

Curriculum Vitae 2017

Christopher T. Emrich, Ph.D. GISP

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Education

- 2001 – 2005 Doctorate of Philosophy, Geography, University of South Carolina
Dissertation Title: *Social Vulnerability in United States Metropolitan Areas: Improvements in Hazard Vulnerability Assessment*
- 1998 – 2000 Masters of Arts, Geography, University of South Florida
Thesis Title: *Modeling Community Risk and Vulnerability to Multiple Natural Hazards: Hillsborough County, Florida*
- 1993 – 1997 *Bachelor of Arts, Geography, University of South Florida*

Academic Positions

- 2016 – Associate Professor, School of Public Administration, University of Central Florida
- 2016 – Boardman Endowed Professor of Environmental Science and Public Administration, Sustainable Coastal Systems Custer Initiative, University of Central Florida
- 2014 – 2016 Associate Professor of Research, Department of Geography, University of South Carolina
- 2008 – 2013 Assistant Professor of Research, Hazards and Vulnerability Research Institute Department of Geography, University of South Carolina
- 2007 – 2008 Visiting Assistant Professor, Department of Geography, University of South Florida

Professional Positions

- 2008 Web Transparency Liaison, Gulf Coast Recovery Organization, Federal Emergency Management Agency
- 2004 – 2005 GIS Specialist, Hurricane Charley Joint Field Office – Mitigation Division, Federal Emergency Management Agency
- 2001 – 2005 Research Assistant, Hazards Research Lab, Department of Geography, University of South Carolina
- 2000 – 2001 GIS Specialist, Post Buckley Schuh and Jernigan, Tampa, FL

Administrative Positions

- 2013 – Associate Director, Hazards and Vulnerability Research Institute, Department of Geography, University of South Carolina

- 2006 – 2007 GIS Unit Leader, Florida Long Term Recovery Office- Planning Section, Federal Emergency Management Agency
- 2005 – 2006 Lab Manager, Hazards Research Lab, Department of Geography, University of South Carolina

RESEARCH

Areas of Expertise:

Hazards geography; geospatial information science; Disaster science, especially social vulnerability analysis, resilience assessment, tracking long term recovery, and creating tools and technologies for practitioners of hazard mitigation, response and recovery operations.

Funded Research (total > \$3.4 in competitive extramural funding, 2008 – 2015)

2017. Emrich, C.T. (Mentor). Office of Research & Commercialization's (ORC) Research Mentoring Opportunity, 1 year grant, \$3,000.
2017. **Emrich, C.T.** (PI). State of Florida Impact and Unmet Needs Assessment. State of Florida Department of Economic Opportunity, 4 month grant, \$26,606.
2016. **Emrich, C.T.** (PI), E. Tate, S. Speilman, Collaborative Research: Measuring Social Vulnerability--Reducing Uncertainty and Validating Indicators, National Science Foundation, 3 year grant, \$40,514.
2015. **Emrich, C.T.** (PI), M. Gall, S.L. Cutter. Improving Risk Assessment in Support of State Hazard Mitigation Planning. South Carolina Emergency Management Division – Hazard Mitigation Grant Program, 3 year grant, \$790,516.
2015. Li, Zhenlong (PI), **C.T. Emrich**, D. Guo, and C. Wang. Spatiotemporal Dynamics of Flood Impact by Integrating Satellite, VGI and Social Media Data: Rapid Assessment of the October Flood. University of South Carolina Vice President for Research, 6 month grant, \$18,477.
2015. **Emrich, C.T.** (PI), M. Gall, and N. Huyhn. Leveraging Perishable Impact Data into Long Term Recovery Forecasting. University of South Carolina Vice President for Research, 6 month grant, \$26,550.
2015. **Emrich, C.T.** (PI), M. Gall, and S.L. Cutter. Statewide, Web-based Risk Assessment Planning Project for Florida. Florida Department of Emergency Management, 1 year grant, \$237,163.
2015. **Emrich, C.T.** (PI), M. Gall. Hazards Analysis and Planning (GEOG 535) - Distributed Learning Course Development Grant. University of South Carolina, 1 year grant, \$7,829.
2014. **Emrich, C.T.** (PI), J. Eberth. Identifying and Updating Public Health Impacts and Hazard Probabilities for Public Health and Medical Preparedness – Phase IIIB, Florida Department of Health - Bureau of Preparedness and Response, 6 month grant, \$45,623.

2013. **Emrich, C.T.** (PI), J. Eberth. Identifying and Updating Public Health Impacts and Hazard Probabilities for Public Health and Medical Preparedness – Phase IIIA, Florida Department of Health - Bureau of Preparedness and Response, 6 month grant, \$32,908.

2013. **Emrich, C.T.** (PI), Impacts and Vulnerabilities Related to Climate Variabilities in Florida - Phase III, Florida Department of Health - Bureau of Epidemiology, 1 year grant, \$31,999.

2013-2014. **Emrich, C.T.** (PI), M. Gall, 2010 Census Update of the Enhancement of the Social Vulnerability Index (SOVI) for Use in Assessing Coastal Risk, NOAA Coastal Services Center, 6 month grant, \$50,000.

2013-2016. **Emrich, C.T.** (PI), E. Tate, S. Speilman, Collaborative Research: Measuring Social Vulnerability--Reducing Uncertainty and Validating Indicators, National Science Foundation, 3 year grant, \$174,000.

2013-2016, Cutter, S.L. (PI), **C.T. Emrich**, Identifying and Analyzing the Driving Forces of Hurricane Recovery for Disaster Stricken Areas to Improve Long-term Planning, Department of Homeland Security, 3 year grant, \$398,950.

