

Update on the Alaska Natural Gas Transportation Projects

Drue Pearce, Federal Coordinator
Office of the Federal Coordinator
Alaska Natural Gas Transportation Projects
DOT Technical Advisory Committee Meeting
December 9, 2009

Pipeline Applicants



ALASKA Pipeline Project

FERC Process

- An applicant files an open season plan with the FERC
- The filing goes through a 30-day, third party review/ allows for public comment
- The applicant has 15 days to respond to third party comments. followed by a 15-day FERC review
- Then a 30-day period commences wherein applicant finalizes its open season plan and provides it to the public
- Applicant commences the open season for at least 90 days

The Alaska Pipeline Project Status

- Entered FERC Pre-File Process May 2009
- Holding discussions with potential shippers
- Offering two routes: North Slope to Alberta Hub and North Slope to Valdez, Alaska (LNG Option)
- An in-state gas study is underway
- State of Alaska AGIA Licensee
- Open Season commences May 2010

Denali Status

- Entered FERC Pre-File Process June 2008
- Argonne National Labs identified as 3rd party contractor
- Holding discussions with potential shippers
- Offering routes from the North Slope to Alberta Hub
- Open Season commence 4th Quarter 2010

Canada's Application Process

- Energy Consultative Mechanism meeting
- Two different Processes
 - Northern Pipeline Agency and the APP
 - Major Projects Management Office and Denali



Office of the Federal Coordinator

- Gap Analysis of permitting process
- Implementation Plan for each applicant
- Permit Matrix
- Technical Review Team

