

**2013 Joint Annual Meeting
East Lakes Division AAG (ELDAAG)**



&

**Canadian Association of Geographers – Ontario
Division (CAGONT)**

CAGONT *Canadian Association of Geographers – Ontario Division*



UNIVERSITY OF TOLEDO



FINAL SCHEDULE AND PROGRAM

Paper and Poster Sessions

October 25th-26th, 2013

Snyder Memorial



SPONSORS

University of Toledo

Urban Affairs Center

College of Languages, Literature and Social Sciences

Department of Geography and Planning

Canadian Association of Geographers – Ontario Division
(CAGONT)



Welcome

On the 50th anniversary of the Department of Geography and Planning at the University of Toledo, I would like to extend a warm welcome to our geography colleagues from Ohio, Michigan and Ontario as the East Lakes Division of the Association of American Geographers and the Canadian Association of Geographers - Ontario Division host their 2013 Joint Annual meeting at our campus. Also the Office of the President, Provost, and Dean of College of Languages, Literature and Social Sciences at the University of Toledo hope that everyone finds their visit to our campus enjoyable and offer best wishes for a productive meeting and enjoyable event.

The diverse program includes over 65 presentations and 15 posters presented by 140 attendees from 30 colleges, with a majority comprised of undergraduate and graduate students - a great aspect of these regional meetings and an exciting opportunity for these young scholars to share their work with all of us. Some of the notable events planned include the Friday evening reception in our wonderful recently renovated Ritter Planetarium with a special showing for our visitors and perhaps a chance to view the stars on a clear night! In addition to the presentations and posters, the program includes a special plenary session focused on the topic of cross-border transportation between the United States and Canada, and a walking tour of the recently completed restoration of the Ottawa River on main campus.

Perhaps if you have a few relaxing minutes, you can take some time to walk and enjoy the beautiful buildings and landscape of our main campus that has won a number of accolades. It is our hope that you will find the Department and University a wonderful place to visit and that the meeting will provide an excellent and productive experience. During the meeting if we can be of any assistance, please feel free to seek out members of our Department faculty, staff and students.

Thank you for joining us and we hope you have a great time here at the University of Toledo!

Sincerely,

Dr. Patrick L. Lawrence

Chair & Professor

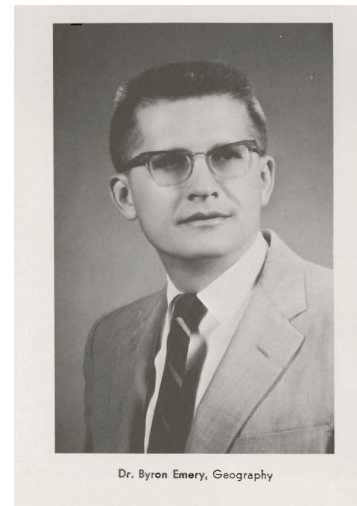
Department of Geography and Planning, University of Toledo



***Department of Geography and Planning at
University of Toledo Celebrating 50 Years
September 2013***

Although geography classes had been taught at UT in the College of Arts and Sciences since its formation in 1909 — and in later years in various programs by part-time instructors, including within a combined geology and geography department — in September 1963 a stand-alone Department of Geography was established in the College of Arts and Sciences with one full-time geography faculty member, Dr. Byron Emery. The arrival of Dr. William Carlson as the new UT president in 1958 set the stage for the formation of the department due to his interests and experiences with the discipline.

Courses and majors would increase during the 1960s with the addition of Dr. Donald Lewis and a greater focus in economic geography led by Dr. Lawrence (Larry) Hoffman. In fall 1970, the Ohio Board of Regents (OBOR) approved the Master of Arts degree in geography to be offered by the department. By 1973, the department grew to seven full-time faculty members as Drs. Basil Collins, Eugene Franckowiak, Robert Basile and William Muraco also were teaching courses in a variety of areas with special focus on human, economic and urban geography.



Into the 1980s, those “eternal seven” faculty members would advance the department with the growth of the bachelor’s and master’s programs, with several also engaged in University administrative roles and community engagement — a trend that would continue within the department. The master’s program has continued to be the strength of the department and constantly highly ranked nationally with as many as 40 students enrolled at one time, and graduating classes reaching 10 some years. Various department and program reviews would result in expanding to a Department of Geography and Planning and adding specializations in the fields of Geographic Information Systems (GIS), remote sensing, transportation and the environment.





Growth in majors and students in geography courses grew into the late 1990s when the department became a member of the American Collegiate Schools of Planning. In 1996, the department was one of three geography graduate programs invited to participate in a major national study on global change in local places undertaken by the Association of American Geographers. By the late 1990s, with retirements, a number of new members joined the department with an expansion to 10 full-time faculty, adding expertise and courses in environmental geography, cultural geography, urban planning

and housing, remote sensing, and weather/climate.

Due to a growing interest and expertise in GIS and related research areas, the department established a lab in the Lake Erie Center in 1998, followed by the creation of the Geographic Information Science and Applied Geographics (GISAG) facility in 2003. Since its formation, the GISAG has secured almost \$19 million in external research grant funding to geography faculty and researchers from other UT departments and colleges, and involving the work of dozens of graduate students supported by federal, state and local agencies, including the National Science



Foundation, U.S. Department of Agriculture, NASA, U.S. Geological Survey, National Resources Conservation Service, Ohio Environmental Protection Agency, Ohio Department of Transportation, U.S. Army Corps of Engineers, city of Toledo and many others. The GISAG also has developed as an important regional warehouse for geospatial data shared with a number of community partners and agencies.

Recent years have seen continued expansion of the department with the introduction of the Ph.D. program in Spatially Integrated Social Sciences approved by OBOR in 2009. This program is housed and administered by the Department of Geography and Planning and represents a multidisciplinary effort involving the departments of Political Science and Public Administration, Economics, and Sociology and Anthropology — all within the College of Languages, Literature and Social Sciences. By fall 2013, the program has grown to 18 students with anticipation of graduation of the first class this academic year.

2010 marked a significant milestone for the department with a move from the fourth floor of University Hall, which had been its home for many years, to newly renovated and expanded offices, labs and classrooms on the third floor of Snyder Memorial Building. The department has continued to deliver quality courses and programs to majors and students taking both geography and planning courses, while offering opportunities for internships, undergraduate and graduate research, community engagement and outreach via classroom experiences, and student projects.





Throughout its history, the department also has been engaged in numerous campus planning efforts — as highlighted by the often-



repeated story of how geography students mapped the footpaths of students crossing Centennial Mall one winter to design the current walkways — and has worked extensively on local community planning for Toledo, Lucas County and various area townships.

Graduates have taken careers in a range of fields, with many in local agencies, including TMACOG, Toledo Port Authority, City of Toledo, TARTA and regional planning offices. A number of graduates also have continued onto advanced degrees leading to faculty positions at distinguished universities.



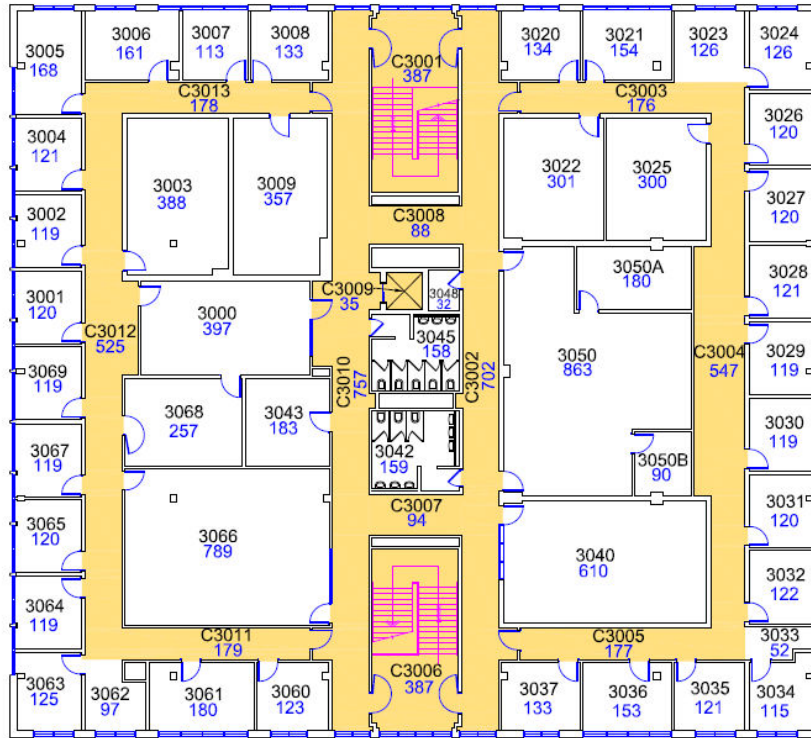
Current faculty have received numerous major grants and awards, such as recognition from UT for teaching, research and service; have been active in various administrative roles at the University and college levels; and taken leadership responsibilities with regional, national and international professional organizations, including the Association of American Geographers, National Science Foundation, International Geographic Union, and Regional Science Association.

Presently, more than 60 undergraduate and graduate majors and hundreds of UT students are served by the 10 full-time faculty and three support staff in the Department of Geography and Planning. With the continued interest and growth in international issues, geospatial technologies such as remote sensing and GPS, demand for urban and regional planning, and need for an improved global view, the future for the department and its programs remains strong and positive for another 50 years!

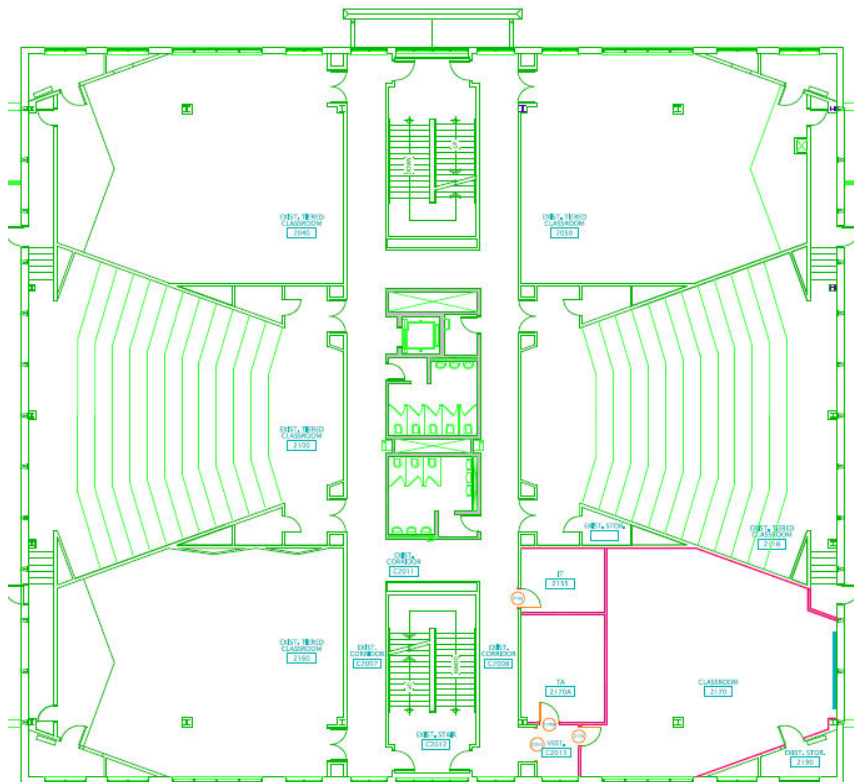
Special events planned during the 2013-14 academic year to celebrate the department's 50th anniversary include: a special colloquium series featuring distinguished alumni, hosting the 2013 Joint Annual Meeting of East Lakes Division, Association of American Geographers and Canadian Association of Geographers, Ontario Division, 50th Anniversary Alumni Reception, activities for current students, staff and faculty, and special panel sessions at the 2014 Annual Meeting of the Association of American Geographers in Tampa, Fla.

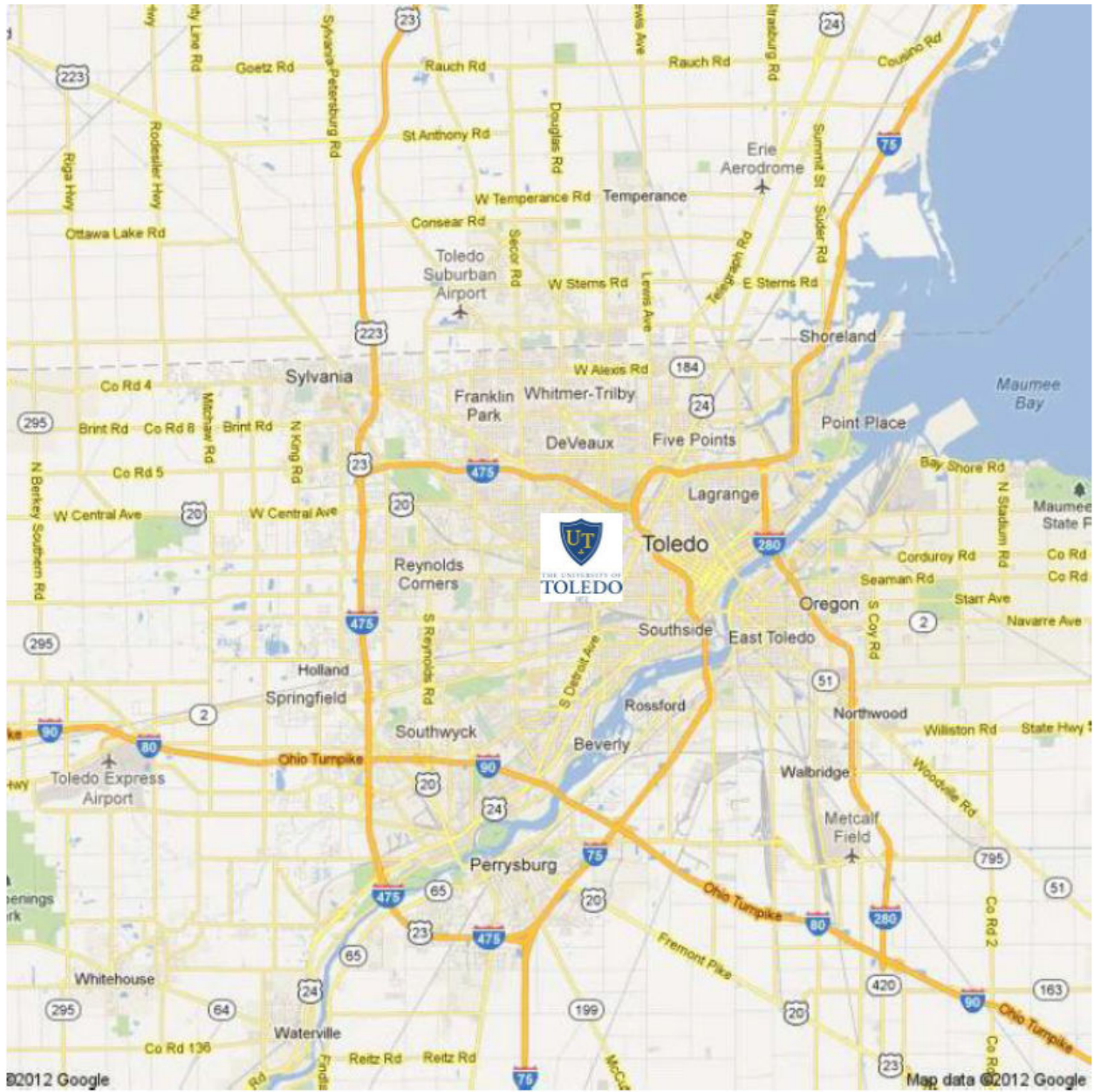
Snyder Memorial

3rd floor



2nd floor





From North: Take 23 or I 75 to 475, exit Secor Road south, left onto Bancroft St.
From East: Take I90/80 to I75 north, to 475 west, exit Secor Road south, left onto Bancroft St
From West: Take I90/80 to I75 north, to 475 west, exit Secor Road south, left onto Bancroft St.
From South: Take I75 north, to 475 west, exit Secor Road south, left onto Bancroft St

The University of Toledo

Welcome to Main Campus!
2801 West Bancroft Street, Toledo OH 43606
41°39'44" (N) 83°36'51" (W)
www.utoledo.edu



