**Reuben A. Heine**

Curriculum Vitae

Department of Geography

Augustana College,

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**POSITIONS HELD**:

Augustana College: Chair of the Geography Dept. September 2011 - Present

Augustana College: Associate Professor of Geography September 2011 - Present

Augustana College: Assistant Professor of Geography August 2005 – August 2011

**EDUCATION**

**Southern Illinois University Carbondale**,

Ph.D. in Environmental Resources and Policy – water resources and GIS concentrations

Dissertation Title: “Quantifying and Mapping Tributary Incision Caused by Main-Stem Missouri River Degradation”

Advisors: Drs. Nicholas Pinter and Chris Lant

August 2001 – December 2005

**Southern Illinois University Carbondale**,

M. S. in Geography

Thesis title: “Two New Automated Methods for Stream Channel Extraction using Multivariate Channel Source Approximation”

Advisor: Dr. Chris Lant

August 1999 – July 2001

**St. Cloud State University***,*

Graduate Certificate in Geographic Information Systems

Title of Capstone Research Project: “Use of GIS to Assess the Susceptibility of Ground Water to Water-Borne Contamination”

September 1998 – May 1999

**St. Cloud State University***,*

B. A. in Earth Science - hydrology concentration, Minor in Environmental Science

Senior Thesis Title: “The Effect of Urban Development on Regional Water Table”

September 1993 - May 1998

**CONTRIBUTIONS TO THE DEPARTMENT OF GEOGRAPHY:**

**Courses Taught**:

Water Resources Management (GEOG 305)

Geographic Information Systems (GEOG 373)

Landform Processes (GEOG 102)

Cartography (GEOG 272)

Research Methods (GEOG 472 and 473)

Hydroecology (IMMR 380)

**Special Interests/Expertise:**

Hydrology/Water Resources

Mississippi River: Sediment and Flooding

Fluvial Geomorphology

Geographic Information Science

Hazard Analysis (Flooding)

GIS-Based Terrain Analysis

Research Design & Spatial Statistics

**RESEARCH FUNDING AWARDED**

2011 - 2012 Augustana Research Fund. Mississippi River Sediment Size Changes, 1925 to 2011.

2006 - 2008 National Science Foundation EAR-0229578: Multivariate Geospatial Analysis of Engineering and Flood Response, Mississippi River System, USA

2004 - 2005 Southern Illinois University Competitive Dissertation Research Award

2003 - 2004 American Geophysical Union, Horton (Hydrology) Research Grant. Title of project: Human Forcing of Flood Hazard: Empirical Hydrologic Analysis of the Mississippi River.

2001 - 2003 Association of State Floodplain Managers Floodplain Management Graduate Fellowship Program. Title of project: Use of Stage Indexing and GIS to Efficiently Update Flood Inundation Maps.

**PUBLICATIONS IN REWIEW AND IN PREPREATION**

**Heine R.A.,** M. Lampo, R. Johnson, J. Remo, In Prep, Changes in Bed Sediment Gradation of the Upper Mississippi River, 1925 and 2011. Anticipated submission to River Research and Management in March, 2013.

**Heine R.A.**, C. Hawes, and A. Johnson. In Prep, Spatial and Temporal Analysis of Subaqueous Dunes in the Upper Mississippi River. Will submit to the journal: Geomorphology

**PEER-REVIEWED PUBLICATIONS**

**Heine, R. A.**, and N. Pinter, 2012, Levee effects upon flood levels: an empirical assessment. *Hydrological Processes*, Volume 26, Issue 21, Pages 3225-3240, 10.1002/hyp.8261

Nicholas Pinter, Abebe Jemberie, Jonathan Remo, **Reuben Heine**, Brian Ickes. 2010, Cumulative impacts of river engineering, Mississippi and Lower Missouri rivers, *River Research and Application,* DOI: 10.1002/rra.1269*.*

Jonathan W.F. Remo, Nicholas Pinter, **Reuben A. Heine**. 2009, The use of retro- and scenario-modeling to assess effects of 100+ years river of engineering and land-cover change on Middle and Lower Mississippi River flood stages, *Journal of Hydrology*, Volume 376, Issues 3-4, Pages 403-416, DOI: 10.1016/j.jhydrol.2009.07.049.

**Heine, R.A**., and Christopher Lant. 2009. Spatial And Temporal Patterns of Stream Channel Incision in the Loess Region of the Missouri River. *Annals of the Association of American Geographers.*  99 (2): 231-253.

Pinter, N., A. A. Jemberie, J. W. F. Remo, **R. A. Heine**, and B. S. Ickes. 2008, Flood trends and river engineering on the Mississippi River system, *Geophysical Research Letters*, 35, L23404, doi:10.1029/2008GL035987.

Remo, J., N. Pinter, **R. A. Heine**, and B. S. Ickes. 2008, New Databases Reveal 200 Years of Change on the Mississippi River System *Eos*, Vol. 89, No. 14, 1 April 2008

**Heine, R.A.** and N Pinter. 2005. Rapid Revision of Flood-Hazard Maps Using GIS and Stage-Based Flood-Frequency Analysis. *Journal of Floodplain Management*. 5(1): 17-31.

Pinter, N. and **R.A. Heine**. 2005. Hydrodynamic and Morphodynamic Response to River Engineering Documented by Fixed-Discharge Analysis, Lower Missouri River, USA. *Journal of Hydrology*. 302(1-4) 70-91.

**Heine, R.A.**, C. Lant, and R. Sengupta. 2004. Development and Comparison of Approaches for Automated Mapping of Stream Channel Networks. *Annals of the Association of American Geographers*. 94(3): 477-490.

