



CONFERENCE PROGRAM



# Welcome to Madison ...

for the 2006 conference of the North American Cartographic Information Society. This year we look toward the future of cartography with presentations on Google, metadata, and the future of the USGS. Yet the focus on the future is tempered or balanced by papers on the here-and-now, current projects, educational opportunities, and techniques that are timely and timeless. The nature of these papers and sessions epitomizes NACIS' appeal to a broad spectrum of cartographers, curators, and others interested in maps and map making.

NACIS events outside of the meeting rooms are as central to the annual conference as the paper sessions. We hope that you take advantage of planned social events and of Madison's varied offerings to expand the conversations that begin in the meeting rooms.

*Jenny Marie Johnson, Program Chair*  
*Tanya Buckingham and Glen Pawelski, Local Arrangements*

A special welcome to first-time NACIS attendees! They can be spotted by the globe on their name badges.

All conference meeting rooms are on the second floor of the Inn on the Park.

NACIS Hospitality Suite  
Top of the Park, eighth floor

WEDNESDAY, OCTOBER 18

## **Practical Cartography Day**

University Room

*Organized by Martin Gamache and Nathaniel V. Kelso*

### **8:00am-9:00am**

Registration and welcome

### **9:00am – 11:45am**

9:05 Landform Map of the U.S.

*Tom Patterson, National Park Service*

9:40 Web Graphic Optimization

*Derek Tonn, Mapformation*

10:05 High-Quality Automated Labeling using Label-EZ

*Shailesh Chanekar, Maptext Inc.*

### **10:30-10:45**

Break

10:50 Mashups with Google Maps

*Adrian Holovaty, Washingtonpost.Newsweek Interactive*

11:15 Labeling in ArcMap using Geodatabases

*Aileen Buckley, ESRI, and Charlie Frye, ESRI*

### **11:45am-1:00pm**

Lunch – Madison Room

### **1:00pm-3:00pm**

1:00 Adobe Illustrator Workflow Solutions and Tips

*Colin Fleming, Adobe, and Ian Giblin, Adobe*

1:55 Making the Transition to Illustrator & Bridging the Gaps

*Roundtable lead by Nat Case, Hedberg Maps, Inc; Bruce Daniel, Cartifact; and Nathaniel V. Kelso, The Washington Post*

2:40 The 'How' and 'Why' of Metadata

*Catrine Lehrer-Brey, Wisconsin State Cartographer's Office*

### **3:00-3:15**

Break

### **3:15-4:45**

Peer Review

Small peer review round table discussions, audience participation  
(Bring your current map project(s))

WEDNESDAY, OCTOBER 18

3:00pm-5:00pm

NACIS Board Meeting Gallery Suite (Room 832), eighth floor

7:30pm

## **NACIS Map-Off**

Madison Room

*Organized and Hosted by Nat Case and Margaret Pearce*

We have added more Mystery to this popular kick-off event! As always, several mapmakers will have worked on the same assignment in the weeks leading up to NACIS. This year, the audience members will break into groups to discuss the maps and then reconvene to share their discussions. Our Mystery Discussant will give his/her unique perspective on the project to close the event.

## **Opening Reception and Poster Session**

Capitol Room

Following the Map-Off, check out the poster session while renewing friendships over drinks and hors d'oeuvres.

WEDNESDAY, OCTOBER 18

## **Poster Displays**

*Coordinated by Fritz Kessler*

### **ArcMap Antique-Style Maps**

*David Barnes & affiliated authors, ESRI, Inc.*

### **Conservation International Hotspots Revisited 2004: High-Biodiversity Wilderness Areas**

*Mark Denil, GIS & Mapping Laboratory Center for Applied Biodiversity Science at Conservation International*

### **Mapping the Housatonic - First Run, The View From A Canoe**

*Kevin S. Fox, Saint Mary's University & Ohio University*

### **Recent Limited-Edition Maps from the Work for a Future to be Possible**

*Steven R. Holloway, toMake Press*

### **Journalistic Cartography on the Web: A Comparison of Print and Online Maps in Seven Major American Newspapers**

*Molly O. Holmberg & Kenneth E. Foote, Department of Geography, University of Colorado at Boulder*

### **Experiments in Visualizing the Evolution of U.S. County Boundaries through Network Graphs**

*Douglas W. Knox & John H. Long, The Newberry Library*

### **Trails Illustrated - Mapping Adventure**

*David Lambert, National Geographic Maps*

### **Tricks of the Trade: Using ArcGIS for Advanced Cartography**

*Birgit Muehlenhaus, Geography Department, Macalester College*

### **Appealing to the Masses? Teaching the History of Cartography as a General Education Course**

*Charles Rader, Department of Geography and Mapping Science, University of Wisconsin-River Falls*

### **Using Static and Animated Maps to Visualize Tropical Storm Data**

*Renée I. Rigdon, Ohio University*

### **Dane County Map for Bicyclists**

*Dan Seidensticker & Jill Replinger, Madison Area Metropolitan Planning Organization*

### **Explore Spaces and Places: Dane County Parks Map**

*Dan Seidensticker & Steve Wagner, Madison Area Metropolitan Planning Organization and Dane County Community and Analysis Planning Division*

WEDNESDAY, OCTOBER 18

**Demographic Atlas of Albania - Pilot Project for a National Atlas Information System**

*Julia Siemer, University of Regina, Saskatchewan, Canada*

**Maps.com MapMarketPlace**

*Cynthia Cendreda, Maps.com*

**Speeding up Map Production using FME and MAPublisher**

*Hans van der Maarel and Mac Reijers, Red Geographics & Reijers Kaartproducties*

**Illinois Bicycling, Development of the Bicycle Level of Service Map**

*Leonard Walther, Jodi Heitkamp, & Eric McGlenon, Department of Geography, Northern Illinois University & Illinois Department of Transportation*

**America's Prairie: The Loss of a Landscape and Steps toward Recovery**

*Shelly L. VonGlahn, Department of Geography, University of Wisconsin at Madison*

**The Geographic Distribution of Graduates from California State University, Long Beach**

*James A. Woods, Geography, California State University, Long Beach*

THURSDAY, OCTOBER 19

8:30am-10:00am

**Plenary Breakfast** Madison Room – annual society business meeting

10:15am-12:15pm

**Tools & Techniques**

University Room

*Moderator: Dennis McClendon*

Are high-quality web maps possible?

*Brandon Plewe, Brigham Young University*

Antique Map Effects with ArcGIS

*David Barnes, Jaynya Richards and Aileen Buckley, ESRI*

TypeBrewer: Design of an Online Cartographic Design Help Tool for Selecting Map Typography

*Ben Sheesley, University of Wisconsin—Madison*

Map Design through Scale Change and Varied Map Purpose

*Cynthia A. Brewer, The Pennsylvania State University; Charlie Frye, ESRI; and Barbara P. Buttenfield, University of Colorado—Boulder*

12:15pm-1:45pm

**Lunch** on your own, 90 minutes

1:45pm-3:45pm

**Critical/Persuasive Cartography**

University Room

*Moderator: John Krygier*

Persuasive Cartography Revisited

*Judith A. Tyner, California State University, Long Beach*

Who will win the elections in 3 weeks?

