

**Research Participation Program
U.S. Environmental Protection Agency
Office of Research and Development
National Risk Management Research Laboratory
Cincinnati, Ohio**

Project No #: EPA-ORD/NRMRL-LRPCD-2009-01

**Hydrologic and Water Quality Modeling for Watershed
Management**

A postdoctoral research project is available at the U.S. Environmental Protection Agency (EPA) National Risk Management Research Laboratory (NRMRL) in Cincinnati, Ohio. The appointment will be in NRMRL's Land Remediation and Pollution Control Division (LRPCD).

Project Description: This research project will be conducted in the area of hydrologic/water quality model application for watershed management under conditions of uncertainty. Research focus areas include adapting existing watershed models for Best Management Practices (BMPs) simulation and processes improvement; application of watershed models and evolutionary algorithms (e.g., Genetic Algorithms) to optimize Best Management Practices (BMPs); and application of Bayesian statistical approaches to develop management strategies under condition of uncertainty.

Qualifications and Skills: Applicants should have received a doctoral degree in civil engineering, hydrology or a closely related field within five years of the desired starting date, or completion of all requirements for the degree should be expected prior to the starting date. The applicant must show evidence of firm knowledge and scholarly contributions in modeling hydrologic and transport and fate phenomena, and have experience in the application of watershed-scale models using GIS technology. The participant will carry out research responsibilities at both leading and supportive capacities, disseminate projects findings in national meetings, and publish in leading peer-reviewed journals.

This research project requires exceptional background in computational hydrology and water quality modeling. Experience in the application of Geographical Information Systems (GIS) and watershed-scale, distributed/semi-distributed hydrologic models (e.g., SWAT, AGNPS, SWMM), and solving optimization problems are essential. Experience with FORTRAN and/or C/C++ programming languages and computational softwares (e.g., MATLAB, Mathcad, Microsoft Excel) is highly desirable. The mentor for this project is Dr. Mohamed Hantush.

The program is open to all qualified individuals without regard to race, sex, religion, color, age, physical or mental disability, national origin, or status as a Vietnam era or disabled veteran. U.S. citizenship or lawful permanent resident status is preferred (but can also hold an appropriate visa status, however, an H1B visa is not appropriate).

The participant will be selected based on academic records, recommendations, compatibility of background and interests with the research project described above, and the availability of funds.

The appointment is full time for one year in Cincinnati, Ohio, and may be renewed for up to two additional years upon recommendation of NRMRL/LRPCD and subject to availability of funds. The participant will receive a monthly stipend ranging from \$4,000 to \$5,400 depending on experience. The participant must show proof of health and medical insurance. **The participant does not become an EPA employee.**

Funding may be made available to reimburse the participant's travel expenses to present the results of his/her research at scientific conferences. No funding will be made available to cover travel costs for interviews, relocation costs, costs of tuition/school fees, or a participant's health insurance.

The Research Participation Program for EPA is administered by the Oak Ridge Institute for Science and Education. ***Please reference Project # EPA-ORD/NRMRL-LRPCD-2009-01 when calling or writing for information.*** For additional information and application materials contact: Research Participation Program/NRMRL, Attn: Betty Bowling, Oak Ridge Institute for Science and Education, P.O. Box 117, Oak Ridge, Tennessee 37831-0117, Phone: (865) 576-8503 FAX: (865) 241-5219 e-mail: betty.bowling@ornl.gov.

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