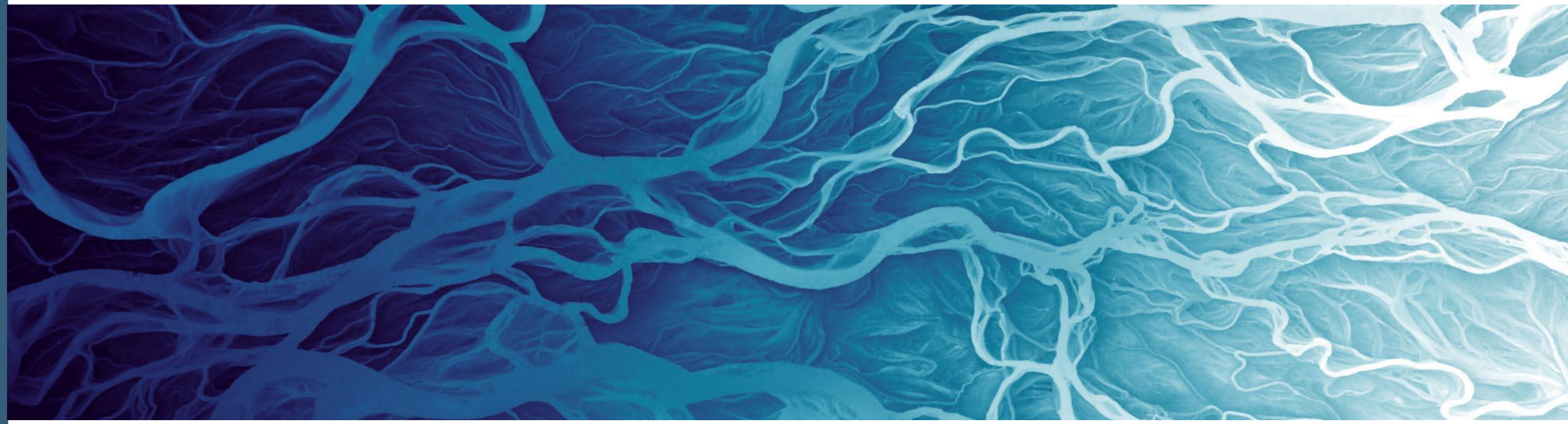
Coordinate - Collaborate – Innovate – Share

Partnership Spotlight:

Alaska Mapping Executive Committee



Leslie Jones, PhD

GIO, State of Alaska

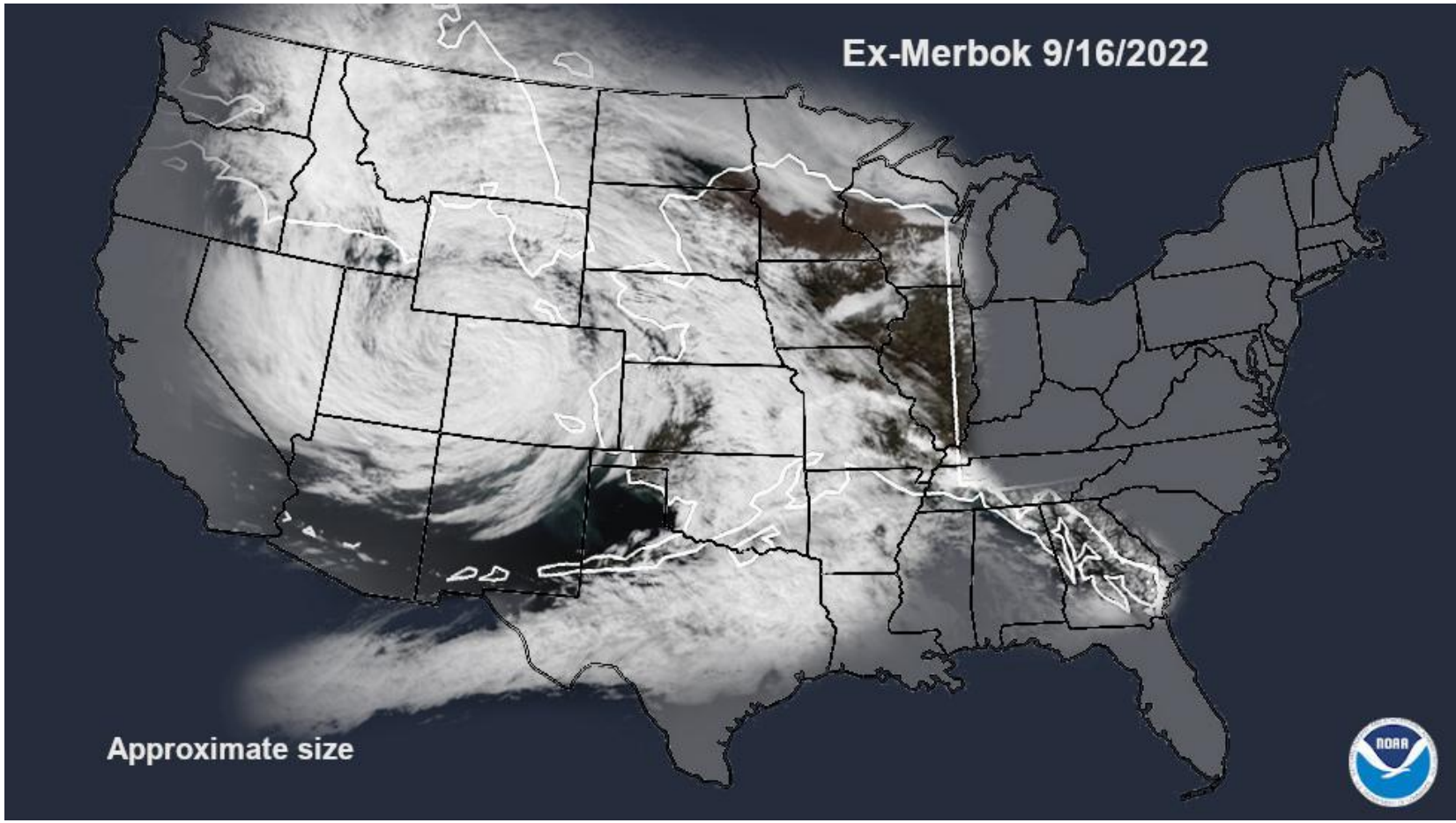
Executive Director, Alaska Geospatial Council

