NACIS 2012

Portland, Oregon
October 17th–19th

The
Doubletree
by Hilton

North American Cartographic Information Society

WEDNESDAY

9:00-5:00	PRACTICAL CARTOGRAPHY DAY
9:45-5:00	PRACTICAL MAP LIBRARIANSHIP DAY
7:00-8:45	OPENING KEYNOTE PRESENTATION
8:45-12:00	MAP GALLERY AND RECEPTION

THURSDAY

8:15-10:00	EARLY MORNING SESSIONS
10:15-12:00	LATE MORNING SESSIONS
12:00-1:45	LUNCH & BUSINESS MEETING
2:00-3:30	EARLY AFTERNOON SESSIONS
3:45-5:15	LATE AFTERNOON SESSIONS
6:30-9:30	NACIS NIGHT OUT

FRIDAY

8:15-10:00	EARLY MORNING SESSIONS
10:15-12:00	LATE MORNING SESSIONS
12:00-1:45	LUNCH BREAK (ON YOUR OWN)
2:00-3:30	EARLY AFTERNOON SESSIONS
3:45-5:15	LATE AFTERNOON SESSIONS
6:30-9:00	BANQUET
9:00-10:00	GEODWEEB GEOPARDY

SATURDAY

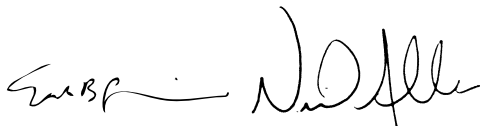|	
8:00-5:00	WILD OREGON COAST TOUR
8:00-5:00	OREGON WINE COUNTRY
8:00-5:00	WORKSHOPS
11:00-5:00	KEEP PORTLAND WEIRD TOUR
12:00-5:00	BREWERY TOURERY
6:00-9:00	CASCADIA CARTO RECEPTION

Welcome to Portland!

It gives us great pleasure to officially welcome you to Portland for the 32nd Annual Meeting of the North American Cartographic Information Society (NACIS). Thank you for attending! In addition to enjoying the full schedule of presentations, we hope that you find time to reconnect with old colleagues and to build relationships with new friends. Our community is truly what makes NACIS a vibrant organization.

Building Bridges by Design since 1980

This gathering of NACIS members provides you the opportunity to make connections and forge relationships with design-oriented talent in the geospatial and mapmaking communities. We invite you to build lasting bridges here and now with the other attendees. Creating such spans will clearly enrich both sides of the bank.
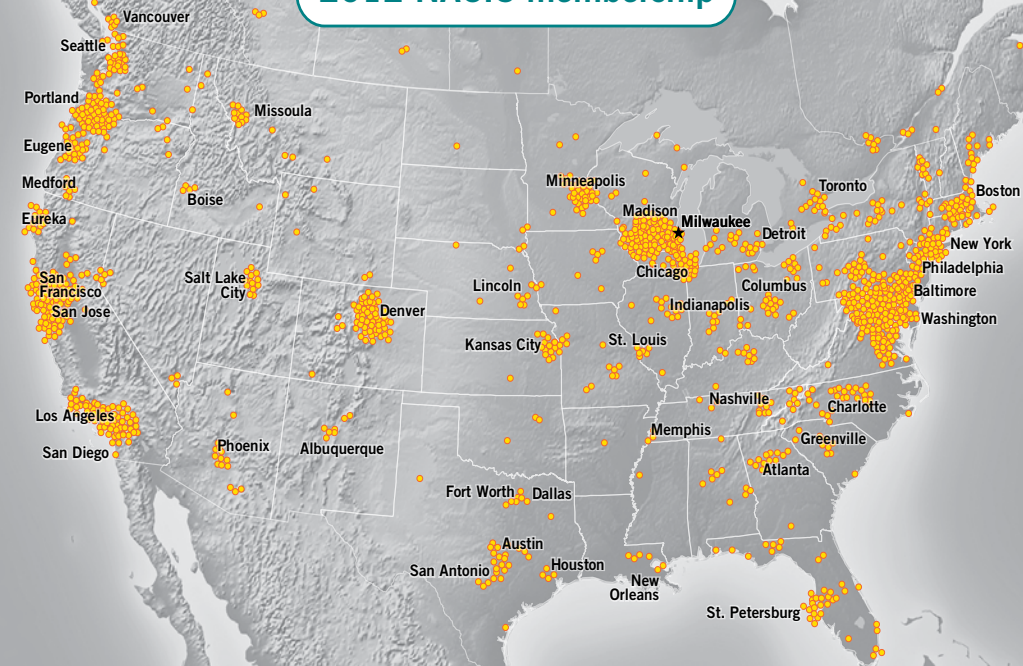
Again, welcome to "Bridgetown!"

Erik Steiner
President

Neil Allen
Program Chair

2012 NACIS membership

Vancouver
Seattle
Portland
Eugene
Medford
Eureka
San Francisco
San Jose
Los Angeles
San Diego
Missoula
Boise
Salt Lake City
Denver
Phoenix
Albuquerque
Minneapolis
Madison
Milwaukee
Chicago
Lincoln
Kansas City
St. Louis
Indianapolis
Columbus
Detroit
Toronto
Boston
New York
Philadelphia
Baltimore
Washington
Nashville
Memphis
Charlotte
Greenville
Atlanta
Fort Worth
Dallas
Austin
San Antonio
Houston
New Orleans
St. Petersburg

Alaska
not to scale

Hawaii
not to scale

• 1 dot per member

48 members outside maps extents

WED 9:00-5:00	**Practical Cartography Day & Practical Map Librarianship Day**		
7:00-midnight	**Kickoff Events, Keynote Address by Katy Börner, and Map Gallery**		
THURS 8:15-10:00	**The Aesthetics of Mapping**	**Data Repositories**	**The City Experience**
10:15-12:00	**The Aesthetics of Mapping**	**Historical Cartographies**	**Crisis Mapping: Solutions in Emergency Management**
2:00-3:30	**Panel on National Atlas**	**Open Beauty**	**Retrospectives**
3:45-5:15	**Transforming the Map**	**Visualizing Change**	**Learning Cartography**
6:30-9:30	**NACIS Night Out: Natural Capital Center (Ecotrust Building)**		
FRI 8:15-10:00	**Slippy Code**	**Web Service Implementations**	**Events & Places**
10:15-12:00	**Producing Thematic Maps**	**Spatial Decisions**	**Orienting the User**
2:00-3:30	**Panel Session: Atlas Viability**	**Extreme Cartography**	**Teaching Cartography**
3:45-5:15	**Pixel Landscape Design**	**Empowering Mappers**	**Symbolization**
6:30-10:00	**Banquet with speaker Sharon Wood Wortman, Geodweeb Geopardy**		

Floor Plan for Doubletree by Hilton   1000 NE Multnomah Street 503-281-6111

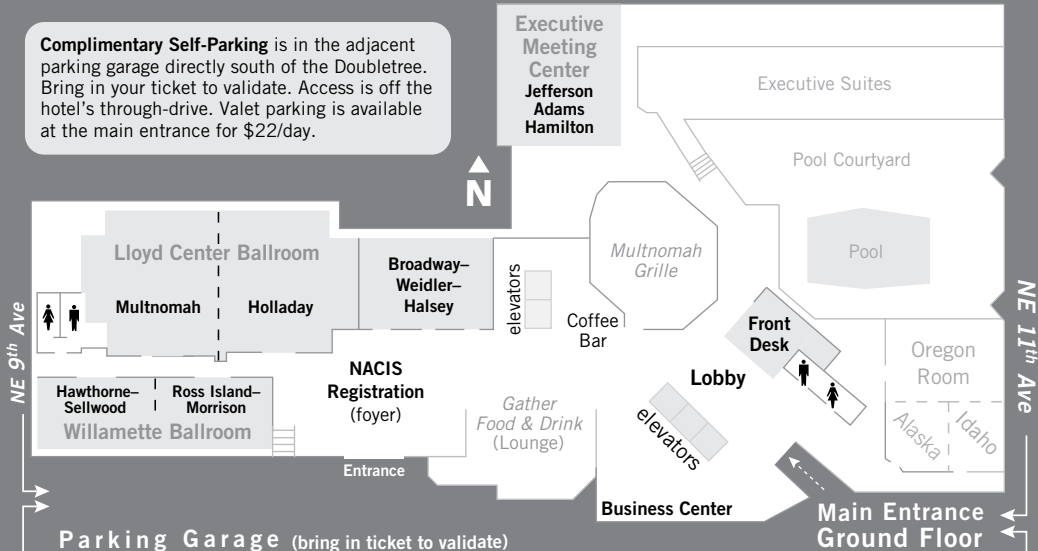|	
Practical Cartography Day	Multnomah
Keynote Events	Multnomah
Map Gallery	Willamette Ballroom (W) Ross Island–Morrison (R–F)
Sessions	Multnomah, Hawthorne–Sellwood, and Broadway–Weidler–Halsey

Banquet	Lloyd Center Ballroom
Geodweeb Geopardy	Ross Island–Morrison
Friday Night Hospitality	Hawthorne–Sellwood
Workshops	Jefferson and Adams (Executive Meeting Center)

Complimentary Self-Parking is in the adjacent parking garage directly south of the Doubletree. Bring in your ticket to validate. Access is off the hotel's through-drive. Valet parking is available at the main entrance for $22/day.

N

Executive Meeting Center
Jefferson
Adams
Hamilton

Executive Suites

Pool Courtyard

Pool

Lloyd Center Ballroom

Multnomah Grille

Multnomah   **Holladay**

Broadway–Weidler–Halsey

elevators

Coffee Bar

Front Desk

Lobby

Oregon Room

NE 9th Ave

NE 11th Ave

Hawthorne–Sellwood | **Ross Island–Morrison**

Willamette Ballroom

NACIS Registration (foyer)

Gather Food & Drink (Lounge)

elevators

Alaska   *Idaho*

Entrance

Business Center

Main Entrance Ground Floor

P a r k i n g   G a r a g e (bring in ticket to validate)

WEDNESDAY

WEDNESDAY 9:00–5:00

Practical Cartography Day
Organizers: Tim Wallace and Mamata Akella

light breakfast fare and coffee provided
9:00–12:00

"Map Now!"	Daniel Huffman Cartographer and Map Critic
From Print to ePublication: National Geographic Crosses the Digital Frontier	Rosemary Daley Maggie Smith National Geographic
The Atlas of Florida's Natural Heritage	Tanya Buckingham Cartography Lab University of Wisconsin–Madison
Natural Scene Designer Pro 6.0	Tom Patterson National Park Service
coffee break	
Choosing the Right Tool for the Job	Nate Irwin National Park Service
Locals and Tourists	Eric Fischer Geek of Maps and Data Visualization
What's New for Cartography in ArcGIS 10.1	Aileen Buckley Esri
ArcGIS Online Web Maps	Charlie Frye Esri
lunch provided in Holladay Room	

1:15-5:00

Create your own Terrain Maps	Nathaniel V. Kelso Michal Migurski Stamen Design
Improving the Workflow and Effectiveness of Building Map Icons	Patrick Hofmann Google
The Willamette River	Daniel Coe Oregon Department of Geology and Mineral Industries

coffee break

Designing and Building User Interfaces and Interaction for Web Maps	Andy Woodruff Axis Maps
Designing Fast & Beautiful Web Maps with TileMill	Dane Springmeyer Development Seed
Panoramic Map of Mt. Washington	Alex Tait International Mapping
Thinking in Ink: Tips to Keep Your Offset Printer from Hating You	Nat Case Hedberg Maps
Portland Finger Plans	Ryan Sullivan Paste in Place
Mapping Social Media	Sarah Williams School of Architecture and Planning–MIT

Laptop Sessions to follow in nearby room
Bring any works-in-progress or finished maps to casually discuss your ideas and techniques with others.

Practical Map Librarianship Day

Organizer: Liz Paulus
9:45–5:00

Meet in the lobby of the Doubletree at 9:45 or at the employee entrance of the Multnomah County Central Library by 10:30.

Tour the Special Collections John Wilson Room of the Multnomah County Central Library: Highlights will include cartography and geographic specialities.

Lunch will be on your own in an area with ample food carts or restaurant dining (depending on size of group and weather).

After lunch visit the Oregon Historical Society for a tour of their map collection and museum. Then head on up the Park Blocks on foot or by transit to Portland State University's Geography Department for a light reception. View and discuss some recent student and faculty projects, including the *Cultural Atlas of Portland* and *The Atlas of Oregon Lakes* (online).

WEDNESDAY

WEDNESDAY 7:00–8:45

Atlas of Design

The *Atlas of Design* is a NACIS project led by two enthusiastic volunteers, Tim Wallace and Daniel Huffman. They have created a masterpiece book that highlights the best of our discipline today. The "Atlas" takes you on a journey around the world, but highlights the work of many NACIS members right here at home. Beautifully presented, impeccably printed, and brilliantly edited, many people have worked to make this a reality. We are offering a **25% discount for NACIS members** as part of our Membership Benefit program.

Opening Keynote

Katy Börner
Indiana University

Katy Börner directs the Information Visualization Laboratory at Indiana University–Bloomington, curates the international exhibit *Places & Spaces: Mapping Science*, and authored *Atlas of Science*. She knows how to creatively tame complexities in data and will share her insights on accessing, understanding, and managing data visualization using collaborative and computational modalities.

MULTNOMAH ROOM

WEDNESDAY 8:45–midnight

Opening Reception:
Poster Session & Map Gallery
Organizer: Daniel P. Huffman

Achieving Cartographic Excellence with ArcMap:
University of Oregon Kiosk Map
Blake Andrew, Brad Simantel, Alethea Steingisser, Ken Kato
University of Oregon

Developing the *Cultural Atlas of Portland*

David Banis	Jon Franczyk	Daniel Coe
Portland State Univ	Watershed Sciences	DOGAMI
	Kirk McEwen	Frank Lahm III
	PBOT	BLM

Laban Movement Analysis — Sarah Bennett
University of Wisconsin–Madison

6 1/2 — Heath Brackett

Creating Orthophotos Using — Alexis Buchwald
The Rational Function Model — University of Redlands

Geo-Referencing Jupiter's Moon, Io — Meghan Burris
University of Redlands

Mapping the Trees of — Daniel Coe
Portland's Urban Arboretums — DOGAMI

| Jon Franczyk | David Banis |
| Watershed Sciences | Portland State Univ |

A Hand-Drawn Map of California — Jake Coolidge
Spatial History Project
Stanford University

Boulders of the West Bluff — John J. Czaplewski
University of Wisconsin–Madison

WILLAMETTE BALLROOM

Oregon and Washington Surface Management
Mattye Dahl, Jim Rounds, Paul Fyfield
Bureau of Land Management

Public Domain LIDAR in Oregon
Mattye Dahl, Jim Rounds, Paul Fyfield
Bureau of Land Management

San Juan Islands — Mattye Dahl, Jim Rounds, Paul Fyfield
Bureau of Land Management

Harvest Hope Needs Assessment: Identifying Gaps
in Coverage for Harvest Hope's Food Bank Network
Brian Davidson University of Wisconsin–Madison
Brendan Dickey, Devin Dickey, Michael Stirewalt
University of South Carolina

Polar Sea Ice 2011 Fortnightly Analysis — Mark Denil
and **Daily Analysis** — National Ice Center

Harrowed Landscape: — Mathew A. Dooley
NE/SE Minneapolis Crime: — University of Wisconsin
2010–2011 — River Falls

Fiction/Reality — Martin Elmer
University of Wisconsin–Madison

Over the Edge 3D: Death in Grand Canyon
Kenneth Field and Damien Demaj
Esri

The Metro: Transit's Future in the Twin Cities
Matt Forrest and Kate Chanba
Carticulate

Mapping Campus Crime: Are You Afraid?
Sven Fuhrmann — Niem T. Huynh
Texas State Univ–San Marcos — AAG

The Scouting Report — Kendall Grimm
University of Wisconsin–Madison

Multiscale Base Map Design: From Print to Web
Elaine Guidero — John Shramek
Pennsylvania State University — USGS

WEDNESDAY

THURSDAY

FRIDAY

SATURDAY

continued MAP GALLERY

The Frontline of the Battle Against Asian Carp Establishment in the Great Lakes Drainage Basin
Erin Hamilton
University of Wisconsin Madison

Sierra National Forest Recreation Map
Tom Harrison
Tom Harrison Maps

Lighting Balloon Suitability Analysis
Michelle He
University of Redlands

Penn State and UMaine Campus Maps
Michael Hermann
Pennsylvania State University

Baltimore Waterfront Promenade
Elizabeth Holtz
Community College of Baltimore County

University of Kansas Men's Basketball Program
Bryant Huether
University of Kansas

Oregon Wine
Daniel Huffman
Cartographer and Map Critic

Sinking in an Economic Undertow (2008–2009)
Ryan Jones
Logan Carpenter
East Tennessee State University

Geologic Mapping in Indiana
Matt Johnson, Todd A. Thompson, Brian D. Keith, Robin F. Rupp, & Walter A. Hasenmueller
Indiana Geological Survey

Innovations in Mobile Mapping and GIS: Connecting Enterprise GIS and High Quality Cartography to Smartphone Users
Ken Kato, Jacob Bartruff, Dana Maher, Brook Eastman
InfoGraphics Lab, University of Oregon

Airport Flights Dynamic Map
Wm Leler
Flightstats, Inc

A Visual Index to the Map Library Collection
Jean Locke
University of Redlands

Brazil Central Plateau Lands
Gustavo C. Machado
Ministério do Meio Ambiente

*Please Pick Up a Ballot
and VOTE!*

THURSDAY 8:15–10:00

The Aesthetics of Mapping I

Forum Leaders:
  Aileen Buckley Esri
  Lillian Larsen Religious Studies–Univ of Redlands
  Steve Benzek US Army Geospatial Center
  Jaynya Richards Esri

Welcome, Introduction, and Agenda

Beyond Map Layout and Design… Aesthetics?
George F. McCleary, Jr
University of Kansas

Forum participants will discuss their views on the aesthetics of mapping from a variety of disciplinary perspectives:

  Victoria Vesna School of the Arts–UCLA
  Elijah Meeks Digital Humanities–Stanford University
  Johannes Moenius
    Spatial Economic Analysis–University of Redlands
  Stuart Allan Raven Maps
  George McCleary Geography, University of Kansas
  Nathaniel Vaughn Kelso Stamen Design
  Bernard Jenny Geosciences, Oregon State University

Break-out groups will be formed to discuss
  Maps as Destinations and Portals
  Iconography
  Design Principles
  Tools, Techniques, and Technology

MULTNOMAH ROOM

Data Repositories

Chair: Ginny Mason

The Stephen S. Clark Library for Maps, Government Information, and Data Services: A Success Story in Service Consolidation

Tim Utter
Stephen S. Clark Library for Maps
University of Michigan

The Open Geoportal (geodata.tufts.edu)

Patrick Florance
Tufts University

Facilitating Reuse of Geospatial Data: A Study of Research Data Repositories

Kathryn Lage
Jerry Crail Johnson Earth Sciences & Map Library
University of Colorado–Boulder

Mapping Atlanta: Building Spatial History Tools and Digital Resources

Michael Page
Stewart Varner
Randy Gue
Emory University

The City Experience

Chair: Jennifer Milyko

The Edmonton Pipelines Project: Living Together in the Digital City

Daniel Laforest
Russell Cobb
Maureen Engel
Heather Zwicker
University of Alberta

Private Places in Public Spaces: An Examination of Public Restroom Access in Downtown Chicago

Noah Sager
Chicago State University

Mapping the Experience of Cycling

Evan Dickinson
Lyn Bartram
Rob Woodbury
School of Interactive Arts and Technology
Simon Fraser University

5 Ideas for Improving Navigation in Transit Maps

Kate Chanba
Matt Forrest
Carticulate Maps

THURSDAY 10:15–12:00

The Aesthetics of Mapping II

Forum leaders and participants as in Session I

Presentation of topics and issues discussed in break-out sessions from early morning session.