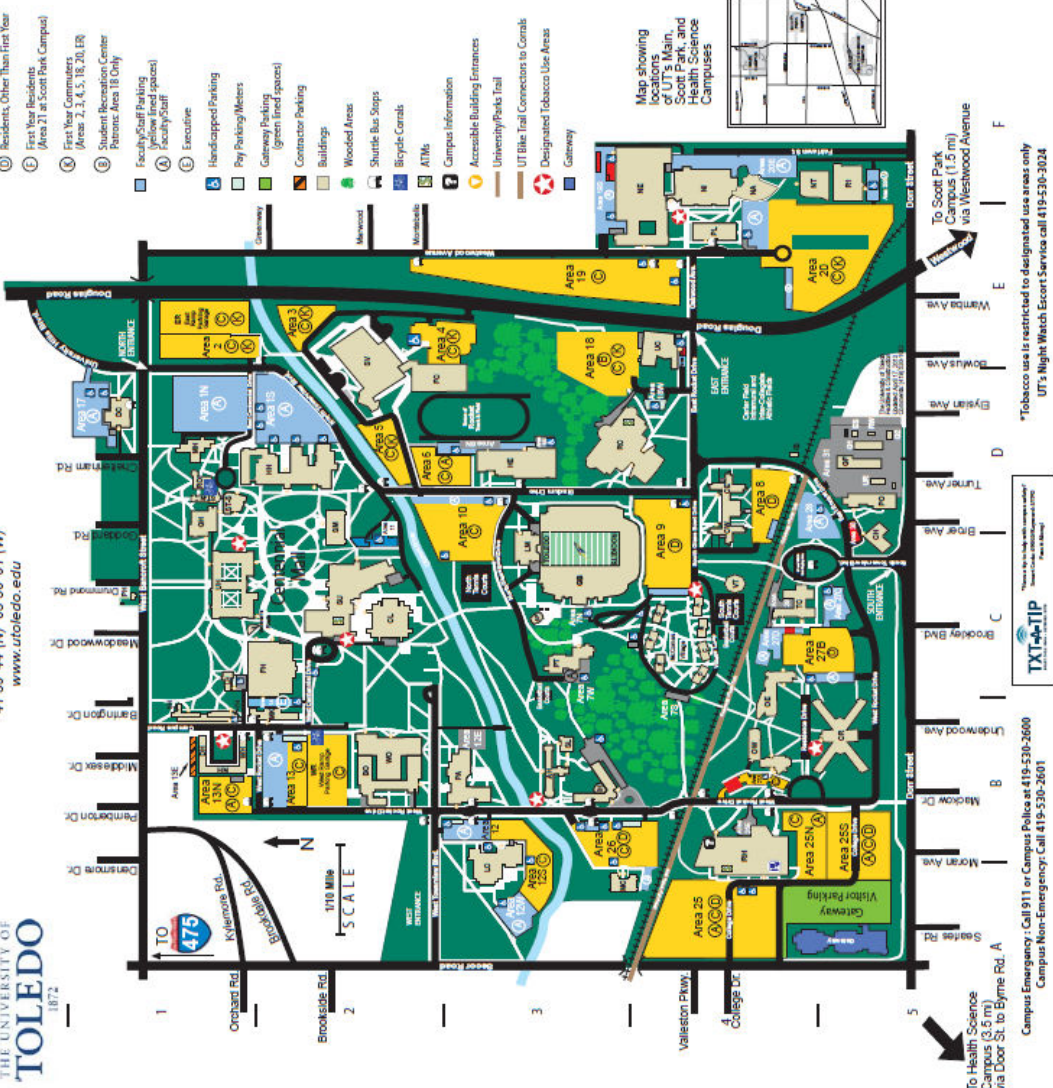
- ### Rocket Hall Student Services
- Accessibility, Office of (1820)
 - Admission, Undergraduate (1300)
 - Career Center
 - High School Students
 - International Students
 - Transfer Students
 - MyPlace (1917)
 - Parking Permits
 - Registrar
 - Student Services
 - Counseling Center (1810)
 - Loans/Special Accounts (1850)
 - Rocket Solution Center (1200)
 - Financial Aid/Scholarships
 - Student Account Information
 - Employment Verification
 - Graduation Information
 - College of Adult & Lifelong Learning (1840)
 - C.A.L.L. Undergrad Degree Programs

- ### ADMINISTRATION DIRECTORY
- Office of the President.....UH 3500
Chancellor and Executive Vice President for
Bioscience and Health Affairs.....MLB 213*
Provost and Vice President for Academic Affairs
Main Campus.....UH 3510
Executive Director for
UT Medical Center.....MLB 221*
Vice President for Academic Affairs
West Campus.....RH 1000
Vice President for
Administration.....UH 3580
Vice President for
Student Affairs and General Counsel.....UH 3520
Vice President for
Governmental Relations.....UH 3340
Vice President for
Information Technology/CIO.....UC 1000B
Vice President for
Institutional Advancement.....DC 1001
Vice President for
Research and Economic Development.....UH 3510
Vice President for Student Affairs.....UH 3530
Director of Athletics.....SV 1110
Office of Board of Trustees.....UH 3580

- ### BUILDING DIRECTORY
- AH Academic House.....B3
Astronomy Pavilion.....B3
Bancroft-Cook Laboratories.....B4
Carter Hall East.....C5
C5 The Crosswalk.....C5
L The Crosswalk.....C5
Carter Hall West.....D1
Driscoll Alumni Center.....D1
East Ramp Parking Garage.....D2
Fetterman Training Center.....C2
Memorial Field House.....C2
GP Grounds and Fleet Services.....D5
Graham Hall.....D1
Health Education Center.....D1
Horton International House.....B5
Horton International Storage.....D4
Liberal Arts.....C3
Lamar Athletic Complex.....C3
Main Campus Medical Center.....A3
Mackinnon Hall.....B1
Mackinnon Hall.....B1
James D. McComasa Village.....C4
Nischa Auditorium.....F4
Nischa Hall.....F4
Nischa Hall.....F4
Nischa Technology Complex.....F4
Ottawa House East.....B4
Ottawa House West.....B4
Palmer House.....C1
Palmer House.....C1
Palmer Hall.....D5
Plant Operations.....E6
Research & Tech. Complex 1.....F5
Student Recreation Center.....D4
Scott Hall.....B1
Scott Hall.....B1
Sullivan Hall.....B3
Snyder Memorial.....D2
Stranahan Hall North.....D1
Stranahan Hall South.....C2
Student Union.....C2
Transportation Center.....C1
Tucker Hall.....B1
UC University Computer Center.....E4
UC University Recycling.....D5
UH University Health Pavilion.....C4
White Hall.....B1
WR West Ramp Parking Garage.....B2

- ### COLLEGE DIRECTORY
- College of Business and Innovation.....RH 1840
College of the Dean.....ST-S 5021
Health Herd College of Education.....UH
Health Herd College of Human Services.....UH 3302
College of the Dean.....HH 3302
College of the Dean.....MI 3012
College of the Dean.....UH 3240
Honors College.....SL 1080
College of Languages, Literature and Social Sciences.....LC 3180
College of Law.....LC 2000
College of Medicine and Life Sciences.....MLB 213*
College of Natural Sciences and Mathematics.....WO 2246
College of Nursing.....COB 4425
College of Pharmacy and Pharmaceutical Sciences.....HEB 145*
College of Visual and Performing Arts.....VA 1250***
Office of the Dean.....**Health Science Campus
**Scott Park Campus
**Museum of Art Campus

- ### MAP KEY
- Visitor Parking
 - Student Parking
 - White lined spaces
 - Commuters, Other Than First Year
 - Residents, Other Than First Year
 - First Year Residents (Area 21 at Scott Park Campus)
 - First Year Commuters (Areas 2, 3, 4, 5, 18, 20, ER)
 - Student Recreation Center
 - Patrons Area 18 Only
 - Faculty/Staff Parking (patrons)
 - Faculty/Staff
 - Executive
 - Handicapped Parking
 - Pay Parking Meters
 - Commuter Parking (green lined spaces)
 - Buildings
 - Wooded Areas
 - Shuttle Bus Stops
 - Bicycle Corals
 - ATMs
 - Accessible Building Entrances
 - University Parks Trail
 - UT Blue Trail Connectors to Corals
 - Designated Tobacco Use Areas
 - Gateway



- ### FREQUENT CAMPUS DESTINATIONS
- Alumni Office.....DC
Athletic Ticket Office.....RC, RH, SU
Campus CardID Center.....UH
Doermann Theatre.....UH
Food Court.....SU
Graduate Admissions.....UH
Honors Program.....SL
Human Resources.....TC
Information Commons / Library.....CL
Learning Enhancement Center.....CH
Lost and Found.....TC
Main Campus Med Center/Pharmacy.....MC
Military Services Center.....RH
Parking Enforcement (Info/Approach).....TC
Planetarium.....RO
Police Department.....TC
Police Housing.....SU
Rocket Copy / Information Booth.....HE
Rocket Solution Central.....RH
Student Legal Services.....SU
Student Support Center.....SU
Student Support Services.....CL
University Bookstore.....Gateway
Urban Affairs Center.....RT
UT Federal Credit Union.....SU
Visitor Support Radio.....CL
Writing Center.....CL

Map showing locations of Scott Park and Health Science Campuses

To Health Science Campus (5 min) via Door St. to Elyme Rd. A

To Scott Park Campus (1.5 mi) via Westwood Avenue

*Tobacco use is restricted to designated use areas only
UT's Night Watch Escort Service call 419-530-3024

Campus Emergency: Call 911 or Campus Police at 419-530-2600
Campus Non-Emergency: Call 419-530-2601

SCHEDULE

Friday October 25th, 2013

530-830p Reception (Ritter Planetarium)

Saturday October 26th, 2013

830a-1230p Registration (SM 3066)

800-900a ELDAAG Executive and Chairs Meeting (SM 3040)

800-900a CAGONT Executive Meeting (SM 3020)

900-1040a Sessions 1A (SM 2040), 1B (SM 2050), 1C (SM 2100), 1D (SM 2110), 1E (SM 2160)

900a-1040a Poster Session (SM 3rd floor hallway)

1040-1100a Break (SM 3066)

1100a-1240p Sessions 2A (SM 2040), 2B (SM 2050), 2C (SM 2100), 2D (SM 2110), 2E (SM 2160)

1100a-1240p Poster Session – continued (SM 3rd floor hallway)

1240-130p Lunch Banquet (Student Union Phoenicia Restaurant)

130-215p ELDAAG/CAGONT Joint Business meeting (Student Union Phoenicia Restaurant)

230-340p Plenary “U.S./Canada Cross Border Challenges and Opportunities” (SM 2100)

230-330p Optional Tour of U Toledo Ottawa River Restoration Project site (meet outside SM back)

340-400p Break (SM 3066)

400-540p Sessions 3A (SM 2040), 3B (SM 2050), 3C (SM 2100), 3D (SM 2110), 3E (SM 2160)

Paper Sessions

| | | |
|----|-------------|----------------------------------|
| 1A | 900-1040a | Snyder Memorial 2040 (seats 65) |
| 1B | 900-1040a | Snyder Memorial 2050 (seats 65) |
| 1C | 900-1040a | Snyder Memorial 2100 (seats 183) |
| 1D | 900-1040a | Snyder Memorial 2110 (seats 183) |
| 1E | 900-1040a | Snyder Memorial 2160 (seats 65) |
| 2A | 1100a-1240p | Snyder Memorial 2040 (seats 65) |
| 2B | 1100a-1240p | Snyder Memorial 2050 (seats 65) |
| 2C | 1100a-1240p | Snyder Memorial 2100 (seats 183) |
| 2D | 1100a-1240p | Snyder Memorial 2110 (seats 183) |
| 2E | 1100a-1240p | Snyder Memorial 2160 (seats 65) |
| 3A | 400-540p | Snyder Memorial 2040 (seats 65) |
| 3B | 400-540p | Snyder Memorial 2050 (seats 65) |
| 3C | 400-540p | Snyder Memorial 2100 (seats 183) |
| 3D | 400-540p | Snyder Memorial 2110 (seats 183) |
| 3E | 400-540p | Snyder Memorial 2160 (seats 65) |



East Lakes and West Lakes Division of the Association of American Geographers

Regional Meeting

Oct 16-18, 2014
Western Michigan University
Kalamazoo, MI



Sleeping Bear Dunes



Session 1A 900-1040am
Snyder Memorial 2040

Physical and Environmental Geography
Chair: C. Yansa

- 900-920am Panchenko, E.
Department of Geography and Planning, University of Toledo
Spatial analysis of the unfavorable geotechnical dynamics dependence on the landscape position for a road build on permafrost.
- 920-940am Ghimire, L. and M.Dodd
Department of Environment and Sustainability,
Royal Roads University
Trace elements in agricultural soils of Saanich Peninsula, Vancouver Island, British Columbia, Canada.
- 940-1000am Ormshaw, Hannah and Tim P. Duval
Department of Geography, University of Toronto-Mississauga
Soil moisture availability and shrub physiological and morphological responses following wetland restoration
- 1000-1020am Phillips, A
Wright State University
'End of Life' Options: Assessing Electronic Waste Disposal and Recycling Options in Montgomery County, Ohio
- 1020-1040am Middleton, C., Swales, S.J. and Forsythe W.
Department of Geography, Ryerson University
The Use of Geographical Information System (GIS) Analysis to Delimit a Protected Area for Old-growth Red Pine Forest in Wolf Lake, Temagami, Ontario, Canada

Session 1B 900-1040am
Snyder Memorial 2050

Geospatial and Quantitative Methods
Chair: B. Alam

- 900-920am Jain, Jyoti, Soe W. Myint, Christopher Lukinbeal, and Francisco Lara-Valencia
Department of Geography and Planning, University of Toledo,
Simulating urban growth on the US–Mexico Border: Nogales, Arizona, and Nogales, Sonora
- 920-940am Bommersbach, B.¹, Anemone, R.², and Emerson, C.¹
¹ Department of Geography, Western Michigan University
² Department of Anthropology, University of North Carolina, Greensboro,
Predictive Modeling in the Search for Vertebrate Fossils: Geographic Object Based Image Analysis (GEOBIA) in the Eocene of Wyoming.
- 940-1000am Cardwell, F.S., Elliott, S.J., and Devotta, K.
University of Waterloo
“It Really Helps the Students” : An Evaluation of the RunSMART Program
- 1000-1020am Adaniya, N.
Department of Geography, The Ohio State University
Review of the Geographical Framework for the U.S. Organ Transplant System
- 1020-1040am Silver, Ar.
Department of Geography & Environmental Management
University of Waterloo
"Now we understand what 'community' really means": Exploring the positive and negative impacts of disaster on place attachments.

Session 1C 900-1040am
Snyder Memorial 2100

Weather and Climate
Chair: W. Gough

- 900-920am Bartels, R.
Department of Geography, Western Michigan University,
Kalamazoo
A Climatological Study on Drought in Southern Michigan
- 920-940am Mahendrarajah, P.
Department of Civil Engineering, Ryerson University.
*The Cause of the Flash Flood in Calgary on June 20, 2013:
Assessment of the Soil Moisture Before and After the Flood with
Multi-Temporal Landsat Images.*
- 940-1000am Jien, J. Y. and Gough, W. A.
Department of Physical and Environmental Sciences,
University of Toronto Scarborough.
*The Influence of El Niño-Southern Oscillation on Tropical
Cyclone Activity in the Eastern North Pacific Basin*
- 1000-1020am Hori, Yukari Hori, Benita Tam, Leonard J.S. Tsuji, and
William A. Gough
Department of Physical and Environmental Sciences,
University of Toronto at Scarborough
*Trends in the Duration of Winter Road Season in the Western
James Bay Region of Northern Ontario*

Session 1D 900-1040am
Snyder Memorial 2110

Economic Geography
Chair: N. Reid

- 900-920am Chester, Winston
University of Toledo
Microfinance Programs in Guatemalan
- 920-940am Jeong, Hyeseon
Ohio State University, Department of Geography
Producing Corporate Nationality at an Export Processing Zone
- 940-1000am Simpson, M.
Department of Geography, Bowling Green State University
Pattern Analysis of Ohio's Economic Sectors
- 1000-1020am Wang, Qifeng and Lindquist, Peter S.
Department of Geography and Planning, University of Toledo
Highway Capacity Pressure Test in the Great Lakes Area by the Year 2040
- 1020-1040am Whitely, P.
Department of Geography
Queen's University
Harold Innis and posthumanism: an exploration

Session 1E 900-1040am
Snyder Memorial 2160

Cultural Geography
Chair: J. Nemeth

- 900-920am Hornyak, Megan.
Department of Geography, Aquinas College
How Societies Function: A Reflective Analysis on Human Behavior in Geopolitical Realms
- 920-940am Kusek, Weronika.
Kent State University, Department of Geography.
International Students and Local Communities: Addressing Gaps in International Student Community Participation
- 940-1000am Luke, B.
Department of Geography and Planning, University of Toledo
The Entrapment at Pompeii
- 1000-1020am Luke, J.
Department of Health Education and Recreation Professionals,
University of Toledo
Community Strength Among Participants of Urban Community Gardens in Cleveland, Ohio.
- 1020-1040am Osterday, E.
University of Toledo.
Demographic Transition Model- Is Government Policy Enough to Raise Total Fertility Rate? Analysis of Germany in Stage 5

Poster Session 900-1040am, Snyder Memorial 3rd floor hallway

Adaniya, N.¹ and McDonald, J.²

¹Department of Geography, The Ohio State University, Columbus, Ohio 43210;

²Division of Geological Survey, Ohio Department of Natural Resources (ODNR),
Spatially Locating the Abandoned Underground Mine Maps of Ohio

Ames, A., Reynolds, E., Hashmi, S., and Czajkowski, K.

Department of Geography and Planning, University of Toledo

*DRAINMOD Estimated Drainage Rates of Agricultural Field Tile from Mapped
Biosolids Permitted Fields in Northwest Ohio*

Austin, B. Department of Geography, Kent State University

*Assembling Socioweathers from Partial Perspectives: Methodological
Considerations.*

Cail, Donghua, Sean J. Bennett¹, Michael S. Gallisdorfer¹, S. Mohammad
Ghaneezad², and Joseph F. Atkinson² ¹Department of Geography, University at
Buffalo., ²Department of Civil, Structural, and Environmental Engineering,
University at Buffalo

Effects of Engineered Log Jams on Mean and Turbulent Flow in an Open Channel

Chohaney, M., and Nemeth, David J.

