

Carlo DeMarchi

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Research Interests

My research focuses on hydrologic processes, water quality modeling in the watershed, application of remote sensing to hydrology and water quality, and development of decision support systems for water resources management. I am currently collaborating with NOAA GLERL scientists to develop a distributed model for watershed hydrology and water quality assessment and its application to the Great Lakes basin. I am also cooperating with scientists at the Department of Atmospheric, Oceanic and Space Sciences of the University of Michigan to improve precipitation estimation over the Great Lakes.

Education

Georgia Institute of Technology, Atlanta, Georgia

Ph.D., Civil and environmental Engineering, 2006

Dissertation's title: "*Probabilistic estimation of precipitation combining geostationary and TRMM satellite data*".

Advisor: Dr. Aris P. Georgakakos

Georgia Institute of Technology, Atlanta, Georgia

M.S., Civil and environmental Engineering, 1999

Advisor: Dr. Aris P. Georgakakos

University of California, Davis, California

M.S., Civil and environmental Engineering, 1993

Thesis's title: "*A hydrodynamic model of the Network of Canals of the City of Venice*"

Advisor: Dr. Gerald T. Orlob

Università di Padova, Dipartimento di Elettronica ed Informatica, Padova, Italy

B.S., Electrical Engineering, 1991

Thesis's title "*A mathematical model of the lifecycle of algae in the Lagoon of Venice*"

Advisor: Dr. Giuseppe Bendoricchio and Dr. Giovanni Marchesini

Professional Appointments

Research Associate, Department of Geological Sciences, Case Western Reserve University, Cleveland, Ohio 2008-Present.

Visiting Scientist, National Oceanic and Atmospheric Administration's Great Lakes Environmental Research Laboratory, Ann Arbor, Michigan, 2008-Present.

Research Investigator, School of Natural Resources and Environment, University of Michigan, Ann Arbor, Michigan. 2006-2008.

Associate Researcher, Georgia Water Resources Institute, Atlanta, Georgia. 1996-2006.

Consultant, United Nations Educational, Scientific, and Cultural Organization – Regional Office for Science and Technology in Europe, Venice, Italy. 1996-1997

Research Assistant, International Institute for Applied System Analysis, Laxenburg, Austria. 1995–1996.

Ensign, Maritime Military Technical Office, Italian Navy, Venice. 1993–1994

Project Experience

"PREPARING COASTAL COMMUNITIES FOR CLIMATE CHANGE: TRANSLATING MODEL RESULTS TO PREPARE PORTS, HARBORS AND STORMWATER MANAGEMENT FACILITIES IN AN ERA OF CLIMATE VARIABILITY AND SCIENTIFIC UNCERTAINTY". Principal Investigator, sponsored by the NOAA

Sectoral Applications Research Program, 2008-2009. *Scope*: Evaluating the impact of climate change on port and marinas operations in the Great Lakes.

“COMPARATIVE ANALYSIS OF NET BASIN SUPPLY COMPONENTS AND CLIMATE CHANGE IMPACT ON THE UPPER GREAT LAKES”. Principal Investigator, sponsored by the International Joint Commission’s International Upper Great Lakes Study, 2008-2009. *Scope*: Evaluate different methodologies for assessing the present and future net basin supply components.

“ADAPTIVE INTEGRATED FRAMEWORK (AIF): A NEW METHODOLOGY FOR MANAGING IMPACTS OF MULTIPLE STRESSORS IN COASTAL ECOSYSTEMS”. Principal Investigator, sponsored by National Oceanic and Atmospheric Administration Center for Sponsored Coastal Ocean Research. 2007-2012. *Scope*: Develop adaptive methodologies for studying response of coastal system under multiple stressors.

“LAKE ERIE PRECIPITATION: USING PRESENT-DAY RADAR-MEASURED PRECIPITATION TO IMPROVE GAGE-BASED ESTIMATES OF PAST PRECIPITATION”. Principal Investigator, sponsored by the National Oceanic and Atmospheric Administration Great Lakes Environmental Research Laboratory. 2007-2008.

Scope: improving the estimation of past over-lake precipitation combining present-day Radar-based precipitation products and past gauge data.

“IMPROVING DLBRM’S CAPABILITIES TO FORECAST HYDROLOGICAL AND WATER QUALITY IMPACTS OF LAND USE CHANGES”. Principal Investigator, sponsored by the National Oceanic and Atmospheric Administration Great Lakes Environmental Research Laboratory. 2006-2008.

