Model-Data Integration and Network Design for Biogeochemical Research:
A National Center for Atmospheric Research (NCAR) and Colorado State University Advanced Study Institute

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Global biogeochemical research must increasingly address the problems of "detection" or quantification of changing fluxes to the atmosphere, and "attribution" or explanation of those fluxes in terms of specific mechanisms. Today, neither our measurement nor analysis capabilities are sufficient to meet the twin challenges of biogeochemical detection and attribution with sufficient accuracy and resolution. We will hold an Advanced Study Institute to study analysis techniques (inverse and assimilation modeling), observing system design and the synergism of new measurements with new analysis frameworks. The Advanced Study Institute will involve lectures from a broad and distinguished group of scientists on the biogeochemical cycles, current and planned measurement capability, process and data analytical modeling, and new approaches in applied math.

The Institute will have as its centerpiece a hands-on simulation exercise. Estimates of global terrestrial and oceanic fluxes will be produced from existing data and models, combined to produce flux fields with reasonable time-space variability. They will be distributed in a global simulated atmosphere using an atmospheric transport model to produce a 4-D data set of concentrations. The participants will form teams to reconstruct surface fluxes. A mesoscale carbon assimilation model being developed at NCAR and Colorado State University will be available for the participants to use in network design, and to demonstrate concepts and application of data assimilation in biogeochemistry. The teams may choose any strategy they wish to estimate the "real" fluxes.

We encourage students, post-docs and senior participants to apply to attend the Institute, which will be held, 20 May to 31 May 2002, in Boulder, Colorado. Support is available for participants, but all applications should state the level of support (travel, housing, per diem) required to attend. The Institute can accommodate approximately 50 participants.
Apply by letter or email to:
David Schimel or Britt Stephens
c/o Susan Chavez (chavez@ucar.edu)
!850 Table Mesa Drive
Boulder CO 80305
Please state your scientific background and research interests in the application. Deadline for applications is March 15; decisions will be made by a steering committee.