

# **2010 SEDAAG PAPER ABSTRACTS**

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Southeastern Division of the  
Association of American  
Geographers**

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**Birmingham, Alabama**

## Remapping African American Mobility during the Montgomery Bus Boycott: Toward a Critical Pedagogy of the Civil Rights Movement

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Public memory of the Montgomery Bus Boycott (1955-56) tends to be dominated by discussions of Martin Luther King Jr. and Rosa Parks, ignoring the larger community of activism that was at work before and during the 381 day boycott. Revisiting this seminal battle, I suggest how the Boycott can be used to teach about the spatial and political agency of ordinary African Americans as they sought to protest and overcome segregation. Conceived here as a form of “everyday transportation activism,” the Montgomery Bus Boycott was a site where African Americans remapped, literally and figuratively, the politics of their mobility. By refusing to ride buses on a daily basis, boycotters carried out a bodily contestation of the racist ways in which African American mobility had been devalued and constrained under Jim Crow segregation. But their activism was not limited to refusing to ride city buses. African Americans also organized and supported their own transportation networks that relied upon walking, private taxis, a large volunteer car pool system, and even a church-run transit system. By constructing and participating in these resistant forms of mobility in Montgomery, boycotters not only provided themselves a means of travel but also exercised self-determination and challenged the white power structure. The seemingly mundane act of traveling in alternative ways took on political value and symbolic meaning not always captured in discussions of the Movement’s prominent leaders and dramatic events. As illustrated in the case of Montgomery, mobility and transportation, rather than simply a matter of flows and infrastructure, are important sites of racial politics and invariably linked to a discussion of rights, citizenship, and freedom. A critical pedagogy of the Civil Rights Movement seeks to cultivate among students “historical empathy,” a sense of what the black freedom movement meant to those who fought to carry it and how the struggle for civil rights was an everyday activity that involved ordinary people doing extraordinary things.

## Same Place, Separate Spaces: The Bransford Hotel at Mammoth Cave

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This paper presents a case study of a Jim Crow-era hotel owned by and run for African Americans in the rural South, relating what is known of its proprietors and placing its history within a larger historical and institutional context. The Bransford Hotel made it significantly easier for African Americans to travel through central Kentucky and to visit the world-famous Mammoth Cave. As long as Mammoth Cave was privately owned, other tourism enterprises, including the Mammoth Cave Estate, the L&N Railroad, and a Louisville tourist agent, while not sharing identical ends, engendered enough cooperation for the Bransford Hotel to thrive. The Bransfords' success came through carving out a separate space for African American tourists within the white-dominated tourist destination. When the federal government took over Mammoth Cave and surrounding land to create a national park, it displaced residents and shuttered numerous small businesses, the Bransford's included. Ironically, federal oversight set back the cause of equal access to tourism facilities as the National Park Service maintained an official policy of segregation until the early 1940s.

## Southern Migration Flow at the Turn of the 21<sup>st</sup> Century: Urban-Rural Differences

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The south, for more than a century, has exchanged populations with the other regions in the country. From the early 20th century to the 1960s, the south experienced an outflow of residents, especially among black populations in rural settings. This was followed by a counter-flow of residents to the south that has continued throughout the 20th century. As a result, the south has experienced higher population growth than any other region. In this paper, we specifically examine rural-urban migration flow from the south to other regions of the nation and the counter-flow of population back to the south. We examine internal migration between rural and urban areas in the south. We also estimate models to examine how local differences in socioeconomic characteristics influence county-to-county total net migration in the south. We use yearly data compiled by the Internal Revenue Service (IRS) and the U.S. Census Bureau from 2000-2008.

EXPLORING THE ECOLOGICAL FOOTPRINT OF THE  
AVERAGE AMERICAN STUDENT: A CASE  
STUDY APPROACH

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Ecological footprint is used to estimate how much of nature's productivity is required to maintain a given lifestyle. As the University of Alabama is in the preliminary stages of moving towards a green campus, this study sought to explore the ecological footprint of student to serve as a benchmark from which the implementation of green strategies may be evaluated in terms of effectiveness. Two student dormitories were randomly selected for the study. The results include the estimation of land area required to maintain the water and energy consumption levels in both dormitories. The paper concludes with a discussion of policy implications of the results.

# Assessment of GIS Methods for Mapping Perceptions of Forested Landscapes in Western North Carolina

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**Abstract:** The Wilson Creek River Corridor is a popular destination for numerous land and water-based recreation activities in western North Carolina. Currently, the USFS is responsible for Wilson Creek’s river management plan. While the plan aims to provide direction for forest and recreation management, there are no identified methods to create maps of landscape values from affected local and regional communities. Previous studies have provided participants the opportunity to annotate maps provided in surveys with a point and qualitative landscape value, such as aesthetic, biological, or spiritual. Analysis of survey responses allows creation of “hot spot” maps indicating relative density of mapped landscape values in aggregate as well as by stakeholder subgroup. This study compares and tests stakeholder landscape value mapping methodologies for reliability and replicability. Survey responses are scanned and georeferenced to enable visualization and analysis with ESRI’s ArcGIS platform. These surfaces are then used to identify hotspots of specific landscape values and areas of potential conflict. A pilot GoogleEarth application to gather and map this data via the web is also assessed. Results suggest this is an effective approach to collecting landscape values for analysis in support of environmental planning.

Posted, Redux: campaign signs, race, and political participation in Mississippi, 2008

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Seeing the domestic campaign sign as a cultural landscape element offers the opportunity to examine geographical patterns of political participation and assess the social and cultural processes affecting these patterns. Examining the geographical patterns of campaign sign postings in a town in Mississippi and comparing them to demographic information and electoral results illustrate that political participation was affected along racial lines in the 2008 election. Comparing 2008 to 2004 shows the nature of these affects: black citizens saw increased participation rates, white citizens saw decreased participation rates, and the entire study area saw a move toward Democratic support. However, part of this move may have been the result of decreased participation among conservative white voters. Campaign signs do appear to have a relationship with other forms of political participation, namely voting, and also appear to be useful proxy data for potential electoral results. Race remains a significant social and political issue in the United States though participation rates among different social groups may be evening out.

## Contemporary Themes in the Geography of Music and Sound.

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Asked to write a review of contemporary themes in the geography of music and sound, we examined about 150 papers presented on the subject at the 2000 through 2010 annual meetings of the Association of American Geographers. Traditional descriptive concerns about musical artists and genres accounted for about 25 percent of the total. These papers often focused on the various subgenres into which modern music has fractionated. The way that music is experienced by the audiences and artists in live performance is a relatively new and often theoretically informed area of research accounting for about 19 percent of the total papers. Another important research thread examines music as a culture industry in the digital age (13 percent of the papers). Examples of research in this vein include the spatial and economic impact of file sharing technologies and the decreasing costs of producing musical compositions independent of the major studio system. Digital innovations were forecast to disperse musical production widely, but traditional centers remained stubbornly ensconced until the 1990s. Concern has widened from music to sound in general representing six percent of the papers. Sonic landscapes are not always pleasant, but geographers have concentrated on studies of ambient sound as a backdrop of our lives. The ways in which music can reinforce or create a national or regional identity or serve as a form of political protest are still the favorite topic of music geography researchers (31 percent of the papers). Of course, in reviewing a decade of research efforts we also encountered some rather unique inquiries such as two that focused on yodeling.

## Urban Sprawl and Air Quality by U.S. Metropolitan Area

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Less than three percent of the Earth's land surface is urban, yet cities produce 78 percent of anthropogenic carbon emissions and substantial quantities of airborne toxins and pollutants. The objective of this study is to provide a more complete understanding of how the spatial patterns of urban landscapes affect air quality at the metropolitan scale. The low-density, scattered development patterns associated with "urban sprawl" are expected to increase the per capita emission of air pollutants, primarily by influencing transportation habits and building efficiencies. This investigation seeks to measure and assess these relationships by associating five urban sprawl indices with the Air Quality Index (AQI), and the emissions and ambient concentrations of ozone ( $O_3$ ), particulate matter ( $PM_{10}$ ,  $PM_{2.5}$ ), and  $CO_2$  for 50 of the most populous metropolitan areas in the U.S. Preliminary results indicate that 1) urban sprawl is significantly and positively related to levels of air pollution, and 2) urban sprawl indices that incorporate multiple measures of urban form are more significantly related to levels of air pollution, suggesting that urban sprawl is a complex spatial phenomena that can affect air quality through multiple pathways.

## Nature and Its Human Discontents

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Efforts to establish long-lasting environmental policy are often confounded by the disagreements among adherents of three competing perspectives on the nature of human-nature interaction. I offer an argument based on the psychotherapeutic framework of transactional analysis to support seeing the complex relationship humans have with nature in a manner pointing away from current, unsustainable oppositional politics.

## The Border and Conflict in Hispaniola

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The history of Hispaniola has led to the association of the Dominican-Haitian border with a feeling of conflict, for many in the Dominican Republic. This paper examines the historical occurrences which have led to these associations, as well as how current sentiments held by Dominicans in the town of Pedernales reflect influence from these past events. Through empirical data, this paper examines the feelings of conflict expressed by Pedernalenses with regards to their proximity to Haiti and quotidian exchanges with Haitians. These beliefs are influenced in large part by the results of the Haitian Revolution as well as the political rhetoric and practices by Dominican dictator Rafael Leonidas Trujillo Molina. This paper posits that the border is viewed as a space of conflict by Pedernalenses for two reasons: the historic incursion of Haitian troops into Dominican space in lieu of the Haitian Revolution, and an attempt by Trujillo to portray the border as an area of immediate threat to Dominican national safety.

## Can Community Gardens Help Radically Shape The Food System?

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Despite efforts on every scale to combat hunger, the number of hungry people in the world has actually increased and the United States is no exception. With hopes of addressing this paradox, in February 2008 I became the Garden Coordinator for Common Ground, a progressive resource center near downtown Athens, GA. During the course of the project, I found that while we may not have directly fed hungry people in the local area, growing food was still a radical activity in theory because it aligned with anarchist thought. However, the actual events that occurred in the community garden paint a somewhat different picture that has implications for the construction of any radical food project. Using the story of the Common Ground Community Garden, I hope to illuminate the numerous problems that organizers and participants must often confront in progressive social action, such as the liberal-radical divide in leftist politics. I then look at how the Common Ground Community Garden can help other organizers and activists to better construct radical food initiatives by focusing on a number of key questions regarding the objective and operation of the project.

## Experiential Learning in the Field: Short-Term Study Abroad Programs

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Over the last decade, I have developed and offered eight week-long study abroad trips to Costa Rica (2000-01, 2004, 2006-08), Belize (2005), and Guatemala (2010). Each of these has been a reasonably-priced alternative for students unable either to afford semester-long programs or to be away from their home institution for an entire semester. While the time is short, a great deal of learning both through site visits and guest speakers are woven into the program. An unscientific survey reveals that these are highly valued experiences for undergraduates, both reinforcing what they have learned in the classroom as well as providing direct experience in issues related to sustainable development, ecotourism, agroecology, and the survival of Maya communities in the aftermath of Guatemala's civil war. This presentation focuses on the three different trips that I have directed and the opportunities that such trips have created for students.

## Locational Aspects of Adaptive Reuse: The Case of North Carolina's Textile Mills

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This research examines the adaptive reuse of historic textile mills in North Carolina. The decline of the textile industry, which employed over 250,000 North Carolinians at its peak, has left scores of mills abandoned on the state's landscape. Many of these abandoned mills possess value that derives from a combination of their architectural splendor, their cultural significance, and their ability to reduce environmental impacts when creatively reused. Historic textile mills within North Carolina are inventoried. This inventory includes the precise location of 611 historic mills, their current uses, and a host of factors that might affect the probability of reuse. Reused mills are statistically contrasted against abandoned mills using logistic regression and key situational factors that could affect investment decisions. The model is then used to guide selection of abandoned mills that are good candidates for reuse, and five candidates are found to have considerable reuse potential. The approach developed here is transferable in terms of geography (other states) and sectors (other industries such as tobacco). This research is devoted to preserving the value of historic mills through their adaptive reuse. The inventory assembled and the modeling applied should prove useful in assisting with that goal.

## Geomorphology of the Weeki Wachee Spring Run

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Weeki Wachee Springs is a well-known tourist attraction in the state of Florida. The springs are most famous for their swimming mermaid shows given to audiences behind a glass screen. However, the spring is most notable for its geologic significance as a first magnitude spring that emerges from a very long cave system. After a brief historical description of the spring, this paper focuses on its geomorphic setting and on the nature of unique sinkholes that occur within or near the spring run. A sediment column is presented that was collected by divers in one of the sinkholes, Hospital Hole. The column represents over 1 meter of recent sedimentation that consists of alternating deposits of sand and organic matter of variable thicknesses.  $^{210}\text{Pb}$  analysis suggests that there is rapid sedimentation in the sinkhole. It is likely that some of the sediment is being transported into the subsurface.

Indians are the Rulers on the Holiday: The Mardi Gras Indians and Freedom of Movement in  
New Orleans

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This paper deals with the Mardi Gras Indians of New Orleans—groups of African American men who “mask” as American Indians—and their ongoing conflict with the New Orleans Police Department. The Mardi Gras Indian culture is more the 100 years old and involves “tribes” of men moving through the streets of New Orleans on Mardi Gras, St. Joseph’s Night, and “Super Sunday.” In recent years, New Orleans police officers have attempted to restrict Mardi Gras Indians from occupying the streets of the city. The Mardi Indian culture has always been a public culture, and one that gains much of its identity through its presence in, and use of, the public spaces of the city. Through its restrictive actions, the New Orleans Police Department has threatened the central meaning of the Mardi Gras Indian culture. This paper explores the different ways that the two groups experience and view the same public spaces, and how a dialogue between the two groups can lead to better cultural understandings, and hopefully, the continued presence of the Mardi Gras Indians in the public spaces of New Orleans.

An analysis of intra-tree radial growth discrepancies throughout the range of *Quercus alba*

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Forest disturbance history reconstructions that rely on the analysis of a single tree-ring series per individual can result in an underrepresentation of radial growth releases and of canopy disturbances. We analyzed paired tree-ring series from 879 *Quercus alba* individuals representing 44 radial growth chronologies to quantify discrepant patterns of intra-tree release frequency, magnitude, and initiation years. We also developed a range-wide model for *Q. alba* that accounts for this underrepresentation of dendroecological growth releases. Of the 879 trees analyzed, 209 (24%) exhibited radial growth release episodes. Only 10 (5%) of these 209 trees recorded the same canopy disturbance events in both series. We found that through an analysis of a single growth-ring series per tree a minimum of 35 release events and a maximum of 235 release events could be detected from the trees in the dataset. Of the total number of release events, 242 (89%) occurred only in one of the paired tree-ring series. Release initiation lags were recorded in only 28% of the 18 co-occurring releases. We determined that a multiplicative factor of 1.74 could be used to discover the maximum number of growth release events that would have been detected if two growth-series per tree were analyzed.