Design is Not Making Things Pretty. It is (not-so-simply) Making Things.

Sam Pepple
Sample Cartography

Style and Taste

Mark Denil
National Ice Center

The Impotence of Maps, or Deconstructing the Deconstruction of their Construction

Daniel "daan" Strebe
Mapthematics

Synthesis of presentations and discussions from break-out sessions. Please feel free to approach forum participants throughout the conference to share your views on the aesthetics of mapping.

All participants are invited to reconvene on Friday, 3:45–5:00 in the Hamilton Room to discuss where to go from here and help prepare the closing session presentation outlining findings, conclusions, and recommendations.

MULTNOMAH ROOM

Historical Cartographies
Chair: Charlie Frye

Cutter #943:
The Coast Survey and the Art and Cartography of the Columbia River

John Cloud
US National Oceanic and Atmospheric Administration

Who's "The King of Cuckooz"?
Kenneth Slessor's "Lost Contrey"
on the Barbary Coast

Adele J. Haft
Hunter College

From Alterity to Allegory:
Early Maps, Cannibalism and
Conceptions of Amerindian Civility

Jim Walker
Independent Scholar

Mapping the Works of Mari Sandoz

Adonna Fleming
Geology Library
University of Nebraska

HAWTHORNE–SELLWOOD ROOM

Crisis Mapping: Solutions in Emergency Management
Chairs: James Watkins and Raechel A. Bianchetti

Defining the Typical DHS Map

Raechel A. Bianchetti
Robert E. Roth
Justine I. Blanford
Anthony C. Robinson
Alan M. MacEachren
Pennsylvania State University

Mapping Pedestrian Travel Times to
Escape Potential Cascadia Tsunamis

Nathan J. Wood
Western Geographic Science Center
US Geological Survey

Creating a Hypothetical County

Sarah E. Troedson
James J. Watkins
GEI Consultants, Inc

Advanced GIS Cartography
to Support Emergency Operations

Dave Kehrlein
Esri

BROADWAY–WEIDLER–HALSEY ROOM

THURSDAY 12:00–1:45

All NACIS Attendees,

Lunch is provided at the **Annual Business Meeting**
Chair: Erik Steiner, President

All attendees: please join us for lunch and our society's annual business meeting. We will usher in a new board and update the membership on the year's accomplishments and ongoing activities.

We've had another productive year behind the leadership and energy of our enthusiastic community. Each year it seems we make slow incremental progress on organizational matters and make giant leaps in other areas that offer new challenges and space for new creativity. Thanks to the seemingly unending energy of our Board of Directors, the Editorial Board of *Cartographic Perspectives*, and many more volunteers. Here are a few highlights of what we've been up to.

Atlas of Design
The *Atlas of Design* is a NACIS project led by two enthusiastic volunteers, Tim Wallace and Daniel Huffman. They have created a masterpiece book that highlights the best of our discipline today. The "Atlas" takes you on a journey around the world, but highlights the work of many NACIS members right here at home. Beautifully presented, impeccably printed, and brilliantly edited, many people have worked to make this a reality. We are offering a **25% discount for NACIS members** as part of our Membership Benefit program.

HOLLADAY ROOM

Cartographic Perspectives

Last year we successfully transitioned our flagship journal into the digital age. This year under the leadership of our editors Pat Kennelly and Rob Roth, we eliminated a complicated model that mixed subscription-based access with open-access and are pleased to say it has been a success. We are now making great content available as soon as it is ready, providing an unfettered user experience, and reaching a broader audience. *CP* is not only one of the most compelling journals of cartography, it is also the most widely accessible. Contact Pat to get published!

Corlis Benefideo Award

Esteemed nature writer Barry Lopez gave his approval this year for NACIS to name an award after a character in one of his delightful short stories, *The Mappist*. This year, we officially announce the Corlis Benefideo Award for Imaginative Cartographies, an occasional award to recognize the exemplary value of an individual's collected works to "trigger an imaginative reaction." Nominations are now open.

CartoTalk.com

Our online forum managed by Hans van der Maarel is as active as ever, and is becoming even more closely associated to NACIS. We are starting to use it as a platform for announcements and other communications, and it is going through a redesign to bring it in line with our evolving visual identity.

Organizational Continuity

We also made important progress this year on some key fronts to support our organizational continuity year-to-year as our leadership refreshes. As trivial as it may sound, we've developed an internal web portal to store operating and planning documents, meeting minutes, and committee activities. Over time, this will allow the board to operate more effectively through shared institutional knowledge.

We also upgraded several backend systems for managing the annual meeting and member-only content. By adding a member login function on NACIS.org, individuals are now able to manage their membership online. This will make our annual membership rolling rather than fixed to the calendar year.

We also completed a review of NACIS.org and laid out the functional and design requirements for a new website. If you are interested in helping with the redesign process, let us know!

And finally, today we usher in the NACIS' first VP-Elect, and welcome Alex Tait back onto the NACIS board after a – *ahem!* – 10 year absence. The VP Elect role was created to support the Program Chair (VP) in planning for the annual conference, to build continuity between presidential terms, and to safeguard the organization against emergencies.

Get Involved!

NACIS is sustained every 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 to enhance our beloved society, please contact us to get involved!

THURSDAY 2:00–3:30

Panel Session:
Towards a New Small-Scale Base Map for the United States
Papers, Panel, & Open Discussion

Moderator: Jay Donnelly, US Geological Survey
Panelists: USGS speakers below

The staff of the National Atlas of the United States® have completed a new set of digital cartographic frameworks at a scale of 1:1,000,000.

This work builds the foundation for better national maps. The challenge is to design high quality base maps that support many different mapping applications.

One third of this session is reserved for an audience discussion on organizing strategies so that willing cartographers can participate in or influence the design of a new national base map.

The Preparation of Fully Networked Hydrology Data, Their Characteristics, and Potential Use in Custom Mapping

Florence Thompson
Texas Water Science Center, USGS

Initial Thoughts on Map Design for a New Small-Scale National Base

John Hutchinson
Earth Resources Observation and Science Center, USGS

Panel discussion to follow

MULTNOMAH ROOM

Open Beauty

Chair: Nathaniel Vaughn Kelso

When Google Maps Gives You Lemons, Make Lemonade

Wm Leler
Flightstats, Inc.

Beautiful, Creative Maps Made with Open Source Tools

Eric Gundersen
MapBox

Making Open Data (and OpenStreetMap) Beautiful

AJ Ashton
MapBox

Building a US National Park Service Online Base Map

Mamata Akella
US National Park Service

Retrospectives

Chair: Patrick Kennelly

Venetian Cartography

Abraham Kaleo Parrish
Yale Map Department

Solving a Cartographic Collection Mystery: Reconciling the Maps of the Jansson-Hondius Appendices and Theatri in the Vignaud Map Collection

Tim Utter
Stephen S. Clark Library for Maps
University of Michigan

The Aesthetic Rebirth of George Bellas Greenough's Geological Map of England and Wales, 1820–1839

Karen Severud Cook
Spencer Research Library
University of Kansas

THURSDAY 3:45–5:15

Transforming the Map

Chair: Ian Muehlenhaus

**It's Gone Viral:
The Evolution of Online Persuasive Maps**

Ian Muehlenhaus
Dept of Geography and Earth Science
University of Wisconsin–La Crosse

**Neogeography & Neocartography–
Rethinking How the World Shares Insights
through Maps**

Andrew Turner
GeoIQ

**Techniques in Non-Map Reporting
of Geospatial and Related Data**

Greg Allensworth
GreenInfo Network

**Folding to the Reflexive Maps?
How Do We Get from One to the Other?**

Rex G. Cammack
University of Nebraska–Omaha

MULTNOMAH ROOM

Visualizing Change

Chair: Hans van der Maarel

Space-Time Cluster Analysis and Visualization

Carolyn Fish
Lauren Rosenshein
Lauren Scott
Esri

**Visualizing Demographic Change:
Gentrification and Older Moms in Portland**

Richard Lycan
Charles Rynerson
Portland State University

**Digital Maps for The Mobile Age:
Visualizing Geographic Change**

David G. Dickason
The W.E. Upjohn Center for the Study of Geographical Change
Western Michigan University

Mapping Movement at the Scale of the Body

Sarah Bennett
University of Wisconsin–Madison

HAWTHORNE–SELLWOOD ROOM

Learning Cartography

Chair: Martha Bostwick

**Mapping Around the World:
A Cartographic Study Abroad Experience**

Cynthia A. Brewer
Anthony C. Robinson
Paulo Raposo
Pennsylvania State University

**"I will now commence drawing my map":
Teaching Map Drawing in 19th Century Girl's Schools**

Judith A. Tyner, Professor emerita
California State University–Long Beach

**The Role of Early 20th Century Map Workbooks
in the Acquisition of Geographic Information**

Karen M. Trifonoff
Department of Geography and Geosciences
Bloomsburg University

On Critique

Nat Case
Hedberg Maps

BROADWAY–WEIDLER–HALSEY ROOM

THURSDAY 5:30–6:30

Cartographic Perspectives Editorial Board Meeting

Patrick Kennelly–Editor & Rob Roth–Assistant Editor

Cartographic Perspectives is the only open access, international journal devoted to the study and practice of cartography in all of its diversity. It is published both digitally and in print 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 innovative maps.

All submitted articles are reviewed and returned to authors within 6–8 weeks. All graphics included in accepted articles are published in full color, at no cost to authors. Recent articles are available on the *Cartographic Perspectives* website at *www.cartographicperspectives.org,* and older issues are available from NACIS website at *www.nacis.org*.

We are also pleased to continue our annual, peer-reviewed student paper competition with a $1,350 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!

NACIS Night Out: Natural Capital Center (Ecotrust Bldg)
$35 at the door (space permitting) or bring your ticket

Come perch yourself on the rooftop terrace at the Ecotrust's Jean Vollum Natural Capital Center and view the skyline of Portland's Pearl District. Enjoy beverages, appetizers, and the company of your NACIS friends. Then head out on your own for heartier fare in the bustling cityscape below. Please use the pass in your registration packet to take the green MAX line west from the Lloyd Center stop to the Union Station stop: the Ecotrust Building is just a few blocks west by foot.

scan code for full Portland map

Ecotrust Natural Capital Center
721 NW 9th Avenue (9th and Johnson)
Portland, Oregon 97209
503-227-6225

Radio Cab Company   503-227-1212
Green Transportation   503-234-1414
Mr. Taxi   503-841-1008
Portland Pedicabs   503-329-2575

To NNO via MAX
Lloyd Center Station to Union Station (5th & Glisan)

From NNO via MAX
6th & Glisan Station to Lloyd Center Station

.25 mi (5 walking min)

FRIDAY 8:15–10:00

Slippy Code

Chair: Matt Dooley

**Compare-a-Map:
A Side by Side Comparison Tool
for Web Map Cartography**

Alex Mandel
University of California–Davis

Joyful Map Tile Rendering with Node.js

Rob Brackett
Ben Sheldon
Alex Yule
Code for America

**Adaptive Composite Map Projections
for Web Maps**

Bernhard Jenny Oregon State University
Juliane Cron Oregon State University
Johannes Liem University of Vienna–Austria
Jacob Wasilkowski Clark University
Bojan Šavric Oregon State University

**Re-creating a Flash-based Map
Using Open Source Technologies:
Wisconsin Coastal Atlas Hydrologic Dashboard**

Erin Hamilton
David Hart
Sea Grant Institute, University of Wisconsin–Madison

MULTNOMAH ROOM

Web Service Implementations

Chair: Andrew Stauffer

**Re-Designing the Next Generation of
Multi-Scale World Topographic Maps:
A Changing Landscape**

Damien Demaj
Esri

**Esri Map Services and ArcGIS.com:
A Successful Implementation**

Keith Massie
David Renz
City of Medford GIS

Multi-Scale Mapping using ArcGIS 10.1

Edith M. Punt
David Watkins
Esri

**Update on USGS US Topo and
Historical Quadrangle Scanning Project
for the Pacific Northwest**

Tom Carlson
US Geological Survey

HAWTHORNE–SELLWOOD ROOM

Events & Places

Chair: Daniel Huffman

**Manitoba-Ontario Boundary Dispute and
the Evidentiary Value of Maps**

M. Christopher Kotecki
Archives of Manitoba

**Mapping Rough Justice:
The 1884 Cincinnati Courthouse Riot**

Jonathan F. Lewis
Benedictine University

**Timely Changes–
Depicting the International Date Line**

Iain Crawford
Office of the Geographer and Global Issues
US Department of State

Mapping the Sanctuary of the Great Gods

Michael Page
Emory University

BROADWAY–WEIDLER–HALSEY ROOM

FRIDAY 10:15–12:00

Producing Thematic Maps

Chair: Mary Beth Cunha

Mapping the Rogues

Leo Dillon
US Department of State

Weathering The Map

Hans van der Maarel
Red Geographics

**Thematic Mapping
with Less Known Software Packages**

Kazimierz J. Zaniewski
Department of Geography and Urban Planning
University of Wisconsin–Oshkosh

Print Production with ArcGIS

Clint Loveman
Esri

MULTNOMAH ROOM

Spatial Decisions

Chair: Erik Steiner

Map Production for Transportation Modeling
Amy Smith
FEHR & PEERS

Which Birds are Found Here?
Serving Up Overlapping Polygon Geometries
in Web Queries
Leta Roger
Pennsylvania State University

Mapping Future Climate Online
Nick Martinelli
University of Oregon

Automatic Delineation of Primary Channels
Through Braided Stream Networks
for Cartographic Generalization
Barbara Buttenfield
Michael Gleason
Christopher Anderson-Tarver
University of Colorado–Boulder

HAWTHORNE–SELLWOOD ROOM

Orienting the User

Chair: Patrick Kennelly

New Moments in Mobile Spatial Applications:
the Commoditization of "Location"
and Teleological Red-lining
Jim Thatcher
Clark University

From Signs to Minds:
Wayfinding Design and Mental Maps
Michaela Skiles
LandWorks Vermont

Augmenting Yosemite's Paper Maps
Richard Tinnell
Pennsylvania State University

High DPI and Retina Displays
in the Eye of the Cartographer
Justin Miller
MapBox

BROADWAY–WEIDLER–HALSEY ROOM

FRIDAY 12:00–1:45

LUNCH BUNCH!

The more, the merrier…

Consult a Portlander or the Portland map in the back of this program, then gather a small group to go to lunch together. This will give you opportunities to better know your fellow NACIS members, new and seasoned, by casually talking maps, GIS, food, and all points in between. Just remember to return and be seated by 2:00pm for the start of the early afternoon sessions.

Please visit the registration desk to sign up for leading a group or joining one!

Top Fifteen Nearby Restaurant Recommendations

ordered by Matthew Hampton, our indispensable local arrangements expert

For these and other mapped locations, flip to the back pages.

0.6 mi **Blossoming Lotus** Vegan
1 1711 NE 15th Ave
503-288-0048

0.5 mi **Petisco** Sandwiches
2 1411 NE Broadway St
503-360-1048

0.4 mi **Frank's Noodle House** Chinese
3 822 NE Broadway St
503-288-1007

0.4 mi **Cadillac Café** Brunch
4 1801 NE Broadway St
503-287-4750

0.6 mi **Chai Yo Thai Restaurant**
5 1411 NE Broadway St
503-287-0505

0.4 mi **Umi Sushi**
6 914 NE Broadway
503-288-5149

0.5 mi **McMenamins** Brew Pub
7 1504 NE Broadway
503-288-9498

0.6 mi **Milo's City Café** American
8 1325 NE Broadway
503-288-6456

0.6 mi **Newport Seafood Grill**
9 1200 NE Broadway
503-493-0100

0.6 mi **Aztec Willies** Mexican
10 1501 NE Broadway
503-280-8900

0.7 mi **Buffalo Wild Wings**
11 1200 NE Broadway
503-432-8179

0.2 mi **Stanford's Restaurant/Bar**
12 913 Lloyd Center
503-535-0811

0.6 mi **Sushi Land, Marinepolis**
13 1409 NE Weidler St
503-280-0300

0.6 mi **Pastini Pastaria**
14 1426 NE Broadway
503-288-4300

0.5 mi **Bellagios Pizza**
15 815 NE Weidler St
503-954-3511

FRIDAY 2:00–3:30

Panel Session:
Doorstop or the
Ne Plus Ultra of Cartography?
A Discussion on the Atlas:
Past, Present and Future

Moderators: James Meacham & Alex Tait
Panelists:
  Tanya Buckingham University of Wisconsin
  Lou Cross Florida State University
  James Meacham University of Oregon
  Alethea Steingisser University of Oregon
  Alex Tait International Mapping
Discussant: William McNulty Stanford University

The atlas form has had a rich and vibrant history ever since Mercator and Ortelius each put a collection of maps into printed volumes in the late sixteenth century. Today, with seemingly endless access to rich datasets, robust design tools, and advanced printing technologies, atlas-making is at a potential apex. The growth of print media has slowed. In the age of the Internet and the iPad, is there a threat to the future of the atlas? Is the atlas still a viable form? Or is the advent of the multi-layered, multi-scale interactive digital map the death knell for the atlas as a go-to medium for cartographic expression and geographic story telling?

