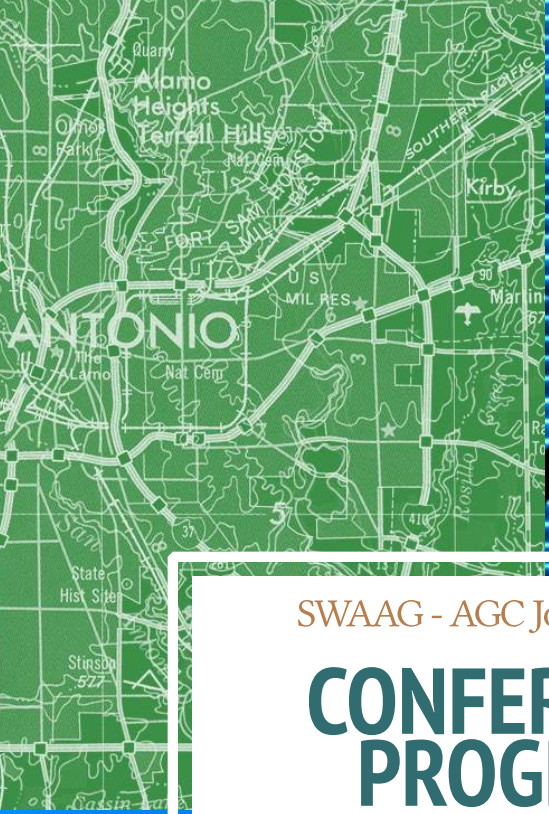

SWAAG - AGC Joint Meeting

CONFERENCE PROGRAM

4-7 November 2015 - San Antonio

Applied Geography Conference

SWAAG
Southwest Division
The Association of American Geographers

Table of Contents

Greetings
From the SWAAG Chair and the AGC Executive Director

Jay Lee
Applied Geography Conference Executive Director

On behalf of the Applied Geography Conferences Board of Directors, I sincerely welcome you to the 38th annual conference! This year's conference is special because we are joined by the Southwest Division AAG with many colleagues and academic departments that are active in applied geography. The conference site, San Antonio, has much to offer conference attendees. We are sure all will enjoy the scenery, food, and hospitality here. To that end, we thank the tireless efforts by members of the local arrangement committee and colleagues in SWAAG. Without their efforts, the joint meeting would not be successful.

This year also marks the first year of publishing the official conference journal, Papers in Applied Geography. All full and student registrations will receive complimentary subscriptions. Please consider contributing your work to the journal as well as urging your university to have an institutional subscription

Next year, Applied Geography Conferences will be in Louisville, Kentucky from October 26th to 29th 2016. Colleagues at the University of Louisville have already begun their preparation to welcome everyone so I urge you to reserve your time and plan to attend. We are sure the 2016 conference will also be a great one to remember.

In addition, please mark on your calendar that the 2017 Applied Geography Conference will be held on a Bahama Cruise from November 13th to 17th, 2017. It will be a revolutionary format that we are sure all will enjoy professionally and socially.

Finally, please keep in mind that Applied Geography Conference's home page, http://applied.geog.kent.edu, is your gateway to all the information you need about the conference. Please visit often to keep up with all of the activities by the conferences.

Michaela Buenemann
Southwest Division of the Association of American Geographers Chair

On behalf of the Southwest Division of the Association of American Geographers (SWAAG) officers, I am thrilled to extend a warm welcome to all participants of this year's SWAAG meeting in beautiful and culturally rich San Antonio, TX. Held jointly with the Applied Geography Conference (AGC), this year's meeting promises to be bigger and better than usual. The meeting program reflects the diverse nature of geography, encompassing hundreds of stimulating paper, poster, and panel presentations in and across all subfields of the discipline. In addition, the program offers numerous field trips, two keynote addresses, several student competitions (including a GeoBowl), an opening reception, an awards banquet, and our SWAAG business meeting. All in all, the meeting provides an outstanding platform for touching base with old friends and colleagues, making new acquaintances, exchanging ideas, broadening horizons, and discovering novel opportunities. We owe a special thank you for organizing this spectacular meeting to the dedicated members of two local host institutions (Texas State University, University of Texas at San Antonio), most notably Ron Hagelman, and also to the board members of the AGC. We express gratitude to the sponsors and presenters for their support and interest, without which it would be impossible for us to hold such a successful conference. We wish you a productive conference and a fun time in San Antonio! For meeting updates and all other things SWAAG, visit our website at www.sw-aag.org and our Facebook page at https://www.facebook.com/southwestaag.

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Special Thanks

Nothing we do, however virtuous, can be accomplished alone.
- Reinhold Niebuhr -

Special thanks go to the following, all of whom contributed greatly to the execution of the 2015 SWAAG-AGC joint meeting:

Texas State University
Angelika Wahl
Richard Earl
Patricia Hell
Allison Glass-Smith
Katie Alonzo
Stella LoPachin
Charles Robinson
Dan Hemenway
Nikki Herrera
Joey Bochat
Maël le Noc
Lindsay Maldonado
Erin Dascher
Thomas Shelton
All Student Volunteers
All Members of the Program and Local Arrangements Committee

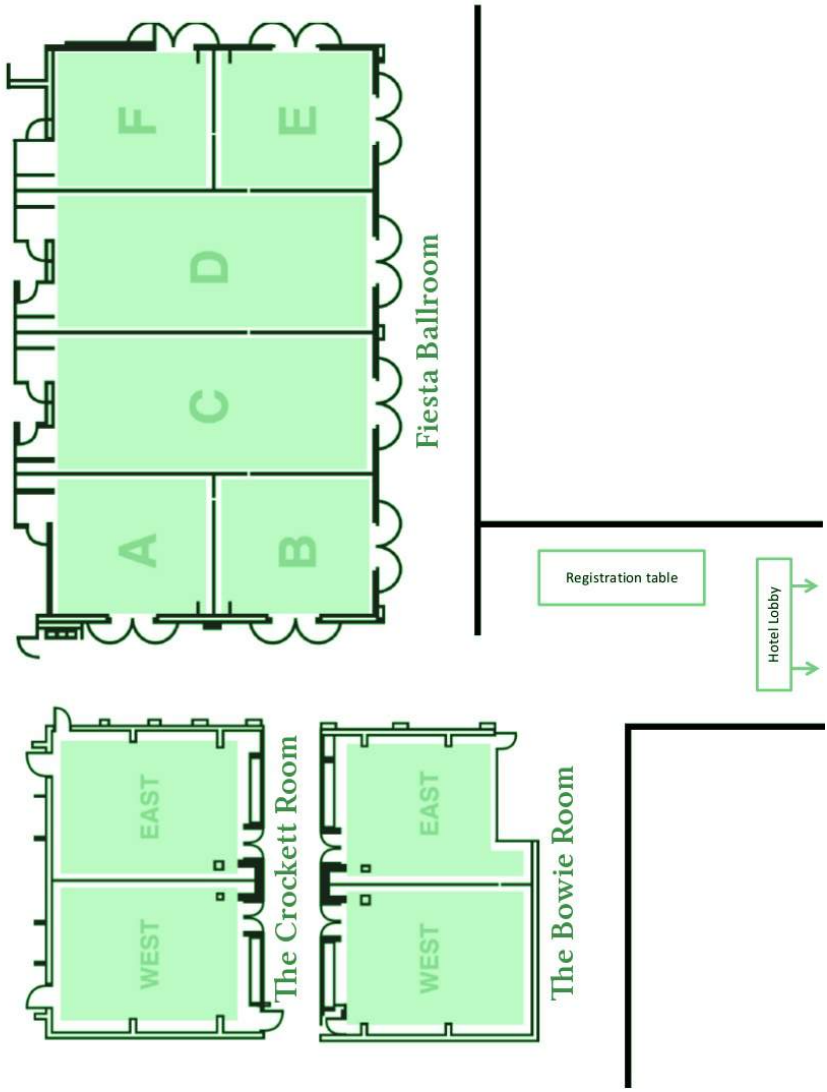
University of Texas at San Antonio
Richard Jones
Miguel de Oliver
Melanie Stine
Raluca Owens

Applied Geography Conference Representatives
Jay Lee, Kent State University
Huanyang (Patrick) Zhao, Kent State Unversity

SWAAG Representatives
Michaela Buenemann, New Mexico State University
Laurel Smith, University of Oklahoma
Jason Julian, Texas State University
Murray Rice, University of North Texas
Darren Purcell, University of Oklahoma

Floor plan

La quinta Inn & Suites San Antonio Riverwalk



Wednesday

10:30 AM – 7:00 PM	Registration	
8:30AM – 1:50 PM	-	Edwards Aquifer tour
1:50 PM – 3:30 PM	Session	
3:30 PM – 3:50 PM	Break	
3:50 PM – 5:30 PM	Session	
7:00 PM – 9:00 PM	Opening Session	

Thursday

7:30 AM – 3:00 PM	Registration
8:30AM – 10:10 AM	Session
10:10 AM - 10:30 AM	Break
10:30 AM – 12 :10 PM	Session
12:10 PM – 1:50 PM	Lunch (on own)
1:50 PM – 3:30 PM	Session
3:30 PM – 3:50 PM	Break
3:50 PM – 5:30 PM	Session
5:30 PM – 6 :30 PM	Geobowl

Friday

7:30 AM – 3:00 PM	Registration	
8:30AM – 10:10 AM	Session	
10:10 AM - 10:30 AM	Break	
10:30 AM – 12 :10 PM	Session	
12:10 PM – 1:50 PM	Lunch (on own)	
1:50 PM – 3:30 PM	Session	Walking tour of King William Historic District
3:30 PM – 3:50 PM	Break	
3:50 PM – 5:30 PM	Session	
5:45 PM – 6 :45 PM	AGC and SWAAG meetings	
7:00 PM – 9:00 PM	Award Banquet and Keynote	

Saturday

8:30 AM – 6:30 PM	The Fermented Landscapes of the Texas Hill Country

Wednesday, November 4 · 8:30am - 5:30pm
Field Trip

8:30 AM - Edwards Aquifer tour
Leader: Rill Illgner, Edwards Aquifer Authority

Wednesday Field Trip
Departure from LaQuinta Riverwalk Lobby

10:30 AM - 7:00 PM
Registration
Registration table

Wednesday, November 4 · 1:50pm - 3:30pm
Paper and Panel Session

Urban Environments A
Crockett East

Session chair:
Brendan L. Lavy
(Texas State University)

1:50 PM - Mapping, Modeling, and Estimating Tree Measurements of Urban Tree Canopy Structure Using Terrestrial LiDAR Scanning (TLS)
Tyler W. Jones, Luke Marzen, and Art Chappelka
Auburn University

2:10 PM - Developing Geospatial Strategies for Urban Greenspace Characterization and Assessment
James K. Lein and Gauray Sinha
Ohio University

2:30 PM - Reexamining Environmental Kuznets Curve for China's Carbon Dioxide Emissions: Evidence from City-Level Data
Zheye Wang
Kent State University

2:50 PM - Detecting Bird Responses to Urbanization: Do Greater Roadrunners Tolerate Humans?
Rebecca Martin and Carol Campbell
New Mexico State University

3:10 PM - The Impact of Past and Future Urban Expansion on Soil Resources in Central Arkansas, 1994-2030
Brendan L. Lavy[1], Jason P. Julian[1], and Rana N. Jawameh[2]
[1]Texas State University, [2]Yamouk University, Jordan

1:50 PM - Development of a Remote Sensing Network for Time-sensitive Detection of Fine Scale Damage to Critical Infrastructure
Christopher Lippitt[1], Douglas A. Stow[2] , Lloyd L. Coulter[2] , Andrew Loerch[1], and Tammira Taylor[1]
[1]University of New Mexico, [2]San Diego State University

2:10 PM - Assessing the accuracy of capacity estimates using the Remote Sensing Communication Model for Time-Sensitive Remote Sensing Systems
Andrew Loerch and Christopher D. Lippitt
University of New Mexico

2:30 PM - Promoting Adoption of Pre-Fabricated Bamboo Module Housing in Earthquake Rural Areas in China
Yuxi Zhao[1] and Suying Li[2]
[1]Ohio State University, [2]Beijing Forestry University, China

2:50 PM - Evaluating the Effectiveness of DWI 'No Refusal' Blood Draw Search Warrant Programs to Reduce Alcohol-Related Traffic Crashes in Central Texas
Christine Love Ames
Texas State University

Hazards and Disasters
Crockett West

Session chair:
Christine Ames
(Texas State University)

3:30 PM - 3:50 PM
Break

Wednesday, November 4 · 3:50pm - 5:30pm
Paper Session

Climate and Hazards A
Fiesta B

Session chair:
Richard Earl
(Texas State University)

3:50 PM - Spatial and Temporal patterns of Comprehensive Climate Index Extremes in the Mink Region
John Harrington, Jr.[1], Hayati Koknaroglu[2], and Terry Mader[3]
[1]Kansas State University, [2]Suleyman Demirel University, [3]Mader Consulting, Nebraska

4:10 PM - Precipitation Cycles – What's Causing All the Flooding?
Akanksha Goel
University of Oklahoma

4:30 PM - Air Temperature and Death Rates in Texas: An Ecological Study
John Hart
Hart Chiropractic

4:50 PM - Asymmetrical Response To Flood Hazards In South Central Texas
Richard Earl and James Vaughan
Texas State University

3:50 PM - Emergency Department Usage in St. Clair County, Illinois
Stacey R. Brown and Steven Stehnach
Southern Illinois Univeristy Edwardsville

4:10 PM - Measuring Access to Primary Care Physicians among American Indian Population in South Dakota - Integrating Spatial and Aspatial Factors
Yan Lin[1] and Xi Gong[2]
[1]South Dakota State University, [2]Texas State University

4:30 PM - The Relationship between Children Obesity and Socioeconomic Status and its Spatial Variation in Texas
He Jin, Yongmei Lu, and Edwin T. Chow
Texas State University

4:50 PM - Landscape of cervical cancer screening, diagnostic, and pre-cancerous treatment services in New Mexico, USA: A study in comparative proximity analysis methods
Yolanda McDonald, Aida Guhlin, Amanda Lampley, and Daniel W. Goldberg
Texas A&M University

5:10 PM - Development of an Environmental Health Indicator
Benjamin Zhan, Xi Gong, Jean D. Brender, and Peter H. Langlois
Texas State University

Health Geography

Crockett West

Session chair:
Benjamin Zhan
(Texas State University)

Biogeography

Bowie East A

Session chair:
Jeremy Johnson
(Texas A&M University)

3:50 PM - Population trends of American Crow (Corvus brachyrynchos) and White-winged Dove (Zenaida asiatica) during an agricultural shift in the southern Rio Grande valley of New Mexico.
Erich K. Druskat , Walter G. Whitford, and Carol Campbell
New Mexico State University

4:10 PM - Object-based image analysis of tree mortality in a piñon-juniper woodland
Caitlin Lippitt
University of New Mexico

4:30 PM - Influence of Productivity and Disturbance on Plant Species Diversity across the Grasslands of the Great Plains
Scott McConaghy and Charles W. Lafon
Texas A&M University

4:50 PM - Cast your fate to the wind: Long-distance-dispersal in Mountain Hemlock
Jeremy Johnson, David M. Cairns and Keith D. Gaddis,
Texas A&M University

Cartography and Historical GIS

Bowie West

Session chair:
Maël Le Noc
(Texas State University)

3:50 PM - Visualizing Dialect Variation on A 3-D Interpolated Map: A Case Study in Chiang Mail, Thailand
Paporn Thebpany[1] and Sudarat Leerabhandh Hatfield[2]
[1]Towson University, [2]Chiang Mai University

4:10 PM - A Heuristic Multi-Criteria Classification Approach Incorporating Data Quality Information for Choropleth Mapping
David W. Wong[1], Min Sun[1], and Barry J. Kronenfeld[2]
[1]George Mason University, [2]Eastern Illinois University

4:30 PM - Measuring the Spatial Pattern of Ethnic Groups in San Antonio's Eastside: A Spatial Analysis Approach with the Colocation Quotient
Hilton A. Córdoba[1] and Rebecca J. Walter[2]
[1]University of Louisiana at Lafayette, [2]University of Texas at San Antonio

4:50 PM - Estimating land cover in acequia-irrigated valleys using historical aerial imagery
Robert Sabie and Marcus Gay
New Mexico State University

5:10 PM - Spatio-temporal patterns of Jewish family arrests during the Holocaust in Italy
Maël Le Noc and Alberto Giordano
Texas State University

Methods and Applications

Fiesta A

Session chair:
Jay Lee
(Kent State University)

3:50 PM - Evaluation of Efficiency in the Diffusion of Information on Social Networks: An Experiment with Agent-Based Modeling Approach
Zhuo Chen
Kent State University

4:10 PM - Object based image classification based on fusing WoldView-2 Image and LiDAR pseudo-waveform
Fang Qiu and Yuhong Zhou
University of Texas at Dallas

4:30 PM - Accounting for spatiotemporal inhomogeneity of urban crime in China
Xinyue Ye[1] and Ling Wu[2]
[1]Kent State University, [2]Marywood University

4:50 PM - Impacts of LiDar Sampling Methods and Point Spacing Density on DEM Generation
Chunhong Zhao[1], Jennifer Jensen[1], and Xiangzheng Deng[2]
[1]Texas State University, [2]Chinese Academy of Science

5:10 PM - Spatio-Temporal Analysis of Geographic Events with Extended Kernel Density Estimation
Jay Lee[1] and Shenwen Li[2]
[1]Kent State University, [2]Chinese University of Geosciences

3:50 PM - The Changing Fortunes of Money Centers: A Comparison Study of the Traditional and New Bank Reserve Centers of the United States
Bin Zhou
Southern Illinois University Edwardsville

4:10 PM - Integrating Analytical Applications into Retail Logistics and Operations
Christina Roush
University of North Texas

4:30 PM - Implications of Supersizing a Boxstore: Regional and Local Economic Impact in Toronto, Canada
Brian Ceh, Tony Hernandez, and Kressell Daniel
Ryerson University

4:50 PM - A Spokane Case Study: Using Sales Tax Data as a Proxy in Determining Grocery and Hardware Store Trade Areas
Brett J. Lucas
City of Cheney, WA

Business Geography I

Crockett East

Session chair:
Alberto Giordano
(Texas State University)

Wednesday, November 4 · 6:30pm - 8:00pm

Opening Session

Opening Session

Fiesta Ballroom

6:30 PM - Welcome by Alberto Giordano, Chair, Department of Geography, Texas State University

Welcome by Daniel Gelo, Dean, College of Liberal and Fine Arts, University of Texas, San Antonio

Welcome and Presentation by Sarah Bednarz, Texas A&M University, AAG President

Lite fare and cash bar

7:30 AM - 3:00 PM

Registration

Registration table

Thursday, November 5 · 8:30am - 10:10am

Paper Session

Political Geography

Crockett East

Session chair:
Jennifer Devine
(Texas State University)

8:30 AM - A Geography of Errors: The Sabine-Red River Boundary
Jim Tiller
Sam Houston State University

8:50 AM - Congressional Districts: How "Equal" Are They?
Kalyn M. Rossiter and David W. Wong
George Mason University

9:10 AM - Economic and Social Rights Fulfillment in the United States: A Spatial Perspective
Jamie L. Botteon and C. Patrick Heidkamp
Southern Connecticut State University

9:30 AM - Post-War Tourism Development in Guatemala: Contested Identities, Histories, and Futures
Jennifer Devine
Texas State University

Resources and the Environment

Bowie East

Session chair:
Philip L. Chaney
(Auburn University)

8:30 AM - Mining for Truth: Conceptualizaing Precious Metal Mining in Northern Minnesota
Ryan D. Bergstrom
University of Minnesota

8:50 AM - Identification of Ground Water Potential Zones in Greater Visakhapatnam Municipal Corporation, Andhra Pradesh, India: A Spatial Approach
P. Jagadeeswara Rao
Andhra University

9:10 AM - An assessment of current spatial and temporal trends in the available data on Texas dams
Erin Dascher and Kimberly M. Meitzen
Texas State University

9:30 AM - Dam Removal for Whitewater Recreation on the Chattahoochee River at Columbus, Georgia
Philip L. Chaney
Auburn University

Food and Farming A

Crockett West

Session chair:
Colleen Hiner
(Texas State University)

8:30 AM - The Edible Landscape of Portuguese Traditional Bread, Broa, and Implications for Sustainable Agriculture in Northwest Portugal
Joseph Powell
Louisiana State University

8:50 AM - "Tamed Fungus": A colorful history of black truffles in Périgord, France
Gabrielle Rosa and Colleen C. Hiner
Texas State University

9:10 AM - Application of Gravity Models for Restaurants in Lowndes County, Georgia
Tanner D. Herrington and Jia Lu
Valdosta State University

9:30 AM - "My Friend, the Fire Ant?" A Preliminary Analysis of the Role of Fire Ant in Vineyard Health
Christi G. Townsend[1], Matthew H. Connolly[2], and Clayton J. Whitesides[3]
[1]Texas State University, [2]University of Central Arkansas, [3]Coastal Carolina University

9:50 AM - "Local" food and bridging values and place along the rural-urban interface
Colleen Hiner, Innisfree McKinnon, and Jessica Breen
Texas State University

Water Resource Management

Fiesta B

Session chair:
Denise Blanchard-Boehm
(Texas State University)

8:30 AM - Analyzing Water and Land Limitations to Future Agricultural Production in the Middle East
Jennifer Koch[1], Florian Wimmer[2], Janina Onigkeit[2], and Ruediger Schaldach[2]
[1]University of Oklahoma, [2]Center for Environmental Systems Research, Kassel University

8:50 AM - Infrastructure Banks for Water System Change? An Oklahoma Case Study
Alexandra Bradford and Travis J. Gliedt
University of Oklahoma

9:10 AM - Assessing the Sustainability of Austin, Texas Water Policy
Rebecca B. David and Graham A. Tobin
University of South Florida

9:30 AM - Twenty-five years of changes in agricultural production, land use/cover, and river water quality in New Zealand
Jason Julian[1], Ioannis Kamarinas[1], Kirsten de Beurs[2], Braden Owsley[2], and Robert J. Davies[3]
[1]Texas State University, [2]University of Oklahoma, [3]National Institute of Water & Atmospheric Research (NIWA)

9:50 AM - Survival Of The Aransas-Wood Buffalo Whooping Cranes (Grus Americana) Wintering On The Texas Gulf Coast: Stakeholder Knowledge, Awareness And Willingness To Respond
Denise Blanchard-Boehm and Dayna Kaspar
Texas State University

Geographies of Race and Ethnicity

Bowie West

Session chair:
Darrel McDonald
(Stephen F. Austin State University)

8:30 AM - "They're outside of EVERY home depot": Racial Politics and Anti-Big Box Activism in El Sajon, California
Sean Crotty
Texas Christian University

8:50 AM - Filipinos in Jersey City, New Jersey
John Ponstingel
Binghamton University

9:10 AM - Multi-Ethnicity in Belleville, Paris
David Kaplan
Kent State University

9:30 AM - Large Indian-American Settlements: The Implications of Place
John Frazier
Binghamton University

9:50 AM - Post Secular Transformations in the Native American Church: A New Identity
Darrel McDonald
Stephen F. Austin State University

Climate and Hazards B

Fiesta A

Session chair:
Thomas Ballinger
(Texas State University)

8:30 AM - Baseline Climatology of Sounding-Derived Parameters Associated with Atlantic and Gulf Coast Tropical Cyclone Tornado Clusters
Richard W. Dixon[1], Todd W. Moore[2], and Christi G. Townsend[1]
[1]Texas State University, [2]Towson University

8:50 AM - Temporal Trends in Heat-Related Mortality Across the United States
Scott Sheridan[1] and Grady Dixon[2]
[1]Kent State University, [2]Fort Hays State University

9:10 AM - Geologic records of Holocene typhoon strikes in the Gulf of Thailand; a forewarning of tropical cyclone activity in a warmer world?
Harry Williams[1], Montri Choowong[2], Sumet Phantuwongraj[2], Peerasit Surakietchai[2], Thanakrit Thongkhao[2], Stapana Kongsen[2], and Eric Simon[1]
[1]University of North Texas, [2]Chulalongkorn University, Thailand

9:30 AM - Exploring the Role of Western Arctic Sea Ice on North American Arctic Climate
Thomas Ballinger[1] and Scott Sheridan[2]
[1]Texas State University, [2]Kent State University

10:10 AM - 10:30 AM

Break

Thursday, November 5 · 10:30am - 12:10pm
Panel and Paper Session

Perception and the Environment
Crockett East

Session chair:
Graham Daly
(Texas State University)

10:30 AM - New Findings from a Multi-decadal International Study on Undergraduate Student Environmental World Views and Values
Brent Hedquist, Jim Norwine, Michael Bruner, Michael Preda, and Allen Ketcham
Texas A&M University-Kingsville

10:50 AM - Ecological Restoration at Nachusa Grassland: Lay and Expert Perceptions
Austin Holland
Southern Illinois University Edwardsville

11:10 AM - Evaluating Geographic Citizen Science Contributions for Low Water Crossing Identification
David A. Parr
Texas State University

11:30 AM - A river runs through it: How Texas State University Students use and value their San Marcos River
Graham Daly and Jason Julian
Texas State University

11:50 AM - User Perceptions of the Metropolitan Bus Authority in San Juan, Puerto Rico - Preliminary Findings
Luis R. Ortíz Sánchez
Binghamton University

The Impact of Migration on Children
Crockett West

Session organizer and chair:
Richard Jones
(University of Texas at San Antonio)

10:30 AM - Young People's Trans-nationalism and Migration in the Context of Erasure
Stuart C. Aitken
San Diego State University

10:50 AM - The Transition to Adulthood among Mexicans and Mexican Americans in the U.S.
Gabriela Sánchez-Soto
University of Texas at San Antonio

11:10 AM - Educational Experiences of US Born Mexican Children Returned to Mexico
René Zenteno
University of Texas at San Antonio

11:30 AM - The Shifting Geography of the Central American Migrant Youth Crisis
Sarah Blue[1], Rebecca Torres[2], Kate Swanson[3], Amy Thompson[2], and Óscar Misael Hernández Hernández[4]
[1]Texas State University, [2]University of Texas at Austin, [3]San Diego State University, [4]COLEF-Matamoros

11:50 AM - Unaccompanied Children in the Central American Surge: a Spatial-Temporal Investigation
Richard Jones
University of Texas at San Antonio

GIS, Health and Medical Geography A

Bowie East

Session organizer:
Joseph Oppong
(University of North Texas)

Session chair:
Chetan Tiwari
(University of North Texas)

10:30 AM - Challenges in Producing Accurate Cancer Mortality Maps of the United States
Alana Irby, Chetan Tiwari, and Joseph R. Oppong
University of North Texas

10:50 AM - A Computational Approach for Improving the Allocation of Police Resources across Space
Brince Jones, Chetan Tiwari, and Susie Mikler
University of North Texas

11:10 AM - Mapping the Spatial Patterns of Neural Tube Defects (NTDs) Among Hispanic and Non-Hispanic Populations in Texas
Ayodeji Iyanda, Chetan Tiwari, and Susie Mikler
University of North Texas

11:30 AM - HIV Death Rates in Rural Texas Counties: An Analysis of Contributing Factors
Brian Franklin, Joseph R. Oppong, and Chetan Tiwari
University of North Texas

11:50 AM - Food Deserts in Tarrant and Bell Counties, Texas
Lennette Wells, Katherine Lester, and Joseph R. Oppong
University of North Texas

Retail Strategies Perspectives

Bowie West

Panel organizer:
Murray Rice (University of North Texas) and Ken Smith (Kenard E. Smith & Associates)

Panel chair:
Ken Smith (Kenard E. Smith & Associates)

10:30 AM - This panel session features a diverse set of retail geography practitioners discussing their field. The session will include two focal points for discussion: 1. Broad commentary on trends and developments across the retail geography field, 2. Focused dialogue on retail geography concepts, skills, and principles using the San Antonio market as a case study. The session will be useful for students looking to enter retail geography for a career, academics wishing to understand the real-world business environment their students are entering, and practitioners looking for insight into retail geography as applied by leaders in the field with a wealth of experience in businesses and markets across the US.

Panelists: Jeffrey D. Wooten (JCPenney, Plano, TX), Clay Hallman (Simon Property Group, Indianapolis, IN), Jim King (Rent-A-Center, Plano, TX), and Doug Schnell (Panera Bread Company, St. Louis, MO)

Student Competition Papers: Undergraduate

Fiesta A

Session chair:
Jason Julian
(Texas State University)

10:30 AM - Keeping Denton Beautiful: Evaluating the effectiveness of an urban community tree giveaway program in Denton, Texas
Joshua Bova and Christina Kenny
University of North Texas

10:50 AM - Climate Change in the Mind of a College Student: A Cross-Sectional Study on Climate Change Perceptions at the University of Oklahoma
Benajmin Ignac, Renee McPherson and Aparna Bamzai
University of Oklahoma

11:10 AM - An Evolutionary Geography of Sport: How Traditional Methodologies Apply in a Virtual Age
Mason Sims
University of Central Arkansas

Urban Geography

Fiesta B

Session chair:
Jennifer Burrell
(Kent State University)

10:30 AM - Spatial Analysis of Poverty Cluster and Green Space Locations in Urban Communities: The Case of Toledo, Ohio
Owusua Yamoah and Bhuiyan Alam
University of Toledo

10:50 AM - Using LIDAR to reveal urban abandonment
Emily Thompson and Kirsten de Beurs
University of Oklahoma

11:10 AM - Market Area Analysis of Robinwood Retirement Community: How GIScience Integrates Marketing Geography and Spatial Analysis
Paul Burger, Jason Combs and John Bauer
University of Nebraska-Kearney

11:30 AM - Can Mapping Environmental and Societal Factors Determine the Status of Neighborhoods in Youngstown, Ohio?
Jennifer Burrell
Kent State University

12:10 PM - 1:50 PM

Lunch Break

On own

Thursday, November 4 · 1:50pm - 3:30pm

Panel and Paper Session

2:10 PM - An Interdisciplinary Approach for Water Sustainability Study
Ningning Kong and Qinghua Li
Purdue University

2:30 PM - Flush(less) Geography: High-Efficiency Urinals in Wash Room Spaces
Bryant Evans
Houston Community College

2:50 PM - Environmental and Planning Considerations for Water Resources Management in Puerto Rico: The 2014 Drought Event
Harrison W. Flores-Ortiz
Texas State University

3:10 PM - Coexistence of the water hard path and the water soft path: Producing water and water users in Guanajuato, Mexico
Heather Lee Brown
Texas A&M University

Water Planning and Sustainability

Crockett West

Session chair:
Heather Lee Brown
(Texas A&M University)

Energy Frontiers A

Crocket East

Session organizers: Matthew Fry (University of North Texas) and Christian Brannstrom (Texas A&M)

Session chair: Matthew Fry (University of North Texas)

1:50 PM - A Preliminary Analysis of Gas Well Density and Socioeconomic Variables in the City of Denton, Texas
Vicki Oppenheim, Matthew Fry, Murray Rice, Jeffrey Rous, and Chetan Tiwari
University of North Texas

2:10 PM - The Landscape Legacies of Urban Gas Drilling in North Texas
Michael Sakinajad
University of North Texas

2:30 PM - "God, please send us one more oil boom and I promise I won't piss this one off": Eagle Ford Shale Regional Development in a Boom-Bust Milieu
Trey Murphy[1], Christian Brannstrom[2], and Matthew Fry[1]
[1]University of North Texas, [2]Texas A&M University

2:50 PM - Fracking the Eagle Ford Shale, Texas: Fiscal and Transportation Policy Impacts
Billy Fields
Texas State University

3:10 PM - Local Control, Mobile Policies, and the Scalar Politics of Contemporary Hydrocarbon Governance in Texas
Matthew Fry[1] and Christian Brannstrom[2]
[1]University of North Texas, [2]Texas A&M University

1:50 PM - Historical riparian habitat changes of an endangered bird species: Interior Least Terns along the Red River below Denison Dam
Kristen Newcomer
Texas State University

2:10 PM - What makes a sense of place? A six-dimensional critique of San Antonio's River Walk
Jonathon James
University of Texas at San Antonio

2:30 PM - Relationships between bush cover and soil erosion: an assessment using remote sensing, geographic information system, and crowd-sourcing technologies
Holly Baker New and Michaela Buenemann
New Mexico State University

2:50 PM - Effects of land use and extreme precipitation on hillslope erosion and suspended sediment yields in the Manawatu River, New Zealand
Samantha Abbott[1], Jason P. Julian[1], Ioannis Kamarinas[1], and John Dymond[2]
[1]Texas State University, [2]Landcare Research

3:10 PM - A Maxent modeling approach to predict the current and future distributions of treeline species in the Nepal Himalaya
Parveen Kumar Chhetri and David M Cairns
Texas A&M University

Student Competition Papers: Graduate A

Fiesta A

Session chair: Jason Julian (Texas State University)

Cross-cutting Issues in Business and Education

Bowie East

Panel organizer:
Murray Rice
(University of North Texas)

1:50 PM - This is a split session, with the first half dedicated to two papers linking business and issues in geography education. The second half will include panel commentary on the two papers and related challenges.

Measuring the Success of A MOOC: ESRI's Location Advantage MOOC
Linda A. Peters
ESRI, Inc.
Bridging Geography and Business Instruction through Inquiry and GIS
Joseph J. Kerski
ESRI, Inc.

Panelists: Tony Hernandez (Ryerson University), Larry Joseph (West Marine), Brett Lucas (City of Cheney)

GIS, Health and Medical Geography II

Bowie West

Session organizer:
Joseph Oppong
(University of North Texas)

Session chair:
Chetan Tiwari
(University of North Texas)

1:50 PM - Using Dogs To Sniff Out The Geographic Distribution Of Trypanosoma cruzi In Denton County
Wendy Pace, Joseph R. Oppong, and Chetan Tiwari
University of North Texas

2:10 PM - Spatial Patterns of Violent Crime in the City of Dallas 2004-2014
Teresa Doyle, Joseph R. Oppong and Chetan Tiwari
University of North Texas

2:30 PM - The Geography of Functionally Impaired and ADA Protected Groups in Texas Counties
Ariel Seward, Joseph R. Oppong, and Chetan Tiwari
University of North Texas

2:50 PM - Tuberculosis Vulnerability in Tarrant County
John McGlone, Joseph R. Oppong, and Chetan Tiwari
University of North Texas

Mapping

Fiesta B

Session chair:
Benjamin Prince
(Texas State University)

1:50 PM - Mapping Brazilian Economic Social Topography (1990-2010)
Joao de Abreu
Pontificial Catholic University of Minas Gerais

2:10 PM - The Revolution Will Be Data-Driven: Using Mobile Data Collection and Mapping Applications to Support Civil Rights Advocacy
Sarah A. Moncelle and Anita Earls
Southern Coalition for Social Justice

2:30 PM - Power, Patrons, and Proprietors: Using Social Media to Understand Geographies of Consumption
Emily Fekete
Oklahoma State University

2:50 PM - Mapping A Fading Italian-American Ethnic Enclave in Kenosha, Wisconsin
Kenny French
University of Wisconsin-Parkside

3:10 PM - Mapping Cultures of Land Use in Orange Walk, Belize
Benjamin Prince
Texas State University

3:30 PM - 3:50 PM

Break

Thursday, November 5 • 3:50pm - 5:30pm

Panel and Paper Session

Conservation and Management

Bowie West

Session chair:
Craig Colten
(Lousiana State University)

3:50 PM - The Demise of Black Bears in the Texas Hill Country
Don Jonsson
Austin Community College

4:10 PM - A Framework for Understanding Recreation Impact in Mountain Environments
Ross Martin and David Butler
Texas State University

4:30 PM - Comparing Strategic and Opportunisitc Approaches to Land Conservation: The Case Study of the New Mexico Land Conservancy
John Wright
New Mexico State University

4:50 PM - Practicing Responsible Leadership in Southern Africa
Michael DeVivo
Grand Rapids Community College

5:10 PM - Living with Water: The Louisiana Diversionary Myth
Craig Colten
Louisiana State University

Geographic Research: Humanities, Sports, and Learning

Fiesta B

Session chair:
Jeffrey Widener
(University of Oklahoma)

3:50 PM - Participating in Field Learning and Teaching Opportunities: Avenues to Research and Publication
Donald P. Albert, John B. Strait, and Ava Fujimoto-Strait
Sam Houston State University

4:10 PM - Deep in the Heart of Dixie: The Geography of College Football Player Production and Program Success, 2015
Theodore Goudge
Northwest Missouri State

4:30 PM - On the brink of disaster: Local media and the Animas River spill of 2015
Pete McCormick
Fort Lewis College

4:50 PM - Placing Transborder Communities
Laurel Smith
University of Oklahoma

5:10 PM - A Dam Worthy Centennial Celebration: Colorado's Grand Valley Diversion (Roller) Dam and the Palisade Historical Society
Jeffrey Widener
University of Oklahoma

3:50 PM - A Geographical Perspective on the Texas Railroad Commission
Wesley Hellman
University of North Texas

4:10 PM - Spatial distribution of estimated wind-power royalties in west Texas
Mary Tilton, Andrew Klein, and Wendy Jepson
Texas A&M University

4:30 PM - Is Brazilian wind-power development socially and politically sustainable? Insights from a review of conflicts in Ceará state.
Christian Brannstrom[1], Adryane Gorayeb[2], and Antonio Jeovah de Andrade Meireles[2]
[1]Texas A&M University, [2]Universidade Federal do Ceará

4:50 PM - Definition of the high tide line as a guideline for the implementation of compensatory policies in areas impacted by wind farms on the northeastern coast of Brazil
Adryane Gorayeb, Carlos Augusto Uchôa da Silva, and Antonio Jeovah de Andrade Meireles
Universidade Federal do Ceará

5:10 PM - Mapping Social Property (Núcleos Agrarios) Profiles in the Burgos Basin in the Era of Neoliberal Agrarian and Energy Reforms.
Andrew Hilburn
Texas A & M International University

Energy Frontiers B

Bowie East

Session organizers: Matthew Fry (University of North Texas) and Christian Brannstrom (Texas A&M)

Session chair: Matthew Fry (University of North Texas)

Remebering Campbell W. Pennington

Crockett West

Panel organizer: William E. Doolittle University of Texas - Austin

3:50 PM - This session is a reflection on the life of Campbell W. Pennington (1918-2015). Of his many professional contributions, two stand out. The first is his research on native peoples of northern México. Pennington's field and archival investigations during the 1950s-1970s were firmly rooted in the Berkeley tradition of studying human-environment interactions in Latin America. His second contribution was as Head, Department of Geography, Texas A&M University. Although he did not found that department, he assumed leadership a critical time in its history (the 1970s) and made some important decisions that set the stage for what the department has become today. He emphasized teaching and recruiting undergraduate students. He hired new faculty with interests as diverse as geomorphology, economic and urban geography. He never sought praise nor received much. Campbell Pennington is owed a huge debt of gratitude by geographers at A&M, those working in Latin America, and those who are members of SWAAG.

Panelists: William E. Doolittle (University of Texas - Austin), Daniel Arreola (Arizona State University), Darrel McDonald (Stephen F. Austin State University), Kenneth White (Independent Scholar), Robert Bednarz (Texas A&M University)

3:50 PM - The ethics panel will focus on identifying the ethical challenges that exist in business geography and the steps needed to encourage ethical conduct in the field. Our panelists will provide input based on a wealth of experience across business geography.

Panelists: Larry Carlson (Carlson Associates), Tom Dwyer (BBCN Bank), Dave Daleiden (Daleiden & Associates), Larry Joseph (West Marine), Brett Lucas (City of Cheney)

Ethical Considerations in the Development of the Location Intelligence Discipline

Crockett East

Panel organizer:
Murray Rice
(University of North Texas)

Student Competition Papers: Graduate B

Fiesta A

Session chair:
Jason Julian
(Texas State University)

3:50 PM - Aggieland Grows Up: The Spatial Growth of College Station's Residential Areas, 1970-2010
Jason Ridgeway
Texas A&M University

4:10 PM - Spatio-temporal dynamics of woody plants and bighorn sheep in the San Andres Mountains, New Mexico, U.S.A.
Nathan Lopez-Brody and Michaela Buenemann
New Mexico State University

4:30 PM - Property rights and the use of Amazonian and Andean Forests
Aaron Groth
University of Texas at Austin

4:50 PM - Infrastructure Condition Assessment Based on Low-cost Hyper-spatial Resolution Multispectral Digital Aerial Photography
Su Zhang and Christopher D. Lippitt
University of New Mexico

Thursday, November 5 · 5:30pm - 6:30pm
World Geography Bowl

5:30 PM - The Geo Bowl is a friendly and fun academic competition based on fundamental geographical knowledge. Up to 7 university and/or state student teams will be competing for fun prizes and the chance to represent SWAAG in the Geo Bowl at the 2016 AAG meeting in San Francisco, CA

Geobowl

Bowie West

6:00 PM - 9:00 PM

No Host Dinner in El Mercado

Departure from LaQuinta Riverwalk Lobby

7:30 AM - 3:00 PM

Registration

Registration table

Friday, November 6 · 8:30am - 10:10am

Paper and Poster Session

Energy, Aviation, and the Environment

Bowie West

Session chair:
Ronald Hagelman
(Texas State University)

8:30 AM - An Unfair Industrial Landscape
Steve Stadler[1] and J. Scott Greene[2]
[1]Oklahoma State University, [2]University of Oklahoma

8:50 AM - Using GIS to Compare Original and Alternative Routes for the Keystone Pipline Project
Falguni Mukherjee
Sam Houston State University

9:10 AM - The Social Effects of High Pressure Hydraulic Fracturing on Pennsylvania Counties with Fracking Sites
Susan Muniz
University of Texas at San Antonio

9:30 AM - Alleviating Congestion on Aviation Frequencies Near Non-Towered Airports in the U.S.
Jonathan C. Comer and Thomas A. Wikle
Oklahoma State University

9:50 AM - The Human and Ecological Benefits and Costs of Offshore Wind Energy
Han Lu
University of Texas at San Antonio

Transportation and Commuting

Crockett East

Session chair:
Alberto Giordano
(Texas State University)

8:30 AM - Baltimore's Mass-Transit Modification: Exploring the Relationship between Commute Time and Local Population Density
Michael Schoelen and Paporn Thebpany
Towson University

8:50 AM - Assessing the Accessibility Impact of the Proposed High-Speed Rail Between Dallas and Houston
Yun Zhao and Hongbo Yu
Oklahoma State University

9:10 AM - Spatial Analysis of the Relationship between Levels of Service Provided by Public Transit and Areas of High Demand in Jefferson County Kentucky
Kaitlin G. Toms and Wei Song
University of Louisville

9:30 AM - Exploring the possibility of Mass Rapid Transit in the Urban Core of Kathmandu Valley, Nepal: Emphasis on Bus Rapid Transit
Gaurav Thapa
New Mexico State University

Food and Farming B

Crockett West

Session chair:
Adam J. Mathews
(Oklahoma State University)

8:30 AM - 3D Surface Reconstruction from UAS for Campus Farm Design
Tammira Taylor, Andrew Loerch, Su Zhang, and Bruce Milne
University of New Mexico

8:50 AM - Analyzing the Spatial Distribution and Neighborhood Demographics of Community Gardens in Toledo, Ohio
Bhuiyan Alam
University of Toledo

9:10 AM - A Spatio-Temporal Analysis of Sorghum in the United States
Chris Laingen
Eastern Illinois University

9:30 AM - The Challenge of Growing Grapes in the Hill Country: An Evaluation of Changing Grower Perceptions of Natural Hazards in Texas Vineyards
Christi G. Townsend, David R. Butler and Richard W. Dixon
Texas State University

9:50 AM - A Practical UAV Remote Sensing Methodology to Generate Multispectral Orthophotos for Vineyards
Adam J. Mathews
Oklahoma State University

Place

Fiesta B

Session chair:
Russell Weaver
(Texas State University)

8:30 AM - Place-Based Marketing Trends Exhibited by Oklahoma Wineries and Vineyards
Jordan P. Bracher and Adam J. Mathews
Oklahoma State University

8:50 AM - The Ganges River: Symbology, Sustainability, and the Confluence of Cultural and Fluvial Connectivity
Emily Baca and Colleen C. Hiner
Texas State University

9:10 AM - The Worst and Best of Illinois: Variation in Well-Being as Economic Austerity Unfolds
Wendy Shaw
Southern Illinois University Edwardsville

9:30 AM - Neoliberal Students in the Liberal University: The Case for Theories of Place Production as a Lens into De-radicalized Studenthood
Jacob Wolff
University of New Mexico

9:50 AM - Place, Naming, and Cultural Identity in the Ozark and Texas Hill Country Regions
Russell Weaver
Texas State University

Poster Session A

Bowie East

8:30 AM -10:30 AM

Effect of western spruce budworm on throughfall carbon, nitrogen, and phosphorus fluxes in a central Washington forest
Jennifer Bailey[1], Alexandra Ponette-González[1], and Clay Arango[2]
[1]University of North Texas, [2]Central Washington University

A Landslide susceptibility model using Fuzzy Multi-Criteria and a Probability Distribution Function in Southern California
Lila Bibriven
Texas State University

Rainfall Interception by Urban Trees in Two Contrasting Environments
Caitlin Bradford and Alexandra Ponette-González
University of North Texas

Trends and Characteristics of North Atlantic Tropical Cyclones
Saber Brasher
Texas State University

Multiple Endmember Spectral Mixture Analysis applied to a Piñon-Juniper Woodland
Will Brewer and Caitlin Lippitt
University of New Mexico

The Rise and Fall of the Fire Lookout Network in Glacier National Park, Montana
David R. Butler
Texas State University

High Levels of Troposheric Ozone Linked to the Advection of Southerly Air for the Konaz Prairie in Kansas
Livia Cirnu and John Harrington, Jr.
Kansas State University

The Effect of Grazing and Fire on Plant Species Diversity of Tallgrass Prairies
Elliott Clark and Scott C. McConaghy
Texas A&M University

Assessment of Risk of Debris Flow Events, Glacier National Park, Montana
Laura Engells and David R Butler
Texas State University

Climate Change Framing in the New York Times
Paepin Goff
Texas State University

A service accessibility; Geographic accessibility to Down Syndrome and special needs services in the Brazos Valley Region, Texas, USA
Aida Guhlin, Christopher Garza, Eunice Silva, Jacky Clay, Tiffany Hertzler, Michael Buckley, Alex Gulsby, Natalie Glees, Kate Merlock, and Rand Barrett
Texas A&M University

Comparing the ability of Suitability Models to Accurately Identify Prehistoric Agricultural Fields in New Mexico
Alissa Healy
University of New Mexico

Social Landscape A

Fiesta A

Session chair:
Reuel R. Hanks
(Oklahoma State University)

8:30 AM - Environment, Site, and (in)Justice: An Examination of the location of Environmental Protection Agency (EPA) Hazard Sites in Texas
Jason Post
Texas Tech University

8:50 AM - Planning and Neighborhood Identity: Can Social Engagement Overcome Spatial Barriers?
William J. Kelley and William G. Simpson
Eastern Washington University

9:10 AM - Spatio-Temporal Analysis of Religious Establishments in China: A Case Study of Zhejiang Province
Huanyang Zhao
Kent State University

9:30 AM - The Boundaries of Responsibility and Community Support: Lessons from Post-Colonial Mozambeque
Beth Oppenheim
University of Cape Town

9:50 AM - Interrogating Islamic Identityscapes in Kazakhstan: Articulating Spatial Parameters from Recent Field Work
Reuel R. Hanks and Taylor Iberosi
Oklahoma State University

10:10 AM - 10:30 AM

Break

Friday, November 6 · 10:30am - 12:10pm

Panel, Poster and Paper Session

Graduate Program Information Session

Fiesta A

Session organizer:
Murray Rice
(University of North Texas)

10:30 AM - This is a session that provides geography graduate programs from across the SWAAG region the opportunity to communicate with potential students. The session will include time for each program to talk about themselves, as well as an open Q&A period and informal time for potential students to talk one-on-one with individual program representatives.

