

Abstracts

Florida Society of Geographers (FSG) 43rd Annual Meeting

Allen, Sara E.: Department of Geography, University of South Florida, email: seallen4@mail.usf.edu. *Florida Red Tides: Public Perceptions of Risk*

This research, integrates the theoretical implications of risk perception, the social amplification of risk, and the role of place, in order to explore the various perceptions surrounding Florida's red tides. Unlike many other natural hazards that Floridians face, red tide is enigmatic in that it is a naturally-occurring event, and yet is propagated by anthropogenic forces. Red tides are occurring more frequently, staying onshore longer, and increasing in geographic extent which has profound implication on public health, the local economy, and the biological community. While many of the negative impacts are not easily controllable at this time, some of the secondary impacts can be mitigated through individuals' responses. Unfortunately, public perception and consequent reactions to red tide are unclear. In understanding the response and behavior to these events, then, this research examines public perception of risk as it pertains to red tides. Furthermore, because cultural and social contexts can not be separated from an individual's perception or response, the social amplification of risk framework is used as the underlying theoretical framework. In the process of identifying the significant factors that contribute to an individual's perception of risk, the element of place provides an interesting explanation for the differences in responses and behaviors.

Baynard, Christopher: Department of Geography, University of Florida and Department of World Languages, University of North Florida. *Venezuela's heavy oil belt: extraction, politics and land use change*

This research proposes a change detection method using satellite data to gauge estimates in land use change over large areas where petroleum exploitation takes place. The study area consists of the four operations in Venezuela's heavy oil belt where oil-related infrastructure changes, or petrosapes, are analyzed between 1990 and 2005, corresponding to the before, early, and full production phases.

Given that Venezuelan energy policy calls for increased production, greater state control, and new partnerships with allied state energy companies, it is proposed that political dimensions of human-environment interactions tied to energy policy best explain the land use land cover changes exhibited in a time series of satellite images of the study area.

Three hypotheses are proposed. First, operations where the state oil company and its political allies have a stronger presence undergo greater land use land cover changes. Second, operations with a strong US oil company presence experience lesser change. Finally, the operation with ExxonMobil's participation displays the least amount of land cover change, as the state tries to limit this firm's activities the most.

Results indicate variability in the amount of land use dedicated to petroleum exploration and production among the four operations. These patterns may in turn yield future development trajectories in this zone.

This information is useful to state and multinational energy companies concerned with health, safety and environmental impacts caused by upstream field operations. It is also useful for planning and implementing recovery efforts on disturbed land and may influence future investments in particular countries.

Keywords: heavy oil, Venezuela, energy policy and land use change

Bezdecny, Kris: Center for Urban Transportation Research, University of South Florida.
Integrating GIS into a Transit Development Plan

In the state of Florida, public transportation agencies are required to develop a transit development plan (TDP) by the Florida Department of Transportation. This plan must evaluate existing service, perform a needs assessment, and identify annual actions to implement in the succeeding five years. GIS is becoming a valuable tool, not just in providing descriptive demographic and service maps to supplement the TDP, but also in performing spatial analysis with regards to transit dependency, transit quality of service, and commute patterns. This poster will highlight the advancing methodologies currently being employed with GIS in the TDP.

Bredemeyer, Kristian: Florida State University, Tallahassee, FL
The Vulnerability of Urban Environments to Sea Level Rise: The Case of Florida Cities

The devastation of Hurricane Katrina to the urban and social landscapes along the coasts of Louisiana and Mississippi serve as a warning to coastal residents throughout the country, particularly when the Intergovernmental Panel for Climate Change (IPCC 2001) has outlined the scientific basis for changes in global temperatures and sea levels. New evidence on the melting of ice in Greenland has suggested an accelerated melting of polar ice, contributing to substantial global increases in sea level over the next hundred years. Consequences of sea level rise will likely be felt in the next few decades. An exploration of the impact of such changes on Florida urbanized coasts helps to bring focus on populations vulnerable to sea level rise. This paper proposes scenarios for the consequences of flooding inundation on Florida's largest cities and transportation infrastructure, and employs Geographic Information Systems (GIS) to study vulnerable populations in the context of varying local elevation.

Earls, Julie and Barnali Dixon: Geo-Spatial Analytics Laboratory, University of South Florida St. Petersburg. *Evaluation of the Sensitivity of Fractal Dimension Analysis for Classification of Natural vs. Artificial Wetlands.*

Analysis of the fractal dimension can provide a quantitative measure of the curves of an object, in this case wetland. Since a natural wetland will inherently have more “wiggly” lines than a man-made one; such analysis can perhaps be useful to quickly differentiate between the two types of wetlands using remote sensing. Artificial wetlands are generally characterized by straight lines and simple perimeters such as circles or squares, whereas natural wetlands show far more complex shapes. If proper technique and classification can be performed in this manner, it would vastly reduce time and energy for regulators needing to check on the health of an artificial wetland system in the future and reduce needs for field visits through using GIS and remote sensing in this manner. This study uses fractal theory to analyze the structural characteristic of an object’s shape to differentiate natural wetlands from artificial wetlands. The study area is a selected part of Horse Creek watershed, Florida. Two different sets of imagery: Landsat TM (30m) and DOQQs (1m) were used. The objectives of this study were to determine if the varying input data allows for proper delineation of natural vs. artificial wetlands.

Earnest, Samantha: Ph.D. Candidate Department of Geography, Florida State University. *The Social Construction of Place: A Case Study of Hickory Ground*

This paper examines the social construction of place. It specifically focuses on the controversy surrounding Hickory Ground, an archaeological site in Wetumpka, Alabama, that was the last capital of the Creek nation prior to removal to Oklahoma. This site is variously viewed as an archaeological site with research value, a sacred historical site in need of preservation, or an opportunity for economic development. This example is used to demonstrate that there is no one social construction of any given place; instead, there are multiple constructions that interact through discourse and attendant power relations, ultimately determining what happens to the physical space. This is determined through an analysis of documentary evidence and interviews, wherein I investigate how parties to the conflict employ contested terms, such as heritage, culture, indigeneity, development, and justice in their efforts to construct meanings and futures for the site.