Department of Geography and Planning, University of Toledo

Gypsy Territoriality and the Ofisa Shell Game.

Gibson, S., and Napieralski, J.

Department of Environmental Science, University of Michigan-Dearborn,

A cost-efficient approach to monitoring stream stage height in small tributaries.

Grote, T.¹ and Carol Griggs²

¹Department of Geography and Geology, Eastern Michigan University

²Cornell Tree Ring Lab, Department of Anthropology, Cornell University

*Changing Paleohydrologic Conditions from the Younger Dryas to the middle
Holocene in the Lake Ontario Lowlands, New York*

Jien, J. Y. and Gough, W. A.

University of Toronto- Scarborough

The Influence of Atlantic Hurricanes on Southern Ontario's Precipitation Extremes

Kennedy, J. Department of Geography, Western Michigan University.
Winter Soil Temperature and Validation of Soil Temperature and Moisture Model (STM2) and Simultaneous Heat and Water (SHAW) with Regard to Volunteerism

Leung, K. H. and Gough, W. A.
University of Toronto Climate Laboratory (UTCL).
The Influence of Synoptic Weather Conditions on Extreme Ground-level Ozone Events in the Downtown Areas of Toronto and Windsor, Ontario, Canada

McEwen, Shannon.
Department of Geography, Western Michigan University
No Fracking Way! A Study on the Spatial Patterns of and Changes in Perception and Distance from a Michigan Horizontal Hydraulic Fracturing Site

Mentzer, G. and Marok, J.
Acumen Research, LEADERS University of Toledo, Ohio.
Exploring Geographic Influence on University of Toledo's LEADERS program

Nikolic, J., Zhong, S. Walters, C. and Winkler, J.
Department of Geography, Michigan State University
A observational and numerical case study of the northerly low-level jet over the Great Plains of the United States

Shonkwiler, K. and Anderson, T.
Department of Geography, Ohio University.
The Gravestones of J.W. Jungkurth: Material Culture and Ethnicity in Pennsylvania-German Cemeteries in Central Ohio

Sweeney, S.J., Vanthof, V., Anwar, S.A., Nussli, E., Gardner, S., Hickson, D., Nair, M., and Bottenham, M.
Ontario Ministry of Agriculture and Food and Ministry of Rural Affairs.
Mobile mapping ground-truth mapping results for the agricultural landscape of the Regional Municipality of Essex, Ontario – 2013

Woodin, B. A.
Department of Geography and Environmental Studies, Aquinas College.
Land use Study of Brewster Lake, Michigan.

Zhao, Huanyang. Department of Geography, Kent State University.
Visualization of Twitter® messages – a geographical perspective

Session 2A 1100am-1240pm
Snyder Memorial 2040

Physical Geography
Chair: M. Munro-Stasiuk

- 1100-1120am Yansa, C.¹ and J. Elmo Rawling III²
¹Department of Geography, Michigan State University
²Department Geography/Geology, University of Wisconsin
Platteville
A Holocene Record of Lake-Effect Climate from Southwestern Lower Michigan
- 1120am-1140am Malone, M.S. and Duval, T.P.
Department of Geography, University of Toronto
Investigation of Stemflow and Throughfall for Two Mixed-Deciduous Swamps in Southern Ontario.
- 1140-1200pm Radu, D.D. and Duval, T.P.
Department of Geography, University of Toronto Mississauga
Potential phosphate mobilization during the flooding of a former agricultural soil
- 1200-1220pm Munro-Stasiuk, M.J.,¹ Manahan, T.K.,² Balzotti, C.,³ Terry, R.,³ Ogato, N.,⁴ and Hutson, S.⁵
¹ Department of Geography, Kent State University,
² Department of Anthropology, Kent State University
³. Department of Plant and Wildlife Sciences , Brigham Young University
⁴. Centro de Investigaciones Tropicales, Universidad Veracruzana, Veracruz, México,
⁵. Department of Anthropology, University of Kentucky
Chasing chocolate: Recent investigation of collapse sinkholes (rejolladas) as loci of cacao production in the northern Maya lowlands

Session 2B 1100am-1240pm
Snyder Memorial 2050

Quantitative Methods
Chair: P. Lindquist

- 1100-1120am Ye, X., Zhou, X., An, Y., and Zhao, H.
Department of Geography and Computational Social Science
Lab, Kent State University
Spatial Rank and Spatial Markov for Urban Size Distribution in China
- 1120am-1140am Zhou, X., Ye, X., Liu, H., and Han, L.,
School of Resources and Environment, Wuhan University,
Department of Geography and Computational Social Science
Lab, Kent State University
Analysis on Urban Land Use Efficiency in China
- 1140am-1200pm Boateng, M.
Department of Geography, Brock University
*Exploring spatial relationships between politically motivated
targeting and intergovernmental revenue transfer in Ghana:
Application of GIS.*
- 1200-1220pm Li Xi and Kevin Czajkowski.
Department of Geography and Planning, University of Toledo
Toledo City Tree Canopy Extraction with LiDAR Images
- 1220-1240pm Trgovac, Andrew B. and Sharmistha Bagchi-Sen.
University at Buffalo-SUNY
*Geographic Variation in Male Suicide Rates and their
Determinants in the United States*

Session 2C 1100am-1240pm
Snyder Memorial 2100

Panel title: *Geographers at Work in a Changing World: Implications Within and Beyond Academia*

Organizers: Thomas Smucker and Beth Schlemper

This panel explores changes in private and public sector employment for geographers and the implications for geography education. Panelists will discuss changes in the fields in which geographers have traditionally worked, new professional niches, and how geography education can meet emerging opportunities while retaining its strong commitment to broad-based, liberal education. Career-related resources for students, professionals, and educators will be highlighted.

Angelyn Davis
Data Coordinator, GIS Analyst
Northwestern Water & Sewer District

Dan Hammel
Professor
Department of Geography and Planning
University of Toledo

Neil Reid
Professor and Director of the Urban Affairs Center
Department of Geography and Planning
University of Toledo

Dan Shrubsole
Co-Director, Centre for Environment and Sustainability
Professor and Chair
Department of Geography
The University of Western Ontario

Session 2D 1100am-1240pm
Snyder Memorial 2110

Economic Geography
Chair: F. Calzonetti

- 1100-1120am Barnes, J.R.
Department of Geography, Ohio State University
Crafting entrepreneurs: Etsy's corporate governance of cultural entrepreneurs through online retail sites
- 1120am-1140am Cleave, E. and Arku, G.
Department of Geography, University of Western Ontario
Promoting Economic Development: Examining place branding strategies and messages amongst communities in Ontario
- 1140am-1200pm Holland, E.C.
International Studies Program and the Havighurst Center for Russian and Post-Soviet Studies, Miami University
Offshore oil and gas production in Dagestan: public opinion on economic development and the environment
- 1200-1220pm Moore, M., Reid, N., and McLaughlin, R.
Urban Affairs Center and Department of Geography and Planning, University of Toledo and Department of Urban and Regional Planning, San José State University
The Locational Determinants of the Craft Brewing Industry in the United States
- 1220-1240pm Adams, T.
Department of Geography, Ohio State University,
Razing Residences and Removing Residents: A Study of the Mentalities of Mixed-Income Development in Poindexter Village.

Session 2E 1100am-1240pm
Snyder Memorial 2160

Cultural Geography
Chair: R. Shaklee

- 1100-1120am Shaklee, R.
Department of Geography, Youngstown State University
16th Century Mapping Of The Bahamas Archipelago: Filling In Blank Spaces.
- 1120am-1140am Crumplin, William and Williams, Donna.
Department of Environmental Studies, Laurentian University
“Sacred Cows” and Ecological Footprints: The inconvenient truth of a NHL season.
- 1140am-1200pm Oswald, J.
Department of Urban Affairs and Geography
Wright State University.
Territoriality within the UN Buffer Zone of Cyprus
- 1200-1220pm Northcote, M.
Department of Geography, University of Western Ontario.
Survivalism or Entrepreneurism? Investigating livelihood strategies of Cape Town refugees.
- 1220-1240pm McWilliams, Neusa.
University of Toledo, Department of Geography and Planning.
Migration and Globalization: Local Alternatives

**Special Session 1100am-1240pm
Snyder Memorial 3040**

Gamma Theta Upsilon (GTU) Roundtable Discussion

**Chair: Lisa M. DeChano-Cook, Department of Geography
Western Michigan University**

This forum is designed for anyone interested in Gamma Theta Upsilon (GTU) International Geographical Honors Society. Faculty and students are invited to share experiences, ideas, and concerns related to GTU. Information on the GTU Visiting Geographical Scientist Program will be provided. Organizers will assist geographers who wish to start a GTU chapter on a campus without one. Student GTU officers and prospective GTU members are welcome to network with students and faculty sponsors from other chapters.

Poster Session (continued) 1100-1240am, Snyder Memorial 3rd floor hallway

Adaniya, N.¹ and McDonald, J.²

¹Department of Geography, The Ohio State University, Columbus, Ohio 43210;

²Division of Geological Survey, Ohio Department of Natural Resources (ODNR),
Spatially Locating the Abandoned Underground Mine Maps of Ohio

Ames, A., Reynolds, E., Hashmi, S., and Czajkowski, K.

Department of Geography and Planning, University of Toledo

*DRAINMOD Estimated Drainage Rates of Agricultural Field Tile from Mapped
Biosolids Permitted Fields in Northwest Ohio*

Austin, B. Department of Geography, Kent State University

*Assembling Socioweathers from Partial Perspectives: Methodological
Considerations.*

Cail, Donghua, Sean J. Bennett¹, Michael S. Gallisdorfer¹, S. Mohammad
Ghaneezad², and Joseph F. Atkinson² ¹Department of Geography, University at
Buffalo., ²Department of Civil, Structural, and Environmental Engineering,
University at Buffalo

Effects of Engineered Log Jams on Mean and Turbulent Flow in an Open Channel

Chohaney, M., and Nemeth, David J.

Department of Geography and Planning, University of Toledo

Gypsy Territoriality and the Ofisa Shell Game.

Gibson, S., and Napieralski, J.

Department of Environmental Science, University of Michigan-Dearborn,

A cost-efficient approach to monitoring stream stage height in small tributaries.

Grote, T.¹ and Carol Griggs²

¹Department of Geography and Geology, Eastern Michigan University

²Cornell Tree Ring Lab, Department of Anthropology, Cornell University

*Changing Paleohydrologic Conditions from the Younger Dryas to the middle
Holocene in the Lake Ontario Lowlands, New York*

Jien, J. Y. and Gough, W. A.

University of Toronto- Scarborough

The Influence of Atlantic Hurricanes on Southern Ontario's Precipitation Extremes

Kennedy, J. Department of Geography, Western Michigan University.
Winter Soil Temperature and Validation of Soil Temperature and Moisture Model (STM2) and Simultaneous Heat and Water (SHAW) with Regard to Volunteerism

Leung, K, H. and Gough, W, A.
University of Toronto Climate Laboratory (UTCL).
The Influence of Synoptic Weather Conditions on Extreme Ground-level Ozone Events in the Downtown Areas of Toronto and Windsor, Ontario, Canada

McEwen, Shannon.
Department of Geography, Western Michigan University
No Fracking Way! A Study on the Spatial Patterns of and Changes in Perception and Distance from a Michigan Horizontal Hydraulic Fracturing Site

Mentzer, G. and Marok, J.
Acumen Research, LEADERS University of Toledo, Ohio.
Exploring Geographic Influence on University of Toledo's LEADERS program

Nikolic, J., Zhong, S. Walters, C. and Winkler, J.
Department of Geography, Michigan State University
A observational and numerical case study of the northerly low-level jet over the Great Plains of the United States

Shonkwiler, K. and Anderson, T.
Department of Geography, Ohio University.
The Gravestones of J.W. Jungkurth: Material Culture and Ethnicity in Pennsylvania-German Cemeteries in Central Ohio

Sweeney, S.J., Vanthof, V., Anwar, S.A., Nussli, E., Gardner, S., Hickson, D., Nair, M., and Bottenham, M.
Ontario Ministry of Agriculture and Food and Ministry of Rural Affairs.
Mobile mapping ground-truth mapping results for the agricultural landscape of the Regional Municipality of Essex, Ontario – 2013

Woodin, B. A.
Department of Geography and Environmental Studies, Aquinas College.
Land use Study of Brewster Lake, Michigan.

Zhao, Huanyang. Department of Geography, Kent State University.
Visualization of Twitter® messages – a geographical perspective

Plenary Session 230-340pm

"The Canada-US Border and the Great Lakes Economy"

There have been a number of initiatives lately addressing the economic, social and environmental future of the Great Lakes Region. Most define an integrated, bi-national region held together by a common resource base and a history of spatial interconnections. The Canada-US border is a critical spatial differentiator in terms of culture, policy and national aspirations. It is also a significant impediment to spatial interaction that retards the competitive position of the Great Lakes Region in the global economy. This presentation addresses the costs of the border and their broader implications. It also addresses binational policy steps that can be taken to reduce these costs without compromising the border's necessary political and security functions.

Snyder Memorial 2100

**Chair: Dr. Peter Lindquist, Department of Geography and Planning,
University of Toledo**

2:30-3:15pm Keynote: Dr. Bill Anderson
Ontario Research Chair in Cross-Border
Transportation Policy
Professor, Political Science
University of Windsor

Bill Anderson joined the University of Windsor as the Ontario Research Chair in Cross-Border Transportation Policy in 2008. He was formerly on the faculties of McMaster University, where he was Director of the McMaster Institute for Energy Studies and Boston University, where he was Associate Director of the Center for Transportation Studies. An economic geographer, his interests include the Canada-US border; economic analysis of transportation infrastructure investments; Canada-US economic integration; urban and regional economic development; transportation and border security; international trade and transportation planning. He is author of the recently published textbook *Economic Geography*. He has conducted research for numerous federal, state and provincial agencies in Canada and the US and has been a consultant to the World Bank. At Windsor, he founded the Cross-Border Institute, which conducts research on the movement of goods and people across the Canada-US border and the economies of the border regions. His recent report *The Border and the Ontario Economy* is available from the CBI website: <http://www.uwindsor.ca/crossborder/research-0>.

3:15-3:40pm Panel Respondents
Q/A

**Optional Tour of Ottawa River Restoration Project on UT Main Campus
230-330p**

**Meet outside south entrance of Snyder Memorial (facing the Ottawa River)
Patrick Lawrence, Department of Geography and Planning, University of
Toledo**

In August 2013, the UT President's Commission on the River completed the final phases of a restoration project for the 3,700 feet of Ottawa River which passes through the main campus of the University of Toledo. In planning since 2009, this project (funded by grants from Ohio EPA and USFWS) involved removal of invasive plants along the river bank – and subsequent replanting of native species – and the installation of numerous in-stream habitat structures using natural materials and innovative techniques. This tour will include discussions of the planning process, education and outreach efforts, building of partnerships and observations of the restoration work, led by the chair of the Commission, Dr. Patrick Lawrence.

Session 3A 400-540pm
Snyder Memorial 2040

Environmental Geography I
Chair: M. Jollineau

- 400-420pm Didiano, T.J. and Duval, T.P.
Department of Geography, University of Toronto-Mississauga
The effects of transient precipitation events on plant growth traits of multiple southern Ontario wetland species
- 420-440pm Duong, M.T. and Duval, T.P.
Department of Geography, University of Toronto-Mississauga
Ecohydrology of invasive honeysuckles: exploitation of soil moisture drives dominance
- 440-500pm Fast, V., Jollineau, M., and Reynolds, A.
Environment Applied Science and Management,
Ryerson University
Spatial patterns and temporal stability of soil moisture within vineyards in the Niagara Region
- 500-520pm Mason, S. A., Dixon, J., Mambulu, F., Rishworth, A.,
Mkandawire, P. and Luginaah, I.
Department of Geography, University of Western Ontario
Management challenges of urban biosolids: Narratives around facility siting in rural Ontario.

Session 3B 400-540pm
Snyder Memorial 2050

Environmental Geography II
Chair: Forsythe

- 400-420pm Forsythe, K.W., Hare, C., Atkinson, D.M., Aversa, J.M., Swales, S.J., Balta, R., McHenry, M. and Gawedzki, A.
Department of Geography, Ryerson University.
Assessment of Arsenic Contamination in Lake Erie Sediments.
- 420-440pm Hare, C. and Forsythe, K.W.
Department of Geography, Ryerson University
Assessing Ozone and Fine Particulate Matter Concentrations and Trends in Ontario, Canada, 2003 – 2012.
- 440-500pm Kedron, P.
Ryerson University.
Environmental Governance and the Formation of the Canadian Biofuel Industry
- 500-520pm Barrett, Linda R.
Department of Geosciences, University of Akron
Exploration of soilscape analysis using NRCS digital soil surveys.
- 520-540pm Meeker, A. and Gray, N.,
Department of Geography, University of Guelph.
The intersection of Marine Conservation and Volunteer Tourism: A case study approach in Northern Belize.