Pinter, N., J.H. Wlosinski, and **R.A. Heine**. 2002. The Case for Utilization of Stage Data in Flood Frequency Analysis: Preliminary Results from the Middle Mississippi and Lower Missouri Rivers. *Hydrological Science and Technology*, 18(1-4): 173-185.

**OTHER PUBLICATIONS AND PRESENTATIONS**

Geedey, Kevin and **Reuben Heine**. 2012, Sylvan Slough Mussel Survey Pool 16, Upper Mississippi River, A report prepared for the Rock Island Field Office, Ecological Services of the U.S. Fish and Wildlife Service. 20 pages.

**Heine, Reuben** (invited presenter), 2012. Learning From Levees: How They Affect Water Levels. Presented at River Action’s 2012 Annual Upper Mississippi River Conference. Sept 26th – 28th, 2012 in Moline, IL.

**Heine, Reuben** and Christopher Hawes, 2011, The Impact Of Water Temperature And Discharge On The Geometry Of Subaqueous Dunes, Upper Mississippi River Pool 16. Presented at the Mississippi River Research Consortium Annual Meeting and published in the proceedings of the Mississippi River Research Consortium, Volume 43, April 28-29, 2011.

Hancock, Ryan and **Reuben Heine**. 2011, Sedimentation in Lake Potter between 1935 And 2010, Upper Mississippi River Pools 16. Presented at the Mississippi River Research Consortium Annual Meeting and published in the proceedings of the Mississippi River Research Consortium, Volume 43, April 28-29, 2011.

Johnson, Ryan and **Reuben Heine**. 2011, A Comparison of Sediment Particle-Size Distributions

Between 1925 and 2010, Upper Mississippi River Pools 18 and 24. Presented at the Mississippi River Research Consortium Annual Meeting and published in the proceedings of the Mississippi River Research Consortium, Volume 43, April 28-29, 2011.

**Heine, R.A.** and Nicholas Pinter. Levee effects upon Flood Levels: An Empirical Assessment. Presented at the Annual Meeting of the American Water Resources Association. November 1st - 4th, 2010 in Philadelphia, PA.

Beth Flynn and **R. A. Heine**, 2009. A Study of the General Public’s Perceptions and Opinions of the Pool Eight Habitat Project in Stoddard Wisconsin. Presented at the 2009 - Mississippi River Research Consortium. 30 April – 1 May 2009. Volume 41 of the Proceedings.

***W. Jarett\**** and **R.A. Heine.** A Methodological Algorithm for the Quantification and Visualization of Human-Induced Floodplain Constriction by Levees.West Lakes Annual Meeting of the Association of American Geographers. November 2007. Champaign, IL

**Heine, R.A.** and CL Lant. Spatial and Temporal Patterns of Stream Channel Incision in the Loess Region of the Missouri River. West Lakes Annual Meeting of the Association of American Geographers. November 2007. Champaign, IL

**Heine, R.A. (**Invited keynote speaker for conference).Illinois State Floodplain Managers Meeting March 2007, Springfield, IL.

**Heine, R.A.** C.L. Lant and R.R. Sengupta. 2004. Development and Comparison of Approaches for Automated Mapping of Stream Channel Networks. Presented at the 100th Association of American Geographers annual meeting. March 2004. Philadelphia, PA.

**Heine, R.A.** and N. Pinter. 2003. (Invited) A Time-Integrated Geospatial Database of 20th Century Modifications of the Mississippi River System. Presented at the annual fall meeting of the American Geophysical Union. December 2003. San Francisco, CA.

**Heine, R.A.** 2003. Development of a Regression Model for the Estimation of Stream Channel Response to Base-Level Lowering. Presented at the annual meeting of the North-Central Section of the Geologic Society America, March, 2003. St Louis, MO

**Heine, R.A.** 2003. A Raster-Based GIS Model for Base-Level Induced Channel Entrenchment and Knick Point Migration. Presented at the annual meeting of the American Institute of Hydrology. October 2003. Atlanta, GA.

**Heine, R.A.** and N. Pinter. 2002. Rapid Revision of Flood Hazard Maps Using Stage Indexing. Presented at the annual meeting of the Association of State Floodplain Managers. July 2002. Phoenix, AZ

**Heine, R.A.** and N. Pinter. 2002. Long-Term Stage Trends on the Lower Missouri River Based on an Empirical Hydrologic Analysis. Presented at the 6th Annual Missouri River Natural Resources Conference. March 2002. South Sioux City.

**Heine, R.A.** and N. Pinter. 2002. 20th Century Shifts in Hydrology and Flood Hazard on the Lower Missouri River from Specific-Gage Analysis and Stage Indexing. Presented at the Southeastern and North-Central Sections Annual Meeting of the Geologic Society of America, April 2002 Lexington, KY

**Heine, R.A.** 1999. Susceptibility of Ground Water to Water-Borne Contamination. Poster presented at the Annual St. Cloud State University Student Research Colloquium, March 1999. St Cloud, MN.

**TEACHING RELATED PUBLICATIONS**

**Heine. R.A.,** R. Sengupta, and D. Bennett. 2002. Understanding Spatial Analysis through the use of ArcView GIS software: A Lab Manual for GEOG 418

**PROFESSIONAL MEMBERSHIPS**

AAG – Association of American Geographers

CUR – Council on Undergraduate Research

AWRA -- American Water Resources Association

**AWARDS AND HONORS**

2004 John L. Jobling Memorial Fellowship. This award is given to graduate students in the department of geology for excellence in academic achievement.

2002 David G. Arey Award. This award recognizes creative problem solving in the natural resources and environmental field demonstrated in a geography master’s thesis.