urban regions. This undergraduate thesis project aims to better understand the spatial patterns of this population growth in the largely rural Township of Wilmot (immediately west of Region of Waterloo), and to see how this has changed the conceptual idea of, Small Town Ontario. Using remotely-sensed imagery over the period 1946 to 2006, this project has used a change detection approach to document land use changes in the small communities of Baden and Petersburg. Both experienced substantial population changes in the early 2000s. On the other hand, commercial and other non-residential functions have declined in Baden, as these are now more commonly sought in nearby Region of Waterloo. It is suggested that the traditional, Small Town Ontario, model, which in the mid-20th Century serviced a largely agricultural-focussed township, is now hard to recognize in either place.

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Presenter: Jurjen van der Sluijs

Session#:

**An Evaluation of Traditional and Alternative Photogrammetric Workflows for the Development of Digital Elevation Models**  
By Jurjen van der Sluijs and Dr. Dion J. Wiseman, Brandon University

Traditionally, aerial imagery is processed using softcopy photogrammetric workstations to derive Digital Elevation Models (DEMs), however, advancements in computer vision have made it possible to obtain DEMs using structure-from-motion (SfM) algorithms. The objective of this poster is to compare the workflow and capabilities of a traditional photogrammetric workflow (LISA) and a SfM freeware application (Microsoft Photosynth) by processing imagery obtained with an Unmanned Aerial Vehicle. The LISA workflow included the calibration of the camera (Pentax Optio A40), after which the relative and absolute orientation of each stereomodel was determined. A bundle block adjustment resolved the position and orientation of each pixel within the image block, after which a cross correlation matching technique matched features in left-right images in order to determine the parallax, and thus elevation. For the SfM workflow the imagery was processed using the Microsoft Photosynth server, and Mesh-lab was used to filter out image matching blunders. The freeware Menci Scanview and the open source Java Graticule 3D (JAG3D) applications were used to transform the pointcloud to UTM coordinates. The accuracy was assessed by comparing the derived DEMs to reference data obtained by a total station (Nikon Nivo 5M) and differential GPS (Trimble ProXRS GPS). The results indicate that the LISA workflow produced a significantly better UTM transformed pointcloud (RMSE of 0.18 m and 0.21 m) than the Photosynth workflow (RMSE of 3.0 and 4.7 m). It is believed that Photosynth's image matching algorithm introduced significant artefacts which could not be resolved during the coordinate transformation.

Presenter: Alexis Kane Speer

### **Public Space ARTivism: Promising Practices for Transforming the Public Realm**

By A. Kane Speer, S. Lodhia, E. Lista, Sustainable Thinking and Expression on Public Space

Public space forms the basis of our attachment to local environments and to the people who live there, and are one source of social well being for people. But public spaces are shrinking rapidly in North America, as people move increasingly towards privatizing land and space, cloistering themselves, and shrinking away from the public realm. The Sustainable Thinking and Expression on Public Space (STEPS) Initiative believes that the most powerful way in which to get people back into public space, indeed to reclaim and transform such space, is through art. We call such work, Public Space ARTivism, and seek to support emerging ARTivists and veterans in the field through a combination of research, knowledge exchange and capacity building programming. As part of our ARTivist consultation, STEPS has interviewed nearly 200 Canadian artists, activists, academics and urban planners using art in public space (to engage people and transform space) about their successes, challenges and lessons learned working with diverse communities. We will present findings from the Consultation, including unique examples of how public space has been transformed to challenge its use, and a series of promising practices from our (in-progress) book-length-project, Public Space ARTivism Manual(festo).

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Presenter: George Sutherland

### **Using High Resolution LiDAR Data to Spatially Scale and Assess the Accuracy of ET Estimates in the Western Boreal Plains**

By G. Sutherland<sup>1</sup>, Rich Petrone<sup>1</sup>, L. Chasmer<sup>1</sup>, and K.J. Devito<sup>2</sup>; 1. Wilfrid Laurier University, 2. University of Alberta