2013, **Emrich C.T.** (PI), Impacts and Vulnerabilities related to Climate Variabilities in Florida, Florida Department of Health - Bureau of Epidemiology, 1 year grant, \$21,000.

2012-2015, **Emrich C.T.** (PI), S.L. Cutter, Supporting South Carolina's Optimal Mitigation of Environmental Threats, South Carolina Emergency Management Division – Pre-Disaster Mitigation Program, 3 year grant, \$400,000.

2012-2015, Cutter, S.L. (PI), **C. T. Emrich**, J. T. Mitchell. DRRC: Baseline indicators for monitoring disaster resilience in rural places, NSF, 3 year grant, \$137,500.

2012-2014, Cutter, S.L. (PI), **C.T. Emrich**, Mapping Vulnerabilities to Create Resiliencies, Climate Central, 1 year grant, \$100,000.

2012-2013, **Emrich, C.T.** (PI), Impacts and Vulnerabilities related to Climate Sensitivities in Florida Phase I Review and Assessment of Threats and Outcomes, Florida Department of Health - Bureau of Epidemiology, 1 year grant, \$32,500.

2012-2013, **Emrich, C.T.** (PI), S.L. Cutter, Integrating Social Vulnerability, Medical Vulnerability, Hazard Vulnerability, and Disaster Resilience for Public Health and Medical Preparedness, Florida Department of Health – Bureau of Preparedness and Response, 1-year grant, \$113,999.

2012, Cutter, S.L. (PI), **C.T. Emrich**, Creating a Hazards of Place Model for the State of Connecticut, Harvard School of Public Health, \$15,000.

2012, **Emrich, C.T.** (PI), S.L. Cutter, Incorporating Medical and Social Vulnerability into an All-Hazards Assessment for the State of Florida, Florida Department of Health, \$49,592.

2012, **Emrich, C.T.** (PI), J. T. Mitchell, Earthquakes in South Carolina: Bridging the Social and Science Divide for K-12 Educators, South Carolina Emergency Management Division – Earthquake Mitigation Program, \$19,500.

2011-2012, **Emrich, C.T.** (PI), S.L. Cutter, Identifying South Carolina's Readiness to Chemical Threats, South Carolina Law Enforcement Division – State Homeland Security Grant Program, \$79,250

2011-2012, Cutter, S.L. (PI), **C.T. Emrich**, Flood Risk Management: Integrating Social Vulnerability into Multiple Liens of Defense Mitigation, G.E.C. Inc., \$53,000.

2011, **Emrich C.T.** (PI), S.L. Cutter, Integrating Social Vulnerability into Climate Change Planning and Preparedness at the Local Level for Mississippi and Louisiana, OXFAM America, \$20,000.

2010-2011, Cutter, S.L. (PI), **C.T. Emrich**, Enhancement of the Social Vulnerability Index (SoVI) for Use in Assessing Coastal Risk, National Oceanic and Atmospheric Administration, \$70,000.

2010-2011, Cutter, S.L. (PI), **Emrich C.T.** and J.T. Mitchell, Hurricane Evacuation Behavioral Study for South Carolina, \$80,000.

2009-2012, **Emrich C.T.** (PI), S.L. Cutter, Geospatial Risk Assessment Support Prototype, SC Emergency Management Division, \$400,000.

2009, Cutter, S.L. (PI), **C.T. Emrich**, Social Vulnerability Mapping for the Southeast, OXFAM America, \$40,000.

Peer Reviewed Publications

Li, Z., Wang, C., **Emrich, C.T.** and Guo, D., 2017. A novel approach to leveraging social media for rapid flood mapping: a case study of the 2015 South Carolina floods. *Cartography and Geographic Information Science*, pp.1-14.

Hames, E., Stoler, J., **Emrich, C. T.**, Tewary, S., & Pandya, N. 2016. A GIS Approach to Identifying Socially and Medically Vulnerable Older Adult Populations in South Florida. *The Gerontologist*, gnw106.

de Loyola Hummell, B.M., Cutter, S.L. & **Emrich, C.T.** 2016. Social Vulnerability to Natural Hazards in Brazil. *International Journal of Disaster Risk Science* 7: 111. DOI:10.1007/s13753-016-0090-9

Cutter, S.L., Ash, K.D. and **C.T. Emrich**, 2016. Urban Rural Differences in Disaster Resilience. *Annals of the American Association of Geographers*, DOI: 10.1080/24694452.2016.1194740

Cutter, S.L., Ash, K.D. and **C.T. Emrich**, 2014. The geographies of community disaster resilience. *Global Environmental Change* 29: 65-77. DOI: <http://dx.doi.org/10.1016/j.gloenvcha.2014.08.005>

Cutter, S.L., Schumann, R. L., and **C.T. Emrich**. 2014. Exposure, Social Vulnerability and Recovery Disparities in New Jersey after Hurricane Sandy. *Journal of Extreme Events* 1(1): 23pp. DOI: 10.1142/S234573761450002X.

Guillard-Gonçalves, C., S.L. Cutter, **C.T. Emrich**, and J.L. Zêzere. 2014. Application of Social Vulnerability Index (SoVI) and delineation of natural risk zones in Greater Lisbon, Portugal. *Journal of Risk Research*: 1-24. DOI:10.1080/13669877.2014.910689.