Session 3C 400-540pm
Snyder Memorial 2100

Weather and Climate
Chair: B. Crumplin

- 400-420pm Ying Tang, Lifeng Luo, Shiyuan Zhong, Xindi Bian, and
Warren E. Heilman.
Department of Geography, Michigan State University.
*The Impact of Regional Climate Change on Fire Weather in the
United States.*
- 420-440pm Matthews, Lindsay.
University of Waterloo, Department of Geography &
Environmental Management
Climate Change and Transportation in Prince George, BC
- 500-520pm Leung, A., Gough, W. and Mohsin, T.
Department of Physical and Environmental Sciences,
University of Toronto
*Air Mass Analysis and Climate Change Signals in the Hudson
Bay Region*
- 520-540pm Smucker, T.A.
Department of Geography, Ohio University
*From Narratives to Numbers (And Back Again): An Index of
Adaptive Capacity to Climate Change for the Kilimanjaro
Region, Tanzania*

Session 3D 400-540pm
Snyder Memorial 2110

Urban Geography
Chair: D. Hammel

- 400-420pm Akers, J.
Department of Social Sciences,
University of Michigan-Dearborn.
*Keeping it local: community responses to the Wayne County Tax
Foreclosure Auction and municipal incapacity.*
- 420-440pm Kibby, A.
Grand Valley State University
*Brownfield sites and impaired water bodies in Grand Rapids,
Michigan.*
- 440-500pm Sundvold, R. and Alam, B.
Department of Geography and Planning, University of Toledo
*Land Use Classification and Suitability Analysis for the
UpTown District in Toledo, Ohio.*

Session 3E 400-520pm

Snyder Memorial 2160

Human Geography

Chair: B. Schlemper

- 400-420pm Schlemper, M. B., Adams, J. A., and Solem, M.
Department of Geography and Planning, University of Toledo
Geographers in Business, Government and Nonprofit Organizations: Skills, Workplace Climate, and Professional Development.
- 420-440pm Wilson, Jimmy,
Department of History, Politics and Justice
Ohio Northern University.
“Brought to you by Carl Sauer and Steve Jobs: Historical Geography at Ohio Northern University.”
- 440-500pm Toops, Stanley.
Miami University
Tourism in Central Asia: Re-creating a Silk Road.
- 500-520pm Asiedu, K. O.
Department of Geography, Brock University.
Disaster Risk Reduction in A Human Security Perspective: the Case of Urban Ghana.
- 520-540pm Dershowitz, K.
Department of Geography, Miami University
Stakeholder Perception of the Environmental issues along Trails in Israel.

ABSTRACTS

Adams, T. Department of Geography, Ohio State University, Columbus, Ohio 43201. adams.1254@osu.edu.

Razing Residences and Removing Residents: A Study of the Mentalities of Mixed-Income Development in Poindexter Village.

In Poindexter Village, a public housing community in Columbus' Near East Side, poor and elderly residents were forcibly displaced in 2012 to facilitate the demolition of existing structures and the construction of new housing units in part for the poor and elderly in a planned mixed income neighborhood. This paper will draw on Foucault's framework of governmentality to explain the seemingly bizarre decision to displace longtime poor and elderly residents of a neighborhood and replace them with other poor and elderly residents. Through an analysis of the perspectives of actors involved in the development process, this paper will look deeper than the official articulations of development plans to understand the role of mentalities – the historically contingent forms of knowledge that shape the ways people think and behave – in guiding development choices and their relationship with the processes and outcomes of development. This project will draw from theories of mentalities of economic and urban governance, case studies of other development sites, and policy reports to demonstrate that development decisions resulted from forms of knowledge and assumptions that shaped planning ideas and explain why development strategies that reproduce known problems are accepted by planners and policymakers when the possibility for alternatives exist.

KEYWORDS: GOVERNMENTALITY, PUBLIC HOUSING DEMOLITION, MIXED-INCOME REDEVELOPMENT

Adaniya, N. Department of Geography, The Ohio State University, Columbus, Ohio 43210 Division of Health Services, Management, and Policy, College of Public Health, The Ohio State University, Columbus, Ohio 43210. adaniya.2@osu.edu

Review of the Geographical Framework for the U.S. Organ Transplant System

In transplant medicine, the process of procuring and allocation organs is complex and determined by geography. Due in large part to the history of the field, the current organ procurement and allocation system is more strongly rooted in SPACE and SCALE. Yet medical advancements that help prolong the TIME organs are viable post recovery and PLACE-based differences between geographic divisions should lead policy-makers to question if a more equitable or efficient system is possible. The historical background, geographies of organ transplant, and current issues are explored with the goal of opening a discussion on a new organ procurement and allocation system that is capable of seamlessly integrating SPACE, TIME, PLACE, and SCALE. KEY WORDS: HEALTH CARE SYSTEM, ORGAN TRANSPLANT, HEALTH ACCESS

Akers, J. Department of Social Sciences, University of Michigan-Dearborn, Dearborn, MI 48128.

Keeping it local: community responses to the Wayne County Tax Foreclosure Auction and municipal incapacity.

This paper examines the ways in which property is imagined and practiced and the emerging micro-level responses to government incapacity in crisis. On Detroit's southwestern border, Springwell's Village is one of the most dense urban areas in the city. Built as a working class neighborhood for laborers at Ford's River Rouge Complex, it is one of the most diverse areas in the city. Despite the presence of long term residents and increased immigration, the adverse outcomes of the mortgage crisis pushed the area closer to the brink as vacancy and abandonment proliferated. Recently, the increasing numbers of tax foreclosurers has spurred community organization and local residents to organize around keeping property in the hands of local residents. Their approaches include proxy bidding and auction workshops to educate fellow residents about property for sale in the area. They are addressing vacancy and abandonment through experimental deconstruction practices that could replace traditional demolition and using available technology such as smart phones to create real time maps and data about the condition and use of property in their communities.

Asiedu, K. O. Department of Geography, Brock University, St Catharines, Ontario, L2S, 3A1. oa11tm@brocku.ca.

Disaster Risk Reduction in A Human Security Perspective: the Case of Urban Ghana.

The numbers of disasters have been increasing worldwide and the number of people affected as well as cost has been increasing tremendously. Several scholars and practitioners of disasters have called for different frameworks to help reduce disaster risk and impacts. Conventional notions of security understand insecurity in terms of “threats to the state”. The human security concept reconceives security as “protection of people”. My research extends the human security concept further by including disasters as a human security concern. It examines the relevance of the human security concept in reducing disaster risk. Specifically, the research develops a conceptual framework for examining disasters from a human security perspective, through a literature review of the concepts of human security and disasters. It then applies the framework to a flood disaster case in Ghana through a case study. The research attempts to enhance the utility of the human security concept by strengthening its practical application to empirical situations. It also adds to existing literatures on disaster studies by offering a framework for reducing disaster risk. This presentation will focus on the relationship between security and human security, the effects of disasters on human security and the utility of the human security concept to contextual disaster prevention and mitigation.

Keywords: disaster risk reduction, disasters, human security, case study

Austin, B. Department of Geography, Kent State University, Kent, Ohio 44242.
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Assembling Socioweathers from Partial Perspectives: Methodological Considerations.

Recent research in the emergent field of cultural climatology has shown a movement toward analyses of everyday interactions with weather in an attempt to understand short-term and narrow-scale cultural practices that contribute to the conceptualization and perception of atmospheric phenomena. These studies primarily utilize ethnographic methods, though some critical discourse analyses mark an important connection between the ways people think about weather and the ways weather is represented. This paper offers a brief review of this body of work, focusing on ontological, epistemological, and methodological constraints to present understandings of the “everydayness” of weather. Following from this, I introduce a tentative methodology for utilizing social media data in a mixed-methods design that takes an intersectional approach to weather studies. As part of a broader project exploring the situatedness of weather-society interaction, this paper develops the central claim that any perspective of weather is partial and thus requires analytical groundings in feminism, post-structuralism, and ecology. I illustrate this approach using Twitter data collected during July and August of 2012 following major heat events across much of the US, concluding with remarks on the emergent concept of socioweathers in an attempt to open weather studies to new forms of analysis.

KEY WORDS: WEATHER, SOCIETY, SOCIAL MEDIA

Barnes, J.R. Department of Geography, Ohio State University, Columbus, Ohio 43210.
barnes.418@osu.edu.

Crafting entrepreneurs: Etsy’s corporate governance of cultural entrepreneurs through online retail sites

Many scholars and city planners highlight cultural production as imperative for employment, economic growth, and attracting investment and highly-paid workers into regions. People are increasingly encouraged to become cultural entrepreneurs by online blogs giving advice on how to “quit your day job,” particularly women who try turning their artistic hobbies into livelihoods. However, few succeed in earning significant incomes. Aspiring artist-entrepreneurs create significant value for communities while their own livelihoods remain precarious. In my dissertation research I examine entrepreneurial crafters to understand how their practices affect individual livelihoods and local economies. I consider the production and circulation of monetary and alternative types of value, hidden and new uses of space for craftwork, and multiple ways in which workers are governed. In this paper I present a section of this work. I use Foucault’s notion of governmentality as an analytic framework to understand the governance of independent craft sellers through online retailers’ selling policies, marketplaces, procedures, and representations of craft working and selling. Though most crafters work informally and independently, their efforts are governed by numerous discourses and techniques of power. I examine some of the most influential discourses and techniques from the Etsy corporation, an online retail distributor of craftwork.

KEY WORDS: CULTURAL ECONOMIES, GOVERNMENTALITY, CRAFTERS

Barrett, Linda R. Department of Geosciences, University of Akron, Akron, Ohio 44325-4101. barrett@uakron.edu.

Exploration of soilscape analysis using NRCS digital soil surveys.

The Natural Resource Conservation Service's county level soil surveys are now available in digital format (SSURGO) for most of the United States, and are therefore available for analysis in a GIS. In fields such as landscape ecology and geomorphometry, the release of other digital datasets have led in the past two decades to the development and widespread use of spatial pattern metrics, but such metrics have seldom been applied to digital soil surveys. The goal of this project is (1) to demonstrate how spatial pattern metrics can be used with SSURGO data to analyze soilscares and (2) to explore whether these metrics are useful in distinguishing among different physiographic types. Pattern metrics were calculated for 42 survey areas, most representing entire counties, chosen from each of the physiographic provinces in the conterminous United States. Some shape and size metrics show distinctive signatures for different physiographic settings.

KEY WORDS: SPATIAL PATTERN METRICS, SOIL SURVEY, SSURGO

Bartels, R. Department of Geography, Western Michigan University, Kalamazoo, MI 49008. Rudy.J.Bartels@wmich.edu

A Climatological Study on Drought in Southern Michigan

Drought has become a reoccurring phenomenon throughout many regions around the world. Significant drought conditions have been observed over the past five decades in relation to economic, social, and agricultural impacts. In this study, Southern Michigan is investigated over the past 52 years from 1960-2012. The Standardized Precipitation Index (SPI) will be calculated over a 6-month timescale from monthly precipitations. Three variables including 500-mb heights, surface pressure maps, and sea surface temperatures, will be correlated with the SPI using sliding correlations and Pearson's R correlation to determine any relations between these variables and precipitation variations. I will further investigate the five driest, wettest, and normal years to identify patterns in large-scale atmospheric circulation. This will allow me to examine the specific patterns associated with these extreme droughts and floods, and provide insight on drought prediction. The main goal of this thesis is to find correlations between these variables and drought in order to help better mitigate and forecast for drought in Southern Michigan. Keywords: Drought, SPI, Sea Surface Temperatures, Southern Michigan

Boateng, M. Department of Geography, Brock University, St. Catharines, Ontario. mb12xo@brocku.ca.

Exploring spatial relationships between politically motivated targeting and intergovernmental revenue transfer in Ghana: Application of GIS.

Intergovernmental revenue transfer is a vital component of effective decentralization in Ghana. Even though an equitable and apolitical formula is used for such transfers, previous studies reveal evidence of politically motivated targeting in such transfers. This paper uses a GIS to determine whether politics affect revenue transfers in Ghana. The paper maps changes in government through elections over time against revenue disbursed per selected districts. It also analyzes spatial autocorrelation for elections and revenue transfers using Moran's index. The results reveal no evidence of political motivation in regional revenue transfers over time. More importantly, this paper demonstrates the application of ArcGIS in empirical mapping of public policy implementation across space and over time.

KEYWORDS: ARCGIS, DACF, GEOPOLITICS

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¹ Department of Geography, Western Michigan University, Kalamazoo, MI, 49008

² Department of Anthropology, University of North Carolina, Greensboro, NC, 27402

Bryan.l.bommersbach@wmich.edu

Predictive Modeling in the Search for Vertebrate Fossils: Geographic Object Based Image Analysis (GEOBIA) in the Eocene of Wyoming.

The development and testing of predictive models for identifying productive fossil localities represents a promising interdisciplinary endeavor among geographic information scientists, paleoanthropologists, and vertebrate paleontologists. We analyzed high resolution (2m resolution) commercial satellite imagery from the Worldview-2 satellite of six areas of the Great Divide Basin using a GEographic Object-Based Image Analysis (GEOBIA) technique, which segments the image into spectrally homogeneous, multi-pixel image objects. In addition to allowing statistical analysis of the spectral characteristics of the image objects, GEOBIA techniques also let analysts incorporate expert knowledge and contextual information to improve classification accuracy. The spectral characteristics of the image objects that represent a highly productive sandstone locality (Tim's Confession, WMU-VP-220) were used to identify similar image objects throughout the local research area. During the summer field season of 2013, thirty one locations across five satellite images with clusters of predicted fossil localities were surveyed. At thirteen of these locations fossils were recovered, leading to the documentation of twenty five new fossil localities.

Cardwell, F.S., Elliott, S.J., and Devotta, K. University of Waterloo, Ontario.

"It Really Helps the Students": An Evaluation of the RunSMART Program

Increasing obesity rates among children and youth is a growing public health problem in both Canada and abroad. Although factors associated with obesity are complex, health behaviours such as physical activity participation play an important role in encouraging healthy and physically active lifestyles. In Canada, the school environment presents an ideal setting for engaging children in physical activity, as school-based interventions can impact children at a large scale. This research evaluates the runSMART program - a classroom spin bike physical activity intervention designed to help teachers meet daily physical activity requirements, increase physical activity in the school environment, and positively influence students' academic and behavioural outcomes. RunSMART took place in 16 grade 2-6 classrooms (8 control and 8 intervention, n=282 students) from 5 schools in the Region of Waterloo, Ontario. This presentation focuses on results from a post-intervention qualitative focus group (n=5 participants) conducted with teachers involved in the intervention. Multiple themes emerged, including both facilitators and barriers to implementation, student behaviour change, and advice for future program development. Next steps for the runSMART program and recommendations for daily physical activity in the school environment are discussed.

Keywords: Physical Activity, School Environment, Qualitative Methods

Chester, Winston. University of Toledo, Ohio 43606. winston.cheter@utoledo.edu

Microfinance Programs in Guatemalan

This study examines the impact of microfinance programs as a poverty alleviation tool in the village of San Antonio Aguas Calientes, Guatemalan. Using a case study approach, survey data was collected and analyzed to determine the financial impact of microfinance institutions (MFIs) on program participants as well as participant satisfaction with the microfinance programs they are using. Additionally, data will be compared to determine if there are any measureable distinctions between different types of MFIs. The study has three main objectives: 1) Examine how the use of microcredit loans for consumption spending by MFI customers is linked to customer financial data and customer satisfaction. 2) Look at the issue of multiple borrowing to determine if there is a link between financial and customer satisfaction variables. 3) Determine if there is a difference in financial impact and customer satisfaction between the global flagship MFI (Grameen Bank) and other MFIs operating in the study area for program participants who have borrowed money to start small businesses.

KEY WORDS: MICROFINANCE, GUATEMALA, DEVELOPMENT

Cleave, E. and Arku, G. Department of Geography, University of Western Ontario; Social Sciences Centre; 1151 Richmond St; London, ON, N6A 5C2. ecleave2@uwo.ca.

Promoting Economic Development: Examining place branding strategies and messages amongst communities in Ontario

The contemporary processes of globalization and the shift towards more neoliberal, entrepreneurial local governance in Ontario has facilitated an increased adoption of place branding strategies in the economic development policy agendas of the province's municipalities. Indeed, municipalities adopt place branding to differentiate themselves from their competitors in an effort to attract and retain talents and investment. An important element of place branding is the simple brand element – slogans and logos – and the ability to communicate this message to targeted audiences. Despite widespread usage, there are significant knowledge gaps about the actual state of place branding in Ontario, especially as it relates to the differences in approaches by the type and size of communities. This study examines the extent of branding in Ontario communities through a comprehensive inventory of simple brands that are communicated through community websites. The results show that while place branding occurs in all forms of communities, there is a relationship between community sizes, types and whether branding is occurring. Similarly, there is a relationship between community type and the brand elements being utilized. The results of the study provide insight into the sectors in which these communities are attempting to strengthen in their economic development efforts.

KEY WORDS: PLACE BRANDING, ECONOMIC DEVELOPMENT, ONTARIO

Crumplin, William and Williams, Donna. Department of Environmental Studies, Laurentian University, Sudbury, Ontario, Canada P3E 2C6. wcrumplin@laurentian.ca

“Sacred Cows” and Ecological Footprints: The inconvenient truth of a NHL season.

This paper builds on research determining the ecological footprint of competitive sports. As such, it explores the notion that there are many aspects of contemporary western life that are transparent in terms of the impact they have on the environment. This transparency is largely due to individuals and society adopting a wilful blindness toward the affects that cherished cultural, social and entertainment activities can have on the environment. As an illustration of how one such activity, or Sacred Cow, leaves a footprint, this paper uses calculations made to estimate the CO₂ emissions associated with the required travel for a full season of the entire NHL. This assessment follows a brief history of this sport and the results lay bare the need to critically evaluate the environmental impacts of non-essential and entertainment aspects of our society.