Godwin, Daniel: Department of Geography, University of Florida Undergraduate. *Poverty and Protected Areas in Florida*

Research has suggested that protected areas can have both positive and deleterious effect on the economies of their constituent regions; likewise, many protected areas are established only in areas where land values are low. This paper proposes a method by which economic indicators such as total income per household and poverty rates can be spatially correlated with multiple types of protected areas. This study restricts itself to data from Census 2000 Summary 3 and subdivides Florida’s protected areas by their four most prominent agencies: Florida State Parks, Florida States Forests, National Parks, and

National Forests. Poverty levels are analyzed in the blockgroups within an arbitrary 10 km buffer of the protected areas. At $\alpha = .05$, significance is found around the State Forests, though at the same significance level, analysis of the total income per household per blockgroup results in statistical significance within every class of protected area. Because census data is collected nation wide and has been regularly collected with only minor variation, this methodology has the potential to be scalable both spatially (both smaller and larger) and temporally.

Goldman, Abe, Jane Southworth, Joel Hartter, Michael Binford: Department of Geography, University of Florida. *Successful fortress conservation in a high density region of Uganda*

Kibale National Park in Uganda is one of few remaining mid-altitude forests in eastern Africa. Notable for its diverse primate populations, the park includes 13 primate species and the largest known single community of chimpanzees. Much of the park is surrounded by dense human populations supported by diverse and generally intensive agriculture, often extending up to the park boundaries. In many respects, including its satellite image, the park is a representation of “fortress conservation,” an exclusionary strategy frequently condemned by social scientists. Recent research by geographers, biologists and others, suggests that, despite some incursions, the forest canopy has remained intact for the last several decades; most animal populations within the park (and some outside) have been doing quite well; and attitudes to the park by people living around the park are surprisingly positive – despite the hazards of crop loss to animals and the general absence of direct financial benefit or compensation. Remaining forest and wetland areas outside the park, however, face a different situation due to resource extraction and expanding domestication of the landscape. These results contrast with those recently reported for the Wolong Nature Reserve in China, which has permitted greater access and resource use by local residents. They suggest that fortress conservation may be appropriate and successful in areas of high population density, and that conservation strategies and success are likely to depend on the demographic context of the landscape surrounding the park to a greater degree, and in some different ways, than previously thought.

Gonzales, Jorge: University of Florida. *Errors in providing geographic coordinates in cataloged cartographic materials.*

This paper is to address an efficient universal representation of locations, addresses and areas of the world through geographic coordinates for digitized library cartographic materials; and standardize spatial cataloging information to improve search queries by providing uniform information while addressing the thematic errors that present themselves along the way.

Cataloging is the science (or is that art) of describing physical works and in the case of this paper, cartographic materials (more specifically maps). This paper discusses the

problem with describing coordinates in library bibliographic records. Traditionally, library cataloging elements have lacked certain descriptive information that will meet the needs of today's users for locating spatial resources, especially with the advances in digitization and the availability of metadata. Recently, library cataloging has been struggling to adapt to the needs of locating resources within many new sources and formats of information: cd-roms, Internet/electronic, satellite images, cultural objects, etc. (which reflect georeferenced -spatial- points). However, library cataloging continues to (and strives to) provide a high level of information which results in a high success rate for patron retrieval of bibliographic items. The hope is that identifying the hurdles here as well as those that we will encounter along the way (as we put them in practice) will make it easier in the very near future to keep up with the changes in information technology. Through cooperative efforts at every level, it is important to make the necessary (and in some cases overdue) adjustments in standards, procedures, cataloging rules, and information retrieval services among the contributing and authoritative parties for the benefit of all those needing access to this information.

Graham, Mathew: Department of Geography, University of Florida . *Remote Sensing Measurements of North Central Florida Post Wildfire Burn Severity*

This study examines the use of remote sensing indices developed for measuring post-fire burn severity and applies them to the 1998 Race Track Fire in Alachua County. Most studies to date have ignored the pinelands of the Southeast. There is no standardization of techniques for remote sensing fire severity. A broad evaluation of indices in this important region of forestry provides increased understanding for choosing appropriate methodology for thus said routine evaluation. Historically, the fire frequency in this region is thought to be one of the highest in the United States, and the application of techniques in this region is necessary for land managers, foresters, and fire researchers. Landsat TM and ETM imagery for years 1998, 1999, 2000, 2001, and 2002 are used to subset the Race Track Fire perimeter by near anniversary dates. A model then applies the indices to pixels within the fire perimeter and aggregates them to an appropriately developed scale of severity. Indices are subsequently evaluated against each other and ranked by performance. A second portion of the study will utilize the upcoming controlled burn seasons to perform field measurements on several large controlled burns planned at the Swisher-Ordway Biological Station in Putnam County. Imagery to be acquired in the growing season will undergo similar evaluation using the indices that performed best on the Race Track Fire analysis.

Guck, Michelle and Kevin Segall: Department of Geography, University of Florida, Gainesville, FL. 32611-7315. *Estimation of Mean Monthly Evaporation from the Tiribi Basin, Costa Rica.*

Globally, evaporation from continents accounts for two-thirds of incident precipitation. However it is the most difficult hydrologic flux to measure or to estimate. Growing populations throughout the developing world are placing pressures on water resources in

the face of limited knowledge of their distribution. A simple, spatially-distributed method is presented by which seasonally varying estimates of evaporation may be made using the Thornthwaite approach across the 302.4 km² Tiribí basin. As elevations range from 900m to over 2500m, mean monthly temperatures, the principle variable in the Thornthwaite method, vary spatially and seasonally. However temperatures records within the basin are only available at the Airport (920m) and San José (1172m). Empirical adiabatic lapse rates (ALR) computed on the basis of differences in mean monthly temperatures correspond well to theoretically based estimates of the dry (dry season, Dec-Mar) and saturated (rainy season, May-Oct) ALR, adding credibility to the extrapolation of mean temperatures based on observations at San José, computed monthly ALR and an available DEM. The resultant evaporation fields vary in magnitude (function of temperature), and amplitude (varying ALR), producing greater seasonality at altitude. El Niño-Southern Oscillation causes considerable regional interannual variability in precipitation. The presence/absence of clouds affects temperatures and ALR, thereby producing interannual variability in anticipated evaporation fields. *A priori* classification of ENSO phases applied to the historic records, reveals differences in mean monthly temperatures and ALR, and spatially diverse responses of evaporation to the same regional scale climatic phenomenon.

