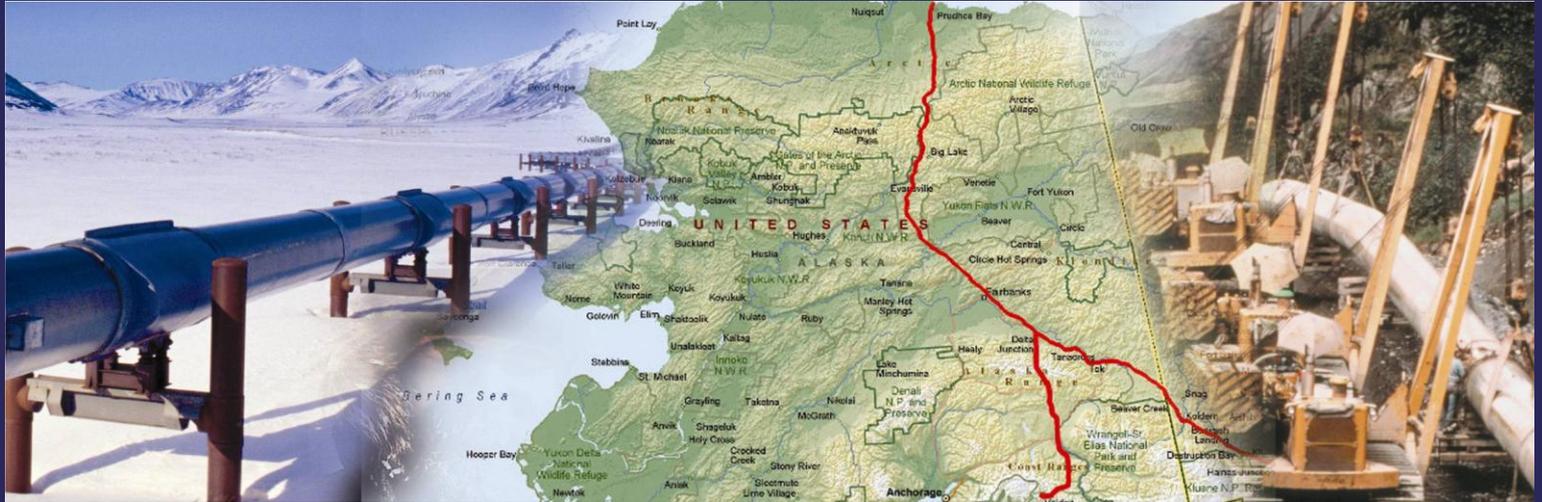


Alaska Natural Gas Transportation Projects: A Federal Perspective



Ms. Christa Gunn
Environmental Engineer
Office of the Federal Coordinator for
Alaska Natural Gas Transportation Projects
February 9, 2010

Pipeline Projects

❖ Past

- ❖ ANGTA: pre-build lines into lower 48
- ❖ Yukon Pacific: LNG option

❖ Present

- ❖ ANGPA: Denali and Alaska Pipeline Project
- ❖ In-State Projects: ASAP and ANGDA

ANGTA



In-State Pipeline Projects

❖ ANGDA

- ❖ US Army Corps of Engineers (USACE) is Environmental Impact Statement (EIS) lead
- ❖ Conducted scoping meetings in Feb 2009

❖ ASAP

- ❖ USACE is EIS lead
- ❖ Conducting an assessment of route options
- ❖ Conducted scoping meetings in Dec 2009

North Slope to Alberta and Beyond Pipeline Proposals

❖ Denali

- ❖ Pre-filed with the Federal Energy Regulatory Commission (FERC)
- ❖ Filing Open Season package Apr 2010
- ❖ Offering route from North Slope to Alberta



❖ Alaska Pipeline Project

- ❖ AGIA licensee
- ❖ Pre-filed with FERC
- ❖ Filed Open Season package Jan 2010
- ❖ Offering route from North Slope to Alberta or Valdez



Natural Gas – Clean and Efficient

- ❖ Contains low levels of pollutants and emits less carbon relative to other fossil fuels
- ❖ High efficiency, little fuel is wasted from the point of production through consumption
- ❖ Reduce greenhouse gases and climate change impacts
- ❖ Transition higher emission power plants into cleaner sources
- ❖ Direct use of natural gas results in 37-48% less carbon dioxide

What's Known

- ❖ Competition to build this project
- ❖ Economic benefits huge for America, especially Alaska
 - ❖ Thousands of jobs on the table
 - ❖ State revenue source
 - ❖ Privately financed
- ❖ Long term market for all domestic natural gas
- ❖ Multiple environmental benefits
- ❖ Infrastructure – minimize land use impact
 - ❖ Current route utilizes existing Rights-of-Way
 - ❖ Upgrade or construct what is needed
- ❖ Achievable project

OFC Roles and Responsibilities

- ❖ Coordination
- ❖ Compliance
- ❖ Information Source

Coordination

- ❖ Federal Agencies and the Administration
 - ❖ Regular Interagency Meetings
 - ❖ Summer Visits and Briefings
- ❖ State of Alaska
 - ❖ Weekly Meetings with AGIA and Denali Permitting Staff
 - ❖ Surveillance and Monitoring Agreement
- ❖ Canada
 - ❖ Meetings with Canadian Ministers and Senior Staff
 - ❖ Meetings with U.S. and Canadian Ambassadors
- ❖ Applicants
 - ❖ Level playing field

U.S. Federal Agencies

- **Office of Federal Coordinator**
- **Council on Environmental Quality**
- **Federal Energy Regulatory Commission**
- **Department of Interior**
 - BLM
 - BIA
 - FWS
 - MMS
 - NPS
 - USGS
- **Department of Energy**
- **Department of Transportation**
 - FHWA
 - PHMSA
 - FAA
- **Department of Treasury**
- **Department of State**
- **Department of Defense**
 - USACE
- **Department of Commerce**
 - NOAA
 - NMFS
- **Department of Homeland Security**
 - CBP
 - TSA
 - USCG
- **Department of Labor**
- **Environmental Protection Agency**
- **Department of Agriculture**
- **Advisory Council on Historic Preservation**
- **Department of Justice**
- **Federal Communications Commission**

Compliance/Information Source

- ❖ Compliance

- ❖ Ensure agencies meet timelines

- ❖ Ensure unnecessary conditions are not imposed that would delay the project

- ❖ Information

- ❖ Source of timely, reliable, comprehensive project information

OFC Initiatives

- ❖ Gap Analysis
- ❖ Technical Team
 - ❖ Share engineering information and expertise
 - ❖ Identify project technical issues
- ❖ Senior Intergovernmental Management Team and Interagency Meetings
- ❖ Consolidated Implementation Plans
- ❖ Permit/Authorization Matrix
- ❖ Geographic Information System (GIS) Prototype

Environmental Issues

- ❖ Environmental impacts
- ❖ Impacts to local communities and subsistence resources
- ❖ Effects of climate change
- ❖ Cumulative effects
- ❖ Critical habitat



Environmental Issues

- ❖ Public trust resources, such as water, fish, and wildlife
- ❖ Spill response capabilities
- ❖ Human health impacts
- ❖ Best Management Practices



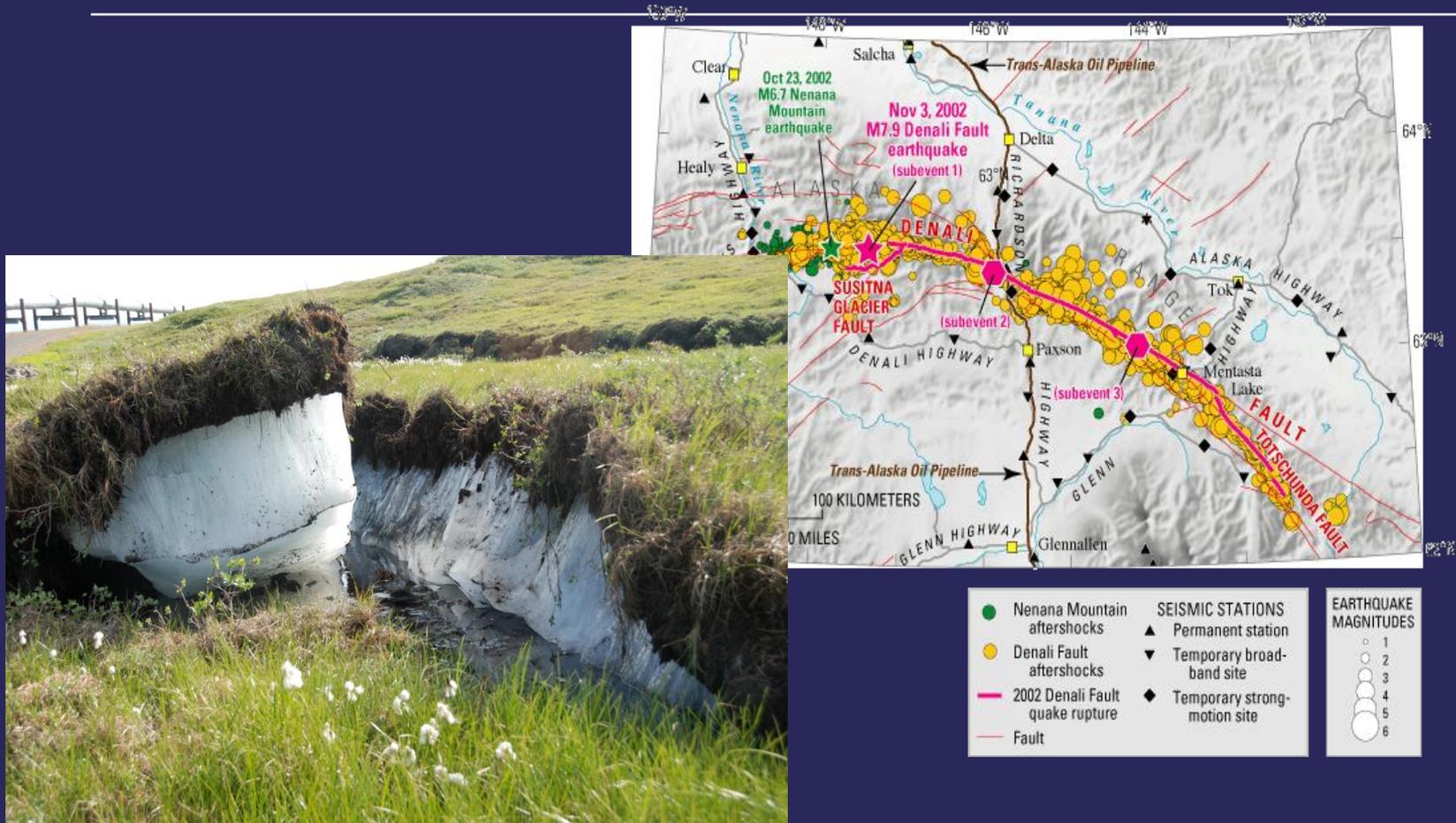
Key to Success

- ❖ Full and open public participation, review and comment in all project stages, including planning, construction, operation and decommissioning
- ❖ National Environmental Policy Act (NEPA) process and development of an EIS
 - ❖ FERC lead
- ❖ Government-to-Government Consultation
 - ❖ Early and often
- ❖ Open Season Process

FERC Process

- ❖ Applicant files an open season plan with the FERC
- ❖ Filing goes through a 30-day, third party review allowing for public comment
- ❖ Applicant has 15 days to respond to third party comments followed by a 15-day FERC review
- ❖ A 30-day period commences wherein applicant finalizes open season plan and provides to public
- ❖ Open season commences for at least 90 days