ALASKA MAPPING Executive Committee

Alaska Geospatial Council

Why is Alaska unique?

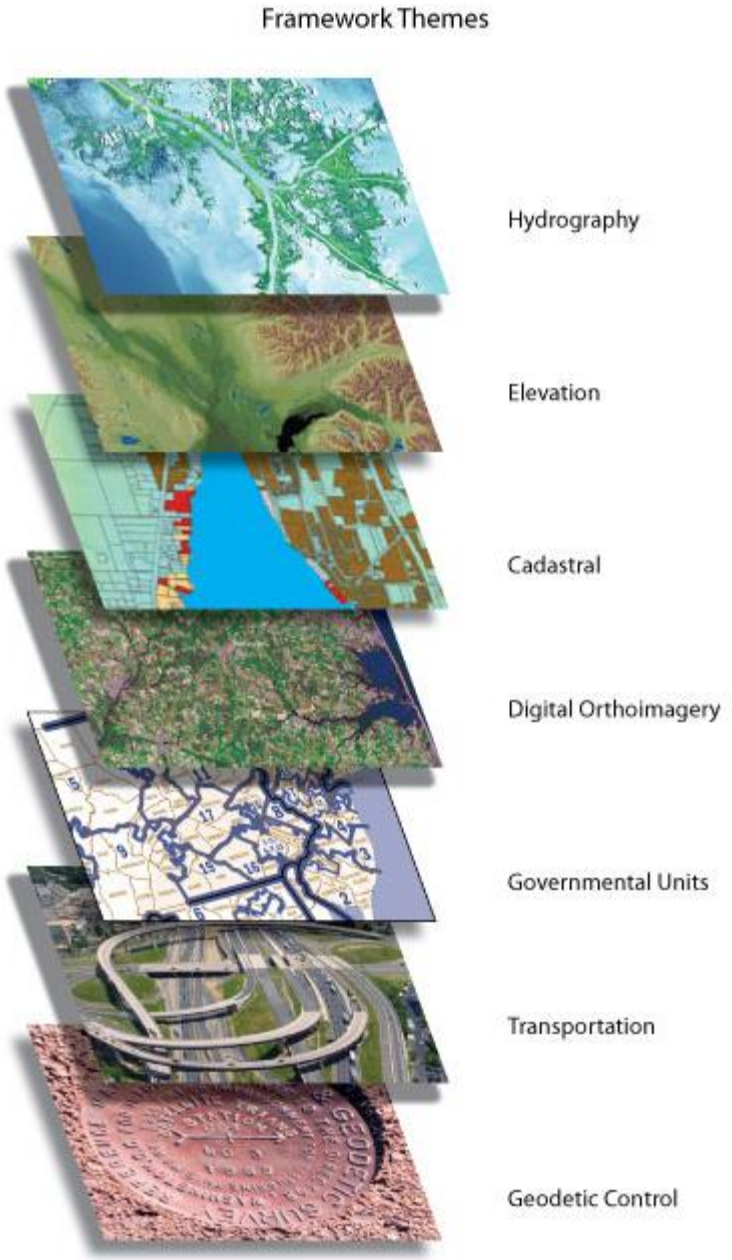
- Size
- Lack of infrastructure
  - 82% communities are inaccessible by roads
- Landownership:
  - 67% lands are federally owned
  - 228 Federally recognized tribes
  - 56% land unorganized borough
  - Discontinuous population centers
- Ecosystem processes
- Natural hazards



Coordinate - Collaborate – Innovate – Share

Filling the Gaps: Statewide Framework Data

- State and National Spatial Data Infrastructures (SDI)



- Address
- Biodiversity and Ecosystems
- Cadastre
- Climate & Weather
- Cultural Resources
- Elevation
- Geodetic Control
- Geology
- Governmental Units
- Imagery
- International Boundaries
- Land Use – Land Cover
- Real Property
- Soils
- Transportation
- Utilities
- Water – Inland
- Water – Oceans & Coasts

The Road to "Alaska Mapping and Modernization"

What was Alaska Mapping Status in 2010?

- 60m elevation grid created primarily in 1960s.
- Statewide topographic map created primarily in 1950s to 1980s (1:63,360-scale).
- State suggested that Alaska aviators were at risk due to inaccurate elevation data used in flight systems.
- Public announcements: "Mars is better mapped than Alaska".