We have brought together a panel of cartographers, all of whom have recently worked on both print and digital atlases. They will provide brief presentations on their work, and then, with the help of an esteemed moderator, tackle questions about the relevance and future of atlases in the digital age.

MULTNOMAH ROOM

Extreme Mapping

Chair: David Lambert

**Lechuguilla Cave Exploration:
Mapping the Fourth Longest Cave
in the United States**

David Lambert
National Speleological Society

**Patagonian Expedition Race:
Challenges & Adventures of
Mapping Extreme South America**

Lee France
Nómadas International Group (NIGSA)

Fire Mapping

Emmor Nile
Oregon Department of Forestry

Teaching Cartography

Chair: Robert E. Roth

**Keeping Pace with
Emerging Web Mapping Technologies**

Richard G. Donohue
Timothy R. Wallace
Carl Sack
Robert E. Roth
Tanya Buckingham
University of Wisconsin–Madison

**An Assessment of Adobe Flash
in a Cartographic Curriculum**

Eugenie Rovai
Steve Stewart
California State University–Chico

**Online Lessons Learned:
Teaching & Learning Cartography from a Distance**

Adrienne Gruver
Pennsylvania State University

Balloon Mapping

Sam Pepple
Sample Cartography
Willie Shubert
Internews

FRIDAY 3:45–5:15

Pixel Landscape Design

Chair: Matthew Hampton

Techniques for Cartographic Presentation of Upsampled Raster Land Cover Data

Paulo Raposo
Kevin Sparks
Cynthia A. Brewer
Pennsylvania State University

Utilizing LIDAR for Effective and Dynamic Cartography

Daniel Coe
Oregon Department of
Geology & Mineral Industries

Automatic Generation of Pseudo-Natural Maps

Bernhard Jenny Oregon State University
Jacob Wasilkowski Clark University
Juliane Cron Oregon State University
Helen Jenny Oregon State University

Mapping the Hawaiian Seafloor

Tom Patterson
US National Park Service

MULTNOMAH ROOM

Empowering Mappers

Chair: Eliana Macdonald

**Left off the Map–
The Consequences of Spatial Segregation**

Tim Stallmann

**Making Maps More Accessible Over the Web:
A State Agency's Effort to Comply
with Section 508**

Chris Anderson
AnnMarie Tavares
Henry Norris
Kathleen O'Keife
Florida Fish and Wildlife Conservation Commission

**Mapmaking for Change:
Online Participatory Mapping Tools
for Revealing Landscape Values
in the Bad River Watershed**

Carl Sack
University of Wisconsin–Madison

**The Un-App:
Designing and Layering PDF Maps for Field Use**

David Kraiker
Census Bureau
New York Regional Office

HAWTHORNE–SELLWOOD ROOM

Symbolization

Chair: Robert E. Roth

**Map Symbol Design and Event Reporting for
Mobile Devices: A Preview of a Mobile Application
and Developer API Based on
an Online Symbol Repository**

Joshua E. Stevens
Scott Pezanowski
Elaine Guidero
Anthony C. Robinson
Alan M. MacEachren
Pennsylvania State University

**SymbolStore.org–An Open Resource
for Map Symbols**

Anthony C. Robinson,
Scott Pezanowski
Raechel Bianchetti
Joshua Stevens
Elaine Guidero
Justine Blanford
Alan M. MacEachren
Pennsylvania State University

**Symbol Considerations
for Bivariate Thematic Maps**

Martin E. Elmer
Robert E. Roth
University of Wisconsin–Madison

BROADWAY–WEIDLER–HALSEY ROOM

FRIDAY 6:30–9:00

BANQUET

Sharon Wood Wortman
"The Bridge Lady"

*BridgeStories–
A Storytelling
Slide Show*

Also at the banquet...

Student Poster Competition Award
Daniel Huffman

Student Dynamic Map Competition Award
Matt Dooley

Message from the Incoming President
Neil Allen

Preview of NACIS 2013 in Greenville
October 9–11, 2013 Hyatt Regency Greenville
David Lambert & Peter Wrenn

LLOYD CENTER BALLROOM

Sharon Wood Wortman is the author of The *Portland Bridge Book*, first published in 1989. Her poetry has been widely published. She's ridden the Oregon Chautauqua circuit, received three Regional Arts & Culture Council grants, and in 2006 was awarded the Frances Shaw Fellowship from the Ragdale Foundation. She performed her one-woman show, "The Bridge Lady," at Portland's Shoebox Theatre in 2009, and was a featured performer for The Moth Radio Hour at the Arlene Schnitzer Concert Hall in 2011. In her 20-year career leading bridge walks for school groups and for Portland Parks & Outdoor Recreation, she has taken more than 20,000 people of all ages bridge walking.

Sharon's husband Ed is the co-author of the 2001 and 2006 editions of *The Portland Bridge Book*. He was the field engineer who worked with the ironworkers to erect the Fremont Bridge in the early 1970s. Fremont is still the longest tied-arch bridge in North America. Ed now works part-time for Multnomah County and is part of the team constructing the new Sellwood Bridge, scheduled to open in 2016. The two are now collaborating on *The Big & Awesome Bridges of Portland & Vancouver–A Book for Young Readers*, the first book about the bridges of Portland and Vancouver for elementary students: *www.pdxbridgefestival.org*.

Geodweeb Geopardy!
With your host Dennis McClendon!

This is... Geodweeb Geopardy!!!

~~Art~~ Dennis has personally hosted and channeled this game into a regular post-banquet fixture at NACIS conferences for nearly a decade now.

Teams of people who have always dreamed of the day when their knowledge of geotrivia would pay off big time will compete for fabulous prizes! The variety of topics covered will span the gamut of cartographic knowledge, from maps all the way to geography.

So get a beverage 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.

HALF DAY EACH

Workshops

In the Executive Meeting Center,
limit 30 each, must bring your own laptop

8:00–12:00

**State of the Art Web Mapping
with Open Source TileMill**

Dane Springmeyer and AJ Ashton
MapBox

Hands-on learning using TileMill, MapBox's cross-platform open source design studio. Examples and walk-through demos for making several types of maps in TileMill for both technical and non-technical users. Challenges and strategies for hosting big datasets like OpenStreetMap. Other client rendering libraries will also be presented. A list of recommended applications preinstalled before attending will be provided.

1:00–5:00

**Powerful Mapping Web Applications
with Open Source Tools**

Wm Leler Flightstats, Inc. and Mele Sax-Barnett TriMet

Overview of Mapping APIs and instruction on open source solutions. Build a map in Leaflet and add data layers. Learn how to edit OpenStreetMap (OSM) with Potlatch. OSM data downloading using QGIS, tiling, and data handling instruction will also be covered. Prerequisites: comfort with HTML writing. JavaScript and jQuery familiarity will be helpful. A list of recommended applications preinstalled before attending will be provided.

ADAMS ROOM

Workshops

In the Executive Meeting Center,
limit 30, computers will be provided, lunch on your own

8:00–5:00

Building the Campus Base Map

Mark Stewart and Seth Sarakatis
Esri

Demonstrations on how to create large-scale campus maps using ArcGIS Desktop and Esri's Campus Base Map Template. Students will learn how to leverage their new base map by using the Community Maps Program that will host their base map content online which then can facilitate greater online collaboration throughout an organization

JEFFERSON ROOM

Field Trips

Wild Oregon Coast   8:00–5:00ish

Along with Daniel Coe and Mark Scott, come explore some of the most scenic coastline in the US by visiting two forested and rocky coastal state parks and stopping by the famed "Goonies Rock" in Cannon Beach for a lunch break (lunch not included).

Oregon Wine Country   8:00–5:00ish

For an in-depth look at Oregon wine, join Paul Fyfield and Mattye Dahl for a full day escape deeper into the countryside and the wine experience. In addition to visiting several select wineries with a behind-the-scenes tour, you will also enjoy the guided tour in comfortable transportation along scenic vistas. Lunch, appetizers, & dessert paired to wines included.

Keep Portland Weird Tour   11:00–5:00ish

Explore with Analisa McKay and David Banis some of the eccentricities of Portland and discover why it is the subject of a satirical TV series, *Portlandia*. Included are a pedicab tour, a visit to the Saturday Market, a food cart lunch stop (lunch not included), and any number of other stops.

Brewery Tourery   12:00–5:00ish

With Alan Gunn via streetcar, light rail, and a brewcycle, come taste some of the finest brews Portland offers. Tour includes $20 worth of beer.

THE FIELDS OF OREGON

WEDNESDAY

9:00-5:00	PRACTICAL CARTOGRAPHY DAY
9:45-5:00	PRACTICAL MAP LIBRARIANSHIP DAY
7:00-8:45	OPENING KEYNOTE PRESENTATION
8:45-12:00	MAP GALLERY AND RECEPTION

THURSDAY

8:15-10:00	EARLY MORNING SESSIONS
10:15-12:00	LATE MORNING SESSIONS
12:00-1:45	LUNCH & BUSINESS MEETING
2:00-3:30	EARLY AFTERNOON SESSIONS
3:45-5:15	LATE AFTERNOON SESSIONS
6:30-9:30	NACIS NIGHT OUT

FRIDAY

8:15-10:00	EARLY MORNING SESSIONS
10:15-12:00	LATE MORNING SESSIONS
12:00-1:45	LUNCH (ON YOUR OWN)
2:00-3:30	EARLY AFTERNOON SESSIONS
3:45-5:15	LATE AFTERNOON SESSIONS
6:30-9:00	BANQUET
9:00-10:00	GEODWEEB GEOPARDY

SATURDAY

8:00-5:00	WILD OREGON COAST TOUR
8:00-5:00	OREGON WINE COUNTRY
8:00-5:00	WORKSHOPS
11:00-5:00	KEEP PORTLAND WEIRD TOUR
12:00-5:00	BREWERY TOURERY
6:00-9:00	**CASCADIA CARTO RECEPTION**

SATURDAY 6:00–9:00

Cascadia Cartography Reception

Hosted by Cascadia Cartographics LLC

Tickets are limited and must be purchased online at
http://cascadia.evenbrite.com
up to one hour before the event.

The Cascadia Cartography Reception will engage you with an evening of fresh and delicious Pacific Northwest food and beverages set amidst the Light Court Commons in the restored White Stag Building.

This reception is meant to celebrate the cartography, cartographers, and geography of the Pacific Northwest. There will be fresh Cascadian food and beverages available to compliment our evening.

Following the 2012 NACIS conference, indulge yourself at a reception in Portland's historic Old Town. The event space features artistic landscape imagery from DOGAMI that provides the perfect ambiance for a memorable evening in downtown Portland.

Getting There:
Take the MAX and get off at Old Town/Chinatown or Skidmore Fountain and walk 1 block. There is also metered street parking nearby.

WHITE STAG BUILDING

Akella

alphabetical index by primary author's last name

Building a US National Park Service Online Base Map
*Mamata **Akella**, US National Park Service*
Open Beauty, Hawthorne–Sellwood, Thursday early afternoon
The US National Park Service protects nearly 400 places across America, including some of the nation's most cherished cultural and natural resources. The NPMap team works with NPS employees and partners to help tell the story of these places using innovative web mapping techniques and technologies. One of the major projects we have undertaken this year is to build a NPS-styled, multi-scale base map to transfer the look and feel of the NPS printed park maps to the Web. This base map will serve both visitors of National Parks as well employees and partners. During this talk, I discuss the technologies, data, and design behind the development of this base map.

Techniques in Non-Map Reporting of Geospatial and Related Data
*Greg **Allensworth**, GreenInfo Network*
Transforming the Map, Multnomah, Thursday late afternoon
The rapid growth of web-based mapping has brought with it new and fast-growing audiences, and it has raised expectations. Drawing geospatial data onto a map is merely one step in a larger process of understanding data and communicating your point, with the ultimate goal of demonstrating your need and convincing your audience. It often helps to move beyond the map and into take-away media such as spreadsheets and printable report documents.

GreenInfo Network has been building customized approaches to generating charts, Excel spreadsheets, and Adobe PDF documents as take-away products of interactive map applications, greatly extending their functionality. In this presentation, he'll share strategies, examples and technical tips on how to make web maps serve as information generators. Specific topics will include the PHP libraries DOMPDF and PHPExcel, and wkhtml tools to render HTML maps as images.

Making Maps More Accessible Over the Web: A State Agency's Effort to Comply with Section 508
*Chris **Anderson**, AnnMarie Tavares, Henry Norris, Kathleen O'Keife, Florida Fish and Wildlife Conservation Commission*
Empowering Mappers, Hawthorne–Sellwood, Friday late afternoon
In an effort to bring all web-based documents into compliance with Section 508 of the Rehabilitation Act, the Fish and Wildlife Conservation Commission's Fish and Wildlife Research Institute (FWRI) is reviewing old and new documents to be sure they are usable by persons with disabilities. Some proposed revisions are simple (changing colors to make sure they can be distinguished by those with color blindness), while other modifications are more complicated (adjusting tags and reading order so PDF files can be read correctly by screen readers). As part of this effort, FWRI is exploring methods for making its web maps more accessible too. Maps may be simple PDFs or complicated Adobe Flex applications. This presentation will show examples of how FWRI has made maps and other documents more accessible via the Web. This presentation should spark discussion on how others have made their maps usable by persons with disabilities.

Achieving Cartographic Excellence with ArcMap: University of Oregon Kiosk Map
*Blake **Andrew**, Brad Simantel, Alethea Steingisser, Ken Kato University of Oregon*
Poster Session, Willamette Ballroom, Wednesday evening

Making Open Data (and OpenStreetMap) Beautiful
*AJ **Ashton**, MapBox*
Open Beauty, Hawthorne–Sellwood, Thursday early afternoon
Open- and crowd-sourced datasets like OpenStreetMap can be an amazing asset for their breadth of coverage, depth of detail, and frequent updates. With the data in the open, designers and storytellers are free to pick out the pieces they need and display them in the way that makes the most sense case-by-case. However working with a planet's worth of open data can be challenging. There are potential inconsistencies to account for, and overall a lot of data to manage and process. This presentation will cover what to keep in mind when working with OpenStreetMap from the cartographic perspective. The example will be MapBox Streets (http://mapbox.com/maps/), a general global base map powered by OpenStreetMap and designed in TileMill.

Developing the Cultural Atlas of Portland
*David **Banis**, Portland State University*
Jon Franczyk, Watershed Sciences
Daniel Coe, Oregon Department of Geology and Mineral Industries
Frank Lahm III, Bureau of Land Management
Kirk McEwen, Portland Bureau of Transportation
Poster Session, Willamette Ballroom, Wednesday evening

Laban Movement Analysis
*Sarah **Bennett**, University of Wisconsin–Madison*
Poster Session, Willamette Ballroom, Wednesday evening

Mapping Movement at the Scale of the Body
*Sarah **Bennett**, University of Wisconsin–Madison*
Visualizing Change, Hawthorne–Sellwood, Thursday late afternoon
Human movement at the scale of the body is usually too fine and too ephemeral to attract the interest of cartographers. Movement, gesture, and physical intelligence are all spatial practices that have not been visualized. I mapped two qualitative, spatial approaches to understanding human movement, one by Maxine Sheets-Johnstone and the other by Rudolf Laban, both luminaries in dance studies. The qualitative nature of these maps produced interesting challenges to data processing and symbolization. Can you layer and simplify qualitative data into ordinal data? Can you evoke the texture of movement in a still map without using words? What if you use gesture for creating symbols instead of visual variables? Working through these questions produced new stories about human movement and the surrounding environment. These maps revealed that cartography can be used as a method to learn about how we think about movement at the scale of the body.

Defining the Typical DHS Map
*Raechel A. **Bianchetti**, Robert E. Roth, Justine I. Blanford, Anthony C. Robinson, Alan M. MacEachren, Pennsylvania State University*
Crisis Mapping, Broadway–Weidler–Halsey, Thursday late morning
Maps are a central means of communication for many tasks at the Department Homeland Security (DHS). DHS commissioned us to review map designs across several agencies within DHS. Individual agencies within DHS design their own maps, leading to diverse cartographic designs. To determine what cartographic trends are present in DHS maps, we conducted a content analysis of 70 maps from five DHS agencies. The maps represented five different DHS agencies, and range of objectives including emergency management and preparedness. Our content analysis surveyed aspects of the map including objective, scale, point feature types, base map type, and the number of points present on the map. This information was analyzed using descriptive statistics and similarity measures. We identified map design similarities across the set of maps and used the similarities to design a set of maps for the Map Preview function in the Symbol Store, a web application encouraging interoperability amongst DHS agencies.

Joyful Map Tile Rendering with Node.js
*Rob **Brackett**, Ben Sheldon, Alex Yule, Code for America*
Slippy Code, Multnomah, Friday early morning
Mapnik has become the de facto open-source standard for rendering map tiles. While Mapnik is extremely powerful, it can be difficult to set up and deploy. We present NodeTiles, a lightweight, JavaScript-based, open-source map tile renderer that is easy to deploy, use, and extend. Built to support applications with dynamic data, NodeTiles offers an accessible and cloud-friendly alternative to Mapnik. While still in early-stage development, features on the road-map include styling with the CSS-based Carto language for compatibility with MapBox TileMill, UTFGrid generation for client-side interactivity, and data adaptors for PostGIS and Shapefiles.

