

## **ROBERT JOHNSON**

Geosciences and Information Technology Section  
Environmental Science Division  
Argonne National Laboratory

### **Education:**

Ph.D. Cornell University, Soil and Water Resources, 1991  
M.S. Johns Hopkins University, Environmental Engineering Systems, 1985  
B.S. Calvin College, Mathematics, 1981

### **Professional Experience:**

1991-present Environmental Science Division, Argonne National Laboratory

Currently serves as program manager for environmental information management and communication. Also provides oversight for adaptive sampling and analysis work.

Technical areas of expertise include design of precision excavation programs for soil remediation, MARSSIM-based closure survey design, monitoring for long-term stewardship, application of geostatistical methods to the design of environmental sampling programs, Web-based approaches to environmental data management and communication, advanced object-oriented data base designs for environmental site assessments, numerical modeling of ground water flow and contaminant transport, and optimization techniques applied to subsurface remedial action design.

Past work at Argonne includes (1) developing real-time data collection programs to support soil remedial actions; (2) designing “smart”, interactive software for sample network design that fully exploits the spatial characteristics of environmental contamination and integrates hard and soft information on the probable location of contamination events; (3) designing and implementing Adaptive Sampling and Analysis Programs (ASAP) for hazardous waste site characterization; (4) developing specialized Web sites for environmental data management and communication; (5) developing specialized Java-based software for disseminating GIS information over Web browsers; (6) developing and implementing object-oriented databases to be used for integrating and visualizing diverse environmental data collected at Department of Defense installations undergoing site restoration; and (7) multi-phase vadose-zone contaminant transport modeling for VOCs and radionuclides.

Hazardous waste site experience includes characterization support at Brookhaven National Laboratory (mixed waste burial pits), Argonne National Laboratory (vadose zone VOC contamination), Ashtabula (radionuclides in soils and structures), Fernald (radionuclides in soils), multiple FUSRAP sites (radionuclides and metals in soils), Sandia National Laboratories, Albuquerque (metals and mixed waste in vadose zone), Rocky Flats (VOC/radionuclides in vadose zone), Mound (radionuclides in soils), Joliet Army Ammunition Plant (TNT/DNT/NT/tetryl in soils), LAAFB (fuel spill in vadose zone), and KAFB (mixed waste burial pits).

Examples of environmental information management and communication experience include interactive on-line exhibit development with the Chicago Museum of Science and

Industry, GIS/GPS curriculum integration for the Illinois State Board of Education, sensor-based battlefield NBC warning systems for SBCCOM, emergency response support for oil and gas wellheads in the State of Ohio, on-line interactive Resource Management Plan support for BLM, real-time remediation support for the FUSRAP program, and long-term monitoring information system design for Argonne National Laboratory.

**Summary of Previous Experience:**

1988-1990 The International Irrigation Management Institute (IIMI), Lahore, Pakistan

Supervised joint IIMI Pakistan/Cornell University research project targeting the effects of private irrigation well development on regional water table levels and ground water quality, and the impacts of energy pricing policies on ground water utilization in a conjunctive use environment.

1985-1988 Cornell University, Department of Agricultural Engineering, Ithaca, NY

Member of an interdisciplinary team that synthesized experience of the U.S. Agency for International Development in the areas of small-scale irrigation system development in South and Southeast Asia. Developed a PC-based interactive, educational package to facilitate the rehabilitation of large-scale, agency-managed irrigation systems in Africa. Managed departmental computer center.

**Research Interests:**

Precision excavation design  
Web-based environmental data management and communication  
Adaptive sampling and analysis program (ASAP) design  
Environmental monitoring network design  
Environmental restoration data management  
Environmental restoration decision support  
Optimization techniques applied to remedial action design

**Professional Activities and Awards:**

American Geophysical Union  
Technology Transfer Achievement Award, Federal Laboratory Consortium-Midwest Region, 2001  
DOE Pollution Prevention Award, 1996  
General Electric Teaching Fellowship, Cornell University, 1987  
John McMullen Engineering Fellow, Cornell University, 1985  
Johns Hopkins University Fellowship, the Johns Hopkins University, 1984  
John DeVries Science Fellowship, Calvin College, 1980  
National Merit Scholar, 1977

**Publications:**

Author of 20+ journal, book, report, and conference publications.