KEY WORDS: ECOLOGICAL FOOTPRINT, SPORT, NHL

DeChano-Cook, Lisa M. Department of Geography, Western Michigan University, Kalamazoo, Michigan, 49008. lisa.dechano@wmich.edu.

Gamma Theta Upsilon (GTU) Roundtable Discussion.

This forum is designed for anyone interested in Gamma Theta Upsilon (GTU) International Geographical Honors Society. Faculty and students are invited to share experiences, ideas, and concerns related to GTU. Information on the GTU Visiting Geographical Scientist Program will be provided. Organizers will assist geographers who wish to start a GTU chapter on a campus without one. Student GTU officers and prospective GTU members are welcome to network with students and faculty sponsors from other chapters.

KEYWORD: GAMMA THETA UPSILON

**Dershowitz, K., Lisa Department of Geography Miami University, Oxford, Ohio 45056.
dersholk@miamioh.edu**

Stakeholder Perception of the Environmental issues along Trails in Israel.

This presentation will explore stakeholders' perceptions of environmental issues within sustainability and ecotourism. I will be using a case study of Trails in Israel focusing on Mitzpe Ramon and Illaniya where my research takes place. This past summer 2013 I volunteered at an organic farm along the Jesus Trail and a hostel focusing on sustainability along the Israel National Trail. I surveyed, interviewed, and observed important stakeholders along the trails to see how they view sustainability and ecotourism in their areas and along the trails. I learned about the many environmental factors both trails were facing. Issues included large amounts of trash and lack of water in the South. I will also discuss remedies being utilized by stakeholders.

Key Words: Trails, Sustainability, Ecotourism

**Didiano, T.J. & Duval, T.P. Department of Geography, University of Toronto Mississauga,
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The effects of transient precipitation events on plant growth traits of multiple southern Ontario wetland species

Forecasted precipitation regimes are characterized by increased extremity, which could have implications for wetland plant communities where plant-water interactions are tightly coupled. However, the response of wetland plants to precipitation regimes are typically documented under static precipitation-water table conditions rather than transient precipitation-water table conditions. To address this gap in our knowledge, we established a greenhouse common garden using multiple southern Ontario wetland species (four forbs, two rushes, one sedge, and one grass) and applied three precipitation regimes (control, wet/dry cycle, and intense wet/dry cycle). To assess the response of plants, we harvested plant biomass and measured proxies of plant growth (leaf number, plant height, specific leaf area). We found that repackaging precipitation into fewer, larger events caused a decrease in plant growth for five of the eight species. We observed a decrease in total biomass for all four forb species and one rush species when grown under a wet/dry cycle in comparison to the control and intense wet/dry cycle. A decrease in total biomass was driven by changes in root and/or leaf production. Our results provide evidence that transient precipitation events drive changes in wetland plant growth, however this is dependent on the species and magnitude of the event.

KEY WORDS: WETLANDS, EXTREME PRECIPITATION REGIMES, PLANT-WATER INTERACTIONS

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Ecohydrology of invasive honeysuckles: exploitation of soil moisture drives dominance

The dominance of invasive species has been an issue for countries across the world ecologically, economically and financially; however, the biophysical mechanisms behind plant invasion have not been well studied. A potential theory to elucidate these interactions is that invasive plant species can exploit soil moisture through higher rates of transpiration, making the soil too dry for native species. *Lonicera maakii* (Bush honeysuckle) is an invasive shrub that has become a dominant plant species in many forested and grassland systems. The study was conducted in a grassland of southern Ontario, Canada. Water usage was inferred by rates of stomatal conductance and transpiration. Concurrent measurement of environmental factors controlling conductance were made to explain species-specific responses. *L. maackii* had higher levels of stomatal conductivity in younger plants and in top canopy leaves compared to native grass plants. As a result, soil moisture was lower beneath the invaded stands compared to areas of native grasses. The ability of *L. maackii* to exploit water through elevated transpiration provides the invasive species a competitive advantage against native plant species. Understanding the potential relationship between invasive plants species and water usage can allow new methods of spread prevention and control across diverse geographic regions.

KEYWORDS: plant-soil-water feedback; evapotranspiration; soil tension

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Spatial patterns and temporal stability of soil moisture within vineyards in the Niagara Region

The notion of terroir—the combination of physical (microclimate, geology, topography, and soil), and socio-economic (grape variety and vineyard management practices) conditions that contribute to the unique geography of vineyards—is evident at large spatial scales (i.e., vineyard sub-blocks). This study was designed to study the sub-block terroir within vineyards in the Niagara Region of Ontario, Canada. Among other key vineyard variables that contribute to terroir, the spatial patterns and temporal stability of soil moisture was analyzed. The soil moisture in four vineyards (totaling 12 sub-blocks) was measured during the 2008 and 2009 growing season. Using spatial interpolation and spatial autocorrelation, we determined that there are, in fact, spatially and temporally stable patterns in the soil moisture within vineyard sub-blocks. These findings can have substantial implications on how vineyard decision-makers currently design and manage their vineyards. For example, identifying vineyard sub-blocks with perpetually higher than average soil moisture informs precision or differential treatment; in drought conditions, it could require less irrigation, but in wet conditions, it could require targeted disease management. Overall, the more vineyard managers know about the unique characteristics present in their vineyards, the better equipped they are to respond with precision vineyard management strategies.

KEY WORDS: VINEYARDS, SPATIAL PATTERN, GEOSPATIAL TECHNOLOGIES

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Assessment of Arsenic Contamination in Lake Erie Sediments.

The Laurentian Great Lakes of North America are adversely affected by arsenic from both natural and anthropogenic sources. Arsenic is a naturally occurring pollutant that is pervasive in the environment. It can cause serious health issues in humans ranging from gastrointestinal discomfort to cancer and death. The distribution of this contaminant in the sediments of Lake Erie was examined in this study. Historical data from 1971 were compared with more recent data from 1997/98 to examine any changes that may have occurred, and explore the reasons for any differences. Traditional proportional circle representation and the ordinary kriging spatial interpolation technique were utilized to geovisualize the extent of contamination. In addition, bathymetry data were integrated in the analyses to assist in understanding the contaminant distribution patterns through the creation of “3D” overlays. The results indicate that arsenic sediment contamination in Lake Erie became more widespread between 1971 and 1997/98. Higher concentrations were found in proximity to traditional industrial areas on the southern shore of the lake and in deep lake basins where contaminants tend to migrate over time.

KEY WORDS: ARSENIC, LAKE ERIE, SEDIMENT CONTAMINATION

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Trace elements in agricultural soils of Saanich Peninsula, Vancouver Island, British Columbia, Canada.

The concentrations of trace elements in 30 Saanich Peninsula agricultural soil samples were determined by acid digestion and inductively coupled plasma – optical emission spectroscopy (ICP-OES). A comparison of the results obtained to a 1995 BC Ministry of Environment data indicated that As, Cu, Mo, Sb, Se and Sn concentrations had increased whereas the concentrations of Ba, Be, Cd, Cr, Co, Mn, Ni, Pb, V and Zn had decreased. The principal sources of the trace elements were anthropogenic sources including fertilizer and manure application, weathering of rocks and atmospheric deposition. The concentrations changes were largely influenced by the individual properties of the elements, soil texture, soil organic matter and clay content. The mobility of the trace elements in the soils was mainly controlled by clay content and followed the order Cd > B > Mo > Cr > V > Zn > Se > Co > Cr > As > Ba > Sb > Mn > Ag, Be, Hg, Ni, Pb. Key words: Trace elements, agricultural soils, biogeochemical cycles, weathering of rocks, phosphate fertilizer, soil pH, clay and organic matter, bioavailability and mobility

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Assessing Ozone and Fine Particulate Matter Concentrations and Trends in Ontario, Canada, 2003 – 2012.

Ambient air concentrations of ozone (O₃) and fine particulate matter (PM_{2.5}) in southern Ontario were analyzed in this study. Ontario is Canada's most populated province and a large area in southern Ontario shares a border with the United States of America. The data were obtained from the Ontario Ministry of the Environment (MOE) website. The Air Quality Index (AQI) network consists of 40 stations across Ontario that monitor concentrations of up to six pollutants on an hourly basis. The purpose of the study was to examine ambient air quality trends from 2003 to 2012 by generating prediction surfaces using the ordinary kriging spatial interpolation technique. Average O₃ and PM_{2.5} levels for each year as well as maximum pollutant concentrations for the lowest and the highest year for each contaminant were generated. The results show that average ozone levels increased since 2003, while average fine particulate matter levels decreased. Also, the maximum concentrations per year for both contaminants decreased significantly. This indicates that ozone is a continuing problem for Ontario, but fine particulate matter has been greatly reduced and air quality has generally improved.

KEY WORDS: OZONE, FINE PARTICULATE MATTER, KRIGING

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Offshore oil and gas production in Dagestan: public opinion on economic development and the environment

This paper presents collaborative research on hydrocarbon development in the North Caucasus of Russia. The economic program in Russia's republic of Dagestan includes plans to further exploit the hydrocarbon resources in the Caspian Sea. This paper analyzes public opinion in Dagestan on such development. Though the economic situation in the republic remains dire, there is not widespread support for increased hydrocarbon development. Rather, survey respondents expressed widespread concern over negative environmental consequences. More broadly, these findings suggest that public opinion should be acknowledged when formulating a centralized plan to deal with the continuing economic problems facing both Dagestan and the wider North Caucasus region, as skepticism and insecurity remain high among the local population.

KEY WORDS: CASPIAN SEA, OIL AND GAS PRODUCTION, PUBLIC OPINION SURVEY

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Trends in the Duration of Winter Road Season in the Western James Bay Region of Northern Ontario

In northern Canada, winter roads provide not only the transport of heavy machinery and essential goods such as food, fuel, and medical supplies at a low cost, but also facilitate social and cultural interactions in northern remote communities. The seasonal length of the roads depends on particular meteorological conditions which play a significant role in determining the viable operating season of winter roads. In this study, we focused on examining the trends of freezing degree-days (FDDs) and the landfast ice cover across the western James Bay region in order to investigate whether there is a temporal relationship between seasonal weather trends and the historical opening and closing dates of James Bay winter road. The results indicated statistically significant decreasing of FDDs and statistically significant trends toward earlier dates of opening water were observed; however, there were no statistically significant trends for the dates of landfast ice. This presentation will focus on the preliminary results of the doctoral research study that develops effective adaptation strategies for remote indigenous communities in northern Ontario.

KEY WORDS: ABORIGINAL ISSUES, CLIMATE CHANGE, WINTER ROADS

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How Societies Function: A Reflective Analysis on Human Behavior in Geopolitical Realms

Through my analysis, an attempt at answering the most basic understandings of society and modern developments are analyzed, which raise several questions like what is mythos or what is the political and cultural realities within a given place? The convolution of mythologies and cultures inspire the very means in which we human beings naturally operate. As we begin to define how we operate through modes of science, we enact a clear space or boundary, a structure accepted by all. Although I present this information with more questions than answers, there is one theory that aids understanding for this relationship between mythos and the spread of human thought: we choose our own individual reality and we set the stakes for our societies to either eliminate instability or create it. Human behavior when studied can help create forms of control within our societies or forms of individual freedom. It is important that we analyze these changes and strive to make the world a better place.

Keywords: individuation, geopolitics, human behavior

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Simulating urban growth on the US–Mexico Border: Nogales, Arizona, and Nogales, Sonora

This paper presents a comparative study of simulated urban growth and its impact on land-use and land-cover change on the US–Mexico Border cities of Nogales, Arizona, and Nogales, Sonora through GIS, Remote Sensing and a Cellular Automata model. The paired US–Mexico border cities of Nogales, Arizona, and Nogales, Sonora (known as Ambos Nogales), are the largest and most rapidly growing cities on the Arizona–Sonora border. The growing urban population is producing extensive land-use and land-cover change in the region. The continued expansion of paired cities presents many environmental management and urban planning challenges. This research employs a cellular automata model to examine the difference between the patterns and rates of urban growth and land-use change under different environmental and planning strategies in the two cities over the next 20 years (2004–2025). A series of Landsat Thematic Mapper (TM) images acquired over different time periods (October 1985, July 1991, February 1995, September 2000, and July 2004) were used to simulate urban growth using four planning scenarios, namely business as usual, environmental protection, road network, and antigrowth strategy. The study reveals that the unchecked urban growth trend in the business as usual, environmental protection, and road network scenarios simulates significant (99.5%) edge developments or organic growth throughout the region. In contrast, the antigrowth scenario, which emphasizes environmental protection, allows for more green and open space and is therefore considered the most desirable for planning future urban land use and development.

KEY WORDS: SIMULATION, URBAN GROWTH, CELLULAR AUTOMATA MODEL, LAND-USE AND LAND-COVER CHANGE, US-MEXICO BORDER

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Producing Corporate Nationality at an Export Processing Zone

The idea of corporate nationality has been criticized as a myth and legal fiction since globalization and neoliberalism promoted a view that corporations transcend national boundaries. Nonetheless, country-specific factors such as ownership, management, location, and geography are as influential as before. This paper investigates how corporate nationality is produced. It sheds light on how corporations perform national identity and how corporate nationality influences government practices. The case in study is a public-private partnership (PPP) in Caracol, Haiti, where the United States, Inter-American Development Bank, and a global garment assembly firm opened an export processing zone (EPZ) in 2012. At this seemingly transnational locale, corporations constantly exercise certain national identities by displaying flags and representing themselves as quasi-delegations of the nations. Governments and aid agencies participate in the production of corporate nationalities by interpreting the public-private partnership as a partnership between the host country and the countries that the corporate nationalities represent. The research shows that corporate nationality is not a myth but a reality whose materiality is constantly reproduced by both the public and the private.

Keywords: corporate nationality, export processing zone, foreign aid

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The Influence of El Niño-Southern Oscillation on Tropical Cyclone Activity in the Eastern North Pacific Basin

The inter-annual variability of tropical cyclone activity due to El Niño-Southern Oscillation (ENSO) phenomenon has remained largely unknown at the main development region of the eastern North Pacific basin. Here I classify years of El Niño and La Niña in relative measures of ocean-atmospheric conditions of Multivariate ENSO Index and statistically compare the overall storm activity and intensity using measures of the net tropical cyclone activity index and the power dissipation index respectively. Between 1971-2012, only the western and development region experienced a significant difference ($p < 0.05$) in the overall storm activity and intensity between the opposite phases of ENSO. Such a geographical division of the analysis highlights a more frequent and intense measures of storm activity, with a longer lifetime, are favoured during El Niño than La Niña condition. Extreme measures of ENSO conditions demonstrate, during El Niño events, more storm tracks originated from western region to reach Central Pacific, affecting islands of Hawaii; while, storm tracks from the eastern region shifts further poleward, landfalling in the southern and southwest US.

Key Words: El Niño-Southern Oscillation, Tropical Cyclone, Eastern North Pacific Basin

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Environmental Governance and the Formation of the Canadian Biofuel Industry

This paper examines how interactions among Canadian institutions influence the nation's environmental governance and the formation of its biofuel industry. As with other forms of renewable energy, biofuel is a non-assembled product manufactured in resource-rich regions from component innovations developed in geographically dispersed locations. The Canadian biofuel industry emerged as regional interest groups created favorable local policy environments aligned with existing industry interests to capitalize on regionally abundant feedstocks. Absent a single nationally dominant feedstock, those interests generated a variety of regionally specific market niches that shelter alternative technologies from the competitive pressures of the existing energy system. The federal government's adoption of international climate commitments and national emissions standards further encourages industry development by creating a national market for biofuel production. Moreover, without a single dominant production technology innovation continues along a number of trajectories. Collectively, these factors position Canada as a potential global seedbed of biofuel innovation. However, constitutional regulations that give jurisdiction over energy resources to provincial governments mean Canadian biofuel development and governance will experience on-going renegotiation.

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Brownfield sites and impaired water bodies in Grand Rapids, Michigan.

This study was done using exploratory research to demonstrate the spatial relationships that exist between brownfield sites and the impaired water bodies in the city of Grand Rapids. Through the redevelopment of potentially polluted property the city stands to improve environmentally as well as economically. The transformation of vacant lots will also allow the city to add green space while providing nutritious food to those in need. Brownfield redevelopment in addition to community gardens is a positive step towards improving the quality of life for all those living in the city. Keywords: Brownfield, Urban Agriculture, Impaired waterbody.

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International Students and Local Communities: Addressing Gaps in International Student Community Participation

Abstract: It has been speculated that by 2025 there will be 8 million international students distributed across the globe with the majority arriving at American universities (Altbach 2004). International students are not only important for universities, but even more so to the host communities, towns and regions where these higher education institutions are located. This pilot study, based on questionnaires and mental maps looks at Kent State University in Kent, Ohio, as a case-study to explore the relationships international students develop with their local American communities like the city of Kent, OH. As this paper will demonstrate, there is an opportunity to improve how international students engage locally, and identify where university towns could better accommodate the needs of internationals to further benefit from the capital brought into their local economies.