GIS Prototype



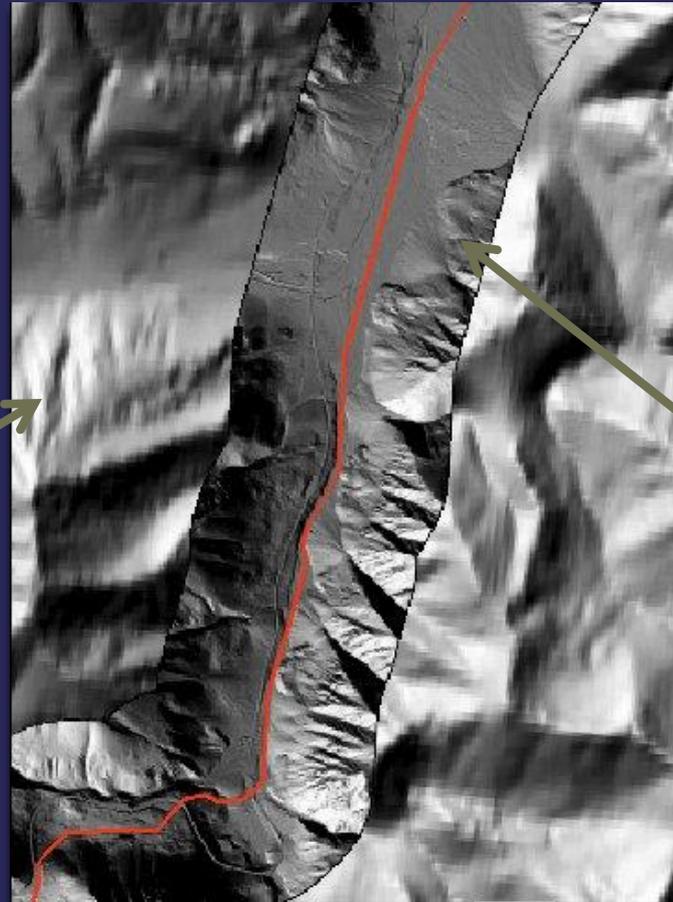
OFC GIS Prototype

❖ Key Points

- ❖ Authoritative base map and data integration
- ❖ Improvement in data quality and accuracy
- ❖ Transparent and enhanced access to old and new quality data



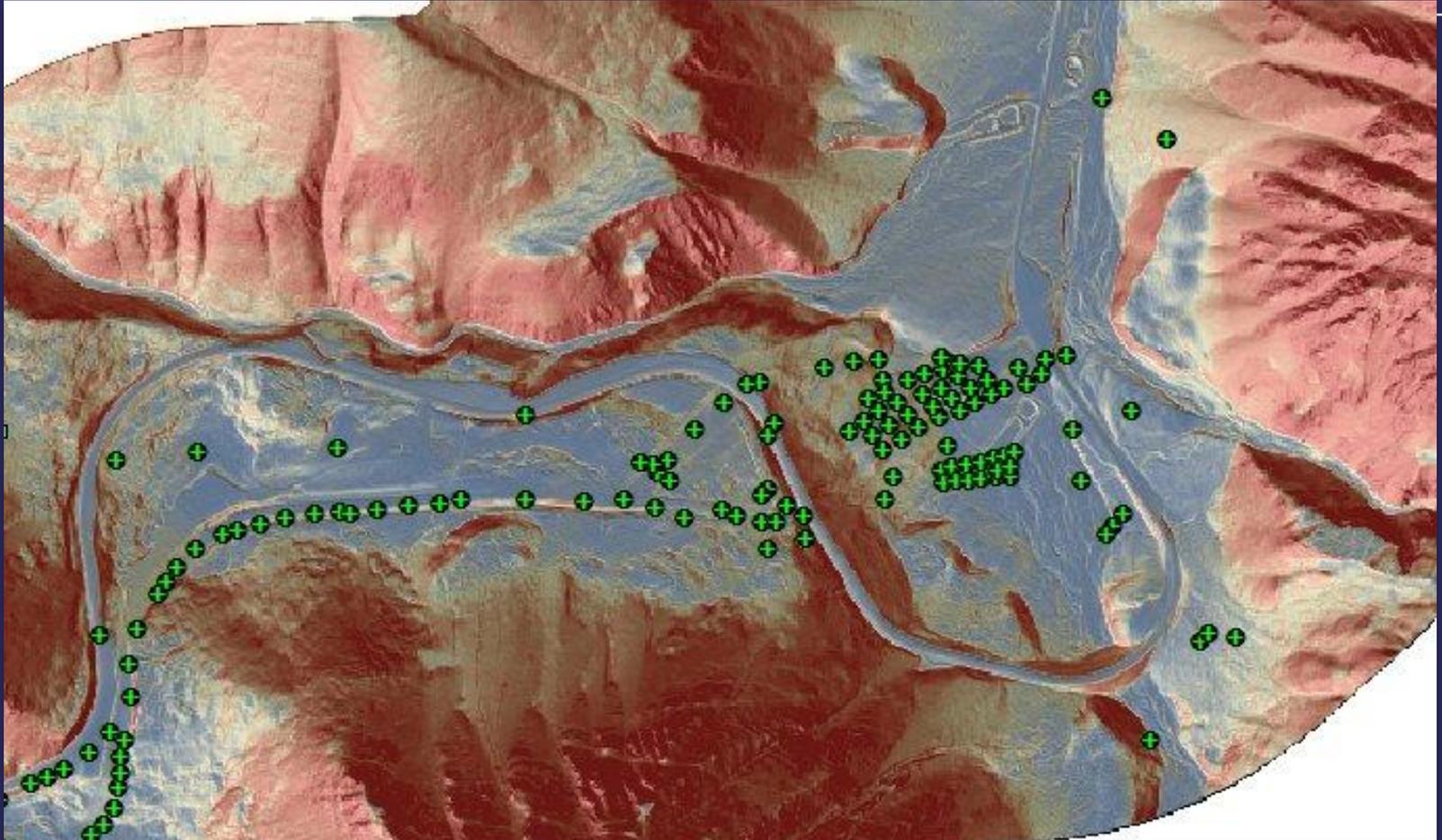
Improvement in Data Quality-Resolution



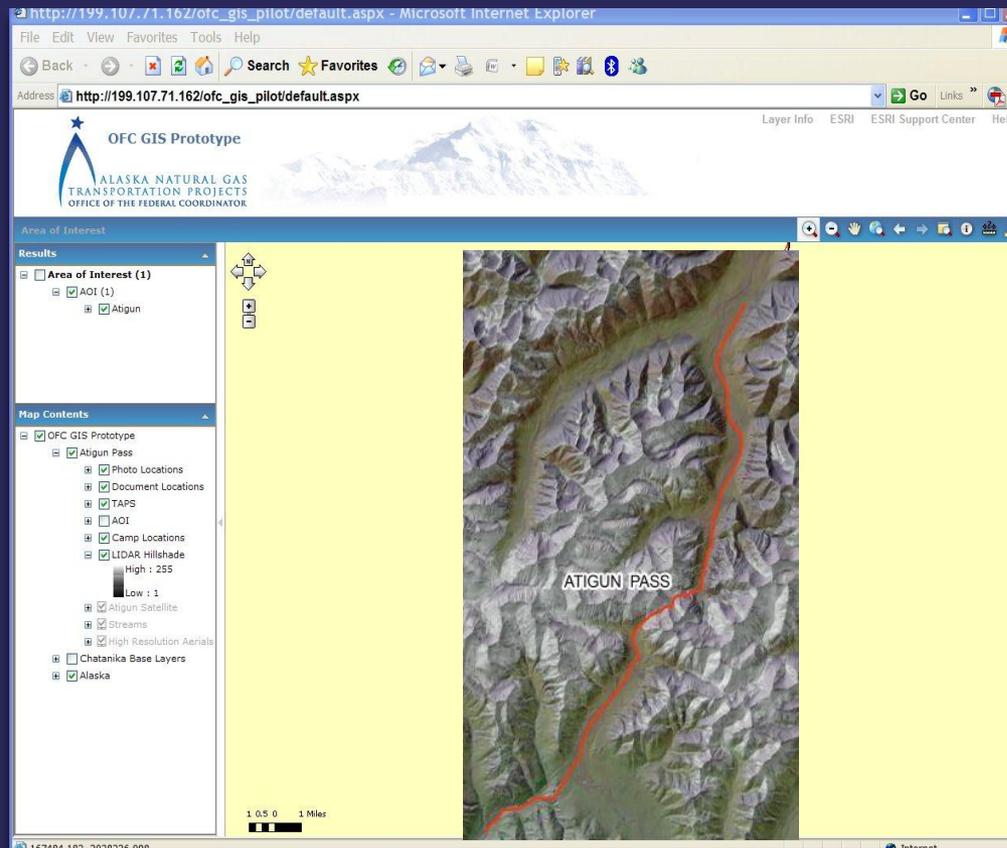
Existing data

LiDAR data

LiDAR Derivative Analysis with GIS-Slope



Web Access to Data-Transparent Access



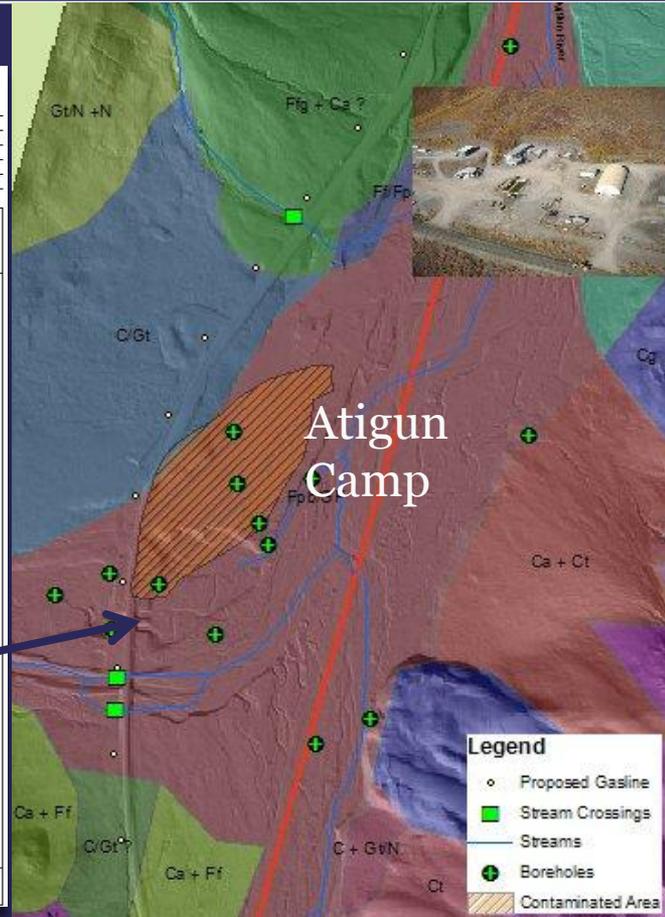
Data Integration-Putting the Pieces Together

Baker **LOG OF BORING: N70-93**

PROJECT: OFC Atigun Pass SHEET: 1 OF 2
 LATITUDE: 68.19296 LONGITUDE: -145.401 GEO. DATUM: N/A START: 11/28/1980 END: 11/28/1980
 GROUND ELEV.: 3301.4 ft ELEV. DATUM: N/A LOGGER: Steven Clark
 TIME: DATE: DESCRIPTION: DRILLER: Feldman; Nichols
 EQUIPMENT: 630 Mobile B-61 w/ Flextrack DRILL CO.: Bearfoot
 METHOD DETAILS: 10 in. OD HSA, 3.0 in. OD spoon, 2.0 in. OD spoon, Hammer size unknown