How maps encourage political participation  
*Jeremy Crampton, Georgia State University*

This is Not Madison

*Denis Wood, Independent Scholar, and John Krygier, Ohio Wesleyan University*

**Using Internet Mapping Services (IMS) for Planning, Conservation, & Environmental Protection**

Capitol Room

*Moderator: Dreux J. Wotermolen*

An IMS Capacity Building Program

*Dana Lucero, Wisconsin Dept. of Natural Resources*

Building Capacity among Extension Educators

*Dreux J. Wotermolen, Wisconsin Dept. of Natural Resources*

Building Capacity among Nonprofit Conservation Leaders

*Dan Bellrichard, Wisconsin Dept. of Natural Resources*

Building Capacity among Natural Resource and Planning Professionals

*Dana Lucero, Wisconsin Dept. of Natural Resources*

**3D Mapping: Its Uses & Potentials**

Capitol Room

*Panel organized by Patrick Kennelly, Long Island University*

*Tom Patterson, National Park Service*

*Alex Tait, International Mapping*

*Jinwu Ma, ESRI*

*Everett Wingert, University of Hawaii, Manoa*

THURSDAY, OCTOBER 19

4:00pm-5:30pm

**Symbols**

University Room

*Moderator: Mary Beth Cunha*

Map Readers and Symbolization Change

*Jacob Blair, University of Oregon*

Tactile Symbols

*Megan Lawrence and Amy Lobben,*

*University of Oregon*

Database-driven Smart Symbology for  
Rich, Clear, and Consistent Maps

*Robert Jensen and Edith M. Punt, ESRI*

**Cartographic Perspectives**

Capitol Room

*Panel organized by John Krygier,  
incoming editor of Cartographic*

*Perspectives*

*Editorial Board –*

*Nat Case, Hedberg Maps, Inc.; Jeremy  
Crampton, Georgia State University;  
Matthew Edney, University of Southern  
Maine; Amy L. Griffin, University of New  
South Wales; Mark Harrower, University  
of Wisconsin-Madison; Mike Hermann,  
University of Maine; Margaret Pearce,  
University of Ohio; Trudy Suchan, U.S.  
Bureau of the Census; Denis Wood,  
Independent Scholar*

*Outgoing Editor –*

*Scott Freundschuh, University of  
Minnesota, Duluth*

*Assistant Editor –*

*Jim Anderson, Florida State University*

6:00pm

**NACIS Night Out and CartoTalk Dinner**

Come and enjoy a tailgate party at State Street Brats and indulge in some of Wisconsin's finest: beer and brats. Show your school spirit by dressing in your alma mater's colors (or the school you relate to most)! Remember to **bring your NACIS Night Out Tickets** for a sandwich, beer, and Babcock Hall ice cream. State Street Brats is located about 1 mile from the hotel at 603 State Street, the corner of State and Frances. Turn left out of the Inn on the Park and walk 2 blocks to State Street then left and 6 blocks on State. Enter State Street Brats through the "back door" off of Frances.

FRIDAY, OCTOBER 20

8:30am-10:00am

**Federal Mapping Activities**

University Room

*Moderator: Margaret Pearce*

US C&GS Nautical Charts

*Jonathon McConnel, University of Oregon*

USGS Topographic Mapping in the 21<sup>st</sup>  
Century

*Stafford Binder, USGS—Lakewood, and  
Dick Vraga, USGS NSDI*

Geospatial Data Coordination Activities of  
the USGS NGPO

*Dick Vraga, USGS NSDI*

Searching for the “Golden Feature” in  
Fine-Resolution Multi-Scale Databases

*Barbara P. Battenfield, University of  
Colorado, and Charlie Frye, ESRI*

10:15am-12:15pm

**Education**

University Room

*Moderator: Brandon Plewe*

An Online Tool for the Visualization and  
Education of Isoline Mapping

*Robert Roth, Mark Harrower and James  
Burt, University of Wisconsin—Madison*

Mapping the Sports Geography of  
Australia: Teaching Visual  
Communication through Atlas Page Design

*Amy L. Griffin, University of New South  
Wales*

Map Design in a Day: The Workshop  
Experience

*Ted Koch, Wisconsin State Cartographer*

The African Way: GIS & Cartographic  
Training in Uganda

*Keith Rice, University of Wisconsin—  
Stevens Point*

12:15pm-1:45pm

**Lunch** on your own, 90 minutes

**Evaluation of the UCGIS GI S&T Body  
of Knowledge 2006 for Cartography**

Capitol Room

*Panel organized by Brandon Plewe,  
Brigham Young University*

*Aileen Buckley, ESRI*

*Jeremy Crampton, Georgia State  
University*

*Mark Harrower, University of Wisconsin-  
Madison*

**Uses of Public/Private Data**

Capitol Room

*Moderator: Martin Gamache*

Million Dollar Blocks

*Sarah Williams, Columbia University  
Spatial Information Design Lab*

Can Reverse Address Matching Violate  
Individual Privacy?

*Michael Leitner, Jacqueline W. Mills and  
Andrew Curtis, Louisiana State University*

Animated Map of Traffic in Los Angeles

*Kirk Goldsberry, University of California,  
Santa Barbara*

Mapping Data Traces and New York  
City's 311 Data

*Sarah Williams, Columbia University*

*Cartographic Perspectives* Editorial Board Lunch

FRIDAY, OCTOBER 20

1:45pm-3:45pm

**Mapping Specific Places & Spaces**

University Room

*Moderator: Mike Hermann*

The Amtrak Route Atlas: Stations,  
Trains, and Custom Routing

*Alex Tait, International Mapping, and  
Erik B. Steiner, Steiner Locus*

From Glaciers to Geysers: The Creation  
of the *Atlas of Yellowstone*

*James E. Meacham, Alethea Y.  
Steingisser and W. Andrew Marcus,  
University of Oregon, and Ann Rodman,  
Yellowstone National Park*

UO Interactive Campus Map

*Ken Kato and Erik B. Steiner, University  
of Oregon*

New Interactive UW-Madison Campus  
Map

*Mark Harrower and Aaron Erkenswick,  
University of Wisconsin—Madison*

4:00pm-5:30pm

**Geovisualization**

University Room

*Moderator: Fritz Kessler*

Atlas Layouts for Geovisualization

*Anthony Robinson and Chris Weaver, The  
Pennsylvania State University*

Visualizing Uncertainty in Isometric  
Mapping

*Mathew Dooley, University of Wisconsin—  
River Falls*

Student Perception of Map Projection

Distortion Symbolization Methods  
*Fritz Kessler, Frostburg State University  
and daan Strebe, Maphematics LTD*

**Arts & Society**

Capitol Room

*Moderator: Jenny Marie Johnson*

A Non-Dichotomous Conceptualization of  
Cartographic Art Practice

*Mark Denil, Conservation International*

Evolution and Impact of the London  
Underground Map

*John H. Long, The Newberry Library*

Proxy Frontier

*Deborah Natsios, Natsios Young Architects*

Gloria Oden: Mapping the Life of an  
African-American Poet

*Adele J. Haft, Hunter College*

**Katrina**

Capitol Room

*Moderator: Erin Aigner*

Mapping the Aftermath of Hurricane  
Katrina

*Jared Chapiewsky, University of  
Wisconsin—Madison*

Mapmaking for ‘Pay Dirt’: A Geo-Artistic  
Response to Hurricane Katrina

*Marie Cieri, The Ohio State University*

FRIDAY, OCTOBER 20

4:00pm-5:30pm

NACIS Board Meeting Gallery Suite (Room 832), eighth floor

6:30pm

**Banquet**

Hall of Wisconsin

Student Web Mapping Competition

*Coordinated by Charlie Frye, ESRI*

Student Poster Competition

*Coordinated by Fritz Kessler, Frostburg University*

The Democratization of Cartography

*Schuyler Erle, MetaCarta, Inc., Cambridge, Massachusetts*

Schuyler Erle is a Free Software developer, activist, and author. Schuyler co-wrote *Mapping Hacks* for O'Reilly Media in 2004 and *Google Maps Hacks* in 2005. More recently, Schuyler was privileged to join the Open Source Geospatial Foundation as one of its founding members. Schuyler works for MetaCarta, Inc., a geospatial technology startup based in Cambridge, Massachusetts.