Chen, W., Cutter, S.L., **Emrich, C.T.** and P. Shi. 2013. Measuring Social Vulnerability to Natural Hazards in the Yangtze River Delta Region, China. *International Journal of Disaster Risk Science* 4(4):169-181.

Ash, K.D., Cutter, S.L. and **C.T. Emrich**, 2013. Acceptable losses? The relative impacts of natural hazards in the United States, 1980–2009, *International Journal of Disaster Risk Reduction* (5): 61-72.

Ward, S.M, **Emrich, C.T.**, Schumann, R.S. and K.D. Ash. 2013. "Research Based Decision Support in Hazard Mitigation: Louisiana Northshore Flood and Hurricane Protection," *Journal of Risk, Hazards & Crisis in Public Policy* 3(3): 38-68.

Cutter, S.L., **Emrich, C.T.** and D.P. Morath. 2013. "Integrating social vulnerability into federal flood risk management planning," *Journal of Flood Risk Management* , doi: 10.1111/jfr3.12018, 13pp.

Gall, M., Borden, K.A., **Emrich, C.T.** and S.L. Cutter. 2011. "The Unsustainable Trend of Natural Hazard Losses in the United States," *Sustainability* 3: 2157-2181.

Emrich, C.T. and S.L. Cutter. 2011. "Social Vulnerability to Climate-Sensitive Hazards in the Southern United States," *Journal of Weather, Climate, and Society* 3(3): 193-208.

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

Cutter, S.L., Burton, C.G. and **C.T. Emrich**. 2010. "Disaster Resilience Indicators for Benchmarking Baseline Conditions," *Journal of Homeland Security and Emergency Management: Vol. 7: Iss. 1, Article 51*. DOI: 10.2202/1547-7355.1732. Available at: <http://www.bepress.com/jhsem/vol7/iss1/51>

Stevenson, J.R., **Emrich, C.T.**, Mitchell, J.T. and S.L. Cutter. 2010. Using Building Permits to Monitor Disaster Recovery: A Spatio-Temporal Case Study of Coastal Mississippi Following Hurricane Katrina, *Cartography and Geographic Information Science*, 37(1): 57-68. DOI: 10.1559/152304010790588052

Finch, C., **Emrich, C.T.** and S.L. Cutter, 2010. Disaster disparities and differential recovery in New Orleans. *Population and Environment*, DOI 10.1007/s11111-009-0099-8.

Cutter, S.L., Gall. M., and **C.T. Emrich**. 2008. "Towards a comprehensive loss inventory of weather and climate hazards." In *Climate Extremes and Society*, eds. H.F. Diaz and R.J. Murnane. Cambridge: Cambridge University Press. Pp279-295.

Borden, K.A., Schmidtelin, M.C., **Emrich, C.T.**, Piegorsch, W.W. and S.L. Cutter. 2007. Vulnerability of U.S. Cities to Environmental Hazards. *Journal of Homeland Security and Emergency Management: Vol. 4: Iss. 2, Article 5*. Available at: <http://www.bepress.com/jhsem/vol4/iss2/5>

Cutter, S. L. and **C.T. Emrich**. 2006. Moral Hazard, Social Catastrophe: The Changing Face of Vulnerability along the Hurricane Coasts. *Annals of the American Academy of Political and Social Science* 604 (1): 102-112.

Cutter, S. L., **C. T. Emrich**, J. T. Mitchell, B. J. Boruff, M. Gall, M. C. Schmidlein, C. G. Burton, and G. Melton. 2006. The Long Road Home: Race, Class and Recovery from Hurricane Katrina. *Environment* 28 (2): 8-20.

Cutter, S.L. and **C. Emrich**. 2005. Are Natural Hazards and Disaster Losses in the U.S. Increasing? *EOS: Transactions of the American Geophysical Union* 86(41): 381 & 388-389.

Boruff, B.B., **C. Emrich**, and S. L. Cutter. 2005. Erosion Hazard Vulnerability of United States Coastal Counties. *Journal of Coastal Research* 21(5): 932-942.

Emrich, C. 2000. *Social Vulnerability and Natural Hazards: A Case Study for Hillsborough County, Florida*. Proceedings of the 23rd Annual Applied Geography Conference, Tampa, FL: October 2000.

Books and Book Chapters

Cutter, S.L. **Emrich, C.T.**, Mitchell, J. T., Piegorsch, W.W., Smith, M.M. and L. Weber, 2014. *Hurricane Katrina and the Forgotten Coast of Mississippi*. New York: Cambridge University Press, 194 pp.

Emrich, C.T., S. L. Cutter and P. J. Weschler. 2011. "GIS and Emergency Management", in *The SAGE Handbook of GIS and Society*, ed. T. Nyerges, Couclelis, H. and R. McMaster. London, Sage Publications: 321-343.

Cutter, S.L., **Emrich, C.T.**, Adams, B.J., Huyck, C.K. and R.T. Eguchi, 2009. "New Information Technologies in Emergency Management," in *Emergency Management: Principles and Practice for Local Government*, 2d ed., ed. William L. Waugh Jr. and Kathleen Tierney. Washington, D.C.: ICMA Press: 279-297.

Technical Reports

Emrich, C.T., Sanderson, J.R., and S.L. Cutter, S.L. (2016). The Social Vulnerability Index (SoVI[®]) as a Decision Support Tool in Prioritizing Disaster Recovery Efforts. In Stepehn E. Flynn, *The South Carolina Deluge: Lessons from a Watershed Disaster*. Northeastern University, Center for Resilience Studies.