Panelists:
Louisiana State University, Kent Mathewson;
New Mexico State University, Christopher Brown;
Oklahoma State University, Jon Comer;
Sam Houston State University, Falguni Mukherjee;
Texas A&M University, Steven Quiring;
Texas State University, Yongmei Lu;
University of Central Arkansas, Jeff Allender;
University of North Texas, Chetan Tiwari;
University of Oklahoma, Laurel Smith;
University of Texas at Austin, Kelley Crewes;
University of Texas at Dallas, Fang Qiu

Social Landscapes B

Crockett East

Session chair:
Ronald Hagelman
(Texas State University)

10:30 AM - An Examination of Associations between Maternal Residential Proximity to Nuclear Facilities and Low Birth Weight in Offspring in Texas
Xi Gong[1], F. Benjamin Zhan[1], and Yan Lin[2]
[1]Texas State University, [2]South Dakota State University

10:50 AM - Spatial-Temporal Analysis of Crime on the Georgia State University Campus
Steven P. Ericson and Melinda Mann
University of Alabama

11:10 AM - The Production and Migration Geographies of Professional Hockey, 1970-2010
Stephen O'Connell
University of Central Arkansas

11:30 AM - Using Interactive Maps in Community-Based Domestic Violence Programs
Diana-Beth Derry
University of Oklahoma

11:50 AM - The Spatial Distribution of Assets and Challenges Driving the Quality of Life in Dona Ana County, New Mexico
Christopher Brown, Raymond Carr, and Madeline Schoderbek
New Mexico State University

GIScience: Environmental Applications A

Bowie West

Session chair:
Philip Chaney
(Auburn University)

10:30 AM - Spatial Differences of Deforestation Between States in the Brazilian Amazon
Emily Campbell
University of Oklahoma

10:50 AM - Preliminary Assessment of Land-to-Water Surface Area Ratios (LWR) for Sustainable Land Use in Aquaculture
Lauren N. Jescovitch, Philip Chaney, and Claude Boyd
Auburn University

11:10 AM - Using Hot Spot Analysis to Site Wildlife Crossings: The Case of the Florida Panther
Shivangi Prasad and Savannah Geary
University of Miami

11:30 AM - Adapting Wildlife Conservation Strategies to Regions of Armed Conflict with GPS, Geotagged Photos, GIS and Remote Sensing: An Example from the Eastern Democratic Republic of the Congo
Richard Beck
University of Cincinnati

11:50 AM - An Assessment of the Accuracy of the MOD45A1 Burned Area Product for Detecting Burned Areas in Tallgrass Prairie
Rhett Mohler[1] and Douglas Goodin[2]
[1]Saginaw Valley State University, [2]Kansas State University

Poster Session B and Student Competition

Bowie East

10:30 AM - 12:10 PM

Using NASA Earth Observations to Analyze Heat and Light Pollution in Urban Environments
Alex Holland and Kathryn Franks
University of Oklahoma

Emergency Medical Response Times: Micro-scale and meso-scale description of spatial patterns in the EMS environment of Oklahoma
Thuso Motselebane
University of Oklahoma

Breakpoint Analysis with the BFAST algorithm in global vegetation index
Laura Holtzman and Kirsten de Beurs
University of Oklahoma

How do agricultural heat and solar radiation resources change in Northeast China?: A multistage spatio-temporal analysis
Qi Hu[1], Feifei Pan[2], Xuebiao Pan[1], Qiuyue Li[1], Changxiu Shao[1], Zhihua Pan[1], and Yurong Wei[3]
[1]China Agricultural University, [2]University of North Texas, [3]Inner Mongolia Meteorological Bureau

Fractional Snow Cover Mapping through Polytopic Vector Analysis of MODIS Spectral Reflectance
Yang Ju and Andrew G. Klein
Texas A&M University

Mapping stream networks in New Zealand using climate, geology and source of flow
Ioannis Kamarinas and Jason P. Julian
Texas State University

Influences of Geologic and Land Use Characteristics on Urban Forest Distribution in Denton, Texas
Christina Kenny and Joshua Bova
University of North Texas

Developing a rock glacier database for Glacier National Park, Montana
Brittany Legg
Texas State University

Child Health in China: Regional Differences and Impact Factors
Yahan Teng[1], Yongmei Lu[1], and Yang Cheng[2]
[1]Texas State University, [2]Beijing Normal University

Wet Dust Deposition at the Lyndon B. Johnson National Grasslands
Sheny Leon and Alexandra Ponette-González
University of North Texas

Stretching the Map: Finding poetry in geographic inquiry
Jonathan Lowell
University of Texas at Austin

Improving Seasonal Climate Forecasts for Oklahoma Winter Wheat Farmers
Toni Klemm
University of Oklahoma

Urban Environments B

Crockett West

Session chair:
Christopher Holtkamp
(Texas State University)

10:30 AM - Street Trees amd Social Equity
Kerry R. Brooks and Wm. J. Kelley
Eastern Washington University

10:50 AM - Detecting Urban Heat Islands Changes in Arid Climates: Riyadh City, Kingdom of Saudi Arabia
Ali S. Alghamdi[1] and Todd W. Moore[2]
[1]King Saud University, [2]Towson University

11:10 AM - Urbanization and the Urban Cool Island in the State of Kwait, Using Remote Sensing and GIS Analysis from 1986 to 2010.
Muhammad Almatar
Kuwait University

11:30 AM - Siting Urban Agriculture as a Green Infrastructure Strategy
Charles Rogers and Colleen C. Hiner
Texas State University

11:50 AM - Assessing Neolocalism in Microbreweries
Christopher Holtkamp
Texas State University

Geographies of Power and Security in the Postmodern World

Fiesta B

Session organizer and chair:
Miguel de Oliver
(University of Texas at San Antonio)

10:30 AM - Europe's New Regionalism: Geopolitical Dynamics in the EU Energy Union
Boyka Stefanova
University of Texas at San Antonio

10:50 AM - Geo-Political Spaces and Time in Weapons Control
Ritu Mathur
University of Texas at San Antonio

11:10 AM - Nuclear Reversal in History: Implications for Iran
Vaidya Gundlupet
University of Texas at San Antonio

11:30 AM - A Feminist Perspective on Modern Public Spaces: The Emancipated Flâneuse in Tehran's Shopping Malls
Nazgol Bagheri
University of Texas at San Antonio

11:50 AM - Ghanaian Trajectories in Two Midwestern Metropolitan Areas: Columbus, Ohio, and Indianapolis, Indiana
Eugene L. Tettey-Fio
Binghamton University

12:10 PM - 1:50 PM

Lunch Break

On own

Friday, November 6 · 1:30pm - 5:00pm
Field Trip

1:30 PM - Walking tour of King William Historic District
Leader: Miguel de Oliver, University of Texas at San Antonio

Friday Field Trip
Departure from LaQuinta Riverwalk Lobby

Friday, November 6 · 1:50pm - 3:30pm
Panel, Paper and Poster Session

GIScience: Environmental Applications B
Crockett West

Session chair:
Carson Bode
(Oklahoma State University)

1:50 PM - Combining H/A/Alpha Polarimetric Decomposition of Polsar Data with Image Classification for Wetland Identification: A Case Study of Pacaya Samira National Reserve Forest, Peru
Salma Sultana and Eugenio Y. Arima
University of Texas at Austin

2:10 PM - Multiple Remote Sensing Products for Trend Detection and Analysis in South America
Braden Owsley and Kirsten M. de Beurs
University of Oklahoma

2:30 PM - Potential Areas to Locate Gracilaria tikvahiae and Sargassum polyceratium Macroalgae Mariculture System in Marine Waters Around Puerto Rico: A Geographic Information Systems (GIS) Approach
Norberto Quiñones-Vilches
Binghamton University

2:50 PM - Hot Pecans: Quantifying the Urban Heat Island Effect in the Mesilla Valley between 1986 and 2014
Zach Taraschi, Jake Dialesandro and Michaela Buenemann
New Mexico State University

3:10 PM - Spatial Clustering Of False Ring Anomalies in Juniperus Virginiana of the Oklahoma Crosstimbers
Carson Bode
Oklahoma State University

Rethinking the PhD degree in Geography

Crockett East

Session organizers:
Laurel Smith (University of Oklahoma) and Murray Rice (University of North Texas)

Session chair:
Laurel Smith
(University of Oklahoma)

1:50 PM - The April 2015 issue of GeoJournal features a collection of articles that focus on the challenges geography PhD programs currently face and some of the best practices with which geography departments in the USA, Canada, and the UK confront these challenges. Panelists will draw on their own experiences as well as close reading of a couple of these articles to briefly share their take on rethinking the PhD degree in geography. Afterward audience members will be invited to participate in the discussion.

Panelists: Sarah Bednarz (Texas A&M University), Alberto Giordano (Texas State University), Larry Joseph (West Marine), Maria Lane (University of New Mexico), Murray Rice (University of North Texas), Laurel Smith (University of Oklahoma), Jeff Widener (University of Oklahoma)

Vital Themes in Contemporary Geography

Bowie West

Session organizer:
Lawrence Estaville
(Texas State University)

Session chair:
Kanika Verma
(Texas Christian University)

1:50 PM - Challenges with Cultural and Ethnic Diversity in Sierra Leone Water Governance
Fenda A Akiwumi
University of South Florida

2:10 PM - The Importance of Geography in Education Planning and Curriculum
Kanika Verma
Texas Christian University

2:30 PM - The Efficacy of University Websites in Recruiting and Retaining Latino and African-American Undergraduates
Edris J. Montalvo
Cameron University

2:50 PM - Interactive Web-Based Mapping of Texas School Districts
Lawrence Estaville[1], Kenneth Kelly[1], Kanika Verma[2], Neliralda Silva[1], and Zoe Zell[1]
[1]Texas State University, [2]Texas Christian University

Historical Geography

Fiesta B

Session chair:
Kent Mathewson
(Louisiana State University)

1:50 PM - Downtown Cotton: the Impact of the New Orleans Cotton Exchange
Patrick Hagge
Arkansas Tech University

2:10 PM - Sharing stories of place using family photographs and postcards
Paul Watts
Nicholls State University

2:30 PM - Culiacán, Sinaloa and Ambos Nogales in A. W. Lohn's Photographic Postcards
William F. Manger[1] and Daniel Arreola[2]
[1]Nachitoches, Louisiana, [2]Arizona State University

2:50 PM - El Cabrón: The Spring Wind of the Southwest
John Wright and Daniel Dugas
New Mexico State University

3:10 PM - The Curious Geography of the Castor Bean: From Weed to WMD
Kent Mathewson
Louisiana State University

Poster Session C

Bowie East

1:50 PM - 3:30 PM

Using Potential for Conflict Index to Assess Public Attitudes and Perceptions towards Living with Elephants in Botswana: The Case of Sankoyo Village, Ngamiland
Abraham B. Motau
Binghamton University

El Niño's Impact On Texas Snowfall
Christopher Nunley and Kent McGregor
University of North Texas

User Perceptions of the Metropolitan Bus Authority in San Juan, Puerto Rico - Preliminary Findings
Luis R. Ortíz Sánchez
Binghamton University

Analysis of Tornado Damage Recovery using Landsat 5 Imagery
Carissa Powell
University of Oklahoma

Spatial Analysis Using GIS to Locate Wine Distribution Centers in the Finger Lakes Area
Norberto Quiñones-Vilches
Binghamton University

A Double Edged Sword In Climate Accounting: LULUCF under Kyoto and A Case Analysis of Canada and Australia
Aaron Russell
University of New Mexico

Value of Environmental Monitoring Information in Oklahoma Agriculture: A Research Perspective
Jesus I. Zubillaga and Jadiwaga Ziolkowska
University of Oklahoma

Environmental Injustice in Alabama: How race and income may influence your health risk
Frank Zuniga
University of Central Arkansas

Characteristics and Motivations of Storm Chasers
Paul Zunkel[1], Richard W. Dixon[1], and Forrest Wilkerson[2]
[1]Texas State University, [2]Minnesota State University

Possibilities for Integrated Water Resource Management in the Rio Grande River Basin – An Exploratory Study
Madeline Hinchliffe and Jadwiga Ziolkowska
University of Oklahoma

Impact of Drought on Agricultural Production in Oklahoma
Morgan Ederer and Jadiwaga Ziolkowska
University of Oklahoma

Mexico's Smuggling Network: A Simulation of the Drug Corridors to the United States
Monica Medel, Yongmei Lu, and Edwin Chow
Texas State University

Geography, Education, and Learning A

Fiesta A

Session chair:
Clayton J. Whitesides
(Coastal Carolina University)

1:50 PM - Using An ESRI Web Map Application to Disseminate Geographic Literacy Assessment Data: A Feasibility Study of Clear Creek Independent School District, Texas
Jeff Lash
University of Houston-Clear Lake

2:10 PM - Educational and Academic Uses of the Portal to Texas History
Douglas Burns and Jacob Mangum
University of North Texas

2:30 PM - Early Childhood Educators' Conceptions of Geography Education and Geographic Information Systems: A Case Study of Kindergarten Teachers in Busan, Korea
Yoo Jin Shon[1], Mi Jin Kim[2], and Hyun Joong Kim[3]
[1]Dong-Eui University, [2]University of Missouri, [3]Pittsburg State University

2:50 PM - Trends in Academic, Government, and Industry Publishing at the Applied Geography Conferences
Clayton J. Whitesides[1] and Dawna L. Cerney[2]
[1]Coastal Carolina University, [2]Youngstown State University

3:30 PM - 3:50 PM

Break

Friday, November 6 · 3:50pm - 5:30pm

Panel and Paper Session

Hazards, Disasters and Resiliency

Bowie East

Session chair:
Elyse Zavar
(Southern Connecticut State University)

3:50 PM - Migrant Labor Relations: The Role of Non-Profits Following the Earthquakes in Christchurch, New Zealand
Nicole Hutton, Graham A. Tobin, and Linda M. Whiteford
University of South Florida

4:10 PM - "Why would I live anyplace else?": Resilience, Sense of Place and Possibilities of Relocation in a Layer Cake Made of Jell-O
Jessica R.Z. Simms
Louisiana State University

4:30 PM - It All Changed After That: Tornado Stories from Five Oklahoma Towns
Ashley Allen
Louisiana State University

4:50 PM - Temporary Group Housing Sites As A Catalyst for Landscape Change and Development in Post-Katrina Louisiana
Elyse Zavar[1], Ronald Hagelman[2], and Benjamin Prince[2]
[1]Southern Connecticut State University, [2]Texas State University

3:50 PM - A Quest-Based Online GIS Course: Preliminary Experiences
Michael DeMers
New Mexico State University

4:10 PM - What's in a Name? Factors Driving Geography Departments to Change their Name
Amy Frazier and Thomas Wikle
Oklahoma State University

4:30 PM - Astronaut Photograph Cataloging; Developing Geo-Spatial Concept Understanding and Reasoning
Zahra Ghaffari, Nate Currit, and Ingeong Jo
Texas State University

4:50 PM - "Separate and Unequal" Once Again: African, American Environment in 4-Year Institutes
Jay Newberry
Binghamton University

5:10 PM - Recoupling Theory and Application: Legitimizing U.S. Academic Applied Geography
Michael DeMers
New Mexico State University

Geography, Education, and Learning B

Crockett East

Session chair:
Michael DeMers
(New Mexico State University

Environmental Hazards and GIScience

Crockett West

Session chair:
David Gimnich
(Texas State University)

3:50 PM - Spatio-Temporal Outlier Dectection: Did Buoys Tell Where the Hurricanes Were?
Jian Chen, Maria Bala Duggimpudi, and Shaaban Abbady
University of Louisiana at Lafayette

4:10 PM - An Analysis of Typhoon Tracks around Japan Using ArcGIS
Michael J. Grossman[1], Masumi Zaiki[2], and Susannah Oettle[1]
[1]Southern Illinois University Edwardsville, [2]Seikei University

4:30 PM - Measuring Geographic Susceptibility to Flooding in New Orleans Using LiDAR
Kyndra Hanson, Chloe Magee, Kirsten de Beurs, and Renee McPherson
University of Oklahoma

4:50 PM - Assessing Vulnerable Populations Related to Tornado Siren Placement and Coverage in Stillwater, Oklahoma
Emily A. Ellis and Adam J. Mathews
Oklahoma State University

5:10 PM - Wildfire Evacuation Model for the City of Austin and Travis County, Texas
David Gimnich and Colleen C. Hiner
Texas State University

Business Geography B

Fiesta A

Session chair:
Murray D. Rice
(University of North Texas)

3:50 PM - Terminal Shopping: Place Displayed in United States Airport Concessions
Jack Goldberg
University of North Carolina at Charlotte

4:10 PM - Factory Outlet Wars: Foreign Ownership and Tenant Mix in Canada
Tony Hernandez
Ryerson University

4:30 PM - New Trends and Forces of Highly Skilled Migration: The Asian Experience
Wan Yu
Binghamton University

4:50 PM - Spatial Structure Of Innovation Capability In Guangdong, China
Weihua Yi
Guangzhou Academy of Social Science

5:10 PM - Defining the Record of Fast-Growing Firms as Members of Regional Business Communities: Initial Findings
Murray D. Rice, Vicki Oppenheim and Chetan Tiwari
University of North Texas

Physical Environment

Fiesta B

Session chair:
Nate Currit
(Texas State University)

3:50 PM - Assessing Post-Hurricane Rita & Ike sedimentation on the McFaddin National Wildlife Refuge, Texas: Implications for coastal marsh aggradation
Joshua Hodge and Harry F.L. Williams
University of North Texas

4:10 PM - Effects of Surface Characteristics on Tornadogenesis
Mary Passe-Smith
University of Central Arkansas

4:30 PM - Estimating root-zone soil moisture in snow-dominated regions using a soil moisture diagnostic equation
Feifei Pan
University of North Texas

4:50 PM - The El Niño That Finally Was and the Drought That Finally Ended
Kent McGregor
University of North Texas

5:10 PM - Upstream watersheds and megafan formation: an application of astronaut photography
Nate Currit and Justin Wilkinson
Texas State University

3:50 PM - This panel will explore ways in which geographers may foster the long-term health of their discipline and profession by building on the strengths of geography as well as existing and potential new opportunities in higher education and the real world. The session will include a diversity of panelists to offer a broad range of perspectives on the topic. The session will include some questions posed to all panelists and some open discussion among the panel and audience members.

Panelists: TBA

SWAAG Chair's Session: Toward a Sustainable Future for Geography: Building on Strengths and Opportunities

Bowie West

Panel organizer and chair:
Michaela Buenemann
(New Mexico State University)

Friday, November 6 · 5:45pm - 6:45pm

Business Meetings

SWAAG and AGC Business Meetings

5:45 PM - AGC Board of Directors Meeting
Bowie West
5:45 PM - SWAAG Business Meeting
Crockett West

Friday, November 6 · 7:00pm - 9:00pm

Award Banquet

7:00 PM - Opening statement by Jay Lee, AGC Executive Officer
Opening statement and student award by Michaela Buenemann, SWAAG Chair

Banquet

Fiesta Ballroom

Keynote speaker : John Morris, "Water Dreams and Water Schemes in Texas"

Dr. John Morris, Professor of Geography (Ph.D., University of Texas at Austin), has been at UTSA since 1992. His teaching interests include world regional geography, geography of Europe, weather and climate, and cultural geography. He is the winner of several teaching awards, most recently the Piper Award, a statewide college teaching award named after Minnie Stevens Piper (2012), and the Regents Outstanding Teaching Award, a UT System-wide award (2010). A historical geographer, he is the author of four books, From Coronado to Escalante (1992), El Llano Estacado (1997), A Private in the Texas Rangers (2001), and Taming the Land: the Lost Postcard Photographs of the Texas High Plains (2009). He also edited the 2002 Lakeside Classics Centennial volume, an annotated Spanish-English edition of Pedro de Castaneda's "Narrative of the Coronado Expedition (2002). Dr. Morris is also the author of several book chapters and book introductions, in addition to a recent published article, "The (Illustrated) Pecos River in Frontier History," Southwestern American Literature (2008). He is currently engaged in two additional book projects, The Old Home Place: the Lost Photographers of the Rolling Plains, and The Sweet Long-Ago: the Lost Photographers of the South Plains

Saturday, November 7 · 8:30am - 6:00pm
Field Trip

Saturday Field Trip

Departure from LaQuinta Riverwalk Lobby

8:30 AM - The Fermented Landscapes of the Texas Hill Country
Leader: Christi Townsend and Colleen Hiner, Texas State University

2016

SWAAG Meeting
Dallas-Fort Worth, TX
Hosted by the University of North Texas

Applied Geography Conference
Louisville, Kentucky
October 26-28, 2016

2017

SWAAG Meeting
Huntsville, TX
Hosted by Sam Houston State University

Applied Geography Conference
Bahama Cruise
(from Pt. Canaveral)
November 13-17, 2017

Paper abstracts
By name of the first author

Effects of land use and extreme precipitation on hillslope erosion and suspended sediment yields in the Manawatu River, New Zealand

Abbott, Samantha[1], Jason P. Julian[1], Ioannis Kamarinas[1], and John Dymond[2]
[1]Texas State University, [2]Landcare Research

Landscapes disturbed by intensive land uses are susceptible to sediment erosion that may degrade river water quality. In February 2004, the southern portion of New Zealand's North Island, which is covered by livestock grazing, experienced an extreme precipitation event which resulted in extensive landsliding in the Upper Oroua and Pohangina subcatchments of the Manawatu River catchment. In this study, we (1) assess whether land use influences landslide occurrence; (2) identify landslides that are active sediment sources to river channels; and (3) determine if land use can switch subcatchments from supply-limited (river sediment loads are limited by available sediment in the landscape) to transport-limited (river sediment loads are limited by flow capacity). The observed sediment load response to flood events for the period of 1999-2014 in the Pohangina subcatchment was variable in relation to flood magnitude, indicating a supply-limited landscape, while in the Upper Oroua subcatchment the observed sediment response was relatively proportional to flood magnitude, indicating a transport-limited landscape. Further analysis of sediment storage and delivery processes within the two subcatchments is necessary to explain the observed sediment load responses. Channel connectivity analysis revealed that approximately 65% of landslide scars were unconnected to river channels, so there will likely be a response lag in sediment loads. As livestock grazing intensity increases in New Zealand, an understanding of the short-term and long-term impacts of land use on soil erosion and water quality is necessary to develop effective management practices.

LAND USE/LAND CHANGE, LANDSLIDING, WATER RESOURCES, EROSION

Young People's Trans-nationalism and Migration in the Context of Erasure

Aitken, Stuart C[1]
[1]San Diego State University

The case of Slovenia's erased minority populations is raised as one of the worst human rights abuses in contemporary Europe. With this paper I discuss the curtailment of minority young people's spatial rights in the face of the transformation of Slovenia away from state socialism and towards seemingly free and open neoliberal statehood. I highlight the privations and struggles of Izbrisani ('Erased') youth from the mid-1990s to the present day around issues of mobility, migration, transnationalism, and citizenship using data from the Ljubljana Peace Institute, and interviews and other data that I collected beginning in 2014 and continuing today. The paper is contextualized theoretically around issues of spatial rights, new mobilities, and more general emotional geographies of erasure, and some parallels are drawn between the Slovenian context and the contexts of young people elsewhere.

YOUNG PEOPLE, TRANSNATIONALISM, MOBILITY, MIGRATION, ERASURE

Challenges with Cultural and Ethnic Diversity in Sierra Leone Water

Akiwumi, Fenda A[1]
[1]University of South Florida

Ethnic and cultural diversity are core concepts in geography. In an applied geographical context these concepts are integral to governance of natural resources. There are culturally diverse perspectives on the governance of water, for example, and international bodies such as UNESCO acknowledge this reality. Strong linkages and interdependencies exist between cultural diversity, biodiversity, indigenous water-based livelihoods, and sustainability of water systems. However, in developing African countries with European colonial legacies approaches to water governance largely promote water primarily as an economic good to facilitate large-scale development projects in mining and hydroelectric power. In this paper, I discuss the UNESCO initiative on water and cultural diversity and use Sierra Leone, West Africa as a case study to reveal the disjuncture between statutory policies and laws at the national level and indigenous people's customary management systems and realities regarding water. While the Sierra Leone government is currently in the process of reforming the water sector, the national leaders face shortcomings in effectively addressing a shared representation of reality about water. Only through recognition of and respect for cultural diversity in water resources governance can collaborative efforts be made toward achieving sustainability of water and cultures.

CULTURAL AND ETHNIC DIVERSITY, WATER GOVERNANCE, SIERRA LEONE

Analyzing the Spatial Distribution and Neighborhood Demographics of Community Gardens in Toledo, Ohio

Alam, Bhuiyan[1]
[1]University of Toledo

Although studies deal with different aspects of community garden programs, there is a vacuum in literature analyzing spatial distribution of such gardens within a city setting and linking it to socio-economic characteristics of the neighborhoods that host these gardens. We aim to examine the spatial

distribution of community gardens maintained by Toledo Gardens Revitalize Our World (Toledo GROWs) in relation to the mean center of Toledo to determine whether the gardens are predominately located in low income (central city) or more affluent (suburban) neighborhoods. While gardens exist in suburban areas, the majority are located within three miles of the mean center of the city. Multiple community gardens tend to be in higher minority and lower income areas, which are supported by spatial autocorrelation techniques like Moran's I and Geary's C indices. Understanding the spatial distribution of community gardens and socio-economic features of the host neighborhoods in a city is crucial for increasing community trust in local government and participation of the community members in local activities. Planners and policy makers could utilize such gardens in playing strong role in reshaping central city neighborhoods in Toledo and other cities alike that have lost population and are struggling with economic decline.

COMMUNITY GARDENS, TOLEDO GROWS, SPATIAL DISTRIBUTION, NEIGHBORHOOD

Participating in Field Learning and Teaching Opportunities: Avenues to Research and Publication

Albert, Donald P.[1], John B. Strait[1], and Ava Fujimoto-Strait[1]
[1]*Sam Houston State University*

Field experiences continue to be a hallmark of a geographer's education and, for that matter -reeducation, as we all strive to remain current in the "real world." Academic geographers beginning their ascent towards tenure and promotion might consider augmenting their portfolios with materials emerging from field teaching and learning activities. We have found that scholars involved with field teaching are publishing across three broad avenues. First, there are studies that describe traditional field trips, especially those with an interesting twist – a unique place or emerging topic. These studies often share solutions to age-old logistical field constraints such as time, distance, or cost. Second, there are prospects for studies incorporating active teaching strategies, joining existing and emerging communication and information technologies, and developing and evaluating virtual or hybrid experiences with traditional field activities. Third, there is a need to review the literature, evaluate shortcomings, and consider current practices with the prism of critical perspectives. The value for faculty engaged in field courses include potential publications, and an assortment of other scholarly derivatives that can establish individual, departmental, university, and even national recognition. In this paper, we invoke motivational author and speaker Steven Covey, by arguing that faculty linking field teaching, learning and research are involved in a "win-win-win" endeavor.

FIELD COURSES, TENURE AND PROMOTION, RESEARCH DIRECTIONS

Detecting Urban Heat Islands Changes in Arid Climates: Riyadh City, Kingdom of Saudi Arabia

Alghamdia, Ali S.[1] and Todd W. Moore[2]
[1]*King Saud University,* [2]*Towson University*

Urban heat islands (UHIs) exist when temperature in the atmospheric boundary layer is warmer above the urban area than it is above rural areas. Surface UHIs (SUHIs) exist when the temperature of the surface is warmer in urban areas than in rural areas. However, several cities in arid climates have showed a weak or negative UHI and SUHI. In addition, UHIs and SUHIs have not been thoroughly studied in many arid environments around the globe, especially cities of the Arabian Peninsula. Integrating Landsat remote sensing data and long-term air temperature data from 1985-2010, changes in the SUHI and the UHI were analyzed to better understand their behavior in Riyadh City. Signals of both UHI and SUHI sinks were found and significant decreasing trends were found in the mean annual nocturnal UHI, nocturnal UHI in winter and autumn, and in diurnal UHI during winter. Rural areas were found to exhibit warmer land surface temperatures than urban areas, which was evidence of the incidence of the SUHI sink in the study area. Within the built-up areas, the main road areas exhibited higher LSTs in all the studied years. Generally, the magnitude of LSTs decreased from northwest to southeast.

URBAN HEAT ISLANDS, SURFACE URBAN HEAT ISLANDS, URBAN HEAT SINKS, LAND SURFACE TEMPERATURE, RIYADH CITY

It All Changed After That: Tornado Stories from Five Oklahoma Towns

Allen, Ashley[1]
[1]*Louisiana State University*

Stories often serve to pass down memories from one generation to the next. These stories are especially powerful when they convey emotions like loss. In this paper, I use interviews, newspaper articles, and published reports to tell the stories of Oklahoma's five deadliest tornadoes. Tornadoes are violent extreme weather events. The tornadoes that occurred in Woodward, Snyder, Peggs, Antlers, and Pryor Creek were the five deadliest storms in Oklahoma's history. Each storm occurred before the implementation of tornado warnings in 1953. Since they were particularly devastating, most of them have been retained in the public's memory. Each town experienced catastrophic losses of life and property, and people do not want to, or cannot, forget.

HISTORICAL GEOGRAPHY, CULTURAL GEOGRAPHY, MEMORY, OKLAHOMA, TORNADOES

Urbanization and the Urban Cool Island in the State of Kuwait, Using Remote Sensing and GIS Analysis from 1986 to 2010

Almatar, Muhammad[1]
[1]*Kuwait University*

Human population is increasing worldwide, and especially within the third world. This increase in

population requires an expansion in urban/built areas to accommodate these populations. Kuwait as a country located in the Arabian Gulf region, has been experiencing a tremendous increase in land transformation. This change in land use is dominated by the conversion of desert land cover to urban land use. This study investigates urban land use change in Kuwait from 1986 to 2010. The study employed Landsat imagery, and classification analysis to understand the changes in land cover over time. An overall Kappa coefficient of over 90% for all classified images, provided confidence to then run change detection analyses. Change detection was used to determine the amount of change that took place in the urban land use. In addition, this increase in urban land cover was then also linked to a surface temperature analysis, in order to determine the impact, if any, of a potential urban heat island between built up and non-built up areas. The results of the change detection analyses indicate that urban expansion (an increase of over 150 km2 urban cover) has occurred in Kuwait over the last 24 years. Moreover, the surface temperature analysis results indicated that built up areas in Kuwait are cooler than non-built up areas (defined in the study as an 'urban cool island' rather than the urban heat island more familiar to mid-latitude countries). The study concluded with some suggestions for the Kuwaiti government and further investigation of this highly novel and little studied implications of the Urban Cool Island.

GIS, REMOTE SENSING, URBAN COOL ISLAND

Evaluating the Effectiveness of DWI 'No Refusal' Blood Draw Search Warrant Programs to Reduce Alcohol-Related Traffic Crashes in Central Texas

Ames, Christine Love[1]
[1]*Texas State University*

Alcohol-related traffic crashes cause thousands of deaths a year in the United States. Many types of enforcement approaches have been used by law enforcement to decrease the amount of injuries and deaths resulting from intoxicated drivers. 'No refusal' programs are a new initiative by law enforcement to reduce alcohol-related crashes. These programs are usually conducted over holiday weekends; when officers have probable cause to believe a driver is intoxicated, and the driver refuses to provide a breath or blood sample, the officer will have the ability to obtain a search warrant for that specimen. Judges remain on-call the entire weekend to sign these search warrants, which is where the term 'no refusal' originated. The purpose of this study is to evaluate the effectiveness of the 'no refusal' programs using law enforcement agencies in the Capital Area Council of Governments and the Alamo Area Council of Governments of Central Texas. These two associations cover 23 counties which include over 120 municipal, county, and other law enforcement agencies. A difference-in-difference method was applied to the alcohol-related crash rates which showed a statistically significant reduction in the alcohol-related crash rate after the 'no refusal' programs were implemented.

DRIVING WHILE INTOXICATED, TRAFFIC CRASHES, DIFFERENCE-IN-DIFFERENCE

The Ganges River: Symbology, Sustainability, and the Confluence of Cultural and Fluvial Connectivity

Baca, Emily[1] and Colleen C. Hiner[1]
[1]*Texas State University*

The Ganges River Basin is one of the largest in the world and is also one of the most spiritually and religiously connected to society. In order to understand the extensive relationship between the Ganges River and those who live in its basin, I will employ a framework commonly utilized when studying rivers called The Six Degrees of Connectivity. Through a detailed literature review this paper will analyze and address the anthropogenic influences on the river. Although each of the six degrees are equally important when examining river systems, for the purposes of this paper three will be analyzed in depth: longitudinal connectivity, lateral connectivity between the river and the floodplain, and vertical connectivity between the river and the atmosphere. Through these parameters, I will examine how the values, management systems, socioeconomic stratification, political marginalization, and livelihood of the population are effected geospatially within the Ganges River Basin. This research is pertinent to cultural and political ecology, as well as river basin management, because it demonstrates that cultural connectivity and fluvial connectivity should be analyzed in conjunction with one another for a more holistic understanding of the system. The definition of the river's significance does not solely rely on its physical magnitude, or the volume of water that is transported, but its significance must also be evaluated in terms of its cultural magnitude. The Ganges River is not simply a resource for consumption and use, but is essential to Indian culture through the lenses of spirituality, symbology, and moral regard.

GANGES, RIVER, RELIGION, CONNECTIVITY, MANAGEMENT

A Feminist Perspective on Modern Public Spaces: The Emancipated Flâneuse in Tehran's Shopping Malls

Bagheri, Nazgol[1]
[1]*University of Texas at San Antonio*

Located in the far north-end of Tehran and on the southern slope of the Alborz Mountains, Tandish shopping mall was opened to the public in 2005 after five years of construction. Since then, it has been repeatedly ranked as the most popular shopping mall in Tehran. Although finding a parking spot in its nine-story underground parking structure is time-consuming and exhausting, the shopping mall's four stories offer top European and American brands including Armani, Versace, Tommy Hilfiger, and Gucci and are always packed with all kinds of people. Among them, there are

many young women (aged 18-35) who come to the mall not only to shop, but more often to window-shop, hang out, watch, and of course, be watched. The aim of this study is to explore how women use the shopping mall's space and more specifically, how the modern mall in Tehran has become something more than a space of consumption, facilitating the experience of freedom, equity, and self-expression for Iranian women. To do so, I use the concept of flâneur and review its geo-historical origin in the mid-19th century Paris. I then follow the concept's dramatic changes to its new version in 21st century postmodern landscapes including Tehran's shopping malls. This study offers a fuller understanding of women's consumption of space, the social construction of space, and latent ethno-cultural meanings as well as the contradictory class values women attach to such a seemingly simple practice. I will illustrate this by drawing on 53 interviews with women accompanied with behavioral mapping of the Tandis and Golestan shopping malls in Tehran. Findings address the variety of women strollers and add a naunce dimension to the predominant critical studies of modern and privatized public spaces by urban design scholars in the North America

SHOPPING MALLS, SOCIAL CONSTRUCTION OF PUBLIC SPACES, TEHRAN, WOMEN

Relationships between bush cover and soil erosion: an assessment using remote sensing, geographic information system, and crowd-sourcing technologies

Baker, Holly[1] and Michaela Buenemann[1]
[1]New Mexico State University

Woody plants have encroach in grasslands and savannas around the world in the past century, typically resulting decreases of ecosystem services and declines in human well-being. To improve conditions, many land managers are considering bush removal in affected areas. However, in some instances, bush removal causes soil erosion, which results in a further decline in rangeland condition. To improve rangeland conditions in bush encroached areas, better information is needed regarding the relationship between bush cover and soil erosion risk. Generating this information was the main objective of our research, with the case study area being the Erongo region of Namibia. To meet the objective, we completed three primary tasks. First, we mapped bush cover, non-photosynthetic vegetation, and bare soil using Geographically Weighted Regression in conjunction with crowd-sourced field reference data and Landsat Operational Land Imager imagery. Second, we calculated soil erosion risk using the Unit Stream Power-based Erosion Deposition model with the cover maps from the first task, spatial data on soils and topography, and 10-, 50-, and 100-year storm events. Lastly, we assessed the relationship between bush cover and soil erosion risk by graphing the relationships between the two while holding other factors constant (e.g., bare soil cover percentage, slope range, etc.). Our results show that the relationships between woody plant cover and soil erosion vary greatly depending on both local site conditions and rainfall intensity. When bush removal is a necessary management strategy, it should be timed carefully and only applied on sites with certain environmental conditions.

BUSH ENCROACHMENT, SOIL EROSION, AFRICA, SPATIAL ANALYSIS, CROWD-SOURCING

Exploring the Role of Western Arctic Sea Ice on North American Arctic Climate

Ballinger, Thomas[1] and Scott Sheridan[2]
[1]Texas State University, [2]Kent State University

Significant changes in near-surface temperature and humidity have been observed across the North American Arctic (NAA), especially during the cold season. Declining boreal sea ice cover is suggested as one potential driver of the climatic changes in this region, but these relationships are not well understood across space and time. This study employs a synoptic climatological weather typing scheme known as the Spatial Synoptic Classification (SSC) to holistically evaluate thermal and moisture conditions throughout the NAA landscape coincident with the annual freeze-up of the western Arctic ice cover from 1979-2013. The monthly variability and trends of autumn/winter-dominant SSC weather types, Moist Polar (MP) and Dry Polar (DP), are evaluated and statistically linked to the sea ice freeze dates. Results suggest that the MP weather types are increasing at the expense of DP types, and these frequency changes are positively correlated with the observed delay of the western Arctic freeze-up, especially across portions of Alaska and the Yukon Territory. Climatological factors, such as low-level winds, are explored as linking mechanisms between the changing ice and surface weather conditions. Future research will look to explore the geographic extent of sea ice variability on climate throughout the Northern Hemisphere middle latitudes.

CLIMATE, NORTH AMERICA, SEA ICE, WESTERN ARCTIC

Adapting Wildlife Conservation Strategies to Regions of Armed Conflict with GPS, Geotagged Photos, GIS and Remote Sensing: An Example from the Eastern Democratic Republic of the Congo

Beck, Richard[1]
[1]University of Cincinnati

Basic geoinformatics training for wildlife conservation applications in the national parks of the eastern Democratic Republic of the Congo (DRC) was conducted from 20-26 March and 22-28 December 2014 at Kahuzi-Biega National Park (KBNP). KBNP is operated by the Institut Congolais Pour La Conservation de la Nature (ICCN) and is a World Heritage Site. KBNP is famous as the largest refuge of the highly endangered Eastern Lowland (Grauer's) Gorillas. The last census of the gorillas in 2011 counted only 138 individuals. Nineteen park rangers from three DRC national parks including two Chief Park

Rangers attended the first March 2014 workshop which successfully re-established basic GPS-, geotagged photo- and GIS-based electronic mapping to increase awareness with regard to illegal poaching, logging, and mining and for endangered species tracking in the eastern DRC. The second December 2014 workshop focused on basic remote sensing training for change detection (deforestation), anomaly detection (wildfire) and forest health monitoring (illegal mining). The second workshop required higher-end laptops and was limited to seven lead rangers who are translating the new DRC training materials into French and will train additional rangers at additional national parks in the eastern DRC first and then other national parks in the DRC.

Africa, wildlife, conservation, GPS, GIS, remote sensing, Democratic Republic of the Congo

Mining for Truth: Conceptualizaing Precious Metal Mining in Northern Minnesota

Bergstrom, Ryan D.[1]
[1]*University of Minnesota*

Stretching from modern day Duluth, Minnesota, north and east towards the Canadian border, the Duluth Complex, a 1.1 billion year old horse-shoe shaped intrusive component of the Midcontinent Rift System, is considered by many to be the world's largest undeveloped deposit of precious metals. As a result, numerous companies are in the process of obtaining mining permits through the State of Minnesota. Proponents suggest that extraction can be accomplished in an environmentally benign manner and in the process create nearly 1,000 jobs and generate over $500 million in economic benefits annually. Opponents suggest that the 250,000 annual visitors to the Boundary Waters Canoe Area, the most popular Wilderness Area in the United States, and other tourists in northern Minnesota provide over 18,000 jobs and $800 million in economic benefits annually, and that mining will permanently impair the regions environment and the tourism industry as a whole. As such, the precious metal mining debate has become highly polarized, and the upcoming decision by the State of Minnesota will determine the fate of the regions environment and economy for decades to come. This study examined the conceptualization of the precious metal mining debate in Northern Minnesota through the content analysis of local newspapers.