**Geodweb Geopardy!** to follow, after a short break, in the Hall of Wisconsin.

## PRESENTATIONS THURSDAY, OCTOBER 19

10:15am-12:15pm

### Tools & Techniques

#### **Are high-quality web maps possible?**

*Brandon Plewe, Brigham Young University*

The Internet has revolutionized the cartographic environment to the point that web-based mapping systems are probably used more often than paper maps. However, the cartographic quality of most web-mapping services ranges from average to poor. Although there are certainly inherent limitations to the web environment (especially coarse screen resolutions), cartographers should be able to produce higher quality web maps without having to write their own software. We evaluated several available server products, including commercial and open source offerings, for their ability to replicate the appearance of professional paper maps. Although there is room for improvement, several packages have design capabilities that far exceed the run-of-the-mill website.

#### **Antique Map Effects with ArcGIS**

*David Barnes, Jaynya Richards and Aileen Buckley, ESRI*

In this presentation we examine some mapping techniques from bygone days and explore how those techniques can be adapted to a computational mapping environment. The effects and symbolization we show have been derived from or inspired by maps from the early 1800's and developed into digital techniques that can be used to compile interesting and informative modern maps. Examples include the use of parchment and watercolor fill patterns, representing coastlines with line vignettes (both parallel and horizontal), and representing towns and villages as point-spaced line symbols rather than discrete points. We also examine cartouches and other

marginalia from the past and show how they can be created to maintain an antique look. Additionally, we demonstrate some unique labeling techniques such as threading the text into the fabric of the map by interlacing labels with symbols for road networks. All of this is accomplished within a GIS mapping environment that maintains database connections and drives the cartography through GIS data. The result is old-fashioned effective design achieved with contemporary data using modern technology and the power of GIS.

#### **TypeBrewer: Design of an Online Cartographic Design Help Tool for Selecting Map Typography**

*Ben Sheesley, University of Wisconsin—Madison*

An abundance of geographic data and readily available mapmaking software have contributed to the democratization of cartography and map design. Non-specialist mapmakers can now be found amongst the general population of spatial information users. This research argues that the role of cartographers must now include facilitating the mapmaking practices of non-specialists. Map typography, particularly selecting visual properties of text (e.g., typeface, size, tracking, weight, posture, case, etc.) is an element of map design that is particularly challenging and where resources are difficult to obtain and/or do not contain specific, practical design help that many mapmakers require. The purpose of this research is to design and evaluate TypeBrewer, an online map design help tool that facilitates the typographic design choices of non-specialist mapmakers. TypeBrewer should encourage broadened thinking about map typography and offer specific practical guidance for achieving a particular map

## **PRESENTATIONS THURSDAY, OCTOBER 19**

"look." This phase of research involves designing TypeBrewer's content and interface, including the typographic templates that guide users in making design decisions. Future work will involve testing TypeBrewer with a group of introductory cartography students working on a specific map typography assignment.

### **Map Design through Scale Change and Varied Map Purpose**

*Cynthia A. Brewer, The Pennsylvania State University; Charlie Frye, ESRI; and Barbara P. Buttenfield, University of Colorado—Boulder*

Map scale may differ substantially from the resolution at which geographic data were compiled. We developed a descriptive tool dubbed "ScaleMaster" that organizes change in design and choices for symbolizing features from databases with different resolutions (1:5K, 1:25K, 1:100K, and 1:2M) through a continuous range of map scales (e.g., 1:5K all the way to 1:5M). With the help of cartography students at Penn State, we examined the integration of multiple databases at different resolutions for varied map purposes (e.g., public safety, tourism, topographic, and election planning) through scale changes. Our aim was to separate the workload associated with symbol design, feature selection, and feature elimination from the workload associated with map generalization operations that affect feature geometry (e.g., smoothing and displacement). We discuss the forms of ScaleMaster diagrams related to map purposes and the practical issues of intermixing features from databases at varied scales. We argue that appropriate symbol design across scale change reduces the overall workload, allows databases to be used at wider ranges of scales, and reduces the amount of complex processing associated with

map generalization operations that change feature geometry.

10:15am-12:15pm

### **Using Internet Mapping Services (IMS) for Planning, Conservation, & Environmental Protection**

#### **An IMS Capacity Building Program**

*Dana Lucero, Dreux J. Watermolen, and Dan Bellrichard, Bureau of Integrated Science Services, Wisconsin Department of Natural Resources*

This paper will describe WDNR's ongoing effort to improve the quality of local land use decisions through the promotion and use of decision support and impact assessment tools, including GIS and IMS-based technologies. The presenters will detail findings from two workshops aimed at defining the features that make particular tools useful. They will present an inventory of tools that share those attributes and describe an analytical framework used to link the inventoried tools with local planning and decision-making processes. Finally, they will outline a pedagogically sound conceptual framework that underlies the WDNR capacity building program.

#### **Building Capacity among Extension Educators**

*Dreux J. Watermolen, Bureau of Integrated Science Services, Wisconsin Department of Natural Resources, Elaine Andrews, Environmental Resources Center, University of Wisconsin—Extension, and Suzanne Wade, Rock River Basin, University of Wisconsin-Extension*

Communities often call upon university-extension professionals to supply technical expertise for planning and decision-making, giving extension

## **PRESENTATIONS THURSDAY, OCTOBER 19**

educators an important role in increasing public understanding of “smart growth,” the consequences and impacts of development, alternative ways of managing growth, and in building consensus. This presentation will describe how extension staff fit within the WDNR program’s conceptual framework, with emphasis on the transferability of this approach to other states with robust extension programs. Presenters will detail a background assessment of extension educators’ priorities and preferences regarding involvement in local land use planning, as well as an assessment of their current use and interest in GIS, IMS, and related tools. The session will conclude with an account of recent hands-on workshops and the resulting evaluative feedback.

### **Building Capacity among Nonprofit Conservation Leaders**

*Dan Beltrichard and Sally Kefer, Bureau of Integrated Science Services, Wisconsin Department of Natural Resources, and Suzanne Wade, Rock River Basin, University of Wisconsin—Extension*

Several statewide organizations work to enhance the effectiveness of local watershed protection, land conservation, and citizen advocacy groups. Locally, conservation organization volunteers influence and help guide the future of their communities, often participating in town or city planning efforts. These nonprofit leaders and staff may or may not have planning education or experience, yet maps, GIS and related technologies, particularly Internet-based tools, can greatly aid their planning and advocacy efforts. This session will describe work that WDNR has done with local and statewide organizations to build capacity to use these technologies. Presenters will

describe preliminary needs assessment work, an appraisal of current use and interest in GIS, IMS, and related tools, and lessons learned from recent hands-on computer tool workshops and evaluative feedback. The presentation will feature a case study of one local organization’s use of GIS-based impact assessment tools.

### **Building Capacity among Natural Resource and Planning Professionals**

*Dana Lucero and Dreux J. Watermolen, Bureau of Integrated Science Services, Wisconsin Department of Natural Resources*

Communities often call on natural resource agency staff for advice about environmental and conservation concerns. Similarly, planners guide processes and help create documents, including maps, which provide a rational basis for land-use decision making. These professionals rely upon their technical expertise to provide sound information and analyses. GIS, IMS, and related tools can expedite and enhance the services natural resources and planning professionals provide the public. This presentation will describe efforts to build capacity among WDNR staff and professional planners to apply web-based technologies in their work. Presenters will contrast assessments of the training needs and preferences of these two audiences, as well as provide an appraisal of their current use and interest in GIS, IMS, and related tools. The session will conclude with a presentation of lessons learned, with emphasis on the transferability of the WDNR approach to other states.

**PRESENTATIONS THURSDAY, OCTOBER 19**

1:45pm-3:45pm

**Critical/Persuasive  
Cartography**

**Persuasive Cartography Revisited**

*Judith A. Tyner, California State University, Long Beach*

The term “persuasive cartography” was coined and defined 30+ years ago and built upon literature in the 1940s including articles on propaganda maps, criticisms of the Mercator projection, and J.K. Wright’s examination of the subjective in cartography. Since 1974, there has been a proliferation of works that further explore bias and the subjective in maps. Brian Harley’s works in the 1980s, Denis Wood’s *The Power of Maps*, and more recent material on “critical cartography” have made examination of map bias a mainstream subject within the field. This paper examines the road from “Map Makers Are Human” to critical cartography.