Emrich, C.T., Morath, D.P, and R. Reeves. 2014. Climate Sensitive Hazards in Florida: Identifying and Prioritizing Threats to Building Resilience against Climate Effects (BRACE), *Final Report to the Florida Department of Health, Bureau of Epidemiology*. Hazards and Vulnerability Research Institute: Columbia (USA). Hazards and Vulnerability Research Institute: Columbia, SC (USA).

Emrich, C.T. 2012. Human Health in the Southeast Region: In Ingram, K.T., Dow, K. and L. Carter, eds. *Southeast Region Technical Report to the National Climate Assessment*, 39-59.

Emrich, C.T., Morath, D.P., and K. Buck. 2012. *Incorporating Medical and Social Vulnerability into an All-Hazards Assessment for the State of Florida: Final Report to the Florida Department*

of Health. Hazards and Vulnerability Research Institute: Columbia (USA). Hazards and Vulnerability Research Institute: Columbia, SC (USA).

Emrich, C.T., S.L. Cutter, K. Ash, and R. Schumann. 2012. *Flood Risk Management: Integrating Social Vulnerability Into Multiple Lines of Defense Mitigation. Final Report to GEC, Inc.* Hazards and Vulnerability Research Institute: Columbia (USA). Hazards and Vulnerability Research Institute: Columbia, SC (USA).

Emrich, C.T. and S. L. Cutter, 2011. *Integrating Social Vulnerability in to Climate Change Planning and Preparedness at the Local Level for Mississippi and Louisiana. Final Project Report to Oxfam America.* Hazards and Vulnerability Research Institute: Columbia (USA). Hazards and Vulnerability Research Institute: Columbia, SC (USA).

Cutter, S.L., **Emrich, C.T.**, Webb, J.J. and D. Morath, 2009. *Social Vulnerability to Climate Change Variability Hazards: A Review of the Literature. Final Report to Oxfam America.* http://adapt.oxfamamerica.org/resources/Literature_Review.pdf. Hazards and Vulnerability Research Institute: Columbia (USA). Hazards and Vulnerability Research Institute: Columbia, SC (USA).

Cutter, S.L. **Emrich, C.T.** and D. Morath, 2009. *Social Vulnerability and Place Vulnerability Analysis Methods and Applications for Corps Planning: Technical Appendix.* Created for Camp Dresser & McKee, Inc. Hazards and Vulnerability Research Institute: Columbia (USA). Hazards and Vulnerability Research Institute: Columbia, SC (USA).

Brinkman, R., **C. Emrich**, M. Billus, B. Dwyer, B., and J. Ryan, 1999. *Chemical and Physical Characteristics of Street Sweepings Sediments in Tampa, Florida.* 5/99, #98-12. Special Report for the Florida Center for Solid and Hazardous Waste Management, Tampa, FL.

Encyclopedia Entries and Op Ed Pieces

Emrich, C.T. and D. Alexander. 2013. "Damage Assessment." In Penuel B.K., Statler, M., and R. Hagen (eds.). *Encyclopedia of Crisis Management.* SAGE Knowledge, 8 pp.

Emrich, C.T. 2013. "EM-DAT." In Penuel B.K., Statler, M., and R. Hagen (eds.). *Encyclopedia of Crisis Management.* SAGE Knowledge, 5 pp.

Emrich, C.T. and K. Borden. 2013. "Losses, Quantitative Versus Qualitative." In Penuel B.K., Statler, M., and R. Hagen (eds.). *Encyclopedia of Crisis Management.* SAGE Knowledge, 10 pp.

Emrich, C.T. 2013. "NatCatSERVICE (Munich Re)." In Penuel B.K., Statler, M., and R. Hagen (eds.). *Encyclopedia of Crisis Management.* SAGE Knowledge, 4 pp.

Emrich, C.T. and J. Czajkowski. 2013. "Reinsurance." In Penuel B.K., Statler, M., and R. Hagen (eds.). *Encyclopedia of Crisis Management.* SAGE Knowledge, 5 pp.

Emrich, C. T. and E. Hughey. 2011. A Hazard Geographer's Perspective on Recent Disaster Events. Newsletter for the Association of American Geographers, April.

Grey Literature and Professional Publications

Cutter, S.L. and **C.T. Emrich**. 2015. A Tale of Two Recoveries: 5 Lessons from Hurricanes Katrina and Sandy: How the social contexts in Mississippi and New Jersey affected recovery. *Emergency Management*, June 25. Available at:

<http://www.emergencymgmt.com/disaster/A-Tale-of-Two-Recoveries-Hurricanes-Katrina-and-Sandy-.html>

Morath, D.P. and **C.T. Emrich**. 2015. Benchmarking Disaster Recovery Using Collector for ArcGIS. *ArcUser Magazine*, ESRI, Winter 2015. Available at:

<http://www.esri.com/~media/Files/Pdfs/news/arcuser/0115/benchmarking-disaster-recovery.pdf>

Gall, M., **C. T. Emrich** and S. L. Cutter, 2014. Who Needs Loss Data? Background Paper for the Global Assessment Report on Disaster Risk Reduction 2015 (GAR15). Geneva, Switzerland: UNISDR. <http://www.preventionweb.net/gar> [forthcoming]; excerpts included in GFDRR, 2014. Understanding Risk in an Evolving World: Emerging Best Practices in Natural Disaster Risk Assessment. Washington, D.C.: The World Bank, 224 p. Available at

https://www.gfdr.org/sites/gfdr/files/publication/Understanding_Risk-Web_Version-rev_1.8.0.pdf

Teaching Experience

2016, 2017– Instructor of Record, PAD4112, Information Systems for Public Managers and Planners, School of Public Administration, University of Central Florida

