



## Summer Graduate Workshop on Data Assimilation for the Carbon Cycle

July 16 2006 to July 29 2006

Mathematical Sciences Research Institute  
Berkeley California



Co-sponsored by the Mathematical Sciences Research Institute (MSRI) and the National Center for Atmospheric Research (NCAR)

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A diverse set of meteorological observations (from e.g. satellites, balloons, ground stations) has been assimilated into numerical weather prediction models to improve weather forecasts. Observations of atmospheric CO<sub>2</sub> abundances from orbiting satellites present a new challenge to data assimilation, as atmospheric CO<sub>2</sub> varies not only with the atmospheric circulation, but also with the changing CO<sub>2</sub> fluxes at the surface. Indeed the goal of the upcoming Orbiting Carbon Observatory is to use satellite CO<sub>2</sub> observations to deduce the surface sources and sinks. This 2-week workshop is designed for graduate students in mathematics and the atmospheric sciences. The program includes lectures by experts in data assimilation, the global carbon cycle, as well as inverse problems. Also student teams are expected to work on a carbon data assimilation project, using computing resources at MSRI and NERSC.

### Principal Lecturers:

**Eugenia Kalnay:** Dept of Meteorology, University of Maryland; author: "Atmospheric Modeling, Data Assimilation and Predictability"

**Douglas Nychka:** Institute for Mathematics Applied to Geosciences (IMAGE), NCAR

**Inez Fung:** Berkeley Atmospheric Sciences Center, UC Berkeley

### Participation and Support:

Participants will be selected from among nominees of NCAR and MSRI Academic Sponsoring Institutions. Participants will be housed in a dormitory on the campus of the University of California Berkeley.

- Graduate students at MSRI Academic Sponsoring Institutions (see the list at [http://www.msri.org/sponaff/Support\\_Academic](http://www.msri.org/sponaff/Support_Academic)) should request their Director of Graduate Studies to send their nominations directly to MSRI by April 15 2006.
- Graduate students at NCAR Academic Sponsoring Institutions (<http://www.ucar.edu/governance/members/institutions.shtml>) should send their applications to David Schimel ([schimel@ucar.edu](mailto:schimel@ucar.edu), cc: [chavez@ucar.edu](mailto:chavez@ucar.edu)) by April 15 2006. Applications should include a letter describing the student's interest in the workshop and relevance to his/her research, a statement of need for financial support, two letters of reference (one from the thesis advisor), and a current CV.

Students not affiliated with a MSRI or UCAR institution should contact the organizers directly. After the April 15 deadline, all applicants will be considered for admission and possible support.

**For further information, contact the Organizers:** Inez Fung (University of California, Berkeley, [ifung@berkeley.edu](mailto:ifung@berkeley.edu)), Scott Doney (Woods Hole Oceanographic Institution, [sdoney@whoi.edu](mailto:sdoney@whoi.edu)), David Schimel (NCAR, [schimel@ucar.edu](mailto:schimel@ucar.edu)).