**Who will win the elections in 3 weeks? How maps encourage political participation**

*Jeremy Crampton, Georgia State University*

The 2006 Midterms are almost here (November 7). As usual there is a lot of prognostication about who will win. Historically the Midterms are a time when incumbents suffer defeats. Democrats are looking to translate a lame-duck president’s low poll ratings into gains at the ballot box: a number (5-9) of new state Governors and the possibility of a Democratic House of Representatives. In order to do this however, local organizers need to ensure high turnouts and voter registration. Until recently, get out the vote (GOTV) and registration was an arcane art limited to precinct captains and local activists. However, over the

last couple of years a new generation of publicly accessible, Web-based mapping capabilities has emerged for GOTV and precision political mapping. These capabilities include map mashups, repackaging of hard to use FEC data, and political visualization tools. In this paper I present an overview of these developments, mainly based on examples. Of course these developments work best on a level playing field. There are some reasons to think that this is not the case. The threat to "net neutrality" from "pay-to-play" models of content access needs to be firmly met with resistance.

**This is Not Madison**

*Denis Wood, Independent Scholar, and John Krygier, Ohio Wesleyan University*



-position that *this is there*. Each posting encapsulates a powerful existence claim – *this is* – that gains enormous power by being posted, that is, from the indexicality vouchsafed by the sign plane of the map. Multiple postings participate in the construction of a territory that facilitates the transmission of authority. *Everything* about a map is an argument. Understanding maps from a propositional perspective moves beyond naive beliefs of how maps work in the world while empowering mapmakers who, instead of merely “showing what is there,” assert what is there.

## **PRESENTATIONS THURSDAY, OCTOBER 19**

1:45pm-3:45pm

### **3D Mapping: Its Uses & Potentials**

*Panel organized by Patrick Kennelly, Long Island University*

Our panel will discuss the uses and relative merits of various conceptual approaches, data models, and software products used in creating three dimensional (3D) displays from geographic or spatial data. Our exchange will include extending 2D data into the third dimension, using 2.5D data to represent topography and other smoothly varying surfaces, and creating or using true 3D displays from data with multiple z values. Panelists will show examples to highlight specific merits or issues. The audience will be welcome to comment and add to the discussion throughout the session.

4:00pm-5:30pm

### **Symbols**

#### **Map Readers and Symbolization Change**

*Jacob Blair, University of Oregon*

My upcoming research project involves studying map readers' abilities during a map search task. I propose to use eye-tracking technology to "map" the movement of a subject's eyes during a search task. This technology will allow me to investigate whether there are distinct strategies that are used that allow certain map users to perform better than others. In addition, I propose to investigate whether these search strategies change when the symbolization method changes, and if so how and to what magnitude they do change. Though I will not have completed my research before this presentation, I hope to present for you the setup of my experiment and

hopefully the results from some early run-throughs.

#### **Tactile Symbols**

*Megan Lawrence and Amy Lobben, University of Oregon*

Over the last year, a series of in-depth interviews and online questionnaires have been conducted with orientation and mobility teachers, special education program administrations, parents and partners of blind and visually impaired (VI) persons, and blind/VI persons that has led to the creation of a list of critical environmental objects that blind/VI persons use to navigate. The list of environmental objects has been combined with previous research on tactile symbol discrimination to make a series of tactile maps of both the University of Oregon campus and specific areas of downtown Eugene, Oregon. This paper will report on an experiment conducted to test the usability of the tactile maps in both a laboratory setting as well as navigation tasks in the real-world environment.

#### **Database-driven Smart Symbology for Rich, Clear, and Consistent Maps**

*Robert Jensen and Edith M. Punt, ESRI*

The convenience of database-driven cartography has traditionally been offset by the design limitations of GIS symbology. To address this, ArcGIS 9.2 introduces a new way to store intelligent cartographic symbology alongside spatial data within a geodatabase. Symbology is applied to spatial features through representation rules to achieve complex depictions. Geometric effects and field mapping within rules dynamically alter spatial geometry and graphic properties before symbology is applied. To ensure creative control over individual feature depictions, properties of representation rules can be overridden and portions of

## **PRESENTATIONS THURSDAY, OCTOBER 19**

individual feature representations can be altered or erased while retaining the integrity of the database. The new framework offers geoprocessing tools that automate aspects of symbolization such as symbol overlap detection. The combination of the components of the representation framework can produce rich, clear and elegant cartography.

This paper investigates the potential of the representation framework by building and describing a set of representation rules and geoprocessing models that create a variety of cartographic styles, including depictions which have been difficult to automate in the past. Particular attention is paid to non-uniform symbology cases, including coincident boundary features, and cases where segments or points on line or area features are treated specially for cartographic clarity.

4:00pm-5:30pm

### **Cartographic Perspectives**

*Panel organized by John Krygier,  
incoming editor of Cartographic  
Perspectives*

## **PRESENTATIONS** FRIDAY, OCTOBER 20

8:30am-10:00am

### **Federal Mapping Activities**

#### **US C&GS Nautical Charts, 1841-1941**

*Jonathon McConnel, University of Oregon*

Nautical charts published by the U.S. Coast & Geodetic Survey between 1844 and 1941 underwent dramatic changes in content, format, and design. This period spans the transition from historic to modern chart production and cartographic representation (modern in this sense meaning the method of chart production used prior to the current method of computer-based production). The first charts published by the C&GS had depth information from lead-line soundings, topography from plane-table drawings, and were printed from copperplate engravings. Charts from 1941 have bathymetry contours derived from acoustic soundings, topography from aerial photographs, and were printed by multi-plate lithography derived from photo-mechanical transfers of scribing on acetate. Understanding how and why these changes came about requires study of both the progression of changes to the charts, and of advances in scientific measurement technology, advances in printing technology, and the changing social/political context of the agency.

#### **USGS Topographic Mapping in the 21<sup>st</sup> Century**

*Stafford Binder, USGS—Lakewood, and Dick Vraga, USGS NSDI*

The U.S. Geological Survey (USGS) is modernizing its topographic mapping program. It is making its topographic maps current, available from any computer, more useful, and easier to obtain. By linking the mapping process to The National Map (<http://nationalmap.gov/>), the new maps will be current. The USGS is

basing its new mapping program on partnerships with the private sector (for plotting and distribution) and with Tribal, Federal, State, and local governments (for geospatial data). When research and development to modernize the topographic mapping program is completed in late 2006, the USGS intends that anyone working on a personal computer will be able to make a standard USGS topographic map for any place in the United States. Users will be able to center the map over any point and make one or many maps covering their area of interest. The users can select various graphic-file formats (.pdf, .jpg, .tif, etc.) for their maps and then download these files. Eventually, users will be able to customize each map's content. After making their maps, users will have the choice to plot the maps or order plots from participating local business partners. In my presentation, I will compare samples of the new topographic maps to existing maps showing how the specifications have changed to facilitate automation of map generation.

#### **Geospatial Data Coordination Activities of the USGS NGPO**

*Dick Vraga, USGS NSDI*

The U.S. Geological Survey has realigned the geospatial programs for which it has a leadership responsibility into a National Geospatial Programs Office (NGPO) to serve the needs and interests of the geospatial community throughout the Nation. The emphasis of the NGPO will be to engage partners throughout the community in its planning and in ensuring that its activities meet the needs of those on the landscape. By connecting the components of The National Map (integrated base data), FGDC (coordination, policy, and standards), and Geospatial One-Stop (information

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discovery and access), and by embracing and communicating the message of the importance of the NSDI, the geospatial community and the Nation will realize the vision of “current and accurate geospatial data will be available to contribute locally, nationally, and globally to economic growth, environmental quality and stability, and social progress.”

