

Venkatesh M. Merwade

Post-doctoral Research Associate

Department of Civil Engineering
550 Stadium Mall Drive
Purdue University
West Lafayette, IN 47907

Phone: (765) 494-2176; Fax: (765) 496-1988

Email: vmerwade@purdue.edu

EDUCATION

- **Doctor of Philosophy**, Civil Engineering, August 2004.
University of Texas at Austin.
Dissertation: *Geospatial Description of River Channels in Three Dimensions*.
- **Master of Science**, Engineering Hydrology, December 2000, First Class with Distinction.
National University of Ireland, Galway, Ireland.
Thesis: *Evaluation of Methods for Estimating River Mass Loads*.
- **Bachelor of Engineering**, Environmental Engineering, May 1997, First Class with Distinction.
Shivaji University, India.

RESEARCH AND TEACHING INTERESTS

- Geographic information systems (GIS) and remote sensing applications in water resources engineering.
- Hydrology, hydraulics, fluid mechanics and water quality modeling.
- Mathematical modeling of hydrologic and hydraulic processes.

EMPLOYMENT HISTORY

Academic:

- August 2006 to present: Post-doctoral Research Associate, Department of Civil Engineering, Purdue University.
- January 2006 to August 2006: Lecturer, Department of Civil and Environmental Engineering, University of Texas at Austin.
Responsible for teaching an upper level undergraduate course in Hydrology.
- September 2004 to present: Post-doctoral Fellow, Center for Research in Water Resources, University of Texas at Austin.
Involved in the following research projects: 1) Hydrologic Information Systems for the Consortium of Universities for the Advancement of Hydrologic Sciences

Incorporated (CUAHSI HIS); 2) Flow and stage network optimization for South Florida Water Management District; 3) Assessment of the impacts of groundwater and surface water interactions on the quantity and quality of water in Texas; 4) Instream flow studies in Texas.

Teaching activities include developing class exercises, grading homework assignments, and occasionally teaching classes.

- January 2001 to August 2004: Graduate Research Assistant, Center for Research in Water Resources, University of Texas at Austin.

Research activities included instream flow studies for Texas rivers, three-dimensional description of river channels, and customizing ArcGIS for water resources applications. Teaching activities included developing class exercises, grading homework assignments, and occasionally teaching classes.

- October 1999 to December 2000: Research and Teaching Assistant, Department of Engineering Hydrology, National University of Ireland, Galway, Ireland.

Involved in a research project for water balance studies of Clara Bog in Ireland. Teaching responsibilities included conducting tutorial classes for undergraduate civil engineering students.

Industrial:

- July 2002 to August 2002: Research Intern, Environmental Systems Research Institute (ESRI), Redlands, CA.

Developed a procedure to create breaklines for river channels.

- July 1997 to September 1999: Project Engineer, Montgomery Watson Harza, India.

Design of industrial waste treatment plants and municipal sewage treatment plants, design of water distribution systems and sewage collection systems.

HONORS AND AWARDS

- Winner of the Irish Government Fellowship Award for pursuing MSc (Hydrology) in Ireland (1999).
- Ranked first at the May 1997 Bachelor of Engineering exams at Shivaji University, India.

PUBLICATIONS

Refereed Journal Articles:

- **Merwade V. M.**, and Maidment D. R., *River Channel Morphology Model – A tool for three-dimensional description of river channels*, under review for publication in Journal of Hydrology.
- **Merwade V. M.**, *An automated GIS approach for delineating river and lake boundaries*, Transactions in GIS (accepted pending revisions).

- **Merwade V. M.**, Maidment D. R., and Goff J. A., *Anisotropic considerations while interpolating river channel bathymetry*, Journal of Hydrology (in press).
- **Merwade V. M.**, Maidment D. R., and Hodges B. R., *Geospatial Representation of River Channels*. Journal of Hydrologic Engineering, Vol. 10 (3), pp. 243-251 (2005).

Book Chapters:

- Maidment D., Robyo O., and **Merwade V.**, Hydrologic Modeling, Chapter 14 in *GIS, Spatial Analysis, and Modeling*, edited by David J. Maguire, Michael F. Goodchild and Michael Batty, ESRI press, Redlands, CA, 2005.
- **Merwade V.**, and Maidment D., Hydrologic Modeling, Chapter 8 in *Arc Hydro: GIS for Water Resources*, edited by David R. Maidment, ESRI press, Redlands, CA, 2002.
- Maidment D., **Merwade V.**, Whiteaker T., Blongewicz M., and Arctur D., Time Series, Chapter 7 in *Arc Hydro: GIS for Water Resources*, edited by David R. Maidment, ESRI press, Redlands, CA, 2002.

Conference Proceedings (papers/posters/abstracts):

- **Merwade V. M.** and Maidment D. R., *River Channel Morphology Model – A tool for analyzing river channels in GIS (Abstract)*. In AWRA's 2004 Spring Specialty Conference "Geographic Information Systems (GIS) and Water Resources III." Houston, TX, May 2006.
- Martinez S., **Merwade V.**, Maidment D., Pathak C., Carvalho A., and Parab R., *Methodology for Optimizing Stage Monitoring Network with GIS*. In AWRA's 2004 Spring Specialty Conference "Geographic Information Systems (GIS) and Water Resources III." Houston, TX, May 2006.
- Rivas-Casado M., White S., Bellamy P., Booker D., Dunbar M., **Merwade V.**, and Maddock, I., *The relevance of spatial pattern, temporal scale and the scaling concept when defining sampling strategies for hydromorphological parameters in river restoration projects (Abstract)*. Geophysical Research Abstracts, Vol. 8, 03841, European Geosciences Union General Assembly, Vienna, Austria, April 2006.
- Rivas-Casado M., White S., Bellamy P., Booker D., Dunbar M., and **Merwade V.**, *Guidelines for depth data collection in rivers when applying interpolation techniques (kriging) for river restoration (Poster)*. Geophysical Research Abstracts, Vol. 8, 10735, European Geosciences Union General Assembly, Vienna, Austria, April 2006.
- **Merwade V. M.**, and Maidment D. R., *Automatic Delineation of River Banks Using Aerial Photographs*. Proceedings of the twenty-fifth annual ESRI International User Conference, San Diego, CA, August 2005.
- Martinez S., **Merwade V.**, Carvalho A., Maidment D., and Pathak C., *Optimizing Water Level Monitoring Station Networks Using GIS*. Proceedings of the twenty-fifth annual ESRI International User Conference, San Diego, CA, August 2005.

