

### Tuesday

**6** pm

7 рм

2

NACIS Board Meeting I (**Hampton II**) Tuesday Night Meetup (**Grain**)

### Conference at a Glance

Conference at a Glance

### Wednesday

 9 AM
 Practical Cartography Day (Hampton IV)
 Lunch served in Hampton V

 7 PM
 Keynote (Hampton IV) followed by Opening Reception and Map Gallery (Hampton V)

Thursday	Hampton I	Hampton II-III	Thursday	Hampton VI–VII	Hampton VIII
<b>9</b> AM	Maritime Cartography	Mapping & Software Dev. with Open Data I	<b>9</b> AM	Cartographic Design I	NACIS Commons
10:40 AM	Cartographic Research I	Art-inspired & Hand Drawn Cartography	10:40 am	Extreme Mapmaking	
Noon	NACIS Lunch and Business Meeting (Hampton IV)		Noon		
2 рм	Cartographic Education	Historical Cartography of the Mid-Atlantic	2 рм	Web and Mobile Mapping I	
<b>4</b> pm	Cartographic Theory I	Reflections on the Atlas	<b>4</b> pm	Cartographic Design II	$\checkmark$
5:30 рм	CP Editorial Board Meeting (Vintage Kitchen)	NACIS Fun Run & Walk ( <b>Meet in lobby</b> )			
6:30 рм	NACIS Night Out (The Harbor Club)				

Friday	Hampton I	Hampton II–III	Friday	Hampton VI–VII	Hampton VIII
<b>9</b> AM	Lightning Talks	Panel: Cartography as a Small Business	<b>9</b> AM	Cartographic Design III	NACIS Commons
10:40 ам	Cartographic Research II	Mapping & Software Dev.with Open Data II	10:40 am	Cartography and Fine Art	
Noon	Lunch on your own; Lunch Bunch; NACIS Board M	eeting II	Noon		
2 рм	Map and Geographic Data Curation	Cartographic History	2 рм	Web and Mobile Mapping II	
<b>4</b> PM	Cartographic Theory II	Cartographic Processes	<b>4</b> pm	Road Trip NACIS	$\checkmark$
6 PM	Banquet and Student Cartography Awards (Hamp	oton IV–V)			
	followed by GeoDweeb Geopardy ( <b>Hampton V</b>	I-VII)			
Saturday	Hampton I	Hampton III	Saturday		
<b>9</b> AM	Workshop: CARTO BUILDER	Workshop: C-ART-o Camp	<b>9</b> AM	Field Trip: Paddling Cape Henry	at
1 pm	•	Workshop: ArcGIS Maps for Adobe CC		First Landing State Park	

On the cover: Chesapeake Bay Cape Charles to Norfolk Harbor, 2015, NOAA-NOS Program content as of September 26, 2018; check nacis/2018.sched.com for updates.

# Welcome NACIS 2018 Attendees!

On behalf of the 2018 NACIS Annual Meeting organizers and the NACIS Board of Directors, we are very excited to welcome you this week to Norfolk, Virginia.

A complete and current guide to the conference is available online at:

# nacis2018.sched.com

This site will be updated during the conference with schedule changes as we receive new information.

Ginny Mason and Leo Dillon NACIS 2018 Co-Chairs



Share your thoughts on Twitter with your fellow attendees—and those who couldn't make it—by using the **#NACIS2018** hashtag. And make sure to follow **@NACIS** while you're at it!

Get your project in front of a wider audience by publishing in **Cartographic Perspectives**,

the only free online, open-access journal in cartography: cartographicperspectives.org Tuesday, October 16, 2018

Tuesday Night Meetup Organizer: Lauren James

7:00 PM—9:00 PM Grain 100 East Main St, Norfolk, VA 23510

Just arrived in Norfolk? Instead of hanging out by yourself at the hotel, connect at our Tuesday Night Meetup! Join host Lauren James at Grain at 7pm. This beautiful rooftop space atop the Hilton Norfolk The Main has great views of the water, 80 local beers on tap, a varied menu, and a pool table. It's just a short 1 min walk from the Norfolk Waterside Marriott.

### **NACIS Board Meeting I**

6:00 PM-8:00 PM Hampton II

### Wednesday, October 17, 2018

### Practical Cartography Day-Hampton IV

Moderators: Leo Dillon, Elaine Guidero, Katie Kowalsky

Coffee breaks will be served in the Hampton foyer.	
Morning Coffee and Continental Breakfast	8:30 am-9:00 am
Morning Break	10:25 AM-10:45 AM
Lunch (Hampton V)	12:00 pm-1:30 pm
Afternoon Break	3:10 рм-3:30 рм

9:00 am - 10:25 am

Be a Cartography Expert in Three Easy Steps Kate Leroux, Amazon

The Automated Map Taxonomy Chart: A Map Maker's Companion Nathaniel Slaughter, Mapbox

WebGL Basics (3D in the Browser!) for Cartographers James Miller, FlashMapper

Commanding Cartography: Take Control of Faster, More Elegant Workflows from the Command Line Joshua Stevens, Earth Observator

Mapping the Black Canyon of the Gunnison: Steep, Deep, and Narrow, a Cartographic Journey Joe Milbrath, National Park Service

### Practical Cartography Day-Hampton IV

10:45 AM - 12:00 PM

1:30 pm – 3:10 pm

3:30 pm -5:00 pm

Mixing Hand Drawn and Digital in ArcGIS Pro Heather Smith, Esri

Practical Guide to Map Editing David Lambert and Scott Zillmer, National Geographic Partners

Aspect Aware Contours John Nelson, Esri

Git, APIs, and SDKS: Understanding the Vocabulary of Modern Geospatial Technology Lyzi Diamond, Mapbox

Cartograms. Run for Your Lives! Kenneth Field, Esri Transforming Priestley's 1769 Timeline Into an Interactive Infographic

Joanna Merson, University of Oregon

**Type Halos: Angels or Devils** Alex Tait, National Geographic Society

Mapping in Full Monochrome! Daniel P. Huffman

Creating Fantasy Maps from Real-World Data in QGIS (Orcs Not Included)

Ross Thorn, University of Wisconsin-Madison

Top 5 Cartography Solutions from Support

Stephanie Mongon, CARTO

How to Make Orthographic Projections with MAPublisher Gene Thorp, U.S. Department of State Customizing Esri Vector Basemaps— Quickly and Easily! Aileen Buckley, Esri

Imprimatur: Printing Maps in Today's Digital World Kate Leroux and Bruce Daniel, Amazon

Creating 2.5D/Pseudo-3D/ Axonometric Buildings for Large Scale Map

Jim Eynard, National Park Service

Data-driven Styling in Mapbox Studio: What's New? Dana Sulit, Mapbox

Mapping the Sierra Nevada Range: Snow Cover Winter 2017

Nathaniel Douglass, Humboldt State University

 Atlas of Design
 Volume 3

 Atlas of Design
 Volume 2

 Atlas of Design
 Volume 3

# Atlas of Design

The fourth volume of the Atlas of Design features 33 beautiful and inspiring maps from around the globe, each accompanied by a short essay by the cartographers.

Supplies are limited. Get yours today!

# Available near registration or online at atlasofdesign.org

### Wednesday, October 17, 2018–Evening Events

7:00 PM-8:00 PM Hampton IV

### Opening Session James Cheshire and Oliver Uberti

James Cheshire and Oliver Uberti are the 2017–2018 recipients of the Corlis Benefideo Award for Imaginative Cartography.

Dr. James Cheshire is an Associate Professor at University College London (UCL) and President of the Society of Cartographers. He completed a BSc (1st Class Hons.) in Physical Geography at the University of Southampton (2008) before undertaking a PhD in GIScience at the UCL Department of Geography (2011). James was the 2017 recipient of the Royal Geographical Society's Cuthbert Peek Award for "advancing geographical knowledge through the use of mappable Big Data."

Oliver Uberti is an award-winning graphic designer and was Senior Design Editor at National Geographic before turning to books. Oliver earned a BFA in Graphic Design from the University of Michigan (2003) and a MA in Writing from Johns Hopkins (2009). At his design studio in Los Angeles, Oliver combines fine art principles with research and storytell-



ing to create memorable books, infographics, and branding. His latest collaboration, Notes from a Public Typewriter, was published by Hachette in March 2018.

James and Oliver first worked together in 2010 to produce a map of the most popular surnames in North America for *National Geographic*. In 2012, James began envisioning a book of maps and graphics to show the range of data available for London, his home city. Oliver agreed to design it. Since then, the two have become a rare pair: academic and designer, collaborating on equal footing to turn statistics into stories. Their first book, *London: The Information Capital*, became a bestseller and won three British Cartographic Society Awards for cartographic excellence. For their second book, Oliver was keen to map data from a domain that had inspired him during his time at *National Geographic*—the animal kingdom. The result, *Where the Animals Go*, was hailed by *Scientific American* as a "stunning translation of movement onto paper."

### Map Gallery

Reception: Tuesday 8:00 PM-9:30 PM Hampton V

Organizer: Martha Bostwick, Centre of Geographic Sciences, NSCC

The 2018 NACIS Map Gallery features a stunning array of printed maps and posters. Sprinkled throughout the gallery you will find the occasional poster with a QR code on it—this indicates a digital map, and you should scan the code to see the fascinating online components to these posters. Also be sure to keep your eyes open for the bright lettered flags indicating an entry into our annual Student Map and Poster Competition don't forget to vote!!

### **Student Map and Poster Competition Entries**

Alabama: Its Landforms and Natural Features Alexander Fries. The University of Madison

Alexander Fries, The University of Alabama

America's Polarization Problem Kati Perry, University of Oregon

### Anonymously Connected: Worldwide Use of the Tor Network

Nicole White, Centre of Geographic Sciences, NSCC

# Aotearoa: Land of the Long White Cloud

Josie Imrie, University of Oregon

### **Bathymetric Map of Perth Canyon**

Jai Ryan, RMIT Univeristy, Northern Appalachia; Joshua Shindelbower, Humboldt State University

### The Black Hills

Samuel Wood, Humboldt State University

#### Canyons of the Ancients National Monument

Sarah Howard, Middlebury College

Ross Thorn, University of Wisconsin-Madison

**Crisfield, Maryland** Michael Lancaster, Montgomery College

### Currents of Colonization

Sarah Howard, Middlebury College

### December 7, 1941—A Date Which Will Live in Infamy

Carol Burbage, Montgomery College

### **Expanding Latinidad**

Nil Tuzcu, Harvard University, Istanbul Urban Database; Riley Champine, National Geographic Magazine

#### Halifax Harbour: Harbour Approach to Bedford Bay (Nautical Chart)

Johnny Eaton, Centre of Geographic Sciences, NSCC

# Incorporating a Background Color in a Map

Madison Woodrum, University of Nebraska–Omaha

### Los Angeles

Ian Osipowitsch, Humboldt State Universitiy

Northwest Washington State in Nine Map Styles Sarah Bell, Esri

#### Oh the Humanity Johnny Eaton, Centre of Geographic Sciences, NSCC

**Olympic National Park** Melissa Collin, Humboldt State University

Patawomeck Indians of White Oak, Stafford, Virginia Janet Tennent, Montgomery College

Path Map of the Eastern Part of Mount Desert Island, Maine (2018) Will Greene, Middlebury College

### Pierce County River System Leslie Kirk, University of Washington-Tacoma

Potential Ferry Crossing Across The Chesapeake Bay Michael Lancaster, Montgomery College

### **Robotic Exploration of Mars**

Matthew Aufrecht, University of Colorado Denver

Rock, Ice, Wind, and White Man: A 400 million-year walk through the White Mountain Presidential Range, and the hands that have shaped it. Peter Howe, Middlebury College

### San Francisco Bay Area

Zain Kaiser, University of Wisconsin-River Falls

### Sardinia and Gennargentu Mountains

Quint Migliardi, Humboldt State University

### Scarred Earth: Mountain Top Removal at Hobet Mine, West Virginia

Brian Murphy, Humboldt State University

### Southern California Coast Gilbert Trejo, Humboldt State University

### Map Gallery

# Steel Pan and Pan Yards in Trinidad and Tobago

Kathleen Johnston, Humboldt State University

### Visitor Photos in Photogenic Yellowstone National Park

Justin Menke, Janet Tennent, and Sophia Kean, University of Oregon

### Welcome to Middle Lake Well Field

Jillian Ejdrygiewicz, Centre of Geographic Sciences, NSCC

### Welcome to Pottle Lake Watershed

Jillian Ejdrygiewicz, Centre of Geographic Sciences, NSCC

### Where the HEX are all the bees?

Nina Kerr, University of Washington-Tacoma

### World Statistical Mapping featuring Multiple Sclerosis Data

Jillian Ejdrygiewicz, Centre of Geographic Sciences, NSCC



### 2D and 3D Transect Maps

Travis White, University of Kansas

### Airline Route Maps Daniel P. Huffman, somethingaboutmaps

#### All Over the Map, a new book of stories about maps and cartography from National Geographic

Greg Miller, Betsy Mason, All Over the Map /National Geographic

### The Alps

Brandon Plewe, Brigham Young University

### Cartography.

Kenneth Field, Esri

### A Century of Growth: California Population, 1900-2010

Jake Coolidae, Colorado State University/National Park Service

### Crude Oil System of North America Josie Sajbel, S&P Global Platts

A Danaerous Delicacy Lea LeGardeur, Middlebury College

Folds and Fossils of the Chuckanut Formation in Northwestern Washington Daniel Coe, Washington Geological Survev

### The George F. Jenks Map Collection Travis White, University of Kansas

### Glacial Landforms of the Puget Lowland

Daniel Coe, Washington Geological Survev

### Hand-drawn plausible fictitious maps

David Nuttall, Artimaps

### Istanbul Urban Database Nil Tuzcu, Harvard University

lturup / Etorofu-tō Heather Smith, Esri

Lake Tahoe Elaine Guidero, U.S. Geological Survey

### Mapping the Fiery Chaos

Lauren Tiernev, Aaron Steckelberg, Ann Gerhart, Armand Emamdiomeh. The Washington Post

