

### Faculty Spotlight: Dr. Tom Evans



**Professor Tom Evans** has been on sabbatical during the 2014-2015 academic year. The change in responsibilities has afforded him the opportunity to reduce his extensive administrative and teaching responsibilities while also taking him to multiple countries and continents over the past few months as he wraps up several existing research projects and explores new efforts. In addition to the sabbatical, he also moved on from

his role as co-director of the Ostrom Workshop on Political Science and Policy Analysis after the Workshop hired its first full-time director in the fall of 2014. He still maintains responsibilities as the Director of the Center for the Study of Institutions, Population, and Environmental Change (CIPEC).

During this past summer, Dr. Evans traveled to Kenya to set up a new National Science Foundation (NSF) project focusing on the Impacts of Agricultural Decision Making and Adaptive Management on Food Security. Dr. Evans is collaborating with IU Professors Beth Plale (Informatics) and Shahzeen Attari (School of Public and Environmental Affairs) on the project. The research will focus on intra-seasonal decision making and mid-growing season adaptive capacity of farmers in both Kenya and Zambia. The work builds on previous research in Kenya around water governance, which Geography doctoral student Paul McCord has contributed to extensively, and spatial resilience and labor sharing in Zambia. During his visit to Kenya, Dr. Evans conducted a workshop with former IU Geography Professor Kelly Caylor, now at Princeton University, as part of efforts to wrap up existing food security research.

Dr. Evans also travelled to Japan last semester where he spent two months as a visiting fellow at the Research Institute for Humanity and Nature in Kyoto. While there, he focused on bridging theoretical, methodological, and geographical differences between land change science and sociohydrological approaches, both of which contribute importantly to research on the human dimensions of global environmental change. Despite the key connections between land and water systems studied by scientists in both fields, better integration of these different scholarly approaches would be valuable in getting scientists to work together more effectively. Dr. Evans is exploring the gaps and potential opportunities to build connections between these scholarly communities.

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## Faculty Spotlight, continued:

In addition to keeping busy with his new NSF research and contributing to his research communities, Dr. Evans is also collaborating with two other IU colleagues, Rich Philips (Biology) and Josh Fisher (Jet Propulsion Labs) on Eastern and Midwestern U.S. temperate, deciduous forests. Two projects are exploring how to model the belowground components of forest ecosystem carbon cycles. The goal of the research is to help improve future climate modeling by enhancing an understanding of carbon sequestration capacity of forests. A project in the works is a proposal to the

Climate Change, Agriculture, and Food Security research program with the Consortium of International Agricultural Research Centers (CGIAR) on the role of local, regional, and national governance and food security. The focus of the research would be to understand what governance arrangements facilitate successful food security outcomes, especially in developing countries. Dr. Evans is hoping to explore more research that looks at the interactions between water-food-energy, governance, and decision making this spring.



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**Dr. Karsten Shein** (MA 1996) is an applied climatologist at NOAA's National Climatic Data Center in Asheville, NC. His professional career began when a departmental happy hour at Kilroy's turned into an offer by a visiting professor to research wind energy in England at the University of East Anglia's Climatic Research Unit. Karsten subsequently returned to the U.S. to work for NASA and pursue his Ph.D. (also in Geography). He became an assistant professor of Geography at Shippensburg University of Pennsylvania before joining NOAA in 2005.

At NOAA, Karsten has worn many hats, including leading efforts to improve the quality of climatological data, heading a U.S. delegation to negotiate an environmental data and research exchange with Russia, serving as lead editor of an international climate report, and guiding national policy on climate and ecosystem resilience. But his passion is in applied climate research. Karsten's graduate work covered wind energy, but his love of scuba diving and marine conservation has focused his efforts of the past decade on understanding and addressing the impacts of climate variability and extremes on marine ecosystems. He was recently named to the science advisory board of the Central Caribbean Marine Institute in the Cayman Islands, where he contributes climatological expertise to the Institute's coral reef research. This summer, Shein will be a mentor to the Institute's NSF Research Experience for Undergraduates program (which last year hosted an IU student – hint hint). "Geography is a discipline that has literally given me a world of opportunity," says Karsten.

## Undergraduate Student Spotlight: Chris Meulbroek

**Chris Meulbroek** is a sophomore at Indiana University - Bloomington and in less than two years has established himself well within the department. Chris is in his fifth geography course and was recognized for his quality work with the Thomas F. Barton Award for performance in G107 Physical Geography. Chris is using departments across campus to understand how cities work and prepare for graduate studies in urban planning and development. While he admits its early, he says the long-term goal would be to then work toward a career in a geography department.

"I decided that geography would offer an insight into how cities function, and the background behind the spatial problems and issues facing the newly globalized built environment," he said. Chris's desire to major in geography stems from his passion for cities and urban planning and a life-long interest in geography. "I have consistently maintained a strong interest in geography since childhood, and spend much free time browsing satellite data of different locations on Earth and creating maps," Chris said.

