

Tuesday			
6:00 рм	NACIS Board Meeting I (Soo Line)	Conference af a Glance	
7:00 рм	Tuesday Night Meetup (Gluek's)		
We do a door			
wednesday			
9:00 am	Practical Cartography Day (Great Hall)—Lunch served in Depot Pavilion		
7:00 рм	Opening & Keynote (Great Hall)		
8:00 pm	Welcome Reception & Map Gallery (Depot Pavilion)		
Thursday	Rock Island	Great Hall	
9:00 AM	Cartographic Education	Mapping for Social Justice	
10:40 AM	Cartographic Theory	Cartographic Narratives	
12:00 PM	NACIS Lunch & Business Meeting (Depot Pavilion)		
2:00 pm	Cartographic Research I	Map Design I	
4:00 pm	Cartographic Research II	Map Design II	
5:30 рм	CP Editorial Board Meeting (Soo Line); NACIS Fun Run & Walk		
6:30 рм	NACIS Night Out (Graze)		
Friday	Rock Island	Great Hall	
9:00 AM	Symposium: Thinking Spatially	Collections, Databases, & Resources I	
10:40 AM	on Indigenous Mapping	Collections, Databases, & Resources II	
12:00 pm	Lunch Bunch; NACIS Board Meeting II (Soo Line)		
2:00 PM	Panel: Racial Covenants in the Twin Cities	Nature, Terrain, & Conservation	
4:00 pm	Artistic Cartography	Changing Landscapes	
6:00 рм	Banquet & Student Cartography Awards (Depot Pavilion)		
8:15 рм	Geodweeb Geopardy (Depot Pavilion)		
Saturday			
9:00 am on	Workshops & Field Trip		

Conference at a Glance

Thursday	Charles S. Frost	Map Gallery
9:00 am	Software, Programming, & Tools I	NACIS Commons
10:40 am	Software, Programming, & Tools II	NACIS Commons
2:00 рм	Maps in Any Medium	Panel: Paper Maps Aren't Dead
4:00 рм	Web & Mobile Cartography	Painting a State

Friday	Charles S. Frost	Map Gallery
9:00 am	Cartographic History I	NACIS Commons
10:40 am	Cartographic History II	Map Show & Tell
2:00 рм	Mapping for Society & Community I	NACIS Commons
4:00 рм	Mapping for Society & Community II	Closed

Program current as of September 26, 2022; check nacis2022.sched.com for updates.

Welcome NACIS 2022 Attendees!

On behalf of the 2022 NACIS Annual Meeting organizers and the NACIS Board of Directors, it is our pleasure to welcome you this week to Minneapolis, MN. We are excited to be back in person and grateful you are able to join us.

Our conference is occurring on the traditional land of the Dakota people, and we respectfully acknowledge that this is the ancestral and contemporary homeland of many indigenous peoples. The Board of Directors pledges the society's support for the return and control of indigenous homelands with an annual donation to the Indian Land Tenure Foundation located here in Minneapolis-St. Paul. This year we are privileged to livestream the University of Minnesota's Thinking Spatially symposium on Indigenous Mapping.

We encourage you to connect with folks on Slack and share your experiences on Twitter using the #NACIS2022 hashtag. With over 125 talks, panels, workshops, and social activities, there are plenty of mappy wonders and cartographic pleasures for everyone. A complete and current guide to the conference is available online at **nacis2022.sched.com**. This site will be updated throughout the conference with any schedule changes as we receive new information.

Thank you for choosing to be part of our NACIS community and especially for joining us for #NACIS2022!

Travis White and Brooke Marston NACIS 2022 Co-Chairs Share your thoughts on Twitter with your fellow attendees—and those who couldn't make it—by using the **#NACIS2022** 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 18, 2022

Tuesday Night Meetup

7:00 PM-9:00 PM Gluek's Bar & Restaurant 16 N óth St Minneapolis, MN 55403

Got into town early? Looking for fellow NACIS folks to hang out with? Head over to Gluek's Bar & Restaurant for delicious German food and beer. Gluek's is a 15-minute walk west of The Depot.

https://www.glueks.com

NACIS Board Meeting I

6:00 pm-8:00 pm Soo Line Boardroom

Atlas of Design

Submissions are open for Volume VII Submit online at atlasofdesign.org/submit

SOUTH SECOND ST



SOUTH WASHINGTON AVE

Wednesday, October 19, 2022 Practical Cartography Day: Great Hall

Moderators: Kati Perry & Brooke Marston Slack channel: #nacis2022-pcd

Coffee breaks will be served in the Winter Garden Morning Coffee Morning Break Lunch Break Afternoon Break

Notes

8:00 am-9:00 am 10:25 am-10:45 am 12:00 pm-2:00 pm 3:10 pm-3:30 pm 9:00 am-10:25 am

Making Maps Accessible Amy Ellison, State of Minnesota

Bringing the Joy Back to Mapmaking Sam Hashemi, Felt

Doing Things in R That I Normally Do in Illustrator and Photoshop Kati Perry, Associated Press

Elevate Your Halo Game Lauren Tierney, The Washington Post

Making Better Bike Maps Doug Shidell, Bikeverywhere

Import Sections of Geospatial Data Files into MAPublisher

Gene Thorp

Practical Cartography Day: Great Hall

10:45 AM-12:00 PM

ArcGIS Insights: Geovisual Analytics for Everyone (In Minutes!) Ian Muehlenhaus, Esri

Collaborative Mapmaking with JavaScript in Observable

Zach Levitt, The New York Times; Adrián Blanco Ramos, The Washington Post

Creating GeoJSON from Images Casey Miller, Locana

Cartography in Adobe CC— MAPublisher & Geographic Imager Latest

Nick Burchell, Avenza

Gaming Up Geography Wesley Jones, Esri 1:30 pm-3:10 pm

Panoramas in Pro? Brandon Plewe, Brigham Young University

Three Useful Illustrator Tricks for Cartographers Sarah Bell, Esri

How to Recreate a(n Old Map) Style Vanessa Knoppke-Wetzel, GreenInfo Network

Visualizing Floodplains and Other Low-Profile Terrain with High-Resolution Digital Elevation Models

Daniel Coe, Washington Geological Survey

Approximating Hand-Drawn Maps: Confessions of a GIS-Centric Cartographer Warren Davison, Esri

Goode Vibrations: How to Make the Goode Interrupted Homolosine Projection in MAPublisher Hans van der Maarel, Red Geographics

Power of the Pencil: Getting Cartography Students to Sketch Ideas

James Meacham, University of Oregon

3:30 pm -5:00 pm

Ten Tips for Cartographers (Revisited)

Matthew Hampton, Metro

Migrating to ArcGIS Pro for Cartography: Practical Realities

Martin Gamache, National Geographic Society

Figmasset: A Missing Map Tool Stephanie May & Kelsey Taylor, Stamen Design

Design Web Map Layouts with ArcGIS Experience Builder Heather Smith. Esri

Centers of Population: A Simple Way to Place Symbols Where the People Are

Jonathan Schroeder, University of Minnesota

Your Next Mapping Platform: Use and Contribute to Open-Source Cartography!

Dylan Halpern, University of Chicago

Wednesday, October 19, 2022: Evening Events

Opening Session and Keynote Address 7:00 PM-8:00 PM Great Hall

Designing a Very Long Walk: Visualizing the Pacific Crest Trail Through Maps and More Keynote speaker Mr. Joshua M. Powell

In 2014, Joshua M. Powell hiked the Pacific Crest Trail in its 2,650-mile entirety. In 2021, he published his book *The Pacific Crest Trail: A Visual Compendium*, which gives a unique perspective on the experience of long-distance hiking through the use of design, infographics, and cartography. Josh has worked as an editorial designer for books and magazines for over a decade and often utilizes maps and other graphics to aid in storytelling. He lives in Spokane, WA.



Wednesday, October 19, 2022: Evening Events

Wecome Reception & Map Gallery Opening 8:00 PM-10:00 PM Depot Pavilion

Organizer: Amy Rock

The 2022 NACIS Map Gallery features a stunning array of printed and digital maps and posters. Sprinkled throughout the gallery you will find QR codes on some maps—this indicates a dynamic map entry, 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.

Dont forget to vote!

Join the conversation in the map gallery Slack channel at **nacis-workspace.slack.com**

Thursday, October 20, 2022: Morning 1

Coffee breaks will be served in the Winter Garden

Morning Coffee Morning Session I Morning Break 8:00 am-9:00 am 9:00 am - 10:20 am 10:20 am - 10:40 am

Notes

Map Gallery NACIS Commons

Slack channel: #nacis-workspace

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.

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Rock Island Cartographic Education

Moderator: Heather Rosenfeld Slack channel: #nacis2022-rockisland

The Good, The Bad, & The Weird: Establishing a Geospatial Service Lab at a Large, Public University

Alicia Cowart, University of Colorado Denver

Ungrading for Cartography Heather Rosenfeld, Smith College

Teaching Critical Geospatial Data Literacy Eric Robsky Huntley, MIT

Teaching Cartography at a Tribal Community College

Carl Sack, Fond du Lac Tribal and Community College

Great Hall Mapping for Social Justice

Moderator: Travis White Slack channel: #nacis2022-greathall

"She Makes a Difference" with the Transformation of Everywhere She Maps Initiative Maliha Binte Mohiuddin

Persistence of Racist Loan Practices in Contemporary Landscape of Lexington, KY: An Exploration of 1930s Redlining Rebecca Ramsey, University of Kentucky

Rematriating the Map: Indigenous Cartographies for Alternative Futures

Clancy Wilmott, University of California, Berkeley

How We Found Out Manhattan's Bilingual Street Signs were Disappearing

Denise Lu & Aaron Reiss, The New York Times

How to Map Unconstitutional Policing

J. Kevin Byrne, Minneapolis College of Art and Design

Charles S. Frost

Software, Programming, & Tools I

Moderator: Hannah Dormido Slack channel: #nacis2022-charlesfrost

Python Scripting to Create 300+ Accessible PDF Maps in Mere Hours

Mike Dolbow, State of Minnesota

Mapping Internet Infrastructure: Supporting the Network Startup Resource Center

Joanna Merson, University of Oregon

Modeling Global Historic Trade Routes using a Least-Cost Surface Analysis

Lucy Roberts, University of Oregon

Mapping Population and Physical Characteristics of all Street Blocks in Sub-Saharan Africa

Nicholas Marchio, University of Chicago

Thursday, October 20, 2022: Morning 2

Morning Session 2 NACIS Lunch & Business Meeting We invite everyone to participate in our annual NACIS business meeting. (**Depot Pavilion**)

Notes

10:40 ам – 12:00 рм 12:00 рм–2:00 рм

Map Gallery NACIS Commons

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Rock Island Maps in Any Medium

Moderator: Vicky Johnson-Dahl Slack channel: #nacis2022-rockisland

Buffalo in 50 Maps in 15 Minutes

Vicky Johnson-Dahl, USAID

So You Wanna Start a Mapping Podcast

Ross Thorn, Stamen

Interactive Maps of SFO from 1930 to 2021 (and beyond) at the T2 SkyTerrace

Aaron Cope, San Francisco International Airport Museum

Legends, Scales, and North Arrows: But What's in a Map?

Julia Waldsmith, University of Maryland

Hand-Drawn Art Maps: A History of Place Stefanie Kiihn

Great Hall

Cartographic Narratives

Moderator: Ann Fritz Slack channel: #nacis2022-greathall

I Want to Be a Cartographer When I Grow Up! Kate Leroux, Stamen Design

Surveying the Design of Story Maps in Digital Journalism

Timothy Prestby, The Pennsylvania State University

Examining Narrative in Online Atlases

Gareth Baldrica-Franklin, University of Wisconsin–Madison

What's that Map Telling Us?