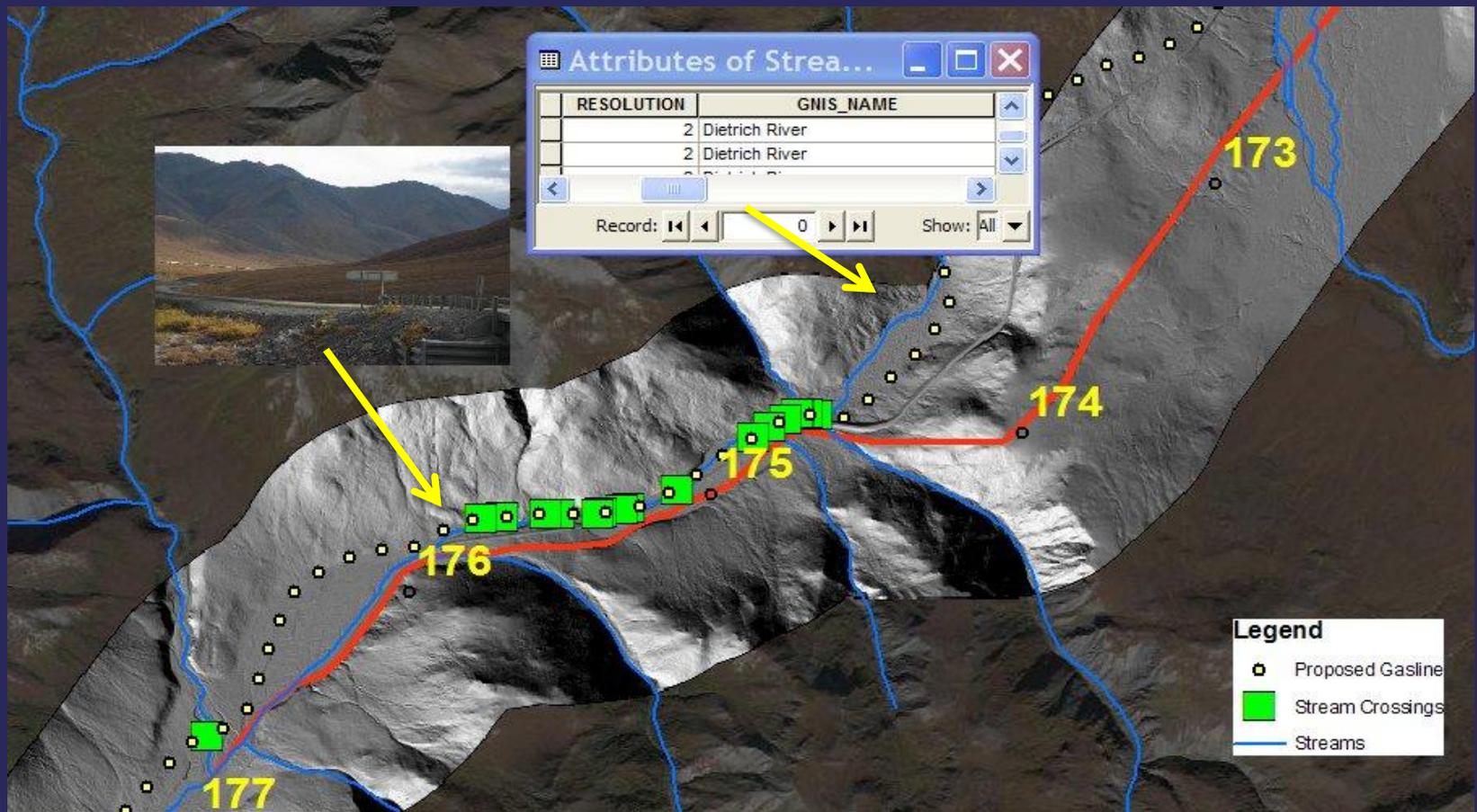
SAMPLE DEPTH (FT)	SOIL TYPE	RECOVERY %	TEST RESULTS	STRATA	DEPTH (FT)	DESCRIPTION	REMARKS
0.0	G3-1	100%	6		0	PEAT, Frozen; individual ice inclusions (VX); 30% visible excess ice.	
0.5	G3-2	100%	11		0.5' - EL 3300.9	SILT, with sand and gravel; gray and brown. Frozen; well bonded; random ice formations along with ice crystals in pore spaces (VX); 15% visible excess ice; trace organic inclusions.	
1.0	G3-3	100%	6		1.0' - EL 3300.4	SILT, with sand and gravel; gray and brown. Frozen; well bonded; random ice formations along with ice crystals in pore spaces (VX); 10% visible excess ice; trace organic inclusions.	
2.5	G3-4	100%	7		4.0' - EL 3297.4	SILT, with sand and gravel; gray and brown. Frozen; well bonded; random ice formations along with ice crystals in pore spaces (VX); 30% visible excess ice; trace organic inclusions.	
4.0	A		6		4.5' - EL 3296.9	SILT, with sand and gravel; gray, subrounded to angular. Local iron staining. Frozen; well bonded; massive ice (ICE); 60% visible excess ice; hard, clear, white, trace silt inclusions, 10.5' - EL 3290.9	
5.0	G3-6	100%	14		10.5' - EL 3290.9	GRAVEL SANDY, with silt/clay; gray, subrounded to angular. Local iron staining. Frozen; well bonded; individual ice inclusions (VX); 10% visible excess ice.	
6.5	A		26		20.0' - EL 3281.4	GRAVEL SANDY, Frozen; well bonded; individual ice inclusions (VX); 20% visible excess ice.	
7.5	A		35		25.0' - EL 3278.4	SHALE, and siltstone; gray; moderately weathered. Frozen; random ice formations along with ice crystals in pore spaces (VX); 40% visible excess ice.	
9.0	A		35		27.0' - EL 3274.4	SHALE, and siltstone; gray; moderately weathered. Frozen; no visible ice segregation (Nbn); 0% visible excess ice.	
10.0	G3-7	100%	140.5				
11.5	G3-8	100%	1000.1				
12.5	A		36				
13.5	G3-9	100%	56				
14.0	A		300.1				
15.0	G3-10	100%	300.1				
15.5	A		300.1				
20.0	G3-11	100%	61				
21.5	A		80				
25.0	G3-12	100%	36				
25.5	A		500.2				

Boring backfill data not available.



- Incorporate photos and data
- Soils information from Northwest data
- Incorporate photos and data
- Soils information from Northwest data
- Borehole logs and data from Northwest data
- Stream crossing data

Data Integration-Accessing Multiple Information





Atigun Fly-Through

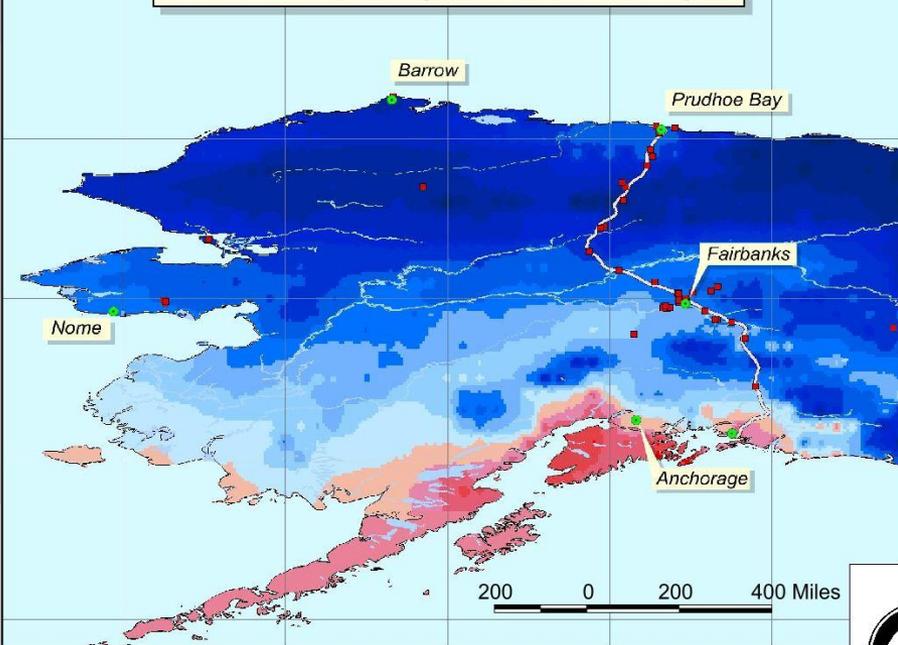
Key Findings

- ❖ Authoritative basemap allows data to be integrated for multiple agencies and users
 - ❖ Wetlands mitigation
 - ❖ Habitat analysis
 - ❖ Cultural resource mapping
 - ❖ Geotechnical data integration
 - ❖ Infrastructure planning and analysis

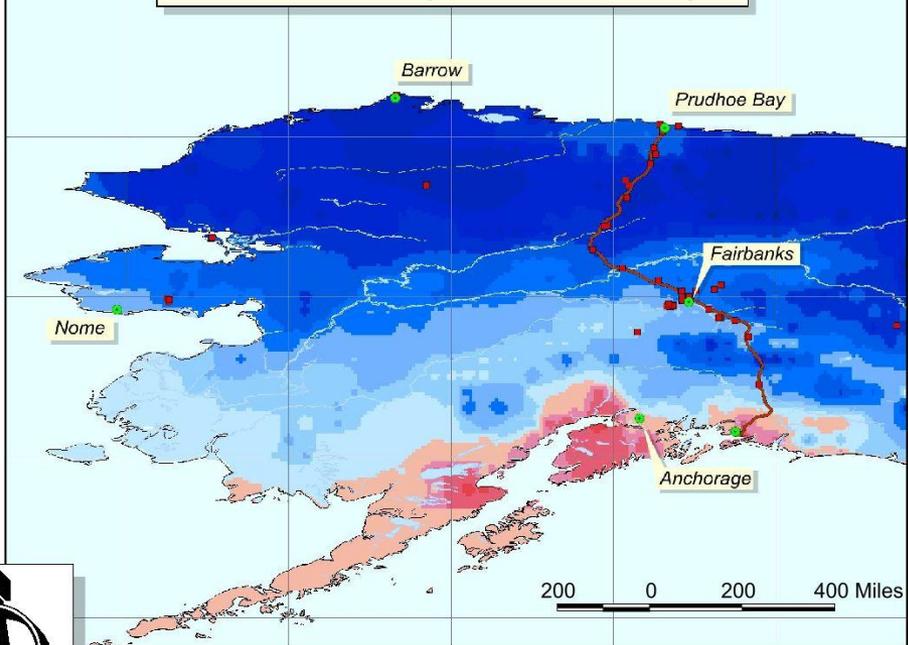
Key Findings

- ❖ Web interface provides transparent access to data
 - ❖ Browser is read only for a wide public audience
 - ❖ Web service to a selective audience and integration of ArcGIS layers
- ❖ LIDAR coupled with good imagery provides a value-added database
 - ❖ Information such as slope and elevation enhances agency decision-making, permitting and engineering

