CURRICULUM VITAE

ETHAN KUBATKO

THE OHIO STATE UNIVERSITY
DEPARTMENT OF CIVIL AND ENVIRONMENTAL ENGINEERING AND GEODETIC SCIENCE
417D HITCHCOCK HALL, 2070 NEIL AVENUE
COLUMBUS, OH 43210
kubatko.3@osu.edu
PHONE: (614) 292-7176 FAX: (614) 292-2005

RESEARCH INTERESTS:

Development, implementation, analysis, and application of numerical models for flow and transport processes. Applications of interest include modeling flow and transport in riverine, estuarine, lake, and coastal inlet systems; tides; hurricane storm surge; coastal ocean circulation; and sediment, contaminant, and species transport. Broad areas of interest include numerical analysis, environmental modeling and parallel computing.

EDUCATION:

Ph.D.	Civil Engineering, University of Notre Dame, Notre Dame, IN, January 2006
B.S.	Civil Engineering, Pennsylvania State University, University Park, PA, May 1997 with Honors and with High Distinction

PROFESSIONAL:

04/2008 – Present	Assistant Professor, Department of Civil & Environmental Engineering & Geodetic Science, The Ohio State University.
09/2006 – 03/2008	ICES Postdoctoral Fellow, Institute for Computational Engineering and Sciences, University of Texas at Austin
01/2006 – 08/2006	Postdoctoral Researcher, Department of Civil Engineering & Geological Sciences, University of Notre Dame
08/2000 – 12/2005	Teaching/Research Assistant, Department of Civil Engineering & Geological Sciences, University of Notre Dame
05/1997 – 05/2000	Engineer, E.J. Kubatko, Jr./Civil Eng. Associates, Kittanning, PA - Engineer in Training (EIT) certified in the state of Pennsylvania

HONORS AND FELLOWSHIPS:

- J. T. Oden Faculty Research Fellowship, University of Texas at Austin, 2008.
- USACM Post-Doctoral and Young Investigator Travel Award, 2008.
- Department of the Army, Certificate of Appreciation, in recognition of contributions to the Interagency Performance Evaluation Taskforce (IPET) for hurricanes Katrina and Rita, 2007
- ICES Postdoctoral Fellowship, University of Texas at Austin, 2006 – 2008
- SGI Award for Computational Science and Visualization, University of Notre Dame, 2006
- Monbukagakusho Research Experience Fellowship for Young Foreign Researchers, Tokyo University, Summer 2001
- University Scholars Program, Pennsylvania State University, 1995 – 1997
- Dean's List, Pennsylvania State University, 1993 – 1996
- Member, Chi Epsilon Society – The National Civil Engineering Honor Society

REFEREED JOURNAL PUBLICATIONS:

Kubatko, E.J., J.J. Westerink, C. Dawson., "An unstructured grid morphodynamic model with a discontinuous Galerkin method for bed evolution", *Ocean Modelling*, 15, 71-89, 2006.

Kubatko, E.J., J.J. Westerink, C. Dawson, "*hp* discontinuous Galerkin methods for advection dominated problems in shallow water flow"*, Computer Methods in Applied Mechanics and Engineering*, 196, 437-451, 2006.

Kubatko, E.J., J.J. Westerink., C. Dawson, "Semidiscrete discontinuous Galerkin methods and stage-exceeding-order, strong-stability-preserving Runge-Kutta time discretization methods"*, Journal of Computational Physics*, 222, 832-848, 2007.

Kubatko, E.J., J.J. Westerink, "Exact discontinuous solutions of Exner's bed evolution model: a simple theory for sediment bores", *Journal of Hydraulic Engineering*, 133, 305-311, 2007.

Westerink, J.J., R.A. Luettich, J.C. Feyen, J.H. Atkinson, C.N. Dawson, M.D. Powell, J.P. Dunion, H.J. Roberts, **E.J. Kubatko**, H. Pourtaheri, "A basin- to channel-scale unstructured grid hurricane storm surge model applied to southern Louisiana", *Monthly Weather Review*, 136, 833-864, 2008.

