

# NACIS 2011

**madison, wisconsin**

October 12-14, 2011

The Madison Concourse Hotel



photo courtesy of ann althouse

## CARTOGRAPHY & INFORMATION DESIGN

TECHNIQUE • PUBLIC SERVICE • GEOHACKING • MAP COLLECTION • ART • RESEARCH • GEODESIGN

## WEDNESDAY

9:00-5:00	PRACTICAL CARTOGRAPHY DAY
11:00-4:30	PRACTICAL MAP LIBRARIANSHIP DAY
6:00-8:00	OPENING KEYNOTE PRESENTATION
8:00-9:00	POSTER SESSION AND RECEPTION

## THURSDAY

7:30-9:15	ANNUAL BUSINESS MEETING
9:30-11:00	MORNING SESSION I
11:15-12:30	MORNING SESSION II
12:30-2:00	LUNCH BUNCH!
2:00-3:30	AFTERNOON SESSION I
3:45-5:00	AFTERNOON SESSION II
6:30-9:30	NACIS NIGHT OUT

## FRIDAY

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6:30-8:30	ANNUAL BANQUET
9:00-10:00	GEODWEBB GEOPARDY

## SATURDAY

9:00-12:00	WORKSHOPS
7:30-6:45	EXPLORE WISCONSIN FIELD TRIP
10:00-6:00	WISCONSIN HOMECOMING TAILGATE
6:00-9:00	UW CARTOGRAPHY CELEBRATION

## SUNDAY

9:00-5:00	WHERECAMPMSN
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## Welcome to Madison!

It gives us great pleasure to officially welcome you to Madison for the 31st Annual NACIS Conference. Thanks for coming! We hope you enjoy one of our most action-packed conferences ever and, most of all, that you find time to reconnect with or meet for the first time lasting friends and professional colleagues. Our community is truly what makes NACIS a vibrant organization.

The theme for this year's conference is  
**how does design make a difference?**

What difference do a cartographer's painstaking choices ultimately make? What role does cartography play more broadly in improving our social, environmental, and intellectual condition? Through a wide range of talks bracketed by our two keynote presenters, we think you'll come away with an overwhelmingly optimistic view of the enduring value of design and the future of our field!

We invite you to consider and interpret this broad question through your own lens, and hope that you will contribute your own stories, experiences, and theories of how much difference design makes!

Again, welcome to Madison!



**Tanya Buckingham**  
President



**Erik Steiner**  
Program Chair



## WEDNESDAY

9:00-5:00

Practical Map  
Librarianship Day

Practical Cartography Day

8:00-9:00

Poster Session and Map Gallery

## THURSDAY

9:30-11:00

Enhancing Cartographic  
Collections with Geospatial  
Technologies

Complexity and  
Uncertainty

The Power of Maps

11:15-12:30

Can't We Just  
Make A Map?

Empirical Findings

Mapping People

2:00-3:30

Embracing History and  
Culture in Cartographic  
Collections

Mobile Apps

Art in Modern  
Cartography

3:45-5:00

Panel of Geospatial Orgs

Classroom Maps  
Then and Now

Dynamic Mapping

## FRIDAY

8:00-9:45

Serving Online Maps

GeoDesign: Changing  
Geography by Design

Representing Terrain

10:00-12:00

Designing for our  
Environment

Teaching Cartography I:  
Re-examining Core Principles

Explorations, Experiments,  
and Expressions

1:30-3:00

Visualizing Oral  
Histories

Teaching Cartography II:  
Refining Your Approach

The Extinction of Cartography?  
Mapping for today's audience

3:15-5:15

Narrative Maps

Papers in Honor of  
Stephen J. Lavin

Decision Support Design

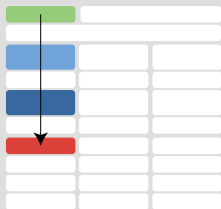
UNIVERSITY ROOM

CAPITOL BALLROOM A

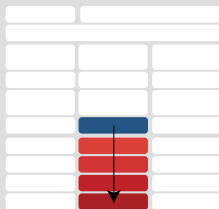
CAPITOL BALLROOM B

# Possible Interest Sequences

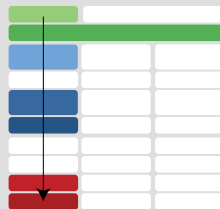
Collections



Teaching



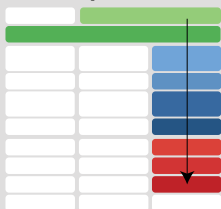
History



Web & Mobile



Techniques

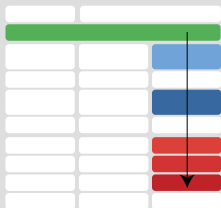


Research

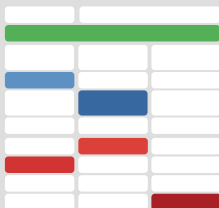


Make your own!


Art



Planning



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- 9:00-5:00 WHERECAMPMSN

## WEDNESDAY 9:00-5:00

### CAPITOL BALLROOM

## Practical Cartography Day

Organizers: Tim Wallace and Sam Pepple

### 9:00-10:00

Adobe Illustrator CS5 Shape  
Builder and Width Tools

**Kevin  
McManigal**  
Adventure Cycling

LiDAR 101

**Matthew  
Hampton**  
Oregon Metro

### 10:30-12:00

Cartography beyond the  
Planimetric

**Martin Gamache**  
National Geographic  
Magazine

Demonstration of Software to  
Create "Texture-Shaded" Terrain  
Relief

**Leland Brown**

10 Handy References for  
Practical Cartographers

**Alex Tait**  
International  
Mapping

Latest Advancements in  
Mapping Capabilities in ArcGIS

**Aileen Buckley  
David Watkins  
Ken Field**  
ESRI

### LUNCH PROVIDED

## 2:00-3:00

Crash dash thru TileStache

**Nathaniel  
Vaughn Kelso**  
Stamen Design

Advanced Interactive Cartography  
for the Web

**AJ Ashton**  
Development  
Seed

Map Scripting With Style

**Adam  
DuVander**  
ProgrammableWeb

## 3:30-5:00

Practical Solutions for Interactive  
Map Integration

**Jeremy White**  
New York Times

Thematic Cartography in  
JavaScript with OpenLayers  
or Polymaps

**Zachary Forest  
Johnson**  
GeolIQ

Automated Text Placement:  
Significantly Improve Your  
Success with These Steps

**Hans van der  
Maarel**  
Red Geographics

Things I Wish Someone had  
Told me about Illustrator

**Daniel Huffman**  
somethingaboutmaps.com

## LAPTOP SESSIONS TO FOLLOW

*Meet in the hotel lobby at 11:00 am!*

## Practical Map Librarianship Day

Organizer: Jaime Stoltenberg

### 11:00-4:30

Join us for Practical Map Librarianship Day! We will begin the day by meeting in the Madison Concourse Hotel Lobby at 11:00am. From there we will make our way down State Street toward the UW-Madison campus (about 1/2 mile), stopping for lunch along the way. At 1:00pm we will tour the **WI State Historical Society** Library and Archives where we will hear about a map cataloging project currently underway, and some interesting digital initiatives dealing with maps.

Following the Historical Society tour, at 3:00pm we will head over to Science Hall (home to the UW-Madison Department of Geography) where we will visit:

**The History of Cartography Project;**  
**The UW Cartography Laboratory;** and  
**The Arthur H. Robinson Map Library.**

Our final stop at the Map Library (4:00pm) will be capped off with a reception and light refreshments. It promises to be a fabulous afternoon!

## NACIS Board Meeting

President: Tanya Buckingham

### 2:30-5:00

Newly elected Board members are invited to observe this event. Your first official meeting will be held Friday, 12:15-2:45.

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- 9:00-5:00 WHERECAMPMSN

## WEDNESDAY 6:00pm-8:00pm

### MapGiving: Promoting Geographic Literacy in Madison Schools

In a collaboration with Dave Imus, we continue the good work of **MapGiving** this year by donating 200 maps to Madison area schools. Dave's map, *The Essential Geography of the United States* is not only beautiful – it will help promote geographic literacy and imagination in school-age children and teachers alike.

### Opening Keynote Patrick Hofmann Google Sydney



Patrick Hofmann, an expert in visual communication and interaction design, works in the user experience design team at Google in Sydney, Australia. He has been an invited speaker at dozens of international conferences on topics of visualization, usability, and illustration - but never cartography. Responsible for such things as the design of icons on Google Maps, Patrick will be the first to say "design matters."



## Opening Reception: Poster Session and Map Gallery

Organizer: Daniel Huffman

★ PICK UP A BALLOT TO VOTE ON STUDENT POSTERS!

Mapping the Qualitative  
Spaces of Dance

**Sarah Bennett**  
UW-Madison ★

Safari Urbis

**Verónica Perales Blanco**  
Fred Adam  
University of Murcia

Maps by mbrickmaps

**Michael Bricknell**  
mbrickmaps

GIS Analyses of  
Archaeological Sites  
in Western Mongolia

**Daniel G. Cole**  
Smithsonian Institution  
**Catherine Chen**  
E. Tennessee State University

United States Foreign Service  
Posts and Department of State  
Jurisdictions, September 2011

**Iain Crawford**  
U.S. Department of State

A Look at the Progress of a  
Cacao Farming Cooperative  
in Rural Ecuador

**Laura Daly**  
UC-Berkeley ★

Recent Arctic Ice Extents:  
Maximum and Minimum

**Mark Denil**  
National Ice Center

South Sudan

**Leo Dillon**  
U.S. Department of State

Natural Sky Illumination

**Rick Forroux** ★  
Penn State University

Football: The Beautiful and  
Global Game

**Christopher M. Gavin** ★  
UW-Madison

Flights of Terror: The Attacks of  
September 11, 2001

**Phillip D. Goins** ★  
UNC-Charlotte

Multi-language Map Design

**Tom Harrison**  
Tom Harrison Maps

Penn State Campus Maps:  
More than just Visitor Maps

**Michael Hermann**  
Penn State University

The Columbia River System

**Daniel Huffman**  
somethingaboutmaps.com

*The Essential Geography of the  
United States of America*

**David Imus**  
Imus Geographics

*Mapping of Insecure At Last:  
A Political Memoir*

**Alicia Iverson** ★  
Humboldt State University

Commuting Influences for  
Minneapolis/St. Paul, MN

**Matthew G. Lamb** ★  
UW-Madison

Reading Isthmus  
Roads and Rides

**Bobby Marshment-Howell** ★  
UW-Madison

FIFA World Cup Historical Bests

**Sam Matthews** ★  
UW-Madison

Map of the Torgen  
Mountains in NW Mongolia

**Kevin McManigal**  
University of Montana  
**Douglas Carruthers**  
The Royal Geographic Society

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## WEDNESDAY 8:00pm-9:00pm

### Poster Session & Map Gallery (continued)

- |   |  |
|---|--|
| National Forest Atlases   | <b>Brian Moran</b><br>Sanborn Map Company  |
| Madison   | <b>Jonathan Munetz</b><br>UW-Madison ★   |
| The Nuclear Energy and Waste Dilemma in the United States   | <b>Kelly Muth</b><br>Humboldt State University ★   |
| An updated 1:24,000-scale Geologic Map of the Core Visitation Area of the Craters of the Moon National Monument and Preserve Including 38 Points of Geologic Interest | <b>John H. Niles</b><br>San Francisco State University<br><b>Douglas E. Owen</b><br>Craters of the Moon National Monument and Preserve |
| The Geography of Wisconsin Coffee Shops   | <b>Tyler Perrenoud</b><br>UW-River Falls ★   |
| Lewis & Clark Expedition: Corps of Discovery  | <b>Tyler Petersen</b><br>University of Montana ★   |
| Scale-specific Automated Map Line Simplification by Vertex Clustering on a Hexagonal Tessellation   | <b>Paulo Raposo</b><br>Penn State ★  |
| The Wallowa / Grande Ronde River Guide  | <b>Jim Rounds</b><br>BLM   |
| Visualizing the Historical Landscape of Montserrat: Social Justice through Community Mapping in a Post-Colonial Environment   | <b>Kevin Russell</b><br>UT-Knoxville ★   |

Proposed and Existing Woody Biomass Facilities in the Southeast United States

**Jovian Sackett**  
Southern  
Environmental  
Law Center

Groundwater Prospect Map

**Uday Sahu**  
Toshniwal College  
of Arts, Commerce  
& Science

Perceptions of Place: A Map of the Left and Right Side of Athens Ohio

**Karla Sanders** ★  
Ohio University

Derivation of a Polynomial Equation for the Natural Earth Projection

**Bojan Savric** ★  
University of  
Ljubljana

Map for Bicyclists:  
Dane County, Wisconsin

**Dan Seidensticker**  
Madison Area  
Transportation  
Planning Board

Dane County Farmer's Market

**Deanna Sell** ★  
UW-Madison

Tibet Township Map and Place Name Database

**Wangyal Shawa**  
Princeton  
University

Mapping Population –  
Cartographic Methods and  
Techniques

**Julia Siemer**  
University of  
Regina

Mapping Captivity: Ancient Maya Portraits of Prisoners of War

**Kaylee Spencer**  
Mathew Dooley  
UW-River Falls

Save Our Sequoias

**Chandler Sterling** ★  
UW-Madison

Simplifying Streams:  
Generalization and Display  
of the National Hydrography  
Dataset

**Eric Stipe**  
Miles Barger  
Alethea Steingisser  
James Meacham  
University of Oregon

Multivariate Symbology of  
Colorado Ecoregions

**Stella Todd**  
Brandy Whalen  
Metro State College of Denver

Archaeological Sites of the  
French Contact Period in the  
Western Great Lakes AD 1600-1800

**Heather Walder** ★  
UW-Madison

Bogus Art Maps

**Tim Wallace**  
UW-Madison

Bostonography

**Tim Wallace**  
UW-Madison  
Andy Woodruff  
Axis Maps

Human Mobility in Qingdao, China

**Yaoli Wang** ★  
Peking University

★ Don't forget to fill out your ballot!

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### Annual Business Meeting Year-in-Review from the NACIS Board of Directors

Over the last twelve months, the members of the NACIS Board of Directors have worked diligently to represent the interests of an ever-increasing diversity in membership and have enthusiastically supported the advancement of our society's mission and long-term goals.

This year's success is directly related to the dedication and determination of each Board member in tackling the known responsibilities of the various positions and committee assignments but also the adoption of several new and exciting initiatives. Some of these include:

### Membership Benefit(s)

NACIS Board members began exploring ways that membership in NACIS can do more for you professionally and personally. This year's efforts have resulted in a generous offer by Imus Geographics and Raven Maps for NACIS members to obtain a special edition of *The Essential Geography of the United States of America* at a 50% discount. Details for how you will be able to obtain this will follow. We look forward to your ideas regarding discounted products and services that may be useful to NACIS members.

## **CartoTalk.com,**

the place for continued online cartographic conversation, has fully transitioned to NACIS for administration and management. This year NACIS also established an official position of CartoTalk editor, in turn supported by a team of featured content stewards. A special thank you to Anthony Robinson for his leadership and patience serving as Editor during this transition, and we are pleased to announce that CartoTalk veteran, and long-time NACIS member, Hans van der Maarel has accepted the role of Editor for the next term.

## **Increased Presence**

Development of a plan for increased public outreach to promote geographic literacy is on the current agenda and was realized in part with this year's MapGiving. Advocating for cartography and design, NACIS has made significant commitments to participate in the discussions taking place in the larger geospatial community. NACIS also continues to encourage creative collaboration beyond the membership of our society through official representation at other geospatial meetings and conferences such as Where2.0, ESRI User Conference, AAG, and WhereCamps nationwide. Planning for future NACIS meetings may include coordination with other groups if it is determined to be mutually beneficial.

## ***Cartographic Perspectives,***

the professional journal of our society, has transitioned to a digital format (with print on demand option), and soon, the first articles will be available as part of the Open Journal System allowing for a much wider audience to share and learn more of the amazing things brought together in CP.

The result of these efforts has allowed our society to grow in new directions, while providing additional benefit to our members and the profession of cartography at large. More details will be discussed over breakfast at this year's Annual Business Meeting. We hope you will join us to learn more about how NACIS is working for you.

## **Get Involved!**

NACIS is sustained year after year by the dedication and energy of volunteers who dedicate themselves to maintaining and enhancing the community, scholarship, and identity of the organization.

There are plenty of opportunities to contribute, whether you serve on the Board or organize part of the conference. If you are interested in serving NACIS or have ideas for how to enhance our beloved society, please contact us to get involved!

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SPECIAL SESSION ON CARTOGRAPHIC COLLECTIONS I:

### Enhancing Cartographic Collections with Geospatial Technologies

Chair: Jaime Stoltenberg

This session is the first of two on topics relevant not only to libraries and museums, but also to cartographic collections maintained in both public agencies and private industry. Both sessions will showcase presenters who will provide insight on the acquisition, management, conservation, discovery, and accessibility of both paper maps and digital geographic data. The focus of this session is on innovations in geospatial technologies for cartographic collections.

**Greg Allord**  
USGS Historical Map Collection  
**Patricia Phillips**  
USGS

New Methods for Map Librarians:  
Adjusting to Changes in  
Technology and User Expectation  
**Matt Knutzen**  
New York Public  
Library

Mapping Manitoba: A  
Cartographic Exhibition  
**Christopher Kotecki**  
Archives of  
Manitoba

The Role of Standards in Digital  
Gazetteers  
**Lisa Schelling**  
UW-Milwaukee

UNIVERSITY ROOM

# Complexity and Uncertainty

Chair: Christopher Knoll

Communicating Complexity:  
Suitably Generalizing Scientific  
Spatial Data

**Miles Barger**  
**Eric Stipe**  
**Alethea Steingisser**  
**James Meacham**  
University of Oregon

Matching Land Cover Data to  
Coastlines – An Exercise of  
Cartographic License

**John  
Hutchinson**  
USGS

Designing Maps to Convey  
Information Uncertainty: The  
Influence of Three Features on  
Risk Beliefs and Perceived  
Uncertainty for Maps of Modeled  
Cancer Risk from Air Pollution

**Dolores (Lori)  
Severtson**  
UW-Madison  
**Jeffrey Myers**  
Wisconsin  
Department of  
Natural Resources

CAPITOL BALLROOM A

# The Power of Maps

Chair: Jenn Milyko

Cartographers Commit Acts of  
Design

**Mark Denil**  
National Ice  
Center

Map Design and The Experience  
and the Direction of the Artist: The  
Graphic Arts Principle of Unity and  
the Structure of the Map

**George  
McCleary Jr.**  
University of  
Kansas

The Tension of Volunteered  
Geographic Information: Placing  
VGI in context

**Jim Thatcher**  
Clark University

On Maps and Genocide

**Alberto  
Giordano**  
Texas State  
University

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- 12:30-2:00 LUNCH BUNCH!  
2:00-3:30 AFTERNOON SESSION I  
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## FRIDAY

- 8:00-9:45 MORNING SESSION I  
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12:00-1:30 LUNCH (ON YOUR OWN)  
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6:30-8:30 ANNUAL BANQUET  
9:00-10:00 GEODWEEB GEOPARDY

## SATURDAY

- 9:00-12:00 WORKSHOPS  
7:30-6:45 EXPLORE WISCONSIN FIELD TRIP  
10:00-6:00 WISCONSIN HOMECOMING TAILGATE  
6:00-9:00 UW CARTOGRAPHY CELEBRATION

## SUNDAY

- 9:00-5:00 WHERECAMPMSN

## THURSDAY 11:15-12:30

### Can't We Just Make A Map?

Chair: David Lambert

Mapping Our Diplomatic Footprint:  
Challenges in Designing the  
New Department of State Foreign  
Service Post Map

**Iain Crawford**  
Department of  
State

Challenges of a Multiple Media  
Mapping Project: A Public  
Recreation Map for the  
Kinnickinnic River Watershed,  
Wisconsin

**Charlie Rader**  
**Rick Schmolke**  
**Jared Haas**  
UW-River Falls  
**Erica Rader**  
Keene State  
College  
**Eric Forward**  
Kinnickinnic River  
Land Trust

Mapping the Fish: A Cartographic  
Comedy

**Eliana  
Macdonald**  
Ecotrust Canada

UNIVERSITY ROOM



## Empirical Findings

Chair: Anthony Robinson

Comparing Cartographic Point  
Symbol Design with Card Sorting  
Methods

**Raechel  
Bianchetti**

Jinlong Yang

Rui Li

Justine Blanford

Frank Hardisty

Anthony Robinson

Alexander Klippel

Alan MacEachren

Penn State

Placement of You-Are-Here  
Maps: An Empirical Study  
using Multiple Approaches

**Chelsea Gilliam**

Rui Li

Brian Chorman

Alexander

Klippel

Jinlong Yang

Penn State

Using Web-Based Tools to Share  
Symbology: A Case Study with  
Mapmakers from the California  
Department of Water Resources

**Sarah E.  
Troedson**

Anthony

Robinson

Penn State

CAPITOL BALLROOM A

## Mapping People

Chair: Margaret Pearce

Alternative Views of Population  
Distribution and Change for a New  
Census Atlas

**Jonathan  
Schroeder**

University of  
Minnesota

The Dasymetric Method for  
Mapping Population in  
Saskatchewan, Canada

**Anne Krahn**

University of

Regina

**Julia Siemer**

University of

Regina

Mapping Personal Living Spaces

**Nick Perdue**

Michigan State

University

**Kirk Goldsberry**

Harvard University

CAPITOL BALLROOM B

## WEDNESDAY

- 9:00-5:00 PRACTICAL CARTOGRAPHY DAY
- 11:00-4:30 PRACTICAL MAP LIBRARIANSHIP DAY
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- 6:00-9:00 UW CARTOGRAPHY CELEBRATION

## SUNDAY

- 9:00-5:00 WHERECAMPMSN

## THURSDAY 1:00-2:00

### CartoSIG User Group Meeting

Organizers: David Watkins and Mark Denil

The ESRI Cartography Special Interest Group (CartoSIG) is an active community that includes ESRI software users, product teams, and other interested colleagues, dedicated to discussing practical cartographic issues.

Meetings of the group consist of reviewing the current direction and cartographic enhancements within ArcGIS, presenting the status of the group's top cartographic issues, and a lively discussion of where the group would like ESRI to focus development efforts in the future. CartoSIG meetings are held annually at the ESRI International User Conference.