### The North American Continent Anton Thomas, Anton Thomas Art

### Port Angeles Tsunami Evacuation Walk Times

Daniel Coe, Daniel Eungard, Washington Geological Survey

#### Procedural Modeling of Chesapeake Landscapes

John Wolf, U.S. Geological Survey

### Relative Local Intensity of Tornadoes by Month

John Nelson, Esri

### Road Trip Map of Virginia David Glassett, Peaceful Valley Maps

Round Islands and Îles Rondes of the United States and Canada Daniel P. Huffman, somethingaboutmaps

**Russell Fjord Wildernes** Aaron Taveras, Atelier Cartoaraphy

### San Francisco Bay Area Water Trail—North San Pablo Bay

Maegan Leslie Torres, GreenInfo Network

### San Juan Islands

Nicholas Perdue, Humboldt State University

### Ten Years of US Topo: A Review of **Continuous Product Improvement**

Andrew Stauffer, Sara Boyer, US Geological Survey

### Tithe:: Ten Percent

Steven R Holloway, toMake<sup>™</sup> Press: Editions

The White Mountains of New Hampshire Andy Woodruff, Axis Maps

Wild Migrations: A Comprehensive Atlas Visualizing the Science and Conservation of Unaulate Miaration Corridors

Alethea Steingisser, James Meacham, InfoGraphics Lab, University of Oregon

### World Refugee Crisis

Jasmin Khanaura, USAID

### Map Gallery

### Thursday, October 18, 2017–Morning 1

Coffee breaks will be served in the Hampton foyer.Morning Coffee and Continental Breakfast8:30 AM-9:00 AMMorning Session I9:00 AM - 10:20 AMMorning Break10:20 AM - 10:40 AM

### Hampton VIII NACIS Commons I

Join together with other attendees to set up an ad hoc informal gathering on a topic that interests you. Maybe you want to discuss your favorite map projections with fellow enthusiasts, or maybe you're a student who wants to create a space to network with other students and share advice. Reserve the NACIS Commons and add whatever you think our conference is missing! A sign-up sheet will be available on-site and reservations are first come. first served The Commons area will be provided with some chairs, a flipchart, and some markers. When the room is not in use, the Commons also serves as a guieter space to sit and chat away from the more crowded areas.

### Hampton I Maritime Cartography Moderator: Shachak Peeri

### Placing Marine Cartography Front and Center

Shachak Peeri, NOAA–Marine Chart Division

Analyzing Cartographic Information to Improve Nautical Chart Coverage Colby Harmon, NOAA–Marine Chart Division

Future of Cartography: Deriving Raster Products using Vector Data Christie Ence, NOAA–Marine Chart Division

Historical Perspective on Marine Cartography in the Last Days of Pen and Ink John Macek, NOAA–Marine Chart Division

### Hampton II–III Mapping and Software Development with Open Data I Moderator: Chris Mixon

### Mapping Population Data at the U.S. Census Bureau Darryl Cohen, U.S. Census Bureau

### Data Through Design

Wenfei Xu, CARTO; Jessie Braden (Pratt SAVI), Michelle Ho (CARTO), Eve Ahearn (Enigma), Jeff Ferzoco (CARTO)

HERE and Back Again: Developing For the Cartographer Katie Kowalsky, HERE

### The Data Scientist Open Source Cartography Toolbox

Francois Dion, Dion Research LLC

### Hampton VI–VII Cartographic Design I Moderator: Leo Dillon

### Introducing the Equal Earth Projection

Tom Patterson, National Park Service; Bojan Šavrič, Esri; Bernhard Jenny, Monash University

# Evolution of Map Design at National Geographic

Matt Chwastyk, National Geographic

### g How to Play with Maps

Ross Thorn, University of Wisconsin–Madison

# Mapping the Fiery Chaos of the 1968 Riots

Lauren Tierney, The Washington Post

### Thursday, October 18, 2018–Morning 2

Morning Session 2 NACIS Lunch and Business Meeting 10:40 am - 12:00 pm 12:00 pm-2:00 pm

# Hampton VIII NACIS Commons II

Join together with other attendees to set up an ad hoc informal gathering on a topic that interests you. Maybe you want to discuss your favorite map projections with fellow enthusiasts, or maybe you're a student who wants to create a space to network with other students and share advice. Reserve the NACIS Commons and add whatever you think our conference is missing! A sign-up sheet will be available on-site and reservations are first come, first served. The Commons area will be provided with some chairs, a flipchart, and some markers.

### NACIS Lunch and Business Meeting

(Hampton IV-V,12:00 PM-2:00 PM) We invite everyone to participate in our annual NACIS business meeting. Lunch is on us!

### Hampton I Cartographic Research I Moderator: Amy Griffin

Vivid Persuasion in Maps Carolyn Fish, University of Oregon

### Cartographic Considerations of Mapping Global Variations in Avian Eggshell Colors

Phillip Wisocki, Long Island University; Patrick Kennelly, Long Island University; Indira Rojas, Long Island University; Phillip Cassey, University of Adelaide; Daniel Hanley, Long Island University

Making Happy(er) Maps: Leveraging Affective Color Congruence in Thematic Map Design Cary Anderson, The Pennsylvania State

Cultural Mapping: A Review of Cartographic Methods

University

John Kostelnick, Illinois State University

### Hampton II–III

Art Inspired and Hand Drawn Cartography Moderator: Brooke Harding

Cartographic Pleasures Travis White, University of Kansas

### The North American Continent: A Pictorial Map

Anton Thomas, Anton Thomas Art

### Hand-drawn Plausible Fictitious Maps David Nuttall

Davia i voliai

A Material World John Nelson, Esri

### Hampton VI–VII

Extreme Mapmaking

Moderator: David Lambert

Extreme Mapmaking (part 1/2): Cities and Spies

Greg Miller, All Over the Map / National Geographic

### Extreme Mapmaking (part 2/2): Battlefields and Imaginary Worlds Betsy Mason, All Over the Map / National Geographic

Persistence Cave Project David Lambert, NPS Volunteer

Mapping Middle-earth: Questing for "Real Facts" in a Fictitious World Erik Mueller-Harder, independent scholar

### Thursday, October 18, 2018–Afternoon 1

Coffee breaks will be served in the Hampton foyer.

Afternoon Session 1 Afternoon Break

2:00 рм – 3:40 рм 3:40 рм – 4:00 рм

### Hampton VIII NACIS Commons III

Join together with other attendees to set up an ad hoc informal gathering on a topic that interests you. Maybe you want to discuss your favorite map projections with fellow enthusiasts, or maybe you're a student who wants to create a space to network with other students and share advice. Reserve the NACIS Commons and add whatever you think our conference is missing! A sign-up sheet will be available on-site and reservations are first come. first served. The Commons area will be provided with some chairs, a flipchart, and some markers. When the room is not in use, the Commons also serves as a guieter space to sit and chat away from the more crowded areas.

### Hampton I Cartographic Education Moderator: Anthony Robinson

A Love Letter to Cartography. Kenneth Field, Esri / ICA

### Re-imagining the Cartography Textbook

Brandon Plewe, Brigham Young University

Creating Space to Create: Teaching Technologies You Don't Know Ashley Nepp, Macalester College

Making Cartography Education Practical in the GIS&T Body of Knowledge Jeff Howarth, Middlebury College

### Aesthetics and Design in the GIS&T Body of Knowledge

Chelsea Nestel, University of Wisconsin– Madison

### Hampton II–III

Historical Cartography of the Mid-Atlantic Moderator: Gene Thorp

Forward March! Mapping the American Civil War 150 Years Later Ben Myers

Resurrecting Heritage Sites: Bringing Virginia's Past to Life through Augmented and Virtual Realities Alisa Pettitt and Sven Fuhrmann, George Mason University

The Historical Working Cartography of Chesapeake Bay John Cloud, National Museum of Natural History

What is in a Name in Virginia? Cassandra Farrell, Library of Virginia

The Mysteries of History that Cartography Can Help Solve Gene Thorp, U.S. Department of State

### Hampton VI–VII • Web and Mobile Mapping I Moderator: Nick Martinelli

Indoor Mapping: Applying Cartographic Principles at Scale Mike Foster, Apple

CARTO VL: The Next Chapter of Thematic Web Cartography Mamata Akella, CARTO

There and Back Again: Cartographic Journeys with Adobe CC, Mobile Mapping and Navigation Nick Burchell, Avenza Systems

### Adapting to a Monetized Google Maps API

Michael Peterson, University of Nebraska –Omaha

Atlas Apps for Online Map Collections Aileen Buckley, Esri

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### Thursday, October 18, 2018–Afternoon 2

Afternoon Session 2 CP Editorial Board Meeting NACIS Fun Run and Walk NACIS Night Out 4:00 pm -5:20 pm 5:30 pm -6:30 pm 5:30 pm -6:45 pm 6:30 pm -9:30 pm

### NACIS Night Out

6:30 pm-9:30 pm

### The Harbor Club 333 Waterside Drive

NACIS Night Out is your chance to make new carto-friends and catch up with those you already know. If it's your first time coming to NACIS and haven't already signed up for NACIS Night Out—stop by the registration desk to buy a ticket and join the fun. Dinner and a drink are included in the registration cost, and we'll have a great space at **The Harbor Club** across the street!

### Hampton VIII NACIS Commons IV

CP Editorial Board Meeting 5:30 PM-6:30 PM Vintage Kitchen 999 Waterside Drive

# Join us for the Fifth Annual NACIS Fun Run and Walk!

Organizer: Rosemary Wardley 5:30 PM-6:45 PM Meet in hotel lobby

Join us for a casual fun run around Norfolk to get to see a bit more of our host-city outside of the conference rooms! Both runners & walkers welcome and we'll provide maps (of course) to make sure no one loses their way! Please note the schedule change to Thursday evening before NACIS night out (don't worry, you'll still have plenty of time to party!)

### Hampton I Cartographic Theory I Moderator: Donna Genzmer

What We Call Ourselves and the Maps We Make. Or, is Critical Cartography Real? Jim Thatcher, University of Washington Tacoma

...And How Does that Work? Mark Denil, sui generis

Affective Mapping: Designing for Behavior Change Brandyn Friedly

Advancing Cartography by Embracing the Spatial Voice of the Untrained Mapper Sarah Bell, Esri Hampton II–III Reflections on the Atlas Moderator: Alethea Steingisser

#### Wild Migrations: An Atlas for Conservation Advocacy

James E. Meacham, Alethea Steingisser, and Joanna Merson, InfoGraphics Lab, University of Oregon

The Academically, Administratively, All-around Accessible Atlas Andy Woodruff, Axis Maps

Reflections of Empire: British Atlases from the Imperial Century Jenny Marie Johnson, University of Illinois at Urbana-Champaign

# Behind the Scenes of the Atlas of Design, Volume 4

Alethea Steingisser, Lauren Tierney, and Caroline Rose, Atlas of Design Editorial Team Hampton VI–VII Cartographic Design II Moderator: Fritz Kessler

North is a Societal Construct: When to Break the Rules with your Map Laris Karklis, Lauren Tierney, Tim Meko, Washington Post

How Far is a Sandwich? Cartographic Representations of Linear Distance Victoria Johnson

### Mapping U.S. Small Towns: Challenges and Solutions

Jennifer Mapes, Kent State University

### Feminist Icon Design

Meghan Kelly, University of Wisconsin– Madison

### Friday, October 19, 2018-Morning 1

Coffee breaks will be served in the Hampton foyer.Morning Coffee and Continental Breakfast8:30 AM-9:00 AMMorning Session I9:00 AM - 10:20 AMMorning Break10:20 AM - 10:40 AM

### Hampton VIII NACIS Commons V

Join together with other attendees to set up an ad hoc informal gathering on a topic that interests you. Maybe you want to discuss your favorite map projections with fellow enthusiasts, or maybe you're a student who wants to create a space to network with other students and share advice. Reserve the NACIS Commons and add whatever you think our conference is missing! A sign-up sheet will be available on-site and reservations are first come. first served. The Commons area will be provided with some chairs, a flipchart, and some markers. When the room is not in use, the Commons also serves as a guieter space to sit and chat away from the more crowded areas.

### Hampton I **Lightning Talks** Moderator: Donna Genzmer

### GeoVisualization Methods in Spatial History

Nil Tuzcu, Harvard University

Cartographic Education at the Department of Geomatics (University of West Bohemia, Plzeň, Czechia) Otakar Čerba, University of West Bohemia

A Brief History of Nonprofit Mapping at GreenInfo Network

Tim Sinnott, GreenInfo Network

From Cartographic Contrast Design to Neuro-geographical Contrast Cognition

P. William Limpisathian, University of Oregon

Cities, Towns, Villages, Boroughs: Populated Places through Scale Elaine Guidero, U.S. Geological Survey

English-to-Chinese Map Label Conversion: 1 Year In John Sylak-Glassman, Mapbox \_\_\_\_\_

# Hampton II–III Panel: Cartoara

Panel: Cartography as a Small Business

### Panelists:

Hans van der Maarel, Red Geographics Dennis McClendon, Chicago Cartographics Derek Tonn, mapformation Nat Case, INCase

A lot of cartographers are working either as a freelancer or as part of a small company and a lot of them face the same challenges. This panel aims to shed light on these challenges. We'd like to encourage an open discussion on these subjects between our panelists and the audience.

### ► Lightning Talks (continued)

Accessing and Visualizing Geoscience Data from Many Sources in the Flyover Country Mobile App Shane Loeffler, University of Minnesota

Connecting People with the Arctic Refuge Marty Schnure. The Wilderness Society

### Hampton VI–VII

Cartographic Design III Moderator: Rosemary Wardley

Complementary Cartography: Analyzing National Geographic Maps that Play a Supporting Role Clare Trainor and Riley D. Champine, National Geographic

### Hot or Not? The Challenges of Heat Map Creation and Interpretation

Daniel Strebe and Sarah Battersby, Tableau Software; Sara Fabrikant, University of Zürich

Branding and Cartography Vanessa Knoppke-Wetzel

Conservation Cartography: Putting Maps to Work for Endangered Species Kevin McManigal, University of Montana

### Friday, October 19, 2018–Morning 2

Morning Session 2	10:4
Lunch Bunch	12
NACIS Board Meeting (Washington)	12

10:40 ам – 12:00 рм 12:00 рм–2:00 рм 12:00 рм–2:00 рм

### Hampton VIII NACIS Commons VI

Join together with other attendees to set up an ad hoc informal gathering on a topic that interests you. Maybe you want to discuss your favorite map projections with fellow enthusiasts, or maybe you're a student who wants to create a space to network with other students and share advice.