Key Words: International Students, Higher Education, Local Communities

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Air Mass Analysis and Climate Change Signals in the Hudson Bay Region

This study examined four locations around the Hudson Bay and Foxe Basin area. Air mass and homogenized surface air temperature time series analysis from 1971 to 2010 were performed. Linear regression and Mann-Kendall test were used to identify trends. Dry Polar (DP) and Moist Polar (MP) were the most dominant air mass types in the region, accounting for over 70% of the total air masses at each location in the study period. There appeared to be interplay between DP and MP. DP dominates during winter while MP dominates during summer. Other types of air masses such as Dry Moderate (DM) and Moist Moderate (MM) were observed primarily during the ice free season. Statistically significant decline in the annual number of days with DP and increase in temperature were found. In autumn, DP dominated the two northern locations earlier in the time series but MP dominated in all locations by the end of the time series. The warmer temperature in the region could be explained better with the decline in DP rather than all air masses becoming warmer. This suggested that application of air mass analysis could provide good indicators of climate change.

KEY WORDS: AIR MASS APPLICATION, SEA ICE, CLIMATE CHANGE

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Toledo City Tree Canopy Extraction with LiDAR Images

Toledo City needs to make a map of their city trees. They have a database collecting city tree information including addresses, number of trees in specific addresses, positions and species of the trees, history record of the trees, etc. It's complicated and time-consuming to make a relatively accurate digital map directly by using editing function with ArcGIS. One of the most important innovations in recent years has been the advent of LiDAR imagery. This imagery can be used in a lot of ways. One of important features of LiDAR is elevation, which could be used for tree and building extraction. Based on object-based classification method, this project tries to make an accurate Toledo City tree canopy map with LiDAR images by eCognition software. First, raw LiDAR LAS files of Lucas County are processed into DEM (Digital Elevation Model), DSM (Digital Surface Model) and NDSM (Normalized Digital Surface Model) for later tree canopy classification. Second, the rule sets are created and modified for tree canopy extraction with eCognition. The classification is exported into a shapefile finally as a result.

Keywords: Tree Canopy Extraction, LiDAR, eCognition

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The Entrapment at Pompeii

This paper will discuss the life and death of those at the Pompeii site during the volcanic eruption that destroyed many Roman cities. This topic will be explored from a cultural GIS perspective that integrates quantitative and qualitative data that looks at the victims and probable survivors of this tragedy. The author took an original look at the deaths and attempted to explore these deaths spatially. The paper will discuss an overview and conclusions to this endeavor.

KEY WORDS: SPATIAL GEOGRAPHY, GIS, CULTURAL GEOGRAPHY, HISTORICAL GEOGRAPHY

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Community Strength Among Participants of Urban Community Gardens in Cleveland, Ohio.

This paper used a closed-ended survey to compare the feelings of community among participants in three urban community gardens in Cleveland, Ohio to non-gardeners living in the same neighborhood. Cleveland was heavily impacted by the housing bubble and foreclosure crisis and lost a large percentage of its population. Many areas lost their sense of community as community members moved away. This paper evaluates the potential of urban community gardens to restore increase feelings of community in the neighborhoods of Cleveland. The results of the survey were analyzed using the community strength index to assign a score that indicated how strong the sense of community was at each of the gardens compared to the non-gardeners in the neighborhoods.

KEY WORDS: SURVEY, URBAN GARDENS, COMMUNITY, CLEVELAND

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The Cause of the Flash Flood in Calgary on June 20, 2013: Assessment of the Soil Moisture Before and After the Flood with Multi-Temporal Landsat Images.

On June 20, 2013, the city of Calgary, Alberta, Canada, suffered from one of the highest crests of rainfall (greater than 100 mm), resulting in catastrophic flooding and \$5 billion in damage to the city infrastructure. One of the key arguments raised for the occurrence of the disaster is that the accumulation of precipitation during early-mid June on already saturated ground surface moisture caused rivers to overflow. This study examines the validity of this argument by acquiring four Landsat 7 and 8 images collected on June 5th, 13th, 29th, and July 7th, in order to assess the Temperature Vegetation Dryness Index (TVDI) values (with more than 100 points digitized within the city of Calgary and its west region). The results indicated that the average TVDI was prominently wet near the Elbow River (TVDI = 0.33) located at West of Calgary before the flood. In addition, the TVDI also significantly dropped from 0.64 (on June 5th) to 0.32 (on June 13th) within the city. These low TDVI values (< 0.4) indicated that there was indeed an oversaturation in the ground moisture during early-mid June, which potentially led to the flash flood in addition to the snowmelt and heavy rain precipitation.

KEY WORDS: REMOTE SENSING, FLOOD, SOIL MOISTURE

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Investigation of Stemflow and Throughfall for Two Mixed-Deciduous Swamps in Southern Ontario.

This paper presents the investigation of the quantity and quality of stemflow (SF) and throughfall (TF) during precipitation (P) events of two swamps in southern Ontario: an ash-dominated swamp and a maple-dominated swamp. With the aid of this research, wetland conservation and management authorities can obtain crucial information regarding the fluxes of water into swamps, which are necessary to properly maintain a healthy wetland. This investigation will address the following objectives: (1) what percentage of P is reaching the wetland floor and how does it differ between the two swamps? (2) Determine the P characteristics that dictate TF and SF amounts (i.e. amount of P, duration, intensity). (3) Quantify the amount of dissolved organic matter (DOM) contained within the TF and SF water. Results: (1) TF for the ash swamp averaged 85% of P and SF was 3%. Maple swamp TF and SF were 74% and 2%, respectively. (2) The results suggest a positive linear relationship between amount of P, duration of rain events and P intensity to both TF and SF depths. (3) CDOM values, an index of dissolved organic carbon, were significantly higher for SF than TF, with no difference between maple and ash swamps.

KEYWORDS: WETLAND, PRECIPITATION PARTITIONING, WATER BALANCE

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Management challenges of urban biosolids: Narratives around facility siting in rural Ontario.

The on-going challenge of waste management has resulted in many municipalities looking for sustainable and greener ways to manage waste and its by-products. Using content analysis of public debates as reflected in media sources between August 2011 to December 2012, and situating the debate within science, policy and facility siting literature, this study examines claims and counterclaims relating to the siting of a biosolids waste processing facility in the Township of Southgate in rural Ontario. The results show that the public perceives biosolids as sewage containing human excreta mixed with a cocktail of potential contaminants that are readily thrown into the sewage in urban centers. Yet, the equivocal nature of scientific evidence on the health effects of biosolids resulted in a heated ‘expert versus lay’ debate in the study community. The study critically evaluates the shifting role of scientific evidence in politicized settings and makes relevant policy recommendations.

KEY WORDS: POLICY SCIENCE, URBAN WASTE, ONTARIO

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Climate Change and Transportation in Prince George, BC

Winter weather creates mobility challenges for most Canadian jurisdictions, leading to significant expenditures on winter road maintenance (WRM) programs. The science and practice of snow and ice control is evolving quickly but climate variability and change are particularly challenging for strategic planning of WRM. This research explores how changes in winter weather may translate into changes in WRM activities by 2041-2070 in Prince George, British Columbia relative to 'normal' conditions. The linkage between weather and WRM are analysed, using winter maintenance data made available by the City of Prince George and meteorological observations from Environment Canada. The approach taken to document the association between winter weather and both materials use and snow dumping is a winter severity index applied to simulated weather data based on NARCCAP (SRES A2 scenario) simulations of future change. Findings show that, notwithstanding changes in maintenance strategies, much of the variability in WRM can be attributed to weather. Climate models indicate that Prince George Region is expected to be at least two degrees warmer and with more precipitation overall but fewer snowfall days. The net effects for winter maintenance are expected to be beneficial as winter road maintenance activities are expected to be reduced by approximately 10 percent.

KEY WORDS: WINTER ROAD MAINTENANCE, CLIMATE CHANGE, SALT USE

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Migration and Globalization: Local Alternatives

Globalization has increased the mobility of labor, product of lower fertility rates and working age populations in developed nations that creates a demand for migrant workers to sustain national economic growth. As globalization penetrates remote regions of Mexico, indigenous populations have increasingly joined the wave of immigrants to the United States. An alternative more sustainable and viable model for rural development has been developed by organized producer organizations in remote regions of Chiapas and Oaxaca that includes full participation of democratic producer organizations, bio-diverse agroforestry and forestry systems, ecologically sustainable production and women's full inclusion in project design and management initiatives. Direct marketing of coffee by small producer organizations has become a paradigm for economic integration with social justice. Furthermore, self-organized alternatives and agro-ecological agriculture have emerged in this region as a consequence of the social and economic exclusion generated by neoliberal policies implemented since 1980s.

Keywords: Migration, indigenous population, fair trade, sustainable development

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The intersection of Marine Conservation and Volunteer Tourism: A case study approach in Northern Belize.

This research focuses on two interconnected and increasingly prevalent conservation strategies: marine protected areas (MPAs) and volunteer tourism (VT). Meeker aims to address the information gaps that have been identified highlighting the rapidly growing VT sector and its recognized potential as a strategy for promoting increased support for conservation specifically within a marine-based context. The researcher spent three months in the coastal community of Sarteneja, Belize, studying perceptions and impacts of Blue Ventures, an environmental non-government organization (NGO) that offers paying volunteers the chance to collect biological data within the Bacalar Chico Marine Reserve. Data were collected through 41 semi-structured interviews with multiple stakeholder groups, including volunteers, NGO staff, and local residents. Preliminary results indicate Blue Ventures and their volunteer tourism operations are offering community members tangible incentives that nurture marine conservation in the area. Strong perceived benefits include: alternative sources of income for the women of Sarteneja; environmental education programs in the local schools; increase in English skills; and the promotion of innovative conservation projects such as the Lionfish campaign, which aims to stimulate the market for the export of this invasive species. By focusing on this Belizean case study of volunteer tourism the researcher intends to offer a clearer understanding whether and how VT is perceived as contributing to marine conservation efforts in Belize.

KEY WORDS: MARINE CONSERVATION, VOLUNTEER TOURISM, BELIZE

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The Use of Geographical Information System (GIS) Analysis to Delimit a Protected Area for Old-growth Red Pine Forest in Wolf Lake, Temagami, Ontario, Canada

The Wolf Lake forest corridor in the Temagami Region of Canada contains the largest known contiguous ancient red pine forest in the world. Only 1.2% of the original old-growth forest in the Temagami region remains. The forest corridor is only partially protected under the Ontario Ministry of Natural Resource's "forest reserve" status and the protected area is spatially discontinuous. This "reserve" designation leaves the forest vulnerable by allowing competing and conflicting land uses in the form of mining exploration, claims and leases. Environmental and mining data from the Government of Ontario were utilized in this research for a Geographic Information System (GIS) analysis designed to delimit a contiguous protected area. Areas currently outside the forest reserve that contain important core ecological values are identified. In addition, mining claims and leases are identified and evaluated with respect to their likelihood of adversely affecting the health of old-growth forest and other ecological values. The research illustrates how a larger and contiguous region is required to protect an old-growth habitat. This recommended protected area can serve as a means to relocate mining interests and also alter the reserve boundaries to encompass areas of old-growth forest not currently protected.

KEYWORDS: OLD-GROWTH, GIS, TEMAGAMI

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The Locational Determinants of the Craft Brewing Industry in the United States

Between 1980 and 2010, the number of craft brewing establishments in the United States grew from 8 to 1,673. As the industry grows by number of firms and annually production, the locations of craft breweries display spatial patterns and tendencies. Across the United States, some places favor craft brewing establishments while other areas are devoid of such firms. The literature covering the brewing industry lacks methodologies covering spatial modeling of the industry. This paper aims to examine spatial determinants of the presence of craft brewing establishments. Three separate regression models were performed on MSA level data to identify the economic, locational, and cultural determinants of the number of craft breweries per MSA: base model, spatially lagged model, and spatially lagged two-stage least-squares model.

KEYWORDS: INDUSTRIAL GEOGRAPHY, REGRESSION ANALYSIS, LOCATIONAL DETERMINANTS

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Chasing chocolate: Recent investigation of collapse sinkholes (rejolladas) as loci of cacao production in the northern Maya lowlands

Rejolladas are collapse sinkholes with bases above the local water table that are densely distributed over portions of the Northern Lowlands of the Yucatan Peninsula. Typically they sustain moist microclimates in comparison to the surrounding terrain, as well as thicker soils allowing them to be used for more intensive agriculture. The paper presents a model of use and importance of the rejolladas based on archaeology, geomorphology, soils, botanical evidence, water table position, and geographic location in the Northern Lowlands. Specifically examples will be discussed from the sites of Uci-Cansahcab, Xuenkal, and near the modern city of Valladolid. Together these data strongly suggest that the sinkholes were utilized intensively by the ancient Maya for the production of cacao (*Theobroma cacao*) in an environment otherwise unsuitable for cultivation. In particular, deeper, steeper rejolladas were more likely to have been used for cacao production.

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A observational and numerical case study of the northerly low-level jet over the Great Plains of the United States

Low-level jets (LLJs) have a strong impact on the weather and climate of the Great Plains of the United States. Southerly LLJs are responsible for transport of moisture and heat northward from the Gulf of Mexico. They are main trigger of the summertime nocturnal convection in the Great Plains region. On the other side, Northerly LLJs have been linked to blizzards and large spread of wildfires. While southerly LLJs are widely studied phenomena, little is known about the formation and characteristics of the NLLJs. In our study we employed the Weather Research and Forecast (WRF) model to simulate two historical cases of a NLLJ. Main goal is to better explain and understand the structure and evolution of NLLJ, as well as the large-scale and local atmospheric environments in which they form. The WRF model is configured with multiple nested grids and is initialized using the North American Regional Reanalysis (NARR). The model results are compared with both surface and upper-air observations. Different model physical parameterizations and different scale process analyses are performed to identify important factors in the formation of the NLLJs.

KEYWORDS: northerly low-level jet, WRF model, NARR data

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Survivalism or Entrepreneurism? Investigating livelihood strategies of Cape Town refugees.

Contrary to the trend of many refugee-hosting countries in the Global South, where refugees and asylum seekers are often housed in camps, refugees and asylum seekers in South Africa are dubbed ‘urban’ refugees, and made responsible for providing for their own subsistence. For this reason, and because of the high unemployment rate in South Africa, many of the approximately 227,000 refugees find it difficult to access sufficient income to make ends meet. As foreigners with limited rights, frequently endangered by their position as ‘outsiders’, these concerns are heightened and transformed into chronic financial and social precariousness. Using ethnographic data collected over a four month period, from 35 individual interviews as well as interviews and observations with 10 organizations, this paper explores the ways in which refugees mediate their precarious social and financial positions in spite of inhabiting a political climate that is generally inhospitable to foreigners. The preliminary research findings focus on how, in the absence of adequate and formal support through intergovernmental and governmental agencies, refugees interviewed integrate into Cape Town’s formal and informal economies. Expanding upon the current body of knowledge of refugees in South Africa, this paper explores how refugees make ongoing use of informal networks and co-ethnic relationships in order to ensure survival on a day-to-day basis in Cape Town.

KEYWORDS: XENOPHOBIA, REFUGEES, LIVELIHOOD STRATEGIES, CAPE TOWN, SOUTH AFRICA

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Soil moisture availability and shrub physiological and morphological responses following wetland restoration

Despite the recognition of the increased value of wetland restoration, little is known about the growth dynamics of shrub thicket swamp restoration. Wetland plant species respond differently to soil moisture availability, and differences in soil wetness can be a strong determinant of plant success and distribution in a restored wetland. This study analyses the physiological and morphological dynamics of nine wetland species commonly used in thicket swamp restoration in Southern Ontario, Canada. Juvenile species were planted in three soil moisture treatments designed to simulate the range of post-restoration soil wetness. Stem height, stem count, volumetric water content, and stomatal conductance were measured on a regular basis throughout the growing season, and a full harvest for biomass was done after 16 weeks of growth. The stomatal conductance measurements can indicate the seasonal water demand of a plant based on the total potential transpiration rate. Preliminary data suggests that the different species planted have varying preferences for soil moisture, and that the growth success is not linearly correlated with soil water availability. The species-specific differences in plant growth and stomatal conductance in relation to soil moisture will be directly applicable to improved wetland restoration practices.

KEYWORDS: ECOHYDROLOGY, BRAMPTON, THICKET SWAMP

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Demographic Transition Model- Is Government Policy Enough to Raise Total Fertility Rate? Analysis of Germany in Stage 5

Germany, like many more developed countries, is in what some refer to as Stage 5 of the Demographic Transition Model. In fact, this country is one of the first with an active shrinking population, despite its large numbers of immigrants each year. In 2007, Germany passed a series of parental friendly laws through the Parental Allowance and Parental Leave Act. These laws were clearly enacted to encourage its citizens to have more children and increase fertility rates. Are economic incentives enough to promote fertility in a country? This research explores these issues through the lens of population trends in Germany by analyzing state level statistics, cultural and social factors, policy making, and immigration. Further, four research objectives guide the study: 1) What are potential variables impacting crude birth rates in Germany; 2) Which German cultural and social values affect family planning; 3) How has the implementation of government family planning policies affected both historical and contemporary population trends; and 4) How have immigrants shaped Germany's modern population? This study reveals that social and cultural trends have an indirect impact on Germany's continued low fertility rates, and that these trends are not considered to a full extent in Germany's political family policies.