## The 2007-09 Drought in Athens, GA: A Climatological Assessment

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During 2007-09 an extreme drought event occurred in the Athens, Georgia region (Clarke, Barrow, Oconee, Jackson counties) that, in conjunction with widespread drought across north Georgia, led to declaration of a state of emergency by Georgia Gov. Sonny Perdue. An examination of Palmer drought indices reveals that drought conditions during this period were not unprecedented. In terms of intensity, the 2007-09 drought was similar to or less severe than droughts during 1925-27, 1954-56 and 1985-87. A drought of similar duration would be expected to occur approximately every 25 years. Analysis of streamflow on the Middle Oconee River in the Athens region reveals that record-low discharge levels at Athens occurred in 2007 and actually rebounded during the peak of the drought in 2008. The return intervals for the 2007 low-flow values along the river were 75 years at Athens, but only 11 years upstream at Arcade. Water withdrawals from the Middle Oconee below Arcade into Bear Creek Reservoir, the main source of water for the Athens region, appear to explain this anomaly. Based on the climatological and hydrological data, the exceptional societal impact of the 2007-09 drought in the Athens region cannot be explained solely by natural causes.

## Mapping the Ethnic Greek Communities in Florida.

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Ethnic communities have been shown to play a significant role in the preservation of the group's special shared ancestry and cultural heritage. The majority of past research conducted on ethnic communities has focused on communities that are spatially connected, known as ethnic enclaves. Recent research has begun to examine emerging ethnic communities that are not spatially connected yet continue to provide the same benefits to its members as the older ethnic enclaves. Ethnic institutions, such as churches, act as centers of ethnic group social interaction where persons living in scattered locations can gather for common activities. This study undertakes the mapping of the Greek communities in Florida, an ethnic group that has attracted very little geographic interest. The results of this project can contribute to greater understanding of the spatial and socio/ethnic residential patterns of the Greek-Americans within the state.

QUEERING THE POLITICAL-ECONOMY:  
SEXUAL POLITICS AND THE URBAN REGIME IN ORLANDO, FLORIDA

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Issues of sexual citizenship in today's hyper-capitalist world are unavoidably bound within dominant themes of a global political-economy, ultimately impacting urban policy decisions at the local or regional scale. This paper explores these linkages by examining the debate in Orlando, Florida on adding 'sexual orientation' as a protected class to the city's existing anti-discrimination ordinance. A prevailing theme throughout the debate was organized around various competing urban regime narratives, situating the identity of the sexual citizen as a commodity of sorts, tied to an intrinsic economic value much like a parcel of land. The socio-spatial implications of the debate, though at times reducing the queer citizen to an economic development pawn seen as either 'good' or 'bad' for business, has implications beyond the local scale. Indeed, the debate is representative of an undeniable synergistic relationship between urban policy and queer politics prevalent in many locales throughout the post-industrial world.

# Scale, Causality, Complexity and Emergence: Rethinking Scale's Ontological Significance

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Scale remains a pivotal yet highly contentious concept in Geography. I survey the lively discussions engaged in recently by many critical/radical geographers regarding the theoretical status of scale. While these discussions have been intellectually fruitful, I argue that much more needs to be said. Drawing from complex systems theory, I argue that scale should be understood as an ontological category essential to understanding causality. Revalorizing Aristotle's four categories of cause--formal, final, material and efficient--from two centuries of positivist thinking facilitates this endeavor. Research on the relationship between university-based poultry scientists and the poultry industry illustrates the explanatory potential of poly-scalar analysis.

## Concept Mapping for Middle School Geography

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This paper addresses an attempt to use the curriculum tool of concept mapping to assess middle school progress toward geographic knowledge and skills in preparation for sitting the Advance Placement (AP) Human Geography exam in high school. First, the state of K-12 geography in the U.S., and second, the evolution of the tool of concept mapping are analyzed. Concept maps are graphical tools for organizing and representing knowledge and can be used as a learning tool and as an evaluation tool. The design of a concept map for middle school geography is then described and analyzed using a case of a middle school program in Duval County. The program's goal is to provide an academically focused after-school experience to encourage college-bound education for students from low-income families. Once defined, the Human Geography concept map was introduced to the students enrolled in the program and the next phase of the project was begun: using the concept map for assessment of student achievement. This phase involved the creation of 6<sup>th</sup>, 7<sup>th</sup>, and 8<sup>th</sup> grade-appropriate multiple choice questions addressing some of the concepts in the map which will be used in conjunction with a select-and-fill-in (SAFI) concept map delivered to the students.

## Analyzing Size and Precipitation Characteristics of Landfalling Tropical Cyclones

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This study is a comparison of the size of U.S. landfalling tropical cyclone (TC) rain shields. Size is assessed by measuring the rain area using NEXRAD Level III radar data with GIS. Changes in the rain shield are identified by comparing landfall values of area and convective area to values obtained at six and twelve hours post-landfall. Rain areas are also compared to a traditional unit of tropical cyclone size, the radius of the outer closed isobar. Results of this study show that rain area has a poor linear relationship with Saffir-Simpson category. Rain shield decay after landfall is fairly consistent for storms of similar size and not consistent with wind speed decay. 500 hPa synoptic patterns at landfall were extracted and used to determine which TCs are more likely to expand in rain shield area after landfall when under the influence of a synoptic scale trough.

## Taste, Place and Coffee: Using Decision Trees to Study Coffee Terrior in Central America

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What makes for a great cup of coffee? Is there a link between taste and place? In recent years, professional tasters and companies have sought to establish a firm basis for terrior by back linking coffee flavor evaluation from cup to crop by looking at the relationship between flavor, varietals, soils, climate, and farm practices. This paper presents preliminary results from an spatial analysis of the Cup of Excellence quality competitions in Central America from 2003-2009. Through the use of decision tree maps we explore the key variables that produce specific detectable coffee flavors and attributes. We conclude by considering the implications of the geographic analysis of coffee flavor for actors within the coffee trade from producers to consumers.

## INDIGENOUS DIASPORA: Otomi Health and Healing in Durham and San Pablito

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Many indigenous people in Mexico are leaving the country to live and work in the US; Remittance income is now a crucial source of basic sustenance in many remote locations. I examine the migration of indigenous Otomi villagers from one such place: San Pablito, Puebla. Nearly half the town's 5000 residents live in Durham, North Carolina. In this paper, I focus on social reproduction, health, and healing practices with particular attention to an artisanal paper made from tree bark that has been central to Otomi traditional healing rituals for 5 centuries. Healers cut small figures from the paper that represent spirit gods. Remittance income has expanded in the last 20 years as villagers migrate to NC to work in agriculture and construction. Otomi provide a window on a massive exodus of indigenous people from Mexico. In jumping scale from their own local place to participate in globalized labor markets, they have found a novel – if risky – path for survival. Otomi from San Pablito are resilient, transnational, and inventive. They are finding new ways – and new places -- to sustain community while maintaining and adapting their traditions.

El Niño/Southern Oscillation (ENSO) Induced Monthly Oscillations of Precipitation:  
The Unique Case of the South Tropical Indian Ocean in Austral Summer

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Seasonal (three-month average) climate forecasts have advanced due in large part to improved modeling of ENSO. Long-range monthly precipitation forecasts are more problematic because of internal atmospheric variability. Further, it is often assumed that monthly precipitation anomalies are representative of the overall seasonal anomaly. However, according to the Global Precipitation Climatology Project Version 2.1 data set up to 16% of the world, which demonstrates some teleconnection to ENSO, shows a precipitation anomaly in the middle month that is of opposite sign to the other two months. Surprisingly, this maximum percentage occurs in December-January-February (DJF) at ENSO's peak. These oscillatory DJF seasons cluster in space – with significant positive-negative-positive anomalies in the western South Tropical Indian Ocean (STIO) during El Niño and negative-positive-negative anomalies in the far eastern STIO during La Niña. Representative gauges confirm that these precipitation patterns have been associated with ENSO events since 1951. The abrupt end of the Indian Ocean Dipole mode in January, an increase in the importance of local SST anomalies in February, and shifts in the subtropical high and Australian low are proposed to explain the anomalous cross-basin precipitation gradient around 15° S, but the reasons these variations accompany ENSO events are not fully understood.

Identifying hot spots of traffic accidents near interstate entrances in GIS: a case study in Atlanta,  
Georgia

Dajun Dai

Seth Morganstern

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Identifying hot spots of automobile accidents is critical to improving traffic safety on interstates. Using Geographic Information System (GIS) and a network-based kernel density technique implemented in a toolbox, Spatial Analysis on Networks (SANET), this study assesses and compares the density of automobile accidents (2003 – 2008) on two entrances to Interstate 75 North in Atlanta, Georgia: Howell Mill Road entrance and Northside Drive entrance. Results suggest that the Northside Drive entrance in general exhibits a higher density of automobile accidents than the Howell Mill Road entrance. Findings can be used to prioritize the road segments to improve traffic safety.

# Scalar Politics on the Cuyahoga River: Controversy over the Future of the Edison Gorge Dam

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The aging of hundreds of small dams across the United States has generated controversy and debate about their future. Such debate involves multiple stakeholders who use different means of evaluating the same environmental consequence(s) of a dam. The Edison Gorge Dam, near Akron, Ohio is the largest of the seven dams on the heavily manipulated Cuyahoga River. This paper examines recent controversy over the future of the Edison Gorge dam as a politics of scale in which the stakeholders framed the environmental consequences of the dam at multiple and overlapping spatial scales. The paper highlights the importance of organizational jurisdictions and expertise for shaping a politics of scale focused on environmental consequences, and emphasizes the significance of political collaboration for processes of rescaling.

## Effects of urbanization on forest invasibility and patterns of plant biodiversity.

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Urban growth and exotic species invasions are considered to be the principal drivers of biodiversity loss, yet few studies have focused on the links between urbanization, exotic species invasions and native species declines. Here, I examined how patterns of native and exotic plant diversity vary along a rural-urban gradient. Results from ANOVA demonstrated significant differences in mean native and exotic richness across rural, suburban and urban forests with exotic richness increasing and native richness decreasing from rural to urban. Linear regression models were used to identify which variables among metrics of urbanization, landscape context, and spatial configuration are associated with native declines and increases in exotic species richness while controlling for the effects of patch area. Overall, native richness declined with increasing road and building densities and developed land (ha) at multiple spatial scales. Exotic richness was positively by housing age and distance to CBD. Logistic regression was used to determine which factors influence plot invasion status and only housing density within 1000 m was significant. Exotic and native richness were not correlated. The results of this analysis show that metrics associated with urban intensity and urban cover negatively influence native diversity and positively influence exotic richness and invasibility.

## Alberta oil sands: resource curse or governmentality?

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Anecdotal evidence suggests most Americans are unaware Canada is the world's leading exporter feeding the United States' so-called addiction to foreign oil. Among those understanding Canada's significance in fossil fuel production, many remain vague on the source of those exports—namely, Alberta's bitumen-bearing oil sands, aka tar sands. Whatever the normative value of economic growth and security realized in the oil sands, concomitant ramifications include profound social upheaval and environmental degradation. This paper touches upon oil sands materiality and selected literatures for understanding their socio-nature. First is the resource curse. Decaying democracy, runs this argument, is a widespread result of introducing oil rents into states with weak political institutions or historical poverty. A second alternative builds upon a broadly-conceived governmentality. Such a framework reaches beneath simple mechanistic explanations in order to grasp the constitutive and constituted networks tying industry and social and ecological impacts. From its oil-aware formation in 1905 to contemporary developments the Alberta oil sands serve as a case for understanding the imminent co-constitutive linkages among biophysical resources and governmental and industrial and social interests. This short paper points the way for deeper work in characterizing the specific forms and effects of governmentality in the oil sands.

## The Hybrid Space of the First Latina/o Studies Program in the Southeast

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The UNC Latina/o Studies Program, the first program in Latina/o Studies in the Southeast, is an integral part of the Latina/o geographies of the New South in that it foments, between units on campus and between campus and various community contact points, hybrid spaces for research, teaching, cultural appreciation, advocacy, and so forth not only about Latina/o communities and cultures but also with Latina/o communities and individuals. I use the term “hybrid spaces” to indicate a number of relationships and dynamics that underscore the fact that “geography” is not simply a matter of place or of static coordinates on a map. Geography is place as praxis, a space that is inhabited and out of which new cultural formations emerge. The last section of the paper examines a sample catalyst for these new cultural formations: the art exhibition “Necessary Fictions” on display from May 21 – July 11, 2010 at Gallery 100 of the Golden Belt Arts complex in Durham, North Carolina, sponsored by the UNC Program in Latina/o Studies as well as partially supported by a grant from the Durham Arts Council, and curated by Mario Marzán and John Ribó.

## Reflections on Doing Geography: Learning Observations from over Eighty Fourth Graders

Tina Delahunty

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A biogeographer, a field technician, two biologists, and a historian combined their expertise to teach groups of fourth graders how historians and scientists learn about past landscapes and how plants and animals provide us with information about the present environment. During a day-long field trip, students took part in five learning modules: History, dendrochronology, palaeoecology, local plants, and local animals. Activities exposed students to scientific and social research methods, provided an interdisciplinary and integrative learning experience, and exposed them to geoscience careers. Researchers assessed learning through post field trip free writing. Data from this exercise was placed into an Excel spreadsheet and the COUNTA tool was utilized to assess depth and extent of student learning. Results indicated that hands-on activities made the biggest impression on the students, and the age group is capable of remembering and using sophisticated language. The research experience will contribute to improving the curriculum for another series of field trips next year. The ultimate goal is to create repeatable STEM lesson plans that will help teachers prepare students for mandatory standardized tests. Initial teacher responses insinuate that the adoption of the interdisciplinary and integrative material will raise test scores.