- Assisted students in learning the fundamentals of GIS technology and their application to common public administration challenges and problems.
- Developed course documents, laboratory exercises, lectures, and evaluation criteria for this newly developing technology at the university

2016 – Instructor of Record, PAD6716, Information Systems for Public Managers and Planners, School of Public Administration, University of Central Florida

- Aided students in utilizing GIS technology to support smarter decision making for local, state, and federal entities
- Developed course documents, laboratory exercises, lectures, and evaluation criteria for one of the most technical GIS class taught at the university

2015 – Instructor of Record, GEOG535, Hazards Analysis and Planning, Department of Geography, University of South Carolina, Columbia, South Carolina

- Facilitated student's understanding of the geographical dimensions and information requirements for disaster preparedness, mitigation, and recovery
- Taught students to critically evaluate hazard assessment methodologies and build robust models and methods for geospatial decision support and hazard mitigation planning and response.

2011, 2012, 2015 – Instructor of Record, GEOG530, Environmental Hazards, Department of Geography, University of South Carolina, Columbia, South Carolina

- Provided students with knowledge about the conceptual and theoretical foundations of hazards, disasters, and emergency management
- Fostered the development of individual skills and abilities for understanding trends in disaster losses and impacts from a geospatial perspective

2012 – Instructor, Vulnerability Workshop, University of Lisbon, Portugal

- Created set of tools and operational guidance for teams of researchers interested in understanding social vulnerability concepts, theory and practice
- Coordinated week long training of geographers including lectures, geospatial exercises, theoretical guidance documents, and lecture materials.

2007 - Instructor of Record, GIS6306: Environmental Applications of GIS, Department of Geography, University of South Florida, Tampa, Florida

- Enabled students to utilize GIS technology in the assessment, analysis and modeling of situations related to environmental quality, justice, and conservation
- Developed course documents, laboratory exercises, lectures, and evaluation criteria for one of the most technical GIS class taught at the university

2007 - Instructor of Record, GIS6100: Advanced Geographic Information Systems, Department of Geography, University of South Florida, Tampa, Florida

- Generated all course related materials for upper level GIS concepts and techniques course
- Provided guidance, support, and training to next generation of GIS analysts and educators through lecture, practical exercises, projects, and exams.

2007 - Instructor of Record, GIS3006: Computer Cartography, Department of Geography, University of South Florida, Tampa, Florida

- Created and delivered course on proper cartographic techniques, map display, and digital representations of geographic phenomena
- Responsible for the production of all course materials, including; class exercises, lecture materials, online and virtual training content, and evaluation measures

2006 - Short Course Instructor, Federal Emergency Management Agency, GIS for Security, Florida Long Term Recovery Office, Lake Mary, Florida

- Generated and presented FEMA standard short course focused on the uses of GIS for FEMA security specialists
- Designed and implemented numerous case study exercises for use by FEMA security personnel based on real world situations and scenarios

2004 - Instructor of Record, GEOG 430: Geography of Disasters, Department of Geography, University of South Carolina, Columbia, South Carolina

- Synthesized and delivered up to date hazards information for an upper level undergraduate hazards course
- Development and implementation of course lectures, projects and exams

2003 - Short Course Instructor, South Carolina Council of Governments, Sub-County Hazard, Vulnerability Assessment Protocols

- Trained Council of Government GIS Specialists in procedures for demographic and population growth analyses undertaken during spatial vulnerability assessments
- Served as an intra- and inter-governmental advisor to GIS specialists within county councils, city planning groups, and state EMD staff

Professional Presentations and Panels

Emrich, C.T. 2017. Improving Community Resilience through Risk and Vulnerability Analytics, Atlanta, GA. American Society for Public Administration Annual Conference, March 20.

Emrich, C.T. 2016. Leveraging Perishable Impact Data Into Long-Term Recovery Forecasting, Columbia, South Carolina, SC Floods Conference, November 18. **INVITED**

Emrich, C.T. 2016. Leveraging Big Data and for Response and Recovery, Columbia, South Carolina, South Carolina Arc GIS Users Conference, March 1. **INVITED**

Emrich, C.T. 2016. Flood 2015: Lessons Learned from the Historic Flooding of South Carolina in Oct 2015 – Panel Discussion, Columbia, South Carolina, South Carolina Arc GIS Users Conference March 1. **INVITED**

Emrich, C.T. 2015. “Stormwater Infrastructure: Key Strategies for Cross-Sector Investment & Building Resilient Communities – Panel Discussion, Columbia, South Carolina, December 14. **INVITED**

Emrich, C.T. 2015. “Novel Spatial Techniques to Assess Impacts and Recovery for Hazard Impact Areas, GAASC Fall Meeting, North Augusta, South Carolina, November 5. **INVITED**

Emrich, C.T. 2015. “Social Vulnerability and Community Disaster Resilience in the Southeast United States: Understanding Vulnerabilities to Build Resiliency, 2nd Workshop on Coastal Risk and Resilience, Ft. Lauderdale, FL GAASC Fall Meeting, North Augusta, South Carolina, October 27. **INVITED**

Emrich, C.T. 2015. “Supporting Hazard Mitigation, Planning, Response and Recovery in South Carolina.”, DHEC Midlands Regional Healthcare Coalition, Lexington, South Carolina, September 4. **INVITED**

Emrich, C.T. 2015. “10 Years Down the Long Road to Recovery from Katrina: Spatial-Statistical Representations of Recovery Along the Forgotten Coastline. Hazards Research and Applications Workshop, Broomfield, CO, July 22. **INVITED**

Emrich, C.T. 2015. “Florida Public Health Risk Assessment Tool: MedVI, CIKR, and HVDE Demonstration and Question/Answer Session, Florida Department of Health Planners Meeting, Tallahassee, Florida, June 30. **INVITED**

Emrich, C.T. 2015. “South Carolina Hurricane Evacuation Behavioral Survey: The Good, the Bad, and the Ugly for Beaufort County. Beaufort County Hurricane Planning Workshop, Beaufort, South Carolina, May 29. **INVITED**

Emrich, C.T. 2015, “Charting a Path forward for Measuring Social Vulnerability: Rethinking old ways in the light of “new” data. Association of American Geographers Annual Meeting, Chicago, Illinois, April 25.