Precious metal mining, resource extraction, Minnesota, Boundary Water Canoe Area

Survival Of The Aransas-Wood Buffalo Whooping Cranes (Grus Americana) Wintering On The Texas Gulf Coast: Stakeholder Knowledge, Awareness And Willingness To Respond

Blanchard-Boehm, Denise[1] and Dayna Kaspar[1]
[1]*Texas State University*

The Aransas-Wood Buffalo Population (AWBP) of fewer than 300 whooping cranes is the last naturally migrating flock in existence. The cranes' flight path of 2,500 miles extends from Alberta, Canada to the Aransas National Wildlife Refuge (ANWR) on the Texas Gulf Coast. In recent years, the state has experienced severe drought conditions leading to reduced freshwater inflows into ANWR, thus, severely disrupting the cranes' available food sources and habitat. Primary management of the species in ANWR reflects a traditional "top-down" approach with a focus on biological and ecological aspects; however, prior research demonstrates that the public, when properly informed, will also contribute to conservation of an endangered species. To assess levels of public education and awareness, this study utilized a mixed methods approach to compare three groups—professional, academic/student, and general public. Quantitative descriptive analysis demonstrated that the groups differed in levels of education and awareness of the cranes' status in ANWR including, their reduced numbers, water issues related to habitat, and water conservation measures; however, participants in all three groups expressed a willingness to engage in conservation measures to improve habitat for the crane at ANWR. Qualitative analysis assisted in a fuller understanding of our results.

whooping crane conservation, critically endangered species awareness, habitat protection, public environmental education

The Shifting Geography of the Central American Migrant Youth Crisis

Blue, Sarah[1], Rebecca Torres[2], Kate Swanson[3], Amy Thompson[2], and Óscar Misael Hernández Hernández[4]
[1]*Texas State University,* [2]*University of Texas at Austin,* [3]*San Diego State University,* [4]*COLEF-Matamoros*

In the summer of 2014 the United States witnessed a crisis as tens of thousands of unaccompanied migrant children, fleeing violence and poverty, were apprehended at the U.S.-Mexico border. Official data from the US Customs and Border Patrol report a drop of 51% in unaccompanied child migrants from 2014 to 2015. Although no longer in the news, the surge in youth migration from Central America has not ended. Mexican immigration data and fieldwork conducted in Mexican border cities in June 2015 revealed that, rather than resolving the 'problem' of unprecedented numbers of youth and family migrants, US-Mexican immigration accords have resulted in the heightened capture of Central American youth migrants before they reach the US border, denying them possible asylum and family reunification. This paper uses the voices of child migrants and key informants to explore the impact that the shifting patterns resulting from US-Mexican policy is having on young Central American migrants and their families.

immigration, border, Mexico, Central America

Spatial Clustering Of False Ring Anomalies in Juniperus Virginiana of the Oklahoma Crosstimbers

Bode, Carson[1]
[1]*Oklahoma State University*

This study counted false rings in Eastern Red Cedar samples to track growing conditions in the Oklahoma Crosstimbers. Using ArcGIS, this study expands on previous research comparing two sites and examines trends across the Crosstimbers. Kriging analysis compared atmospheric data from the Oklahoma Mesonet to tree core data. False rings are a type of growth anomaly occurring in certain tree species, particularly evergreens, resulting from periods of water stress that cause the tree to form late wood, followed by late season precipitation that causes the tree to revert to normal growth. False rings can indicate areas of high climatic variation. False rings were most abundant on the boundary between the driest and wettest regions. These areas were not subjected to prolonged periods of drought, but did experience some degree of water stress. This may be useful in identifying areas prone to sudden shifts in growing conditions and providing greater seasonal resolution of dendroclimatic models. This trend was the strongest with vapor deficit, where the highest and lowest levels produced almost no false rings, but the mid-range levels produced large quantities of false rings. False ring probabilities were tracked using 553 samples from eastern red cedars growing in eleven sites throughout central Oklahoma. The false ring records in these cores were compared to weather records from the Oklahoma Mesonet. Maps of weather averages were constructed using Kriging analysis on records from 1994 to 2008.

DENDROLOGY, CLIMATOLOGY, OKLAHOMA, JUNIPER, FALSE-RINGS

Economic and Social Rights Fulfillment in the United States: A Spatial Perspective

Botteon, Jamie L.[1] and C. Patrick Heidkamp[1]
[1]*Southern Connecticut State University*

This paper aims to contribute a spatially sensitive perspective to a growing interdisciplinary body of work on the quantification of human rights. In this body of work, it is argued, that quantifiable measures are needed in order to better monitor state efforts to fulfill their human rights obligations and develop adequate public policy instruments. While this paper reaffirms this need, it also asserts that it is important to consider the importance of a spatial perspective. While much effort has been expended to identify measurable variables and to develop relevant indices, the spatial implications surrounding certain variables have not been taken into consideration. This paper uses the example of Economic and Social Rights Fulfillment in the United States as the basis for a discussion of the importance of issues related to spatial data aggregation and the modifiable areal unit problem (MAUP).

HUMAN RIGHTS, ECONOMIC RIGHTS, SOCIAL RIGHTS, MAUP, UNITED STATES, POLITICAL GEOGRAPHY

Keeping Denton Beautiful: Evaluating the effectiveness of an urban community tree giveaway program in Denton, Texas

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Urban trees provide numerous ecosystem services, such as improving air quality and reducing the urban heat island effect and storm water runoff. However, an estimated 600 million trees have been lost to urban development over the last three decades. Mitigating this loss and increasing tree growth has become a priority for many American cities. Many programs have been established to increase forest growth and improve the quality of life within their communities. To evaluate their impact, we studied tree survivorship and demographic characteristics of a tree giveaway program in Texas. Keep Denton Beautiful hosts a tree giveaway program, which provides 800 trees to residents within its city limits annually. Our study sample consists of 3,100 trees distributed to 2,111 households from 2010 to 2014. Tree survivorship was assessed by conducting email surveys of tree giveaway participants. Seventy-five percent of the respondents reported that their trees were alive. Of these, 89% described their trees as healthy. Tree survival declined over time from 82% in 2014 to 72% in 2010 with 2011 experiencing the lowest rate at 67%, likely due to drought conditions that year. Program participation was evaluated using participant addresses and parcel data. Using housing appraisal data as an economic indicator, we determined certain socioeconomic groups were underrepresented. However, with high tree survivorship, the tree giveaway program appears to be effective in restoring the city's urban forest. Plans to expand the program has significant potential to provide long-lasting positive effects on tree quantities and canopy coverage in Denton's urban landscape.

ECOSYSTEM SERVICES, TREE SURVIVORSHIP, URBAN LANDSCAPE, URBAN FOREST, KEEP DENTON BEAUTIFUL

Infrastructure Banks for Water System Change? An Oklahoma Case Study

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Currently, the United States under-invests in infrastructure by $48 billion per year, and our global ranking in infrastructure development is plummeting. A 2009 estimate reports that nationally we lose 7 billion gallons of water a day due solely to leaking pipes. At the state level, a recent study in Oklahoma discovered that many water utilities were unable to upgrade their water systems due to resource limitations, with grave consequences for water system resilience in the face of climate change. One possible solution is the idea of state-level infrastructure banks, which could help coordinate innovation investments designed to meet state water conservation targets such as the Oklahoma Water for 2060 Act. Although not a new idea, the concept of infrastructure banks could increase available funding to rural water systems, increase stakeholder representation, and facilitate effective

cross-sector coordination and planning. This study uses interviews to examine the perceptions of state-level water experts in Oklahoma concerning the potential use of an infrastructure bank to provide funds for water system innovation. Implications for policy coordination and water system infrastructure financing decisions are identified.

INFRASTRUCTURE, DEVELOPMENT, WATER, OKLAHOMA, CONSERVATION

Is Brazilian wind-power development socially and politically sustainable? Insights from a review of conflicts in Ceará state.

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Advantages of expanding wind energy development are well known but social and political opposition to wind power is persistent. Conflicts are well documented mostly in North America and Europe, where debates focus on proximity to residents, distribution of skewed distribution of benefits, aesthetic notions of landscape, construction phase traffic, and noise from wind turbines. We apply Pasqualetti's model of opposition (immobility, immutability, solidarity, imposition, and place identity) to wind-power conflicts in coastal Ceará state, Brazil. We describe processes including licensing, resource appropriation, social movements, relations with the judiciary, and response by wind-farm operators.

WIND POWER, CONFLICT, BRAZIL

Place-Based Marketing Trends Exhibited by Oklahoma Wineries and Vineyards

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The use of place in wine marketing is well documented. Oklahoma, a state not often associated with producing wine, contains many wineries and vineyards that use place to market their products. These wine producers construct specific and generic place-based identities that appeal to local wine consumers. In this study, we take an in-depth look at exactly how Oklahoma wineries and vineyards use place to market their products. We employ qualitative content analysis to assess the websites of 49 Oklahoma wineries and vineyards, specifically focusing on the use of imagery on wine labels, winery logos and wine names, and the content on wineries' websites. Findings indicate that even though each winery markets place in different ways, several common themes emerged across all wineries including connection to historic events, Native American culture, and local natural hazard/risk awareness (i.e. severe weather, especially tornadoes) to name a few. Importantly, the scale at which most place associations occur is at the state-level. Rather than constructing more localized regional identities (i.e. based on American Viticultural Area or region-of-origin, which is very common), many wineries have cultivated a decidedly Oklahoman sense of place. Additionally, some generic, non-Oklahoman place associations were identified such as rurality and religiousness.

SENSE OF PLACE, NEOLOCALISM, MARKETING, WINE, OKLAHOMA

Street Trees amd Social Equity

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Pedestrian accessibility is a primary component of just and vital urban environments. Presence of usable sidewalks is the foundation of pedestrian accessibility, but their walkability depends upon socio-economic and contextual attributes. The mere presence of a sidewalk may not facilitate its usability or walkability. Use of sidewalks also depends upon positive conditions of comfort and safety. In many climates, street trees contribute significantly to comfort and to perceptions of safety. Street trees also provide eco-system services that benefit humans. Recent efforts to reduce non-point-source pollution though installation of green infrastructure provide opportunities to increase the presence of trees in pedestrian travel ways. Environmental justice considerations imply that accessibility, including sidewalk walkability, be fairly distributed in order to maximize individual, societal and environmental benefits and to respond to limitations imposed by socio-economic status (SES). Our main hypothesis is that SES is negatively correlated with the presence of street trees along sidewalks. This paper draws upon a micro-detailed regional pedestrian dataset to characterize the presence of streets trees in a social equity context. Results of this investigation may add power to requests for installation of street trees and green infrastructure in lower-SES neighborhoods.

SIDEWALKS, STREET TREES, SOCIAL EQUITY, GREEN INFRASTRUCTURE

The Spatial Distribution of Assets and Challenges Driving the Quality of Life in Dona Ana County, New Mexico

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In the last few years, political leaders, social services staff, and university researchers have examined quality of life as a social justice issue in Dona Ana County, New Mexico. The urban and rural areas in this county in the U.S-Mexico borderlands face a range of human development challenges, with major impacts on societal welfare. As part of this effort, students, faculty and staff at NMSU have been mapping quality of life indicators within a geographic information system framework, thereby depicting the landscape of the quality of life and human development in the region. In this paper, we discuss preliminary efforts we have undertaken to develop and map a Human Development Index for Dona Ana Country. This work draws on the pioneering work to develop a human

development index by the United Nations Development Program (Hodendon 1992) and also draws on work by other researchers in the US-Mexico border region (Anderson and Gerber 2004 and Gerber and Anderson 2014). We plan on sharing results of this research with policy makers, political leaders, and other scholars with an interest in human development in the region, and we believe that this work has the potential to help inform the policy debate about future allocation of resources in Dona Ana County.

HUMAN DEVELOPMENT INDEX, QUALITY OF LIFE, AND GEOGRAPHIC INFORMATION SYSTEMS (GIS)

Emergency Department Usage in St. Clair County, Illinois

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Health geography is the application of spatial information, perspectives, and methods to the study of health, disease, and medical care. This subfield of geography frequently examines spatial phenomena such as the spread of disease, the accessibility of clean water and the availability of healthy grocery stores. Also of special interest to health geographers is the accessibility of hospitals and urgent care centers relative to the distribution of a place's population. In particular, hospital emergency departments play significant roles in the communities they serve. This paper provides a first analysis of emergency department usage in St. Clair County, Illinois by analyzing hospital discharge data using R and GIS. This southwestern Illinois County is home to three hospitals and within half an hour of a multitude of Greater St. Louis area hospitals. This study is unique in that we used realized access, which showed the specific hospital where residents obtained care. We will reveal the most frequently utilized hospitals, show the variation of hospital choice across the county and describe the impact of socioeconomic status on emergency department visits. Results were as expected with lower-income areas using emergency departments more frequently, but the results were unexpected when analyzing the out-of-county hospital usage for rural residents. These results suggest there is an unequal distribution of hospitals for rural residents of St. Clair County.

HEALTH GEOGRAPHY, GIS, HOSPITAL ACCESSIBILITY

Coexistence of the water hard path and the water soft path: Producing water and water users in Guanajuato, Mexico

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This paper examines how the coexistence of two socio-technical regimes for water—the water "hard-path" (WHP) and the water "soft path" (WSP)—produces contradictions for state-citizen relations. In the twentieth century central governments managed water supply through large-scale infrastructure, known as the WHP. Water experts advocate for an alternative paradigm for the twenty-first century, or the WSP, to encourage demand management through conservation technologies. I use the case of WSP implementation in Guanajuato, Mexico to investigate how decentralization and demand management "roll back" the presence of the state, while the legacies of state power from the WHP enable the state to use these WSP technologies to "roll out" state surveillance. First, the history and materiality of waters "matter" in terms of the decentralization and recentralization of waters, with implications for how geographies of scarcity and surplus are produced. Second, the state produces water users by training and educating them to be compliant with demand management according to their economic sector. Third, the state rolls out technical devices to monitor this compliance, namely water and electricity meters and groundwater titles, in order to render citizen-water relations countable and therefore accountable. As a consequence, the coexistence of the WHP and WSP produces uneven geographies of water access and obscures power dynamics between citizens and the state. If coexistence—not just of devices but of regimes—is characteristic of water governance in the Global South (Furlong 2014), then these implications bring into question the viability of the WSP for achieving goals of sustainability.

WATER GOVERNANCE, WATER SOFT PATH, DEMAND MANAGEMENT, SOCIO-TECHNICAL REGIME, MEXICO

Market Area Analysis of Robinwood Retirement Community: How GIScience Integrates Marketing Geography and Spatial Analysis

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Retirement communities serve as increasingly popular housing options for many Americans. As demographic shifts continue, these developments will most likely increase in popularity. One company tapping into this market is Resort Lifestyle Communities (RLC) based in Lincoln, Nebraska. One of RLC's projects is the Robinwood Retirement Community in Memphis, Tennessee. This study analyzes Robinwood Retirement Community's market area in the Memphis metropolitan region using customer prospect data. GIScience is utilized in conjunction with marketing geography principles and spatial analysis to A) delineate the geographic extent of the market area B) identify the socioeconomic and demographic characteristics of customers and C) prioritize locations and customer prospects within the market based upon these characteristics. The results provide RLC with a better understanding of their market area and assist them with marketing decisions related to customer prospect data.

GISCIENCE, MARKET SHARE, RETIREMENT COMMUNITY

Educational and Academic Uses of the Portal to Texas History

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Since its inception in 2004 and the official launch 2009, the Portal to Texas History, a digital repository

run by the third largest public university in the state of Texas, has digitized over 650,551 items and over 6.5 million individual files. The vast majority of these are considered primary source materials which include photographs, newspapers, handwritten letters, journals, maps, legal documents and reports. By digitizing such a large number of items, the Portal has deeply enriched the study and understanding of the humanities for a broad public audience, as illustrated by 24,604,274 uses worldwide. From the beginning, the Portal has provided lesson plans and educational materials to not only university students, but K-12 students who are required to complete two courses in Texas History. In support of these courses, the Portal's resources are organized into 80 separate lesson plans meant to engage students with primary resources. Materials hosted on the Portal can be searched by relevance within a county, which allows browsing items by area in addition to topic. Through the use of an online heat map of Texas, any user is able to determine how many digital items are found pertaining to each county. One simply needs to "hover" over a county with their mouse to see the latest record count for the county in question: the darker the blue of the county, the more records available.

EDUCATION, DIGITAL REPOSITORY, PORTAL, GEOGRAPHY

Can Mapping Environmental and Societal Factors Determine the Status of Neighborhoods in Youngstown, Ohio?

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The City of Youngstown, OH finds itself in the position of trying to recover from economic collapse at the same time of trying to slow further economic decline. Efforts to reduce crime, gang activity, and drugs within the city have led to more greenspace including urban gardens, more accountability in the maintenance of rental and vacant properties, as well as introducing new commerce to the city. The impact from these measures is difficult to quantify. Presented here is an examination of neighborhoods in Youngstown where different environmental and societal factors are mapped over a three-year span to see if neighborhood change can be measured and documented through mapping alone. Factors such as maintained properties, new businesses (such as grocery stores), location of schools, and presence of playgrounds will be used as proxies to determine the "recovery" of Youngstown.

MAPPING, RECOVERY, GREENSPACE

Spatial Differences of Deforestation Between States in the Brazilian Amazon

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Deforestation has caused significant reductions in forest cover in the Amazon Basin in Brazil. It has been estimated that about 20% of Brazil's Amazon Basin rainforest has been cut down since 1970, with much of this deforested land used for agriculture. However, rainforest depletion rates vary considerably within the Amazon Basin. Some states lost more than 15% of their rainforests between 2001 and 2012, whereas other states have lost less than one percent of their rainforests. The purpose of this research is to investigate reasons why deforestation rates vary so widely within the Amazon Basin of Brazil. Satellite imagery and data from government and international sources are used to map deforestation levels, and GIS will be used to illustrate relationships between deforestation levels and potential explanatory factors such as population change, climate change, and accessibility.

DEFORESTATION, BRAZIL, GIS

Implications of Supersizing a Boxstore: Regional and Local Economic Impact in Toronto, Canada

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The socio-economic implications that box-stores have on inner city locations is not nearly as well understood compared to that in suburban and rural areas. Much of the reason for this has been a reluctance by retail giants to readily situate box-stores in the inner city, particularly during the 1990s and 2000s. This study examines the outcome of a Wal-Mart location (called Dufferin Wal-Mart) on an inner city location in Toronto, Canada. What makes the study particularly interesting is that we examine the outcomes of this one particular store location before and after it became a supercenter in 2010. When it was a Wal-Mart and now as a Super Wal-Mart. This study investigates the incremental effects of Dufferin Wal-Mart on its nearby community from 2006 to 2013. The composition of all retail establishments located within a 1.5 km radius of Dufferin Mall was first categorized into one of 15 major categories based on services and product offering. Analysis of the results revealed that there has been a decline in the number of competing retail establishments and an increase in the number of non-competing establishments. This is in spite of our earlier study that showed more substantive growth and benefits to the community. The findings underline the need to assess the impact of box stores by type, market, and urban context.

BOX STORE LOCATION

Dam Removal for Whitewater Recreation on the Chattahoochee River at Columbus, Georgia

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Dam removal in the U.S. is typically based on a desire to remove an obsolete structure and to allow a stream to revert to its previous ecological habitat condition. This paper reviews a case where dam removal was based on a need to transition from an obsolete economic activity (textile manufacturing) to an economic activity on the rise (outdoor recreational tourism). In the mid-1800s, several dams were built on

the Chattahoochee River near Columbus for harnessing hydropower to turn textile mill turbines. The mills played a major role in the economy of the area through the mid-1900s when the industry began to shift to other regions. In the early 2000s, the Eagle and Phenix Mills building was converted to modern, urban condominiums. Perceptions of the river as a source of hydropower began to shift and the idea to develop a whitewater park soon emerged. The Eagle and Phenix Dam and the City Mills Dam were removed in 2012 and 2013, respectively. The riverbed along a 2.5-mile stretch was altered to produce a channel that was safer and more suitable for recreational rafting and kayaking. This paper reviews the transformation of the river and its economic impacts on the region.

DAM REMOVAL, RECREATION, CHATTAHOOCHEE RIVER

Spatio-Temporal Outlier Dectection: Did Buoys Tell Where the Hurricanes Were?

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Spatio-Temporal outlier detection is important for the discovery of exceptional events due to the rapidly increasing amount of spatio-temporal data available, and the need to understand it. Data points that exhibit abnormal behavior either spatially, temporally, or both are considered as spatio-temporal outliers. Most existing spatio-temporal outlier detection methods work fine with univariate data but unable to handle multiple variables well. Another challenge is how to define appropriate spatio-temporal neighborhoods for data points under investigation. The work in this paper leverages an algorithm, ST-LDBCAN (Spatio-Temporal Local Density-Based Clustering of Applications with Noise), which has been developed and used by the authors to detect outliers in various scenarios by considering multiple variables and establishing appropriate spatio-temporal neighborhood based on locality.

SPATIO-TEMPORAL DATA MINING, OUTLIER DETECTION, HURRICANES, BUOY

Evaluation of Efficiency in the Diffusion of Information on Social Networks: An Experiment with Agent-Based Modeling Approach

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The richness of information on the Internet, especially social media service, gives us a great opportunity to investigate human behavior at a large scale. Many heuristic studies have been conducted on information diffusion on social networks, especially online social networks. Though there is no lack of using agent-based modeling (ABM) to simulate the evolution of social networks as well as how information spreads along such networks, very few of them have focused on the simulation of the efficiency of meme diffusion in practical. In order to assess the efficiency of information via social networks, opinion leaders are introduced. In particular, this research analyzes the both the number and position of opinion leaders in respect of the structure of social networks and the budget of assigning opinion leaders. In addition, this research examines various Agent Based Modeling Platforms in terms of the availability of social network analysis especially.

SOCIAL NETWORKS, INFORMATION DIFFUSION, AGENT-BASED MODELING

A Maxent modeling approach to predict the current and future distributions of treeline species in the Nepal Himalaya

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Knowledge of the current distribution of treeline species is important for predicting their future distribution in the landscape. Many studies have indicated that treeline will advance with climate change. Treeline advance will result in a loss of alpine biodiversity because the advancing treeline will fragment alpine ecosystems. A species distribution modeling approach using predicted climate data can increase our understanding of how treeline species will expand their range in the future. We used the Maxent model to predict the current and future distributions of three dominant treeline species, Abies spectabilis, Betula utilis, and Pinus wallichiana, of the Nepal Himalaya. The Maxent model predicted that the distribution of treeline species will change under future climate change scenarios. The range of these treeline species will expand northward or upslope in response to future climate change. The model also indicated that temperature-related climatic variables are the most important determinants of the distribution of treeline species.

DISTRIBUTION RANGE, TREELINE, CLIMATE CHANGE, SPECIES DISTRIBUTION MODELING, MAXENT, HIMALAYA

Living with Water: The Louisiana Diversionary Myth

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Following in the footsteps of the Dutch, New Orleans leaders have proposed a new plan to "live with water." The central principle is that after decades of trying to keep the city dry, engineers and planners will allow more water within the levees and thereby diminish the risks of subsidence and eventual demise. Yet the cornerstone of the city's adaptive change of course is to rely on the state to construct some $50 billion dollars worth of coastal restoration projects to fortify the coastal wetlands that provide the first line of defense from storm surge. Among the specific efforts in this ambitious plan are a series of diversions that will deliver fresh Mississippi River water to the sinking brackish marshes with the intent to deposit sediment and thereby restore the coastal landscape. The diversions will also disrupt the commercially significant oyster farms and bay shrimping. In effect, New Orleans will learn to live with a bit more water in

extremely controlled circumstances, while natural resource dependent fisherfolk will have to learn to live with a substantially different sort of water than their livelihoods are adapted to. This paper offers a comparative analysis of the potential impacts and the political implications of coastal restoration plans on these two different communities.

COASTAL RESTORATION, LOUISIANA

Alleviating Congestion on Aviation Frequencies Near Non-Towered Airports in the U.S.

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Pilots operating aircraft near small, non-towered airports in the U.S. often experience the problem of congested radio frequencies. Pilots flying in the vicinity of small airports communicate using a common traffic advisory frequency (CTAF). However, the limited number of CTAF frequencies available contributes to the same frequency being used in the vicinity of multiple airports, sometimes more than 100 miles apart. Interference caused by pilots operating on the same frequency near different airports contributes to lost transmissions and can impact safety. Research has shown that a majority of midair collisions take place within 10 miles of an aircraft's departure or destination airport. This paper examines radio congestion through a GIS-based analysis of CTAF frequencies used at non-towered airports in the U.S. Beyond identifying regions having the most severe congestion we develop a method to redistribute radio frequency allocation with the goal of minimizing interference. This is largely achieved by developing buffers around each non-towered airport and ensuring a minimum distance between such airports using the same CTAF frequency.

TRANSPORTATION, AVIATION, RADIO SPECTRUM

Measuring the Spatial Pattern of Ethnic Groups in San Antonio's Eastside: A Spatial Analysis Approach with the Colocation Quotient

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The study of cities has evolved and shifted paradigms from the early local resources viewpoint, to the morphology perspective, and to the more recent spatial approach. Through these different angles, urban geographers and sociologists have documented the different factors that lead to the formation of unique urban residential patterns. This paper focuses on measuring the spatial pattern of ethnic groups residing in the Eastside of San Antonio, Texas in the early 1900s. The goal is to use a replicable abstract approach that will create a baseline for the comparison of current and future patterns, and provide greater understanding of the origins of residential segregation in the City of San Antonio. A historical geodatabase was created by digitizing and georeferencing buildings, blocks, and streets using Sanborn maps from 1911-1912, and by linking the digitized shapefiles with 1910 city directory and census data. The data was analyzed to identify and test spatial associations among different ethnic groups using the colocation quotient. This point based metric examines the overall spatial structure of the dataset and highlights the bivariate spatial association between different ethnic groups. The colocation quotient quantifies both hierarchical processes to provide an in-depth analysis of residential segregation in Eastside San Antonio.

RESIDENTIAL SEGREGATION, COLOCATION QUOTIENT, URBAN STUDIES, SPATIAL ANALYSIS, HISTORICAL GIS

"They're outside of EVERY home depot": Racial Politics and Anti-Big Box Activism in El Sajon, California

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Informal day-labor sites are found in over 100 metropolitan areas across the United States. These sites exist in a variety of landscapes and adjacent to a variety of social institutions: street corners, along busy thoroughfares, outside of grocery stores, gas stations, and most famously, the big-box construction retailer Home Depot. Previous work shows that day-labor sites occasionally become flash-points for community conflict, and that these conflicts are inflamed by underlying racial tensions, as much or more than any specific behaviors related to day-labor activity. In this paper, I draw on a case study from El Cajon, California to demonstrate how the discursive linkage between the Home Depot brand and day-labor activities motivated many residents near a proposed Home Depot location to organize, resist, and ultimately prevent the store from being built. The inaccurate and socially-regressive racial politics inherent to most community conflicts related to day-labor activity were projected onto Home Depot as a corporate entity, adding complexity to the traditional, typically progressive, narratives that accompany community resistance to big-box siting decisions in the United States.

DAY-LABOR, RACE, COMMUNITY, CONFLICT, NIMBY

Upstream watersheds and megafan formation: an application of astronaut photography

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Megafans are partial cones of river-laid sediment with a radius longer than 100km and with slopes less than 1°. They originate at topographic discontinuities where, typically, a single formative river exits a highland area and enters a zone unconfined by valley walls. Megafans are found on all continents and often attain such great sizes because of stream switching behavior over extended periods of time. Megafan formation has implications for landform and species evolution. While the existence of megafans is acknowledged, it is believed that most remain unidentified. This project focuses on ~90 megafans identified using variable-scaled astronaut photography collected onboard the

International Space Station. Our goal is to compare the size of megafans and the drainage area that contributed sediment to their formation. To accomplish this megafans are identified and their points of origin are recorded as latitude/longitude pairs. Then, upstream watersheds from each point of origin are calculated using a continent-wide digital elevation model and watershed delineation techniques. We calculate the area of each megafan (Af) and the area of the upstream watershed (Ad) and statistically explore patterns across the African continent. Findings are compared to multiple models of megafan river behavior.

MEGAFANS, WATERSHED ANALYSIS, AFRICA, ASTRONAUT PHOTOGRAPHY

A river runs through it: How Texas State University Students use and value their San Marcos River

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Ecosystem services is a framework used to recognize and evaluate the benefits humans receive from their environment. Rivers in particular provide many ecosystem services such as water for consumption, production, and agriculture, key habitat for multiple species, water quality controls, and multiple cultural benefits including recreation, cultural heritage, and artistic inspiration. While many studies have quantified the biophysical ecosystem services provided by rivers, few have quantified the social demand for ecosystem services due to the considerable effort involved in collecting these data. In this study, we surveyed the entire Texas State University student population about their use and value of the San Marcos River, a highly used river whose headwaters originate on and flow through campus. The response and subsequent analyses yielded one of the largest ever assessments of the social demand for ecosystem services. Our 49-question questionnaire was designed to generate a better understanding of the social demands placed upon the San Marcos River by asking questions about the ecosystem services of the river and how the students used and valued these services. The student population at the time of survey was approximately 34,916. We chose to do an email survey because this method would generate the largest data set in the shortest amount of time possible using the least amount of resources. We received 2,580 (7.38%) responses. Overall, the responses to the questionnaire showed that students do use the river and are aware of the ecosystem services it provides. The majority of students (93%), had visited the San Marcos River or its neighboring parks. When asked if the San Marcos River provides benefits to human well-being, (95%) either agreed or strongly agreed with the statement. When asked if the San Marcos River is sensitive to rapid urban growth, (86%) either agreed or strongly agreed with the statement. The main objective of the study was to generate a better understanding of what the students use the river for and what they value about the river along with respondent demographic information. The results show that respondents use and value the San Marcos River and are aware of its sensitivity to the activities occurring in the watershed. This study provides an example of how to survey and assess the social demand of ecosystem services for a large stakeholder group. As the population of Central Texas continues to develop at a rapid rate, the demand placed upon the rivers will increase. Our ecosystem services assessment offers a quantitative means to measure, discuss, and predict future social demand for valuable natural resources in central Texas and beyond.

ECOSYSTEM SERVICES, SOCIAL DEMAND SURVEY, WATERSHED MANAGEMENT, URBAN STREAMS, CENTRAL TEXAS

An assessment of current spatial and temporal trends in the available data on Texas dams

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Texas has more dams than any other state in the United States, and the Texas State Water Plan recommends building 26 new major reservoir sites (5,000 acre-feet or more storage capacity) by 2060. This study uses available data on the current distribution of dams in Texas, as accounted for by the Texas Commission on Environmental Quality, to examine spatial and temporal trends at the state and basin scale. We addressed the following research questions: What are the spatial patterns in dam occurrence; and how have these patterns developed over time relative to the size, storage, ownership, and purposes of dams, and relative to climate patterns? The data set includes 7,274 dams with locational data and could be used in the analysis. Privately owned small- and medium-sized dams occupy the majority of the data-set, this pattern is evident at the state and basin scale, and for all time periods. Local, state, and federal governments own the majority of large and very large dams. The Trinity, Colorado, Brazos, and Red, collectively account for 63% of total dams, and 54% of total storage, with the majority of these dams commissioned during 1940-1979. Combined precipitation, evapotranspiration, and dam distribution patterns are complex and vary spatially and by dam attributes. Primary purposes for dams have changed over time. Existing and future water management plans rely heavily on dam and reservoir infrastructure and given the potential commissioning of 26 new dams, the results of this analysis can inform on sustainable water management practices in Texas.

DAMS, TEXAS, WATER RESOURCES, RESERVOIR, SPATIAL ANALYSIS

Assessing the Sustainability of Austin, Texas Water Policy

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Austin, Texas has been certified by STAR (Sustainability Tools for Assessing & Rating Communities) as one of the United States' most sustainable cities, being ranked

as 4 out of 5 stars, and, as such, one might expect its water policy to reflect that status. To test the applicability of this rating with respect to water policy in Austin, this research used a framework developed from previous scholarly work, to determine water policy sustainability. Up to this point, the overall sustainability of a community's water policy has been analyzed through the study of its water management practices rather than actual policy. Results suggest that Austin's water policy is concentrated on protecting human health and reducing pollutants in the water while limited attention is paid to other topics tied to sustainability in the areas of social equity, economic stability, and environmental protection. Indeed, the framework shows that the most sustainable water policy in Austin is the Land Development Code which registers as 68 percent sustainable and is the only policy to score over 50 percent, while the lowest score is 8 percent for the Utilities Criteria Manual. The findings suggest that Austin may be sustainable but that its water policy could be better integrated with other community concerns.

AUSTIN (TX), SUSTAINABILITY, LAND DEVELOPMENT

Mapping Brazilian Economic Social Topography (1990-2010)

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This paper aims at mapping the economic and social scenario in Brazil in the perspective of sustainable human development in 1991,2000 and 2010. It starts with a conceptual framework, providing the characteristics of the concept of life quality, with emphasis on features related to the adopted perspective working as guidelines for the choice of variables that compose the database used in the paper. For the characterization of life quality in Brazil in 1991,2000,2010 classifications were carried out through the PCA/Principal Components , which allowed extracting information that explains the situation in these periods, based on which the cartographic generation, characterizations and analyses were made. Thus, the aspects of infrastructure and human capabilities were identified, and studied with basis on cartograms that help understanding and analyzing the national framework through the comparison of the obtained results with the HDMI – Human Development Municipal Index, a high correlation between them being detected. The analyses highlight the heterogeneity of the various situations, in a country geographically divided into distinct realities.

SPATIAL ANALYSIS, LIFE QUALITY, PRINCIPAL COMPONENTS, GEOGRAPHICAL INFORMATION SYSTEM, BRAZIL

A Quest-Based Online GIS Course: Preliminary Experiences

DeMers, Michael[1]
[1]*New Mexico State University*

This talk reports on the first experiences of developing and delivering an upper division / graduate level online GIS course using a quest-based learning (QBL) framework. The course uses the 3DGamelab LMS framework from within the university's Canvas LMS. All exercises, quizzes, lectures, and other assignments are developed using a Quest-Based framework in which 85% is require to "pass" or succeed at the quest after which all points are awarded. The course uses an additive grading model and incorporates awards, achievements, badges, and leveling - all features commonly experienced in gaming technology. Initial results are notably bimodal in terms of both learner acceptance of the framework and of the degree to which they have engaged in this gamified learning environment. Developing such a course with almost 200 quests is a daunting task but lessons learned include the requirement for a face-to-face initial meeting to kick-start the learner and introduce the QBL environment, creation of deadlines for early questing to warn laggards, and a schedule of faculty-learner interactions via exercise feedback at least four to five times per week. A hallmark of the course is constant feedback on every assignment. A major drawback to the existing environment and the course development within it is that there is no support for learner-learner interaction. This must be relegated to the chat room within the university LMS or web-conferencing to provide opportunities for verbal interaction.

GIS EDUCATION, GEOGRAPHY EDUCATION, QUEST-BASED LEARNING

Recoupling Theory and Application: Legitimizing U.S. Academic Applied Geography

DeMers, Michael[1]
[1]*New Mexico State University*

The discipline of geography in general, and applied geography in particular, are often undervalued by other science and social science disciplines even in their own institutions. One possible reason for this is the colossal divide between theory and application within the discipline that results in a cacophony of voices as geographers try to define their place within academe. Generally the large flagship PhD granting geography departments emphasize the theoretical nature of geography as their Ivy League predecessors once did, while many smaller departments tend to focus largely on applications. Unfortunately this division between the theoretical geography is an artificial construct that often leads to fragmenting of the discipline and an increase in the perception by our peers that the discipline lacks direction. This paper suggests a realignment of the discipline wherein applications be well grounded in theory and theory be discussed in the light of practical application. In this way applied geography can act to legitimize the overall discipline itself and strengthen the position and importance of applied geography in the flagship departments as well.

APPLIED GEOGRAPHY, THEORY AND APPLICATION, HISTORY AND PHILOSOPHY OF GEOGRAPHY

Using Interactive Maps in Community-Based Domestic Violence Programs

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Domestic Violence (DV) is a difficult topic to broach, but "there is a balance to be struck of the replaying and reinstating trauma, and the need to speak about violence" (Pain, 2014). With professional and personal experience as a DV advocate and survivor, I recently undertook a pilot project that explored the effectiveness of online interactive maps for DV community education programming. Determined to create a map that could provoke viewers' emotional engagement and to challenge stereotypes about DV impacts, I chose to visualize DV-related deaths with an interactive map. Such a visual representation allows cartographers to draw in viewers more actively. This paper presentation discusses the two-step process of creating this map, as well as key lessons learned from not only making it, but also interviewing its viewers. Analysis of the qualitative data collected during these interviews suggests that exposure to the online map application significantly increases participants' awareness of the importance of and need for community involvement in DV prevention and recovery. This pilot study corroborates Rachel Pain's claim that "emotions are predominantly considered to be a positive force that adds momentum to the push for social change." It also helps me see where this kind of interactive map can be improved and, ideally, incorporated into the Mentors in Violence Prevention Model. Accordingly, this presentation concludes by reviewing a strategy for moving forward with another, better designed, and more carefully assessed interactive map.

GIS, QUALITATIVE, FEMINIST, VIOLENCE

Post-War Tourism Development in Guatemala: Contested Identities, Histories, and Futures

Devine, Jennifer[1]
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The Guatemalan tourism industry is a contested terrain of post-war politics where state officials, indigenous peasants, and ex-guerilla brigades compete to define post-war national identity, historical memory, and future possibilities. I use the analytic of territory to show how the state and civil society groups use tourism development to pursue unexpected political ends. First, I track changes in state marketing practices to suggest the Guatemalan government has used tourism to redefine post-war national identity and the place of Maya within the body politic - territorial practices of national identity formation. I then turn to the Maya village of San Juan la Laguna to examine how Maya Tz'utujil use community tourism to reassert their Tz'utujil identity and claim San Juan as Tz'utujil space – tourism-enabled practices of bordering. Lastly, I explore how ex-guerillas use solidarity tourism to carve out spaces of life and livelihood through cooperative living that run counter to dominant neo-liberal models – creating territories of alternative development. This paper comparatively examines the territorial practices of state, indigenous, and ex-guerilla tourism initiatives to illustrate tourism's political stakes and possibilities in post-war Guatemala.

TOURISM, TERRITORY, POLITICAL GEOGRAPHY, GRASSROOTS DEVELOPMENT, GUATEMALA

Practicing Responsible Leadership in Southern Africa

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Geographers are not unusual among social scientists in often ignoring the role leadership plays in the implementation of policies intended to foster prosperity in less developed regions. Nonetheless, it must be addressed, as responsible leadership is an essential ingredient for bringing about much needed change. Unfortunately, in southern Africa, as elsewhere on the continent, a dearth of responsible leadership prevails. Granted, the democratic election of Nelson Mandela, now more than 20 years ago, not only brought before the world stage a transformational leader who showed a level of integrity that heretofore largely had been absent in Africa, but also a knack for communicating across cultures and inspiring others to achieve his vision of social equality. Yet, as the dawn of the 21st century has passed, duplicity and corruption in government appear to be the norm; uneven economic development and prosperity persist, as does social injustice --- and disparities in wealth and opportunities for advancement make conditions ripe for social unrest. Because government has shown only limited effectiveness, it is argued that the corporate sector must take on the burden of responsible leadership by addressing the needs of often ill and impoverished local communities; one response that has been shown to be an effective strategy for local community development is application of a transformational leadership model in matters pertaining to conservation tourism. Indeed, the Tanda Tula Model lends to geographers a perspective on how the integration of geographical knowledge and effective leadership behaviors is imperative; this forum offers opportunity for discussion.

LEADERSHIP, CONSERVATION TOURISM, DEVELOPMENT, AFRICA

Baseline Climatology of Sounding-Derived Parameters Associated with Atlantic and Gulf Coast Tropical Cyclone Tornado Clusters

Dixon, Richard W.[1], Todd W. Moore[2], and Christi G. Townsend[1]
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Radiosonde sounding-derived parameters are analyzed for 54 cases of tornado outbreaks associated with tropical cyclones from 1995-2010. We define a tropical cyclone tornado outbreak as six or more tornadoes occurring in a six hour period. All the tornadoes are associated with a landfalling or post-landfall translating tropical cyclone. Previous studies

have examined the role of the atmospheric environment in an individual tropical cyclone or individual tornado. The goal of this study is to provide a climatology of sounding-derived parameters for each tropical cyclone tornado outbreak. Sounding parameters provide information on environmental characteristics such as moisture, stability, and wind shear within the atmospheric column. Descriptive statistics for the 12 sounding-derived parameters are presented to document the central tendency and variability of atmospheric conditions associated with these outbreaks. Additionally, results of both a Cluster Analysis and Principal Components Analysis of the parameters are presented to aid in understanding commonalities in groups of sounding-derived parameters and tornado outbreaks.

TROPICAL CYCLONE TORNADOES, RADIOSONDE, MESOSCALE, CLIMATOLOGY

Spatial Patterns of Violent Crime in the City of Dallas 2004-2014

Doyle, Teresa[1], Joseph R. Oppong[1], and Chetan Tiwari[1]

[1]*University of North Texas*

Violent crime varies across the City of Dallas, but the spatial pattern and the reasons for this spatial variation remain unclear. Using data on Violent Crime defined as aggravated assault, individual and business robberies, rape, and murder, this study examines the geography of violent crime in the City of Dallas. Rate maps of violent crime will be produced using geocoded crime data obtained from the Dallas Police Department. Additionally, we use demographic and socio-economic variables from the American Community Survey to develop an index of vulnerability to violent crime in Dallas. Statistical and spatial analysis reveals significant spatial disparities in violent crime and provide insights for formulating policies to reduce violent crime.

CRIME, DALLAS

Population trends of American Crow (Corvus brachyrynchos) and White-winged Dove (Zenaida asiatica) during an agricultural shift in the southern Rio Grande valley of New Mexico

Druskat, Erich K.[1], Walter G. Whitford[1], and Carol Campbell[1]

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American Crow (Corvus brachyrhynchos) and White-winged Dove (Zenaida asiatica) have recently expanded their respective distributions into southern New Mexico including the central Rio Grande Valley. Both of these species exploit a variety of agricultural habitats and have long been documented utilizing pecan orchards as a source of food, roosting habitat, and nesting habitat. We explored the increase in pecan farming coincident with population trends of American Crow and White-winged Dove to identify potential resources necessary to establish viable local populations. We found significant correlations between increases in pecan production and increases in American Crow ($n = 27$, $r_s = 0.715$, $P < .0001$) and White-winged Doves ($n = 27$, $r_s = 0.695$, $P < 0.0001$) with the number of these birds counted per hour during Las Cruces Christmas Bird Counts from 1976-2003. Change in agricultural practice may have led to the decline of some farmland bird species in many areas around the world; while some species have flourished in the face of change. Future research should monitor changes in land use including agricultural crops to evaluate the ecological impacts of American Crow and White-winged Dove populations in the Rio Grande Valley of southern New Mexico.

CHRISTMAS BIRD COUNT, AGRICULTURAL SHIFT

Asymmetrical Response To Flood Hazards In South Central Texas

Earl, Richard[1] and James Vaughan[1]

[1]*Texas State University*

South Central Texas is one of the most flood prone regions in the United States on account of its extreme rainfall intensities, hydrologically efficient drainage systems, and high runoff surfaces, both natural and from recent population growth. In the last twenty years the region has experienced devastating floods in 1998, 2001, 2002, 2010, and 2013 with literally hundreds of homes and numerous lives lost. In our paper we analyze the causes of these losses and actions that have been taken to reduce the losses as well as reasons for the failure to realistically accommodate the regional flood hazards. A major contributor to problem is the underassessment of rainfall intensities that are still based on Weather Bureau Technical Paper 40. Another factor has been the reluctance of governmental officials to realistically define floodplains because of political pressure based upon fears of lowering home and land values and development "opportunities." Well healed developers have had housing projects approved by using earth fill to raise foundations above the legally defined flood elevations. Government agencies have been slow to provide adequate bridges over frequently flooded access roads. The most positive action has been an increase in flood education and warning. Some cities have developed home buyout programs in frequently flooded zones.