Alaska Map Modernization Begins

Coordinate - Collaborate – Innovate – Share

+ 2011 Congressional Request to OMB

for **increased coordination** in mapping Alaska

- AK Senators Lisa Murkowski and Mark Begich
- Representative Don Young

Congress of the United States
Washington, DC 20510
March 8, 2011

The Honorable Jacob Lew
Director
The Office of Management and Budget
725 17th Street, NW
Washington, DC 20503

Dear Director Lew:

We are writing to you regarding a critical project for our home state that will require the coordination and cooperation of numerous federal agencies.

Alaska is the only state in the United States that has not been digitally mapped on a statewide basis. Most states have completed or are refreshing their existing data. Alaska is lagging behind other states that are in some cases 20 years ahead of Alaska.

Currently, the US Geological Survey (USGS) topographical maps of Alaska are over 40 years old, inaccuracies of up to a quarter mile or more are commonplace and these maps do not meet National Map Accuracy Standards. A reliable base map is critical to control incoming layers of Geographical Information Systems used across all disciplines both public and private. None of the modern disaster preparedness and emergency management systems being deployed elsewhere in the nation will work in Alaska until the need for an accurate base map is resolved. Geospatial information is spread across many levels of government, but lacks means of organization. As a result, the economic benefits, disaster recovery initiatives, and government efficiencies go largely unrealized.

To rectify this, The State of Alaska began a Statewide Digital Mapping Initiative (SDMI) several years ago and has now realized the first collection of elevation data (representing about 10% of the State) to this goal. Our immediate problem is the cost of the initiative and the scope and diversity of federal agencies that need and would benefit from this data collection. The State of Alaska has made a great initial effort to pull together approximately six million in funding to begin this initiative but the overall cost of the project will be closer to $48 million.

Current Alaska mapping priorities include, but are not limited to:

- Aviation safety
- Coastal resources and Alaska Coastal Management Program and spill response shore zone mapping
- Emergency response
- Fire hazard mapping for critical and high value protection areas
- Forest resource mapping in southeast, northern, and south central regions
- Gas line routing and permit support
- Global warming studies and response planning

- Land cover and terrain for major state parks
- Land planning; corridor analysis and statewide land sales program
- Land use permit authorizations with commercial recreation permits
- Oil and gas infrastructure management and monitoring
- Coastal erosion monitoring

In addition to the USGS, the other federal agencies that are stakeholders in this initiative include the Bureau of Land Management, the Bureau of Indian Affairs, the Bureau of Reclamation, the National Park Service and other Department of Interior agencies; the U.S. Forest Service, Natural Resources and Conservation Service, other agencies within the Department of Agriculture; National Oceanic and Atmospheric Administration; the Federal Aviation Administration and other agencies within the Department of Transportation; NorthCom and other Department of Defense interests; various agencies within the Department of Homeland Security; and National Aeronautics and Space Administration, among others.

At the State level the agencies most directly in need of these maps include the Departments of Transportation, Public Safety, Fish and Game, Environmental Conservation, Commerce, Community, and Economic Development, Labor, Health and Social Services, and any other department using location based services to meet its mission. The State of Alaska has already provided six million for its share of this data collection and has pledged matching funds representing its 27% interest in State of Alaska lands under state control.

The only way we will coordinate the efforts of all federal agencies is to have the White House convene a meeting of all federal stakeholders and develop a strategy by which each agency contributes a portion of the overall cost. No single agency has sufficient funds to finance this program. Quite simply, we need the leadership and support of the White House to develop a plan that provides for the funding needed for this initiative and with a data set that meets the requirements of every federal agency.

We urge you to convene a meeting of representatives of every affected agency at the White House. We hope that you will be able to coordinate the efforts and assist in identifying discretionary funding within each agency that can help cover the cost of this critical initiative. We thank you for your attention to this issue and hope that we can work together for a successful outcome.

Sincerely,

Senator Lisa Murkowski | Senator Mark Begich | Congressman Don Young

cc: Cecilia Muñoz, Director, White House Office of Intergovernmental Affairs
Letitia Long, Director, National Geospatial-Intelligence Agency
The Honorable Marcia McNutt, Director, U.S. Geological Survey

AMEC: Alaska Mapping Executive Committee

- **June 2012**: An Alaska Mapping Roundtable held in Washington, D.C. to explore the need to modernize Alaska mapping.
- **November 2012**: The Alaska Mapping Executive Committee (AMEC) was formed.
- AMEC (Executive leadership)meets annually to coordinate planning and funding of priorities.

Congressional support paramount to AMEC success

Annual Appropriations to USGS for "Alaska Mapping and Modernization"

AMEC: Guiding Principles

Coordinate - Collaborate – Innovate – Share

AMEC coordinates among Federal agencies and the Alaska State Government to oversee the Federal role in mapping Alaska.

The Alaska Geospatial Council (AGC), administered by State of Alaska, supports AMEC's vision with regional coordination.

Guiding principles for the AMEC include:

- Enterprise approach to **increase efficiencies in data acquisition and distribution**.
- Federal agencies and State of Alaska **coordinate funding to meet common needs**.
- Monitor Alaska mapping progress, **identify gaps, and priorities for completing** critical themes.
- **Formulate a budget strategy** to address the critical geospatial data needs of Federal and State.
- Advise on **national data standards** and requirements for Alaska.