In Canada a large portion of the boreal forest is comprised of the mosaic landscape of the Western Boreal Plains (WBP). The WBP experiences consistent water deficit conditions where potential evapotranspiration (PET) exceeds precipitation (P) on an annual basis. This means that evapotranspiration (ET) is the primary driver of the hydrologic balance in the WBP and that future changes to the climate of this region will have significant impacts on the water balance. Within a study site representative of the WBP, this study uses high resolution (1 m x 1 m) LiDAR data to acquire spatially explicit canopy structure information which is used as an input into the Penman-Monteith (PM) equation. This method is used to examine the spatial variability in ET across dominant land covers in the WBP. A spatially explicit estimate of ET is compared with a simple lumped canopy model using spatial averages to estimate ET to determine the benefits of using high resolution spatially variable parameters. Eddy covariance measurements are used for validation. Subsequently, the high resolution spatially explicit estimate of ET will be compared with a lower resolution estimate representative of modern global satellite systems, i.e. SPOT (10m), Landsat (30m), MODIS (250m, 500m, 1km). This will determine the enhanced accuracy of high resolution vs. low resolution estimates of ET in a region where ET is the most significant hydrologic flux in the water budget.

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Presenter: Jessica Stortz

### **Spatial Analysis of Pregnancy Complications Associated with Cardiovascular Disease Risk in Ontario**

By Jessica Stortz, Duncan Hunter, Graeme Smith, Dongmei Chen, Queen's University

The American Heart Association recently updated the Guidelines for Prevention of Cardiovascular Disease in Women to include a history of preeclampsia, gestational hypertension, and gestational diabetes as risk factors for cardiovascular disease. Placental abruption, preterm delivery and delivery of a small for gestational age infant have also been associated with an increased maternal risk of cardiovascular disease. Collection of data on prevalence of cardiovascular disease risk factors is essential for enhancement of prevention and care. This study will investigate the geographic distribution of pregnancy complications associated with cardiovascular disease risk in Ontario. The study is a secondary analysis of data from the Better Outcomes Registry and Network, the largest pregnancy registry in Ontario. Age-standardized incidence rates of pregnancy complications will be calculated for each public health unit area. Using ArcGIS, spatial analysis methods will be used to locate and display any statistically significant clusters of pregnancy complications. Results of this study will determine how many women would benefit from post-partum cardiovascular screening and intervention programs to assist in lifestyle modifications, based on the development of specific pregnancy complications. These results will be relevant to program planning, design, and implementation within public health units in Ontario.

Presenter: Su-Yin Tan

### **Learning to Think Spatially: Identifying Threshold Concepts and Troublesome Knowledge in GIScience Education**

By Su-Yin Tan<sup>1</sup>, Dongrong Li<sup>1</sup>, James McCarthy<sup>1</sup>, Carina Xue Luo<sup>2</sup> ; 1. University of Waterloo, 2. Windsor University

The idea that misconceptions pose a barrier to learning is now well established and used to inform pedagogical strategies in a range of disciplines. Geographic Information Science (GIScience) educators face a variety of challenges, which ultimately affects how students perceive and process spatial information. This research explores the role of misconceptions, troublesome knowledge, and threshold concepts in determining the efficacy of teaching and learning GIScience.

A multidisciplinary approach is adopted by exploring a large body of literature from science, technology, engineering, and mathematics (STEM) education relevant to GIS theory and applications. By matching existing empirical studies from other STEM fields to the core concepts of GIScience, a preliminary map of potential threshold knowledge barriers and misconceptions is constructed for further empirical investigation by means of a survey instrument. Funded by a CTE Learning Initiative Fund (LIF), this project is based on a questionnaire survey conducted on a test course, GEOG/PLAN 281 "Introduction to GIS" at the University of Waterloo.

Although this research is specifically geared towards improving GIS teaching strategies and learning outcomes, challenges with identifying key barriers, misconceptions, and troublesome knowledge are relevant for educators from all geography fields. This research demonstrates how a survey instrument can be developed based on in-class questionnaires to identify challenges posed to teaching a STEM-related field. We also consider how findings from this research can be utilised for assisting instructor development, teaching effectiveness, and improving learning outcomes in the classroom and lab environment.