TEXAS FLOODS, FLOOD HAZARDS, FLOODPLAINS

Assessing Vulnerable Populations Related to Tornado Siren Placement and Coverage in Stillwater, Oklahoma

Ellis, Emily A.[1] and Adam J. Mathews[1]

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Severe weather can be very costly to communities located within Tornado Alley both in terms of loss of life and damage to property. These locations, of course, have a heightened risk of tornadic activity and thus have a pressing need for a warning system. The use of strategically-placed outdoor tornado sirens is a common approach to notify people of impending

danger. However, it remains difficult to ensure complete coverage (i.e. when people are within a distance where sirens can be heard) of such a system within a city. Specifically, this study addresses the following research questions in Stillwater, Oklahoma: how well is the city covered by the current system? What populations are and, more importantly, are not covered by the siren system (i.e. how many, demographics: age, race)? Using U.S. Census data at the block scale and siren location information provided by the City of Stillwater, this study found that 26% of city residents are not within the necessary distance to be covered by the current tornado siren network. Of this potentially uninformed portion of the population, most were found to be white, family households and consisted of 3,864 individuals under the age of 18 and over 65.

TORNADO SIRENS, GIS, SPATIAL ANALYSIS, STILLWATER, OKLAHOMA

Spatial-Temporal Analysis of Crime on the Georgia State University Campus

Ericson, Steven P.[1] and Melinda Mann[1]
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The study examines spatial-temporal patterns of crime on the Georgia State University (GSU) campus from January 2007 to December 2014. Since moving into the renovated Bolling Jones Building on Ivy Street in 1947, GSU has gradually built a contiguous campus in downtown Atlanta by purchasing neighboring buildings and land parcels. The introduction of the Main Street Master Plan in 1997 saw the university expand into areas farther away from its core at the intersection of Peachtree Center Avenue (previously Ivy Street) and Decatur Street. With the university's expansion and opening of residence halls within walking distance of the core academic buildings, crime on and surrounding campus has gained more attention in the local media. The study examines the influence of routine activity and social disorganization theories on temporal-spatial patterns of crime on the GSU campus. Utilizing kernel density estimation (KDE) hot spot analysis is performed utilizing geocoded data from the GSU Police Department. The results detail the key time periods when crime occurs on campus, and highlight the potential for collaboration between university researchers and the GSU Police Department.

CAMPUS CRIME, SPATIAL-TEMPORAL ANALYSIS, ATLANTA

Interactive Web-Based Mapping of Texas School Districts

Estaville, Lawrence[1], Kenneth Kelly[1], Neliralda Silva[1], Zoe Zell[1], and Kanika Verma[2]
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Our presentation focuses on one part of the interactive Web-based Texas Education Atlas regarding geovisualization of academic, demographic, and financial variables for the 1,254 school districts in Texas. The atlas is constructed from GIS layers, yet viewers can select variables from the large dataset for K-12 schools without the need to have a GIS program on their computers or any skills in constructing maps using GIS—a product directly produced, then, for educational policymakers, researchers, and the public, not GIS experts. The "big data" project is also the first effort to map the myriad of school district data for the entire state. Such specific variables as graduation and dropout rates can be compared, for example, with ethnicity, cost per student, or student-teacher ratios.

INTERACTIVE WEB-BASED MAPPING, SCHOOL DISTRICTS, POLICYMAKING, TEXAS

Flush(less) Geography: High-Efficiency Urinals in Wash Room Spaces

Evans, Bryant[1]
[1]*Houston Community College*

Water, arguably the earth's most valuable resource, is also notable due to its finite capacity. As knowledge of water scarcity has expanded over time, various innovations have been developed in response to it. Additionally, as societies have become increasingly aware of the acute issues and consequences found in conjunction with water scarcity, they have displayed a growing willingness to embrace innovations that in part aim to address it. This paper takes a closer look at one small sliver of this equation by further exploring waterless and high-efficiency flush urinals in wash rooms located on college and university campuses around the United States. Various dimensions of waterless and high-efficiency flush urinal technologies are examined here. Survey results conducted along with this study will further reveal information about the implementation, use, and satisfaction levels related to these innovations specifically on campus settings

WATER, SCARCITY, WATERLESS, URINALS, UNIVERSITIES

Power, Patrons, and Proprietors: Using Social Media to Understand Geographies of Consumption

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The study of cyberspace in geography is not new; however the nature of digital spaces is changing with the development of mobile technology, social media, and location-based media platforms. As a hybrid space, the internet has the power to shape offline places and spaces as well as the individual decisions people make within those locations. Physical spaces as well shape online space through the creation of these forms of location-based social media by recognizing that people are embodied. The growth of location-based media platforms such as Yelp, Urban Spoon, Facebook Places, and Foursquare is opening up the field of geographies of consumption to better understand the actions of consuming individuals. Using data from the location-based social media platform, Foursquare, combined with interviews from business owners in Kansas City, MO, this presentation argues that the nature of consumption is changing. While physical storefronts are a necessity for our lives as embodied beings, an online presence on location-based social media

platforms is needed for economic growth and success. Despite the recognized need for social media sites, the business community has had difficulty with the acceptance of these technologies due to the prevalence of user generated content. It will be shown that while Foursquare itself may not be fully utilized by the business community, similar applications that can be completely controlled by business owners have been embraced.

CONSUMPTION, SOCIAL MEDIA, FOURSQUARE, RETAILING, BUSINESS

Fracking the Eagle Ford Shale, Texas: Fiscal and Transportation Policy Impacts

Fields, Billy[1]
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This presentation explores the fiscal and transportation impacts associated with the oil and gas boom in the Eagle Ford Shale region in rural south Texas. It begins with an explanation of fracking and key issues associated with boom and bust cycles of energy extraction. This is followed by results from two surveys of local government officials. From the fiscal perspective, we found that while there were strong tax revenue gains for many of the surveyed communities, local governments appear to use income resulting from fracking on current as opposed to long-term needs. The lack of a long-term fiscal outlook for several of the localities in question makes them vulnerable to possible fiscal troubles. From a transportation perspective, we found that roadway crashes between 2009-2013 increased 26 percent in the study area. Fatalities and severe injuries also increased by 49 percent. The survey results show that counties and cities are experiencing significant challenges in meeting increased demands placed on their transportation system by fracking including increased traffic and congestion, deteriorating roads, and increased cost of maintenance.

FRACKING, TRANSPORTATION, FISCAL POLICY, TEXAS

Environmental and Planning Considerations for Water Resources Management in Puerto Rico: The 2014 Drought Event

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During summer 2014, Puerto Rico experienced an unusual reduction of its rainfall patterns, with serious effects on the supply levels of its reservoirs. In particular, La Plata and Loíza reservoirs, that meet the demand of approximately 90 percent of San Juan's Metropolitan Area (the island's capital and most densely populated area), experienced critical supply deficits. The available climatic and meteorological data suggests that the effects related to The Southern Oscillation (ENSO, often referred as "El Niño") had influenced this drought event. Nonetheless, in addition to the climatological variations (such as ENSO), there is also socio-economic factors that seem to have a significant share of the responsibility in the experienced effects of this drought. This work developed a general description of the ENSO effects in the region as well as a land-use change analysis for the watersheds of these two particular reservoirs (La Plata and Loíza) including a general assessment of the combined factors (biophysical and socio-economic) that characterized this drought event. In summary, the causes of this drought event in Puerto Rico in 2014 were dual in nature. First, the climatological variations and second, negligent management practices. An integrated watershed management approach along with comprehensive management practices are suggested.

PUERTO RICO, ENSO, WATERSHED MANAGEMENT, LAND USE CHANGE, WATER RESOURCES PLANNING, SUSTAINABLE DEVELOPMENT

HIV Death Rates in Rural Texas Counties: An Analysis of Contributing Factors

Franklin, Brian[1], Joseph R. Oppong[1], and Chetan Tiwari[1]
[1]*University of North Texas*

In rural Texas counties, death rates from human immunodeficiency virus (HIV) have not significantly declined since 1999 although urban areas have seen a serious decline in the same period. This study will examine HIV deaths and related factors in rural Texas counties. The uninsured experience the longest treatment delays. In Arkansas, Louisiana, Oklahoma, and Texas, 22.3% are without health insurance and 25.8% in rural areas. In many rural Texas counties over 30% of the population does not have health insurance. Testing rates for HIV are also lower in rural counties than urban counties. Using data from the U.S. Census and CDC WONDER, this research relates and attempts to explain spatial variations in rural HIV death rates. The results provide insights for improving geographic access to HIV treatment and increasing survival with HIV.

HIV/AIDS, RURAL TEXAS, GEOGRAPHIC ACCESS, SURVIVAL

What's in a Name? Factors Driving Geography Departments to Change their Name

Frazier, Amy[1] and Thomas Wikle[1]
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What's driving geography programs in the United States and Canada to change their names? Between 2000 and 2014 more than 30 geography departments have adopted revised or new names with a few entirely dropping "geography". Although renaming and "rebranding" efforts are not new to higher education, the rapid pace at which geography department names have changed raises questions about the discipline's identity and health. In this paper we examine the renaming trend within geography programs together with intended and unexpected factors as perceived by faculty. More specifically, we look at the renaming and rebranding trend within the context of four pillars of geography offered by Pattison in 1964 to define geography's principal academic domains—earth-science, man-land, area/regional studies, and spatial traditions. Our data comes from a survey of department chairs and senior faculty within U.S. and Canadian

geography programs that implemented a department name change between January 1990 and December 2014. Survey results suggest a shift within many departments toward an environmental focus. Our findings reveal that geography's efforts to rename/rebrand have remained, for the most part, within the confines of Pattison's four pillars of geography, and rebranding efforts have been aimed at showcasing the expanded boundaries of knowledge associated with a department's academic programs and/or research strengths. We also found the most common reasons for undertaking a name change were to attract undergraduate majors and enhance the department's prestige on campus. Name changes may be negatively impacting the discipline of geography in terms of undergraduate student recruiting.

DEPARTMENT, ACADEMIC UNIT, RENAMING, REBRANDING, GEOGRAPHY

Large Indian-American Settlements: The Implications of Place

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A number of American gateways have experienced dramatic increases in their Indian-American populations. A basic question is whether place matters in the development of community and expression of ethnicity. Previous research indicates the tendency by many Indians to remain deliberately invisible from observation, but in other areas reveals a range of ethnic material expressions and active participation in public institutional politics. These and other differences have led to public reactions and policy considerations in local areas.

INDIAN-AMERICANS, AMERICAN GATEWAYS, PUBLIC POLICY

Mapping A Fading Italian-American Ethnic Enclave in Kenosha, Wisconsin

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Ethnic enclaves provide immigrants with housing, jobs, protection, cultural expression, and a sense of home in a foreign land. Some immigrants assimilated into American society and moved away from their enclaves. What happens to these places? Do businesses or social organizations remain or disappear? The goal of this paper is to develop a mapping methodology to analyze the Italian-American enclave in Kenosha, Wisconsin. Several data sources were used to map the historic ethnic enclave. First, U.S. Census ancestry data were used to map the ethnic enclave. Second, many businesses and their addresses were identified in historic Kenosha City Directories (1929, 1959, and 1989). These businesses were geocoded in a GIS and divided into "Italian" and "non-Italian" categories based on the surnames of the business owners. Lastly, a "windshield" survey was conducted in the historic Italian-American neighborhood to identify any remnants of an ethnic enclave. This study revealed that Italian-Americans and certain business moved away from their enclave over time. However, many food-related businesses did not fade away and are a prominent reminder of an historic Italian-American enclave today.

ETHNIC ENCLAVES, MAPPING, CULTURAL GEOGRAPHY

Local Control, Mobile Policies, and the Scalar Politics of Contemporary Hydrocarbon Governance in Texas

Fry, Matthew[1] and Christian Brannstrom[2]
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Since the beginning of the shale and unconventional oil and gas boom in the early 2000s, setback distances have emerged as important policy tools for Texas cities to regulate the proximity of drilling and hydraulic fracturing sites to homes, schools, and other public gathering facilities. However, for the oil and gas industry, setbacks are contentious because they reduce well density and limit production in city territories. Currently, municipal setbacks throughout the state range from 200 to 1500 feet, seemingly due to differences in local politics, socio-economics, and geography. But setbacks and other oil and gas regulations have particular origins and different language and models are shared, modified, and mobilized among towns and cities. This paper examines the causes of variation among municipal setback distances in key Texas shale gas regions, and explores how scalar politics, and territory, property, and legal issues affect local governance of oil and gas activities. The paper also informs debates surrounding the impacts of recent Texas state legislation that preempts cities from regulating oil and gas activities.

ENERGY, GOVERNANCE, POLICY MOBILITIES, SETBACK DISTANCES, UNCONVENTIONAL OIL AND GAS

Astronaut Photograph Cataloging; Developing Geo-Spatial Concept Understanding and Reasoning

Ghaffari, Zahra[1], Nate Currit[1], and Ingeong Jo[1]
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The map is the most important tool of geography and permits visual comparison between areas because it is designed to indicate, by means of symbols, the existence and the characteristics of all geographic features in a given area. Humans are very adept at visually interpreting continuous tone images in their daily activities. Astronauts on the International Space Station have taken nearly 2 million photographs of Earth, but more than a million photographs remain uncatalogued (i.e., their geographic location is unknown). NASA has embarked on a project to catalog these photographs and to create a database that can be easily visualized and interpreted, and which they hope will spur new investigations of the Earth system. In this project we develop a process to locate the latitude and longitude coordinates of the center of each photograph using a combination of off-the-shelf and custom software. Determining photograph center coordinates requires complex geographic reasoning to

match patterns from a photograph to georeferenced Earth features, including the correct use of scale, distance, shape and pattern. We develop a mechanism to assess geographic process learning among undergraduate students as they perform the image cataloging. In this presentation we present the current state of our mechanism for cataloging photographs and assessing student geographic concept understanding and reasoning. We argue that the process of image cataloging enhances student understanding of basic geographic concepts.

GEOGRAPHIC REASONING, CONCEPT UNDERSTANDING, ASTRONAUT PHOTOGRAPH CATALOGING

Wildfire Evacuation Model for the City of Austin and Travis County, Texas

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Wildfires in central Texas have become an increasing problem due to extreme drought conditions, and, in 2011, central Texas suffered through multiple wildfires that destroyed over 1,500 homes and 32,000 acres of forest. Even with a record of past fires, and in spite of increasing wildfire risk each year, the region does not have a wildfire evacuation plan in place to mitigate the potential loss of life during future wildfire events. Using the failed evacuation of Steiner Ranch in Travis County, Texas, during the Labor Day Fires of 2011 as a study area, this project utilizes US Census data on commuter cars to create a "flow rate" model in GIS that theorizes car capacity per lane for each major evacuation route. Using these guidelines, we create "drivesheds" that assign evacuation routes to given population boundaries based on their commuter car capacity. Additionally, wildfire specific evacuation factors, such as potential flame length against the roads, points of limited ingress/egress, afternoon traffic conditions, and topography, are analyzed and considered in order to optimize safety during a wildfire evacuation. In 2011, following the Steiner Ranch/Labor Day fire, Fire Chief Kerr of the Austin Fire Department (AFD) established the "Zero Fire Deaths" campaign. In order for AFD to achieve this goal, it is necessary to have a comprehensive wildfire evacuation plan in place to mitigate the potential loss of life during any future wildfire events. As such, this applied research project enables AFD's policy objective by providing the necessary analysis and evacuation models.

FIRE, WILDFIRE, EVACUATION, TEXAS, AUSTIN

Precipitation Cycles – What's Causing All the Flooding?

Goel, Akanksha[1]
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Floods and droughts come and go throughout the decades, causing billions of dollars in damages. Not surprisingly, this has been attributed to precipitation cycles linked to the El Nino and the La Nina years. Yet uncertainty still exists, particularly in the ability to accurately anticipate future rainfall patterns. Through statistical modeling of data from ARM Climate Research Facility with 13 stations throughout the state of Oklahoma that have minute-level tabulation, this study will analyze the precipitation trends between 1993 and 2015. The goal is to better enable future predictions of variation in rainfall patterns, which has the potential to save cities and farmers in Oklahoma millions of dollars in damages, as they will be better prepared to adapt.

PRECIPITATION, CYCLES, FLOODS, DAMAGES, ADAPTATION

Terminal Shopping: Place Displayed in United States Airport Concessions

Goldberg, Jack[1]
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As more Americans choose commercial aviation as a preferred mode of transport, airport terminals have the opportunity to represent the distinctive culture of their geographic location as they are often the first or only chance a passenger has to experience a city or region. Airport concessions provide passengers a variety of food and beverage and retail options branded by local/regional concepts, and national/international chains. In order to maximize revenue, airport operators seek a balance between local/regional and national/international branded concessions in order to appease the demand of a diverse consumer base. The purpose of this paper is to determine how important of a factor place branding is with regard to sales per enplaning passengers at airport terminal concessions and discover which airports earn higher revenue through local/regional concessions. This analysis uses passenger and revenue data obtained from the 2014 Airport Revenue News Factbook. A multiple regression model is developed with the intention of comparing the sales per enplaning passenger for local/regional concessions with those of national/international chains at 88 large, medium, and small airports in the USA. I hypothesize that the results should show higher sales per enplanement from local/regional concessions at large airports where the location of place is more widely recognized.

AIRPORT, RETAIL, CONSUMER BEHAVIOR, PLACE BRANDING

An Examination of Associations between Maternal Residential Proximity to Nuclear Facilities and Low Birth Weight in Offspring in Texas

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The health effects of close residential proximity to nuclear facilities have been a concern both for the general public and for health professionals. We report a study examining the associations between maternal residential proximity to nuclear facilities and low birth weight (LBW) in offspring using data from 1996 through 2008 in Texas. We used a case-control study design. First, we geocoded maternal residential addresses of all case births, control births, and the two nuclear power plants in Texas. Second, we utilized

different distance thresholds to categorize the case and control births into different proximity groups. After that, we used a binary logistic regression analysis to examine associations between between maternal residential proximity to nuclear facilities and low birth weight (LBW) in offspring. The odds ratios were adjusted for several covariates that were potentially associated with the LBW, such as birth year, maternal race/ethnicity, age, education group. In addition, we performed a sensitivity analysis by changing the distance thresholds to validate the analysis results. Results of the analyses suggest that there is no statistically significant association between maternal residential proximity to the two nuclear facilities in Texas and low birth weight in offspring.

GIS, HEALTH, NUCLEAR FACILITIES, LOW BIRTH WEIGHT, SPATIAL MODELING

Definition of the high tide line as a guideline for the implementation of compensatory policies in areas impacted by wind farms on the northeastern coast of Brazil

Gorayeb, Adryane[1], Carlos Augusto Uchôa da Silva[1], and Antonio Jeovah de Andrade Meireles[1]
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In 2009, a wind farm with 50 turbines and a generating capacity of 104.4 MW was installed on Xavier Beach, on the northern coast of Brazil, affecting the territory of traditional local fishing communities. This resulted in a series of social and environmental impacts. Following a number of legal disputes, the company responsible for the project invested in compensatory actions, beginning with the construction of standardized housing, which substituted the traditional residences of the local residents. The present study defined the 1831 Mean High Tide Line (MHTL) of the study area to provide guidelines for the demarcation of the community land and the construction of housing. This land belongs to the Brazilian government and cannot be owned by private citizens. The demarcation of the presumed MHTL/1831 was based on (i) the 1831 tidal gauge data from the nearest port, in order to determine local tide heights, (ii) the determination of the geodesic coordinates of the two coastal extremes of the community, using a GPS with a precision of 1 ppm, (iii) a planialtimetric survey using a total station, and (iv) altitude contours drawn up in CAD software with the georeferencing of the map in GIS software. A 1:2000 scale image-map (UTM FUSO 24S, Datum SIRGAS-2000) was produced from the altimetric survey of the study area showing the MHTL and the 3 m tide contour, as well as symbols representing the principal artificial elements of the local landscape (houses, wells, schools, wind turbines, etc.). The definition of the MHTL permitted the accurate definition of the limits of the federal land, allowing the housing project to be constructed in an area sanctioned by Brazilian legislation, thus avoiding the land held in the public domain.

WIND FARMS, COMPENSATORY POLICIES, TECHNICAL CARTOGRAPHIC

Deep in the Heart of Dixie: The Geography of College Football Player Production and Program Success, 2015

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Perhaps no other cultural component has played a bigger role in shaping today's perception of America than sports. In particular, college football often receives considerably more media coverage than so many other sports or aspects of culture in general. This includes political, economic, social, educational and environmental issues. This paper is part of an on-going study that examines the geography of college football. The purpose of this project is to analyze present (2015) geographical patterns of major college football player production and program success. And, determine what, if any, patterns have changed during this time period. The football players numbering in excess of 25,000 are mapped by state, hometown/high school (origins) and college/conference affiliation (destinations). Strong regional recruiting patterns and distance decay factors exist in areas of abundant talent (supply) while national patterns have evolved in areas of deficit supply or traditionally successful programs. The resulting maps provide insight into the regionalization of football involvement and comparisons drawn from the earlier work regarding the geography of college football. The scale of devotion to college sports by its fans is unmatched throughout the nation in Dixie. Few better examples of 'pride-in-place' can be found than in the American South. Though football is a national game, the ability to play it well is inordinately concentrated in the South. The South adopted a northern game, absorbed it fully into its culture, and gradually outdid the innovators.

COLLEGE FOOTBALL, DIXIE, REGIONALISM, SPORT GEOGRAPHY

An Analysis of Typhoon Tracks around Japan Using ArcGIS

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Typhoons (hurricanes) are a major cause of casualties and damage in the Northwest Pacific Basin. This study uses Geographical Information Systems (GIS) software to analyze the tracks of typhoons that enter the northern part of the Basin and affect Japan. The data used are typhoon tracks from the International Best Track Archive for Climate Stewardship for the 63-year period (1951-2013). The study area encompasses the northern part of the Northwest Pacific Basin (28°- 48° N and 110°- 180° E). Using ArcGIS (ESRI, 2014), we delineate four zones within the study area based on a 300 km buffer around the main Japanese islands. We use this zonal classification to analyze the frequency of typhoons entering each zone, examine the relationship between origin location and zone, and show how ArcGIS can be used to study the relationship between

typhoon tracks and the location and strength of the North Pacific subtropical high. As few studies have employed GIS software to analyze typhoon tracks over time and space, our goal is to demonstrate how ArcGIS can be used to map and analyze typhoon tracks to better understand the distribution and movement of these dangerous storms in this heavily populated region.

TYPHOONS, GEOGRAPHIC INFORMATION SYSTEMS, JAPAN

Property rights and the use of Amazonian and Andean Forests

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Few participatory research projects focus on human dimensions of forests in the Andes and Amazon. I hypothesize that property rights are overlooked in the study of the human dimensions of forests, omitting a key variable for understanding forest conservation. This paper highlights the experiences of three research projects in Peru: two in the Amazon of Purús, Ucayali and one in the Andes of Apurímac. Between 2009-2011, Upper Amazon Conservancy undertook natural resource use studies in four indigenous communities in Purús. This fieldwork prompted further research into the social and environmental impacts of big-leaf mahogany (Swietenia macrophylla) logging during 2012-2014. During summer 2015, I conducted research in Apurímac, identifying local actors influencing Andean forests and developing a typology of livelihoods and land uses. Methods used in all three studies included: participatory mapping, semi-structured interviews, and participant-observation. Additionally, species harvested through hunting, fishing, and gathering were recorded during 2011. In all three cases, methods proved useful for the production of maps, identification of useful species, and understanding of the spatial and temporal dimensions of natural resource use. Selective logging of mahogany generated social, economic, and environmental impacts with implications for land tenure and community solidarity. Communities bear an undue financial burden and criminal liability over a resource they exercise little or no social, economic, or political control over. In the case of Apurimac, actors exercise different levels of influence on Andean forests, and production systems and land uses form an agro-silvo-pastoral landscape. In conclusion, community and private property regimes often overlap.

AMAZON, ANDES, PROPERTY RIGHTS, FORESTS, PARTICIPATORY METHODS

Nuclear Reversal in History: Implications for Iran

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This paper revisits the history of nuclear reversal and counter-proliferation strategies and attempts to draw implications for containing the Iranian nuclear program. I suggest that the threat of economic sanctions may have affected allied/ friendly states from pursuing nuclear weapons program (South Korea, Taiwan) but there is little evidence that such threats have stopped adversarial countries from pursing their nuclear program. Thus, while sanctions may have hurt Iran's economy, it has not stopped the continuation of Iranian nuclear program and today, It stands at the threshold of developing nuclear weapons. I show that Iranian uranium enrichment program continued at a steady pace throughout the time economic sanctions were imposed (and increased), and while the stuxnet cyber-attack slowed the program, its effect was temporary. I conclude that alleviating Iran's security concerns is more important in assuring a long-lasting deal that constrains its nuclear program.

NUCLEAR WEAPONS, IRAN

Downtown Cotton: the Impact of the New Orleans Cotton Exchange

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The New Orleans Cotton Exchange, founded in 1871 just west of the historic French Quarter district, was the epicenter of cotton trade on the lower Mississippi River. The exchange offered merchants and cotton factors a space to buy and sell cotton. However, membership in the cotton exchange – while vast in and around New Orleans – was spread out across the globe. Two research questions appear: how did the New Orleans Cotton Exchange affect a nascent "downtown" New Orleans commercial district? In addition, what wider relationships between New Orleans and beyond are apparent among the exchange's membership? Historical membership lists of the New Orleans Cotton Exchange in the late nineteenth and early twentieth centuries, supported by additional historic data from the Louisiana Research Collection, were used to identify and geocode exchange members. A time series of membership data enables the capturing of geographic shifts in exchange membership. U.S. Agricultural Census Data are combined with located members in the Lower Mississippi Delta region to map a broader cotton plantation region with commercial links to New Orleans. Membership within the city of New Orleans display an emerging New Orleans "cotton district", and can be cross-referenced with urban histories of the city and parish. The historic data suggest that a high density of exchange membership occurred at local, regional, and national clusters, with an important presence in a growing "Downtown" New Orleans.

HISTORICAL GEOGRAPHY, ECONOMIC, URBANIZATION, COTTON

Interrogating Islamic Identityscapes in Kazakhstan: Articulating Spatial Parameters from Recent Field Work

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Additional and more recent data is necessary to understanding the dynamics of ethno-identity and Islamic religiosity in Kazakhstan. A specific culture-scape, the identityscape, may be defined as a specific

"terrain" imbued with the cultural history of an ethnic group. "Features" of the identityscape include linguistic patterns and usage, religiosity and sacred space and elements of national myth. The central questions to be explored and analyzed by this research are: almost twenty years after independence, does a separate ethnonationalism, marked by variegations in religiosity persist among Kazakh youth, in the face of efforts by the Kazakh regime to forge a universal, non-ethnic "Kazakhstani" identity? In addition, assuming that there is some spatial variation regarding the character of religiosity among this population, can some of the contours of such variation be identified using data collected in regional cities? The study focuses on identifying and describing the ethno-religious landscape among youth (primarily students in institutions of higher education) in the cities selected, by gauging attitudes and opinions relevant to self identification, as well as perceptions of other ethnic groups.

IDENTITYSCAPE, CENTRAL ASIA, KAZAKHSTAN, ISLAM, ETHNIC PERCEPTION

Measuring Geographic Susceptibility to Flooding in New Orleans Using LiDAR

Hanson, Kyndra[1], Chloe Magee[1], Kirsten de Beurs[1], and Renee McPherson[1]
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Coastal cities are especially vulnerable to storm surge and flooding from tropical cyclones. In particular, New Orleans, Louisiana presents a prime example due to its susceptible location between Lake Pontchartrain and the Mississippi River. The city's elevation is much lower than that of surrounding states - even below sea level in multiple areas. A Modern Geographic Information Systems can be utilized to create risk-preparedness models for future mitigation. An interdisciplinary analysis of New Orleans geography, post-storm flooding, and critical emergency response infrastructure can help identify problematic areas. We created a flood inundation map using land cover classification and a digital elevation model. Additionally, infrastructures critical to emergency operations during a natural disaster such as police stations, fire departments, hospitals, and levees were digitally mapped. Moving forward, we will suggest mitigation techniques based on our findings, with an emphasis on the susceptibility to risks based on geographic location. Understanding the functionality of critical infrastructure under stressed conditions allows the preparation of resources for onset of disasters for New Orleans and coastal cities alike.

LIDAR, GIS, FLOODING, RISK, NEW ORLEANS

Spatial and Temporal patterns of Comprehensive Climate Index Extremes in the Mink Region

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The Missouri, Iowa, Nebraska, and Kansas (MINK) region is important for animal agriculture. Climate change is a potential risk to this food production area. We used the Comprehensive Climate Index (CCI) to identify the frequency of both hot and cold extremes for beef cattle for 22 weather stations within the four states. The CCI converts weather data into metrics related to livestock performance, including dry matter intake, average daily weight gain, and feed efficiency. CCI values of 86 and 14 are critical upper and lower thresholds. CCI values were determined for each hour of each day from 2005 to 2014 at the weather stations. Considerable temporal and spatial variability exists. There were more than 600 hours with CCI > 86 at Lincoln, NE, in 2011 and 2012. That level of cattle stress was approximately half as frequent in 2008 and 2009. The frequency of CCI > 86 was great enough throughout the entire MINK region that livestock owners/feeders needed to be concerned about mitigating the heat stress on the animals. Tables, maps, and graphs are used to present a summary of the detailed data analysis. Future studies by the research team will examine potential changes in extremes later this century.

LIVESTOCK STRESS, COMPREHENSIVE CLIMATE INDEX, MINK REGION

Air Temperature and Death Rates in Texas: An Ecological Study

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There is concern about harmful effects of "global warming," characterized by the U.S. EPA as an approximate 1 degree F increase in a global temperature over the last 100 years or so. The present study tests global warming theory on a local level, for Texas. Using an ecological design, average daily maximum air temperature ("temperature") in Texas for 1968-2013 was compared to age-adjusted all-cause mortality ("deaths") in Texas for the same years using Pearson correlation (n = 46 years). The comparison was made for three race categories, where each category included all ages and both genders: white, black, and all races.There was 6.0 degree F range for the years studied (74.9 - 80.9 degrees F). Correlations were moderate strength, inverse, and statistically significant, as follows. Whites: $r = -0.589$, $p < 0.0001$; Blacks: $r = -0.619$, $p < 0.0001$; and all races: $r = -0.597$, $p < 0.0001$. These correlations show that as temperature increased over these years, death rates unexpectedly tended to decrease. A limitation to the study is its (ecological) design, but is an initial step for future research.

GLOBAL WARMING, DEATH RATES

New Findings from a Multi-decadal International Study on Undergraduate Student Environmental World Views and Values

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The purpose of this study is to examine changing

trends with current international undergraduate students regarding their world views and values, especially concerning issues with environment. This study extends previous research on this topic dating back a couple of decades to 1992. In order to detect changes in current undergraduate worldviews and values, an online survey questionnaire was developed and administered using Survey Monkey to undergraduate students at over ten Universities and Colleges within the United States during the spring 2015 semester. Surveys were submitted anonymously with only school and demographic information submitted with questionnaires. Further analysis was made possible by distinguishing the type of institution, i.e. religious or secular, public or private. In order to make accurate comparisons and detect changes in responses from previous survey results, questions were essentially kept the same or had minor revisions applied for question clarification. Preliminary results from the spring 2015 survey indicate that there has been a possible cultural shift in worldviews and values from previous decades, especially in regards to environmental responsibilities and values. Students from traditionally conservative, religious schools are shifting to values and views that were previously only seen at secular and less-conservative classified schools in previous 1992-2012 surveys. Further research and sampling is being administered during the fall 2015 semester, including to several international schools that were previously sampled.

CULTURAL GEOGRAPHY, ENVIRONMENT, SURVEYS, ENVIRONMENTAL VALUES/VIEWS

A Geographical Perspective on the Texas Railroad Commission

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With a misleading name and regulatory powers not well understood by the general public, the Railroad Commission of Texas is an obscure but important agency of energy governance. This paper will present a geographical perspective on the evolution of the Railroad Commission and its decisions, highlighting key moments of policy shifts and their resulting impacts on Texas energy landscapes. Seven such shifts, from the 1930s to 1979, are previously identified in existing literature, and will be examined through their impacts on Texas energy landscapes. A new, eighth policy shift currently taking place is also identified, with significant impacts on the future of Texas energy geographies, especially urban drilling.

ENERGY, GOVERNANCE, TEXAS

Factory Outlet Wars: Foreign Ownership and Tenant Mix in Canada

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Factory outlets are experiencing a mini-wave of development within Canada. Traditionally this form of retail was limited to selling end-of-line or sub-standard products at factory locations. However, contrary to the name, 'factory outlet centres' have developed into an established type of shopping venue that increasingly offer an array of global brands within developments that are geared toward destination shopping, tourism and entertainment. In recent years, the Canadian market has seen a number of new developments take shape, with more planned over the next few years. Using a combination of store location data and corporate retail information this paper looks at the growth of factory outlet centres in Canada and focuses on the tenant mix and role of US retailers in driving development. Have factory outlet centres been used as a means of providing Canadians with new brands? How does the latest wave of development compare against established centres? What types of centre are planned for the near future? In dissecting the current wave of development the research discusses retail internalization, cross-border trade, global branding and increasingly blurred lines between manufacturer and retailer.

INDUSTRY, CANADA, GLOBAL BRANDS

Application of Gravity Models for Restaurants in Lowndes County, Georgia

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Site selection for a dine-in restaurant in a competitive market is crucial to its continuing success. Research has shown that different forms of gravity models can evaluate the effectiveness of these restaurant locations empirically. However, most research tend to focus on restaurants in large or median cities. There has been limited research as to whether gravity model can be used to effectively evaluate the site selection of these restaurants in small cities. This research attempts to bridge the gap by evaluating the effectiveness of gravity model application in Lowndes County, Georgia, around a small city Valdosta. Correlation analyses were conducted on a sample of restaurants in Lowndes County to determine if any statistically significant relationships exist between market potential or complex gravity models and the surveyed customer volume at the restaurants. Results suggested the market potential model and complex gravity model were unable to accurately capture the real market conditions of this small city. Applying multiple regression analysis, we proposed a new model to better capture the restaurant attraction in this area. The new model stressed the importance of the site characteristics in attracting customers and the importance of certain variables to capture the success of local restaurants.

GRAVITY MODEL, MARKET POTENTIAL MODEL, QUANTITATIVE ANALYSIS, GIS APPLICATION

Mapping Social Property (Núcleos Agrarios) Profiles in the Burgos Basin in the Era of Neoliberal Agrarian and Energy Reforms.

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Since 1992, Mexico has enacted a revolutionary

neoliberal (counter)reform in its social property and agrarian sectors. Through the PROCEDE and FANAR programs, up to 94 percent of these previously inalienable núcleos agrarios (communally-held social properties such as ejidos and comunidades agrarias) have been surveyed and titled to various degrees, and in fewer cases, outright privatized. More recently, in 2014, Mexico drastically altered its previously state-run energy sector, allowing foreign investment, lessened governmental control of PEMEX (state-run oil monopoly), and contract standardization, among other reforms. Under both of the agrarian and energy reforms, expanding exploration and potentially increased production, especially that regarding unconventional sources, in Mexico's fossil fuel-rich regions has the potential to impact the lives of these agrarian stakeholders and their lands. Utilizing a novel GIS approach, this study seeks to identify and classify the social property stakeholders in the Burgos Basin geophysical province (NE Mexico) where shale oil and gas is currently being explored. This method links the most recent census locality-specific data to populate non-demographic data on the social properties with the goal of characterizing the social properties and their members in terms of existing land tenure and their demographic makeup. The costs, risks, and other impacts of current and future energy-related activity in the study area regarding these social property classes are discussed in the paper.

MEXICO, ENERGY REFORM, AGRARIAN REFORM, GIS, BURGOS BASIN, SHALE GAS/OIL

"Local" food and bridging values and place along the rural-urban interface

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Food, including consumables such as beer, wine, and spirits, plays an important role in how places, both urban and rural, develop, grow, and change. This paper links food and place and explores social and material linkages across the rural-urban divide, describing how the process of place-making is carried out through the production and consumption of "local" foods and beverages. This paper investigates how towns/cities/regions across the rural-urban continuum mobilize the production of place-marketed goods in the pursuit of economic gain, tourism development, or progress toward sustainability via the consumption of those same goods. We ask: How have locally produced and consumed foods and beverages created and/or changed the places in which they are situated, especially in an era of endless urbanization? And, moreover, how has place played a role in the development and marketing of "local" consumable goods? For example, increasing production and consumption of microbrews in a particular area might catalyze – or at least be indicative of – a social or demographic shift, which ultimately leads to a kind of "foodie gentrification." Similarly, wine grape growing and wine production in the urban fringe can be seen as driver of environmental, economic, and cultural change across rural landscapes as places, and specifically the various actors within them, try to capture the benefits of changing (urban) consumption patterns. Using ethnographic case data from several study sites in the United States, we argue that food/beverages can be a source of (re)development and driver of environmental and cultural landscape change across the rural-urban interface.

PLACE-MAKING, FOOD, BEER, WINE, SPIRITS, RURAL-URBAN LINKAGES

Assessing Post-Hurricane Rita & Ike sedimentation on the McFaddin National Wildlife Refuge, Texas: Implications for coastal marsh aggradation

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There is considerable evidence that suggests hurricane storm surges may be the predominant mechanism for long-term aggradation of coastal marshes along the northern Gulf of Mexico. This study uses the storm surge sediment beds deposited by Hurricanes Rita (2005) & Ike (2008) to investigate changes in sedimentation rates on the McFaddin National Wildlife Refuge in Southeast Texas. Thirteen sediment cores were collected along a transect extending from 90 to 1230 meters inland from the Gulf coast. Storm-surge-deposited sediment beds were identified by texture, organic content and the presence of marine microfossils. The sediment beds are marker horizons that facilitate estimation of sedimentation rates for the periods 2005-2008 and 2008-2014. Preliminary results indicate that the 2008-2014 sedimentation rate is considerably less than the 2005-2008 sedimentation rate. Near the shore, on a Hurricane Ike washover fan, there was no measurable post-hurricane Ike sedimentation. Farther inland, post-hurricane Ike sedimentation averaged 0.29 cm per year. Average sedimentation for the period 2005-2008 was 1.56 cm per year. The reduction in sedimentation is likely due to reduced tidal flooding in response to increased elevation. These results provide insights into the sedimentary response of coastal marshes subject to storm surge deposition and useful guidance to public policy aimed at combating the effects of sea level rise on coastal marshes along the Gulf of Mexico.

STORM SURGES, AGGRADATION, COASTAL MARSHES, SEDIMENTATION RATES, SEA LEVEL RISE

Ecological Restoration at Nachusa Grassland: Lay and Expert Perceptions

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Ecological restoration involves the reintroduction of ecosystem services that have been removed due to human development. This process has been used to combat the loss of native habitat that was once abundant in Illinois. The majority of this displacement was the result of agriculture. Reintroduction of these native habitats can be mutually beneficial to humans

and the environment. First, ecological restoration provides habitat for native species that have been displaced due to human development. Secondly, it prevents property damage caused by floods and other natural disasters. Lastly, ecological restoration increases the fertility of the soil by reestablishing the nitrogen cycle. Despite the benefits that ecological restoration can bring, it can cause conflict between different stakeholder groups. This conflict arises due to (1) the removal of economically viable land and (2) the fear of property damage from the use of fire as a management tool. Understanding stakeholder perceptions is key for the success of a restoration site. The purpose of this study is to gain a deeper understanding of lay and expert stakeholder perceptions of ecological restoration in Illinois. Using Nachusa Grasslands Preserve in Franklin Grove, IL, data from interviews with lay and expert stakeholders will be presented. This research can provide planners and land managers with the necessary information to prevent or resolve conflicts with ecological restoration.

ECOLOGICAL RESTORATION, ENVIRONMENTAL PERCEPTION

Assessing Neolocalism in Microbreweries

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Neolocalism is the conscious effort to adopt a local identity and relate to a specific place. Microbreweries are at the forefront of this effort, embracing local identity and actively creating a sense of place. This research is an effort to quantify the concept of neolocalism through the creation of an assessment tool. The tool uses three indicators: use of local names and images; environmental sustainability practices; and community engagement. These three indicators have been shown to be key elements of neolocalism. Using these three indicators, data was gathered for microbreweries in Colorado, Oregon, and Texas to determine the effectiveness of the assessment tool.

NEOLOCALISM, MICROBREWERIES, ASSESSMENT TOOLS

Migrant Labor Relations: The Role of Non-Profits Following the Earthquakes in Christchurch, New Zealand

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A 6.3 magnitude earthquake on February 22, 2011 set over sixty percent of the downtown and over 6,000 homes in suburban Christchurch for demolition. Migrants and refugees settled in Christchurch relied on the joint efforts of familiar non-profits to provide information and supplies in the initial response and recovery phase. As the recovery progressed, new migrant construction workers took part in the rebuild. Ensuring housing, livelihoods, and community engagement opportunities for shifting populations of migrants and refugees depended upon non-profit and civil society partnerships. Based on in-depth interviews with six migrant-focused non-profit and civil society partners, functional redundancy was ascertained based on organizational structures and networks. Findings suggest that connectivity persisted into mid-term recovery through co-location and relationship building, and long-term commitments to diverse advocacy outlets improved collective understandings of migrants' rights in post-disaster Christchurch.Resilience, Non-profit, New Zealand, Disasters

RESILIENCE, NON-PROFIT, NEW ZEALAND, DISASTERS

Climate Change in the Mind of a College Student: A Cross-Sectional Study on Climate Change Perceptions at the University of Oklahoma

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While a majority of Americans think climate change is happening, those numbers have decreased from 71% in 2008 to 63% in 2015. Meanwhile, the number of people who deny climate change grew from 10% to 18%. However, recent studies have not detected a clear dichotomy between believers and deniers of climate change. A nationwide survey in 2014 by Yale and George Mason Universities highlights six distinct segments of the US adult population based on their perception of climate change: the Alarmed, Concerned, Cautious, Disengaged, Doubtful and Dismissive. The aim of this study is to survey and analyze climate change perceptions among college students at OU. I used the same survey instrument as the "Six Americas" survey by Yale and George Mason Universities, so I can directly compare my results with theirs and compare my sample with the nationwide survey. I surveyed over 490 college students enrolled in sections of the general education courses in the Fall 2015 semester at the OU College of Atmospheric and Geographic Sciences. College education could have a positive impact on an individuals' perception of climate change. However, OU is located in a very Christian and conservative state. Could that affect how students perceive climate change? This cross-sectional study answers to the following questions: (1) How do the sampled students score compared to the American average? (2) Are there correlations between the individuals' attitude towards climate change and their demographic characteristics? (3) Are there any differences in results among the courses of the sampled students?

CLIMATE CHANGE PERCEPTION, PUBLIC SURVEY, UNIVERSITY OF OKLAHOMA

Challenges in Producing Accurate Cancer Mortality Maps of the United States

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National maps depicting the spatial patterns of cancer

mortality can be useful for understanding differences in the geographic burdens of cancer across the United States. In order to generate hypotheses for etiologic enquiry and plan public health interventions, many methodological challenges must be addressed before accurate maps can be created for analysis, such as differences in population density, age-sex structures and suppression rules designed to protect the privacy of individual health data. Mapping spatio-temporal trends of cancer mortality also introduces additional complexity, requiring careful manipulation of spatial data. In this paper, we use a variety of spatial analysis techniques and disease mapping algorithms to produce county-level cancer mortality maps for a number of cancer sites including lung, breast, cervical, and prostate cancer across the United States. Areas of consistently high cancer mortality rates across space, time, and cancer site are identified.

DISEASE MAPPING, SPATIO-TEMPORAL, SPATIAL ANALYSIS

Mapping the Spatial Patterns of Neural Tube Defects (NTDs) Among Hispanic and Non-Hispanic Populations in Texas

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Neural tube defects (NTDs), including spina bifida and anencephaly are severe birth defects that affect a newborn baby's brain and spine development. Primarily, it is caused by folic acid deficiency in the first eight weeks of conception. Neural tube defects occur in 6 out of every 10,000 live births in Texas. Previous research has shown that Hispanic mothers are at a greater risk of delivering an infant with NTDs. However, a joint contribution of both environmental and genetic factors has been documented for the incidence of NTDs in association to race/ethnic background and socio-economic factors. This study examines the spatial distribution of NTDs among three major race/ethnic groups; Hispanic, non-Hispanic White and Black populations in Texas. Maps of NTD outcomes are produced using data obtained from the birth defects registry and the center for health statistics of Texas Department of State Health Services. Statistical variations in rates caused due to small population counts are smoothed using the Spatial Empirical Bayes Smoothing method.