Dave Wolverton, Mediawerx

Angling for Space Anthony Robinson, The Pennsylvania State University

Charles S. Frost

Software, Programming, & Tools II

Moderator: Amy Griffin Slack channel: #nacis2022-charlesfrost

Daylight Earth Tables Jennings Anderson, Meta

Thematic Mapping that Bridges Spatial Analysis with Landscape Synthesis

Luke Bergmann, University of British Columbia

Both Everywhere and Nowhere: Mapping PFAS Pollution in the South

Libbie Weimer, Southern Environmental Law Center

Making Sense of Geospatial Data with Knowledge Graphs

William Lyon, Neo4j

Thursday, October 20, 2022: Afternoon 1

Coffee breaks will be served in the Winter Garden Afternoon Session 1 Afternoon Break

2:00 pm - 3:40 pm 3:40 pm - 4:00 pm

Map Gallery Panel: Paper Maps Aren't Dead

Slack channel: #nacis2022-gallery

Jack Henderson, Pisgah Map Company

Kristian Underwood, Underwood Geographics

Ezra Schwartzberg, Green Goat Maps

Nathaniel Alexander Kameleokalani Douglass, Green Trails Maps

Chaney Swiney, Benchmark Maps

David Lambert, National Geographic Trails Illustrated Maps

Mike Hermann, Purple Lizard Maps

Tom Harrison, Tom Harrison Maps

Haley Brueckman, Adventure Cycling Association

Notes

Rock Island Cartographic Research I

Moderator: Hannah Dormido Slack channel: #nacis2022-rockisland

Neuro-Carto Visual Contrast: Results and Findings

P. William Limpisathian, University of Wisconsin–Madison

Crowdsourced Georeferencing Sanborn Maps of Louisiana

Adam Cox, Louisiana State University

Experiments in Spatial Augmented Reality: Technical Implementation Methodologies in Cartographic Mixed Reality

Jennifer Horowitz, Harvard Graduate School of Design

Mobile Mapping at Europe's Maritime Borders: An Examination of Migrant Digital Cartographic Strategies in the Eastern Mediterranean Sea

Bea Abbott, University of Kentucky

Great Hall

Map Design I

Moderator: Ann Fritz Slack channel: #nacis2022-greathall

Yet Another New Design for an Old Map Kenneth Field, Esri

An Inventory of Martian Hypsometric Tints

Daniel P. Huffman, somethingaboutmaps

Customize Palettes for Imagery Layers in ArcGIS Online Emily Meriam, Esri

Cartogram Cookbook Adrián Blanco Ramos, The Washington Post

Modern Pictorial State Maps and More Faye Passow

Charles S. Frost Cartographic Theory

Moderator: Aileen Buckley Slack channel: #nacis2022-charlesfrost

Ethics in Cartography Aileen Buckley, Esri

Maps that Arise from Observing the body in the Body

Steven R. Holloway, toMake™ Press

Mapping the Drone Jon Caris, Smith College

Towards Humanistic Cartographies

Nick Lally, University of Kentucky

Cartographic Limits and Interdisciplinary Science: Maps and Mathematics in Pursuit of Social Justice

Jim Thatcher, University of Washington Tacoma

Thursday, October 20, 2022: Afternoon 2

Afternoon Session 2 CP Editorial Board Meeting (**Soo Line**) NACIS Fun Run & Walk NACIS Night Out (**Graze**) 4:00 pm -5:20 pm 5:30 pm -6:30 pm 5:30 pm -6:45 pm 6:30 pm -10:00 pm

NACIS Night Out

Graze | Provisions + Libations 520 N 4th Street

Join us at the Graze food hall for NACIS Night Out! This your chance to make new carto-friends and catch up with those you already know. This is a payyour-own-way event. Visit grazenorthloop.com for a list of vendors.

Notes

Map Gallery Painting a State

Slack channel: #nacis-workspace

Dylan Moriarty, The Washington Post

In January, the Washington Post released our congressional mini golf game to help explain gerrymandering. Each district was converted into a golf hole, making the twists and turns of their borders tangibly frustrating. As part of that project, I painted nineish districts with watercolors.

In lieu of a formal talk on the piece, during this session I'll be camped out in the Map Gallery painting a new one of Minnesota from start to finish. From the initial sketching, to inking, to painting. You're welcome to stop by and watch, as well as ask any questions at anytime.

Rock Island **Cartographic Research II**

Moderator: Pat Kennelly Slack channel: #nacis2022-rockisland

United States Communities in Harm's Way: Mapping the Intersection Between Wildfire Hazards and Vulnerable Communities

Zac Stanley, California IST/University of Kentucky

Multi-Method Mapping as a Collaborative and Transdisciplinary Research Approach

Heather Miles, University of Manchester

Maps of the Arctic Alaska Boundary Area as Defined by the U.S. Arctic Research and Policy Act

Christopher Richmond, U.S. Geological Survey

Landscape Metrics Show Potentials to **Outperform Other Traditionally-Used** Ancillary Datasets in Dasymetric Mapping of Population

Hena Wan, Pacific Northwest National Laboratory

Geocultural Politics of U.S. States William Hoecker

Great Hall

Map Design II

Moderator: Travis White Slack channel: #nacis2022-greathall

Accessibility in Map Design Amanda Tickner, Michigan State University

Cartography & the Golden Ratio

Eric Rodenbeck, Stamen Design

Expanding to a Digital Brand: How to Take a Cartographic Style from Paper to Digital (and Back Again)

Olivia Napper & Laurence Cramer, U.S. Department of State

Identifying Types of Legends in 2D Cartography

Aubri Kinahorn, Esri

Design as Defined by Atlas of Design Contributors

Aaron Koelker, Florida Department of Environmental Protection

Charles S. Frost Web & Mobile Cartography

Moderator: Vicky Johnson-Dahl Slack channel: #nacis2022-charlesfrost

Maps in Felt from the Inside Out Mamata Akella, Felt

FireNearby Alert System Casev Miller, Locana

On Demand, Custom, Topographic Maps with topoBuilder Alexander Kaufman, U.S.G.S.

FlowMapper.org: A Web-Based Tool for Designing Origin-Destination Flow Maps Caalar Koylu, University of Iowa

What is Vector Tile Cartography?

Stephanie May, Stamen Design

Friday, October 21, 2022: Morning 1

Coffee breaks will be served in the Winter Garden

Morning Coffee Morning Session I Morning Break 8:00 am-9:00 am 9:00 am - 10:20 am 10:20 am - 10:40 am

Notes

Map Gallery NACIS Commons

Slack channel: #nacis-workspace

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Rock Island

Symposium: Thinking Spatially on Indigenous Mapping

Slack channel: #nacis2022-rockisland

Kate Carlson, University of Minnesota

The 5th annual Thinking Spatially symposium will explore the topic of Indigenous mapping and cultural connection to place. Join us for a discussion on confronting the historical truths of the University land-grab that followed the Morrill Act of 1862. The panel will explore the use of maps to better understand the disenfranchisement of Indigenous communities and how the simple act of geographic labeling impacts an entire community.

Visit https://ias.umn.edu/events/ thinking-spatially-symposiumindigenous-mapping for up-to-date information.

Livestreamed from the University of Minnesota.

Great Hall

Collections, Databases, & Resources I

Moderator: Elaine Guidero Slack channel: #nacis2022-greathall

A Place by Any Other Name...

Brooke Marston, U.S. Department of State

Challenges in Creating the New NGS Cartographic Database

Alex Tait & Sam Guilford, National Geographic Society; Nat Case, INCase, LLC; Daniel Huffman, somethingaboutmaps

Role of Libraries in Geography and GIS Education

Emma Slayton, Carnegie Mellon University

OpenIndexMaps: The Next Generation of Collaborative Digital Index Maps

Stephen Appel & Evan Thornberry, University of Wisconsin–Milwaukee Libraries

Updating Natural Earth: A Progress Report

Tom Patterson, U.S. National Park Service (retired); Nathaniel Vaughn Kelso, Snap

Charles S. Frost Cartographic History I

Moderator: Travis White Slack channel: #nacis2022-charlesfrost

Early Electric Orientation Maps: A Technological Opportunity for Invention to Eclipse Obviousness

Mark Monmonier, Syracuse University

Oh So Secret: Women Mapmakers of the OSS

Judith Tyner, CSU Long Beach

Artefacts of a Discipline at Work: Tracing the Geographer's Influence Through the "Cartographic Records of the American Commission to Negotiate Peace"

Cy Abbott, University of Oregon

The Mapping of North American Native Languages in the 19th Century

John Cloud, Smithsonian National Museum of Natural History

Friday, October 21, 2022: Morning 2

Morning Session 2 Lunch Bunch NACIS Board Meeting II (**Soo Line**) 10:40 AM - 12:00 PM 12:00 PM-2:00 PM 12:00 PM-2:00 PM

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 a group and sign up at the registration desk by Friday 10:00 a.m.

Notes

Map Gallery Map Show and Tell

Slack channel: #nacis-workspace

Hannah Dormido, The Washington Post

Join moderator Hannah Dormido in the map gallery with your mappy projects—finished or unfinished—and share it with fellow cartographers.

The goal for this is to be a safe space where people can talk about maps they've made and tell the story behind it.

This is a good starting point for attendees to engage with one another even if they are not yet ready to do a PCD or main conference presentation. Hannah will moderate to make sure that the space remains kind and respectful.

Rock Island

Symposium: Thinking Spatially on Indigenous Mapping (cont'd.)

Slack channel: #nacis2022-rockisland

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Visit https://ias.umn.edu/events/ thinking-spatially-symposiumindigenous-mapping for up-to-date information.

Livestreamed from the University of Minnesota

Great Hall

Collections, Databases, & Resources II

Moderator: Hans van der Maarel Slack channel: #nacis2022-areathall

The Digital Gallery: What Is It and How Can It Be Helpful to NACIS Members?

Thomas Paper, The Digital Gallery

Creating a Simplified Geologic Map of the Farth

Sean Morrison, Mapping Gnome

Processing of Map Sets At PUL's Map and Geospatial Information Center

Tsering Shawa, Princeton University Library

Charles S. Frost **Cartographic History II**

Moderator: Denise Lu Slack channel: #nacis2022-charlesfrost

The Hunt for Delaware Boundary Monuments

Lillian Wang, Delaware Geological Survey

Historical Hydrography

Taylor Krabiel, NOAA Corps, Office of Coast Survey

Retracing the Past: Historical Mapping for the NPS

Alex Fries, U.S. National Park Service

Why Should Cartographers Care About Disclosure Avoidance for the 2020 Decennial Census?

David Van Riper, IPUMS

Early HIV/AIDS Mapping and the Limits of Map Effectiveness in Public Health Communication

Jack Swab, University of Kentucky

Friday, October 22, 2022: Afternoon 1

Coffee breaks will be served in the Winter Garden Afternoon Session 1 Afternoon Break

2:00 pm - 3:40 pm 3:40 pm - 4:00 pm

Notes

Map Gallery
NACIS Commons

Slack channel: #nacis-workspace

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Rock Island

Panel: Racial Covenants in the Twin Cities

Slack channel: #nacis2022-rockisland

Kristine West, St. Catherine University

Rachel Neiwert, St. Catherine University/ Welcoming the Dear Neighbor

Jake Ford, University of Minnesota/ Mapping Prejudice

Emily Cavazos, University of Minnesota/ Mapping Prejudice

Great Hall

Nature, Terrain, & Conservation

Moderator: Vanessa Knoppke-Wetzel Slack channel: #nacis2022-greathall

Mapping the Future of Conservation in the U.S.

Marty Schnure, The Wilderness Society/Maps for Good

Creating a 3D Map of the Missouri River in the 1890s

Joe Milbrath, U.S. National Park Service

The Hand or the Hemisphere? Disentangling Potential Sources of Terrain Inversion Illusions in Shaded Relief

Amy Griffin, RMIT University

What Terrain Does in the Shadows Patrick Kennelly, Central Oregon Community Colleae

Creating a Panorama of Sequoia National Park

Becca Holdhusen, U.S. National Park Service

Eduard: Beautiful Relief Shading with Neural Networks

Bernie Jenny, Monash University

Charles S. Frost

Mapping for Society & Community I

Moderator: Travis White Slack channel: #nacis2022-charlesfrost

Lessons from Creating a Community-Driven Park Access Map

Jennifer Mapes, Kent State University

How Should We Design Election Maps?

Lily Houtman, The Pennsylvania State University

Parliamentary Democracy for Cartographers

Alex McPhee, Prairie Heart Maps

Redistricting with Open Source Tools

George Roth, TriMet

Friday, October 21, 2022: Afternoon 2

Afternoon Session 2

4:00 pm - 5:20 pm

Notes

Map Gallery NACIS Commons

Slack channel: #nacis-workspace

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Rock Island Art & Aesthetics

Moderator: Heather Rosenfeld Slack channel: #nacis2022-rockisland

In and On, Around and Above: Mapping Island Experiences Darren Sears

A Synesthete's Atlas: Performing Cartography in Real Time Eric Theise

The Scarlet Letter "A" Chelsea Nestel, University of Wisconsin-Madison

Map or Not? Mark Denil, sui generis

Mapping as Public Art - in Steel and Acrylic David Nuttall, Artimaps

Great Hall Changing Landscapes

Moderator: Hannah Dormido Slack channel: #nacis2022-greathall

Mapping 20 years of Global Forest Change for National Geographic Magazine Forest Issue Map Supplement

Martin Gamache, Soren Walljasper, & Ted Sickley, National Geographic Society

Mapping the Changing Landscapes of a Frozen Continent

Laura Gerrish, British Antarctic Survey

Pretty Pictures: Adventures in Extracting Land Use Data from (Very) Old Maps Kelly O'Neill, Harvard University

Where the Wild Things Were Nicholas Spano, University of California Museum of Paleontology

Land Use Change Has Decimated Savannah Prairie in the Rountree Branch Watershed Risper Nyairo, University of Wisconsin– Platteville

Charles S. Frost

Mapping for Society & Community II

Moderator: Elaine Guidero Slack channel: #nacis2022-charlesfrost

Mapping Durable Transit Ridership in the Boston Region

Emily Domanico, Boston Region Metropolitan Planning Organization

Pedaling a Better Map: Creating Preferred Biking Routes In Athens, Georgia

Jerry Shannon, University of Georgia

Mapping Land Artificialization Maggie Mateu

OpenStreetMap & Trails: New Collaborations for Responsible Recreation

Maggie Cawley, OpenStreetMap US

Friday, October 21, 2022: Evening Events

6:00 PM-8:00 PM Depot Pavilion 8:15 рм-9:15 рм Great Hall

NACIS Banquet & Student Cartography Awards Presentation

Host: Travis White

Enjoy a relaxing dinner with your fellow mapmakers and cheer on the winners of the student map & poster competitions!

Geodweeb Geopardy!