Emrich, C.T. 2015, “Supporting Hazard Mitigation, Planning, Response and Recovery in South Carolina.” 2015 South Carolina State Hazard Mitigation Association Workshop. Myrtle Beach, South Carolina, March 12. **INVITED**

Emrich, C.T. 2015, "Tools and Technologies to Support Emergency Management." 2015 South Carolina Emergency Management Association Disaster Workshop. Myrtle Beach, South Carolina, March 4. **INVITED**

Emrich, C.T. 2015, "Metrics, Measures, and Datasets for Disaster Research: New and refreshed knowledge transfer from academia to practice." National Capital Region HAZUS User's Group Meeting, FEMA Region III, Philadelphia, PA, Feb 26, 2015. **INVITED**

Emrich, C.T. 2015, "Leveraging Long Term Recovery Analytics for a Smarter Recovery: Spatial-Statistical Representations of Recovery Along Forgotten Coastlines." SCEMD Day of Recovery Meeting, Columbia, SC, February 23. **INVITED**

Emrich, C.T. 2015, "Social Vulnerability and Community Disaster Resilience in Midwest United States: Understanding Vulnerabilities and Building Resiliency." Rockefeller Foundation National Disaster Resilience Competition Midwest Regional Academy, Chicago, Illinois, January 28-30. **INVITED**

Emrich, C.T. 2015, "Social Vulnerability and Community Disaster Resilience in the Northeast United States: Understanding Vulnerabilities and Building Resiliency." Rockefeller Foundation National Disaster Resilience Competition Northeast Regional Academy, Boston, Massachusetts, January 26-28. **INVITED**

Emrich, C.T. 2015, "Social Vulnerability and Community Disaster Resilience in Northwest United States: Understanding Vulnerabilities and Building Resiliency." Rockefeller Foundation National Disaster Resilience Competition Northwest Regional Academy, Seattle, Washington, January 20-22. **INVITED**

Emrich, C.T. 2015, "Social Vulnerability and Community Disaster Resilience in US Great Plains: Understanding Vulnerabilities and Building Resiliency." Rockefeller Foundation National Disaster Resilience Competition Great Plains Regional Academy, Kansas City, Missouri, January 13-15. **INVITED**

Emrich, C.T. 2015, "Field Data Collection Strategies for Success." SCEMD Training Day, Columbia, South Carolina, January 13-15. **INVITED**

Emrich, C.T. 2014, "Social Vulnerability and Community Disaster Resilience in the Southeast United States: Understanding Vulnerabilities and Building Resiliency." Rockefeller Foundation National Disaster Resilience Competition Southeast Resilience Academy, Atlanta, December 17-19. **INVITED**

Emrich, C.T. 2014. "Novel Spatial Techniques to Assess Recovery Trends for Hurricane Impact Zones." Disaster Communication Redesigned Workshop, Lexington. Kentucky, November 9-11.

Hames, E., Tewary, S., Stoler, J., **Emrich, C.T.** and P. Naushira. 2014. "A Spatial Analysis of Socially and Medically Vulnerable Populations of Older Adults in South Florida." The Gerontological Association of American Annual Scientific Meeting, Washington, DC, November 5-9.

Emrich, C.T. 2014, "Improving the Validity of Social Vulnerability Indicators." International Research Committee on Disasters Researchers Meeting, Broomfield, Colorado, June 26.

Emrich, C.T., W. Chen, B. L. Hummel, C. Guillard-Gonçalves, and S.L. Cutter, 2014. Validation of the Social Vulnerability Index in a Cross-National Context, IRDR Conference-Integrated Disaster Risk Science: A Tool for Sustainability, Beijing, China, June 7-9.

Cutter, S. L., **C. T. Emrich**, J. T. Mitchell, M. M. Smith, and L. Weber, 2014. Hurricane Katrina and the forgotten coast of Mississippi, IRDR Conference-Integrated Disaster Risk Science: A Tool for Sustainability, Beijing, China, June 7-9.

Emrich, C.T. 2014, "Identifying Long Term Recovery Trends for Hurricane Impact Zone: Spatial Perspectives on Rebuilding in Coastal Areas." Carolina's Climate Resilience Conference, Charlotte, North Carolina, April 28. **INVITED**

Emrich, C.T. 2014, "Improving the Validity of Social Vulnerability Indicators." Association of American Geographers Annual Meeting, Tampa, Florida, April 10.

Emrich, C.T. 2014, Panel Session: "Enhancing Safety in an Era of Global Change." Association of American Geographers Annual Meeting, Tampa, Florida, April 8. **INVITED**

Emrich, C. T., and S. L. Cutter, 2014. E2E Project: Identifying and analyzing the driving forces of hurricane recovery for disaster stricken areas to improve long-term planning. CHC-R 6th Annual Meeting, Chapel Hill, NC, January 13-14.