NEURAL TUBE DEFECTS, TEXAS

What makes a sense of place? A six-dimensional critique of San Antonio's River Walk

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What makes a sense of place? Standardization and privatization have diluted the genius loci of many public spaces in North America, leading to a landscape of placelessness. Those public spaces that have maintained a characteristic atmosphere have usually done so by heavily commodifying a unique aspect of the culture or geographic region in which they are situated. Consequently, these public spaces are viewed as tourist traps, and fall into disfavor for local residential users. In this study, we examine the River Walk, or Paseo del Rio, of San Antonio, TX (a city underrepresented in current geographic scholarship) in an attempt to evaluate the sense of place this public space carries. Because sense of place is so qualitative, it is difficult to establish a suitable criterion for its evaluation. Luckily, a surrogate criterion exists in the form of the six dimensions of public spaces suggested by Carmona et al (2003). Our research provides evidence supporting the idea that the physical design of public and semi-public spaces can play a primary role in encouraging and nourishing the formation of a sense of place. Furthermore, applying the six-dimensional framework suggested by Carmona et al (2003) to our analysis contributes to the literature a needed mixed-methods rubric for the evaluation of sense of place.

SENSE OF PLACE, RIVER WALK, SAN ANTONIO, PLACEMAKING

A Preliminary Assessment of Land-to-Water Surface Area Ratios (LWR) for Sustainable Land Use in Aquaculture

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Several organizations have developed eco-label certification programs with standards to conserve resources and lessen negative environmental impacts of fish and shrimp production. Production by pond aquaculture is reported on a water surface area basis, but additional land for embankments, roads, storage areas, etc., is required. Thus, data on total land use by aquaculture farms are needed for formulating land use standards. Preliminary investigation of land to water surface area ratios (LWRs) based on analysis of 100 aquaculture farms (2,783 ponds) in 26 countries using satellite imagery (Google Earth Pro) was conducted. The LWR declined with increasing pond size to around 5.0 ha before stabilizing at 1.25. Average LWR was 1.48. Variations in LWR were noted among climate zones and continents. Jenks optimization revealed five LWR classes, and most LWR values were below 1.89. Results of this study could be helpful in developing aquaculture ecolabel certification land use standards.

ECO-LABEL CERTIFICATION, LAND USE, AQUACULTURE PONDS, LAND TO WATER SURFACE AREA

The Relationship between Children Obesity and Socioeconomic Status and its Spatial Variation in Texas

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[1]*Texas State University*

Texas faces a serious obesity problem with 32.2% of its children aged 10- 17 years being either overweight or obese in 2003. Understanding the relationships between children obesity and socioeconomic status (SES) and the spatial variation of such relationship is important for appropriate intervention at targeted

areas. In this study, we employ entropy map to explore the spatial patterns of the relationship between children obesity and SES at school district level in Texas. Children's obesity is measured by Body Mass Index (BMI). The BMI data was extracted from Physical Fitness Assessment Initiative program data collected by Texas Education Agency (TEA). SES was described using four variables, namely median household income, percentage of household below the poverty level, single-parent family employment rate, and percentage of people in employment. The study period was 2012-13 academic year. The result shows that at global level, obesity has a negative relationship with median household income and a positive relationship with percentage of household below the poverty level. The analysis using local entropy map revealed that a significant relationship between child obesity and SES prevails in three regions in Texas, i.e. the areas centered at San Antonio, Dallas-Forth, and Kermit-Monahans-Pecos. This finding confirms clear spatial variation of the relationship between child obesity and SES of local community. It may suggest a possible correlation between low SES of a local community and its likelihood to have obesogenic environment for its children. Further research should focus on investigating the local relationships between child obesity and SES. Findings of such research may provide guidance for regionalized policy and practice to fight this obesity battle.

CHILDHOOD OBESITY, SOCIOECONOMIC STATUS, SPATIAL VARIATION, ENTROPY MAP

Cast your fate to the wind: Long-distance-dispersal in Mountain Hemlock

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Mountain hemlock is the dominant treeline forming conifer species on the Kenai Peninsula, Alaska. Like other long-lived treeline species, its ability to disperse to higher latitudes and higher elevations will determine its migration potential in response to climate change. Currently, the relative contribution of near and far populations of trees to treeline migration is not known. In this study, we use a genomics-based approach to both identify the relative contribution of different populations to the treeline on the Kenai Peninsula and to assess the migration potential of mountain hemlock at multiple scales.Analysis of genome wide molecular markers in 68 individual trees across 8 sampling locations found low genetic variation overall (global Fst = 0.004), and low to moderate among-site variation (Fst =0.016-0.053). These findings are consistent with long-distance-dispersal founding events following the retreat of Pleistocene glaciers. Additional genotyping-by-sequencing (n=166) along an elevational gradient on a single mountain slope was used to conduct a preliminary parentage analysis geared towards identifying the seed contribution of near and far individuals to treeline. At 80% confidence, 17% of juveniles had a single parent assigned and 1% had two parents assigned. The juvenile with both parents assigned had a downslope seed dispersal distance of nearly 200m. Further, those individuals with only one likely parent assigned had dispersal distances between 15 & 50m. This research is a novel combination of geography and genomics and is beginning to clarifying our understanding of the ability of forest species to respond to high rates of climate change.

BIOGEOGRAPHY, MOUNTAIN GEOGRAPHY, GEOGRAPHIC GENOMICS, SEED DISPERSAL, CLIMATE CHANGE

A Computational Approach for Improving the Allocation of Police Resources across Space

Jones, Brince[1], Chetan Tiwari[1], and Susie Mikler[1]

[1]*University of North Texas*

Many police departments do not use a data-driven approach for optimizing the placement of resources to improve response times to 911 calls. The allocation of resources, including the deployment of police officers, are often based on a shift-schedule and do not account for differences in the spatial and temporal distribution of 911 calls, thus leading to disparities in response time. Our analysis of 911 call data from the Denton Police Department (DPD) shows that the volume of calls received vary over space, time, and across beat zones. We propose using a computational approach to improve the allocation of police resources by creating spatial partitions or beat zones of approximately equal 911 call volume. By using a combination of spatial, temporal, and space-time methods to analyze these patterns, smaller police departments can optimize the delivery of services to the community. Our system allows the Denton Police Department will gain a better understanding of how many officers are needed, where they are needed, and for how long they are needed.

CRIME, GIS, SPATIAL ANALYSIS, SPATIAL PARTITIONING, LOCATION MODELING

Unaccompanied Children in the Central American Surge: a Spatial-Temporal Investigation

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The unprecedented increase in children from Central America crossing into the US from Mexico over the period 2011 to 2014 remains poorly explained. In this paper I attempt to pinpoint the proximal causes for the recent surge by an examination of forces at the departmental level in Honduras, the country accounting for the largest proportion of recent apprehensions. Data from the US Immigration and Customs Enforcement on the incidence of US migration by Honduran department, coupled with demographic data from Honduran and UN sources, enables this examination. The results indicate that unemployment, urbanization, and domestic abuse in Honduras all played a role, but the strongest relationship was with the level of homicides. Gang activity and drug trafficking are apparently responsible for the high homicide rates; children living in neighborhoods with

high incidence of these are terrorized and killed, constituting a strong rationale for their parents to send them abroad. The other side of this picture is US policies. The implementation in 2012-2013 of the Trafficking Victim Protection Reauthorization Act (TVPRA) and the Deferred Action for Child Arrivals (DACA), in addition to other directives, may have been erroneously interpreted by Central Americans as a permit to stay if their children could manage to enter the US.

CHILD MIGRATION, HOMICIDES, DACA, CENTRAL AMERICA, HONDURAS

Mapping, Modeling, and Estimating Tree Measurements of Urban Tree Canopy Structure Using Terrestrial LiDAR Scanning (TLS)

Jones, Tyler W.[1], Luke Marzen[1], and Art Chappelka[1]
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The major objective of this study was to estimate standard metrics and estimate foliar measurements (crown volume and leaf area) and standing biomass of open grown Nuttall Oak (Quercus texana). Specifically the study used terrestrial LiDAR (Light Distance and Ranging) for initial mapping and subsequent modeling of these popular urban trees. Field data were collected using a Leica C-10 High Definition scanner with registration and modeling conducted using a combination of Leica's Cyclone and the LANDRIVON 3DReshaper software suite. Destructive sampling of three Nuttall Oaks were then performed to obtain metrics for comparison to the models generated using the software. Several modeling methods were attempted, each with varying degrees of complexity in order to synthesize a workflow that would accurately reflect the measurements seen during destructive sampling. Promising results suggest there could be a correlation using these methods though further testing is needed.

URBAN, TREE CANOPY, LIDAR

The Demise of Black Bears in the Texas Hill Country

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The North American Black Bear (Ursus americanus) was a native species in the Texas Hill Country when Anglo-settlers arrived in the region. Less than fifty years later, bears were rarely cited in historical records. Why did bears co-exist with indigenous people for thousands of years only to disappear from the landscape with the arrival of Anglo-settlers? Historical evidence suggests that permanent settlements, habitat destruction, and overhunting related to Anglo settlement led to the demise of the black bear.

HUMAN-ENVIRONMENT INTERACTIONS, BLACK BEARS, INDIGENOUS PEOPLE, ANGLO-SETTLERS, TEXAS HILL COUNTRY

Twenty-five years of changes in agricultural production, land use/cover, and river water quality in New Zealand

Julian, Jason[1], Ioannis Kamarinas[1], Kirsten de Beurs[2], Braden Owsley[2], and Robert J. Davies[3]
[1]*Texas State University,* [2]*University of Oklahoma,* [3]*National Institute of Water & Atmospheric Research (NIWA)*

The most immediate and visible global change is widespread land cover change, largely driven by agricultural production. One nation that has increased its agricultural production considerably over the last quarter century is New Zealand. Consequently, land use and land disturbance has changed dramatically in some regions. Despite its promotion as "100% pure," some of New Zealand's rivers have experienced degraded water quality over this period. Here we examine relationships among agricultural production, land use, land cover, and water quality in 77 watersheds across New Zealand, accounting for 50% of its land area. Analyzed datasets included monthly water quality for a suite of variables (1989-2014), semi-decadal land use (1990-2013), annual agricultural production (1990-2014), and weekly land disturbance (2000-2014). While we found some intuitive relationships between land cover change and river water quality, other relationships were complicated, which we are exploring further.

LAND USE CHANGE, WATER QUALITY, AGRICULTURE, WATERSHED MANAGEMENT

Multi-Ethnicity in Belleville, Paris

Kaplan, David[1]
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Multi-ethnic neighborhoods are the norm in many cities, with several immigrant groups living next to longer term residents. The trajectory of ethnic incorporation has a great deal to do with the types of relations between groups and how these all fit within a broader societal context. For this research, I consider a neighborhood in Paris, Belleville, which has been held up as a potential model of multiculturalism. Belleville is economically working class and culturally diverse. The paper will report on structured interviews with shopkeepers and institutional figures that were conducted in May 2015. These questions addressed issues of inter-ethnic relationships and some of the changes that have taken place over the years. What it demonstrates is that local relationships and the local context can be quite different from what occurs at larger scales.

MULTI-ETHNICITY, STRUCTURED INTERVIEWS, PARIS

Planning and Neighborhood Identity: Can Social Engagement Overcome Spatial Barriers?

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Neighborhoods that provide a sense of place tend to facilitate dynamic communities and promote social ties among residents (Jacobs, 2004). Urban theorists

regard place identification as an essential component of cities (Rykwert, 2000) and their neighborhoods. A neighborhood, its name, the businesses, schools, churches, parks, and streets not only influence the physical identity of the neighborhood, but the identity of individuals residing within that neighborhood (Gibs, 1998). A variety of physical and spatial conditions can present formidable constraints to neighborhood identity. The size of the neighborhood, arterials dissecting the neighborhood, travel patterns, land use patterns, the locations of schools and businesses can create significant barriers to neighborhood identity and a psychological sense of place. This paper presents a case study of neighborhood planning in Spokane WA that illustrates the impacts on neighborhood identify from spatial barriers and argues the claim that planning efforts focused on neighborhood events and projects can help build social capital and cohesion to help restore identity.

NEIGHBORHOOD IDENTITY, SPATIAL BARRIERS, SOCIAL CAPITAL

Bridging Geography and Business Instruction through Inquiry and GIS

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Five converging global trends –geo-awareness, geo-enable-ment, geotechnologies, citizen science, and storytelling– offer opportunity for geographic content, skills, and perspectives to be taught in university schools of business. Issues central to geography are now part of the global consciousness. Everyday objects are rapidly becoming locatable, and thus able to be monitored and mapped. Tools and data sets formerly used and examined only by geographers and other earth and environmental scientists are now in the hands of the general public. Citizens are becoming involved in contributing data to the scientific community. Multimedia and cloud-based Geographic Information Systems (GIS) have greatly multiplied the attraction that maps have had for centuries to tell stories. Curriculum focused on managing supply chains, selecting optimal retail sites, analyzing target markets, assessing risk, and other content taught in schools of business can be enriched through the geographic perspective. These inquiry-driven, hands-on curricular elements can be effectively taught in face-to-face and in online courses, fostering critical thinking and other skills identified by the Geospatial Technology Competency Model.

BUSINESS, LOCATION ANALYTICS, CURRICULUM DEVELOPMENT, GIS

Analyzing Water and Land Limitations to Future Agricultural Production in the Middle East

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Middle Eastern countries use a large fraction of their scarce water resources to produce cash crops for international markets. At the same time, these countries import a large part of staple crops required to meet the nutritional demand of their populations. This makes food security in the Middle East heavily dependent on world market prices for staple crops. Under these preconditions, increasing food demand due to population growth, urban expansion on fertile farmlands, and detrimental effects of a changing climate on the production of agricultural commodities present major challenges. We applied the spatio-temporal land-use change model LandSHIFT.JR to simulate how urban expansion may affect crop production in Jordan. We furthermore evaluated, how climate and socio-economic change may influence crop production. The focus of our analysis was on irrigated and rainfed production (crop yield and area demand) of fruit, vegetables, and cereals. Our simulation results show that urban expansion and resulting displacement of agricultural areas results in a slight decrease in crop yields. This results in almost no additional irrigation water requirements due to the relocation of agricultural areas. Taking into account projected changes in socio-economic conditions and climate conditions, a large volume of water is required for cereal production in order to safeguard current self-sufficiency rates for staple crops. Irrigation water requirements are expected to double by 2025 and triple by 2050. Irrigated crop yields are projected to decrease by about 25%, whereas there is no decrease in rainfed crop yields to be expected.

LAND SYSTEMS SCIENCE, IRRIGATION, SCENARIO SIMULATION, MIDDLE EAST, LAND-USE MODELING

An Interdisciplinary Approach for Water Sustainability Study

Kong, Ningning[1] and Qinghua Li[1]
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The water resource sustainability has been studied under various circumstances which usually lack the social behavioral feedbacks. In a recent funded Mellon Grand Challenge Exploratory project, researchers are interested to explore decision making tools for water sustainability that utilize both hydrological and social big dataset, account for the feedback loops between the policy making process and human behavior. The interdisciplinary collaboration can help to address the water availability issue from both hydrological and social, political aspects. However, it also challenges the researchers in very different disciplines to communicate with each other beyond their research domains. The geographic approach can provide an effective way to link the multiple disciplines by synthesizing various information into an integrated geodatabase, thus facilitates further analysis. In this study, three major data sources were integrated into the geodatabase, including hydrological models, social economic factors, and social media (twitter) information. Spatial-temporal patterns were analyzed to identify the relationship between water availability and social media feedbacks. Our study suggested that geographical research is an effective way to facilitate

collaborations between the humanities and engineering to quantify social objectives and constraints, and provide insight in solving grand challenge problems.

WATER SUSTAINABILITY, SOCIAL MEDIA, GEODATABASE, GIS

A Spatio-Temporal Analysis of Sorghum in the United States

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[1]Eastern Illinois University

Sorghum is a type of grain, forage, and sugar crop that has been grown in warm, arid climates around the world for 10,000 years. It is a drought tolerant crop, and is among the most efficient crops in the conversion of solar energy and use of water. In the U.S., South America, and Australia sorghum grain is used primarily for livestock feed and ethanol production and is becoming popular in the human-food sector because of its use in gluten-free food products. The United States' sorghum belt stretches from South Dakota to Southern Texas. From the mid-1950s to the mid-1980s, sorghum was harvested, on average, from over 14 million acres of cropland. Today, the U.S. harvests just over 7 million acres, with most of those acres in Kansas (2.7 million) and Texas (2.25 million). This paper provides a spatio-temporal analysis of sorghum grown in the U.S. over the past century to help understand farmers' decision-making in response to changing markets, policy, and environmental variables.

SORGHUM, AGRICULTURE, UNITED STATES

Using An ESRI Web Map Application to Disseminate Geographic Literacy Assessment Data: A Feasibility Study of Clear Creek Independent School District, Texas

Lash, Jeff[1]

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One of the major challenges for American geographic educators is to gain access to empirical data that links individual teacher training programs, professional development initiatives, or curriculum materials to student achievement. The 2014 National Assessment of Educational Progress (NAEP) report, for example, is valuable for its national-scale, longitudinal assessment of eighth-graders' geographic literacy, but is difficult for local decision-makers to use. Equally challenging is the use of the State of Texas Assessment of Academic Readiness (STAAR) data that includes annual assessments for 10 different subjects at all levels of public education. The volume of publicly available STAAR data is daunting for anyone interested in academic achievement. This paper details the development and feasibility of an ESRI web map application designed to disseminate complex education data from multiple state-mandated assessments. The project goal was to create a tool that would help users access and analyze publicly available elementary, intermediate, high school, and school district-level data assessing geographic literacy. Project results suggest that web map applications do provide an efficient means to disseminate assessment data but that access to data does not, necessarily, translate to informed decision making.

GEOGRAPHY EDUCATION, ASSESSMENT, ESRI WEB MAP, TEXAS

The Impact of Past and Future Urban Expansion on Soil Resources in Central Arkansas, 1994-2030

Lavy, Brendan L.[1], Jason P. Julian[1], and Rana N. Jawameh[2]

[1]Texas State University, [2]Yamouk University, Jordan

As cities expand, activities associated with urban growth disrupt soil resources. Urban processes compact, move, deposit, and contaminate soils, affecting local soil ecosystems and environmental quality at increasing scales. This paper offers a spatially-explicit account of the impact of urban expansion on soil resources in central Arkansas from 1994 to 2030 and proposes a conceptual framework that situates the effects of urbanization on soil resources at increasing scales. Using a geographic information system, we combined USDA Natural Resources Conservation Service soils data with past and future urban development patterns over a 10,000-km2 study area centering on Little Rock, Arkansas, calculated what soil resources have been and will be disrupted by urbanization, and assessed the impact of urbanization on three soil characteristics important to ecological and human health: available water storage, soil organic carbon, and agricultural productivity. Results indicate urbanization will disrupt 9 percent of soil resources with varying impacts on the quality and quantity of soil types and characteristics based on their location within the study area. Our analysis provides detailed, place-specific knowledge of soils disturbed by urbanization and future impacts that are essential for creating policies and initiatives to limit degradation of soil resources and to preserve high-quality soils.

SOIL RESOURCES, URBANIZATION, AVAILABLE WATER STORAGE, SOIL ORGANIC CARBON

Spatio-temporal patterns of Jewish family arrests during the Holocaust in Italy

Le Noc, Maël[1] and Alberto Giordano[1]

[1]Texas State University

This presentation examines the spatio-temporal patterns of Jewish family arrests during the Holocaust in Italy from a GIScience and historical geographical perspective. The starting point for my work is the GIS of the Holocaust in Italy (Giordano and Holian 2014). Using arrest data for individual victims and family groups, this study explores how patterns of forced migration and deportation varied during the Holocaust. More specifically, analysis of spatio-temporal proximity of arrests using the Knox index suggests a high vulnerability of families to round-ups carried out by Germans during Fall 1943. Additionally, I will discuss how the nationality of the victims and the nationality

of the perpetrators affected the spatio-temporal proximity of individuals and family arrests.

HOLOCAUST, ITALY, FORCED MIGRATION, ARRESTS

Spatio-Temporal Analysis of Geographic Events with Extended Kernel Density Estimation

Lee, Jay[1] and Shenwen Li[2]
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Kernel density estimation has been widely used to extend a point-based spatial distribution of geographic events into a density surface that describe, in general term, how such events distribute over space. Each location where a geographic event occur was assumed to have the highest probability of having the event re-occur. Such probability decreased for locations increasingly away from the location of occurrence. The speed of such decrease is normally defined by the size of the kernel. In turn, the size of the kernel is defined by a bandwidth, which would be the radius if such a kernel takes a circular base. A set of points that represented the locations of where a certain type of geographic phenomena occurred typically described a spatial pattern at a given time. To describe and analyze such spatial patterns over time, the current approach to kernel density estimation lacks the ability to account for temporal trends. To overcome this shortfall, an extended kernel density estimation method was developed by adding a temporal term into the equation of kernel density estimation. In this presentation, we discussed how such extension was carried out and results of experimental implementation of such extension.

SPATIO-TEMPORAL, GEOGRAPHIC EVENTS, EXTENDED KERNEL DENSITY ESTIMATIONS

Developing Geospatial Strategies for Urban Greenspace Characterization and Assessment

Lein, James K.[1] and Gauray Sinha[1]
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Urban green space typically describes programs designed to create and improve the vegetative cover of urban landscapes. Urban greening programs usually include creation and maintenance of green space, such as parks; planting and care of trees; and the creation of green infrastructure such as rain gardens and green roofs. Green spaces and plants in urban areas provide numerous environmental and community benefits such as reduced flooding and sewer overflow by absorbing large amounts of storm water, providing wildlife habitat, assisting to maintain air quality, reducing urban heat islands and providing green space for neighborhood socializing and community building. As programs move forward there is a need to develop tractable methodologies to guide and prioritize urban green space creation, and the maintenance and protection of existing urban vegetative cover. However, precisely what constitutes urban green space as a land type remains unclear. Research presented in this paper examines the issues surrounding the definition of urban green space and presents a methodology that couples spatial data modeling using geographic information systems with landscape indicators derived from remotely sensed data to promote: 1) a decision-support framework that provides critical data that may be tailored specifically to localities and 2) a means to model urban vegetation in a manner that captures its inherent spatial and temporal variability in and among contrasting urban settings.

URBAN GREENING, MULTI-CRITERIA EVALUATION, LANDSCAPE CHARACTERIZATION

Measuring Access to Primary Care Physicians among American Indian Population in South Dakota - Integrating Spatial and Aspatial Factors

Lin, Yan[1] and Xi Gong[2]
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Access to healthcare services is impacted by both spatial and nonspatial factors. This study developed a method to measure access to primary care physicians integrating spatial and aspatial factors. This method was applied to American Indian (AI) Populations in South Dakota where AIs bear a disproportionately high burden of adverse health effects (e.g., cancer, diabetes, and obesity). We collected primary care service data from South Dakota Department of Social Services. There were about 721 Primary care physicians in South Dakota. In addition, we collected census-tract level demographic data from U.S. Census, including socioeconomic status (SES), socio-demographic factor, socio-environmental factor, and level of urbanization. The method developed in this study consists of three steps: first, we used the enhanced two-step floating catchment area (E2SFCA) method to measure the potential geographic access to primary care physicians; second, we generated an index to measure the aspatial factor that might impact the accessibility; third, we created an integrated score of accessibility based on empirical survey data among AIs in South Dakota. This study provides critical information for healthcare resource relocation in a rural state such as South Dakota to reduce health disparities experienced among AIs.

ACCESSIBILITY, AMERICAN INDIANS, PRIMARY CARE PHYSICIANS, ENHANCED TWO-STEP FLOATING CATCHMENT AREA (E2SFCA) METHOD, HEALTHCARE

Object-based image analysis of tree mortality in a piñon-juniper woodland

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Extreme drought conditions and rising temperatures in the Southwestern US have caused widespread tree mortality in piñon-juniper woodlands, transforming the landscape into a mosaic of live and dead woody vegetation. Regional-scale forest mortality contributes to changes in carbon uptake, vegetation structure, and biodiversity. Predicted climate changes are expected to produce major changes in vegetation distributions and mortality rates; however, a lack of data on the extent of current die-off inhibits our ability to model and

monitor future mortality events. In this study, differences in spectral reflectance and architecture between woody and herbaceous vegetation were exploited to map piñon pine (Pinus edulis) mortality using very high spatial resolution airborne imagery and object-based image analysis (OBIA). Object based image segmentation and subsequent classification of segments enables a more realistic representation of the shape of objects and is more suitable for high resolution imagery in comparison to traditional per-pixel analysis. Mapping piñon pine mortality is challenging due to a diverse mixture of woody vegetation, grasses, and forbs that compose this community type. This OBIA-based approach exploits spectral, spatial, and textural characteristics to highlight differences between dead piñon pine and background vegetation to provide classified maps of piñon pine mortality. Ground-based locations of target vegetation types provided calibration and validation data. Results indicate that this OBIA approach yields reliable estimates of piñon pine mortality when compared to ground-truth data. This method provides ecologists and land managers with a semi-automated, relatively inexpensive method for mapping and monitoring tree mortality in piñon-juniper woodland.

PIÑON PINE MORTALITY, OBIA, HIGH SPATIAL RESOLUTION IMAGERY

Development of a Remote Sensing Network for Time-sensitive Detection of Fine Scale Damage to Critical Infrastructure

Lippitt, Christopher[1], Douglas A. Stow[2], Lloyd L. Coulter[2], Andrew Loerch[1], and Tammira Taylor[1]
[1]University of New Mexico, [2]San Diego State University

Some infrastructure (such as bridges that impact transportation options, or communications hubs that effect response coordination), are so critical to saving human lives and supporting emergency response actions that near real-time information on the damage status of such infrastructure is essential and yet may be difficult to ascertain in a timely manner with conventional, ground observations and sensor networks. This research seeks to ascertain timeliness and reliability requirements for remote sensing based, post-hazard assessment of infrastructure deemed to be critical by emergency managers. Requirements of emergency managers are being obtained through an iterative survey of New Mexico and California emergency managers and compared to projected performance of myriad remote sensing system configurations possible in those respective jurisdictions. Core principles of automated change detection with airborne imagery are discussed, project activities outlined and initial survey and change detection results discussed.

REMOTE SENSING, CHANGE DETECTION, HAZARDS, HAZARD RESPONSE

Assessing the accuracy of capacity estimates using the Remote Sensing Communication Model for Time-Sensitive Remote Sensing Systems

Loerch, Andrew[1] and Christopher D. Lippitt[1]
[1]University of New Mexico

Time-sensitive remote sensing systems (TSRSS) are airborne and satellite systems for which time is a binary constraint on their utility in the disaster management cycle. While temporal resolution has been generally accepted as a term useful in describing the capacities of satellite imaging systems to acquire repeated imagery of an area over time, timeliness quantifies the amount of time required to deliver information to a user once that user requests the information. The remote sensing communication model (RSCM) provides for the estimation of existing and future remote sensing system timeliness through system capacity analysis. In the context of hazard response, this allows informed selection of platform, sensor, and processing options with known timeliness estimates by emergency managers before a hazard occurs; a critical requirement integrating remote sensing into emergency response standard operating procedures. This research validates two sections of the remote sensing communication model, acquisition time and data delivery (i.e., channel) time, with data acquisitions from two manned aircraft and two unmanned aerial systems. The resulting timeliness estimates from these modeled acquisitions are compared with actual acquisitions, and the degree of agreement between the modeled and actual timeliness compared in terms of absolute accuracy and consistency.

HAZARDS, REMOTE SENSING, TIMELINESS

Spatio-temporal dynamics of woody plants and bighorn sheep in the San Andres Mountains, New Mexico, U.S.A.

Lopez-Brody, Nathan[1] and Michaela Buenemann[1]
[1]New Mexico State University

Located in south-central New Mexico, the San Andres National Wildlife Refuge has provided habitat for translocations of desert bighorn sheep (Ovis canadensis nelsoni). Refuge managers believe that the habitat of these translocated sheep has been negatively impacted by the expansion of piñon (Pinus edulis) and juniper (Juniperus monosperma) trees throughout the 20th century. Understanding piñon-juniper population dynamics and how woody plant cover impacts bighorn sheep habitat is important for making management decisions. In this project, we address these questions by a) mapping of woody plant cover dynamics in the Refuge and b) assessing the relationship between woody plant cover and bighorn sheep habitat usage. We used Multiple Endmember Spectral Mixture Analysis (MESMA) of Landsat TM imagery from 2002 and 2010 to characterize changes in woody plant cover. Based on parameters used in

some models of habitat in the literature, we created a 150 m circular buffer around locations of bighorn sheep from radio collar data and measured the percent woody cover found within each buffer. Using regression, we were able to assess the relationship between woody plant cover and the distribution of bighorn sheep. This study has shown that piñon-juniper cover has increased in the Refuge. In areas where woody plant cover has expanded into steep, rocky areas of the San Andres Mountains, we found that bighorn sheep have stopped utilizing otherwise valuable habitat. Management efforts aimed at controlling the expansion of piñons and junipers may be effective at improving habitat for bighorn sheep.

MESMA, REMOTE SENSING, DESERT BIGHORN SHEEP, SAN ANDRES NATIONAL WILDLIFE REFUGE

The Human and Ecological Benefits and Costs of Offshore Wind Energy

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As a renewable substitute energy source other than fossil fuel, wind energy has attracted increasing attention throughout the world. Offshore wind energy has its advantages including extensive areas with strong and consistent winds offshore and densely populated coastal areas in need of energy. Though the offshore wind energy has its unique advantages and potential to be the future fast-growing energy industry, the high cost of developing offshore wind energy is still the problem being discussed the most. Putting the monetary cost and benefit of offshore wind energy aside, this study is mainly focused on the social cost and benefit to the regions that are connected to or affected by the offshore wind energy. Some controversial impacts are widely discussed that might have negative influences on regions, including impacts on wildlife, noise and visual pollution, conflicts with other water usages, the rising cost of living, etc. Some potential social benefits that the offshore wind energy could be able to bring to regions are increasing employment opportunity, stimulation of other related industry, and attracting tourism. The area of the study is principally the United States. However, worldwide data are gathered including data from European and Asian offshore wind energy ventures.

OFFSHORE WIND ENERGY, BENEFITS AND COSTS, UNITED STATES

A Spokane Case Study: Using Sales Tax Data as a Proxy in Determining Grocery and Hardware Store Trade Areas

Lucas, Brett J.[1]
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The use of Trade Area Analyses (TAA) is an important component to a business's locational intelligence and for a communities' ability to measure economic development. Ultimately, TAA can describe market penetration, and where retail surpluses and leakages are occurring. TAA are based on simplicity, the availability of easily obtainable data (i.e. sales tax revenue), and the relative ease of interpretation. This paper builds upon the basic fundamentals of TAA, by employing both Trade Area Capture (TAC) and Pull Factor (PF) models, to incorporate a more accurate measure of attraction. This paper further investigates the use of the Huff Model as a mechanism to spatially measure the attraction results of both the TAC and PF, using those results as a proxy. This case study focuses on the trade areas within the Spokane metro region using 2014 grocery and hardware store sales tax data at the community level. Furthermore, this paper focuses on how accurately the Huff Model can spatially model the results from TAC and PF for each community within the region. Through the use of GIS and spatial modeling, the real trade area of a community can be accurately mapped based on an NAICS code for a specific business.

SPOKANE, RETAIL, HUFF MODEL, TRADE AREA

Culiacán, Sinaloa and Ambos Nogales in A. W. Lohn's Photographic Postcards

Manger, William F.[1] and Daniel Arreola[2]
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Studio photographers whose primary work was typically portraiture in a town or regional setting sometimes produced photographic postcards that captured views in Mexico and the Mexico-U.S. border during the first half of the twentieth century. Alfred W. Lohn was the premier studio photographer in Culiacán, Sinaloa from 1901 to 1912 and in early Nogales, Sonora and Arizona until his death in 1956. Lohn's photographic postcards are valuable visual evidence that enable us to revisit the townscapes of these places in the past. In this presentation we summarize biographical information on Lohn based on archival and public records and demonstrate his importance in the representation of those Mexican places drawing upon our private collections of Lohn postcards.

A. W. LOHN, PHOTOGRAPHIC POSTCARDS, MEXICO

Detecting Bird Responses to Urbanization: Do Greater Roadrunners Tolerate Humans?

Martin, Rebecca[1] and Carol Campbell[1]
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Birds are an important part of the ecosystem. They act as mechanisms of dispersal and are key indicators of habitat health. Birds are dependent upon their habitat. With increasing urbanization, habitat alteration threatens native species. It is crucial to monitor populations in areas that are quickly urbanizing, such as Las Cruces, NM. Las Cruces is located in the Chihuahuan desert and is experiencing rapid urbanization. I explored and quantified the increase in urbanization using the National Land Cover Dataset from the years 2001, 2006, and 2011. I reclassified the specific classifications from the National Land Cover Dataset into four wider land cover types: Natural, Urban, Planted/Cultivated, and Other. I used Audubon Christmas Bird Count data to explore population trends

of the Greater Roadrunner (Geococcyx californianus), a bird native to the Southwestern United States. Trend analyses in R suggest that change in land cover type from natural vegetation may have negative effects on populations of the Greater Roadrunner. Preliminary results suggest a lack of commensalism with humans and little tolerance of urbanization in desert regions for this particular species.

URBANIZATION, CHRISTMAS BIRD COUNT, LAND COVER, POPULATION TRENDS, GREATER ROADRUNNER

A Framework for Understanding Recreation Impact in Mountain Environments

Martin, Ross[1] and David Butler[1]
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This paper examines the human recreation impacts of trampling in mountain (montane, subalpine and alpine) environments. Trampling impacts discussed include damage to vegetation and soils. Vegetation type determines its tolerance to trampling pressure. Vegetation in mountain environments is especially susceptible to trampling because of extreme environment conditions and shorter growing seasons. Impacts to soil include erosion, compaction and loss in storage capacity. Vegetation and soils exist in a feedback loop where vegetation properties affect soil properties which affects future vegetation growth and the ability of an area to recover from trampling. Different types of trampling including horse, llama, hiker, and mountain biker cause differing trampling impact. In general, a horse creates a greater impact than either hikers or bikers, which induce impacts of similar scale. Each of the different impact types (trampling agents) create a unique impact determined by their mechanics of movement. Management strategies need to be expanded upon to address these differing impact types. Trampling evolution is discussed to gain insight into how impact might vary over time after the initial trampling event.

TRAMPLING, RECREATION, BIOGEOMORPHOLOGY, TRAILS, MOUNTAIN GEOGRAPHY

A Practical UAV Remote Sensing Methodology to Generate Multispectral Orthophotos for Vineyards

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This paper explores the use of compact digital cameras to remotely estimate spectral reflectance based on unmanned aerial vehicle (UAV) captured imagery. Two digital cameras, one unaltered and one altered, were used to collect four bands of spectral information (blue, green, red, and near-infrared [NIR]). The altered camera had its internal hot mirror removed to allow the sensor to be additionally sensitive to NIR. Through on-ground experimentation with spectral targets and a spectroradiometer, the sensitivity and abilities of the cameras were observed. This information along with on-site collected spectral data were used to aid in converting aerial imagery digital numbers to estimates of scaled surface reflectance using the empirical line method. The resulting images were used to create spectrally-consistent orthophotomosaics of a vineyard study site. Individual bands were subsequently validated with in situ spectroradiometer data. Results show that red and NIR bands exhibited the best fit (R2: 0.78 for red; 0.57 for NIR).

REMOTE SENSING, UNMANNED AERIAL VEHICLES, DIGITAL CAMERAS, VITICULTURE

The Curious Geography of the Castor Bean: From Weed to WMD

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This paper traces the geographical and political ecological twists and turns in the diffusion and utilization paths that have taken the castor bean (Ricinus communis L.) from its African domestication hearth, to a multi-purposed Old World cultivar, to a cosmopolitan weedy invasive, to recent appearances on the world stage as a putative WMD and agent of bio-terrorism. Perhaps no other invasive plant has had such multifaceted history of use and dispersal. It may be the earliest known use of poison by humans, and a common household item in ancient Old World civilizations. Later, castor bean served as a multi-purpose African diasporic actor/agent aiding both planters and slaves: lamp oil, medicine, emollient. Ricin, castor's poison extract, also may have been was used in Afro-New World sorcery. Today, it continues to have a multifaceted presence in folk medicine and spiritual practices. Most recently, it has achieved notoriety as a potential weapon of mass destruction. In 2003 Colin Powell appealed before the U.N., holding a vial of ricin alleging this proved Iraq's possession of WMDs. Thus, one might argue, this common species helped authorize the invasion of Iraq. Ricin also has been implicated in a number of mailings to powerful political figures. Scant attention has been paid to the environmental-historical and political ecological background of this substance. This paper seeks to address this and other castor bean lacunae.

CASTOR BEAN, INVASIVE SPECIES, AFRICAN DIASPORA, WMD

Geo-Political Spaces and Time in Weapons Control

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This paper is interested in exploring how the dynamics of time shape particular geographic spaces categorized as 'West and the Rest'. It investigates how these binaries get sedimented over a period of time through practices of sly civility and humiliation. It critiques the concept of 'evolution' that encourages consideration of time through geological parameters such as civilization making postcolonial time a constant struggle of the subaltern.

TIME, SPACE, WEAPONS, CIVILIZATION, POSTCOLONIAL

Influence of Productivity and Disturbance on Plant Species Diversity across the Grasslands of the Great Plains

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Plant species diversity is a critical element for the stability and functionality of all types of ecosystems. The drivers of plant species diversity remain up for debate with varying views of how a high degree is achieved and maintained in these environments. Literature states that intermediate levels of productivity and disturbance are essential for these high levels to be present. This logic has been disputed through empirical tests; however, claims hold that these intermediate levels have not been appropriately examined. Here, we demonstrate the influence of productivity and disturbance (i.e., fire) on plant species diversity. We set up experimental plots across the grassland prairies of Kansas where diversity, productivity, and fire patterns vary quite drastically. We conducted this study at Konza Prairie Biological Station in eastern Kansas and Smoky Valley Ranch in western Kansas. We positioned these plots under different fire frequencies across moisture gradients topographically and regionally. We assessed productivity by clipping standing vegetation, drying it, and then weighing it. We controlled for the fire variable by examining areas under prescribed burn treatments based on time since most recently disturbed. From our results, we have concluded that productivity and disturbance (i.e., fire) do play a significant role on plant species diversity of the Great Plains. With this knowledge and hopes of many more similar studies, we aspire for a fuller understanding of the drivers of plant species diversity so that the maintenance of these ecosystems can flourish into the future.

SPECIES DIVERSITY, GRASSLANDS, FIRE, PRODUCTIVITY

On the brink of disaster: Local media and the Animas River spill of 2015

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In August of 2015 the Gold King Mine above Silverton in the San Juan Mountains of southwest Colorado spilled into the Animas River drainage. The spill elicited various responses from both the local community and international media, including condemnations of the Environmental Protection Agency, local interest groups conducting independent water testing, the closure of the river and its banks to recreation, and healing ceremonies. The region became a spectacle of national and international media where primary attention was drawn to the discoloration of the river and the immediate impact on the local economy. Local media sources, ultimately, provided a somewhat different narrative. This paper analyzes the two major sources of print media in the region – the Durango Herald and the Durango Telegraph – as a way to understand how local reactions to technological disasters serve as a mechanism of place-writing and definition of self, community, and landscape. Using both discursive and digital analyses, the paper proposes ways in which the media helped the community define itself and its territory.

MEDIA, PLACE-WRITING, ANIMAS RIVER, COLORADO, TECHNOLOGICAL DISASTER

Post Secular Transformations in the Native American Church: A New Identity

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The ritual use of peyote long predates conquest. In the nineteenth century, the peyote culture persisted among indigenous peoples despite the assault of Europeans, and later Euro-Americans. In the 20th century the peyote culture gained federal recognition as a syncretic Christian-Amerind practice allowed to legally use peyote as the church's sacrament. Thus, the Native American Church gained limited societal acceptance. Central to its beliefs were Christianity, patriotism, tribal-centered membership. Generations of church members made pilgrimages to the South Texas for healing, guidance and to obtain peyote, the sacrament of the Native American Church. In the last two decades, changes in state and federal laws have eroded the boundaries of who can use peyote as a sacrament and how healing rituals are performed. Further, the popularization of Native American healing groups as trends in New Age societies has impacted the traditions, ceremonies and spatial focus of sacred places of the Native American Church culture.

POST SECULAR, NATIVE AMERICAN CHURCH, NATIVE AMERICAN HEALING

Landscape of cervical cancer screening, diagnostic, and pre-cancerous treatment services in New Mexico, USA: A study in comparative proximity analysis methods

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Invasive cervical cancer is mostly preventable because it can be detected through screening and treated to prevent the disease. Despite our knowledge on how to prevent invasive cervical cancer in the United States during 2014, the American Cancer Society estimated that 12,360 invasive cervical cancer cases and 4,020 deaths would be reported. A potential barrier to seeking healthcare services is geographic accessibility. Using a dataset prepared by the New Mexico HPV Pap Registry, we used two different methods – geographic centroid and population weighted centroid – to examine the distances from the census tract centroid to the nearest healthcare facility that provided screening, diagnostic, or precancerous excisional treatment services in New Mexico during 2010 through 2012. The population weighted centroid method revealed shorter distances to healthcare facilities of interest, compared to the geographic centroid approach. Using the population weighted centroid method, the maximum distance to a facility that

provided screening services was 60 kilometers, compared to 67 using the geographic centroid method. The maximum travel distance to a facility that provided diagnostic services using the population weighted centroid method was 116 kilometers, as compared to 111 using the geographic centroid method. The population weighted centroid method for maximum distance to the nearest healthcare facility that provided precancerous excisional treatment services was 138, compared to 137 using the geographic centroid method. The difference in distance comparing both methods was statistically significant (p-value > 0.05) for screening and diagnostic services but it was not for treatment services (p-value < 0.05).

CERVICAL CANCER, NEW MEXICO, POPULATION-WEIGHTED CENTROID, GEOGRAPHIC CENTROID

Tuberculosis Vulnerability in Tarrant County

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Over 9 million new cases of Tuberculosis (TB) were reported worldwide in 2013 (WHO, 2013). While the TB rate is much lower in the US, its uneven distribution and associated explanatory variables require interrogation to determine effective strategies for intervention and control. However paucity of case data at fine geographic scales preclude such research. Using zip code level data from 837 confirmed TB cases in Tarrant County, obtained from Texas Department of State Health Services, this research explores and attempts to explain the spatial patterns of TB and related risk markers within a framework of place vulnerability. To demonstrate spatial variations in risk due to adverse life circumstances, the vulnerability index includes household crowdedness, homelessness, and race/ethnicity and related risks of TB infection. The results suggest that low income areas with high minority and homeless populations with more risky behaviors such as drug use are more vulnerable places for TB infection. Analyzing the place vulnerabilities of TB at fine geographic scales provides vital insight for targeted intervention.

TUBERCULOSIS, DISEASE ECOLOGY, PLACE VULNERABILITY

The El Niño That Finally Was and the Drought That Finally Ended.

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The second worst drought in Texas history began in 2011 and lasted through the spring of 2015. It was exceeded only by the drought of record in the 1950s. During the fall of 2014, a widely anticipated El Niño event in the Pacific was forecast to begin in early winter 2014. A typical El Niño pattern often results in increased winter and spring precipitation in Texas, so provided some prospect of drought relief. However, the event was slow in developing and an El Niño was not declared until March of 2015. Nevertheless, near El Niño conditions brought increased precipitation to Texas during the winter of 2014-15 and a dramatic increase in March and April of 2015 effectively ended the drought throughout the state. All of this begs the question of what is the history of drought termination in Texas by El Niño events? In reviewing the Texas drought record since 1950, about half of the droughts did end with increased rainfall during winter into spring ENSO events. There is also considerable evidence of some droughts occurring with La Niña conditions, but not all droughts.