Organizer: Dennis McClendon, Chicago Cartographics

Take part in an entertaining NACIS tradition as Dennis McClendon channels host Art Fleming in a carto-oriented version of the TV show Jeopardy!

Join a team by signing up at the registration desk for your chance at winning some fabulous mappy prizes. Or join the audience to cheer the players when they get a tough one right, or good-naturedly heckle them when they blow it.

Saturday, October 22, 2022: Morning Workshops

9:00 AM – 1:00 PM Charles S. Frost

Art and Cartography Workshop/ Walkshop

Organizers: Sharon Hayashi & Taien Ng-Chan, York University; Nick Lally, University of Kentucky

Join us for a collaborative site-specific mapping workshop exploring the terrain and local knowledge of Minneapolis through experimental sound and sensory cartographic methodologies. Listening to the land and voices of communities, we will use intermedial mapping practices to foreground reclamations of space, narrative and memory.

The workshop will begin indoors at 9:00 am and move outdoors at 10:00 am.

Workshop/Walkshop organized by the Art and Cartography Commission of the International Cartographic Association (artcarto.wordpress.com). 10:00 AM – 2:00 PM Charles S. Frost

Cartography + ArcGIS Story Maps

Organizers: Cooper Thomas & Ross Donahue, Esri

Join us for a collaborative site-specific mapping workshop exploring the terrain and local knowledge of Minneapolis through experimental sound and sensory cartographic methodologies. Listening to the land and voices of communities, we will use intermedial mapping practices to foreground reclamations of space, narrative and memory.

The workshop will begin indoors at 9:00am and move outdoors at 10:00am.

Workshop/Walkshop organized by the Art and Cartography Commission of the International Cartographic Association (artcarto.wordpress.com).

Saturday, October 22, 2022: Evening Field Trip

8:00 рм — 10:00 рм Mirror Lab

A Synesthete's Atlas

Organizer: Eric Theise

Real time cartographic improvisations using projected, manipulated digital maps by Eric Theise in collaboration with versatile bassist Liz Draper. A visual wash of street grids, land masses, water bodies, & curiosities from the built environment. Saturated colors. The subtlest of tints. Imperceptible & flickering transitions. Glitchy crowdsourced data. Orphaned information & free-floating symbology.

Theise, who'll discuss technical and aesthetic aspects of his project in Friday's Artistic Cartography session, will be joined by upright & electric bassist Liz Draper, fortuitously on break from an international tour with Low.

Performance at Mirror Lab, a studio collective/programming space at 3400 Cedar Av S. Doors at 7:30p, show at 8:00pm Mirror Lab is a 20 minute ride from The Depot on the 22 Metro Transit bus, or shorter by rideshare/taxi.



Acc-Arc

Abstracts

Accessibility in Map Design Amanda Tickner, Michigan State University

This talk will present the concept of Universal design and discusses how this design ethos might be applied to cartography and digital maps. While there are innovative and exciting technological and conceptual methods for expanding map accessibility such as tactile and sonified maps, which will be discussed, these may not be easy to implement. Simpler strategies that are approachable for most map making practitioners will be presented based on Web Content Accessibility Guidelines (WCAG) 2.0. The WCAG guidelines can be extended applied to cartographic design and how we build digital map-based discovery tools.

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

Angling for Space Anthony Robinson, The Pennsylvania State University

Access to fishing is enabled and sometimes hindered by contemporary cartography. The intersections of private and public spaces are often interesting ones for an angler in search of a good fishing spot. Cultural norms within fishing communities can shape the location information people wish to share. In this talk I will show several place discovery methods available for the map-savvy angler, including those that leverage biases in fitness tracking and street view services. Apocryphal knowledge of places can be superseded by modern maps. Increasing access can harm the environment and/or expose culturally significant resources that are threatened by widespread awareness.

Cartographic Narratives Thursday 10:40 am-12:00 pm

Approximating Hand-Drawn Maps: Confessions of a GIS-Centric Cartographer

Warren Davison, Esri

It's no stretch to say that we are captivated by the incredible handcrafted maps of cartographers from the days of old (and many modern-day examples). In the absence of hours spent honing my pen skills, the prospect of achieving this aesthetic in my own maps was daunting; putting pen to blank paper seemed impossible. In comparison, spatial datasets can jumpstart your map but are lacking the desired aesthetic. So how might we blend these two worlds, supplementing our lacking luster penmanship with GIS workflows to achieve some approximation of hand-drawn cartography? This talk will discuss some workflows and design choices that can elevate your GIS-centric maps, infusing them with some hand-drawn charm and tangible texture.

PCD Afternoon Session I Wednesday 1:30 pm-3:10 pm

ArcGIS Insights: Geovisual Analytics for Everyone (In Minutes!)

Ian Muehlenhaus, Esri

ArcGIS Insights is a powerful and robust cloud-based geovisual analytics and spatial data visualization application. The Insights app requires no coding, no formal GIS education, and is so intuitive anyone can use it. ArcGIS Insights allows professionals to engineer, clean, and represent their data interactively using numerous map types and dozens of interactive graphs. I demonstrate how to take a random spatial dataset, clean it, analyze it for useful information, visualize the information interactively, and share it on the web. Create a powerful interactive geovisualization in under 20 minutes, sans code, on your Mac, PC, or Chromebook.

PCD Morning Session II Wednesday 10:45 am-12:00 pm

Abstracts

Art-Buff

Artefacts of a Discipline at Work: Tracing the Geographer's Influence Through the "Cartographic Records of the American Commission to Negotiate Peace"

Cy Abbott, University of Oregon

At the 1919-1920 Paris Peace Conference that concluded WWI. American cartographers and geographers were called upon to actively contribute mapping that was employed to influence policy decisions around border delineation. Specifically, the Greco-Turkish border became uniquely influenced by American academic geographers' involvement in the peace process. The preserved archival records of these experts shed light not only on this pivotal moment in both Greece and Turkey's national identities, but also a similarly pivotal moment in the development of the discipline of geography in America. This historical cartographic research draws attention to the early 'scientificisation' of cartography that occurred at this time.

Cartographic History I Friday 9:00 am-10:20 am

Both Everywhere and Nowhere: Mapping PFAS Pollution in the South Libbie Weimer, Southern Environmental Law Center

After the Southern Environmental Law Center (SELC) successfully intervened to address GenX pollution in North Carolina, we began looking across the South for more 'forever chemicals.' Quickly we faced a conundrum: while PFAS are widely used and freely dumped into communities, industries are not reporting, nor are governments monitoring these chemicals. Meanwhile, SELC needed somewhere to start-both to prove the need for regulation and to protect public water supplies. This year, we rolled out the second iteration of an interactive web-based tool that maps PFAS despite enormous uncertainty. The tool, built with ArcGIS Online, synthesizes a wide array of data from public sources. We discuss how we got here and what comes next.

Software, Programming, & Tools II Thursday 10:40 am–12:00 pm

Bringing the Joy Back to Mapmaking Sam Hashemi, Felt

At Felt, we believe that anyone anywhere should be able to create and share a map on the internet. We also believe that mapmaking should be approachable, creative, and fun! Join this live demo to collaborate on a Felt map using a set of smart drawing tools, curated and custom data layers, drag-anddrop capabilities for images and links, and so much more. Come prepared to experience mapmaking in a different way and one that is uniquely Felt! We promise you'll leave with a smile on your face.

PCD Morning Session I Wednesday 9:00 am-10:25am

Buffalo in 50 Maps in 15 Minutes Vicky Johnson-Dahl, USAID

Ever think about writing a book? I did it, and if I can do it, you can do it: I will tell you about plotting out places that used to be Catholic churches, mapping market inequality, sniffing out the boundaries of The Cheerio Smell, and everything else it takes to conduct the research, develop a connected, unified voice over a large set of delightful

Car-Cen

Abstracts

and disparate maps, and turn them into a book!

Maps in Any Medium Thursday 10:40 am-12:00 pm

Cartogram Cookbook Adrián Blanco Ramos, The Washinaton Post

Cartograms distort, abstract and simplify realities to explain and understand them better. This session will go over a few recipes, tips and tricks to design and build cartograms showcasing a few examples used in data visualization and journalism.

Map Design I Thursday 2:00 pm-3:40pm

Cartographic Limits and Interdisciplinary Science: Maps and Mathematics in Pursuit of Social Justice

Jim Thatcher, University of Washington Tacoma

For over half a century, scholars have debated the exact function and purpose of cartography. From communication models to cultural deconstructions, this work has often focused upon cartography and its internal epistemic commitments. In this talk, we take a different approach instead of focusing on cartography in and of itself, we instead explore the limits of cartography within an interdisciplinary context. We ask what, precisely, is enabled and constrained through the cartographic enterprise when conducted alongside work from other fields, specifically mathematics and data science. As the act of drawing a line, so central to cartography, merges with more abstract proofs and calculations, what ultimately can and cannot be represented?

Cartographic Theory Thursday 2:00 pm-3:40pm

Cartography & the Golden Ratio Eric Rodenbeck, Stamen Design

The Golden Ratio is a fundamental property of geometry. Its use in architecture over the centuries is well known, and it's also used by plants to efficiently distribute seeds & leaves for optimum growth. At Stamen we've found it useful in our cartographic practice. You can use it any time you want to sample in a well-dispersed way, when the number of samples isn't known ahead of time. The Golden Ratio is a way of ensuring that you're doing the most with the least when you don't know how far you have to go. This talk will examine the practical and metaphorical uses of the Golden Ratio for mapmakers & designers & doers.

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

Cartography in Adobe CC – MAPublisher & Geographic Imager Latest

Nick Burchell, Avenza Systems Inc.

This presentation will provide tips and tricks for cartographic workflows in MAPublisher and Geographic Imager, an overview of advancements since last year's conference, and what we are currently working on regarding new feature functionality.

PCD Morning Session II Wednesday 10:45 am-12:00 pm

Centers of Population: A Simple Way to Place Symbols Where the People Are

Jonathan Schroeder, IPUMS, University of Minnesota

When using point symbols to represent area statistics, it's common to place them in the middle of each area, but this can be misleading because underlying populations are often not so "centered." For many common settings, a more accurate

placement option is readily available: centers of population. The U.S. Census Bureau publishes the coordinates of centers of population for states, counties, census tracts, and block groups, and IPUMS NHGIS (nhgis.org) provides these centers in shapefiles. I'll demonstrate how placing proportional symbols at centers of population improves county-based maps and how applying this strategy with tracts or block groups can be a simple, effective alternative to dot mapping.

PCD Afternoon Session II Wednesday 3:30 pm-5:00 pm

Challenges in Creating the New NGS Cartographic Database

Alex Tait & Sam Guilford, National Geographic Society; Nat Case, INCase, LLC; Daniel P. Huffman, somethingaboutmaps

This presentation will explore some of the challenges we've faced in compiling the foundational database of the world at 1:200k for National Geographic. This database powers all of our work for science, conservation, education, and storytelling and needs to be accurate consistent and designed for cartographic work. Some of the issues we will present include: Edge matching between boundaries and natural features, Coastline capture from imagery derived vectors, Database design for our cartographic needs, Sourcing challenges for data from nations around the world, and more!

Collections, Databases, & Resources I Friday 9:00 am-10:20 am

Collaborative Mapmaking with JavaScript in Observable Zach Levitt, The New York Times

Observable is a leading web-based tool for visualizing data with JavaScript libraries like D3. Adding geography to JavaScript maps can be tricky but is immensely helpful for building responsive, reusable, collaborative web-based maps or data-driven vector maps. Using examples published in the Washington Post and New York Times, we'll show workflows for making your next map in Observable. We'll discuss how to import data, set up projections, style data and basemaps, collaborate and reuse code in a notebook, and what to do with the map when you're done.

PCD Morning Session II Wednesday 10:45 am-12:00 pm

Abstracts

Creating a 3D Map of the Missouri River in the 1890s

Joe Milbrath, U.S. National Park Service

Early survey maps from the 1890s show a vastly different Missouri River from the world today. This presentation illustrates the process of designing a 3D map for the new Knife River Indian Village National Historic Site's Unigrid brochure. I'll walk through mosaicking 1894 survey maps, creating a 3D tree map, and illustrating vector earthlodges to depict the general locations of Hidatsa, Mandan, and Arikara villages prior to European settlement. The map also includes newly recognized variant Native place names which were added to the Board on Geographic Names' Geographic Names Information System database.

Nature, Terrain, & Conservation Friday 2:00 pm-3:40 pm

Creating a Panorama of Sequoia National Park

Becca Holdhusen, U.S. National Park Service

In this lightning talk, I'll go over an oblique perspective map of Sequoia National Park I worked on as part of my training as a new NPS cartographer. I'll touch on the data and software used to create the base map, design

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Abstracts

decisions made along the way, and the importance of mentorship and collaboration throughout the project.

Nature, Terrain, & Conservation Friday 2:00 pm-3:40 pm

Creating a Simplified Geologic Map of the Earth

Sean Morrison, Mapping Gnome

Teaching Middle and High School students earth history is difficult. TecRocks, an online learning module developed by the Concord Consortium, seeks to do just that. To help show real geologic phenomena the module needed a series of simple geologic maps showing the three major rock types: igneous, metamorphic, and sedimentary. However, typical geologic maps are filled with so much jargon that they are incomprehensible to students. This presentation describes the process of simplifying complex geologic datasets to create a series of static and online maps to show the geology of the Earth. These maps help students identify the different rock types created by continental collisions, volcanic eruptions, and constant erosion over Earth's history.