### Lunch Bunch

Join fellow NACIS members for lunch on Friday! We're reserving tables at a few restaurants close to the hotel. At each table will be a veteran NACIS member to talk abut anything that comes up. A great opportunity for first-timers or those who want to network or just be social. Choose your restaurant and sign up at the registration desk by Friday at 10:00 a.m.

### Hampton I Cartographic Research II Moderator: Leo Dillon

Monitoring Urban Transit Networks: Map use in transit control centers (10 min)

Emily Domanico, The Pennsylvania State Univeristy

Future City Mapping (10 min) Kate Chanba, Route

Viral Cartography: Or, How to Make an Affective Map

Jerry Shannon, University of Georgia; Kyle Walker, Texas Christian University

The Ballot Box and Sunsquatch: Elements of Viral Cartography Anthony Robinson, The Pennsylvania State University

Designing a Map-Centric Interface to Improve Geospatial Analytics Ryan Mullins; Ben Nargi, Patrick Cummings, Aptima Inc.

### Hampton II–III

Mapping and Software Development with Open Data II Moderator: Aly Ollivierre

Where Should We Move? Michelle Ho, CARTO

Mapping (& not mapping) Chronic Disease for Healthy Neighborhoods Tim Stallmann, RAD; John Killeen, Data-Works NC

3D as an Effective Way to Communicate Spatial Information to a User

Karel Jedlička, University of West Bohemia

### Hampton VI–VII

Cartography and Fine Art: Exploring Intent and Purpose Moderator: Matt Dooley

Precision and Chaos in Gunpowder Maps (10 min) Nick Martinelli, Apple

Confluence and Beyond: Explorations in Gunpowder Mapping (continued...) (10 min) Matt Dooley and Hailey Sauer, University of Wisconsin–River Falls

### Abstraction and Experience in Nature: Layering Perceptions of Place

Lauren Rosenthal McManus, Independent Artist

### But What About the Place

Steven R. Holloway, toMake™ Press & Editions

### Beneath the Surface: Mapping with Intaglio

Jake Coolidge, Colorado State University/ National Park Service

### Friday, October 19, 2018-Afternoon 1

Coffee breaks will be served in the Hampton foyer. Afternoon Session 1

Afternoon Break

2:00 рм – 3:40 рм 3:40 рм – 4:00 рм

### Hampton VIII NACIS Commons VII

Join together with other attendees to set up an ad hoc informal gathering on a topic that interests you. Maybe you want to discuss your favorite map projections with fellow enthusiasts, or maybe you're a student who wants to create a space to network with other students and share advice Reserve the NACIS Commons and add whatever you think our conference is missing! A sign-up sheet will be available on-site and reservations are first come. first served The Commons area will be provided with some chairs, a flipchart, and some markers. When the room is not in use, the Commons also serves as a guieter space to sit and chat away from the more crowded areas.

### Hampton I

Map and Geographic Data Curation

Moderator: T. Wangyal Shawa

# The Pulley Ridge Data Curation Experience

Timothy Norris, University of Miami (co-authors listed in abstract)

### Linking Historical Population Census Data to Individual House Locations

T. Wangyal Shawa, Princeton University

Eastern Bloc Borderlands: Digitizing Russian Military Topographic Maps of Eastern Europe, 1883–1947 Theresa Quill, Indiana University Bloomington; Michelle Dalmau, Indiana University

# Collaborative Geographic Indexing of Map Series: Geodex 2.0

Stephen Appel, American Geographical Society Library, University of Wisconsin-Milwaukee Libraries

### Big Historical Geodata—the Next Frontier

Nathan Piekielek, The Pennsylvania State University

### Hampton II–III

Cartographic History Moderator: Hans van der Maarel

### A WWII Network of Female Cartographers Judith Tyner, CSU Long Beach

Mapping Washington State's Glacial Legacy

Daniel Coe, Washington Geological Survey

Operational Meteorology and the Network Theory of the Map: Telecommunications, Institutions, and Transitions

Mark Monmonier, Syracuse University

### The Model 501 Spatial Data Plotter: Making the Digital, Physical in the Mid-Twentieth Century

John Swab, University of Kentucky

# Visions of Light: Mapping Lighthouses and Other Nautical Beacons

Harrison Cole, The Pennsylvania State University

### Hampton VI–VII Web and Mobile Mapping II

Moderator: Mary Beth Cunha

Recognizable Labels for Foreign Map Features Nicki Dlugash, Mapbox

### Where do We Go from Here? Designing Better Mobile Maps

Leanne Abraham, University of Wisconsin-Madison

### Direct Interaction: Narrative Web Maps and Explicit Bias

Joe Blankenship and Rich Donohue, University of Kentucky

### Building the UI for Priestley's Interactive Timeline

Ben Elan, University of Oregon InfoGraphics Lab; Daniel Rosenberg, University of Oregon Honor's College; Joanna Merson and James Meacham, University of Oregon InfoGraphics Lab

### Interactive Flow Arrows:

Understanding Commuting Statistics with HTML5 Maps Dany Bouchard, CartoVista

Friday, October 19, 2018–Afternoon 2		
fternoon Session 2	4:00 pm – 5:20 pm	

### Hampton VIII NACIS Commons VIII

Join together with other attendees to set up an ad hoc informal gathering on a topic that interests you. Maybe you want to discuss your favorite map projections with fellow enthusiasts, or maybe you're a student who wants to create a space to network with other students and share advice. Reserve the NACIS Commons and add whatever you think our conference is missing! A sign-up sheet will be available on-site and reservations are first come. first served. The Commons area will be provided with some chairs, a flipchart, and some markers. When the room is not in use, the Commons also serves as a guieter space to sit and chat away from the more crowded areas.

### Hampton I Cartographic Theory II Moderator: Rosemary Wardley

From #lovemaps to #cartofail: Exploring Cartographic Rhetoric Amber Bosse, University of Kentucky

(A Woman's) Cartographic Perspective Vanessa Knoppke-Wetzel

### The New LGBT Neighborhood: Everywhere

Jeff Ferzoco, CARTO

Hampton II–III **Cartographic Processes** Moderator: Donna Genzmer

The Wind Beneath our Wings: Creating "How Birds Migrate" Brian Jacobs, National Geographic

Mapping for Environmental Law Jovian Sackett, Southern Environmental Law Center

The Technology of US Topo Mass Production Andrew Stauffer, U.S. Geological Survey

Lake Tahoe — Topographies in Many Forms Jeremy Goldsmith, National Geographic

Hampton VI–VII **Road Trip NACIS** Moderator: Scott Zillmer

Cartography, Identity, Geopolitics, and License Plates Jonathan Leib, Old Dominion University

Toponymic Tags Scott Zillmer, National Geographic

Maps on the Landscape: The Case of Welcome Signs Donald Zeigler, Old Dominion University

### Friday, October 19, 2018-Evening Events

6:00 PM – 9:00 PM Hampton IV-V

### **NACIS Banquet**

Enjoy a relaxing evening and say thanks to our volunteers who helped make this conference possible. We'll be announcing the results of the student mapping award competitions! 9:00 pm - 10:30 pm Hampton VI-VII

### Geodweeb Geopardy!

Organizer: Dennis McClendon

Join in on a NACIS tradition, as our own Dennis McClendon channels Art Fleming to host a very mappy version of Jeopardy! Sign up at the registration desk if you'd like to join a team—winners take home great carto-prizes. Otherwise, join the audience to cheer on (and heckle) the players.

### Saturday, October 21, 2018–Workshops and Field Trips

Field Trip: Paddling Cape Henry at First Landing State Park 9:00 AM- 1:00 PM, meet in lobby (exact time will be announced)

# Workshop: How to Analyze and Visualize Spatial Data with CARTO BUILDER $9:00 \text{ }_{MM}$ Hampton I Jeff Ferzoco, CARTO

Workshop: C-ART-o Camp: Exploring Art Materials and Methods 9:00 AM- 12:00 PM, Hampton III Molly O'Halloran, Molly O'Halloran Inc.; Sarah Bell, Esri

Workshop: Getting Started with ArcGIS Maps for Adobe Creative Cloud 1:00 PM-4:00 PM, Hampton III Madhura Phaterpekar, Esri

# See you in Tacoma, Washington October 16–19, 2019

jeremiahpierucci.com

### 3D as an Effective Way to Communicate Spatial Information to a User

Karel Jedlička, University of West Bohemia The intention is to present a web based three dimensional solution for communicating (not exclusively) scientific results to wide public. A communication of information from its producer to a user can be done in many ways, which differs in their effectivity. Although a map is a native communication channel for presenting of spatial data, a presentation of spatial data in three dimensional environment is a growing alternative. Therefore this contribution firstly describes existing virtual reality environments used for 3D data presentation. Then a developed web application (http://ng.hslayers.org/ examples/3d-olu/) is introduced and described. The application presents effective visualization large datasets.

Mapping and Software Development with Open Data II Friday 10:40 AM-12:00 PM

### ...And How Does that Work? Mark Denil, sui generis

Demosthenes said the prime considerations in human communication were: 1.delivery; 2.delivery; 3.delivery. For over twenty years the speaker has been saying the same thing about maps. Maps stand between proposed facts and accepted truths, and are, often, the only way of getting from the one to the other. Still, many people see the investigation of theory as frivolus: What advantages accrue from thinking about how and why? This talk will center upon a rationale for careful and un-dogmatic scrutiny of cartographic theory by exploring how the speaker came to the study, and of the value of sound theory to practice.

Cartographic Theory I Thursday 4:00 рм-5:20 рм

#### Abstraction and Experience in Nature: Layering Perceptions of Place

#### Lauren Rosenthal McManus, Independent Artist

Ecology serves as the conceptual framework of my investigation and maps provide the visual language for my expression. My recent drawings are made using pigments derived from rocks collected along lakes and streams; they are geographical blueprints layered with artifacts of a human connection to place. Lacking the markers by which we usually locate and navigate, these maps offer an opportunity to re-orient, to identify with and within the patterns of nature By reframing

### Abstracts 3da-Aca

boundaries and exposing vital bioregional relationships, these works highlight our inherent interdependence.

Cartography and Fine Art: Exploring Intention and Purpose Friday 10:40 AM-12:00 PM

#### The Academically, Administratively, All-around Accessible Atlas

#### Andy Woodruff, Axis Maps

Creating a web-based, interactive, university-level thematic world atlas for a major educational publisher means designing and building something rich in content and functionality, yet broadly useful to students, instructors, and administrators. From a two-year experience, we'll share design and technical lessons in balancing those goals to make a web atlas "accessible" in several senses of the word: physically, usable by people with visual or motor impairments; technologically, responsive and useful on all modern devices and screen sizes; educationally, promoting exploratory geographic and cartographic learning without confusing concepts or user interfaces; and administratively, easy for the publisher to configure and update. Reflections on the Atlas Thursday 4:00 pm-5:20 pm

### Acc-Aff Abstracts

#### Accessing and Visualizing Geoscience Data from Many Sources in the Flyover Country Mobile App Shane Loeffler, University of Minnesota

The Flyover country mobile app is a tool for answering the question of 'what's that?' when looking out of the airplane window from 30,000 feet, while on a road trip or hike, or when a scientist is assessing a new field area. To do this, many sources of information have had to be integrated, presenting many challenges both in visualization and data compatibility. Here we present challenges and solutions for accessing and visualizing content from a wide variety of geoscience sources.

#### Lightning Talk Friday 9:00 AM- 10:20 AM

#### Adapting to a Monetized Google Maps API

#### Michael Peterson, University of Nebraska –Omaha

The Google Maps Application Programmer Interface (API) remains the most popular resource for mapping. More than 4.6 billion websites embed a Google Map. Google maps have become so popular that most map users avoid using any other kind of map. In April 2018, Google announced the launch of a new name—Google Maps Platform—and a new pricing plan. A free tier continues to be offered but requires creating an account and entering a credit card. Addressed here is how these changes affect online mapping, and how the Google Maps API can continue to be used for free.

Web and Mobile Mapping I Thursday 2:00 pm-3:40 pm

### Advancing Cartography by Embracing the Spatial Voice of the Untrained Mapper

### Sarah Bell, Esri

Every person's livelihood is impacted by the space in which they exist, but few of us have been formally trained in spatial communication. Yet artists, students, scientists, activists, and many more untrained mappers are lending their spatial voices to the world via map-making. Rather than hoard the power of spatial communication, we cartographers can foster an open atmosphere for all spatial visualists. This talk presents a conversation on enriching the field of cartography by embracing and learning from the untrained mapper. Applying socio-spatial theory and semiotics, this discussion uses real-world examples to explore what we cartographers can gain from novices. Cartographic Theory I Thursday 4:00 PM-5:20 PM

### Aesthetics and Design in the GIS&T Body of Knowledge

Chelsea Nestel, University of Wisconsin– Madison

What is aesthetics? What is design? And how do we "do" them? Teaching students how to develop skills in design and aesthetics is a critical part of cartography education. This talk summarizes the approaches advocated by a spectrum of cartographers in the field to help educators and students structure their opinions on design and aesthetics, as well as to explore the core of our thinking on this topic. The talk will conclude with a series of proposed learning objectives and bibliography on the topic.

Cartographic Education Thursday 2:00 рм-3:40 рм

# Affective Mapping: Designing for Behavior Change

Brandyn Friedly

Humans are not rational beings. Cognitive psychology and neuroscience show that people's decisions and worldview stem

from emotion. The potential of maps to shape place-based narratives on global and local scales is profound. In this talk, I will introduce research on behavioral change used in political science and connect it to the visual language of design and cartography to suggest ways we can design maps for positive change.