- Rivas-Casado M., Bellamy P., White S., and **Merwade V.**, *Scaling of river depth data from mesoscale to macroscale using geostatistical techniques (Poster)*. Geophysical Research Abstracts, Vol. 7, 09530, European Geosciences Union General Assembly, Vienna, Austria, April 2005.
- **Merwade V. M.**, Maidment D. R., Austin B. N., and Osting T. D., *A GIS Tool for Fish Habitat Modeling*. Proceedings of the twenty-fourth annual ESRI International User Conference, San Diego, CA, August 2004.
- **Merwade V. M.**, and Maidment D. R., *A Three-Dimensional Description of River Channels Using Two-Dimensional NHD Reaches (Abstract)*. In AWRA's 2004 Spring Specialty Conference "Geographic Information Systems (GIS) and Water Resources III." Nashville, TN, March 2004.
- **Merwade V. M.**, and Maidment D. R., *A GIS Framework for Describing River Channel Bathymetry (Abstract)*. Eos Transactions, American Geophysical Union, 84(46), Fall Meeting Supplement, Abstract H321-08, AGU Fall Meeting, San Francisco, CA, December 2003.

Seminar and Workshop Presentations (unpublished abstracts):

- Govindaraju, R., B. Engel, D. Ebert, B. Fossum, M. Huber, C. Jafvert, **V. Merwade**, D. Niyogi, L. Oliver, S. Prabhakar, G. Rochon, C. Song, L. Zhao. "Cyberinfrastructure for End-to-End Environmental Explorations (C4E4)", poster presented at the Joint Workshop for WATERS Network Test Beds and CUAHSI Hydrologic Information Systems, Austin, TX, November 14-17, 2006.
- **Merwade V. M.**, *GIS Modeling*. Interdisciplinary modeling of aquatic ecosystems curriculum development workshop, Lake Tahoe, CA, July 2005.
- **Merwade V. M.**, and Maidment D. R., *Collaborative inter-institutional teaching*. Interdisciplinary modeling of aquatic ecosystems curriculum development workshop, Lake Tahoe, CA, July 2005.
- **Merwade V. M.**, and Maidment D. R., *Geospatial Representation of River Channels*. Integrated Watersheds Sciences Symposium, University of Texas at Austin, Austin, TX, November 2003.
- **Merwade V. M.**, *Fish Habitat Modeling Using ArcGIS*. Austin ArcGIS users meeting, Austin, TX, August 2003.
- **Merwade V. M.**, *Analysis of River Morphology in GIS*. Pre-conference seminar at ESRI International Users Conference, San Diego, CA, July 2002.
- **Merwade V. M.**, *Hydrologic Modeling in Arc Hydro*. Pre-conference seminar at ESRI International User Conference, San Diego, CA, July 2001.
- **Merwade V. M.**, and Whiteaker T., *Time Series in Arc Hydro*. Pre-conference seminar at ESRI International User Conference, San Diego, CA, July 2001.

Technical Reports and Theses:

- **Merwade V.**, Strassberg G., Goodall J., Maidment D., Ruddell B., and Kumar, P., "Digital Watershed for the Neuse Basin, Chapter 8," in Hydrologic Information System Status Report, Version 1, Edited by D. R. Maidment, p.148-162, <http://www.cuahsi.org/docs/HISStatusSept15.pdf>.
- Scanlon B. R., Tachovsky J. A., Reedy R., Nicot J. P., Keese K., Slade R.M., **Merwade V.**, Howard T., Wells G. L., Mullins G. J., and Ortiz D. M., *Groundwater—Surface Water Interactions in Texas*: The University of Texas at Austin, Bureau of Economic Geology, final report prepared for Texas Commission on Environmental Quality, 2005.
- **Merwade V. M.**, *Geospatial Description of River Channels in Three Dimensions*, PhD Dissertation, Department of Civil Architectural and Environmental Engineering. University of Texas at Austin, 2004.
- **Merwade V. M.**, *Evaluation of Methods for Estimating River Mass Loads*, MSc Thesis, Department of Engineering Hydrology, National University of Ireland, Galway, 2000.

WORKSHOPS

- Participated as a Senior Investigator in a one week workshop on curriculum development for a course in interdisciplinary modeling of aquatic ecosystems organized by University of Nevada, Reno, July 2005.
- Building a Digital Watershed – a half day training workshop offered at the CUAHSI HIS symposium, University of Texas at Austin, March 2005.

MANUSCRIPT/PROPOSAL REVIEWER

- ASCE Journal of Hydrologic Engineering
- ASCE Journal of Water Resources Planning and Management
- National Science Foundation
- Maryland Sea Grant

PROFESSIONAL AFFILIATIONS/ACTIVITIES

- Water Management Journal Editorial Advisory Panel
- Member, American Geophysical Union.
- Member, American Water Resources Association.

Last updated: November 2006.