



Workshop on the mathematics of weather and climate prediction

30 March – 3 April 2009

Organisers: John Ball (Oxford Centre for Nonlinear PDE), Sergei Kuksin (Centre for Analysis and Nonlinear PDEs) and Mike Cullen (Met Office)

Computations using large and complex numerical models are fundamental in predicting the circulations of the atmosphere and ocean, and hence in weather and climate prediction.

Validation of these models is essential, particularly in climate prediction where no verification is possible. It can be achieved by demonstrating that important asymptotic limit solutions of the governing equations, which are simple enough to be resolved by the computer models, can be successfully reproduced. There have been major advances in the mathematical analysis of several of these sets of limit equations, which has brought such validation within reach.

The meeting will contain four mini-courses describing recent developments in the mathematical analysis and physical understanding of equations describing atmosphere and ocean circulations. There will be about eight additional research lectures on specific topics in the area.

The intended audience are graduate students and researchers working in either nonlinear partial differential equations or meteorology and oceanography. The intention is that meteorologists and oceanographers will learn about the new results that have been achieved and the methods that can now be used for nonlinear problems, and that the mathematicians will learn about physically important unsolved problems to work on.

Confirmed speakers:

Yann Brenier	University of Nice
Peter Constantin	University of Chicago
Gregory Falkovich	Weizmann Institute of Science
Isabelle Gallagher	Paris VII
Michael Ghil	University of California, Los Angeles
Andrew Majda	Courant Institute of Mathematical Sciences
Laure Saint-Raymond	Paris VI and Ecole Normale Supérieure
Sebastian Reich	Universität Potsdam
David Sexton	Met Office Hadley Centre
Roger Temam	Indiana University
John Thuburn	University of Exeter
Vladimir Zeitlin	Ecole Normale Supérieure



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