This year will be the first time we have held a meeting at NACIS and we invite all interested conference attendees to join us.

Please bring your own lunch and meet us in the conference hotel lobby.

THURSDAY 12:30-2:00

# hungry for maps? come to **lunch bunch!**

Join our special guests for lunch around Madison to have a chance to casually meet and talk maps, GIS, food and everything in between.

**Cindy Brewer**, Penn State

Host: **Chris Gavin**, UW-Madison

Location: Brocach (Irish Pub)

**Leo Dillon**, US Department of State &

**Alex Tait**, International Mapping

Host: **Scott Zillmer**, XNR Productions

Location: Great Dane (Pub fare/Local brewery)

**Steven Holloway**, toMake Press

Host: **Sarah Bennett**, UW-Madison

Location: Kabul Restaurant (Middle Eastern)

**Bernie Jenny**, Oregon State University &

**Tom Patterson**, National Park Service

Host: **Daniel Huffman**, [somethingaboutmaps.com](http://somethingaboutmaps.com)

Location: Argus (Sandwiches)

**Erik Steiner**, Stanford University

Host: **Colter Sikora**, St. Charles County

Location: Great Dane (Pub fare/Local brewery)

**daan strebe**, Mapmathematics, Ltd.

Host: **Laura McCormick**, XNR Productions

Location: Chautara (Himalayan/Nepalese)

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Visit the registration desk to sign up!

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## SUNDAY

- 9:00-5:00 WHERECAMPMSN

## THURSDAY 2:00-3:30

### SPECIAL SESSION ON CARTOGRAPHIC COLLECTIONS II:

## Embracing History and Culture in Cartographic Collections

Chair: Paige Andrew

This session is the second of two on topics relevant not only to libraries and museums, but also to cartographic collections maintained in both public agencies and private industry. Both sessions will showcase presenters who will provide insight on the acquisition, management, conservation, discovery, and accessibility of both paper maps and digital geographic data. The focus of this session is on the richness of history and culture discoverable through cartographic collections.

History of the U.S. Department of State Foreign Service Posts Map

**Leo Dillon**  
U.S. Department of State

Mapping American History

**Michael Fry**  
National Geographic Society  
**Andrew Laas**  
ProQuest

Saving The Ratzer Map: Lessons Learned in the Conservation, Management, and Publicity of Cartographic Resources

**Carolyn Hansen**  
Brooklyn Historical Society

Surveying Louisiana: Cartographic Records in the Southeastern Architectural Archive

**Keli E. Rylance**  
Southeastern Architectural Archive

UNIVERSITY ROOM

## Mobile Apps

Chair: Tom Patterson

This session will focus on the design of mobile applications that employ maps as a primary interface element. The papers will examine the advantages and disadvantages of using map-based interfaces for information discovery and site navigation.

**NPS National Mall: A Mobile Application**

**Tom Patterson**  
National Parks  
Service

**Innovations in Mobile Mapping:  
Bringing High Quality Cartography  
to Smartphone Users**

**Ken Kato**  
Jacob Bartruff  
Dana Maher  
Justin White  
Alethea Steingisser  
Blake Andrew  
University of Oregon

**mApp to the Future: Map Apps  
and the Future of Mapmaking**

**Ian  
Muehlenhaus**  
UW-La Crosse

**Me On My Map Applications  
MOMMAs: It's Place in  
Cartography?**

**Rex Cammack**  
University of  
Nebraska - Omaha

CAPITOL BALLROOM A

## Art in Modern Cartography

Chair: Tim Wallace

In a series of short presentations, panelists will address the following question: How is "art" influencing and driving modern cartography and information design both on and off the Web? The session will conclude with John Krygier serving as a discussant.

**The Influence of Contemporary  
Swiss and German Graphic  
Design**

**Patrick  
Hofmann**  
Google

**Relief Maps as Art and Science**

**Melanie  
McCalmont**  
UW-Madison

**On Human Cartography**

**Daniel Huffman**  
somethingaboutmaps.com

**Maps as Abstraction**

**Matt Knutzen**  
New York Public  
Library

**Gossip becomes Genealogy**

**Aaron Straup  
Cope**  
Stamen

**Discussant**

**John Krygier**  
Ohio Wesleyan  
University

CAPITOL BALLROOM B

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**SUNDAY**

9:00-5:00 WHERECAMPMSN

THURSDAY 3:45-5:00	
<h2>Panel of Geospatial Orgs</h2> <p>Chair: Tanya Buckingham</p> <p>Participate in shaping the future of and gain knowledge about geo-spatial coordination in this session. Representatives—presidents, past presidents, organizers, chairs, board members, and long-time members—from many geo-spatial organizations will talk about what makes one organization different from another, what is the mission of each group, what does each have to offer in terms of membership, conferences, publications, competitions, awards, etc. Is there an interest, need, or desire for increased collaboration between these groups?</p>	
<b>NACIS</b> North American Cartographic Information Society	<b>Tanya Buckingham</b> UW-Madison
<b>CCA</b> Canadian Cartographic Association	<b>Dan Cole</b> Smithsonian Institution
<b>BCS</b> British Cartographic Society	<b>Ken Field</b> ESRI
<b>CaGIS</b> Cartography and Geographic Information Society	<b>Scott Freundschuh</b> New Mexico University
<b>AAG-CSG</b> Association of American Geographers, Cartography Specialty Group	<b>Kirk Goldsberry</b> Harvard University
<b>ICA</b> International Cartographic Association, U.S. National Committee	<b>Lynn Usery</b> USGS
<b>WhereCamp</b>	<b>Nathaniel Vaughn Kelso</b> Stamen Design

## Panel of Geospatial Orgs

Chair: Tanya Buckingham

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**NACIS**  
North American Cartographic  
Information Society

**Tanya  
Buckingham**  
UW-Madison

**CCA**  
Canadian Cartographic Association

BCS  
British Cartographic Society

**CaGIS**  
Cartography and Geographic  
Information Society

**AAG-CSG**  
Association of American Geographers,  
Cartography Specialty Group

Cartography Specialty Group	Harvard University
<b>ICA</b> International Cartographic Association	<b>Lynn</b> Hershey

International Cartographic Association, U.S. National Committee	USGS
<b>WhereCamp</b>	<b>Nathaniel Vaughn Kelso</b> Stegan Design

UNIVERSITY ROOM

# Classroom Maps Then and Now

Chair: Martha Bostwick

The “Apparent Simplicity” of *The Essential Geography of the United States of America*

**David Imus**

Imus Geographics

Re-imagining the Classroom Map

**Christine Bosacki**

**Aaron Reiner**

Herff Jones | Nystrom

Who Was David Greenhood?

**Judith Tyner**

California State  
University, Long  
Beach

CAPITOL BALLROOM A

# Dynamic Mapping

Chair: Patrick Kennelly

Interactive Cartography: What We  
Know and What We Need to Know

**Rob Roth**

UW-Madison

Methods for Space-Time  
Visualization: Take 3

**Aileen Buckley**

Ken Field  
Carolyn Fish  
ESRI

Virtual Fredericksburg: Putting an  
1862 Civil War Battle into an  
Interactive Map

**Alex Tait**

International  
Mapping

CAPITOL BALLROOM B

## WEDNESDAY

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- 6:00-9:00 UW CARTOGRAPHY CELEBRATION

## SUNDAY

- 9:00-5:00 WHERECAMPMSN

## THURSDAY 5:30-6:30

### ***Cartographic Perspectives* Editorial Board Meeting**

Editor: Patrick Kennelly & Assistant Editor: Rob Roth

*Cartographic Perspectives* is an international journal devoted to the study and practice of cartography in all of its diversity. It is published three times a year and includes peer-reviewed research on cartography and geovisualization (broadly defined), technical notes and tutorials on new methods, articles on library collections, reviews of books and atlases, and novel maps.

All submitted articles are reviewed and returned to authors within 6-8 weeks. In the past three years, *Cartographic Perspectives* has an average rejection rate of 65%. All graphics included in accepted articles are published in full color, at no cost to authors. Past issues are available from NACIS website at [www.nacis.org](http://www.nacis.org).

We are pleased to announce that *Cartographic Perspectives* is transitioning to an open access format in 2011 with online pre-prints of accepted peer-reviewed articles; both the print and web versions will continue to be supported. We also are pleased to announce a new annual, peer-reviewed student paper competition with a \$1350 prize for the winning entry. Any peer-reviewed manuscript accepted for publication in *Cartographic Perspectives* whose first author is a student is automatically eligible.

We encourage you to submit your work for consideration in *Cartographic Perspectives*. Your unique cartographic perspective deserves to be shared!



**THURSDAY 6:30-**

## **NACIS Night Out: Essen Haus**

**\$30 at the door / bring your ticket**

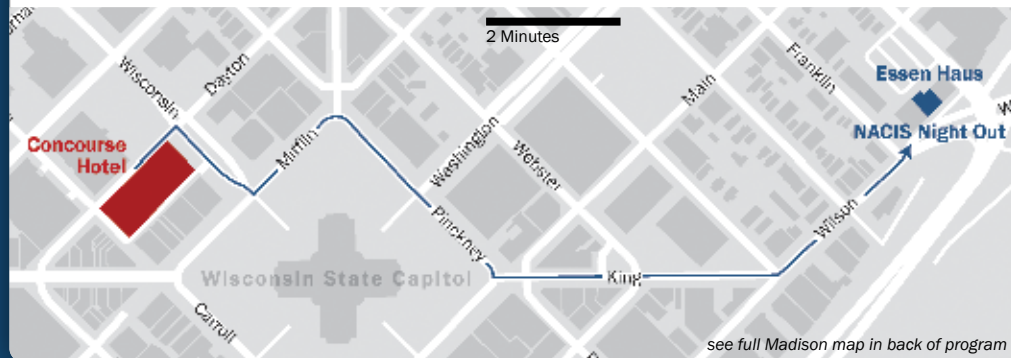
Enjoy a beverage and a hearty German dinner, served family-style, at one of Madison's favorite places, the Essen Haus. Partake in the "Das Boot" tradition with your mapping buddies. Lederhosen optional.



### **Essen Haus**

514 East Wilson Street  
Madison, WI 53703  
608-255-4674

Badger Cab Company, 608-256-5566  
Union Cab of Madison, 608-242-2000  
Green Cab of Madison, 608-255-1234



see full Madison map in back of program

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## SUNDAY

- 9:00-5:00 WHERECAMPMSN

## FRIDAY 8:00-9:45

### Serving Online Maps

Chair: David Asbury

New Patterns in Online Base Map Design

**Mamata Akella**  
Alex Yule  
ESRI

From Conceptual to Actual –  
Deliberations in Automated  
Cartography

**Tim Kennedy**  
Howard Veregin  
AJ Wortley  
UW-Madison

Developing the Web-Based *Atlas*  
of *Oregon Lakes*

**Dick Lycan**  
David Banis  
Portland State  
University

Nautical Charting

**Tara Wallace**  
NOAA

UNIVERSITY ROOM

# GeoDesign: Changing Geography by Design

Chair: Janet Silbernagel

Based on concepts found in Ian McHarg's seminal *Design With Nature*, GeoDesign integrates geographic science with design, resulting in a systematic methodology for geographic planning and decision-making. GeoDesign brings geographic analysis into any design process, resulting in designs that more closely follow natural systems. This benefits both people and nature and provides a more synergistic coexistence. "GeoDesign is both an old idea and a new idea," said Jack Dangermond. "It's timeless."

"GeoDesign is designing with nature in mind." (Dangermond)  
"GeoDesign is changing geography by design." (Steinitz)

In this session, panelists will situate the context of GeoDesign in relation to the design professions and its current state of practice then explore the opportunities for GeoDesign as a professional curriculum in higher education.

Designing a GeoDesign  
Curriculum for an Urban University

**Claudia Phillips**  
Philadelphia  
University

Envisioning the Architecture of a  
GeoDesign College Campus

**David Pitt  
Lance Neckar**  
University of  
Minnesota

Looking at the State of the  
Practice of GeoDesign

**Janet  
Silbernagel**  
UW-Madison

The Evolving Relationship between  
Landscape Architecture and  
GIScience

**David Tulloch**  
Rutgers University

CAPITOL BALLROOM A

# Representing Terrain

Chair: Nathaniel Vaughn Kelso

NACIS Presentations on Terrain  
Inspire Penn State "Applied  
Cartographic Design" Course

**Cynthia A.  
Brewer**  
Jason McGilloway  
Stephen J. Butzler  
Penn State

Modeling Ice Age Lakes of  
Wisconsin using PaleoDEMs

**Michael  
Bricknell**  
David M. Mickelson  
Howard Veregin  
UW-Madison

Cross-Hatched Shadow Maps

**Patrick J.  
Kennelly**  
Long Island University

Developing a New National  
Geographic Supplement Map  
Style: The Combination Physical-  
Political

**William  
McNulty**  
National  
Geographic  
Magazine

Multiscale Terrain Representation  
for *The National Map*

**Andy Stauffer**  
University of  
Colorado-Boulder  
**Cynthia A. Brewer**  
Penn State

CAPITOL BALLROOM B

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## SUNDAY

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## FRIDAY 10:00-12:00

### Designing for our Environment

Chair: Ginny Mason

Parks and Open Space Data -  
Strategies for Using in  
Cartographic Products

**Larry Orman**  
GreenInfo  
Network

Understanding Water and other  
Natural Resources through  
Basemaps and Web Mapping  
Applications

**Caitlin Scopel**  
ESRI

Using Maps to Visualize and Re-  
imagine a Local Food System

**Tim Stallmann**  
UNC-CH

UNIVERSITY ROOM

### NACIS Board Meeting

President: Erik Steiner

**12:15-2:45**

Newly elected Board members are  
required to attend this event.  
Lunch will be provided.

## Teaching Cartography I (Panel): Re-examining Core Principles

Chair: Daniel Huffman

This panel will focus on cartographic curriculum—what topics should be part of a cartography education? What skills should every student have before going out into the mapmaking world? Five panelists will participate, representing a mix of academic educators and industry professionals—the people who do the teaching and the people who work with the students once they're in the real world. Audience participation in the discussion will be encouraged; we all have an idea of what worked best for us when we were learning.

Cartographic Apprenticeships

**Tanya  
Buckingham**  
UW-Madison

Some Active Learning Strategies in  
Large Cartography and GIS  
Lectures

**Rob Edsall**  
Carthage College

Valuing Cartographers in an  
Information Economy

**Charlie Frye**  
ESRI

Do Geographers Make Good  
Cartographers?

**Kirk Goldsberry**  
Harvard University

Sketching in Digital Cartography

**Jeff Howarth**  
Middlebury  
College

CAPITOL BALLROOM A

## Explorations, Experiments, and Expressions

Chair: Martin Gamache

Unexpected Outcomes At the  
Intersection of Difference:  
Exploring Sleep Through Visual  
Art and Cartography

**Barb Bondy**  
**Chris Mixon**  
Auburn University

Trajectory

**Stephen  
Cartwright**  
University of  
Illinois

Redrawing the Isogloss: New  
Directions in Linguistic Mapping

**Mark  
Livengood**  
UW-Madison

New Experiments in Symbol  
Design for Indigenous Place  
Names

**Margaret  
Pearce**  
University of  
Kansas

New Directions in Exuberant  
Cartography from Stamen Design

**Eric  
Rodenbeck**  
Stamen Design

CAPITOL BALLROOM B

## WEDNESDAY

- 9:00-5:00 PRACTICAL CARTOGRAPHY DAY  
11:00-4:30 PRACTICAL MAP LIBRARIANSHIP DAY  
6:00-8:00 OPENING KEYNOTE PRESENTATION  
8:00-9:00 POSTER SESSION AND RECEPTION

## THURSDAY

- 7:30-9:15 ANNUAL BUSINESS MEETING  
9:30-11:00 MORNING SESSION I  
11:15-12:30 MORNING SESSION II  
12:30-2:00 LUNCH BUNCH!  
2:00-3:30 AFTERNOON SESSION I  
3:45-5:00 AFTERNOON SESSION II  
6:30-9:30 NACIS NIGHT OUT

## FRIDAY

- 8:00-9:45 MORNING SESSION I  
10:00-12:00 MORNING SESSION II  
12:00-1:30 LUNCH (ON YOUR OWN)

### 1:30-3:00 AFTERNOON SESSION I

- 3:15-5:15 AFTERNOON SESSION II  
6:30-8:30 ANNUAL BANQUET  
9:00-10:00 GEODWEEB GEOPARDY

## SATURDAY

- 9:00-12:00 WORKSHOPS  
7:30-6:45 EXPLORE WISCONSIN FIELD TRIP  
10:00-6:00 WISCONSIN HOMECOMING TAILGATE  
6:00-9:00 UW CARTOGRAPHY CELEBRATION

## SUNDAY

- 9:00-5:00 WHERECAMPMSN

## FRIDAY 1:30-3:00

### Visualizing Oral Histories

Chair: Margaret Pearce

Historical GIS Research and  
Interdisciplinary Mixed Methods  
Teaching

**Sally  
Hermansen**  
University of  
British Columbia

Visualizing Stories: Attempts to  
Design Space-Time Narratives

**Brandon Plewe**  
BYU

Enhancing the Mapping of Oral  
Histories

**Jonathan Rush**  
Ohio State  
University

Nantucket: A Case Study in the  
Spatial Representation of Oral  
Histories

**Jennet Seegers  
Alberto  
Giordano**  
Texas State  
University

UNIVERSITY ROOM

## Teaching Cartography II: Refining Your Approach

Chair: Fritz Kessler

The Affective Objective in  
Cartography

**Aileen Buckley**  
**Ken Field**  
ESRI

Can We Teach Cartographic Design  
Without Labs?

**Jeff Howarth**  
Middlebury  
College

The Review Panel Poster Session:  
A Tool for Student Learning

**Joe Poracsky**  
Portland State  
University

Students Seek Cure for  
Explorative Impotence  
at Free School

**Sam Pepple**  
**Willie Shubert**  
Sample  
Cartography

CAPITOL BALLROOM A

## The Extinction of Cartography? Mapping for today's audience

Organizers: Jens Riegelsberger and Patrick Larvie

The popularity of online mapping sites like Google Maps, Bing Maps, or Open Street Maps has seen rise to novel types of geographic information. In this session, we will discuss the question "How can cartography help us make better maps in the online mapping era?", focusing on the subject areas below. We are hoping to foster debate on the role of cartography in the online mapping era, instigate discussion of new research areas, and discover existing state-of-the-art cartographic methods.

**User-generated maps:** Current developments in digital cartography closely mirror the evolution of "citizen journalism." "Citizen mapmakers" now use online mapping sites just as citizen journalists report on Twitter. The adoption rates of these sites lead us to assume that users are making maps of at least sufficient quality for their needs. Where does this leave cartographers?

**Cartography and user-generated information:** Along with user-generated maps, we also have a huge influx of user-generated (or volunteered) geographic information. How can cartography help effectively communicate the unique qualities of this data, e.g. uncertainty, underlying self-focus biases, etc.

**Personalized, disposable maps:** Digital maps and algorithms have enabled personalized maps to be rendered easily, highlighting elements tailored to my needs and interests. How does cartography change when we are creating maps for a single person for a single purpose, to be used one specific time and then disposed?

**UX and/or/versus Cartography:** Online maps lie at the intersection of user experience design and cartography. Currently the majority of employees at online mapping websites are UX designers. What can cartographers bring to the table? How can we involve more cartographers? What is the difference between a Geo UX designer and a cartographer?

**Brent Hecht**  
Northwestern  
University

**Patrick Hofmann**  
Google

**Matt Simpson**  
Google

**Michelle Lee**  
Google

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## SUNDAY

- 9:00-5:00 WHERECAMPMSN

## FRIDAY 3:15-5:15

### Narrative Maps

Chair: Amy Griffin

"Here in a gulf of golden leaf":  
Searching for Treasure in Kenneth  
Slessor's "The Seafight" (1930-31)

**Adele Haft**  
Hunter College

Returning the Eye of Awareness  
Back to the Yukon River

**John Cloud**  
NOAA

Revisiting 1865 Cartography  
of Montana - Creating 3D  
Hachures for a Historical Diary

**Matthew  
Hampton**  
Oregon Metro

Counter-Narrative Atlas of  
Rock Creek Park

**Sam Pepple  
Willie Shubert**  
Sample Cartography

UNIVERSITY ROOM



## Papers in Honor of Stephen J. Lavin

Co-Chairs: Mathew Dooley and Ezra Zeitler

This session is composed of papers that honor the life and work of Dr. Stephen J. Lavin, who passed away May 3, 2011. Steve made significant contributions in the area of computer mapping and animation and co-authored several noteworthy atlases.

Presenters will reflect on his life, discuss his influence on their work, and highlight his contributions in the field of cartography.

A Geographic Cartographer in a GIS World: A Retrospective in Honor of Professor Stephen J. Lavin

**Dennis Fitzsimons**  
Humboldt State University

From Film to the Internet: 35 years of Cartographic Animation

**Michael P. Peterson**  
University of Nebraska-Omaha

To Tween or Not to Tween: Exploring Smooth Transitions for Dynamic Proportional Symbol Maps

**Mathew Dooley**  
UW-River Falls

Teaching Cartographic Production (and Geography) with Class Atlas Projects

**John Kostelnick**  
Illinois State University

Defining the Northwoods Region: A Student-centered Approach

**Ezra Zeitler  
Joseph Hupy**  
UW-Eau Claire

Political and Regional Atlas Production: The *Historical Atlas of U.S. Presidential Elections, 1788-2004* and the *Atlas of the Great Plains*

**Clark J. Archer**  
University of Nebraska-Lincoln

CAPITOL BALLROOM A

## Decision Support Design

Chair: Mary Beth Cunha

Public Utilization of Web GIS Applications for Visualizing and Analyzing Community Out of Hospital Cardiac Arrest Patterns

**Hugh Semple  
Han Qin**  
Eastern Michigan University

Redistricting: The Good, the Bad and the Ugly

**Valerie Krejcie**  
Independent Scholar

No Little Plans: Exploring Rapid Transit Development in North America through the Lens of Plan Design

**Jake Coolidge**  
Stanford University

Dust – Where Does My Child Go to School? Supporting Parent Decision with a Georeferenced Visualization Tool

**Matteo Azzi**  
Density Design Lab

Improved Communication Through Mapping: Building Models in ArcGIS for Marine Spatial Planning

**Gregg Verutes**  
Stanford University

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## SUNDAY

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## FRIDAY 6:30-8:30

### Annual Banquet

#### “On the Relationship Between Cartography and Humanism”

#### Keynote Address

#### Yi-Fu Tuan

Professor Emeritus  
Department of Geography  
University of Wisconsin



#### Also at the banquet...

#### Student Poster Competition Award

Daniel Huffman

#### Student Dynamic Map Competition Award

Matt Dooley and Ian Meuhlenhaus

#### Message from the Incoming President

Erik Steiner

#### Preview of NACIS2012 in Portland

October 17-19, 2012 Portland Doubletree

Matthew Hampton and Neil Allen

**FRIDAY 9:00-10:00**

Yi-Fu taught at the UW-Madison from 1984 to 1997. After retirement, he has continued to haunt Science Hall, its geographers and cartographers, their formal and informal activities, including tonight's occasion.