Collections, Databases, & Resources II Friday 10:40 am-12:00 pm

Creating GeoJSON from Images Casey Miller

The resources we acquire containing paths, routes, and shapes often come in the form of images (JPG, PNG, etc.) or PDFs. While tools do exist to help with this process, such as Mapbox Studio dataset editor, I haven't come across many lightweight tools that will allow you to trace paths and generate GeoJSON all in one. I'm working on an open source tool for making this process easier and would love to show you all and get feedback on the tool!

PCD Morning Session II Wednesday 10:45 am-12:00 pm

Crowdsourced Georeferencing Sanborn Maps of Louisiana

Adam Cox, Louisiana State University

Earlier this year for my masters thesis I designed and facilitated a crowdsourcing effort to georeference historical Sanborn fire insurance maps of 138 towns and cities across Louisiana. The scanned maps were pulled directly from the Library of Congress digital collection into a web-based georeferencing platform, built from GeoNode for this project. Sheets from 276 Sanborn editions were georeferenced, creating over 1,500 spatial layers that were later combined into mosaics and transferred to LSU for long-term public access. In this talk, I will present some of the workflows used and pitfalls encountered, and elaborate on how and why people participated.

Cartographic Research I Thursday 2:00 pm-3:40pm

Customize Palettes for Imagery Layers in ArcGIS Online

Emily Meriam, Esri

Have you ever been in ArcGIS Online and wanted to change the palette of an imagery layer? For example, you'd like to do something completely different from what is available in the default options? Here I would like to show you how to use ArcGIS Pro to manipulate your image service colors, and then use ArcGIS Assistant to permanently apply these color changes to your web map or layer. This workflow will allow you to nuance your imagery layers and control them to better tell your layer's story and match your map's needs. You no longer have to settle for the default color limitations of online imagery layers and maps!

Map Design I Thursday 2:00 pm-3:40pm

Abstracts

Day-Doi

Daylight Earth Tables Jennings Anderson, Jacob Wasserman, & Jonah Adkins, Meta

This presentation will provide an overview of advancements in MAPublisher and Geographic Imager since NACIS 2020. Topics will include advancements to our coordinate system library, great new import formats, and numerous workflow enhancements to both applications. We'll also provide an update on new features coming soon.

Software, Programming, & Tools II Thursday 10:40 am–12:00 pm

Design as Defined by Atlas of Design Contributors

Aaron Koelker, Florida Department of Environmental Protection

The Atlas of Design Volume VI Call for Submissions asked cartographers to provide their personal thumbnail definition of what [map] design means to them. This brief talk will dissect the diverse collection of responses received in search of common themes and frequent word choices to help us gain a better understanding of what design means to our peers. The results are...mildly interesting!

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

Design Web Map Layouts with ArcGIS Experience Builder Heather Smith, Esri

ArcGIS Experience Builder is a website builder tailored to maps. For cartographers, this is an essential tool in the Esri suite, giving you full design control over the layout and surrounds of your web map without writing any code. I'll demonstrate an Experience Builder workflow and share skills for building web layouts that are custom designed for the web maps they showcase.

PCD Afternoon Session II Wednesday 3:30 pm-5:00 pm

The Digital Gallery: What Is It and How Can It Be Helpful to NACIS Members?

Thomas Paper, The Digital Gallery

The Digital Gallery is a website whose mission is to help people learn and engage through the power of maps, images and stories. University librarians have used The Digital Gallery to host collections of their high res images that are then viewed by students in conjunction with particular classes. Anyone can use the site to host an exhibit of high res images that can be viewed, liked, commented on and annotated on by either the public or a select group of individuals, like teachers and students. In a 10-minute presentation, founder Tom Paper will describe why he created this website and how it works. The site can be viewed at www. thedigitalgallery.org.

Collections, Databases, & Resources II Friday 10:40 am-12:00 pm

Doing Things in R That I Normally Do in Illustrator and Photoshop

Kati Perry, Associated Press

For a 2021 AP story on disappearing sea ice in the Arctic, I needed to prepare for publication dozens of map layers showing sea ice concentration over the decades. Normally, I'd process TIFFs using Photoshop and layer them in Illustrator, but since I had so many, I translated my workflows to R. I'll share a couple of tricks I used with grDevices and ImageMagick to create color palettes,

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Abstracts

process and prepare the images, and produce publication-ready maps.

PCD Morning Session I Wednesday 9:00 am-10:25am

Early Electric Orientation Maps: A Technological Opportunity for Invention to Eclipse Obviousness

Mark Monmonier, Syracuse University

In the second decade of the twentieth century electricity emerged as a generalpurpose technology that inspired widespread innovation in areas as diverse as lighting, manufacturing, transportation, household appliances, and cartography. Six US patents for an electrical orientation map reveal a progressive elaboration of earlier work, with patent examiners filtering out non-original claims. All six patentees worked in settings that confirmed or conferred knowledge of electric circuits and cartographic applications, and they no doubt saw a favorable vetting as an accolade of achievement if not a promise of profit. Even so, only August Merk-Wirz's pioneering 1915 patent seems to have been

developed commercially, and then only in Great Britain.

Cartographic History I Friday 9:00 am-10:20 am

Early HIV/AIDS Mapping and the Limits of Map Effectiveness in Public Health Communication

Jack Swab, University of Kentucky

While cartographers have long recognized that choropleth maps depict an inaccurate distribution of the phenomena being mapped, they remain a steadfast cartographic technique. In this talk, I examine the inherent contradictions of choropleth disease mapping by recounting Peter Gould's struggles in both obtaining HIV/AIDS related geospatial data and in mapping the HIV/AIDS pandemic in the 1980s. By situating these efforts in larger developments in desktop GIS and associated forms of spatial analysis, I examine the contemporary origins of disease mapping for public health communication and need to align these maps with public health communication research.

Cartographic History II Friday 10:40 am-12:00 pm

Eduard: Beautiful Relief Shading with Neural Networks

Bernie Jenny & Dilpreet Singh, Monash University: Magnus Heitzler, Marianna Farmakis-Serebrakova, & Lorenz Hurni, ETH Zurich

Eduard is a new application that computes beautiful and accurate shaded relief images that are indistinguishable from hand-drawn shadings. Eduard creates shaded reliefs that follow design principles of manual relief shading, such as removing unnecessary terrain details, locally adjusting the illumination direction, accentuating high peaks with aerial perspective, and emphasizing large landforms. Eduard enables cartographers to create Swiss-style shaded relief with neural networks within seconds from digital elevation models and will be released at NACIS 2022 at https:// eduard.earth.

Nature, Terrain, & Conservation Friday 2:00 pm-3:40 pm

Elevate Your Halo Game

Lauren Tierney, The Washington Post

No not the video game... halos for map labels, of course! Improve the legibility of your type masking and map label 'halos' to provide your audience with easier to read maps. This presentation will share tips and tricks for adding and improving map halos in Illustrator, Photoshop, and additional mapmaking environments.

PCD Morning Session I Wednesday 9:00 am-10:25am

Ethics in Cartography Aileen Buckley, Esri

Cartography doesn't have a code of ethics. If it did, it might look something like Steven Holloway's "Right Mapmaking" manifesto (https://www.tomake.com/manifesto.html) or Aileen Buckley et al.'s "The Mapmaker's Mantra" (links.esri.com/mapmakersmantra). These basic guiding principles give rise to and provide the justification for rules that help guide and assess a mapmaker's decisions. Those have not yet been developed. Nor do links to resources that would provide a better understanding of and/or practical experience with the skills needed for ethical mapmaking. This presentation provides an update of national and international activities relating to the

development of a cartography code of ethics, and it enfolds NACIS in the discussion.

Cartographic Theory Thursday 2:00 pm-3:40pm

Examining Narrative in Online Atlases

Gareth Baldrica-Franklin, University of Wisconsin–Madison

Atlases, specifically online atlases, are unique in their ability to tell stories on multiple levels: within each page and across multiple pages. This research examines the potential of online atlases as storytelling media using a mixed method approach, culminating in the creation of an original online atlas based on an educational tool called Global Madison. The Internet, I argue, is a medium with unique capabilities that we could better utilize to tell more immersive, longer-form stories.

Cartographic Narratives Thursday 10:40 am-12:00 pm

Abstracts

Eth-Exp

Expanding to a Digital Brand: How to Take a Cartographic Style from Paper to Digital (and Back Again)

Olivia Napper & Laurence Cramer, U.S. Department of State

Managing the look and feel of a brand depends largely on the medium you're using. When adapting a print map to the web, does consistent mean identical? Where in the workflow - from ask to analysis - does the production line split between print and web, between static and interactive? What are the technical constraints of the tools available, and where is the divergence in cartographic style unavoidable? Asking these questions can help inform the creation of templates that transcend both formats, while also offering insights into the brand's most essential visual characteristics. Join us for our organization's lessons learned (and still learning)!

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

Exp-Flo

Abstracts

Experiments in Spatial Augmented Reality: Technical Implementation Methodologies in Cartographic Mixed Reality

Jennifer Horowitz, Harvard Graduate School of Design

This paper explores the variety of methodological approaches available in depicting cartographic interfaces in mixed reality (XR). Increasing intersection between the geospatial and gaming communities has created novel opportunities to display spatial interfaces in XR. From cartographic "breadcrumbs" to expansive 3D visualizations of environment, new software tools ranging from Unity's Mapbox SDK to Niantic's Lightship Game Engine have emerged toward spatial augmented reality (AR) development. Through a variety of applied experiments with AR software, I examine advantages and drawbacks of using 3D game engines and AR development platforms for a diverse set of use cases in building geospatial mixed reality experiences.

Cartographic Research I Thursday 2:00 pm-3:40pm

Figmasset: A Missing Map Tool Stephanie May, Stamen Design

Anyone who has ever designed map icons for web maps knows the challenge of simultaneously needing to see what you are creating up close, and within the context of the map. Figmasset bridges this impossible gap, allowing designers to create vector graphics in Figma, export them in seconds to a sprite sheet consumable by Mapbox GL, and view them on a map. It has never been easier to design custom road shields, point of interest icons, or map markers. In this interactive workshop, we'll show you how it's done.

PCD Afternoon Session II Wednesday 3:30 pm-5:00 pm

FireNearby Alert System Casey Miller

The FireNearby application allows users to sign up to receive text alerts about fires within a specified distance of a given location (e.g. within 50 miles of where they live.) While this is only a low-budget, mvp-esque application that I maintain on the side, I hope that it provides a useful first step for folks looking to get real-time information about fires that could impact their lives and/or lives of loved ones. On the tech side, the front-end is composed of React + Mapbox and the back-end is managed by a combination of Github Actions, various AWS services, and Twilio.

Web & Mobile Cartography Thursday 4:00 pm-5:20 pm

Flowmapper.org: A Web-Based Tool for Designing Origin-Destination Flow Maps

Caglar Koylu, University of Iowa

FlowMapper.org is a web-based tool for automated production and design of origin-destination flow maps. FlowMapper has four major features that contribute to the advancement of existing flow mapping systems. First, users can upload and process their own data to design and share customized flow maps. Second, users can generate customized flow symbols to support different flow map reading tasks. Third, FlowMapper supports supplementary layers such as node symbols, choropleth, and base maps to contextualize flow patterns with location references and characteristics. Finally, the web-based architecture of FlowMapper supports server-side computational capabilities to process and

Goode Vibrations: How to Make the Goode Interrupted Homolosine Projection in MAPublisher

Gam-Han

Hans van der Maarel, Red Geographics

What do you do when your preferred cartographic software doesn't support the projection you want to use? That's exactly what I ran into when making my contribution, the Goode Interrupted Homolosine projection, for Daniel Huffman's map projection trading cards. Here's a quick how-to on how I solved this issue in MAPublisher.

PCD Afternoon Session I Wednesday 1:30 pm-3:10 pm

The Hand or the Hemisphere? Disentangling Potential Sources of Terrain Inversion Illusions in Shaded Relief

Amy Griffin, RMIT University

In a previous NACIS conference presentation (2020), we discussed findings from a replication study that explored if hemisphere of residence and its impacts on how people experience sun angles over their life course influences whether a person sees the terrain inversion illusion in shaded relief generated

normalize large flow data and reveal natural patterns of flows.

Web & Mobile Cartography Thursday 4:00 pm-5:20 pm

Gaming up Geography Wesley Jones, Esri

How do you make activities for a middle grade book that are accurate, age appropriate, engaging, and reflect real-world spatial problems? "The Locators: Adventure in South America" follows a crew solving problems using a variety of maps. See how the maps were designed and some of the decisions made to make a unified, but varied collection. Every map was based on an actual location and was then "gamified."

PCD Morning Session II Wednesday 10:45 am-12:00 pm

Geocultural Politics of U.S. States William Hoecker

Every state has a unique geocultural politic based on their date of admission to the Union and their location across the country. This talk explores the characteristics of this dynamic and what it means culturally and politically.