KEY WORDS: POPULATION GEOGRAPHY, FAMILY POLICY AND PLANNING, GERMANY

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Territoriality within the UN Buffer Zone of Cyprus

There are many mechanisms available to communicate social and spatial separation in regions divided as a result of communal conflict. Physical partitions, armed checkpoints, and “no-go” areas are the most recognizable tools used to actualize division within fractured societies. There are, however, more subtle means available to project communal division and differentiation. Such mechanisms include the use of ethno-national symbols accentuate communal differences and “claim” the territory. Building off Sack’s ideas of “territoriality,” symbols are powerful tools used to consolidate the geographical “fixity” of communal identity, create or reinforce borders, and establish narratives aimed at “reifying” control over the landscape. Through evidence collected on the divided island of Cyprus, this paper identifies the frequency and utility of the ethno-national symbols used by both sides of the UN Buffer Zone. The research questions asked include: a) how pervasive and concentrated are ethno-national symbols across the Cypriot landscape? b) is there evidence of territorial functionality? c) who is the intended audience of these symbols?

Keywords: Cyprus, territoriality, ethno-national symbolism

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Spatial analysis of the unfavorable geotechnical dynamics dependence on the landscape position for a road build on permafrost.

The field records on unfavorable geotechnical dynamics along the Obskaya – Bovanenkovo railway (the Yamal Peninsula) were collected. The hazardous process occurrences were mapped on the permafrost landscape map for the area, and then the spatial analysis of their distribution was performed. The direct exponential interrelation between the intensity of unfavorable geotechnical dynamics along the road embankment and the embankment’s proximity to the nearest landscape boundary was identified. The findings may be used for a more precise and sustainable infrastructure planning in permafrost zone.

KEY WORDS: PERMAFROST, RAILROAD, LANDSCAPE DYNAMICS, SPATIAL ANALYSIS

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'End of Life' Options: Assessing Electronic Waste Disposal and Recycling Options in Montgomery County, Ohio

Waste electrical and electronic equipment (WEEE), commonly known as e-Waste or electronic waste, is comprised of electronic devices which have outlived their perceived practical use to someone and reached their end-of-life (EOL). Recently, e-Waste has become a contemporary issue with emerging problems arising from the rapid, increasing pace of technological change, low initial costs, planned obsolescence, and increasing global consumption. These elements have created an explosion of electronic waste resulting in the crucial issue disposal. The purpose of this study is to analyze and map e-Waste disposal and recycling in Dayton, Ohio, through the identification of the available options for properly disposing of this waste throughout or around the region. This study identifies the types of electronic waste collected and the corresponding quantities of each type collected from 2000 to 2012. The goal of this study is to not only assess the rates of electronic recycling and gain an understanding of why these rates occur, but also examine the interconnected relationships of electronic waste in a globalizing world.

KEY WORDS: E-WASTE, WASTE MANAGEMENT, RECYCLING

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Potential phosphate mobilization during the flooding of a former agricultural soil

Flooding agricultural soil enriched with fertilizer for the purpose of wetland creation runs the risk of releasing excess nutrients into the water column and creating eutrophic conditions. In particular, phosphate is of concern as it is typically the primary limiting nutrient for deleterious algal growth in freshwater ecosystems. This study assessed the current chemical and hydrologic conditions of the soil at a former agricultural land in Brampton, Ontario to determine the potential release of phosphate into the recipient water due to the processes of mineralization and the reduction of P-sorption to iron oxides under flooded conditions. Before wetland construction, phosphate levels were monitored throughout the growing season as well as the factors that can affect its release including moisture levels, dissolved oxygen and the redox conditions of the soil. Phosphate concentrations remained low throughout the site due to immobilization, but increased with soil depth and decreased overall throughout the growing season, correlating with soil moisture values and the reduction of the redox potential. This indicates that the flooding of this former agricultural soil could potentially release high amounts of phosphate due to the liberation of sorbed phosphate from iron oxides, ultimately leading to undesirable effects for downstream water quality.

KEYWORDS: wetland restoration; bioavailable phosphorus; eutrophication

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Geographers in Business, Government and Nonprofit Organizations: Skills, Workplace Climate, and Professional Development.

Increasingly geography undergraduate and graduate students are entering careers in business, government, and nonprofit organizations (BGN) as the US Department of Labor is predicting growth in geography and in geospatial technology, and academic positions are declining in availability. Through the use of structured logs, we collected data from 82 professionals employed in BGN organizations and analyzed 352 weekly logs from these participants, who reported on one week of work every month over a period of six months. Our analysis focused on working conditions affecting participants' progress toward work goals, workplace climate, professional identity, and the application of skills. Geographic information systems and technology accounted for more than half of the geographic skills respondents reported using on the job, and administrative and leadership factors were the most commonly cited types of transferable skills. Professional development activities were viewed as important because they enhance interpersonal interactions, facilitate work on specific projects, and expand individuals' knowledge and skills. Our findings suggest that nearly half of the reported workplace difficulties could potentially be reduced or eliminated as a result of more and better professional development. Nonetheless, many employers do not consistently provide these opportunities to their employees. Based on our analysis, we contend that professional development is a beneficial investment from undergraduate and graduate education throughout the entire course of a professional career. KEY WORDS: APPLIED CAREERS, WORKPLACE CLIMATE, PROFESSIONAL DEVELOPMENT

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16th Century Mapping Of The Bahamas Archipelago: Filling In Blank Spaces.

Sixteenth century maps provide marginal representations of the Bahamas Archipelago. Initially, maps of the region were hand-drawn scribbles recorded by mariners skirting coastal areas. Cartographic knowledge of the region lagged behind other New World areas as prudent mariners avoided the archipelago's uncharted reefs, rocks, and shoals. Mid-century maps imply a more complete knowledge base for the archipelago. Common errors included the longitudinal and latitudinal displacement of the islands and inaccurate displays of their relative size and shape. In some instances, Grand Bahama and Abaco were drawn as a single island and Andros, the archipelago's largest island, was conspicuously absent from many maps of the era. Map makers had to choose between conflicting sources of information. Monarchs zealously guarded the secrets held by these key to the New World through limitations on their distribution. Rudimentary and unreliable navigational aids limited map accuracy. Printing technologies limited the size, scale and accuracy of map products. Lacking human or physical resources, consistent interest in the Bahamas landscapes was delayed until its settlement in the 17th Century.

KEY WORDS: BAHAMAS, HISTORIC MAPS

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"Now we understand what 'community' really means": Exploring the positive and negative impacts of disaster on place attachments.

Recent research has examined the influence of abrupt environmental change on place attachments, including war, terrorism, and climate change. However, there has been much less empirical research that examines the influence of natural disasters on place attachments. The few studies that exist tend to focus on the negative impacts of disaster on place (e.g., displacement, disruption, and loss), and fail to adequately explore the positive impacts that may also occur as a result of disaster (e.g., sense of community, social cohesion, and collective efficacy). This research examines the F3 tornado that impacted the community of Goderich, Ontario on 21 August 2011. Using semi-structured interviews (n=35) and close-ended questionnaires (n=268) issues relating to sense of place and long-term recovery were explored. The results showed a strong connection between the tornado and participants' place attachments. As anticipated, many residents expressed feelings of loss, sadness, worry, and grief as a result of the salient changes to their familiar landscapes. However, it was also found that many participants experienced profoundly positive outcomes as a result of their shared experiences during and after the disaster. Notably, many Goderich residents reported strong feelings of social cohesion and optimism that persisted well into the reconstruction phase.

Keywords: sense of place, tornado, communitas

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From Narratives to Numbers (And Back Again): An Index of Adaptive Capacity to Climate Change for the Kilimanjaro Region, Tanzania

Heightened climate variability is altering climate-sensitive livelihood systems in highland and savanna communities and poses a fundamental challenge to both short-term coping capacity and long-term adaptive capacity. Importantly, changes in climate variability and societal responses to them are not uniform but highly differentiated across ecological and livelihood spaces. This paper reviews approaches to conceptualizing and measuring inequality in adaptive capacity at regional and local scales and presents preliminary research results. The paper explores regional inequality through the use of a household adaptive capacity index designed for the Kilimanjaro Region. The results of the regional level analysis are interpreted in light of participatory village and household-level capacity assessments that explore local-scale adaptation in four villages spanning the altitudinal gradient in Mwanga District, Kilimanjaro Region.

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Land Use Classification and Suitability Analysis for the UpTown District in Toledo, Ohio.

In Spring 2012, a project supported by the UpTown Association of Toledo, Ohio was initiated from the collaboration between Toledo Design Center (TDC) and University of Toledo in a course titled Community Planning Workshop. Using a Geographic Information System (GIS), students were able to classify all the properties in the UpTown District into distinct land uses. Students also conducted a walkability survey of the study area resulting in the recommendation of Complete Street elements and the renovating of a main arterial street to establish a pedestrian or bicycle corridor. Following the Spring 2012 semester, further collection and analysis of data was conducted through one of the students working as a summer intern with TDC. Collaborating with local architects and planners from TDC, analysis was conducted for land use suitability and presented to UpTown Association board members and stakeholders. Feedback was addressed and projects started to develop. A project suggestion which is currently being pursued includes an urban disc golf course on vacant property. Land use data and analysis' are planned to be reported in the future Downtown Toledo Master Plan.

KEYWORDS: LAND USE CLASSIFICATION, SUITABILITY, VACANT PROPERTY

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Pattern Analysis of Ohio's Economic Sectors

The presentation, as titled above, depicts the relationship between the various economic sectors in the state of Ohio. Our country has made a recent shift from a manufacturing economy to a service economy. This change sparked my interest in understand where in Ohio each particular economic sector is located. The pattern analysis of primary, secondary and tertiary economic sectors will allow insight into which types of locations are suitable and likely for each type of industry. The tasks for this research project will generally consist of: 1) Locating the data of the different economic sectors and their locations in Ohio; 2) Using this data to construct a map showing the areas of high and low density of each attribute/industry; 3) Analyzing and comparing the maps in order to understand the distribution of each sector; 4) Finally, using the maps and their results to suggest reasons for the distribution of Ohio's economic sectors.

KEY WORDS: ECONOMIC, SECTORS, OHIO

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Tourism in Central Asia: Re-creating a Silk Road.

Asia has become the most dynamic tourism region in the world. In Samarkand in 1994 a Silk Road project was begun under the auspices of the World Tourism Organization. Since then meetings in Xi'an, Nara, Kyoto, Tblisi, Bukhara, Tehran, Istanbul have all reaffirmed the principles of the Silk Road project. These principles entail the establishing of the Silk Road as a tourism product and creating awareness of the Silk Road in the tourism market. The various countries involved, China, Japan, Uzbekistan, Iran, Georgia, Turkey, Russia, and Kazakhstan to name a few, have worked on marketing and promoting the Silk Road product. I examine the creation of a tourist landscape along the Silk Road and discuss the impacts of tourism development in China, Kyrgyzstan, and Uzbekistan. (Key words: Asia, tourism, development).

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Geographic Variation in Male Suicide Rates and their Determinants in the United States

The geographic variation in the incidence of suicide has been well documented. In most aggregate studies, the effects of demographic and socio-economic correlates of suicide are assumed to be constant. The spatial nonstationarity of these variables and how they relate to the prevalence of suicide has yet to be explored. This study focuses on spatial heterogeneity of three variables frequently associated with male suicide: migration, separated/divorced marital status (SDMS), and unemployment. Using county level male suicide rates, a geographically weighted regression was used to determine the local coefficients for each variable. Each variable presents a unique geographic pattern with high SDMS coefficients in the northeast and southwest and high migration and unemployment coefficients in the west. The south shows negative coefficients for each variable suggesting other mechanisms influence the rate of male suicide in these counties.

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Highway Capacity Pressure Test in the Great Lakes Area by the Year 2040

Transportation planning combines both estimates and assumptions to forecast travel behavior over decades. Accurate forecasts can provide wise recommendations for transportation investment and policy formulation. This paper applies a four-step model to forecast freight demand on highways in the Great Lakes region at county level within 5 U.S. States (437 counties). The process used here follows standard modeling approaches in the first two phases, where base year flows are calibrated using 2010 County Business Pattern data to generate trip production/attraction volumes; these volumes are then fed into a gravity model formulation to distribute commodity flows between all county pairs. The third phase differs from the traditional forecasting approach, where no mode split is computed, only traffic assignment. Freight traffic is assigned onto the highway network under the assumption that there is no expansion to the capacity of the system. Two assignment methods are applied on the highway network: 1) all or nothing assignment, and 2) a new developed capacity constrained equilibrium assignment method. Once the base year is computed, a simple growth model will be added to the 2010 base-year forecasting result to obtain the traffic count on the highway links in the year of 2040.

KEY WORDS: Freight Demand Forecasting, Traffic Assignment, Highway Capacity

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Harold Innis and posthumanism: an exploration

Situated in the then-Political Economy department at the University of Toronto, Harold Innis contributed a particular perspective to the study of social, historical, and economic phenomena, especially those affecting Canadian spaces, places and territories. Remembered today for the “Staples Thesis” of economic development and his contribution to a “Toronto School” of Communications, his formulations, such as the spatial relationship between centre and margin, were complex and nuanced rather than formulaic. Innis’s web of interpretations were held together by his preoccupations with culture, with power, and with the sorts of “rigid” and “elastic” factors by which specific dynamics produce and reproduce themselves. This paper begins by examining how Innis is interpreted in recent geographic literature, followed by a theoretical investigation of the possible contribution of posthumanist and neomaterialist scholarship, beginning with the work of Donna Harroway and Bruno Latour, to the reading of Innis. In the main section of the paper, insights will be examined from various moments in Innis’s opus, and read through a postmaterialist lens, in order to assess the suitability of such a reading. A concluding passage reflects on what has been learned.

POLITICAL ECONOMY, ECONOMIC GEOGRAPHY, CULTURAL THEORY

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“Brought to you by Carl Sauer and Steve Jobs: Historical Geography at Ohio Northern University.”

This presentation elaborates on introducing historical geography to Ohio Northern University. The role of geography at ONU, a small private university, has traditionally involved supporting other degree programs by providing a few general education courses. Increased demand has led us to develop two geography majors that include new courses. Historical geography is one such course, and is taught with heavy emphasis on engaging the landscape and those who live in the area surrounding Ada, OH. The course addresses one of the most common concerns regarding our students: they come to ONU, get their degree and leave without learning anything about the area. In this course we talk about local cultures, then explore local archives, interview residents, take long drives and walks, all in efforts to glean information pertaining to a few important spatial phenomena. Modern technology provides us with the means of recording pictures and videos that are edited into documentaries. These are presented at a mixer at the end of the term.

KEYWORDS: HISTORICAL GEOGRAPHY, GEOGRAPHIC DOCUMENTARIES, ORAL HISTORY

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A Holocene Record of Lake-Effect Climate from Southwestern Lower Michigan

Miner Lake (42.7°N, 85.8°W) in Allegan County, southwestern Lower Michigan, is located 30 km east of Lake Michigan. Today, the local vegetation is comprised of primarily beech-maple forest and has a lake-mediated climate characterized by higher snowfall and warmer winter temperatures than inland locations. The objective of our research was to test whether the lake-effect climate in the past was a more dominant influence on the local climate of the Miner Lake area than regional paleoclimate patterns. We did this by analyzing sediment cores from Miner Lake for pollen, plant macrofossils and sedimentology (particle size, % organic matter (OM), and % calcium carbonate (CaCO₃)), and compared these data to paleoclimate data from two lakes from inland locations with similar latitudes. Our results indicate that the paleoclimate record of Miner Lake was, for the most part, invariant during the past several millennia, which suggests that a “lake effect” climate induced by nearby Lake Michigan was a more dominant control than the regional climate for this site.

KEYWORDS: physical geography; paleoclimate; Lake Michigan

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Spatial Rank and Spatial Markov for Urban Size Distribution in China

This paper investigates the dynamic spatial and temporal patterns of China’s urban size distribution from 1999 to 2011. We employ annual county-level registered urban population data, a fine-scale longitudinal data which to some extent reflects China’s public resource on supporting urban life. This paper utilizes spatial tau rank and spatial Markov methods. The Spatial Markov allows us to compare the global transition dynamics to those conditioned on regional context. More specifically, the transition dynamics are split across cities who have spatial lags in different quintiles at the beginning of the year. The Spatial Rank method is based on a comparison of the values of the urban size rank measured at two points in time over spatial units. A measure of rank correlation indicates how much relative stability there has been in the map pattern over the two periods. The spatial method reports the observed spatial tau against that expected if the rank changes were randomly distributed in space. The analysis demonstrated that the urban size dynamics in China was closely associated with varied geographical settings with different socioeconomic conditions, as well as economic reform and globalization.

KEY WORDS: RANK, MARKOV, SIZE

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The Impact of Regional Climate Change on Fire Weather in the United States.

Wildland fires pose significant threats to life and property in many regions of the United States. Various indices are used in wildfire monitoring and forecasting, including the Haines Index (HI) that is related to the potential for a plume-dominated fire to exhibit erratic behavior. HI is affected by atmospheric stability and dryness which are related to atmospheric temperature and humidity profiles. Climate change is expected to influence both variables, in turn the potential fire risk associated with weather conditions. The North American Regional Climate Change Assessment Program (NARCCAP) provides high resolution climate change simulations with multiple regional climate models. This study takes advantages of this dataset and calculates the changes in HI climatology between the simulated current and projected future climates. We examined the spatial and temporal changes in the probability of larger HI values between the GCM simulated current and future climate, and found that the probability of fire danger is likely to increase during summer season over most part of the United States. Upon further analysis, the humidity component presents more contribution the the change of HI, comparing to the stability factor. During summer time, the persistence of high HI events is also projected to increase.