6½
*Heath **Brackett***
Poster Session, Willamette Ballroom, Wednesday evening

Mapping Around the World: A Cartographic Study Abroad Experience
*Cynthia A. **Brewer**, Anthony C. Robinson, Paulo Raposo Pennsylvania State University*
Learning Cartography, Broadway–Weidler–Halsey, Thurs late afternoon
While global experiences for university students are common, there are few examples of cartography or GIS-focused study for undergraduates. We share our experiences with an around-the-world trip with 12 students focused on topographic and other base mapping at multiple scales. We combined key elements of real-world business travel with visits to regional and/or national mapping agencies in Germany, United Arab Emirates, and Japan, exposing students to a wide range of mapping practices and map use. They also spoke to staff from three distinct cultures. Each student completed individual projects in one country to delve into a specific subtopic, such as energy, water, habitat conservation, and transit. The students planned the trip spring semester and traveled for three weeks in June. During the fall students will present their projects at US Geological Survey headquarters, bringing national mapping ideas home to the United States to inform the next generation of The National Map.

The *Atlas of Florida's Natural Heritage*
*Tanya **Buckingham**, Cartography Lab, University of Wisconsin–Madison*
PCD, Multnomah, Wednesday morning
The Atlas of Florida's Natural Heritage: Biodiversity, Landscapes, Stewardship, and Opportunities was published in 2011 and subsequently received the Benjamin Franklin Award from the The Independent Book Publishers Association. This talk will cover the maps and layouts in the Notable Natural Areas section of the atlas. In this section, special emphasis was placed on individual elements of natural heritage are tied together to highlight outstanding natural places in Florida. The spreads in this section departed from the

Buckley

detailed, scientific presentation used elsewhere in the atlas, and evoked instead a field notebook style, where the maps were to appear as though produced by a hand-drawn, loose, pen/ink, and/or water-color medium.

What's New for Cartography in ArcGIS 10.1
*Aileen **Buckley**, Esri*
PCD, Multnomah, Wednesday morning
ArcGIS 10.1 includes additional and improved functionality for cartography. We will demonstrate enhancements to the software for mapmaking, including labeling, symbology, map elements, data management, and exporting. Improvements to the ArcGIS for Desktop interface are also shown. Additionally, we will demonstrate the new unified experience for publishing services to the Web.

Creating Orthophotos Using The Rational Function Model
*Alexis **Buchwald**, University of Redlands*
Poster Session, Willamette Ballroom, Wednesday evening

Geo-Referencing Jupiter's Moon, Io
*Meghan **Burris**, University of Redlands*
Poster Session, Willamette Ballroom, Wednesday evening

Automatic Delineation of Primary Channels Through Braided Stream Networks for Cartographic Generalization
*Barbara **Buttenfield**, Michael Gleason, Christopher Anderson-Tarver*
University of Colorado–Boulder
Spatial Decisions, Hawthorne–Sellwood Room, Friday late morning
Hydrography comprises one of the most commonly included vector layers in topographic base mapping. It is likewise one of the layers most sensitive to scale change. Nationally available databases such as the National Hydrography Dataset (NHD) lack attributes to support demarcation of a centerline or primary channel through stream networks and braided areas, due to the large geographic extent and irregular update cycle. The lack of stream ordering makes it difficult for the cartographer to prioritize stream channels for base mapping. This paper presents two algorithms for automatic delineation of primary channels through a braided stream network. The first delineates a single main stem running through the braid for mapping at larger scales. The second identifies the outermost channels bounding the braid, for smaller scale mapping. The presentation will cover centerline delineation as well as braid processing for stream networks in a variety of landscape types and precipitation regimes.

Folding to the Reflexive Maps? How do we get from one to the other?
*Rex G. **Cammack**, University of Nebraska–Omaha*
Transforming the Map, Multnomah, Thursday late afternoon
Maps, for those who study them, are nearly mythical objects. We see them in many different ways and ask them to do many different things. Most of the time cartographic researchers are interested in a singularly specific idea. In this research, through the examination of the past of cartography, communication, technology and art, historical artifacts will be extracted, put in line, mixed and matched to lead us to new possibilities. The examination of key artifacts that led to new ideas and approaches to making maps differently can hold the key to moving the map into a new state. Reflexive mapping is one of the many new possible ways to view maps in the future. For reflexive maps to exist and to work, cartography research will need to expand. Cartographers will need to examine issues for life cycle, calendar cycles and day cycles. Spatial activity awareness will need to be studied and methods for processing and understanding them better developed. Understanding how and when people trust technology, move forward and adapt to them will be critical. Understanding a map user's perspective within a user pool and creating adaptive technology for these different perspectives is an open question. The results of this research have led to a future vision as maps being reflexive to the user.

Update on USGS Topo and Historical Quadrangle Scanning Project for the Pacific Northwest
*Tom **Carlson**, US Geological Survey*
Web Service Implementations, Hawthorne–Sellwood, Fri early morning
The US Topo is the next generation of digital topographic maps from the US Geological Survey. Arranged in the traditional 7.5-minute quadrangle format, digital US Topo maps are designed to look and feel like the traditional paper topographic maps for which the USGS is so well known. At the same time, US Topo maps provide modern technical advantages that support wider and faster public distribution and enable basic, on-screen geographic analysis for all users. The Historical Quadrangle Scanning Project is scanning all scales and all editions of approximately 250,000 topographic maps published by the USGS since the inception of the topographic mapping program in 1884. This scanning will provide a comprehensive digital repository of USGS topographic maps and like the US Topo are available to the public at no cost. This project serves the dual purpose of creating a master catalog and digital archive copies of the irreplaceable collection of topographic maps in the USGS Reston Map Library as well as making the maps available for viewing and downloading from the USGS Store and The National Map Viewer.

On Critique
*Nat **Case**, Hedberg Maps*
Learning Cartography, Broadway–Weidler–Halsey, Thurs late afternoon
Map-making is a strongly collaborative craft: maps are often published by corporate entities, and the design is often worked out with extensive input from people besides the actual cartographer(s). So, getting (and giving) input into map design seems like it should be a standard part of how we learn about maps. The obvious methodology for this is the critique, as practiced especially in visual arts programs. There has been surprisingly little published on critique per se, but I will attempt to outline a few sources. Mostly I will be talking about how we can position ourselves as critiquer and critiquee, to get the most out of those rare opportunities where we tell each other what we really think. Awareness of the social context of critique can help us get "in help's way" and allow us, as receivers of sometimes-ham-handed critiques, to get the most useful feedback possible.

Thinking in Ink: Tips to Keep Your Offset Printer from Hating You
*Nat **Case**, Hedberg Maps*
PCD, Multnomah, Wednesday afternoon
More and more, people are training and doing their early map production on systems that are forgiving of issues that used to be central to printing best practices and still are when printing on an offset press. The session will provide an outline of things to look for when printing offset, and some basic tools in Adobe Suite to help you catch and correct them, and is especially targeted to people who have largely worked on projects destined for on-screen display.

5 Ideas for Improving Navigation in Transit Maps
*Kate **Chanba**, Matt Forrest, Carticulate Maps LLC*
The City Experience, Broadway–Weidler–Halsey, Thurs early morning
We will focus on decisions cartographers can make when working with city transit including how to use color with purpose, avoiding geographical errors, and integrating a city's local character into the map. We will use examples from our work in Minneapolis, as well as in the Asheville, North Carolina campaign, "Asheville Re-defines Transit," (featured in the NACIS *Atlas of Design*). Carticulate's ideas on transit mapping have been published in the *Minneapolis Southwest Journal* and *Downtown Journal* as well as in *Maplines* (2011).

Cutter #943: The Coast Survey and the Art and Cartography of the Columbia River
*John **Cloud**, US National Oceanic and Atmospheric Administration*
Historical Cartographies, Hawthorne–Sellwood, Thursday late morning
The cartographic importance of areas and places can be characterized by the ways those areas are designated, and why. In the 19th and early 20th centuries, the Coast and Geodetic Survey used a modified version of Cutter Geographic Numbers to organize maps in its Library and Archives Collection. All American states received three-digit codes, with the numbers spatially related. Maps of California in this system were coded as 941, Oregon was 942, but Washington was 944. Why? Because the Columbia River and its cartography were considered so important that the river was its own "state," and hence received Cutter #943. By contrast, no other American river system has ever achieved such "statehood."

This presentation will examine the historical cartography of the Columbia River and the ways portions of the river were both differentiated and mapped differentially. There was a lower river, and the Columbia Gorge, and an upper river with many great tributaries in a human world where travel by boat once had a place it no longer occupies. There is now a supremely managed river system, with dams and reservoirs and electric power plants whose needs are very different from those of salmon wanting to spawn in the Old Country.

And still there remains the Columbia, rolling on, exerting a power, particularly as it runs through the Gorge, strong enough to elicit the very best art from the many talented artist/scientists who worked for the Coast and Geodetic Survey. The cartography and allied art addressing the river is unique in Survey history and will be showcased in this presentation.

Mapping the Trees of Portland's Urban Arboretums
*Daniel **Coe**, Oregon Department of Geology and Mineral Industries*
David Banis, Portland State University
Jon Franczyk, Watershed Sciences
Poster Session, Willamette Ballroom, Wednesday evening

The Willamette River
*Daniel **Coe**, Oregon Department of Geology and Mineral Industries*
PCD, Multnomah, Wednesday afternoon
Rivers are dynamic entities. They are not static, but rather living, moving, adaptable bodies. This map of the Willamette River captures the essence and scale of these statements, showing the channels and directions the river has taken over recent millennia, while inspiring a visual connection to life beyond its banks. I will discuss the events and influences that led to this image and subsequent maps and images.

Coe

Utilizing LIDAR for Effective and Dynamic Cartography
*Daniel **Coe**, Oregon Department of Geology and Mineral Industries*
Pixel Landscape Design, Multnomah, Friday late afternoon
The advent of LIDAR has provided new opportunities for highly accurate mapping of the earth's surface. Often, however, the analytical aspects of LIDAR overshadow its cartographic potential. I will discuss techniques for creating perspective-view and plan-view maps and geo-images using this high-resolution data. Examples from recently published LIDAR-based geologic and recreation maps will be displayed and methods for leveraging this technology to cartographer's advantage will be examined.

The Aesthetic Rebirth of George Bellas Greenough's Geological Map of England and Wales, 1820–1839
*Karen Severud **Cook**, Spencer Research Library–University of Kansas*
Retrospectives, Broadway–Weidler–Halsey, Thursday early afternoon
George Bellas Greenough revamped the design of the area symbols on his Geological Map of England and Wales, as well as improving its geological content, between the 1820 first edition and the 1839 second edition. The first edition's symbols imitating natural rock colors had been criticized by other geologists for being hard to distinguish. By the second edition, Greenough had begun coloring each group of related rock formations with a single distinctive hue but adding fine line patterns printed in black to differentiate the member rocks. "Eureka!" wrote Greenough about this design innovation partly inspired by the paintings of Sir Joshua Reynolds. The inspiration may have been sudden, but it resulted from long preparation. Greenough's many notebooks archived in University College London reveal how he spent years gleaning design ideas from many sources and contacts in the arts and sciences before blending them into his own geological map aesthetic.

A Hand-Drawn Map of California
*Jake **Coolidge**, Spatial History Project–Stanford University*
Poster Session, Willamette Ballroom, Wednesday evening

Timely Changes–Depicting the International Date Line
*Iain **Crawford**,*
Office of the Geographer and Global Issues–US State Department
Events & Places, Broadway–Weidler–Halsey, Friday early morning
One would assume where one day begins and another ends is a codified matter, however, in many respects, this is quite far from the truth. The recent shift of Samoa and Tokelau to the other side of the International Date Line, raised fresh questions within the US government cartographic community on how, or if the Date Line should be adjusted to recognize the changes made by these and other island nations. With no body that regulates what side a country should fall on, countries are left to their own devices to determine where they sit in time. This presentation highlights the challenges experienced as a cartographer working for the US Department of State trying to map the line, as even though the International Date Line has no legal standing, it has a perception of legitimacy that needs to be addressed.

Boulders of the West Bluff
*John J. **Czaplewski**, University of Wisconsin–Madison*
Poster Session, Willamette Ballroom, Wednesday evening

Oregon and Washington Surface Management
*Mattye **Dahl**, Jim Rounds, Paul Fyfield, Bureau of Land Management*
Poster Session, Willamette Ballroom, Wednesday evening

Public Domain LIDAR in Oregon
*Mattye **Dahl**, Jim Rounds, Paul Fyfield, Bureau of Land Management*
Poster Session, Willamette Ballroom, Wednesday evening

San Juan Islands
*Mattye **Dahl**, Jim Rounds, Paul Fyfield, Bureau of Land Management*
Poster Session, Willamette Ballroom, Wednesday evening

From Print to ePublication:
National Geographic Crosses the Digital Frontier
*Rosemary **Daley**, Maggie Smith, National Geographic*
PCD, Multnomah, Wednesday morning
The Web and mobile devices are quickly becoming the du-jour publication platforms for dynamic, interactive maps. Through examples from the Maps and Magazine divisions, we will talk about how we at NG have approached transitioning our print products to digital base maps and ePub applications. Rosemary Daley will talk about the recent emergence of digital base maps and iOS Apps designed by NG Maps and developed collaboratively. She will talk about the joys and complications which come from working with the unique National Geographic cartographic style and data when repurposing it for both Web and mobile. Maggie Smith will discuss the steps taken to transition the May 2012 Civil War Supplement map from a rich fold-out map to a dynamic map for the NGM iPad app. The evolution of design, UI/UX, data display, and transformation to HTML will be demonstrated.

Harvest Hope Needs Assessment:
Identifying Gaps in Coverage for Harvest Hope's Food Bank Network
Brian Davidson, University of Wisconsin–Madison
Brendan Dickey, Devin Dickey, Michael Stirewalt, Univ of South Carolina
Poster Session, Willamette Ballroom, Wednesday evening

Re-Designing the Next Generation of Multi-Scale World Topographic Maps: A Changing Landscape
Damien Demaj, Esri
Web Service Implementations, Hawthorne–Sellwood, Fri early morning
Topographic maps have been an integral part of the cartographic landscape since the late 1600's. These iconic representations of our topography have formed the backbone of many government and military map programs. They have also been a valuable tool for those who explore the outdoors, mine for minerals, fight fires, or plan for conservation (to name a few). Esri launched an online multi-scale World Topographic map service in July 2009. The map is Esri's flagship community map, whereby hundreds of communities a year contribute their authoritative GIS data to the project. Recently the map has undertaken a significant redesign to accommodate the way our users are using online multi-scale web maps. This talk will outline the design objectives, the process of design, the key stages of conceptualization and research, and the added complexity of designing for a world-wide community of novice map makers and potential unknown data models.

Polar Sea Ice 2011, Daily Analysis
Mark Denil, National Ice Center
Poster Session, Willamette Ballroom, Wednesday evening

Polar Sea Ice 2011, Fortnightly Analysis
Mark Denil, National Ice Center
Poster Session, Willamette Ballroom, Wednesday evening

Style and Taste
Mark Denil, National Ice Center
The Aesthetics of Mapping II, Multnomah, Thursday late morning
These days, style and taste are problematic and highly contested terms. Problematic or not, however, they represent elements critically important to someone making what he or she very much hopes are useful, usable, and desirable maps. What do these terms mean, and more specifically, what do they mean in a cartographic context?

As we know, our ability to recognize, read, and make use of maps is predicated upon a schema of mapicity we receive from the interpretive communities to which we belong. It is our familiarity with the schema, and our facility with selecting, manipulating, and employing the parameters and conventions attendant upon the schema, that make us great map makers and/or sophisticated map readers.

Taking what we know about the central role played by schemas of mapicity in allowing a map reader to recognize, employ, and judge a map, we should be able to reach an understanding of the role played by style and by taste in framing the phenomena we call cartography and the artifacts we call maps.

Digital Maps for The Mobile Age: Visualizing Geographic Change
David G. Dickason, The W.E. Upjohn Center for the Study of Geographical Change–Western Michigan University
Visualizing Change, Hawthorne–Sellwood, Thursday late afternoon
Mobile digital platform users already far exceed the number of users linked to the Internet. Mobile platforms (tablets, smart phones, etc.) promise use of digital maps in combination with crowd-sourcing of new or updated map information, and new data for incorporation into GIS work environments. Mobile devices offer specific advantages over laptops or workstations. Those who work or play out-of-office/home are no longer tethered electronically without loss of digital map functionality. The variety of use of such maps is only being discovered now. Mobile devices with GPS capability also offer signal advantage in the mapping arena. One version of The W.E. Upjohn Center's Authoritative US Topos© series, "GeoChange Maps", is highlighted in this presentation. The template for creating these high-definition maps may be applied to any large national map series worldwide. Other mobile digital map series are being developed.

Mapping the Experience of Cycling
Evan Dickinson, Lyn Bartram, Rob Woodbury
School of Interactive Arts and Technology–Simon Fraser University
The City Experience, Broadway–Weidler–Halsey, Thurs early morning
Many cyclists choose to travel by bike because it's fun. However, existing maps for cyclists don't convey a sense of fun–they're dull, practical tools. The Google Maps trip planner, for example, will tell you where to turn and how far you'll travel, but it doesn't say much about which roads have heavy exhaust fumes, where the funky houses are, or the other rich details of the world that shape the experience of a bike trip. An experiential trip planner could encourage people to cycle more and improve the quality of experience for cyclists.

Dillon

This presentation reports on research into the design of interactive digital maps that represent both the experience and logistics of urban bike trips. I discuss what such maps should say about experience, how they can convey the necessary experiential information, and the results of a user study evaluating a prototype trip planner.

Mapping the Rogues
*Leo **Dillon**, US Department of State*
Producing Thematic Maps, Multnomah, Friday late morning
It's easy to find data, often authoritative, to allow you to confidently map countries, administrative divisions, and supranational organizations. But what about those pesky entities that aren't generally recognized by the international community but still sit there on the map. What do you do when you're told to map Azawad? Puntland? Nagorno-Karabakh? Galmudug? Transnistria? Jubaland? South Ossetia? All of these places exist in one form or another, but do they have established borders and capitals? Where do you go to get authoritative information on them (if there is any)? Join the presenter as he answers these questions through the lens of his experience as a cartographer for the US Department of State.