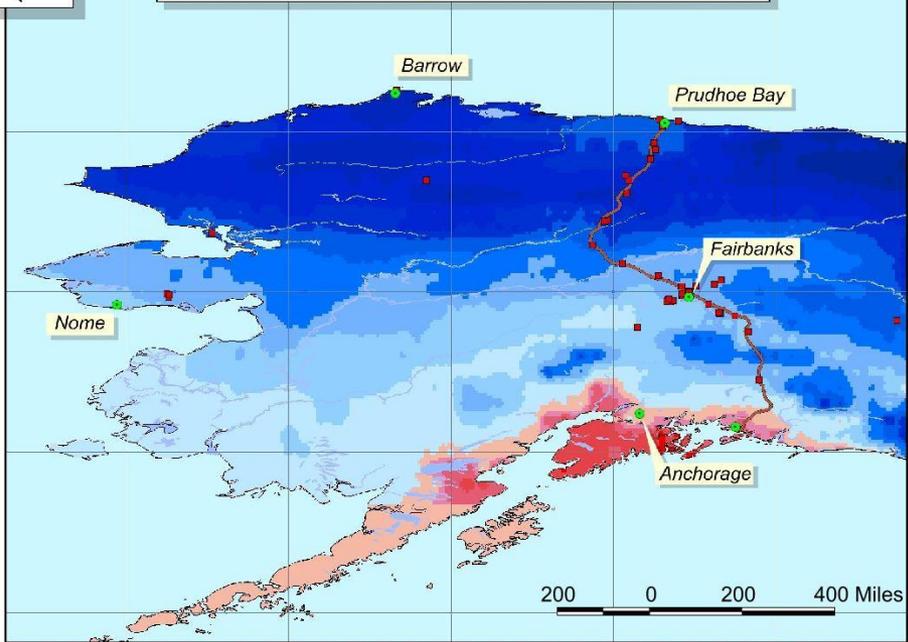
Mean Annual Temperature at 2 m Depth



Mean Annual Temperature at 5 m Depth

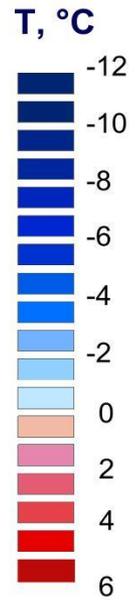


Mean Annual Temperature at 20 m Depth

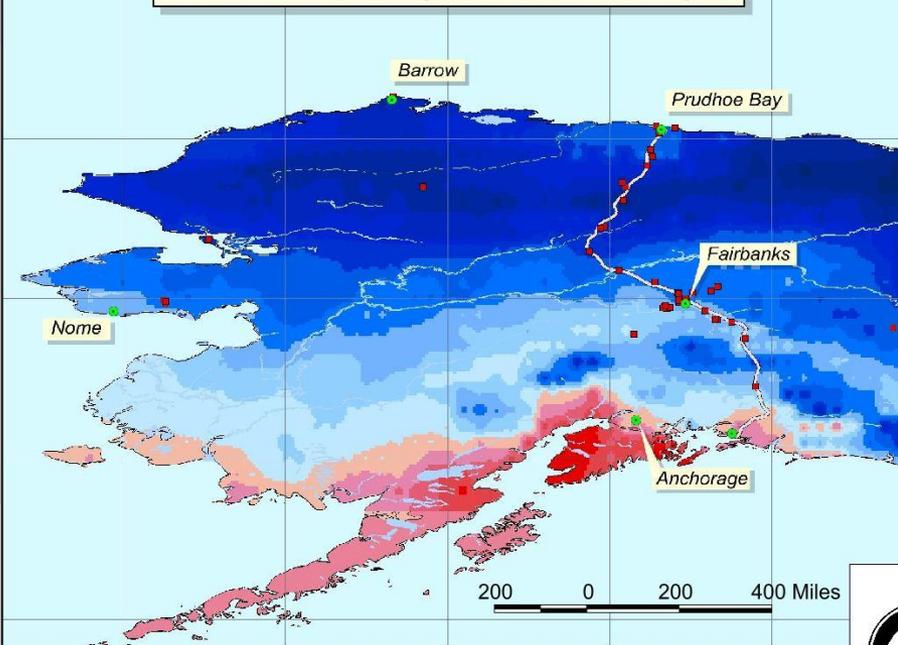


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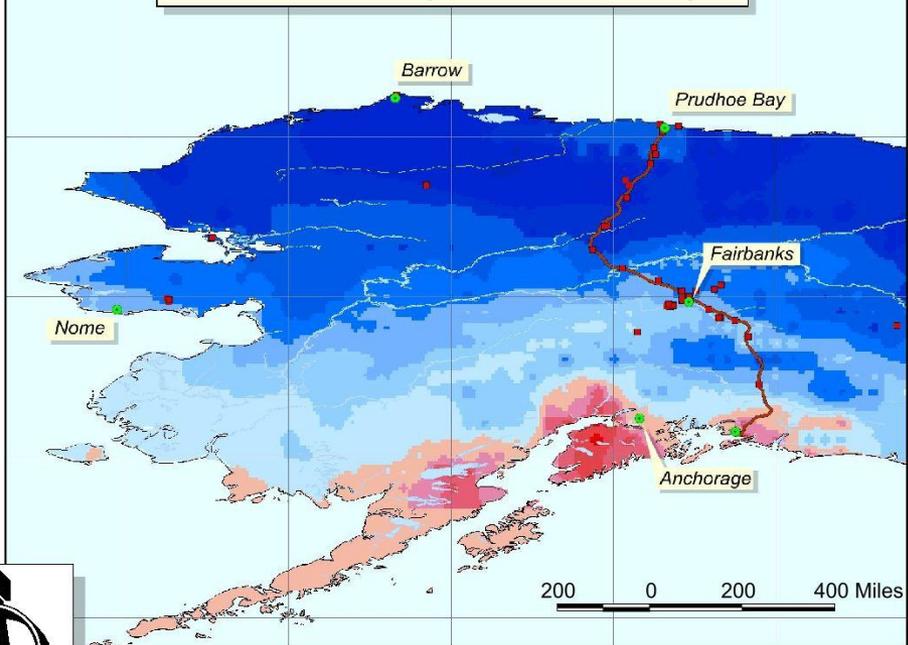
Spatially Distributed Model of Permafrost Dynamics in Alaska



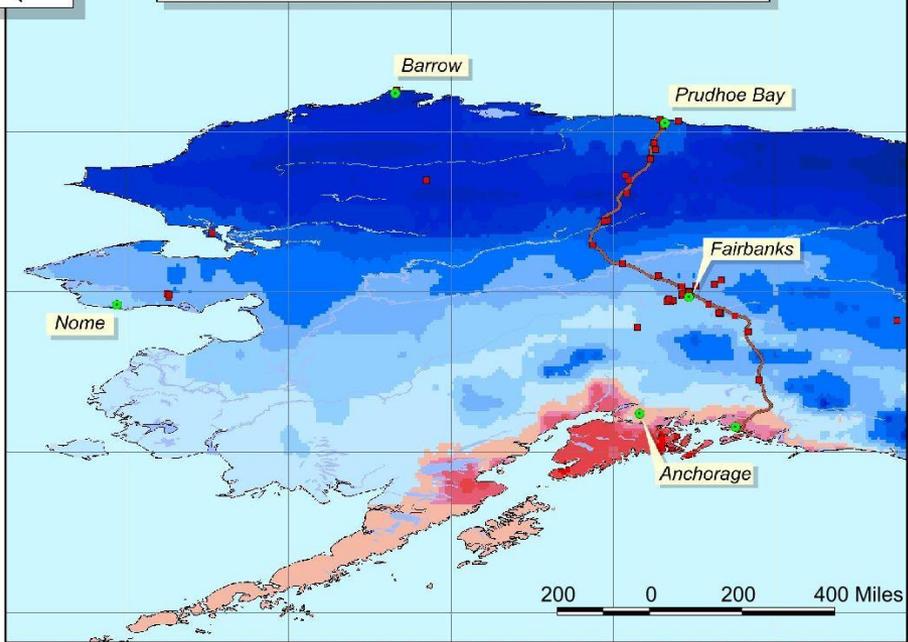
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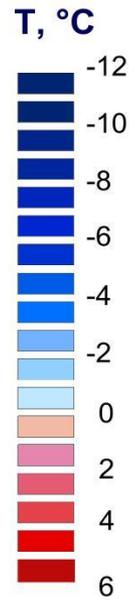


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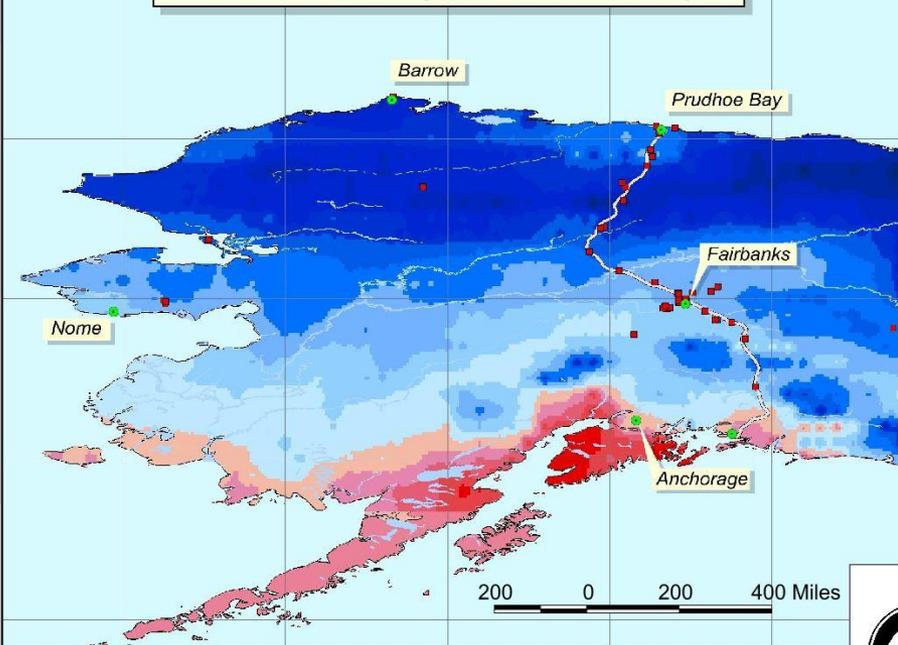


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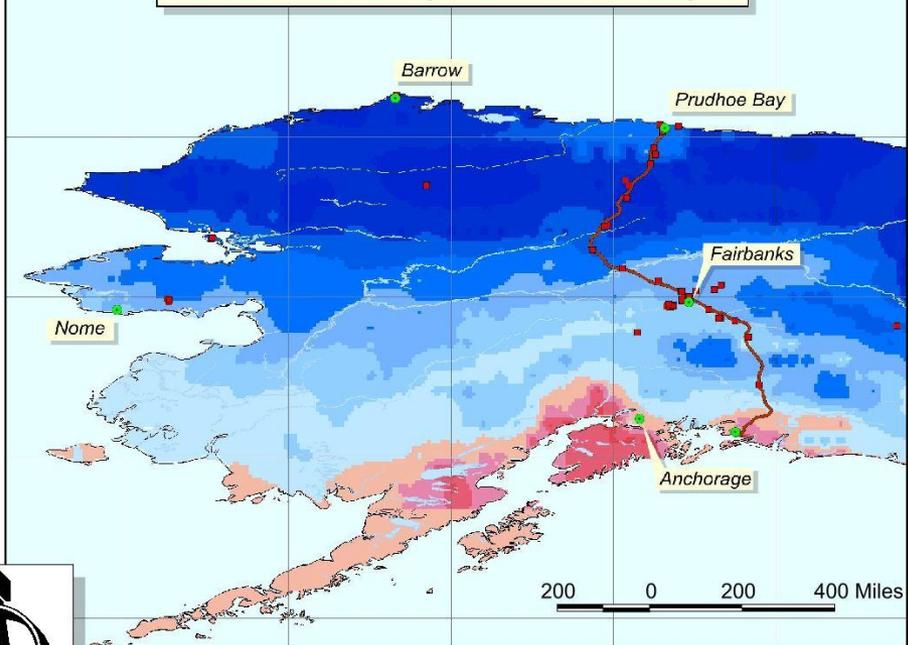
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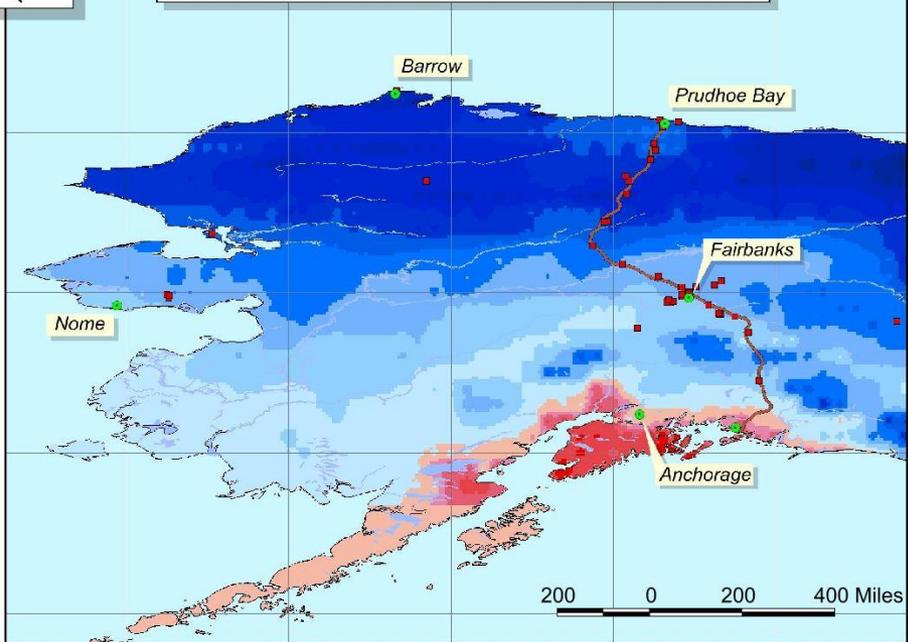
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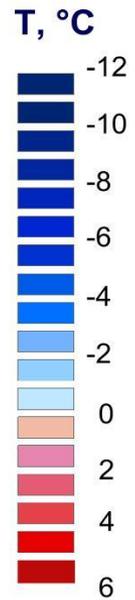