# Global Strategies for Competitive Advantage in the US Farm Machinery Industry: A New Geography for the Industry

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The US farm machinery industry is an economic sector that has been rapidly shrinking over the last thirty years. In the late 1970s there were approximately fifteen firms, yet today only three remain – John Deere, Case New Holland, and the Allis-Gleaner Corporation (AGCO). An industry, once clustered in the Upper Midwest, is now more diversified, with AGCO headquartering itself in Duluth, Georgia to better serve its interests in South America and Europe. Georgia is morphing into a new industry cluster with many foreign and domestic competitors situating warehouses, headquarters, and manufacturing facilities within 50 miles of the AGCO's Worldwide Headquarters. The purpose of this research is to examine this new geography of the US farm machinery industry as it pertains to competitive advantage for firms within the sector. Deere has long been the leader in domestic and international sales, but recently has faced stiff competition from AGCO and international firms like Mahindra. Through trade show reconnaissance and content analysis, this paper examines global focus as a tool of competitive advantage for individual firms in the US farm machinery industry to determine if this strategy might allow AGCO to propel ahead of Deere and further shift the geography of the industry.

## Internet GIS as a Historic Place-Making Tool for Mammoth Cave National Park

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This project lays the groundwork for an Internet delivered Public Participation Geographic Information System to facilitate exploration and discovery of the past communities of the Mammoth Cave Park area. The emergence of Internet Web 2.0 design along with distributed GIS services allows for anyone to interact with and add to the information found on central internet sites. Historical geography often relies upon public participation from individuals outside the academic world to provide narrative descriptions, photographs and manuscripts of past places and events to augment information held by institutions and academia. A PPGIS website for Mammoth Cave creates a central location for dispersed and disparate park data resources related to pre-park Mammoth Cave communities to be presented with a geographic context. The Mammoth Cave Historic GIS will allow for visualization of the pre-park communities in new and unique ways.

Affective Religious Experiences: Current Trends and New Directions in the Exploration of  
Spiritual Practices,

Caitlin Finlayson

Florida State University

Explorations of affect and emotion as part of the lived religious experience have recently reemerged in geographic literature Pile (2010). The geography of religion, however, has been largely absent from this emerging discussion, despite repeated calls within the subdiscipline to address the emotional and performative aspects of religious practice and sacred space (Buttimer 2006, Kong 1990). Religious experience is highly personal, and is often comprised of affective experiences and emotional responses. Thus, the geography of religion would be an appropriate avenue to develop an ongoing discourse on affect as it relates to religious practices. This paper explores the historical methods of conceptualizing and investigating both affect and emotion, and further offers a new theoretical perspective upon which future studies can proceed.

## Climate Injustices: Mitigation in the Latin American Energy Sector

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Massachusetts Institute of Technology

Charmaine Heslop-Thomas  
University of the West Indies

Elma Montaña  
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This paper analyzes the interplay between globalization and climate change, known as double exposure, and how this is expressed unevenly across space. Based on findings from 2009-2010 Latin American fieldwork, we employ Clean Development Mechanism examples to discuss emerging injustices in climate change mitigation policy and practice. Critiques of renewable energy and carbon offsetting projects demonstrate (1) the complex economic and political agendas shaping mitigation decision-making, and (2) the disputed nature of climate governance in multiple arenas. Political ecology and double exposure serve as instrumental frameworks for critical analysis of these contested, dynamic, multi-scale, nature-society interactions.

Reducing Vulnerability and Rebuilding Lives: Measuring the Effectiveness of Temporary Shelter and Immediate Disaster Response to floods in Agadez, Niger.

John Freeman

Graham A. Tobin

University of South Florida

The long-term goal of this research is to model effectiveness of emergency relief aid provided by humanitarian organizations in disasters. This particular project looks at response to one event providing baseline data for subsequent work. Following major flooding in Agadez, Niger, a non-governmental organization, Shelterbox, responded immediately providing tents, cooking utensils and other supplies to survivors. Using the comprehensive emergency management model as an investigative framework, a questionnaire survey was conducted of 100 households that received such aid. Interviews were also undertaken with local leaders. Results showed that such temporary disaster relief helped recipients feel safe, rebuild their life, and made their life feel normal again. The tents and supplies had been put to various uses; many tents were still being used as dwellings while others were stored for cooler seasons. Emergency relief had been particularly effective in rural areas, where supplies were utilized to the fullest extent. These findings will guide further research to determine the effectiveness of humanitarian aid under different disaster scenarios.

ANALYSIS OF AGRICULTURAL LAND USE CHANGE  
IN THE MIDDLE REACH OF THE HEIHE  
RIVER BASIN, NORTHWEST CHINA

LI FU

Florida State University

The Heihe River Basin is the second largest inland river basin in arid Northwest China. The expanding agricultural irrigation, growing industrialization, and increasing urban development in the middle reach have depleted much of the river flow to the lower reach, degrading the ecosystems. Started in 2000, implementing the water allocation mandate of the State Council of China, local governmental agencies in the middle reach have made significant changes in crop patterns to discharge a larger amount of water downstream. This study analyzed land use/land cover changes in the middle reach between 2000 and 2009 using Landsat images. The results, while yet to be further verified in the field, show that from 2000 to 2009, urban, agricultural land, rangeland, and forest areas increased; and barren area was reduced. Within the cropland, rice planting area was reduced; corn and wheat planting areas were increased to ensure discharge of the required amount of water to the lower reach. While a number of factors such as climate and market demand may have impacted the amount of streamflow downstream, it seems that the middle reach distributed more water to the lower reach every year since the water allocation mandate had been issued.

Meteorological and Climatological Perspectives on the  
August 2007 Heat Wave in North Carolina

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August 2007 was an exceptionally warm month across North Carolina. Hundreds of daily maximum and daily high minimum temperature records, as well as numerous all-time temperature records, were tied or broken during the month. In addition to the record temperatures, an important aspect of the August 2007 heat wave was the substantial spatial and temporal variability in the character of heat and humidity observed across the state. Maximum temperature anomalies over the month occurred most frequently across the Piedmont and Sandhills regions, while minimum temperatures were exceptionally high along the coast. By comparison, the mountains experienced relatively few temperature anomalies, though there were notable exceptions. In this paper, the unique geography of the August 2007 heat wave is described and explained through analysis of several contributing factors, including large-scale circulation features, mesoscale wind patterns, boundary layer processes, soil moisture and precipitation deficits, and local topography.

Effects of water distribution on tree utilization by elephants in Chobe National Park, Botswana.

Timothy Fullman

University of Florida

The African elephant (*Loxodonta africana*) regulates shifts between different savanna states, primarily through herbivory of woody vegetation. As a water-dependent herbivore, these impacts on trees are constrained by water availability, potentially leading to a gradient of degradation known as the piosphere effect. Transects evaluating vegetation status with increasing distance from the Chobe River were conducted in Chobe National Park, Botswana, to test whether predictions of the piosphere effect can be applied at multiple scales. Trends varied depending on the type of utilization, with debarking by elephants decreasing with distance from the Chobe River and branch herbivory showing a bimodal distribution. Results suggest that piosphere predictions may be applicable over greater distances, with important implications for monitoring species changes far from water points. Managers should consider this as they evaluate landscape stability and discuss provisioning of waterpoints in semi-arid habitats.

# A Battle Worth Winning: The Service of Culture to the Communist Party of Vietnam in the Contemporary Era

Jamie Gillen

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The Communist Party of Vietnam's (CPV) market reform policies (in Vietnamese, *đổi mới*)—introduced in the late 1980s and carrying on today—have opened the country to foreign investment, deregulated state-owned enterprises, decollectivized farm cooperatives, and encouraged private sector economic development. However, what the Party has not wanted reformed, and has fought strongly on behalf of, is Vietnamese national culture (*văn hóa dân tộc Việt Nam*). Using primary source official CPV cultural policy documentation and secondary sources highlighting contemporary meanings of Vietnamese and foreign cultures, this paper evaluates the Party's use of culture as a resource in the direction and regulation of the nation's market economy with a socialist orientation. While culture is expedient for all governments, I argue that the CPV's intent is unique in that it uses culture as an instrument to maintain its ownership, rather than simply to legitimize its regulatory ability, over the national political economy. This paper aims to show how culture is part and parcel of (post) socialist governance's political framework and contributes to debates surrounding the reach and impact of neoliberalism in formerly command economies.

Enclosure in the 'Land of Fever': An Environmental History of African American  
Landownership in the South Carolina Lowcountry

Brian Grabbatin

University of Kentucky

A recent review of the political ecology literature suggests that a deeper engagement with environmental history is necessary for understanding the role social and political power play in shaping nature-society relationships (Davis 2009). In this paper I use environmental history to analyze connections between environmental perception and landownership. This relationship is important for understanding the persistence of common property among African American families and the 'legal theft' of heirs' owned land in coastal South Carolina. I illustrate this by exploring three historical moments. First, European and African notions of property ownership coexisted in the economy and society of rice plantations. Second, during the restructuring of landownership after the Civil War, land transfers reflect the legal recognition of collective ownership of land by freedmen. Finally, due to the mistrust of white law and an oral tradition of inheritance, many African American families in the South still hold land as heirs' property, owned collectively by families without a clear legal title. The perceptions and material realities of the environment are essential to understanding how property changes over time, highlighting the importance of environmental history for political ecologists exploring long-term processes of ecosystem change and the capitalization of nature.

In Search of the Southern Urbanite: Measuring Spatial and Cultural Variations in Urban Growth  
Policy Preferences in a New South City

William Graves

Tyrel Moore

UNC Charlotte

Migration to Southern cities has dramatically changed resident's perceptions of appropriate urban form. Continued residential and employment sprawl has come into conflict with re-urbanization and the development of public transit in political discussions on resource allocation. This study uses a mail survey conducted in Charlotte to assess the urban design and governance preferences of inner and outer suburb residents. The results are also analyzed based on a native Southerner, non-Southerner basis. It was found that Suburban residents generally support downtown growth and investment with non-Southern suburbanites being the most supportive of an integrated urban system. There is some evidence that self-selected Southerners are less enthusiastic about increased urban density than the new arrivals to the region – a sign that municipal policies focused on increasing urban density may need to be reevaluated in areas that lack high volumes of in-migration.

# Assessing Future Water Resources: Incorporating the Influence of Climate Change and Land Use Change

Michael T Griffin

East Carolina University

Water resources are essential to sustaining current and future populations. The availability of fresh water resources in the future is likely to be limited as well as a source of dispute between states and nations. In the United States, water resources have been a major concern in the West for many years. In recent years, droughts have raised awareness in the South as well. With the possibility of future fresh water shortages increasing, a methodology for predicting future conditions is needed. This research outlines a methodology to estimate future conditions based on the influence of climate change, land use change, and population growth. The method is based on a proven hydrologic tool, a monthly water balance model, and incorporates estimates of climate change and land use change parameters, and assesses future water resources based on analyses of predicted monthly fluxes. The methodology is demonstrated by analyzing a watershed in New Hanover County, North Carolina.

## Visualizing Regional Divides in Bolivia through Multivariate Mapping

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Appalachian State University

Following Evo Morales' election as President of Bolivia in 2006, racial and economics tensions have worsened between the indigenous populations of the west and the non-indigenous populations of the eastern lowlands. Relationships between social dynamics and changing political structures can be better understood through visualizing key factors involved. Social indicators of poverty can be studied with election outcomes to better understand regional divides and monitor relatively abrupt changes occurring in Bolivia. Multivariate mapping assists in the visualization of these relationships if presented in careful manner. Information overload can easily occur with multivariate mapping, leading to confusion and loss of map message. Through using various types of multivariate mapping to display the percent of Castellano speaking population with election outcomes, important relationships can be evaluated. Web based applications can assist in the study of optimal multivariate visualization techniques. WebGIS and Google Earth have the capabilities to display geographic data but are lacking in cartographic capability. Currently, these programs are not suitably designed for the level of symbolization manipulation required in multivariate mapping.

“Love thy neighbor”: Faith and the emergence of class identity among faith-motivated  
gentrifiers

Katherine B. Hankins

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Across the country, middle-class, faith-motivated individuals and families are moving into poor, inner city neighborhoods to live out their vision of social justice in the city by becoming “strategic neighbors” or “faith-motivated gentrifiers.” Drawing from the commandment to “love thy neighbor,” these faith-motivated actors develop relationships with their neighbors and share their resources in order to work towards the transformation of these places. Through qualitative analysis of interviews with strategic neighbors in Atlanta, I examine the subject positions that emerge as a result of the spatiality of the self and other as it is experienced in the neighboring process. In particular, I highlight neighboring practices and argue that the class identity of strategic neighbors becomes heightened as they develop and utilize their economic, social, cultural and spiritual capital in the inner city.

Developing a GIS-based Methodology to Assess Socio-Economic Characteristics of Martin Luther King Streets: The Case of Atlanta, Georgia

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University of Texas at San Antonio

Derek H. Alderman  
East Carolina University

There has been an intense amount of discussion over the past decade related to the commemoration of civil rights leaders. Among the ways that groups seek to raise public consciousness of the Civil Rights Movement and its heroes is through the naming (and renaming) of streets and roads. One such effort has taken place in Atlanta, Georgia, where a series of major thoroughfares in Fulton County were renamed in honor of Dr. Martin Luther King, Jr. Across the entire United States, this renaming effort has been accomplished in nearly 900 cities and towns. However, there is a popular perception that renaming streets after King are linked with socio-economic conditions that are below the level of the overall area. Much of the information for and against such assertions is anecdotal, and to date no firm data have existed to demonstrate whether such a connection actually exists.

The present study uses a GIS and U.S. Census block group data to quantitatively measure the differences in racial makeup, per-capita income, and housing values as a function of distance from MLK Drive in Atlanta. The results show that there are statistically significant differences in the aggregated data as they relate to proximity to MLK Drive. However, tying these differences to causal effects can be difficult. Nevertheless, this study represents a first attempt at moving the discussion towards a firm quantitative grounding, and the resulting modeling methodology can be applied to other areas where similar renaming efforts have been accomplished.

Patterns of canopy disturbance during early stages of hardwood forest development on the  
Alabama Highland Rim

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Virginia Tech

Rebecca Murray  
Conservation Management Institute

Disturbance regimes of many hardwood forests in the complex stage of development are characterized by localized canopy disturbance events that change fine-scale biophysical conditions. Recently, research has demonstrated the importance of gap-scale disturbance processes in secondary hardwood stands of the southern Appalachian Highlands. However, information on canopy disturbance patterns during early developmental stages is required from the broader geographic region for a comprehensive understanding of stand dynamics. The goal of this study was to reconstruct canopy disturbance history for hardwood stands on the Alabama Highland Rim to elucidate disturbance patterns during early development. We analyzed radial growth from 46 *Quercus* individuals to reconstruct canopy disturbance history. The majority (67%) of the trees analyzed exhibited release events. In total, 42 releases were detected and some trees experienced multiple events. Mean release duration was 4.00 years and the longest release was sustained for eight years. We did not document any forest-wide disturbance events; a pattern that may be a regional phenomenon or may be related to forest age. Canopy disturbances became common after ca. 40 years of development. We propose that the frequency of canopy gaps will decrease and the size and magnitude of individual gaps will increase as the stands mature.