Keeping Pace with Emerging Web Mapping Technologies
*Richard G. **Donohue**, Timothy R. Wallace, Carl Sack, Robert E. Roth, Tanya M.A. Buckingham, University of Wisconsin–Madison*
Teaching Cartography, Broadway–Weidler–Halsey, Fri early afternoon
Technological innovation in web mapping offers new opportunities and challenges. The development of new mapping applications produces a fundamental tension: the more flexible web mapping options become, the more difficult it is to maintain fluency in using and teaching these technologies. We address this tension by describing a case study process completed to meet the curricular needs of the University of Wisconsin–Madison cartography program. Specifically, we conducted a sequence of four studies: (1) a competitive analysis study of contemporary web mapping technologies, (2) an internal survey of past experiences with these technologies, (3) a diary study charting the implementation of a subset of viable technologies, and (4) a focus group session reflecting on successes and frustrations during implementation. We describe insights generated from the studies and reflect on the broader applicability of the process.

Harrowed Landscape
*Mathew A. **Dooley**, University of Wisconsin–River Falls*
Poster Session, Willamette Ballroom, Wednesday evening

Fiction/Reality
*Martin **Elmer**, University of Wisconsin–Madison*
Poster Session, Willamette Ballroom, Wednesday evening

Symbol Considerations for Bivariate Thematic Maps
*Martin E. **Elmer** and Robert E. Roth, University of Wisconsin, Madison*
Symbolization, Broadway–Weidler–Halsey Room, Friday late afternoon
Bivariate maps are a common and powerful means to understand and compare geographic phenomena, but their visual complexity is a source of frustration to both map readers and designers. This research draws from work in the psychological theory of selective attention to reveal differences across different bivariate map forms (bivariate choropleths, shaded cartograms, etc), to the end of producing considerations for the design of more intuitive and informative bivariate maps. The presentation discusses two key contributions derived from this work: (1) a framework structured by visual variables and symbol dimensionality, which both organizes common bivariate map types as well as identifies novel bivariate map solutions; and (2) a controlled experiment testing various information retrieval tasks across a representative subset of bivariate maps.

Over the Edge 3D: Death in Grand Canyon
*Kenneth **Field**, Damien Demaj, Esri*
Poster Session, Willamette Ballroom, Wednesday evening

Locals and Tourists
*Eric **Fischer**, Geek of Maps and Data Visualization*
PCD, Multnomah, Wednesday morning
The locations of geotagged photos posted to Flickr and Picasa offer a glimpse into what areas of different cities people find particularly interesting, and the spaces between photo locations reveal additional areas that are less inherently interesting but are important corridors for travel by different modes. The "Locals and Tourists" series takes this a step further by distinguishing locations visited by people who have spent a long time in a city from those visited by newcomers, highlighting the psychological boundaries beyond which people who have only limited time to spend in the city decide not to explore further.

Space-Time Cluster Analysis and Visualization
*Carolyn **Fish**, Lauren Rosenshein, Lauren Scott, Esri*
Visualizing Change, Hawthorne–Sellwood, Thursday late afternoon
Traditionally space-time analysis and visualization is performed and presented as a series of either static or animated snapshots. However, research has shown that users often have difficulty perceiving change over time because these types of visualizations force users to visually

interpolate between adjacent scenes. Often these visualizations are misinterpreted because users fail to detect changes between scenes. The new space-time hot spot analysis capabilities in ArcGIS 10.1 allow users to identify statistically significant hot and cold spots using the Getis-Ord Gi statistic and a set of predefined relationships that are both spatial and temporal. By analyzing and visualizing the results of a space-time hot spot analysis as a three dimensional interactive display, analysts can more easily discern hot spots in both space and time simultaneously. This paper explores the new space-time hot spot capabilities in ArcGIS 10.1 and how best to visualize this type of complex multidimensional analysis.

Mapping the Works of Mari Sandoz
*Adonna **Fleming**, Geology Library, University of Nebraska*
Historical Cartographies, Hawthorne–Sellwood, Thursday late morning
Author Mari Sandoz is well known for her works about the Great Plains. She wrote about pioneer life and the Native American tribes of the area. The subjects of many of her books and essays were drawn from her own life experience of growing up on an isolated farm in western Nebraska. Sandoz used maps extensively in her research and writing. The University of Nebraska–Lincoln Libraries hold the works of Mari Sandoz. This collection contains over 350 maps including some hand-drawn originals. This presentation will focus on the role maps played in her popular works such as Old Jules, Crazy Horse, Beaver Men, and Buffalo Hunters. In addition, there will be a brief outline of an ongoing research project to create a geospatial tour of her works using her maps with GIS technology.

The Open Geoportal (geodata.tufts.edu)
*Patrick **Florance**, Tufts University*
Data Repositories, Hawthorne–Sellwood, Thursday early morning
Many organizations and institutions are developing large spatial data repositories. Discovering and accessing these data pose many challenges. As a result, Tufts and Harvard are collaboratively developing an open source, federated web application to rapidly discover, preview, and retrieve geospatial data. The Open Geoportal (OGP) combines an intuitive, map-based search interface along with traditional text-based metadata search tools for rapid data discovery and for use in teaching, learning, and research. It is comprised of several universities and organizations and makes geospatial data available through a single open source interface; partners include Harvard, MIT, MassGIS, Princeton, Columbia, Stanford, UC Berkeley, UCLA, Yale, UConn, University of Virginia, State of Georgia, Cornell, University of Georgia, University of Washington, University of Wisconsin, University of Minnesota, etc. The Open Geoportal provides

organizations the opportunity to share geospatial data, maps, metadata, and development resources through a single common interface. Key open source components include Geoserver, Open Layers, Solr/Lucene, GeoWebCache, jQuery, etc.

The Metro: Transit's Future in the Twin Cities
*Matt **Forrest**, Kate Chanba, Carticulate*
Poster Session, Willamette Ballroom, Wednesday evening

Patagonian Expedition Race:
Challenges & Adventures of Mapping Extreme South America
*Lee **France**, Nómadas International Group (NIGSA)*
Extreme Mapping, Hawthorne–Sellwood Room, Friday early afternoon
Every year since 2002 the world's most demanding expedition-style adventure race takes place in the southern end of Chilean Patagonia. The majority of this rugged terrain is unreachable by roads or trails and exists in a country without the available data or mapping standards of the US. Very few maps of any detail even exist in this part of the world. Once a year athletes from around the globe travel through this land by means of kayak, mountain bike, and overland trekking for up to seven days non-stop only aided by a map and compass. Learn about the challenges of creating the maps for this event, such as the availability of data, software used, the creative ways of overcoming language barriers, and even field testing the maps to discover unexplored passages and find stranded explorers.

ArcGIS Online Web Maps
*Charlie **Frye**, Esri*
PCD, Multnomah, Wednesday morning
ArcGIS Online has been available for over two years. Early in 2012 it hit its stride, and the capabilities have been growing rapidly since. Web maps will be the way most of the world experiences what GIS has to offer and how well we make them, therefore, matters. This presentation will cover the basics of creating an ArcGIS web map and then the top five or so things everyone wishes they knew before they had to go to a conference to see it in a presentation.

Mapping Campus Crime: Are You Afraid?
*Sven **Fuhrmann**, Texas State University–San Marcos*
Niem T. Huynh, AAG
Poster Session, Willamette Ballroom, Wednesday evening

Frye

The Scouting Report
*Kendall **Grimm**, University of Wisconsin–Madison*
Poster Session, Willamette Ballroom, Wednesday evening

Online Lessons Learned:
Teaching and Learning Cartography from a Distance
*Adrienne **Gruver**, Pennsylvania State University*
Teaching Cartography, Broadway–Weidler–Halsey, Fri early afternoon
Cartography is a subject best learned through interactions with others. Critiques, peer reviews, and simply being able to see others' work in progress has the potential to facilitate learning more quickly than reading theory and executing map assignments individually. Creating these opportunities for students in an online class is one of the biggest challenges of teaching cartography from a distance. In this presentation I will discuss my experience teaching cartography online and the successes and failures involved in incorporating peer review.

Multiscale Base Map Design: From Print to Web
*Elaine **Guidero**, Pennsylvania State University*
John Shramek, US Geological Survey
Poster Session, Willamette Ballroom, Wednesday evening

Beautiful, Creative Maps Made with Open Source Tools
*Eric **Gundersen**, MapBox*
Open Beauty, Hawthorne–Sellwood Room, Thursday early afternoon
Free and open source cartography tools are available that let you create beautiful and unique maps. These tools provide a wide range of design capabilities and advantages for integrating cartography into websites and applications. The latest versions of Mapnik, TileMill, PostGIS, and GDAL have seen some incredible improvements and are greatly expanding cartographic design tools. Examples range from powerful spatial data visualizations to experimental artistic map renderings. This presentation will showcase examples of beautiful, creative, interactive web maps made with open source tools. It will cover some of the newest and most powerful features available to cartographers, such as Mapnik's compositing and blending modes and advanced label-placement, and show how to take advantage of them.

Who's "The King of Cuckooz"?
Kenneth Slessor's "Lost Contrey" on the Barbary Coast
*Adele J. **Haft**, Hunter College, The City University of New York*
Historical Cartographies, Hawthorne–Sellwood, Thursday late morning
"The King of Cuckooz" opens the "The Atlas" and Cuckooz Contrey

(1932) by acclaimed Australian poet Kenneth Slessor. "The King of Cuckooz" begins with an epigraph from Robert Norton's 1620 manuscript map of Algiers: "The Platt of Argier and the Pts. adoining…." In the map's foreground are the words "the unknown hilly country to the south of the Bay…marked 'Part of the King of Cuckooz Contrey.'"

Slessor's attraction was precisely that "Cuckooz Contrey" was "unknown." Even today little is known about Norton's military map, his role against the Barbary pirates, or the complex feuds between/among European powers and the heterogeneous populations of the Algerian coast during the Ottoman occupation. By investigating Slessor's sources, comparing his poem to Norton's map, and tracking down Spanish narratives and maps that identify "Cuckooz," my paper will rediscover the "King of Cuckooz."

The Frontline of the Battle Against Asian Carp Establishment in the Great Lakes Drainage Basin
*Erin **Hamilton**, University of Wisconsin–Madison*
Poster Session, Willamette Ballroom, Wednesday evening

Re-creating a Flash-based Map using Open Source Technologies: Wisconsin Coastal Atlas Hydrologic Dashboard
*Erin **Hamilton**, David Hart*
Sea Grant Institute, University of Wisconsin–Madison
Slippy Code, Multnomah, Friday early morning
The Hydrologic Dashboard is an interactive map that focuses on the Fox-Wolf watershed in Wisconsin. Its purpose is to illustrate the connection between precipitation events on land use in the watershed and water conditions in the receiving water body of Green Bay. It was originally developed in 2007 using Flash, but this year a re-creation of the map was undertaken using OpenLayers and other JavaScript-based libraries. This talk will discuss some of the lessons learned from that process as well as the technology behind the map.

Sierra National Forest Recreation Map
*Tom **Harrison**, Tom Harrison Maps*
Poster Session, Willamette Ballroom, Wednesday evening

Lighting Balloon Suitability Analysis
*Michelle **He**, University of Redlands*
Poster Session, Willamette Ballroom, Wednesday evening

Penn State and UMaine Campus Maps
*Michael **Hermann**, Pennsylvania State University*
Poster Session, Willamette Ballroom, Wednesday evening

Improving the workflow and effectiveness of building map icons
*Patrick **Hofmann**, Google*
PCD, Multnomah, Wednesday afternoon
In my efforts to symbolize actions, categories, and places for Google Maps, I've built an icon library that's numbering in the hundreds (actually thousands) of image files. Along with the expanding library, I've developed a growing checklist and streamlined workflow that has not only improved my productivity, but improved the effectiveness of the icons. Although the checklist and workflow will always be a work in progress, I'm really excited to share these tips and techniques!

Baltimore Waterfront Promenade
*Elizabeth **Holtz**, Community College of Baltimore County*
Poster Session, Willamette Ballroom, Wednesday evening

University of Kansas Men's Basketball Program
*Bryant **Huether**, University of Kansas*
Poster Session, Willamette Ballroom, Wednesday evening

"*Map Now!*"
*Daniel **Huffman**, Cartographer and Map Critic*
PCD, Multnomah, Wednesday
Throughout the day, Daniel Huffman will be presenting a series of quick Illustrator tips, while doing his best to emulate a television infomercial pitchman. Do you want to make better maps? Sure, we all do, but who has the time? With his amazing new system, in just minutes you'll be ~~feeling in the best shape~~ making the best maps of your life! Only *Map Now!* can unleash the secret powers locked deep within Illustrator, maximizing your ~~nutritional~~ cartographic benefit. Learn all the tricks that Big Cartography doesn't want you to know, and achieve your life goals. Find out about all this and more, throughout PCD! No purchase necessary; not available in some areas.

Oregon Wine
*Daniel **Huffman**, Cartographer and Map Critic*
Poster Session, Willamette Ballroom, Wednesday evening

Choosing the Right Tool for the Job
*Nate **Irwin**, US National Park Service*
PCD, Multnomah, Wednesday morning
The last few years have seen an infusion of new geo-centric tools that make it easy to build powerful and cartographically-pleasing maps for the web. Unfortunately there is no single silver bullet; each of these tools has its own strengths and weaknesses and is best-suited to address a specific set of use cases and requirements. The NPMap team uses a variety of these tools (both proprietary and open source) to build and deploy web maps to National Park Service park, program, and partner websites. This presentation will give an overview of the NPMap team's toolset, and will go into the team's requirements-gathering and decision-making process.

Adaptive Composite Map Projections for Web Maps
*Bernhard **Jenny**, Oregon State University*
Juliane Cron, Oregon State University
Johannes Liem, University of Vienna, Austria
Jacob Wasilkowski, Clark University
Bojan Šavric, Oregon State University
Slippy Code, Multnomah, Friday early morning
This presentation will introduce the concept of Adaptive Composite Map Projections which are an alternative to the static web Mercator projection used by the majority of web mapping services. An Adaptive Composite Map Projection seamlessly combines selected projections as the user changes scale or the area shown on the map. An adaptive map projection can be equal-area throughout all map scales, or alternatively morph into the web Mercator for large scales. A web map that is arbitrarily scalable will illustrate this concept. HTML5 Canvas and WebGL are used for on-the-fly projection and rasterization.

Automatic Generation of Pseudo-Natural Maps
*Bernhard **Jenny**, Oregon State University*
Jacob Wasilkowski, Clark University
Juliane Cron, Oregon State University
Helen Jenny, Oregon State University
Pixel Landscape Design, Multnomah, Friday late afternoon
Pseudo-natural maps (also called natural-color maps) are topographic maps with a particularly vivid and comprehensible symbolization, uniting cartographic abstraction with natural appearance. This mapping style can be found in manually created natural color relief representations and hand-painted landscape panoramas. This presentation will report on research aiming at the automation of the production of pseudo-natural maps and illustrate design choices made. The goal of this research is to provide maps with pseudo-natural appearance in the form of a web mapping service.

Geologic Mapping in Indiana
*Matt **Johnson**, Todd A. Thompson, Brian D. Keith, Robin F. Rupp, Walter A. Hasenmueller, Indiana Geological Survey*
Poster Session, Willamette Ballroom, Wednesday evening

Jones

Innovations in Mobile Mapping and GIS: Connecting Enterprise GIS and High Quality Sinking in an Economic Undertow (2008–2009)
*Ryan **Jones**, Logan Carpenter, East Tennessee State University*
Poster Session, Willamette Ballroom, Wednesday evening

Cartography to Smartphone Users
*Ken **Kato**, Jacob Bartruff, Dana Maher, Brook Eastman*
InfoGraphics Lab, University of Oregon
Poster Session, Willamette Ballroom, Wednesday evening

Advanced GIS Cartography to Support Emergency Operations
*Dave **Kehrlein**, Esri*
Crisis Mapping, Broadway–Weidler–Halsey, Thursday late morning
This project's long term goal is to improve the coverage of polio immunization in sub Saharan Africa for 10 million children under the age of 5. To support this effort the project must create a base map of the entire area that includes imagery, settlement boundaries and names, locations of hamlets (semi-nomadic grass huts), points of interest, as well as local landmarks, then provide paper maps to the planners to be used to determine immunization team boundaries for each campaign.

Planners will use Android tablets to capture the team extents digitally. Once the team boundaries are in the ArcGIS server Geodatabase, then web, mobile, and paper map products will be generated for teams to use in the field. Each medium has unique cartographic challenges with visualization, performance, bandwidth, and storage.

Android cell phones with tracking application utilizing Esri's Android SDK will be distributed to each vaccinator. The tracks from the phones will be automatically uploaded to ArcGIS server each day through the internet. Each day's tracks will be compared to the planned locations for that day to determine areas that are not adequately covered.

Create Your Own Terrain Maps
*Nathaniel V. **Kelso** and Michal Migurski, Stamen Design*
PCD, Multnomah, Wednesday afternoon
Stamen has open-sourced the tools, workflow, and assumptions used to create http://maps.stamen.com/terrain/. We'll show how to combine OpenStreetMap (OSM) data with shaded relief derived from SRTM, ASTER, National Elevation Dataset (NED) and natural colors via global and US-specific land cover datasets to create, customize, and publish your own terrain maps.

Manitoba-Ontario Boundary Dispute and the Evidentiary Value of Maps
*M. Christopher **Kotecki**, Archives of Manitoba*
Events & Places, Broadway–Weidler–Halsey, Friday early morning
In 1870 the government of the Dominion of Canada purchased the North American territory of the Hudson's Bay Company and Manitoba was created, with only 36,000 square kilometres, making it the postage stamp province. With the influx of settlers and the rapid increase in population the province felt the economic limits of its size. In 1881 Manitoba's boundaries were expanded to the east as far as present Thunder Bay on Lake Superior, and this brought Manitoba into conflict with Ontario which wanted its boundary extended as far west as the North West Angle in the Lake of the Woods. This paper will discuss the boundary dispute and the primarily French maps reproduced by Ontario to help argue their case before the Privy Council, which show the westward movement of the fur trade, the competing French and English empires in North America, the style and design of these maps, and how they were used as evidence.