Harley, Grant and Philip Reeder: Department of Geography, University of South Florida
The Association Between Surface Soils and Cave Sediments in Marion County, Florida

In order to determine the relationships between surface soils and cave sediments in Marion County, Florida, samples were collected within a cave and on the surface directly above the cave. Historical land use and climatic data from the area were also gathered. An aluminum cave sediment core measuring 10cm in diameter and 93cm in depth revealed numerous microstratigraphic laminae, with the uppermost 27cm forming over the last 10 years. A surface soil core revealed soil horizons of A, A1, and E that consisted mainly of sand-size grains. Texture, roundness, sphericity, and pH data from cave sediment and soil horizon samples indicate that the sediments found within the cave are allochthonous, and derived from the surficial soil horizons (A, A1, and E). The cave sediments were deposited by infiltration through a fissure directly connected to the cave passage where the sediments were collected. The construction of a dirt-road directly above the cave, and recent land use practices in the area have affected soil input into the cave. Additional research is being conducted in the study area to better understand sedimentation rates, as well as landscape and cave evolution.

Johns, Rebecca, Barnali Dixon, Deborah Dennison and Robert Stetson:
University of South Florida St. Petersburg. *Space-Time Convergence in the Creation of Opportunities for Violent Crime against Children in Pinellas and Hillsborough Counties, Florida: minimizing access through public policy.*

National attention to direct contact violent crimes against children has resulted in numerous legislative attempts to limit the contact between known sex offenders and

children. Using a situational crime prevention framework, we analyze the effectiveness of Florida statutes that restrict sexual predators from residing within 1000 feet of a school or bus stop. Using GIS, we create and compare three levels of buffer zones around schools and bus stops (“hot spots”) in Pinellas and Hillsborough Counties: the 1000 foot legal buffer zone, a one mile walking zone, and a two mile walking zone from these hot spots. Further, we explore space-time convergence in the creation of opportunity for violent direct contact crimes. Recommendations are made to local policy makers for maximizing crime prevention through a better understanding of the complex spatial and temporal variables impacting opportunity and risk.

Keough, Sara Beth: Ph.D. Candidate, University of Tennessee. *The Influence of Globalization and Technological Innovation on Canada’s Cultural Policy: A Case Study of the St. John’s, Newfoundland Radio Market*

As our access to information increases with the aid of communication technologies, there is concern that cultural homogenization threatens to become a reality. Ironically, in the face of globalization in the media, the local often becomes increasingly important. This study explores how Canada’s cultural policy, known as the Canadian Content regulations, has both local and global implications. In this paper, I examine how Canadian Content regulations apply to radio, and how these radio regulations are influenced by trends in globalization and technological innovation. Results show that radio stations in St. John’s emphasize local (Newfoundland) music in the face of more popular Canadian and American music. In addition, this emphasis on local content ensures the survival of these stations in light of new radio broadcasting technologies such as the internet and satellite radio. This study shows that radio technology brings both local content to global levels, and global content to local levels.

Keellings, David J.: University of Central Florida. *Physiochemical Effects of the Wekiva River on the St. Johns River*

The St. Johns River is a major resource for Florida’s residents and wildlife. The River has many tributaries one of which is the spring fed Wekiva River. The confluence of these rivers is located where the boundaries of Seminole, Lake, and Volusia Counties meet. This confluence of water provides an opportunity to observe the effect on water chemistry when a spring fed river joins a blackwater river. Physiochemical properties of water were measured at 8 stations. Six of these stations were located in the St. Johns River upstream from its confluence with the Wekiva River. One station was placed in the Wekiva River upstream from the confluence and 1 station was placed in the St. Johns River downstream from the confluence. Stations were located in this manner to determine how physiochemical properties of the St. Johns River are affected by water inflowing from the Wekiva River. Specific attention was given to water color, total alkalinity, ammonium, and dissolved oxygen. Sampling was conducted on 15 November, 2006. Preliminary results show elevated total alkalinity and ammonium levels and lowered dissolved oxygen and water color levels present in the St. Johns River downstream from its confluence with the Wekiva River. These data suggest increased

productivity due to altered water chemistry in the St. Johns River as a result of the inflowing Wekiva River. Further research is required to determine the precise cause of this occurrence as to whether or not this is a purely natural process or due to human activities in the surrounding watershed.

Koenig, Kimberly Sarah: Department of Geography, University of South Florida.
Landscape Change in the South Prong Alafia River Drainage Basin

West-central Florida has supplied much of the national and global demand for phosphate for over 100 years. The Alafia River basin has been extensively modified by the strip mining, benefaction, and chemical processing activities associated with the phosphate mining industry. Using aerial photos, an analysis of landscape change in the South Prong Alafia River drainage basin, a 357.4 km² sub basin of the Alafia, between 1940, 1970, and 2004 was conducted. A modified Florida Land Use, Land Cover, and Forms Classification System code (FLUCCS) was used to classify and measure change through the study period. Change in the study area is characterized by a dramatic decline in the area covered by wetlands and streams, lakes and ponds, karst depressions, and undisturbed / other land, of which is compensated for by an increase in anthropogenic activity. Increasing 43.8 km² from 1940 – 1970 and 199.96 km² from 1970 – 2004, phosphate mining activity is the primary force of landscape alteration in the study area. Net change in landscape composition from 1940 – 2004 is 1) phosphate mining (+243.76 km²), 2) surface hydrology (-113.13 km²), 3) urban (+2.42 km²), agriculture (+19.76 km²), and undisturbed / other (-139.66 km²).