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

The Good, The Bad, and the Weird: Establishing a Geospatial Service Lab at a Large, Public University Alicia Cowart, University of Colorado Denver

Geospatial labs in higher ed institutions that offer GIS, cartography, and other mapping services can be mutually beneficial for students, clients, and institutions. However, each institution has its own set of policies and procedures for running service centers and employing students, as well as complicated and often mysterious financial, legal, and regulatory bureaucracy. This talk will briefly describe the process of establishing such a lab at the University of Colorado Denver and discuss the challenges and opportunities at this institution. Colleagues who work in similar labs at other colleges or universities will be invited to join the conversation and discuss their experiences.

Cartographic Education Thursday 9:00 am-10:20 am

Abstracts

Han-How

Abstracts

from different sun angles. Our multi-country study's findings suggested that handedness might be more important than hemisphere, but that study didn't deliberately recruit a balanced sample of left- versus right-handed participants. Our current work remedies this to answer the question of which terrain light angles work best and for whom.

Nature, Terrain, & Conservation Friday 2:00 pm-3:40 pm

Hand-Drawn Art Maps: A History of Place

Stefanie Kiihn

What did the city look like before freeways and railroads? Where are the lost neighborhoods and lost ways of life? In this presentation, Minnesota-based artist Stefanie Kiihn will discuss her research and process to create hand-drawn maps that match historic records to current day maps, teasing out the people and architecture of the past and locating the ghost-like footprints that are left. https://kiihn.com/

Maps in Any Medium Thursday 10:40 am-12:00 pm

Historical Hydrography: How I Created a Nautical Chart from Scratch Utilizing Historical Techniques and Equipment Taylor Krabiel, NOAA Corps, Office of Coast Survey

From 2020 to 2021 I created a nautical chart from scratch utilizing historical hydrographic and cartographic techniques and equipment from the U.S. Coast and Geodetic Survey. In this presentation I will take you through the workflow starting from a blank piece of paper, through conducting a lead line survey, and finally charting that survey. By the end of this presentation, you will see how historic hydrographic tools and techniques influenced the cartographic workflow and production of nautical charts, and how these processes still influence modern charts.

Cartographic History II Friday 10:40 am-12:00 pm

How Should We Design Election Maps?

Lily Houtman, The Pennsylvania State University

Few maps receive more attention than those created for elections. Industry professionals combine novel techniques and best practices to design election maps, but the field lacks empirical research specific to this high-stakes subject. Here, I present results from an empirical study on three design choices used by news organizations for the 2020 presidential election: 1. thematic map type (choropleth, proportional symbol, block cartogram, diffuse cartogram), 2. color saturation (saturated, desaturated), and 3. visual accenting of swing states (accenting, no accenting). My findings suggest thematic map type influences the accuracy, speed, and reaction of map reader tasks for election maps, relevant to design decisions for election cartography.

Mapping for Society & Community I Friday 2:00 pm-3:40 pm

Abstracts

How-Hun

How to Map Unconstitutional Policing

J. Kevin Byrne, Minneapolis College of Art and Design

First I define "unconstitutional policing" in urban America as 1) unnecessarily aggressive use-of-force by police officers, 2) wrongful traffic arrests aimed disproportionately at people of color, or 3) both. Then I disclose evidence by way of a half-dozen key aspects that still weigh so heavy in the shadow of the killing of Mr. George P. Floyd, Jr., notably selecting cases and places that were personal to me, performing spatial analysis of civic open data, pondering stakeholders of and audiences for my research, using maps to stop police misconduct, and next steps as we seem to feel trapped in uncertain times.

"Thou shalt not be a victim, thou shalt not be a perpetrator, but, above all, thou shalt not be a bystander." –Yehuda Bauer

Mapping for Social Justice Thursday 9:00 am-10:20 am

How to Recreate a(n Old Map) Style Vanessa Knoppke-Wetzel, GreenInfo Network

Have you ever looked at another map—whether from an organization you love or a map from the 1400s—and wanted to understand how to recreate the style but had no idea how to begin? Come to this talk to learn how! I will give a design process breakdown of the woodblock map style that I created for OpenHistoricalMap. The steps are applicable to recreating any style. Come to this talk to learn how! I will give a design process breakdown of the woodblock map style that I created for OpenHistoricalMap. The steps are applicable to recreating any style.

PCD Afternoon Session I Wednesday 1:30 pm-3:10 pm

How We Found Out Manhattan's Bilingual Street Signs were Disappearing

Denise Lu, The New York Times ; Aaron Reiss

The growth and expansion of the footprint of bilingual street signs in Manhattan's Chinatown reflects a changing population within the neighborhood. An investigation from The New York Times found that some have been removed or replaced with English-only signs in recent years. Here's a look at our reporting process on the history of the signs, which included taking a survey of bilingual street signs by walking 12 miles through Chinatown and publishing possibly the first Chinese and English map in the Times.

Mapping for Social Justice Thursday 9:00 am-10:20 am

The Hunt for Delaware Boundary Monuments

Lillian Wang, Delaware Geological Survey

This StoryMap describes a 20 year-long project to locate, assess, and preserve the state of Delaware's 179 historic stone monuments. Come learn about Delaware's boundary history, and hear about some StoryMap tips, tricks, and work arounds I encountered along the way.

Cartographic History I Friday 9:00 am-10:20 am

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Abstracts

I Want to Be a Cartographer When I Grow Up!

Kate Leroux, Stamen Design

Cartographers often appear in video games, helping players gain new pieces of the world map. What are these representations teaching kids (and adults) about who cartographers are? In this talk I'll share my analysis of the ways cartographers are represented in popular video games.

Cartographic Narratives Thursday 10:40 am-12:00 pm

Identifying Types of Legends in 2D Cartography

Aubri Kinghorn, Esri & University of Redlands

Legends are an important element to consider when designing maps. While legends are commonly found on maps, there is not a standardized way to discuss them. This makes critiquing and improving legends challenging. I analyzed over 400 legends found in printed, 2D maps and classified them using a combination of automated and manual clustering techniques. The final result was a dictionary of common legend terms and a taxonomy of legend types. This presentation will discuss the 11 different types of legends identified, and provide a standard language to better discuss legends. Map Design II Thursday 4:00 pm-5:20 pm

Import Sections of Geospatial Data Files into MAPublisher

Gene Thorp

Importing more data than you need into your MAPublisher files can be a timeconsuming process and significantly slow down your production performance. This short tutorial shows a few ways to import only the parts of a dataset that you need to help you keep your file sizes small and your projects moving.

PCD Morning Session I Wednesday 9:00 am-10:25am

In and On, Around and Above: Mapping Island Experiences Darren Sears

In previous meetings, I have presented an overview of my abstract watercolor maps that accentuate edges and contrasts in the natural world by merging multiple perspectives into "fractured" compositions. This talk will concentrate in detail on three new maps - both the design process and the final product - that depict contrasts in the form of ecological or geological islands. The fractured style, by combining sensations of traveling through and floating above, immerses the viewer within the multiple facets of each place while at the same time capturing its overall "island-ness." I will describe how the unique geography of each location, and the particular way I experienced it, presented different challenges and opportunities.

Art & Aesthetics Friday 4:00 pm-5:20 pm

Interactive Maps of SFO from 1930 to 2021 (and beyond) at the T2 SkyTerrace

Aaron Cope, San Francisco International Airport Museum

The recently opened "Mills Field and the San Francisco Airport" exhibition in the SkyTerrace, at the San Francisco International Airport, includes an interactive map installation that allows visitors to view the history of SFO by browsing over three dozen aerial maps from 1930 to 2021. The installation was produced in-house using consumer-grade hardware and web-based technologies with the goal of developing a fast, cheap and reusable template for building interactive installations to create a system for interactive displays with minimal hardware and stable costs, that can function both online and offline, and which can deployed to any four-by-four foot space at the airport. This talk will discuss the theory and practice behind the project.

Maps in Any Medium Thursday 10:40 am-12:00 pm

An Inventory of Martian Hypsometric Tints

Daniel P. Huffman, somethingaboutmaps

I have a peculiar hobby of collecting Martian hypsometric tinting schemes: those sets of colors that cartographers use to depict elevations on the Red Planet. While the classic way of showing Earth's elevations is to use a color scheme that starts with green lowlands, and then proceeds through some combination of brown/yellow/orange until it reaches white in the highest areas, there's no standard yet for Mars. So, in a way, I'm trying to document a fascinating cartographic frontier, one map at a time.

Map Design I Thursday 2:00 pm-3:40pm

Land Use Change Has Decimated Savannah Prairie in the Rountree Branch Watershed

Risper Nyairo, University of Wisconsin– Platteville

The presentation considers pre-andpost-European settlement landscapes in order to show changes overtime and how these are intertwined with issues such as prevailing policies, climate, market forces and technology. Historical reconstruction begun with the General Land Office survey maps and continued using historical aerial imagery in time-steps between 1937 and 2000. Images were georeferenced and mosaicked into watershed maps from which farms were delineated and cover types identified. Present-day cover was drawn from the Cropland Data Layer (CDL) for the year 2020. The total share of grasslands declined from 59% to 19%. Maps of change are presented in a video format.

Changing Landscapes Friday 4:00 pm-5:20 pm

Abstracts

Inv-Lan

Landscape Metrics Show Potentials to Outperform Other Traditionally-Used Ancillary Datasets in Dasymetric Mapping of Population Heng Wan, Pacific Northwest National Laboratory

Population downscaling and interpolation methods are required to produce data which correspond to spatial units used in urban planning, demography, and environmental modeling. Previous approaches to imperviousness-based dasymetric mapping ignore cell-level patterning of imperviousness while landscape metrics derived from impervious cover percentage map offer a promising approach to capture these patterns. In this study, we incorporate landscape metrics into intelligent dasymetric mapping to downscale population from census tracts to block groups in four states, and then compare its performance against other dasymetric mapping methods based on traditionally-used datasets. The results show that landscape metrics outperform other models.

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

Leg-Mak

Abstracts

Legends, Scales, and North Arrows: But What's in a Map?

Julia Waldsmith, University of Maryland

Nobody is born a cartographer. Though some doodled maps as kids, most of us grew up thinking that the world had been mapped. This exhibition aptly demonstrates that there is no limit to what can be mapped, and what should be mapped to inform the world—the same world we are also trying to represent. This last year was my first learning about cartography and its broad applications. Starting out with 'Legend' boxes but progressing into webGIS and beyond, I'd like to present some of my lessons learned, challenges, and maybe a perspective on how to develop our future cartographers.

Maps in Any Medium Thursday 10:40 am-12:00 pm

Lessons from Creating a Community-Driven Park Access Map

Jennifer Mapes, Kent State University

Mapping park access is in some ways a classic GIS problem: locate vulnerable populations + parks, then find where there are more vulnerable folks and fewer parks. Simple, right? Not so fast. I joined our local (Portage County, Ohio) League of Women Voters subcommittee on park equity hoping to help them identify areas in need of parks. I expected a quick turnaround mapping project: what I found were all sorts of local challenges to this cartographic challenge. The end result was a map that looks unlike most park equity/access maps. This talk will look closely at the final map, share lessons learned, and compare the communitysourced map to the national Trust for Public Land ParkScore index.

Mapping for Society & Community | Friday 2:00 pm-3:40 pm

Making Better Bike Maps Doug Shidell, Bikeverywhere

A good bicycle route has "flow," is connected to other bike routes and trails, and feels comfortable to ride. A good bike map presents those routes in a simple, easy-toread format. The concepts are simple, but the challenge is in the detail and the field research. Doug Shidell, former publisher of Bikeverywhere maps and guides, has 50 years of experience researching and publishing bike maps. He'll share tips and recommendations for creating print and digital maps that bike riders will actually use.

PCD Morning Session I Wednesday 9:00 am-10:25am

Making Maps Accessible Amy Ellison, State of Minnesota

Accessibility is important! Maps can be more thoughtfully designed to help those with color vision deficiency (color blindness) and low vision from the beginning of the project. And afterwards, it is important to follow through with making the final product as accessible as possible, either in print or online. The State of Minnesota has produced a number of helpful guides, styles, and tips to design maps more accessible, as well as make maps online (PDFs, JPGs, interactives, etc.) as accessible as possible. All of these are available on the Minnesota Office of Accessibility website: https://mn.gov/mnit/ about-mnit/accessibility/maps/

PCD Morning Session I Wednesday 9:00 am-10:25am

Making Sense of Geospatial Data with Knowledge Graphs

William Lyon, Neo4j

Knowledge graphs help contextualize and enrich data by modeling and querying relationships between entities using a graph database and have been successfully used alongside geospatial data and map tooling for use cases such as logistics and supply chain analysis, fraud detection, investigations, suitability analysis, real estate, and data journalism. In this presentation, we examine how the open-source Neo4j graph database can be used with QGIS and Python for making sense of geospatial data using graph algorithms and graph data visualization alongside maps while combining data from OpenStreetMap, cadastral data, and public data portals to find insights that address the use cases mentioned above

Software, Programming, & Tools II Thursday 10:40 am–12:00 pm

Map or Not?

Mark Denil, sui generis

How is it that someone can look at a thing and it really can be just about anything—and say: this is a map, or this is not a map? Is this even important? A lot of people, including many NACIS members, have said it isn't—that it is silly to even ask the question. Obviously, those people are wrong. Why should you take advice from someone who can't tell a map from a not-map? Understanding such decisions, however, is not as simple and obvious as it seems. This talk will explore some of the ramifications of recognizing maps.