Emrich, C.T. 2013, "Supporting Climate Adaptation by Understanding Vulnerabilities." 2013 Public Health and Climate Change Summit: Focusing North Carolina Forward, Raleigh, North Carolina, October 29. **INVITED**

Emrich, C.T. 2013, "Understanding Social Vulnerability in an ACS World: Creating Metrics and Measures from the ACS and decennial Census." Association of Public Data Users Annual Meeting, Washington, DC, September 10. **INVITED**

Emrich, C.T. 2013, "Identifying and Exploring Long-Term Recovery Trends for Coastal Mississippi, Spatial-Statistical Representations of Recovery Along the Forgotten Coastline." Joint Statistical Meetings, Montreal, Quebec, Canada, August 5. **INVITED**

Emrich, C.T. 2013, "Supporting DMA 2000 Hazard Assessment Updates with Web-GIS – A review of available tools, technologies, and data from USC's HVRI." Greenville, SC March 11.

Emrich, C.T. 2013, "DMA 2000 Hazard Assessment Updates with Web-GIS." South Carolina Emergency Management Association Conference, Myrtle Beach, SC, March 7.

Gottlieb, R., Morath, D.P., Ash, K., Schumann, R., and **C. Emrich**. 2013. Spatial Analysis of Sampling Error in the American Community Survey. Presented at the Annual Meeting of the International Research Committee on Disasters, Broomfield, CO. July 17-18, 2013.

Schumann, R.L., Morath, D.P., Cutter, S.L., and **C.T. Emrich**. 2013. Extending the Recovery Divide: Long-Term Trends and Local Perspectives in Post-Katrina Mississippi. Presented at the Annual Meeting of the International Research Committee on Disasters, Broomfield, CO. July 17-18, 2013.

Emrich, C.T. 2012, "Integrating Social Vulnerability into Multiple Lines of Defense Mitigation for Floods." State of the Coast Conference, New Orleans, LA: June 27. **INVITED**

Emrich, C.T. 2012, "Traveling Back to the Status Quo: One Geographer's Journey Along the Road of Recovery From Disaster." Center for Disaster and Risk Analysis Colloquium Series, Ft. Collins, CO: April 20. **INVITED**

Emrich, C.T. 2012, "Findings from the South Carolina Hurricane Evacuation Behavioral Survey." South Carolina Southern and Central Conglomerate Hurricane Evacuation Study Kick-off meetings, Charleston and Beaufort, SC: January-February. **INVITED**

Emrich, C.T. 2011, "Integrated Hazards Assessment Tool (IHAT): Supporting DMA 2000 Hazard Assessment Updates with Web-GIS, FEMA Hazard Mitigation – Partners in Mitigation Workshop, Atlanta, GA: October-November. **INVITED**

Emrich, C.T. 2011, "Identifying Long-Term Recovery Trends for Coastal Mississippi: Spatial Perspectives on Rebuilding in a Post-Katrina Environment", Coastal Development Strategies Conference, Biloxi, MS: May. **INVITED**

Emrich, C.T. 2011, "Integrated Hazards Assessment Tool (IHAT)", South Carolina Emergency Management Association Coastal Workshop, Litchfield Beach, SC: March. **INVITED**

Emrich, C.T. 2011, "Enhancement of the Social Vulnerability Index (SoVI) for Assessing Coastal Risk: Concept, Background, and Measurement", NOAA Coastal GEOTOOLS Workshop, Myrtle Beach, SC: March.

Emrich, C.T. 2010, "Social Vulnerability and Climate Change Hazards in the Southeast US", American Public Health Administration Annual Meeting and Exposition, Denver, CO: November.

Emrich, C.T. 2010, "Planning for the Unexpected: Integrating Local Emergency Management Knowledge into Planning and Development Practices in South Carolina", Keynote Address to the South Carolina Chapter of the American Planning Association (SCAPA), Litchfield Beach, SC: October. **INVITED**

Emrich, C.T. 2010, "Social Vulnerability and Climate Change Hazards in the Southeast U.S." North Carolina Climate Change Adaptation Workshop, Raleigh, NC: March. **INVITED**

Emrich, C.T. 2009, "The Social Vulnerability Index (SoVI): A County-level Web-Based Measure of Community Vulnerability", 2009 Integrated Medical, Public Health, and Response Training Summit, Dallas, TX: April. **INVITED**

Emrich, C.T. 2007. "GIS and Policy in Disaster Management", 21st Annual Governor's Hurricane Conference, Fort Lauderdale, FL: May. **INVITED**

Emrich, C. 2004. "Modeling Sub-Metropolitan Area Hazard Vulnerability", Centennial Meeting of the Association of American Geographers, Philadelphia, PA: March.

Emrich, C.T. 2003. "Richland County Vulnerability Assessment", Graduate Student Day, University of South Carolina, Columbia, SC. April.

Emrich, C.T. 2003. "The Making of MUVI: Formulating Multi-level Urban Vulnerability Indices", 28th Annual Hazards Research and Applications and Information Workshop, Boulder, CO: July.

Emrich, C.T., B. J. Boruff, and S. L. Cutter. 2003. "Where Two Sides Meet: The Assessment and Analysis of Place Vulnerability for Coastal Counties of the United States", Annual Meeting of the South Carolina Academy of Science, Clemson, SC. March.