Kubatko, E.J., C. Dawson., J.J. Westerink, "Time step restrictions for Runge-Kutta discontinuous Galerkin methods on triangular grids", *Journal of Computational Physics*, 227, 9697-9710, 2008.

Kubatko, E.J., S. Bunya, C. Dawson., J.J. Westerink, C.M. Mirabato, "A performance comparison of continuous and discontinuous finite element shallow water models", *Journal of Scientific Computing*, accepted.

Kubatko, E.J., S. Bunya, C. Dawson, J.J. Westerink, "Dynamic *p*-adaptive Runge-Kutta discontinuous Galerkin methods for the shallow water equations"*, Computer Methods in Applied Mechanics and Engineering*, accepted.

S. Bunya, **E.J. Kubatko,** J.J. Westerink, C. Dawson, S. Yoshimura, "A wetting and drying treatment for the Runge-Kutta discontinuous Galerkin solution to the shallow water equations", *Computer Methods in Applied Mechanics and Engineering*, accepted.

Westerink, J.J., J.C. Feyen, J.H. Atkinson, R.A. Luettich, C.N. Dawson, M.D. Powell, J.P., Dunion, H.J. Roberts, **E.J. Kubatko**, H. Pourtaheri, "A new generation hurricane storm surge model for Southern Louisiana", *Bulletin of the American Meteorological Society,* in review.

Kubatko, E.J., C. Dawson., J.J. Westerink, "The importance of local mass conservation in coupling flow and transport models", *Journal of Hydraulic Engineering*, in preparation.

CONFERENCE ABSTRACTS (**BOLD** = PRESENTER, * = INVITED SPEAKER)**:**

Kubatko, E.J. and J.J. Westerink, "Applying the Discontinuous Galerkin Method to the Equation of Sediment Continuity," Twelfth International Conference on Finite Element Methods in Flow Problems, Meijo University, Nagoya, Japan, April 2-4, 2003.

Kubatko, E.J., J.J. Westerink, "Modeling Sediment Transport with the Discontinuous Galerkin Method", Coastal Ocean Modeling Gordon Conference 2003, New London, NH, June 2003.

Kubatko, E.J., J.J. Westerink, "Development of a Discontinuous Galerkin F.E. Model for Sediment Transport", Eighth International Conference on Estuarine and Coastal Modeling, Monterey, CA, November 2003.

Kubatko, E.J., J.J. Westerink, and C. Dawson, "The *hp* Discontinuous Galerkin Method Applied to the Shallow Water Equations," The Third International Workshop on Unstructured Grid Numerical Modeling of Coastal, Shelf and Ocean Flows, Laboratoire d'Etudes en Geodesie et Oceanographie Spatiales, Obsevatoire Midi-Pyrenees, Toulouse, France, 20-22 September, 2004.

Westerink, J.J., J.C. Feyen, J.H. Atkinson, R.A. Luettich, C. Dawson, H.J. Roberts, and E.J. Kubatko, "Development of a Large Domain Finite Element Storm Surge Model for Southern Louisiana," International Workshops on Advances in Computational Mechanics, Tokyo, Japan, 3-6 November, 2004.

Kubatko, E.J., J.J. Westerink, and C. Dawson, "*hp* Discontinuous Galerkin Methods for Coastal and Estuarine Circulation and Transport," International Workshops on Advances in Computational Mechanics, Tokyo, Japan, 3-6 November, 2004.

Kubatko, E.J., J.J. Westerink and C. Dawson, "*hp* Discontinuous Galerkin Methods for Shallow Water Flow and Transport," Eighth U.S. National Congress on Computational Mechanics, Austin, TX, July 24-28, 2005.