Art & Aesthetics Friday 4:00 pm-5:20 pm

Map Show & Tell Hannah Dormido, The Washington Post

I am a geographer and although a close link between maps and geography is often presumed, a large proportion of geographers do not use maps. My PhD focuses on how social scientists could use a range of, as vet, underexplored mapping approaches. It is based on conceptualizing mapping as a continuum of practices focused to differing degrees on the "final map" or alternatively the mapping process itself. As such it is informed by a performative approach. Mapping practices encompass, for example, embodied, narrative, quantitative and "hand-done" approaches that can be used singly or together. I explore these by looking across traditional mapping typologies

Abstracts

Mak-Map

like community mapping, professional cartography, GIS, critical cartography, and map art.

Map Gallery Friday 4:00 pm-5:20 pm

Mapping 20 Years of Global Forest Change for National Geographic Magazine Forest Issue Map Supplement

Martin Gamache, Soren Walljasper, & Ted Sickley, National Geographic Society

Creating a stand-alone map on a topic as broad as "forests" can be a daunting task. In early 2022 National Geographic created a poster supplement addressing two decades of forest loss, and tropical forest health. Our goal was to tell a comprehensive yet detailed story that highlighted a number of trends at various geographic and time scales. We will detail how we generalized a time series of large scale forest cover change observations in order to optimize for a static print product. We will also discuss the detailed regional stories we chose to focus on using an ancillary dataset and the challenges in working with cutting edge climate data that

Map-Map

Abstracts

highlights the complexities inherent in a global system.

Changing Landscapes Friday 4:00 pm-5:20 pm

Mapping as Public Art - in Steel and Acrylic

David Nuttall, Artimaps

This talk will look at my progression from 2D and small scale 3D maps into larger 3D public art mapping. I will discuss my first project "100 Years Apart", the design, tools, implementation and the intimidation of translating my map art to a new and larger medium. This first sculptural map is a stylized work that is a visual snapshot of the history of an area of downtown Huntsville and will be placed at the civic center for two years. It depicts the location in 1921 and 2021. The sculpture is fabricated from materials that reflect the time period and hopefully inspires the viewer to take a closer look. Future projects will hopefully take this map/art/sculpture medium into more education and information about the changes seen over time.

Art & Aesthetics Friday 4:00 pm-5:20 pm

Mapping Durable Transit Ridership in the Boston Region

Emily Domanico, Boston Region Metropolitan Planning Organization

The COVID-19 pandemic precipitated major changes to transit ridership and service throughout the Boston region. As trip-making patterns adjusted to public health concerns and quarantine orders, transit ridership persisted among essential workers and transit-dependent passengers. This presentation highlights the analysis conducted to identify durable ridership corridors from General Transit Feed Specification (GTFS) files and ridership data. This presentation also reflects on the challenges of mapping the changes to a large network over time alongside contextual data reflecting major events in the past three vears.

Mapping for Society & Community II Friday 4:00 pm-5:20 pm

Mapping Internet Infrastructure: Supporting the Network Startup Resource Center

Joanna Merson, University of Oregon

In collaboration with the Networks Startup Resource Center (NSRC), the University of Oregon InfoGraphics Lab has produced both print and web-based maps to highlight Internet infrastructure development and research around the world. This long-term collaboration has resulted in a diversity of map products including posters, journal figures, and of note-a robust set of web maps that portrays NSRC activities summarized by decade-can be filtered to current, past, and future Internet infrastructure events, a history of Internet protocols in Africa, and more. We will discuss our collaborative design process, our design challenges and decisions, and showcase the map products.

Software, Programming, & Tools I Thursday 9:00 am-10:20 am

Mapping Land Artificialization Maggie Mateu

Artificialization of soils is the act of building on a natural, agricultural or forest area, causing a lasting alteration of all or part

of the ecological functions of a soil, in particular its biological, hydric and climatic functions. To estimate the quantity of artificial spaces in a territory, it is necessary to map the phenomenon, which implies drawing its stature and its limits (a live demonstration of mapping artificialization is planned!). By highlighting what has been artificialized vs. what has not, the map can then quantify the phenomenon and thus raise awareness among the various operators implied in the territory (urban planners, researchers, politicians) on this subject...a good example of the political power of maps.

Mapping for Society & Community II Friday 4:00 pm-5:20 pm

The Mapping of North American Native Languages in the 19th Century

John Cloud, Smithsonian National Museum of Natural History

A great enterprise in mapping Native American languages and the areas where they were spoken developed in the 19th century, even as those same Native Americans were under assault, sometimes by the same agencies mapping them. The three key developments: modern linguistics, evolved from philology, with new perceptions of language families and their evolution and the invisible rules of syntax; the invention of phonetic systems capable of describing non-western languages; and the invention of lithography, and more especially chromo-lithography, which augmented the cartographic evocation of subtle patterns of spatial distribution not readily characterized by "boundaries". All this converged to create masterpieces of 19th century cartography.

Cartographic History I Friday 9:00 am-10:20 am

Mapping Population and Physical Characteristics of all Street Blocks in Sub-Saharan Africa

Nicholas Marchio, University of Chicago

We use a massive, and reportedly complete, dataset of building footprints in sub-Saharan Africa to identify neighborhoods, analyze statistical patterns of human settlement and map out precision spatial areas lacking urban services. The analysis is based on a new, fast and scalable set of algorithms based on rigorous mathematical results that use concepts of topology and network analysis to identify lack of street access. The approach is flexible, based on combining

Abstracts

Map-Map

data for building footprints, street networks and population maps, and is being applied everywhere in the world.

Software, Programming, & Tools I Thursday 9:00 am-10:20 am

Mapping the Changing Landscapes of a Frozen Continent

Laura Gerrish, British Antarctic Survey

Keeping up with changing landscapes is a difficult enough task in any environment, but when your environment is continuously melting and moving, it is even trickier. In this presentation I will discuss some of the latest wavs in which the British Antarctic Survey's GIS team monitor the environment and safeguard the scientists who visit the frozen continent. I will discuss our use of open source data and run through our processes for producing scientific and operational maps used in Antarctica and the Arctic. I will also discuss how we monitor the changing coastline and the continuous calving of icebergs from ice shelves fringing the continent, including the stories of a couple of 'giant' icebergs that recently caught the media's attention.

Changing Landscapes Friday 4:00 pm-5:20 pm

Map-Map

Abstracts

Mapping the Drone Jon Caris, Smith College

Drones are no longer a novelty to the NACIS community as they enter our space along trajectories similar to other mobile imaging technologies. Drones add another aerial gaze to reveal patterns that help us map and understand space. These affordances draw us to this emergent and disruptive technology.Concurrently, we are becoming more reflective on the ethics of our tradecraft. Many are also participating in renewed efforts to make our work more inclusive, diverse, and equitable. How do these resurgent efforts intersect with the fascination and increasing use of technologies so intertwined with military histories and operations? I will share our evolving drone code of ethics and invite the NACIS community to stay with the trouble.

Cartographic Theory Thursday 2:00 pm-3:40pm

Mapping the Future of Conservation in the U.S.

Marty Schnure, The Wilderness Society/ Maps for Good

The U.S. has joined more than 90 countries in a pledge to combat climate change and species extinction by conserving 30 percent of Earth's land and water by 2030. What does that mean and where are the priority places? Different places are important for different reasons, and everywhere is important for something. I will share how we went about mapping the future of conservation in just a few pages of the September issue of National Geographic Magazine.

Nature, Terrain, & Conservation Friday 2:00 pm-3:40 pm

Maps in Felt from the Inside Out Mamata Akella, Felt

Felt is a collaborative mapping tool that can be used by anyone to make a map in minutes. Felt's creative take on map-making presents a set of new considerations when designing a cartographic system that is fast, powerful, and intuitive for our users. This talk dives into the pieces that make up a Felt map, how they interact with one another, and how we've designed a flexible and approachable system from the ground up with map-making in mind.

Web & Mobile Cartography Thursday 4:00 pm-5:20 pm

Maps of the Arctic Alaska Boundary Area as Defined by the U.S. Arctic Research and Policy Act

Christopher Richmond, U.S. Geological Survey

This project presents a series of general reference maps showing relevant geospatial features of the U.S. Arctic boundary as defined by the U.S. Congress since 1984. The first generation of the U.S. Arctic Research and Policy Act (ARPA) boundary maps was originally formatted and published in 2009 by a private firm contracted with the National Science Foundation and the U.S. Arctic Research Commission. Recognizing the steadily increasing relevance of Arctic issues to national and global affairs that requires more functional projections and online tools, the U.S. Geological Survey (USGS) Alaska Regional Office and the National Geospatial Technical Operations

Center developed this updated series of ARPA boundary maps.

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

Maps that Arise from Observing the body in the Body

Steven R. Holloway, toMake™ Press

This talk discusses maps or spatial responses that arise from observing the 'body in the Body', from an experience of the place to which we belong and then respond. The concept of 'the body in the Body,' is a way of articulating the Right MAP Mapping principle of Deep Listening. It suggests a moral code of conduct or mapping, not unlike Leopold's Land Ethic, that grows out of a non-dual experience of being a part of the interconnected interwoven caring relationships of the Body community. The economic and the uneconomic, the seen & the unseen, the heard & the unheard, the known & the unknown. Such responding is caring for the place we map the sufferings and the joys of the entire Body community we inhabit

Cartographic Theory Thursday 2:00 pm-3:40pm

Migrating to ArcGIS Pro for Cartography: Practical Realities Martin Gamache, National Geographic Society

I have been working with various tools and applications designed to move GIS data from GIS software applications to desktop illustration and design software for nearly two decades. During this time I have experimented with various techniques and for the last ten years have favored the simplicity and efficiency of Esri ArcMap exports direct to Illustrator as my preferred workflow. In this talk I will detail my journey migrating to ArcGIS Pro as I explore a new cartographic workflow. I will demonstrate opportunities with the new software, integration with Adobe products, and I will discuss strengths and shortcoming of the new software using a series of maps on human/predator conflicts to illustrate my process.

PCD Afternoon Session II Wednesday 3:30 pm-5:00 pm

Abstracts

Map-Mig

Mobile Mapping at Europe's Maritime Borders: An Examination of Migrant Digital Cartographic Strategies in the Eastern Mediterranean Sea

Bea Abbott, University of Kentucky

Digital mapping technologies are used in a variety of ways by the European border regime to imagine and enforce deadly bordering practices. However, these strategies have not gone unopposed, and digital mapping also forms part of non-government, activist, and migrant efforts to traverse border spaces and expose their violent logics. Looking at digital maps made by migrants and circulated on social media networks (2014-present), this research examines migrant cartographic strategies employed in the Eastern Mediterranean Sea. Through a visual analysis of map artifacts, I argue that migrants navigating Europe's maritime borders have creatively used digital mapping tools to design maps that contest and re-imagine violent border geographies.

Cartographic Research I Thursday 2:00 pm-3:40pm

Mob-Mod

Abstracts

Modeling Global Historic Trade Routes using a Least-Cost Surface Analysis

Lucy Roberts, University of Oregon

Global trade routes changed dramatically in the mid-19th century when steamship became popular for maritime trade. Modelling how shipping dynamics changed amidst various technological regimes is necessary to analyze how economic power dynamics have shifted over time. We modeled wind-driven sailing routes and steam-powered routes between the same sets of global trade ports to evaluate how changes in maritime shipping technology impacted the relative economic importance of port cities. This presentation will walk through our least-cost surface analysis model, tentatively named "TRANSIT-Global," which uses wind speed and wind direction raster data to estimate historic maritime routes.

Software, Programming, & Tools I Thursday 9:00 am-10:20 am

Modern Pictorial State Maps and More

Faye Passow

As a print-maker I am fascinated by vintage graphics and chose retro, map, tourist tea towels as inspiration for more current pictorial maps that are often slightly twisted. My first map, Minnesota: Principal Hot Dish by Region became emblazoned on multiple items including a casserole shaped like Minnesota. I have gone on to create maps for other states. I research the state and create icons of my own choosing based on what I consider a fun road trip. For Minnesota I took the concept further with Minnesota: What You Need to Know, which includes everything from Donut Shops to truss bridges to tornadoes and much more. In addition to these state maps I have a small series of made up maps including Nothing But Nothing, a map of nothing.

Map Design I Thursday 2:00 pm-3:40pm

Multi-Method Mapping as a Collaborative and Transdisciplinary Research Approach

Heather Miles, University of Manchester

I have developed a multi-method approach to mapping for use as a research methodology across the discipline of geography and for transdisciplinary projects. This approach is concerned with the process of mapping as well as 'a final map' per se. It may, for example, elicit narratives during mapping, or evoke more corporeal understandings, as well as map geospatial data. I am trialing this approach within a large transdisciplinary project that includes GIScientists, an artist, a social scientist, ethnographers and archaeologists. I will present early findings from the evaluationcan multi-method mapping enable these contrasting researchers to critically engage with their differences?

