



Data Hierarchies for Climate Modeling

May 24 - 28, 2010

ORGANIZING COMMITTEE: Amy Braverman (Jet Propulsion Laboratory), Illia Horenko (Freie Universität Berlin), Luis Kornblueh (Max-Planck-Institut für Meteorologie), Robert Pincus (University of Colorado, Boulder)

Scientific Overview

Data provide a lens through which we see the world, but the interpretation of what we see depends crucially on how data are collected, and on modeling assumptions and other decisions we make analyzing them. The climate system itself can be conceptualized in terms of hierarchies of interacting processes acting on different scales in space and time. If analyses of climate data are to help improve understanding of these multiscale physical processes, then data should also be viewed within a commensurate framework. Data hierarchies are not separate from equation, model, or simulation hierarchies. Rather, they provide a mechanism for examining experimental or observational evidence in order to evaluate and improve them. In this workshop, we will examine 1) basic paradigms for modeling hierarchical relationships, both from a statistical viewpoint and within the dynamical systems approach, 2) the application of these paradigms to facilitate the formulation of hierarchies for understanding climate processes, 3) their application specifically to equation, model, and simulation hierarchies given a priori, 4) quantification and propagation of data-based modeling errors and uncertainties through the hierarchies, and 5) interdisciplinary issues arising from the massiveness of data collected or generated in modern climate science.

Confirmed Speakers

Rafail Abramov (University of Illinois at Chicago), Mark Berliner (Ohio State University), Amy Braverman (Jet Propulsion Laboratory), Tim Conrad (Freie Universität Berlin), Noel Cressie (Ohio State University), Daan Crommelin (CWI), Jan de Leeuw (UCLA), Christian Franzke (Britain Antarctic Survey), Montserrat Fuentes (North Carolina State University), Boris Gershgorin (Courant Institute), Marcus Grote (Universität Basel), John Harlim (Courant Institute), Illia Horenko (Freie Universität Berlin), Kevin Judd (University of Western Australia), Luis Kornblueh (Max-Planck-Institut für Meteorologie), Rolf Krause (University of Lugano), Andrew Majda (Courant Institute), Brian Mapes (University of Miami), Katja Matthes (Freie Universität Berlin), Robert Pincus (University of Colorado, Boulder), Ilya Timofeyev (University of Houston), Mike Turmon (Jet Propulsion Laboratory), Xiaoming Wang (Florida State University), Christopher Wikle (University of Missouri-Columbia), Bin Yu (UC Berkeley)

Long Program Schedule

This workshop is part of the Long Program "Model and Data Hierarchies for Simulating and Understanding Climate"

- Tutorials, March 9 – 12, 2009
- Workshop 1: Equation Hierarchies for Climate Modeling, March 22 – 26, 2010
- Workshop 2: Numerical Hierarchies for Climate Modeling, April 12 – 16, 2010
- Workshop 3: Simulation Hierarchies for Climate Modeling, May 3 – 7, 2010
- **Workshop 4: Data Hierarchies for Climate Modeling, May 24 – 28, 2010**
- Culminating Workshop at Lake Arrowhead Conference Center, June 6 – 11, 2010

Participation

Additional information about this workshop including links to register and to apply for funding, can be found on the webpage listed below. Encouraging the careers of women and minority mathematicians and scientists is an important component of IPAM's mission, and we welcome their applications.

www.ipam.ucla.edu/programs/clws4