Scope: Development and application of a distributed hydrologic and water quality model at the watershed level.

“NEXT GENERATION LARGE BASIN RUNOFF MODEL”. Co-Investigator, sponsored by the National Oceanic and Atmospheric Administration Great Lakes Environmental Research Laboratory. 2006-2008.

Scope: Development and application of a distributed hydrologic and water quality model at the watershed level.

“THE IMPACT OF PRECIPITATION MEASUREMENT MISSIONS ON HYDROLOGIC AND WATER RESOURCE PREDICTIONS”. Research Assistant, sponsored by the National Aeronautics and Space Administration. 2004-2006.

Scope: Study the benefits of the satellite measured precipitation in hydrology and water management.

"A DECISION SUPPORT TOOL FOR THE NILE BASIN" Research Assistant, sponsored by the Food and Agricultural Organization of the United Nations, Rome, Italy. 2000-2003.

Scope: Development and transfer of a decision support system that integrates ground hydrometeorological measurements, satellite-based monitoring, GIS, and a suite of hydrologic and decision models for the water resources management in the Nile Basin.

“LAKE VICTORIA TECHNOLOGY DEVELOPMENT AND TRANSFER PROGRAM,” Research Assistant, sponsored by the World Bank. August 2000 – December 2000

"INFORMATION SYSTEMS FOR WATER RESOURCES MONITORING AND PLANNING IN THE LAKE VICTORIA REGION," Research Assistant, sponsored by the Food and Agricultural Organization of the United Nations. September 1997 – June 1999

Scope: Development and transfer of technologies that integrate ground hydrometeorological measurements, satellite-based monitoring, GIS, and a suite of hydrologic and decision models for the planning and management of Lake Victoria.

“CALIBRATION OF A HYDRODYNAMIC MODEL OF THE NETWORK OF CANALS OF THE CITY OF VENICE”, Principal Investigator, sponsored by Regional Office For Science and Technology in Europe – UNESCO. 1996 – 1997

Scope: Development of a hydrodynamic model of the network of inner canals of the city of Venice, Italy for supporting studies of the city water quality.

“WATER QUALITY MANAGEMENT OF DEGRADED RIVER BASINS IN CENTRAL AND EASTERN EUROPE,” Research Assistant, sponsored by the International Institute for Applied Systems Analysis, Laxenburg, Austria. February 1995 – June 1996

Scope: (1) to develop and demonstrate alternative regional water quality management strategies for the CEE countries which are "efficient" and "do-able" in the short-term and which can be

sustainable in the long-term; (2) to provide policy makers in the CEE region with tools for comprehensive water quality management and planning; (3) to analyze jointly tools of legislation/policy (e.g. standards, priority setting, economic instruments and institutions) for river basin management;

“MODELING OF ALGAE GROWTH IN THE LAGOON OF VENICE, ITALY”, Research Associate, sponsored by International Society for Ecological Modeling, Padova, Italy. 1990 – 1991

Scope: Development of a life cycle model of Ulva algae in the Lagoon of Venice, Italy.