Lakhan, Siana: Florida Atlantic University. *Water collection methods: Trinidad.*

The island of Trinidad is highly dependent on surface water as a source for domestic water supply. Many people in this region have limited access to a reliable source of potable water. This study identifies the areas in need of a drinkable source of water, in order to provide the Water and Sewage Authority (WASA) of Trinidad with a better scope of where to allocate budget resources. Increases in industrialization and population are putting more pressure on water resources. People obtain their water from a variety of sources: WASA, rivers and rain. This study looks at how, and from where people in different proximities to an urban core collect and store water. Results indicate that people in urban areas rely least on rivers and rain, but more on WASA as a water source. The storage volumes for urban areas are small (usually a tank) and their water supply is constant. People living in the urban fringe (the area that lies just outside the urban core) rely on a WASA water supply as well as collecting rain and river water. People in this area store the largest volumes of water and find it challenging to obtain potable water. Rural regions depend solely on a rain and river water as a source, storage volume is medium and water supply is surprisingly constant. It is the aim of this study, to know how those who cannot afford water still manage to survive. Gaining insight into the every day life of a household with no access to public water is useful to any organization

interested in improving the current conditions of poor people either through water education by bringing them better access to basic needs.

Leib, Jonathan^a and Jason Dittmer^b: *The Land of 100% Cotton? Performativity, Dixie Outfitters and 'Southern' Identity*

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Over the past two decades, controversy has raged through the American South over the public display of the Confederate Battle Flag. While the most prominent debates have occurred at the state level, disputes have grown at the local level over the wearing of Confederate flag attire in public schools. Fearing racial strife, at least 300 schools have banned the wearing of Confederate flag clothing. However, such bans have not been without controversy, as lawsuits and court cases have occurred. At the center of these controversies is Dewey Barber and his T-shirt business Barber & Company, maker of the 'Dixie Outfitters' line of clothing, which features the battle flag. This presentation examines the debates over the Confederate flag and 'Southern' identity through an examination of Dixie Outfitters T-shirts, the resulting school controversies, and the activities of the company's founder.

Marsik, Matt^a, Karla Rocha^b, Jane Southworth^c, Frank Barra^d, I. Foster Brown^e and Stephen Perz^f. *Road Expansion and Land Cover Change from 1986 to 2006 in Southwestern Amazonia: Deforestation and Cattle Ranching*

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An increase of road networks in the MAP region (Madre de Dios, Peru, Acre, Brasil, and Pando Bolivia, Southwestern Amazonia) will allow the extraction of forest products and increased cattle ranching through improved access to formerly remote areas. A detailed, spatially-explicit study of regional trends in land cover and changes resulting from road construction and expansion will be performed using a Landsat 20-year (1986-2006) time series. Traditional land cover classification analysis coupled with alternative analysis methods using continuous data will investigate land cover change in the MAP region. It is expected that with increasing distance from roads the amount of forest increases due to

restricted internal access and costs of road construction and maintenance, while the amount of pasture decreases due to restricted access and connectivity. Fragmentation of forest nearest roads is greatest in Madre de Dios than in Pando because of ‘prospecting’ whereby pioneer ranchers claim and clear lands before road construction and paving. Consolidated frontier clearing dominates in Acre due to the existence of the paved Interoceanic highway, which has allowed continual, historical access of people to clear forest for pasture and cattle ranching.

Matyas, Corene, J.: Department of Geography, University of Florida. *Florida Tropical Cyclone Rainfall Totals as Related to Storm Location and Intensity*.

This study examines the landfall locations of tropical cyclones (TCs) producing rainfall in Florida, and the distance from the storm track where the maximum rainfall occurred within Florida for TCs during 1980-2005. Results show that maximum rainfall amounts average over 254 mm from 71 TCs, and TCs making landfall as far away as Texas can produce this amount of rainfall in Florida. Many TCs produce their maximum rainfall amounts in Florida within 100 km of the storm track, and a strong inverse relationship exists between rainfall totals and distance from the storm track for hurricanes. However, 20 percent of TCs produce rainfall maxima in Florida over 300 km from the storm track. These findings suggest that people in Florida need to prepare for the possibility of heavy TC rainfall even when the storm’s center is not forecast to pass near their location.

McGowin, Daniel: Florida State University, *Howzit, brah?: Pidgin and the Creation of Hawaiian Identity*

Language has often been linked with national identity, whether it is associated with a particular nation such as Japanese or with the assimilation potential of English in the United States. If this connection is held as being true, then an extension to that should be the use of dialects in the creation of regional identity, with an association of a particular region to the way in which people from that location speak the dominant language.

This paper examines the role of Hawaiian Creole English, also known as Pidgin, in creating a language identity in Hawai’i. It looks at the distinctiveness of Hawaiian Pidgin and also examines the country of origins of many of the words used in everyday speech. The purpose is to create a nexus between Pidgin and the fostering of a Hawaiian identity.

Meindl, Chris: University of South Florida, St. Petersburg, FL, *Floridians and Wetlands*.

Florida has lost approximately nine million acres of wetlands over the past century, and many of these losses occurred at a time when converting wetlands to other uses was openly encouraged. Today, however, wetlands have a high place on the environmental agenda—but wetland losses continue (although at a much slower rate than in previous decades). Developing ecologically and politically sustainable public policy regarding

these environments requires an understanding of what people know and value about wetlands. This presentation reports preliminary results of an effort to document Floridians' perceptions of wetlands, especially their willingness to support public policies that provide greater protection for these environments. Wetland survey data was collected using an Internet survey of Florida college students, and a random telephone survey of Florida residents. In addition to learning about people's perceptions of wetlands, I am interested in learning if a reasonably reliable, traditional (but more expensive) telephone survey of public opinion on wetlands can inexpensively be made more robust by surveying college students via the Internet. Telephone respondents were randomly selected from throughout the state, but Internet data collection relied on the cooperation of several college level instructors around the state who directed students to the survey via the Internet.

Morgan, Derek J.: Florida State University. *Cartographic Visualization of Reported Fraud across Florida*.

With the increasing use of technology the ways that fraud can be committed have increased proportionally. Shopping on the internet, use of credit and debit cards and prevalent use of cell phones are just some of the ways that we have come to a new level of technological dependence. Florida is a state whose economy relies heavily on tourists and retirement related dollars. Both of these market demographics unfortunately lend themselves well to the potential of fraud. Therefore, with increased technological usage and a susceptible economy Florida is a suitable for the study of geographic distribution of fraud. This project seeks to utilize existing data and cartographic techniques to analyze reported fraud rates across the state of Florida.

Mossa, Joanna and David Coley: Department of Geography, University of Florida *Spatiotemporal Variation in Sand Bar Area in the Pascagoula River and Tributaries*.

