The Interface between Climate and Physics

David Neelin

Professor, Atmospheric and Oceanic SciencesChair, Department of Atmospheric and Oceanic SciencesProfesseur Invité

CURRENT RESEARCH

The fundamentals of climate change and modeling

What keeps our climate the way it's been and what causes it to change? Such is the question that remains a complex problem for researchers studying climate models today, as developing new techniques to test and improve climate models helps predict natural climate variations such as El Niño and effects of human-induced climate change. Dr. David Neelin, Professor of Atmospheric and Oceanic Sciences at the University of California, Los Angeles, is adapting techniques from applied math, physics and big data to shed light on climate variations and climate change, which have considerable present and future societal impact. Understanding fundamentals and careful calibration of predictions is key as we prepare to adapt to climate change and to aid societies around the world to become more resilient to climate variations in a changing world.

At the time when climate research was starting to emerge, Dr. Neelin made significant contributions to expanding the understanding of El Niño, and other interactions in the climate system like vegetation-climate feedback. He is also a prominent author of a textbook, *Climate Change and Climate Modeling*. Work in these areas has earned recognition including a US Presidential Young Investigator Award, a National Science Foundation Special Creativity Award and a Guggenheim Fellowship. Currently, Dr. Neelin and his team collaborate with specialists in climate modeling, satellite retrievals and field campaigns across disciplines to focus on an enormous challenge for climate science: the interaction between small-scale rainstorms and large-scale climate. In the small-scale storms, the action happens at timescales of minutes and spatial scales under a kilometer, but these...

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AFFILIATION

University of California, Los Angeles

EDUCATION

- Ph.D. in Geophysical Fluid Dynamics 1987,Princeton University
- M.Sc. in Physics 1983,University of Toronto
- B.Sc. in Physics 1981,University of Toronto

AWARDS

- Fellow of the American Association for the Advancement of Science, 2012
- Fellow of the American Geophysical Union, 2012
- Fellow of the John Simon Guggenheim Memorial Foundation, 2007
- Fellow of the American Meteorological Society, 2003
- Fellow of the Royal Meteorological Society, 2003

RESEARCH AREAS

Environment, Atmospheric / Space, Oceanic, Natural Disasters / Emergency

FUNDING REQUEST

Your contributions will support the continued research of Dr. David Neelin at the University of California, Los Angeles as he improves climate models by adapting tools from applied math and physics. While federal funding supports supercomputer time and personnel for the group's role-up-your-sleeves work, private funding is invaluable for the high-risk, high-payoff interdisciplinary work. Partner with Dr. Neelin's team to shed light on one of the most important issues of our society today.