### **Searching for the “Golden Feature” in Fine-Resolution Multi-Scale Databases**

*Barbara P. Buttenfield, University of Colorado, and Charlie Frye, ESRI*

The demand for Multi-Resolution Databases (MRDBs) has grown to the point of wide acceptance in most federal agencies producing digital cartographic data and in many local and state government organizations concerned with modeling and mapping cartographic data at different scales. The agencies that support MRDBs acquire topographic data, image data, and base-cartographic vector data at a very fine spatial resolution. The initial dataset supports derivation of coarser resolution versions through generalization and other data modeling operations. However, it does not hold up in cartographic practice that an ultimately fine-resolution version of a cartographic feature can generate multiple representations across all scales and for all purposes, through item-level reduction or exaggeration, generalization, symbolization or some combination of these operations. We refer to the premise of a finest-resolution data version serving all scales and all purposes as the “fallacy of the golden feature.” We demonstrate why the “golden feature” concept is not workable in practice. We outline an alternative solution for federal agency data production that differs from the present strategy of

independent data bases compiled at widely discrepant mapping scales and involves “anchoring” specific data layers with new compilations targeted to specific scales. Finally, we propose criteria by which to select the anchor scales that can be adopted by cartographic end users.

8:30am-10:00am

### **Evaluation of the UCGIS GI S&T Body of Knowledge 2006 for Cartography**

*Panel organized by Brandon Plewe, Brigham Young University*

In spring 2006, the University Consortium for GIScience (UCGIS) released the 2006 GI S&T Body of Knowledge, the most comprehensive attempt yet at encapsulating the realm of the geospatial disciplines and professions. The Body of Knowledge is already being considered for incorporation into K-12 and college curricula, accreditation and certification initiatives, textbook revision, and other applications. The Body of Knowledge includes an entire knowledge area on Cartography and Visualization, and many other portions of the document are relevant to cartographers. Although the editors had input from several professional and academic cartographers, wider involvement is sought as we begin work on supporting products and a future second edition.

- Is the coverage of cartography and visualization complete?
- Is its organization logical?
- How easy or difficult is it to incorporate into curriculum planning?
- How closely does it match what is actually being taught?
- How closely does it match what professional cartographers actually do?

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- Is a "comprehensive body of cartographic knowledge" even possible?

10:15am-12:15pm

### **Education**

#### **An Online Tool for the Visualization and Education of Isoline Mapping**

*Robert Roth, Mark Harrower and James Burt, University of Wisconsin—Madison*

Isoline maps, like any other type of maps, are abstract representations of reality. However, as the underlying data for continuous isoline mapping is nearly always interpolated from point values, the look of the generated isoline surface is especially susceptible to a small set of particular parameters, such as interpolation method, sample size and spacing, isoline interval, and the base or fulcrum isoline. Because the most commonly available commercial GIS and isolining software require that all parameters are input at once to generate the final map, visualization, and therefore education, of small changes in the isoline parameters is difficult. As a result, education of these parameters in the classroom setting is typically restricted to term definitions and a series of static maps, both of which translate very little to practicing cartographers. In response, we have developed a tool that dynamically updates the isoline display when particular parameters are adjusted, allowing for interactive classroom participation and a better understanding of the role of each parameter in the creation of the isoline surface. Further educational capabilities of this tool include animation, attribute and temporal focusing, and data probing. We hope to distribute this application freely

online for incorporation into isoline education.

#### **Mapping the Sports Geography of Australia: Teaching Visual Communication through Atlas Page Design**

*Amy L. Griffin, University of New South Wales*

The general level of undergraduate students' visual communication skills is low, despite the fact that this generation of students has grown up immersed in visual stimuli. In this paper, I report on the design of a general education course (first taught in 2007) that aims to use the design of an atlas page as a vehicle for helping students to build their visual communication skills. Atlas page design is an ideal method for developing visual communication skills because it requires students to learn how to compile data and how to develop maps, statistical graphics and other graphical illustrations and then integrate them with concise text. The non-geography students who will take this course will also have a chance to learn about how geographers view the world (i.e., spatially). The atlas topic was inspired by Alex Tait's *Sports Illustrated* mapping of 2004 and is one that will hopefully capture student attention and that allows them to explore some aspect of any sport in which they have an interest.

#### **Map Design in a Day: The Workshop Experience**

*Ted Koch, Wisconsin State Cartographer*

For the past seven years, I have taught a one-day workshop on map design. This workshop is primarily intended for GIS professionals or others with little or no map design training. Students who have taken the workshop range from experienced GIS software users and map makers to several students

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who were told by their boss “take this workshop, you may learn something, let me know.” Workshop attendance has ranged from four to fifty students representing a vast range of education, training, experience, interest and motivation. From the vantage point of the instructor, this presentation will cover workshop goals, content, and presentation style plus a look at some of the successes, failures, high points, and low points. The ultimate goal of the workshop has been to have students take away a handful of useful map design techniques and approaches. Whether success has been achieved is unknown, but as the instructor, I have learned a lot and had fun along the way.

### **The African Way: GIS & Cartographic Training in Uganda** *Keith Rice, University of Wisconsin—Stevens Point*

As part of an extensive educational grant from the Rockefeller Foundation, a team of geography professors traveled to Uganda to establish a Geographic Information Systems (GIS) instructional program. The goal was to organize and implement a set of complementary workshop and university courses that would serve government personnel and university students. Pedagogical objectives focused on increasing knowledge of GIS, cartographic, and GPS (Global Positioning Systems) techniques while developing participant competency in applications pertinent to Ugandan situations and problems. Curriculum structure, delivery methods, and topics were initially tested within a workshop format. Twenty-five planners, selected by the Uganda Ministry of Local Government, participated in a two-week training session with a follow-up session the following year. Material was tailored to fit the implicit needs of

the participants that included local and regional Ugandan data. Implementation of the workshop, however, was effected by unanticipated cultural variations, fallacies, and miscalculations. Hardware and software deliveries followed eccentric third world nomenclature and procurement while workshop logistics became scheduling gymnastics that necessitated daily adjustments. Fortunately, Makerere University faculty provided a more accommodating and positive atmosphere in the delivery of university-based curricula materials and were receptive to the future administration of the GIS program.

10:15am-12:15pm

### **Uses of Public/Private Data**

#### **Million Dollar Blocks**

*Sarah Williams, Columbia University Spatial Information Design Lab*  
New York City and Wichita, Kansas, are among the many cities in the United States in which the state regularly spends more than one million dollars to incarcerate prisoners who live within a single census block. Advocacy organizations, city planners, and community groups working with released prisoners are asking: where are these ‘million dollar blocks,’ and what’s happening there? The Spatial Information Design Lab (SIDL) at Columbia is working with the Justice Mapping Center to produce a range of maps of this phenomenon. Our research at Columbia has focused on six major U.S. cities, chosen for the significant roles they already play in debates on criminal justice policy: Brooklyn, Manhattan, New Orleans, Phoenix, New Haven, and Wichita. Our research demonstrates the way in which public funding is targeted

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disproportionately at the residents of very few inner-city neighborhoods in order to keep them in prison elsewhere. Our graphically-innovative imagery now helps pose the policy question sharply: how can advocates and policymakers imagine re-organizing that public investment stream within those communities, rather than in the criminal justice system, so that it helps break, rather than perpetuate, the cycle of community re-entry and return to prison that structures life in those neighborhoods today.

Major collaborators on this project are all involved with Columbia University's - Spatial Information Design Lab. They include Laura Kurgan, David Reinfurt, Sarah Williams, Eric Cadora, and Charles Swartz.

