Graduate Student Forum

Thursday, Nov. 15

12:00 – 2:00 PM

Derby Hall

GEO WEEK 2018
Graduate Student Forum

Oral Presentations   **Derby Hall 1039**

12:00 PM   **Arianna Hall-Reinhard, PhD student, Environment & Society**
Squeezed Between the Gunshots and the Gentrifiers: Urban Agriculture in Philadelphia's Kensington Neighborhood

Abstract: This paper employs a food justice and urban political ecology framework to consider how gentrification and funding sources affect urban agriculture (UA) projects in Philadelphia's Kensington neighborhood. Kensington exhibits both deeply entrenched poverty and rapidly accelerating gentrification, making it a uniquely compelling neighborhood in which to study UA projects and their relationships to gentrification and funding. To this end, qualitative interviews were conducted with UA project managers, volunteers, and supportive staff associated with five UA sites in Kensington. Several patterns have emerged through this case study comparison, including how funding structures (grassroots, nonprofit, or for-profit) influence the formation and persistence of UA projects, the differential outcomes of gentrification pressures on UA projects, and the how UA projects' organizational structures and guiding principles determine the existence and/or realization of food justice goals within the project.

12:20 PM   **Emily Sambuco, MA student, Atmospheric & Climatic Studies**
A Decade Observing Vertical Temperature in Great Basin National Park Using an Embedded Sensor Network

Abstract: Great Basin National Park (GBNP), located within the Snake Mountain Range in eastern Nevada, is home to rugged topography, several desert environments, and many local water resources. The park's radical verticality creates and sustains local microclimates and ecological environments in unusual ways. Desert scrubs rapidly give way to alpine forests in response to increasing elevation. The alpine environments of GBNP form biogeographical islands and serve as refugia to many endemic species. The park's unique hydrologic features, such as the remnants of Nevada's only mapped glacier, may also contain critical water resources that are not yet fully understood. This research explores the local microclimates of GBNP using a high-resolution Embedded Sensor Network (ESN). This network, put in place in 2006 by researchers from The Ohio State University, provides long-term, high-resolution weather data of GBNP. The ESN is comprised of Lascar weather sensors that take hourly recordings of temperature, dew point and relative humidity. In total, 29 sensors span multiple topographic and hydrological locations within the park. Sensors are located at elevations up to 4,000 meters, run along a ridgeline spanning a gradient of 2,000 meters, follow along two watersheds, and encompass numerous ecological environments. Using temperature data from 2007 to 2017, preliminary results reveal a summertime ground lapse rate of 7 °C per km in GBNP, a half-degree stronger than the commonly accepted alpine ground lapse rate of 6.5 °C per km. Results also indicate that summertime low temperatures have increased over the last 12 years. This study uses over a decade of *in situ* weather observations to explore the influences of local topography and hydrology on microclimates and to determine climate controls over complex terrain. Ultimately, the ESN should reveal effects of climate change in desert alpine environments.

12:40 PM   **Blake Acton, MA student, Urban, Regional & Global Studies**
The Role of Barriers, Narrative, and the Ridership Game in the Successful Implementation of a Streetcar: A Case Study of Kansas City and Cincinnati

Abstract: For half a century the streetcar has been largely absent from the American urban landscape. This began to change since their reintroduction in Portland in 2001, and the American streetcar has been making a comeback ever since. With new systems appearing throughout the county some cities have had considerably more success than others. However, due to the recent nature of this phenomenon research on modern streetcars is lacking. This paper fills a gap in modern streetcar research by investigating the process of streetcar implementation. More specifically, what are the factors and decisions that contribute to a system's 'success' or 'failure'. These ideas are explored through a case study which compares the new streetcar systems of Kansas City and Cincinnati. Our analysis utilizes a wide variety of data sources to piece together the stories of each system and to discover what separates a successful system from a struggling one.