Selected Publications

- Tao, W., C. DeMarchi, T.H. Johengen, C. He, and C.A. Stow, 2010. Estimating Phosphorous Load from a Large Watershed in the Great Lakes Basin. *Proceedings of the 2010 International Conference on Challenges in Environmental Science and Computer Engineering (CESCE 2010), March 6-7, 2010, Wuhan, China*. IEEE Computer Society's Conference Publishing Services, Los Alamitos, California USA.
- He, C., C. DeMarchi, Q. Feng, and H. Xiao, 2010. Allocation of river flow for rehabilitation of downstream ecosystem in the Heihe watershed, Northwest China. *GeoJournal (In press)*.
- Cha, Y., C.A. Stow, K.H. Reckhow, C. DeMarchi, and T.H. Johengen, 2010. Phosphorus load estimation in the Saginaw River, MI using a Bayesian hierarchical/multilevel model. *Water Resources (In review)*.
- He, C. and C. DeMarchi, 2010. Modeling Spatial Distributions of Point and Nonpoint Source Pollution Loadings in the Great Lakes Watersheds. *International Journal of Environmental Science and Engineering*, 2(1): 24-30.
- Quigley, M.A., C.E. Sellinger, S.B. Brandt, D.M. Mason, J. Wang, and C. DeMarchi, 2009. Impact of Climate Change on the Great Lakes Ecosystem: A NOAA Science Needs Assessment Workshop to Meet Emerging Challenges - Full Final Report. NOAA Technical Memorandum GLERL-147a. NOAA-GLERL, Ann Arbor, Michigan, 61 pp.
- Joseph, S.T., L.A. Chaimowitz, M.A. Quigley, R.A. Sturtevant, D.M. Mason, C.E. Sellinger, J. Wang, and C. DeMarchi, 2009. Impact of climate change on the Great Lakes ecosystem. A NOAA science needs assessment workshop to meet emerging challenges – Summary report. NOAA Technical Memorandum GLERL-147b. NOAA-GLERL, Ann Arbor, Michigan, 48 pp.
- He, C. and C. DeMarchi, 2009. Modeling Spatial Distributions of Point and Nonpoint Source Pollution Loadings in the Great Lakes Watersheds. *World Academy of Science, Engineering and Technology*, 54: 795- 801.
- He, C., C. DeMarchi, T.E. Croley II, T.S. Hunter, and Q. Feng, 2009. Hydrologic modeling of the Heihe watershed by DLBRM in Northwest China. *Journal of Glaciology and Geocryology*, 31(3): 410-421.
- Xing, F., C. DeMarchi, T.S. Croley II, C. He, and Y. Wang, 2009. Application of a Distributed Large Basin Runoff Model to Lake Erie: Model calibration and analysis of parameter spatial variation. *Journal of Hydrologic Engineering (accepted, in revision)*.
- DeMarchi, C., T.S. Croley II, C. He, and T.S. Hunter, 2009. Application of a distributed watershed hydrology and water quality model in the Great Lakes basin. In *Proceedings of the 7th International Symposium on Ecohydraulics 2009*, Concepcion, Chile, January 12-16, 2009.
- Chatterjee, A., C. DeMarchi, and A. M. Michalak, 2009. Estimating over-lake precipitation in the Great Lakes combining Radar and rain gages. In *Proceedings of the 7th International Symposium on Ecohydraulics 2009*, Concepcion, Chile, January 12-16, 2009.
- He, C., C. DeMarchi, and T.S. Croley II, 2008. Modeling spatial distributions of nonpoint source pollution loadings in the Great Lakes watersheds by using the Distributed Large Basin Runoff Model. In *Proceedings of the AWRA 2008 Spring Specialty Conference*, San Matteo, CA, March 17-19, 2008 (CD).
- DeMarchi, C., A. Georgakakos, and C. Peters-Lidard, 2007. Probabilistic estimation of precipitation combining geostationary and TRMM satellite data. In *Remote Sensing for Environmental Monitoring and Change Detection (Proceedings of Symposium HS3007 at IUGG2007, Perugia, July 2007)*, IAHS Publ. 316. M. Owe and C. Neale (Eds.). IAHS Press, Centre for Ecology and Hydrology, Wallingford, UK, 70-77.