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

Neuro-Carto Visual Contrast: Results and Findings

P. William Limpisathian, University of Wisconsin–Madison

As a follow-up to my ongoing dissertation research on the neurological correlates of cartographic visual contrast cognition, I will discuss the results of my parallel behavioral and fMRI neuroimaging experiments. The anticipated findings will better cartographic and neuroscientific understanding and potentially systematize the role of visual contrast in the map cognition process. Further, I will reflect on identified regions of the brain associated with map reading and design-centric information decoding that are currently poorly understood. Lastly, I will discuss how this project serves as a precursor for a future body of neuro-cartographic research

Cartographic Research I Thursday 2:00 pm-3:40pm

Oh So Secret. Women Mapmakers of the OSS

Judith Tyner, CSU Long Beach (retired)

When one reads about women in the OSS, spies are what come to mind. But another group played an equally important role in

helping win World War II. These were the mapmakers of the OSS who worked under the guidance of Arthur Robinson. There was little glamor in creating maps with pen and ink and relief maps of plaster, but they produced thousands of maps used by Roosevelt and Churchill and the Joint Chiefs of Staff. I look at the role of women mapmakers in the OSS and focus on one woman as an exemplar.

Cartographic History I Friday 9:00 am- 10:20 am

On Demand, Custom, Topographic Maps with topoBuilder

Alexander Kaufman & Ariel Doumbouya, U.S. Geological Survey

The U.S. Geological Survey's National Geospatial Program has released the topoBuilder application, which enables users to create topographic maps on demand using the best available National Map data. In topoBuilder, users can generate topographic maps, called OnDemand Topo, centered anywhere in the United States or Territories, with customized contour smoothing, and export formats GeoTIFF or GeospatialPDF. Maps are made at 1:24,000-scale for the conterminous United States and Hawaii, 1:20,000-scale for U.S. territories, and

Abstracts

1:25,000 for Alaska. Future releases are planned for additional customizations such as user-selected layers, user-added content, GIS data exports, and other map scales.

Web & Mobile Cartography Thursday 4:00 pm-5:20 pm

OpenStreetMap & Trails: New Collaborations for Responsible Recreation

Maggie Cawley, OpenStreetMap US

Sparked by concerns about OpenStreetMap's role in how the public accesses and recreates on protected lands, OpenStreetMap US volunteers, navigation app developers, national agencies and public land managers formed the OpenStreetMap US Trails Working Group in 2021. Bringing together a diversity of perspectives on trail mapping practices, trail safety, and protecting the environment, this group is working to address on-the-ground challenges, tagging schemes, authoritative data, how to render data, and other topics related to mapping trails in OSM. Learn how this group is collaboratively developing solutions for responsible trail mapping in OpenStreetMap

Pai-Par

Abstracts

alongside rendering and cartographic solutions.

Mapping for Society & Community I Friday 2:00 pm-3:40 pm

Painting a State Dylan Moriarty, The Washington Post

In January, the Washington Post released our congressional mini golf game to help explain gerrymandering. Each district was converted into a golf hole, making the twists and turns of their borders tangibly frustrating. As part of that project, I painted nineish districts with watercolors.

In lieu of a formal talk on the piece, during this session I'll be camped out in the Map Gallery painting a new one of Michigan from start to finish. From the initial sketching, to inking, to painting. You're welcome to stop by and watch, as well as ask any questions at anytime.

Map Gallery Thursday 4:00 pm-5:20 pm

Panoramas in Pro? Brandon Plewe, Brigham Young University

In recent years, cartographers have used a variety of tools and techniques to produce stunning panorama maps. ArcGIS Pro has not been one of those tools of choice, with some significant shortcomings for producing print-quality 3D scenes. With some work, however, the rendering quality of Pro can be improved, and panorama techniques (many of which have been presented at past NACIS conferences) can be replicated. The result is a reasonably high-quality, large-format map. PCD Afternoon Session I Wednesday 1:30

PCD Atternoon Session I Wednesday 1:30 pm-3:10 pm

Paper Maps Aren't Dead | The Continued Relevance of Printed Trail Guides & Outdoor Recreation Atlases

Jack Henderson, Pisgah Map Company; Kristian Underwood, Underwood Geographics; Ezra Schwartzberg, Green Goat Maps; Nathaniel Alexander Kameleokalani Douglass, Green Trails Maps; Chaney Swiney, Benchmark Maps; David Lambert, National Geographic Trails

Illustrated Maps; Mike Hermann, Purple Lizard Maps; Tom Harrison, Tom Harrison Maps; Jamie Robertson, Cairn Geographics

Critique is a core pedagogical tool in most design education. It is also an essential part of professional discourse in most design fields. While extensive literature on the place of critique in design education exists, the focus is overwhelmingly on the role of the instructor or the expert jury in providing critique to students. Little attention is given to how students learn to effectively participate in critique. In this talk, I will discuss my experiences and observations in teaching critique as a distinct design skill—for both the critic and the designer whose work is being critiqued.

Panel: Paper Maps Aren't Dead Thursday 2:00 pm-3:40pm

Parliamentary Democracy for Cartographers

Alex McPhee, Prairie Heart Maps

In 2021, I became the first cartographer ever to run for the Canadian House of Commons. I lost handily, but was fortunately able to return to my career as a political and election map specialist. So, how do election maps work in a multi-party system? What is a

Westminster democracy? How do Canadian cartographers pay the bills if they don't need to constantly explain what the electoral college is? And what kind of intelligence did I provide for my own campaign? I hope this brief journey into comparative politics will provoke some thoughts for election mappers on both sides of the border.

Mapping for Society & Community | Friday 2:00 pm-3:40 pm

Pedaling a Better Map: Creating Preferred Biking Routes In Athens, GA

Jerry Shannon, University of Georgia

Starting in Fall 2019, the Community Mapping Lab at the University of Georgia and a local biking organization, BikeAthens, collaborated on creating an updated map of preferred biking routes in the area. This presentation describes how we identified criteria for preferred routes, developed algorithms to generate a draft map using online routing tools, collected data on elevation change and other features, soliciting feedback from local residents (during a pandemic!), and designed the final online map. Our project provides a reproducible model for the technical process of creating local bike maps and demonstrates who the process of map making can foster interest in planning for alternative transportation options.

Mapping for Society & Community II Friday 4:00 pm–5:20 pm

Persistence of Racist Loan Practices in Contemporary Landscape of Lexington, KY: An Exploration of 1930s Redlining

Rebecca Ramsey, University of Kentucky

The 1930's Home Owner's Loan Corporation Redlining Maps were intended for a brief period of implementation, however, their historical fingerprint is still seen today. These rapidly created depression era maps were a primary factor in deciding if an applicant would be approved for a federal loan assistance program and thereby obtain the benefits of home ownership in the 1930s. This digital mapping project explores the current state of historically redlined neighborhoods (median household income, home ownership, property value, race/ segregation) of Lexington Kentucky in an effort to promote public awareness of the continued denial of equitable access to home

Abstracts

Ped-Pla

ownership and related benefits stemming from redlining practices.

Mapping for Social Justice Thursday 9:00 am-10:20 am

A Place by Any Other Name... Brooke Marston, U.S. Department of State

Kyiv or Kiev? Burma or Myanmar? Turkey or Türkiye? We're surrounded by toponyms that serve not only as references but reflect a sense of place and identity. The U.S. Board on Geographic Names (BGN) is authorized by the U.S. Congress to standardize geographic names across the U.S. Government. For over 130 years, the BGN has devoted itself to nomenclature and its role in understanding cultural and political landscapes. The interplay between foreign names and U.S. foreign policy is a delicate dance with considerable implications. How does the U.S. Department of State engage and support the BGN? It's a big world with lots of names and any one of them could be central to the next international debate or diplomatic breakthrough at any time.

Collections, Databases, & Resources I Friday 9:00 am-10:20 am

Pow-Pyt

Abstracts

Power of the Pencil: Getting Cartography Students to Sketch Ideas

James Meacham, University of Oregon

The simple act of putting pencil to paper can remove many of the technical barriers that prevent, or slow down, the transfer of design ideas from the brain. But many cartography students are uncomfortable with sketching and creating draft mockups by hand. Some want to jump right into the data or draw neatly aligned layouts in graphics programs. This presentation describes a rapid one-hour pencil mockup exercise that actively engaged students. In small groups, students focused on designing a layout and graphics for an interpretive kiosk on an aspect of the wild salmon story in the Olympic Peninsula. Their resulting mockups will be presented.

PCD Afternoon Session I Wednesday 1:30 pm-3:10 pm

Pretty Pictures: Adventures in Extracting Land Use Data from (Very) Old Maps Kelly O'Neill, Harvard University

In 1695 Tsar Peter I of Russia commissioned an atlas of Siberia. The resulting (167) maps form a unique (and gorgeous) geospatial archive of settlements, fishing grounds, ore deposits, and places of worship. But best of all, they provide detailed accounts of Siberia's land cover that have the potential to offer insights into the deep history of environmental change. Because they vary in scale and were executed in an early modern cartographic style, mapping the maps required careful sleuthing and methodological innovation. This presentation will demonstrate the georeferencing process and the re-mapping of 300-year old forest data.

Changing Landscapes Friday 4:00 pm-5:20 pm

Processing of Map Sets At PUL's Map and Geospatial Information Center

Tsering Shawa, Princeton University Library

Princeton University Library's Map and Geospatial Information Center has recently developed a workflow to process topographic map sets that allows users to download individual sheets with or without georeferenced information. Patrons can view the sheets as a mosaic map and this mosaic map can be added to any GIS software package that can open WMTS or XYZ services. In this presentation I will describe how we catalog map sets, automate the georeferencing of scanned maps, and how we mosaic and publish map sets on our server and make them accessible on our Digital Maps and Geospatial Data Portal.

Collections, Databases, & Resources II Friday 10:40 am-12:00 pm

Python Scripting to Create 300+ Accessible PDF Maps in Mere Hours

Mike Dolbow, State of Minnesota

If you've ever tried to publish a static map in PDF form and make it accessible to screen readers, you know that existing cartographic tools are less than optimal, resulting in significant manual work to meet accessibility requirements. In support of the Department of Education, the author used to "hand tag" over 300 PDF maps in order to make them accessible. Then he learned that Python scripting could be used to insert automatically tagged map images into MS Word, and bulk PDF conversion tools could export those documents to accessible PDFs. In this presentation, he will discuss the Python libraries, custom code, and processes needed to accomplish this task, resulting in accessible PDF maps for over 300 school districts in Minnesota.

Software, Programming, & Tools I Thursday 9:00 am-10:20 am

Racial Covenants in the Twin Cities

Kristine West, St. Catherine University; Rachel Neiwert, St. Catherine University/ Welcoming the Dear Neighbor; Jake Ford, University of Minnesota/Mapping Prejudice; Emily Cavazos, University of Minnesota/ Mapping Prejudice

Topological data analysis combines approaches from mathematical topology with computational methods and has emerged as a promising area of research within mathematics and data science. Of particular interest is the mapper algorithm which has shown particular promise at extracting non-obvious clusters within heterogeneous datasets. However, due to the nature of mapper's clustering and graph output, visualizing mapper data in a geographic context has been limited. Using U.S. census data, this talk presents a novel approach for the cartographic visualization and analysis of clusters found when musing mapper on spatially-bound datasets; here, identifying potential 'communities of interest' with respect to electoral districting.

Panel: Racial Covenants in the Twin Cities Friday 2:00 pm-3:40 pm

Redistricting with Open Source Tools George Roth, TriMet

In early 2022, TriMet's geospatial analysis team was tasked with updating the public transit agency's district boundaries for its Board of Directors. After an evaluation of pre-made tools, we determined that building our own redistricting environment in QGIS would be faster, less expensive, and more transparent. Here, we detail our experiences with gathering information about the redistricting process, compiling data and building our custom analysis environment, and publishing static and web maps of potential scenarios for decision-makers. We also discuss lessons learned from managing

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a high-stakes GIS project with diverse stakeholders and priorities, and hope to spark a discussion about the role of GIS tools in redistricting.

Mapping for Society & Community I Friday 2:00 pm-3:40 pm

Rematriating the Map: Indigenous Cartographies for Alternative Futures

Clancy Wilmott, University of California, Berkeley

In April 2021 studio.geo?, a cartographic and media design studio based at the University of California, Berkeley was approached by the Sogorea Té Land Trust, an Indigenous, women-led urban land trust based in Oakland, CA to collaboratively make a map of the Ohlone Bay Area. This paper discusses our process: wading through traumatic archives, basket-weaving contours, creating sovereign servers and asking: is it possible to decolonise the fundamentals of cartography itself to produce a map that depicts a cosmography, rather than a history, a living world, rather than abstracted data, a map that rather than fixing a moment in time, represents the landscapes as a series

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of seasonal space-times through which communities of people live and move?

Mapping for Social Justice Thursday 9:00 am-10:20 am

Retracing the Past: Historical Mapping for the National Park Service

Alex Fries, U.S. National Park Service

In my first year as a cartographer for the U.S. National Park Service, I was tasked with working on a new map for River Raisin National Battlefield Park in Monroe. Michigan, which would serve as a thorough and faithful recreation of the landscape along the western shore of Lake Erie at the time of the battle-one of the defining, yet largely forgotten, engagements of the War of 1812. This talk will provide an overview of the many elements that went into creating the map; some of the challenges confronted when researching for and then building the map; and even new discoveries which were made that could lead to a new interpretation for one of the park's key components.