Mean Annual Temperature at 20 m Depth

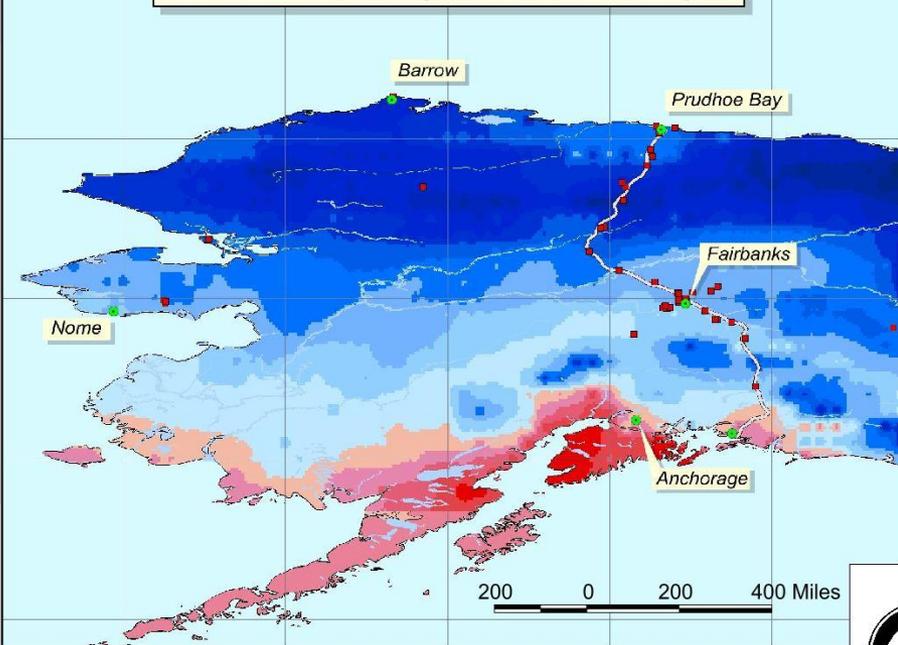


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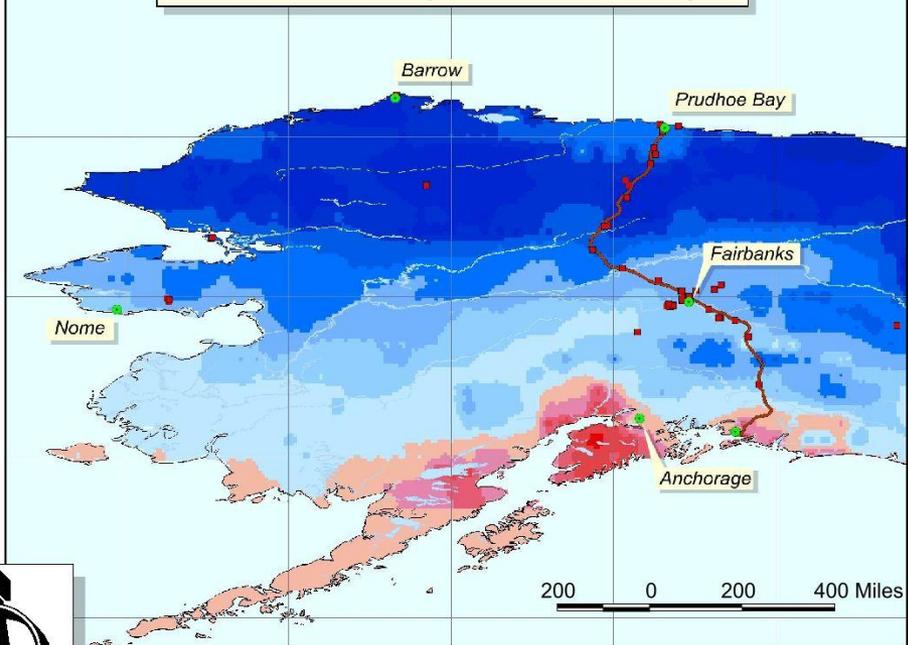
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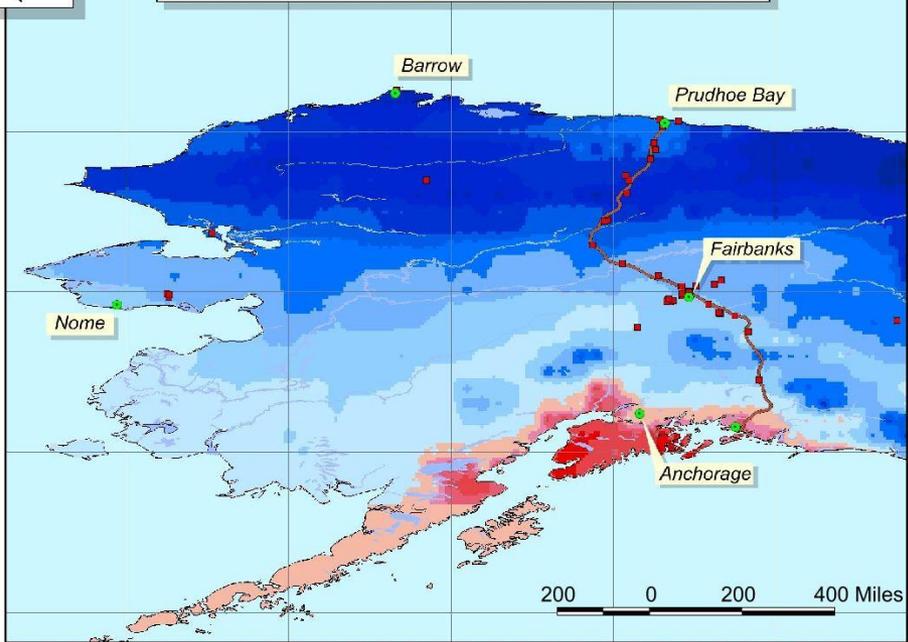
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Mean Annual Temperature at 5 m Depth

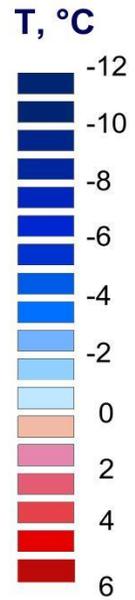


Mean Annual Temperature at 20 m Depth

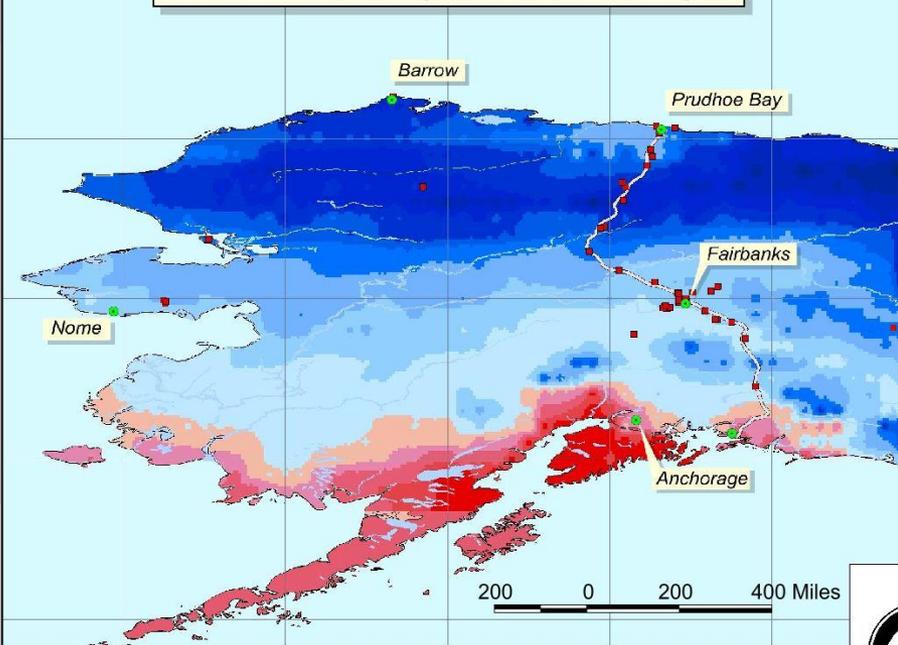


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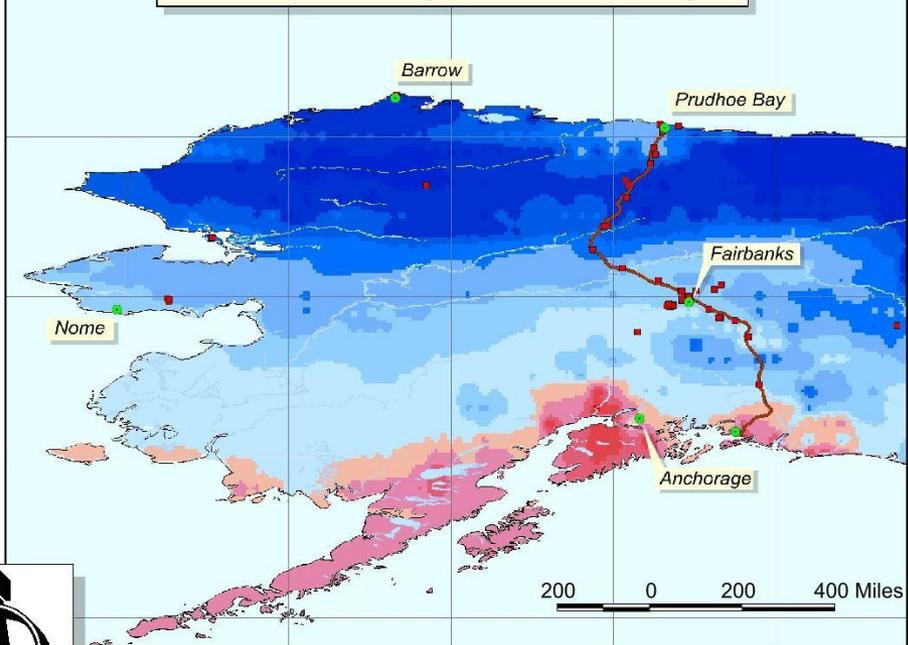
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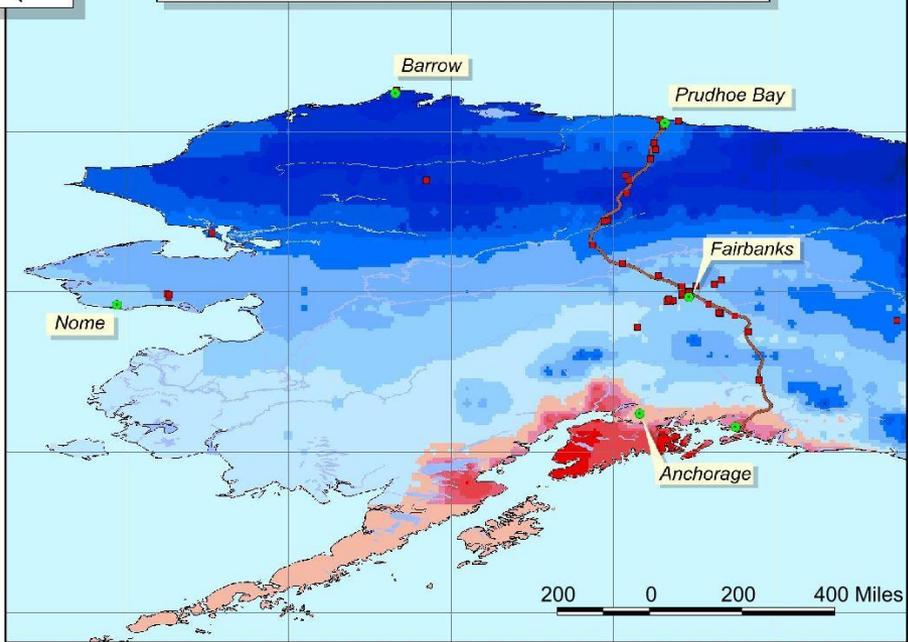
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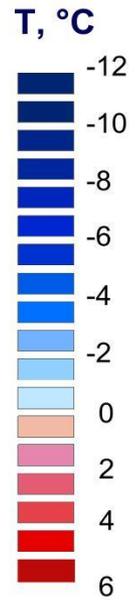