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Presenter: Sheridan Thompson

### **Conservation of a Hardrock Coastline: Home to 565 Ma Ediacaran Fossils and Potential for UNESCO Heritage Site Status**

By Sheridan Thompson, Memorial University

In March 2004 Mistaken Point Ecological Reserve (MPER) of Avalon Peninsula, Newfoundland was formally added to Canada's Tentative List of UNESCO World Heritage Sites. These properties are defined as having "outstanding universal value" and are noted as being worthy of special protection by UNESCO World Heritage Convention due to their vulnerability to physical and human impact that may increasingly threaten them. In the case of MPER, it is the exposed bedrock containing internationally and scientifically significant 565 Ma Ediacaran fossils that are in need of protection. As a result, in March 2009 a coastal erosion project for MPER was undertaken with the purpose of understanding the dominant erosional and depositional processes affecting the integrity of this 24 km long coastline. Thus far, our observations have pointed to the following primary erosional processes at all four sites: increased storm intensity and frequency, frost action and geological structure. As well, human impact at the sites where fossils are present are subjected to the threat of illegal casting, extraction of fossils and foot traffic due to increased visitation. Therefore a recommendation concerning possible management approaches has been formulated involving comparative analysis of three successful World Heritage Sites: 1) Burgess Shale, BC; 2) Joggins, NS; and 3) Devon/Dorset Coast of South England, UK with the ultimate objective to protect the integrity of MPER's coastline for the future to come.

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Presenter: R.G. Christopher Turner

### **Square Pegs, Round Holes and Compromised Jurisprudence: Causes, Implications and Strategies for Addressing Overlapping, and Contested Aboriginal Claims to Territory in the Context of the BC treaty Process**

By R. G. Christopher Turner, University of Northern British Columbia

Two overarching goals of the BC treaty process are to avoid Aboriginal rights litigation and to achieve certainty of jurisdiction. Certainty, requires that conflicts among Aboriginal and Crown titles are addressed to achieve clarity of rights and jurisdictions concerning land and resources. The recent settlement of four modern treaties in BC has evoked criticism and judicial challenge that casts the BC treaty process under a cloud of uncertainty. Contested claims arise where multiple Aboriginal groups assert claims to the same geographic area. Contrary to long-standing federal claims policy, treaties are being settled in contested areas, which not only subverts the goal of jurisdictional certainty; it undermines the ethical (if not legal) legitimacy of the BC treaty process by privileging the rights of Aboriginal groups that settle their treaty first. That all of BC's modern treaties to have reached final stages of negotiation have been subject to legal challenge is symptomatic of a treaty process that is failing on its

own terms, in part because of lack of attention paid to the, overlap issue. This poster provides a preliminary outline of a PhD program of study focused on causes, implications and strategies for addressing ,overlapping, and contested claims. The goal of the project is to critically evaluate public policy options for supporting the reconciliation of contested Aboriginal territorial claims in the context of treaty negotiation and land management in BC.

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Presenter: Sarah Weston

### **CURA H2O: Community-based Water Monitoring in Nova Scotia and Abroad**

By Sarah Weston, Cathy Conrad, Oliver Woods, Melissa Healey, Ashley Shelton, Shara Bonds, Saint Mary's University

While significant amounts of valuable data are collected annually through community-based environmental monitoring, the integration and use of this data by resource managers and decision makers remains limited. One of the most prevalent challenges in integrating environmental data gathered by volunteers is the potential for inconsistent collection methods, resulting in uncertainty of data accuracy. The Community-Based Environmental Monitoring Network (CBEMN) seeks to address this challenge by standardizing data collection processes at the community level, and has developed a water quality monitoring training and certification course and an accompanying toolkit that provides all necessary monitoring equipment. Through support from the Community-University Research Alliance (CURA) program of the Social Sciences and Humanities Research Council of Canada, the CBEMN initiated a five-year project focused on community-based water quality monitoring and the advancement of integrated watershed management in Nova Scotia and abroad. CURA H2O engages the public in meaningful participatory management, and will provide resource managers with a broader set of reliable data upon which to base more informed decisions. The theoretical research directing CURA H2O will generate new knowledge around issues of effective community-based resource management, improved accuracy of data collection, and the successful integration of volunteer monitoring into resource management. Potential social benefits of this research include the empowerment of communities to successfully assess the health and needs of their watersheds, as well as the development of a grassroots capacity to create solutions to environmental degradation concerns that negatively affect local water quality. Preliminary results will be discussed.