- DeMarchi, C., A. Georgakakos, and C. Peters-Lidard, 2007. Uncertainty characterization in a combined IR/Microwave scheme for remote sensing of precipitation. In *Quantification and Reduction of Predictive Uncertainty for Sustainable Water Resources Management (Proceedings of Symposium HS2004 at IUGG2007, Perugia, July 2007)*, IAHS Publ. 313. E. Boegh, H. Kunstmann, T. Wagener, A. Hall, L. Bastidas, S. Franks, H. Gupta, D. Rosbjerg, and J. Schaake (Eds.). IAHS Press, Centre for Ecology and Hydrology, Wallingford, UK, 70-77.
- Georgakakos A. and C. DeMarchi, 2006. *Remote sensing of precipitation combining geostationary and TRMM satellite data*. Second Year Technical Report for Project NRA-02-ES-05, "The Impact of Precipitation Measurement Missions on Hydrologic and Water Resource Predictions". Georgia Water Resources Institute, Atlanta, GA, USA.
- Georgakakos A. and C. DeMarchi, 2005. *Remote sensing of precipitation combining geostationary and TRMM satellite data*. First Year Technical Report for Project NRA-02-ES-05, "The Impact of Precipitation Measurement Missions on Hydrologic and Water Resource Predictions". Georgia Water Resources Institute, Atlanta, GA, USA.
- DeMarchi C. and A. Georgakakos, 2003. *Nile Decision Support Tool: Remote Sensing*. Georgia Water Resources Institute, Atlanta, GA, USA.
- Bourne S., C. DeMarchi, A. Georgakakos, 2003. *Nile DST User Manual: Remote Sensing*. Georgia Water Resources Institute, Atlanta, GA, USA.
- DeMarchi C. and A. Georgakakos, 2001. A satellite-based rainfall estimation method for the Lake Victoria basin. In *Remote Sensing and Hydrology 2000*, IAHS Publ. 267. M. Owe, K. Brubaker, J. Ritchie, and A. Rango (Eds.). IAHS Press, Centre for Ecology and Hydrology, Wallingford, UK, 481-486.
- Georgakakos A., H. Yao, K. Brumbelow, C. DeMarchi, S. Bourne, and M. Mullusky, 2000. *Lake Victoria Decision Support System*. Technical Report No. GWRI-2000-1. Georgia Water Resources Institute, Atlanta, GA, USA. PP. 176.
- DeMarchi C., P. Ivanov, A. Jolma, I. Masliev, M.G. Smith, and L. Somlyódy, 1999. Innovative tools for water quality management and policy analysis: DESERT and STREAMPLAN. *Wat. Sci. Tech.* 40(10), 103-110.
- Smith M.G., C. DeMarchi, and A. Jolma, 1999. Paddling enforceable approaches upstream to EU standards: water quality management and policy implementation in Central and Eastern Europe. *Wat. Sci. Tech.* 40(10), 73-79.
- Jolma A., C. DeMarchi, M.G. Smith, B.J.C. Perera, and L. Somlyódy, 1998. StreamPlan: a support system for water quality management at a river basin scale. *Environmental Modelling and Software* 12(4):275-284.
- DeMarchi, C., 1997. *Un Modello Matematico del regime idraulico della rete dei canali interni della città di Venezia, Rapporto sulla calibrazione di un modello matematico idraulico della rete di canali interni della città di Venezia*. Report for the UNESCO-MURST project "The Canals of Venice", pp. 73 + appendixes.
- DeMarchi C., 1996. *Effetti idrodinamici di interventi sulle caratteristiche idrauliche della rete dei canali interni della città di Venezia. Rapporto sulle simulazioni matematiche delle caratteristiche idrauliche della rete dei canali Veneziani*. Report for the UNESCO-MURST project "The Canals of Venice".
- DeMarchi C., A. Jolma, I. Maslyev, B.J.C. Perrera, M.G. Smith, and L. Somlyódy, 1996. *STREAMPLAN, User's manual*. International Institute for Applied Systems Analysis, Laxenburg, Austria. PP. 127.
- Ivanov P., I. Masliev, M. Kularathna, C. DeMarchi, and L. Somlyódy, 1996. *DESERT: user's manual*. International Institute for Applied Systems Analysis, Laxenburg, Austria. PP. 151
- Bendoricchio G., G. Coffaro, and C. DeMarchi, 1994. A Trophic Model for the Lagoon of Venice. *Ecological Modeling* 75/76 485-496.

Recent Presentations/Posters

- DeMarchi, C., W. Tao, T.H. Johengen, C. He, Y. Cha, and C.A. Stow, 2009. Quantifying Sediment and Nutrient Loads to Saginaw Bay. Fall 2009 Multiple Stressors PI Workshop, NOAA Great Lakes Environmental Research Laboratory, Ann Arbor, MI, December 14, 2009.