Cartographic Theory I Thursday 4:00 рм-5:20 рм

Analyzing Cartographic Information to Improve Nautical Chart Coverage Colby Harmon, NOAA–Marine Chart Division

The National Oceanic and Atmospheric Administration (NOAA) is undertaking a program to enhance and standardize its suite of Electronic Navigational Charts (ENC). ENCs, used by professional mariners and recreational boaters alike, were digitized in the 1990s from paper nautical charts having a variety of shapes, sizes and scales. A new scheme with a standardized, gridded layout has been proposed, based on criteria, such as existing U.S. and Canadian ENC coverage, the size of ports and positions port entry features, and vessel traffic volume. This presentation describes the criteria and

the analytical methods used to create and validate the new scheme. Moritime Cortography

Thursday 9:00 AM- 10:20 AM

#### Aspect Aware Contours John Nelson, Esri

Vintage maps do a sizzling hot job of adding a dimension of hillshade to their contours. Aspect-aware contours (contour line segments that know which direction they are facing) give us a much better perception of up-down-iness while at the same time conjuring an integrated hillshade effect. Cool looking and practical? Yes please. Some eyewatering examples from the distant past have shamed me into cobbling together a pretty simple code-free workflow for creating aspect-aware contours, using only a digital elevation model. I'll show you how, and share some resources for making them look all sorts of retro and weird. PCD Wednesday 10:45 AM-12:00 PM

### Atlas Apps for Online Map Collections

### Aileen Buckley, Esri

Today's expectations for atlases are different from what they were ten or even five years ago. Maps are now expected to be freely available online and accessible via easy-touse and interactive web apps. Maps in atlases are no different. However, sharing atlas maps online is complicated by the need to provide the maps as a complete and coherent collection in a clear and comprehensible app that provides quick access to the content. Few efforts have been exerted to develop common workflows and off-the-shelf resources that can be used by many who want to share their own collections.

Web and Mobile Mapping I Thursday 2:00 рм-3:40 рм

#### The Automated Map Taxonomy Chart: A Map Maker's Companion

Nathaniel Slaughter, Mapbox Historically, cartographers have abstracted map features from geographic relationships because it is difficult to to plan, design and convey cartographic details within the visual complexity of the map itself. We have developed a tool, an interactive "taxonomy chart," that allows the designer to isolate map elements and assists in the planning, design and documentation phases of a project. It lays out, in chart form, all map elements at all zoom levels, and can sync with any style.json file, accessible in Mapbox Studio. Proposed is a presentation of this

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#### tool, how it works and our plans for further development. PCD Wednesday 9:00 Am-10:25 AM

### The Ballot Box and Sunsquatch: Elements of Viral Cartography Anthony Robinson, The Pennsylvania State University

Making and sharing maps is easier than ever, and social media makes it possible for maps to attain widespread visibility and engagement to become examples of viral cartography. In this talk we present a framework for evaluating the design and dissemination of viral maps. We apply this framework in two case studies of maps that reached wide audiences on Twitter (2016 US Election & the 2017 Solar Eclipse), and we explore collections of maps generated in response to viral maps using image analysis and machine learning techniques. *Cartographic Research II Friday* 10:40 AM-12:00 PM

### Be a Cartography Expert in Three Easy Steps

#### Kate Leroux, Amazon

1. Attend the NACIS conference. 2. Follow Kate's tips and guidelines on what to record about the conference while you're here. 3. Dazzle your local colleagues and geo community with a presentation about the highlights of the conference. We all know NACIS is overflowing with fascinating cartographic content. You can show off presenters' research, creativity, and eye-catching maps to raise your own profile back home, while promoting NACIS and the cartographers whose work you highlight. Kate will equip you to be a cartography maven by sharing what she's learned from three years of giving presentations about the NACIS conference.

PCD Wednesday 9:00 AM-10:20 AM

# Behind the Scenes of the Atlas of Design, Volume 4

#### Alethea Steingisser, Lauren Tierney, Caroline Rose; Atlas of Design Team

Join the editors of the Atlas of Design on a behind-the-scenes journey through Volume 4! Since the publication of Volume I of the Atlas of Design in 2012, the publication has grown; Volume 4 received more than 300 entries, including an increase in international submissions. We will take a look at the editorial process of creating the atlas, a breakdown of the different categories of maps that were submitted, and invite discussion about the atlas. Reflections on the Atlas Thursday 4:00 pm-5:20 pm

### Beneath the Surface: Mapping with Intaglio

Jake Coolidge, Colorado State University/ National Park Service

Drawing maps by hand led me to rediscover intaglio, or etching, as a means to further explore the expressive dimensions of cartography. In this talk I'll discuss my initial foray into hand-printed cartography—a simple map of Mt. Rainier—as well as more recent projects and experiments. Etching a copper plate, working its surface with hand tools, inking it, and running it through a press spurs an exchange between the cartographer and the print medium that I have only begun to explore. Cartography and Fine Art: Exploring Intention and Purpose Friday 10:40 AM-12:00 PM

### Big Historical Geodata—the Next Frontier

#### Nathan Piekielek, The Pennsylvania State University

Libraries, museums and archives were the original big geospatial data repositories that to this day house thousands to millions of resources that contain research-quality geographic information. The problem is that these resources are not easily incorporated into the contemporary research process. Fortunately, big data tools and methods are equally as applicable to digitizations of geographic information that originated in physical form as they are to born-digital data. This presentation will provide an overview of several completed and on-going projects to turn print geographic information into big geospatial data by leveraging the power of computer-vision and machine-learning techniques. Map and Geographic Data Curation Friday 2:00 pm-3:40 pm

### Branding and Cartography Vanessa Knoppke-Wetzel

Branding is a strategic and valuable part of marketing for any organization—and visually branding graphics with a specific, set range of color choices and typefaces is an important part of any branding strategy. However, these defined colors are often not ideal for most map visualizations. The past three years, I've spent a lot of time defining and implementing what I think is ideal for the branding of map aesthetics for two organizations, and as such, I will share what I have learned and spread the word about BREAKING THE RULES when it comes to maps.

### Cartographic Design III Friday 9:00 ам– 10:20 ам

#### A Brief History of Nonprofit Mapping at GreenInfo Network Tim Sinnott, GreenInfo Network

Since our founding in 1996, GreenInfo Network has assisted over 1,000 public interest groups and agencies with mapping, data, analysis and other information technology projects. We work with 80-100 public interest clients annually throughout the US and internationally. Join us to rediscover the history of GreenInfo's mapping efforts from humble beginnings to modern cartographic applications.

Lightning Talk Friday 9:00 ам- 10:20 ам

# Building the UI for Priestley's interactive timeline

Ben Elan, University of Oregon InfoGraphics Lab; Daniel Rosenberg, University of Oregon Honor's College; Joanna Merson, University of Oregon InfoGraphics Lab; James Meacham, University of Oregon InfoGraphics Lab

Joseph Priestley's "A New Chart of History" is an incredibly informative historical artifact. However, analyzing and visualizing spatial data without a traditional map can be challenging. When creating an interactive digital version of Priestley's chart, I used D3 to provide the user with analytical and visual tools to help decode Priestley's work. I will speak briefly about how I linked the interactivity between the chart, map, and bar graphs and why this combination enhances this historic masterpiece.

Web and Mobile Mapping II Friday 2:00 pm-3:40 pm

#### But What About the Place Steven R. Holloway, toMake<sup>™</sup> Press & Editions

Have you been to the place itSelf? Making a map is about place, and place is something that is both other than, but also ourself— an interwoven and dynamic

### Abstracts Car-Car

### Car-Car Abstracts

relationship. Making should involve a conscious exploration with this otherness before a mark is made; with emptiness of mind and intent. 'I wake to sleep, and . . . learn by mapping where I stop to map? Our mark-mapping presents the opportunity of a moral center, no left or right, only the voice of the Place. You have to be on the side of the Place, the whole interwoven inclusiveness within which we live.

Cartography and Fine Art: Exploring Intention and Purpose Friday 10:40 AM- 12:00 PM

#### CARTO VI: The Next Chapter Of Thematic Web Cartography Mamata Akella, CARTO

In traditional cartography, we would not say that a reference and thematic map are equal. In web cartography, reference (basemaps) and thematic maps (data layer) have become synonymous with one another both relying on a handful of styling languages and technologies to produce. This talk will demonstrate why basemap technology is not well-suited for the data layer and introduce CARTO VL, a Javascript library for vector-based visualizations. I will demonstrate how CARTO VL's styling language has been designed specifically for cartography of the data layer and how you can take advantage of it to produce truly multi-scale thematic maps. Web and Mobile Mapping I Thursday 2:00 PM-3:40 PM

### Cartograms. Run for Your Lives! Kenneth Field, Esri

Cartograms aren't everyone's cup of tea. But I'm English and tea is what we're good at. Here, I introduce a side-project where we've built a set of tools to allow you to create different types of cartogram in ArcGIS Pro. The ability to make cartograms in ArcGIS has been a huge user request (well, me and a few others) and this set of tools will provide support to make roundy, squarey, griddy, squidgy-shaped maps out of your statistical data. Some of them may even persuade the one or two non-believers that cartograms have some cartographic value. PCD Wednesday 10:45 AM-12:00 PM

### Cartographic Considerations of Mapping Global Variations in Avian Eggshell Colors

Phillip Wisocki, Long Island University; Patrick Kennelly<sup>1,</sup> Indira Rojas<sup>1</sup>, Phillip Cassey<sup>2</sup>, Daniel Hanley<sup>1</sup>; 1) Long Island University; 2) University of Adelaide

Avian eggshell colors varies based on biliverdin and protoporphyrin, pigments resulting in blue-green and brown colors respectively. The former is thought to filter ultraviolet radiation more effectively while the latter is likely to be darker and more effective at absorbing thermal energy. These colors correlate to latitude, and offer opportunities to use customized color palettes to map their global distribution. Some of the cartographic considerations in this research are approximating global distributions of egg color, accounting for the phylogenetic diversity and nesting types of birds, and utilizing a color model that accounts for how birds perceive colors. Cartoaraphic Research I

Cartographic Research I Thursday 10:40 AM-12:00 PM

### Cartographic Education at the Department of Geomatics (University of West Bohemia, Plzeň, Czechia)

Otakar Čerba, University of West Bohemia This presentation introduces a general conception of cartographic education provided by the Department of Geomatics (University of West Bohemia, Plzeň, Czechia). This conception follows from mathematical cartography (as exact backgrounds of cartography) through the creation of various types of maps (supporting of cartographic production and creativity) to web applications dealing with maps. The particular classes are realized by the traditional approach (lectures and seminars), but it is strongly supported by methods and tools following constructivism and other advanced pedagogical schools. The gained cartographic knowledge and skills are applied in students' final thesis as well as international research projects. Lightning Talk

Friday 9:00 AM- 10:20 AM

### Cartographic Pleasures

Travis White, University of Kansas Joy Division's 1979 album Unknown Pleasures features one of the most recognizable data visualizations in popular culture. Designed by Peter Saville, the artwork has been subjected to countless knock-offs and derivatives. It also inspired a tutorial I wrote for my cartography students to teach them how to make "transect maps" using profile graphs of elevation data. This presentation explores the original art, the classroom exercise it inspired, the recent viral popularity of "ridgeline plots," and my continuing attempts to map with the form without crossing that delicate line separating inspiration from mimicry.

Art Inspired and Hand Drawn Cartography Thursday 10:40 Am-12:00 PM

#### Cartography as a Small Business

Hans van der Maarel, Red Geographics; Dennis McClendon, Chicago Cartographics; Derek Tonn, mapformation; Erin Greb, Erin Greb Cartography; Nat Case, INCase

A lot of cartographers are working either as a freelancer or as part of a small company and a lot of them face the same challenges. This panel aims to shed light on these challenges. We'd like to encourage an open discussion

on these subjects between our panelists and the audience.

Panel: Cartography as a Small Business Friday 9:00 AM- 10:20 AM

#### Cartography, Identity, Geopolitics, and License Plates

Jonathan Leib, Old Dominion University

In the automobile era, one of the most visible expressions of a person's place of residence is found on the license plate attached to their vehicle. Governments have played a major role in regulating automobility, both in controlling the actions of drivers and shaping national identities. One way this has been done has been through the use of pictures and symbols (including maps) on license plates representing their states. This exploratory research presentation focuses on the use of maps on license plates as ways of advancing, reinforcing, and contesting national identity and promoting geopolitical agendas. Road Tripping

Friday 4:00 pm-5:20 pm

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### Cit-Com Abstracts

### Cities, Towns, Villages, Boroughs: Populated Places through Scale

#### Elaine Guidero, U.S. Geological Survey; Lindsay Decker, Maria McCormick; U.S. Geological Survey

Ongoing research at the U.S. Geological Survey into modifying data for multi-scale mapping has resulted in the creation of an attribute called VisibilityFilter (VF). Populated places in the Geographic Names Information System (GNIS) seem suited to a straightforward application of VF using population. However, this process is not as simple as it might appear. Populated places have a complicated categorization, and filtering on population alone leaves overly dense urban areas and blank rural areas VF for GNIS populated places involves working with the different populated place categories and leveraging information from other datasets to eliminate under- and over-crowding through scale. Liahtnina Talk Friday 9:00 AM- 10:20 AM

#### Collaborative Geographic Indexing of Map Series: Geodex 2.0 Stephen Appel, American Geographical Society Library, University of Wisconsin– Milwaykee Libraries

In 1988, the American Geographical Society Library launched a geographic indexing software called Geodex. The software allowed for rapid input and searching of records for large paper map series and encouraged partner collections to reconcile index data to create a collaborative database. In recent years, the system has been redesigned using geodatabase architecture and Web GIS. With modern hosted GIS services, the potential of a shared geographic paper map index is within reach. This presentation will describe the platform, argue the benefits of Geodex for map collections and users, and share progress on its development.