The Un-App: Designing and Layering PDF Maps for Field Use
*David **Kraiker**, US Census Bureau–New York Regional Office*
Empowering Mappers, Hawthorne–Sellwood, Friday late afternoon
Neither paper map, nor web-based, nor app–PDF maps can be a unique hybrid solution for getting maps to people in the field. PDFs can also be created and tailored to be used exclusively in a digital setting. Yet most people design maps to be printed on paper, and then convert to a PDF. In the Census Bureau's New York Regional Office, using ArcGIS, PDF maps are created primarily to be used on-screen; this means that the concept of nonpaper, nonweb-based must always be kept in mind. Our "clients" must be trained to use the Adobe Reader functionality–something which takes very little time–-and apprised of improvements on PDF images. This presentation is intended to give you a look into the evolution of how we developed the maps, the problems we encountered, and some design considerations we had to make in order to accommodate our audience.

The Edmonton Pipelines Project: Living Together in the Digital City
*Daniel **Laforest**, Russell Cobb, Maureen Engel, Heather Zwicker, University of Alberta*
The City Experience, Broadway–Weidler–Halsey, Thurs early morning
This session will present a number of interconnected multimedia projects in digital mapping and cultural studies that have emerged in the past year at the University of Alberta, in western Canada. Their goal is to bring recent theoretical problems of global urbanization in the context of young, sprawling North American cities together with the burgeoning

technologies of digital mapping and geo-location. More specifically, the session will focus on storytelling in the city. How are the tools of digital mapping helping us to address traditionally under-valued and under-narrated urban experiences at the dawn of the new century? Unsuspected, overlooked, neglected or concealed narrative connections between places will be favored, along with the ways in which urbanites are representing their own personal stories through digital mapping interfaces to negotiate their co-presence inside the various regulated spaces of today's North America. The four projects showcased are Rossdale, Past Futures in the Contemporary City, Dis/Integration and Vertical Suburbia.

Facilitating Reuse of Geospatial Data: A Study of Research Data Repositories
*Kathryn **Lage**, Jerry Crail Johnson Earth Sciences & Map Library, University of Colorado–Boulder*
Data Repositories, Hawthorne–Sellwood, Thursday early morning
Reuse of geospatial research data builds connections, jump-starts collaboration, and saves costs. Institutional repositories (IRs) have been firmly established at many large universities to provide access to the intellectual output of an institution. Most IRs contain text-based research documents, most often in PDF format; research data is not usually represented. However, efforts to integrate data into IRs and to create specialized data repositories are developing, spurred on by the open data movement and funding agency requirements for public access to research data (NSF, NIH). How will these repositories be structured for discovery and access to geospatial data? This talk will discuss the current landscape of emerging data repositories; present an inventory of existing data repositories; discuss how geospatial data are represented; and investigate the types of search functionality.

Lechuguilla Cave Exploration: Mapping the Fourth Longest Cave in the United States
*David **Lambert**, National Speleological Society*
Extreme Mapping, Hawthorne–Sellwood Room, Friday early afternoon
Since 1986, more than 130 miles of passages within Lechuguilla Cave have been surveyed and mapped, mostly by volunteer cavers. On an eight-day underground expedition in May 2012, cavers added over a mile to this length with the discovery of never-before-seen passages, pits, and large rooms, which they called collectively, "Oz." Find out first-hand the many obstacles these cavers had to overcome in mapping the unknown and what it takes to produce a cave map.

Airport Dynamic Digital Map
*Wm **Leler**, Flightstats, Inc*
Poster Session, Willamette Ballroom, Wednesday evening

When Google Maps Gives You Lemons, Make Lemonade
*Wm **Leler**, Flightstats, Inc.*
Open Beauty, Hawthorne–Sellwood Room, Thursday early afternoon
Google Maps has long been the choice for embedding maps on your website and building map mashups. But Google's recent announcement that they will start charging for maps (or including ads on maps) has people looking at other options. Luckily, there are good alternatives and many of them have significant advantages over Google Maps, such as being open source, or being more extensible and customizable. This talk will present alternatives to the Google Maps API, sources of map data, and solutions for serving up your maps. It will also show you how you can customize your maps so they will look the way you want them to look. Finally, you will see some advanced interactive maps made possible by HTML5 and CSS3.

Mapping Rough Justice: The 1884 Cincinnati Courthouse Riot
*Jonathan F. **Lewis**, Benedictine University*
Events & Places, Broadway–Weidler–Halsey, Friday early morning
In March of 1884, several days of rioting occurred in Cincinnati, Ohio. Dozens of rioters and several police were killed and hundreds wounded. This project uncovered the names of those associated with the events (a brutal crime and the trial that followed, a public meeting imploring citizens to demand justice, the riot, and post-riot initiatives to reform the judicial system) in order to identify how residents in different parts of the city were involved. Mapping this involvement reveals clear distinctions among the participation of individuals having different racial, ethnic, and social class backgrounds. Findings challenge existing descriptions of the 1884 riot. They also reinforce recent studies characterizing acts of "rough justice" as conflicts between vying social classes over a new and expansive role played by courts in maintaining law and order.

A Visual Index to the Map Library Collection
*Jean **Locke**, University of Redlands*
Poster Session, Willamette Ballroom, Wednesday evening

Loveman

Print Production with ArcGIS
*Clint **Loveman**, Esri*
Producing Thematic Maps, Multnomah, Friday late morning
Even in the age of digital mapping, many organizations still produce and rely on printed maps for sharing geographic information. ArcGIS 10.1 supports print production workflows using the new Production PDF exporter, available in Esri Production Mapping extension. The presentation will cover overprinting topics and features, spot color support, as well as more advanced color separation features such as screen frequency, angle, and dot shape. Specific color re-mapping workflows and practical map use cases will be demonstrated.

Visualizing Demographic Change:
Gentrification and Older Moms in Portland
*Richard **Lycan**, Charles Rynerson, Portland State University*
Visualizing Change, Hawthorne–Sellwood, Thursday late afternoon
Like many US metropolitan areas, Portland is experiencing the return of affluent thirty-something families to the central city. The Population Research Center at Portland State University tracks such trends in part to inform the demographic research we do for school districts. We are fortunate to have access to geocoded data for births and school enrollment and thus are able to track demographic trends at a fine temporal and geographical level and to produce maps and animations showing change. This paper will show how we have used maps and animations to better visualize the gentrification process and how it has impacted school enrollment. Many of the locales that will be discussed in the paper are nearby the convention hotel and others can easily be reached by public transportation.

Weathering The Map
*Hans van der **Maarel**, Red Geographics*
Producing Thematic Maps, Multnomah, Friday late morning
In the past few years I have produced base maps for a number of weather websites. These maps often come with very strict limitations, such as projection, style, and method of delivery. Having to combine data from various sources further hampered my map making process. I will report on the successes and pitfalls that I encountered within my work flow and recommend alternative approaches that may have improved the cartographic process and my outcome.

Brazil Central Plateau Lands
*Gustavo C. **Machado**, Ministério do Meio Ambiente*
Poster Session, Willamette Ballroom, Wednesday evening

Compare-a-Map: A Side by Side Comparison Tool for Web Maps
*Alex **Mandel**, University of California–Davis*
Slippy Code, Multnomah, Friday early morning
The effectiveness of a cartographic composition starts with the selection of an appropriate canvas to add your data. The majority of web-based interactive maps use one of the widely-available third-party cartographic products (e.g. Google, OpenStreetMap) as their base map. Compare-a-Map is a tool inspired by ColorBrewer and Typebrewer to aid web cartographers in the decision between the available premade options or consideration of custom implementations. Users are given a single page with multiple maps from different providers side-by-side, with linked panning and zooming. By eliminating differences in application programming interfaces (API), projections, and geocoding users can focus on comparing cartographic style and data availability.

Mapping Future Climate Online
*Nick **Martinelli**, University of Oregon*
Spatial Decisions, Hawthorne–Sellwood Room, Friday late morning
My presentation will focus on the design and technological challenges of creating a web-based tool for public, scientific, and administrative consumption. I will explore the UI design and the process that led us to the technologies used in the project. I will also discuss the HTML, JavaScript, and the open source mapping tools and services we chose to display and interact with climate model variables and results.

Portland Bridges
*Nick **Martinelli***
Poster Session, Willamette Ballroom, Wednesday evening

Esri Map Services and ArcGIS.com: A Successful Implementation
*Keith **Massie**, David Renz, City of Medford GIS*
Web Service Implementations, Hawthorne–Sellwood, Fri early morning
Over the past three years, we have built a robust set of map services and have successfully partnered our map services with ArcGIS.com to build several web maps. Each map service represents a different layer of information such as streets, tax lots, or city limits. With over 160 map services deployed, and over 25 web maps online, the city has embraced the utility and time saving features of web map services. This presentation will detail where we are, how we got there, and our future plans. We will start with a brief introduction to map services and web maps, and the process for creating them. We will conclude with a brief outline of our future plans, including requested enhancements.

Visualizing Cultural Data
Amanda McCarron, University of Redlands
Poster Session, Willamette Ballroom, Wednesday evening

Beyond Map Layout and Design … Aesthetics?
George F. McCleary, Jr, University of Kansas
The Aesthetics of Mapping I, Multnomah, Thursday late morning
In 1965, Balchin and Coleman suggested that "Graphicacy Should be the Fourth Ace in the Pack." Since then, waves of cartographic research have examined the communication characteristics of maps, moving from perceptual (psychophysical) studies to aspects of cognitive research. Studies involving the information processing of map structure and design have given scant attention to similar ventures in other fields. These, particularly work in the design of books, posters, and advertisements, provide ideas for organizing the graphic structure of maps … all take advantage of concepts in cognitive psychology (Malamed 2011). The more complex the research problem, the greater the understanding required about cognitive processes. Has there been resolution of the many issues involved in map use … do we understand clearly enough the complex relationships among graphic, cartographic, and geographic literacy to begin work on aesthetics, the complicated area of human memory, and the culture in which it is nurtured?

High DPI and Retina Displays in the Eye of the Cartographer
Justin Miller, MapBox
Orienting the User, Broadway–Weidler–Halsey, Friday late morning
Modern smartphones, and now even traditional computers, are increasingly moving towards high DPI display technology, where there are many more pixels on screen and images are much crisper. Hear about the design considerations that go into optimizing maps for these displays, ranging from label placement, feature sizes, font choices, increased network traffic, and more. High DPI isn't going away, and as more users gain devices with these capabilities, cartographers need to be aware of how to make beautiful, compelling maps for their use.

The Starks of Winterfell
Hannah Moseson, University of Wisconsin–La Crosse
Poster Session, Willamette Ballroom, Wednesday evening

Global Unrest: The Face of a Changing World
Patrick Moriearty, University of Wisconsin–La Crosse
Poster Session, Willamette Ballroom, Wednesday evening

It's Gone Viral: The Evolution of Online Persuasive Maps
Ian Muehlenhaus, University of Wisconsin–La Crosse
Transforming the Map, Multnomah, Thursday late afternoon
Web maps have made it more feasible than ever for the public to design and disseminate maps. Such maps have many benefits for the public at large, particularly as regards PPGIS and community collaboration. One topic that has not been given much attention is online persuasive mapping. Persuasive maps – those designed to communicate a particular viewpoint over others – comprise a significant portion of maps in the world. Not only has the Web made such maps easier to make but it has reduced the cost of their distribution around the globe to virtually nothing. This paper represents an analysis of how persuasive map design is evolving on the Web, compares and contrasts their design to print exemplars, and lays out a plan for ongoing research concerning this topic.

**Twentieth Century China as Viewed from the West:
A Carto-Historical Perspective**
Ian Muehlenhaus, University of Wisconsin–La Crosse
Poster Session, Willamette Ballroom, Wednesday evening

Crooked River National Grassland
Jesse Nett, Sandy Hinkley, Mark Flannery, Kevin Kolb, Matt Tharp, Amanda McKinnis, Maxine Kline, USDA Forest Service
Poster Session, Willamette Ballroom, Wednesday evening

Fire Mapping
Emmor Nile, Oregon Department of Forestry
Extreme Mapping, Hawthorne–Sellwood Room, Friday early afternoon
Each year an average of 40,000 wild land fires burn in the United States. Many of these fires burn for days or weeks and are managed by Incident Management Teams operating under the Incident Command System. Within this structure GIS Specialists work to create map products for use by firefighting resources. It is critical that maps produced for fires are current, complete, and delivered in a timely fashion. Often field intelligence is not received until two hours or less before maps must be duplicated for field use and large briefing maps plotted. This presentation will show what goes into cartographic support of fires, how data is acquired, and mapping standards for fires.

Page

Mapping Atlanta:
Building Spatial History Tools and Digital Resources
*Michael **Page**, Stewart Varner, and Randy Gue, Emory University*
Data Repositories, Hawthorne–Sellwood, Thursday early morning
Historical atlases and gazetteers have long proved invaluable to scholars examining phenomena with a time-space dynamic. By leveraging geospatial technologies to link spatial features with archive and library collections the historical atlases can be transformed into digital databases and tools for researchers. This presentation discusses recent trends in addressing spatial history with technology and shares the concept, methods, intended outcomes, and challenges of a current project at Emory University Libraries in (re)mapping early 20th century Atlanta.

Mapping the Sanctuary of the Great Gods
*Michael **Page**, Emory University*
Events & Places, Broadway–Weidler–Halsey, Friday early morning
Located on the island of Samothrace in the Northern Aegean, the Sanctuary of the Great Gods was an important Hellenic and pre-Hellenic religious sanctuary. The site has been subject to several archaeological expeditions that have left both positive and negative impacts on the site. As part of a recent expedition surveying the site the presenter discusses new methods being used in both data collection and processing and explains how data and information about the site will be distributed over the Internet to inform future research and learning. It is through an amalgamation of hypermedia, CAD, GIS, 3D modeling, and cartographic representation techniques that the project seeks to analyze, document, and communicate the convergent research of both recent and past expeditions while exemplifying future directions in interdisciplinary inquiry. Issues in data collection, interoperability, and archiving will also be discussed.

Polish World Exploration: 1918–1939
*Tomasz **Panecki**, Ada Banaszczyk, Warsaw University*
Poster Session, Willamette Ballroom, Wednesday evening

Venetian Cartography
*Abraham Kaleo **Parrish**, Yale Map Department*
Retrospectives, Broadway–Weidler–Halsey, Thursday early afternoon
I will present examples of a collection of nearly 200 maps by Venetian cartographers and maps of Venice by cartographers in general, showing their techniques and geographic coverage spanning from the 16th to 20th centuries. This includes notable cartographers such as Vincenzo Coronelli, Giacomo Gastaldi, Thomaso Porcachhi, and Antonio Zatta as well as a wide range of formats and styles such as printed flat sheets, atlases, bird's eye views, series, globes, gores and isalario. I will also discuss the grant that allowed us to fully catalog and digitize this collection that has been made available to the public via a web site and OPAC in new and innovative ways.

Mapping the Hawaiian Seafloor
*Tom **Patterson**, US National Park Service*
Pixel Landscape Design, Multnomah, Friday late afternoon
This paper discusses a new map that reveals the 60 percent of Hawai'i that lies hidden beneath the waves. The Seafloor Map of Hawai'i, a medium scale relief map intended for lay audiences, posed production and design challenges typical of ocean bottom mapping in general. The biggest problem was incomplete bathymetry data marred by artifacts. Fixing these bad data—filling voids and removing background noise—involved techniques similar to those used by cartographers for terrestrial mountain mapping. Map design was another challenge. At issue: how to depict on a map a region on Earth that humans will never see. The Hawaiian map uses plan oblique relief, which depicts the seafloor features with three-dimensional offset. Selecting depth tints and relief colors based on the idea of cartographic realism is discussed, as well as the names of seafloor features, many of which are unofficial and inconsistently identified.

Natural Scene Designer Pro 6.0
*Tom **Patterson**, US National Park Service*
PCD, Multnomah, Wednesday morning
Natural Scene Designer Pro 6.0, rewritten from the ground up, is now a 64-bit application that can render 3D scenes and shaded relief maps of enormous proportions, using all available RAM in your computer. I will demonstrate the major new features, including contouring, terrain clipping, importable tree maps, bump map settings, viewshed rendering, and cast shadow rendering. Other improvements will receive less attention, such as batch DEM import, the new overlay manager, Web Mercator projection, and many interface improvements.

Seafloor Map of Hawai'i
*Tom **Patterson**, US National Park Service*
Poster Session, Willamette Ballroom, Wednesday evening

Balloon Mapping
*Sam **Pepple**, Sample Cartography*
Willie Shubert, Internews
Teaching Cartography, Broadway–Weidler–Halsey, Fri early afternoon
Teaching people to make their own remote sensor for aerial imagery creation. The folks who brought Explorative Impotence and the Rock Creek Park Atlas to NACIS 2011, Sam Pepple and Willie Shubert, will present on their Balloon Mapping classes taught through the summer of 2012 at Knowledge Commons DC.

Design is Not Making Things Pretty.
It is (not-so-simply) Making Things.
*Sam **Pepple**, Sample Cartography*
The Aesthetics of Mapping II, Multnomah, Thursday late morning
I will present a holistic view on what design means, not only through the context of maps but many other design domains: UX design and Fabrication with 3D Printers and Logo creation. Huffman accurately pointed out that design is really just time. How do we position ourselves to be valued enough to have time to make great things?

Multi-Scale Mapping using ArcGIS 10.1
*Edith M. **Punt**, David Watkins, Esri*
Web Service Implementations, Hawthorne–Sellwood, Fri early morning
Maps do not duplicate reality but, rather, represent a manageable, scaled version of it. This is apparent in both digital and print cartography. Web-enabled multi-scaled maps are in increasing demand and require the seamless depiction of data over a wide variety of scales. In print cartography, it is cost- and time-effective to produce multi-scaled products from a single database. Being able to render data effectively at a variety of scales is imperative, but to do so many features must be transformed somewhat to retain clarity and characteristic form when displaying smaller scales. Cartographic tools available in the ArcGIS 10.1 geoprocessing framework to support multi-scaled workflows will be discussed with respect to this goal.