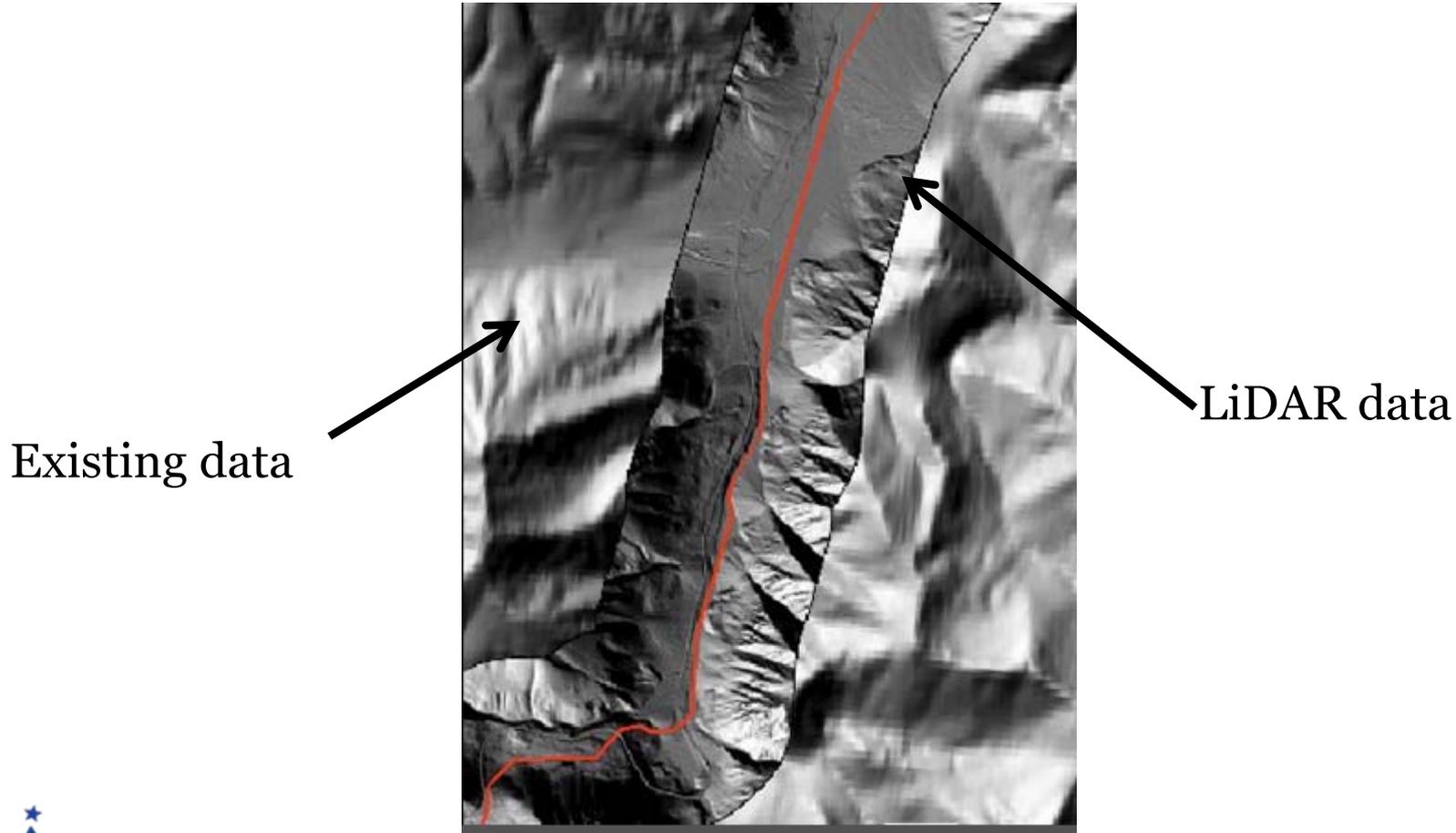
OFC GIS Prototype

- Key Points

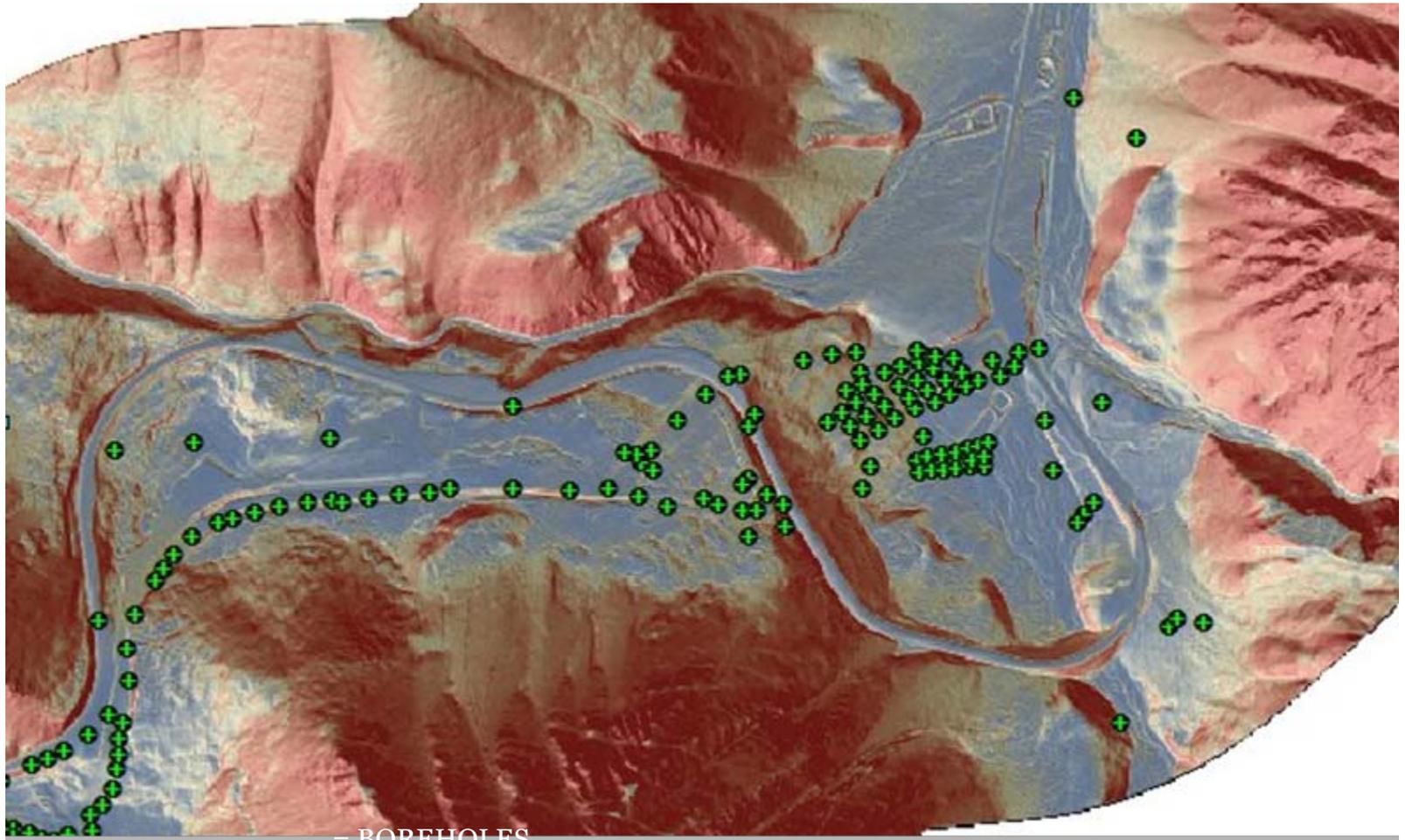
- Authoritative base map and data integration
- Improvement in data quality and accuracy
- Transparent and enhanced access to old and new quality data