The honor to present a keynote address, Yi-Fu says, is often undeserved. For example, NACIS attracts experts in cartographic science yet tonight's keynote speaker has never himself progressed beyond the simplest hand-drawn and hand-lettered maps.

Understandably, his talk is not on cartography but on the relationship between cartography and humanism. On humanism, Yi-Fu feels relatively more secure, for it is a subject that he has studied for more than forty years. Humanism emphasizes the individual. Cartography, by contrast, is a science and emphasizes the group. Yet this difference is not the chasm between the two cultures of science and the humanities that C.P. Snow drew our attention to in the 1950s. Why? Isn't it because cartography and humanism do find common ground in aesthetics-in the striving for beauty?

Yi-Fu's intellectual interests sprawl all over the map, to use a figure of speech that is singularly appropriate for this occasion. He deeply appreciates the opportunity to present.

## **Geodweeb Jeopardy!**

With your host, Dennis McClendon!

**Geodweeb Jeopardy!** has become a post-banquet fixture at NACIS conferences. Hey, it's all fun and games until the trademark attorneys show up...

Teams of people who have always dreamed of the day when their useless knowledge of geotrivias would finally pay off big time will compete for fabulous prizes—prizes with a total value exceeding \$14! The variety of topics covered will span the gamut of cartographic knowledge, from maps all the way to mapping.

So get a beverage of your choice and join us after the Friday night banquet. Certain beverages may improve your sense of recall, or at least your sense of humor about the entire experience!

### **If you want to play**

Please sign up at the registration desk. Each team must include at least one first-time conference attendee.



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## SUNDAY

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## SATURDAY 9:00-12:00

Science Hall

### Workshops

9:00am - 12:00pm

#### ArcGIS 10 for Cartographers

**Aileen Buckley** ESRI

In this workshop, you will learn about the new capabilities in ArcGIS 10 for map making, including: data-driven pages for making map books and map series, spatio-temporal mapping and new animation capabilities, basemap functionality and basemap use, and new generalization tools that are especially effective for building and road features. We will also demonstrate how can use ArcGIS.com to make your Web maps and share them with others.

#### Teaching with Web Maps

**Michael Peterson** University of Nebraska-Omaha

Introduced in 2005, Google Maps has transformed the online mapping experience. The associated Application Programmer Interface (API) facilitated map mashups. This hands-on workshop examines online mapping APIs for the mapping of point, line, and area data. All examples use an HTML/JavaScript interface to the Google Maps API.

## SATURDAY

### Explore Wisconsin Field Trip

7:30am - 6:45pm

Host: Karen Tuerk

Karen Tuerk will take you on a tour through Wisconsin, starting at the Aldo Leopold Shack and Legacy Center Tour, then a picnic lunch at Devils Lake and geology/natural history hike, followed by a tour of the International Crane Foundation and a sunset tour through the UW Arboretum on your return drive.

### Wisconsin Homecoming Tailgate

10:00 - 6:00

Rob Roth will teach you how to Bucky at Homecoming 2011 as the Badgers take on Indiana in a Big Ten Leaders Division matchup.

### UW Cartography Celebration

6:00 - 10:00

The UW Cartography Lab will host a reception celebrating the long tradition of cartography at UW-Madison. All are welcome to join us at the **Fluno Center** on campus for lively reminiscing.

## SUNDAY 10:00-3:30

Great Hall, Memorial Union

### WhereCampMSN

10:00am - 3:30pm

Organizer: Nico Preston

Are you a geohacker, opendata nerd and/or GIS person? Stick around until Sunday for WhereCampMSN! This is a regional version of WhereCamp: an unconference for the spatially inclined.

#### Rough agenda:

10-11	Ignite/lightning Talks
11-12	Breakout 1
12-1	Lunch
1-2	Breakout 2
2-3	Breakout 3
3-3:30	Lightning Wrap-Up

Check out the latest and sign up at [wherecampmsn.eventbrite.com](http://wherecampmsn.eventbrite.com)





Akella...

[alphabetical, by primary author's last name]

**Mamata Akella** ESRI

Alex Yule, ESRI

**New Patterns in Online Base Map Design**

■ *Serving Online Maps - 8:00-9:45, Friday*

Web map and application designers are using general street, topographic, and imagery map services for their applications with decreasing frequency. Instead, many are designing special-purpose base maps to support specific themes of geographic information. The primary reason is because traditional online base maps use a wide variety of colors, labels, and features which often detract from the information mashed-up on the map rather than support it. The shift is towards a simple base map – one that is optimized for emphasizing the mashed-up thematic content. In order to create a clear and targeted view of the thematic information being mapped, the features symbolized, the colors used, and the labels on these base maps are minimal. The goal of these maps and the measure of their success is twofold: to create a visually compelling map graphic and to aid in pattern detection. ESRI is currently working on a suite of online, multi-scale base maps of this kind. During this talk I discuss, through example, this shift in design and share some current work we are doing at ESRI to support this idea.

**Greg Allord** USGS

Patricia Phillips, USGS

**USGS Historical Map Collection**

■ *Enhancing Cartographic Collections with Geospatial Technologies - 9:30-11:00, Thursday*

The U. S. Geological Survey (USGS) has published more than 200,000 different editions of topographic maps of the USA during the past 125 years. Copies of these historic maps are

...Archer

found in numerous libraries but the most complete collection known to exist is in the map library in the headquarters of the USGS, located in Reston, Virginia. Currently there is a common expectation everything of value, or required for reference and research, needs to be available through the Internet. The USGS has a continuing commitment to supply topographic maps to the nation and recognizes its responsibility as custodians of its historic topographic map collection. This presents the USGS Historical Topographic Map collection cataloging, scanning, use, access and archiving efforts. By late 2011 the first approximately 100,000 maps in GeoPDF format will be available as free downloads. By the end of calendar year 2012 all maps will be accessible through the Web in either GeoTIFF and GeoPDF format. This presentation also discusses how to best share and use this collection.

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**Clark J. Archer** University of Nebraska-Lincoln  
**Political and Regional Atlas Production: The Historical Atlas of U.S. Presidential Elections, 1788-2004 and the Atlas of the Great Plains**

■ *Papers in Honor of Stephen J. Lavin - 3:15-5:15, Friday*

Stephen J. Lavin co-authored several atlases, including the *Historical Atlas of U.S. Presidential Elections, 1788-2004* (Congressional Quarterly Press, 2006), and the *Atlas of the Great Plains* (University of Nebraska Press, 2011). It is an indication of the high quality of Steve's work that the *Historical Atlas of U.S. Presidential Elections* won the Professional and Scholarly Publishing division of the Association of American Publishers 2006 "Award for Best Single Volume Reference in Humanities and Social Sciences." Steve also co-authored the *Atlas of American Politics, 1960-2000* (Congressional Quarterly Press, 2002)–selected as a "Choice Outstanding Academic Title,

# Ashton...

2003" by the Association of College and Research Libraries “–and the *Atlas of the 2008 Elections* (Rowman and Littlefield, 2011). The purpose of this presentation is to highlight Steve’s highly creative cartographic work on these atlases, as viewed from the perspective of one of his collaborators on these projects. Illustrations from these works are shown, and relevant aspects of the methods used to produce the atlases are discussed.

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## AJ Ashton Development Seed Advanced Interactive Cartography for the Web

■ *Practical Cartography Day - 9:00-5:00, Wednesday*

Open source tools and free and open data power some of the most stunning maps in the world, and consistent advances in these tools are decreasing the barrier to entry to map design. This session will introduce strategies to design beautiful, effective, and interactive maps with emerging open source mapping tools that are accessible for designers and cartographers alike.

Taking a case-study approach, participants will see real-world examples of challenges encountered when designing maps for the web. Topics covered will include interactive design, techniques for tight integration of your maps with your web application, methods for increasing the signal-to-noise ratio in your designs, and map design best practices. Possible example maps will include:

- <http://japanearthquakerecovery.com>
- <http://afghanistanelectiondata.org/election/2010>
- <http://pakistansurvey.org/>

The tools and data discussion will center around the Mapnik renderer, the CSS-like Carto styling language, the open

source map design studio TileMill (<http://tilemill.com/>), and open data sources like OpenStreetMap (<http://www.openstreetmap.org/>). Participants will leave this session armed with strategies behind designing effective maps, and with a knowledge of the open source tools available to help them easily design them.

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## Matteo Azzi Density Design Lab Dust – Where Does My Child Go to School? Supporting Parent Decision with a Georeferenced Visualization Tool

■ *Decision Support Design - 3:15-5:15, Friday*

Dust is a research project developed for the NGO Iridiscent. The project’s aim is to create a freely available, scalable, web-based, information visualization tool based on schools open-data from major metros. This tool will help firstly parents but also urban education providers, policy makers, and education researchers to make data-driven decisions related to their own needs. Users will be guided through a step-by-step decision-making process and will be able to evaluate variables according to their needs. These variables include mobility data (distance, transport, neighbourhood), generic school data (enrollment, class size, number of teachers), school performance data (school subjects score/proficiency, attendance). As output of user choices, a set of schools will be displayed on a map and he will have the possibility to compare them.

Dust attempts to overcome the limit of current visualization tools used in data-exploration of complex, multidimensional and georeferenced phenomena (phenomena characterized by a large number of interconnected variables) by using an intuitive user interface and direct and simple charts visualization. Thanks to these features Dust will shift from



an information visualization design paradigm characterized as “by experts for experts” to one described as information visualization “for the people” having a real impact on their daily life.

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**Miles Barger** University of Oregon

Eric Stipe, University of Oregon

Alethea Steingisser, University of Oregon

James Meacham, University of Oregon

## **Communicating Complexity: Suitably Generalizing Scientific Spatial Data**

■ *Complexity and Uncertainty - 9:30-11:00, Thursday*

Scientific geospatial data are complex and highly specific – good qualities for researchers and specialists.

Yet these same qualities can make scientific data overwhelming for non-specialist users. To create map products for the *Atlas of Yellowstone*, our team had to bridge this divide, transforming complex GIS datasets used for scientific analysis into engaging cartographic products that are accessible to the general public but still retain their data-richness.

We detail the process of working with topic experts to collaboratively explore and interpret datasets. We go on to discuss specific cartographic techniques used to communicate point, line, and polygon data in the fields of wildlife biology, hydrology, and botany.

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**Sarah Bennett** UW-Madison

## **Mapping the Qualitative Spaces of Dance**

■ *Poster Session - 8:00pm-9:00pm, Wednesday*

My poster will visually explore how dancers take up space and use space. Space is both an opportunity to move and a barrier to cross in dance. Dancers use the imagined, visual, physical, and energetic properties of space and the body to organize movement and elicit bodily experiences. I will explore Maxine Sheets-Johnstone's phenomenal qualities of movement in a series of maps. Sheets-Johnstone breaks movement quality down into four types and two dynamics, which I will visualize separately. Then, I will compile these images into a single image to create an isoline map highlighting places in the dance that are important to the dance's particular felt qualities. My goal is to bring recognition to dancing as a spatial practice where space contributes importantly to the momentary, lived dynamics of movement. I will map a relationship between the body and space in dance.

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**Raechel Bianchetti** Penn State

Jinlong Yang, Penn State

Rui Li, Penn State

Justine Blanford, Penn State

Frank Hardisty, Penn State

Anthony Robinson, Penn State

Alexander Klippel, Penn State

Alan MacEachren, Penn State

## **Comparing Cartographic Point Symbol Design with Card Sorting Methods**

■ *Empirical Findings - 11:15-12:30, Thursday*

Emergency management officials are faced with an abundance of information at times of crisis. The dynamic nature of emergency situations and the heterogeneous nature of the data make information sharing difficult. At present, no international symbol standards exist; however,

# Blanco...

national level standards have been developed in some countries including the United States' American National Symbol ANSI INCITS 415-2006 symbol set and the new EMS (Emergency Mapping Symbolology) set adopted by organizations at the local, regional, provincial, and federal levels of the Canadian government in 2010. This new Canadian symbol set utilizes many of the ANSI icon shapes directly and indirectly, but is characterized by three dimensional shading, color, and more hand-drawn characteristics than the ANSI standard. Through the use of open card sorting, we are studying the ways in which users conceptualize the relationships between map symbols and determining whether differences in people's sort behaviors occur due to the stylistic differences between the two sets. Understanding these effects will help inform an ongoing U.S. Department of Homeland Security emergency management cartographic point symbol design process that we are participating in as well as future research on how basic symbol attributes can be used to improve situational awareness.

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**Verónica Perales Blanco** University of Murcia

Fred Adam, University of Murcia

## Safari Urbis

■ Poster Session - 8:00pm-9:00pm, Wednesday

Safari Urbis is an artwork by the collective Transnational Temps which uses mobile phones and geolocation for environmental education. The project is a game which creates a map to encounter endangered species in the city in the form of icons, patterns and brands. Safari Urbis maps have been created in different European cities (it is a work in progress) including Poitiers, Saint Jean D'Angely, Gijón, Inca ... "Our intention is to provoke awareness about the imbalance between the actual situation of wild animals

and their massive presence in the daily life in the form of consumer products like stuffed animals in clothes, shoes... "

The game is divided into two parts. The first is a workshop where participants learn to geotag real environmental elements by mobile and generate paper maps. The second part is the game itself, open to all people who want to participate with mobile technology or not (using paper maps). "People are surprised when they realize the huge amount of wildlife that exists in everyday life!"

On the map, each animal is accompanied by information about their situation and their characteristics. The game includes questions about these species. In addition to expanding the knowledge of endangered species, this project has a larger environmental goal. We aim for a more respectful use of animals iconography and believe brands should give a small percentage of the benefits for the protection of species that are (aesthetically) exploited.

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**Barb Bondy** Auburn University

Chris Mixon, Auburn University

## Unexpected Outcomes At the Intersection of Difference: Exploring Sleep Through Visual Art and Cartography

■ Explorations, Experiments, and Expressions - 10:00-12:00, Friday

Terra Incognita: Mapping The Topography of Sleep is a creative research project that draws together the fields of art and cartography to creatively explore the largely uncharted terrain of sleep through the art and science of mapmaking. This project is an interdisciplinary collaboration between visual artist Barb Bondy, associate professor of art at Auburn University and, Christopher Mixon, information technology

specialist at Auburn University whose specialization includes cartography, geographic information systems (GIS) and computer-aided mapping.

As collaborators, we propose to explore how one can map a territory that is unknown and not a physical territory. As presenters, we propose to discuss our process and how unexpected questions and answers can arise out of a collaboration of art making and map making.

In “Mapping and Topographic Drafting,” authors John D. Bies and Robert A. Long describe topographic mapping as “neither an exact science nor a pure art form, but a combination of both.” In this project we propose to discuss the collaborative process of creating “maps” that overlap art and science and conceptually reference the state or condition of sleep while metaphorically exploring through mapmaking the unknown territory of sleep.

There are more questions than answers about why humans sleep and the functional significance of sleep, although it is clear that one must sleep for survival. Unanswered questions about the neurological processes and generally, what happens when one sleeps, provide a fertile ground for creative exploration. In this presentation, the collaborators will discuss the process and unexpected discoveries found at the intersection of art and science.

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**Christine Bosacki** Herff Jones | Nystrom  
Aaron Reiner, Herff Jones | Nystrom  
**Re-imagining the Classroom Map**

■ *Classroom Maps Then and Now - 3:45-5:00, Thursday*

Today's students have a fundamentally different concept of what a map is than students 20, 10, or even 5 years ago.

This changing perspective challenged us to design maps that are simultaneously educational, useful, relevant, and engaging. Herff Jones | Nystrom has been making maps, globes, and atlases for schools for over 100 years. We would like to give you a guided tour of StrataLogica.com, the online application we created to approach this challenge while leveraging the Google Earth API. We will walk through our design space, pointing out how we used our experience and existing skills to create content for this project.

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**Cynthia A. Brewer** Penn State  
Jason McGilloway, Penn State  
Stephen J. Butzler, Penn State  
**NACIS Presentations on Terrain Inspire Penn State  
“Applied Cartographic Design” Course**

■ *Representing Terrain - 8:00-9:45, Friday*

Last year's NACIS conference included inspired talks on terrain representation experiments, refinements, historical resources, and new tools that spanned computing fractional Laplacian operators to watercolor painting. The quality of these talks inspired a focus on “Cartographic Terrain Representation” for the advanced cartography course at Penn State. Students each produced a detailed instruction set and lead an hour-long session. Their topics included: fishnet plots, traces of inclined planes; selective ridge and valley generalization in Terrain Sculptor, Scree Painter; filters and nondestructive effects in Photoshop; illuminated contours, other contour processing; aggregating multiple hillshade directions, uniform sky illumination; slope/aspect, hachure effects; flow accumulation, curvature; texture analysis; realism with bump mapping, ortho imagery, and sky effects; and automated block diagrams. USGS staff visited to encourage the work and talk about practical issues such as vertical integration, and we had help and/or demonstrations

## Bricknell...

from Alex Tait, Bernhard Jenny, Leland Brown, Pat Kennelly, and Jim Mower during the semester. Students finished by creating final designs that combined select techniques. They became expert with jockeying raster files between ArcGIS, Photoshop, and custom applications. They learned to see nuances of terrain detail enhanced by individual methods and grew into inventive designers proposing bold combinations—thanks NACIS.

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### Michael Bricknell UW-Madison

David M. Mickelson, UW-Madison

Howard Veregin, UW-Madison

#### Modeling Ice Age Lakes of Wisconsin using PaleoDEMs

■ *Representing Terrain - 8:00-9:45, Friday*

The Wisconsin landscape was altered by glaciers during the last ice age 30,000 to 10,000 years ago. Associated with this ice sheet were lakes dammed by the ice as it advanced and retreated. The extent of these former lakes is indicated now by the distribution of lake sediment and, in a few places, beaches.

A series of 44 maps showing ice sheet extent and the distribution of major lakes at mostly 500-year intervals since 31,500 calendar years before present were rendered in a GIS environment. Ice-margin positions were based on best estimates of several glacial geologists. Paleo-lake elevations were calculated by incorporating an isostatic rebound model that calculates land surface elevations at various times in the past (James A. Clark, written communication, 2010). The former extents of paleo-lakes Michigan, Superior, Saginaw, Scuppernong, Oshkosh, Yahara, and Wisconsin were determined.

The isostatic rebound data were modeled using interpolated isobases and subtracted from a modern DEM. The paleo-DEMs were then used to model the lake extents. Modern lake elevations were then projected onto paleo-DEMs to produce lake extent at various times in the past.

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### Michael Bricknell mbrickmaps

#### Maps by mbrickmaps

■ *Poster Session - 8:00pm-9:00pm, Wednesday*

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### Leland Brown

#### Demonstration of Software to Create "Texture-Shaded" Terrain Relief

■ *Practical Cartography Day - 9:00-5:00, Wednesday*

At last year's conference I presented a new technique for terrain representation that I called texture shading, based on a fractional Laplacian operator. The method produces a grayscale shading distinct from hill-shading in that it is independent of orientation, emphasizes the ridge and canyon structure, and balances major and minor features in a way that is independent of scale. I now have free software available online that can generate texture-shaded images from elevation data. This presentation will demonstrate the use of the software, including results from sample areas. If time permits, audience participation will be solicited in choosing some of the areas to map, so come prepared with lat/lon boundaries if you have a favorite region of terrain you would like to see used in the demo.

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### Tanya Buckingham UW-Madison

#### NACIS

■ *Panel of Geospatial Orgs - 3:45-5:00, Thursday*

Representing North American Cartographic Information Society (NACIS)

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## **Tanya Buckingham** UW-Madison **Cartographic Apprenticeships**

■ *Teaching Cartography I (Panel): Re-examining Core Principles - 10:00-12:00, Friday*

"This is where you eat your lunch." is the only thing I want an employer to have to say to a recent graduate who has worked with me in the lab at the University of Wisconsin. While I was working in the private industry we expected a 9-12 month period to get a fresh graduate up-to-speed if he had little production experience outside of the classroom. When I moved to the UW to prepare students, my goal was to so thoroughly prepare students working with me in the lab that, on their first day of work, the new employer would be able to show the map maker where his/her desk is, institutional-specific knowledge, and where to eat lunch. I will discuss the question of can, and should, the more thorough experiences of apprenticeship be incorporated into cartographic courses more broadly? What are the critical fundamentals to preparing students for life as professional map maker?

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## **Aileen Buckley** ESRI

Ken Field, ESRI

Carolyn Fish, ESRI

## **Methods for Space-Time Visualization: Take 3**

■ *Dynamic Mapping - 3:45-5:00, Thursday*

After presenting our more nascent ideas at a university colloquium and at the Space-Time Visualization Workshop held in conjunction with the AAG spring meeting, we have been refining our thoughts about methods for visualizing

space-time information. In previous talks, we identified and illustrated a set of mapping methods for space-time visualization, as well as their advantages and pitfalls. These presentations were aimed at helping people working with space-time information, many of whom are not cartographers, to understand how they can present their data and the results of their analyses. The focus was on presentation rather than exploration of the data, and the intended audience was not specifically the cartographic community.

