

## **ERIC TATE**

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### **Research Interests**

Vulnerability and sustainability indicators, flood hazards, uncertainty analysis, geospatial modeling

### **Education**

**Ph.D., Geography** 2011

University of South Carolina, Columbia, SC. Advisor: Susan Cutter

Dissertation: *Indices of Social Vulnerability to Hazards: Model Uncertainty and Sensitivity*

**M.S., Environmental & Water Resources Engineering** 1999

The University of Texas, Austin, TX. Advisor: David Maidment

Thesis: *Floodplain Mapping Using HEC-RAS and ArcView GIS*

**B.S., Environmental Engineering** 1994

Rice University, Houston, TX.

### **Teaching**

University of Iowa, Iowa City, IA 2011-present  
Environmental Justice, Water Resources, Hazards and Society, Sustainability Indicators

University of South Carolina, Columbia, SC 2010  
The Geography of Disasters

### **Refereed Publications**

**Tate, E.** (2012). "Uncertainty Analysis for a Social Vulnerability Index." *Annals of the Association of American Geographers*. DOI: 10.1080/00045608.2012.700616.

**Tate, E.** (2012). "Social vulnerability indices: a comparative assessment using uncertainty and sensitivity analysis." *Natural Hazards*, 63(2): 325-347.

**Tate, E.,** C.G. Burton, M. Berry, C.T. Emrich, and S.L. Cutter (2011). "Integrated Hazards Mapping Tool." *Transactions in GIS*, 15(5): 689-706.

Coles, A., G. Eosco, T. Norton, J. Ruiz, **E. Tate**, and M. Weathers (2011). "Mapping local knowledge of climate change and hazards to inform research, practice, and policy in the Americas." *Gestión y Ambiente*, 14(2): 45-58.

**Tate, E.**, S. L. Cutter, and M. Berry (2010). "Integrated multihazard mapping." *Environment and Planning B: Planning and Design*, 37(4): 646–663.

Cutter, S. L., L. Barnes, M. Berry, C. Burton, E. Evans, **E. Tate**, and J. Webb (2008). "A place-based model for understanding community resilience to natural disasters." *Global Environmental Change*, 18(4): 598-606.

Scawthorn, C., N. Blais, H. Seligson, **E. Tate**, E. Mifflin, W. Thomas, J. Murphy, and C. Jones (2006). "HAZUS-MH Flood Loss Estimation Methodology I: Overview and Flood Hazard Characterization." *Natural Hazards Review*, 7(2): 60-71.

Scawthorn, C., P. Flores, N. Blais, H. Seligson, **E. Tate**, S. Chang, E. Mifflin, W. Thomas, J. Murphy, C. Jones, and M. Lawrence (2006). "HAZUS-MH Flood Loss Estimation Methodology II. Damage and Loss Assessment." *Natural Hazards Review*, 7(2): 72-81.

**Tate, E.**, D. Maidment, F. Olivera and D. Anderson (2002). "Creating a Terrain Model for Floodplain Mapping." *Journal of Hydrologic Engineering*, 7(2): 100-108.

## Reports

Solis, P. *et al.* (2011). Climate Change and Hazards in the Americas: International Interdisciplinary Research Directions and Opportunities. Washington, DC: Association of American Geographers.

Cutter, S. L., L. Barnes, M. Berry, C. Burton, E. Evans, **E. Tate**, and J. Webb (2008). Community and regional resilience: Perspectives from hazards, disasters, and emergency management. CARRI Research Report 1. Oak Ridge National Lab: Community and Regional Resilience Initiative.

## Honors

Gilbert F. White Award, 2012. Hazards Specialty Group, Association of American Geographers. Awarded for best dissertation in the field of hazards geography.

Selected NSF workshop participant: Institute for Integration of Research on Climate Change and Hazards in the Americas, 2010. Panama City, Panama.

Jeanne X. Kasperson Award, 2008. Hazards Specialty Group student paper competition, Association of American Geographers.

## Grants and Funding

NSF CNH Exploratory. 2012-2014. Co-Principal Investigator for "Monsoon Harvests: Assessing the Impact of Distributed Storage Tanks on the Vulnerability of Subsistence-Level Agriculture in Tamil Nadu, India." \$249,919. With Nandita Basu (PI) and Craig Just (Co-PI).

University of Iowa, Old Gold Fellowship. 2012-2013. "A Sensitivity Analysis of the HAZUS Flood Model." \$6,000.

CGRER (Center for Global and Regional Environmental Research) Seed Grant. 2012. Co-Principal Investigator for "Flood Recovery in Cedar Rapids." \$6,417. With Aaron Strong (Co-PI).

NSF Graduate Research Fellowship. 2008-2011. "An Integrated Approach to Hazards Vulnerability Assessment." \$121,500.

University of South Carolina Graduate School Fellowship, 2006-2010, \$32,000.

### **Service**

HAZUS Flood Committee. 2011-2012. National Institute of Building Sciences. Federal advisory board for the development of the HAZUS-MH flood loss estimation software.

DHS Proposal Review Panel. 2012. Department of Homeland Security. STEM Career Development Grant program.