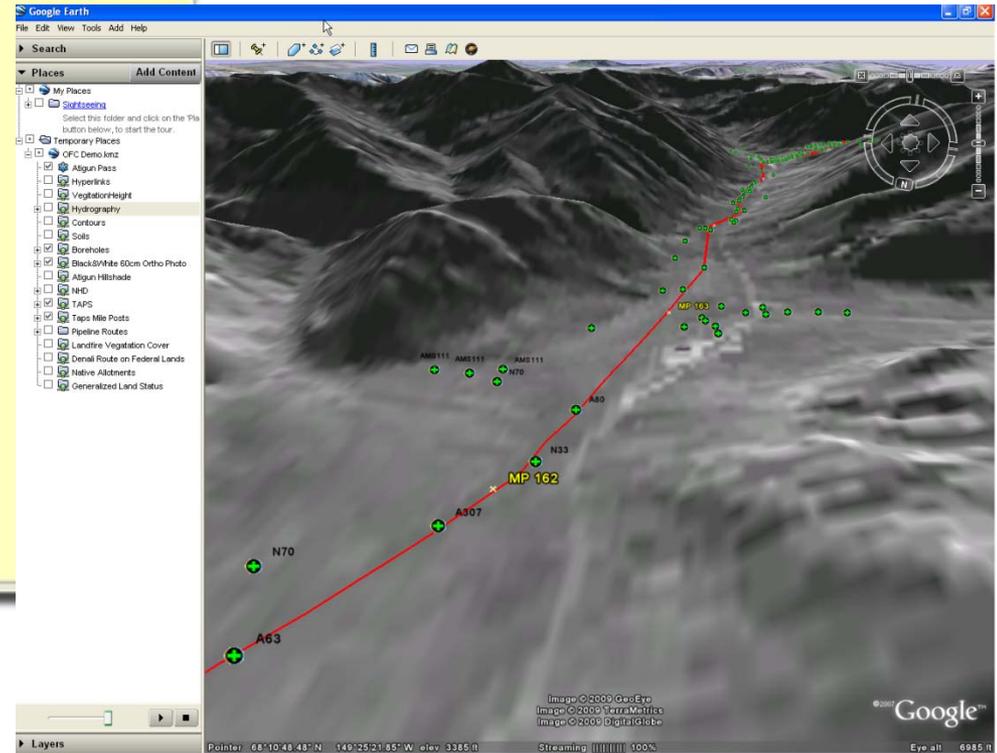
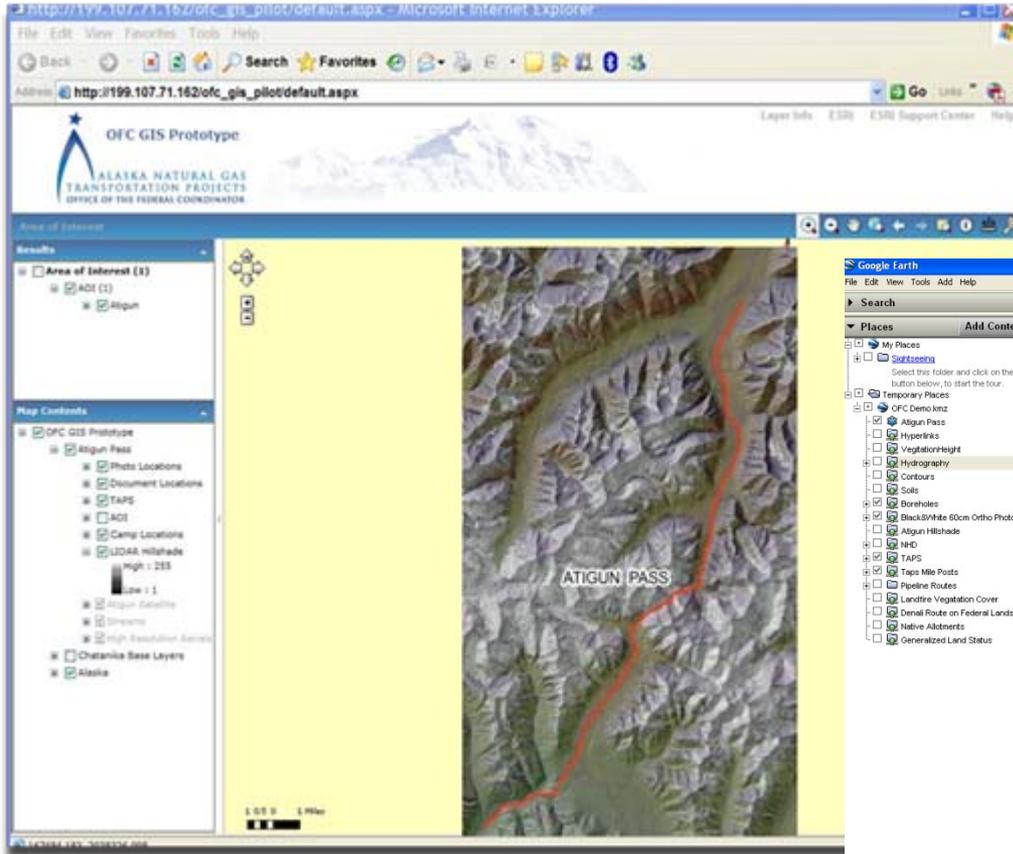
Improvement in Data Quality-Resolution