Sand bars in alluvial rivers provide information about the local bank geology and recent landscape disturbances in humid watersheds. Erodible non-cohesive banks are a major source of sand supply, and increased peak flows associated with various human activities often increases bank erosion. Floodplain and basin sediment supply increases multi-fold when land use and land cover are altered from forest to urban, agriculture or mining. If sand bars are mapped at similar stages, spatial variations in bar area reflect spatial changes in geology and landscape disturbance. Temporal changes in sand bars either reflect temporal variations in landscape disturbance or the occurrence of a recent disturbance event such as a flood. Areas that change in bar area should also show locally higher rates of lateral migration, as bars are rapidly colonized by vegetation, affecting resistance and ultimately channel position. Using a 40 year time series of bar area and lateral migration digitized off aerial photography, maps and digital ortho quarter quads within a GIS framework, this study examines several reaches where bar area changes in the Pascagoula River and its tributaries and infers what processes explain the variations.

North, Leslie A. and Philip E. van Beynen: Department of Geography, University of South Florida, *Applying the Karst Disturbance Index in West-Central, Florida*

A hierarchical, standardized environmental disturbance index, created by van Beynen and Townsend (2005), was specifically designed for karst landscapes. To assess the applicability of the index and provide recommendations for its refinement, the index was applied to four counties in West-Central, Florida. The karst disturbance index consists of 30 indicators contained within the five broad categories: geomorphology, hydrology, atmosphere, biota, and cultural. Data was readily available for most environmental indicators used to construct the index. Overall, levels of disturbance vary between the counties due to the level of urbanization, with the highly populated Hillsborough-Pinellas having higher degrees of disturbance than less developed Pasco-Hernando counties. While this result may seem obvious, the measure of disturbance using many indicators provides benchmarks of levels of disturbance that can be reassessed with time and highlights those aspects of the environment most in need of attention. However, several minor issues arose during the testing: the need for broader indicator descriptions that encompass a variety of scenarios, a new water quality indicator, obsolete data on sinkholes, and a lack of data for biota indicators. The lack of data for certain indicators suggests where future research efforts can be directed; for our region those include species richness and diversity changes in caves and urban groundwater quality.

Novitzky, Peter and Philip Reeder: Department of Geography, University of South Florida, *Qualitative and Quantitative Analysis of the Coastal Karst in Ozello and Crystal Bay in West-Central Florida*

The West-central coast of Florida is a low energy coast underlain with carbonate bedrock. A comparative analysis of two regions, Ozello and Crystal Bay, located in coastal Citrus County was undertaken to understand the processes affecting coastal morphology and karst landscape formation and evolution. The use of remote sensing revealed the temporal aspects of land use change and changes in coastal morphology. Also, field reconnaissance revealed patterns of vegetation growth and the processes that are most responsible for why these two regions appear geomorphically different from each other. Quantitative analysis, using regression, assessed the relationships between the physical characteristics of mangroves in the two areas and their surroundings. Tree height, diameter, density, submergence, and the depth of sediment were all noted and analyzed for ninety individual mangrove trees. The data shows that the physical characteristics of mangroves are different between the regions. Additionally, this research study revealed that similar geomorphic processes occur in both Crystal Bay and the Ozello area, but the characteristics of the carbonate bedrock causes the two regions to be morphologically different.

Kwadwo, Owusu: Department of Geography, University of Florida. *Long-Term Fluctuations in Annual and Seasonal Rainfall Totals in Accra, Ghana, 1895-2005*.

The climate of the southeasterly coastal strip of Ghana and the coasts of neighbouring Togo and Benin, has long been noted for its unusual dryness in comparison to the remainder of monsoonally dominated West Africa. However, like many other long-run precipitation records in this region, the annual rainfall total at Accra indicates marked changes in mean levels, with near long-term mean rainfall in the earliest part of the 20 century, declines in the period 1920-50, above average levels 1950-75, and a decline since then. There are also varying opinions concerning the nature and extent of the control that the El Niño-Southern Oscillation (ENSO) phenomenon exerts on the area. This paper employs wavelet to analyze the rainfall at Accra, 1895-2005, in order to identify the frequencies of major influences on of annual and seasonal totals, and how they have changed. On this basis, the entire record is sub-divided and the changing role of ENSO investigated through the use of lag cross-correlations (rainfall and the Southern Oscillation Index) and application of the simple hypergeometric test to the concurrence of years assigned “*a priori*” to cold and warm phases of ENSO, and years/seasons which yielded totals within various historic quartiles of rainfall totals. Results indicate a seasonally varying dependence of rainfall totals on ENSO, which appears to differ in their significance through the historic record, with stronger correlation at the beginning and end of the major rainy season, being most noticeable in association with wetter quartiles during the earlier part of the twentieth century, and with drier conditions at the end.

Polk, Jason, Philip van Beynen, and Grant Harley: Department of Geography University of South Florida-Tampa, *Late Holocene Paleovegetation changes in Florida: Evidence from $\delta^{13}\text{C}$ in Cave Sediments*

Cave sediments collected from Jennings Cave in Marion County, Florida show $\delta^{13}\text{C}$ variations in their fulvic acids (FAs), which indicate periods of vegetation change caused by climatic influences during the Late Holocene. The carbon isotope record ranges from 35‰ to -21‰, exhibiting variability of ~14‰, which is within the range of C₃ vegetation. This is to be expected in a humid, subtropical forested environment and likely indicates changes in C₃ plant abundance. The most negative $\delta^{13}\text{C}$ value of ~ -35‰ occurred around 1,870 cal yr BP, sharply becoming less negative to -21‰ around 1,800 cal yr BP. A general trend toward more negative values continues until approximately 700 cal yr BP (-34‰). These changes in plant assemblages were in response to changes in available water resources, with increased temperatures and evapotranspiration leading to arid conditions and a shift toward less C₃ vegetation (increased C₄ vegetation) during the MWP. The cave sediment $\delta^{13}\text{C}$ record agrees well with $\delta^{13}\text{C}$ values from a speleothem collected nearby that covers the same time period. Prolonged migration of the ITCZ and NAH affects precipitation in Florida and likely caused vegetation changes during these climatic shifts.