In this talk, we approach the subject from a cartographic perspective, relating our conceptual framework for space-time visualization to the work of other cartographers relative to concepts such as visual variables (e.g., Bertin, 2010; Robinson, 1995), dynamic variables (e.g., DiBiase et al, 1992; MacEachren, 1995), and animation use activities (e.g., Blok, 2009). Adopting a different perspective, we explore an alternative approach that aligns with Tobler's view of the map transformation process. Corollaries are drawn between the transformation of space and the transformation of time for mapping. As a result, we view the previously proposed "dynamic variables" as variations of the display method rather than the data presentation. This then leads us to an exploration of the differences between maps that can be either static or dynamic and those that are essentially "fluid flow" representations of space-time data.

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## **Aileen Buckley** ESRI

Ken Field, ESRI

## **The Affective Objective in Cartography**

■ *Teaching Cartography II: Refining Your Approach - 1:30-3:00, Friday*

Good maps explain a geographic distribution clearly; great

## Buckley...

maps do the same but they are also visually compelling and aesthetically pleasing. Most of the content in cartographic textbooks, classes and journal articles relates to the substantive objective in cartography – effective communication of the content or “substance” of the map, thereby providing the requirements for a good map. Little can be found on teaching or advancing our knowledge of methods for achieving the affective objective in cartography – imbuing a map with the desired “affect” or “look and feel”. Petchenik explored why cartographers have shirked this duty in her 1974 article, “A Verbal Approach to Characterizing the Look of Maps”. After suggesting various reasons that this subject is often side-stepped by cartographers, she boldly presents a potential solution in a verbal approach to describing a map’s “look”, believing that this identification would lead more easily to the execution of methods to permeate the map with its intended look. However, this approach or similar formulaic solutions to identifying and imposing a “look” on a map are not employed by cartographers nor taught to our students. Is this because the affective objective of a map is not something that be taught, rather you really just have to “have an eye” for good map design? Like Robinson (1952) and Petchenik (1974), we contend that we can and should teach people about this important aspect of map making and that excellent map design should be expected from all map makers, not only those who have an inherent sense for aesthetics. Why this has not been explored or taught this to date is not important to us, but what we can do about it from here on out is. In this presentation, we offer an approach to help people appreciate the aesthetics in map design and learn how they can work towards giving their map that award-winning “look and feel” to elevate their map from good to great.

## Aileen Buckley ESRI

Ken Field, ESRI

David Watkins, ESRI

### Latest Advancements in Mapping Capabilities in ArcGIS

■ *Practical Cartography Day - 9:00-5:00, Wednesday*

In this session, we present a number of the latest advancements in mapping capabilities with ArcGIS through demonstrations. These advancements include data-driven pages for making map books and map series, spatio-temporal mapping and new animation capabilities, basemap functionality and basemap use, and new generalization tools that are especially effective for building and road features, and new ways to create and share Web maps. This presentation will help you learn how you can use ArcGIS to create and share a larger variety of maps more effectively than ever before.

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### Rex Cammack University of Nebraska - Omaha Me On My Map Applications MOMMAs: It's Place in Cartography?

■ *Mobile Apps - 2:00-3:30, Thursday*

Internet mapping has clearly moved into a new phase. The service/application map is challenging the era of the browser map. The technology to produce and distribute maps has long been a factor for seeing major changes in the cartographic world. When the technology to cheaply mass-produced paper maps was developed, maps moved from being an elitist-only to a public-ownership era. This research examines this cycle of technology development and cartographic adaptation and looks at the current trends of MOMMA's. Through a careful examination of MOMMAs the results of this research will put forth some ideas of where

cartography will place this type of map. By understanding MOMMAs map type and the technology that drives them, cartographers will have an unlimited number of opportunities to research, design, and improve them.

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**Stephen Cartwright** University of Illinois  
**Trajectory**

■ *Explorations, Experiments, and Expressions - 10:00-12:00, Friday*

Every hour since noon on June 21, 1999 Stephen Cartwright has been recording the exact latitude, longitude and elevation of his position on the earth with a handheld GPS (global positioning system) receiver. Cartwright creates multi-dimensional maps and objects from the collected data and offers a unique perspective of one person's transit through life. Documentation of his family member's location for their entire lives illustrates the influence that each person's trajectory has on others and how the cumulative trajectories of individuals over hundreds or thousands of years have altered the landscape and influenced our perception of it. Previous documentation projects that led to his current GPS project include the daily recording of healing scabs and mapping old ladies in Philadelphia. Cartwright will discuss his work, process and other artists who have used recording their location as a source for their work.

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**John Cloud** NOAA  
**Returning the Eye of Awareness Back to the Yukon River**

■ *Narrative Maps - 3:15-5:15, Friday*

The second major episode of indigenous cartography incorporated into the charts of the US Coast and Geodetic Survey was the set of five maps made by the Inupiat Eskimo

Joe Kakaryook in 1898. These covered the Bering Sea coast and the Yukon River from its delta to above Nulato. Joe Kakaryook used an ancient motif to mark settlements, a circled dot, *ellam iianga*, "the eye of awareness". Independent of this, Guy Kakaryook, the step-father of Joe Kakaryook, created two sketchbooks of Yukon River villages and settlements in 1895, now in the Smithsonian National Anthropological Archives. This paper will disclose the results of a planned trip to the Elders Summit on the Yukon in August, 2011, sponsored by the Yukon River Inter-Tribal Watershed Council.

There we will provide digital imagery of both the maps and the sketches, so that people at the summit can find their congruences and create an integrated historical representation of the living Yukon as the Kakaryooks found them in the 1890s, to assist the 21st century communities in the same villages on the river.

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**Dan Cole** Smithsonian Institution  
**CCA**

■ *Panel of Geospatial Orgs - 3:45-5:00, Thursday*

Representing Canadian Cartographic Association (CCA)

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**Dan Cole** Smithsonian Institution  
 Catherine Chen, East Tennessee State University  
**GIS Analyses of Archaeological Sites in Western Mongolia**

■ *Poster Session - 8:00pm-9:00pm, Wednesday*

This poster is based on field work that was conducted during June and July of 2011 using high precision GPS equipment coupled with 1/2 meter resolution stereo imagery

## Coolidge...

from GeoEye. The project is a collaboration between Mongolian, Smithsonian and East Tennessee State University academics. The cartographic analyses involve the physical placement, arrangement, and aerial relationships of burial mounds (khiriksuurs), standing stones, directional stones (balbals), and petroglyphs within our study area.

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### **Jake Coolidge** Stanford University **No Little Plans: Exploring Rapid Transit Development in North America through the Lens of Plan Design**

■ *Decision Support Design* - 3:15-5:15, Friday

Cities across the United States and Canada in the years following the Second World War witnessed reinvigorated efforts to construct rapid transit systems despite a decades-long decline in transit patronage. The proponents of these new systems used their initial plans and feasibility studies to articulate a new vision for rapid transit, one that imagined rapid transit not merely as a practical transportation solution, but as a technologically advanced tool for reshaping urban regions. This evolving vision emerges in an examination of the cartography, visual design, and textual arguments of the original San Francisco Bay Area Rapid Transit (BART) District plan of 1956 and nine additional rapid transit plans produced from 1925 to 1968. Placing these plans in the broader context of rapid transit planning illuminates both the innovations of their authors and the concepts those authors inherited from earlier designs.

These plans exhibit increasingly sophisticated presentations and nuanced arguments for rapid transit intended to win approval from a public that increasingly preferred private automobiles for transportation. This talk will draw from the author's recently completed Master's thesis research with the aim of discussing the importance of design in imagining the future of the city, and noting how this continues to play out in current rail transportation proposals.

### **Aaron Straup Cope** Stamen **Gossip becomes Genealogy**

■ *Art in Modern Cartography* - 2:00-3:30, Thursday

The phrase "here be dragons" refers to the practice of marking unknown or uncharted territories on a map. It's a lovely expression because it admits what we do not know while at the same time encouraging (taunting, perhaps) further discovery. What keeps me interested in maps is wondering what it means to turn the phrase in on itself. What does it mean to use all these amazing tools we've created to chase away all the "dragons" as tools to actively look for new dragons, to be able to shine the light around and expose all those other places left uncharted.

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### **Iain Crawford** U.S. Department of State **United States Foreign Service Posts and Department of State Jurisdictions, September 2011**

■ *Poster Session* - 8:00pm-9:00pm, Wednesday

This map, periodically updated, is a reference guide designed to show the locations and types of U.S. Foreign Service posts and the geographic bureaus and offices under which they are organized. Time zones are added to allow users to visualize and calculate what time of day it is at a given embassy or consulate.

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### **Iain Crawford** Department of State **Mapping Our Diplomatic Footprint – Challenges in Designing the New Department of State Foreign Service Post Map**

■ *Can't We Just Make a Map?* - 11:15-12:30, Thursday

This talk will focus on both the technical challenges of



having to deal with decades of legacy data and fonts derived from older versions of Adobe and ArcGIS, as well as the bureaucratic challenges of building a consensus across federal agencies in dealing with time zone boundaries and ensuring the end product satisfies all of the State Department regional bureaus as to the status and nature of the U.S. Foreign Service posts. The talk will also highlight the challenges of creating the map within the context of a dynamically changing world – such as whether production should wait for the independence of Southern Sudan (and the need for an approved international boundary for the new country), and whether Embassy Tripoli should be represented as closed or not.

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**Laura Daly** UC-Berkeley

## **A Look at the Progress of a Cacao Farming Cooperative in Rural Ecuador**

 *Poster Session - 8:00pm-9:00pm, Wednesday*

My poster presents a series maps depicting demographic and production information for FONMSOEM, a federation of cacao farmers in the coastal forests of Northern Ecuador. These farmers have organized to export their cacao to companies that are willing to pay a fair price for their unique produce as an alternative to uncertainties exacerbated by local intermediaries. FONMSOEM works to improve the livelihoods and production techniques of their members, but the group greatly lacks funding and official internal information. In 2010, FONMSOEM went through the process of recertifying their associated farms as organic. I worked with FONMSOEM personnel during the recertification to inspect and gather information about 200 farms. Some key points of the data collected are displayed in these maps (I've created an English and Spanish version), such as production values and how the cacao is distributed.

The design conveys information about FONMSOEM in an understandable way, with the eventual goal of becoming a marketing tool. The group is currently working to attract the attention of national and international aid groups and cacao buyers, as one of the largest impediments to FONMSOEM's development is how little known they are.

Support from: FONMSOEM personnel, Rocio Fernandez, Great Wilderness, and GTZ.

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## **Mark Denil** National Ice Center **Cartographers Commit Acts of Design**

 *The Power of Maps - 9:30-11:00, Thursday*

The act of bringing a map into existence is an act of design, and, as Randy Nakamura notes, although "...design is about analysis and problem-solving, [...] its fundamental impact on the world (for better or for worse) is in the artifacts and form it produces."

There is absolutely nothing whatsoever that is natural about a map: it is a wholly artificial construct that is wholly dependent upon culturally determined convention. Each and every step of the way; a map exists solely within, is judged exclusively upon, and operates only through, a complex ontological and epistemological structure that allows maps to exist, to be good or bad, and to be employed.

It is within a framework of theoretical, or design knowledge (which includes command of a vocabulary of appropriate form and a syntax of application, and that includes a cannon of examples constituting quality) that tacit, or craft knowledge (wherein lies a mastery of means and a culture of materials) is applied, enabling maps to be made. Every map is designed; some are well designed.

# Denil...

**Mark Denil** National Ice Center

## Recent Arctic Ice Extents: Maximum and Minimum

■ *Poster Session - 8:00pm-9:00pm, Wednesday*

Recent Arctic Ice Extents: Maximum and Minimum, displays the sea ice extent in the Arctic for maximum and minimum ice coverages for 2010, compared to maximum and minimum for recent years. This data is taken from the National Ice Center (NIC) daily ice analysis. NIC reports on sea ice in the northern and southern hemispheres, plus the North American Great Lakes, on a daily and weekly basis.

The National Ice Center (NIC) is a multi-agency operational center operated by the United States Navy, the National Oceanic and Atmospheric Administration, and the United States Coast Guard. The NIC mission is to provide the highest quality, timely, accurate, and relevant snow and ice products and services to meet the strategic, operations, and tactical requirements of the United States interests across the global area of responsibility.

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**Leo Dillon** U.S. Department of State

## South Sudan

■ *Poster Session - 8:00pm-9:00pm, Wednesday*

This map was published to coincide with the independence of the world's newest country, on July 9, 2011. It was created to serve as a U.S. Government reference product, in particular for the proper depiction of boundaries and as a source for standardized geographic names. The terrain imagery is from Natural Earth.

**Leo Dillon** U.S. Department of State

## History of the U.S. Department of State Foreign Service Posts Map

■ *Embracing History and Culture in Cartographic Collections - 2:00-3:30, Thursday*

For more than a century, the U.S. Department of State has periodically issued maps displaying the locations of U.S. embassies, consulates, and other posts worldwide, along with the State Department's areas of jurisdiction. Although meant to serve as reference products for the Department's Foreign Service, as a set these maps plot the changing spatial nature of U.S. diplomacy. This presentation will use examples of these maps to illustrate the evolution of U.S. foreign diplomatic presence from the colonial era, through two world wars, the cold war, the explosion of new states with the breakups of the Soviet Union and Yugoslavia, and the U.S. engagements in Afghanistan and Iraq.

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**Adam DuVander** ProgrammableWeb

## Map Scripting With Style

■ *Practical Cartography Day - 9:00-5:00, Wednesday*

Learn the basics of creating maps on the web using Google, other providers, or your own maps. Layer imagery above a map and learn three ways to style base maps on the web in this workshop from Adam DuVander, author of Map Scripting 101.

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**Rob Edsall** Carthage College

## Some Active Learning Strategies in Large Cartography and GIS Lectures

■ *Teaching Cartography I (Panel): Re-examining Core Principles - 10:00-12:00, Friday*

As more and more institutions and units offer GISc courses, and as the demand for a GIS-trained workforce grows, instructors need to constantly rethink and reevaluate strategies for teaching GISc courses. For this panel, I suggest ways that active learning strategies can be incorporated into large-lecture-section introductory GIS courses with relatively little additional instructor preparation or workload. Some of the techniques I have implemented (to varying degrees of success) include pen-and-paper exercises during lecture, one-minute essays, short ungraded homework assignments, self-assessments, and opportunities for independent demonstrations of understanding apart from traditional assessment mechanisms. I will offer and discuss several specific examples of these strategies and cite formal and informal evaluations from students about their effectiveness, as I encourage other GIS instructors to design lectures in novel, pedagogically grounded and proven ways that facilitate diverse student learning.

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### **Ken Field** ESRI BCS

■ *Panel of Geospatial Orgs - 3:45-5:00, Thursday*

Representing the British Cartographic Society (BCS)

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### **Dennis Fitzsimons** Humboldt State University **A Geographic Cartographer in a GIS World: A Retrospective in Honor of Professor Stephen J. Lavin**

■ *Papers in Honor of Stephen J. Lavin - 3:15-5:15, Friday*

The academic career of Professor Stephen J. Lavin paralleled the rise of Geographic Information Sciences (GIS). Professor Lavin's graduate education, particularly during the early 1970s at the University of Kansas, positioned him to be able

to offer his own students insights into the mapping problems created through the development of modern graphic displays for the communication of complex spatial data. Professor Lavin's background in traditional cartographic techniques, as well as a strong core training in geographic principles, enabled him to make significant contributions in both animated mapping and the production of highly-detailed specialty atlases.

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### **Rick Forroux** Penn State University **Natural Sky Illumination: Aggregating Hillshades for Realistic Light Angles in the Northern Hemisphere**

■ *Poster Session - 8:00pm-9:00pm, Wednesday*

This is based on work by Patrick Kennelly's Sky Illumination Model. I am determining the possibility of natural sun angles that does not invert the hillshade's "highs and lows." The ability to have correct sun angles in the northern hemisphere will make it easier to use hillshade layers and ortho images without each layer's shadows and lighting fighting each other in a base map.

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### **Scott Freundschuh** New Mexico University **CaGIS**

■ *Panel of Geospatial Orgs - 3:45-5:00, Thursday*

Representing Cartography and Geographic Information Society (CaGIS)

# Fry...

**Michael Fry** National Geographic Society

Andrew Laas, ProQuest

## Mapping American History

■ *Embracing History and Culture in Cartographic Collections - 2:00-3:30, Thursday*

The Congressional Serial Set, an ongoing compilation of documents dating back to the early 19th Century, has been called the crown jewel of official US government publications. At 15,000 volumes and counting, the Serial Set is a mammoth, unfiltered chronicle of American history.

Amid its 10 million pages are more than 55,000 maps. These maps—some as small as a postage stamp, others more than 10 feet long—represent more than a century of American surveying and cartographic techniques. They also reflect the growth and development of an emerging nation: exploration and westward expansion; boundary and land surveys; demography and anthropology; hydrography and topography; foreign relations and war; weather and climate; public works and infrastructure; geology and hydrology; agriculture and industry.

With a few notable exceptions (maps from the great surveys of the American West, for example) Serial Set maps are unknown to many historians and cartographers. The speakers will describe a successful multi-year initiative to locate, identify, conserve, and digitize in high-resolution, thousands of historic maps from this vast and underused collection.

**Charlie Frye** ESRI

## Valuing Cartographers in an Information Economy

■ *Teaching Cartography I (Panel): Re-examining Core Principles - 10:00-12:00, Friday*

We all have read or been told that information is valuable, i.e., knowledge is power, but how do we educate cartographers with regard to this sentiment. There are ethics about portrayal of information, i.e., do your best to represent a geography relative to something that's been measured in geographic space. However, I don't hear too many cartographers describing the economics of consuming information and knowledge via maps, and that efficiency of cartographic communication has value, much less how to value such efficiencies. There is also a widely held perception that maps are interesting, and commodities that are interesting can be monetized on the Internet. I hear even less about how cartographers are participating in that economy, much less that they are somehow being prepared to do so. Why is it that cartographers are on the outside, looking in, on the information economy for maps on the Internet? Is that okay? Preferred? I think it's a travesty that a key role in designing and preparing information for consumption by specific audiences is radically undervalued and that cartographers are largely unprepared to make the case for their value.

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**Martin Gamache** National Geographic Magazine

## Cartography beyond the Planimetric

■ *Practical Cartography Day - 9:00-5:00, Wednesday*

I'll be discussing cartographic compilation, production, editing and design of three non-typical map projects executed for National Geographic Magazine in 2011:

1. Hang Son Doong cave in Vietnam, one of the world's largest cave;
2. A climbing route map of Yosemite Valley's

El Capitan; and 3. A data rich, map-based timeline of a self-propelled journey in Alaska.

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**Christopher M. Gavin** University of Wisconsin - Madison

### **Football: The Beautiful and Global Game**

■ *Poster Session - 8:00pm-9:00pm, Wednesday*

As its people are becoming ever divided by religion, race, ethnicity, and politics, one uniting entity remains in the world: football. From Afghanistan to Zimbabwe, the game remains one of the solitary forces that brings diverse people together, which is especially evident in the major leagues of Europe. For that brief moment, whether watching a match in front of 99,000 at the Camp Nou or watching a pick-up game on the streets of Sao Paulo, football brings delight to the hearts of its viewers. This truly is a beautiful game.

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**Chelsea Gilliam** Penn State

Rui Li, Penn State

Brian Chorman, Penn State

Alexander Klippel, Penn State

Jinlong Yang, Penn State

### **Placement of You-Are-Here Maps: An Empirical Study using Multiple Approaches**

■ *Empirical Findings - 11:15-12:30, Thursday*

You-are-here (YAH) maps are an important source of information for orienting ourselves when walking in an unfamiliar environment. Here, we are interested in assessing the influence of the placement of YAH maps on wayfinding in buildings. We used multiple approaches to examine this problem: First, we carried out spatial analyses to quantify environments in terms of three characteristics that potentially account for wayfinding performance: visibility,

...Giordano

connectivity, and layout complexity. Second, the placement of YAH maps was added to the spatial analyses to assess their areas of influence. Third, we carried out behavioral experiments to assess human wayfinding performance in the environments. Using a university library environment, we assessed wayfinding performance in relation to the placement of YAH maps. Our results show how individuals interact with the environment and maps during wayfinding. Integrated results from the behavioral experiments and quantitative analyses of the environment offer insights into understanding that the three characteristics of environments are correlated to the wayfinding performance. The result can be applied to the placement of YAH maps and YAH information in general.

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### **Alberto Giordano** Texas State University **On Maps and Genocide**

■ *The Power of Maps - 9:30-11:00, Thursday*

In his book *Becoming Evil*, James Waller presents an explanatory model to try to answer the question of how ordinary people commit genocide and mass killing. His explanation is rooted in psychological factors, including the construction of the “other,” the influence of cultural models and historical events, and group behavior that allows its members to initiate, sustain, and cope with cruelty. In this presentation, I will argue that maps play a prominent role in the construction of all of these factors, and more.

My argument is organized around the opposite perspectives of the victim and the perpetrator. Perpetrators exploit the power of maps as propaganda tools in preparing the ground for genocide—especially for constructing the other—and for staking territorial claims, and as a “navigational” tool to plan and execute mass murder. Maps are used by the victims as instruments of resistance, to cope with insufferable events, to memorize the fallen, to denounce the perpetrator, and to

# Goins...

raise awareness.

The foundation of this presentation is a graduate seminar class I taught at Texas State University in the fall of 2010. Many of the maps and insights that I will share with the audience are the results of group discussions and research by the students. Their invaluable contribution is gratefully acknowledged.

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**Phillip D. Goins** UNC-Charlotte

## **Flights of Terror: The Attacks of September 11, 2001**

■ *Poster Session - 8:00pm-9:00pm, Wednesday*

My map, titled "Flights of Terror: The attacks of September 11, 2001" is a simplistic poster representation of the high jacked aircraft and the estimated flight paths taken before crashing into the World Trade Center Towers, the Pentagon, and a field in rural western Pennsylvania.

The intended audience for the poster is anyone who experienced this horrific national tragedy, the country as a whole and especially the young people who will not remember or had not yet been born. Like Pearl Harbor Day on December 7, 1941, the attacks against the United States on September 11, 2001, will be a day forever etched in the minds of all Americans. In my production of this map I hope to remind all the great sacrifices the nearly 3000 Americans and their families gave that day.

My poster is approximately 36" x 32" and represents the northeastern section of the United States. Included in the poster design is a timeline that describes the events that unfolded during those few short hours the morning of 9/11.

