

**POSTDOCTORAL RESEARCH PROGRAM
NATIONAL EXPOSURE RESEARCH LABORATORY
U.S. ENVIRONMENTAL PROTECTION AGENCY
Research Triangle Park, NC**

Project # NERL-AMD-RTP 2004-03

A research project is available through the Postdoctoral Research Program at the U.S. Environmental Protection Agency (EPA), National Exposure Research Laboratory (NERL) at Research Triangle Park, North Carolina. Under the guidance of a research mentor in the Atmospheric Modeling Division (AMD), the research fellow will participate in investigating science upgrades to the mercury version of the EPA Community Multiscale Air Quality (CMAQ) with respect to dynamic air-surface exchange of mercury (Hg). The candidate will focus on development of innovative methods for multi-pollutant air-surface exchange with a focus on Hg.

Mercury is an emerging, rapidly escalating multimedia pollutant issue along with nutrients and sediments. Although the end points of concern are biologically accumulated mercury in the biota in water, the main source of mercury is deposition from the atmosphere. A major management issue is whether the atmospherically deposited mercury is local, national/continental, or hemispheric in origin. The uncertainty surrounding who is responsible is a major source of argument. Current regional air quality models do not adequately represent the deposition and environmentally driven re-emission of mercury from the earth's surface. To better inform the mercury debates, atmospheric transport and air deposition models need to be upgraded to include dynamic, bi-direction air-surface exchange with the earth's surface layer and subsequently be tested against data. Minnesota is interested in addressing mercury impairments at the regional, sub-state, and watershed scales. Minnesota is in a position to provide data on Hg in waters for feedback on the air quality modeling so that it can be tested. Therefore, a partnership is being established, termed the Minnesota Pilot for Hg, to guide the model improvements and provide a test environment for matching modeling capability with need. Given these model development needs and the research opportunity they provide, a postdoctoral researcher is desired to help explore, develop, and apply upgrades to CMAQ that will be aimed at introducing a dynamic characterization of chemical transport and transformation in water, soil, vegetation, and sediment media that would be added to a surface layer interacting with CMAQ.

The postdoctoral researcher will participate on a multimedia model development and application team with members from the Atmospheric Modeling Division, who have a range of CMAQ air quality modeling and application expertise, and members from the Ecosystems Research Division, who have expertise in watershed modeling.

The applicant should have received a doctoral degree in atmospheric sciences or a related field (physical sciences, engineering, etc.) with substantive experience with chemical transport modeling and standard statistical analysis techniques. The candidate should have some familiarity with ambient data from national observational networks for ozone and speciated aerosols. Some experience in scientific/statistical programming is also important.

The appointment is for one year, though it may be renewed upon recommendation of NERL for an additional year. The participant will receive a monthly stipend commensurate with education and prior experience. U.S. citizenship or lawful permanent resident status is preferred. The participant must provide proof of medical insurance. The appointee will not be considered an employee of EPA.

The EPA contact person for this project is Ellen Cooter. Her e-mail is Cooter.Ellen@epa.gov

The Research Participation Program for EPA NERL is administered by the Oak Ridge Institute for Science and Education. *Please reference Project # NERL-AMD-RTP 2004-03 when calling or writing for information.* For additional information and application material contact: Research Participation Program for EPA NERL, Attn: Betty Bowling, Science and Engineering Education - MS 36, Oak Ridge Institute for Science and Education, P.O. Box 117, Oak Ridge, Tennessee 37831 Phone: (865) 576-8503 Fax: (865) 241-5219 e-mail: bowlingb@ornl.gov

An application can be found at www.ornl.gov/orise/edu/EPA/app-gugrgpd.pdf