Raulerson, April E. Department of Geography, University of South Florida, E-Mail: araulers@mail.usf.edu. *Hurricane Forecasting, Warning, and Response Systems: A Lake Wales Public Perception Study*

This research investigates the public perception of hurricane forecasting and warning systems with a view to improving response activities. The hazard literature shows that the effectiveness of such systems is contingent upon on the smooth operation of all components of the system and that warning recipients fully understand the implications of the warning message by taking appropriate action. It is argued that public perception of warning systems will vary depending on various socio-demographic factors, such as age, gender, level of education and income, factors that will ultimately influence overall effectiveness. To test this, a questionnaire survey was undertaken of local residents in Lake Wales, Florida, a town that was severely impacted by three hurricanes in the 2004. Preliminary results indicate that some demographic factors appear to influence an individual's willingness and ability to respond, but variation may be more dependent upon experience with the hazard. Further analysis will determine to what extent these are supported.

Robinson, Joshua: University of Florida, Gainesville, FL, *A GIS Investigation of the Kissimmee River Restoration Project*.

In 1992, Congress passed the Water Resources Development Act to return the Kissimmee River to its natural course after years of public outcry. This research is geared towards determining the effects of the US Army Corps of Engineers, and the South Florida Water Management District's efforts to restore the Kissimmee River. A main objective is to determine the size of the human population affected. Implementation of GIS software was used to determine the population affected in the 5 and 100 year flood zones. This project will help determine the effects of the restoration on the human population using geoprocessing tools. After data was collected; the bulk of the analyses were done using geoprocessing tools. A union was used between the flood zone and census layers, and then the field calculator was utilized to determine the population affected. Results of the analyses were that 68 people live in the 5 year flood zone. An additional 21 people live in the 100 year flood zone. A major limitation of these initial results is the modifiable area unit problem (MAUP). Statistical results are affected by the zonation effect, which occurs when fine grained data is grouped into coarser resolution, such as census data. It was assumed that population is evenly distributed in census blocks for this GIS analysis. Additional data, like Land Use/Land Cover (LULC), can be implemented for more realistic results. This restoration will have a considerable impact on both human inhabitants and other aspects of the Kissimmee Basin.

Saari, Brooke R.: University of West Florida, Pensacola, FL, *Post-hurricane interactions between vegetation dynamics, dune recovery, and physical gradients on barrier islands.*

Northwest Florida has been exposed to many extreme storm events during the past few years, resulting in varying impacts on the dune morphology of the barrier island. Post-hurricane dune recovery depends on the establishment of vegetation which in turn depends on sediment mobility, exposure to salt spray and topography. In this study the environmental gradients on Santa Rosa Island were examined after significant morphological changes during Hurricanes Ivan and Dennis. Wind speed, salt spray and sediment movement were measured for a one month period at sites that are representative of the range of hurricane changes to the island morphology (from low impact to breeches). Preliminary results suggest that strong environmental gradients exist and that the gradients are different between sites, largely in response to the pattern of vegetation. This suggests that the level of impact, and the resulting distribution of vegetation, affects the rate and pattern of dune recovery.

Salkowe, Richard^a, Graham A. Tobin^a, and S. Elizabeth Bird^b: *Racial and Ethnic Disparity in Disaster Accounts: A Comparative Analysis from 1885-2005*

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An examination of disaster literature from the late 19th and early 20th centuries frequently attributed a disproportionate amount of criminal activity to ethnic and racial minorities. Accounts of looting, vandalism, and desecration of the dead portrayed an image of a people devoid of social conscience and human compassion. One hundred years later, the social landscape has seemingly changed, stressing diversity and equality. However, while overt racism has diminished, subtle forms of racial and ethnic disparity persist in our reports and accounts of human suffering during disaster events. Through a comparison of the literature over time, we try to shed light both on the persistence of entrenched cultural attitudes to disasters, as well as on how some of those attitudes can be challenged.

Silva, Julie A: Department of Geography and Center for African Studies, University of Florida. silva@geog.ufl.edu. *Neoliberalization and inequality in Mozambique: A case study in the use of iterative mixed method.*

This study uses an iterative, mixed methodology to investigate the effects of agricultural trade on inequality in Mozambique, a country that adopted a neoliberal development program in 1987. The data collection and empirical research were conducted sequentially so that findings at each phase of the analysis could influence the design of later phases. At the regional level, regression results indicate a complex relationship between inequality and agricultural trade. Vegetable trade is associated with higher inequality in southern Mozambique, while cash cropping is associated with lower inequality in the north. Intraregional differences between households may influence trade's impacts on inequality. Qualitative results indicate that the context of agriculture trade—and the

social status of traders—varies greatly across the two regions. In the north, where there are fewer economic opportunities, agricultural trade is perceived as a high status activity and dominated by men. However, in the south, where people have more exposure to other types of employment, the marketing of agricultural goods is seen as an undignified—and generally feminine—activity. These results suggest that trade increases inequality in rural areas of Mozambique where trading has a low social status, but does not increase inequality in those areas where it has a high social status. Taken together, these findings indicate that social factors are working together with economic ones to generate new landscapes of inequality. Therefore an understanding of the social drivers of inequality is necessary for the Mozambican government to mitigate any inequality-increasing effects of neoliberal policies.

Stallins, Tony and Matt Smith: Department of Geography, Florida State University.
Dam-induced forest change along the Apalachicola River, Florida.

This study examines the floodplain of the Apalachicola River, a large river in north Florida which has undergone channel degradation and a decline in river stages since dam closure at its headwaters in the 1950's. Repeat survey data are used to analyze changes in species composition since 1977 in several floodplain forest types. We present evidence of shifts in the forest towards species characteristic of drier conditions, a pattern which is more pronounced for cypress-tupelo forests and within smaller stem size classes.

Stephens, Brail and Laura DuBose: University of West Florida, *Biophysical Controls on Seagrass Structure.*

An instrumented field study was conducted in a seagrass meadow near Big Sabine Point on Santa Rosa Island. The objective of this study was to describe and characterize the biophysical structure of seagrass beds. To supplement the field data, satellite images were examined to quantify and characterized the spatial variation and density and examine the general distribution of seagrass beds along Santa Rosa Island. Using the field and remotely sensed data, the density and distribution of the seagrass was related to the spatial variation in wave height and energy which was collected over a one month period using wave and tide gauges. The degree to which seagrass density and distribution is controlled by local wave energy is examined and the potential for seagrass communities to be self-organized is examined. These results are compared with the layer-scale distribution of seagrass beds, which seems to be determined by local geology.