- DeMarchi, C., Mello, M.E. and Hunter, T.S., 2009. Estimating Lake-Wide Runoff Uncertainty in the Great Lakes Using a Monte Carlo Technique. International Association for Great Lakes Research's 52nd Annual Conference on Great Lakes Research, Toledo, OH, May 18-22, 2009.
- Dai, Q. and DeMarchi, C., 2009. Estimating Over-lake Precipitation in the Great Lakes Combining Radar and Rain Gages. International Association for Great Lakes Research's 52nd Annual Conference on Great Lakes Research, Toledo, OH, May 18-22, 2009.
- He, C., DeMarchi, C., Croley, T.E. and Johengen, T.H., 2009. Developing a Distributed Watershed Hydrology, Sediments Load, and Nutrients Load Model for Saginaw Bay. International Association for Great Lakes Research's 52nd Annual Conference on Great Lakes Research, Toledo, OH, May 18-22, 2009.
- Johengen, T.H., DeMarchi, C., Stow, C. and He, C., 2009. Evaluating Sediment and Nutrient Loading for the Saginaw River Using an Intensive Sampling Program. International Association for Great Lakes Research's 52nd Annual Conference on Great Lakes Research, Toledo, OH, May 18-22, 2009.
- Dai, Q., M.E. Mello, and C.E. DeMarchi 2009. Estimation of Overlake Precipitation and Basin Runoff Uncertainty in the Great Lakes. GLERL-CILER Joint Seminar Series, Great Lakes Environmental Research Laboratory, Ann Arbor, MI, May 12, 2009.
- DeMarchi, C., Q. Dai, and M.E. Mello, 2009. Assessing the Uncertainty of Runoff and Over-lake Precipitation in the Great Lakes Water Balance. Research ShowCASE 2009, Case Western Reserve University, Cleveland, OH, April 16, 2009.
- He, C., T.E. Croley, and C. DeMarchi, 2008. Application of Distributed Large Basin Runoff Model and Resource Sheds in the U.S. Great Lakes Watersheds. The Chinese Academy of Sciences Research Center of Eco-Environmental Sciences, Beijing, PRC, Jan.5, 2009.
- DeMarchi, C., T.E. Croley II, C. He, and T.S. Hunter, 2008. Development of the Distributed Large Basin Runoff Model for ECOFOR. Joint Ecofor-CHRP Workshop, Dec. 11-12, 2008, Ann Arbor, MI.
- He, C., T.E. Croley II, C. DeMarchi, and T.S. Hunter, 2008. Modeling the Hydrology and Estimating Nutrients Loadings of the Lake Erie Watersheds. Joint Ecofor-CHRP Workshop, Dec. 11-12, 2008, Ann Arbor, MI.
- He, C., T. E. Croley, and C. DeMarchi, 2008. Modeling Nonpoint Sources Pollution Loadings in the U.S. Great Lakes Basin. Research Institute for Protection of Yangtze Water Resources , Yangtze Water Resources Commission, Wuhan, PRC, Oct.31, 2008.
- He, C., T. E. Croley, and C. DeMarchi, 2008. Modeling Nonpoint Sources Pollution Loadings in the U.S. Great Lakes Basin. Shaanxi Normal University, Shaaxi, PRC, Oct.24, 2008.
- DeMarchi, C. 2008. Comparative Analysis of NBS Components – Preliminary Results and Continuing Work. International Upper Great Lakes Study (IUGLS) Hydrology and Climate Technical Working Group Workshop “Face-to-face science meeting”, October 15-16, 2008, Burlington, ON, Canada.
- He, C., C. DeMarchi, T.E. Croley II, and T.S. Hunter, 2008. Climate Change and Non-Point Source Pollution in the Great Lakes Basin: Opportunities and Challenges. Impact of Climate Change on the Great Lakes Ecosystem - A NOAA Science Needs Assessment Workshop to Meet Emerging Challenges, July 29-31, 2008, Ann Arbor, MI.
- DeMarchi, C., T.E. Croley II, C. He, and T.S. Hunter, 2008. Potential Impacts of Climate Change on Pathogen and Pesticide Contamination of Coastal Water. Impact of Climate Change on the Great Lakes Ecosystem - A NOAA Science Needs Assessment Workshop to Meet Emerging Challenges, July 29-31, 2008, Ann Arbor, MI.
- DeMarchi, C., T.E. Croley II, C. He, and T.S. Hunter, 2008. Performances of the Distributed Large Basin Runoff Model for ECOFORE. ECOFORE PI workshop, July 17, 2008, Ann Arbor, MI.
- DeMarchi, C. 2008. Comparative Analysis of NBS Components – Advanced Sensing and Model Reanalysis. International Upper Great Lakes Study (IUGLS) St. Clair River Task Team Meeting #4, June 18, 2008, Ann Arbor, MI.
- DeMarchi, C. 2008. Comparative Analysis of NBS Components – Advanced Sensing and Model Reanalysis. International Upper Great Lakes Study (IUGLS) Hydrology and Climate Technical Working Group Workshop “Identifying Climate Trends, Uncertainty and Change in Great Lakes Water Supplies”, June 9-10, 2008, Cleveland, OH.