Decadal Variability in the Tracks of Major Hurricanes in the North Atlantic Basin, Analyzed for the 1950s, 1960s, and 1970s

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Charles H. Paxton  
University of South Florida

An analysis of the tracks of Atlantic Basin major hurricanes shows an apparent decadal to multi-decadal scale fluctuation in the location of the tracks and landfall locations of major hurricanes of the Atlantic basin. Specifically, the 1950s, 1960s, and 1970s showed a clear fluctuation, with landfalls concentrated on the East Coast during the 1950s but focused in the Gulf of Mexico in the 1960s and 1970s. This variability appears to be caused by differences in the strength and extent of the Atlantic subtropical high at the surface and mid to upper levels of the atmosphere. The differences between the subtropical high in these three decades, and the reasons for these differences, are analyzed. By looking at several correlations between pre-hurricane-season variables and the strength and extent of the subtropical high during this time period, some potential avenues for general predictability of landfall locations in a given season are explored.

Magnitude and Frequency Relations of Channel-Forming Flows and Bed-Material Entrainment  
in a Flood-Prone Fluvial System, the Llano River, Central Texas, USA

Franklin T. Heitmuller

The University of Southern Mississippi

Various models of gravel-bed channel morphology and adjustment postulate that flow conditions responsible for bankfull characteristics approximate those which entrain bed material. Furthermore, bankfull conditions are documented to occur once every 1 to 2 years, on average. A test of these fluvial geomorphic principles is applied to streams in the Llano River watershed (11,568 square kilometers) in Central Texas, which is characterized by mixed alluvial-bedrock boundaries and a highly-variable flow regime. Field data, including cross-section surveys and pebble counts at 18 sites on main-stem channels and tributaries, are coupled with one-dimensional hydraulic models and partial-duration flood-frequency analyses to compute recurrence intervals of bankfull and entrainment conditions. Recurrence intervals of flows that entrain bed material are consistently less than 1 year, whereas flows that define bankfull morphology range from 1 to 4 years. Furthermore, morphologic surfaces defining bankfull stage can be relatively minor and set within a macro channel, which is formed by flows with recurrence intervals greater than 10 years. The results indicate that associations of bed-material entrainment and channel geometry are complicated for rivers with highly-variable flow regimes, and could indicate a departure from steady-state equilibrium.

## Cross-dating Bristlecone Pine samples from the Methuselah Grove and Wyman Canyon

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A study of Bristlecone pine (*Pinus longeava*) (BCP) samples from the Methuselah Grove (MG) and Wyman Canyon (WC) in the White Mountains of California has been completed. This study used dead wood samples gathered from the ground from MG in 2010 and cores taken by Schulman in 1957 from WC. The MG samples were dated in an attempt to bridge a gap between the floating and fixed long chronology, while the WC cores were dated to attempt to see if the samples could be used to build a chronology from this archived wood. This study addressed strategies for dating the BPC. About 40% of the MG and 50% of the WC samples were successfully dated. It does appear that the WC cores can be used to build a chronology with increased sample depth. Further, a sample (2010-852) dated to -5210 and warrants a full cross section (only the outside 300 years were sampled). If that cross section contains ~1500 rings or more, we may have succeeded in bridging the gap in the Bristlecone Chronology.

## PROSPECTS FOR ELIMINATING SURFACE COAL MINING IN TENNESSEE.

Thomas F. Howard

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Increasing interest in a post-coal future for the United States is reflected in the Obama administration's moves towards stricter regulation of coal strip mining and mountain top removal. Coal industry resistance to these measures usually invokes the threat of massive job losses in coal mining regions. But in Tennessee, there are only 611 jobs in coal mining, and the industry contributes less than one tenth of one percent of the state's GDP. This may be a good time to move towards re-purposing what have historically been the coalfields of the Cumberland Mountains and phasing out this minor industry in Tennessee before it can introduce mountaintop removal on the scale that has afflicted West Virginia and Kentucky. The state of Tennessee, working with timber companies, the Nature Conservancy, and the Doris Duke Foundation, has already acquired the surface rights to a 135,000 acre tract in the Cumberlands and converted it to a multi-use wildlife management area. If potentially hostile ownership of the mineral rights to the same tract are overcome, it could become a pilot project for the eventual re-purposing of coal land all over Central Appalachia.

Boycotting Taco Bell: Labor, scale, and the strategic positioning of the Coalition of the Immokalee Workers

Michael Husebo

Georgia State University

Labor geographers have identified multiple strategies through which workers assert their demands in an era of global production networks. In this paper I examine the strategic actions of the Coalition of Immokalee Workers (CIW), a community-based organization representing immigrant farm-workers in southwestern Florida, and its campaign against Taco Bell to improve the lives of tomato pickers. Critical to the successes the CIW achieved in its campaign against Taco Bell were its alliances to religious organizations. These organizations proved to be of vital importance as they enabled the CIW to strategically position itself in important locations of the production network to more effectively make its demands of Taco Bell. Using qualitative analysis of in-depth interviews with representatives of churches, religious-community organizations, and interfaith non-profits working with the CIW, I argue that the CIW's alliance with religious groups brought specific resources for the practical execution of the campaign against Taco Bell and reframed the debate on workers' rights. This process legitimized the demands of workers and brought their voices closer to the corporations.

Pre-Columbian Riverscapes: Geomorphic Effectiveness of  
Indigenous Agriculture in the New World

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University of South Carolina

It is often assumed by fluvial geomorphologists that pre-Columbian land use in many parts of North America was ineffective in generating accelerated erosion and sedimentation, and that erosion and sedimentation initiated by European settlement was sudden and substantial. Both of these assumptions are in conflict with recent reassessments by cultural geographers and anthropologists regarding environmental impacts of humans in the Americas. This paper evaluates the pristine landscape and European ecocide debates from a geomorphic perspective with regard to erosion and sedimentation. It summarizes the arguments in both debates, describes differences in agricultural technology, samples the geoarcheologic and alluvial stratigraphic evidence, and concludes that the geomorphic effectiveness of pre-Columbian agriculture in most of North America – excepting perhaps the Southwest - was far less than consequences of later European.

## Looking outward for opportunity: Chinese FDI and challenges for firms

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Firms looking to increase revenue often need to expand outside of domestic markets. Exporting is often one strategy, but in order to further expand international operations, companies often engage in foreign direct investment (FDI). This paper examines the case of Chinese firms who have invested abroad, looking at their characteristics and competitive challenges. Evidence from a firm-level survey indicates that while some components of the Chinese FDI situation are unique, many of the firms share similar characteristics and challenges with their international competitors. The paper closes with a brief examination of the respondents' views of Canada as a potential target market for FDI.

## A Method Of Predicting The Risks Of Annual Maximum Daily Temperatures

David Keellings

Peter Waylen

University of Florida

Long-term (>80 years of record) daily temperatures at 4 stations located across Florida are analyzed with a view to developing a model of future annual maximum daily temperatures. The approach used is Annual Maximum Series (AMS) coupled with Extreme Value Theory. Each record displays the influence of the Atlantic Multi-decadal Oscillation (AMO) and possible impacts of climate change. Data from the most recent (post-1995) shift to a positive (warm) phase of AMO are set aside as a validation data set. The abilities of 1) the remaining historic record, 2) records only from the last positive phase of the AMO, and 3) regular 30 year climate, to replicate the risks observed in the post-1995 validation series are examined. Results suggest that parameter estimates based on data from the 30 year period prior to the validation period provide the best overall fit despite being drawn from a cool phase period of the AMO. These results are intended to provide guidance for the appropriate analysis of a much larger data set and the provision of estimates of risks to the health community in the state.

## Fixing the Wetlands: A Journey into Swamp Geography

Adam Keul

Florida State University

Though our understanding of the physical processes of wetlands is extensive, works on the social development of such spaces are fewer. Research in the human geography of swamps, marshes, bogs and other diverse wetlands in the United States has used a variety of methodologies to study these spaces. Top-down political economic studies are compared with those that seek to understand wetlands from a human experience perspective. Tropes have emerged from these works that speak to the loss of the physical environment of the swamp as well as its culture. To expand this field and add a perspective that accounts for the postindustrial economy of tourism, results from my dissertation fieldwork in the Atchafalaya Basin are introduced. Though similarities stretch between this fieldwork and other geographies of wetlands, the experience of the swamp that occurs on a swamp tour is dynamic in both landscape and human interaction. This livelihood of the swamp is compared to critical standpoints that note the abstraction of wetlands from the material damages wetland's dynamic nature.

Species-Centered Perspective on Stress-Diversity Relationships  
under Stressful but Non-Lethal Conditions

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The contemporary literature postulates that disturbance strongly affects patterns of species diversity. As such, few studies provide insights into diversity patterns in communities that exhibit stressful conditions but limited effect of disturbance. We investigated spatial trends of vegetation diversity across tidal creeks at a salt marsh sheltered from impacts of storm surges. As expected, high levee sites with low levels of stress showed low diversity due to competitive exclusion and marsh interiors had high diversity because of intermediate stressful conditions. However, low-lying point bars, despite low richness, exhibited high diversity due to high evenness there, in apparent disagreement with conventional expectations for harsh environments that low evenness drives low diversity. In the bars, high-level stresses are not necessarily disturbance to plants, so do not cause mortality and consequent reduction of evenness. These non-lethal factors restrict the number of species present, but enhance species coexistence through niche differentiation, thereby increasing evenness. Our results emphasize the necessity of a species-centered view because the level of stress that plants actually perceive and respond to may not necessarily correspond to what is conventionally defined by ecologists. We suggest a need for developing appropriate theories of stress-diversity relations for communities with limited influence of disturbance.

Carbon Dioxide Emission Trends in Car and Light Trucks: A Comparative Analysis of Emissions and Methodologies for Florida's Counties (2000 and 2008)

Kling, Sandra G.

University of South Florida

This paper investigates trends and methodologies to quantify CO<sub>2</sub> emissions from cars and light trucks in Florida counties, and proposes an alternative methodology to estimating emissions at the county level. The standard methodology for greenhouse gas emissions in the transportation sector uses fuel efficiency averages based on the assumption of 55% city and 45% highway VMT, which is an assumption that may not coincide with actual local driving conditions in Florida. The proposed methodology accounts for actual city and highway VMTs and compares the results with calculations from the standard method. Statewide, absolute CO<sub>2</sub> emissions increased by approximately 25% from 2000 to 2008; however, the percent change varied from a reduction of 1% to an increase of 92% in counties. Statewide, the proposed method resulted in emissions that were approximately 8% (2000) and 5% (2008) less than emissions calculated using the standard method; however, county differences varied by as much as ± 14%. Per capita CO<sub>2</sub> emissions also exhibit a similar trend of variability. This research shows that there is a large variation among counties and that the proposed methodology provides more accurate greenhouse gas estimates at the local level than the standard methodology.

A Dendroclimatic Assessment of Lewis and Clarks' "Perfect Storm" of November 1805.

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In November 1805, just three weeks after arriving on the Pacific Northwest (PNW) coast, Lewis and Clarks' Corps of Discovery experienced a windstorm that rivaled the strongest historically documented storms of the 19<sup>th</sup> and 20<sup>th</sup> centuries. Based on detailed historical accounts by expedition members describing the event as the perfect storm, we characterized the severity of the 1805 windstorm using tree-ring growth anomalies identified in tree cores extracted from old-growth, wind-snapped Sitka spruce at three sites along the northern Oregon Coast. We compared the 1805 gale to eight other documented events with comparable storm tracks and exceptional magnitude including windstorms occurring in 1880 and 1951, each of which caused more than a billion board feet of windthrow. Statistical comparison of tree-growth responses show the 1805 event was more severe than all other gales. Our results demonstrate the utility of combining tree-ring data and historical documents allowing us to better understand historically obscure climatic events. Specifically, we identify the Lewis and Clark tempest of 1805 as being among the most severe PNW windstorms during the past two centuries.

## Metropolitan Concentration and Growth of Computer Services in the United States

Jonathan Kozar

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The computer service (CS) industry is significant to metropolitan economic growth because the ever changing advancements and widespread use of computing technologies in nearly all aspects of economic activity. The CS industry presents the ideal industry to assess modern metropolitan economic growth. It is a leading growth industry among the prominent KIBS industries that now dominate metropolitan economies (Beyers 2003). This paper examines the spatial distribution and concentration of CS employment among metropolitan areas in the United States. It was found that metropolitan CS employment presents variations among subsectors. Diffusing down the urban hierarchy in high order CS subsectors and beginning to develop concentrations of low order CS subsectors in large metropolitan areas.

# Standing Soldier, Standing Soldier: Race, Public Memory and the Civil War in Norfolk, Virginia

Jonathan Leib

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Southeastern Virginia was an important site during the American Civil War. The war has been memorialized within the region in a number of ways, including several impressive Confederate soldier monuments. However, at the same time, the city of Norfolk, the center of the region, is home to the South's only monument honoring African American Union troops. Located in the city's West Point Cemetery, which black residents pressured the Norfolk City Council to designate as the city's first black burial ground during Reconstruction, the black Union soldier statue was proposed in 1885 and completed in 1920. However, the monument's location, in a segregated cemetery separated by a high brick wall from neighboring Elmwood Cemetery, one of the city's main white cemeteries, is telling. The first part of this paper examines the history and setting for the construction of this monument. In the second part, this paper examines the erection of a white Confederate soldier monument in the neighboring Elmwood Cemetery, only 900 feet from West Point's Union soldier monument. This second statue was erected in 2007, nearly a century after the erection of the black Union monument and most of the region's Confederate monuments. In the conclusion, I examine how these monuments, existing in the same space, represent very different understandings of place within the city's and region's public memory.

Obscure encounters: in/visibility and en/exclosure in the Cape Hatteras National Seashore

James Looney  
University of Kentucky

Landscape isn't just about in/visible ideas, ordering principles, and discursive regimes; sometimes matter and materialities themselves are invisible, or are made invisible, with visible and visceral results. And sometimes, in addition to observable bodies and landscape features, the tiniest bits (present, yet absent) come to matter. An account of landscape that notices the long view and the imperceptibly small requires that we take seriously the forces, effects, and affects that impinge on the material and yet escape visible expression. By talking about local representatives of two "endangered" "species" (sea turtles and banker ponies) who dwell in the Cape Hatteras National Seashore, I will discuss how more-than-human practices, interpretations, visibilities, and non-visibilities enter into landscape happenings. While turtles and ponies themselves engage in "landscaping" in a creative and lively manner, they are also the subjects of efforts by the National Park Service to manage in/visibility, presence, and particular ways of being (in)visible and present. NPS species management practices involve various attempts to keep things (small, medium, and large) out and/or keep things in, both representationally and non-representationally; these are acts of literal and metaphorical inclusion and exclusion via enclosure and exclosure. Genetic molecules, idealized phenotypes, fleshed-out bodies, and species becomings are the (unruly, moving) targets of these attempts to manage the in/visibility of the biological.

