

Amy C Burnicki  
Department of Geography  
University of Wisconsin-Madison  
375 Science Hall, 550 North Park Street  
Madison, WI 53706-1404  
Ph: (608) 262-3213  
Email: [burnicki@wisc.edu](mailto:burnicki@wisc.edu)  
[http:// www.geography.wisc.edu/faculty/burnicki/index.htm](http://www.geography.wisc.edu/faculty/burnicki/index.htm)

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### **Positions Held**

Assistant Professor, Department of Geography, University of Wisconsin-Madison, 2008-present  
Instructor, Department of Geography, University of Wisconsin-Madison, 2006-2008

### **Education**

Ph.D., School of Natural Resources & Environment, University of Michigan, 2008  
Dissertation: *Spatial and Temporal Patterns of Error in Land Cover Change Analyses: Identifying and Propagating Uncertainty for Ecological Monitoring and Modeling*  
Advisor: Dr. Daniel G. Brown  
M.S., Department of Statistics, The Pennsylvania State University, 2001  
Thesis: *Comparison of Absolute and Conditional Entropy Profiles*  
Advisor: Dr. Ganapati P. Patil  
B.S., Biology – Ecology Option, The Pennsylvania State University, 1998

### **Research Interests**

Research focuses on propagation of error in land-cover change analyses; Specifically investigating how uncertainties interact in remotely-derived land-cover maps to improve understanding of uncertainty associated with land-cover change estimates; Research integrates methodologies and theories from the fields of GIScience, spatial statistics, and remote sensing to investigate the impact of incorporating land-cover change uncertainty measures into models of land-use/cover change and ecosystem dynamics.

### **Professional Affiliations**

Association of American Geographers  
- Geographic Information Science & Systems, Remote Sensing, and Spatial Analysis & Modeling Specialty Groups  
American Society for Photogrammetry and Remote Sensing  
American Association for the Advancement of Science

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## **Research & Scholarly Activities**

### **Publications**

2007. Burnicki, A.C., Brown, D.G., Goovaerts, P. Simulating error propagation in land-cover change analysis: The implications of temporal dependence. *Computers, Environment and Urban Systems*, 31: 282-302.

2004. Burnicki, A. C., Patil, G.P., Taillie, C. Assessing the similarity between neighboring watersheds and evaluating the effect of watershed size on conditional entropy profiles. *Journal of the Indian Society of Agricultural Statistics*, 57: 197-207.

2002. Brown, D.G., Goovaerts, P., Burnicki, A., Li, M.Y. Stochastic simulation of land-cover change using geostatistics and generalized additive models. *Photogrammetric Engineering and Remote Sensing*, 68(10):1051-1061.

### **Papers in Conference Proceedings**

2005. Zhao, T., Brown, D.G., Bergen, K.M., Powers (Burnicki), A.C. Landscape and productivity changes in Southeastern Michigan, USA. *Proceedings, 9th International Symposium on Physical Measurements and Signature in Remote Sensing (ISPMRS)*, Beijing, China, October 2005.

2005. Powers (Burnicki), A.C. Simulating patterns of uncertainty in post-classification change-detection. *Proceedings, GeoComputation 2005*, Ann Arbor, MI, August 2005.

### **Technical Reports**

2001. Burnicki, A., Patil, G.P., Taillie, C. "Assessing the similarity between neighboring watersheds and evaluating the effect of watershed size on conditional entropy profiles in the State of Pennsylvania", Technical Report 01-0601, Center for Statistical Ecology and Environmental Statistics, Department of Statistics, Penn State University.

1999. Burnicki, A. "A comparison of two approaches used to classify watershed degradation", Technical Report 99-0801, Center for Statistical Ecology and Environmental Statistics, Department of Statistics, Penn State University.

### **Conference Presentations**

Presentation: 2008. Error Propagation in Land-Cover Change under Increasing Categorical Scale. *2008 Annual Meeting of the Association of American Geographers*, April 15-19, Boston, Massachusetts.

Presentation: 2007. Quantifying Temporal Error Patterns in Classified Multidate Imagery. *2007 Annual Meeting of the Association of American Geographers*, April 17-21, San Francisco, California.

Presentation: 2006. Developing a Model to Propagate Error in Post-Classification Change-Detection: A Simulation Approach. *GIScience 2006: Fourth International Conference on Geographic Information Science*, September 20-23, Münster, Germany.