Dixon, Barnali^a, **Robert Stetson^b**, and Stephen V. Smith^c: *Examining Resolution Effects on the Prediction of the LS Factor for the Revised Universal Soil Loss Equation (RUSLE)*

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LS or the slope length factor is a combination factor for the Revised Universal Soil Loss Equation (RUSLE) it combines both slope steepness and slope length and is an important part of the overall equation. This study compares the effects of different resolutions of the LS factor on calculations of RUSLE for the Southeast United States (Florida, Alabama, Georgia). The study used a 30m Digital Elevation Model (DEM) resampled to 150m and 1km, also DEMs at 30m 150m and 1km to directly calculate LS from the DEM, and a 30m DEM was used to calculate LS without resampling at 30m, 150m and 1km. The slope length was calculated in ArcGIS using the Spatial Analyst extension and Raster Calculator. The main purpose of the study was to see if resolution of the slope length played any significant part in the final outcome of the equation. Considerable differences were noted among the varying resolutions. This study hopes to provide a basis for a future regional soil loss vulnerability map.

Kashiwaya^a, Kenji, Takuya Tsukamoto^b, **Anna Szyniszewska^b**, Gen Sumino^b, Shinya Ochiai^a, Hideo Sakai^c, Takayoshi Kawai^d *High resolution response to long-term solar insolation in the high plateau lacustrine sediments from Lake Hovsgol, Mongolia.*

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Lake Baikal district is a highly sensitive region for changes in solar insolation connected to long-term climatic changes. Located in the middle latitudinal zone, this region is not only affected by westerly circulation, but also controlled by East Asian monsoon. They may be closely related to the existence of the Himalayas and the Tibetan Plateau.

Lake Hovsgol in Mongolia is located in the catchment of Lake Baikal. The elevation of the water surface (1650 m) is 1100 m higher than that of Lake Baikal. Areas for water surface and catchment are 2770 km² and 4920 km² respectively, indicating that lake-catchment ratio is very large. These mean that environmental conditions here are more sensitive to solar insolation and lake sediments are more directly influenced by surrounding catchments.

In 2004, long core samples (81m) named HDP04 were obtained at the depth of 250 m in the central part of Lake Hovsgol (50° 57' 19" N □ 100° 21' 32" E) by an international joint team (Japan, Russia, Korea & Mongolia). Samples were distributed to four countries for physical and chemical analyses. We have been engaged in analyzing mainly physical properties of the samples (grain size, grain density, biSiO₂, etc.). The number of samples for grain size parameter is 3687. We also found B-M boundary at about 57.4m from the upper end on the basis of paleomagnetic measurement. Tentative age scale for the core is estimated with the paleomagnetic data. It seems that the core covers about 1.0-1.2 My. Results for analyses of grain size parameters show that grain size fluctuation was not only closely harmonic with global climatic changes related to solar insolation, but it was sensitively reflected to catchment environment; turbidity-like flows were often seen in the interglacial periods.

Tobin, Graham A. and Linda M. Whiteford: University of South Florida. *Perturbations in a Chronic Disaster: Consequences of the August 2006 Eruption of Mount Tungurahua, Ecuador*

The latest period of activity of Mount Tungurahua, Ecuador has lasted for over seven years with ongoing ash falls and gas releases interspersed by more violent eruptions. In July and August 2006, however, the volcano appeared to enter a new phase with significant pyroclastic flows, lava emissions and ejection of volcanic bombs that directly impacted Chimborazo and Tungurahua Provinces. In the August eruption, at least four people were killed and many were injured, four villages were destroyed, numerous roads and bridges damaged, and rivers blocked by volcanic debris. Eruptions continued for 36 hours blanketing the landscape with tephra deposits that suffocated small animals, destroyed crops, and sickened and killed large animals that were forced to eat grass covered with the ash. Many towns and villages were affected, some people evacuated to shelters, and overall initial losses were estimated at \$4.5 million. This paper uses the cascade of effects model (CEM), developed from continuing research in Ecuador, to describe and analyze the economic and personal consequences of the volcanic eruption, and the disruptive fallout from the recovery in the context of the on-going disaster around Tungurahua.

Walker, Andrew Curtis and Philip Reeder: Department of Geography, University of South Florida, *A Preliminary Analysis of the Geomorphology of Florida's Springs*

An exploratory study of the geomorphology of Florida's springs was conducted using morphometric analysis. Spatial datasets for spring locations, elevation data, physiography, geology and hydrography were acquired for incorporation and analysis with GIS technology. ArcGIS 9 was used to measure certain morphometric parameters from the spatial data for Florida's springs. Other Parameters representing physical and dimensional characteristics of the springs were acquired from FGS Bulletin 66, *Springs of Florida*. The data was described statistically and summarized according to the spatial distribution of the springs with respect to geology and physiography. Analysis of the

springs data base was completed at two scales; 1) the entire population of Florida's 754 springs, with emphasis on geology, physiography, and elevation, and 2) a subset of 102 springs, where all morphometric parameters were examined. It was determined that the karst geomorphology of Florida influences the geographic distribution of the spring resurgences, and that certain geologic units and physiographic regions are associated with the largest number of springs.

Warf, Barney: Department of Geography, Florida State University. *Geographic Perspectives on Religion and the 2004 Presidential Election*. bwarf@coss.fsu.edu.

Religion has long played a central role in American political life. It loomed particularly large in the 2004 presidential election, in which the born-again George W. Bush, strongly backed by conservative evangelicals, confronted the Catholic Democratic candidate, John Kerry. Given how variegated the U.S. political landscape is, different religious faiths align with the Republican or Democratic parties to widely varying extents that are spatially uneven. Using both electoral data and Glenmary data on religious adherence, it estimates the number of voters for each candidate by county who belong to one of ... denominations. The paper then explores the extent to which different denominations supported one candidate or the other. It deploys a multivariate regression model to examine the degree to which different faiths tended to vote for Bush or Kerry, controlling for ethnicity and median family income. The results indicate that race or ethnicity is generally more significant in explaining electoral results than is religion. Maps of the model residuals reveal counties that were particularly enthusiastic or hostile to either candidate.