## Risk of Strong Hurricane Winds to Florida Cities

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James B. Elsner

Thomas H. Jagger

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A statistical procedure for estimating the risk of strong winds from hurricanes is demonstrated and applied to several major cities in Florida. The procedure, called the Hurricane Risk Calculator, provides an estimate of wind risk over different length periods and can be applied to any location experiencing this hazard. Results show that the city of Miami can expect to see hurricane winds blowing at  $50 \text{ ms}^{-1}$  (45.5–54.5) [90% CI] or stronger, on average, once every 12 years. In comparison, the city of Pensacola can expect to see hurricane winds of  $50 \text{ ms}^{-1}$  (46.9–53.1) [90% CI] or stronger once every 24 years. A quantile regression is applied to hurricane wind speeds in the vicinity of Florida. Results show the strongest hurricanes are getting stronger as a consequence of higher offshore intensification rates.

## Radar reflectivity profiles of lightning flashes during the landfall of Hurricane Jeanne (2004)

Corene J. Matyas

University of Florida

Researchers have developed radar reflectivity profiles for electrically-active convective cells. Varying lightning flash rates have been observed in the eyewalls and outer rainbands of TCs, and flash locations are known to be influenced by storm motion and vertical wind shear. This study utilizes a GIS to examine lightning flashes associated with Hurricane Jeanne (2004)'s Florida landfall. Flash locations are examined relative to the storm center, motion, and vertical wind shear. In a manner comparable to previous radar-based studies, the average and maximum reflectivities within 5 km, distance to the maximum reflectivity value, and the vertical distribution of reflectivities are then calculated. Jeanne's flashes are relatively few, occur only in the outer rainbands, and do not follow previously-established patterns corresponding to motion and shear vectors. Maximum reflectivities average 49 dBZ, but results suggest that higher values might have occurred beyond the 5 km radius. Reflectivity lapse rates average  $-7.5 \text{ dBZ km}^{-1}$  over 6-9 km and reflectivities average 30 dBZ at 6 km above ground level. Jeanne's reflectivity profile contains lower reflectivities than most previous studies that examined cells with high flash counts.

## Observations of Social Interaction at Diners in the South

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Roadside diners are a common sight across the U.S. and are part of the national culture. Waffle House and Huddle House are two common diner chains across the American South. Although the two are nearly identical in their service model and presentation, they differ on the location choice for their individual diners; with Waffle Houses located primarily near interstate highways and Huddle Houses primarily along more local roads and highways. Although several types of characteristics have been observed and recorded regarding these diners, this paper will discuss solely the social aspects of the characteristics of these roadside diners, comparing them on the basis of location.

## A MORAL VICTORY?: “CHINESE TAIPEI,” SPORTS AND TAIWANESE IDENTITY

Daniel McGowin

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Although often assumed to be apolitical, sports have often been utilized as a political tool through which identity is asserted. Nationalism rests at the heart of international sporting events such as the Olympics, where participants represent their country and gold medalist hear their national anthem played during medal ceremonies. Through these events, national identity is reinforced. However, sports can also be used as a method to assign identity and undermine attempts by certain political entities to assert their own identities.

The purpose of this paper is to examine the role the name “Chinese Taipei” plays in the (de)construction of Taiwanese national identity. It is being argued that by using this moniker in international sporting events, Taiwan is assigned an identity that undermines its own attempts to create recognition of its government as being separate from mainland China. It is being posited, however, that despite this assigned identity Taiwan is still able to compete on the same playing field as internationally-recognized states. Thus, the sports place becomes a center for which questions of Taiwanese identity are debated, as well as a place where the political constructs of the nation-state itself are questioned.

## Assessing Vegetation Change in Honduras using Repeat Photography

Eric L. McGregor

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Global forest transitions and landscape change are a notable topic of concern in developing areas around the world. In Honduras landscape change has been studied using a variety of methods including aerial photographs and satellite imagery, interviews and surveys, and repeat photography. This paper seeks to present the preliminary analysis of a study of vegetation change in Honduras using repeat photography as the primary method. Repeat photography involves taking multiple photos of the same geographical locale in the most precise manner possible, at intervals of several years or decades, to provide information for evaluating change. This paper explores the forms that vegetation change takes over about a 50 year period in Honduras. Many of the photographs that were retaken for this project exhibit an increase in vegetation. This increase reveals itself on the landscape in four main forms: 1) reforestation 2) settlement forests 3) agroforestry and 4) randomly scattered forests.

## Seeking Sustainability in Water Resources Management

Christopher F. Meindl

University Of South Florida

Contributions to Southern studies by geographers have traditionally consisted of first-rate scholarship on race, ethnicity, and identity as well as many examinations of agriculture and other economic activities plus some high quality physical geographic studies. Although writers such as Craig Colten (2005; 2008) have published widely on selected aspects of what might be called “environmental geography in the South,” not until recently have several other geographers joined him in producing place-based studies which put human environment interaction in the South at center stage. For example, a recent edition of the *Southeastern Geographer*, and the fall 2010 meeting of the Southeast Division of the Association of American Geographers (SEDAAG), both featured several papers that contribute to what might be called a “political ecology of the South.” Yet despite the prominence of sustainability discourse both inside and outside geography (Sneddon 2000; Daly 2002; Kates et al. 2005; Whitehead 2007; Vanderheiden 2008; Dresner 2008), only one article in the *Southeastern Geographer* since 2000 has used “sustainability” as a keyword (Hill and Abbott 2009). This paper takes a somewhat different approach to southern environmental studies in that it wrestles with the meaning of sustainability—particularly the relationship between water resources management and economic growth in Florida.

# Indigenous Literature and the Ecopolitics of Traditional Ecological Knowledge in Environmental Impact Assessment: A Case Study from Haisla Territory

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University of Georgia

Tyler McCreary  
York University

Recent years have seen a rise in calls for and research in community-based natural resource management (CBNRM) as well as greater inclusion of local knowledge in environmental planning and conservation. In Canada, this trend along with ongoing Indigenous activism has led to mandatory inclusion of traditional ecological knowledge (TEK) in environmental impact assessments (EIA). However, researchers tasked with merging these forms of knowledge are given little guidance, and insufficient resources are dedicated to this complicated negotiation of ecopolitics. At the transnational scale at which community-based natural resource management is theorized, this paper explores contemporary debates about the ontological and epistemological frameworks that underlie conceptions of TEK and EIA. Speaking to these debates, we focus on a specific local context: Haisla territory near Kitimaat, British Columbia, where Kitimat LNG has proposed the construction of a liquefied natural gas pipeline. We examine Kitimat LNG's Environmental Assessment Report (2005) with particular attention to its use of TEK. We also analyze parallel theoretical debates in the academic reception of Eden Robinson's novel, *Monkey Beach* (2000), as a work of Indigenous literature that explicitly treats ecopolitical issues in Haisla territory. Finally, we discuss the possible consequences of this cross-fertilization of theory at the local scale.

Crying for the Master: Space, Historical Empathy, and the Marginalization of the Enslaved by  
Plantation Tour Guides

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Tour guides at southern plantation house museums have been criticized for ignoring or misrepresenting the history of the enslaved. Some plantation tours have responded by including more references to slavery, but rarely move beyond mere factual descriptions of the slave community. In contrast, many docents make the lives of the planter family come alive for visitors through dramatic, emotionally evocative accounts. The term “affective inequality” captures the uneven way in which visitors are encouraged to empathize with the planter family over the enslaved. The purpose of this paper is to engage, conceptually and empirically, the concept of affective inequality, how it contributes to the marginalization of the history of the slave community, and how it becomes reproduced within the practices of tour guides at southern plantation house museums. A retracing of portions of docent-led tours at Destrehan Plantation in Louisiana is used to demonstrate how guides encourage an emotional investment in the planter family by telling certain historical stories in certain spaces and through the specific spatial and narrative order of the tour.

## NETWORKS OF DISASTER INFORMATION: MAPPING THE FLOW OF INFORMATION

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There has been a great deal of research on the public's use of information regarding severe weather events, with differences found to be due to varying contexts, experiences, and knowledge that influence use of that information, as do the sources and content of the information itself. It should be expected that the same is true of emergency managers, but much less work has been done addressing this. This project is aimed at understanding the flow of information through the network of emergency management functions and how that flow is affected by the type, format, and timing of the information as well as the individual's responsibilities, experiences and knowledge. Through focus groups of emergency managers in different positions, an adaptation of the Class, Responsibility, Collaboration (CRC) Cards methodology was used to elicit who gets what information from whom at different stages of an impending event. Preliminary results show the differing time frames in which information is needed as well as the networks of communication among different emergency functions. Through this project, processes and products can be developed to facilitate collaboration among emergency management functions.

## Geospatial analysis of child pedestrian crashes around public schools in Atlanta, Georgia

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Dajun Dai

Georgia State University

Although studies have examined pedestrian-vehicle accidents in Atlanta, Georgia, little attention has been paid to child pedestrian crashes. Previous studies suggest that these accidents occur near or around local areas of schools, and that they tend to take place during school-commuting hours. The purpose of this study is to examine and analyze the child pedestrian crashes that have occurred in the five core counties in the Metropolitan Atlanta area. The initial focus is on DeKalb County because of its location, proximity to downtown Atlanta, and the “walkability” of its suburbs. The study’s boundaries are then extended to the remaining core counties: Fulton, Clayton, Cobb and Gwinnett. Spatial analysis techniques in Geographic Information Systems (GIS) are used to investigate the patterns of child pedestrian crashes. Results suggest that these child pedestrian crashes are spatially associated with the local schools. Spatial statistical methods are then used to determine whether the spatial associations are statistically significant and to identify where these accidents occurred.

## Gated Communities: Institutionalizing Social Stratification

Larry Joe Morgan

Jacksonville State University

The idea and development of “gated communities” and / or privatized spaces has become more pronounced in recent years. These developments have generated a significant amount of interest in academic communities and various disciplines. Many theories and evaluations have begun to surface covering a range of considerations from social inequality to quasi-government organizations providing services and infrastructure for their development. There are a limited number of empirical studies thus far. Theories still in development provide a range of perspectives for consideration. The foci for the most recent studies range from an increased concern about metropolitan fragmentation to political incorporation. At one end, socio-economic and demographic segmentation and segregation has been suggested as resulting in a further fragmented social structure. It is believed that this process is exacerbating social ills by creating pockets of economic, cultural, and social within-group homogeneity, leading to social, cultural, and structural dissimilarities between communities. Conversely, there are ideals of geopolitical public/private utopian partnerships that reduce crime, and increase security while holding down public infrastructural costs, and enhancing tax revenues by increasing property values. Neither of these extremes should be ignored.

## Roll-off in Charlotte: A Study of Demographic and Ballot Structure Effects on Voting Behavior

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University of North Carolina at Charlotte

Roll-off is the study of a voter's failure to vote on a specific race after voting on other races listed on the ballot. Research on roll-off is primarily interested in understanding why an individual fails to cast a completed ballot. Scholars have used demographic, socioeconomic, and election system-specific approaches to determine why roll-off occurs. Bond elections are the specific focus of the paper. The City of Charlotte, North Carolina was chosen for analysis. The scale of the research was undertaken at the precinct-level for eighteen bond elections spanning the time period of 2004-2008. This research examined to what extent roll-off is explained by demographic and election system-specific variables. Through the usage of Standard Least Squares regression it was concluded that the explanatory variables accounted for the majority of the incidence in roll-off for bond elections in Charlotte. Residual analysis emphasized the importance of scale and highlighted concerns with data collection practices.

## Pit Avulsions and Planform Change on a Mined River Floodplain: Tangipahoa River, Louisiana

Joann Mossa

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Floodplain mining creates a geomorphologically vulnerable landscape, comprised of pits, ponds and piles with minimal vegetation. During floods, when stages can exceed bankfull by several feet, all or part of the channel may divert into a pit, re-routing the flow and producing planform and profile changes in alluvial landscapes. Using geospatial data from the mined Tangipahoa River floodplain for 1980 to 2004, the objectives of this study are: 1) to assess how pit area and location affect the potential for diversion; 2) to better understand the relations between channel planform changes, pit diversions, and mining activity in general. Of the 56 pits mapped in the floodplain in 1980, 6 were captured by the 2004 channel. Pits where avulsions occurred were closer to the main channel than those which were not captured, but the areas of captured and non-captured pits were not significantly different. Although proximity of floodplain pits matters more than the size of pits, in terms of the likelihood for avulsion, avulsions into large pits caused more channel change. Results will be useful in understanding landscape vulnerability and can be applied to river management and restoration.

## A Mixed-level Spatial Clustering Method for Generating Sound Regions

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University of South Carolina

For many spatial clustering methods, a challenge demanding prompt solution is to make sound meanings of results including aligning with administrative boundaries. However, it has been seen quite often that resulting clusters are across boundaries and are not necessarily compact and Gerrymandering-free. This makes it not easy for policy makers and other stakeholders to envision the information and make decisions. In practice, some would rather slightly compromise clustering criteria to keep upper-level geographic units' boundaries in order to simplify clustering results and make more sense. A mixed-level spatial clustering method is proposed. The method aims to preserve upper-level geographic units such as counties, and minimize operations at the individual data level such as at census tract level. Four general steps are designed and presented, together with detailed scenario classification and related calculation. A natural spreading clustering algorithm is explored to best fit the value constraints. One benefit of the method is that the resulting regions still look familiar, or “make sense” – thus are named sound regions. A case study in Louisiana is followed to demonstrate the method and identify the advantages and limitations for using this method in GIS and health.

## ENSO FORCED CHANGES IN PRECIPITATION DISTRIBUTIONS AND RELATED GLOBAL CIRCULATION PATTERNS: GULF OF MEXICO REGION

Robert Munroe

East Carolina University

The El Nino Southern Oscillation (ENSO) forced precipitation is well documented in several regions around the world. Mid-latitude atmospheric circulations' contribution towards extreme precipitation during ENSO is less well understood. The objective of this research is to improve understanding of the link between ENSO, extreme precipitation, and the role of regional atmospheric circulations. ENSO forced precipitation across the Gulf of Mexico region for the months of August through January are examined. Of those months, October and December display significant spatial patterns and are selected for a synoptic analysis of six grid boxes to represent five regions of large scale ENSO forcing. Primary findings indicate subtropical jet stream winds are significantly different and stronger during El Nino, especially for the month of October. Differences in the cumulative distribution function (CDF) at lower rain rates seem to be more related to the strength and position of the polar jet and may be influenced by jet-interactions. Extreme precipitation during La Nina was traced to a weaker polar jet and the subtropical jet positioned away from the study region.