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Presenter: Xiao Xu

### **A Proposal to Use Remote Sensing Data to Measure CO<sub>2</sub> Emissions from Ontario's Power Generating Stations**

By Xiao Xu and Paul Parker, University of Waterloo

Ontario's electricity generation system is undergoing significant changes towards a modern and sustainable system. One significant objective for the planned system transition is to reduce CO<sub>2</sub> emissions. CO<sub>2</sub> emissions from Ontario's power generation are expected to be cut significantly as coal is phased out and more renewables and natural gas capacity are incorporated into the provincial electricity supply. This restructuring of Ontario's electricity system needs to be monitored.

Equally, the dynamics of CO<sub>2</sub> in the atmosphere are also a major issue of interest in the scientific world and how the reduced CO<sub>2</sub> emissions from power plants can influence the distribution of CO<sub>2</sub> concentration remains an important question. In this regard, remote sensing which provides global-coverage, near real-time and 3-D information on atmospheric CO<sub>2</sub> is proposed as a useful tool for monitoring the processes and phenomena of interest. The ongoing space-based instruments such as SCIAMACHY and GOSAT provide accurate CO<sub>2</sub> concentration information at different altitudes especially near the Earth's surface where interactions between power-generation CO<sub>2</sub> emissions and the atmosphere are intensive. These data can be used for both long-term CO<sub>2</sub> monitoring and short-term CO<sub>2</sub> detection by measuring the emitting activities of power plants. Therefore, this project examines the potential use of remote sensing to measure CO<sub>2</sub> emissions from power stations in Ontario and to monitor policy implementation.

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O'Halloran, I.	TH2-F	Ramsey, D.	TH1-G	Scott, D.	TH3-E
O'Neill, G.	POSTER	Ramsey, D.	F2-I	Scott, D.	TH1-E
Oiamo, T. H.	T3-A	Randall, T.	TH2-I	Scott, D.	TH4-E
Olsen, D. H.	TH1-G	Randall, T.	F1-F	Seasons, M.	TH2-I
Osbourne, J.	TH4-I	Randall, T.	POSTER	Sen, R.	POSTER
Osolen, R.	TH4-I	Rasouli, M.	F2-E	Senese, L.	TH1-A
Oum, S.	T4-A	Ray, S. L.	TH4-A	Shahid, R.	POSTER
Owen, M.	F1-A	Reed, M.	F1-E	Shannon, M.	POSTER
<b>P</b>		Reed, M.	ESAC- UofW	Shannon, S.	W2-A
Pacheco-Vega, R.	TH1-J	Reiffenstein, T.	W4-D	Shapiro, J.	T1-G
Pacheco-Vega, R.	TH2-D	Rommel, T. K.	TH2-B	Shearmur, R.	F1-H
Pacheco-Vega, R.	W2-C	Rommel, T. K.	TH4-F	Shehon, A.	POSTER
Páez, A.	TH1-B	Rommel, T. K.	TH3-B	Shen, L.	T1-F
Páez, A.	F1-B	Rommel, T. K.	F1-B	Sherk, T.	TH2-J
Páez, A.	T3-B	Rennie, S.	T3-C	Sherpa, Y.	TH2-G
Páez, A.	T3-B	Reynolds, J.	T3-H	Shifflett, G.	T3-I
Pain, R.	TH3-C	Rice, M. D.	W3-J	Shrubsole, D.	TH3-C
Park, O.	TH4-I	Rieser, V.	TH4-B	Sidhu, N.	TH2-F
Parker, D.	TH4-B	Riley, L.	T2-D	Siebenmorgen, P.	T2-J
Parker, P.	TH1-J	Riley, L.	T2-D	Siemiatycki, M.	T2-B
Parker, P.	POSTER	Rinner, C.	POSTER	Siltanen, J.	T1-E
Parker, P.	TH1-J	Ripmeester, M.	T3-I	Silva, D. M. D.	F2-I
Parr, J.	T3-A	Roberts, S. A.	TH2-B	Silver, A.	W1-E
		Robertson, C.	F1-B		

