

Dr. Jing Chen, Professor of Geography at the University of Toronto and a Canada Research Chair Tier 1, has had a truly outstanding career. Dr. Chen is a physical geographer with an international reputation in terrestrial carbon cycle research and one of very few scientists in the world to have made fundamental contributions to such research across a large range of spatial scales: leaf, canopy, landscape, regional and global. His pioneering work has contributed to numerous fundamental advances in estimating the terrestrial carbon cycle – one of the most uncertain and challenging problems in global change science. Among his achievements, he has:

- devised theories and invented optical instrumentation for rapid and accurate ground measurement of plant canopy structural parameters
- developed new algorithms for retrieving those parameters from satellite observations
- developed new algorithms for retrieving vegetation physiological parameters from satellite observations
- pioneered several computer models in using these structural and physiological parameters for quantifying the spatial distributions of carbon and water fluxes at regional and global scales
- led the development of global carbon inversion and assimilation systems that use atmospheric CO₂ and ¹³C concentration data to infer terrestrial carbon sinks

He was the first scientist to quantify the carbon balance of Canada's forests with consideration of both disturbance (fire, insect, harvest) and non-disturbance (climate, CO₂, nitrogen deposition) effects on the carbon cycle. Extending this approach to the United States, his research group produced the first-ever, high-resolution (1 km) forest carbon source and sink maps for the North American continent, which make regional sink estimates verifiable using ground data. He led a large Canadian–Chinese team that produced similar results for China's landmass. Today, the optical instrument, remote sensing algorithms, ecosystem models, and CO₂ inversion systems developed by Dr. Chen and co-workers are used worldwide, making highly-visible impacts on global carbon cycle research.

After receiving his BSc from Nanjing Institute of Meteorology and his PhD from Reading University, Dr. Chen joined the Canada Centre for Remote Sensing as a research scientist in 1993 and then accepted an appointment as Full Professor in the Department of Geography at the University of Toronto in 2000. He has received more than \$15 million in research funding and published more than 300 refereed journal articles that have been cited over 12,500 times, according to the Web of Science. Among his honours are the Alouette Award from the Canadian Aeronautics and Space Institute (2000) and election as a Fellow of the Royal Society of Canada (2006). He has also received two achievement awards from Canadian Chinese professional organizations and a media award from Fairchild Television.

Dr. Chen is also well respected in the academic community concerned with governing global change research. For many years, he has served on the Executive Science Committee of the Canadian Carbon Program, the Science Steering Committee of the American Flux Network, and the Expert Panel of the Chinese Global Change Program, among others. He also serves as an Editor-in-Chief of *Remote Sensing of Environment*, and has been an Associate Editor of five journals in his field as well as an editorial board member of three.

In summary, Dr. Chen has had a highly productive and impactful career in physical geography. He is a world leader in his fields of remote sensing, carbon and water cycle modeling, and atmospheric inverse modeling. He continues to make innovative and significant contributions to the study of global change science. He is a truly worthy recipient of the CAG Award for *Scholarly Distinction in Geography*.