Westerink, J.J., E.J. Kubatko, S. Bunya, C. Dawson and R.A. Luettich, "Coupled Shallow Water Equation - Morphological Computations Using Continuous Galerkin and Discontinuous Galerkin Based Finite Element Solutions," The Fourth International Workshop on Unstructured Grid Numerical Modeling of Coastal, Shelf and Ocean Flows, Bremerhaven Germany, October 10-12, 2005.

Kubatko, E.J., S. Bunya, J.J. Westerink and C. Dawson, "Recent Developments and Applications of an *hp* Discontinuous Galerkin Model for Shallow Water Flow and Transport," The Fourth International Workshop on Unstructured Grid Numerical Modeling of Coastal, Shelf and Ocean Flows, Bremerhaven Germany, October 10-12, 2005.

Dawson, C., J. Westerink, E.J. Kubatko, "A DG-Based Hydrodynamic Storm Surge Model," The Seventh World Congress on Computational Mechanics, Los Angeles, CA, July 16-22, 2006.

Bunya, S., J. Westerink, E.J. Kubatko, C. Dawson, S. Yoshimura, "A New Wetting and Drying Algorithm for Discontinuous Galerkin Solutions to the Shallow Water Equations," The Seventh World Congress on Computational Mechanics, Los Angeles, CA, July 16-22, 2006.

Kubatko, E.J., J. Westerink, C. Dawson, S. Bunya, "High-Order Discontinuous Galerkin Methods for Advection Dominated Shallow Water Hydrodynamics and Transport," The Seventh World Congress on Computational Mechanics, Los Angeles, CA, July 16-22, 2006.

Bunya, S., J. Westerink, E.J. Kubatko, C. Dawson, "Mass Conservative Wetting and Drying Algorithm for Discontinuous Galerkin Solutions to the Shallow Water Equations," The Fifth International Workshop on Unstructured Grid Numerical Modelling of Coastal, Shelf, and Ocean Flows, Miami, FL, November 13-15, 2006.

Kubatko, E.J., C. Dawson, J. Westerink, "*hp*-adaptive Discontinuous Galerkin Methods for the Shallow Water Equations," The Fifth International Workshop on Unstructured Grid Numerical Modelling of Coastal, Shelf, and Ocean Flows, Miami, FL, November 13-15, 2006.

S. Bunya, J.J. Westerink, E.J. Kubatko, C. Dawson, "A Mass Conserving Moving Boundary Method for the Runge-Kutta Discontinuous Galerkin Solutions to the Shallow Water Equations," International Conference on Computational Methods, Hiroshima, Japan, April 4-6, 2007.

Kubatko, E.J., S. Bunya, C. Dawson, and J.J. Westerink, "Verification and Validation of a Discontinuous Galerkin Model for Shallow Water Flow and Transport," Ninth U.S. National Congress on Computational Mechanics, San Francisco, CA, July 23-26, 2007.

C. Dawson, E.J. Kubatko**,** C. Mirabito, J. Proft, and J.J. Westerink, "Parallel Finite Element Models for Hurricane Storm Surges", Teragrid '08, Las Vegas, NV, June 9 – 13, 2008.

*** Kubatko, E.J.**, C. Dawson, and J.J. Westerink, "CFL Conditions for Runge-Kutta and Multi-step Discontinuous Galerkin Methods," The Eighth World Congress on Computational Mechanics, Venice, Italy, June 30 – July 4, 2008.

*** Kubatko, E.J.**, S. Bunya, C. Dawson, and J.J. Westerink, "Towards a discontinuous Galerkin storm surge model," The Eighth International Conference on Hydro-Science and Engineering, Nagoya, Japan, September 8 –12, 2008.

S. Bunya, E. J. Kubatko, Joannes J. Westerink, Clint Dawson and Sena Serhadlıoğlu, "A RKDG Shallow Water Model for Coastal and Riverine Flow Problems Containing Wetting and Drying Zones", The Seventh International Workshop on Unstructured Grid Numerical Modeling of Coastal, Shelf and Ocean Flows, Halifax, Canada, September 17-19, 2008.