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<b>Silver, J.</b>	<b>F1-D</b>	<b>Swales, S.</b>	<b>W3-J</b>	Veron, R.	W2-D
Silver, J.	F2-D	Sweetman, J. N.	W3-F	<b>Vine, M. M.</b>	<b>T4-A</b>
Silver, J. J.	TH2-E	Sweetman, J. N.	W3-F	Viswanathan, L.	T4-G
Sim, R.	TH2-E	Stajduhar, K. I.	W1-A	Viswanathan, L.	T1-G
<b>Simandan, D.</b>	<b>W4-C</b>	Szigeti, K.	W1-G	<b>Viswanathan, L.</b>	<b>T3-G</b>
<b>Simard-Gagnon, L.</b>	<b>W2-G</b>			<b>Vitale, P.</b>	TH1-E
Simone, D.	TH2-E	<b>T</b>		Vivian, K.	TH1-E
Simone, D.	F1-I	<b>Tadgell, A.</b>	<b>W2-E</b>	<b>Vololoona, Z.</b>	<b>F1-H</b>
<b>Simone, D.</b>	<b>F1-I</b>	Tang, M.	TH3-E		
<b>Simpson, H. C.</b>	<b>TH3-G</b>	Tam, B.	W4-E	<b>W</b>	
Simpson, M.	F1-E	<b>Tam, B.</b>	<b>T2-A</b>	<b>Waheed, R.</b>	<b>T3-B</b>
Simpson, M.	TH2-E	<b>Tam, C.</b>	<b>W2-B</b>	<b>Waldbrook, N.</b>	<b>W1-A</b>
Sinclair, A. J.	F1-E	<b>Tamas, S.</b>	<b>T4-C</b>	<b>Walker, C.</b>	<b>TH3-J</b>
Sinclair, A. J.	TH3-D	Tan, S.	F2-B	<b>Walker, H.</b>	<b>TH3-D</b>
<b>Sinclair, J.</b>	<b>TH2-G</b>	Tan, S. J.	T2-F	<b>Walks, R. A.</b>	<b>F2-I</b>
Sinn, C. J.	T3-A	<b>Tan, S.</b>	<b>POSTER</b>	Wallbaum, K.	POSTER
<b>Sisco, C.</b>	<b>POSTER</b>	Tan, S.	TH1-F	<b>Wall, G.</b>	<b>T4-J</b>
<b>Skinner, M.</b>	<b>W3-A</b>	Tan, S.	F2-B	Wall, G.	TH1-G
<b>Slaymaker, O.</b>	<b>W1-F</b>	<b>Tan, W.</b>	<b>W2-F</b>	<b>Waltner-Toews, D.</b>	<b>ESAC- UofW</b>
<b>Slocombe, S.</b>	<b>ESAC- UofW</b>	<b>Taylor, L.</b>	<b>W2-I</b>	<b>Walton-Roberts, M</b>	<b>TH4-H</b>
Smith, G.	POSTERS	Teitelbaum, S	TH4-J	<b>Wang, L.</b>	<b>W3-J</b>
<b>Snider, R. T.</b>	<b>T1-D</b>	Thistle, J.	T3-J	<b>Wang, Q.</b>	<b>T2-A</b>
<b>Snyder, M.</b>	<b>F1-G</b>	<b>Thompson, S.</b>	<b>POSTER</b>	Wang, Y.	TH2-F
<b>Snyder, M.</b>	<b>W1-A</b>	<b>Thomson, A.</b>	<b>T4-C</b>	<b>Wasteneys, C.</b>	<b>T1-B</b>
Snyder, S.N.	T1-A	Tierney, S	W2-J	<b>Wasylcia-Leis, J.</b>	<b>TH1-D</b>
Sohn, G.	TH3-B	<b>Tondu, J.</b>	<b>W4-F</b>	Watt, H.	TH4-B
Sommor, D.	T3-B	Tong, H.	T1-F	<b>Wekerle, G. R.</b>	<b>W2-I</b>
<b>Songsore, E.</b>	<b>TH3-J</b>	<b>Townsend, C.</b>	<b>T2-B</b>	<b>Wesche, S.</b>	<b>TH1-A</b>
<b>Sosa-Rodriguez, F. S.</b>	<b>TH2-D</b>	<b>Tran, G.</b>	<b>TH4-A</b>	<b>Weston, S.</b>	<b>POSTER</b>
Spaling, H.	TH3-D	<b>Trangmar, S.</b>	<b>T1-C</b>	<b>Wewerinke, M.</b>	<b>ESAC- UofW</b>
<b>Speer, A. K</b>	<b>POSTER</b>	Tsuji, L. J. S.	W4-E	<b>Wierzba, T.</b>	<b>F1-D</b>