TEXAS, EL NINO, DROUGHT

An Assessment of the Accuracy of the MOD45A1 Burned Area Product for Detecting Burned Areas in Tallgrass Prairie

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Global burned area estimates derived from satellite-based sensors are designed to detect burned areas across a variety of biomes. Consequently, they often fail to detect burned areas in biomes with relatively little biomass, or with biomass that quickly recovers (such as tallgrass prairie and other grasslands). In such areas, brief, relatively cool fires often leave an indistinct spectral burn signature. This work sought to quantify the difference in burned-area detection ability between 500-meter Moderate Resolution Imaging Spectroradiometer (MODIS) MOD45A1 Burned Area Product and locally-calibrated burned area maps produced with the red (620-670 nm) and NIR (841-876 nm) MODIS bands at a spatial resolution of 250m. The MOD45A1 Burned Area Product routinely failed to detect most of the annually burned area indicated by the locally-calibrated method. At best, it detected 60% of the burned areas indicated by the local method, with all other years falling below 50%. In one particularly bad year, it detected less than 1% of burned area indicated by the local method. The poor performance of the MOD45A1 product is most likely due to the fact that it has a coarser spatial resolution (500 m compared to 250 m for the locally-derived product), and the fact that it was originally intended as a global algorithm that must be adaptable to a variety of biomes. This means that caution must be used when using the MOD45A1 burned area product in tallgrass prairie, grasslands, or other similar biomes.

MODIS, BURNED AREA MAPPING, GRASSLANDS

The Revolution Will Be Data-Driven: Using Mobile Data Collection and Mapping Applications to Support Civil Rights Advocacy

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Geographic information systems (GIS) are proven tools for documenting racial injustice in the United States, informing remedies to dismantle systemic racism, and facilitating community-based action to do so. To that end, voting rights advocates regularly incorporate GIS and associated geoweb technologies into campaigns to educate, recruit, organize, and mobilize community

members and, increasingly, to inform litigation strategies and otherwise assist in legal advocacy. Here, a location-based mobile data collection and mapping application project was developed for advocacy groups to document and track suppressive incidents at North Carolina polling sites during the 2014 General Election. Results of a post-election survey and interviews with key participating voting rights stakeholders indicate that the iterative, participatory project yielded valuable real-time intelligence on and informed organizational responses to instances of voter suppression on Election Day. The project further created new occasions for local-, state-, and national-level voting rights organizations to share their expert knowledge and develop appropriate joint strategies to protect the franchise in future elections.

COMMUNITY GEOGRAPHY, FACILITATED VGI, VOTING RIGHTS, CIVIL RIGHT

The Efficacy of University Websites in Recruiting and Retaining Latino and African-American Undergraduates

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Compared to their state ethnic populations in the United States, Latino and African-American undergraduate students are underrepresented in terms of enrollment and bachelor's degrees earned in many public universities. Perhaps the most universal gateway to essential university information for students and parents are university Websites. An effective university Website should act as an interactive "snap-shot" of the university as well as provide individuals with information that facilitates enrollment and assists in retention and graduation. In 2010, I investigated the university Websites of 31 "focus universities" from a national study of 109 universities and searched for recruitment and retention themes that were vital in creating beneficial university Websites in terms of Latino and African-American enrollment and graduation. This study investigates changes to the original 31 focus university Websites since 2010 and seeks to discover if the Websites have affected the enrollment and graduation rates of Latino and African-American undergraduate students.

UNIVERSITY WEBSITES, UNDERGRADUATE RECRUITMENT AND RETENTION, LATINO/AFRICAN-AMERICAN STUDENTS

Using GIS to Compare Original and Alternative Routes for the Keystone Pipline Project

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The Keystone pipeline is projected to carry Canada's tar sands throughout the United States all the way down to the Gulf of Mexico. Nebraska is considered as a main threat in preventing these tar sands from being transported through the pipeline. Routes and re-routes have been considered throughout Nebraska using Environmental Impact Statements under the United States and Nebraska state government authorization. There are two main routes that have been analyzed the most that include the original and main alternative routes. This study examines geological and economical variables using geographic information systems (GIS) to whether whether or not the original route is feasible instead of having to automatically assume that the main alternative route is the most feasible route.

KEYSTONE PIPLEINE, ROUTES, GI

The Social Effects of High-Pressure Hydraulic Fracturing on Pennsylvania Counties with Fracking Sites

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This paper examines the harmful effects of hydraulic fracturing on the societal health of communities near the hydraulic fracturing sites. An increased transient population is disruptive to the society of the towns near these sites, changing the structure of the community. Studies have found that dramatic changes made to a person's community can cause a disruption of cultural values and a change in behavioral patterns, which can be seen by the rate of divorces or separations and the lower rate of marriages in the area. This disruption can also be seen in the increased number of alcohol related traffic accidents and increased fatal traffic accidents. Some counties near hydraulic fracturing sites have seen a 300% increase in traffic accidents. The infrastructures of these areas were not meant for the heavy-truck traffic of the hydraulic fracturing industry. Many of the roads near the hydraulic fracturing sites are small, windy roads that have limited sight distance and no room to pass or move over. Studies show that it would cost Pennsylvania approximately $265 million to repair roads affected by increased traffic due to hydraulic fracturing. While many towns have found hydraulic fracturing to be a boon to the economy, this comes at a cost, traffic from heavy-trucks going to and from the drilling sites, increased stress on the social fabric of the communities causing more separations and divorces and eventually the downslide as the town goes from a boom town to bust.

HYDRAULIC FRACTURING

"God, please send us one more oil boom and I promise I won't piss this one off": Eagle Ford Shale Regional Development in a Boom-Bust Milieu

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In October 2008, Petrohawk Energy drilled the first modern fracking well into the Eagle Ford Shale, sparking an oil and gas boom that brought significant economic development to some of the poorest areas in Texas. The Eagle Ford is now one of the most productive shale plays on the planet, bolstering many areas of the economic landscape. However, starting in 2014 and continuing into 2015, the oil price decline

changed regional development outcomes manifested at the local level. This study asks how has energy-related development impacted the economic development landscape in South Texas. This research expands upon work carried out by other Eagle Ford scholars and similar contemporary studies from emerging shale plays. Interviews with 15 regional development and workforce experts across the Eagle Ford Shale from August 2014 to March 2015 focused on the perceived economic impact of energy exploration on the regional development landscape. We found a broad range of attitudes regarding future development and the amount to which institutions are guiding growth. Of note, regional development experts revealed that the most significant impacts from energy development were experienced in 1) local road degradation, 2) the high demand for short-term and long-term housing, and 3) a spike in wages that has hampered non-energy related growth. Furthermore, stakeholders were hesitant to accept the possible implications of reduced oil and gas prices on potential development. Overall, this study informs future analyses of boom-bust regional development and how this cycle is demonstrated at the local level.

Eagle Ford Shale, fracking, regional development, boom-bust cycles

"Separate and Unequal" Once Again: African, American Environment in 4-Year Institutes

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The value placed on a higher level of education has always been important as it conferred financial reward. Education is positively associated with income and income is positively associated with opportunity and – depending on perspective – equality. Unfortunately, equality appears to be an elusive goal for African Americans as this population has yet to reach income parity with the white majority. After the 1954 Brown v. Board of Education ruling abolished the "separate but equal" doctrine, education was herald as key to dissolving black/white income disparities, and for a period of time it was working. Current trends, however, threaten to decimate the gains as a growing majority of African Americans are enrolling in community colleges in lieu of the traditional 4-year institutes where the income payoff for a higher education is much greater. This debilitating trend threatens to: (1) perpetuate/increase the income disparity thus nullifying dreams of equality, and (2) re-cast the inequalities found in education prior to 1954. The purpose of this study is to analyze African American attendance at 4-year institutes. This is a comparative analysis of 4-year institutes in states where the majority of blacks attend 4-year institutes with 4-year institutes in states where the majority of blacks attend community colleges. The goal is to elucidate the institutional attributes associated with the higher proportion of blacks enrolling in 4-year institutes using a principal component regression. The components portion resulted in the extraction of nine dimensions for both institute categories revealing major differences. The differences was also evident in the regression results with respect to the significance of the dimensions. While both institute categories were heavily influenced by the Minority Representation dimension, the remaining dimensions displayed a sharp divergence.

community college, higher education, income inequality, African American enrollment.

Historical riparian habitat changes of an endangered bird species: Interior Least Terns along the Red River below Denison Dam

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There are many challenges in protecting habitat for threatened and endangered species, particularly for riparian bird species whose habitat is influenced by climate changes, land use changes, and water management. One of these endangered bird species is the Interior Least Tern (Sterna antillarium athalassos) that breeds and nests on sandbars of the large Great Plains rivers. The Red River along the Texas-Oklahoma border provides ideal tern habitat because of its wide, braided river channel with large, open sandbars that are sparsely vegetated and close to aquatic food sources. Over the last century tern sandbar habitat along the Red River has been lost or gained in response to water resource projects, dams, reservoirs, floods, droughts, land cover changes, and invasive vegetation. This project presents the spatial and temporal changes in tern sandbar habitat on a 224-km segment of the Red River below Denison Dam that have occurred since the 1890s. Using historical surveys, topographic maps, and aerial photography, in combination with stream flow and precipitation data, we show spatiotemporal relationships along this 114-year timeline. These relationships will inform management decisions regarding the regulation and conservation of the Red River and its major tributaries in order to maintain its status as suitable tern habitat.

flow-ecology relationships, Interior Least Tern, riparian sandbar habitat, fluvial landscape ecology

The Production and Migration Geographies of Professional Hockey, 1970-2010

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Thirty years have passed since the National Hockey League pushed out of its northern cradle. From 1942 to 1967, the NHL was confined to six cities, all northeast of Chicago; by 1979 the league had expanded into non-traditional hockey areas. Hockey enthusiasts encouraged the expansion of franchises to non-traditional markets as a significant step in broadening the base of hockey fans in the United States. While studies have indicated a relationship between professional hockey presence and participation in recreational leagues another significant measure may be contribution of non-

traditional regions to professional leagues. This study examines the origins of players in the NHL from 1970 to 2010. Production from countries, and state- and county-level areas is evaluated using comparisons of local production to population. Along with measures of spatial connectivity between players and teams, this analysis examines whether hockey has emerged as a national sport or if it remains regionalized. Data indicate a strengthening of production beyond traditional hockey regions with concentrations around existing franchises. The dominance of Canada in professional hockey has waned while the US and European nations have seen robust increases. However, production in non-traditional regions remains marginal even after several decades of hockey presence in those areas.

SPORTS GEOGRAPHY, REGIONAL IDENTITY, LABOR MIGRATION

A Preliminary Analysis of Gas Well Density and Socioeconomic Variables in the City of Denton, Texas

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Over the last two decades, hydraulic fracturing and associated drilling have become increasingly used in urbanized areas to extract natural gas from the ground. Because of aesthetic and environmental health concerns, it is reasonable to think that these wells negatively affect local property values. This study is an attempt to measure the impact of wells on property values in the city of Denton Texas. As a first step, this study evaluates the relationship between gas well density and demographic and socioeconomic characteristics of nearby residents. A multiple regression analysis was conducted using ACS 2006-2010 Census Block data and GIS gas well location data. While the multiple regression analysis did not produce statistically significant results, the descriptive statistics indicate a potential relationship between neighborhood stability and gas well locations. These results show a positive correlation between gas well density and median income and owner-occupied housing rates in neighborhoods. A new regression analysis will be conducted using tobit and probit regression to account for dichotomous data on gas well locations. Further research will focus upon other independent variables such as proximity to the Interstate-35 Highway corridor and the location of the Barnett Shale formation within Denton. The goal of this study is to provide the groundwork to conduct a second stage of research using a hedonic economic model to relate gas well locations and housing values from residential sales data in Denton.

HYDRAULIC FRACTURING, ENVIRONMENT, HOUSING, BARNETT SHALE, ECONOMICS

The Boundaries of Responsibility and Community Support: Lessons from Post-Colonial Mozambeque

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This paper will review and critique the current state of debate within moral geographies of development and assistance as it relates to responsibility, paying close attention to how these debates have informed or been informed by the African context. While moral geography has paid attention to issues of responsibility and caring through the lens of trade and hospitality, the discussion of giving and philanthropy has been partially absent. Human geographers have also paid close attention to the shifting geography of international aid, but not to the dynamics at work at the community level. The focus of these discussions is also that the definition of the morality being discussed is framed as coming from the Global North rather than the Global South. Fewer than ten large-scale academic studies exist on philanthropy or community assistance in Africa, making it difficult to glean lessons about the social and financial capital that already exist within poorer communities. Through looking at the experience of moral and ethical responsibility within community contexts in Maputo Mozambique, this analysis seeks to both expand the boundaries of the moral geography discourse, as well as glean valuable lessons from the assumptions scholars may make about responsibility and senses of responsibility in the developing world.

MORAL GEOGRAPHIES, MOZAMBIQUE

User Perceptions of the Metropolitan Bus Authority in San Juan, Puerto Rico - Preliminary Findings

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The Metropolitan Bus Authority (MBA) may not represent a viable alternative of transportation for the majority of the residents of the San Juan Metropolitan Area. The MBA, the largest component of the public transportation system, is facing a serious issue: an ever declining ridership. In 1960, the MBA had a daily ridership of 172,605. By 2010 that number had dropped to 37,852, the equivalent of a 78.1 percent decrease. Today, 85.1 percent of MBA ridership consists of captive users, passengers forced to use the system because they do not have another choice. Choice riders, on the other hand, appear to have migrated to other forms of transportation, particularly the private vehicle. Since 1950, the number of motor vehicles has increased at an alarming rate, to the point that by 2014 there were 953 motor vehicles per 1,000 inhabitants. This trend is not the result of a mere whim; for decades the MBA has faced stern criticism for its poor service, mainly due to its infrequent and unreliable service. By interviewing the current MBA ridership, we will determine their perception of the service and determine if there is a trend to switch to

other modes of transportation.

PUERTO RICO, PUBLIC TRANSPORTATION, PRIVATE TRANSPORTATION

Multiple Remote Sensing Products for Trend Detection and Analysis in South America

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The identification and understanding of changes in the land surface is one of the great challenges in a time of intensive observation of the earth and its environmental systems. The abundance of remotely sensed data and computing capacity available in 2015 allows researchers to move beyond the use of single sensors or products to using multiple products at complementary spatial, temporal, and spectral scales. The use of multiple data streams to study land surface dynamics improves trend detection and interpretation, not only revealing hotspots of change more accurately, but also indicating possible causes and potential consequences. Here we use a variety of remote sensing products with spatial resolutions extending from 500m to 1 degree, including (1) NBAR-based vegetation indices, land surface temperature, and evapotranspiration from MODIS, (2) air temperature, water vapor, and vegetation optical depth from AMSR-E and AMSR2, (3) surface air temperature, water vapor, and relative humidity from AIRS, and (4) surface shortwave, longwave, and total net flux from CERES. We apply the non-parametric Seasonal-Kendall trend test to these time series to identify areas of significant change. We analyze trend data for all of South America comparing the results by country, land cover, and human impact. We examine co-occurrence of change in multiple products in an attempt to more accurately attribute climatic and anthropogenic causes. The results indicate significant benefit from the multiple data stream approach to studying land surface dynamics.

TIME SERIES, TRENDS, SOUTH AMERICA

Using Dogs To Sniff Out The Geographic Distribution Of Trypanosoma cruzi In Denton County

Pace, Wendy[1], Joseph R. Oppong[1], and Chetan Tiwari[1]
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Trypanosoma cruzi, the causative agent in Chagas disease, is a blood borne parasitic protozoan that infects a number of mammalian hosts, including humans and dogs. Chagas disease can lead to congestive heart failure, gastro-intestinal mega syndromes, and in some cases, sudden death. Trypanosoma cruzi is carried in the fecal matter of 'kissing bugs' that are widely distributed across Texas and other southern states. A number of studies have confirmed the presence of Chagas disease in the southern U. S.; however, very little geographically relevant data exists for human and/or canine prevalence of exposure and/or active parasitemia. As of June 2015, 39 human cases and 351 animal cases have been reported to the Texas Department of State Health Services for the years 2013-2014; however, this data is limited to the county level and is likely grossly underreported due to a number of factors. Also, the data does not discriminate between organized screening efforts identifying seropositive individuals from those presenting with chronic late stage pathology. With the lack of physician and/or veterinary awareness, standard FDA approved methods of diagnosis, and definitive symptomology, it is no surprise that Chagas disease remains on the World Health Organization's list of neglected tropical diseases. Examining T. cruzi exposure in a representative population of dogs, with known geographic histories, may provide the key in narrowly identifying geographic areas of elevated risk of domestic disease transmission. Dogs, as valued companions and sentinel organisms, may prove crucial in assessing the threat of Chagas disease to canine and human populations.

CHAGAS DISEASE, DENTON COUNTY, PREVALENCE, GEOGRAPHIC HISTORIES

Estimating root-zone soil moisture in snow-dominated regions using a soil moisture diagnostic equation

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Soil moisture in snow-dominated regions has many important applications including evapotranspiration estimation, flood forecasting, water resource and ecosystem services management, weather prediction and climate modeling, denudation processes estimation and others. A simple and robust approach to estimate root zone soil moisture in snow-dominated regions using a soil moisture diagnostic equation that incorporates snowfall and snowmelt processes is proposed and tested. A three-water-year dataset of daily precipitation, air temperature, snow water equivalent and soil moisture at four depths (10 cm, 20 cm, 50 cm, and 100 cm) at each of three Snow Telemetry (SNOTEL) sites: MT903 and MT1144 in Montana and ID2029 in Idaho, is applied to test the proposed method. The first water year is designated as the parameter-estimation period (PEP) and the last two water years are chosen as the model-testing period (MTP). Applying the derived soil moisture loss function parameters and other empirical parameters in the soil moisture diagnostic equation in the PEP, soil moistures in four soil columns (0-10cm, 0-20cm, 0-50cm, and 0-100cm) are estimated in the MTP using the soil moisture diagnostic equation. The relatively accurate soil moisture estimations (compared to the observations at these three SNOTEL sites (RMSE$\leqslant$ 4.2 (%V/V), correlation coefficient $\geqslant$ 0.83) indicate that the soil moisture diagnostic equation is capable of accurately estimating soil moisture in snow-dominated regions after the snowfall and snowmelt processes are included in the soil moisture diagnostic equation.

SOIL MOISTURE, SOIL MOISTURE DIAGNOSTIC EQUATION, SNOWMELT, SNOW WATER EQUIVALENT

Evaluating Geographic Citizen Science Contributions for Low Water Crossing Identification

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Geographic citizen science projects give amateurs and nonprofessionals the ability to volunteer or evaluate geographic information for research. Due to the varying backgrounds, training and knowledge of contributors, contributed geographic information may have uncertain data quality including positional accuracy, completeness and attribute information. Differences in data quality may be the result of different levels of geographic education, and being able to evaluate data quality effectively is a priority for ensuring a robust citizen science endeavor. This research uses a web portal to collect volunteered geographic information about low water crossing hazard locations in Central Texas. A test group of undergraduate students, some with GIS experience and some without, evaluated the web portal and participated in contributing information. This paper presents the development of a method to evaluate the contributed data quality for a citizen science project. The education levels of the test subjects including major, level in school, sex, and number of geography classes taken, are used to evaluate how geographic education affects data quality. The results show a difference between data quality by the education level attained. This research should provide an insight in how to evaluate the data quality of geographic citizen science contributions.

VGI, CITIZEN SCIENCE, FLOOD HAZARDS, WEB PORTAL, HAZARD PERCEPTION, DATA QUALITY, POSITIONAL ACCURACY

Effects of Surface Characteristics on Tornadogenesis

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For every observed 100 tornado vortex signatures (or TVS, a Doppler radar indication of strong rotation and possibly imminent tornado), there are about 25 actual tornado touchdowns. Depending on forecaster ability and experience, this statistic can reflect a considerable number of false alarms. Accusations were raised that false alarms might have contributed to high fatality numbers in the May, 2011 Joplin, Missouri tornado. Thus, understanding the myriad parameters that might be considered important in determining which radar echoes produce tornadoes and vice versa is ever more imperative. It is proposed that the study of changes in the strength of circulations within tornado-producing parent thunderstorms may give clues to the role, if any, played by local topography and land cover type. A very preliminary study conducted by the author in 2010 on only a few Arkansas tornadoes found some weak positive evidence for a relationship; recent studies also show a relationship, primarily using single/few storms. Using improved radar data and GIS methods, surface characteristics underlying a substantial sampling of TVS's along the parent thunderstorm's path, prior to or absent of tornadogenesis, are quantified. Regression analysis is used to test for a consistent relationship between topography and alteration in circulation strength. The study is confined to April and May of 2011, encompassing a major mid-South and Southeast US outbreak and the Joplin tornado, but inclusive of all tornadoes.

TORNADOGENESIS, TORNADO DYNAMICS, TOPOGRAPHY, DOPPLER-INDICATED TORNADO, GIS REGRESSION TECHNIQUES

Measuring the Success of A MOOC: ESRI's Location Advantage MOOC

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This paper reports the insights from the experience of designing and deploying the Location Advantage MOOC deployed in Udemy by Esri in spring of 2015. Massive open online courses (MOOCs) have become more and more popular, however little is yet understood on the impact they have on both educators and students. We will examine this MOOC by looking at the learning environment, learner demographics, motivations, content, content design considerations and level of engagement.

BUSINESS, LOCATION ANALYTICS, MOOC, CURRICULUM DEVELOPMENT, GIS

Filipinos in Jersey City, New Jersey

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The purpose of this research is to determine the extent to which Filipinos living in Jersey City, New Jersey have assimilated over time and to examine their economic trajectory over decades. Filipino immigrants may present a unique case. The literature associates the increasing socioeconomic status of immigrants with longer years of residency in the United States. Many recent Filipino entries have higher socioeconomic status, but relatively lower rates of home ownership when compared to other immigrant groups. While home ownership is only one variable that measures socioeconomic status, it is an important distinction ethnically, and may be crucial to our understanding of immigrant assimilation and economic integration via economic trajectory within the United States. Literature encourages two basic questions when asking about immigrant assimilation and economic integration: What is the progression toward assimilation since the year of entry to the United States? What is the economic trajectory over decades since the year of entry? Jersey City, New Jersey, serves as a study area for examining these questions, due to its significant Filipino population, which is almost nine percent of Jersey City's total population. These research questions are the basis for two null hypotheses. The first is the progress toward assimilation of Jersey City Filipinos is independent of the time in the U.S. Specifically, there is no improvement in assimilation during the decades since the year of entry. The level of

assimilation is measured by the level of English proficiency. The second null hypothesis is that the economic trajectory, as measured by socioeconomic status, is independent of date of entry to the United States. Socioeconomic variables contribute to understanding the Filipino experience and may shed new light on Filipino trajectories in Jersey City.

Filipinos, assimilation, Jersey City

Environment, Site, and (in)Justice: An Examination of the location of Environmental Protection Agency (EPA) Hazard Sites in Texas

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Environmental injustice implies that hazardous waste processing and releasing facilities are unequally distributed across space. Low income and minority neighbourhoods have been found to be located in closer proximity to environmental health hazards than non-minority and higher income communities. Issues of environmental justice have been evaluated at many spatial scales throughout the United States, from individual city-level analyses to larger regional studies. Employing a spatial analytical approach, this study examines the demographic context that EPA hazardous waste releasing sites in the state of Texas are situated. More exactly, this study seeks to establish if instances of environmental injustice exist in Texas and if so, then how these spatial patterns vary across the state. This study uses site locations from the Environmental Protection Agency's (EPA) facility registration system (FRS) and demographic data from the American Community Survey. The study's spatial units of analysis are the more than 15,000 Census Block Groups within the state of Texas.

environmental justice, hazardous waste facilities, Texas, race, spatial analysis

The Edible Landscape of Portuguese Traditional Bread, Broa, and Implications for Sustainable Agriculture in Northwest Portugal

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This paper examines the social, material, and biophysical landscapes of association that become intertwined and solidified in the edible form of traditional maize (Zea mays L.) bread known as "broa" in northwest Portugal. At first sight, a loaf of broa is simple seeming stand-alone entity; a large oval shaped loaf with a hard baked crusty exterior. When we begin to examine this loaf in more detail, however, it becomes clear that a traditional broa implies the coordination and alignment of a wide range of human and non-human actors, processes, knowledges, and techniques spread over geographical space and time. Each loaf, therefore, can be considered a "black-box" that encompasses the full spectrum of production-consumption processes ranging from the growing of key crop varieties on farms, to the milling of grain in traditional mills, and finally to the baking of the bread in bakeries. Each space, actor, and process is linked together in what I call an "edible landscape" of production-consumption, nature-society, and human-non-human relations. Using an actor-network theory approach in conjunction with human-cultural geography, I interpret the broa actor-network cartography of socially defined spaces that link the conservation of local maize varieties with the conservation and sustainability of small-scale farming, the viability of traditional water-powered grain milling, and traditional forms of baking in northwest Portugal. Examining the traditional broa in this way allows for integrating specific agricultural conservation policies and practices related to the broader regional food and sustainability movements in the region.

broa, actor-network theory, edible landscape, sustainability

Using Hot Spot Analysis to Site Wildlife Crossings: The Case of the Florida Panther

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The Florida panther is an endangered subspecies of cougar found only in the state of Florida. Currently, fewer than 200 are believed to exist in the wild. Next to intra-species aggression, vehicle collision is one of the leading causes of death for the Florida panthers. Wildlife crossings—structures that allow animals to safely cross roads—already exist in parts of South Florida and alleviate some of this threat. By providing a safe passage, wildlife crossings not only reduce the risk of vehicle collision but also help connect fragmented habitats and possibly reduce intra-species aggression. This paper uses tools and techniques in GIS to recommend additional sites for wildlife crossings. Recommendations are based on the Florida Department of Transportation's guidelines for building wildlife crossings. Proposed sites are based on demarcation of the Florida panther's designated habitat, hot spot analysis of traffic related mortality sites and filtering of suitable roads based on number of lanes. Crossing sites are proposed and ranked based on clustering of panther mortality. Using the example of the South Florida panther, this paper illustrates how GIS can be applied to address wildlife conservation challenges.

Florida panther, wildlife crossings, hotspot analysis

Mapping Cultures of Land Use in Orange Walk, Belize

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The Orange Walk district of Belize, Central America, experienced notable rural development in the decades before and after the turn of the millennium. This expansion transformed tropical forests and savanna through the expansion of infrastructure, settlements, and agriculture. The forms of this growth followed distinct patterns reflective of the district's cultural groups of Mennonites, Creoles, and Spanish-Mestizos. In this study, I employed a mixed-method design

seeking to both map and quantify this change and to contextualize it within a framework of historical political ecology. I performed a remote sensing land cover classification and change detection of the district, employing Landsat 5 and 7 scenes from 1989 and 2008. The resulting classification maps provide a stark portrait, revealing that an estimated area of 27,462 hectares (67,860 acres) was converted from undeveloped to developed land cover during the period. The results also suggest that, even at this regional scale, cultural land use patterns are distinctly observable. I then considered these findings within the context of the unique regional history and national level immigration and environmental conservation policy.

Belize, land cover change, political ecology, remote sensing

Object based image classification based on fusing WoldView-2 Image and LiDAR pseudo-waveform

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Fusion of waveform LiDAR and spectral imagery for land cover mapping traditionally takes place at the pixel level, but the classification of HSR imagery is normally conducted at the object level. The fusion of the waveform LiDAR and HSR imagery at the object level has not been adequately studied. The major obstacle is that waveform footprints are usually of a fixed size and shape, but the size and shape of objects in the real world varies dramatically, seldom matching with the waveform footprints. To overcome this issue, we synthesized object-based pseudo-waveforms using discrete-returns LiDAR data. The pseudo-waveforms were then fused with the object-level spectral histograms from HSR WorldView-2 imagery to classify the image objects using a Kullback-Leibler divergence-based curve matching approach. The fused dataset achieved an overall classification accuracy of 97.58%, a kappa coefficient of 0.97, and producer's accuracies and user's accuracies all larger than 90%. The use of the fused dataset improved the overall accuracy by 7.61% over the use of HSR imagery alone, and McNemar's test indicated that such improvement was statistically significant ($p<0.01$). This study demonstrates the great potential of pseudo-waveform in improving object-based image analysis. This is especially valuable since currently the majority of commercial LiDAR data are of a discrete return type whereas full waveform data are still not widely available.

object based image classification, LiDAR, High Spatial Resolution Image

Potential Areas to Locate Gracilaria tikvahiae and Sargassum polyceratium Macroalgae Mariculture System in Marine Waters Around Puerto Rico: A Geographic Information Systems (GIS) Approach

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In this study, we identified the potential geographic sites to locate macroalgae cultivation for Gracilaria tikvahiae and Sargassum polyceratium in marine waters around Puerto Rico. Three ArcGIS models were developed to define suitable sites for Gracilaria tikvahiae and Sargassum polyceratium macroalgae mariculture sites in Puerto Rico: 1) the Human/Physical Constraint model 2) the Ocean Wave and Current Model; and 3) the Macroalgae's Optimal Environmental Characteristics Model. Results showed that the Human/Physical Constraint model eliminated nearly 99% of the Puerto Rico's Exclusive Economic Zone (EEZ). According to this model, depth, which is related to the regional tectonic formation of the study site, is the most restrictive variable to conduct G. tikvahiae and S. polyceratium macroalgae mariculture activities in Puerto Rico waters.

location analysis, mariculture, GIS

Identification of Ground Water Potential Zones in Greater Visakhapatnam Municipal Corporation, Andhra Pradesh, India: A Spatial Approach

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The growing urbanization and industrialization are polluting surface and ground waters. The polluted water is the source for different water borne diseases and not suitable for productive use. In this study, Survey of India topomaps, IRS-1D and SRTM satellite data have been used to generate thematic maps such as drainage, soil, geology, hydrogeomorphology, land use/land cover, lineament and slope were overlayed in ArcGIS-9.2 for ground water potential zone map of Greater Visakhapatnam Municipal Corporation, revealing good groundwater potential zones. The study area is the largest municipal corporation in Andhra Pradesh, India where the surface area being concretized; as a result rain water is letting out through the unlined sewages and ultimately terminating in to the Bay of Bengal without reaching the zone of saturation. This scenario is leading to groundwater crises. In the present study, an attempt has been made to delineate ground water potential zones which are to be managed on sustainable manner with a view to address water woes.

groundwater potential zones, land use/land cover, hydrogeomorphology, lineaments

Defining the Record of Fast-Growing Firms as Members of Regional Business Communities: Initial Findings

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This study addresses the geographic distribution of fast-growing firms (FGFs), a group of businesses well-positioned to play a central role in the ongoing development of the US economy. A growing body of research has investigated the location of such businesses. This literature finds FGFs to be more

geographically dispersed than their larger and better-established corporate counterparts, indicating FGFs have some promise in terms of economic development catalysts. However, what has not been adequately investigated is the extended development track that is characteristic of FGFs. Even as these firms emerge in new, suburban, and regional locations across the US, how many of these firms continue as stand-alone operations in their original locations? How many undergo mergers, are acquired by larger firms, or even go out of business after a period of rapid expansion? The research discussed here examines multiple dimensions of the long-term track record of FGFs across the US.

FAST-GROWING FIRMS, FIRM DEVELOPMENT, INC 500, BUSINESS GEOGRAPHY

Aggieland Grows Up: The Spatial Growth of College Station's Residential Areas, 1970-2010

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The population of College Station, Texas, has grown more than 400% since 1970, rising in parallel with increasing enrollment at Texas A&M University. Despite the obvious impacts of this growth, no study has examined the spatial patterns of the city's expansion. This study maps the changes in College Station's residential areas between 1970 and 2010, identifying growth patterns and friction points. Data on subdivision plats and city annexations were combined with aerial photos and census data to produce decadal growth maps, which were supplemented by field observations and an interview with the city planner. The results show that since 1970, College Station has developed outwards from the university in a series of concentric belts along major roads. The city has grown primarily towards the southeast due to physical, political, and infrastructural constraints in other directions. Renter-occupied homes have become the norm near the university, while owner-occupiers and higher home values have moved towards the outskirts of town. African-American populations have moved from outside of the city to a few neighborhoods near the university. A consequence of College Station's spatial growth pattern is that multiple demographics are now coming into conflict in the city's core, and African-American neighborhoods are being impacted by the construction of student rental homes. These conflicts are likely to continue as the university's enrollment ticks upward. Future residential development in College Station is predicted to continue to move south and west, although infrastructural improvements will be required for growth to continue.

URBAN GEOGRAPHY, HISTORICAL GEOGRAPHY, URBAN GROWTH, GIS, COLLEGE STATION

Siting Urban Agriculture as a Green Infrastructure Strategy

Rogers, Charles[1] and Colleen C. Hiner[1]
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Green infrastructure refers to a type of land use design that mimics the natural water cycle using vegetation, soils, and other natural processes to mitigate stormwater runoff pollution. As a multifunctional landscape, urban agriculture should be seen as a highly beneficial tool for urban planning not only because of its ability to function as a green stormwater management strategy, but also the multiple community benefits it provides. In 2012, the city of Austin adopted a major planning approach titled the Imagine Austin Comprehensive Plan (IACP) that outlines the vision for future growth and land use in the city until 2039. The plan explicitly addresses the adoption of green infrastructure as a targeted future land use with urban agriculture as a component of the green infrastructure network. Despite recognition regarding the benefits of urban agriculture upon the urban environment, research on the question of where to locate urban agriculture within a city is limited. The goal of this research is to develop a spatially explicit method of siting urban agriculture as a green infrastructure tool on hydrologically sensitive areas in east Austin. Through this method a spatial relationship can be made between areas of high surface runoff and where the priority placement of urban farms should be sited as a useful component of green infrastructure. By providing a framework that identifies a spatially explicit approach to siting urban farms, it will support the integration of urban agriculture as a green infrastructure strategy into the sustainable land use planning of Austin.

URBAN AGRICULTURE, GREEN INFRASTRUCTURE, WATERSHED PROTECTION, URBAN PLANNING

"Tamed Fungus": A colorful history of black truffles in Périgord, France

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The Tuber Melanosposrum (truffles) grows in France in the Dordogne department in the region of the Périgord and is considered a culinary delicacy throughout the world. Truffle production in Périgord has fluctuated over the past 200 years, but the reasons for the fluctuation are not clear. As such, for this study, we ask: What are the environmental, social, and economic patterns that may explain the production and market fluctuations of the Tuber Melanosposrum in France? With this landscape ethnography, we examine changes in truffle production over time through an ecological and historical lens. This is a mixed method study, using quantitative methods to analyze secondary climatic and market data. Historical sources such as books and journals are used to contextualize contemporary patterns and processes. Finally, semi-structured interviews investigating truffle farmers' perspectives on the history and current status of the truffle industry in the region will be conducted. Although the project is still ongoing, preliminary results indicate that climatic changes as well as demographic and associated land use transitions have caused many of the shifts in the truffle production, the latter being driven mainly by

changing public interest in truffles as a food crop due to political and economic changes within society. This study sheds light onto the various factors that have led the fluctuation of truffle production throughout the years and provides insights into truffle grower's perspectives of these changes in truffle production over time, laying the groundwork for further research on this topic.

TUBER MELANOSPORUM, TRUFFLE, PÉRIGORD, FRANCE, AGRICULTURAL PRODUCTION, LANDSCAPE ETHNOGRAPHY

Congressional Districts: How "Equal" Are They?

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Congressional redistricting is the process of delineating boundaries for districts in which voters elect members to the United States House of Representatives. A major principle is to draw districts that provide quality representation for a large population. Congressional districts (CDs) are often redrawn due to changes in population reflected by the decennial census. Currently, eight criteria should be considered when determining the boundaries of CDs and this paper focuses on one of those criteria, equal population. The criterion requires states to distribute the total population equally among districts. This paper evaluates the extent that this criterion has been adopted. We first discuss how eligible voters were defined, and the population size and distribution of those eligible to voters. States with a large proportion of children or prisoners were expected to have CDs with eligible voter populations deviated from the equal population counts. The results show that the voting eligible population is not evenly distributed among CDs in most states and this paper argues that the voting eligible population should have a higher priority than the total population in future redistricting.

ELIGIBLE VOTERS, REDISTRICTING, EQUAL POPULATION, CENSUS

Integrating Analytical Applications into Retail Logistics and Operations

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With the advent of cloud computing and web based applications, integrating location and spatial analysis into business planning is becoming a much more streamlined process. GIS tools are becoming more user friendly, yet are still just as powerful. ESRI has a whole host of different applications that can perform functions such as creating an origin-destination cost matrix or a drive network coverage of a location, and analyzing customer shopping trends and demographics. The aim of this paper is to show how businesses can use these applications to make better decisions for site selection and supply chain management. This paper will also examine the limitations posed by the high cost of many of these tools, which can limit access to full functionality, and how companies can make the most of this limited access. The focus will be on small businesses having limited access due to costs, but student access as well, and how these two areas could work together to gain access not only to software itself, but also the skill set needed to provide analysis. The methods used will be based on what tools are available either through free trial accounts or open source software.

RETAIL LOGISTICS

Estimating land cover in acequia-irrigated valleys using historical aerial imagery

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In New Mexico nearly 900 acequias divert and distribute water from rivers and streams for agricultural purposes. At a local scale, these acequia-irrigated valleys link community, economy, and hydrology through land cover. Accordingly, accurate land cover inventory is a primary interest to researchers examining these interactions. Three acequia-irrigated valleys (Alcalde, El Rito, and Arroyo Hondo) representing low, medium, and abundant water conditions within the upper Rio Grande watershed have been the focus of a number of studies. Several of these studies classified land cover for one or more of these valleys at various points in time. However, there has been no attempt at characterizing land cover for multiple associated valleys on a decadal scale. Furthermore, no formal attempt has assessed the accuracy of previous land cover studies. This study addressed a data gap by providing a quality-checked and class-consistent land cover dataset for the three valleys on a decadal scale between 1935 and 2014. Historic aerial photos were georeferenced and mosaicked. Land cover features were digitized and classified using visual photo interpretation techniques into five categories: Irrigated Agriculture, Built-up, Orchard, Riparian, and Other. Fuzzy set theory was used to assess the accuracy of the classification. The preliminary results highlight a substantial shift from lands once used for agriculture to non-agricultural uses. Specifically, many former agricultural fields are now long-term fallow. The main contribution of this work will be to provide much needed data to acequia researchers, and which directly ties into parallel projects in the region.

LAND COVER, ACEQUIA, AERIAL PHOTOGRAPHY, FUZZY SET THEORY

The Landscape Legacies of Urban Gas Drilling in North Texas

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This research examines how shale gas landscapes affect urban land uses, landscapes, and patterns of development in DFW. The study focuses on multiple fast growing DFW municipalities that also have high numbers of gas well pad sites. This study asks what are pad sites characteristics; how are pad sites and different growth areas related; and how do pad sites affect/impact urban development?

SHALE GAS DRILLING, NORTH TEXAS, DEVELOPMENT

The Transition to Adulthood among Mexicans and Mexican Americans in the U.S.

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Mexicans are the largest foreign-origin population in the U.S. About 35% of Hispanics of Mexican origin were born in Mexico. And while the remaining two-thirds (65%) were born in the U.S., half (52%) of them have at least one immigrant parent (Passel, Cohn, Gonzalez-Barrera, 2013). The sheer size of this immigrant population and their relative youth compared to the U.S. population make it essential to understand how Mexican-origin youth are growing up in the U.S. More research is still needed on the specific differences within immigrant national groups to better understand differences in socioeconomic achievement due to immigration patterns, nativity and sex. This paper explores the transition o adulthood (TTA) among Mexicans in the U.S. by comparing educational, occupational and family formation outcomes among young Mexicans born in Mexico and in the U.S. I use data from the 2008-2010 American Community Survey and from the 2006-2010 National Survey of Family Growth to describe and analyze trends in the TTA among 15 to 29 year-old native- and foreign-born Mexicans in the U.S. Comparisons will be made by immigrant generation, age and sex. Preliminary findings reflect the effects of migration trajectories among the foreign-born and patterns of assimilation among the U.S.-born. I find significant heterogeneity in education, occupation and union formation outcomes within Mexican origin youth, with immigrant generation being an important source of differentiation in TTA patterns.

MIGRATION, CHILDREN, DEVELOPMENT

Baltimore's Mass-Transit Modification: Exploring the Relationship between Commute Time and Local Population Density

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The concentric zone model is one of the earliest models to explain how a city will grow based on its urban social structures. This model assumes an isotopic landscape, thus city expansion can grow in every direction, with some emphasis on extending social structures and the expense of commute times. This study seeks to understand if the presence of mass-transit routes in Baltimore City have modified the rounded shape of the concentric zone model and population distribution, as urban expansion has continued. To accomplish this, we explored a relationship between population density and Travel-Time-to-Center (TTC). The expenditure in time a commuter must face to reach the urban center was calculated based on the availability of automobile transit routes using a GIS network analysis. We calculated a correlation coefficient between the variables over so that the relationship could be explored. Results suggest a moderate negative relationship between TTC and population density in Baltimore, supporting the argument that mass-transit routes are one of the key players in the modification of the urban population distribution. This new variable can be incorporated into future studies to understand how the addition of mass-transit routes will cause a reaction in population distribution of an urban zone.

CONCENTRIC ZONE MODEL, BALTIMORE, TRAVEL-TIME-TO-CENTER, NETWORK ANALYSIS, POPULATION DISTRIBUTION

The Geography of Functionally Impaired and ADA Protected Groups in Texas Counties

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Natural disasters, such as hurricanes and tornadoes, are common in Texas. Preparing to respond to these natural disasters in order to minimize the loss of lives depends critically on timely access to reliable and accurate data. In particular the functionally impaired and people that are protected by ADA and civil rights laws such as the blind and wheel chair bound need special assistance—especially medical and transportation assistance – during emergency evacuations. Simple media announcements providing instructions for evacuation are insufficient for these populations. Unfortunately, a comprehensive system that provides state-wide county level information and analyses about where these populations are located is currently unavailable. This resource is critically needed to formulate an efficient evacuation plan that considers where the greatest needs for assistance and supplies are located. This research examines the geographic distribution of disability cases by type across Texas at the county level in relation to race and socioeconomic status. We also examine zip code level variations in functional disability in Colin County. The results provide useful insights and lay the foundation for planning a statewide emergency response for the functionally impaired in Texas counties.

FUNCTIONALLY IMPAIRED, EMERGENCY RESPONSE, COLIN COUNTY, TEXAS

The Worst and Best of Illinois: Variation in Well-Being as Economic Austerity Unfolds

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The budget woes of Illinois have been a long time in the making. By January 2015 the budget deficit was $9 billion and growing, there was over $100 billion in unfunded pension liabilities, and Illinois had the lowest credit rating of any state. Fundamentally the problem has been one of a 'pay later' strategy and it is clear that Illinois' budget problems are huge and deeply entrenched. In November 2014 Bruce Rauner was elected Governor of Illinois as the first Republican governor in 16 years. Rauner built his campaign on a single issue – fixing the State's economy. In his victory speech the new Governor characterized his election as victory for taxpayers and workers alike. In May 2015 Rauner proposed a $2 billion cut in funding to public

services and a 31% (387 million) cut to higher education. The focus of this study is to explore Illinois' landscape of well-being using county level data, to see if the state is uniformly ready to be hit by a tidal wave of cuts in public services, likely rises in local taxes, and decreased opportunities for high education. The variables utilized relate to the economic, educational, and health dimensions of well-being.

WELL-BEING, ECONOMY, ILLINOIS

Temporal Trends in Heat-Related Mortality Across the United States

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Many studies have broadly concluded that "heat kills". Yet the rates of mortality vary, and many confounders, such as mortality displacement and spatiotemporal variability, exist. One intriguing question is how heat-related mortality has changed over time, and whether heat is still as deadly as it once was, given increased awareness and the presence of heat warning systems in many areas of the United States. Using a national data set that has recently been extended, we examine changes in heat-related mortality in the 61 largest metropolitan areas in the USA from 1975-2010. We assess trends in all-cause mortality during heat events using a distributed-lag nonlinear model (DLNM). Multiple definitions of heat, lag structures, and lengths of heat event are all evaluated separately, as is the selection of years to include. Across all definitions, relative risks of heat-related mortality have shown a decrease over time. Around half of metro areas were associated with statistically significant increases in mortality during hot weather in the 1970s; around one sixth of all metro areas were still significant during the 2000s. Similar to other studies, the heat response is greater in the northeast, Midwest, and some Pacific cities than it is elsewhere. When year subsets are selected, the strength of the relationship is strongly dependent upon whether a strong heat event occurred during the period. For many possible reasons, heat-related mortality is clearly less substantial than decades ago across the US, however there still are increases in mortality in the most extreme events. Critically, the choice of period of analysis impacts results, to the extent that comparisons of relationships across studies must account for the range in weather conditions that occurred during the period of study.