**Kirk Goldsberry** Harvard University

## **Do Geographers Make Good Cartographers?**

■ *Teaching Cartography I (Panel): Re-examining Core Principles - 10:00-12:00, Friday*

Academic cartography courses in the United States are almost always taught within Geography departments. The students who enroll in these courses are commonly juniors and seniors studying geography/GIS. However, I argue that the tools, knowledge, and background required to be a strong 21st century cartographer are not supplied by most undergraduate geography curricula. For example, many American geography students do not know much about computer science, mathematics, or graphic design, three domains at the heart of contemporary mapmaking. This raises two issues: 1) cartographic curricula are forced to accommodate students' limited backgrounds by either brushing students up on tangential themes such as computer programming, or not including overly complex content such as analytical cartography, and 2) students emerging from our undergraduate cartography courses may not be prepared to be 21st century cartographers.

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**Kirk Goldsberry** Harvard University

## **AAG-CSG**

■ *Panel of Geospatial Orgs - 3:45-5:00, Thursday*

Representing the Association of American Geographers, Cartography Specialty Group (AAG-CSG)

**Adele Haft** Hunter College

**"Here in a gulf of golden leaf": Searching for Treasure in Kenneth Slessor's "The Seafight" (1930-31)**

■ *Narrative Maps - 3:15-5:15, Friday*

"The Seafight," by the acclaimed Australian poet Kenneth Slessor, concludes his five-poem sequence "The Atlas," which opens *Cuckooz Contrey* (1932) by paying tribute to the Golden Age of Cartography. Like the preceding poems, "The Seafight" begins with an epigraph drawn from the title of a seventeenth-century atlas or map. But while other epigraphs identify the relevant chart, "Archipelague du Mexique..." – Sanson, 1692" does not. Determined to pair each poem of "The Atlas" with the map that inspired it, I turned privateer in search of treasure.

Slessor provided two vital clues in "Author's Notes." But *Cuckooz Contrey* is rare and, until 1994, subsequent editions omitted his notes. Even then, Slessor mistakenly assumed that the map's creator only published a Nicolas Sanson map – though no work by the French cartographer bears such a title. Furthermore, not only does the relevant West Indies map turn out to be ca.1703 and Dutch, but no evidence exists that Slessor ever saw it. Instead, he found his epigraph in a particularly lyrical catalog of maps and atlases. My paper examines the complex relationships between the poem, the catalog, and the map that one scholar calls "a plain man's guide to the [Spanish] treasure shipments."

**Matthew Hampton** Oregon Metro  
**Revisiting 1865 Cartography of Montana - Creating 3D Hachures for a Historical Diary**

■ *Narrative Maps - 3:15-5:15, Friday*

When Cornelius M. Lee came to the recently formed

Montana Territory in 1865, he came to a land and to a variety of cultures that were experiencing rapid transition and consequent turmoil. Lee kept a daily journal of activities and his experiences as he forged a life where the Musselshell River empties into the Missouri. His diary is being prepared for press and the author was asked to create several maps to accompany the finished book. Matthew will present his cartographic workflow for creating historically accurate maps using modern techniques including how to create 3-dimensional hachures.

**Matthew Hampton** Oregon Metro  
**LiDAR 101**

■ *Practical Cartography Day - 9:00-5:00, Wednesday*

In this talk I will present a primer on LiDAR technology and using a variety of examples I will discuss its impact on the field of cartography.

**Carolyn Hansen** Brooklyn Historical Society  
**Saving The Ratzer Map: Lessons Learned in the Conservation, Management, and Publicity of Cartographic Resources**

■ *Embracing History and Culture in Cartographic Collections - 2:00-3:30, Thursday*

In May 2010, the Brooklyn Historical Society (BHS) received a shipment of items from its off-site storage facility. To the astonishment of staff, a copy of the 1st state of Bernard Ratzer's *Plan of the city of New York* was discovered in the shipment. Only the 4th known copy still in existence, the map is extremely rare and valuable both aesthetically and historically. Unfortunately, the map had been stored rolled in a non-humidity controlled environment and was in very poor condition; it would require immediate conservation in order

# Harrison...

to be saved.

This presentation will discuss BHS' efforts to save the Ratzer Map, which began with the unrolling of the map and ended with a front page article in the *New York Times*. Carolyn Hansen, BHS' Map Cataloger, will examine several aspects of the process, including how a legacy of poor collection management led to the map's deterioration as well as the controversy its conservation caused amongst map "purists." The presentation will also explore dealing with media coverage and, as a result, the increased expectations of patrons in terms of access.

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**Tom Harrison** Tom Harrison Maps

## Multi-language Map Design

■ *Poster Session - 8:00pm-9:00pm, Wednesday*

On display will be a map of Yosemite Valley with the legend in five languages - English, Spanish, French, German, Japanese.

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**Michael Hermann** Penn State University

## Penn State Campus Maps: More than just Visitor Maps

■ *Poster Session - 8:00pm-9:00pm, Wednesday*

The Penn State Geography Department produces a traditional campus map for students and visitors. The primary campus map is resized and reformatted for a variety of university print publication needs in grayscale and color. They also produce working maps for the business side of promoting and running a major university. These include maps for the Parking Office, Custodial Services, Athletics, Admissions, Campus Police, Historic District, and branch campuses. This poster will show the depth and diversity of print cartography at Penn State.

## Sally Hermansen University of British Columbia Historical GIS Research and Interdisciplinary Mixed Methods Teaching

■ *Visualizing Oral Histories - 1:30-3:00, Friday*

While historical geographers have long understood the value of integrating space and time to understand and reconstruct past events, it has been the introduction of GIS techniques to historical archival research that has created the recent discipline of Historical GIS (or spatial history/mapping history). Historical GIS research projects involve incorporating a range of methodologies across disciplines and thus provide valuable case studies in teaching the importance of interdisciplinary approaches of mixed methods to problem solving and thinking critically. Four historical GIS research projects will be presented as examples of this integration of research and teaching: Chinese immigration patterns seen through mapping Chinese head tax data from the early 1900s; restoration ecology of an urban bog; historical economics and the spread of bank branches; and the impacts of past and current fluvial sediment processes of the Missouri River.

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**Patrick Hofmann** Google

## The Influence of Contemporary Swiss and German Graphic Design

■ *Art in Modern Cartography - 2:00-3:30, Thursday*

Revolutionary in how they harnessed simplification and simplicity in design, Swiss graphic designer Josef Müller-Brockmann, Helvetica-inventor Max Miedinger, and icon pioneer Otl Aicher all play an important part in my design work. Find out how in this brief discussion.



**Jeff Howarth** Middlebury College

## Can We Teach Cartographic Design Without Labs?

■ *Teaching Cartography II: Refining Your Approach - 1:30-3:00, Friday*

In this paper, I use cognitive load theory to discuss instructional strategies that aim to help students learn how to design good maps. I first contrast the problem structure of map design to spatial analysis and suggest that the high amount of interaction among design decisions may make cartographic design particularly difficult for novices to learn. I then illustrate strategies that may help reduce this intrinsic load on student learning. Map problems can be sequenced from simple to complex, students can be encouraged to formally recognize 'design patterns' (principled solutions to recurring design problems) in good maps, and students can be required to justify their own independent design decisions by referencing these design patterns. I also discuss strategies for reducing the external complexity of learning cartographic design, or the impediments to student learning that arise from the organization of instructional materials. These include using video tutorials for software training, using good examples for teaching design patterns, emphasizing practice sessions over product assignments and encouraging public critiques. Taken together, these strategies suggest that a lecture/lab format for teaching map design may not be necessary.

**Jeff Howarth** Middlebury College

## Sketching in Digital Cartography

■ *Teaching Cartography I (Panel): Re-examining Core Principles - 10:00-12:00, Friday*

Sketching was once a prerequisite skill for becoming a cartographer. Now that digital methods of data collection and map production have removed this requirement, what role does sketching still have in cartographic education?

**Daniel Huffman** somethingaboutmaps.com

## On Human Cartography

■ *Art in Modern Cartography - 2:00-3:30, Thursday*

I, and my colleagues, have often lamented the lack of "art" in modern, automated, computer-driven cartography. But to me, the lack of art is really part of a larger issue: the lack of humanity. Until fairly recently, maps have always been made by humans for use by other humans. But the world is changing, and we must be watchful to avoid alienating those that read the map by ensuring that our maps are not wholly the product of insensate algorithms.

**Daniel Huffman** somethingaboutmaps.com

## The Columbia River System

■ *Poster Session - 8:00pm-9:00pm, Wednesday*

This map depicts the Columbia River and its major tributaries in the style of an urban transit map, inspired by Harry Beck's iconic London Underground map. The stylized, distorted geometry translates the organic world into the language of the constructed world. Settlements are marked along the way, revealing the oft-forgotten natural connections between urban nodes.

**Daniel Huffman** somethingaboutmaps.com

## Things I Wish Someone had Told me about Illustrator

■ *Practical Cartography Day - 9:00-5:00, Wednesday*

Adobe Illustrator has an overwhelming number of features, and whether you're new or a veteran of the software, it's easy to find yourself in a situation where you say, "Oh. I could have saved a lot of time if I'd known about that feature sooner." Especially because most of us never really get around to

# Hutchinson...

reading through the documentation until we have a problem. Hopefully presenting a little something for everyone, I will give you an assortment of my favorite Illustrator epiphanies.

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**John Hutchinson** USGS

## Matching Land Cover Data to Coastlines – An Exercise of Cartographic License

■ *Complexity and Uncertainty - 9:30-11:00, Thursday*

In 2011, the *National Atlas of the United States*® published a map of land cover of the United States at a scale of 1:5,000,000. The map shows 19 classes of Landsat-derived land cover from the National Land Cover Database (NLCD) 2001 with reference overlays of National Atlas coastlines and boundaries. The biggest problem during map development was that land cover image data and coastline overlays did not always match perfectly; land cover spilled over the coastline in some places and stopped short of the coastline in others. Large mismatches between image data and coastlines detracted from the map's appearance and needed to be resolved. The solution was to develop both manual and automated approaches to force the land cover data to match the coastline, trimming back in some places, filling out in others. These steps were deemed necessary to create a publishable map, but they introduced error into the depiction of land cover. Was this exercise of cartographic license justified? Would the same approach work for other maps?

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**David Imus** Imus Geographics

## *The Essential Geography of the United States of America*

■ *Poster Session - 8:00pm-9:00pm, Wednesday*

*The Essential Geography of the United States of America* represents a new generation of US general reference

maps. In addition to the traditional function of locating individual states, populated places, and national parks and monuments, this map represents the U.S. as a legible and realistic tapestry of basic geographic elements, and serves as a practical tool for more individuals to enjoy the benefits of geographic literacy.

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**David Imus** Imus Geographics

## The “Apparent Simplicity” of *The Essential Geography of the United States of America*

■ *Classroom Maps Then and Now - 3:45-5:00, Thursday*

With the goal of making US geography understandable and relevant to more Americans, this map presents a clear tapestry of basic geographic elements, and includes a multi-cultural spectrum of iconic landmarks. Discussion will focus on controlling the fundamentals of value, hue, style, orientation, spacing and generalization to create the appearance of simplicity.

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**Alicia Iverson** Humboldt State University

## Mapping of *Insecure At Last: A Political Memoir*

■ *Poster Session - 8:00pm-9:00pm, Wednesday*

In an attempt to explore the intriguing concept of maps as narratives, I have created a map that visually narrates *Insecure At Last: A Political Memoir* written by Eve Ensler. The map follows the journey of Ms. Ensler in her worldwide and lifetime search for security, which ends in the ultimate appraisal that security is truly a cage. The map specifically documents her travels, in the sequence presented in her novel, to places such as Bosnia, Pakistan, and Indonesia. More importantly, however, are the stories she uncovers throughout her travels, what the stories reveal about the

people and the places, and what security truly means; these discoveries are also communicated on the map to provide context for the ultimate importance of her journey. The map also heavily emphasizes impacts of world events on girls and women. The poster is built on my creative expression of her narrative in a spatial format—an important visual contribution to her argument that we should all consider ourselves citizens of the world and not of a nation. The map is displayed on a poster format; I would like to propose it for the poster session as well as the student poster competition.

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### **Zachary Forest Johnson** GeoIQ

#### **Thematic Cartography in Javascript with OpenLayers or PolyMaps**

■ *Practical Cartography Day - 9:00-5:00, Wednesday*

This presentation will explain easy ways to incorporate various thematic mapping symbologies into open source JavaScript mapping frameworks OpenLayers and Polymaps. At least choropleth, dot density, noncontiguous cartogram, and proportional symbols will be discussed.

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### **Ken Kato** University of Oregon

Jacob Bartruff, University of Oregon

Dana Maher, University of Oregon

Justin White, University of Oregon

Alethea Steingisser, University of Oregon

Blake Andrew, University of Oregon

#### **Innovations in Mobile Mapping: Bringing High Quality Cartography to Smartphone Users**

■ *Mobile Apps - 2:00-3:30, Thursday*

The InfoGraphics Lab developed mobile mapping/GIS applications that have pushed the boundaries of integrating

enterprise GIS with high quality cartographic design. Several of our new mobile mapping applications will be presented to demonstrate our approach for delivering rich cartography to mobile users. In particular, the Lab released the official iPhone app for the University of Oregon, which has enjoyed over 15,000 downloads, maintains a 4 star rating in the App Store, was awarded Special Achievement in GIS from ESRI and won Best Mobile App at the 2011 ESRI User Conference. The Lab leveraged existing ESRI Enterprise GIS assets and ArcGIS Server to deliver accurate and current cartographic representations to mobile users. Seeing a great many mobile apps being built on Google Maps / Apple's Map Kit, the lab pursued a method, using ESRI's ArcGIS API for iOS, that made direct use of the room-level GIS it was maintaining on a daily basis as well as the rich cartographic tradition on which the Lab was founded. In other apps, users are able to provide live, mobile observations on a range of Public Participation GIS topics. That data is instantly received by our servers and available for analysis and visualization within ArcGIS. We will also show two iPad apps we developed as kiosks to enhance museum patrons experience in the Jordan Schnitzer Museum of Art – that use web/map services to deliver high-resolution art in a tactile experience. Our foray into mobile mapping has shown us that simply delivering a traditional web map to a mobile device wasn't going to cut it and new techniques had to be developed. While discussing the components of these apps we will present our work-flow strategies and cartographic design techniques.

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### **Nathaniel Vaughn Kelso** Stamen Design **WhereCamp**

■ *Panel of Geospatial Orgs - 3:45-5:00, Thursday*

Representing WhereCamp

# Kelso...

**Nathaniel Vaughn Kelso** Stamen Design

## Crash dash thru TileStache

■ *Practical Cartography Day - 9:00-5:00, Wednesday*

Interactive slippery maps can show vector tiles along side their raster cousins. Learn how to build your own tiles, cache them, and draw them fast client side.

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**Tim Kennedy** UW-Madison

Howard Veregin, UW-Madison

AJ Wortley, UW-Madison

## From Conceptual to Actual – Deliberations in Automated Cartography

■ *Serving Online Maps - 8:00-9:45, Friday*

The Wisconsin State Cartographer's Office (SCO) has a statutory responsibility to facilitate an understanding of status and access to "maps" in the state. While this mandate broadly defines the scope of the SCO's mission, the methods of communication and the quality of interactive cartographic products remain the responsibility of the SCO itself. Part of the challenge is creating high-quality cartography that can be easily interpreted by a diverse public and private audience. The SCO considers online delivery methods a critical component to its mission, and recently released three new Web-based mapping applications to distribute historical aerial photography, geodetic control, and Public Land Survey System data using open source technology. This paper profiles the deliberative decision-making process behind these applications, including the technology and design decisions that facilitate the transformation of raw data into final rendered cartographic displays. We demonstrate cartographic automation through the use of stored rules and methods, which allows cartographic techniques to be generalized and adapted to other contexts. We assert that

effective Web-based maps can be produced using widely-available open source software that accommodates custom symbolization, scale-dependent feature selection and annotation, and a web-service based platform. This paper profiles this development process, highlights key decision criteria and elaborates on key lessons learned.

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**Patrick J. Kennelly** Long Island University

## Cross-Hatched Shadow Maps

■ *Representing Terrain - 8:00-9:45, Friday*

Cross-hatching is an artistic drawing method in which lines of variable thickness and orientation approximate tonal variations associated with shading and shadowing. Research in computer graphics on such stroke-based illustrations such as pen-and-ink drawings has focused primarily on creating illustrations with the appearance of being drawn by hand, or having the lines conform to the three dimensional surface of objects to be rendered. Cross-hatched shadow maps apply cross-hatching to shadowed areas only, as opposed to areas of shading and shadowing in most such rendering. The length of these hatching lines is based on the lengths of shadows cast from point illumination sources at a number of discrete inclinations above the horizon. Thickness of lines increase within areas remaining shadowed at greater inclinations. By adding hatching lines from multiple illumination azimuths, the resulting map is both cross-hatched and rendered with more diffuse shadows. The resulting map uses only shadows to represent terrain, a departure from most hill-shading techniques which use shading (possibly combined with shadowing). The stylized appearance of such maps offer an alternative to hill-shading, being based on more distant terrain blocking illumination as opposed to the local orientation of terrain defining shading for a given illumination direction.

**Matt Knutzen** New York Public Library  
**New Methods for Map Librarians: Adjusting to Changes in Technology and User Expectation**

■ *Enhancing Cartographic Collections with Geospatial Technologies* - 9:30-11:00, Thursday

With the explosive growth of both spatial information and awareness, map libraries face numerous challenges. Many of the basic questions typically handled by a cartographic information specialist are now easily answered through a web search, yielding digital historical maps, gazetteer information, vector spatial datasets, driving directions, etc... How do we as map information professionals adjust to this new environment, stay relevant, provide and extend access to as well as illuminate interconnections among and between map collections? The Lionel Pincus and Princess Firyal of the New York Public Library has employed numerous strategies to address these challenges including digital indexing, map digitization and georectification. This talk will provide a practical highlight of some of those activities.

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**Matt Knutzen** New York Public Library  
**Maps as Abstraction**

■ *Art in Modern Cartography* - 2:00-3:30, Thursday

Abstraction is a necessary methodology for those seeking to represent ideas, employed for example, by an artist to depict emotion through modulated line and color, or by a cartographer to project power and order through the imposition of choices and visual hierarchies. This talk focus on how these methods can be employed in the creation of abstract cartographic art with a certain self consciousness that illuminates the mechanisms by which ideas are transmitted.

**John Kostelnick** Illinois State University  
**Teaching Cartographic Production (and Geography) with Class Atlas Projects**

■ *Papers in Honor of Stephen J. Lavin* - 3:15-5:15, Friday

A common challenge in cartography courses is the development of mapping exercises and other class activities that simulate "real world" cartographic production projects. Yet, when such projects are simulated effectively in courses, students may benefit by better understanding common workflows and challenges in the practice of cartographic production. At the same time, such projects in cartography courses can also be a good avenue for teaching about broader geographic principles and the geography of a region. This presentation will provide an overview of a regional atlas project integrated into the introductory cartography course at Illinois State University. The presentation will provide both instructor and student perspectives about the "Atlas of the Human Geography of the Midwest" project and how it is utilized for teaching principles of atlas design/production as well as the broader geography of the region. The presenter will also provide his recollections as a student in the late Dr. Stephen Lavin's electronic atlas production course, in which a similar project was utilized for teaching cartographic principles.

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**Christopher Kotecki** Archives of Manitoba  
**Mapping Manitoba: A Cartographic Exhibition**

■ *Enhancing Cartographic Collections with Geospatial Technologies* - 9:30-11:00, Thursday

The Archives of Manitoba includes both government and private sector records as well as the Hudson's Bay Company Archives. We have exhibition space in the hallway leading to the Archives Research Room, which we use for photographic exhibitions from our two divisions; Government and Private

# Krahnen...

Records and Hudson's Bay Company Archives, on a rotating basis, using photograph collections from each. In 2010 it was decided to have an exhibition featuring maps from the holdings of both divisions showing the development of cartography of Manitoba to coincide with the 14th Biennial Rupert's Land Colloquium which is a sponsored by The Centre for Rupert's Land Studies at The University of Winnipeg. A committee comprising archivists, a conservator, and office manager worked on planning the exhibition. It was seen as an opportunity for public programming as well highlighting our map collections to researchers. This paper is in two parts, the first will discuss the exhibition planning process and mounting the exhibition and the second will discuss the nine maps which were selected. The maps are examples of the evolution of cartography from the eighteenth century to the twentieth century, a three hundred year development. The Government and Private Records collection holds approximately 20,000 maps, manuscript and printed, and atlases dating from 1762 to 1988 and the Hudson's Bay Company Archives holds 5,300 maps dating from 1563 to 1965. The exhibition is a success in its first year in attracting visitors to the exhibition but also in bringing people into Archives for the first time.

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**Anne Krahnen** University of Regina

Julia Siemer, University of Regina

## The Dasymetric Method for Mapping Population in Saskatchewan, Canada

■ *Mapping People - 11:15-12:30, Thursday*

This presentation introduces basic concepts, methods and ideas of the dasymetric method. First results of a graduate studies research project, applying the dasymetric method to the province of Saskatchewan, Canada, will be presented.

Today's society relies upon maps as an effective way of communication of spatial information. Population distribution and density are frequently displayed. Currently, the choropleth method is most commonly applied to map population. This method is mainly appropriate for phenomena that occur equally throughout a region (e.g., tax rates). However, its application to phenomena whose real distribution is not reflected by the boundaries of administrative areas (e.g., population) is inadequate.

The dasymetric method is a less established method avoiding these problems. This method is visualizing statistical surfaces displaying phenomena varying continuously over space. A relationship between the occurrence of population and additional, so-called ancillary data has been discovered. Dasymetric mapping is the method used to define this logical relationship between ancillary data and statistical (e.g., census population) data. Irregularities such as peak values and local variations are shown on dasymetric maps. The dasymetric method has not been standardized yet. A generally accepted valid relationship between ancillary data and statistical surface still is to be defined. Thus, research focuses on the definition of methods that precisely redistribute census data to exclusively populated areas and determine their population density.