### **Can Reverse Address Matching Violate Individual Privacy?**

*Michael Leitner, Jacqueline W. Mills, and Andrew Curtis, Louisiana State University*

There has been renewed interest in the visualization of confidential information in the form of dot maps, with each dot representing a residential address. Using some basic Geographic Information System (GIS) operations evidence exists that such addresses can be recovered from dot maps through a process referred to as reverse address matching. The purpose of this research is to evaluate the potential reverse address matching has on violating individual privacy. In an experiment, test subjects were provided with a (hard-copy) dot map of the city of Baton Rouge, LA. Each dot simulated some personal, confidential information attached to an individual residence that was originally geo-coded from a list of street addresses. The test subject's first task was to scan and subsequently

enlarge the dot map; geo-register a street network on top of the scanned image in a GIS; and finally digitize the centroid of each (now enlarged) dot symbol. The second task involved a field survey, in which test subjects were asked to identify the street address of the residence closest to the previously digitized centroid location. Dot maps tested varied by scale, dot size, city neighborhood and whether geographic masking (small spatial displacement of the dot location) was applied.

### **Animated Map of Traffic in Los Angeles**

*Kirk Goldsberry, University of California, Santa Barbara*

This research focuses on the creation of an animated map depicting traffic conditions for a one-day period in Los Angeles, California. The data source is The Freeway Performance Measurement Project (PeMS). This project is a joint effort by the California Department of Transportation (CalTrans), the University of California, and the Partnership for Advanced Transportation on the Highways (PATH). PeMS currently has over 3 TB of data and is growing at 2 GB/day (Chen and Varaiya, 2005). The freeway data for Los Angeles exists entirely within CalTrans Districts 7 and 12. The traffic data are collected by Inductive Loop Detectors (ILD), shared via File Transfer Protocol, and updated in five-minute intervals. This research examines cartographic methods to represent congestion data on the internet. Specifically, this paper explores the application of cartographic animation to depict Los Angeles traffic conditions over a twenty-four hour period of time. Current traffic maps fail to congruently represent the dynamic nature of traffic cycles. Also, current maps obscure the path graphics

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with overwhelming congestion symbols. The cartographic design must carefully balance this figure-ground relationship to effectively convey the spatiality of network congestion. This research addresses important questions relating to symbology, temporal scale, and dynamic visual variables as they relate to traffic mapping.

### **Mapping Data Traces and New York City's 311 Data**

*Sarah Williams, Columbia University*

Interaction with digital information has become part of daily life. We leave traces of data about ourselves everywhere we go. When we swipe our subway card - information is left about our travel patterns. When we use our cell phones - information is kept about where we used the phone, for how long, and at what time of day. When we connect to internet hubs, the volume of our use as well as what sites we visited is recorded. Mapping these data traces allows us to visualize the dynamic ways that people interact with urban environments. New Yorkers leave clues about their community every time they call New York City's 311 phone hotline for non emergency city services including everything from complaining about noise to requesting the repair of pot holes or noting a rat sighting. When a call is made to 311 the location of the call is recorded in order for a service request to be made. Mapping and interpreting the location of these phone calls tells us a lot about the character of different types of neighborhoods. For example, mapping noise complaints allows us to visualize the activity levels of different neighborhoods at different times of day. This presentation will discuss mapping data traces, specifically focusing on my most recent project mapping noise complaints made to 311. I will discuss other projects including

mapping cell phone use in Milan, Italy. The presentation will provide a unique perspective on mapping while also showing new techniques in representation.

The 311 data was obtained from the City of New York. The Milan project was worked on with colleagues at the SENSEable City Laboratory at the Massachusetts Institute of Technology (MIT).

1:45pm-3:45pm

### **Mapping Specific Places & Spaces**

#### **The Amtrak Route Atlas: Stations, Trains, and Custom Routing**

*Alex Tait, International Mapping, and Erik B. Steiner, Steiner Locus*

Our paper will discuss the design and production of an interactive online mapping application for Amtrak. The Amtrak Route Atlas is a simple to use, easy to navigate mapping tool for the general public to explore the Amtrak train and thruway route system. Project requirements were for a graphically sophisticated interactive map that had good depth of information but was very easy for novice website visitors to use. We will discuss the iterative design process and the challenges of taking the Amtrak Route Atlas specifications document and creating a live mapping tool for the web.

#### **From Glaciers to Geysers: The Creation of the *Atlas of Yellowstone***

*James E. Meacham, Alethea Y. Steingisser and W. Andrew Marcus, University of Oregon, and Ann Rodman, Yellowstone National Park*

Comprehensive atlases are not made in a vacuum, and the *Atlas of Yellowstone* is a clear example of the importance of

## **PRESENTATIONS FRIDAY, OCTOBER 20**

collaboration. The *Atlas of Yellowstone* will be the first comprehensive atlas of a U.S. national park and will provide a data rich, state-of-the-art, authoritative reference volume for the first national park in the world. Cartographers at the University of Oregon work closely with topic experts to develop story lines and design page layouts that highlight the remarkable diversity, complexity, richness, and global importance of the Yellowstone region. Identifying the main stories for each topic, and the supporting spatial and temporal data, is dependent upon close and ongoing communication with topic experts. The *Atlas* topic page pairs go through a continuous process of re-evaluation and revision to ensure that the data, design, and text all tell an accurate and relevant story about Yellowstone National Park and the Greater Yellowstone Area. The process of designing maps and data graphics within this collaborative structure will be discussed.

### **UO Interactive Campus Map**

*Ken Kato and Erik B. Steiner,  
University of Oregon*

At the University of Oregon, the design and development of a state-of-the-art interactive map was identified as an important component of the new homepage. An interactive map on the University homepage provides prospective students and other key external audiences an avenue to engage the website in a way that communicates the “sense of place” that is central to the campus experience. Furthermore, for the existing campus community, the map is a graphic information portal to all academic centers, social activities, and educational resources that are available on campus. This presentation will discuss the conceptual and technical aspects of the interactive map project. The map features a dynamic connection between Flash and an

ArcSDE geodatabase, with a search capability that approaches Google Maps. The interactive map may be accessed from the University of Oregon homepage at [www.uoregon.edu](http://www.uoregon.edu).

### **New Interactive UW-Madison Campus Map**

*Mark Harrower and Aaron Erkenswick, University of Wisconsin—Madison*

On June 1, 2006, the University of Wisconsin-Madison launched a new interactive, Web-based campus map built by the UW Cart Lab with expertise from geography, communications, and computer science. This talk will introduce the map and its interactive capabilities, outline the rationale behind its development, and present results from user testing and performance benchmarking. Our design mantra was “make it easy to use, great to look at, and insanely fast” which required that we purposely design every aspect of the interface, map, and underlying architecture from the ground up. It also required understanding what users needed from their online map experience and how those needs were (or weren’t) currently being met. Built in Flash, the map is a hub for other University information systems (e.g., current events, parking, visitor services). Key features include: very fast rendering and coordinated tiling of multiscale raster and vector content, semantic zooming, minimal and uncluttered interface footprint (refined repeatedly through user testing), live integrated search capabilities, and focused map querying capabilities (e.g., distance and route tools). The map can be seen at <http://www.map.wisc.edu>.

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1:45pm-3:45pm

### Arts & Society

#### **A Non-Dichotomous Conceptualization of Cartographic Art Practice**

*Mark Denil, Conservation  
International*

Recently, there has been a renewal of interest in the relationship between maps and art; witness the recent issue of *Cartographic Perspectives* given over to this subject. It is notable, however, that almost all cartographic literature touching upon so called Map-Art is grounded in a dichotomous understanding of the terms. Clearly, from both a conceptual and practical standpoint this core metaphysical binarism is extremely problematic. Obviously rooted in 19th Century notions of the sublime, this dichotomy invariably falls hostage to the fate of all metaphysical binaries in the play of privilege/subordination and thus is doomed to a reduction to empty platitude. It is unclear how a useful understanding of maps, art, or map-art (should such a thing exist) could arise from a bipolar theory. Such belief systems fail to leverage the experiences gained through an understanding of the conceptual art movement. This paper aims to introduce this often misunderstood conceptualization into the current discussion and to highlight the underlying unity of cartographic and art practice. In other words it seeks to establish clearly that map art is a redundancy, not a contradiction, in terms.