HEAT MORTALITY, DISTRIBUTED-LAG NONLINEAR MODEL (DLNM)

Early Childhood Educators' Conceptions of Geography Education and Geographic Information Systems: A Case Study of Kindergarten Teachers in Busan, Korea

Shon, Yoo Jin[1], Mi Jin Kim[2], and Hyun Joong Kim[3]
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This study reports the findings from an investigation aimed at examining the understandings of geography held by a group of early childhood educators without previous in-depth exposure to geography disciplines, especially geographic information systems (GIS). This research is a preliminary step to examine how we can utilize GIS or computer assisted instruction in the kindergarten classroom. Understanding of these educators' conceptions of geography will guide us in better implementation of GIS technology in their curriculum. For the study, 50 teachers were interviewed. We analyzed and visualized their understandings of geography using analytical diagrams, relationships, and significance of these conceptions. The findings revealed that the educators saw geography as it is related more to physical geography than to human geography. The teachers hold more conceptions of physical properties, such as location, map, earth, region, local, direction, and countries. They lacked conceptions of spatial thinking and relationships between people and their environments. The key findings from this research contribute to geography education in early childhood education and guide us in what way we can improve access and new learning opportunities with GIS.

EARLY CHILDHOOD GEOGRAPHY EDUCATION, COMPUTER ASSISTED INSTRUCTION, GIS

"Why would I live anyplace else?": Resilience, Sense of Place and Possibilities of Relocation in a Layer Cake Made of Jell-O

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Despite living in what was described as a "layer cake made of Jell-O, floating in a swirling Jacuzzi of steadily warming, rising water" (Marshall, Jacobs, and Shaw, 2014), many Louisiana residents residing in the southern portion of the coastal zone repeatedly express a strong commitment to remain in place. Based on inductive in-person interviews with residents, this commitment to remain in place reifies a propensity for resilience and resilient practices. Combining analyses of primary and secondary materials with crucial informant interviews conducted from 2012-2015, the empirical focus of this research documents how these intersections play out for those who continue to return after a hurricane, tropical storm, sharp decline in seafood prices, or other fast or slow moving disaster. This research seeks to answer the following two questions: How can residents' sense of place, resilient practices, and social relations affect the processes surrounding decisions of relocation possibilities? Second, what is the relationship between these three factors and the landscapes in which interviewees reside? At present, little is known about how the identities of coastal Louisiana residents, interconnected and contingent on social relations, sense of and attachment to place affect the decisions and positions held by Louisiana coastal zone residents on relocation possibilities.

COASTAL PROCESSES, GULF COAST, COMMUNITIES, SOCIAL RELATIONS

An Evolutionary Geography of Sport: How Traditional Methodologies Apply in a Virtual Age

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The current realm of sports geography literature encompasses the economics and driving forces behind labor migration of conventional sports. E-Sports, however, is an expanding trend in contemporary internet culture that has been largely overlooked by geographers. This research focuses on one particular game--League of Legends--chosen because it boasts the most expansive player base, has the highest amount of international player movement, and the highest levels of spectatorship in professional play. The goal is to show parallels between established sports associations and the organizations advancing the development of the professional League of Legends scene. This is done in two ways, beginning with an analysis of international player migration. Examining trends of movement amongst high-skilled corporate migrants and international football association, this study provides context for player movements on the competitive E-Sport circuit. The research evaluates regional trends in player movement and how player attitudes affect migration. Secondly, a systematic profiling, based on frameworks begun by Maguire (1999), encourages classification of player migrants into distinct typologies. The volatility of E-Sporting, coupled with the short career length of E-Sport athletes, makes it necessary to adapt previous methodologies from sports geography literature. This research provides a solid theoretical link between physical and virtual sport endeavors. Results found that player migration varies by geographic region. Additionally, the developed profiles suggest E-Sports migrants display similar, if more rapidly-evolving, typologies shown prior literature. Existing sport typologies translate to an E-Sporting context, and proper application will help further understanding of economic and social trends surrounding E-Sports.

SPORTS GEOGRAPHY, LABOR MIGRATION, REGIONAL VARIATIONS, INTERNET

Placing Transborder Communities

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In this presentation I tell a geographical story about a video by Yolanda Cruz, a Chatina filmmaker from Oaxaca, Mexico. I introduce Yolanda and her video 2,501 Migrants: A Journey (2009). Then I embed this video within transnational currents of artistic and academic advocacy by identifying institutions that enable(d) this video's production and—to a lesser degree—its circulation. On the basis of my visual and institutional analyses, I argue that this video sutures together far-flung places in an especially useful way. Not only does it offer viewers a richly textured glimpse into some of the transborder communities currently characterizing Indigenous regions of Oaxaca, but its topological approach to place fosters affinity politics.

FILM, GEOHUMANITIES, INDIGENOUS VIDEO, PLACE, POLITICS

An Unfair Industrial Landscape

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Oklahoma has had a fantastically successful run of wind farm installation. Since 2004, the state has become home to upwards of 30 wind turbine farms totaling over 3,800 megawatts of capacity. This equates to an industrial landscape in which 75 billion dollars has been invested. The first decade of development was quite peaceful compared to other states, but there is now a full-blown political battle attempting to block/slow the installation of turbines. At the same time, the century-old oil and gas industry receives favorable treatment in terms of well placement and land use. The current state revenue shortfall has caused lawmakers to rescind a previously available ad valorem tax abatement for wind while several tax abatement programs continue for oil and gas. This paper examines the issues that have led to this juncture and they result from the high visibility of turbines and the perceived cost of state tax abatement.

WIND POWER, PERCEPTION, NATURAL RESOURCES LEGISLATION

Europe's New Regionalism: Geopolitical Dynamics in the EU Energy Union

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This paper revisits theoretical arguments on the relationship between geopolitics, institutional creation, security, and economic interdependence and its impact on the definition of regions. The effects of territory, institutions, and market creation have been most significant for the conceptualization of Europe as a region, due to evolving political, security, and economic interactions, especially since the end of the Cold War. Distinct sub-regional and mega-regional institutions in the areas of finance, energy, trade, and market regulation have been created that collectively alter the meaning of European regionalism. The paper examines a less discussed aspect of Europe's evolving conceptualization as a region due to developments within its energy system. It argues that the regional energy trade, conventionally defined according to energy prices, access to energy, the security of supply, and control over resources, is in the process of change, significantly reshaped by new political and policy choices.Central to this new conceptualization of territorial space, borders, and interdependence is Europe's quest for energy security. The paper explores the institutional, political, security, and financial aspects of the European regional energy market, reflected in the creation of the EU Energy Union, and finds that such developments have the potential to significantly alter the patterns of regional interdependence. As Europe advances on the road to building a new energy system, it creates new regional constellations defined according to access to natural gas pipelines, LNG ports, and networked electricity grids. This process, while novel and inherently expansive, due to the globalization of the energy trade

and linkages to energy efficiency, climate change, and economic growth, is also controversial. The paper concludes that by re-ordering the patterns of resource access and use, the EU Energy Union affects regional geopolitics by restructuring territorial space and redefines the concept of regionalism in terms of diversification of access to resources.

REGIONALISM, EUROPE, GEOPOLITICS, ENERGY SYSTEM, ENERGY SECURITY

Combining H/A/Alpha Polarimetric Decomposition of Polsar Data with Image Classification for Wetland Identification: A Case Study of Pacaya Samira National Reserve Forest, Peru

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Unlike coastal wetlands, large tropical rivers' wetlands present a dry and flooded annual phase that follows the hydrologic pulse. Mapping such wetlands with passive remote sensors is challenging due to the dense tropical vegetation and cloud cover that block the understory water reflectance. In this study, we use NASA - JPL's full polarized, UAVSAR- PolSAR images to map wetlands during high water season in the Pacaya-Samiria National Reserve in Peru, located between the Ucayali and Maranon rivers. Wetland identification was obtained in a two-step process. First, polarimetric matrices were extracted from the terrain corrected raw images followed by polarimetric processing. Next, the H/A/Alpha decomposed parameters were used in an unsupervised classification to obtain five distinctive land cover classes. The results show that 69% of the reserve was flooded; 21% was upland forests, and open water comprised 10%. We compared our results with Global Forest Change, Google Earth, and Hess et al. 2003 wetland datasets. The article concludes with a discussion about the usefulness of polarimetric radar imagery in combination with image classification algorithms to identify wetlands during high water season in tropical regions.

UAVSAR - POLSAR, POLARIMETRIC DECOMPOSITION, ENTROPY (H), ANISOTROPY (A) AND ALPHA (α), PACAYA SAMIRIA NATIONAL RESERVE

Hot Pecans: Quantifying the Urban Heat Island Effect in the Mesilla Valley between 1986 and 2014

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The urban heat island effect tends to result in declines of ecosystem services and human well-being. As a result, reducing the effect is an increasingly important goal in urban and regional planning efforts. This should be particularly true in cities of the U.S. Southwest, where urbanization and climate change-induced temperature increases over the past thirty years combine to make already warm places warmer. However, information concerning the relationships between land system architecture (i.e., composition and configuration of land cover and land use patches) and land surface temperature in most of these cities is unavailable. Using the Mesilla Valley in southern New Mexico as a case study area, our objective was to help mitigate the urban heat island effect by developing an approach for assessing these relationships. To meet this objective, we completed five tasks. First, we acquired and preprocessed Landsat TM and OLI satellite imagery for 1986 and 2015, respectively. Second, we retrieved land surface temperatures from both images using the ATCOR 3 Surface Temperature workflow. Third, we mapped the composition of the landscape in terms of percent vegetation, impervious surface, and soil cover at both times using Multiple Endmember Spectral Mixture Analysis. Fourth, we characterized the configuration of the landscape with respect to patch size and shape at both times using FRAGSTATS. Finally, we related the land surface temperature and land system architecture data using standard statistical methods. Our results suggest statistically significant relationships between the data and help explain different land surface temperature trends across the study area.

REMOTE SENSING, SURFACE URBAN HEAT ISLAND, VEGETATION-IMPERVIOUS SURFACE-SOIL MODEL, LAND COVER CHANGE, MULTIPLE ENDMEMBER SPECTRAL MIXTURE ANALYSIS

3D Surface Reconstruction from UAS for Campus Farm Design

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There is a need for sustainable food options and hands-on experiences with the local food system at the University of New Mexico's (UNM) main campus. These needs can be met by implementing an on-campus organic farm. A two acre property on UNM's north campus has been identified as a location for a farm site. The goal of this project is to provide farm designers with accurate information about the property. A thorough assessment of the site was conducted by collecting remotely sensed imagery using an unmanned aerial system (UAS). Students at UNM's GIScience for Environmental Management (GEM) lab collaborated in the collection and processing of the data for this project. Data was collected using a tethered helium balloon and camera rig system. True color GPS tagged imagery was captured during the flight. A 3D surface model was reconstructed from this imagery using Agisoft PhotoScan software. ESRI mapping software was then used to create elevation contour, water catchment basin, and slope and aspect data. These data have been utilized to create a series of maps describing the topographic features of the farm site. These maps and data can be used to locate the most suitable locations for farm features as recommended by designers. A farm design has not yet been accepted by the university, so the data and maps created for this project are currently available to designers to facilitate informed and appropriate farm

designs. Building a campus farm will ultimately improve access to local food systems for the campus community.

UNMANNED AERIAL SYSTEM, CAMPUS FARM, BALLOON MAPPING, GIS, REMOTE SENSING

Ghanaian Trajectories in Two Midwestern Metropolitan Areas: Columbus, Ohio, and Indianapolis, Indiana

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Ghanaians immigrants are among the larger African groups entering the United States in recent decades. Many land in the New York City gateway and then make secondary migrations to other cities. Included in such cities are Columbus and Indianapolis. An important question is the nature of their housing and economic trajectories over the past three decades. Another question involves the different experiences associated with institutional support for this group in different locations. This research will use multiple years of the PUMS data to address a comparison of such trajectories in the two metropolitan regions. It also will explore what private and public policies may be relevant for Ghanaians' future success.

GHANAIAN IMMIGRANTS, MIDWEST, ECONOMIC TRAJECTORIES

Exploring the possibility of Mass Rapid Transit in the Urban Core of Kathmandu Valley, Nepal: Emphasis on Bus Rapid Transit

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Kathmandu, the capital city of Nepal and its surrounding urban agglomeration accounts for approximately one twelfth of the entire population of Nepal and continues to grow at an annual rate of 5.2%. The growth rate per year for the decade between 2001 and 2011 has been a staggering 6.37%. This rapid unplanned population growth has resulted in significant problems such as congestion, environmental pollution and severe traffic gridlock. This study evaluates the possibility of installing a Mass Rapid Transit (MRT) system in Kathmandu Valley by examining the installation and implementation of Bus Rapid Transit (BRT) in other parts of the world. Using the Gravity Model and GIS, I pinpoint the sites in the city where trips are being generated and where they are terminating. The study augments the results from the Gravity Model by using satellite and aerial imagery. Aerial image interpretation helps us understand the condition of the current road and shelter infrastructure at these specific sites. Finally, a two trunk system going north-south and east-west is proposed. In conclusion the study shows that a robust public transportation system is a necessity if the city is to develop socio-economically. The study also recommends that the best way to approach this problem is by retro-fitting the existing infrastructure to prioritize public transit.

URBAN GEOGRAPHY, NEPAL, TRANSPORTATION GEOGRAPHY, KATHMANDU, BUS RAPID TRANSIT

Visualizing Dialect Variation on A 3-D Interpolated Map: A Case Study in Chiang Mail, Thailand

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Geographic information system (GIS) has recently played an increasing role in spatial analysis of linguistic data, especially in geolinguistics and regional dialectology. In this study we collected lexical data of Chiang Mai dialect from 500 informants and examined different variants of the words they used. Data points were interpolated using an ordinary kriging approach and an estimated surface of each variant was created from these sample points. The resulting surface was overlaid onto a topographic relief map and displayed in three-dimension to facilitate the exploration of spatial patterns between physical and social variables. While many language atlases traditionally present dialect observations using point symbol maps, a 3-D interpolated map has proved to be a useful tool for visualizing co-occurrences of multiple variants of the same word at the same geographic location. This technique also allows linguists to determine a general trend of dialect variation in Chiang Mai, which might not be revealed on a 2-D map

CARTOGRAPHIC VISUALIZATION, GEOSTATISTICS, ORDINARY KRIGING INTERPOLATION, DIALECTOLOGY, GEOLINGUISTICS

Using LIDAR to reveal urban abandonment

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The urban population in the United States increased by 12.1% from 2000 to 2010, but this change is not uniform for all urban areas. Several cities in the United States have been experiencing significant population declines over the last fifty years, with some seeing declines of over 10% from 2000-2010. Such decline has earned these cities the title of a "shrinking city." The most notable example of this is Detroit, which reveals a population decline of 61.4% from 1950 to 2010, including a 24% decline from 2000-2010. In the wake of significant population decline, cities experience abandonment of homes and other structures, which are left to fall apart and to be demolished by the cities. In a previous study of Detroit, we used the National Land Cover Dataset's Land Cover, Percent Impervious Surface, and Percent Tree Canopy products to determine potential relationships between population and urban land cover. However, the NLCD products are not designed to detect urban areas that have reverted from a higher intensity to a lower intensity and only assume growth in urban areas. In this study we will extract buildings and urban vegetation from Light Detection and Ranging (LIDAR) data and develop metrics to indicate urban decline.

SHRINKING CITIES, LIDAR, POPULATION DECLINE, ABANDONMENT, DEMOLITION

A Geography of Errors: The Sabine-Red River Boundary

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The Texas boundary between the Sabine and Red Rivers is defined as extending from the point at which the 32nd parallel intersects the Sabine River, then north by meridian to the Red River. It sounds so simple but, as we shall explore in this presentation, the point-of-intersection is mis-located. In addition, the boundary not only deviates from the meridian, it drifts west thus giving to Louisiana up to 120 feet of land that should be within the bounds of Texas. Perhaps most surprising, there exists today a 150-foot strip of land along the Texas-Louisiana that belongs to neither Texas nor Louisiana – but to the United States.

BOUNDARY, ERRORS, STRIP, TEXAS, LOUISIANA

Spatial distribution of estimated wind-power royalties in west Texas

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Wind-power development in the U.S. occurs primarily on private land, producing royalties for landowners through private contracts with wind-farm operators. Texas, the US leader in wind-power production with well documented support for wind power, has virtually all of its ~12 GW of wind capacity sited on private lands. Determining the spatial distribution of royalty payments from wind energy is a crucial first step to understanding how renewable power may alter land-based livelihoods of some landowners, and, as a result, possibly encourage land-use changes. Using Nolan and Taylor counties, Texas, a major wind-development region, we located ~1700 wind turbines (~2.7GW) on 241 landholdings. We estimated total royalties to be ~$11.5 million per year, with mean annual royalty received per landowner per year of $47,879 but with significant differences among quintiles and between two sub-regions. Unequal distribution of royalties results from land-tenure patterns established before wind-power development because of a "property advantage," defined as the pre-existing land-tenure patterns that benefit the fraction of rural landowners who receive wind turbines. A "royalty paradox" describes the observation that royalties flow to a small fraction of landowners even though support for wind power exceeds 70%.

WIND POWER, ROYALTY, PROPERTY, LAND USE, INCOME

Spatial Analysis of the Relationship between Levels of Service Provided by Public Transit and Areas of High Demand in Jefferson County Kentucky

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The responsibility of public transit systems is to provide a mode of transport to individuals who in most cases represent the minority and low income classes as well was the elderly. Previous studies on the matter have shown unequal distributions of service across different areas, usually to the disadvantage of these vulnerable groups. The goal of this research was to study the relationship between transit system service levels and areas of need in Jefferson County Kentucky, aiming to identify spatial gaps in public transport provision for people and areas of social disadvantage. A supply index to measure service level was constructed for each census tract, based on the share of the tract within access distance (400m) to bus stops and route frequencies. A transit needs index was created using socioeconomic and locational variables. Spatial distribution and patterns of public transit supply and needs measures were examined. A needs-gap analysis was performed particularly focusing on census tracts showing above average and high need but with low or zero transit service (gap areas). This study revealed that most service gap areas were located in the interior of the city close to the CBD where minority and low income population tends to concentrate.

PUBLIC TRANSIT, SUPPLY INDEX, NEEDS INDEX, NEEDS-GAP ANALYSIS, LOUISVILLE

"My Friend, the Fire Ant?" A Preliminary Analysis of the Role of Fire Ant in Vineyard Health

Townsend, Christi G.[1], Matthew H. Connolly[2], and Clayton J. Whitesides[3]
[1]*Texas State University,* [2]*University of Central Arkansas,* [3]*Coastal Carolina University*

Texas is one of the most prolific wine-producing states in the United States. However, both the physical and ecological environments of Texas present a number of challenges which complicate viticultural practices. Insects are particularly difficult to control and growers regularly apply strong insecticides to maintain a commercially viable vineyard. One grower claims to have observed a connection between vine health and the presence of fire ants, and asserts that individual grapevines with mounds at their base tend to be healthier than others. Consequently, the grower uses fewer applications of strong pesticides to combat other, more menacing insect pests. The purpose of this research is to investigate the grower's claim and determine whether fire ants should be encouraged as a means of integrated pest control in vineyards. We compared vineyard soil features and in-situ spectral characteristics of individual plants in two vineyards in the Brazos Valley region of Texas. Initial results indicated no statistically significant difference in vine health between the two vineyards, suggesting that the grower's decision to encourage or discourage fire ants was not important. However, analysis of the pooled vineyard data suggested that the presence of fire ants and the degree of soil compaction may influence vine health.

WINE, VITICULTURE, TEXAS, FIRE ANTS, IN-SITU HYPERSPECTRAL VEGETATION ANALYSIS, REMOTE SENSING

The Challenge of Growing Grapes in the Hill Country: An Evaluation of Changing Grower Perceptions of Natural Hazards in Texas Vineyards

Townsend, Christi G.[1], David R. Butler[1], and Richard W. Dixon[1]
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The unique landscapes of Texas presents a variety of natural hazards with which farmers contend. Vineyards in particular are especially vulnerable to these hazards. In its relatively short history, the Texas viticulture industry has experienced frequent crop losses as a result of one or a combination of natural hazards. Sometimes the losses could not have been avoided, but at other times the losses may reflect lack of knowledge or preparation. With a focus on the Texas Hill Country Viticultural Area, the research presented here is a follow-up to a study conducted in 2009. We use a mixed methods approach to investigate grower awareness of natural hazards and whether their perceptions of the most significant hazards change over time. The results suggest that viticulturists are inconsistent when considering what constitutes the most significant natural hazard in their vineyards. This inconsistency often results in the frequent mitigation of those natural hazards which may actually have a lower probability of occurrence than other, potentially more precarious hazards.

DROUGHT, NATURAL HAZARDS, TEXAS, AGRICULTURE, VITICULTURE

The Importance of Geography in Education Planning and Curriculum

Verma, Kanika[1]
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The National Research Council's 2006 report "Learning to Think Spatially" emphasized that spatial thinking is an essential cognitive skill indispensable in everyday problem-solving situations at home, work, and school. Geospatial thinking is a subset of spatial thinking in general. Geospatial thinking is using Earth space at different scales to structure problems, find answers, and express solutions using geospatial concepts, tools of representation, and reasoning processes. Research has shown that geospatial thinking can be acquired and learned and that it is malleable and can be improved with interventions. To enhance geospatial thinking, studies have suggested such interventions, as practice with spatial vocabulary and symbolic representations, geography games, GIS and cartography courses, and, of course, geography courses. My national study follows Spatial Thinking Ability Test (STAT) published by Lee and Bednarz (2012) and endorsed by Association of American Geographers (AAG) to assess the role of geography in improving geospatial thinking abilities of undergraduate students (n = 1479) in 61 public universities in the United States. The study appeals to higher education policymakers to include geography as an essential part of the curriculum.

GEOGRAPHY EDUCATION, GEOSPATIAL THINKING, POLICYMAKING

Reexamining Environmental Kuznets Curve for China's Carbon Dioxide Emissions: Evidence from City-Level Data

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Chinese central government promised to reduce its CO2 emissions intensity by 40%–45% by 2020 compared to the level of 2005. However, with limited knowledge about local CO2 emissions, the central government could hardly decompose its mitigation target to local administrative divisions. In this paper, we first interpolate the provincial CO2 emissions to prefectural cities with a combination of areal interpolation method and DMSP/OLS nighttime light data. Then, we test the EKC hypothesis with this city-level data and spatial econometric modeling. This research reveals an uneven landscape of CO2 emissions at both provincial and city scales, which suggests that a differentiated decomposition of the mitigation target should be taken in China. The city-level monotonic increasing relationship between GDP per capita and CO2 emissions per capita confirmed by our EKC test indicates that CO2 emissions would not decrease automatically as income increases. To that end, actions such as improving the energy efficiency and implementing carbon taxes should be taken to reduce CO2 emissions.

CO2 EMISSIONS, AREAL INTERPOLATION, DMSP/OLS NIGHTTIME LIGHT IMAGERY, SPATIAL ECONOMETRICS, CHINA

Sharing stories of place using family photographs and postcards

Watts, Paul[1]
[1]*Nicholls State University*

Human geographers have used photographs and other images to engage with their subjects. My work follows a similar approach of engagement but differs slightly in that the researcher and subject have a maternal bond. For this presentation, I will display photographs of my maternal grandparents' home that my mother and I use to maintain a shared sense of place. This work draws from additional qualitative methods such as semi-structured interviews and site visits to elicit why a place of our past still lingers in the present. Secondarily, I will overview notes written on postcards to and from my great grandmother in an attempt to piece together a history. Although my grandparents are gone, and their home has been sold, the photographs and postcards serve as a family archive, allowing my mother and me to reminisce together about the same place yet learn from each other's experience. Lastly, I examine the use of a family archive as a research approach to recollect people's past and share their stories about place.

SENSE OF PLACE, QUALITATIVE METHODS, PHOTOGRAPHS, ARCHIVE, STORYTELLING

Place, Naming, and Cultural Identity in the Ozark and Texas Hill Country Regions

Weaver, Russell[1]
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This paper empirically tests a conceptual model of place identity for the Ozark and Texas Hill Country regions of the United States. The model is drawn from the Appalachian studies literature, where it was developed to show that the spatial distribution of a purported "Appalachian" geographic vernacular—which consists of distinctive place names (i.e., toponyms)—predicts contemporary patterns of identity with Appalachian culture. The current paper extends this work by documenting the existence of the same geographic vernacular in the Ozark and Texas Hill Country regions. Both of these regions were destinations for out-migrants of Appalachia during the late 1800s, and thus they presumably share elements of cultural heritage with Appalachian peoples. Consequently, the production of contemporary cultural/place identity with these regions should involve processes similar to those that have been identified in Appalachia. This paper accordingly attempts to replicate the earlier Appalachian findings for the Ozarks and the Texas Hill Country. Statistical analyses do indeed reaffirm the original model, by demonstrating that the stronger the usage of the Appalachian geographic vernacular, the greater the presence of regional identity markers in the hilly and mountainous areas of Missouri, Arkansas, and Texas—controlling for a host of other variables. The results therefore convey important insights about the determinants of cultural identity with these regions.

CULTURE, IDENTITY, OZARK, TEXAS, VERNACULAR

Food Deserts in Tarrant and Bell Counties, Texas

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Access to healthy foods is a crucial determinant of good health and especially reduced obesity, hypertension and heart disease. Poor access to healthy foods is associated with high rates of chronic disease, birth defects and childhood obesity. While food deserts occur within North Central Texas, the spatial pattern and reasons for this are not completely understood. This research seeks to examine the spatial pattern of food deserts in Tarrant and Bell Counties, in Texas. Just about 3 hours apart, Bell is dominated by a military base, Fort Hood in Killeen, TX, while Tarrant is dominated by the City of Fort Worth. We use spatial and statistical analysis to characterize geographic access to WIC accepting grocery stores. The results suggest that areas characterized as food deserts are dominated by liquor stores, check-cashing places and pawn shops. Such areas should be targeted for intervention to improve the health of the community.

FOOD DESERTS, TEXAS, SPATIAL ANALYSIS, HEALTH

Trends in Academic, Government, and Industry Publishing at the Applied Geography Conferences

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The Applied Geography Conference (AGC) is an important venue that facilitates communication of applied research among academics, government employees, and industry personnel. Publications generated by the AGC highlight some of the work produced by these researchers and demonstrate the appeal of the AGC to both academic and practicing geographers. Furthermore, this diverse group of applied geographers provides exposure and opportunities to geography students seeking employment in academia, government, or industry. Recently, however, a decreasing trend in publications by government and industry geographers may jeopardize the prominence of the AGC as a venue for all types of applied geographers.

APPLIED GEOGRAPHY, EMPLOYMENT TRENDS

A Dam Worthy Centennial Celebration: Colorado's Grand Valley Diversion (Roller) Dam and the Palisade Historical Society

Widener, Jeffrey[1]
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For the past 100 years, the Grand Valley Diversion Dam has maintained a constant elevation of Colorado River water so that the Grand Valley irrigation canals, which are the lifeblood of this small and rapidly urbanizing agricultural region, could flow consistently as water levels fluctuated. In June 2015, the Palisade Historical Society held a birthday celebration, showcasing the significance of this invaluable landscape. The outreach event included guest presentations by water managers, Colorado Representatives, and relatives of former dam workers. Representatives from local organizations associated with water issues, including the Tamarisk Coalition, were present to provide advice and information to locals and visitors. In addition, the celebration included an art contest/exhibit wherein artists communicated the importance of the dam and of water in the American West. This is a community of only a couple thousand people so having around 500 visitors in attendance for the day and having 300 people take part in the cake cutting is indeed impressive. And as I ate my cake, drank my fresh, locally produced Talbott's Mountain Gold Apple Juice, and examined the fine pieces of artwork, I readily recognized just how important public humanities events such as this one are to the geohumanities—as vehicles for highlighting how we are making and can make this world a better place.

PUBLIC GEOHUMANITIES, CONJUNCTIVE WATER USE, GRAND VALLEY, COLORADO

Geologic records of Holocene typhoon strikes in the Gulf of Thailand; a forewarning of tropical cyclone activity in a warmer world?

Williams, Harry[1], Montri Choowong[2], Sumet Phantuwongraj[2], Peerasit Surakietchai[2], Thanakrit Thongkhao[2], Stapana Kongsen[2], and Eric Simon[1]
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In the face of ongoing global climate change, the ability to predict future tropical cyclone activity – and the associated risk of storm surge flooding of densely populated coastal regions – has a high priority. In this first paleotempestology study in Thailand, cores from a coastal marsh near Cha-am and beach ridge plain swales near Kui Buri reveal geologic evidence of fifteen typhoon strikes within the last 8800 years. Frequency of typhoon strikes was more than three times greater from 3500-7000 cal. yr BP compared to 0-3500 cal. yr BP. A possible explanation for this variability is that typhoons were more frequent and/or more intense in Southeast Asia in the mid-Holocene because of climatic changes associated with the Mid-Holocene Warm Period. Recent research in the Pacific suggests El Nino (ENSO) activity was suppressed in the mid-Holocene, resulting in a westward shift in tropical cyclone genesis location. As a result, tropical cyclones were more likely to follow southerly storm trajectories, making landfall in Southeast Asia, including Thailand. In the late-Holocene, periods of enhanced ENSO activity caused an eastward shift in tropical cyclone genesis location and typhoons followed more northward recurving trajectories, making landfall in Japan and Korea. Preliminary results from Thailand appear to support this model of a seesaw pattern in tropical cyclone activity between the northern and southern western North Pacific. The finding of a possible link between warmer conditions and a greater frequency of intense typhoon strikes could have important societal implications, given possible consequences of ongoing global warming.

Tropical cyclone, paleotempestology, washover, storm surge, Gulf of Thailand

Neoliberal Students in the Liberal University: The Case for Theories of Place Production as a Lens into De-radicalized Studenthood

Wolff, Jacob[1]
[1]University of New Mexico

Contextualizing the concept of studentification developed by British geographers, Hubbard, Smith, and Sage in American urban space, this paper seeks to explore the political and economic dimensions of change that have lead to the creation of student ghettos in neighborhoods directly surrounding major universities. This work builds upon the limited contemporary analyses respectively provided by Pickren, Powell, and Cunningham et al by employing a retrospective lens to university driven patterns of place production, thus elucidating reasons why these student neighborhoods exist in their present form and illuminating what function they may serve. Specifically, the role of Students for a Democratic Society in protesting Columbia University's plans to partially develop Morningside Park into a gymnasium is identified as a turning point in university administrative interaction with place. The historical evidence coupled with urban theory suggests that the transition from capital intensive renewal projects towards decentralized neighborhood redevelopment has played a role in simultaneously de-radicalizing student-hood and reproducing neoliberal ideologies in service to the state.

studentification, gentrification, neoliberalism, higher education, student movement

A Heuristic Multi-Criteria Classification Approach Incorporating Data Quality Information for Choropleth Mapping

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Despite the conceptual and technology advancements in cartography over the decades, choropleth map designs and classifications still fail to address effectively the issue that statistically indifferent estimates may be assigned to different classes on maps. Thus, areas assigned to different classes may not be really different. Recently, class separability concept was introduced as a map classification criterion to indicate the likelihood that estimates in any two classes are statistically different. Unfortunately, using this criterion will usually create maps with highly unbalanced classes, negatively affecting the usefulness of these maps. To produce reasonably separable but more balanced classes, we propose a heuristic classification approach to consider the class separability criterion and other relevant classification criteria. Using this compromised approach will produce classes that are not separable to the maximum extent, but estimates between classes should still be reasonably different statistically, and classes should be more balanced than just using the separability criterion. A visual-analytic environment was developed to support the heuristic mapping process to evaluate the trade-off between relevant criteria and to select the most preferable classification. The heuristic framework is a generic multi-criteria map classification framework that can accommodate any number of classification criteria.

class seperability, multi-criteria classification, data quality, heuristic, choropleth maps

Comparing Strategic and Opportunisitc Approaches to Land Conservation: The Case Study of the New Mexico Land Conservancy

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[1]New Mexico State University

The New Mexico Land Conservancy has protected over 145,000 acres of scenic open space, wildlife habitats, and agricultural land across New Mexico. In this paper,

strategic approaches of conserving land will be compared with opportunistic approaches across the state. Strategic methods require GIS analysis, long-term commitment, and time to succeed. Significant results have occurred in the Greater Gila Ecosystem and Corrales Region using spatially-targeted methods. However, opportunistic methods, while reactive and based on landowner inquires,have also generated significant results in other regions. This paper explores how both approaches are required for land conservation and land trusts to succeed in the Southwest.

New Mexico, land trusts, land conservation

El Cabrón: The Spring Wind of the Southwest

Wright, John[1] and Daniel Dugas[1]
[1]New Mexico State University

People all over the world have assigned evocative names to winds that give character to their landscapes and offer insight into their responses to Nature. Yet the Southwest's fierce and dusty spring wind is unnamed. We examine the causes, effects, history, and cultural significance of this wind as a defining geographic trait. After exploring the names and meanings of wind in Native American, Hispanic, and Anglo cultures, we found no commonly used descriptor for the Southwest's legendary spring wind. We offer the name El Cabrón, then provide context for this seemingly crude choice as a humorous, cross-cultural, and psychologically useful adaptation to the challenges faced by diverse residents of the Southwest.

names of winds, cultural adaptation, Southwest's spring wind, El Cabrón

Spatial Analysis of Poverty Cluster and Green Space Locations in Urban Communities: The Case of Toledo, Ohio

Yamoah, Owusua[1] and Bhuiyan Alam[1]
[1]University of Toledo

Parks are generally considered critical components of the built environment because of their strong linkages to health and exercise, and because of the benefits they provide as spaces for recreation, social activities, and relaxation. While some studies have documented limited physical accessibility to green spaces in urban areas by poor neighborhoods, this paper, using spatial autocorrelation techniques, explores that spatial association exists between the locations poverty clusters and parks in Toledo, Ohio. Our findings show that global Moran's I index indicates a positive correlation between poverty levels and park locations. Additionally, local Moran's I indicator indicates that areas with clusters of higher poverty levels have smaller park sizes compared to the areas with relatively low poverty levels. Based on the findings of the study, we argue that physical accessibility is not an effective technique for measuring spatial association between the locations of parks and low income households. The study finds that size of the parks, amenities within the parks, and economic and social accessibilities are relevant factors to be considered while analyzing the spatial association between poverty clusters and locations of park spaces in urban communities.

accessibility, poverty clusters, parks, spatial autocorrelation

Accounting for spatiotemporal inhomogeneity of urban crime in China

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The omission of inhomogeneity for analyzing spatio-temporal trends of a point process may lead to wrongful conclusions regarding the spatio-temporal trends of how geographic events distribute and evolve in localized contexts. To address this issue, we apply an Inhomogeneous Point Process (IPP) to address the context of a point process which is non-constant in spatial and temporal intensity. Extending from the widely used Ripley's K function, which is often used to detect spatial cluster in a point pattern, we discuss here a spatio-temporal inhomogeneous K function (STIK). To illustrate the usage and the effectiveness of using STIK to analyze point processes, we present a series of analyses using the locations of reported urban crime in Wuhan, China.

Inhomogeneous Point Process, spatio-temporal inhomogeneous K function, urban crime

Spatial Structure Of Innovation Capability In Guangdong, China

Yi, Weihua[1]
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The ability to innovate is important in today's economic development because creativity and research and development (R&D) often led to new products, new added values, or new uses of existing or improved products. In the context of fast-paced economic development that China has in recent decades, we examined the spatio-temporal trends of the ability to innovate in Guangdong. From analyzing the information of patent applications between 1990 and 2013, we concluded that there existed spatial and temporal clusters of innovation activities in Guangdong. The spatial structure of innovation showed a dichotomy of hot spots and cold spots. Over time, a spill-over effect as shown in the patent applications suggested that diffusion of innovations had already taken place. Findings from this study should assist the formulation of regional policies for promoting innovation ability in Guangdong, China.

innovation ability, spatial distribution, agglomeration, spillover effect

New Trends and Forces of Highly Skilled Migration: The Asian Experience

Yu, Wan[1]
[1]Binghamton University

Globalization has resulted in an increasing global race for talent in recent decades. The U.S. increasingly hosts the largest number of international students in the world and continues to accommodate the skilled

college graduates in its job market. These skilled migrants pose different migration patterns when transitioning from international students to skilled workers. Their movements have strong impacts on both sending (origins) and destination countries, including the brain drain, brain gain, and brain circulation. This talk examines the decision-making process of these Asian migrants during the transition period, which is when they must face a return to their homeland or stay at their destination. Coping mechanisms and decision making have substantial geographic and socio-cultural impacts.

ASIAN MIGRANTS, SKILLED LABOR, SOCIAL CAPITAL

Temporary Group Housing Sites As A Catalyst for Landscape Change and Development in Post-Katrina Louisiana

Zavar, Elyse[1], Ronald Hagelman[2], and Benjamin Prince[2]

[1]Southern Connecticut State University, [2]Texas State University

To shelter the large proportion of displaced households following Hurricane Katrina (2005), the Federal Emergency Management Agency (FEMA) in conjunction with state and local governments, established temporary group housing sites throughout the impacted region. The 110 temporary group housing sites in Louisiana consisted of mobile homes on private and public properties. Employing Molotch (1976) growth machine framework, this study explores how temporary group housing sites influenced the urban landscape, particularly in terms of development. Using aerial imagery, we identified the landscape of each site in 2004 and 2010, which is five years after the initial landfall of Hurricane Katrina and approximately three years after the closure dates of the group housing sites in Louisiana. Of the 110 group housing sites, 55 percent reverted to the previous landscape, 29 percent returned to the previous landscape with improvements (i.e. freshly painted basketball courts), and 16 percent of the sites changed landscape (i.e. new housing development on previously vacant land). Using Census data from 2000 and 2010, site characteristics, and property records, this study employs a multinomial logistic regression to identify the statistically significant variables in predicting landscape change in post-Katrina Louisiana.

POST-DISASTER DEVELOPMENT, LANDSCAPE CHANGE, HURRICANE KATRINA

Educational Experiences of US Born Mexican Children Returned to Mexico

Zenteno, René[1]

[1]University of Texas at San Antonio

In the current era of border fortification and deportation it is not uncommon to find school-age children who were born in the US living in Mexico. In the last decade over two million Mexicans have been deported, and hundreds of thousands of their US-born children accompanied them. This situation has implications for the educational success of these children. The current study investigates these implications, addressing several questions. How do non-economic factors shape the children's educational attainment and subsequent social mobility back in Mexico? What socio-economic advantages and disadvantages are associated with such attainment? Do Mexican schools produce a higher degree of social stratification? Given the high incidence of eventual return to the US, are these children disadvantaged relative to US born Mexican children who have remained in the US? US and Mexican census data reveal the magnitude of these trends and suggest their consequences for the advancement of the second generation and for educational programs in Mexico and the US.

CULTURE, IDENTITY, OZARK, TEXAS, VERNACULAR

Development of an Environmental Health Indicator

Zhan, Benjamin[1], Xi Gong[1], Jean D. Brender[1], and Peter H. Langlois[1]

[1]Texas State University

Estimates indicate that there are over 75,000 different chemicals available on the market today. Some of these chemicals are widely dispersed in the environment. These chemicals may adversely affect human health. The US Centers for Disease Control and Prevention (CDC) has spearheaded the development of a list of environmental public health indicators to support surveillance and environmental health research. The World Health Organization (WHO) has a similar initiative. In addition to supporting environmental public health surveillance, one important goal of developing environmental public health indicators is to help effectively communicate potential associations between exposure to environmental hazards and health outcomes to the general public. To achieve this objective, it is desirable for an environmental health indicator to contain information about all four components in the Hazard - Exposure - Health effect - Intervention structure. Current existing environmental health indicators mostly only contain information about one of the four components. We report the development of an environmental health indicator that incorporates three components (hazards, exposure, and health effects) in this presentation. In addition, we illustrate the indicator through a case study in Texas that focuses on air pollution, maternal exposure to air pollutants, and congenital malformations in offspring.

GIS, HEALTH, ENVIRONMENT, AIR POLLUTION, BIRTH DEFECTS PREVENTION

Infrastructure Condition Assessment Based on Low-cost Hyper-spatial Resolution Multispectral Digital Aerial Photography

Zhang, Su[1] and Christopher D. Lippitt[1]

[1]University of New Mexico

Infrastructure condition information is critical for effective asset management. Infrastructure managers

are tasked with regularly assessing asset conditions to make effective maintenance, repair, and rehabilitation decisions. Currently there are two types of methods broadly adopted for infrastructure condition assessment, including on-site evaluation methods and airplane-based observation methods. On-site evaluation methods are expensive, labor-intensive, time-consuming, potentially dangerous to inspectors, inconsistent, and requiring specialized staff on a regular basis. Airplane-based observation methods can provide reliable overall condition information for ground infrastructure assets such as roadways, bridges, dams, or buildings, but the spatial resolutions of 0.075-meter (3-inch) to 1-meter are insufficient to examine detailed asset conditions such as individual cracks on a pavement surface or on a bridge. Using roadway pavement assets as an example, this research explored the utility of hyper-spatial resolution (3-milimeter) multispectral digital aerial photography acquired from a low-altitude unmanned remote sensing system to permit characterization of detailed surface distress conditions. With the help of orthogonal regression analysis, detailed pavement surface distress rates manually estimated from hyper-spatial resolution multispectral digital aerial photography were compared to reference pavement distress rates manually collected on the ground. The results show that the hyper-high spatial resolution imaging techniques provide detailed and reliable data suitable for informing infrastructure system management decisions. These results open the way for the future application of low-cost hyper-spatial resolution digital aerial photography for automated assessment of detailed infrastructure system condition.

INFRASTRUCTURE CONDITION ASSESSMENT, LOW-COST, HYPER-SPATIAL RESOLUTION, DIGITAL AERIAL PHOTOGRAPHY

Impacts of LiDar Sampling Methods and Point Spacing Density on DEM Generation

Zhao, Chunhong[1], Jennifer Jensen[1], and Xiangzheng Deng[2]
[1]Texas State University, [2]Chinese Academy of Science

Light Detection and Ranging (Lidar) technology is gradually being adopted as the primary technique for surface structure derivation. During the collection mission, there is an over-sampling problem in terms of the sampling methods and. In this study, we designed three sampling methods (systematic sampling, simple random sampling, and stratified random sampling) to select point samples with different density from the original Lidar data at Freeman Ranch in the Texas Hill Country, US. Subsequently, sensitivity analysis was conducted form three aspects: point elevation, mean slope and visualization area of DEM. For the three sampling methods, the mean point elevation would change considerably when the point density is less than 2%. In addition, when point density is less than 1%, the sharp of the elevation variogram changed greatly. On the whole, the stratified random sampling is better than random sampling and systematic sampling. However, taking the computation efficiency into account, systematic sampling is ideal for its relatively faster processing time. In terms of the minimum required LIDAR data density, the point density with point spacing of 12.9 meters (the point density > 2%) is enough for high resolution DEM generation in this case.

LiDAR, POST PROCESSING, POINT SAMPLING, DEM, SCALE

Spatio-Temporal Analysis of Religious Establishments in China: A Case Study of Zhejiang Province

Zhao, Huanyang[1]
[1]Kent State University

This research examines the diffusion process of the institutional development of the three major religions (i.e., Buddhism, Daoism, and Christianity) in Zhejiang Province, China since the year 1949. By utilizing analytical tools in geographic information systems and statistical analysis software, a spatio-temporal analytical approach was implemented to determine the specific diffusion process associated with the development and regional distribution of the religious establishments. The results revealed a hierarchical diffusion process as well as the explicit connections between the institutional development of the studied religions and the political events occurred during the associated time period.