Techniques for Cartographic Presentation
of Upsampled Raster Land Cover Data
*Paulo **Raposo**, Kevin Sparks, Cynthia A. Brewer*
Pennsylvania State University
Pixel Landscape Design, Multnomah, Friday late afternoon
Data from the USGS National Land Cover Database (NLCD) are undesirably coarse at 1:24,000. We present techniques that transform NLCD data to yield a painterly representation without pixelation at larger scales. Cartographic generalization and enhancement are conducted, the former in the sense that zones are aggregated and simplified and the latter in the sense that data are upsampled and supplemented with interpolated values. Random rasters are used to apply spatially-controlled noise at the borders of raster regions, and this noise is used to allocate neighboring pixels to nearest land cover classes such that boundaries are made organic in shape. Euclidean distance calculations are used to apply feathering at the edges of raster zones to soften boundaries. Color symbolization uses minimal lightness differences, further softening edges. Results yield a representation suitable as a generalized land cover map for larger-scale cartography.

Fern Ridge Bathymetry
*Branden **Rishel**, University of Oregon*
Poster Session, Willamette Ballroom, Wednesday evening

Viewshed Analysis of Redlands Surveillance Cameras
*LeAndre **Roberson**, University of Redlands*
Poster Session, Willamette Ballroom, Wednesday evening

SymbolStore.org–An Open Resource for Map Symbols
*Anthony C. **Robinson**, Scott Pezanowski, Raechel Bianchetti, Joshua Stevens, Elaine Guidero, Justine Blanford, Alan M. MacEachren, GeoVISTA Center, Pennsylvania State University*
Symbolization, Broadway–Weidler–Halsey Room, Friday late afternoon
It remains a challenge for mapmakers to discover and share relevant map symbols within and across public and private organizations. Often, similar features are represented in multiple ways by mapmakers who represent unique groups of stakeholders. Until now, there have only been informal and inefficient means for disseminating and sharing map symbols to encourage interoperability. Here we present SymbolStore.org, a publicly-accessible web tool for discovering, sharing, previewing, and retrieving point symbols for maps. SymbolStore.org allows users to find symbols using keyword searches, to explore symbols used by agencies and specific users, and to preview a set of symbols on realistic maps before downloading. In addition, interested cartographers can contribute their symbols and easily add metadata to share their symbols. While SymbolStore.org was originally designed based on research in crisis mapping, our vision is to support sharing symbols in all types of mapping contexts.

Blending the Past and the Present:
A New Look at the Catherwood Lithographs
*Lindsay **Robinson**, University of Wisconsin–Milwaukee*
Poster Session, Willamette Ballroom, Wednesday evening

Rogers

Which Birds are Found Here?
Serving Up Overlapping Polygon Geometries in Web Queries
*Leta **Rogers**, Pennsylvania State University*
Spatial Decisions, Hawthorne–Sellwood Room, Friday late morning
The problem with running spatial queries on large datasets of overlapping polygons is one that can frustrate even users on powerful GIS workstations, but when offering these queries in a web application, it becomes clear that a clever plan must be devised for serving up this information quickly and accurately. Careful data preparation and the choice of appropriate tools are critical to a successful strategy. A web application, built on a scalable approach using a combination of vector and raster data and open source tools for processing "point-in-polygons" and "polygon-in-polygons" will be demonstrated. This application allows researchers and the public to search for a list of bird species that can be found in their selected search area. The methods discussed are applicable for any situation where an efficient spatial query on a large number of overlapping polygons is needed.

An Assessment of Adobe Flash in a Cartographic Curriculum
*Eugenie **Rovai**, Steve Stewart, California State University–Chico*
Teaching Cartography, Broadway–Weidler–Halsey, Fri early afternoon
In the spring semester of 2011, our department introduced Adobe Flash into the advanced cartography curriculum. While other web mapping venues like ArcGIS Online and Adobe Flex Viewer were introduced into other techniques courses in the department, the cartographic staff decided that Flash's advantages made it best suited for advanced cartography. Our experiences over the last two years confirmed its value in terms of richer data visualization but there were clearly issues of significant technological hurdles and time expenditures. In addition, we witnessed a polarization among the students. A small number of students excelled and became totally immersed in using Flash technology for cartographic visualization, but a greater number of students found the technological learning curve too steep and failed to reach their cartographic potential using Flash.

Mapmaking for Change: Online Participatory Mapping Tools for Revealing Landscape Values in the Bad River Watershed
*Carl **Sack**, University of Wisconsin–Madison*
Empowering Mappers, Hawthorne–Sellwood, Friday late afternoon
This talk will present online participatory mapping (OPM), or the public, collaborative synthesis and presentation of volunteered geographic information to support the goals of a community. It will center on a case study being conducted in the Bad River Watershed of Northern Wisconsin as an ongoing master's thesis project. I will describe the project and demonstrate the use of an online participatory mapping application, or wikimap, designed to capture local knowledge and landscape values in the watershed. The application, scheduled for beta release in September, will initially be monitored with interaction logging tools that assess which interactions supported by the wikimap are most frequently applied by its users, revealing participation patterns that will be useful for the future design and development of similar wikimaps. A final focus group study will evaluate the impact of the wikimap on public discourse surrounding land use and natural resource management in the watershed.

Private Places in Public Spaces:
An Examination of Public Restroom Access in Downtown Chicago
*Noah **Sager**, Chicago State University*
The City Experience, Broadway–Weidler–Halsey, Thurs early morning
In 2008, the United Nations declared the "International Year of Sanitation" to raise awareness and to manage the billions of people without access to basic sanitation. The American Restroom Association joined forces with the UN effort and posited that one way to help would be for larger cities to create "toilet maps." However, paramount to locating public restrooms is understanding why they are there in the first place, and how their locations affect the people who use them. This study is a master's thesis project that mapped public restrooms in downtown Chicago from 2011–2012, and interpreted their locations based on public space use and access. Restrooms were examined based on capacity (number of stalls, baby changing stations) and functionality (working order, gender specifics). Locations were examined firsthand with male and female researchers. The presentation will describe current issues with public restrooms, and show restroom locations using static and interactive maps.

Bicycle Map of Oregon
*Mark **Scott***
Poster Session, Willamette Ballroom, Wednesday evening

The Battle of South Mountain
*Matthew **Schroeder**, University of Montana*
Poster Session, Willamette Ballroom, Wednesday evening

From Signs to Minds: Wayfinding Design and Mental Maps
*Michaela **Skiles**, LandWorks Vermont*
Orienting the User, Broadway–Weidler–Halsey, Friday late morning
Most wayfinding signs guide people to their destinations with simple arrows. Though these signs are easy to follow, like in-car GPS or

smartphone mapping applications, it is unclear to what extent they help people build a mental map of the area. In this study I aimed to design wayfinding signs that not only support immediate navigation but also help people learn the layout of their environment, by incorporating highly simplified maps into the signs. In a lab experiment, I evaluated these map-based signs against conventional arrow-based signs. Participants viewed signs as if traveling through a fictional environment and then completed an unexpected mapping task. Users of the map-based signs demonstrated significantly greater understanding of the layout of the environment, suggesting that these signs better support spatial learning of the environment during travel. These results call for greater inclusion of cartography in the field of wayfinding signage design, beyond you-are-here maps.

Map Production for Transportation Modeling
Amy **Smith**, *FEHR & PEERS*
Spatial Decisions, Hawthorne–Sellwood Room, Friday late morning
Maps can be valuable resources for transportation modelers. A recent travel time analysis of Interstates 680 and 880 in California harnessed Python, ArcGIS, and Processing to batch process GPS data collected along two study corridors, summarize travel characteristics, visualize the spatial distribution of these characteristics, create supplementary charts, and automate map generation and export. The maps are being used to support engineers in calibrating and validating traffic operation models in simulation, helping them determine areas of congestion, length of queues, and average travel times through the corridors.

Designing Fast and Beautiful Web Maps with TileMill MapBox
Dane **Springmeyer**, *Development Seed*
PCD, Multnomah, Wednesday afternoon
TileMill, an open source design studio, lets you design fast and beautiful interactive maps using your own data and share them on the web and mobile devices. This session will walk through how to use TileMill to take a spreadsheet of data and a shapefile and turn it into an interactive web map that can quickly be shared online. We'll show how you can use TileMill to make all sorts of maps from proportional symbol to choropleth to full featured street-level base maps.

Left Off the Map–The Consequences of Spatial Segregation
Tim **Stallmann**
Empowering Mappers, Hawthorne–Sellwood, Friday late afternoon
What happens when some members of a community are excluded from decisions which impact everyone? Maps encode decisions about who has access to municipal water and sewer, where schools are located and who attends them, where landfills and wastewater

treatment plants are located, and how political representation works. In some parts of the country, majority-people-of-color communities are systematically "left off the map."

The Impotence of Maps, or Deconstructing the Deconstruction of their Construction
Daniel "daan" **Strebe**, *Mapthematics LLC*
The Aesthetics of Mapping II, Multnomah, Thursday late morning
As mapmakers we are invested in the importance of our craft. We bemoan the tragic state of geographic and map literacy and advocate better education. Names like Robinson, Harley, and Wood have asserted the great power of maps. Are we guilty of seeing everything as a nail because we make hammers? In this rhetorical presentation, I argue for humility in our endeavor, recognizing that many people simply do not need maps. They meet their wayfinding needs using other efficient, utilitarian skills and devices. Could we improve our map designs for those who do use maps by disregarding the (non)needs of those who do not?

Map Symbol Design and Event Reporting for Mobile Devices: A Preview of a Mobile Application and Developer API based on an Online Symbol Repository
Joshua E. **Stevens**, *Scott Pezanowski, Elaine Guidero, Anthony C. Robinson, Alan M. MacEachren*
GeoVISTA Center, Pennsylvania State University
Symbolization, Broadway–Weidler–Halsey Room, Friday late afternoon
Maps are among the most effective ways for disseminating information related to crisis events and disaster relief efforts. Previous cartographic strategies for reporting events have often relied on user-contributed platforms and content deployed for a specific scenario. The Symbol Store, an online repository of map symbols, enables users to search and choose among hundreds of tagged and categorized symbols. This work describes a mobile application that leverages the Symbol Store API and database to symbolize and report events independent of pre-defined contexts. This work makes three contributions. First, we demonstrate the utility of a Symbol Store API for developers of custom mapping applications. Second, we propose a cartographic output for sharing events across social media, email, and other digital services. Lastly, we report the findings from an evaluation of map symbols related to emergency management developed specifically for use within mobile applications.

Sullivan

Bridgetown/Bicycletown and Portland Finger Plans
*Ryan **Sullivan**, Paste in Place*
Poster Session, Willamette Ballroom, Wednesday evening

Portland Finger Plans
*Ryan **Sullivan**, Paste in Place*
PCD, Multnomah, Wednesday afternoon
Cities are large, complex systems that are composed of many different, inter-related components and, as such, are challenging to describe and represent in a single image. In this talk, I will describe the process through which I created a series of six maps of Portland juxtaposing two dramatically different scales: human hands and the urban form.

Drilling on Sensitive Ground
*Alina **Taalman**, Humboldt State University*
Poster Session, Willamette Ballroom, Wednesday evening

Panoramic Map of Mount Washington
*Alex **Tait**, International Mapping*
PCD, Multnomah, Wednesday afternoon
In designing the panoramic map of Mount Washington, I worked carefully with color and composition to illustrate a story about the harsh and sometimes dangerous conditions on this high mountain peak. The primary subject matter of the map, locations of all deaths on the mountain from 1849 until 2008, gave me an invitation to push the design into a more somber space than most maps I have created. In this short talk, I will discuss some of the design challenges and solutions of this project.

Humboldt Bay, California
*Aaron **Taveras**, University of Kansas*
Poster Session, Willamette Ballroom, Wednesday evening

New Moments in Mobile Spatial Applications:
The Commoditization of "Location" and Teleological Red-lining
*Jim **Thatcher**, Clark University,*
Orienting the User, Broadway–Weidler–Halsey, Friday late morning
This talk presents preliminary research findings from a series of interviews with mobile navigation application designers and developers. It suggests that as mobile spatial applications extend human awareness beyond the limits of the body they do so only through programmatically defined space(s). The talk uses recent examples of "personalized" GPS applications to present the possibility for private corporations and individuals, using private data and algorithms, to select what areas of a city are rendered visible and invisible. "Location" becomes disassociated from physical location and commoditized as traffic patterns through cities are continually bid for, bought, and sold.

The talk also engages "alternative" mapping applications. Interviews with the designer of Drift is contrasted with the motivations found in Microsoft Research scholars. Following in Critical GIS traditions, the talk demonstrates the dialectical tension between the opening of new possibilities and the foreclosing of others that exists within all technological processes, but must be considered once more in light of mobile spatially-aware services.

ETA: Euskadi Ta Askatasuna and Spain: 1959–2011
*Lauren **Tierney**, University of Oregon*
Poster Session, Willamette Ballroom, Wednesday evening

Augmenting Yosemite's Paper Maps
*Richard **Tinnell**, Pennsylvania State University*
Orienting the User, Broadway–Weidler–Halsey, Friday late morning
To best serve users that are familiar with using paper maps but also comfortable and interested in mobile applications, this project will investigate the use of augmented maps. In Yosemite National Park, augmented maps can be used to enhance the viewer's navigation experience by adding data to the traditional paper maps of the park instead of replacing them with a mobile app. Using printed data markers such as QR codes placed on NPS maps, a smartphone can be used to identify the precise map the visitor is studying, display the exact location of the visitor and current news and events in the park, and offer the visitor additional choices of content not shown on the printed map. The background shown on the screen is the paper map as seen through the phone's camera while the augmented content options overlay the original paper park map. The combined analog and digital experience will allow Yosemite National Park visitors to gain a much more informative and rich experience from their park map, thus sustaining the National Park Service paper map series tradition while better serving its clientele.

The Role of Early Twentieth Century Map Workbooks in The Acquisition of Geographic Information
*Karen M. **Trifonoff**, Bloomsburg University*
Learning Cartography, Broadway–Weidler–Halsey, Thurs late afternoon
Geography textbook publishing for secondary schools was a flourishing industry in the late 19th and early 20th centuries with numerous

authors, publishers, and editions. These volumes show a great diversity of geographic content and maps, yet there is little indication of how these textbooks were used within the geography curriculum. Examining old textbooks and workbooks annotated and inscribed by students and teachers provides some clues on the role of these texts and workbooks in geographic learning. This paper discusses the types of annotations in general, shows a specific example of an inscribed map workbook from the 1920s and investigates the identities of the student and teacher mentioned in the workbook with genealogical research. An inscribed map workbook from the 1920s Schuylkill County, Pennsylvania provides examples of map use and map making suggesting a vibrant and interactive classroom environment.

Creating a Hypothetical County
*Sarah E. **Troedson**, James J. Watkins, GEI Consultants, Inc.*
Crisis Mapping, Broadway–Weidler–Halsey, Thursday late morning
While it is true that making maps is work (and sometimes very hard work!), it is also true that the work can be fun and satisfying. In this case the fun predominated! There was a legal mandate for the California Department of Water Resources to create a template for a county-wide emergency plan for floods, including a sample map showing evacuation routes. Using a real county might have had political ramifications, so the decision was to create a new and unique county, but with complete data layers for future use in drills and tests. The resulting Hypothetical County map has proven itself useful in every application for which it was intended and served well in a few unplanned scenarios. This presentation will summarize the requirements for the sample map, the process used to create it, what additional maps were created with the same fictionalized data set, and lessons learned along the way.

Layering Multiple KML Files Using Google Fusion Tables
*Spencer **Trowbridge**, University of Nebraska–Omaha*
Poster Session, Willamette Ballroom, Wednesday evening

Milwaukee's North Avenue: A Racialized Landscape
*Corrin **Turkowitch**, University of Wisconsin–Eau Claire*
Poster Session, Willamette Ballroom, Wednesday evening

Neogeography & Neocartography–Rethinking How the World Shares Insights through Maps
*Andrew **Turner**, GeoIQ*
Transforming the Map, Multnomah, Thursday late afternoon
With the broad advent of geolocated mobile phones, near ubiquitous social sharing, and the easy access to powerful geospatial tools, users are truly able to access and ask meaningful personal questions. New methods are needed for people to engage and use tools in ways that make sense to them instead of applying traditional techniques and methodologies. We have seen numerous new concepts as well as evolution of historic interfaces that enable intriguing exploration of geospatial data through the web and mobile interfaces. This talk will share experiences and insights building cartographic and map visualization tools that are meant for anyone to easily and effectively discover insights and tell stories on the web.

"I will now commence drawing my map": Teaching Map Drawing in Nineteenth Century Girl's Schools
*Judith A. **Tyner**, Professor emerita,*
California State University–Long Beach
Learning Cartography, Broadway–Weidler–Halsey, Thurs late afternoon
In the nineteenth century, students learned geography by making maps; some of these were on slates, thus lost to history, but others of these maps are of a professional quality and would not be recognized as school productions if not flagged as such. Where did the students learn to make these high quality maps? Who taught them, and why? This paper focuses on maps by school girls and how they were taught, especially at four institutions, Westtown School, Litchfield Academy, Middlebury Academy, and the Troy Female Academy in the early nineteenth century. It looks at the maps that were made and at guidelines that were used for teaching map drawing in schools.

Solving a Cartographic Collection Mystery: Reconciling the Maps of the Jansson-Hondius Appendices and Theatri in the Vignaud Map Collection
*Tim **Utter**, Stephen S. Clark Library for Maps–University of Michigan*
Retrospectives, Broadway–Weidler–Halsey, Thursday early afternoon
In 1922, the University of Michigan purchased the extensive map, book and atlas collection of Henry Vignaud (1830–1922) a journalist, Confederate captain, French diplomat and map collector. The Clark Library map collection has several hundred of Vignaud's maps and books. Most of the maps date from ca. 1630 and are direct derivations of the Mercator-Hondius map plates. With extensive bibliographical research and analysis of the physical characteristics we have been able to determine the provenance of these uncommon maps to know which atlases they are from. The maps fill a gap in the University's collection of 15th–16th century Dutch cartography. Our research demonstrates the importance of retaining original accession books and items related to the history of map collections.