Map and Geographic Data Curation Friday 2:00 рм-3:40 рм

### Commanding Cartography: Take Control of Faster, More Elegant Workflows from the Command Line Joshua Stevens, Earth Observatory

Compelling cartography has never been easier or more abundant. We are inundated with new tools and technologies. All the while, one of the most powerful assets in the cartographer's arsenal is being overlooked: the command line. Using keystrokes to create maps might sound like a task of yesteryear, but I am here to tell you it is a wormhole to the future. Whether you design maps for national parks or newsrooms, the terminal will enable you to supercharge your workflows with speed and elegance. This talk will introduce some old tricks and new tools for designers on any deadline. PCD Wednesday 9:00 Am - 10:20 Am

Complementary Cartography: Analyzing National Geographic maps that play a supporting role Clare Trainor and Riley D. Champine, National Geographic

National Geographic Magazine frequently publishes beautiful scientific illustrations from depictions of animal species to diagrams of architecture. For these art focused pieces, maps play a smaller role of providing spatial context and indicating geographic trends. In the most recent era of National Geographic, great care and effort is taken to seamlessly blend maps into artwork. This is an intentional and challenging process. In this presentation, we will highlight examples of maps harmonizing with aillustration and contrast these with earlier pieces that do not. We hope to demonstrate how cartographers work with illustrators to create maps that successfully complement art. Cartographic Design III Friday 9:00 AM- 10:20 AM

### Confluence and Beyond: Explorations in Gunpowder Mapping (continued...)

Matt Dooley and Hailey Sauer, University of Wisconsin-River Falls

Gunpowder mapping, a technique grounded in contemporary art, involves the controlled burning of paper through the ignition of gunpowder through a stencil. It provides a novel approach to the mapping process that encourages collaboration between makers, spurs conversations about geography and our environment, and crosses the digital divide. In this presentation, we discuss our recent work in gunpowder mapping focused on river systems in the central and southeastern US as well as the Saint Croix Watershed in Wisconsin and Minnesota. Cartography and Fine Art: Exploring Intention and Purpose Friday 10:40 AM-12:00 PM

### Connecting People with the Arctic Refuge

Marty Schnure, The Wilderness Society We only save what we love, and we only love what we know. How can we make maps that help someone come to know and love a place, and inspire them to help protect it? How about a faraway place they've never been to and will likely never visit? Marty Schnure has been trying to figure this out for a while, most recently in her work to defend the Arctic National Wildlife Refuge from oil development. In this lightning talk she will share a series of maps she has made to try to connect people with this wild, threatened place.

#### . Lightning Talk Friday 9:00 ам– 10:20 ам

### Conservation Cartography: Putting Maps to Work for Endangered Species

Kevin McManigal, University of Montana, Franke College of Forestry and Conservation

The UM Laboratory for Conservation Cartography is designing cartographic products with NGO's working to defend endangered species. To date, we have created 1:25,000 topographic maps covering four wildlife reserves. However, the production barriers of time and cost have led to refined models that more rapidly serve the urgent needs on the ground. Our ruggedized digital devices give conservation staff access to satellite imagery and topography data in an "unconnected" environment, allowing rangers to build geospatial data in the field. The maps are making a difference, and the closing success stories prove we can preserve the last of these iconic species.

Cartographic Design III Friday 9:00am-10:20am

### Creating 2.5D/Pseudo-3D/ Axonometric Buildings for Large Scale Map

Jim Eynard, National Park Service

The inclusion of axonometric buildings, rather than 3D perspective buildings, on a large scale map can be an effective way to call out features relevant to the map reader and can be easily created and placed on a georeferenced planimetric map. I will show several examples and demonstrate how to create these buildings manually in Adobe Illustrator using building footprints as well as how to utilize existing 3D models and software such as SketchUp to create these pseudo-3D buildings.

PCD Wednesday 3:30 PM-5:00 PM

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### Cre-Dat Abstracts

### Creating Fantasy Maps from Real-World Data in QGIS (Orcs Not Included)

#### Ross Thorn, University of Wisconsin– Madison

Fantasy mapping is an exciting and widely popular branch of cartography. Often among the more art savvy folks, fantasy cartographers create mountain ranges, seas, forests and cities that no one has ever seen! But what if you aren't skilled at drawing and want to create your own realistic fantasy world? In this workshop, we'll create realistic and riveting landmasses in minutes using real world data in QGIS that are ready for your own personal flair and worldbuilding creativity!

PCD Wednesday 1:30 PM-3:10 PM

#### Creating Space to Create: Teaching Technologies You Don't Know Ashley Nepp, Macalester College As a practitioner it is difficult to keep up with the ever-changing landscape of web-mapping platforms, programming languages, and data visualization tools. As an educator, there are even more challenges when teaching new technologies; it can be overwhelming to try to learn them all, or choose which one(s) to use in your course.

Macalester College is a small liberal-arts school, where students have vastly different skill and comfort levels with technology, and a strong desire to tailor course projects to their interests. A one-size-fits-all approach often limits the creativity and learning potential of our students. *Cartographic Education* 

Thursday 2:00 рм=3:40 рм

### Cultural Mapping: A Review of Cartographic Methods

#### John Kostelnick, Illinois State University

Maps that characterize as language, ethnicity, and religion serve a range of diverse purposes for audiences including social scientists, government agencies, and the public. Aside from their societal significance, thematic maps that visualize ethnicity, language, and religion are prone to several cartographic design challenges given the complexities associated with human culture. In this presentation, I identify key challenges specific to cultural maps through a review of existing thematic maps found in prominent map holdings (e.g., Library of Congress), with a focus on contemporary national atlas and government agency maps. Prospects for improved methods for cultural mapping are also offered. Cartographic Research I Thursday 10:40 AM- 12:00 PM

### Customizing Esri Vector Basemaps— Quickly and Easily!

Aileen Buckley, Esri

With a new and easy-to-use editor, you can now tailor any of the Esri vector basemaps to match your brand or support the look of your maps. The ArcGIS Vector Tile Style Editor allows you to create, edit, and save your own styles with your choice of colors, patterns, labels, and visibility for all layers in the basemap. Your new style is saved in ArcGIS Online and can be used to display your custom basemap in the Map Viewer or any other web apps, such as the Esri Story Maps.

PCD Wednesday 3:30 PM-5:00 PM

### The Data Scientist Open Source Cartography Toolbox

#### Francois Dion, Dion Research LLC

Statistics and Cartography have long been closely tied, thanks to the likes of Joseph Minard, Willard Brinton, Calvin Schmid and Jacques Bertin, to name a few. As Computer Science joined Cartography and Statistics to the Data Science party, many software solutions emerged. Fortunately, the trends in the past decade has been toward open source. Extending the author's "Hitchhiker's guide to the open source data science galaxy", this presentation will cover the Python open source Cartography ecosystem, as used in Data Science.

Mapping and Software Development with Open Data I Thursday 9:00 AM- 10:20 AM

#### Data Through Design Wenfei Xu, CARTO; Jessie Braden, Pratt SAVI, Michelle Ho, CARTO, Eve Ahearn Enigma, Jeff Ferzoco, CARTO

The goal of the Data Through Design project, created for New York City's Open Data Week, was to attract a broader audience and foster engagement with the City's open data through physical representation. We commissioned three-dimensional artworks that incorporated open data to pose thoughtful questions about city life. Such issues were, for instance, the power of crime to accumulate and entangle neighborhoods, the connection between traffic fatalities and built environment, and the demographic distribution of death. This project was the first of its kind for the city's annual Open

Data Week and attracted a new audience of designers and artists.

Mapping and Software Development with Open Data I Thursday 9:00 AM-10:20 AM

### Data-driven Styling in Mapbox Studio: What's New?

### Dana Sulit, Mapbox

Mapbox Studio is a design tool that lets anyone instantly style map data down to street level for the whole world. In the last year, the Studio team has introduced new ways to create more dynamic, responsive styles, using zoom and data to control style in a more precise, flexible way. New interpolation modes, mathematical operators, and conditional logic are just some of the brand new styling features in Studio. In this presentation, we'll discuss what's new in Studio, why data-driven styling is important, and demonstrate how to use Studio's new features to their full potential.

PCD Wednesday 3:30 PM-5:00 PM

### Abstracts Dat–Des

#### Designing a Map-Centric Interface to Improve Geospatial Analytics Ryan Mullins; Ben Nargi, Patrick Cummings, Antima Inc

Recent advances in machine learning methods have created highly automated geospatial analytics. These analytics still require human insight and validation to learn from their mistakes and be able to connect dots across data modalities. Here, we present work-in-progress research to design a map-centric interface that elicits human insight and trains machine learning-based geospatial analytics. This interface engages a human analyst in a forensic task, and transforms their interactions into corrective feedback that is delivered to the analytics, as well as their creators. We discuss the design process and preliminary results from limited user testing.

Cartographic Research II Friday 10:40 Am-12:00 PM

### Direct Interaction: Narrative Web Maps and Explicit Bias

#### Joe Blankenship, University of Kentucky; Rich Donohue, University of Kentucky–New Maps Plus

The form and function of a web map for users is rooted in the intent of the map creator. Minimizing modes of map interaction guides the cartographer to develop code, language, and design elements. This directs interaction, focusing the map creator's intent, meaning, and message. Users thereby engage in a dialogue through the map with the creator and the wider audience. Therefore, the dialogue initiates a process of engagement superior to traditional maps that simply foment a statement. We conclude by offering standards for UX/UI design that provide for better legibility, explicit bias, and ethical web map development.

Web and Mobile Mapping II Friday 2:00 рм-3:40 рм Eastern Bloc Borderlands: Digitizing Russian Military Topographic Maps of Eastern Europe, 1883–1947 Theresa Quill, Indiana University Bloomington; Michelle Dalmau, Indiana University

The Russian Military Topographic Map Collection at Indiana University (IU) contains just over 4,000 maps of Eastern Europe at various scales. In the years surrounding World War II, these maps were captured in the field by opposing forces, including German and American troops; a history told by stamps on the maps themselves. While Soviet military maps from the Cold War era are abundant, these maps provide a view of the pre-war landscape. Digitization of this collection includes georeferencing and creating a custom metadata scheme to trace changes in place names and provenance, as the maps were captured and recaptured. Map and Geographic Data Curation Friday 2:00 pm-3:40 pm

### English-to-Chinese Map Label Conversion: 1 Year In

### John Sylak-Glassman, Mapbox

While dynamic digital maps commonly offer English labels for most of the world, such a complete map label layer is lacking for most other languages. Over the past year, we've built a system to automatically convert English map labels into Chinese using deep learning and natural language processing (NLP) with humans in the loop. This talk presents our experiences and the progress we've made. We discuss variability in judgments of what constitutes a correct map label, unique aspects of using deep learning language technology for cartography, and the advantages of working with a modular system that incorporates human judgment.

Lightning Talk Friday 9:00 ам- 10:20 ам

# Evolution of Map Design at National Geographic

Matt Chwastyk, National Geographic Maps are integral to the story telling in National Geographic Magazine. As the narratives told became more diverse and accessible, answering the mandate to "increase and diffuse geographic knowledge," cartographic design at the Society also evolved. Surveying the last 130 years of mapping at National Geographic, we will examine how design and content have changed over time as new technologies and capabilitieswere integrated. The recent redesign of the monthly has also opened new unique avenues of journalism using maps. Cartographic Design I Thursday 9:00 AM- 10:20 AM

### Extreme Mapmaking (part 1/2): Cities and Spies

### Greg Miller, All Over the Map / National Geographic

This talk (part one of two) will examine two examples from the forthcoming book All Over the Map (National Geographic, 2018). Kowloon Walled City was the densest human settlement that ever existed. This maze-like complex of 14-story buildings in Hong Kong housed tens of thousands of people and its own economy-some of it legitimate, some not. Hitomi Terasawa's illustrated map captures life inside. During the Cold War the Soviet military secretly mapped the entire world. Soviet city maps note details like the dimensions and load-bearing capacity of bridges-things that would be difficult to know without eyes on the ground. Extreme Mapmaking

Thursday 10:40 AM- 12:00 PM

Extreme Mapmaking (part 2/2): Battlefields and Imaginary Worlds Betsy Mason, All Over the Map / National Geographic

This talk (part two of two) will examine two examples from the forthcoming book All Over the Map (National Geographic, 2018). During WWII, the Allies ran a secret operation to create 3D battlefield models to plan and prepare for key offensives. The scale models were as true-to-life as possible, down to heights of hedgerows and colors of houses, and are credited with saving countless lives. Artist Jerry Gretzinger has spent 35 years mapping an elaborate imaginary world. Jerry's map is now over 55 feet across and continually evolving based on a deck of mysterious cards that guide his work.

Extreme Mapmaking Thursday 10:40 ам–12:00 рм

### Feminist Icon Design

Meghan Kelly, University of Wisconsin– Madison

Feminist mapmaking offers exciting and alternative avenues to explore data, map form, and cartographic process. But where do we even begin? My work aims to bring feminism to mapping practice through icon design, an accessible entry point for novice

### Abstracts Ext-For

and experienced cartographers. I conducted mapping workshops at Maptime Amsterdam and UW–Madison where I introduced a feminist cartographic framework before asking participants to redesign Maki icons with this framework in mind. Here, I review the workshops, the feminist mapping framework, and the resulting feminist icon designs to demonstrate the value of feminist perspectives in icon design and cartography, more broadly.

Cartographic Design II Thursday 4:00 pm-5:20 pm

#### Forward March! Mapping the American Civil War 150 years later Ben Myers

What does it take to make a map of an event that occurred a century and a half ago? And how can that add to our understanding of the past? Drawing from original, hand-written documents, period maps, and photographs, we'll use modern mapping techniques to retrace the footsteps of a regiment of soldiers who marched almost 1,500 miles through Virginia, Maryland, and Pennsylvania.