<b>Spina, J.</b>	<b>W3-A</b>	Tuot, S.	T4-A	<b>Whittington, P.</b>	<b>W4-F</b>
<b>Sportel, T.</b>	<b>W2-D</b>	Turner, J.	W4-F	Whitelaw, G.	T1-G
<b>Sportel, T.</b>	<b>W1-H</b>	<b>Turner, K. W.</b>	<b>TH2-F</b>	Wiklund, J.	W4-F
Stabler, C.	POSTER	Turner, K. W.	TH3-F	Williams, A.	T2-A
<b>Stebelsky, I</b>	<b>TH1-I</b>	<b>Turner, R. G. C.</b>	<b>POSTER</b>	Williams, A.	F1-I
Steelman, C.	T1-F	Turner, S.	T3-E	Williams, A.	F1-I
<b>Stefanik, J.</b>	<b>T4-I</b>	<b>U</b>		Williams, A.	F1-I
Steiger, R.	TH1-E	<b>Ung, M.</b>	<b>T4-A</b>	Williams, A.	F1-I
<b>Steiger, R.</b>	<b>TH4-E</b>	<b>V</b>		<b>Williams, K.</b>	<b>T1-H</b>
<b>Steiger, R.</b>	<b>TH1-E</b>	<b>Valarezo, G.</b>	<b>T1-H</b>	<b>Wilcox, A. C.</b>	<b>ESAC- UofW</b>
Stewart, E. J.	TH2-E	VanArragon, W.	POSTER	Willson, R.	W4-G
Stolarick, K.	F2-H	<b>Van der Sluijs, J.</b>	<b>POSTER</b>	Wilson, D.	TH3-A
<b>Stolarick, K.</b>	<b>F2-H</b>	Van der Sluijs, J.	TH4-F	Wilson, D.	T1-A
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<b>Storie, J.</b>	<b>T1-F</b>	Van Opstal, S.	W4-F	Wilson, K.	F1-G
<b>Stortz, J.</b>	<b>POSTER</b>	Van Rees, K.	TH2-F	Wilson, K.	T1-A
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<b>Summerby-Murray, R.</b>	<b>CHA</b>	VanWieran, J.	POSTER	<b>Winton, M. R.</b>	<b>TH4-F</b>
<b>Summerby-Murray, R.</b>	<b>T3-I</b>	<b>Vaswani, M.</b>	<b>TH1-F</b>	<b>Wiseman, D. J.</b>	<b>T2-F</b>
Sun, S.	TH4-B	<b>Varghese, V. J.</b>	<b>TH4-H</b>	Wiseman, D. J.	Th4-F
Suteanu, C.	W1-F	<b>Verma, R.</b>	<b>W3-D</b>	Wiseman, D. J.	POSTER
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<b>Suthakar, K.</b>	<b>F1-F</b>			Wolfe, B. B.	TH2-F
<b>Sutherland, G.</b>	<b>POSTER</b>			Wolfe, B. B.	W3-F

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<b>Woudsma, C.</b>	<b>T4-B</b>
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Wyly, E.	TH3-I
<b>X</b>	
Xia, D.	W2-F
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Xu, W.	F1-J
Xu, W.	<b>TH3-H</b>
<b>Xu, X.</b>	<b>W4-F</b>
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Yang, Z.	T4-J
Yeak, C. M.	T1-H
<b>Yembilah, R.</b>	<b>T1-D</b>
<b>Yiannakoulis, N.</b>	<b>W2-A</b>
<b>Young, A.</b>	<b>TH1-I</b>
<b>Young, D.</b>	<b>TH3-I</b>
<b>Young, J. E. E.</b>	<b>T3-H</b>
Young, M.	F2-I
<b>Yu, L.</b>	<b>W4-D</b>
<b>Z</b>	
Zaidi, A. U.	F2-I
Zary, A.	F1-J
Zerriffi, H.	TH1-J
<b>Zhang, A.</b>	<b>T2-B</b>
<b>Zhang, H.</b>	<b>W3-J</b>
Zhao, J.	TH4-B
<b>Zhao, X.</b>	<b>F1-J</b>
Zhu, Y.	W4-D
Zinyemba, C.	TH3-A