Chris said his geography studies are reframing his thinking. "I find myself thinking spatially and economically about human behavior for much of my time... " he said. "I've also gained a consciousness for the spatial patterns of cities and populated places, and have seen them in my own travels. In my personal life, I believe geography has particularly fostered environmental and social awareness, which are beginning to reflect in my own consumption, patronage and behavioral choices."

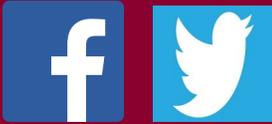
In addition to challenging himself academically, Chris holds two jobs, including working as an undergraduate intern for the Economics Department, where he serves as an assistant for Professor Paul Graf's Introductory Macroeconomics class. He also writes for the Kelley Emerging Markets Journal in their biannual periodical; his short articles focus on developing economies in the Global South. To put his planning passion to work, he attends Office of Sustainability events, particularly Sustainable Transportation meetings.

## Graduate Student Spotlight: Matt Wenzel

**Matt Wenzel** is a native Hoosier from South Bend who completed his Bachelor's Degree in 2013 in Environmental Science from the School of Public and Environmental Affairs (SPEA) at Indiana University. Matt also conducted his final project, "Copper and Zinc Phytoremediation by Native Herbaceous and Grass Species Colonized on Remediated Soils at the Bullion Mine, Montana" under the direction of Dr. Erika Elswick of the IU Geology Department. After completing his undergraduate degree, Matt remained in Bloomington working as a lab assistant, eventually assisting Dr. Justin Maxwell in IU Geography. Working in the field with Dr. Maxwell in old growth forests sprinkled across southern Indiana sparked my interest in tree-ring research.

After volunteering to assist Dr. Maxwell in collecting tree-ring samples, I became captivated with the fieldwork required for dendrochronology. Walking through an old forest with experts like Dr. Maxwell and his invited guest speaker Dr. Neil Pederson (currently at Harvard Forest) was a mind-opening experience for me. They could read signs of tree competition or find the oldest patch of trees before even taking a sample; it was as if the trees were talking to them! After collecting ring samples, these tree whisperers could then reveal year-specific historic temperature and precipitation data recorded in tree-ring widths. While working with Dr. Maxwell, I realized my undergraduate project could be extended to look at the temporal effects of pollution with tree-ring research. I could help decode a different message recorded by trees: a site specific pollution history recorded in tree-ring chemical compositions. While my undergraduate work focused on present soil contamination, my Master's Thesis will focus on historic changes in soil chemistry. I joined the IU Geography department in Jan. 2014 and entered the IU Environmental Tree-ring Laboratory (IU ENT) headed by Dr. Maxwell in preparation for my graduate research in dendrochemistry. My research will explore how changes in soil composition are recorded in tree-rings. A chemical analysis of dated tree-rings can give insight into historic changes in soil pH (related to tree sap pH) and heavy-metal contamination events. Combining pollution histories of multiple trees and mapping these tree locations can reveal pollution plume migration or effects of soil acidification on the forest environment. My research will look into the spatiotemporal effects of historic iron production emissions on the forest ecosystem in central Pennsylvania in the late 19<sup>th</sup> century. This project will compare multiple tree species' abilities in recording pollution events, and examine spatial patterns of contamination within the forest environment.

Working in the field has been the highlight of my graduate research. I have hiked many old forests hidden in Indiana, Michigan, Pennsylvania, and Mississippi. I have also collected tree-ring samples from a haunted house in Mississippi. Currently Matt is a master's student in Indiana University Dept. of Geography, where he was awarded the John Odland Graduate Research Grant in 2014 and is preparing for a chemical analysis of tree-ring samples obtained from central Pennsylvania under the direction of Dr. Justin Maxwell. He is also an Associate Instructor for the IU Geography Department, and has assisted in instructing Environmental Geography, Intro to Physical Geography, and Weather & Climate.



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## Chair's Letter

Welcome to the Spring 2015 newsletter!

It has been a relatively mild winter here so far. It is in the mid-40s today and sunny and the hope of spring is in the air. There is much hope in the department as well. I am happy to report that enrollments are up, our graduate students and faculty are doing great things and, re-invigorated by our recent faculty hires, there is a renewed sense of activity and

purpose within the department. Evidence of that renewed vigor is ample in the numerous grants and publications of the faculty and graduate students, in the awards received by our faculty, graduate students, and students, and in the excellent teaching evaluations our faculty and graduate students receive from their students.

But perhaps most telling of the vigor of the department is the daily reminders I have of how

fortunate I am to be surrounded by those both near and far who are willing to pull together to make this department an even better place than it is now.

Best wishes,  
Dan