Boruff, B. J., S. L. Cutter, and **C.T.Emrich**. 2003. "Exploring Physical and Social Characteristics of U. S. Coastal Counties to Determine Vulnerability to Seal Level Rise", Florida Society of Geographers Meeting, Boca Raton, FL. February.

Emrich C.T., and S.L. Cutter. 2003. "EMS: Hazard Vulnerability Assessment Study", Richland County Council. Columbia, SC: January.

Boruff. B. J., S. L. Cutter, and **C.T. Emrich**. 2002. "Historic Assessment of the Socio- Economic Vulnerability of United States Coastal Counties", Vulnerability Assessment Techniques III Workshop, Wildey, St. Michael, Barbados. December.

Emrich, C.T. 2002. "Revealing the Vulnerability of the Columbia Metropolitan Area: An Application of the Pressure-Release Model to Populations in Richland and Lexington Counties", 27th Annual Hazards Research and Applications and Information Workshop, Boulder, CO: July.

Emrich, C.T. 2000. "Social Vulnerability and Natural Hazards: A Case Study for Hillsborough County, Florida", 23rd Annual Applied Geography Conference, Tampa, FL: October.

SERVICE

School Service

School Scholarship Committee, 2016-2017

Graduate Advising

As Chair

Wesley Seigler, MA (earned 2014)

As Committee Member

Dara Angelo, MA (earned 2012)
 Kevin Ash, Ph.D. (earned 2015)
 Bryan Bricker, MA (in process)
 Dan Goff, MA (earned 2015)
 Robert Gottlieb, MA (earned 2015)
 Brie Haupt, Ph.D. (in process)
 Cameron Horne, MA (in process)
 Julie Lam, MA (in process)
 Daniel Morath, Ph.D. (in process)
 Joanne Stevenson, MA (earned 2010)
 Rachel Reeves, MS (earned 2015)
 Megan Woods, MA (in process)

Casey Zuzak, MA (earned 2010)

Undergraduate Advising – 30-50 students per semester

College Service

COPHA CORE Committee, 2017

Professional and Agency Advisory Committees

2015 to present SC Disaster Recovery Task force Team Leader
2014 to present FEMA HAZUS Technical Team
2012 to present Disaster Response Coordinator, Our Lady of the Hills Catholic Church
2011 to present South Carolina Mass Casualty Working Group,
2010 to present National Climate Assessment, Southeast Region Technical Report Group
2010 to present National Climate Assessment Team, Technical Group
2010 to present Southeast Climate Assessment Team
1998 – 2000 Hillsborough County and Tampa Hazard Mitigation Working Group

Proposal Reviewer

Oregon Sea Grant Consortium
Social Sciences and Humanities Research Council
National Science Foundation

Manuscript Reviewer

Annals of the Association of American Geographers
Computers and Human Behavior
Disaster Risk Science
Inderscience
International Journal of Disaster Risk Reduction
Journal of Disasters
Journal of Geography
Journal of Homeland Security and Emergency Management
Landscape and Urban Planning
Natural Hazards
Natural Hazards Review
Norwegian Journal of Geography
Population and Environment
Professional Geographer
Risks Hazards and Crisis in Public Policy
Weather, Climate, and Society

Certifications

NIMS/ICS

ICS-300 Intermediate Incident Command System (2012)
ICS-100 Introduction to the Incident Command System (2005)
ICS-200 Basic Incident Command System (2005)
ICS-700 National Incident Management System (2005)
ICS-800 National Response Plan (2005)

Emergency Management

IS-393 Introduction to Hazard Mitigation (2008)
IS-244 Developing and Managing Volunteers (2006)
IS-241 Decision Making and Problem Solving (2006)
IS-242 Effective Communication (2005)
IS-240 Leadership and Influence (2005)
IS-235 Emergency Planning (2005)
IS-230 Principles of Emergency Management (2005)
IS-139 Exercise Design (2005)

Geospatial

GIS Professional Certification (2014)
Comprehensive Data Management for HAZUS-MH (2012)
Application of HAZUS-MH for Risk Assessment (2012)
Introduction to ArcGIS Server (2010)
Advanced HAZUS for Floods (2009)
Advanced HAZUS for Hurricanes (2007)
ArcSDE Administration for SQL Server (2006)
GIS Concepts (2005)
ArcGIS 9 Introduction (2005)
ArcGIS 9 Handling Data (2005)
Arc GIS 9 Making Maps (2005)
Arc GIS 9 Analysis (2005)
Introduction to Web GIS (2005)
Object-Oriented Languages and VB (2005)
ArcObjects and VBA (2005)
Introduction to ArcGIS I and II (2004)
GIS Based Modeling (2001)

Relevant Skills

Relevant Skills: Hazard identification and mitigation; vulnerability assessment; disaster preparedness response, and recovery techniques, applications, and management; Geographic Information System analysis; quantitative and qualitative methods including spatial statistics; physical geography; human geography; aerial photograph interpretation; soil classification; sediment analysis; weather forecasting; climate analysis.

Software: Microsoft Office suite of products, SQL Server, MySQL, Adobe Photoshop, ArcInfo, ArcView, ArcMap, Arc IMS, Arc Globe, ArcGIS Server, Arc SDE, Idrisi, ERDAS, BASINS, GEODA, UDIG GIS, HEC-RAS, HAZUS, RAS, Paintshop Pro, SAS, SPSS, CENTRUS geocoding software

Affiliations and Certifications

GIS Professional (GISP) 2014 – Present
Association of American Geographers, 2000 to present
AAG Hazards Specialty Group, 2005 to present

Gamma Theta Epsilon 2002 to present, University of South Carolina