Chamomile Blossoms, Small Intestines, and the Etheric World:  
The Production of Epistemological Space and the Biodynamic Farm

Michael Nesius

Florida State University

Alternative agricultural practices have been described as an epistemological challenge to conventional, industrial-style agriculture and its particular scientific world view. One of the earliest forms of alternative agriculture was that inspired by the anthroposophical teachings of Rudolph Steiner, commonly referred to as biodynamic agriculture. By using a disciplined approach to intuition and experience, biodynamic practitioners seek to harness cosmic forces and restore the holistic balance necessary for productive and healthy farms. By approaching agricultural production from this spiritually informed perspective, biodynamic farmers are creating distinct landscapes that have their own ways of materializing problems of ecological imbalance and presenting mechanisms for their resolution. Through the use of discourse analysis involving biodynamic agriculture's seminal texts and informal interviews with several local farmers that apply these techniques, I explore the character of biodynamic agriculture's epistemological challenge to industrial practices and the re-constitution of 'nature' manifest in their agricultural landscapes.

## Commodified Forests: Revealing the Social Impacts of Global Climate Change Mitigation Policy

Jonathan Otto

University of Kentucky

Ecosystem services are naturally-provided services which perform important functions for human and ecological systems. Trees, for example, sequester CO<sub>2</sub> from the atmosphere, a benefit that has come to be seen by global environmental policy makers as a key mechanism for offsetting CO<sub>2</sub> emissions and mitigating global climate change. This can be seen in attempts to formally encourage the preservation and expansion of forest carbon fixing services through the formation of carbon markets through the Kyoto Protocol and other voluntary measures in which ecosystem services are preserved and produced through forest carbon projects and traded in the form of “carbon credits.” These projects are touted by global environmental policy makers as key to offsetting CO<sub>2</sub> emissions and encouraging economic development in communities which participate in them. I argue, however, that despite claims which highlight the benefits of forest carbon projects these projects must be closely examined in order to understand the local level effects of global environmental policy.

Geomorphic evaluation of channel dredging to control contaminated sediment transport in Big River, Old Lead Belt, eastern Missouri

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Missouri State University

Robert T. Pavlowsky  
Missouri State University

Derek J. Martin  
University of Tennessee

This project evaluates the feasibility of channel dredging to reduce the downstream transport of mining-contaminated sediment at two sites on the Big River in the Old Lead Belt, eastern Missouri. One site is located behind a low water dam and the other site at the head of a point bar complex. At each site, one pre-excavation and three post-excavation surveys were completed with a total station along closely spaced transects. The two sites were affected differently. The low bridge site returned to its initial condition within a relatively short period of two to five months. At the bar site, vegetated areas were removed increasing both the flood inundation frequency of erodible bar areas and the overall bar erosion rate. In fact, the bar lost by flood erosion an additional 262 yd<sup>3</sup> of sediment beyond that removed by excavation (about 500 yd<sup>3</sup>). Conclusions are (i) low-water bridge/dam sites seem to be a preferred alternative to bar sites; (ii) excavation volumes involved were relatively small compared to river sediment load and deposition rates; (iii) vegetated bar head features should be left intact; and (iv) future mitigation plans should focus on assessing bar tail borrow sites for routine operations.

## Improving Thematic Accuracy For Toolik Lake Region By Adopting Watershed Level Classification Approach

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Roy Stine

University of North Carolina at Greensboro

Climate change is showing drastic impacts on the ecosystems in Alaskan Arctic. Alterations in landscapes such as rapidly melting permafrost and changes in vegetation composition are bound to influence nutrient inputs into the Arctic lakes and change their productivity levels. Due to its geographical location and extreme seasonal conditions, not only very less has been explored in that direction but also all historic studies have displayed lower thematic accuracies for remote sensing based maps. For modeling precisely lake-landscape interactions in the Toolik Lake Region of Alaska, highly accurate maps based on an ecologically significant land cover scheme were a major necessity of the modeling. After proposing such a scheme, a SPOT image was classified at watershed level using ISODATA clustering combined with knowledge based classifier to avoid spectral overlap. The average overall accuracy obtained was 88% with Kappa value of 0.83. It was observed that this approach was relatively successful in eliminating spectral overlap between major land cover classes and producing more accurate classification with more meaningful land cover scheme for ecological studies.

## Channel Morphology and Sediment Characteristics of Ozark Rivers

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Derek J. Martin  
University of Tennessee

Marc R. Owen  
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Recent population growth has raised concerns over the influence of anthropogenic disturbances on river systems and water resources in the Ozarks region. This study reports the results of a 2009 geomorphic assessment of rivers in the Ozark Highlands in SW Missouri and NW Arkansas. Non-point sources of fine sediment and excessive gravel inputs were found to be the primary water quality threats. Fine sediment deposition on the bed indicates that there are upstream sources of sediment in excess of natural loads, possibly coming from localized bank erosion or tributary inputs. Fine gravel has in-filled pore spaces within undisturbed cobble beds. This coarse-sediment problem stems from a long history of human disturbance in the Ozarks with pulses of gravel released to rivers by hill slope and bank erosion. Fine gravel sources and gravel bar dynamics need to be monitored in Ozark rivers to better understand the effects of fine gravel embeddedness on channel stability, natural water filtering capacity, and aquatic life.

Weather patterns associated with rip currents in the contiguous United States coastal ocean areas

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University of South Florida

Florida had far more rip current victims than any other state with 236 deaths from 1994-2009 compared to California in second place with 43 deaths. North Carolina (36), Alabama (23), and New Jersey (22) round out the top five states with the most rip current deaths. About 10 percent of rip current deaths are rescuers trying to save a victim. Around 95 percent of all the rip current drowning victims are male. Prior research shows the primary factors associated with rip current formation are longshore variations in the local beach bathymetry, longshore waves of varying height, and lower tidal stages. Composite analyses of wind and sea level pressure from the waters surrounding the 48 contiguous states indicate common weather patterns associated with rip current deaths and injuries. Those weather patterns appear more consistent for lower latitudes where the subtropical high provides more consistent influences. At higher latitudes it is typically a combination of semi-permanent high pressure and migrating areas of low pressure. Typically, it is an extended fetch of wind towards the coastal area that produces the rip current conditions. When these patterns are noted in forecast models, forecasters who predict rip currents may be able to provide more lead time for ocean rescue services to plan for staffing.

## Frequency and Duration of Late-Summer Heat Waves in Georgia

Myron Petro

University Of Georgia

Heat waves are one of the most deadly atmospheric phenomena in the United States. The southeastern United States in particular has shown a tendency for heat waves to occur in the later summer months between August and September. Our study focuses on establishing a climatology for the occurrence of Heat Waves within the state of Georgia. Six sites were chosen based on spatial distribution across the state as well as completeness of their data record from 1949 to June 2009. The criteria established by Meehl and Tebaldi 2004 is used to quantify heat wave frequency and duration for the climate record in question. For every site, at least 20% of heat waves occur during August and September, a significant percentage considering June and July are perceived by the public as the months for extreme heat. Late-summer heat waves average at least five days, slightly less than the average for all events. These events pose a significant hazard to those unaware of their occurrence late in the summer season.

## Modes and Models of Geomorphic Change in the Guadalupe/San Antonio River Delta

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Soils of the Guadalupe/San Antonio River delta are differentiated based on factors that reflect topography, hydroperiod, depositional environment, channel change, and saltwater influence. They can thus be interpreted as different states of the delta system, and analyzed via state-and-transition models. The purpose of this paper is to assess the modes of geomorphic change in the delta of the Guadalupe and San Antonio Rivers in south Texas (Figure 1), using a new conceptual and analytical model for environmental changes in complex landscapes. The model is based on applications of algebraic graph theory to state-and-transition models. A spatial adjacency matrix for the nine soil types mapped in the delta has values of spectral radius and algebraic connectivity which suggest that changes associated with, e.g., sea level rise or freshwater inflows would be manifest relatively rapidly, and in a spatially complex pattern, rather than along a simple serial gradient or successional sequence. However, these values are considerably less than those associated with random transitions, indicating the soil geomorphology relationships can be used to significantly constrain the pattern.

## Latino Migration and Neoliberalism in the US South: Notes Toward a Rural Cosmopolitanism

Jeff Popke

East Carolina University

This paper examines the relationship between the discourses of neoliberalism and understandings of Latino migration in the rural US South. As a set of economic policies, neoliberalism has provided the framework for the rapid globalization of rural areas and recent increases in Latino migration. At the same time, however, neoliberal discourse depoliticizes economic decision-making and promotes an ethical individualism that narrows the ambit of responsibility toward those same migrants. In opposition to such thinking, I explore the possibilities of a rural cosmopolitanism, which would expand a sense of obligation and mutual regard, and thereby promote a wider net of ethical responsibility.

## The Barbuda Voice: Evoking Place-Based Identity in a Transnational Newspaper

Amy E. Potter  
Louisiana State University

From 1969 to 1990, The Barbuda Voice newspaper informed Barbudans living all over the world of the happenings on and off the island of Barbuda.

Transnational migration studies exploring communication technologies, particularly the role of the internet and cell phones in facilitating greater communication between home and those abroad have neglected “slower” forms of communication, particularly the newspaper, and how it facilitated transnational interactions. The island and its transnational population provide a unique opportunity to examine the early phases of this new phenomenon known as transnational migration through the lens of a monthly newspaper published out of the Bronx, New York, one of the three main centers for Barbudan migration. This paper incorporates content analysis to examine the first five years of publication of this monthly newspaper to explore rich themes of Barbudan identity and land tenure preservation. This paper will suggest that the newspaper facilitated greater transnational migrant involvement on the part of many Barbudans living abroad and that this newspaper served as a catalyst to maintaining and protecting the unique common property regime on the island. The Barbuda Voice questions the assertion that faster modes of communication have facilitated greater transnational ties.

## Actor-Network Theory and Contingency in Tennessee's Partisan Geographies

Nick Quinton  
Florida State University

This presentation addresses the use of geography by particular candidates for public office in Tennessee in their appeals to the electorate and implications for the state's partisan geographies that emerge therein. Comments made during two particular public addresses by three candidates for the 2010 Republican gubernatorial nomination are included for discussion. The events, a Chamber of Commerce meeting in Hendersonville, Tennessee and a Republican Party meeting in Manchester, Tennessee, were chosen as particular moments of unfolding partisan geographies in Tennessee. Actor-network theory (ANT) was employed as the theoretical means to discuss the production of these partisan geographies. The result is an account of electoral process that includes defined though contingent geographies.

Legislated Landscape  
New Deal Farm Subsistence Homestead: McComb, Mississippi

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University of Southern Mississippi

New Deal policies of the 1930s changed the realities of farming and the landscape in Mississippi. This examination endeavors to track the city of McComb during the period of depression and the effect of federal government policies on farming, economics, and residency. The economic devastation wrought by the depression created a highly politicized environment as citizens looked to the government for economic relief. A crisis this severe required exceptional effort to mitigate the economic hardships it created. Mississippi entered the Great Depression well behind the rest of the U. S. In 1930, the Mississippi farm population numbered approximately two-thirds of the population. The majority of whom were sharecroppers and tenant farmers. Given the overwhelmingly agricultural nature of Mississippi's economy, New Deal farm programs would be critical in the state's economic recovery. The actions of the federal government during the Great Depression were an interesting mix of paternalism, desperation, and experimentation. The paternalism of the New Deal demonstrates the lack of economic and political leverage of the subjects of this study, tenant farmers and sharecroppers. How did these underrepresented constituents in McComb, Mississippi fare with regard to New Deal farm policy? How did this program change the landscape in McComb?

The Inactive 2009 Hurricane Season in the North Atlantic Basin:  
An Analysis of Environmental Conditions

David R. Roache

Jennifer M. Collins

University of South Florida

The 2009 North Atlantic hurricane season was below normal when considering overall hurricane activity, however, activity was seen to vary sharply from month to month. All activity in 2009 occurred from August through early November, with highest activity in August, less activity in September and October, and only one tropical cyclone in November. The 2009 hurricane season therefore had a late start, with no storms occurring in June and July. It is shown that for this season, large scale environmental factors forced by the El Niño event such as increased vertical wind shear across the Caribbean and decreased mid-tropospheric relative humidity in the Main Development Region ( $10^{\circ}$  N to  $20^{\circ}$  N and  $20^{\circ}$  W to  $60^{\circ}$  W) contributed strongly to the observed patterns of tropical cyclone activity across the basin. Lastly, the activity in the Atlantic in 2009 is compared to that in the Eastern North Pacific Western Development Region ( $10^{\circ}$  N to  $20^{\circ}$  N and  $116^{\circ}$  W to  $180^{\circ}$ ), and the potential for long-range seasonal forecasting of Atlantic tropical cyclones is noted.

## An Ontological Analysis of States: Organizations vs. Legal Persons

Edward Heath Robinson

The University at Buffalo

The purpose of this paper is to argue states are not organizations, but rather the objective legal persons of international law. The ontological similarities and differences between states and organizations are examined, but, by drawing upon literature in political geography and international law, ultimately shows that states cannot be organizations based in large part on the fact that states can survive the destruction of their organizational structures. Bottazzi and Ferrario's ontology of organizations is of specific interest because it provides "The State of Italy" as an example of an organization that fits their ontological structure. This claim is evaluated and challenged. It is argued that while a state's government may be an organization, the state must be an entity independent from its government or broader socio-political and economic structure. It is argued that when a certain set of conditions is satisfied, a new non-physical legal person is brought into being that is independent of any existing entity.

# People of the Whales and Arctic Climate Change: Iñupiat Adaptation through Cultural Expressions

Chie Sakakibara

Appalachian State University

Based on my ethnographic fieldwork in Barrow and Point Hope, Alaska, this paper reveals how collective uncertainty about the environmental future is expressed and managed in Iñupiaq practices, and by extension, how deeply climate change penetrates the cultural core of their society. To do so, I examine specific ways in which climate change in the Arctic influences Iñupiaq society, particularly those cultural institutions and practices that link people spiritually and materially with bowhead whales. I argue that by influencing the bowhead harvest and the Iñupiat homeland, climate change increases environmental uncertainties that both threaten and intensify human emotions tied to identity. This study is not about the fragility of Iñupiaq society or identity. The Iñupiaq people retain and strengthen their cultural identity to survive unexpected difficulties with an unpredictable environment. By presenting people's voices, this study shows how a whale-centric worldview has been influenced by unpredictable environmental change and how people work toward retaining their identity throughout their physical and spiritual associations with the whales revealed in their enhanced cultural expressions.