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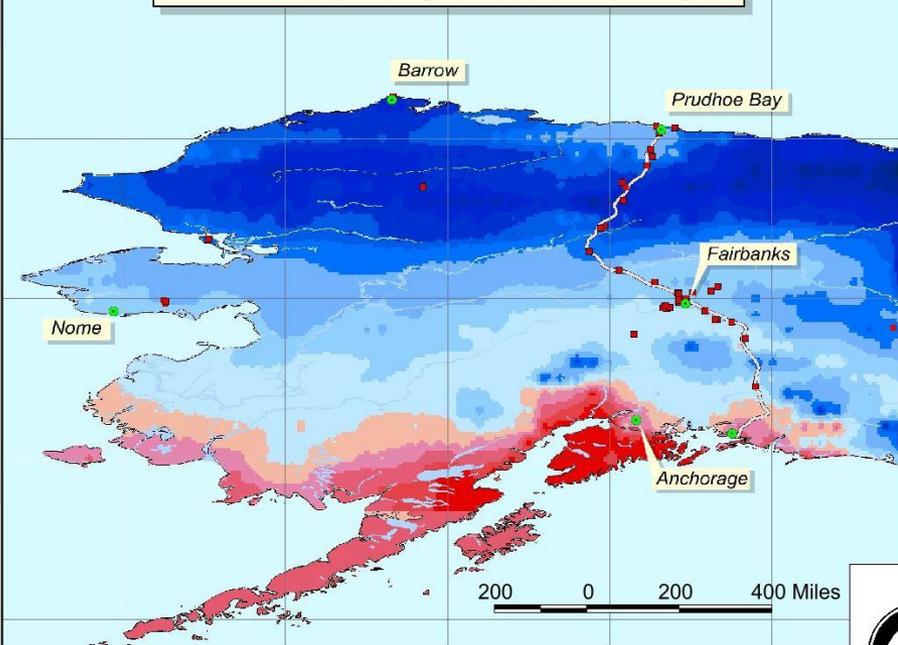


2020

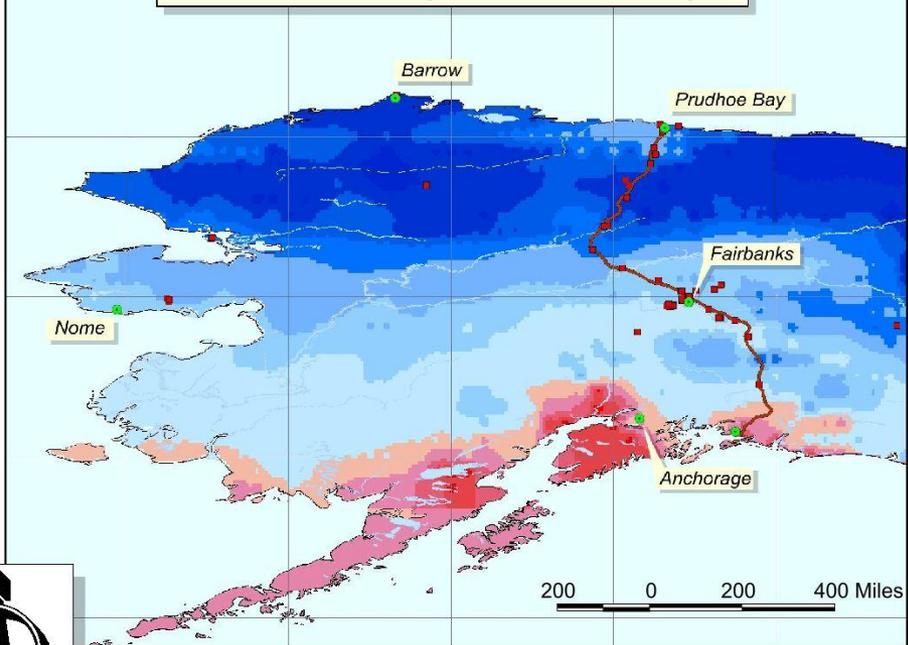
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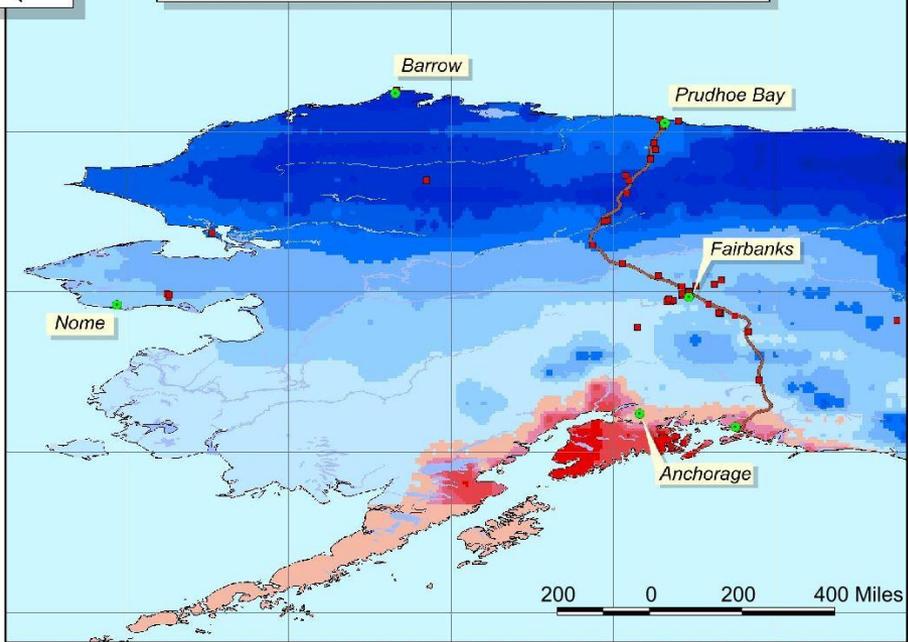
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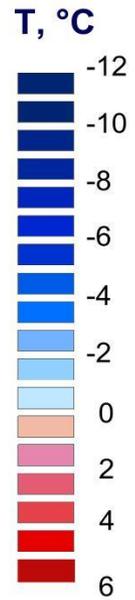


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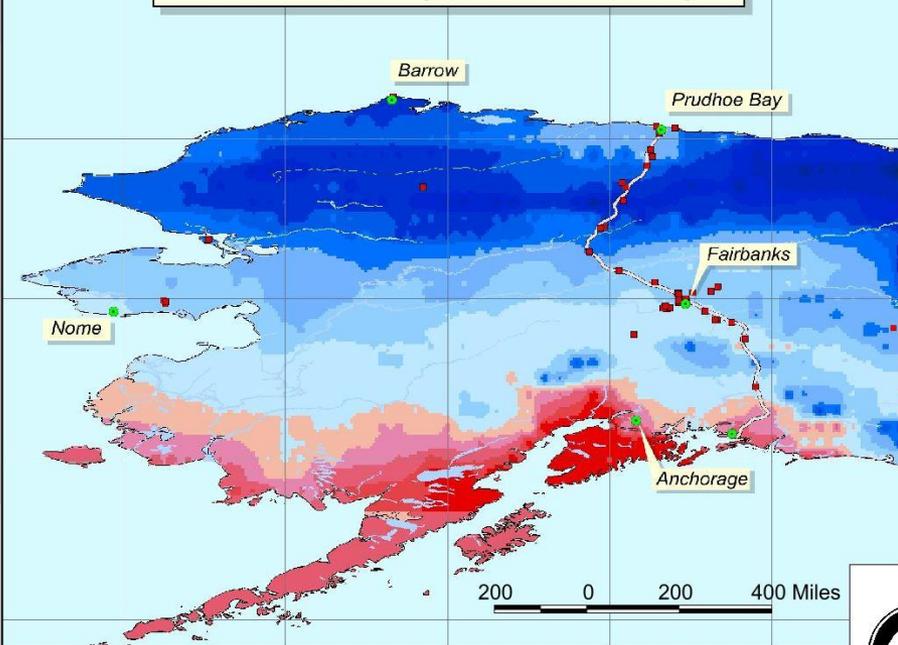


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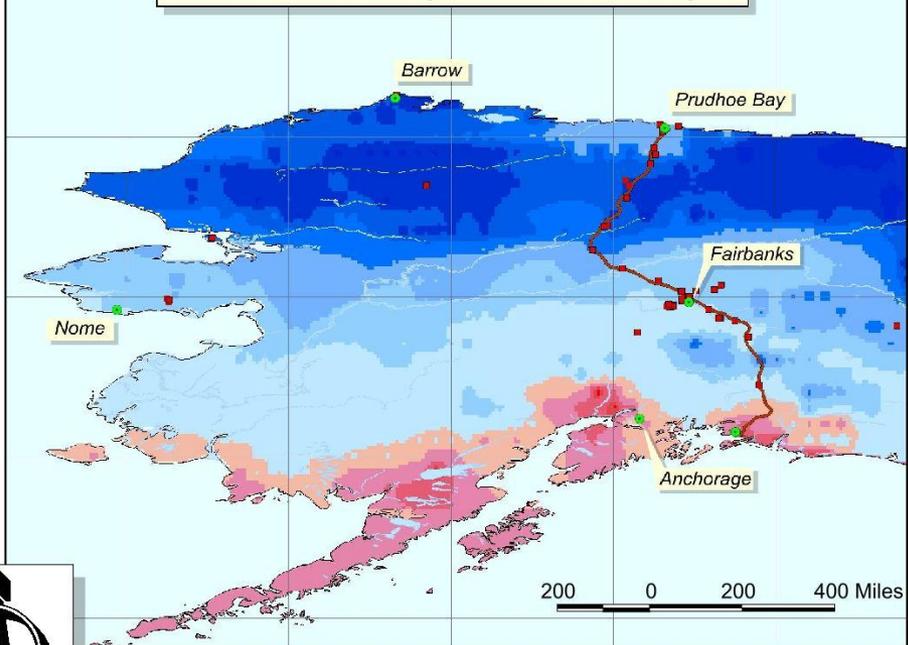
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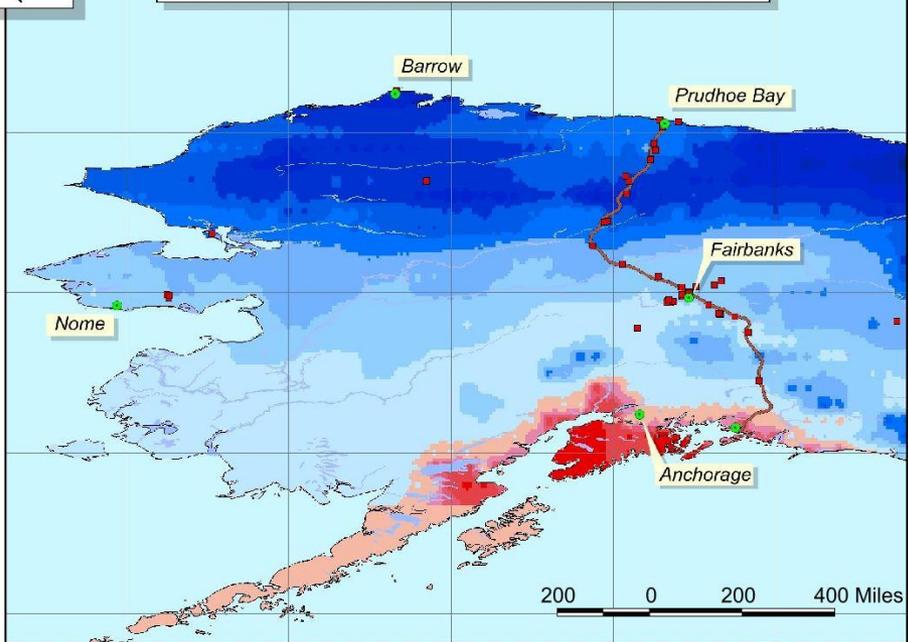
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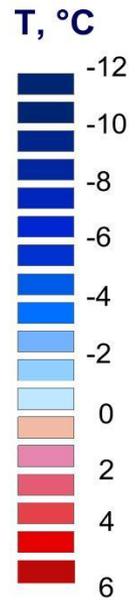