Waylen, Peter and Carlos Cañas: Department of Geography, University of Florida, Gainesville, FL. 32611-7315. *Ichthyological Procreation in the Upper Amazon: A Flood Hydrologist's Perspective*.

Above its uppermost gauging point at Puerto Maldonado, Peru, the Río Madre de Dios, drains approximately 90,000 km², encompassing both the foothills of the Peruvian Andes and western portions of the Amazon lowlands (<400m). This vast area of ecological and economic significance has only been gauged by the Amazon Conservation Association since September 2001. At least 325 fish species have been observed in the basin many of which constitute an important food source, both in the basin and throughout the Amazon. A number of these, such as the prized sports fish the Dorado, are believed spawn in the tributaries located in the foothills of the Andes. Their larvae are then distributed, apparently during high streamflow events, down the entire length of the Amazon. This paper attempts to provide a simple modeling framework, incorporating what is known about local flood hydrology and fish biology, to provide a series numerical scenarios relating flood occurrences to the number timing and sizes of larval releases into the river basin, against which the limited, but growing records of larval catches at Puerto Maldonado may be compared. The significance of the parameters of these simple stationary models are then viewed within the context of potential local and regional

causes of hydro-climatic variability, which may interact with the biological components of the system to dampen or amplify perturbations.

Webster, Gerald R., Department of Geography, University of Alabama, Tuscaloosa, AL 35487. *Sports, Politics, Nationalism and International Relations*.

Sports and sporting events have become increasingly politicized during the past century. Candidates for public office use their participation in sports as photo opportunities in an effort to “connect” with segments of the electorate. Communities have used sports in an effort to build bridges between different demographic groups to develop a stronger sense of community. Countries use sports to define their national images such that hockey becomes tied to Canada, and a style of soccer becomes uniquely Brazilian. This paper examines the interplay between sports, political identities and international politics. It first discusses how sports can facilitate a sense of commonality between groups of people, followed by a series of examples of the use of sports in international relationships.

Whitaker, Christopher P.: Department of Geography, Florida State University, *Re-charting Complexity In Florida’s Symbolic Landscape: The controversy in Fort Walton Beach, Florida from 1992-2003 over the replacement of Freedom Way Road with Martin Luther King, Jr. Boulevard*.

During recent decades, the memorialization of Dr. Martin Luther King Jr. through the renaming streets in his honor has been common throughout the United States. The controversy often generated at the local level by this effort to alter the symbolic landscape has become a significant topic of study within contemporary Geography. This research has shown that many of the debates over street naming have placed those seeking to memorialize Dr. King’s memory in monuments and streets against those who want to preserve the existing landscape and/or exclude such memorials from the local geography. These conflicts have often situated Whites against African-Americans and have sometimes exhibited strong racial undertones thinly veiled as questions about the choice of streets that were to be renamed or the placement of monuments. It is my contention, however, that analyses utilizing primarily binary race-based categories can sometimes fail to capture the full complexity of these controversies. This presentation will demonstrate this by examining of the dynamics of a conflict that occurred in Fort Walton Beach, Florida between 1992 and 2003 over the renaming of a street previously known as “Freedom Way” in an effort to honor Dr. King. This is an interesting case for study because of the diversity and number of the groups involved. It is also significant because the debate was not about if a road should be named in King’s honor, but instead, if a particular road that had only recently been dedicated to military personnel of all ethnic backgrounds should be renamed. The road in question had been given the patriotic name “Freedom Way” only two years earlier in an effort to memorialize the country’s military forces and the community’s large group of service people, many of whom were ethnic minorities. Later, it also became associated with the sacrifice of local military service people who had died in the first Persian Gulf War. Because of this, the road

possessed considerable meaning for many in the local community who questioned the decision to rename it instead of other candidate streets. The groups opposing the renaming had a diverse composition that contained people from a variety of ethnic backgrounds. This included, for example, the local chapter of the Southern Christian Leadership Council who disagreed with the NAACP over the decision to rename this particular street in honor of Dr. King.

Wolf, Andrea: Department of Geography, University of Florida. *Unique Characteristics of the Yallahs Salt Pond Ecosystem in St. Thomas, Jamaica*

The Salt Pond Lagoons in Yallahs, St. Thomas, Jamaica are comprised of a small and large pond. A sand bar has built up separating the ponds from the ocean. Their proximity to the ocean permits salt water to enter the ponds, but does not allow it to return to the sea. As water evaporates during the dry season, salinity levels can reach 10-14 times the salinity levels of the ocean. This permits species such as *Artemia salina* (brine shrimp) to hatch in great quantities because high salinity levels kill off predators.

The landscape surrounding the pond is dry and barren compared to most of Jamaica, but it contains a diverse world of animal and plant species. There are multiple types of mangroves, American Crocodiles, migrating birds, fish that live in the pond until the salinity levels are so high there is a “fish kill” which attracts vultures, and *Artemia salina*. There are also archae-bacteria, which are believed to be among the first forms of life.

At this time, the Scientific Research Council (SRC), an agency of the Ministry of Science, Technology, and Commerce of the Jamaican government, is attempting to determine the exact conditions that allow for *Artemia salina* blooms. The cysts of *Artemia salina* are easy to harvest, and would provide community members with income if they were consistently available for harvest. There are other income generating and education projects being developed based on the Yallahs Salt Pond ecosystem that could benefit the local economy and education system, as well as conserve the area.

Youliang Qiu: Department of Geography, University of Florida *G-Tree: A Representation Model for Hierarchical Geo-Spatial Data*

Geo-spatial data naturally has hierarchy structure, either implicit or explicit. However, traditional geo-spatial data model and spatial data warehouse cannot fully exploit spatial data to utilize spatial information to get insight into business data for decision making because of the complex of hierarchical structure. In this paper, a new data structure, G-Tree, is proposed to represent hierarchy in geo-spatial data. This approach preserves the existing spatial data schema while building the hierarchy on spatial dimension. This method can utilize the pre-aggregation result in spatial database to improve the performance of spatial query. The prototype system shows that the proposed approach could be integrated easily into the existing spatial database to support spatial analysis.

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Preliminary experiment results for Thailand Social-economic data and University of Florida Alumni data are also presented.