MILK AND STRAW OR BIRDS AND WATER: THE POLITICAL ECOLOGY OF  
HIGHLAND GRASSLAND CONSERVATION IN THE TROPICAL ANDES.

Fausto O. Sarmiento

University of Georgia

Power relations of state, church, corporations, local entrepreneurs and non-governmental organizations contest natural resource use in the high mountains of tropical America. Conservation or preservation is exhibited to favor each sector's objectives. The conflict is maximized by the dubious wild status of mountain grasslands. Whether páramo is the natural ecosystem of tropandean highlands is challenged by evidence of pre-Columbian occupation, strong colonial practices favoring herding and straw production, neocolonial programs of livestock rearing and deforestation, and postmodern applications of subsidized dairy, ecotourism and water production. Starting with place naming and the language hegemony of the Andean Páramo, ending with a plea from native communities to integrate poverty alleviation and livelihood (in)security in sustainable development scenarios, I contest páramo. At present, amidst conservation goals of environmental services and biodiversity preservation, the human driver goes unnoticed for funding agendas for global change research: pasture maintenance instead of forest restoration, planting exotics instead of eliminating subsidies for cattle; road building and erosion instead of terracing and social production; tourism facilities catering to visitors instead of residential improvements for locals; and, water production for thirsty cities instead of irrigation for degraded slope lands. Contesting páramo aids in the understanding of the highland grasslands.

## Changing Perceptions of Land in a Gentrifying Southern Appalachian County

Brandon Saunders

Christopher A. Badurek

Appalachian State University

While Appalachia resides in the wealthiest country in the world, it is characterized by a poor population that appears unable to keep up with the demands of modern American life. This research uses the domestic colony model to understand modern Appalachian experience in Watauga County, North Carolina. In particular, it examines the increasing affluence and demand for second and retirement homes or investment properties on a traditional Southern Appalachian community in Watauga County, NC. This research integrates GIS, quantitative assessment of housing density changes, and qualitative data gathered from interviews with six residents in the Triplett community, a relatively underdeveloped section of the county, and six newcomers to the county. Comparison of interviews with residents within the Triplett community and newcomers indicates differing perspectives on land ownership, land use, and the overall direction of development in Watauga County. Triplett residents voiced concern over land ownership as they described newcomers as persons who value land ownership solely as an economic asset rather than a lifetime commitment. While both groups refer to the responsibility of owning land, old timers were more likely to refer to commitment to community and place while newcomers referred to investment and image.

From Devastation to Destination: An Analysis of  
Post-Hurricane Tourism Recovery in the U.S. Southeast

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Aside from the physical damage inflicted by hurricanes, tourism-driven coastal economies are susceptible to non-physical damage produced by a negatively altered destination image. Additionally, social vulnerability, local economic dependence on tourism, and pre-storm destination prominence may affect the rate at which a destination recovers economically. This study aims (1) to identify spatial variations in local tourism recovery rates, (2) to investigate the spatial association of these four non-physical economic, social, and behavioral indicators, and (3) to examine the influence of the four non-physical measures on local tourism recovery rates. The study considers southeastern coastal counties impacted by one of six selected hurricanes between 1998 and 2005. An estimated recovery rate (ERR) for tourism businesses is calculated as a ratio of post-storm to pre-storm payroll and establishment count data. Multi-scalar spatial categorization of comparable tourism destinations and ANOVAs performed on ERRs among these regions serve to identify meaningful agglomerations of similar recovery rates. Principal components analysis (PCA) helps to isolate the most significant and non-covariant of the four non-physical measures within the entire study region and within subregions. Finally, multiple linear regression is used to determine the relative importance of the four factors in estimating the rate of countywide tourism recovery.

Sex and the body: embodying and emulating religious and gender identities

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Using the dominant Christian identity in Swaziland and Swazi gender identities as illustrative examples, this paper argues that much can be gained from considering the ways in which a single bodily action—in this case premarital sex—simultaneously reinforces and transgresses the construction of multiple identities. When multiple identities are taken together, a more complete image of the reasons why individuals engage in certain activities in certain spaces and places is revealed. Further, it becomes clear that in instances where a given action has the potential to transgress an identity that an individual deems worthy of maintaining, that individual may engage in the action with the intention of emulating—rather than fully embodying—that identity in the future. Finally, the paper asserts that moments of discord between two identities maintained by a given individual have the potential to contribute to the alteration of the social expectations upon which one—or both—of the identities is constructed.

## The 'ritual of listening to foreigners' in the multi-tiered integration of Europe

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This paper asks three intertwined questions concerning the integration of national and regional bureaucracies into the supranational system of governance of the EU. The first is why and to what extent national officials support integration into the supranational entity; the second is how they manage their relationship with Brussels. The third one is how the concept of a 'wider Europe' – the partial integration of areas outside the EU border through the Neighborhood Policy – affects local bureaucracies beyond the European Union. In order to answer these questions, this paper draws upon the concept 'ritual of listening to foreigners' and applies it to the attitudes towards 'Europe' of nation-level officials in Bulgaria (inside the EU) and local-level officials in Western Ukraine (outside the EU). Merje Kuus and Janine Wedel used the ritual of listening to foreigners to describe Eastern Europeans' role in shaping Westerners' perceptions of the East. This paper extends the concept to include the transformations of multiple Eastern European 'selves.' In this new light, the 'ritual of listening to foreigners' is a circular relationship transforming both Western programs and Eastern beneficiaries.

## Classifying Extratropical Cyclones in the Southern United States

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Extratropical cyclones (ETC's) in the southern United States are often overlooked when compared to tropical cyclones in the region, and ETC's in the northern United States. Southern ETC's are usually weaker than tropical cyclones and northern ETC's; however, southern ETC's produce a wider range of weather hazards. Although southern ETC's are significant weather events, there is currently not an operational scheme used for identifying, analyzing, and discussing these nameless storms. In this research, we classified eighty-four strong southern ETC's (1970 – 2009) using both manual and automated techniques. Automated classification employed the use of PCA and two methods of Cluster Analysis. We manually identified five distinct formation regions, and seven unique southern ETC types using automated classification. Both manual and automated types generally displayed positive (negative) relationships with El Nino (La Nina).

## A Hydro-climate Analysis of Severe floods in China's Poyang Lake Region

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Poyang Lake in Jiangxi Province is the largest freshwater lake in China and is historically a region of significant floods. Maximum annual lake stage and the number of severe flood events have increased dramatically during the past few decades. This trend is related primarily to levee construction at the periphery of the lake and along the middle Changjiang (Yangtze River) that reduces the area formerly available for floodwater storage. The most severe floods occurred during 1954, 1973, 1983, 1995, and 1998. Each of these floods followed El Nino events that are directly linked to rainfall in the Changjiang basin. The 1954 flood was the largest ever recorded until the 1990s. That year the peak Changjiang stage at Hukou was 21.6 m, which was 1.6 m above the previous record high. The last major flood on the Changjiang was during 1998 when peak Changjiang stage reached 22.59 m, higher than during 1954 even though peak discharge was lower. Two factors account for the record high Poyang Lake stage during 1998. First, new levee construction reduced the available area for floodwater storage. Second, high rainfall in the Poyang watershed resulted in record high tributary discharge.

## Intra-urban Change: People and Perceptions from Columbus, OH and Milwaukee, WI

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Racial/ethnic diversity in the United States has increased significantly in recent decades. More important, however, is that this diversity has spread throughout the nation to mid-sized and smaller urban places. How does growing diversity transform local residential intermixing in neighborhoods? How do these patterns relate to (or not) household experiences? This paper examines changing intermixing in census tracts of Columbus Ohio and Milwaukee, Wisconsin, using a mixed method approach. We look inside the metropolitan areas to ask where and how does growing diversity translate the residential intermixing at local neighborhoods of the two metropolitan areas, both of which are located within the Rustbelt region despite their distinctness in term of economy. Theil Entropy Index serves as a statistic of comparison. Decomposition components (group and scale based) provide a generic understanding of the changing intermixing patterns from 1990 to 2000. Increasing diversity in the MSAs does not necessarily translate into increased intermixing, as the share of intermixing among non-whites have increase over 1990-2000. Concerning household experiences and perceptions on changing neighborhoods, nuanced responses suggest evidence of co-ethnic clustering, steering and block busting in certain locations of the two MSAs.

# Ecotourism and the Kalinago of Dominica: Power, Indigeniety, and the Development Process

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Ecotourism has been increasingly proffered around the world as a tool for sustainable development that inherently promises to improve the welfare of its host communities. However, recent critiques have emerged that question just how well such initiatives have been able to translate this rhetoric into reality. This is of particular concern when dealing with indigenous communities who often enter into these arrangements as some of the most marginalized and powerless members of their society. This work thus seeks to examine how ecotourism in the Carib Territory of Dominica has affected the Kalinago people whose culture has increasingly become a focal point for tourism in the area. Particular attention is given to how relationships of power and understandings of indigeniety both are shaped by and inform the ability of native communities to actively participate in the decision-making processes that ultimately affect them. The fundamental question posed is whether ecotourism can provide native peoples with the agency to negotiate the terms of their own development in such a manner that the goals of each are indeed mutual.

## Perceptions of A Rising Tide: The Outlook on Sea Level Rise in Carteret County

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North Carolina's coastal plain is threatened by rising sea level. One way geography is able to make a contribution to better understanding the effects of climate change on humans, is through the evaluation of the perceptions of residents living in coastal areas. How do coastal residents perceive sea level rise and other climate change impacts? One of the goals of behavioral geography is to analyze public response to the threat of natural hazards. In order to judge how North Carolina coastal residents perceive sea level rise, I conducted phone surveys of 100 Carteret County residents. Questions such as: "How much do you worry about sea levels rising? Are you afraid of losing your homes? Will the consequences of sea level rise be harmful?" were used to determine perception of risk from sea level rise. Some factors that are known to influence human perception. These factors include gender, locus of control, price of residence, education level achieved by the individual, age, and proximity to the coastline. The objective was to determine is socio-economic factors affect perception of risk.

## Using Google Search Data to Track Hurricane Interest

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Google trends and Google Insights are two freely available, searchable databases that track the normalized interest in specific search queries. Using these databases, this paper examines search patterns related to hurricanes. Searching the word “hurricane” using Google Trends shows a predictable seasonal pattern. Yearly spikes in hurricane searches appear to be related to the severity of the storms making landfall. Google Hot Trends tracks the most searched topics on a particular day. Hot search terms prior to landfall dealt with forecast track and evacuation information while searches after landfall included hot terms relating to hurricane damage. Google Insights can be used to compare interest in search terms among geographic areas. During September and August, 2008, which included the landfalls of Hurricanes Gustav and Ike, search interest for the term “hurricane” was recorded. Differences in the relative search interest for “hurricane” among Texas, Florida and Louisiana residents appeared to be related to changes in the 5-day track forecast. Geolocated IP data from Weather Underground were used to determine if similar patterns existed among actual online weather media. Normalized daily visits to Weather Underground during August/September 2008 follow an almost identical pattern as the Google searches.

# Equity in Police Patrol Officer Allocation in Mecklenburg County, North Carolina

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Determining equity in public service provision is a difficult task, as evidenced by the dearth of reliable models available for such assessments. This paper uses a holistic systems approach, incorporating both quantitative and qualitative data, to test for equity in police patrol officer allocation across Mecklenburg County, NC. Results display a strong positive correlation between patrol officers per capita and crime rate. However, some residents perceive a greater inequality in service provision than what is suggested by the data. It is concluded that the systems model must be developed in order to function as a reliable assessment tool for equity in municipal service provision.

# Fusion of LiDAR and Landsat Imagery for Regional Analysis of Land Use along Urban-Rural Gradients

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Rapidly urbanizing regions are notoriously difficult to map with optical remote sensing technologies due to their highly heterogeneous nature. I examined the hypothesis that integrating components of Light Detection and Ranging (LiDAR) with Landsat TM imagery improves discrimination of land-use types in spatially heterogeneous metropolitan areas. I collected training sites of land-use along the urban-rural gradient in Charlotte, NC and compared the classification accuracy of LiDAR-TM fusion to using TM and LiDAR data sources only. To identify spatial resolutions for using the voluminous LiDAR data for large-area assessment, I classified LiDAR and LiDAR-TM data at 1m, 5m, 10m, 15m and 30m resolutions using maximum likelihood (ML) and CART methods. The TM-only approach was classified at 30m using the same methods, resulting in a total of 22 models for comparison. ML classifications of LiDAR-TM fusions showed average increases in overall accuracy of 10% over TM alone and 23% over LiDAR alone. ML classification of LiDAR-TM fusions produced the highest overall accuracies at 1m, 5m, and 10m resolutions (kappa coefficients of 0.86, 0.83, and 0.82, respectively). I conclude that fusion approach significantly improves discrimination among spectrally similar land use types and a spatial resolution of 10m best balances accuracy and data volume challenges.

## We Can Hide Our Rebel Spirit: The Rebel Mascot in American Secondary Schools

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The rebel has long been one of the many symbols of the Confederacy. Like the rebel, emblems like the Confederate Battle Flag, Dixie, and mantras like, "The South Shall Rise Again!", have slowly started to disappear from the public eye. Although scholarship has greatly examined and debated the display of the Confederate Battle Flag, other symbols such as the rebel are just now being brought to discussion. The intention of this presentation is to bring the rebel mascot to the topic of conversation and observe its disappearing place in society. Unlike other symbols, the rebel mascot is an icon of not only the Confederacy, but it has also been adopted by universities, colleges, high schools, and other institutions as a representation of their athletic teams. This presentation will observe the depictions of the rebel mascot in secondary schools across the United States. Its mission is to determine the spatial distribution of the mascot, how the rebel is physically represented, and what type of schools are changing the appearance of their mascot.

## Democracy Carved in Stone: WPA Voting Houses in Kentucky

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During the Great Depression, America's cultural and environmental landscapes underwent unprecedented change. New Deal researchers have dealt effectively with the topics of politics, economics, race and gender, but have not adequately explored how Great Depression policies inscribed itself on the material landscape. The purpose of this study is to investigate the impact of local politics in the creation of New Deal cultural landscapes by examining seventeen WPA voting houses in Rowan County, Kentucky. Specifically, the political history behind the sponsorship, selection, and construction of the voting houses is explored, to determine how the intersection of politics, patronage, and place influenced the county's cultural landscape during this era. These seemingly innocuous buildings are symbolic of the conflicts and negotiations that frequently occurred with New Deal planning, and Rowan County is representative of how politicians often used the WPA for their own purposes, thus influencing the creation or rebuilding of public landscapes at the county level during the Great Depression.