Journal Reviewer

- Hazards: International Journal of Disaster Risk Reduction, Natural Hazards, Natural Hazards Review
- Geography: Annals of the Association of American Geographers, Applied Geography
- GIS: International Journal of Geographical Information Science, Transactions in GIS
- Nature-Society: Environmental Science & Technology, Health and Place

President, Geography Graduate Student Association, 2010. University of South Carolina Department of Geography.

### **Presentations**

"Hazards and Disasters: The Vulnerability Perspective." University of Iowa, Natural Disasters and Humanitarian Aid Workshop. November 10, 2012.

"Perspectives on Flood Vulnerability." University of Iowa, IIHR Colloquium." October 10, 2012.

"Social vulnerability indices: a comparative assessment using uncertainty & sensitivity analysis." 37<sup>th</sup> Annual Hazards Research and Applications Workshop. Broomfield, CO. July 18, 2012.

"Social Response to Flood Warnings." Iowa Water Conference. Ames, IA. March 7, 2012.

"Reliability of Social Vulnerability Indicators." University of Iowa, Social Science Interdisciplinary Group Colloquium." February 29, 2012.

“Uncertainty Analysis for a Social Vulnerability Index.” Annual Meeting of the Association of American Geographers, New York, NY. February 25, 2012.

“Sensitivity Analysis for Natural Hazards Vulnerability Modeling.” University of Iowa, Department of Geoscience Colloquium.” January 20, 2012.

“Social Vulnerability to Natural Hazards: Modeling and Mapping Approaches.” Water Sustainability Initiative Colloquium, University of Iowa. October 11, 2011.

“Uncertainty and sensitivity analysis of a social vulnerability index.” 36<sup>th</sup> Annual Hazards Research and Applications Workshop. Broomfield, CO. July 13, 2011.

“Social Vulnerability to Natural Hazards: Model Sensitivity and Uncertainty.” 3<sup>rd</sup> USGS Modeling Conference. Broomfield, CO. June 8, 2010.

“Social Vulnerability to Natural Hazards: Model Sensitivity and Uncertainty.” Association of American Geographers Annual Meeting. Washington, D.C. April 16, 2010.

“Social Vulnerability to Natural Hazards: Mapping and Modeling Approaches.” Oak Ridge National Laboratory, Geographic Information Science and Technology Group. Oak Ridge, TN. March 12, 2010.

“A GIS-Based Framework for Multi-Hazard Impact Mapping.” Association of American Geographers Annual Meeting. Boston, MA. April 15-19, 2008.

“Flood Loss Estimation Using HAZUS.” National Research Council Committee on FEMA Flood Maps. Wilmington, NC. August 20, 2007.

“All Hazards Vulnerability Mapping.” 32<sup>nd</sup> Annual Hazards Research and Applications Workshop. Boulder, CO. July 8-11, 2007.

“Social Vulnerability and Natural Hazards.” National HAZUS-MH User Conference. San Diego, CA. June 19-20, 2007.

“Coastal Flood Hazard Delineation in HAZUS-MH.” Association of State Floodplain Managers 28<sup>th</sup> Annual Conference. Biloxi, MS. May 16-21, 2004.

“Riverine Flood Hazard Delineation in HAZUS-MH.” Association of State Floodplain Managers 28<sup>th</sup> Annual Conference. Biloxi, MS. May 16-21, 2004.

“HAZUS-MH Flood Information Tool.” 22<sup>nd</sup> Annual ESRI International Users Conference, Pre-conference seminar. San Diego, CA. July 7-12, 2002.

## Experience

### **Assistant Professor**

Department of Geography, University of Iowa, Iowa City, SC 2011-present

### **Graduate Research Associate**

Department of Geography, University of South Carolina, Columbia, SC 2006 - 2011

- Methodology and geospatial software development for social vulnerability indicators, multi-hazard analysis, and global sensitivity analysis.
- Webmaster for the Hazards Vulnerability and Research Institute

### **Software Development Manager**

Lenocker & Associates, Orange, CA 2005-2006

Developed GIS applications and utilities to aid novice civil engineering users of ArcGIS.

### **Project Engineer**

ABS Consulting, Inc., Irvine, CA 1999-2005

Lead GIS developer for flood hazard analysis modules of the HAZUS-MH loss estimation model.

- Developed flood hazard methodology, application prototypes, and Visual Basic code.
- Evaluated flood hazard and damage methodology through proof-of-concept testing.
- Presented methodology and software at national conferences and FEMA committee meetings.
- Designed and delivered software training courses for floodplain managers, emergency managers, and FEMA personnel.

### **Graduate Research Assistant**

The University of Texas, Austin, TX 1997-1999

- Developed methodology to automate floodplain terrain modeling.
- Linked the HEC-RAS hydraulic model and ArcView GIS to enable 2D and 3D floodplain visualization and analysis.

### **Associate Project Engineer**

Roy F. Weston, Inc., Houston and Austin, TX 1993-1998

- Created and implemented plans for environmental sampling and analysis for sites in the EPA CERCLA/SARA program.
- Collected soil, water, and waste samples and interpreted the laboratory results.
- Authored reports and analyzed data for environmental site assessments, remedial investigations, and risk assessments.