1:00 PM   **Ariel Rawson, PhD student, Environment & Society**
Depression-Microbe Connections and Dysbiotic Imaginaries

Abstract: This paper examines how researchers are rethinking depression in terms of the microbiome and gut-brain axis, often expressed as a state of dysbiosis. Beyond clinically diagnosed populations, researchers drawing on the microbe also take up depression as proxy for socioenvironmental measures of health and disease from the human to the planet. These research agendas dissolve and remake regimented divisions between human-nature and the biological-geological in the name of both crisis and promise. In turn, microbe-depression connections become a key cross- disciplinary site for both imaginaries of concern that figure vulnerability as both presence of pathology and absence of resilience and for imaginaries of celebration that hold new promise for resilient futures. Through tracing both the good and bad microbe in the context of depression, I argue, this doubling emerges at the same time as what counts as the self, the organism, the species, and life itself are in crisis.

1:20 PM   **Megan Lindstrom, PhD student, GIS & Spatial Analysis**
Network Analysis of Intra-Hospital Transfers and Hospital-Onset Clostridium Difficile Infection

Abstract: While social network analysis (SNA) is typically used to examine social ties and interactions between individuals, it can also be used to examine how people connect places through movement. Here we demonstrate how intra-hospital patient transfer networks can be used to identify locations within the hospital central to the spread of hospital onset Clostridium difficile (HO-CDI) infection. We conducted a retrospective case-control study using electronic health records of 2,008 individuals matched on age, antibiotic usage, and admittance department. We retrieved locational data for the patients showing all rooms they moved to during their hospital stay, which was then translated into a network with SNA software. Overall metrics were calculated for the SNA and results were visualized in a Geographic Information System (GIS). The SNA analysis comparing cases to controls indicated significant differences in the overall structure of the networks. We also identified 'high-risk rooms' which were key to the intra- hospital transfer of HO-CDI. The GIS visual representation of these metrics showed significant spatial variation across an example hospital floor. Results suggest that intra-hospital patient networks play an important role in the transmission of HOIs, highlighting opportunities for patient safety interventions utilizing these data

1:40 PM   **Sohyun Park, PhD student, Environment & Society**
Halfcircle: An R Package for Visualizing Bidirectional Flows

Abstract: There are increasing interests in visualizing flows to understand the movement of populations and commodities, spatial interactions, and diffusion. The research introduces a newly published R package called halfcircle. To create a halfcircle diagram, first, nodes are projected as a set of evenly spaced dots on a straight line in the center of a circle according to a certain order based on such criteria as geography, socioeconomic characteristics, and population rank. Second, flow between two nodes is represented using a half circle drawn from the origin to the destination in a clockwise direction. By comparing the halfcircle diagram with the existing visualization techniques using the same data, I argue that the method enables users to indicate direction, to compare multiple sets of flows, and to examine the relationship of flows with potential drivers in a more effective way.

Poster Presentations   Derby Hall Lobby

1:00 – 2:00 PM   **Claire Jones, MA student, GIS & Spatial Analysis**
Housing Intervention & Child Healthcare Utilization

12:00 – 1:30 PM   **Zachary Leasor, PhD student, Atmospheric & Climatic Studies**
Improvements in Monthly Temperature Forecasts Utilizing Antecedent Soil Moisture: A Comparison of Observational and Modeled Soil Moisture Products

1:00 – 2:00 PM   **Zhiying Li, PhD student, Atmospheric & Climatic Studies**
Multiple Linear Regression for Short-term Load Forecasting

12:00 – 1:00 PM   **Jiayong Liang, PhD student, GIS & Spatial Analysis**
Estimating Daily Surface Water Fraction by Using Regression Tree and MODIS Derived Water Indices

1:15 – 2:00 PM   **Jordan Pino, PhD student, Atmospheric & Climatic Studies**
A High Resolution Tropical Cyclone Power Outage Forecasting Model for the Continental United States

1:00 – 2:00 PM   **Ning Zhang, PhD student, Geography**
Study on Standardization of Soil Moisture Measurements from Multiple Sensors Using theMarena, Oklahoma, In Situ Sensor Testbed (MOISST)