- DeMarchi, C. 2008. Estimating Over-Lake Precipitation: Traditional Approaches and Alternative Methodologies. International Association for Great Lakes Research's 51st Annual Conference, May 19-23, 2008, Peterborough, Ontario.
- Kao, Y., C. DeMarchi, S.A. Adlerstein, and M.J. Wiley, 2008. Comparison of Two Hydrological Models Used in the Great Lakes Basin. International Association for Great Lakes Research's 51st Annual Conference, May 19-23, 2008, Peterborough, Ontario.
- Hunter, T.S., C. He, T.E. Croley II, and C. DeMarchi, 2008. Forecasting Grand River (Michigan) discharge and pollution loads. International Association for Great Lakes Research's 51st Annual Conference, May 19-23, 2008, Peterborough, Ontario.
- Croley, T.E. II, C. DeMarchi, C. He, and T.S. Hunter, 2008. Performances of the Distributed Large Basin Runoff Model for Different Watersheds in the Great Lake Basin. International Association for Great Lakes Research's 51st Annual Conference, May 19-23, 2008, Peterborough, Ontario.
- Johengen, T.H., C. DeMarchi, T.E. Croley II, and C. He, 2008. Sediment and Nutrient Load Simulation for the Saginaw Bay AIF. International Association for Great Lakes Research's 51st Annual Conference, May 19-23, 2008, Peterborough, Ontario.
- Chatterjee, A., C. DeMarchi, and A. M. Michalak, 2008. Improving Estimation of Over Lake Precipitation – An Application to Lake Erie. International Association for Great Lakes Research's 51st Annual Conference, May 19-23, 2008, Peterborough, Ontario.
- He, C., T. E. Croley, C. DeMarchi, 2008 Modeling Spatial Distribution of Nonpoint Source Pollution in the Great Lakes Watersheds. The Association of American Geographers Annual Meeting, Boston, April 15-20, 2008.
- DeMarchi, C., T.H. Johengen, T.E. Croley II, and C. He, 2008. Characterizing the Relation Between Saginaw Bay and its Watershed. Multiple Stressors in Saginaw Bay: Navigating the Issues Workshop, Bay City, Michigan, April 2, 2008.
- DeMarchi, C., 2008. Understanding Present and Future State of the Great Lakes: Current Hydrology and Pollution Loads Modeling Projects at CILER. Department of Geological Sciences, Case Western Reserve University, January 25, 2008.
- Chatterjee, A., C. DeMarchi, and A. M. Michalak, 2007. Improving Estimation of Over Lake Precipitation – An Application to Lake Erie. American Geophysical Union Fall Meeting 2007, San Francisco, California, December 10-14, 2007.
- He, C., T. E. Croley, and C. DeMarchi, 2007. Estimating Nutrients Loadings for the Lake Erie Watersheds. NOAA's EcoFor- Lake Erie Annual All PI's Meeting, Palmer Commons, University of Michigan, Ann Arbor, Nov. 19-20, 2007.
- DeMarchi, C., 2007. Watershed Hydrology and Water Quality Modeling in the Great Lakes Region: Current Projects and Research Opportunities at CILER. School of Natural Resources and Environment, University of Michigan, Ann Arbor, Michigan, November 15, 2007.
- Croley, T.E., T. Hunter, M. Lansing, C. He, and C. DeMarchi, 2007.. Distributed Hydrologic Modeling for Great Lakes Beach Closing Forecasts. NOAA's Oceans and Human Health Initiative All PI's 2007 Annual Meeting, Holiday Inn, Muskegon, MI , October 22-24, 2007.
- He, C., T. E. Croley, and C. DeMarchi, 2007. Estimating Spatial Distribution of Nonpoint Source Pollution Loadings by Using the DLBRM. NOAA's Oceans and Human Health Initiative All PI's 2007 Annual Meeting, Holiday Inn, Muskegon, MI , October 22-24, 2007.
- DeMarchi, C., T.E. Croley II, C. He, and T.S. Hunter, 2007. Short-term forecasting of discharge and pollution loads for the Grand River (Michigan). 5th Biennial State of Lake Michigan Conference, Traverse Bay, Michigan, October 3-5, 2007.
- He, C., T.E. Croley, and C. DeMarchi. 2007. Modeling Nonpoint Source Pollution Loading in the Great Lakes Basin of the United States. The Institute of Geography and Limnology, The Chinese Academy of Sciences, Nanjing, PRC, Aug.1, 2007.
- DeMarchi, C., A. Georgakakos, and C. Peters-Lidard, 2007. Probabilistic estimation of precipitation combining geostationary and TRMM satellite data. IUGG2007, the XXIV General Assembly of the International Union of Geodesy and Geophysics, Perugia, Italy, July 2-13, 2007.
- DeMarchi, C., A. Georgakakos, and C. Peters-Lidard, 2007. Uncertainty characterization in a combined IR/Microwave scheme for remote sensing of precipitation. IUGG2007, the XXIV General Assembly of the International Union of Geodesy and Geophysics, Perugia, Italy, July 2-13, 2007.