Coordinate - Collaborate – Innovate – Share

AMEC Monitored Mapping Themes

18-Month Tactical Plan

Tracked Mapping Themes

AMEC Technical Subcommittee(s) meet regularly in support of 18-month tactical plan

Theme	Status	Lead Agency
5m statewide elevation	**100% (first cycle)**	USGS
US Topo Maps	**100% (first cycle)**	USGS
GRAV-D	**100% (first cycle)**	NOAA
Shoreline mapping	71%	NOAA
Terrestrial Hydrography	46%	USGS
Satellite Imagery base	**100% (first cycle)**	USGS
Coastal bathymetry/topography	Strategic and Implementation plans approved – collections ongoing	NOAA
Wetlands	89%	US FWS
Transportation	**100% (first cycle)**	State of Alaska

Additional themes of high interest for future AMEC adoption include geophysical data, statewide vegetation mapping, targeted high-resolution elevation (lidar), periodic imagery refresh

Coordinate - Collaborate – Innovate – Share

Coordinated Approach to Mapping Alaska

- State Government
- Federal Government
- Local Government
- Tribal Councils
- Regional Government and Councils
- Academia-Education
- Private Industry
- Professional Associations
- Nonprofits
- Public and Private Utilities

Alaska Geospatial Council

2006

Inception of *Geospatial Information Coalition:* Memorandum of Agreement (MOA) between *Department of Natural Resources and Department of Military and Veterans Affairs* - signed by Governor Frank Murkowski to support geospatial coordination

2007

Geospatial Information Coalition becomes the *Statewide Digital Mapping Initiative* (SDMI) - renewed MOA signed by Governor Sarah Palin

2010

Start of the statewide elevation (IfSAR) mapping modernization initiative

2011

First appropriation of Federal funds to USGS to support the modernization of critical map layers for Alaska

2012

- Strategic and Business Plans created to improve geospatial coordination in Alaska
- *Alaska Mapping Executive Committee* (AMEC) created to facilitate Federal and State coordination in support of Alaska mapping modernization

2014

- 1st statewide digital imagery mosaic published (2.5 meter resolution)
- *SDMI* is rebranded to *Alaska Geospatial Council* (AGC) - renewed MOA signed by Governor Sean Parnell

2015

- 50% milestone for statewide elevation (IfSAR) data
- Renewed MOA for *Alaska Geospatial Council*- signed by Governor Bill Walker

2018

- Statewide Hydrography and Coastal Mapping become AMEC tracked themes

2020

- 2nd statewide digital imagery mosaic published (50 cm resolution)
- 100% completion of the 1st statewide elevation dataset

2021

Statewide National Wetlands Inventory (NWI) Mapping becomes AMEC tracked theme

ALASKA MAPPING Executive Committee

AMEC Executive Membership

National Oceanic and Atmospheric Administration Co-Chair

- Bureau of Indian Affairs
- Bureau of Land Management
- Bureau of Ocean Energy Management
- Department of Defense
- Department of the Interior
- Environmental Protection Agency
- Federal Aviation Administration
- Federal Emergency Management Agency
- National Geospatial Intelligence Agency

U.S. Geological Survey Co-Chair

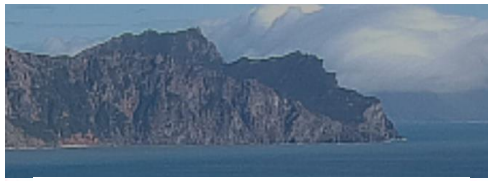
- National Park Service
- National Reconnaissance Office
- Natural Resources Conservation Service
- Office of Management and Budget
- State of Alaska
- U.S. Army Corps of Engineers
- U.S. Fish and Wildlife Service
- U.S. Forest Service
- U.S. Senate

Coordinate - Collaborate – Innovate – Share

Alaska Geospatial Council

Independent Advisory Council
administered by Alaska Geospatial Office

Pathway for Public and Private Engagement



UAS/Drone Policy Working Group

Learn More

Alaska Geospatial Council

Coordinating across agencies to provide public access to geospatial data and maps critical to decision-making
Supporting economic development and the public safety and well-being of Alaskans

Coastal & Ocean Working Group

Learn More

Wetlands Working Group

Learn More

Geodetic Working Group

Learn More

Vegetation Working Group

Learn More

Enterprise GIS Working Group

Learn More

Transportation Working Group

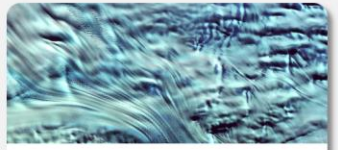
Learn More

Cadastral Working Group

Learn More

Imagery and Elevation Working Group

Learn More



Hydrography Working Group

Learn More

Coordinate - Collaborate – Innovate – Share

Alaska Geospatial Council

Mission

Coordinate the development and management of geographic information in Alaska

COORDINATION

1 Build Collaborative Relationships

Evaluate needs, priorities, reduce duplication of efforts, leverage funding, share data.

DATA SHARING

2 Shared Geospatial Framework

Authoritative data management, streamline data access and inter-agency sharing.

GOVERNANCE

3 Establish Governance

Establish and adopt horizontal (inter-agency) and vertical (within agency) governance.

ANALYTICS

4 Provide Access to Self-service Tools

Provide appropriate access to geospatial data, maps and applications to Alaskans.