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**Valerie Krejcie** Independent Scholar

## Redistricting: the good, the bad and the ugly

■ *Decision Support Design - 3:15-5:15, Friday*

After each decennial census, redistricting occurs to adjust for shifts in the population. This mapping exercise affects our political representation at all levels. Most maps are the responsibility of each unit of government with each

state legislature responsible for drawing the congressional districts for their state. Thirteen states have established nonpartisan or bipartisan commissions to take the lead in redistricting.

Redistricting principles guide where the lines should be drawn. Equal population is the first requirement of any district while minority voting rights are protected under the Voting Rights Act of 1965. Next, are the principles of contiguity and compactness, followed by preserving political and geographic boundaries and preserving “communities of interest”. Should the map makers also take into consideration political outcomes, try to make districts competitive or care where incumbent politicians live? What is legal? What is practice?

A partisan gerrymander is manipulating district lines to make it easier for one party to win elections. The way redistricting works gives us only the illusion of democracy. What happens is that politicians choose the voters rather than voters choosing the politicians. Maps are drawn to protect the party in power. It's a difficult assignment to satisfy all stakeholders—particularly the citizens.

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## **John Krygier** Ohio Wesleyan University **Discussant**

■ *Art in Modern Cartography* - 2:00-3:30, Thursday

The "Art in Cartography" debate is nothing new. After hearing from experts in the field, this session will have revealed some places where art and design reside in modern cartographic endeavors. Our discussant will tie it all together and give context to the state of the art both inside and outside the academy.

## **Matthew G. Lamb** University of Wisconsin - Madison **Commuting Influences for Minneapolis/St. Paul, MN**

■ *Poster Session* - 8:00pm-9:00pm, Wednesday

This poster presents a map series that examines commuting distribution and influences in and around the Minneapolis/St. Paul Metropolitan area. Specific focus is put on household composition, industry type, commuting transportation modes, and education.

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## **Mark Livengood** UW-Madison **Redrawing the Isogloss: New Directions in Linguistic Mapping**

■ *Explorations, Experiments, and Expressions* - 10:00-12:00, Friday

The systematic mapping of aspects of human speech dates at least to 1902, the year Jules Gilliéron published the voluminous *Atlas linguistique de la France*. Since then researchers interested in the geographic dimensions of language have developed novel and conventional ways to symbolize sounds, words, and other linguistic features. The cartogram developed for the *Dictionary of American Regional English*, for example, represents the results of a vocabulary survey conducted in 1000 American communities in the late 1960s. One standard of many linguistic maps is the isogloss, a line delimiting areas of linguistic similarity. Despite decades of cartographic practice, however, critical assessments of linguistic mapping and its conventions, such as the isogloss, have been limited. Drawing on several collaborations with three linguists, this presentation examines key aspects of linguistic mapping and describes how emerging technologies impact the representation of linguistic data.

# Lycan...

**Dick Lycan** Portland State University  
David Banis, Portland State University

## Developing the Web-Based *Atlas of Oregon Lakes*

■ *Serving Online Maps - 8:00-9:45, Friday*

The web-based *Atlas of Oregon Lakes* was developed to facilitate sharing of water quality data and other lakes information with scientists and the general public. The atlas was funded by the Oregon Department of Environmental Quality through a grant from EPA. It was based in part on the print *Atlas of Oregon Lakes* published by Oregon State University Press in 1985. There were two parts to the project: (1) providing access to the PNW Quality Exchange Database and (2) providing a "lakes atlas" context for viewing these data and for reaching the broader public. Custom cartography was developed based on data in the National Hydro Database (NHD), road data from best sources for Oregon, and other layers optimized for the purpose of the project. Developing these data layers required coordination. For example, we worked with USGS, Oregon Water Resources, and the PNW Hydro Framework Committee to improve the cartographic representation of lakes and their GNIS names. A feature that will have broad public appeal is the publication of 200 bathymetric maps for Oregon lakes which will also be available through Oregon's state GIS website. The project was a pilot effort in utilizing ESRI's ArcGIS Server software.

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**Hans van der Maarel** Red Geographics  
**Automated Text Placement: Significantly Improve Your Success with These Steps**

■ *Practical Cartography Day - 9:00-5:00, Wednesday*

Automated text placement can be finicky at best. With proper data preparation the success of such automated processes

can be increased significantly. Hans has blogged about this in brevity at <http://tinyurl.com/streetlength>. This talk is going to expand greatly on that article and pave the way for an ebook by Mr. Van der Maarel.

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**Eliana Macdonald** Ecotrust Canada  
**Mapping the Fish: A Cartographic Comedy**

■ *Can't We Just Make a Map? - 11:15-12:30, Thursday*

Eliana Macdonald plays a cartographer of British Columbia's west coast who hasn't been mapping of late because she's been out of the country. The absent Eliana has had little to no experience mapping fish habitat. All this changes when she receives a frantic phone call from her boss, Greg, who has signed a contract with the bold Pacific Salmon Foundation. It seems that Greg needs Eliana to make maps of valuable Skeena Sockeye habitat. Arriving in back in Canada, Eliana learns that various interpersonal dynamics of the Skeena Habitat Subcommittee will also make the project more difficult. Eliana is rescued by GIS analyst, Lorin Gaertner, who isn't quite clear about his role in the dealings. Eliana and Lorin undergo several perilous adventures researching the wilds of the Skeena River. The maps turn out to be valuable jewels, which change form several times before completion. Eliana and Lorin manage to get approval on the maps and other products, but not before it nearly kills them.

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**Bobby Marshment-Howell** University of Wisconsin - Madison

## Reading Isthmus Roads and Rides

■ *Poster Session - 8:00pm-9:00pm, Wednesday*



## **Sam Matthews** University of Wisconsin - Madison **FIFA World Cup Historical Bests**

■ *Poster Session - 8:00pm-9:00pm, Wednesday*

The FIFA World Cup in the course of its existence has continued to show where in the world football is strongest. This value-by-alpha representation of national teams shows goals per game in association with how many appearances a team has made since the World Cup began. Those countries that have never been in the World Cup do not show up on the map.

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## **Melanie McCalmont** UW-Madison **Relief Maps as Art and Science**

■ *Art in Modern Cartography - 2:00-3:30, Thursday*

Science Hall on the University of Wisconsin-Madison campus houses 19 historic plaster relief maps published between 1875-1943. Analysis of these relief maps and others reveals a shift in the use of art in mapping. The role of the artist, previously essential to exploration and survey documentation, would soon be replaced by the photographer. Relief maps created during this time also rejected the use of imprecise artists' hachures and instead used only mechanically-generated contours for terrain modeling. Because of the abundance of accurate scientific data, the mapmakers became increasingly free to experiment with artistic communication that invited personal interaction with the map: by touching the painted contours, by changing body position to get different visual perspectives, or by imagining the self at scale and in place. The relief maps of this period are also the first steps toward realistic three-dimensional maps, a presentation that would lie relatively dormant until its development in a digital medium.

## **George McCleary Jr.** University of Kansas **Map Design and The Experience and the Direction of the Artist: The Graphic Arts Principle of Unity and the Structure of the Map**

■ *The Power of Maps - 9:30-11:00, Thursday*

Maps created by geographers and other environmental scientists are meant to describe and explain. Description of an environmental situation generally requires the map, first, to provide context (i. e., establish the environmental context, beginning with location) and, second, to explicate situations and issues. Unfortunately there are two problems: map-makers, often poor "writers," are sometimes not well versed in the grammar and semantics of graphic media. On the other hand, map readers are often not good readers ... there are problems involving both geographic literacy and graphic literacy.

Spanning centuries, the literature and products of graphic design activities provide useful principles for both map-makers and cartographers. While a particular principle has been employed for centuries, and explained for decades, it is now being explored within the context of perceptual, Gestalt and cognitive psychology. The fine arts-based discussion of unity (the graphic design principle underlying layout) by Lauer and Pentak (2007) is different from the psychological approach (*Organize for Perception*) by Malamed (2009), but both offer a conceptual foundation for effective layout ... unity ... in map design. Lauer and Pentak's *Design Basics* focuses on reading. Melamed's issue is *Visual Language for Designers: Principles for Creating Graphics that People Understand*.

# McManigal...

**Kevin McManigal** University of Montana  
Douglas Carruthers, The Royal Geographic Society  
**Map of the Turgen Mountains in NW Mongolia**

■ *Poster Session - 8:00pm-9:00pm, Wednesday*

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**Kevin McManigal** Adventure Cycling  
**Adobe Illustrator CS5 Shape Builder and Width Tools**

■ *Practical Cartography Day - 9:00-5:00, Wednesday*

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Live workflow demo of new features in Illustrator CS5, specifically the Shape Builder for trimming GIS exports in an efficient manner and the Width tool along with the Stroke Profile to taper streams.

**Brian Moran** Sanborn Map Company  
**National Forest Atlases**

■ *Poster Session - 8:00pm-9:00pm, Wednesday*

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**Ian Muehlenhaus** UW-La Crosse  
**mApp to the Future: Map Apps and the Future of Mapmaking**

■ *Mobile Apps - 2:00-3:30, Thursday*

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Map apps (or what I call “mapps”) are increasingly common on all mobile platforms, from phones to eReaders. Yet beyond research about tweaking the Google Maps app (found on most mobile devices), and discussions dealing with location-based services, little research has been done on how mapps actually differ from print and Web maps. Even less is known about how this new medium may influence mapmaking in the years to come. In this paper I argue that mapps are inherently different from Web maps and will likely become mapmaking’s next dominant medium. However, I also propose that this does not represent another paradigm shift. In fact, mapps are better defined as a synthesis of two mediums – print and Web. They combine many of

those two mediums’ strengths, while avoiding some of the limitations of both paper and the Internet. I will review what characteristics mapps incorporate from previous map mediums, what limitations are avoided, and discuss a variety of challenges confronting mapmakers transitioning into this medium.

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**Jonathan Munetz** UW-Madison  
**Madison**

■ *Poster Session - 8:00pm-9:00pm, Wednesday*

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This is a typographic map of Madison, Wisconsin. The features of the city are composed of type. This form is not new; the first such map was introduced in 1773 in Germany, but it is certainly not common.

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**Kelly Muth** Humboldt State University  
**The Nuclear Energy and Waste Dilemma in the United States**

■ *Poster Session - 8:00pm-9:00pm, Wednesday*

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This poster examines nuclear energy use in the United States and the radioactive waste it generates. The display draws upon data from the Department of Defense, the Department of Energy, the U.S. Nuclear Regulatory Commission and the U.S. Energy Information Administration. This map displays the amount of nuclear energy produced and the waste that has accumulated in each state. The map displays the proposed rail routes from each nuclear producing state to Yucca Mountain, Nevada, in addition to the proposed rail routes specifically in Nevada. The purpose of the map is to show that there is a waste disposal solution already in place and with over 77,000 tons of nuclear hazardous waste sitting around the country, Yucca Mountain needs to

continue to be the waste disposal solution if nuclear energy is going to continue to supply the nation. I designed this map to increase awareness of the severity of the nation's nuclear hazardous waste disposal problem and the importance of continuing with the development of Yucca Mountain.

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**John H. Niles** San Francisco State University  
Douglas E. Owen, Craters of the Moon National Monument and Preserve

**An updated 1:24,000-scale Geologic Map of the Core Visitation Area of the Craters of the Moon National Monument and Preserve Including 38 Points of Geologic Interest**

■ *Poster Session - 8:00pm-9:00pm, Wednesday*

The Craters of the Moon National Monument and Preserve (CRMO) in South-Central Idaho, located near the northern extent of the Basin and Range Province and along the northwest trending Great Rift, consists primarily of basaltic lava fields and volcanic cones that range in age from 15 to 2 Ka (Kuntz, 1989). Geologic mapping of the CRMO region at a scale of 1:24,000 by Kuntz et al., originally published in 1989, has since gone out of print. Geologic observations made by numerous GeoCorps participants working in CRMO between 2004 and 2009 have resulted in several new geologic interpretations for features originally mapped by Kunz et al. (1989). In order to make available to the public a detailed geologic map covering the core visitation area of CRMO that incorporates these new interpretations as well as 38 points of geologic interest, an up-to-date, 1:24,000-scale geologic map covering the core area of CRMO has been produced. This work was accomplished using an unpublished, digitized version of the Kuntz et al. (1989) geologic map, which was incorporated into a geodatabase and symbolized using representations in accordance with the

FGDC Digital Cartographic Standard. This finished product, which covers approximately 100 km<sup>2</sup> of CRMO, will be made available to the public at the CRMO visitor's center.

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**Larry Orman** GreenInfo Network  
**Parks and Open Space Data - Strategies for Using in Cartographic Products**

■ *Designing for our Environment - 10:00-12:00, Friday*

Almost 800 million acres of America's land is protected for park, forest, reserve or other open space uses - from the smallest urban pocket park to huge wilderness areas, this land is a vital element in the lives of hundreds of millions of people. Data on these protected areas is also a key component in many map products, both printed and online - showing city and regional parks, state and federal parks, forests and other protected lands is often important map context and sometimes the main point of the map. This presentation will explain the current state and directions of efforts to inventory these lands using GIS technology and showcase best practices for using it in a wide range of analytical, display and interactive mapping. Topics covered include the Protected Areas Database of the United States (PAD-US), the California Protected Areas Database (CPAD - the most extensive park/open space GIS dataset in the U.S.), strategies to improve this data, how it is being and can be used in cartographic products, and approaches to using it in web mapping applications. The main presenter is Larry Orman, the founder and Executive Director of GreenInfo Network. GreenInfo Network is a 15 year old nonprofit that annually supports 80-100 public interest groups and agencies with mapping and other geospatial technology.

# Pearce...

## **Margaret Pearce** University of Kansas **New Experiments in Symbol Design for Indigenous Place Names**

■ *Explorations, Experiments, and Expressions - 10:00-12:00, Friday*

Indigenous place names delineate territories, establish ancestral ties, locate and interrelate knowledges about environmental resources and histories, connect story sequences, and track the movement of seasonal cycles. There is a growing concern, however, that the representation of these place names on maps using labeled points or lines is problematic and, in fact, more destructive of Indigenous cultural geographies than supportive. A labeled point on a map cannot convey the storied nature of that place name; it is the reduction of the meaning of that place name to a word without place specificity. Yet, as with the translation of a story from a Native language to English, indigenous place names require a good translation into Western cartographic language for the best approximations of their meanings. By focusing on the way in which the place names are represented and their relationship to the overall design of the map, alternative textual and graphic symbolizations can be explored and selected to make a place for the meanings of Indigenous place names in the map. This talk presents the results of a collaboration to address these questions with new symbolization techniques for a map of the Wabanaki place names of Maine.

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## **Sam Pepple** Sample Cartography Willie Shubert, Sample Cartography **Students Seek Cure for Explorative Impotence at Free School**

■ *Teaching Cartography II: Refining Your Approach - 1:30-3:00, Friday*

Sam Pepple and Willie Shubert participated in a month-long-free-open-pop-up school called Knowledge Commons DC ([knowledgecommonsdc.org](http://knowledgecommonsdc.org)) in Washington DC. There, they taught two cartography classes for [mostly] non-professional cartographers, titled Resourceful Mapping. The first class focused on shattering the map into a million jagged pieces: the map is impotent, or more accurately it makes impotent explorers of us all. As a fun-house mirror, the street map not only reflects our bland and boring priorities, it also [sadly] perpetuates and reinforces those priorities. Their goal was to enable and inspire students to begin looking at the cacophonous landscape differently and let them determine new forms of abstraction for newly recognized data.

Resourceful Mapping part II was less philosophy and mostly digital data collection techniques. This class served as a prototyping session for the teachers as they determined the most effective ways for collecting data for their narrative community atlas, Atlas of Rock Creek Park. They focused primarily on utilizing the smartphone; working with a colleague Robin Craft, they implemented a Python-based system for scraping the lat-lon data from photographs. This talk will outline both classes and talk specifically about the significant cartographic and pedagogic discoveries noted.

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## **Sam Pepple** Sample Cartography Willie Shubert, Sample Cartography **Narrative Atlas of Rock Creek Park**

■ *Narrative Maps - 3:15-5:15, Friday*

This past summer Sam Pepple and Willie Shubert began creating a narrative Atlas of Rock Creek Park. Over 1700 acres and 120 years old, Rock Creek Park is one of Washington DC's most cherished attributes. A lush ravine sitting some 100 feet beneath the city proper, the

physical characteristics make the park ripe for cartographic interpretation; countless artists, photographers, historians, and cartographers have documented the place. Even with the overall glut and diversity of representations of RCP, there are so many details that have yet to be mapped. The atlas encompasses many things from a public art project to printed book, to a digital, dynamic, data-base built with open-source geospatial data and mapping API. The talk will focus on early inspiration to current conception and production to the bright and lustrous future.

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**Nick Perdue** Michigan State University  
Kirk Goldsberry, Michigan State University

### Mapping Personal Living Spaces

■ *Mapping People - 11:15-12:30, Thursday*

The measurement of population density calculates the number of people living within a surface boundary and is a measurement that does not account for the multiple floor residential patterns of the urban landscape. To accurately represent the population distribution of people in cities, a move beyond the conceptual ideas of density is needed. The goal of this project is to use a dasymetric method of population mapping to represent the distribution of people more accurately across urban spaces and to represent the amount of space each person has in a vertical city. Doing this will quantify the amount of vertically-aligned floor space for each person across the extent of the city. This approach provides a unique perspective on how population is distributed across an urban space. The city of Chicago, with its large population, defined neighborhoods, and a high vertical extent is the study area for this project. The primary focus of this research is to illustrate how the measurement of population density fails to capture the phenomena of urban living in the 21st century and explain alternatives.

Interactive cartographic design has been utilized to illustrate these concepts at various scales across the city.

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### Tyler Perrenoud UW-River Falls The Geography of Wisconsin Coffee Shops

■ *Poster Session - 8:00pm-9:00pm, Wednesday*

There has been a rapid increase in the number of specialty coffee shops in Wisconsin. My research focuses on gaining a fuller understanding of Wisconsin's coffee culture. I will use GIS to plot all coffee shop locations in Wisconsin. Next, I will compare this information with demographic statistics to draw conclusions regarding the geography of Wisconsin's coffee shops. I expect to further the available knowledge regarding the spatial distribution of coffee in Wisconsin.

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### Tyler Petersen University of Montana Andy Woodruff, Axis Maps Lewis & Clark Expedition: Corps of Discovery

■ *Poster Session - 8:00pm-9:00pm, Wednesday*

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### Michael P. Peterson University of Nebraska - Omaha From Film to the Internet: 35 years of Cartographic Animation

■ *Papers in Honor of Stephen J. Lavin - 3:15-5:15, Friday*

The technology for producing cartographic animations has changed dramatically since the mid-1970s when film was still used. Subsequent decades have brought new technology from the personal computer to the Internet. Each has provided new possibilities for cartographic animation. A progression of animations is shown based on personal experience with each new technology. Cartographic

# Phillips...

animations are presented that were made using film, early personal computers, through web pages, and from online databases. Finally, reflections are offered about cartographic animations in general and why the form of mapping has not developed into a major form of mapping.

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## **Claudia Phillips** Philadelphia University **Designing a GeoDesign Curriculum for an Urban University**

■ *GeoDesign: Changing Geography by Design - 8:00-9:45, Friday*

Philadelphia University, led by the Landscape Architecture Program, has proposed a graduate level curriculum in GeoDesign, which has received a first level approval. I will discuss the curriculum goals of this proposal, provide an outline of the course format and learning objectives, and who the potential audience would be for our certificate program and/or master's degree. I will also discuss the academic/institutional barriers to moving forward with this proposal.

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## **David Pitt** University of Minnesota Lance Neckar, University of Minnesota **Envisioning the Architecture of a GeoDesign College Campus**

■ *GeoDesign: Changing Geography by Design - 8:00-9:45, Friday*

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## **Brandon Plewe** BYU **Visualizing Stories: Attempts to Design Space-Time Narratives**

■ *Visualizing Oral Histories - 1:30-3:00, Friday*

One of the greatest challenges of understanding history is the inherent complexity of stories that are embedded in both

space and time. Textual narratives, the traditional mainstay of historical publishing, are great at interpreting the "how" and "why" of these occurrences, but do not adequately give readers a clear vision of the "where" and the "when."

Can the tools of cartography and information design help? Visual representations of space-time narratives have been attempted for many years, from 19th century "spatial timelines" to recent work in historical atlases and by NACIS colleagues. Approaches have varied from the analytical to the postmodern, in a variety of time-centric and space-centric styles. This presentation will survey and evaluate past work, and discuss various approaches I have attempted for a variety of historical narratives as part of the forthcoming *Atlas of LDS History*.

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## **Joe Poracsky** Portland State University **The Review Panel Poster Session: A Tool for Student Learning**

■ *Teaching Cartography II: Refining Your Approach - 1:30-3:00, Friday*

A common practice in design-related disciplines is the preparation of a portfolio, or collection of work samples. For about 10 years we have been using this poster-portfolio format to introduce students to the critiquing process. Responses to this project from past classes indicate that students overwhelmingly find the critiquing process valuable and, after some initial nervousness, not intimidating and actually fun. In formal competitions, a number of individuals present their work to a "jury" or group of experts who evaluate it and then award prizes. In our model there are no prizes or awards, so students get the benefit of the professional comments without the comparative evaluation of one individual against another. This kind of presentation

forces the student to actively explain and justify their design decisions, not just present them in a passive narrative fashion. The experience of dealing with a “critical” questioner and “thinking on their feet” mimics a real-world situation of dealing with clients or a prospective employer. A variety of other benefits to this approach are also discussed.

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**Charlie Rader** UW-River Falls

Jared Haas , UW-River Falls

Rick Schmolke , UW-River Falls

Erica Rader, Keene State College

Eric Forward, Kinnickinnic River Land Trust

### **Challenges of a Multiple Media Mapping Project: A Public Recreation Map for the Kinnickinnic River Watershed, Wisconsin**

 *Can't We Just Make a Map? - 11:15-12:30, Thursday*

The challenges of producing a map for distribution using both interactive and traditional print media are described through the process of creating a public recreation map for the Kinnickinnic River watershed. The Department of Geography and Mapping Sciences at the University of Wisconsin – River Falls (UWRF) and the Kinnickinnic River Land Trust (KRLT) collaborated on this project. The Minnesota DNR's Recreation Compass application and Public Recreation Information Maps and the Wisconsin DNR's Managed Lands application served as inspirations for the development of both an interactive map and a printed map of public recreation opportunities in the Kinnickinnic River watershed. The project background is described along with a comparison of the various applications. Design issues that arose in the development of the maps are discussed. The interface for the KRLT public recreation map is presented as part of the challenges of both usability and information content. Results from several user focus groups are included as part of the evolution of the designs. Finally,

the process of working with students on a collaborative project between the land trust and the university are discussed as part of the project management issues.