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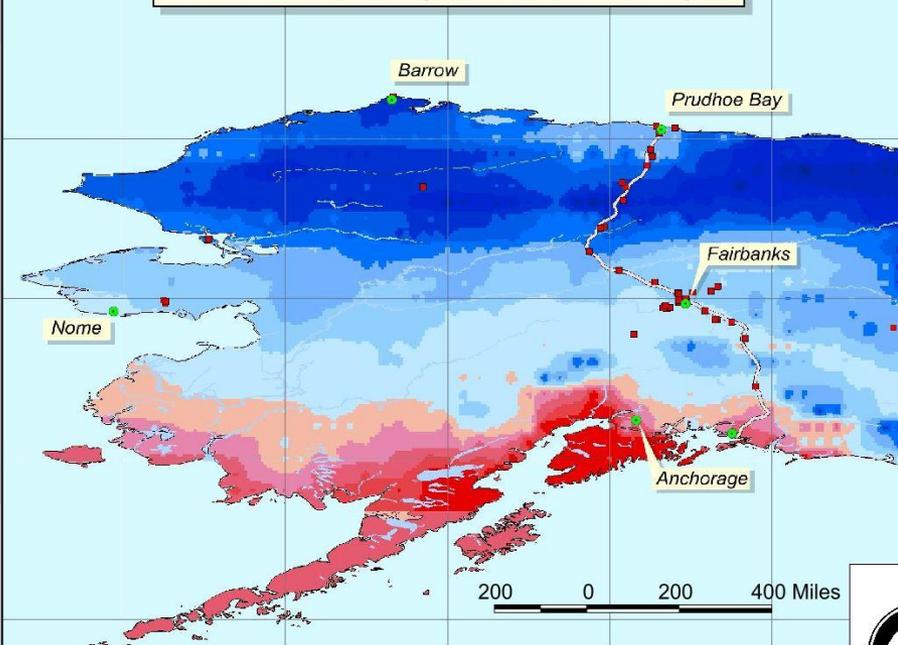


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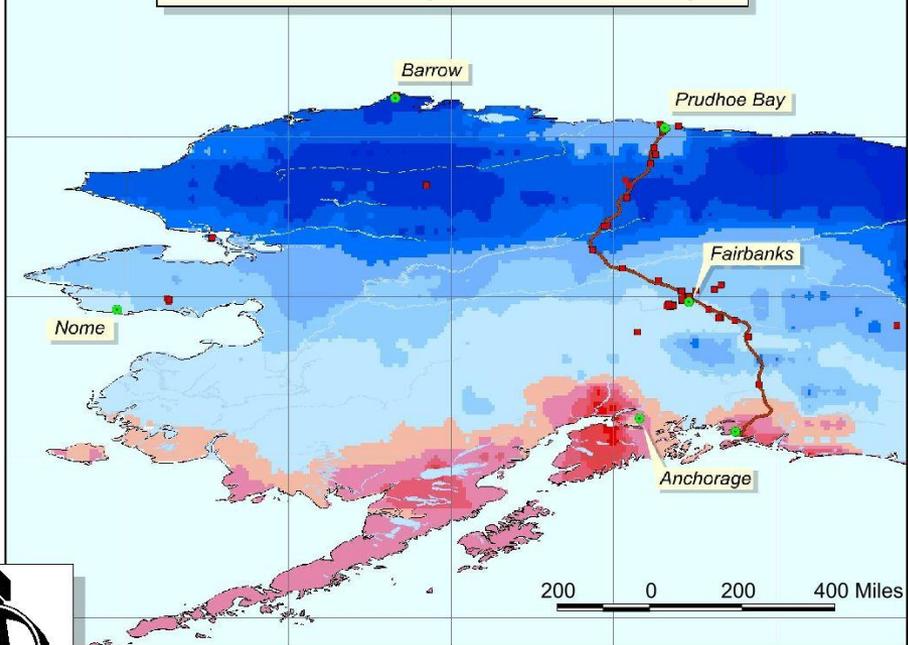
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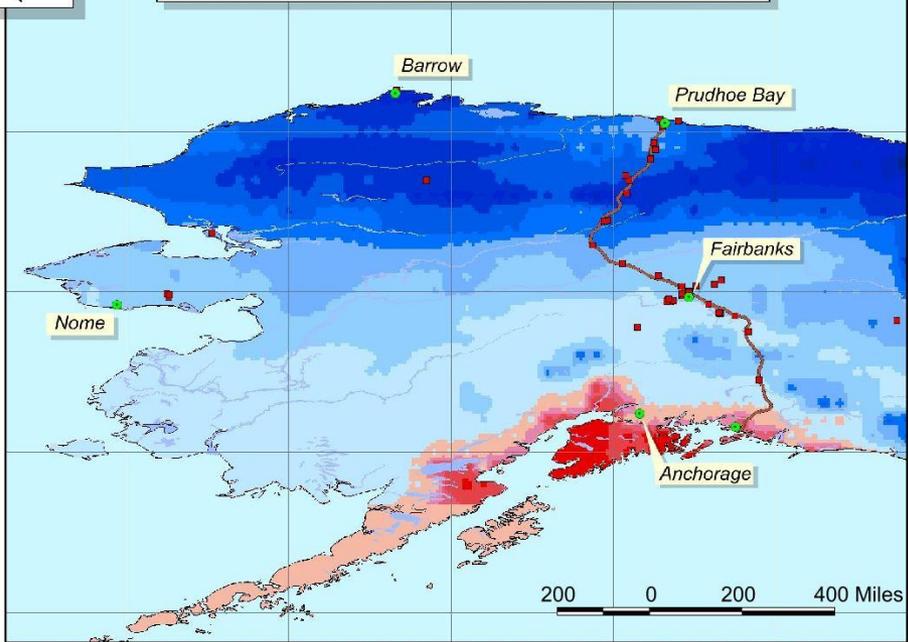
Mean Annual Temperature at 2 m Depth



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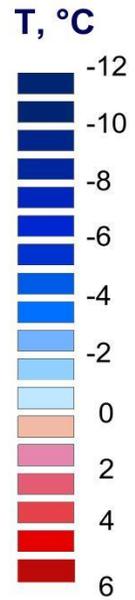


Mean Annual Temperature at 20 m Depth

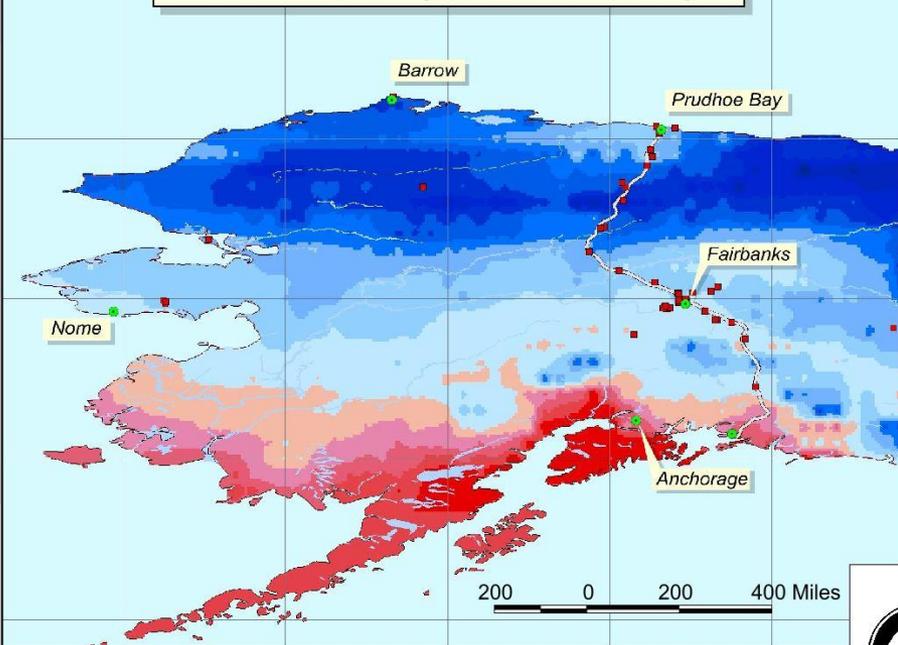


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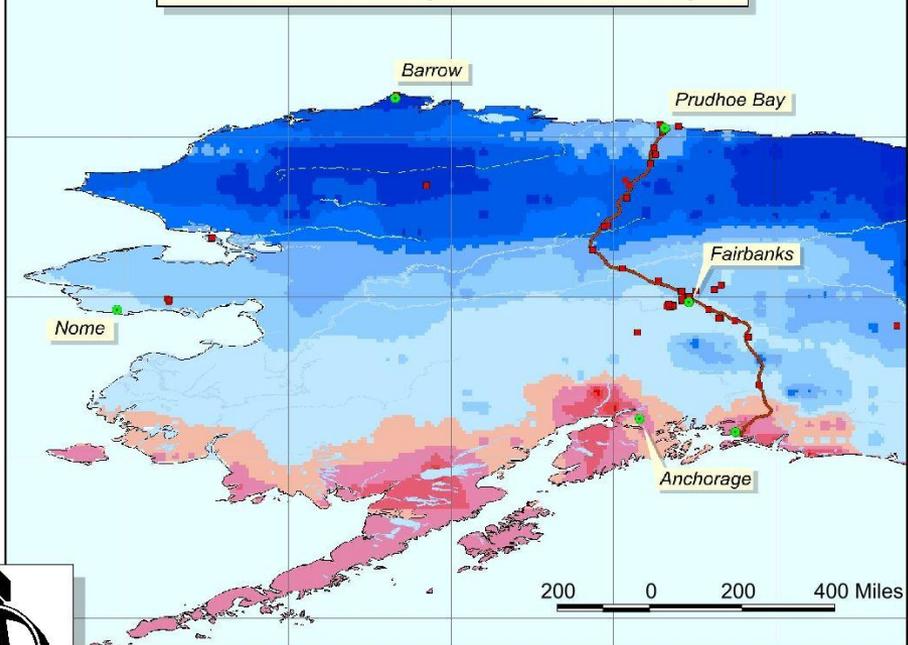
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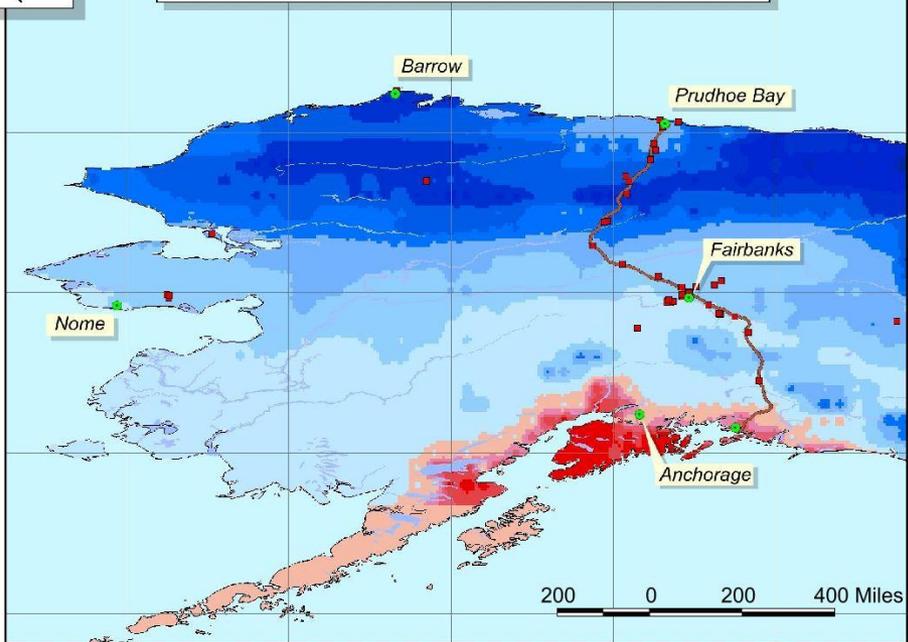
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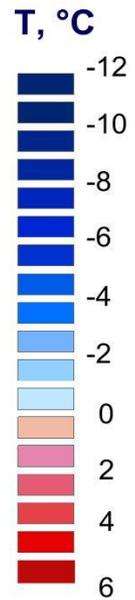