- DeMarchi, C. and A. Georgakakos, 2007. Uncertainty Quantification in a Combined IR/Microwave Scheme for Remote Sensing of Precipitation. International Association for Great Lakes Research's 50th Annual Conference, University Park, Pennsylvania, May 28 – June 1, 2007.
- DeMarchi, C. T.E. Croley II, and C. He, 2007. Improving the Sensitivity of the Distributed Large Basin Runoff Model to Land Use Changes. International Association for Great Lakes Research's 50th Annual Conference, University Park, Pennsylvania, May 28 – June 1, 2007.
- He, C., T.E. Croley II, and C. DeMarchi, 2007. Modeling Spatial Distributions of Nonpoint Source Pollution Loadings by Using the Distributed Large Basin Runoff Model. International Association for Great Lakes Research's 50th Annual Conference, University Park, Pennsylvania, May 28 – June 1, 2007.
- DeMarchi, C., 2007. Distributed Large Basin Runoff Model for the Saginaw Bay. Saginaw Bay Coastal Initiative, Saginaw, Michigan, April 4, 2007.
- DeMarchi, C., 2007. Assessing climate change impact on the Great Lakes. Great Lakes Science and Management Seminars, School of Natural Resources and Environment, University of Michigan, Ann Arbor, Michigan, March 29, 2007.
- DeMarchi, C., 2007. Precipitation and watershed runoff changes under future climate conditions in the Great Lakes basin. Poster. Great Lakes Workshop on Climate Change Effects on Great Lakes Fish Populations: Identifying Critical Connections, University of Michigan, Ann Arbor, Michigan, March 14, 2007.
- DeMarchi, C. and T.E. Croley II, 2007. Tools for operational hydrology and climate change impact assessment for the International Upper Great Lakes Study. Hydrologic Modelers Design Forum, International Joint Commission, Burlington, Ontario, Canada February 28 – March, 2 2007.
- DeMarchi, C., 2007. The Distributed Large Basin Runoff Model: a tool for hydrologic and water quality assessment. Hydrology Seminar, National Weather Service Headquarters, Silver Spring, Maryland, February 12, 2007.
- DeMarchi, C., 2006. Probabilistic estimation of precipitation combining geostationary and TRMM satellite data. School of Natural Resources and Environment, University of Michigan, Ann Arbor, Michigan, October 18, 2006.
- DeMarchi, C., 2006. Probabilistic estimation of precipitation combining geostationary and TRMM satellite data. Ouranos Consortium on Regional Climatology and Adaptation to Climate Change, Montreal, Quebec, Canada, September 28, 2006.
- DeMarchi, C., Georgakakos, A., and Peters-Lidard, C.D., 2005. Probabilistic remote sensing of precipitation combining geostationary and TRMM satellite data. Poster presented at the NASA – Precipitation Measurement Mission Meeting, Monterey, California, December 12-15, 2005.
- DeMarchi, C., 2005. Remote sensing of precipitation combining geostationary and TRMM satellite data: a probabilistic approach. Great Lakes Environmental Research Laboratory. Ann Arbor, Michigan, October 4, 2005.

Software Packages

- Georgakakos, A., H. Yao, K. Brumbelow, C. DeMarchi, S. Bourne, A. Tidwell, L. Visone, "Nile Decision Support Tool." May 2003
Scope: This decision support system combines extensive hydroclimatic data bases with state of the science hydrologic, agricultural, and water resources models to assess the impacts of various development and management scenarios for the Nile Basin.
- Georgakakos, A.P., H. Yao, K. Brumbelow, S. Bourne, C. DeMarchi, and M. Mullusky, Copyright GTRC, "Lake Victoria Decision Support System (LVDSS)." 1998
Scope: This Windows-based software package integrates remote sensing, watershed modeling, agricultural planing, hydropower scheduling, and lake management modules within a GIS framework.
- Jolma, A., L. Somlyódy, C. DeMarchi, I. Masliev, and M.G. Smith, International Institute for Applied Systems Analysis, Laxenburg, Austria, "Spreadsheet Tool for River Environmental Assessment Management and PLANning (STREAMPLAN)." 1996
Scope: This Excel based software package analyzes environmental effects and cost distribution of alternative water quality management strategies in user specified river basin. These strategies