#### **Evolution and Impact of the London Underground Map**

*John H. Long, The Newberry Library*

The published diagram of London's Underground rail system has been praised as "a masterpiece of twentieth-century graphic art" and an "invention

of genius." Certainly it is one of the most famous and recognizable maps in the world, epitomizing the best of public transportation guides everywhere and even symbolizing London itself. This paper will provide (1) a short history of the map from its conception through initial publication in 1933 to its current form, (2) an analysis of its topological and cartographic strengths and weaknesses, and (3) a brief review of its influence on map makers, designers, and artists throughout the world, both as a practical way finder and as an iconic popular image. The oral presentation will be accompanied by Power Point slides that will include images of different versions of the map and other maps and images based upon it. Chief sources will be the books and articles written about the map, plus up-to-date research this summer at the Transport Museum in London and current materials from the Transport for London authority.

#### **Proxy Frontier**

*Deborah Natsios, Natsios Young  
Architects*

America's Cold War imagination was profoundly invested in the contested space of its 3rd world client states. The maps of "Proxy Frontier" track the post-WWII American frontiers that emerged in Greece, Korea and Vietnam - three key proxy states in which the Cold War's hot war consequences were played out. Historian Frederic Jackson Turner had asserted in 1893 that "frontier expansion created American Democracy." What came to be exalted as the Turner Thesis provoked a half-century of historiographic debate about the continental expansion of American national space and its link to concepts of national identity and character. The Cold War's East-West bi-polarity recapitulated elements of America's

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prior investment in the “frontier dialectic,” which saw the West having a “special relation to American history.” Turnerian tropes resurface in rhetoric linked to the Cold War’s disputed demilitarized zones, bifurcated nation-states, divided cities, estranged enclaves, restrictive walls and marginal buffer islands. The problematic denouement of Cold War’s frontier narrative was anticipated by philosopher John Dewey, a critic of Turnerian romanticism, who blamed the nation’s ills on frontier excess. “Proxy Frontier” examines the mixed legacy of the frontier ethos in Cold War geopolitical space.

### **Gloria Oden: Mapping the Life of an African-American Poet**

*Adele J. Haft, Hunter College*

After Elizabeth Bishop’s collection *Poems: North & South--A Cold Spring* won a Pulitzer Prize (1956), her opening poem “The Map” immediately inspired four other American poets to create their own map-poems. Three of these I have discussed earlier: May Swenson’s “The Cloud-Mobile” (1958: *CP* 33, pp.36-38); Howard Nemerov’s “The Map-Maker on His Art” (1957) and Mark Strand’s “The Map” (1960: *CP* 38, pp.37-65). Today’s paper focuses on the fourth poet, Gloria C. Oden, whose affection and gratitude toward Bishop are revealed in two map-poems honoring her mentor: “A Private Letter to Brazil” (1956-57) and “The Map” (1961). The first refers to the country where Bishop was living at the time while the second owes its title to Bishop. Oden shares Bishop’s understanding of the map-maker’s art--its imaginative power and limitations, its technical achievement and arbitrary nature. But Oden’s work is far more personal and overtly political; “The Map” critiques the Rand McNally world-map that once hung on

Oden’s living room wall. My paper examines Oden’s use of the map to explore her isolation as an African-American poet, her recognition of how privileged populations marginalize others, and her attempts to forge distant bonds--with Bishop, with Africa, with her ancestors.

4:00pm-5:30pm

## **Geovisualization**

### **Atlas Layouts for Geovisualization**

*Anthony Robinson and Chris Weaver, The Pennsylvania State University*

Current approaches to geovisualization have a lot to offer in the way of interaction with spatial data. Integrated software environments have made it easier and faster to create customized geovisualization tools for specific purposes. Unfortunately, these tools often appear cluttered and are awkward to use because of the inherent constraints of window-based interfaces, limiting their potential for interactive exploration and analysis. We are currently exploring ways to design and implement geovisualization tools that have the look of a printed atlas but the feel of a fully interactive visualization. In particular, we are using the *Mapping Census 2000: The Geography of U.S. Diversity* atlas as a model for prototype tools that we are developing as Java Webstart applications in *Improvise*, an integrated visualization building and browsing environment. To replicate this atlas, our approach uses highly coordinated maps, legends, and other views spread across multiple screen pages in poster-like layouts. Overviews allow users to navigate to and between pages of the atlas graphically, identifying and following paths of interest as they explore. The presentation will include a demonstration of the tools and describe

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how we are dealing with tensions between good cartographic design and flexible geovisualization using multiple coordinated views.

### **Visualizing Uncertainty in Isometric Mapping**

*Mathew Dooley, University of Wisconsin—River Falls*

Isometric mapping has a strong tradition in the physical and social sciences and continues to be a preferred method for mapping distributions of continuous phenomenon. This paper examines ways to communicate the nature and magnitude of isometric method-produced uncertainty to the public so that they are encouraged to be uncertain when it is warranted. As a case study, I consider an extensive set of plant hardiness zone maps that result when different interpolation methods and sampling resolutions operate on the same set of data. These maps show that (1) slightly different choices in the mapping process can result in very different isometric maps and (2) the manifestations of method-produced uncertainty are not as systematic as suggested by interpolation accuracy assessments. I suggest two different techniques, both animated and static, that map-makers can use to communicate isometric method-produced uncertainty to the general public. The use of these techniques would result in more informed map readers and better decisions when isometric maps are used as a source of information.

### **Student Perception of Map Projection Distortion Symbolization Methods**

*Fritz Kessler, Frostburg State University, and daan Strebe, Maphematics LTD*

Map projection distortion is hard for many undergraduate cartography

students to grasp. Part of what makes it difficult are the mathematical complexities that most students are not equipped to work through. Nonetheless a mapmaker must understand how distortion is distributed across a map projection in order to select an appropriate one for the stated map purpose. To help, many symbolization methods have been developed over the years that give visual clues about the projection's distortion pattern. However, heretofore no research has shown how useful students might find these symbolization methods to be. This research investigated students' perception of six distortion symbolization methods: isocols (isoperimetric curves), shaded isocols, checkerboard, Tissot's indicatrix, caricature human head profiles, and spherical squares. We asked the students questions to assess their understanding of these six symbolization methods. We also had them rank each method for its intuitiveness and how much quantitative information it conveys. We found that the students viewed most of the methods to be useful, but how useful depends on the task. The students believed Tissot's indicatrix to be the most intuitive and isocols to be the least. On the other hand, they believed isocols and shaded isocols convey more quantitative information, whereas caricature head profiles conveyed the least.

4:00pm-5:30pm

### **Katrina**

### **Mapping the Aftermath of Hurricane Katrina**

*Jared Chapiewsky, University of Wisconsin-Madison*

On August 29, 2005, Hurricane Katrina struck Louisiana, Mississippi, and

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Alabama and began a path of destruction that would result in the most financially devastating and one of the deadliest natural disasters in the history of the United States. One of the chief needs of the many groups involved in the disaster recovery efforts is the need for information. As part of a joint effort between the American Society of Floodplain Managers (ASFPM) and the Wisconsin State Cartographer's Office (SCO), an interactive web mapping application was created to help provide floodplain managers with the information needed to make decisions. The focus of the interactive map is the extent of the storm surge and flood heights that occurred and includes data such as inundation lines, height water marks, flood insurance rate map boundaries, post-Katrina advisory base flood elevations from FEMA, and the location of levee breaches in Louisiana. The application is built on open source technology and uses Open Geospatial Consortium (OGC) Standards to bring together data from a variety of sources, such as the Katrina Imagery Warehouse. This presentation will showcase the web map application, how the partnership between the ASFPM and the SCO was formed, and the technical and cartographic challenges faced in the creation of the map.