CULTURE

5 Enhance Capabilities and Literacy

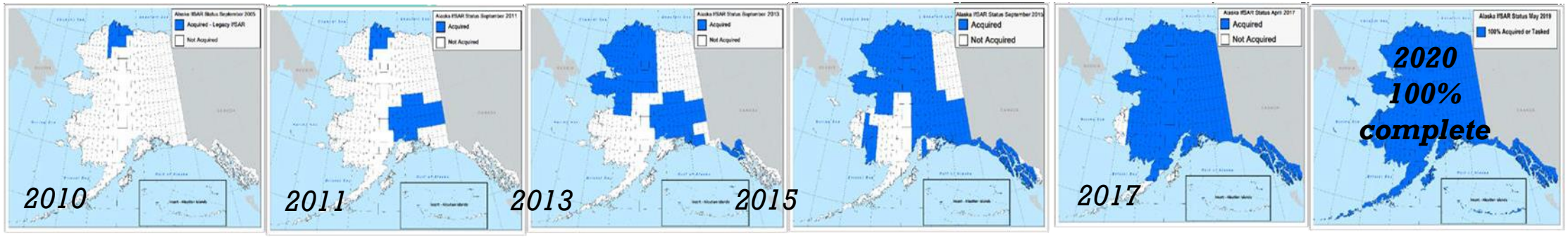
Provide access to training, promote innovation and enhance data literacy.

Value of AMEC and AGC partnership

- Co-production
  - Planning and prioritization resulting in reduced duplication
  - Shared costs and contracting towards statewide mapping
- Jointly informed
  - Data standards and requirements
  - Data distribution systems
  - Governance and policy
- Sustained investments in coordination
  - Emergency preparedness

Elevation "Tracked" Data Theme

First statewide elevation product complete in 2020



10-year / $68M project
Cost-shared between federal agencies and SOA

3DEP Baseline	Next Gen 3DEP
IfSAR →	LiDAR

Coordinate - Collaborate – Innovate – Share

1st statewide elevation product (IfSAR)

10-year / $68M project
Cost-shared between federal agencies and SOA

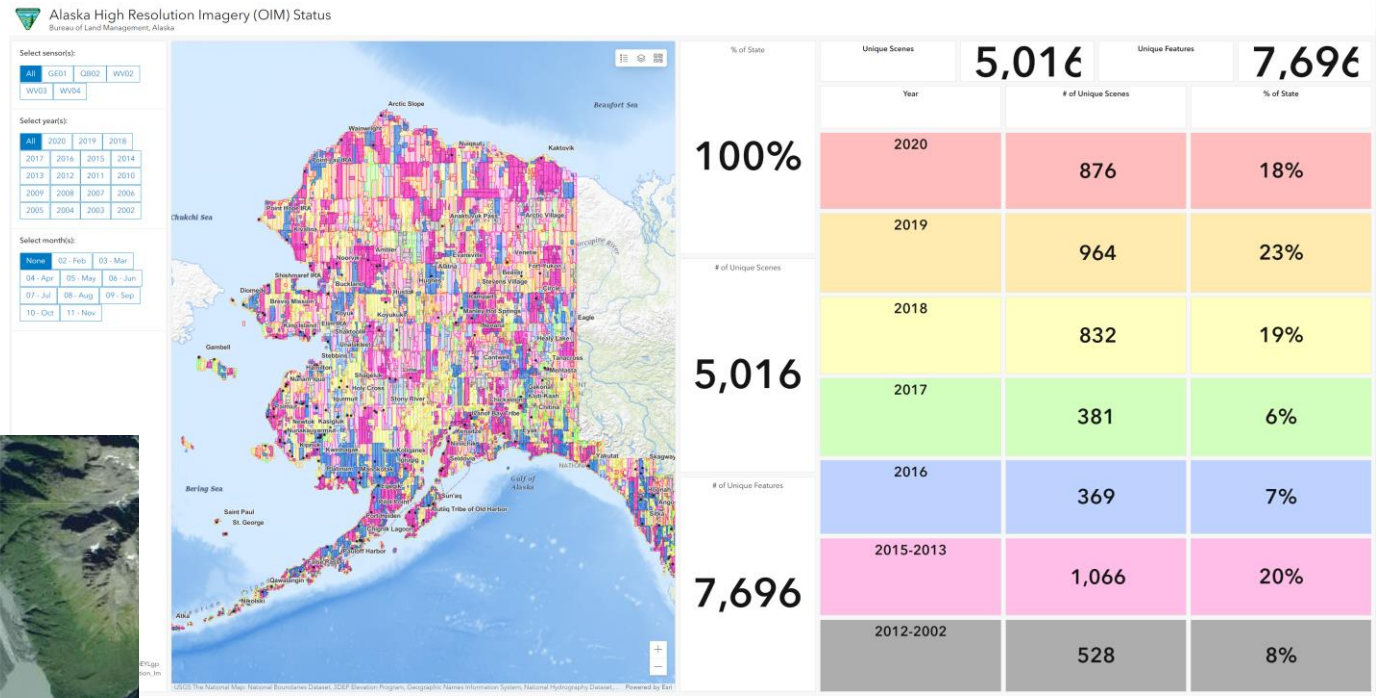
Agency	FY10	FY11	FY12	FY13	FY14	FY15	FY16	FY17	FY18	FY19	Total
BLM	216,230	20,000	0	141,139	262,000	2,112,149	465,837	50,000	0		3,267,355
FWS	0	250,000	300,000	0	0	250,000	150,000	0	0		950,000
NGA	2,399,895	0	0	0	0	0	0	0	0		2,399,895
NPS	98,091	147,143	178,533	30,000	0	931,581	690,000	975,000	0		3,050,348
NRCS	98,090	227,287	728,095	450,000	450,000	350,000	700,000	700,000	450,000		4,153,472
USFS	0	0	354,310	50,000	547,292	383,127	302,113	150,000	0		1,786,842
USGS	999,995	870,276	3,066,402	3,608,512	2,893,166	3,646,683	4,777,034	7,212,645	6,663,462	5,323,802	39,061,977
FED	3,812,301	1,514,706	4,627,340	4,279,651	4,152,458	7,673,540	7,084,984	9,087,645	7,113,462	5,323,802	$54,669,889
SOA	1,874,918	0	4,998,388	2,550,000	2,617,285	0	1,300,000	0	0	0	$13,340,591
Tot(Yr)	5,687,219	1,514,706	9,625,728	6,829,651	6,769,743	7,673,540	8,384,984	9,087,645	7,113,462	5,323,802	$68,010,480