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**Paulo Raposo** Penn State

### **Scale-specific Automated Map Line Simplification by Vertex Clustering on a Hexagonal Tessellation**

 *Poster Session - 8:00pm-9:00pm, Wednesday*

To make maps at smaller scales from higher-scale data, cartographers need to generalize. Increasingly, topographic mapping agencies seek automated processes to achieve generalization. Since few automated processes in use today are scale-specific, this research has focused on developing a scale-specific algorithm for line simplification.


A tessellation of regular hexagons is imposed on the input line, with hexagons scaled in direct relation to the target scale and drawing resolution on the target map. Input line vertices inside each hexagon are clustered and collapsed to a single vertex. These vertices are then linked together to form the output line.

This poster will describe the algorithm, including the formula by which hexagon scaling is established, and demonstrate its simplification of a portion of the coast of Maine.

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**Eric Rodenbeck** Stamen Design

### **New Directions in Exuberant Cartography from Stamen Design**

 *Explorations, Experiments, and Expressions - 10:00-12:00, Friday*

Occupying a creatively stimulating space somewhere between developmental research and design, Stamen's

# Roth...

close relationship with technology and clients leads them to explore numerous research projects which have a way of finding applications in the real world. This presentation will focus on the relationship between research and commercial viability which characterizes Stamen projects, and demonstrate the latest thinking and projects from this exciting design studio at the forward edge of mapping on the internet.

**Rob Roth** UW-Madison

## **Interactive Cartography: What We Know and What We Need to Know**

■ *Dynamic Mapping - 3:45-5:00, Thursday*

The current pace of innovation in interactive and web-based mapping technology is spectacular, and the possibility and pervasiveness of interactivity has transformed the way in which many maps are produced and consumed. Despite this remarkable pace—or perhaps because of it—there have been relatively few efforts to understand how interactive maps should be designed and used. In the presentation, I will contribute to this punctuated knowledge base by critically comparing two threads of research on interactive cartography. First, a review of academic literature was completed across the disciplines of cartography, GIScience, human-computer interaction, information visualization, and visual analytics to understand the current state of science on interactive cartography. This review revealed a guiding theoretical framework for a scientific approach to interactive cartography, consisting of six fundamental research questions that currently have only incomplete answers. This background review was complemented by a set of semi-structured interviews with twenty-one power users of interactive maps or map-based systems, designed to capture the current state of practice within interactive cartography across a number of application domains. The interview

study generated initial insights into several open scientific questions on interactive cartography and identified key gaps between the science and practice of interactive cartography.

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**Jim Rounds** BLM

## **The Wallowa / Grande Ronde River Guide**

■ *Poster Session - 8:00pm-9:00pm, Wednesday*

The Bureau of Land Management and U.S. Forest Service have combined forces under the Service First initiative to better serve the public. The BLM Oregon State Office and Forest Service Region 6 have been collaborating on several map products creating map standards and reducing potential duplication of work or map coverage. In 2005 the two agencies began producing the Pacific Northwest Recreation Map Series which combined the BLM Recreation map efforts with the Forest Service Visitor map program to create a single recreation map series for the States of Oregon and Washington. The success of this effort has allowed the cartographic staffs to look for new opportunities to standardize common map products, especially those where both agencies have the same interests. There is currently an effort to standardize Winter Recreation maps, Off-Highway Vehicle maps and River Float Guides.

The poster shows the layout of the Wallowa-Grande Ronde River float guide. The guide is used by recreation enthusiasts and local river tours to navigate the Wallowa and Grande Ronde rivers in northeast Oregon/southwest Washington. The Forest Service and Bureau of Land Management each have responsibilities along the river so the product was looked at as a potential Service First product. In order to avoid having three distinct products displaying similar features using differing standards (Forest Service, BLM and combined) , the two cartographic staffs combined efforts to



create a single set of standards for float guides produced by either agency.

This product is spiral bound at the top and the order in which the maps are displayed begin at the end of the river and continue up-river to the various put-in points. This allows the user to view an entire two-page reach for planning and navigating the river ahead. This guide is spiral-bound at the top versus saddle-stitched (Deschutes River Guide) due to user feedback. Boat operators indicated they liked using the float guide "hands free" by setting it down flat to view as they navigate as opposed to the saddle-stitched guide allowing for more site-specific information along the river but are more difficult to use in the field. Both designs have merit and will be used depending on the requirements of the product, lead recreation planner and the users.

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**Jonathan Rush** Ohio State University  
**Enhancing the Mapping of Oral Histories**

■ *Visualizing Oral Histories - 1:30-3:00, Friday*

This presentation will discuss the work in mapping oral histories collected in Columbus, Ohio. Previous work in digital humanities has tended towards the archiving of these valuable stories, and effort dedicated to their presentation and discovery has been of a lower priority. Maps have been employed in many cases, but most have been limited to a simple point location – a pin on a web map – to associate a story with a place. These oral histories are rich in their thematic and geographic content, and the full power of maps to aid in the presentation and support of the stories has not yet been realized. In this talk, I will discuss the latest work in the development of a system that leverages the strengths of permanent library archives and interactive web mapping to tell these stories.

**Kevin Russell** UT-Knoxville

**Visualizing the Historical Landscape of Montserrat: Social Justice through Community Mapping in a Post-Colonial Environment**

■ *Poster Session - 8:00pm-9:00pm, Wednesday*

On July 18, 1995, the long-dormant Soufriere Hills volcano rumbled awake with an eruption that forever changed the Caribbean island of Montserrat. Eventually, the eruption would destroy Montserrat's capital city and force a mass migration of its people after rendering more than 60 percent of the island uninhabitable. Also destroyed was much of Montserrat's cultural heritage—a rich tapestry woven into the landscape over the course of nearly 400 years by colonial planters and traders, Irish indentureds and enslaved African laborers and their modern descendants.

The Captain William Carr plantation site, founded in the 17th century and used into the 20th century, is being developed as a historical heritage centerpiece of the new capital city at Little Bay. The stone ruins of the plantation have been transferred to the Montserrat National Trust but the surrounding landscape and the memories of the slave and indentured community contained within are threatened by continued development. My research combines ethnographic interviews of local community members with differential GPS land survey of the archaeological site and the digitization of historic maps of the hinterland to provide a heritage landscape study that focuses on issues related to the non-elite community, their associative landscapes, and how the drama of human activity has been recorded in the landscape around the site. These data will eventually be combined within an interactive map application to provide a cartographic representation akin to the "thick description" utilized by traditional ethnography. My poster presents preliminary maps from data obtained in July 2011 field work.

# Rylance...

## **Keli E. Rylance** Southeastern Architectural Archive **Surveying Louisiana: Cartographic Records in the Southeastern Architectural Archive**

■ *Embracing History and Culture in Cartographic Collections -  
2:00-3:30, Thursday*

While primarily known for its architectural holdings, the Southeastern Architectural Archive, a private research archive located at Tulane University, houses cartographic materials associated with four generations of surveyors/civil engineers that document over 150 years of mapping endeavors. These records chronicle the region's division into long lots, the creation and expansion of canals and sewerage systems, and the development of faubourgs and later subdivisions. The collection includes survey sketches, field notebooks, chain of title research, historic maps, auction announcements and correspondence.

Dominique Édouard Seghers (1849-1911) established the family's entry into the surveying business in 1868, initially clerking in his Belgian-born father's law firm, later working in the office of City Surveyor Charles Arthur de Armas (d. 1905), and finally establishing his own business by 1879. Records associated with his patrimony reflect the Louisiana profession's early domination by arpenteurs, men trained in French civil engineering and civic ordinances. His son, grandson and great-grandson continued in a profession marked by significant change, in a region increasingly impacted by water management and petrochemical concerns.

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## **Jovian Sackett** Southern Environmental Law Center **Proposed and Existing Woody Biomass Facilities in the Southeast United States**

■ *Poster Session - 8:00pm-9:00pm, Wednesday*

As the nation looks for renewable alternatives to fossil fuels, the energy contained in trees, grasses and other plants is being eyed as a power source for cars, trucks, electric utilities, and heating systems. The Southeastern US, known as the "fiber basket of the world" due to its vast tracts of forest lands, could see tremendous growth of this new industry (more info at [http://www.southernenvironment.org/cases/biomass\\_energy\\_in\\_the\\_south/](http://www.southernenvironment.org/cases/biomass_energy_in_the_south/)). Southern Environmental Law Center maintains a database of proposed and existing woody biomass facilities in the US Southeast by utilizing ongoing research into renewable energy and forestry resources. These facilities are symbolized based on their function, and 50 mile radii have been mapped from each one to represent the potential wood supply range. Transparencies are utilized on the sourcing areas to showcase their overlap, raising concern for long-term sustainability of the resource. This map is updated every few months and has been utilized by many environmental groups in the US Southeast to visualize the issue and to lobby state and federal law-makers regarding management of this energy resource. In addition to the map the poster will include supplemental information about woody biomass energy, related environmental concerns, and related data.

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## **Uday Sahu** Toshniwal College of Arts, Commerce & Science

### **Groundwater Prospect Map**

■ *Poster Session - 8:00pm-9:00pm, Wednesday*

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## **Karla Sanders** Ohio University **Perceptions of Place: A Map of the Left and Right Side of Athens Ohio**

■ *Poster Session - 8:00pm-9:00pm, Wednesday*

**Bojan Savric** University of Ljubljana  
**Derivation of a Polynomial Equation for the Natural Earth Projection**

■ Poster Session - 8:00pm-9:00pm, Wednesday

The Natural Earth projection is a new projection for small-scale world maps. The projection defines the length and spacing of parallels in a tabular form for every five degrees of increased latitude and piece-wise cubic spline interpolation is used to project intermediate values. But its implementation into geospatial software requires considerable effort. This barrier prevents projections widespread use and because of that, the only software application where the Natural Earth projection can be computed is Flex Projector, where the projection was designed.

This poster presents alternative polynomial equation for the Natural Earth projection, as a result of my graduation thesis. The proposed equation is easier to program and contains inverse projection. At the same time, the polynomial equation also improves the roundness of the corners, a distinguishing mark of the projection. Development of the equation was made in collaboration with designer of the projection, Tom Patterson. It is hope that the publication of this new formula will help the projection find its place in other cartographic projection libraries and software applications.

**Lisa Schelling** UW-Milwaukee  
**The Role of Standards in Digital Gazetteers**

■ Enhancing Cartographic Collections with Geospatial Technologies - 9:30-11:00, Thursday

GIS and other spatial data systems are currently developing in exciting new directions, toward ever more sharing of data

and data frameworks. As GIS data and mapping applications are increasingly being made available on the web, and also made editable by multiple users, the need for authoritative gazetteers based on strong international standards becomes ever greater. Standards can function in multiple ways, both providing the protocols for data formatting and exchange (as in the Open Geospatial Consortium's Web Map Service) and also providing a framework for naming authorities and the provenance information for names (as in library metadata standards such as the Library of Congress' Metadata Authority Description Schema (MADS)). A clear and well-organized authority system is crucial in any information management system, particularly those in which there can be many variant names, and digital data exchange depends on the standards which ensure communication between different computer networks. Standards such as those produced by the Open Geospatial Consortium (OGC) or International Organization for Standardization (ISO) could form the basis for gazetteers which enable a more fully interoperable system and allow for data to be shared and exchanged while utilizing a common authority system.

**Jonathan Schroeder** University of Minnesota  
**Alternative Views of Population Distribution and Change for a New Census Atlas**

■ Mapping People - 11:15-12:30, Thursday

Following up on the successful 2007 release of its *Census Atlas of the United States*, the U.S. Census Bureau has launched a new atlas project that will incorporate data from the 2010 Census while departing substantially from the previous atlas's format. Whereas the 2007 atlas was thematically broad but temporally focused, covering a wide range of topics from the 2000 Census, the new atlas will instead be temporally broad but thematically focused,

# Scopel...

providing a sweeping historical perspective on a single topic: population distribution and change from 1790 to the present. Toward this end, the Census Bureau has been working in collaboration with International Mapping and the Minnesota Population Center to assemble robust historical datasets and to illustrate a wide variety of population patterns and trends using innovative, uniquely revealing visualizations. This paper presents several novel or unusual mapping and graphing strategies that we have found to be fruitful, including state density profiles, interstate highway density transects, temporally scaled population maps, population stability maps, an “abacus graph” of decadal city population changes, and others.

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## Caitlin Scopel ESRI

### Understanding Water and other Natural Resources through Basemaps and Web Mapping Applications

■ *Designing for our Environment - 10:00-12:00, Friday*

Water is one of the world's most studied natural resources—and for good reason; it connects parts of the landscape, and brings, and takes life. Recent natural disasters remind us how important it is to understand water, and fortunately we have paid attention. The hydro community is one of the leading natural resource communities in data collection and organization. There are tens of thousands of public and private agencies collecting information about water, from the USGS's real-time gauging stations, to a public university sampling water for E.coli. With such tremendous data out there, the obvious next steps are to visualize the data in a meaningful way and to help our users through this process. To date, we've created hydro basemaps and reference maps that showcase surface water and provide a context for operational hydro data layers. We've built web mapping applications focused on specific hydrologic topics

that feature sensor data services from the hydro community. We've built hydro map templates for small and large scale web maps. And, we've also produced hydro-related maps and other natural resource maps, such as soil drainage class and geology. Water is the keystone natural resource, and by making effective maps and mapping applications we ensure the best use of the hydro research community's exemplary efforts.

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## Jennet Seegers Texas State University Alberto Giordano, Texas State University Nantucket: A Case Study in the Spatial Representation of Oral Histories

■ *Visualizing Oral Histories - 1:30-3:00, Friday*

Oral histories are a common qualitative study technique, offering a detailed insight into an individual's perceptions of specific events in history. The curators of oral history datasets have attributed spatial information to these maps before, but often only in a one to one relationship: one interview, one location. This study will “mine” oral histories for detailed spatial data to provide a physical representation of important developments in history, as perceived by different individuals. Interviews from residents of Nantucket, an island that has experienced a period of fundamental change in the last sixty years, are being coded using NVivo 9, a qualitative data analysis software. Once coded, the spatial data from the interviews will be combined with other forms of archival qualitative data, as well as quantitative data, to develop a comprehensive geovisualization of historical change seen through the perspective of the island's residents. The finished map will be developed into a web-based interactive map using Microsoft Silverlight in conjunction with ArcGIS 10. Working in a grounded theory framework, this geovisualization will be examined

for possible lines of inquiry regarding perception, changing demographics, and the unique situation of Nantucket itself. The study will also offer methodological insights on the mapping of the spatial and temporal contents of oral histories.

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## **Dan Seidensticker** Madison Area Transportation Planning Board

### **Map for Bicyclists: Dane County, Wisconsin**

 *Poster Session - 8:00pm-9:00pm, Wednesday*

This guide map is designed to assist bicyclists in identifying the safest, most enjoyable bicycling routes between their origin and destinations. The map depicts the relative condition of rural roadways in the county for bicycling.

The bicycle suitability ratings were determined by an analysis conducted using roadway and traffic count data. The primary factors used to determine the suitability of the roadway were: (1) pavement width (travel lanes plus paved shoulder, if any); (2) seasonally adjusted average daily traffic volume; and (3) motor vehicle traffic speeds.

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## **Deanna Sell** University of Wisconsin - Madison **Dane County Farmer's Market**

 *Poster Session - 8:00pm-9:00pm, Wednesday*

Most food purchased at the local grocery store travels an average of 1500 miles to your table. As consumers, keeping your food local benefits farms, communities, the environment and your health. The "Buy Fresh, Buy Local" movement is striving to break down the dominance of corporations and processed foods by reconnecting local farmers to their communities. Dane County Farmers' Market

is the largest producer-only market in the U.S., with farmers traveling from across the state. The map poster displays the geographic extents of farm vendors that provide the extensive variety of local products to Madison's consumers and visitors. These local products are also incorporated into Madison's local community through restaurants, allowing consumers to make more healthy, sustainable choices to support their local farms and economies.

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## **Hugh Sample** Eastern Michigan University Han Qin, Eastern Michigan University **Public Utilization of Web GIS Applications for Visualizing and Analyzing Community Out of Hospital Cardiac Arrest Patterns**

 *Decision Support Design - 3:15-5:15, Friday*

Recent work to improve survival rates of out of hospital cardiac arrest (OHCA) has focused on identifying neighborhoods that are at high risk for OHCA and targeting them with bystander CPR education programs and other types of intervention activities. Web-mapping applications have played an important role in this outreach by providing interactive maps of the disease at the neighborhood level, tabular data, and searchable maps of the location of automatic external defibrillators (AEDs). From the perspective of public health officials, the goals of these web mapping applications are (1) to empower individual residents and community groups by helping them to become knowledgeable about the cardiac arrest situation in their own neighborhoods and (2) to motivate them enough to take actions to reduce the disease risk factors in their communities. This study evaluates two cardiac arrest web-mapping applications to determine how the general public actually interacts with these web-mapping software. The study also seeks to determine whether web cartographic

# Severtson...

design strategies used by the applications allow for effective communication of disease information sufficient to motivate residents to want to change the disease correlates in their neighborhoods.

**Dolores (Lori) Severtson** UW-Madison

Jeffrey Myers, Wisconsin Department of Natural Resources

## **Designing Maps to Convey Information Uncertainty: The Influence of Three Features on Risk Beliefs and Perceived Uncertainty for Maps of Modeled Cancer Risk from Air Pollution**

■ Complexity and Uncertainty - 9:30-11:00, Thursday

Maps are often used to convey information generated by models, but may convey more certainty than warranted for modeled information. In Wisconsin, natural resources professionals model cancer risk from air pollution and want to provide maps of these estimates. We selected three map features to convey the certainty of modeled cancer risk (less vs. more certain): data classing (unclassified vs. classed), number of colors (1 vs. 3 colors), and how risk was expressed in the legend (relative risk vs. defined risk). The purpose of this study was to assess how these features influenced risk beliefs and perceived uncertainty at four map locations that varied by risk level. This 2x2x2x4 randomized trial used 32 maps that varied by study features and risk level arranged into 8 blocks of 4 maps. 826 university students (assigned to a block) participated in this online survey for extra credit. Structural equation modeling was used to assess the influence of map features on risk beliefs and perceived uncertainty in the presence of participants' characteristics (prior beliefs about air pollution, family cancer experiences, academic major, numeracy, and gender). We also assessed the influence of map features on self-reported comprehension, accuracy and validity. Risk

definitions had the largest influence on uncertainty. Classed maps generated stronger risk beliefs for high risk maps and weaker beliefs for low risk maps compared to unclassified maps. Even though less certain features were reported as harder to understand, these features are more appropriate for conveying uncertain information because they were rated as less accurate, less valid and prompted more uncertain beliefs.

**Wangyal Shawa** Princeton University

## **Tibet Township Map and Place Name Database**

■ Poster Session - 8:00pm-9:00pm, Wednesday

This poster will show how my Tibet township map and accompanying place name database were researched and created. At present, Tibetan place names written in English are in Pinyin because that is the official romanization standard of the People's Republic of China. The United Nations recognized Pinyin as the romanization standard for writing Chinese geographical names in English in 1977, and in 1979 the United States adopted Pinyin as their standard for publishing Chinese geographical names. Because of this standardization, it is difficult for people to recognize Tibetan place names if they do not know how to read Pinyin. My map and place name database address this problem by creating place names written in three scripts: Tibetan, Chinese, and English. The place name database also includes what percentage of the population is Tibetan, the median elevation of the town, and a code that shows whether the township has a Tibetan, Chinese or Mongolian name.

## **Julia Siemer** University of Regina **Mapping Population – Cartographic Methods and Techniques**

■ *Poster Session - 8:00pm-9:00pm, Wednesday*

This poster presents a summary of an inventory of cartographic methods used to map population and its various spatial characteristics such as distribution, pattern, and density. Possibilities and limitations of common techniques as well as less known methods are briefly discussed and illustrated by map examples.

This poster is part of a larger study of population cartography, which has been regarded as a sub-discipline of cartography in Europe for quite some time. Although most of the techniques discussed are applied in North American cartography as well, mapping population is often simply seen as a variant of thematic mapping rather than a sub-discipline. The study aims at identifying similarities and differences of the use of certain methods to communicate spatial aspects of population characteristics in both North America and European cartography.

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## **Janet Silbernagel** UW-Madison **Looking at the State of the Practice of GeoDesign**

■ *GeoDesign: Changing Geography by Design - 8:00-9:45, Friday*

Geodesign as an emerging field of its own owes much to the vision and support of Jack Dangermond, Founder and President of ESRI. However, geodesign builds greatly on a long history of work in geographic information science, computer-aided design, landscape architecture, and other environmental design fields. Yet it's still somewhat unclear whether geodesign differs greatly in substance from what many of us already do. Members of the various disciplines

and practices relevant to geodesign have held defining discussions at recent GeoDesign Summits (2010, 2011). Here, I discuss what is happening in geodesign practice across disciplines, and the new dimensions it may bring as a specialized field.

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## **Kaylee Spencer** UW-River Falls Mathew Dooley, UW-River Falls **Mapping Captivity: Ancient Maya Portraits of Prisoners of War**

■ *Poster Session - 8:00pm-9:00pm, Wednesday*

Captives are a common subject in ancient Maya art of the Classic Period (250 - 900 C.E.). They appear bound, forced into a variety of postures, and stripped of their royal regalia. This poster considers the spatial distribution of sculptures at Maya sites, and explores some of the ways that artists incorporated representations of captives into sculptural compositions.

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## **Tim Stallmann** UNC-CH **Using Maps to Visualize and Re-imagine a Local Food System**

■ *Designing for our Environment - 10:00-12:00, Friday*

For the past year and a half I've been the map-making and data visualization side of a project called "Grow Local, Buy Local," which is an exciting and multi-faceted effort to use the local food system in Warren County, North Carolina, as a focus for community development, economic revitalization, and organizing. We've developed a set of maps and infographics intended to help community members engage in a critical conversation about the food system they have now and to spur the development of some new alternatives. In this presentation, I will share some of the results of

## Stauffer...

that project, talk about data-gathering and visualization techniques for mapping food systems in general, and share our approach to community-based map-making.