include uniform emission reduction and effluent standard based strategies, ambient water quality criteria and least-cost strategies, total emission reduction under minimized costs, mixed strategies, local and regional policies, and strategies with economic instruments. A distinction feature of StreamPlan is the integration of a detailed model of wastewater generation at the municipal level with water quality model and policy analysis tools at a river basin scale.

Somlyódy, L., P. Ivanov, I. Masliev, M. Kularathna, C. DeMarchi, and A. Kuzmin, International Institute for Applied Systems Analysis, Laxenburg, Austria. "DEcision Support system for Evaluation of River basin sTrategies (DESERT)." 1996

Scope: This windows based package is designed for water quality simulation and wasteload allocation analysis in user specified river basins. It integrates a powerful database engine for managing input data, an interactive graphical schematisation of the basin, sophisticated and flexible hydraulic and water quality simulation tools, a stochastic model calibration tool, and an optimal wasteload allocation module based on dynamic programming.

Training and Technology Transfer Workshops

"WATER QUALITY MODELING FOR HYDROLOGY ANALYSTS", in COMET Advanced Hydrologic Sciences Course 07-1, Cooperative Program for Operational Meteorology, Education and Training, Boulder, CO, May 18, 2007.

"NILE DECISION SUPPORT TOOL: APPLICATIONS" sponsored by the Food and Agriculture Organization (FAO) of the United Nations. Entebbe, Uganda, February 15-28, 2004

"NILE DECISION SUPPORT TOOL: METHODS" sponsored by the Food and Agriculture Organization (FAO) of the United Nations. Dar es Salaam, Tanzania, June 2-28, 2002

"LAKE VICTORIA DECISION SUPPORT SYSTEM TECHNOLOGY TRANSFER PROGRAM," sponsored by the World Bank. Atlanta, Georgia, August through December 2000

"LAKE VICTORIA DECISION SUPPORT SYSTEM: METHODS AND APPLICATIONS,". sponsored by the Food and Agriculture Organization (FAO) of the United Nations. Entebbe (Uganda), Nairobi (Kenya), Dar-es-Salam (Tanzania), July 1999

"LAKE VICTORIA DECISION SUPPORT SYSTEM: METHODS AND APPLICATIONS,". sponsored by the Food and Agriculture Organization (FAO) of the United Nations. Entebbe (Uganda), Nairobi (Kenya), Dar-es-Salam (Tanzania), September 1998

"THE DESERT AND STREAMPLAN DECISION SUPPORT SYSTEMS FOR WATER QUALITY ANALYSIS", sponsored by the International Institute for Applied System Analysis. Ljubljana, Slovenia, June 1996

Awards/Honors/Service

Panel Chair at the *Impact of Climate Change on the Great Lakes Ecosystem - A NOAA Science Needs Assessment Workshop to Meet Emerging Challenges*, July 29-31, 2008, Ann Arbor, MI.

Paper reviewer for the International Journal of Great Lakes Research;

Mentor for the Great Lakes Summer Student Fellowships 2007, 2008, 2009.

Student presentation reviewer at the International Association for Great Lakes Research's 51st Annual Conference, May 19-23, 2008, Peterborough, Ontario.

Michigan Road Scholars Grant, 2008.

International Upper Great Lakes Study, Hydroclimatology Technical Working Group. Associate fellow. 2007-Present.

Georgia Institute of Technology Graduate Research Assistantship. 1996 – 2006

Grant "Venetian Lagunar System Project" conferred by University of Venice, Dipartimento di Scienze Ambientali – University of Padova, Dipartimento di Elettronica ed Informatica. April 1993 – September 1993.

Fulbright Travel Grant. August 1991 – June 1993.

"Fondazione Ing. Aldo Gini" Grant. August 1991 – June 1992.

EAP-University of California-Universita' degli Studi di Padova Study Abroad Program Grant. August 1991 – June 1992.

Professional Affiliations:

International Association of Hydrological Sciences
International Water Association
International Association for Great Lakes Research