Historical Cartography of the Mid-Atlantic Thursday 2:00 pm-3:40 pm

### Fro-Fut Abstracts

#### From #lovemaps to #cartofail: exploring cartographic rhetoric Amber Bosse, University of Kentucky

As maps and their processes of production become increasingly accessible throughout the world, cartography is being discussed by more diverse populations in more diverse settings than ever before. Examining the rhetoric employed by an individual or group can reveal underlying values and goals. For this talk, I will discuss my process of quantitative/qualitative analysis on the rhetoric emanating from the NACIS community (Cartographic Perspectives, Twitter, Atlases of Design, and CartoTalk) to explore what it is our words say about us and what we can do to continue to build on our reputation of "NACIS is nicest." Cartoaraphic Theory II Friday 4:00 pm-5:20 pm

#### From Cartographic Contrast Design to Neuro-geographical Contrast Cognition

P. William Limpisathian, University of Oregon As cartographers, we contend that visual contrast is crucial to establishing perceptual differences that allows the reader to distinguish features on a map. Yet the central task of determining the most optimal configuration of visual contrast continues to seemingly elude us. Additionally, much of the theoretical underpin of our understanding of cartographic visual contrast stems from Gestalt psychology dating back to the 1920s. With the advancement of neuropsychology, classical psychological theories are increasingly being reexamined under new experimental light. Thus, this presentation will briefly reexamine the literature on cartographic visual contrast and frame it against related research from neuroscience. *Lighting Talk Friday 9:00 AM-10:20 AM* 

### Future City Mapping Kate Chanba, Route

Emerging modes of transportation are rapidly transforming cities, and the maps we create play a pivotal role in guiding users. Where transit maps used to be hand-made, efficient, and symbolic tools that provided a shared understanding of the city, the focus has shifted towards on-demand dynamic data delivered by machines to individuals. In this talk, we will explore how cartographers can influence the changing landscape of map-use in cities, represent a range of mobility options, and maintain the aesthetic quality of traditional transit maps. We'll discuss my work with Portland TriMet, ideas from this year's Transit Mapping Symposium, and more. Cartographic Research II Friday 10:40 AM-12:00 PM

Future of Cartography: Deriving Raster Products using Vector Data Christie Ence, NOAA-Marine Chart Division Nautical charts are an essential tool for marine navigation. Despite introduction of global positioning systems (GPS) and electronic navigational tools that present navigation data in a vector format on a display, paper charts are still the preferable choice for many mariners. With NOAA's new plan to "standardized, consistent gridded framework" that is optimized for digital displays, the question is what is the future of paper charts? In order to allow a raster-based maintenance system, it is now possible to translate encoding attributes of vector objects into standardized chart symbols and labels. Thus, simplifying workflow processes for paper and raster chart production.

Maritime Cartography Thursday 9:00 AM- 10:20 AM

# GeoVisualization Methods in Spatial History

### Nil Tuzcu, Harvard University

This presentation will focus on the making process of the web mapping project—"Istanbul Urban Database (IUDB)." The project is an interactive online mapping platform that blends a wide range of historical data including maps, master plans, photos, and transportation routes, allowing users to explore and interact with spatio-temporal layers of Istanbul's past. I will introduce the emerging web-based spatial technologies and historical GIS that are currently used for spatial history projects as well as discuss how the IUDB situates in the broader digital humanities theoretical ground.

Lightning Talk Friday 9:00 ам– 10:20 ам

#### Git, APIs, and SDKS: Understanding the Vocabulary of Modern Geospatial Technology Lyzi Diamond, Mapbox

One of the biggest challenges when staying up to date with new mapping technology (or learning for the first time!) is all the new concepts and vocabulary. What is an SDK? What's the difference between a JavaScript API and a REST API? And what the heck is

git? This talk will provide an introductory overview of the main concepts in modern geospatial tech with a focus on web and mobile. Attendees will walk away with a framework they can use for further learning and investigation.

PCD Wednesday 10:45 AM-12:00 PM

### Hand-drawn Plausible Fictitious Maps

#### David Nuttall

How my fictional map art has turned into an artistic business (Artimaps). I was trained as a cartographer by the British Government and have always worked in mapping and GIS in England and now Alabama. However, I have been hand drawing fictional maps since the age of five and in this session I will explore my fictional map drawing and how it has impacted my professional life. I will look at now my fictional cartography has progressed in detail and also variety of styles and mediums and how I became a professional artist creating real maps of fake places.

Art Inspired and Hand Drawn Cartography Thursday 10:40 AM-12:00 PM

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#### HERE and Back Again: Developing For the Cartographer Katie Kowalsky, HERE

A wise grey wizard once said, "The world isn't in your books and maps; It's out there". Whether hobbit or elf, cartographer or novice, we all try our best to follow Gandalf's advice and use our experiences to better shape our own work. Our adventures inform us and alter us; creating new stories to tell. I'll be walking through a harrowing tale of tackline user stories reating time open courses

tackling user stories, navigating open source software licenses, and rescuing user centered design to develop a new product for HERE.

Mapping and Software Development with Open Data I

Thursday 9:00 AM- 10:20 AM

### Historical Perspective on Marine Cartography in the Last Days of Pen and Ink

#### John Macek, NOAA-Marine Chart Division

Historical Perspective on Marine Cartography examines the process by which nautical cartographers in the Marine Chart Division of the Office of Coast Survey updated their suite of products during the last decade of the 20th Century. The era was one of dynamic change, as advances in automation pushed desktop computing

### His-How Abstracts

into the limelight, and the age of pen and ink on mylar faded away, eventually being supplanted by the development of the raster nautical chart. The lecture will also touch on the tasks performed by the various branches in the division, and address the fact that even though the cartographic tools changed, the cartographic rules remained the same.

#### Maritime Cartography Thursday 9:00 ам- 10:20 ам

# The Historical Working Cartography of Chesapeake Bay

John Cloud, National Museum of Natural History

"Maps are made to be looked at; charts are made to be worked on". This presentation focuses on an array of historical charts of Chesapeake Bay or sections of it, from the 18th to 21st centuries, that will illuminate the bay and its environs, and the peoples who have worked it, via piloting and trade, agriculture, several revolutionary wars, the battles to end slavery, and the tangled trajectories of humans intersecting a great mass of oysters. The presentation could be paired in a session to presentations on the bay and accelerating sea level rise and consequences.

Historical Cartography of the Mid-Atlantic Thursday 2:00 PM-3:40 PM

#### Hot or Not? The Challenges of Heat Map Creation and Interpretation Daniel Strebe, Tableau Software; Sarah Battersby, Tableau Software; Sara Fabrikant, University of Zürich

You get goosebumps about heat maps? We will ruin heat maps for you, just like we ruined hex bins a few years back. Suck it up, but don't sweat it. Good mapping isn't easy! Sometimes learning about the horrible things you did in pretty maps burns. If you can't take the heat, get out of the map kitchen. But, we're here for you. We won't mock you. We'll just point out the bad assumptions you might have made along the way. And, by the way, the earth isn't flat. And, yes, rainbows can be useful, but not often.

Cartographic Design III Friday 9:00 ам– 10:20 ам

### How Far is a Sandwich? Cartographic Representations of Linear Distance

### Victoria Johnson

Why do we use miles or kilometers on maps instead of submarine sandwich lengths? This presentation will take a bite out of how to cartographically represent distance and scale. We'll explore many delicious ways of mapping for linear distance, focusing on the presenter's own experience developing a series of hoagie-centric maps. Come hungry for knowledge, leave satisfied in making maps more appealing to all comers. Cartographic Design II Thursday 4:00 PM-5:20 PM

### How to Make Orthographic Projections with MAPublisher

Gene Thorp, U.S. Department of State MAPublisher has gained in popularity with many cartographers because it allows them to maintain geographic relationships in Adobe Illustrator, arguably the most popular vector design program on the market. One drawback has been the perception that MAPublisher cannot create orthographic projections or 2D globes. Not so. In this presentation we will go step-by-step through the process of how to create an orthographic projection in MAPublisher that works, and can still be updated with new data. PCD Wednesday 1:30 PM-3:10 PM

#### How to Play with Maps Ross Thorn, University of Wisconsin– Madison

Cartographic design guidelines are traditionally grounded in the concept of work, striving for optimal efficiency and effectiveness when accomplishing tasks. However, some maps are designed to facilitate play and adhere to game design principles that create a challenging, yet satisfying experience. Video games often provide in-game maps to help players navigate through and make sense of these increasingly complex geographies. This session discusses common characteristics of playful maps, how these characteristics overlap with traditional cartographic design tenets, and how one grad student convinced his department to buy hundreds of dollars worth of video games.

Cartographic Design I Thursday 9:00 ам– 10:20 ам

### Imprimatur: Printing Maps in Today's Digital World

### Kate Leroux, Amazon

In a time when everything seems digital, printed maps retain distinct benefits like size, context, ability to annotate, and longevity. If you want to print a map, what do you need to know about printing terminology and methods? How much will it cost? What should you expect when working with a print company? How can you prepare your files to avoid costly corrections? Ultimately, how do you ensure that your map shines even more on paper than it does on the screen? We answer these questions and provide a detailed, practical look into map printing, supplemented with printed examples.

PCD Wednesday 3:30 PM-5:00 PM

### Indoor Mapping: Applying Cartographic Principles at Scale Mike Foster, Apple

With the release of iOS 11, Apple introduced indoor maps into Apple Maps. Indoor maps provide detailed floor plans of major airports and shopping malls around the world, allowing users to find their way around popular indoor places. This feature added hundreds of thousands of data points to the map, and presented numerous cartographic display challenges. This presentation will discuss how the Apple Maps Cartography team applied an algorithmic simplification method to curate indoor details at each zoom level, and will emphasize the importance of retaining an element of hand curation to ensure a beautiful and intuitive experience for our users.

Web and Mobile Mapping Thursday 2:00 PM-3:40 PM

### Interactive Flow Arrows: Understanding Commuting Statistics with HTML5 Maps

Dany Bouchard, CartoVista

How can we best represent flows from an origin to a destination on a web map? From migration to commuting or import/export statistics, displaying flows with arrows is a useful way to communicate movement cartographically. However, this brings many challenges such as overlapping and legibility for example. This presentation will highlight real examples and techniques we used in CartoVista to display flow data while building meaningful thematic analyses. Interactive HTMLS technologies brings a lot more power to the end user; They can create inbound or outbound flows, play with

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### Abstracts

options like stroke width, pattern and colors to represent different data. Web and Mobile Mappina II Friday 2:00 pm-3:40 pm

#### Introducing the Equal Earth Projection

#### Tom Patterson, U.S. National Park Service: Boian Savric, Esri: Bernhard Jenny, Monash University

The Equal Earth map projection is a new equal-area pseudocvlindrical projection for world maps. It looks similar to the widely used Robinson projection, but unlike the Robinson projection, retains the relative size of areas. Continental outlines are shown in a visually pleasing and balanced way. Equations are simple to implement and fast to evaluate. We introduce the Equal Earth projection as a response to the recent wave of news stories about the unfortunate switch of Boston Public Schools to the Gall-Peters. To encourage adoption, we will release a world political map in the Equal Earth projection online free of charge.

Cartoaraphic Desian I Thursday 9:00 AM- 10:20 AM

### Lake Tahoe—Topographies in many forms

Jeremy Goldsmith, National Geographic This presentation highlights the research and production of two recreational mapping projects within the same geographic extent of the Lake Tahoe Basin. Learn how these maps are produced in multiple media formats-from folded maps to mobile platforms-and why both are essential to outdoor enthusiasts.

Cartographic Processes Friday 4:00 pm-5:20 pm

### Linking Historical Population Census Data to Individual House Locations

T. Wangyal Shawa, Princeton University

The United States decennial population censuses of individuals are released to the public after 72 years. These releases give researchers rich historical records about people living in particular places at specific times; if the data is spatially tied to individual houses, it will become much richer. This presentation is based on my recent project to spatially link the 1900 Census data of Princeton, New Iersev to individual houses located in the borough (urban) and township (rural) of Princeton. The project explores methodology and workflows and describes the challenges

and opportunities of developing historical location data.

Map and Geographic Data Curation Friday 2:00 pm-3:40 pm

### A Love Letter to Cartography. Kenneth Field, Esri

"Dear cartography, I've been busy writing love letters to you: a book and a course to educate, and for others to share my passion. I'm going to lift the covers to reveal the process of sharing that love. I'll tell everyone what you mean to me: my deepest thoughts; the trials and tribulations, and the often fraught relationship I've had with you. My feelings are expressed in every page and every map. Please remember how much I love you. I loved you the minute our scribe coat first met.

Ken x

PS—vou're pretty good between the map sheets'

Cartoaraphic Education Thursday 2:00 pm-3:40 pm

### Making cartography education practical in the GIS&T Body of Knowledge

### Jeff Howarth, Middlebury College

This presentation describes the Cartography and Education contribution to the GIS&T Body of Knowledge. The main objectives are to outline instructional dilemmas that educators may encounter at different levels of instructional design and to describe different practical strategies for solving these problems. General methods for encouraging active learning in lectures and problem-based learning in labs are also illustrated with examples, including content from the GIS&T Body of Knowledge. The presentation aims to encourage conversations between academics and practitioners about instructional design strategies for teaching cartographic principles through cartographic practice.

Cartographic Education Thursday 2:00 PM-3:40 PM Making Happy(er) Maps: Leveraging Affective Color Congruence in Thematic Map Design Cary Anderson. The Pennsylvania State University

Maps of emotionally-laden topics are prominent in the media, from negative maps of gun violence to those depicting geographic trends of happiness. Despite the often emotive content of thematic maps. cartographic color guidelines still focus on kind of data (e.g., sequential; qualitative), and visual perception constraints. Yet colors-like data topics-have emotive connotations. Here, we report the results of a user study to assess the impact of affectively congruent colors-colors that share emotive qualities with the data they encode. Results demonstrate multiple impacts of affective congruence on map interpretation, including significant amplification of map-topic emotions.

Cartoaraphic Research I Thursday 10:40 AM-12:00 PM

#### Abstracts Mak-Map

### Mapping (& Not Mapping) Chronic Disease for Healthy Neighborhoods Tim Stallmann, RAD

Over the past year, I've been working with DataWorks NC to figure out how best to share newly available data on chronic disease incidence with neighborhoods across the County. Through resident feedback. we've been moving away from maps and experimenting with data-driven illustrations and narrative text. In this talk, we'll share the participatory design process & technical structure of the Durham Health Indicators project, a reactive web app, printed infosheet and workshop curriculum which helps neighborhoods understand how individual conditions like diabetes and heart disease are influenced by factors like access to healthy food, walkability, poor housing conditions, and evictions.