Coordinate - Collaborate – Innovate – Share

Statewide Imagery Mosaic

AMEC coordinated

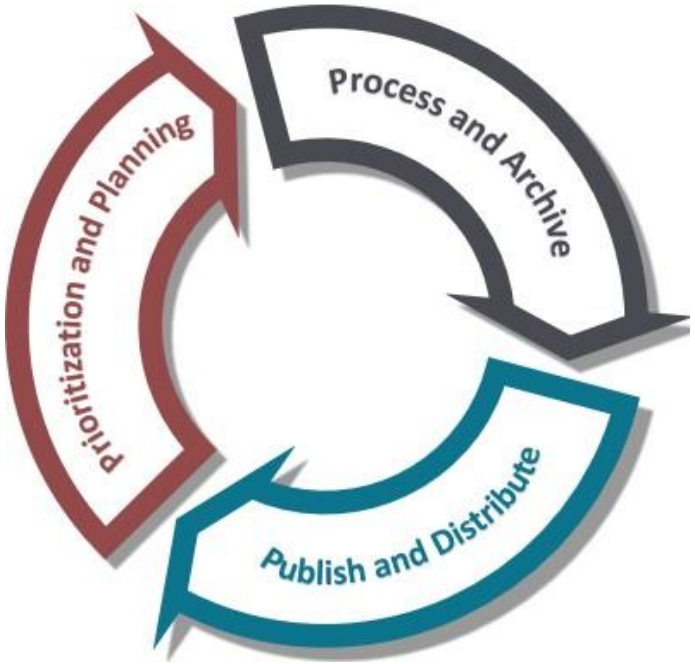
- USGS submits requirements to CAC
- NRO MAXAR satellite license
- License administered by State



Coordinate - Collaborate – Innovate – Share

Imagery and Elevation Data Distribution

- Requirement for infrastructure to be in Alaska
- Portal Manager cost-shared between USGS-SOA-USFS
- Administers license agreements