SPATIO-TEMPORAL ANALYSIS, INDIGENOUS & FOREIGN RELIGIONS IN CHINA, DIFFUSION

Assessing the Accessibility Impact of the Proposed High-Speed Rail Between Dallas and Houston

Zhao, Yun[1] and Hongbo Yu[1]
[1]Oklahoma State University

High speed rail (HSR) generally refers to intercity rail service that is capable of reaching speed higher than 155 miles per hour. With the launch of the stimulus bill by the Obama administration in 2009, the United States is implementing ambitious plans to build HSR in 13 corridors nationwide. Texas is at the forefront of HSR development with its proposition on a future HSR line that will connect Dallas and Houston in under 90 minutes. This paper seeks to explore the accessibility impact of the proposed Dallas-Houston HSR line with the help of GIS-based models. More specifically, this study will focus on addressing the following questions: 1) How accessible are the proposed HSR stations in relation to distribution of population and employment in Dallas and Houston? 2) What are the catchment areas of the HSR station based on existing public transit network as well as the walkability of street network? 3) What is the accessibility impact of the HSR line on travelers between Dallas and Houston compared to other existing modes, i.e. airline and road? The result of this study can help city and transport planners to gain better understanding of the potential accessibility impact of the proposed HSR line.

HIGH-SPEED RAIL, HOUSTON-DALLAS

Promoting Adoption of Pre-Fabricated Bamboo Module Housing in Earthquake Rural Areas in China

Zhao, Yuxi[1] and Suying Li[2]
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This project aims to promote affordable earthquake resistant housing in China's four earthquake prone rural areas through local bamboo utilization. China has 1/3 of the world's continental earthquakes and 1/2 of the world's earthquake casualties. Recently, bamboo—China's traditional, low-cost, sustainable, energy efficient, and most importantly earthquake resistant building material—has been industrialized, standardized and commercialized into engineered products in developed countries. Since 2008, the International Network for Bamboo and Rattan has marketed pre-fabricated bamboo modular housing. As a result, with its abundant bamboo resources and cheap labour, China exports 54% of the world's bamboo construction materials currently in using. Why does China not enjoy its own engineered bamboo production? This project (1) identifies the significance and magnitude of factors influencing the adoption of pre-fabricated bamboo module housing in four rural earthquake zones in China; (2) determines current prototypes' "key" attributes chosen by local residents, as well as their preference and utility levels of these attributes; (3) makes recommendations on local market oriented redesign based on the budgets and real needs of local residents; (4) proposes potential marketing strategies, financial assistance programs, and policies to encourage adoption and local bamboo use

EARTHQUAKE, LOCAL RESOURCES UTILIZATION, BAMBOO PRE-FABRICATED MODULE HOUSING

The Changing Fortunes of Money Centers: A Comparison Study of the Traditional and New Bank Reserve Centers of the United States

Zhou, Bin[1]
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Money centers are cities where major banking organizations act as the banks' bank, receiving deposits from other banks and dealing with corporate clientele. The last few decades have seen fundamental banking geographical deregulation and the changing geography of the banking industry of the United States. The changing geography of money centers is part of this story. This study investigates the changing fortunes of money centers in the United States including the traditional money reserve centers such as the Chicago, San Francisco, and New York metropolitan areas, and a new money center, the Charlotte metropolitan area. The specific research focus is on the changing roles of these money centers as interstate banking markets and interstate banking control centers between 1994 and 2013. 1994 is when state-centered geographical deregulation was succeeded by federal legislation relating to banking geographical deregulation, as embodied in the Riegle-Neal Interstate Banking and Branching Efficiency Act of 1994. 2013 is when this study began using the latest data available. The study takes the stock of changes during this period of 20 years, and maps out and analyzes characteristics of the changes in the geography of interstate banking associated with these cities.

MONEY CENTER, INTERSTATE BANKING, BANKING GEOGRAPHICAL DEREGULATION

Poster abstracts
By name of the first author

Effect of western spruce budworm on throughfall carbon, nitrogen, and phosphorus fluxes in a central Washington forest

Bailey, Jennifer[1], Alexandra Ponette-González[1], and Clay Arango[2]
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Western spruce budworm (Choristoneura occidentalis) outbreaks represent a periodic disturbance in central Washington State. Budworms can cause near to complete defoliation of conifer forest canopies, altering the quantity and chemical composition of water delivered to the forest floor. The goal of this research is to quantify throughfall carbon (C), nitrogen (N), and phosphorus (P) fluxes under spruce budworm-impacted canopies and examine the influence of herbivore intensity on the magnitude of these fluxes. In June 2015, we installed throughfall collectors (water that drips from the canopy to the forest floor) beneath forest canopies dominated by Douglas fir (Pseudostega menzeisii) and Grand fir (Abies grandis) in two watersheds experiencing high and low levels of canopy herbivory. In both watersheds, four plots, each with three throughfall collectors, were established. In addition, two bulk rainfall collectors were established at each site in areas with no canopy cover. Throughfall and rainfall will be collected until December and analyzed for dissolved organic carbon, total N, inorganic N (NO3- and NH4+), total P, and inorganic P (PO43+). Organic N and P will be determined by difference (total – inorganic). This poster will review previous studies on canopy herbivore impacts on throughfall water, chemical composition, and flux to the forest floor. Such impacts have potential to affect nutrient cycling in soils and streams.

CANOPY, THROUGHFALL, BUDWORM, FLUX, DISTURBANCE

A Landslide susceptibility model using Fuzzy Multi-Criteria and a Probability Distribution Function in Southern California

Bibriven, Lila[1]
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Landslides and other forms of mass movements are increasingly becoming a problem for millions of people and property around the world. In the US alone, landslides cause damages in excess of 2 billion dollars and 25-50 deaths annually. To reverse these trends, urban and city planners need to be able to select suitable locations for the implementation of development projects such as housing, resorts, and roads. For such reasons, complex landslide susceptibility mapping models (LSMM) have immerged over the years, in an effort to access landslide susceptibility for different regions of the world. This study presents a methodology for landslide susceptibility mapping and zonation based on Frequency of landslide occurrence using a multi-criteria decision analysis (MCDA) in association with fuzzy measures (FM) for Ventura, Santa Barbara, and Los Padres in Southern California. Multi-criteria decision analysis is perhaps the most fundamental of decision support operations within a geographical information system setting. In order to achieve the goal of a successful landslide susceptibility model, a data driven model of landslide occurrence frequency (LOF) and a knowledge base model (KBM) of fuzzy operators were combined for landslide susceptibility modeling. Fuzzified membership classes of landslide conditioning factors were integrated using a variety of fuzzy algebraic operators resulting in a landslide susceptibility maps classified from very low to very high. The model accuracy was validated by computing the Receiver Operator Curves (ROC). Among the Fuzzy operators, the gamma operator performed best at gamma value (γ - 0.9) and had an (ROC) accuracy of over 80%.

LANDSLIDE, FUZZIFICATION, MULTI-CRITERIA, KNOWLEDGE-BASE, ALGEBRAIC OPERATORS

Rainfall Interception by Urban Trees in Two Contrasting Environments

Bradford, Caitlin[1] and Alexandra Ponette-González[1]
[1]*University of North Texas*

Rainfall interception by urban trees is thought to play an important role in mitigating urban storm water runoff. Our goal in this study is to quantify rainfall interception by oak trees in two contrasting environments, a university campus and urban forest. In the City of Denton, Texas, we measured throughfall (water that falls through tree canopies) beneath four separate oak trees on the University of North Texas campus and beneath four oak trees in dense urban forest patches. Sampling was conducted from April 2015 through October 2015, and included the second wettest consecutive two-month period in Denton since 1913. In April and May, our study sites received an average of 195 mm and 323 mm of rainfall, respectively, compared to monthly normals of 83 mm and 130 mm. In this poster, we will quantify rates of canopy interception loss (interception = throughfall – rainfall) by all sample trees (n=8) and examine whether canopy interception rates differ between campus and urban forest environments. We will also analyze how the intensity of individual rainfall events affects interception. Our findings have implications for urban greening efforts that seek to reduce stormwater runoff and associated water pollution.

INTERCEPTION, THROUGHFALL, RUNOFF, URBAN, RAINFALL

Trends and Characteristics of North Atlantic Tropical Cyclones

Brasher, Saber[1]
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This study examines the trend in accumulated cyclone energy (ACE) for the North Atlantic Ocean over the period of 1912 to 2014. Trends in North Atlantic tropical cyclones and major North Atlantic tropical cyclones (Saffir-Simpson scale 3-5) will also be addressed. In addition, we provide a statistical description of the characteristics of North Atlantic tropical cyclones as a means of documenting their inter-annual variability.

North Atlantic, tropical cyclones, accumulated cyclone energy, statistical analysis

Multiple Endmember Spectral Mixture Analysis applied to a Piñon-Juniper Woodland

Brewer, Will[1] and Caitlin Lippitt[1]
[1]*University of New Mexico*

Piñon pine and juniper (PJ) communities have suffered widespread die-off from drought throughout the Southwest. However, piñon pine has shown a greater susceptibility to drought related mortality than juniper. Accurate estimates of piñon die-off are needed for future range-land management. To provide estimates of piñon die-off on a regional scale, accurate discrimination between piñon and juniper on remotely sensed imagery is needed. In an attempt to solve this issue, we collected field spectra of live piñon, live juniper, dead piñon, dead juniper, herbaceous, and soil and then applied a Multiple Endmember Spectral Mixture Analysis fusion model (MESMA) using the field spectra to Landsat imagery collected over the Deer Creek Plateau, NM. Individual modeled estimates of GV (piñon and juniper) NPV, and soil were then assessed for accuracy using a point intercept method on 5-10 cm high resolution imagery collected over the same study site. Results indicate MESMA holds promise to improve discrimination between piñon and juniper, but further spectra collections are needed to identify the ideal phenological time period.

Multiple Endmember Spectral Mixture Analysis, landsat, Piñon-Juniper, Southwest, remote sensing

The Rise and Fall of the Fire Lookout Network in Glacier National Park, Montana.

Butler, David R.[1]
[1]*Texas State University*

Glacier National Park, Montana, currently has nine existing Fire Lookouts within its border, of which four or five are still staffed during summer fire seasons. Additionally, two currently operated U.S. Forest Service Lookouts offer distant views into the margins of the northwestern region of the Park. Historically, however, Glacier Park had a widespread network of more than twenty Lookouts either within or adjacent to its boundary. Early Park Lookouts were simply high points on the landscape. These were followed by wooden pole structures, built prior to the present generation of Lookouts initiated in 1929. A collaborative Lookout network existed with the Flathead National Forest on the western park boundary, and with the Blackfeet Indian Reservation on the eastern edge of the Park. The Blackfeet Indian Service operated four different Lookouts during the 1930s into the 1950s at various times, and more than a dozen Lookouts were under the auspices of the Flathead National Forest. Additionally, the National Park Service also staffed several emergency lookout sites within and adjacent to the Park, from high elevation overlooks and along roadways, during times of high fire danger. Most of Glacier Park was visible from at least one of the Park or collaborative Lookouts, with only a few blind spots in the south-central region. A change in fire protection policy in the 1950s that favoured aerial observations led to the abandonment and, often, the destruction of many of the Lookouts during the 1960s.

fire lookout, Glacier National Park, Montana, historical geography, fire protection

High Levels of Troposheric Ozone Linked to the Advection of Southerly Air for the Konaz Prairie in Kansas

Cirnu, Livia[1] and John Harrington, Jr.[1]
[1]*Kansas State University*

Tropospheric ozone impacts human health. This study reports on a synoptic climatological analysis doe high ozone levels recorded at the Konza Prairie Biological Station (KPBS) in the Kansas Flint Hills.Spring grassland burning (primarily April) takes place in the Flint Hills. Until 2013, a sensor at the KPBS, monitored ozone levels. Based on a few ozone exceedances that occurred on days of grassland burning, discussion about regulating grassland burning has occurred. The ozone monitor at KBPS was established for scientific data collection purposes and given the conversation about using the data to address compliance issues, the monitor was shut down. The current EPA threshold for an ozone exceedance is 75 ppb. Statistical analysis indicates the highest frequency of ozone exceedances in the summer (outside the typical grassland burning timeframe) and that highest levels were not linked to burning by local ranchers. A composite mapping tool was used to plot wind vectors and other atmospheric factors relevant for determining regional wind flow patterns. Findings indicate that most of the ozone exceedance values occurred in the summer time when atmospheric conditions are more likely to enhance the production of tropospheric ozone and advect that air into northeast Kansas.

tropospheric ozone, synoptic climatology, Flint

The Effect of Grazing and Fire on Plant Species Diversity of Tallgrass Prairies

Clark, Elliott[1] and Scott C. McConaghy[1]
[1]*Texas A&M University*

One of the major elements to determine the stability of an ecosystem is through measuring the plant species diversity. The specifics on what consists of an ecosystem are still being considered and the optimal level of diversity and disturbance varies with each ecosystem, but the common thought is that

intermediate levels of disturbances and productivity generate the highest levels of plant diversity. This experiment attempts to measure and record the difference in plant diversity in grasslands that were grazed by bison against grasslands that were only burned at set intervals. This study was performed at Konza Prairie Biological Station in eastern Kansas along similar topographical levels to reduce the variation and focus on the effect the disturbances create. Plant species were observed and recorded in every plot before being clipped and dried to measure productivity. One series of the plots came from grasslands grazed by bison and burned at set intervals and the other series of plots originated from burned only grasslands. Our results indicate that there is a difference in plant species diversity between plots that are just burned and plots that are grazed by bison. This knowledge can be applied in the future to help maximize biodiversity across a range of ecosystems.

BIODIVERSITY, GRASSLANDS, FIRE, GRAZING

Impact of Drought on Agricultural Production in Oklahoma

Ederer, Morgan[1] and Jad R. Ziolkowska[1]
[1]*University of Oklahoma*

Recent droughts have significantly affected many regions in Oklahoma, especially the agricultural sector in the Oklahoma Panhandle. The contributions of the agricultural sector to the total Gross Domestic Product in the state have been declining over years, which might be interpreted as an indicator of changing production patterns.This research presents a closer perspective on trends occurring in the agricultural sector and changing production trends as a result of drought. For the analysis, we evaluated time series data on precipitation and agricultural outputs in 2006-2015 for five main crops grown in Oklahoma: wheat, corn, barely, pecans, and hay. The analysis is based on data bases from NOAA National Center for Environmental Information, National Agricultural Statistics Service, and crop enterprise budgets from the Oklahoma State Extension Service.In Oklahoma, the results show regional impacts of extreme drought in main areas of agricultural production from 2011 to 2012 with annual precipitation lows of 16 inches in the Southwest and West Central, and 11 inches in Oklahoma Panhandle. Drought had considerable impacts both on agricultural output and agricultural prices that skyrocketed in 2011-2013 for all the analyzed crops, with 44% increase in wheat prices between 2006 (relatively wet year) and 2011 (dry year). Despite the increased prices, drought negatively affected agricultural output and raised production costs, which resulted in lower net returns from agricultural production in most scenarios. Understanding economic impacts of drought can help with preparing for potential extreme weather events in the future.

DROUGHT, AGRICULTURE, OKLAHOMA

Assessment of Risk of Debris Flow Events, Glacier National Park, Montana

Engells, Laura[1] and David R Butler[1]
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Over the past twenty years, a series of debris flow events have impacted Glacier National Park in northwest Montana. In spite of this history of recent debris flow events, a dearth of research has left park managers with little data to determine if these debris flows are randomly or regularly occurring events. With aerial photography and landscape analysis, research will be able to answer the following questions: 1) What areas are prone to debris flows in a study area within Glacier National Park? 2) Are these debris flows randomly or regularly occurring events? and 3) How do these events impact the environment of the park, in particular, how susceptible are hiking trails to debris flow run out? Utilizing aerial photography from Google Earth, hiking trails within the Ptarmigan Lake and Iceberg Lake drainage basins were identified as being vulnerable to debris flow events. When analyzing measures of frequency, intensity, and environmental impact of the debris flow events, three time periods were chosen from available aerial photos to provide bracketing dates for debris flow events: 1991, 2005, and 2014. Research indicates debris flows are regularly occurring events, prompting a need for a change in the emergency management techniques for the park, its patrons, and the surrounding areas.

DEBRIS FLOW, DEBRIS FLOW RUN OUT, AERIAL PHOTOGRAPHY, GOOGLE EARTH, GLACIER NATIONAL PARK

Climate Change Framing in the New York Times

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While the threat of climate change grows stronger along with the consensus of scientists about the certainty of anthropogenic causes, researchers observe an opposite effect in the public's acceptance of climate science and the media's presentation of climate change. Past analyses of climate change communication in the media reveal societal problems regarding the acceptance and denial of climate change, the inaction of climate change mitigation, and the misunderstanding of climate science. Additionally, the presentation of climate change within the media has been shown to influence the public's perception of such issues. This study investigates the relationship between the way people understand the issue of climate change and the presentation of climate change in the media based on frames, defined as interpretive schemes that imply particular approaches to problems, their causal relationships, and potential solutions. This content analysis of the New York Times' climate change articles between 2001 and 2013 developed a coding scheme for climate change framing within the media and identified the differences between how climate change was communicated within those frames. The six frames outlined in this study are Environmental Impact, Economics/Business, Future/Health/Life/Food, Political Party, Government/Poli-cy/Education, and

Weather/Natural Disaster. The apparent division between the public, the media, and science has a negative impact on the potential of society to take action in the face of climate change. It would be helpful to further study the way the public perceives the communication of climate change within those frames to understand the impact of these frames on knowledge about climate science.

CLIMATE CHANGE, FRAMING, MEDIA, NEW YORK TIMES, GLOBAL WARMING, ENVIRONMENT, COMMUNICATION

A service accessibility; Geographic accessibility to Down Syndrome and special needs services in the Brazos Valley Region, Texas, USA

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Down Syndrome is a genetic condition that affects nearly 1 in 700 newborns each year. These individuals require additional care and specialized education in order to develop into self-sufficient adults. According to birth rate statistics for the United States, there are approximately 500 people living with Down Syndrome in the Brazos Valley. However, there are only 18 support organizations currently providing services for this population. Worse, these organizations are confined mostly to the Bryan-College Station metropolitan area. The Down Syndrome Association of Brazos Valley (DSABV) in Bryan, Texas is the focal point of the Down Syndrome community in the region. Based on its central importance we measured the Euclidean distance between the DSABV and cities in this region. In order to do this we used the Near Distance tool in ArcMap. Our results showed that on average there is a distance of 34.72 miles between cities and the DSABV. This can translate to a 30 minute to an hour long commute to access these services. This displays that there is a lack of access to necessary services for a significant number of people with Down Syndrome in the Brazos Valley region.

DOWN SYNDROME, BRAZOS VALLEY, ACCESSIBILITY, GIS, SPECIAL NEEDS

Comparing the ability of Suitability Models to Accurately Identify Prehistoric Agricultural Fields in New Mexico

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This research aims to provide a deeper understanding of the agricultural practices of prehistoric cultures in the arid environment of western New Mexico. Specifically, it focuses on a form of agricultural practices termed “ak chin”, which translates to “mouth of the arroyo” where agriculture was made possible in such unwelcoming environments. This type of agricultural field is difficult for archaeologists to identify when conducting fieldwork since minimal modifications were made to the land prehistorically. This research utilizes six environmental and archaeological characteristics of the known fields and uses remote sensing and ArcGIS software to compare the abilities of three different suitability models in identifying these fields. The research methods presented here aim to answer the question: how well do remote sensing suitability models perform in identifying ak chin style agricultural fields? The results of this research are expected to provide a variety of potential field locations within similar environmental and archaeological contexts.

ARCHAEOLOGY, AGRICULTURE, SUITABILITY MODELING, REMOTE SENSING

Possibilities for Integrated Water Resource Management in the Rio Grande River Basin – An Exploratory Study

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The Rio Grande River Basin spanning over Colorado, New Mexico, Texas, and Mexico presents a big challenge in terms of efficient water management. Few coordinated laws and rules governing water rights, and a multitude of water authorities controlling the use of water in the river basin unfavorably impact decision-making processes aimed at improving efficiency of water allocation. Moreover, growing population in adjacent cities and the resulting increase in water demand as well as simultaneously shrinking water resources create a need for targeted actions and establishment of an integrated water resource management system.Comprehensive literature overview and contingent valuation methodology (including surveys with water managers, stakeholders, and local communities in ten selected reaches of the Rio Grande) will be used to monetarily estimate ecosystem services of the river as well as changes in social well-being subject to changing water availability. This research will help decision-makers improve resource allocation to maximize economic and social welfare, while maintaining sustainability of crucial ecosystems.

RIO GRANDE RIVER BASIN, WATER MANAGEMENT, WATER ALLOCATION, SOCIO-ECONOMIC ANALYSIS

Using NASA Earth Observations to Analyze Heat and Light Pollution in Urban Environments

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Two of the most visible aspects of urbanization are light pollution and heat pollution. Light pollution occurs when an area is lit by artificial lighting at night. The artificial light can make the sky much brighter than the normal nighttime lighting levels and disrupt circadian rhythms of many nocturnal species. Light pollution can also impact human society by disrupting our circadian rhythms. It can affect an area for more than 50 sqkm around a major urban area. Heat pollution is otherwise known as the “heat island effect”. This effect is caused when the rural areas surrounding a city cool off quicker than the city itself. This can lead

to a host of ecological problems such as delaying or even halting migration of avian species. The "heat island" effect can impact humans by not allowing an area to cool at night leading to an increased risk of heat exhaustion. Using Denver (CO), New Orleans (LA) and Oklahoma City (OK) as study areas, this project analyzes these effects in areas that have varying climates, topography and urban growth. We evaluated day and night land surface temperature data from the Moderate Resolution Imaging Spectroradiometer (MODIS) and the Visible Infrared Image Suite (VIIRS) day/night band, to determine the light and heat impacts of these urban areas on their surroundings. We compared the geographic extent of these impacts for these different cities. We also used census variables such as population, household income and land use data to account for socioeconomic differences between the cities.

MODIS, VIIRS, LIGHT, POLLUTION, URBANIZATION

Breakpoint Analysis with the BFAST algorithm in global vegetation index

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Detecting abrupt changes in time series of remotely sensed data is an important approach to monitoring land use and land cover change. Time series change detection can be used to analyze several types of data including temperature, carbon emissions and NDVI. There are several statistical methods to detect breaks in time series. Breaks for Additive Seasonal Trend (BFAST) uses an additive decomposition model to differentiate trend, seasonal and noise components in a time series and determines moments of abrupt change in the overall trend. BFAST was published in 2010 and has been validated with Normalized Difference Vegetation Index (NDVI) time series from Moderate Resolution Imaging Spectroradiometer (MODIS). Applying BFAST to the Global Inventory Modeling and Mapping Studies (GIMMS) NDVI product will allow us to compare and evaluate break detection methods that have been validated with MODIS NDVI. The GIMMS3G product is a global bimonthly NDVI data set, extending from July 1981 to December 2011, and is derived from the Advanced Very High Resolution Radiometer (AVHRR) onboard 7 different NOAA (National Oceanic and Atmospheric Administration) satellites. In comparison to MODIS, the GIMMS product has a longer NDVI time series, and the data are from several satellite sensors. In this study, we will use BFAST on the global GIMMS3G product to test the sensitivity of the BFAST algorithm in determining break changes.

TIME SERIES, CHANGE DETECTION, NDVI

How do agricultural heat and solar radiation resources change in Northeast China?: A multistage spatio-temporal analysis

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Climate change has changed the distribution of climate resources in crop growing season, and caused some impacts on agricultural production. Based on daily meteorological data collected at 71 meteorological stations in Northeast China, trends at multi-temporal scales (decadal, annual, monthly, and ten-day) and spatial patterns of heat resources (temperature, frost-free period (FFP)) and solar radiation resources (growing season's sunshine-hour (GSS)) are estimated over the period 1961-2012.The period of 2000-2012 has been successively warmer than the previous decades with higher mean values for both temperature and FFP, and temperature had an abrupt increasing change in the 1980s. An increasing trend was identified for the daily mean temperature in the study area, with the trend value (0.30oC/decade) double the global warming rate (0.14oC/decade). As the last frost date advanced by 1.9d/decade in spring and the first frost date delayed by 1.6/decade in fall, FFP increased by 17.9d in recent 52 years with the average trend value 3.5 d/decade. Temperature in February exhibited the highest increasing rate; furthermore, the maximum temperature trends occurred in the last ten days of February at most stations. Daily sunshine hours decreased in June, July, and August, but GSS showed small changes at decadal and annual scales because of the prolonged FFP. In summary, climate change has prolonged FFP, increased the heat resource, and slightly changed solar radiation resource during crop growing season, which is beneficial for agriculture in Northeast China.

MULTI-TIME SCALE, CLIMATE CHANGE, AGRICULTURE, HEAT RESOURCES, SOLAR RADIATION

Fractional Snow Cover Mapping through Polytopic Vector Analysis of MODIS Spectral Reflectance

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Fractional Snow Cover (FSC) mapping computes the fraction of snow within a pixel of remote sensing imagery. Compared to binary identification of a pixel as snow or not, FSC presents a more precise snow cover extent estimate. Linear mixture analysis has been commonly adopted to map FSC and extensive algorithms have been developed using this method. Polytopic Vector Analysis (PVA) is an alternative to linear mixture analysis, which was developed in the 1970s to analyze geological mixtures. Both, linear mixture analysis and PVA attempt to identify spectral mixture endmembers and compute their corresponding fractions within a pixel. However, PVA has some

advantages over the standard linear unmixing method, which include that the generic PVA approach guarantees each endmember fraction falls in realistic range the range 0-1 and PVA selects endmembers in a more objective way, which is automatically determined in the process. This study is to investigate the feasibility of applying PVA in mapping FSC. The PVA algorithm is developed in python, and will be tested by using MODIS atmospherically-corrected spectral reflectances. The resultant FSC extent will be compared with those generated from other state-of-art algorithms.

POLYTOPIC VECTOR ANALYSIS, FRACTIONAL SNOW COVER, REMOTE SENSING

Mapping stream networks in New Zealand using climate, geology and source of flow.

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Accurate stream network delineation is necessary for identifying source areas of runoff and assessing fluxes of water, sediment, organics, and nutrients. The most common methodology employed by watershed models is the minimum area threshold method, a single flow accumulation value representing the origin of streams. However, uniformly applying the same threshold across physiographically diverse landscapes can result in considerable under- or over-estimation of stream density. In this study, we developed a method to map stream channels in New Zealand based on multiple landscape characteristics: a) Climate (dry, wet, extremely wet), b) Geology (alluvium, hard-sedimentary, soft-sedimentary, volcanic, plutonic, and miscellaneous) and c) Source-of-flow (glacial-mountain, mountain, hill, low-elevation). From these variables, we derived 56 unique Runoff Regions that contained a total of 75,565 3rd-order streams. We then sampled 1% of the 3rd-order catchments for each runoff region, and subsequently mapped headwaters using 0.5-m satellite imagery. Every headwater node was assigned a flow accumulation value based on a 15-m Digital Elevation Model. Using this reference dataset, a multi-threshold stream delineation was performed in which the beginning of a stream on every 1st-order catchment was decided whenever a pixel had the same flow accumulation value as the Runoff Region it belonged. Initial validations reveal that this new network increases by 20% stream density than what is currently mapped by the nation's River Environment Classification. The results of this study have significant implications for watershed modeling, water quality assessments, and studies on the impact of high-intensity land uses on water resources in New Zealand.

STREAM NETWORK DELINEATION, HEADWATER MAPPING, SURFACE WATER HYDROLOGY, RUNOFF REGIONS, NEW ZEALAND

Influences of Geologic and Land Use Characteristics on Urban Forest Distribution in Denton, Texas

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Urban forests play vital roles within communities by providing important ecosystem services. Understanding an urban forest's structure, function, and value can facilitate management decisions aimed at improving these services. To accomplish this, many cities have used i-Tree tools developed by the U.S. Forest Service to document canopy coverage and composition. Denton, Texas has recently prioritized efforts to better manage its urban forest due to increasing development. Although Denton has yet to conduct a tree inventory, a canopy assessment was conducted in 2010, which estimated coverage to be 18.6%. Building on that dataset, the project goal is to better understand Denton's urban forest by identifying canopy distribution, its relation to the underlying geology and evaluating different land use influences. There are three geologic formation types that Denton lies on, of which 41% of the city's canopy lies on Woodbine Sandstone, 31% on marl and limestone formations, and 28% on Quaternary deposits. Since past and future land use affects tree canopy, we evaluated how canopy coverage varies across land use types. The two major land uses that influence canopy coverage are agriculture and residential. However, undeveloped land, although smaller in area, has the highest potential of canopy loss due to future land use projections. Since, future canopy growth and loss depends on future land use changes combined with the underlying geology, understanding the areas at risk of canopy loss and the opportunities for growth allows city planners to make better decisions on where to focus efforts to better manage Denton's urban forest.

URBAN FOREST, ECOSYSTEM SERVICES, CANOPY ASSESSMENT, GEOLOGY, LAND USE

Improving Seasonal Climate Forecasts for Oklahoma Winter Wheat Farmers

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Agriculture is one of the most weather- and climate-dependent industries. Unseasonally wet or dry climate, such as the recent droughts and rainfall in the south-central US, can lead to crop damage with severe consequences for regional and national economies. Seasonal climate forecasts, tailored for the agricultural community, could help reduce crop losses by providing skillful forecasts for the coming seasons. My proposed research uses online surveys and spatial statistics to explore ways in which tailored seasonal climate forecasts can help winter wheat producers in Oklahoma make better long-term decisions and assess whether climate model output is skillful enough to create such tailored forecast products. I see my research as a stepping stone in applied climate research towards creating operational seasonal climate

forecasts and reducing crop losses for winter wheat farmers and agricultural producers in general.

SEASONAL CLIMATE FORECASTING, AGRICULTURE, WINTER WHEAT, ONLINE SURVEY, SKILL ASSESSMENT

Developing a rock glacier database for Glacier National Park, Montana

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Rock glaciers provide essential habitat and resources for species like the threatened pika (Ochotona princeps) throughout the western Cordillera of North America. However, the distribution of current and relict rock glaciers has not been thoroughly mapped. Glacier National Park has excellent records of true ice glaciers within the park's boundaries, but no comprehensive maps or information on the status of rock glaciers within the park. This poster presents maps and a database that detail the state and existence of rock glaciers in Glacier National Park, Montana. Our results illustrate that rock glaciers are not uncommon in cirques and high valleys of the park. Active rock glaciers are most common in north- to northeast-facing cirques east of the Continental Divide within the park's boundaries. Most of the relict rock glaciers are located on broadly north-facing slopes in the southern portion of the park. Our results will assist Park managers in better illustrating critical pika habitat throughout Glacier National Park.

ROCK GLACIERS, GEOMORPHOLOGY, LANDFORMS, GLACIER NATIONAL PARK, ROCKY MOUNTAINS

Wet Dust Deposition at the Lyndon B. Johnson National Grasslands

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By supplying nutrients and pollutants, dust deposition can influence biogeochemical cycling in ecosystems. Dust is delivered to ecosystems in rain (wet deposition), fog (fog deposition), or directly as particles (dry deposition). This research will focus on "dust-in-rain" deposition, a poorly understood but potentially significant pathway for dust input to ecosystems, especially in humid regions. We will focus on the Lyndon B. Johnson (L.B.J.) National Grasslands, which are located northwest of the Dallas-Fort Worth metroplex in Wise County. During the 1930s, this site became part of an extensive area of severely eroded farmlands known as the Dust Bowl, where frequent dust storms were a massive dust source. However, during the 1940s, several programs were developed in an effort to conserve soils and restore soil fertility. As part of these programs, deep furrows were dug on affected lands and then soils were stabilized by planting drought-resistant cover crops and later native grasses. Thus, the L.B.J. National Grasslands evolved from a dust source to a likely dust sink. This poster will explore the history of the L.B.J. grasslands and examine rates of wet dissolved dust deposition between 2011 and 2014, a period which encapsulates the most severe drought in Texas in over 100 years. Concentrations and wet deposition of calcium, a commonly used tracer for dust, will be examined. Understanding the magnitude and chemical composition of dust input to ecosystems is of utmost importance since drought-associated dust events are projected to become more frequent in arid and semi-arid regions.

DUST DEPOSITION, EROSION, DROUGHT

Stretching the Map: Finding poetry in geographic inquiry

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Following the lead of Tim Cresswell's recent forays into poetry, and following Donald Meinig's call for geographers to be artists, this poster is an attempt to explore elements of the discipline of geography through poetry. Some work makes liberal use of geographic themes such as mobility, maps, and landscape. Other poems work off the experience of sitting in meteorology lectures and land change science seminars. Still others poetically explore the images produced by geographers, particularly the stunningly beautiful images of bathymetry and vegetation. The result intends to stretch the limits of geographic inquiry through poetic expression.

POETRY, LANDSCAPE, GEOGRAPHIC METAPHORS

Mexico's Smuggling Network: A Simulation of the Drug Corridors to the United States

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Little is known about how drugs are smuggled through Mexico and into the United States. Authorities have generally detected the cultivation zones and border crossing points, but the full journey of narcotics to the border is almost unknown. More clear is that drug trafficking is a business, and smugglers therefore attempt to maximize profits while minimizing costs. Routes, therefore, are chosen so as to incur the lowest transportation costs, least risk of confiscation by authorities, and to avoid turf wars with rival smuggling gangs. This study simulates ground trafficking corridors for transporting marijuana and opium derivatives from Mexico to the U.S. border. The route costs are modeled considering physical, socio-demographic, and violence factors, and then transferred to the road network. The results confirm different trafficking routes controlled by major Mexican drug organizations and territorial disputes they can spark. The findings offer a better understanding of smuggling route development in Mexico.

DRUG TRAFFICKING, NETWORKS, SIMULATION, COST PATH

Using Potential for Conflict Index to Assess Public Attitudes and Perceptions towards Living with Elephants in Botswana: The Case of Sankoyo Village, Ngamiland

Motau, Abraham B.[1]
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In most parts of the world where elephants co-exist with people, there are benefits and costs, for both species. Conflicts between people and Asian and African elephants, in places like Bangladesh and Botswana, respectively, bring tremendous social and economic costs. Solutions to human-elephant conflict (HEC) tend to focus on end results rather than root causes of the conflict. Perceptions and attitudes of people who live with elephants are facets of HEC as well.

Emergency Medical Response Times: Micro-scale and meso-scale description of spatial patterns in the EMS environment of Oklahoma

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When a medical emergency occurs, the duration between the trauma and the reception of definitive medical care determines the treatment outcomes which can be achieved by medical professionals. The focus of this research is on the mapping of factors which affect emergency medical response time (RT) which is a key indicator of the quality of an emergency medical system (EMS). The focus of the research was on EMS in counties in Oklahoma, USA over the last 3 years. This study examines: (1) how changes in weather have affected the change in emergency medical response time (2) how the spatio-temporal distribution of emergency traumas at the county level is affected by trauma type (3) how proximity to major highways affects RT. The research looks at metadata of EMS systems to discern how these systems have chosen to respond to pre-hospital healthcare demand. This research aims to identify resources which are available to EMS systems in the region or to locate strategic places for ambulatory care facilities. The research further aims to advise the placement and dispatch of Basic Life Support (BLS) and Advanced Life Support (ALS) personnel.

EMERGENCY MEDICAL SYSTEM, LIFE SUPPORT, SPATIAL DISTRIBUTION

El Niño's Impact On Texas Snowfall

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El Niño events are known for altering precipitation patterns across the Southern United States. On average, a typical El Niño event is known to bring wetter and relatively cooler temperatures to this region. El Niño occurs when warm ocean waters extend across large sections of the eastern Pacific. This abnormally warm ocean water has climatic effects across the entire globe. These climatic effects have impacts on the South by an increase in moisture and storm systems from the Pacific. An increase in moisture and storm systems correlates to an increase in precipitation--some of which falls in the wintry form. El Niño is known to also create an upper-level pattern that is not favorable for intrusions of Arctic air masses into the lower-48; even though temperatures tend to be below normal across the Southern United States during an El Niño. The reason for the below normal temperatures is due to an increase in precipitation and clouds. This raises two questions: Does the lack of Arctic air masses limit the snow potential in this region, or does the increase in moisture increase the snow potential in this region? This study evaluated the average annual snowfall trends during El Niño winters compared to average annual snowfall during non- El Niño winters in Texas. The goal of this research was to determine if El Niño winters have above average annual snowfall. The results indicated that most El Niño winters have above average annual snowfall during the winter.

El Niño, Texas, snow

User Perceptions of the Metropolitan Bus Authority in San Juan, Puerto Rico - Preliminary Findings

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The Metropolitan Bus Authority (MBA) may not represent a viable alternative of transportation for the majority of the residents of the San Juan Metropolitan Area. The MBA, the largest component of the public transportation system, is facing a serious issue: an ever declining ridership. In 1960, the MBA had a daily ridership of 172,605. By 2010 that number had dropped to 37,852, the equivalent of a 78.1 percent decrease. Today, 85.1 percent of MBA ridership consists of captive users, passengers forced to use the system because they do not have another choice. Choice riders, on the other hand, appear to have migrated to other forms of transportation, particularly the private vehicle. Since 1950, the number of motor vehicles has increased at an alarming rate, to the point that by 2014 there were 953 motor vehicles per 1,000 inhabitants. This trend is not the result of a mere whim; for decades the MBA has faced stern criticism for its poor service, mainly due to its infrequent and unreliable service. By interviewing the current MBA ridership, we will determine their perception of the service and determine if there is a trend to switch to other modes of transportation.

Analysis of Tornado Damage Recovery using Landsat 5 Imagery

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The May 24, 2011 tornado outbreak contained an EF5 tornado that tore through Piedmont and El Reno, Oklahoma, leaving a 1609-meter wide damage path stretching 101 kilometers. The purpose of this study

was to evaluate three vegetation indices, EVI, NDVI, SR, as well as Principal Component Analysis calculated from Landsat 5 to determine which was most effective to visualize the damage within the study area and to analyze the recovery of natural vegetation and agriculture within the damage path. We discovered that the red and NIR reflectance bands did not reveal the damage path very clearly but the damage was visible in some principal components. We used NDVI to analyze the severity of the agricultural damage (Winter Wheat), and recovery which also appeared to have been stunted by drought.

REMOTE SENSING, TORNADO, AGRICULTURE, ENVI

Spatial Analysis Using GIS to Locate Wine Distribution Centers in the Finger Lakes Area

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Viticulture process using GIS techniques and implement geospatial tools had been proposed in the last past years. Viticulture is the process to study growing grapevines, especially, those that are used in the wine. Geospatial analysis can allow vineyard owner to study spatial viability of the wine production. Part of the wine production need a good low cost distribution to make the process viability to these vineyard managers. GIS analysis could help these managers to make decision regarding where a distribution center could be place in a central location for the vineyards of the Finger Lakes area. In this research, different types of Geospatial analysis were used to perform a suitability and retail analysis to place distribution centers in the Finger Lakes area. These distribution centers will serve to all the vineyards as a central point in terms of low cost, distance and distribution to a big city nearby.

A Double Edged Sword In Climate Accounting: LULUCF under Kyoto and A Case Analysis of Canada and Australia

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Land Use, land use change, and forestry (LULUCF) in the Kyoto Protocol account for a huge portion of anthropogenic greenhouse gas (GHG) movement into and from the atmosphere. As such, they could not be left out of the decision making process in negotiating emissions reductions targets. The procedures of the protocol were uncertain, contentious, and oversimplified leading to an accounting system fraught with deficiencies. Despite an ever-increasing capacity in the natural sciences to identify and gauge individual greenhouse gas sources and sinks, the knowledge of more complex dynamics has been limited. Knowledge concerning the flux of GHGs from one natural reservoir to another and the interactions of different fluxes remains a source of massive uncertainty. The dilemma arising from this situation is that LULUCF is the only emissions sector that contains both sources and sinks, making it a risk for any party seeking to offset emissions. This paper seeks to present a general cross-section of LULUCF accounting during the Kyoto Negotiations and up to its first commitment period. It seeks to put forward propositions to constrain the behavior of the parties most affected by the accounting rules. It then approaches the contrasting cases of Canada and Australia and discusses why these similar nations experienced such different results. The flexibility created during the negotiations process benefited Australia more than Canada, and the accounting uncertainty ended up inflating Canada's emissions explosively. Improvements to the accounting system and greater resolution of country emissions are necessary if future designs are to remain viable.

KYOTO, LAND-USE, EMISSIONS, SINKS, FLUX

Child Health in China: Regional Differences and Impact Factors

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This research uses GIS and quantitative methods to examine the regional differences of child health and the relationship between child health and a range of social and economic factors. Using the data from China Family Panel Studies (2010), the analyses were conducted on province levels. The samples are children 15-year-old and under. Factors defining socioeconomic status at individual, household, and community levels were investigated. The study revealed clear regional difference patterns in child's health and nutrition status in China. Factors including communication between parents and children, designated garbage collection program, access to health care, urbanization level, and size of living space of a family were found to be positively and significantly related to child health and nutrition status. However, the magnitude of the relationship between these factors and child health and nutrition status varies across the different age groups. No significant regional difference was found for children under 3 years old. Parental education attainment and family income were not significant factors for this group of children neither.

CHILD HEALTH, CHINA, REGIONAL DIFFERENCES, GIS, HAZ

Value of Environmental Monitori in Oklahoma Agriculture: A Research Perspective

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Extreme weather events in Oklahoma have considerably been impacting agricultural production that covers around 78% of the total state area. Due to constant weather variability in Oklahoma, accurate, updated and timely environmental monitoring information is indispensable for farmers to make educated production decisions. The statewide weather monitoring network - Oklahoma Mesonet has been used by farmers (and other communities) to obtain accurate and comprehensive environmental monitoring information that is critically important and sensitive for planting and harvesting decisions, generating input savings and preventing production losses. The value of the information about economic

and environmental savings (and prevented losses) in agriculture generated by Oklahoma Mesonet has not been studied enough. Even though qualitative studies have proven a great added-value of the Mesonet network, comprehensive quantitative evaluations are still missing. Here, we present a first perspective on our anticipated research that will help assess and quantify economic value of information generated by Oklahoma Mesonet for farmers. We use contingent valuation to determine the economic impacts of Mesonet information on large scale, medium scale and small scale farmers. Moreover, we target both producers of traditional crops (e.g., wheat) and specialty crops, which could prove different patterns in economic evaluations of Mesonet information to different farmers' groups. The anticipated results will show economic and environmental impacts of Mesonet information on multiple aspects of farming decisions, as well as advantages of the sophisticated statewide environmental information monitoring system for farmers to optimize their decision-making in the short and long run.

ENVIRONMENTAL MONITORING VALUE, OKLAHOMA, AGRICULTURE

Environmental Injustice in Alabama: How race and income may influence your health risk

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The U.S. Environmental Protection Agency defines environmental justice as the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. Previous research suggests that differences in standards of living and socio-economic status between racial groups may contribute to housing-based environmental justice inequalities, such as proximity to environmental hazards. My study examines the spatial relationships between income, race, and household proximity to highly toxic sites in Alabama using U.S. Census data, GIS, and statistical techniques. More specifically, I visually analyzed the spatial patterns of household race and income, and tested the hypothesis that these characteristics influence which households are located within a one mile buffer around sites containing hazardous materials known as the "toxic mile". Variables tested included family income, the percentage of minorities (nonwhites), and the number of households inside the "toxic mile". Visual analysis suggests that both race and income influenced a household's proximity to highly toxic sites, and the Mann-Whitney U test suggested that proximity to the "toxic mile" was statistically different for white and nonwhite racial groups ($p < 0.001$), as well as for high and low income families ($p < 0.001$).

GEOGRAPHIC INFORMATION SYSTEMS (GIS), ENVIRONMENTAL JUSTICE, ALABAMA, U.S. CENSUS DATA

Characteristics and Motivations of Storm Chasers

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We define a storm chaser as a person who observes and follows a developing thunderstorm either for educational purposes, scientific research, or as a recreational activity. An important role for storm chasers is to provide ground truth to evaluate on screen radar images of tornadic or severe thunderstorm phenomena. Previous research has identified an individual's confidence level in their abilities influences the geographic range they are willing to travel to observe and document severe weather events. The purpose of this research was to determine if other storm chasing characteristics are associated with experience and confidence. A survey for 219 storm chasers was conducted during 2012 to evaluate both the characteristics and motivations of storm chasers.Since the data consisted of categorical variables, a series of binary logistic regressions were used in the analysis. Results indicate that the most experienced and confident storm chasers are more likely to chase further, more frequently, and to derive financial gain from their activity.

STORM CHASERS, STORM CHASING, MOTIVATIONS, CHARACTERISTICS

Meeting participants
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