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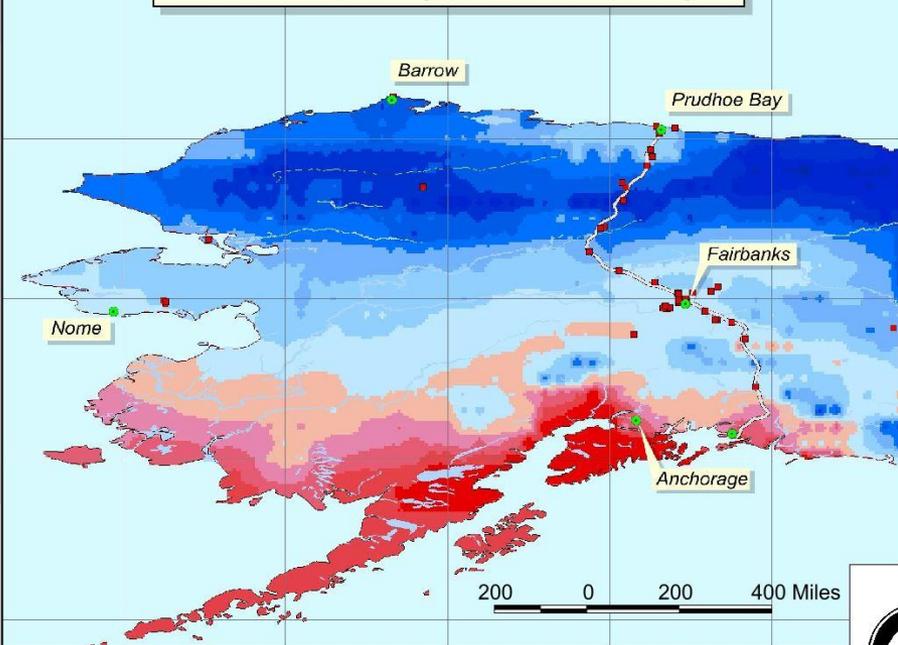


2040

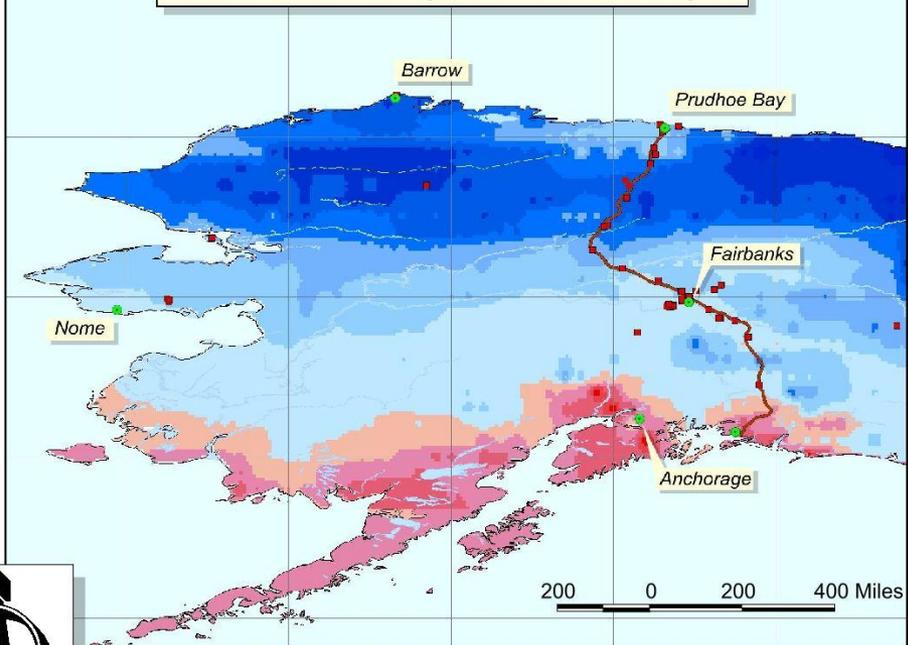
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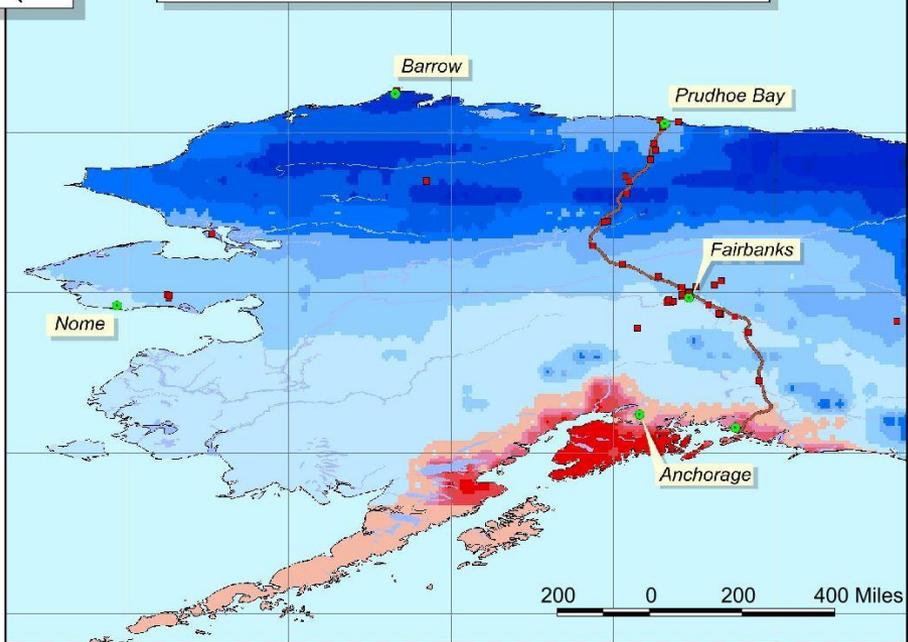
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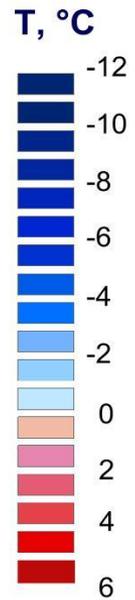


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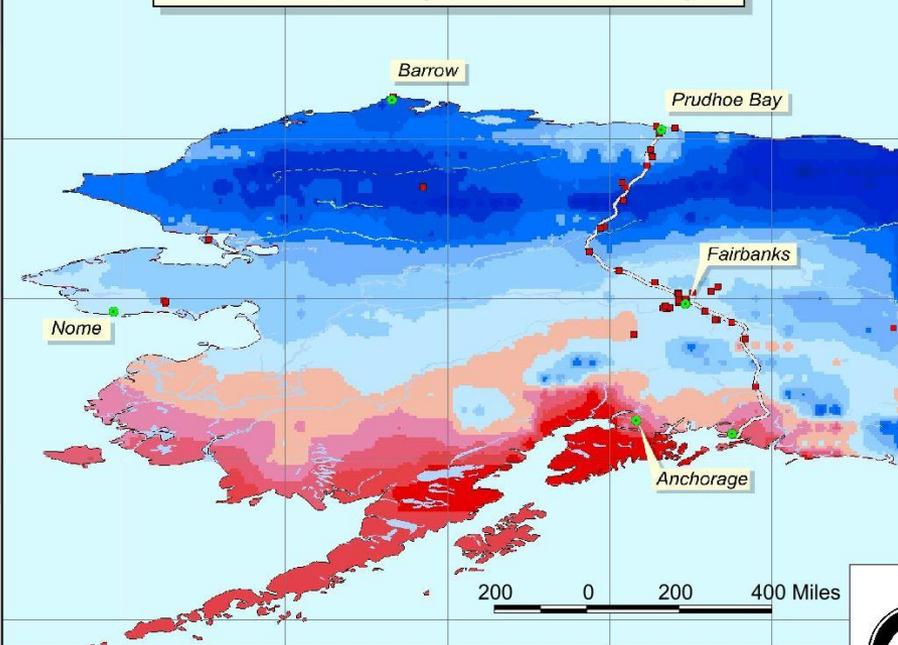


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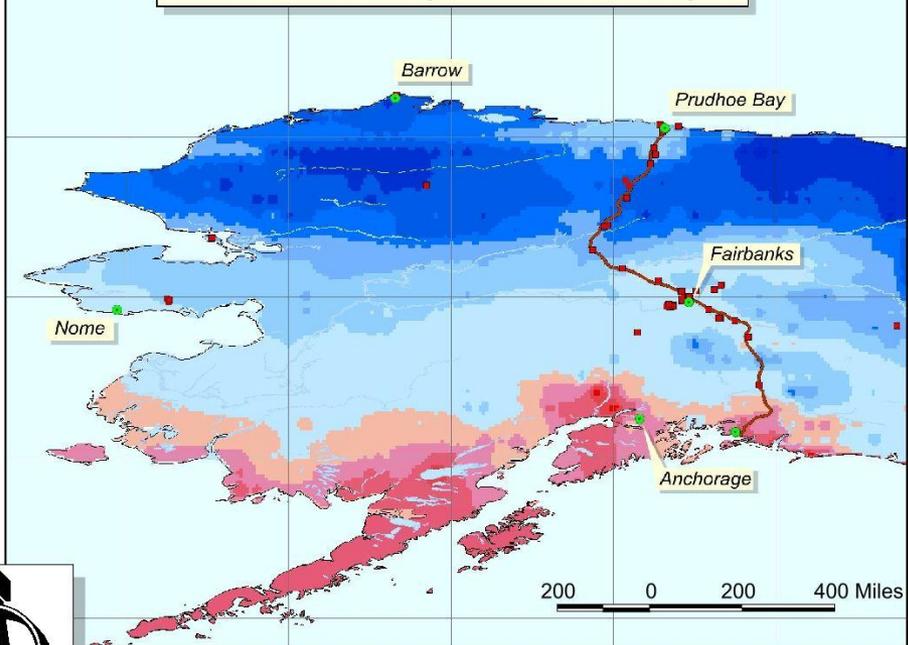
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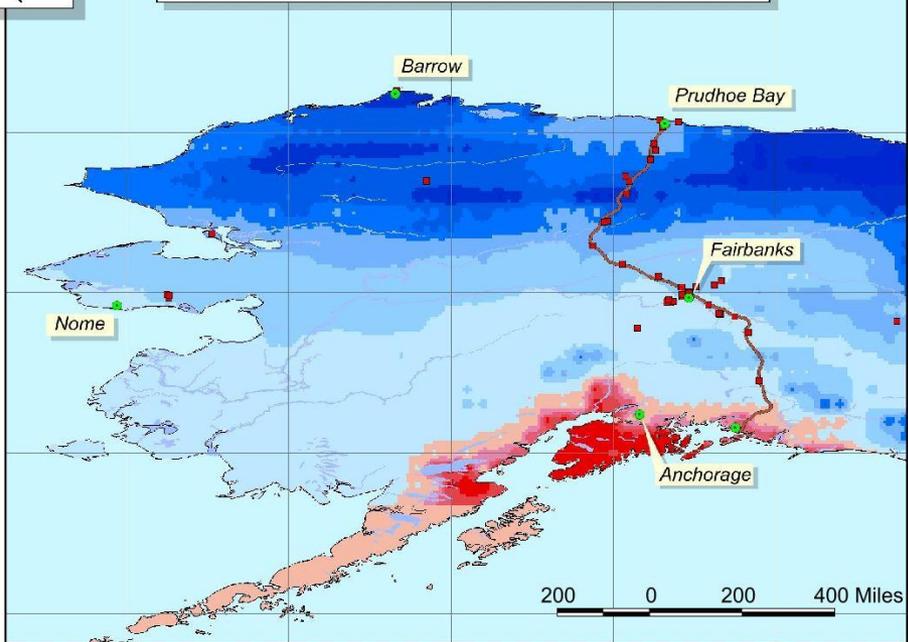
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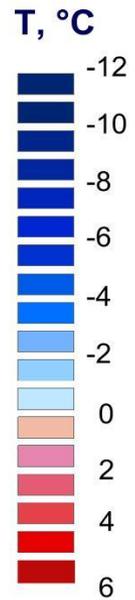


Mean Annual Temperature at 20 m Depth



2050

Spatially Distributed Model of Permafrost Dynamics in Alaska



Thanks!

- ❖ Appreciate your time and interest
- ❖ How can we help you?



**Office of the Federal Coordinator
Alaska Natural Gas Transportation Projects**

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info@arcticgas.gov**