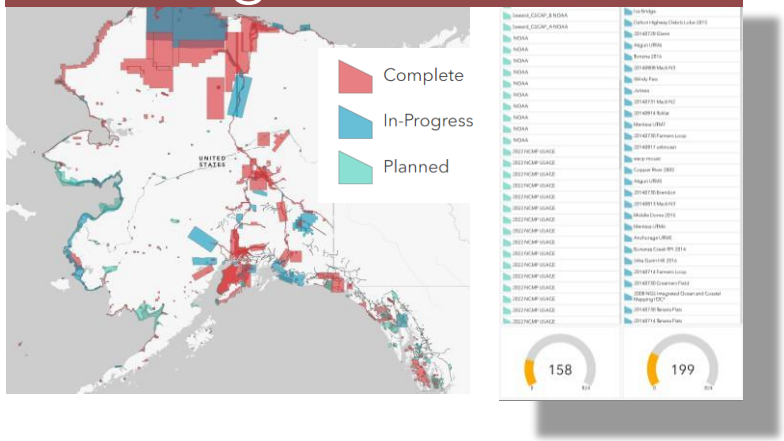
Coordination

Value Added Delivery

(BDL) Best Data Layer

Alaska Geospatial Council

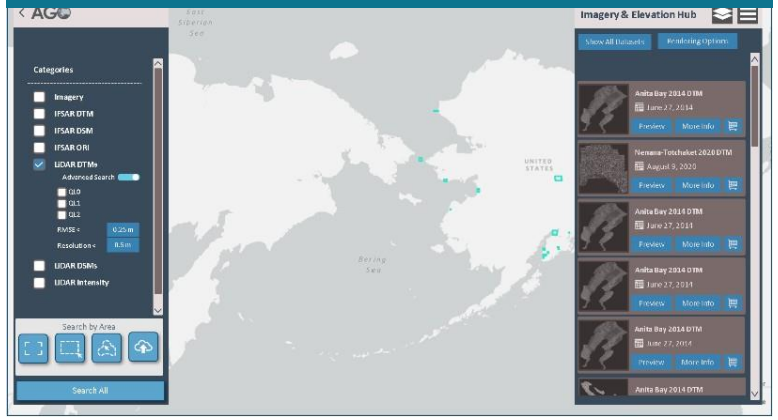
Planning and Prioritization



Process and Archive

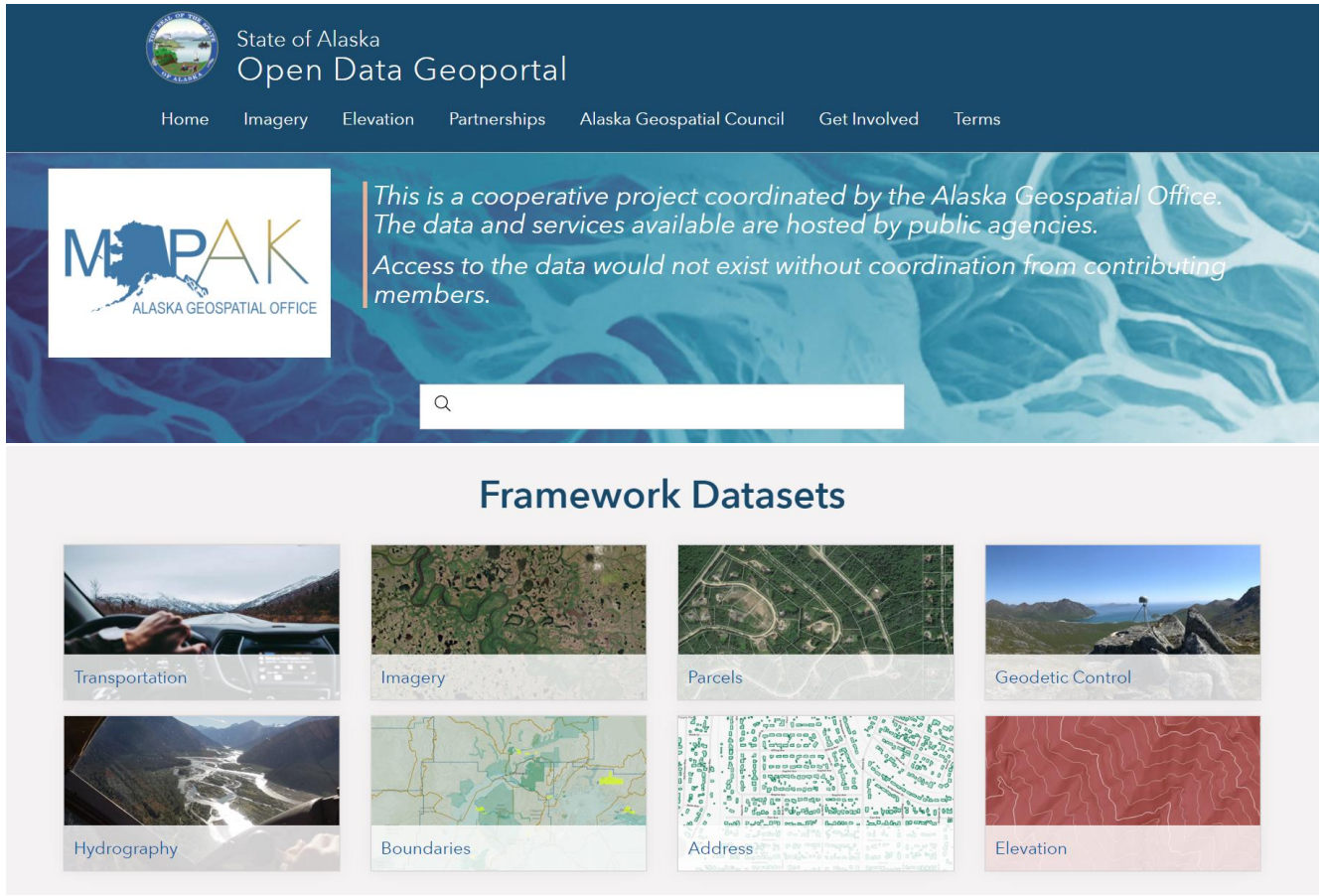
MAPAK
ALASKA GEOSPATIAL OFFICE

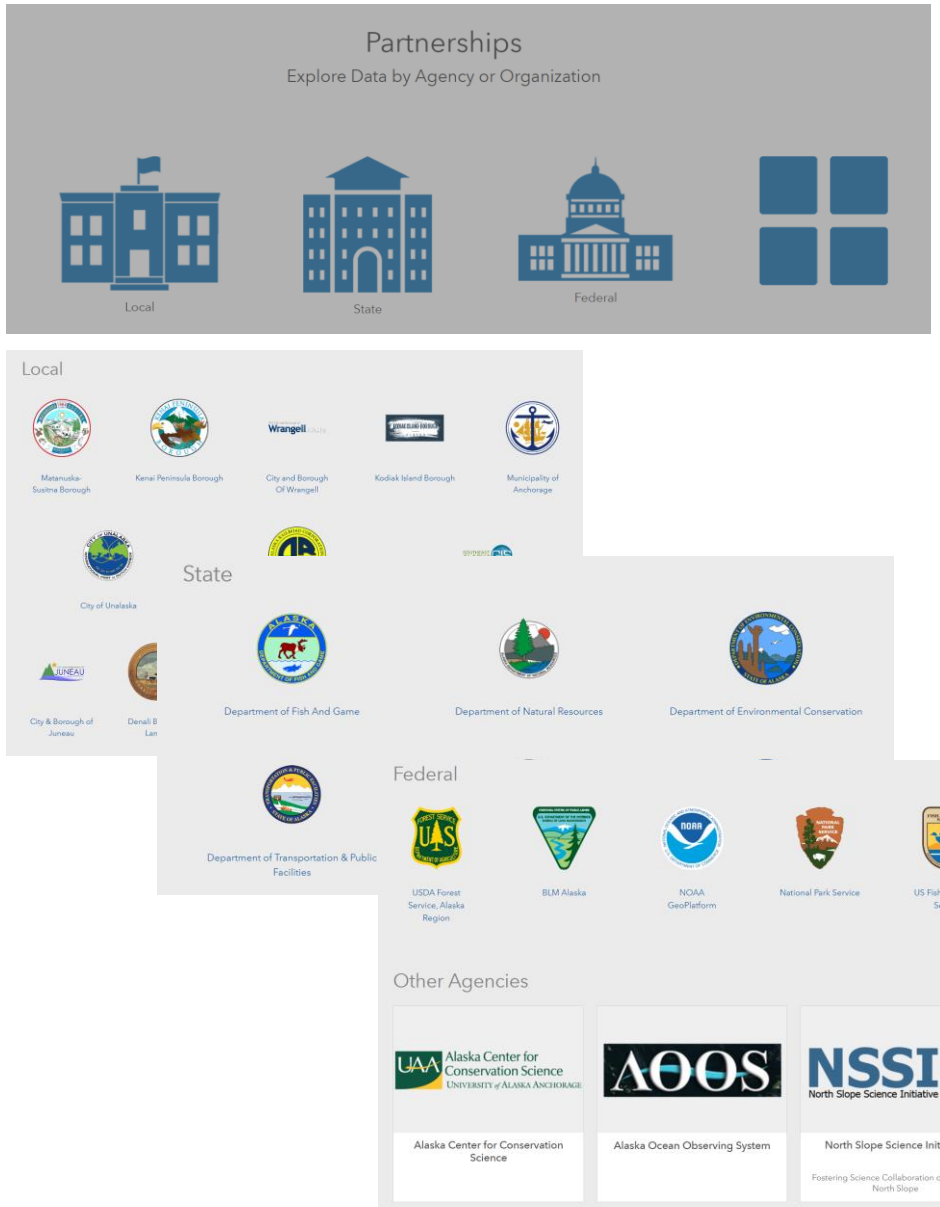
Publish and Distribute



Coordinate - Collaborate – Innovate – Share

Alaska's Data Portals: public access of resources





+ State Geoportal

+ Imagery and Elevation portals

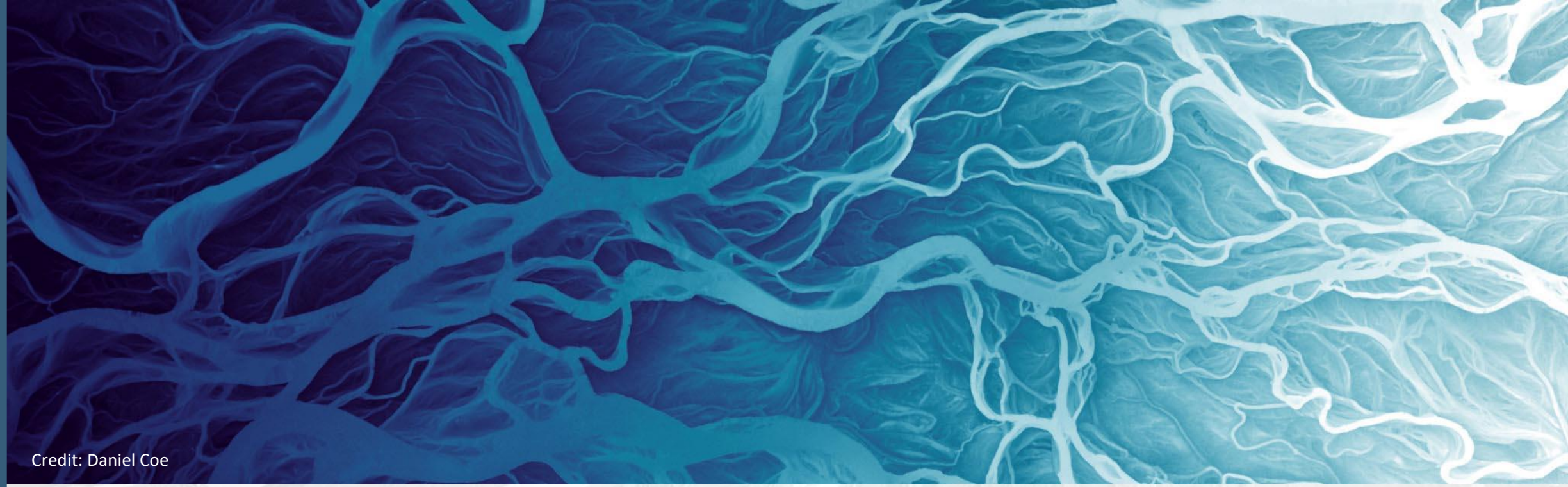
Coordinate - Collaborate – Innovate – Share

Opportunities ahead

MAPAK
ALASKA GEOSPATIAL OFFICE

- State of Alaska non-reverting "Fund"
  - ✓ Cross fiscal years - aggregate funds for large projects
- Implement processes to transfer funds across agencies
- Reduce duplication in data distribution
- Efficiencies in Earth Observation contracts for Alaska
- Gaps in critical statewide datasets
  - ✓ Local jurisdiction and underserved communities
  - ✓ Governance Policy
  - ✓ Funding Policy

Coordinate - Collaborate – Innovate – Share



Credit: Daniel Coe

ALASKA MAPPING

Executive Committee

Alaska Geospatial Council