### **Mapmaking for 'Pay Dirt': A Geo-Artistic Response to Hurricane Katrina**

*Marie Cieri, The Ohio State University*

I am currently working with artist Mel Chin to formulate an issue-informed cultural response to the displacement of hundreds of thousands of people from their homes as the result of Hurricanes Katrina and Rita. As part of my role as "consulting geographer," I am developing a series of maps and other

types of visualizations to convey the enormity of disruption to life and livelihoods these natural disasters have provoked within New Orleans and other Gulf Coast population centers in Louisiana, Mississippi, Texas, and Alabama. Initially, I am creating these graphic representations to support proposals Chin and I are making to an organized group of artists and funding agencies who aim to craft a New Orleans-based response to the physical, social, economic and political upheavals wrought by Katrina and Rita. Since places like New Orleans and the Mississippi Gulf Coast are, in large part, defined by the people who live/d in those locations, it is our assertion that any artistic project undertaken to address the situation must somehow connect current residents to the many who are living within this far-flung hurricane diaspora.

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**Banquet Keynote**

**The Democratization of Cartography**

*Schuyler Erle, MetaCarta, Inc.,  
Cambridge, Massachusetts*

For most of its history, the arts and science of cartography have been the exclusive province of a few skilled experts. In recent times, the advance of computing technology has turned mapmaking from being a strictly manual activity into one that is primarily digital. These same technical developments have progressed further to bring about a larger trend in society itself that we might refer to as the "democratization of cartography."

The signs of this process of democratization can be seen in the rise of Google Maps and the Web 2.0 "mashup", and in the gradual maturation of Open Source GIS software, but what will its eventual impact be? Will the democratization of cartography prove beneficial or detrimental to society? What are its obstacles and pitfalls? Ultimately, how can professional geographers and cartographers best respond to this trend?

## FIELD TRIPS SATURDAY, OCTOBER 21

### **"Whad'Ya Know?" Taping**

If you are attending the taping of Michael Feldman's "Whad'Ya Know?," meet the group at 9:00am in front of the Inn on the Park to walk to Monona Terrace for the 2-hour show (10:00am to noon). **Remember to bring your ticket!** If you like, join up with the Madison touring group at the Memorial Union Terrace after the taping.

### **State Street and Science Hall Tour**

The Dane County Farmers' Market on the Square surrounds the Capitol just across the street from the Inn on the Park. The Market opens at 6:00am and remains open until 2:00pm, although if vendors sell out they leave earlier. The Farmers' Market experience is on-your-own. At 10:50am, meet at the tourist information kiosk at the intersection of State, West Mifflin, and North Carroll streets for a one-hour walking tour of Historic State Street, guided by the Madison Trust for Historic Preservation. After the tour, Mark Harrower will give the insider's view of Science Hall at 12:30pm. The newly-reorganized Robinson Map Library will be open for a brief gathering. Finally, end the day on the Memorial Union Terrace eating Babcock Hall ice cream and sipping beer by the lake. Please **remember to bring your ticket** for the State Street tour!

## MADISON RESTAURANTS

### Madison Restaurant Guide

*Mark Harrower*

Madison is a Mecca for foodies; unlike some conferences, you won't be stuck eating at Panda Express here! The city reportedly has more restaurants per capita than any other city in the country, so I'd like to encourage folks to leave the hotel and discover some of what makes Madcity rock. Almost all of these places are within a half mile of the hotel.

Some disclaimers: This is just a list of personal favorites – it is far from exhaustive and some local favorites might be missing. There are at least a dozen other perfectly decent places within two blocks of the hotel not listed here (or see the dining guide section of the Isthmus at [www.thedailypage.com](http://www.thedailypage.com)).

Name	Price	What you need to know
Per person	\$ = under 10    \$\$ = 10 – 25    \$\$\$ = more than 25	
<b>Marigold Kitchen</b> 118 S Pinckney St. (608) 661-5559	\$\$	Hipster food and décor, decent portions, long lines. Clientele likely to be blogging about their organic field greens.
<b>Chautara</b> 334 State St. (608) 251-3626	\$\$ - \$\$\$	Fab Tibetan/Nepalese, big section of <u>vegetarian</u> . Good for groups up to 8.
<b>Frida</b> 117 State St. (608) 256-4000	\$\$	Best bet for Mexican downtown, large space, busy patio, mug-a-ritas (but friends from TX say Madison lacks really great Mexican – just sayin').
<b>The Old Fashioned</b> 23 N Pinckney St. (608) 310-4545	\$\$	The hit of the year (long lines likely). Traditional Midwest comfort food gone uptown; bratwurst, fish fry Fridays, mac and cheese, fresh perch, beer. Lots of beer.
<b>Tornado Room</b> 116 S Hamilton St. (608) 256-3570	\$\$ - \$\$\$	Wisconsin super club meets 60s Vegas cool. Giant steaks. Red vinyl booths. Been around forever. Old blue eyes would approve.
<b>Starbucks</b> 1 E Main St. # 101 (608) 250-5020	\$	A little-known chain that might be on to something. Very close.
<b>Orpheum</b> 216 State St. (608) 255-8755	\$\$ - \$\$\$	Dine in the reno'd lobby of a still-working 1920s theater! Although they serve food all the time, their Sunday brunch is your best bet.

## MADISON RESTAURANTS

<b>Great Dane Brew Pub</b> 123 E Doty St. (608) 284-0000	\$\$	Good place to eat and get loaded. <i>Folks in WI take their brew pubs seriously</i> , and this is one of the most popular.
<b>Madison's</b> 119 King St. (608) 229-0900	\$\$	Large American-fare menu (burgers, etc.). Popular with the suits and lobbyists after 5 for martinis.
<b>Ian's Pizza</b> 115 State St. (608) 442-3535	\$	This is not your parents' pizza. A bargain at \$3 a slice, it's super yummy and open laaaate. Often voted "best pizza in town."
<b>Takara</b> 315 State St. (608) 268-0188	\$\$ - \$\$\$	Japanese hibachi grill with food cooked right in front of you adds high camp value. OK sushi.
<b>Noodles &amp; Company</b> 232 State St. (608) 257-6393	\$	National chain, healthy-ish "quick casual" (aka fast food). Good for a <u>fast lunch</u> .
<b>Chin's Asia Fresh</b> 422 State St. (608) 661-0177	\$	Ditto. Specialize in stir-fry. Cool renovated warehouse space.
<b>Chipotle</b> 658 State St. (608) 250-4613	\$	Ditto. Bit of a walk, but fast service.
<b>Qdoba</b> 548 State St. (608) 280-8720	\$	Ditto. (Mexican).
<b>Ocean Grill</b> 117 Martin Luther King Jr Blvd. (608) 285-2582	\$\$\$	Best seafood in town. Sophisticated yet casual, in that Seattle kind of way. Just around the corner.
<b>Harvest</b> 21 N Pinckney St. (608) 255-6075	\$\$\$	High-end, beautiful décor and innovative food that is organic and mostly local (e.g., lavender cookies, roasted pumpkin amuse bouche), pricey but worth it. Good place to celebrate getting tenure.
<b>L'Etoile</b> 25 N Pinckney St. (608) 251-0500	\$\$\$+	Truly exquisite...nationally known "superstar" chef, folks will fly in for dinner (seriously). Good place to celebrate winning the lottery. Right beside Harvest on the Square.

## MADISON RESTAURANTS

*And last, but not least...*

**Various Food Carts**           \$           Perhaps the best thing about Madison are the two-dozen or so restaurants that have mobile food trailers for lunch (fast, yummy). Getting a permit is highly competitive, and the city will boot underwhelming vendors. Find these in the UW Library Mall (other end of State St.) or around the Capitol Square. Number of carts fluctuate daily based on weather.

**Coffee Houses**               \$           Madison has an embarrassing number of cafes. The most likely suspects are **Barriques** (my fav, just around the corner on West Washington), **Michelangelo's** (100-block State), **Espresso Royale** (200-block and a bigger one on the 600-block), **Fair Trade** (400-block), and **Steep-n-Brew** (500-block). Many of these places serve light fare, too. Free wireless and free copies of the *Onion* are an added bonus!!

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for  
NACIS XXVII  
in  
St. Louis  
October 10-13, 2007!

We look forward to seeing you there!