Mapping and Software Development with Open Data II Friday 10:40 AM-12:00 PM

#### Mapping for Environmental Law Jovian Sackett, Southern Environmental Law Center

The Southern Environmental Law Center (SELC) uses the power of the law to champion the environment of the Southeast.

### Map-Map Abstracts

Mapping for advocacy is a fair, but limited, characterization of SELC's geospatial work. Our maps must often transcend the courts of public opinion and withstand rigors of penitentiary scrutiny in courts of law. Since NACIS is in Norfolk, come see how SELC uses maps, right here, to campaign against offshore oil/gas exploration, plan for sea-level rise, and clean up contaminated industrial sites.

Cartographic Processes Friday 4:00 рм-5:20 рм

### Mapping in Full Monochrome Daniel P. Huffman

Color is overrated. The limited bandwidth of a monochrome palette liberates us by simplifying our choices, while its constraints push us to be more clever in those choices. I love both the challenge and the simple elegance of greyscale mapping, and I wish it were a more common cartographic practice. So, let's talk about some ways to get the most out of white, black, and all the shades in between.

PCD Wednesday 1:30 PM-3:10 PM

#### Mapping Middle-earth: Questing for "Real Facts" in a Fictitious World Erik Mueller-Harder, independent scholar Though most fantasy authors heed Tolkien's

Though most fantasy authors heed Tolkien's advice to start "with a map, and [make] the story fit," Tolkien did not-resulting in (predicted) "confusions and impossibilities." See the perils of making maps where descriptions are data: characters' conflicting accounts are primary sources; "impressionistic" contour lines are DEMs; and even the author's conceptions of his world change over time. Forensic mapmakers must beware the lures of conjecture and imagination. For even with databases, map normalization, and vector-based software (all demonstrated!), making Tolkien's envisioned map of Middle-earth is a quest for the bold. [No familiarity with Tolkien's works is assumed.] Extreme Mapmaking Thursday 10:40 AM-12:00 PM

### Mapping Population Data at the U.S. Census Bureau

Darryl Cohen, U.S. Census Bureau Maps are valuable tools that assist data users in understanding and interpreting the large volume of data that the Census Bureau publishes. Data products released by the Census Bureau often include a variety of reference and thematic maps. These products include both printed reports and online or digital data releases. While many of these products include U.S. data collected by the Census Bureau, the agency also creates a variety of international products, often using data from other national statistical agencies. This presentation will highlight some of the Census Bureau's recent thematic map products for both U.S. and international data.

Mapping and Software Development with Open Data I Thurday 9:00 AM- 10:20 AM

Mapping the Black Canyon of the Gunnison: Steep, Deep, and Narrow, a Cartographic Journey Joe Milbrath, U.S. National Park Service Steep, deep, and narrow. Three words that describe the beauty and awe of the Black Canyon of the Gunnison. They're also words that can cause cartographic nightmares. This presentation will focus on four maps that highlight the Black Canvon of Gunnison National Park in the latest Unigrid brochure. I'll describe the workflow and techniques used to create a natural color planimetric orientation park map, a 3D oblique inset map of the canvon's rim trails, a vector wilderness map, and a regional 3D map

illustrating the hydrography of the Gunnison River.

PCD Wednesday 9:00 AM-10:25 AM

# Mapping the Fiery Chaos of the 1968 Riots

Lauren Tierney, The Washington Post Following the news of Rev. Martin Luther King Jr.s' assassination on April 4, 1968, rioting exploded throughout Washington, D.C., leaving 13 dead and more than 900 businesses damaged. For the 50th anniversary, The Washington Post mapped the extent of the rioting throughout the city, plotting data compiled from declassified Secret Service reports and archival city planning documents. Specific topics in this presentation will include the initial sketch and design steps, the visualization of archival data, and the reworking of the digital piece for print.

Cartographic Design I Thursday 9:00 AM- 10:20 am Mapping the Sierra Nevada Range: Snow Cover Winter 2017 Nathaniel Douglass, Humboldt State University

The early months of 2017 marked the highest snow cover levels for the Sierra Nevada Range in more than a decade. Nathaniel is a Humboldt State University graduate, with a bachelors in Geography and was awarded best Cartographic Design at NACIS 2017 for his map "Sierra Nevada Snow Cover 2017". In this talk, Nathaniel discusses both his techniques as well as the countless hours spent labeling (what seems like) an infinite number of peaks. His map portrays the dramatic increase in snow cover during this period while only attempting to portray the breathtaking beauty of the Sierra Nevada. PCD Wednesdoy 3:30 PM-5:00 PM

### Mapping U.S. Small Towns: Challenges and Solutions

Jennifer Mapes, Kent State University Small towns are too often grouped together with rural areas, obfuscating their more urban characteristics: this can be seen in both academic research and popular press narratives. Maps offer an opportunity to either repeat this mistake or provide an opportunity to correct it.

# Abstracts Map-Map

In this presentation, I will discuss some of the challenges created by conventional cartographic representations of demographic data at national and state scales. I will go on to illustrate some alternatives that help to highlight the nuances of spatial patterns in areas outside of large cities.

#### Cartographic Design II Thursday 4:00 pm-5:20 pm

# Mapping Washington State's Glacial Legacy

**Daniel Coe**, Washington Geological Survey Glaciers from last ice age left long-lasting imprints on the topography of Washington State. Geologists and cartographers have been unraveling this glacial landscape since the late 19th century. The Washington Geological Survey has recently created many new maps that build upon this rich cartographic inheritance by fusing earlier

data and techniques with modern insights and technology. We will compare and contrast examples of our newest glacial-themed maps with their

historical predecessors. Cartographic History Friday 2:00 PM-3:40 PM

### Map-Mon Abstracts

### Maps on the Landscape: The Case of Welcome Signs

Donald Zeigler, Old Dominion University Maps have insinuated themselves into the nooks and crannies of our cultural landscapes. That includes their use on the signs which American states and localities erect to say "Welcome." Using photographic documents collected over four decades of landscape-loving, the form and function of welcome-sign maps will be addressed and interpreted. These maps and map-like images are used to make good first impressions, to mark territory, to orient and acclimate, to cultivate pride, to promote branding, and to improve the economic base. In general, they provide niches for the genius loci with whom we share the planet.

Road Tripping Friday 4:00 рм-5:20 рм

### A Material World

### John Nelson, Esri

The engaging aesthetic of a hand-drawn map has the tendency to stir memories of fantasy books and conjure a sense of adventure. I'll share simple methods and resources to easily produce digital versions of these wonders in your own maps. Impossibly perfect vector paths and solid fills? Pshaw, break out the crayons! In addition to the general benefits of oh-that's-interesting-ification, I'll help you rationalize to your boss or customer why yellowed parchment and ink create a tangible-ish environment where your map can really communicate. Computers don't make maps, people do!

Art Inspired and Hand Drawn Cartography Thursday 10:40 AM-12:00 PM

# Mixing Hand Drawn and Digital in ArcGIS Pro

#### Heather Smith, Esri

You love the textures and variability of handmade maps, but you're also not keen on giving up the ease of automatic labeling or projection on the fly. Learn how to get the best of both worlds by bringing hand drawn elements into ArcGIS Pro, or using it to plan and prepare before picking up the paintbrush.

PCD Wednesday 10:45 AM-12:00 PM

### The Model 501 Spatial Data Plotter: Making the Digital, Physical in the Mid-Twentieth Century

John Swab, University of Kentucky From globes to raised relief maps to today's research in 3D map production, physical three-dimensional modeling has long been a critical visualization method for cartographers. While the results are useful, the costs of making such representations has historically precluded their widespread availability. Using artifacts from the Model 501 Three-Dimensional Plotter produced by Spatial Data Systems, Inc. in the late 1960s, this presentation examines the early intellectual history of digitally-created, physically-produced three-dimensional modeling. The presentation also situates the challenges of producing early physical three-dimensional modeling in relationship to larger computer-based cartography in the mid-twentieth century.

Cartographic History Friday 2:00 рм-3:40 рм

#### Monitoring Urban Transit Networks: Map Use in Transit Control Centers Emily Domanico, The Pennsylvania State University

In public transit networks, Control Centers are sites where information comes together and is monitored and assessed. In these environments, maps and diagrams play a central role in the work done to coordinate movements. We presented results from observation and interview fieldwork that aims to understand dynamic cartography in situ, in transit control centers.Further, our work explores the technology of digital maps, their use, and the communities of people who work collectively with dynamic maps to monitor rail transit in real time. Cartographic Research II Friday 10:40 AM-12:00 PM

### The Mysteries of History that Cartography Can Help Solve Gene Thorp, U.S. Department of State

The speaker will discuss his personal project to both build a georeferenced database of the mid-Atlantic region as it existed during the American Civil War, and to organize and plot the historical data that can be joined to it. Examining some of the base map sources used in the project, this presentation will look into the challenges posed in georectifying historical maps for digitization, and explore ways to resolve issues of contradictory cartographic data. We'll explore how America's physical geography has changed since 1861 and delve into what new history can be gleaned by marrying the database with historic events. Historical Cartography of the Mid-Atlantic Thursday 2:00 pm-3:40 pm

### The New LGBT Neighborhood: Everywhere

### Jeff Ferzoco, CARTO

In the past few decades, your city's LGBT neighborhood has changed. Traditionally, gay neighborhoods were in clusters, making them centralized and secure. In recent years a variety of cultural, social and economic factors have distributed LGBT people widely across cities and regions. This shift has inspired mapping explorations of the history and current state of the American LGBT landscape—using historical texts, gay guides and data. This talk will look at the mapping projects being built to understand the new spatial distribution of the LGBT community—and those efforts can be used for other communities.

Cartographic Theory II Friday 4:00 рм-5:20 рм

### The North American Continent: A Pictorial Map

#### Anton Thomas, Anton Thomas Art

In 2014 I began drawing a pictorial map of North America by hand and, four years on, it is finally complete. With thousands of features, including 600 individualized cityscapes, it has been an odyssey beyond anything I envisioned. Inspired by the majesty of Earth's third-largest continent, this map attempts to merge art with informative cartography. By utilizing the strengths of either discipline I hope to tell a geographic story that engages a wide audience. In this presentation we will follow up on the progress since last year, while journeying across a pictorial map of epic proportions: The North American Continent.

Art Inspired and Hand Drawn Cartography Thursday 10:40 AM-12:00 PM

#### North is a Societal Construct: When to Break the Rules with Your Map

#### Laris Karklis, Washington Post; Lauren Tierney, Washington Post; Tim Meko, Washington Post

We use maps to navigate, inform and tell stories. Sometimes, the cartographic principles we learned in grade school should be pushed aside in favor of a presentation that guides our audience's understanding of a story. Whether it's following the path of a natural event like the 2017 eclipse, mapping a watershed or when limited by the layout of your design medium, sometimes we opt for a non-north-up presentation. This session will deconstruct examples of Washington Post maps that break the north-up rule and

### Ope-Pre Abstracts

explain the reasoning for deviating from the norms.

#### Cartographic Design II Thursday 4:00 pm-5:20 pm

#### Operational Meteorology and the Network Theory of the Map: Telecommunications, Institutions, and Transitions

Mark Monmonier, Syracuse University Derived from a book now in preparation, this paper examines the symbiotic relationship between telecommunication networks and atmospheric cartography. Between the 1840s and the early twenty-first century the observation and prediction of weather in the United States evolved from postal correspondence, to the electric telegraph, to electronically switched telecommunications and the internet. Over this period an institutional network that began as a science project of the Smithsonian Institution was succeeded in turn by the Army Signal Service, the U.S. Weather Bureau, and the National Weather Service. which was restructured in the late 1990s around a network of Doppler radar stations. Cartographic Historv. Friday 2:00 pm-3:40 pm

# Persistence Cave Project David Lambert, NPS Volunteer

Camels, rattlesnakes, and an angry bison? Find out what these things have in common and a whole lot more, as I discuss my recent cave mapping adventure. Extreme Mopmoking Thursday 10:40 AM-12:00 PM

### Placing Marine Cartography Front and Center

#### Shachak Peeri, NOAA–Marine Chart Division

Cartography and Geographic Information Systems (GIS) are complementing sciences that merge map design concepts with the study of geometric properties and spatial relations. As NOAA transitions from raster-based paper chart production to vector-based electronic navigational charts and precision navigation, it is important to retain traditional concepts and best practices. This paper presents NOAA's efforts to retain cartographic capacity within its ranks. Recently, the International Board on Standards and Competence for Hydrographic Surveyors and Nautical Cartographers recognized and approved Coast Survey's new certification program in cartography. Also, NOAA personnel are becoming more active

in national and international cartographic working groups and commissions. Marilime Cartography Thursday 9:00 AM- 10:20 AM

#### Practical Guide to Map Editing David Lambert, and Scott Zillmer, National Geographic Partners

National Geographic has published maps for decades using various tools and software applications. With more than one thousand unique maps in our print-production pipeline, learn how we are utilizing MAPublisher within Adobe Illustrator to streamline the cartographic editing and production processes. PCD Wednesday 10:45 AM-12:00 PM

### Precision and Chaos in Gunpowder Maps (10 minutes)

### Nick Martinelli, Apple

Controlled chaos and precision are topics for this gunpowder mapping presentation. There are several Methods for controlling and manipulating the incendiary process to get a desired outcome. How much control is appropriate? Differences in results will be explained. Finally I will discuss what is gained and what is lost when manipulating

### the level of control over the chaos that makes gunpowder maps distinctive.

Cartography and Fine Art: Exploring Intention and Purpose Friday, 10:40 AM-12:00 PM

# The Pulley Ridge Data Curation Experience

Timothy Norris, University of Miami; Christopher Mader, Sreeharsha S Venkatapuram, Julio Perez and Chance Scott, University of Miami Center for Computational Science

In 2011 the University of Miami Center for Computational Science (CCS) was invited to collaborate as data curators on a multi-year trans-disciplinary marine science project in the Gulf of Mexico. The CCS was tasked to build an online decision support resource with a data repository, a map-based data exploration tool, and a map- and data-based story telling tool. Additionally, the entire suite of tools is designed to be linked to the National Center for Environmental Information (NCEI). This presentation reports on the geographic data curation process and the cartographic approaches implemented in the construction of the online decision support resource.