ADDITIONAL PRESENTATIONS (***** = INVITED SPEAKER)**:**

- Natural Hazard Mitigation Program in Japan (NHMJ) Student Seminar, Tokyo Institute of Technolgy, Tokyo, Japan, June 2001.
- Third Annual Coastal Inlets Research Program (CIRP) Student Seminar, U.S. Army Engineering Research and Development Center, Vicksburg, MS, June 2002.
- Fourth Annual Coastal Inlets Research Program (CIRP) Student Seminar, Clearwater Beach FL, May 2003.
- Inlet Modeling System Workshop, U.S. Army Engineering Research and Development Center, Vicksburg, MS, November, 2004.
- CIRP-NCCHE Coordination Meeting, University of Mississippi, Oxford, MS, June 2005.

- IMS-ADCIRC Workshop, U.S. Army Engineering Research and Development Center, Vicksburg, MS, June 2005.
- Tenth ADCIRC Model Workshop, National Oceanic and Atmospheric Administration (NOAA), Silver Spring, MD, March 2006.
- Tenth International Workshop on Wave Hindcasting and Forecasting and Coastal Hazard Symposium, North Shore, Oahu, HI, November 2007.
- Twelfth ADCIRC Model Workshop, Naval Research Laboratory, Oceanography Division, Stennis Space Center, MS, April 2008.
- * Department of Mathematics and Statistics, Oakland University, Rochester, MI, June 13, 2008.
- * Department of Civil and Environmental Engineering, University of Central Florida, Orlando, FL, June 9, 2008.
- Dean's Seminar Series, College of Engineering, The Ohio State University, Columbus, OH, 2008.
- The Water Management Association of Ohio Luncheon Seminar Series, Columbus, OH, 2008.

TECHNICAL REPORTS:

Kubatko, E.J. and J.J. Westerink, "2-D Discontinuous Galerkin Methods for Morphodynamic Modeling", Progress Report prepared for the US Army Corp of Engineers, Coastal Engineering Research Center, 2003.

Kubatko, E.J. and J.J. Westerink; "1-D Discontinuous Galerkin Methods for the Equations of Shallow water flow and sediment transport", Progress Report prepared for the US Army Corp of Engineers, Coastal Engineering Research Center, 2002.

GRANTS AND CONTRACTS

NSF Grant, "Collaborative Research: Hurricane Storm Surge Modeling on Petascale Computers," CO-PI with collaborative PIs: C. Dawson (U. Texas at Austin), J.J. Westerink (U. Notre Dame), and A.M. Spagnuolo (Okland U.), ≈ $1,600,000 (Total Project).

NOAA/Ohio Sea Grant, "Development of an Unstructured Grid of Lake Erie for Hydrodynamic Modeling", PI, $10,000.

TECHNICAL REVIEWER:

Journals:
- Coastal Engineering
- Computational Geosciences
- Computer Methods in Applied Mechanics and Engineering
- Estuarine, Coastal and Shelf Science
- International Journal for Numerical Methods in Fluids
- Journal of Marine Geodesy
- Journal of Waterway, Port, Coastal, and Ocean Engineering
- Ocean Modelling

PROFESSIONAL SOCIETIES:

American Society of Civil Engineers (ASCE)
Society for Industrial and Applied Mathematics (SIAM)

TEACHING EXPERIENCE:

2000 – 2002	Teaching Assistant, Department of Civil Engineering and Geological Sciences, University of Notre Dame. Courses: AME 225: Mechanics I, CE 235L: Mechanics of Solids/Materials Laboratory, CE 441: Numerical Methods in Engineering.
2006	Guest lecturer, Department of Civil Engineering and Geological Sciences, University of Notre Dame. CE 563: Finite element methods.
2008	Department of Civil & Environmental Engineering and Geodetic Science, The Ohio State University, CE 413: Fluid Mechanics.