# City Limits? The Impact of Annexation on the Frequency of Municipal Incorporation in North Carolina

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Studies by urban scholars have revealed that new cities (those incorporated in the second half of the 20<sup>th</sup> century) are often created to provide public services, have social and/or economic exclusionary ambitions, or are developed as tax havens for the wealthy. Likewise, many of these same studies also suggest that communities are incorporating to protect themselves from annexation threats. However, very little quantitative research has been conducted on the relationship between annexation and municipal incorporation. One study that has attempted to examine this relationship was Rigos and Spindler's (1991) study. Their research determined that "the fear of impending annexation is one of the most powerful stimuli for the creation of new cities" (Rigos and Spindler 1991, p 80). This study will attempt to build upon their previous work by examining the relationship between annexation and municipal incorporation in North Carolina through a county level analysis of annexation and incorporation activity.

## Spatial Dynamics of the Shipbuilding Industry in the Gulf Coast, 1998-2007

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This paper investigates the spatial dynamics and characteristics of the Gulf Coast shipbuilding industry. The study identifies clusters in Gulf Coast states of Louisiana, Mississippi and Alabama and investigates the observed geography of the ship building industry clusters at the county scale. The research provides a descriptive analysis of observed growth and identifies high-performing counties. The study uses data collected from the US Census County Business Patterns between 1998 and 2007 to explore economic change in the industry's geography. The findings suggest that growth has occurred in shipbuilding industry of the Gulf Coast states largely under the impact of global economic changes and changes in domestic marine trade volume, cost trends and various regulations and laws besides, based on observed growth and relative shares of employment, payroll, and firms.

Social dasymetric population mapping with historical GIS:  
A case study from the Southern Appalachians

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There has been a recent flurry of interest in dasymetric population mapping. The ancillary coverages that underlie current dasymetric methods are, however, abstracted from social context. The resulting regions may indicate density patterns, but not necessarily the social boundaries known to inhabitants. Dasymetric population mapping is capable of capturing the cultural commonality and community interaction that define social spaces. Dasymetric mapping may be improved with methodologies that reflect the ways in which social spaces are established. This research applies a historical GIS methodology for identifying early 20th Century agricultural neighborhoods in southern Appalachia. This example suggests that a diversity of methodologies for mapping population on the scale of lived experience await discovery.

## Use of GIS Modeling for Classifying and Inventorying Carolina Bays

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Carolina bays are a unique wetland type commonly found in the Atlantic coastal plain, with a concentration in the Carolinas. Their distinctive appearance in aerial photography and satellite imagery reveal oval shapes with a northwest to southeast orientation. Carolina bays have in the past been targeted for research and conservation due to their value as ecosystems. Although Georgia and South Carolina have created inventories of their bays for this purpose, North Carolina has no such inventory. This project examines characteristics needed to classify depression wetlands as Carolina Bay and uses cartographic modeling with GIS to inventory the bays of Bladen County, NC. 132 Carolina bays were selected manually and ranked on a 6 inch resolution orthophoto within the Elizabethtown North and White Lake orthophoto quads. The predictive model identified 57% of features identified through aerial imagery, but a more descriptive four category bay ranking system provided more informative results of how well the model worked within each bay category: exemplar, less distinct, baylike, and destroyed bay types. Results from this research may provide a basis for modeling and inventory of the entire range of Carolina bays, defining one of the most curious features of the Atlantic Coastal Plain.

Accounting for multi-scale spatial autocorrelation improves performance of invasive species distribution modeling (iSDM)

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The origins of spatial autocorrelation (SAC) in biogeographical data can be manifold, including population dynamics, autocorrelation in environmental conditions, or missing explanatory variable. However, SAC may be especially important for invasive species distribution models because invaders are influenced by dispersal and colonization processes that result in spatially structured geographical patterns. Here, I examine the efficacy of using a multi-scale framework to account for different origins of SAC and compare non-spatial models with models that account for SAC at multiple levels. I apply one conventional statistical method (GLM) and one non-parametric technique (MAXENT) to data on the invasive forest pathogen *Phytophthora ramorum* (n=3787) to develop four types of models that either ignore spatial context, or incorporate it at (i) a broad scale using trend surface analysis, (ii) a local scale using autocovariates, or (iii) multiple scales using spatial eigenvector mapping. Results show that non-spatial models exhibit lower predictive power than models that incorporate SAC. Dramatic improvements were observed when fine-scale SAC was included, suggesting that local range-confining processes are driving *P. ramorum* invasion. The relative importance of environmental variables was consistent across all models but decreased in spatial models for autocorrelated factors that co-varied with species occurrences. While accounting for SAC reduced the amount of residual autocorrelation for GLM but not for MAXENT, it still improved performance of both methods. This confirms my hypothesis that SAC may be a crucial surrogate for dispersal and colonization processes that determine the spatial distribution of biological invasions.

Borders, Border-Crossing and Political Art in North Carolina

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Since the 1990s the Southeast has experienced a continued and dramatic growth in Latino populations in both rural and urban areas throughout the region. This diverse immigrant population is establishing and building communities, transforming the landscape, and producing both culture and cultural products. In this paper we focus on one cultural producer, a Mexican artist, Cornelio Campos, who lives in North Carolina and whose work represents journeys of Mexico-US migration and imaginaries of political, cultural, and physical boundaries. We argue that Campos' artwork brings the Mexico-US border closer to non-Latina/o audiences in North Carolina and by doing so shapes their geographic imaginations of Latinization. The paper is based on interviews with the artist, observation, and projects conducted by undergraduate students at the University of North Carolina.

## Brewing a new American Tea Industry: Agriculture in Transition

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American agriculture is undergoing major shifts in the types of products grown, the processes employed in their cultivation, and the globally interconnected, highly competitive markets they serve. Realignment is illustrated by a case study of the rejuvenation of the American tea industry, currently at a take-off point. Tea is credited as the second most popular drink in the world after water. Since its introduction to the United States in the late 1700s, tea was cultivated sporadically throughout the southeast. This study of the most commercially successful company - Wadmalaw Island, South Carolina's "American Classic Tea" - will be compared with tea cultivation in Washington, Oregon, California and Hawaii as well as methods used in major countries exporting tea to the U. S. "Transition Theory" provides a useful theoretical framework for this study, emphasizing "the socio-economic, political, cultural and environmental complexities of societal transitions" (Wilson 2007, 14). In the case of tea this manifests as production changes driven by the emergence of a new market, reflecting demands for healthy products produced in an environmentally friendly manner, emphasizing quality over quantity, segmented for a mass market technology-infused production as well as a high cost, hand customized batch product.

## Studying Geography Abroad: Lessons from Experiential Learning in the Philippines

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Unique to geography is that space is our enormous and dynamic laboratory. The paper summarizes planning, experiences, and lessons and simultaneously offers suggestions to make instruction of geography abroad a reinforcing, explorative, thought-provoking and worthwhile experience for both students and faculty. The data have been collected from 5 consecutive years of study abroad instruction and detail how topics in the Philippines are easily transferrable to similar contexts in other developing countries.

## Do A Deal For Jesus: Faith, Gentrification, and Atlanta's Urban Political Economy

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In this paper, we examine the role of faith in the urban political economy. Based on a study of an urban ministry and its work to transform several poor neighborhoods in Atlanta, Georgia, we highlight the ways in which “faith” motivates and shapes flows of capital in the (re)making of the urban landscape. We focus on an organization that implements a strategy of theologically-governed gentrification in poor neighborhoods and contributes, the organization argues, to achieving social justice in the city. The idea has been developed and put into practice by Robert Lupton, founder of a Christian urban ministry in Atlanta called FCS Urban Ministries Collective. Lupton argues that faith-motivated “dealmakers” can activate and steer a process of neighborhood transformation that improves the lives of incumbent poor residents and results in communities that are “healthier” because they are racially and economically diverse. Our primary aim is to examine the ways in which FCS has shaped investment (and disinvestment) in specific neighborhoods through its relations across the political economy. Specifically, we focus on three central city neighborhoods, Summerhill, East Lake, and South Atlanta, where FCS sought to activate capital flows governed by values of “faith” through collaborations with state, nonprofit, and for-profit actors, including the Atlanta Housing Authority, philanthropists, business leaders, and community development groups.

Anthropic Signatures in Alluvium of the Upper Little Tennessee River Valley, Southern Blue Ridge Mountains, USA

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This project aimed to compare the physical and chemical characteristics of pre-settlement and post-settlement floodplain sediments, and to identify anthropic signatures in the overbank sediments in the upper Little Tennessee River valley, within the Southern Blue Ridge Mountains. Particle sizes, organic matter content, and adsorbed elements of overbank sediments at three floodplain sites were measured. Optically stimulated luminescence (OSL), radiocarbon ( $^{14}\text{C}$ ),  $^{137}\text{Cs}$  and historic records provided high-resolution chronology. Non-linear power curves were applied to model the depth-age relationship. Sedimentation rates decreased with time during pre-settlement period and increased with time during post-settlement period. Post-settlement average rates were much higher than that during pre-settlement time. Five elements (Ca, P, K, Pb, Hg) clearly differentiate sediments between pre-settlement and post-settlement periods. The higher contents of Ca, P, Pb and Hg and different downcore trend of K/Al were related to increased human activities during post-settlement time. Therefore, sedimentation rates and the five signature elements were designated as anthropic signatures.

Using Remotely Sensed and Geo-spatial Datasets and Sea Level Affecting Marshes Model to Study Coastal Changes

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To understand variation of coastal wetlands, Park initiated the Sea Level Affecting Marshes Model (SLAMM) in 1986. The model simulates changes of landuse and land cover (LULC) types in coastal zones with ground-measurement based inputs. Parameterization of the model is not easy because of the requirement of extensive field measurements. Therefore, alternative approach to provide model's inputs must be sought. Remotely sensed and geo-spatial datasets were explored to deliver the inputs. Using the datasets, we derived as many categories of LULC types determined by SLAMM as possible. Then, for categories required by SLAMM and existing in the study area, but not derivable from the remote sensing and geo-spatial datasets, we recoded the categories into categories obtained from the remote sensing and geo-spatial datasets spatially, and ran the model. Finally, we compared the SLAMM outputs before and after the recoding. At the test site of Washington State, promising results were obtained in the derivation of some SLAMM required LULC types using the remote sensing and geo-spatial datasets, and the recoding of underiable LULC types required by SLAMM into delineated type(s) when cross-comparison of model outputs without and with the recoding.

## Collaboration, Scale and Landscape in the Development of Big Infrastructure

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The need for new means of electricity generation will become increasingly pressing in coming decades. At the present time, many governments are looking to augment the output of renewable energy in their countries. This means, practically, that much new infrastructure for generation is required. Such demand for power plants in various guises has led to local opposition, but also some success stories. This paper explores how geography, and geographers, might contribute usefully to the development of new infrastructure (as many already have). It focuses on the need for collaboration and knowledge-sharing partnerships, the divisive problem of scale in the planning process, and finally how the material landscape change of infrastructure represents another conflict of the local versus the global. Geographers, and geographical insights can help navigate these various problems and provide balanced leadership that could be useful in these often fraught developments.

## The Bible Belt: Shrinking, Relocating and Multiple Buckles

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The term “Bible Belt” was coined by journalist H.L. Mencken following his coverage of the Scopes “monkey” trial in Dayton, Tennessee in 1925. The term has been used regularly since that time to refer to a religiously conservative or fundamentalist region in the southeastern quarter of the United States, though its exact geographic extent remains debatable. Geographers have attempted to define the location of the Bible Belt in the past. Most notably Heatwole defined the geographic extent of the Bible Belt in a 1978 article using 1971 data from the Glenmary Research Center. Using Heatwole’s approach we replicate his effort for 1971, but add analysis for 1980, 1990 and 2000. We find that that the Bible Belt region stretches from northern Texas to western North Carolina, and from Mississippi north to Kentucky. Notably, while the region’s core or “buckle” was located in eastern Tennessee in the 1970s, by 2000 this core had moved west to north-central Texas and southwestern Oklahoma.

## Spatial Heterogeneity in Hotel Room Rates

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This paper aims to investigate spatial heterogeneity issues in modeling hotel room rates. With a sample of star rated hotels in Beijing, spatial expansion models, DARP models, and GWR models are applied to inspect potential determinants of hotel room rates, and capture spatial heterogeneity, which is inherent in the empirical model. The result suggests that star rates, number of rooms, years after opening, distance to airport and road density are major factors influencing hotel room rates. At the end of this research, the estimates from spatial expansion model, DARP model, GWR model are compared. Based on the estimated coefficient for each site over space by spatial visualization, GWR model is found to be more reliable than spatial expansion model and DARP model, in detecting the poly-centric spatial heterogeneity. With regard to spatial dependence in the residuals of each model, GWR is found to be more powerful in capturing spatial heterogeneity without spatial autocorrelation in residuals.

# A New Spatial Scan Method for Detecting Disease Clusters with Arbitrary Shapes

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Detecting spatial disease clusters with arbitrary shapes has generated considerable interests within the subject area of public health. Spatial scan methods aim to address this issue by trying to test every place in the study region with various cluster sizes to see if it is located in a cluster or not. However, most of existing methods have drawbacks such as enormous computing workloads, peculiar-shape clusters detected, multiple testing problem which may cause some clusters detected just by chance, and so on. In this paper, a new spatial scan method is proposed to address some of those problems. A graph-based search strategy is used, and a new test statistic is designed. In addition, a similarity index is proposed to indicate the degree of match between a cluster estimate and the true cluster. A power test with a set of simulated data indicates that this new method has good capability to rapidly detect spatial disease clusters with arbitrary shapes.

## Land Tenure in Ebenezer Howard's Garden Cities

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The garden city ideas introduced by Englishman Ebenezer Howard at the end of the 19<sup>th</sup> century have had a lasting influence, spawning dozens of master-planned towns in countries across the world. Yet none has achieved the commonwealth system of land tenure that was envisioned by its creator as the key to using spatial planning to achieve social reforms. In the context today of concerns for sustainability and the “greening” of cities, Howard’s ideas for land tenure reform deserve a fresh appraisal. The garden city story also offers an object lesson in the difficulty of achieving social reforms in the face of countervailing economic forces. In this paper, I will review Howard’s ideas and briefly discuss the forces that interceded between the original conception of the garden city and the actual outcomes of the first two English garden cities.