KEY WORDS: HAINES INDEX, WILDLAND FIRE, CLIMATE CHANGE.

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Analysis on Urban Land Use Efficiency in China

This paper presents an approach to assess the urban land use efficiency and analyze the difference among them, based on 286 cities in China through 2001-2010. The research can better the decision process of land-use allocation and optimize land-use structure. This study consists of: 1) establishes the evaluation input and output index system which includes five input elements and three output elements; 2)utilizes the above measurements and DEA (Data Envelopment Analysis) to assesses the land use efficiency of each city, which contains overall efficiency, pure technical efficiency and scale efficiency of the land use, as well as their slack and redundancy;3) analyzes the spatial differences of the land use efficiency using ESDA (Exploratory Spatial Data Analysis). Finally, we will give some conclusions and suggestions.

KEY WORDS: LAND USE EFFICIENCY, DEA, ESDA

POSTERS

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Spatially Locating the Abandoned Underground Mine Maps of Ohio

The Ohio Department of Natural Resources' Division of Geological Survey (Survey) has been responsible for mapping the locations of over 5,100 abandoned underground mines (AUM) since 1977. Because the vast majority of the mining was conducted prior to enactment of modern reclamation law, these underground mines represent a potential hazard to the public's health, safety, and property. The Survey is currently updating the AUM GIS dataset, which involves high-resolution scanning of the abandonment mine maps, georeferencing of those mine map images, and updating the vector GIS boundaries of the AUMs. The Survey has scanned all the final abandonment maps at high-resolution (400 dpi) for digital archiving. These high-resolution images are then georeferenced within the GIS. Using control information on the maps, the images are georeferenced to base map datasets. These base map datasets include digital topographic maps, high-resolution digital orthophoto images, digital parcel datasets, and historical oil- and gas-well location maps. Once the maps are georeferenced, the vector outlines of the mines are edited. The new high-resolution mine maps provide the Survey with the ability to increase the accuracy of the mine map locations. With the increased accuracy, the Survey will be better able to protect the public's health, safety, and property within the state of Ohio.

KEY WORDS: GEOREFENCING, ABANDONED UNDERGROUND MINES, GEOLOGIC HAZARDS

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DRAINMOD Estimated Drainage Rates of Agricultural Field Tile from Mapped Biosolids Permitted Fields in Northwest Ohio

Subsurface agricultural tile allows excess water to drain out of a field to control the water level and increase crop production. The outflow typically empties to a ditch or creek and the water quality of surrounding waterways can be affected by nutrients in the outflow. Using aerial imagery from various sources and years, the location of agricultural field tiles on biosolids permitted fields in Northwest Ohio were identified and mapped. DRAINMOD was then used to estimate the drainage rates from field tile on biosolids applied fields in Lucas County. Input data for DRAINMOD were weather data, soil data and subsurface drainage system characteristics (tile spacing and depth). Based on the mapped agricultural field tile the range of tile spacing was determined to be approximately 10 – 40m. In 2009, annual precipitation was 101.9 cm with outflow ranging from 50.5 cm per unit area at 40m tile spacing to 58.1 cm per unit area at 10m tile spacing. Outflow from the 10m spacing shows the fastest response with quick peak outflow, while the 40m spacing started slower but was also slower to end. The simulations show that the 10m spacing produced more total runoff from the tiles.

Keywords: Agricultural field tile; GIS; Subsurface tile drain detection

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Effects of Engineered Log Jams on Mean and Turbulent Flow in an Open Channel

The beneficial influence of large woody debris as a control on ecological and hydraulic processes of river system has been recognized. Engineered log jams (ELJs) are increasingly implemented by river restoration projects on the premise that they can function as natural counterparts. A flume experiment has been conducted to assess the influence of the ELJs structure on flow. Two types of physical scale models have been designed to simulate the ELJ prototype and a flume has been built to mimic the prototype, the Big Sioux River, SD. The results of this study show that ELJs markedly decelerate flow near the structures, creating stagnation zones of flow, and accelerate flow in the vicinity of the structures, producing a high-energy turbulence mixing layer. The bed shear stress is evidently high in the vicinity of the structures. Yet the changes of spatially-averaged streamwise velocity component and flow depth are negligible. Besides, the shapes of different types of ELJ have an influence on the efficiency of the ELJs.

KEY WORDS: ENGINEERED LOG JAMS, RIVER RESTORATION, PHYSICAL MODELLING

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Gypsy Territoriality and the Ofisa Shell Game.

Romanies have sustained their remarkably successful underground existence depending on specialty trades in territorial niche markets. The Rom, an ethnic Romani sub-group, rely on fortune-telling as their major source of income. Fortune-telling “offices,” translated from ofisas in the Romani language (Rromanes), are the center of urban market areas, with entire towns being sold as fortune-telling territories. Many Rom sell ofisas via internet message boards and streaming video websites, exposing valuable information on desirable location attributes, territorial disputes, as well as the (self) appraised value of their territories. By mining these posts, one of the co-authors was able to compile a large georeferenced dataset on ofisa prices and characteristics, which offered initial insights into measurable attributes impacting ofisa prices. These empirical results when mapped inspired the creation of a crude ofisa location prediction model. Our poster presentation graphically highlights findings from the data gathering process, including ofisa design, terminology, and territorial disputes. In general, the data-dredging process from Internet sources reveals previously unknown details about Rom communication, territoriality, and ofisa location selection.

KEY WORDS: TERRITORIALITY, FORTUNE-TELLING PARLOR, GYPSY FEUDING, NICHE MARKETS, SPATIAL REGRESSION

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A cost-efficient approach to monitoring stream stage height in small tributaries.

Stream restoration within urbanized watersheds requires continuously monitoring physical, chemical, and biological characteristics that can measure stream health. Although the United States Geological Survey (USGS) deploys a variety of tools to record stage height, the network of gaging stations may be spatially and temporally coarse for detailed studies of stream response to urbanization and restoration. We designed a low-cost, Ultrasonic Stage-height Datalogger to monitor stage height in small tributaries that can be mounted beneath small bridges or as mobile stations anchored along streambanks. The device in its current form can measure distances up to five meters with an accuracy of three centimeters which limits its application to small tributaries. The relatively compact, cost-efficient design means multiple devices can be deployed within areas undergoing restoration (e.g., dam removal, dechannelization) to measure short time-scale variability in streamflow, as a result, the link between restoration efforts and impact on aquatic habitat.

Key words: water monitoring, sonar device, stream restoration

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Changing Paleohydrologic Conditions from the Younger Dryas to the middle Holocene in the Lake Ontario Lowlands, New York

The Bell Creek valley provides a snapshot of late Quaternary paleohydrologic conditions spanning the Younger Dryas (YD) through the middle Holocene for the southeastern Lake Ontario lowlands, New York. Basal sediments exposed along Bell Creek near Ingalls Crossing indicate the site was inundated by late glacial lake Iroquois until about 9-10 ka 14C before present (14C BP). At that time lake level fell, and fluvial systems prograded lakeward towards the new base level. Alluvial sediments of this phase contain abundant logs that suggest that a boreal-type open forest environment was established in the area during the late YD. Prevailing paleohydrological conditions at the site would have changed from cold and dry to cool and moister conditions through the end of the YD. At some point either in the late YD or early Holocene, the site transitioned into a floodplain paleowetland environment with a water table at or near the surface. Paleowetland conditions appear to have ended by about 6.6 ka 14C BP as the site was slowly buried by overbank sedimentation as climate possibly warmed and dried. These results suggest a paleohydrology similar to results of other research within the formerly glaciated Northeastern US. Keywords: Paleoenvironmental Change, Paleohydrology, Late Quaternary

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The Influence of Atlantic Hurricanes on Southern Ontario's Precipitation Extremes

Little is known about the influence of hurricanes on the occurrence of precipitation extremes (PEs) in southern Ontario, Canada. Here, we examine PEs and their spatial-temporal linkage with the occurrences of hurricanes in southern Ontario from 1950-2000. On average, 5.4 PEs or 11% of the fifty wettest days in the selected five locations were observed to occur under the influence of hurricanes within the fifty-one year period. Our results indicate hurricane-induced PEs are most frequent in September, the peak month of hurricane formation, and derive from storms which had reached major hurricane status (>50 m/s) at some point in their lifetime. An absence of landfall hurricanes in southern Ontario during the 1960s-1980s suggests either that the direct impact of hurricanes occurs on a multi-decadal time scale or that recent years are experiencing unprecedented change.

Key Words: Precipitation Extremes, Atlantic hurricanes, southern Ontario

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Winter Soil Temperature and Validation of Soil Temperature and Moisture Model (STM2) and Simultaneous Heat and Water (SHAW) with Regard to Volunteerism

Winter soil temperatures influence volunteerism of crops and the ability of pathogens and pests to successfully remain overwinter in the soil. Two models, the STM2 and SHAW models, are designed to predict soil temperatures but are typically used for warm temperature modeling of crop and/or pest emergence. We examine each of these models for their ability to estimate winter soil temperatures in Michigan as a method for predicting potato volunteerism and potato late blight survival in the soil. Estimates were compared with archived data from the Michigan Automated Weather Network. Although the SHAW model is much more complex and incorporates a wider range of input variables, both models had very similar results. When temperatures remained about 40°F, both models were fairly accurate, however during episodes of snow and snowmelt both models were highly inaccurate. Models were tested at five locations in Michigan. The data shown here highlights the results from Clarksville and a composite results from all five locations. Unfortunately these models proved to be less useful than anticipated in estimating winter temperatures throughout the state.

KEY WORDS: WINTER, SOIL TEMPERATURE, VOLUNTEERISM

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The Influence of Synoptic Weather Conditions on Extreme Ground-level Ozone Events in the Downtown Areas of Toronto and Windsor, Ontario, Canada

In the Province of Ontario, especially the southern part, the number of smog advisories has been slowly increasing since 2000. Ground-level ozone (O₃) is perhaps the most familiar pollutant because it is associated with most smog alerts. Ozone data from 2000 to 2010 were examined in relation to the concurrent weather conditions/air masses of the Toronto and Windsor areas in order to determine whether the extreme ground-level ozone events were associated with specific weather conditions/air masses and to compare the results of the two cities. These results show that during the study period, for both cities, there was a total of more than 150 days (about 2 % of the total days) listed as days having an extreme ground-level ozone event with the O₃ concentration ≥ 80 ppb, the current Ontario 1-hour Ambient Air Quality criterion for extreme ozone concentration. In addition, the weather condition/air mass mainly associated with these extreme ground-level ozone events was found to be Dry Tropical. As well, when the ozone-concentration thresholds were changed incrementally from ≥ 80 ppb to ≥ 20 ppb, the dominant weather condition/air mass for each threshold changes as well. For the two sites however, the Dry Moderate and the Dry Tropical were the two most dominant weather conditions among all the thresholds of O₃ concentrations in the ten-year study period.

KEY WORDS: EXTREME GROUND-LEVEL OZONE, SPATIAL SYNOPTIC CLASSIFICATION, AIR QUALITY

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No Fracking Way! A Study on the Spatial Patterns of and Changes in Perception and Distance from a Michigan Horizontal Hydraulic Fracturing Site

The purpose of this study is to investigate if Michigan residents' perception of danger from an oil and natural gas (ONG) well site that employs the use of horizontal hydraulic fracturing (fracking). The research goal is to determine if residents that live farther from a fracking site perceive it to be more dangerous than those who live closer. Data were collected from residents in three counties in Michigan using a specially designed questionnaire. These data have been analyzed using ANOVA, Pearson's R, and Chi Squared statistical tests as well as incorporating ArcGIS to examine potential spatial patterns present within the study area. Preliminary results show residents from varying distances from fracking sites have expressed differing levels of concern regarding the aspects of the fracking process.

Key words: Perception, Fracking, Michigan

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Exploring Geographic Influence on University of Toledo's LEADERS program

This poster explores if location plays an influence on the resource utilization of the participants of the National Science Foundation Math Science Partnership, LEADERS, at the University of Toledo, Ohio. Participants in the LEADERS science initiative come from the Toledo region. We looked at various location factors: state divide between Michigan and Ohio, school districts, and Urban/Rural communities. We looked to see if these factors have any correlation to the amount of resources LEADERS participants use in professional development preparation of science content, project based science pedagogy, and integrating local economy into content (goals of the project). Other traditional factors were also explored: teaching experience in years, male/female, grade levels taught, and classroom size. Using UCINET centrality measures we created a score for each participant's utilization of resources in the LEADERS program. With multiple regressions we explored each of the location factors with a combination of traditional factors. The results presented here will hopefully give science programs like LEADERS a method of exploring factors that influence science teacher professional development.

KEYWORDS: SNA, SCIENCE TEACHING, TOLEDO

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The Gravestones of J.W. Jungkurth: Material Culture and Ethnicity in Pennsylvania-German Cemeteries in Central Ohio

This paper discusses the gravestone art of J.W. Jungkurth, an important tombstone maker whose work can be observed in several 19th-century Pennsylvania-German cemeteries in central Ohio. Between roughly 1790 and 1850, nearly 6,000 persons of Pennsylvania-German background migrated from southeastern Pennsylvania to central Ohio. This migration eventually engendered a distinctive cultural landscape in the region with characteristic material culture elements such as forebay bank barns, rural Lutheran and Reformed churches. An additional element of this landscape is the dozens of small ethnic cemeteries, many with gravestones engraved with cultural motifs indicating Pennsylvania German group identity. J.W. Jungkurth was a prominent tombstone maker whose business catered largely to Pennsylvania German migrants. His motifs, epitaphs, lettering, and designs embraced Pennsylvania German cultural identity and iconography but also incorporated national trends that existed during the early 19th century. Jungkurth's gravestones exhibit a style of their own as well, focusing on symmetry, deviation, and orderliness.

KEYWORDS: PENNSYLVANIA GERMANS, GRAVESTONES, MATERIAL CULTURE

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Mobile mapping ground-truth mapping results for the agricultural landscape of the Regional Municipality of Essex, Ontario – 2013

The Regional Municipality of Essex occupies a peninsula in southwestern Ontario bounded by the Lake St. Clair on the north, the Detroit River on the west, Lake Erie on the south and the Regional Municipality of Chatham-Kent on the east. This region's location, geological heritage, climatic conditions and farmer industriousness to utilize its soil resources have contributed to a long history of diverse agricultural production. High-resolution digital orthophotography benchmarks this agricultural landscape at several times over the past decade. The 2006 and 2010 coverages were used to differentiate all agricultural and rural landscape features within a high-resolution, seamless digital polygon framework crafted with line work at the 20 and 30cm pixel imagery resolution. This digital landscape geomatics product is known as the Ontario Agricultural Resource Inventory (AgRI; Sweeney et al., 2013). Individual farm fields and farmsteads were among the most prominent of the features that were digitized. Mobile mapping technology, using a mapping script written in ArcPad 10, was used to record farm landscape observations throughout the 2013 field mapping campaign. The 2013 crop map product, derived from these ground-truth observations for Essex Region, is presented.

KEY WORDS: AGRICULTURAL CROP MAP, MOBILE MAPPING, ESSEX REGION ONTARIO

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Land use Study of Brewster Lake, Michigan.

This study takes a historical look at the environment surrounding Brewster Lake in Barry County, Michigan. The study utilizes both a historical and paleolimnological perspective to unravel the complex history of landuse and erosion in this relatively small area. The land surrounding Brewster Lake has undergone significant changes in the past two centuries. European migration to Michigan in the 1850's witnessed the beginning of intensive farming activity within the study area. Preservation efforts beginning in the 1980's have culminated in the creation of the Pierce Cedar Creek Institute, encapsulating Brewster Lake and restoring 661 acres of land to natural ecosystems. Sediment cores reveal roughly 5.2cm of sedimentation per century from 6000ybp to 3470ybp. However, from 3470ybp to the present, the sedimentation rate was only 1.9cm per century which includes all of the sedimentation from the historical land use in area. Sedimentation in recent years appears to be either less or not appreciably more than it was before European settlement and land use. The minimal effects on the lake from the terrestrial landscape's journey from old growth forest to intensive agriculture back to young forest prairie fen illustrates the resilience of some aquatic ecosystems in the face of terrestrial change.

KEY WORDS: HISTORICAL LANDUSE, PALEOLIMNOLOGY, BARRY COUNTY MICHIGAN.

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Visualization of Twitter® messages – a geographical perspective

As a digital wonderland, the cyberspace provides with people endless possibilities of sharing ideas, meeting with others as well as achieving goals. Built on cyberspace, the virtual communities of Facebook, Twitter® and other social media applications have been effectively interacting with the real world. However, whether cyberspace activities have a realworld geographical manifestation and how people may perceive it remain debatable. This poster provides visualizations of Twitter® messages of specific topics. Several datasets of Twitter® messages are retrieved from the Internet, among them, those that carry GPS coordinates will be visualized and their associated attributes (i.e. number of followers, friends, etc) will be highlighted. The visualization is to directly demonstrate the geographical manifestation of the selected tweets and identify the effects those associated attributes may have upon the spatial-temporal distribution and topic sensitivity of the Twitter® messages.

KEY WORDS: TWITTER®, VISUALIZATION, SOCIAL MEDIA