Cartographic History II Friday 10:40 am-12:00 pm

Role of Libraries in Geography and GIS Education

Emma Slayton, Carnegie Mellon University

Libraries have a unique role to play in Geography and GIS education. As key supporters of education on university campuses and within local communities, libraries can provide unique access to spatial learning that is sometimes left out of traditional academic coursework. Over the past two years we have organized multiple conversations with people who support geographic activities in libraries to explore the role libraries play in supporting geography education and enabling spatially literate engagement with spatial tools and datasets. This work discusses these conversations, the outcomes we have been able to achieve as a community of practice, and what we have still left to do.

Collections, Databases, & Resources I Friday 9:00 am-10:20 am

The Scarlet Letter "A" Chelsea Nestel, University of Wisconsin– Madison

Aesthetics is implicit in cartography's claims to disciplinary value, yet its place in cartographic theory is controversial. Some

cartographers view aesthetics positively (e.g. Kent 2005), but others problematize it as hedonic, detracting from map function, or unscientific (e.g., CP 2012, Robinson 1952). Furthermore, cartography itself has been critiqued on aesthetic terms as an ideological "mask" or "image" (e.g., Wood 2007). Critics' concerns with aesthetics are well-founded, telling us either (a) we should abandon aesthetics in cartographic theory or (b) we should reform it. I argue (b) using new developments in philosophy of aesthetics regarding normativity (Lopes 2018) and experience (Nanay 2016). Aesthetic commitments are not optional. If cartographers make "good" maps, aesthetic theory matters.

Art & Aesthetics Friday 4:00 pm-5:20 pm

"She Makes A Difference" with the Transformation of Everywhere She Maps Intiative

Maliha Binte Mohiuddin

Everywhere She Maps is an initiative to develop the adaptive mode of mapping and data collection led by women and nonbinary emerging student leaders in the YouthMappers network. This paper shifts the approach from treating women as vulnerable human beings during emergencies and disaster situations to empowering women and girls' lives by involving them in mapping and geospatial data activities. The paper focuses on the perspective of women in GIS and the benefits of making mapping data available to half the world's population through OpenStreetMap. I argue for an inclusive use of the mapping tools approach through the Everywhere She Maps initiative that addresses the opportunities and challenges for reimagining women in GIS.

Mapping for Social Justice Thursday 9:00 am-10:20 am

So You Wanna Start a Mapping Podcast

Ross Thorn, Stamen

Everybody loves maps and (almost) everybody loves podcasts! But there is a bit more to starting a cartography podcast than simply buying a nice microphone, pressing "record," and spitting your hottest map takes. In this talk, I'll talk about our first year of podcasting at Stamen, including some general podcast tips, our specific approach to the format, the hurdles of starting (and continuing) a podcast, and the cool themes that have surfaced while speaking with some of the brilliant folks in our field.

Maps in Any Medium Thursday 10:40 am-12:00 pm

Surveying the Design of Story Maps in Digital Journalism

Timothy Prestby, The Pennsylvania State University

Story maps have emerged as a popular storytelling device in recent years with journalists leveraging geospatial web technologies to create unique spatial narratives. However, empirical research analyzing the design of story maps is limited. Here, I present results from an empirical study that 1) operationalizes proposed story map frameworks and 2) identifies common design traits in contemporary story maps. My findings suggest that most story maps unfold using browser scrolling and utilize only a handful of previously proposed story map techniques: focusing readers' attention, breaking up content into manageable bits, and establishing a consistent mood. Story maps also leveraged color and novelty to make the design vivid.

Cartographic Narratives Thursday 10:40 am-12:00 pm

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A Synesthete's Atlas: Performing Cartography in Real Time Eric Theise

So-Syn

Since April 2022 I've been projecting/ manipulating slippy maps in collaboration with improvising musicians across Europe and North America. Limiting myself to geospatial technologies, "A Synesthete's Atlas" is a constrained mutation of expanded cinema, lifting/applying strategies from experimental film & animation, color theory, the Light and Space movement, and concrete poetry. I'm a "map jockey." I'll present Carto-OSC, an assemblage of open source libraries, data, and protocols, plus 1000+ lines of JavaScript that integrates it all into a touch-surface interface. Included are video excerpts of previous performances but you're encouraged to attend Saturday night's performance with upright & electric bassist Liz Draper at Mirror Lab. Details in Field Trips.

Art & Aesthetics Friday 4:00 pm-5:20 pm

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Teaching Cartography at a Tribal Thinking Spatially: Truth-Telling Through Mapping

Kate Carlson, University of Minnesota

The 5th annual Thinking Spatially symposium will explore the topic of Indigenous mapping and cultural connection to place. Join us for a discussion on confronting the historical truths of the University land-grab that followed the Morrill Act of 1862. The panel will explore the use of maps to better understand the disenfranchisement of Indigenous communities and how the simple act of geographic labeling impacts an entire community.

Symposium: Thinking Spatially on Indigenous Mapping Friday 9:00 am- 12:00 pm

Three Useful Illustrator Tricks for Cartographers

Sarah Bell, Esri

In this talk, I will cover three different mapmaking Adobe Illustrator tricks that I use on just about every map I make. Adobe Illustrator is a powerful cartography tool, and since there are many ways to accomplish specific map appearances in Illustrator, tinkering through this powerful graphics application can seem overwhelming. Cartographers know the aesthetic their maps need. I will demonstrate the Illustrator "how-to" for three useful aesthetics.

PCD Afternoon Session I Wednesday 1:30 pm-3:10 pm

Towards Humanistic Cartographies Nick Lally, University of Kentucky

A growing body of research in cartography engages with concepts in the humanitiesincluding emotion, affect, aesthetics, and storytelling-and insists on the situatedness of knowledge. I argue that these concepts can be the starting point for rethinking not only the data of the map, but also methods of mapmaking. Drawing from Johanna Drucker's (2020) work on humanistic visualization, I argue for humanistic cartographies that act as "primary modes of knowledge production" that exceed representation, convey their constructedness, center humanistic interpretation, and engage with visual epistemology. Drawing on and contributing to existing work, I outline the

technical infrastructures that could support a move towards humanistic cartographies.

Cartographic Theory Thursday 2:00 pm-3:40pm

Ungrading for Cartography Heather Rosenfeld, Smith College

Conventional grading has been shown to have a host of problems, from thwarting intrinsic motivation to exacerbating structural discrimination. Ungrading is an alternative grading system that endeavors to address these issues. With ungrading in a traditional college or university setting, students still receive final grades, but the focus throughout the semester is on formative feedback and developing meta-cognition. In cartography, ungrading can promote creativity, thoughtful risktaking, and technical community care. This presentation will introduce ungrading in the context of alternative grading, discuss how ungrading can work in an undergraduate cartography classroom, and reflect on its advantages and limitations.

Cartographic Education Thursday 9:00 am-10:20 am

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United States Communities in Harm's Way: Mapping the Intersection Between Wildfire Hazards and Vulnerable Communities

Zac Stanley, California IST/University of Kentucky

This talk will focus on my final MS project for the University of Kentucky New Maps Plus Program. The project is titled: 'United States Communities in Harm's Way: Where are the Vulnerable in Relation to Wildfire Hazards?' It will explore the datasets. libraries and mapping techniques used to cartographically display where modeled wildfire hazard potential intersects with census designated places that have some degree of social vulnerability as defined by the centers for disease control. The result is an interactive bi-variate map that uses graduated symbols in concert with a sequential color scheme. Mapping libraries used include Leaflet and Mapbox.

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

Updating Natural Earth: A Progress Report

Tom Patterson, U.S. National Park Service (retired); Nathaniel Vaughn Kelso, Apple

Much has happened since NACIS/OKC where we announced plans to build a new and more accurate version of Natural Earth. It is a multi-year project. World coastlines, glaciated areas, and Antarctic ice shelves are now in final draft. As anticipated, mapping lakes and rivers has proven a more difficult task. Volunteer teams are now mapping the interior water features of Africa, Asia, and Europe. South America is complete. Another volunteer is updating populated places. We will report on our data sources and techniques, including the experimental use of neural networks for coastal island selection.

Collections, Databases, & Resources I Friday 9:00 am-10:20 am

Visualizing Floodplains and Other Low-Profile Terrain with High-Resolution Digital Elevation Models (DEMs)

Daniel Coe, Washington Geological Survey

In the relief mapping world, flat landscapes don't always get the attention their mountainous counterparts do. Floodplains, patterned ground, and terrain sculpted by continental glaciers are just a few examples of relatively horizontal landforms that can be difficult to visualize with shaded relief. Using high-resolution DEMs, I will show techniques that help display the character of these fascinating places and often reveal hidden clues to their past.

PCD Afternoon Session I Wednesday 1:30 pm-3:10 pm

What is Vector Tile Cartography? Stephanie May, Stamen Design

Anyone who has made a map in Mapbox Studio has worked with vector tiles, but how many have considered the role for cartography not just in styling the data available in pan-able, zoomable maps, but also structuring the tiles themselves? As more and more companies build their own vector tiles internally to incorporate

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into mission-critical, customer-facing applications across the Internet, we have found a niche in advising clients on how to streamline and tailor their mapping stacks. It comes down to combining cartographic and software engineering fundamentals in a way that harmonizes good data architecture with principled information design, which for cartographers means learning to speak the language software engineers understand.

Web & Mobile Cartography Thursday 4:00 pm-5:20 pm

What Terrain Does in the Shadows Patrick Kennelly & Gene Trantham, Central Oregon Community College

Shadows historically had a bad reputation in terrain representation, creating hidden areas on the map. Rendering terrain with sky models shows that soft shadows enhance shaded relief maps, but does this type of shadowing need relief shading for 3D effect? We have developed a toolset for mapping with soft shadows only. The resulting maps have similar detail and appearance to relief shading maps. Additionally, vertical exaggeration of the elevation model followed by shadowing creates a stronger depth effect than shaded relief maps of the same model. This allows for addressing questions such as if this technique assists with depth perception and how much vertical exaggeration is appropriate on terrain maps of various locales or landforms.

Nature, Terrain, & Conservation Friday 2:00 pm-3:40 pm

What's that Map Telling Us? Dave Wolverton, Mediawerx

The Manitou Flood Tour is an online platform that draws the viewer's interest into a story by implementing cartography, images, and minimal narrative to establish a sense of place and area of impact. Cartography as an interface provides a nonlinear path deeper into the story using interactive drone-captured imagery, which deftly moves from a map perspective to the scene of the event. Video and still photography of the aftermath bring the viewer to the pedestrian level, depicting on-the-ground perspectives showing its magnitude and chaos. The level of insight it brings is a greater understanding of the flood event and potential risks associated with future events.

Cartographic Narratives Thursday 10:40 am-12:00 pm

Where the Wild Things Were

Nicholas Spano, University of California Museum of Paleontology

Since the Ice Age, over half of all large animals have become extinct. These losses have transcended prehistoric, recent, and modern times at accelerating rates. To highlight this, we created a pilot of Where the Wild Things Were: an interactive web atlas of charismatic animal losses from the Ice Age to today. This pilot version includes ArcGIS StoryMap entries on wooly mammoths (Mammuthus primigenius), Columbian mammoths (M. columbi), jaguars (Panthera onca), American lions (P. atrox), and saber-toothed cats (Smilodon fatalis) of the United States. By evoking connections to these animal losses through a sense of place, we hope to intrigue, evoke, and inspire users for effective conservation action.

Changing Landscapes Friday 4:00 pm-5:20 pm

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Why-You

Why Should Cartographers Care About Disclosure Avoidance for the 2020 Decennial Census?

David Van Riper, IPUMS

The Census Bureau adopted a new disclosure avoidance methodology, based in the concept of differential privacy, for the 2020 decennial census data products. This new methodology injects noise into nearly every published statistic, protected respondent confidentiality while producing less accurate data. Cartographers commonly map decennial census data, and they must be aware of the impacts the new disclosure avoidance methodology may have on their maps. The presentation will provide a brief overview of the methodology, describe demonstration data processed and disseminated by IPUMS NHGIS that cartographers may use to check maps, and a discussion of example maps that use the demonstration data.

Cartographic History II Friday 10:40 am-12:00 pm

Yet Another New Design for an Old Map

Kenneth Field, Esri

In May 2022 the new Elizabeth Line was opened, and added to the latest version of the iconic Tube Map published by Transport for London. But is the map still fit for purpose? Here, I'll show the results of a detailed cartographic editing process that assesses its form and function. I'll also share a major redesign of my 2019 tube map that deals with many of the issues identified as well as taking on board wider comments and critique. In thinking about why cartographers and designers offer alternative, often unrequested, redesigns of such classic maps, we'll consider the crucial question of whether holding on to an iconic brand, with all its flaws, is preferable to letting go of the past and designing a completely new map. Map Design I Thursday 2:00 pm-3:40pm

Your Next Mapping Platform: Use and Contribute to Open-Source Cartography!

Dylan Halpern, University of Chicago :: Center for Spatial Data Science

Matico is a free and open-source cartographic and geospatial data science platform that allows users to manage data, run analysis, build maps, websites, and data visualizations. Developed by Stuart Lynn and Dylan Halpern at UChicago, this project is designed from the ground up as a flexible and modular toolkit for diverse geospatial data and cartographic needs. The value of open-source software is not just in its transparency and free use, but in the community's ability to contribute back to fill gaps, find blind spots, and highlight problems. This session will introduce Matico's interface and map/site builder with a few uses cases, and we will show how to contribute to open-source software through code, design, documentation, and discussion.

PCD Afternoon Session II Wednesday 3:30 pm-5:00 pm