Utter

The Stephen S. Clark Library for Maps, Government Information, and Data Services: A Success Story in Service Consolidation
*Tim **Utter**, Stephen S. Clark Library for Maps–University of Michigan*
Data Repositories, Hawthorne–Sellwood, Thursday early morning
The Stephen S. Clark Library for Maps, Government Information, and Data Services opened in November 2011 and is situated on the second floor of the Harlan Hatcher Graduate Library in the space formerly used by Serials and Microform Services. A plan was made in 2009 to combine the former Map Library, Government Information Center, and Spatial and Numeric Data Services (SAND). The units had service overlap and shared staff so this seemed a natural fit that would benefit both users and staff. The University Library's development office was able to find a donor and the Clark Library came into being. I discuss planning for the new library, moving 400,000 maps, books and atlases, and the higher demand for library services.

Economic Analysis Tool for The California Budget
*April **Villagomez-Roe**, University of Redlands*
Poster Session, Willamette Ballroom, Wednesday evening

From Alterity to Allegory:
Early Maps, Cannibalism and Conceptions of Amerindian Civility
*Jim **Walker**, Independent Scholar*
Historical Cartographies, Hawthorne–Sellwood, Thursday late morning
Cannibalism was a central theme in European discourse about the New World. In European consciousness this subject was rooted in historical understanding of the association with an uncivilized, savage lifestyle and pagan ideology. Accounts of Columbus's first two voyages introduced not only descriptions of alleged cannibalism among natives of the Lesser Antilles, but also the word itself which soon identified not only a practice but also a place. The publications of Vespucci in 1503–1504 relocated cannibalism to the region of Brazil; the first image of cannibalism published in 1505 accompanied an edition of Vespucci's letter. Brazil became the principle region of focus for most textual and image accounts of the practice in the 16th century.

Maps were a unique contributor to developing knowledge about cannibalism among Amerindian cultural groups. The location of cannibalism was noted on the 1502 A. Cantino manuscript (canibales) and on the 1507 M. Waldseemuller map (cambales). The 1507 J. Ruysch map noted CANIBALOS IN in the Lesser Antilles and included a legend about cultural practices derived from Vespucci's account. The Kunstmann II manuscript of ~1506 contained the first image ("man on

a spit") of cannibalism on a map. Piri Reis's 1513 manuscript included a legend about cannibalism accompanying images of dog headed anthropormorphs and Blemmyes in South America, both presumably representing cannibals. The graphic depiction of cannibalism with important accompanying legend on the 1516 Carta Marina of Waldseemuller was followed by many others including Hans Holbein's corner design on S. Munster's world map of 1532 and on Munster's 1540 map of America. Cortés's 1524 map of Mexico City reinforced the link between practices of cannibalism and human sacrifice.

In 1570 A. Ortelius's title page introduced the first allegorical image of America personified in a hierarchal relationship with the other continents and in a (by now) familiar style including reference to cannibalism. This allegorical image of America was adopted in the 1603 edition of C. Ripa's Iconology and appeared in many later prints and paintings well into the 17th century including several splendid wall and folio maps. These included the world maps of C. Claesz (1600), J. van den Ende (1604), P. van den Keere (1614), S. Scolari (1646), a marvelous painted Japanese folding screen (ca. 1640) and others. By the early 18th century the image of cannibalism had largely disappeared from maps and allegorical pictures of America.

South American Viticulture
*Garin **Wally**, California State University–Chico*
Poster Session, Willamette Ballroom, Wednesday evening

Zoning Map of San Francisco
*Michael **Webster**, City of San Francisco*
Poster Session, Willamette Ballroom, Wednesday evening

A Spatial Analysis of Natural Gas Development in Pennsylvania: 2005–2011
*Jamie **Wheeler**, East Carolina University*
Poster Session, Willamette Ballroom, Wednesday evening

Major Threatened Coral Reefs
*Grace **White**, University of Wisconsin–Madison*
Poster Session, Willamette Ballroom, Wednesday evening

Mapping Social Media
*Sarah **Williams**, School of Architecture and Planning–MIT*
PCD, Multnomah, Wednesday afternoon
Sarah Williams will present on one of the recent projects in the Spatial Information Design Lab in which check-in data from Foursquare and Facebook was acquired through their APIs and translated that data into

visualizations that show social media activity in New York, Mumbai, Tokyo, Rio, Beijing, Mexico City, and Moscow. Williams will explain how social media data can be acquired and used for mapping and research. She will focus on various visualization techniques she used to help describe this crowd-sourced data set.

Rhetorical Styles of Persuasive Maps
Mary Windsor, University of Wisconsin–La Crosse
Poster Session, Willamette Ballroom, Wednesday evening

Communicating Chesapeake Bay Water Quality Issues Using 3D and Temporal GIS
John Wolf, Pennsylvania State University
Poster Session, Willamette Ballroom, Wednesday evening

Mapping Pedestrian Travel Times to Escape Potential Cascadia Tsunamis
Nathan J. Wood, Western Geographic Science Center, USGS
Crisis Mapping, Broadway–Weidler–Halsey, Thursday late morning
The US Pacific Northwest coastline is threatened by tsunamis similar to those that devastated coastal Japan after the 2011 Tohoku earthquake. Tens of thousands of residents and visitors frequent low-lying areas that could be inundated by catastrophic tsunamis in as little as 20 minutes after a magnitude 8 or greater Cascadia subduction zone earthquake. Developing policies and programs to prepare and protect the large number and dispersed nature of at-risk residents and visitors is challenging for emergency managers. A critical question is whether at-risk individuals will have enough time to reach high ground before tsunami waves come ashore. Geospatial modeling was done to estimate and map pedestrian travel times out of tsunami hazard zones in two southwest Washington coastal counties. Mapped results help emergency managers determine where evacuation education alone may suffice or where vertical-evacuation mitigation may be warranted.

Designing and Building User Interfaces and Interaction for Web Maps
Andy Woodruff, Axis Maps
PCD, Multnomah, Wednesday afternoon
User interfaces (UI) and interaction design are crucial elements of the look and experience of web maps. They furthermore represent a large portion (if not a majority) of the work required to design and build a web map. This talk will present some tips for effective design and implementation of interfaces and interaction via examples of maps built for various clients, demonstrating what worked and what didn't work. Design tips will focus on such things as layout, types of interface widgets, types of interaction, and the linking of map and interface.

Thematic Mapping With Less Known Software Packages
Kazimierz J. Zaniewski, Department of Geography and Urban Planning University of Wisconsin–Oshkosh
Producing Thematic Maps, Multnomah, Friday late morning
There are several not well known but very powerful mapping software programs capable of producing a variety of publication quality thematic maps. Most of these programs are relatively inexpensive or free. This presentation examines three software packages, Map Viewer (Golden Software), Cartes et Données (Articque), and Philcarto (Philippe Waniez), and provides examples of thematic maps generated with each package. All three packages can produce the most popular maps—choropleth, proportional symbol, dot density, pie chart, and bar graph—as well as less common types, including flow, network, and 3D elevation maps. These mapping programs also come with powerful data and boundary manipulation functions. All maps generated with these software packages can be exported in vector format for final touches in illustration software.

See you in "G-Vegas" next year!

greenville

LIST OF NEARBY RESTAURANTS keyed to following map

#	Name	Type	Address	Phone	Price
1	**Blossoming Lotus**	Vegan	1711 NE 15th Ave (0.6 mi)	503-288-0048	$$
2	**Petisco**	Sandwiches	1411 NE Broadway (0.5 mi)	503-360-1048	$
3	**Frank's Noodle House**	Chinese	822 NE Broadway (0.4 mi)	503-288-1007	$$
4	**Cadillac Café**	Brunch	1801 NE Broadway (0.4 mi)	503-287-4750	$$
5	**Chai Yo Thai Restaurant**		1411 NE Broadway (0.6 mi)	503-287-0505	$
6	**Umi Sushi**		914 NE Broadway (0.4 mi)	503-288-5149	$$
7	**McMenamins - Broadway**	Brew Pub	1504 NE Broadway (0.5 mi)	503-288-9498	$$
8	**Milo's City Café**	American	1325 NE Broadway (0.6 mi)	503-288-6456	$$
9	**Newport Seafood Grill**		1200 NE Broadway (0.6 mi)	503-493-0100	$$
10	**Aztec Willies**	Mexican	1501 NE Broadway (0.6 mi)	503-280-8900	$$
11	**Buffalo Wild Wings**		1200 NE Broadway (0.7 mi)	503-432-8179	$$
12	**Stanford's Restaurant/Bar**		913 Lloyd Center (0.2 mi)	503-535-0811	$$
13	**Sushi Land, Marinepolis**		1409 NE Weidler St (0.6 mi)	503-280-0300	$$
14	**Pastini Pastaria**		1426 NE Broadway (0.6 mi)	503-288-4300	$$
15	**Bellagios Pizza**		815 NE Weidler St (0.5 mi)	503-954-3511	$
16	**Pizza Schmizza**		698 NE Broadway (0.6 mi)	503-517-9981	$$
17	**Taste Tickler**	Subs & Bento	1704 NE 14th Ave (0.6 mi)	503-282-3681	$
18	**Yuki Japanese Restaurant**		1337 NE Broadway (0.5 mi)	503-281-6804	$$
19	**Jimmy John's**	Gourmet Sandwiches	1139 NE Broadway (0.5 mi)	503-719-7774	$
20	**Red Robin Gourmet Burgers**		1139 NE Grand Ave (0.4 mi)	503-231-9223	$$
21	**Chipotle Mexican Grill**		710 NE Weidler St (0.4 mi)	503-287-8242	$
22	**Burgerville USA**		1135 NE M L King Blvd (0.4 mi)	503-235-6858	$
23	**Thai Pod Restaurant**		2015 NE Broadway (0.6 mi)	503-493-1122	$
24	**Chino Saigon Sinee**		835 NE Broadway (0.4 mi)	971-230-1600	$
25	**Orient Chinese Restaurant**		1025 NE Broadway (0.5 mi)	503-282-5811	$
26	**Mashita Teriyaki**		1612 NE 6th Ave (0.5 mi)	503-335-7185	$
27	**Habeesha Ethiopian Restaurant**		801 NE Broadway (0.4 mi)	503-284-4299	$$
28	**Muchas Gracias Mexican**		707 NE Weidler St (0.4 mi)	503-281-0570	$

#	Name	Address	Phone	Price
29	**Panda Express** Asian	1403 NE Weidler St (0.6 mi)	503-287-1118	$
30	**Qdoba Mexican Grill**	825 NE Weidler St (0.4 mi)	503-688-5551	$
31	**J Café**	533 NE Holladay St (0.2 mi)	503-230-9599	$
32	**Quiznos** Subs	1130 NE Holladay St (0.1 mi)	503-467-4500	$
33	**Cafe 10-2-1**	1021 NE Grand Ave (0.4 mi)	503-820-4155	$
34	**Cafe 700**	700 NE Multnomah St (0.2 mi)	503-232-9089	$
35	**Cafe Today**	825 NE Multnomah St (0.4 mi)	503-231-1772	$
36	**Subway** Subs	1211 NE M L King Blvd (0.6 mi)	503-233-8246	$
37	**Subway** Subs	1301 NE Broadway (0.5 mi)	503-284-4782	$
38	**Taco Bell**	725 NE Weidler St (0.4 mi)	503-281-8351	$
39	**Wendy's**	1421 NE Grand Ave (0.5 mi)	503-249-2911	$
40	**Burger King**	632 NE Weidler St (0.5 mi)	503-287-3083	$
41	**McDonald's**	1520 NE Grand Ave (0.5 mi)	503-287-7719	$
42	**Denny's** Diner	425 NE Hassalo St (0.4 mi)	503-236-3727	$
43	**Village Inn** Brunch	1621 NE 10th Ave (0.4 mi)	503-284-4141	$$
44	**Grand Central Bakery & Café**	1444 NE Weidler St (0.6 mi)	503-288-1614	$
45	**Temptations Café**	1130 NE Holladay St (0.1 mi)	503-546-2550	$
46	**Applebee's Grill** American	1439 NE Halsey St (0.5 mi)	503-284-8040	$$
47	**Peet's Coffee & Tea**	1441 NE Broadway (0.6 mi)	503-493-0192	$
48	**Starbucks**	1510 NE Broadway (0.6 mi)	503-249-0017	$
49	**Starbucks**	1621 NE Grand Ave (0.6 mi)	503-281-3395	$
50	**Starbucks**	1503 NE M L King Jr Blvd (0.5 mi)	503-233-3167	$
51	**Starbucks** in Safeway Grocery	1100 NE Broadway (0.5 mi)	503-528-0500	$
52	**Starbucks** in Mall	925 Lloyd Center (0.2 mi)	503-249-0416	$
53	**Starbucks**	1035 NE M L King Blvd (0.4 mi)	503-234-4141	$
54	**Starbucks**	525 NE Grand Ave (0.5 mi)	503-231-2793	$
55	**Starbucks**	777 NE M L King Jr Blvd (0.6 mi)	503-731-9851	$
56	**Lloyd Center Food Court** Mall	925 Lloyd Center (0.2 mi)	503-282-2511	$

Walking Map of Doubletree Vicinity

The Doubletree by Hilton is within walking distance of many eateries and attractions in northeast Portland. Head north to Weidler Street or Broadway for the nearest diversity and abundance of places to eat and drink.

Please refer to the previous page for a detailed list.

Keep in mind that the Lloyd Center directly north of the hotel is a large three-story mall with many more shops and places to grab a bite.

A more detailed map is available that includes downtown Portland (particularly across the river) by scanning the code below or by picking one up at the NACIS registration desk. For *NACIS Night Out*, please refer to that map page in this program for a more specific view of how to find the Natural Capital Center (Ecotrust Buidling).

scan code for
full Portland map
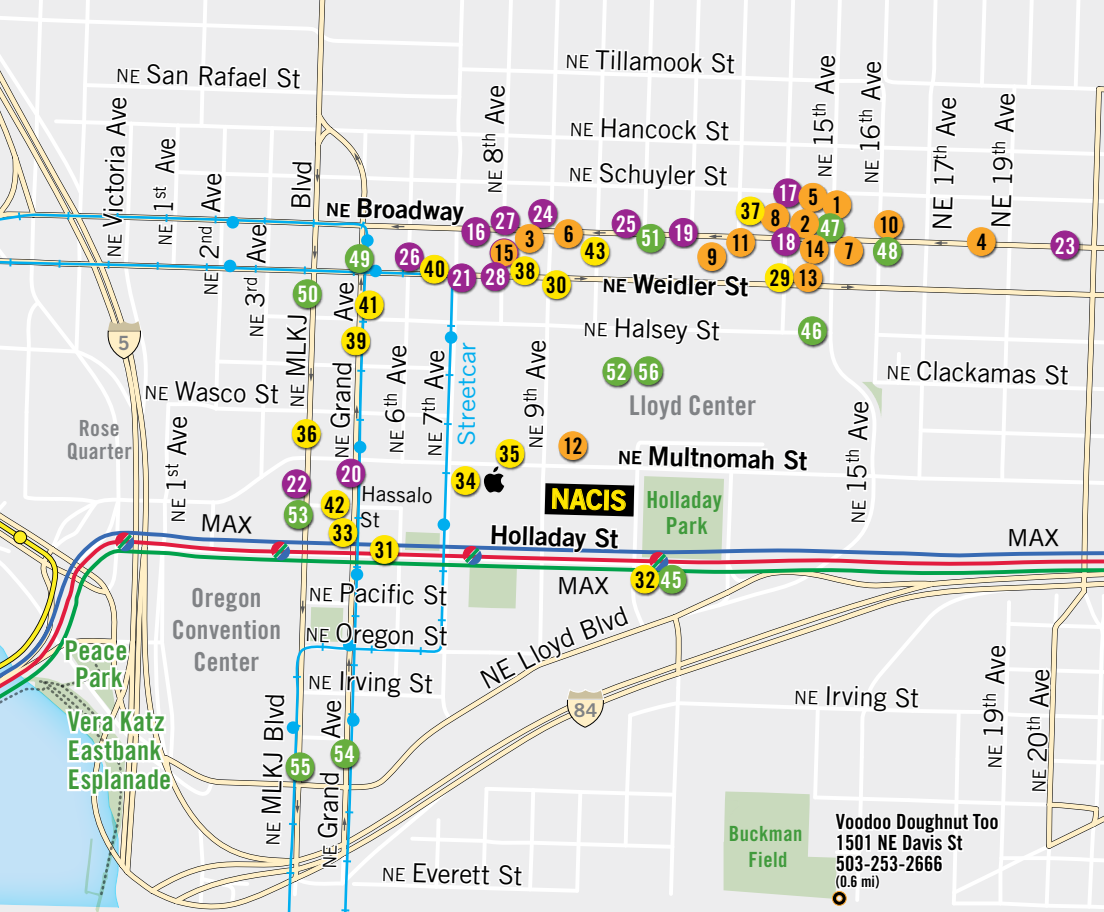
half mile (10 walking min)

kilometer

N Interstate Ave

Streetcar

Broadway Bridge

Willamette River

Union
Station

MAX

Steel
Bridge

Classical
Chinese Garden

Waterfront
Park

Voodoo Doughnut
22 SW 3rd Ave 2 blocks
503-241-4704
(1.4 mi)

NE San Rafael St

NE Tillamook St

NE Hancock St

NE Schuyler St

NE Victoria Ave

NE 1st Ave

NE 2nd Ave

NE 3rd Ave

Blvd

NE 8th Ave

NE 15th Ave

NE 16th Ave

NE 17th Ave

NE 19th Ave

NE Broadway

NE Weidler St

NE Halsey St

NE Clackamas St

MLKJ

NE Grand Ave

6th Ave

7th Ave

Streetcar

NE 9th Ave

NE Wasco St

NE 1st Ave

Rose Quarter

5

Lloyd Center

NE Multnomah St

NE 15th Ave

Hassalo St

MAX

NACIS

Holladay St

Holladay Park

MAX

Oregon Convention Center

NE Pacific St

NE Oregon St

NE Irving St

MAX

NE Lloyd Blvd

84

NE Irving St

NE 19th Ave

NE 20th Ave

Peace Park

Vera Katz Eastbank Esplanade

NE MLKJ Blvd

NE Grand Ave

NE Everett St

Buckman Field

Voodoo Doughnut Too
1501 NE Davis St
503-253-2666
(0.6 mi)

Portland
Oregon

What bridges did you build?

NACIS 2012