Presentation: 2006. Developing and Testing a Model to Propagate Error in Post-Classification Change-Detection. Session GIS-SG Honors Student Paper Competition. *2006 Annual Meeting of the Association of American Geographers*, March 7-11, Chicago, IL.

Poster: 2005. Developing a Model to Propagate Error in Post-Classification Change-Detection: Examining the Impact of Temporal Dependencies on Change Accuracy. *NASA Biodiversity and Ecological Forecasting Team Meeting*, August 29-31, Washington, D.C.

Presentation: 2005. Simulating patterns of uncertainty in post-classification change detection. *Geocomputation 2005*, August 1-3, Ann Arbor, MI.

Presentation: 2005. Simulating patterns of uncertainty in post-classification change detection. Session Errors are Everywhere; session chair. *2005 Annual Meeting of the Association of American Geographers*, April 5-9, Denver, CO.

Presentation: 2004. Patterns of uncertainty in land-cover change analyses. Session Remote Sensing of Land Cover: Mapping, Change Detection and Evaluation Techniques. *2004 Annual Meeting of the Association of American Geographers*, March 14-19, Philadelphia, PA.

Poster: 2002. Developing land-cover scenarios in metropolitan and non-metropolitan Michigan, USA: A stochastic simulation approach, with Dr. Daniel G. Brown. *Annual NASA LCLUC Science Team Meeting*, November 20-22, University of Maryland.

### **Current Extramural Grants**

“Agents of Change in Agriculture and Environment: Land-User Interactions and Spatial Externalities in Organic Farming (Upper Midwest, USA) and Agrobiodiversity Production (Bolivia)” co-PI with K. Zimmerer and others, NSF Human Social Dynamics, 2008-2011, \$713,839.

### **Fellowships**

NASA Graduate Student Fellowship in Earth System Science, September 2003,  
Renewed – September 2004, September 2005

### **Awards & Honors**

2<sup>nd</sup> place, 2006 Association of American Geographers GIS-SG Honors Student Paper Competition  
Wheeler Family Memorial Scholarship, University of Michigan, September 2001  
National Science Foundation Research Experience for Undergraduates Grant, The Pennsylvania State University, Summer 1998

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## **Teaching Experience**

### **Courses Taught**

Instructor, Department of Geography, University of Wisconsin – Madison

Modeling Land-Cover Change (GEOG 676)

20 students; 3 semester credits (lecture & lab)

Land-Cover and Land-Use Change (GEOG 675)

20 students; 3 semester credits (lecture)

Map Reading & Interpretation (Our Digital Globe: An Overview of GIScience) (GEOG 170)

200 students; 3 semester credits (lecture)

Seminar in Geographic Information Science (GEOG 970)

Topic: Spatial Decision-Making under Uncertainty

10 students; 2-3 semester credits (lecture)

Instructor, Department of Statistics, The Pennsylvania State University

Statistical Concepts & Reasoning (STAT 100)

20-30 students; 3 semester credits (lecture)

### **M.A./M.S. Theses Directed**

Benjamin Coakley, expected 2008. Topic: Investigating pattern of error in soil map for Dane County, Wisconsin

### **Graduate Committees (not advisor)**

<i>M.A./M.S.</i>	<i>Ph.D.</i>	<i>Ph.D. Current</i>
2007. Robert Roth	2007. Robert A. Rose	Jian Liu (Geography)
2007. Andrew Woodruff	2007. Joy Fritschle	Alexander Prishchepov (Forest Ecology)
2008. Jing Gao	2008. Rongxun Wang	
2008. Zachary Johnson		

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### **Academic Service**

#### **National Organizations**

Manuscript Reviewer

*International Journal of Geographic Information Science, Photogrammetric Engineering & Remote Sensing, Landscape Ecology, Computers, Environment and Urban Systems*

#### **University and Department**

University of Wisconsin – Madison, Department of Geography Committees:

2007-present	Undergraduate Advisor – Cartography/GIS
2006-present	Undergraduate Affairs & Curriculum Development
2006-2007	Graduate Affairs & Research

University of Michigan, School of Natural Resources & Environment Committees:

2005-2006	Member, Ph.D. Committee, School of Natural Resources & Environment, University of Michigan
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