#### Map and Geographic Data Curation Friday 2:00 PM-3:40 PM

### Recognizable Labels for Foreign Map Features

#### Nicki Dlugash, Mapbox When creating a global, street-level map in a specific language, a challenge arises: how do you label a map feature that doesn't have an already-established name in that language? What alternative information might be helpful to display in lieu of an established name? How might this differ depending on the map task, the type of map feature, and the language in question? Based on ongoing R&D at Mapbox (focusing on English and Chinese maps), this talk will explore a range of alternative label options, including generated names, names in local, similar, or familiar languages, descriptive text, and icons.

Web and Mobile Mapping II Friday 2:00 PM-3:40 PM

# Reflections of Empire: British Atlases from the Imperial Century

#### Jenny Marie Johnson, University of Illinois at Urbana-Champaign

The British Imperial Century, often defined as the period between the 1815 Treaty of Vienna ending the Napoleonic Wars and the 1914 beginning of the First World War, was a period of exploration, economic

### Abstracts Pul-Rei

growth, expansion of geopolitical influences, cultural exchange, and technological changes. Cartographic and textual content of British world atlases produced during and slightly before and after this period can be examined to find expressions of imperialism as Great Britain's imperial focus shifted from being primarily on North America and India (the First Empire), to being a nearly unchallenged global power, and lastly to initial stages of dismantlment.

Reflections on the Atlas Thursday 4:00 pm-5:20 pm

### Re-imagining the Cartography Textbook

Brandon Plewe, Brigham Young University It is clear that Cartography Education is about to change, along with the rest of the University. The rise of online courses and the impending demise of the textbook industry are just two of the trends that we can either resist or lead. In a future cartography course, what role will learning materials play, and how can we rethink the form, content, and business model of textbooks to take advantage of the future landscape to help students learn cartography better? Cartographic Education Thursday 2:00 PM-3:40 PM

#### Abstracts Res-Top

#### **Resurrecting Heritage Sites: Bringing** Virginia's Past to Life through **Augmented and Virtual Realities** Alisa Pettitt and Sven Fuhrmann George Mason University

Augmented and virtual technologies provide powerful opportunities for altering how we understand and experience our surroundings. In particular, these tools can be harnessed by archaeologists, historians, and other cultural heritage practitioners in crafting narratives that bring the past to life through exciting and innovative perspectives. This research explores the creation of AR and VR applications for the interpretation of several archaeological sites in Virginia. Through the incorporation of different data types, available technologies, and collaboration with regional experts and descendants connected to these histories. this research explores the development of customizable AR and VR applications for Virginia's heritage sites.

Historical Cartography of the Mid-Atlantic Thursday 2:00 pm-3:40 pm

### The Technology of US Topo Mass Production

#### Andrew Stauffer, U.S. Geological Survey

The US Topo production system maintained by the National Geospatial Technical **Operations** Center at the U.S. Geological Survey underwent major modernization in mid-2017. The system architecture and software are now housed in a cloud computing environment, and we used an Agile-based development paradigm of small, iterative improvements to create and now to maintain the system. I also discuss the underlying geospatial data framework that enables production of over 18,000 US Topo maps per year, as well as the workflows and business logic that can generate 65,000 unique maps from a single template and national geospatial database.

### Cartographic Processes Friday 4:00 pm-5:20 pm

There and Back Again: Cartographic Journeys with Adobe CC, Mobile Mapping and Navigation Nick Burchell, Avenza Systems

This presentation will provide a series of case studies on how maps created with the Avenza suite of tools are being used to solve tangible needs in the industries we serve.

Come see how our customers are creating high quality, spatially aware cartographic products through MAPublisher with Geographic Imager in Adobe CC, and how they are using them for critical work in conjunction with the Avenza Maps app. I'll also review some of the exciting new features in our products this year, and how you have helped us make them a reality. Web and Mobile Mappina I Thursday 2:00 pm-3:40 pm

### **Top 5 Cartography Solutions from** Support

### Stephanie Mongon, CARTO

How can I visualize many overlapping points & show other attributes in one popup window? How can I create lines between sequential points? How does data-driven styling with CARTO VL compare to CartoCSS? These are just a few examples showcasing the wide range of design-related questions we get daily at CARTO Support. During this talk, see examples of how we provide cartographic solutions to our top 5 design-related questions.

PCD Wednesday 1:30 PM-3:10 PM

### **Toponymic Taas** Scott Zillmer, National Geographic

This talk will discuss the intersection of my career as a map editor with my personal hobby of license plate collecting. I will include a fun, light-hearted show-and-tell session of some of the plates in my collection. My basement is home to hundreds of real, used license plates with two things in common: 1) they're all vanity plates, and 2) they all feature place-names. Subcategories include plates featuring country names, city names, and island names. There's even a complete set of U.S. state-name vanities. It is a unique and somewhat twisted (and often misunderstood) theme amongst plate collectors.

Road Tripping Friday 4:00 PM-5:20 PM

### Transforming Priestley's 1769 Timeline Into an Interactive Infoaraphic

Joanna Merson, University of Oregon

In 1769, Joseph Priestley, a scientist and theologian, created what are arguably the first modern timelines. His "A New Chart of History" is a particularly influential artifact in historiography and infographic design. We are transforming it into an interactive

infographic, using a data-driven process. We seek to facilitate interactive exploration of the chart, to analyze Priestley's design in relation to modern graphic techniques, and to investigate Priestley's geographic assumptions. This presentation describes our use of geospatial tools (arcPv) to recreate the chart by transforming a manually coded data table into JSON objects that are visualized using D3.

PCD Wednesday 1:30 PM-3:10 PM

#### Type Halos: Angels or Devils

Alex Tait, National Geographic Society Type halos are a primary method for distinguishing map labels from complex background map information. They have widespread use in print and digital mapping efforts and have become a standard tool in mapping applications. But, they are often used in clumsy ways, or universally across multiple map backgrounds, so that they become a cause of visual confusion. This presentation will show examples of type halos and other methods to distinguish labels from background map data AND it will show best practices by live demonstration of haloing, knockouts and other label enhancement methods in multiple mapping applications.

PCD Wednesday 1:30 PM-3:10 PM

### Abstracts Top-Vis

### Viral Cartography: Or, How to Make an Affective Map

#### Jerry Shannon, University of Georgia; Kyle Walker, Texas Christian University

Our paper focuses on viral maps, ones that gain widespread traction in social and news media. We focus on two case studies from our own experience: one based on an interactive dot map showing educational attainment and the other a map of the 2017 solar eclipse and Waffle House locations. We argue that the affective nature of these maps played a key role in their popularity, meaning that the emotional response generated by each map fueled public interest. Our paper suggests a taxonomy for describing the emotional registers of viral maps and considers the implications for publicly engaged cartography. Cartoaraphic Research II

Friday 10:40 AM- 12:00 PM

#### Visions of Light: Mapping Lighthouses and Other Nautical Beacons

#### Harrison Cole, The Pennsylvania State University

Three maps published between 1874 and 1900 depict lighthouses on the coasts of three different countries-New Zealand

#### Viv-Wha Abstracts

the United Kingdom, and Finland. These maps not only chart the locations of the lighthouses themselves, but also their range. colors, and flashing patterns. Only a handful of lighthouse maps were created (possibly less than ten), but despite their scarcity and geographic disparity, their designs share striking similarities. My talk explores the visual and historical connections between these maps, focusing on how cartographers have depicted the ephemeral but pervasive phenomenon of light, particularly when one's life depends on it.

Cartoaraphic History Friday 2:00 pm-3:40 pm

### Vivid Persuasion in Maps

Carolyn Fish, University of Oregon Vividness is described in the psychology literature as content that is "likely to attract and hold attention and to excite the imagination to the extent that it is (a) emotionally interesting, (b) concrete and imagery-provoking, and (c) proximate in a sensory, temporal, or spatial way" (Nisbett and Ross, 1980, 44). Despite other research which has made efforts to identify persuasive maps, the terms vividness has never been connected with cartographic design. This research presents on a survey which was conducted using Amazon Mechanical Turk

and Oualtrics to identify the extent to which maps which are designed to persuade are vivid Cartographic Research I

Thursday 10:40 AM-12:00 PM

### WebGL Basics (3D in the Browser!) for Cartographers

### James Miller, Flashmapper

Ever wanted to create 3D for the web? Here are the basics, including creating a scene, objects, lighting, camera, and adding interactive controls. Walkthrough involves making a globe orbiting the sun and importing a 3D terrain. Includes tips for mobile, responsive design, and accessibility PCD Wednesday 9:00 AM-10:25 AM

### What is in a Name in Virginia? Cassandra Farrell, Library of Virginia

This presentation will review the more "unusual" place names of features in Virginia listed in GNIS. Names in Virginia range from the strange to the historic, and the historic name is not always obviously ""historic"". This presentation will take a look at names that have a "background" in

Virginia history, and that may be anecdotal at best.

Historical Cartoaraphy of the Mid-Atlantic Thursday 2:00 pm-3:40 pm

What we Call Ourselves and the Maps we Make. Or, is Critical Cartography Real? Jim Thatcher, University of Washington Tacoma

Cartography has developed a host of subfields meant to demarcate something about the act of map-making. Critical, feminist, web, analytical, and other terms each signal a specific set of epistemological commitments. While these commitments play out in critique and topical focus, it is less clear to what degree map-making practice differs. This talk presents a visual-analytic survey of actually-existing maps created by self-identified critical, analytical, and web cartographers. It does not make the argument that all maps are the same, rather it demonstrates underlying similarities in map making practices. It suggests spaces of shared ontological ground and opportunities for collaborations

Cartographic Theory I Thursday 4:00 PM-5:20 PM

#### Where do we go from here? Designing Better Mobile Maps Leanne Abraham, University of Wisconsin-Madison

Pervasive mobile map usage in the United States marks a distinct departure from prior reliance on static maps to perform tasks related to location. But, mobile maps are not yet well understood. To explore what makes mobile maps unique, I surveyed 224 smartphones to understand how mobile maps are enabled and constrained by their physical and technical environment. Then, I analyzed map design in 100 mobile mapping apps to evaluate how cartographic design conventions are being translated for mobile devices. Finally, I conclude with practical guidelines for how mobile map designers can better utilize this environment for cartography.

Web and Mobile Mappina II Friday 2:00 pm-3:40 pm

### Where Should We Move? Michelle Ho, CARTO

This project is about finding the best locations to minimize collective commute time. whether that be for an office move or the ideal home spot for your family. The method uses OpenTripPlanner, a open-source

multi-modal router, to calculate travel-time isochrones from selected origins on a transit network based on open GTFS data and OpenStreetMap data. The isochrones are lavered over a rectangular grid. After calculating the sum and ratio of commute times for each cells and filtering out the cells without overlap, the resulting map can help narrow down the options to find that sweet spot fair for everyone's commute! Mapping and Software Development with Open Data II Friday 10:40 AM- 12:00 PM

#### Wild Migrations: An Atlas for Conservation Advocacy

James E. Meacham, Alethea Steingisser, and Joanna Merson, InfoGraphics Lab, University of Oregon

This presentation covers a multi-carto approach to support conservation goals. UO cartographers worked intensely with Wyoming Migration Initiative biologists to tell the stories of Wyoming's big game migrations. These stories included newly discovered insights about animal behavior, threats they face, and conservation opportunities. Cartography was central in these efforts. Maps supported outreach in news and social media, reports, films, animations, and ultimately a 200-page

comprehensive atlas. This year, US Secretary of the Interior signed Secretarial Order 3362 charging DOI agencies to accelerate mapping and management of corridors in the West protecting habitat and migration corridors. Maps matter! Reflections on the Atlas Thursday 4:00 pm-5:20 pm

### The Wind Beneath our Wings: **Creating How Birds Migrate** Brian Jacobs, National Geographic

Billions of birds migrate every year, and National Geographic Magazine covered this extraordinary phenomenon in print and digital forms. Our digital feature shows the intercontinental journey of several species of birds through text, audio, photography, and animated maps. I'll discuss the design and development of this project alongside the print poster, and the how and why of assembling geospatial animations. Much of this project involves marrying automated and manual map creation steps. I'll talk about workflow of creating animations from thousands of images, layering them with vector lavers and hand-placed labels. Animated data sources include satellite

### Wom–Wwi Abstracts

imagery, global NDVI, GPS tracks, and bird abundance modeling. Cartographic Processes Friday 4:00 PM-5:20 PM

#### (A Woman's) Cartographic Perspective

#### Vanessa Knoppke-Wetzel

Women (and minorities) often stay quiet about microaggressions and assumptions made in school and the workplace. These, and moments of impostor syndrome experienced, are often not widely discussed. As such, I wanted to share a few of my personal experiences as a student, professional, and conference attendee, and what, over time, I've learned to change in both my internal and external responses. I hope this adds to the many wonderful open discussions NACIS goers have, and encourages others to discuss theirs. Cartographic Theory II Friday 4:00 PM-5:20 PM

### A WWII Network of Female Cartographers

Judith Tyner, CSU Long Beach December 17, 1941 President Roosevelt signed a bill that included funds for mapping of areas deemed strategic for WWII. Training programs in military map making were organized. The assumption was that men would be the primary students; the big surprise was the number of women. The courses were instituted at women's colleges and normal schools. Women were involved in organizing the courses, providing the teaching materials, teaching the courses and, of course, enrolling in the classes and working for the newly formed Army Map Service. This paper examines the contributions and interactions of several women in the program. Cartographic History Friday 2:00 PM-3:40 PM

### Norfolk Waterside Marriott Third Floor, Hampton Rooms



HAMPTON FOYER I Registration & Breaks