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**Andy Stauffer** University of Colorado-Boulder

Cynthia A. Brewer, Penn State

### **Multiscale Terrain Representation for *The National Map***

■ *Representing Terrain - 8:00-9:45, Friday*

Terrain representation provides a map user with critical information about the landscape and is a crucial base layer for topographic mapping. As scale decreases, some landscape features become less important as others become more important. Working in the range of 1:24,000 to 1:1,000,000, we discuss threshold decisions about raster generalization using repetitive mean filtering (Leonowicz et al. 2010). We describe terrain representation techniques using ArcMap such as projecting and resampling DEMs, creating smooth contours, nesting index contour intervals, and merging hillshades of multiple azimuths (Kennelly and Stewart 2006). We decide on processing steps through scale for *The National Map*.

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### **Chandler Sterling** University of Wisconsin - Madison **Save Our Sequoias**

■ *Poster Session - 8:00pm-9:00pm, Wednesday*

Giant Sequoias are the largest trees ever to inhabit the earth and are among the oldest. Heights of 300 feet and diameters of 30 feet are not uncommon. Their ages commonly range from 2,000 to 3,000 years (only bristlecone pines are older). Although once widespread, giant sequoias now occur only in the Sierra Nevada

Mountains of central California. The natural distribution of the Sequoia is restricted to a total of 68 scattered groves across the Sierra Nevada Mountains in California. Past land management policies have proven ineffective in protecting the Giant Sequoia's fragile ecosystems, watersheds, and the environmental and social value of these areas. Solutions must be created to address these inadequate land management practices in order to protect these friendly giants.

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**Eric Stipe** University of Oregon

Miles Barger, University of Oregon

Alethea Steingisser, University of Oregon

James Meacham, University of Oregon


### **Simplifying Streams: Generalization and Display of the National Hydrography Dataset**

■ *Poster Session - 8:00pm-9:00pm, Wednesday*

Generalizing complex GIS data is a necessary step toward creating aesthetically pleasing cartographic products that that communicate to a general audience. This poster describes the methods used to produce map products for the *Atlas of Yellowstone* that model hydrologic flow line data with appropriate levels of generalization at different scales in, and surrounding, Yellowstone National Park. Data from the National Hydrography Dataset Plus was geoprocesed in ArcGIS, and final design was completed in Adobe Illustrator. Multiple iterations of processing were done in both the GIS and design environments for the desired scale of display to achieve maximum visual comprehension.



## **Alex Tait** International Mapping **Virtual Fredericksburg: Putting an 1862 Civil War Battle into an Interactive Map**

 *Dynamic Mapping - 3:45-5:00, Thursday*

International Mapping created a browser-based virtual park map program for the Fredericksburg National Battlefield in Fredericksburg, Virginia. The program features historical 1862 cartography at multiple scales, 3-D views of the 1862 landscape, 3-D building models, and detailed hour-by-hour troop position overlays. In addition, interactive location and troop hotspots link to extensive image, text, audio and video content for more in-depth exploration of the battlefield.

My presentation will focus on the challenges of creating the reconstructed 1862 landscape and of designing an effective NPS style interface and user experience within the structure of the ArcGIS Server/Flex framework for interactive applications. In addition, I will look at the difficult task of making extensive historical archives available to both the general public and to historians through an easy-to-use but content rich interactive map.

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## **Alex Tait** International Mapping **10 Handy References for Practical Cartographers**

 *Practical Cartography Day - 9:00-5:00, Wednesday*

These will be completely non-software specific, non-technique specific resources that relate to creating maps. These are the bits of useful cartographic and geographic information that you post to your bulletin board to have for handy reference while you toil away in Illustrator or ArcMap.

## **Jim Thatcher** Clark University **The Tension of Volunteered Geographic Information: Placing VGI in context**

 *The Power of Maps - 9:30-11:00, Thursday*

This talk focuses on placing VGI, and writing about emerging geospatial technologies in general, within the context of older conversations of the relationship between private individual and society mediated through the context of technology. In particular, this talk suggests writing has traditionally fallen somewhere between a technology of control and a technology of liberation, a moment of excess or of closure. I suggest that both moments must be understood as true and can be done so through an attenuation to theories of embodiment; by placing VGI within this longer discussion, what is actually unique may be drawn out and examined.

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## **Stella Todd** Metro State College of Denver **Brandy Whalen, Metro State College of Denver** **Multivariate Symbolology of Colorado Ecoregions**

 *Poster Session - 8:00pm-9:00pm, Wednesday*

Ecoregions are landscapes described by many variables such as temperature, water availability, topography, vegetation, and lithology. Visualizing the interplay and dynamics of these variables across space is difficult. Conventional map symbols usually represent one variable at a time. Although more than one variable can be overlayed on a single map the relationship between variables is not explicit within the symbol itself. This poster demonstrates the systematic construction of multivariate symbols representing variation in both quantitative and categorical variables within Colorado ecoregions. Symbol elements for quantitative variables vary in size proportionally to their data values while qualitative elements vary by design and color. The placement of symbol

# Troedson...

elements is designed to intuitively represent landscape structure.

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**Sarah E. Troedson** Penn State

Anthony Robinson, Penn State

## **Using Web-Based Tools to Share Symbolology: A Case Study with Mapmakers from the California Department of Water Resources**

■ *Empirical Findings - 11:15-12:30, Thursday*

The importance of standardized symbolology for crisis mapping has been well established in recent years. A variety of formal map symbol standards exist, yet their adoption by mapmakers has been weak and inconsistent. Informal symbolology conventions are more common, but there is still no effective mechanism for sharing symbol sets among mapmakers across different agencies. The web-based Symbol Store developed by the GeoVISTA Center has the potential to support mapmakers with a visually-enabled, interactive mechanism for sharing and disseminating symbols. Flood-related emergencies, a common occurrence in California, frequently require the development of a large number of consistently-designed maps for emergency planning and response. The California Department of Water Resources (DWR) is developing a State Plan of Flood Control and supporting programs to improve the State's ability to address its flood hazards. One component involves developing mapping and symbolology standards. Such standards do not yet exist in California, and existing federal standards are not readily applicable. Here we describe the results of a case study evaluating use of the Symbol Store tool by DWR mapmakers to identify its strengths, weaknesses, and opportunities for improvement to shape the future design and delivery of interactive methods for map symbol sharing and dissemination.

**David Tulloch** Rutgers University

## **The Evolving Relationship between Landscape Architecture and GIScience**

■ *GeoDesign: Changing Geography by Design - 8:00-9:45, Friday*

While geodesign combines GIScience and design in some ways that are new, it also raises unresolved conflicts inherent in that combination. Looking at a brief, contextualized history of the evolving relationship between landscape architectural design and GI Science, we see both divergences and synergies that have occurred over decades. As geodesign emerges, it is increasingly valuable to learn from these lessons of the past and build a stronger and more able profession with healthy connections between geospatial science developments and creative traditions. We seek a framework for future development that presents clear goals for the professions to work towards collectively. We also need to clearly identify specific anticipated benefits identified in existing literature that emphasize the value of a more integrated approach to applying these highly relevant sciences.

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## **Judith Tyner** California State University, Long Beach **Who Was David Greenhood?**

■ *Classroom Maps Then and Now - 3:45-5:00, Thursday*

In 1944, David Greenhood published the book *Down to Earth: Mapping for Everybody* that covered map reading and the basics of making maps by hand. It was followed 20 years later by a revised paperback edition titled *Mapping*, which is still in print 47 years later. This makes it arguably, the longest in-print cartography/mapping book. Recently, I needed to write a brief bio of Greenhood, but I could find nothing; no birth or death dates, no affiliation with a university or mapping agency; he was listed with the Association of American Geographers as having an interest in cartography.

An initial Google search yielded thousands of hits all referring to or recommending *Mapping*. His bio will not be in Volume 6 of *The History of Cartography* because he apparently wrote only the one book. But that book plainly was a winner. My curiosity was aroused. This paper is, in part, a homage to *Mapping* and evaluates it through a 21st century lens, but also provides the remarkable answer to Who was David Greenhood?

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### **Lynn Usery** USGS

ICA

 *Panel of Geospatial Orgs - 3:45-5:00, Thursday*

Representing the International Cartographic Association, US National Committee (ICA)

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### **Gregg Verutes** Stanford University **Improved Communication Through Mapping: Building Models in ArcGIS for Marine Spatial Planning**

 *Decision Support Design - 3:15-5:15, Friday*

Geographic Information Systems (GIS) can yield powerful results when applied to marine spatial planning. In this talk, we illustrate how the Natural Capital Project (Nat Cap) communicates spatial information with our partners on the west coast of Vancouver Island and in Belize. The InVEST (Integrated Valuation of Ecosystem Services and Trade-offs) tool, built on an ArcGIS platform, can be utilized to answer questions from global to local scales. InVEST is a scenario assessment tool that can explore how various management alternatives might affect the delivery of a suite of benefits that people get from marine and coastal environments. We developed the models to iteratively communicate and garner spatially explicit information from stakeholders. Through GIS,

...Walder

we can effectively represent locally relevant scenarios in our models and then communicate model results to partners and then back to stakeholders and policymakers. Nat Cap's partnership with West Coast Aquatic on Vancouver Island and the Coastal Zone Management Authority and Institute in Belize, together with GIS tools, has allowed us to incorporate local knowledge from various stakeholders (e.g. indigenous peoples, community groups) into our modeling. This talk will demonstrate how GIS tools can visualize proposed changes to both Vancouver Island and Belize's coastal and marine regions and the likely effects of those changes on nature's ability to provide food, protection from coastal hazards, and other services. We will conclude with a discussion of challenges and successes in using GIS tools for marine spatial planning.

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### **Heather Walder** University of Wisconsin - Madison **Archaeological Sites of the French Contact Period in the Western Great Lakes AD 1600 - 1800**

 *Poster Session - 8:00pm-9:00pm, Wednesday*

The intended audience of this poster includes both archaeologists who are familiar with the contexts of the artifacts found on the illustrated archaeological sites, as well as interested members of the public who wish to learn more about the contact period in Wisconsin. The poster was designed as a final project for an Introduction to Cartography course. The purpose of this map is to show the temporal period during which each archaeological site was inhabited, as well as to demonstrate the type of occupation or activities that archaeologists have documented as occurred at each location at particular points in time. An attempt has been made to incorporate a historical map produced in the era of archaeological interest, georeferenced to gain a sense of the original mapmaker's perspective of the cultural landscape.

# Wallace...

**Tim Wallace** University of Wisconsin - Madison  
Andy Woodruff, Axis Maps  
**Bostonography**

■ Poster Session - 8:00pm-9:00pm, Wednesday

Bostonography is a blog and ongoing project to find and create interesting cartographic representations of life and land in greater Boston, Massachusetts. The blog shows off work by ourselves and others, covering a variety of topics from mass transit to radio stations to doughnuts. It is both a celebration and a study of a very imageable (to use Kevin Lynch's word) city, meant to help locals better know their city, encourage exploration, and promote Boston to the rest of the world. This poster presents several original maps we have produced for the Bostonography blog and for features in the *Boston Globe*.

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**Tim Wallace** University of Wisconsin - Madison  
**Bogus Art Maps**

■ Poster Session - 8:00pm-9:00pm, Wednesday

People often claim that maps reside at a clear intersection between art and science. I believe this is less true today than ever. With the advent of digital methods for data collection and map production, the drive for "precision" and "accuracy" over aesthetics is overwhelming. This poster showcases a set of small multiples of Bogus Art Maps in the style of various artists. Each map merely hints at the science of map-making while fully embracing the art.

**Tara Wallace** NOAA  
**Nautical Charting**

■ Serving Online Maps - 8:00-9:45, Friday

Thomas Jefferson established the Survey of the Coast in 1807 to support safe transportation through our new nation's uncharted waters. Two centuries later, the Office of Coast Survey, now part of NOAA, continues to provide navigation products and services that ensure safe and efficient maritime commerce on America's oceans and coastal waters, and in the Great Lakes. The Marine Chart Division, a division of the Office of Coast Survey, maintains the nation's nautical charts for navigation in the Great Lakes and coastal areas of the United States.

The Marine Chart Division's workforce is comprised of cartographers with advanced understanding of nautical cartography and computer specialists. Experts who focus on nautical data, raster production, ENC production, updates, and quality assurance all contribute to maintaining a suite of over a thousand traditional paper charts and about 900 electronic navigational charts.

NOAA is implementing its new Nautical Chart System II (NCSII) using the ArcGIS Nautical Solution and a single data repository based on the IHO S-57 data model. NCSII will support the ingestion and storage of data from various sources, compilation, validation and finishing of nautical products needed by the maritime community to promote safe navigation.

**Yaoli Wang** Peking University  
Human Mobility in Qingdao, China

■ *Poster Session - 8:00pm-9:00pm, Wednesday*

**Jeremy White** New York Times

## Practical Solutions for Interactive Map Integration

■ *Practical Cartography Day - 9:00-5:00, Wednesday*

This presentation will explore the benefits and drawbacks of available mapping frameworks, services, platforms and delivery methods.

**Ezra Zeitler** UW-Eau Claire

Joseph Hupy, UW-Eau Claire

## Defining the Northwoods Region: A Student-centered Approach

■ *Papers in Honor of Stephen J. Lavin - 3:15-5:15, Friday*

Millions of people are familiar with the Northwoods region of Minnesota, Wisconsin, and Michigan, but where are its borders? Can the region be delineated by tree density alone? What role do elements of human geography play in delineating the Northwoods? As Rossum and Lavin (2000) discuss in regards to the Great Plains, regional boundaries are often remarkably malleable. With this in mind, the presenters designed a course based on a simple question: Where are the Northwoods? This presentation summarizes our approach to instructing the course, highlights student-based delineations of the region, and reinforces the value of teaching regional geography and cartographic analysis through a student-centered research project.

So, what are you going to present next year in Portland, Oregon?



# Madison Concourse Hotel Floor Plan

## 1st Floor



## 2nd Floor

Opening Session and  
Annual Banquet

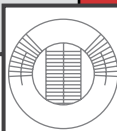
Practical  
Cartography Day

Madison  
Ballroom

Wisconsin  
Ballroom

Capitol A

Capitol B



Grand  
Staircase

ELEVATORS

ELEVATORS

REGISTRATION

WOMEN

MEN

University Rooms

Poster Session and Map Gallery  
Wednesday Evening - Friday Lunch

Paper Sessions

## Restaurant Key

[see map on following pages]

1	<b>Mediterranean Cafe</b> , Middle Eastern	\$	625 State St
2	<b>Sunroom Cafe</b> , Contemporary American	\$	638 State St
3	<b>State St Brats</b> , Local	\$	603 State St
4	<b>Porta Bella</b> , Italian	\$\$\$	425 North Frances St
5	<b>Husnu's</b> , Turkish	\$	547 State St
6	<b>Buraka</b> , East African stews	\$	543 State St
7	<b>Kabul Restaurant</b> , Middle Eastern	\$	541 State St
8	<b>Steep &amp; Brew</b> , Coffee	\$	544 State St
9	<b>Amy's Cafe</b> , Sandwiches	\$	414 West Gilman St
10	<b>Fugu</b> , Asian fusion	\$\$	411 West Gilman St
11	<b>Nadia's</b> , Traditional French Provencal	\$\$\$	508 State St
12	<b>Cabana Room</b> , Burgers & Sandwiches	\$	240 West Gilman St
13	<b>Samba Brazilian Grill</b> , Brazilian	\$\$\$	240 West Gilman St
14	<b>Chocolate Shoppe</b> , Ice Cream	\$	468 State St
15	<b>Hawk's Bar</b> , Soups and Sandwiches	\$	425 State St
16	<b>Fair Trade Coffee House</b> , Coffee	\$	418 State St
17	<b>Chautara</b> , Himalayan & Nepalese	\$\$	334 State St
18	<b>Himal Chuli</b> , Nepalese	\$	318 State St
19	<b>Tutto Pasta Trattoria</b> , Italian	\$	305 State St
20	<b>Fresco</b> , American contemporary	\$\$\$	227 State St
21	<b>Orpheum Theatre's Lobby</b> , American	\$\$\$	216 State St
22	<b>Espresso Royale</b> , Coffee	\$	208 State St
23	<b>Icon</b> , Tapas	\$\$	206 State St
24	<b>Frida Mexican Grill</b> , Mexican	\$\$	117 State z

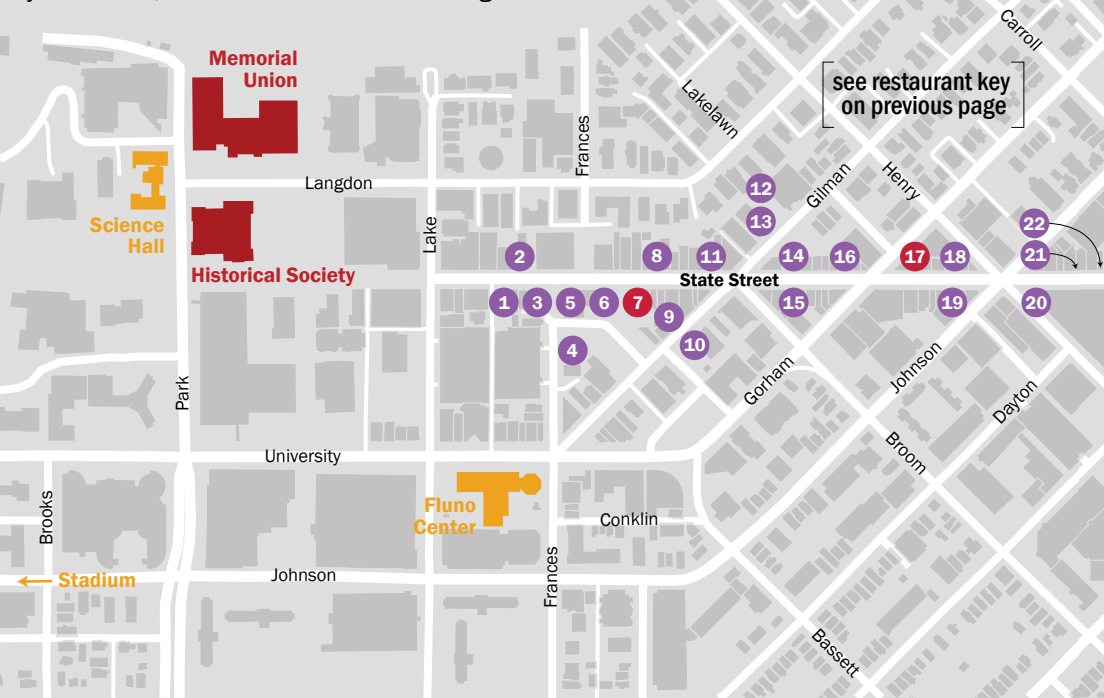


● Lunch bunch! location  
 ● NACIS Night Out  
 ● Other restaurant

25	<b>Ian's</b> , Pizza with inventive toppings	\$	115 State St
26	<b>Michelangelo's Coffee Shop</b> , Coffee	\$	114 State St
27	<b>Coopers Tavern</b> , Irish gastropub	\$	20 West Mifflin St
28	<b>Barriques</b> , Coffee	\$	127 West Washington Avenue
29	<b>Tornado Club</b> , Contemporary supper club	\$\$\$\$	116 South Hamilton St
30	<b>Nostrano</b> , Contemporary American	\$\$	111 South Hamilton St
31	<b>Brocach Irish Pub</b> , Irish pub food	\$\$	7 West Main St
32	<b>Blue Marlin</b> , Seafood	\$\$\$	101 North Hamilton St
33	<b>The Old Fashioned</b> , Midwestern	\$\$	23 North Pinckney St
34	<b>Harvest</b> , Slow food	\$\$\$\$	21 North Pinckney St
35	<b>Paisan's</b> , Italian	\$\$	131 West Wilson St
36	<b>Ocean Grill</b> , Seafood	\$\$\$	117 Martin Luther King Junior Boulevard
37	<b>L'Etoile</b> , Local	\$\$\$\$	1 South Pinckney St
38	<b>Graze</b> , Gastropub	\$\$	1 South Pinckney St
39	<b>Marigold Kitchen</b> , Breakfast/Luch bistro	\$	118 South Pinckney St
40	<b>Johnny Delmonico's</b> , NY-style steak	\$\$\$\$	130 South Pinckney St
41	<b>Ancora</b> , Coffee & Tea	\$	112 King St
42	<b>Argus Bar Grille Pub</b> , Sandwiches	\$	123 East Main St
43	<b>Merchant</b> , Contemporary American	\$\$	121 South Pinckney St
44	<b>Great Dane</b> , Brewery	\$	123 East Doty St
45	<b>Natt Spil</b> , (unmarked restaurant) Varies	\$	211 King St
46	<b>Osteria Papavero</b> , Italian	\$\$	128 East Wilson St
47	<b>Cafe Costa Rica</b> , Costa Rican	\$	141 South Butler St
48	<b>Essen Haus</b> , German	\$\$\$	514 East Wilson St

# Walking Madison

The Concourse Hotel is within walking distance of many of the amenities that Madison has to offer. Head east and hit up the Essen Haus for *NACIS Night Out*, or head west and blow off a session or two while exploring State Street. Wherever you wander, Madison will have something to offer.





~2 Minutes

for wildlife, health, community, social justice, planning,  
environment, safety, politics, education, philosophy, water  
quality, relationships, human rights, dispute,  
communications, development, art, mental health, sports,  
home, participation, crisis management, religion,  
medicine, race relations, architecture, defense,  
sustainability, decision-making, social networks,  
commerce, travel, crime, family, freedom, poverty,  
biodiversity, marketing, story telling, sociology, journalism,  
gardening, spirituality, food, conservation, climate  
change, shopping, government, resource extraction,  
business, media, hunger, understanding, abuse,  
transportation, trade, immigration, choice, natural  
disasters, entertainment, genealogy, regulation, law,  
disease, performance, finance, heritage, gaming, journey,  
fashion, memory, consumerism, knowledge, livability,  
love, power, and **the human experience**

*how does design make a difference?*