LiDAR Derivative Analysis with GIS-Slope



Web Access to Data-Transparent Access

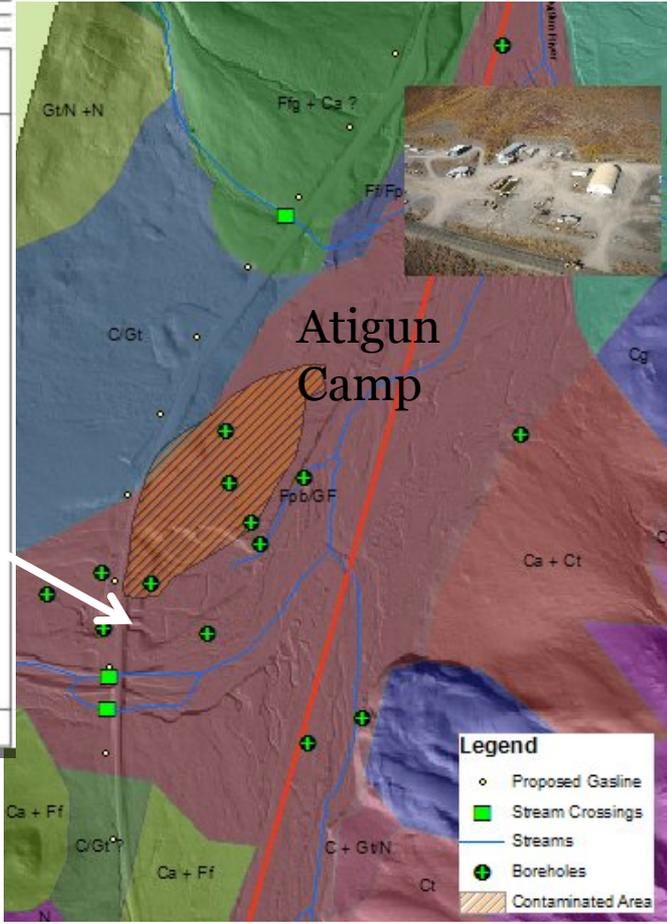


Data Integration-Putting the Pieces Together

LOG OF BORING: N70-93

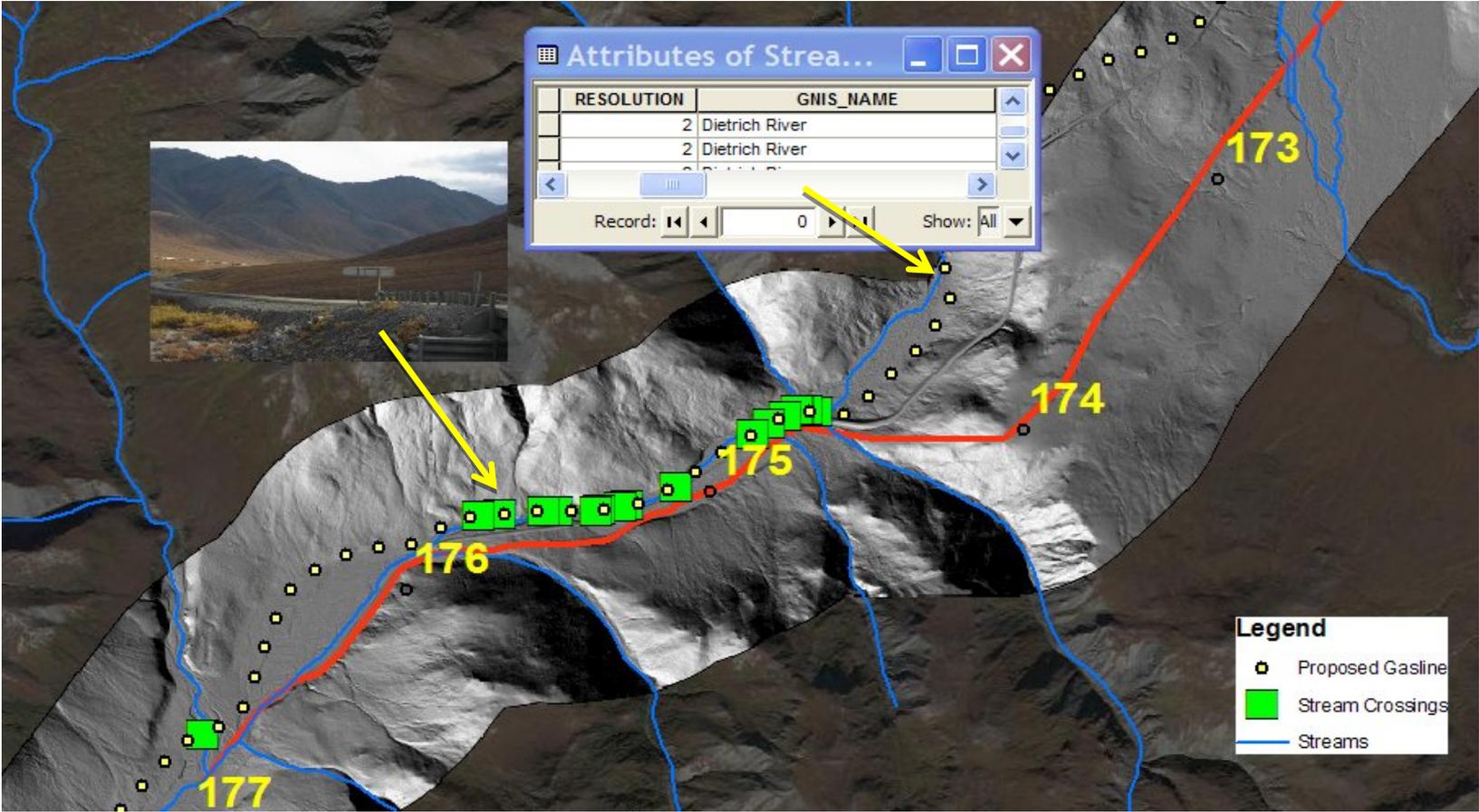
PROJECT: OGC Atigun Camp SHEET: 1 OF 2
 LATITUDE: 68 1325E LONGITUDE: -149.861 GEO DATUM: NAD START: 11/28/1988 END: 11/28/1988
 GROUND ELEV.: 3303.8 ft SLEV DATUM: MSL LOGGER: Stewart Clark
 WATER LEVEL: TIME: DATE: DESCRIPTION: DRILLER: Friedman, Nicholas
 EQUIPMENT: EDM Mudd B-41 w/ Feedback DRILL: CO: Searns
 METHOD DETAILS: 18 IN. OD HSA, 2.5 IN. OD 8000S, 2.5 IN. OD 8000S, 1.5 IN. OD 8000S

SAMPLE DEPTH (FT)	TEST RESULTS	STRATA	DEPTH (FT)	DESCRIPTION	REMARKS
0.0			0	SPK: FINEST SANDS OF FINESS (V% 20% visible excess ss)	
1.0			1	0.0' - El. 3202.8	
1.5			1.5	SILT, with sand and gravel; gray and brown. Proven, well bonded; sandstone formations along with ice crystals in pore spaces (V%); 10% visible excess ss; trace organic inclusions.	
2.0			2.0	1.0' - El. 3202.4	
4.0			4.0	SILT, with sand and gravel; gray and brown. Proven, well bonded; sandstone formations along with ice crystals in pore spaces (V%); 10% visible excess ss; trace organic inclusions.	
6.0			6.0	4.0' - El. 3201.4	
7.0			7.0	SILT, with sand and gravel; gray and brown. Proven, well bonded; sandstone formations along with ice crystals in pore spaces (V%); 20% visible excess ss; trace organic inclusions.	
8.0			8.0	4.0' - El. 3200.8	
10.0			10.0	SILT, with sand and gravel; gray, subrounded to angular. Local iron staining. Proven, well bonded; massive to blocky; 20% visible excess ss; hard, clear, white, trace oil inclusions.	
11.0			11.0	10.0' - El. 3200.8	
12.0			12.0	GRAVEL, SANDY with little fine grain, subrounded to angular. Local iron staining. Proven, well bonded; individual ss inclusions (V%); 10% visible excess ss.	
13.0			13.0	20.0' - El. 3201.4	
15.0			15.0	GRAVEL, SANDY Proven, well bonded; irregular to subangular (V%); 20% visible excess ss.	
20.0			20.0	20.0' - El. 3211.4	
21.0			21.0	SHALE, and silty shale; gray; moderately weathered. Proven, no visible ice segregator; clay; 2% visible excess ss.	
25.0			25.0	25.0' - El. 3219.4	
26.0			26.0	SHALE, and silty shale; gray; moderately weathered. Proven, no visible ice segregator; clay; 2% visible excess ss.	
27.0			27.0	27.0' - El. 3214.4	
28.0			28.0	SHALE, and silty shale; gray; moderately weathered. Proven, no visible ice segregator; clay; 2% visible excess ss.	



- 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



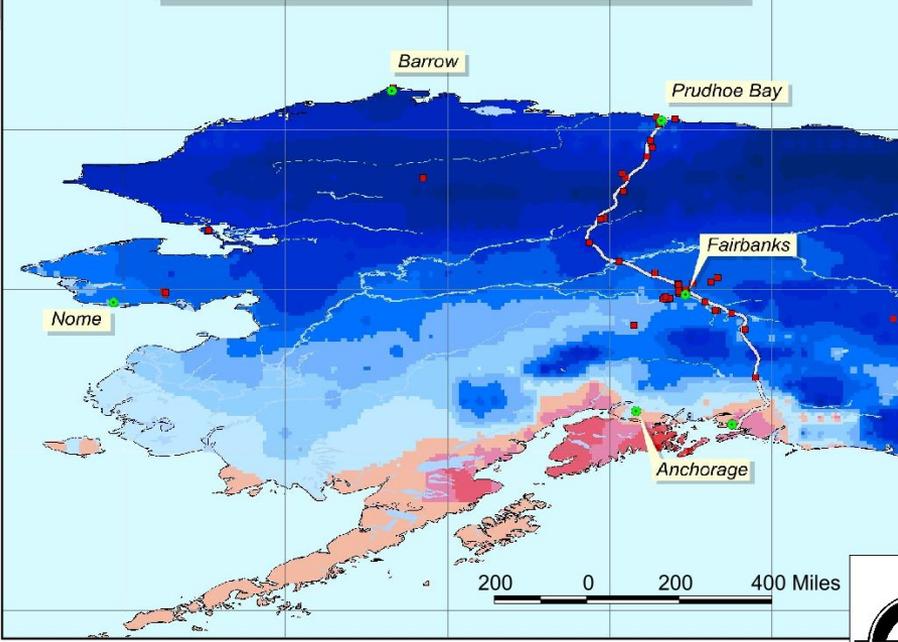
Key Findings

- 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
- Web interface provides transparent access to data
 - browser read only type for a wide audience
 - web service to a more 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

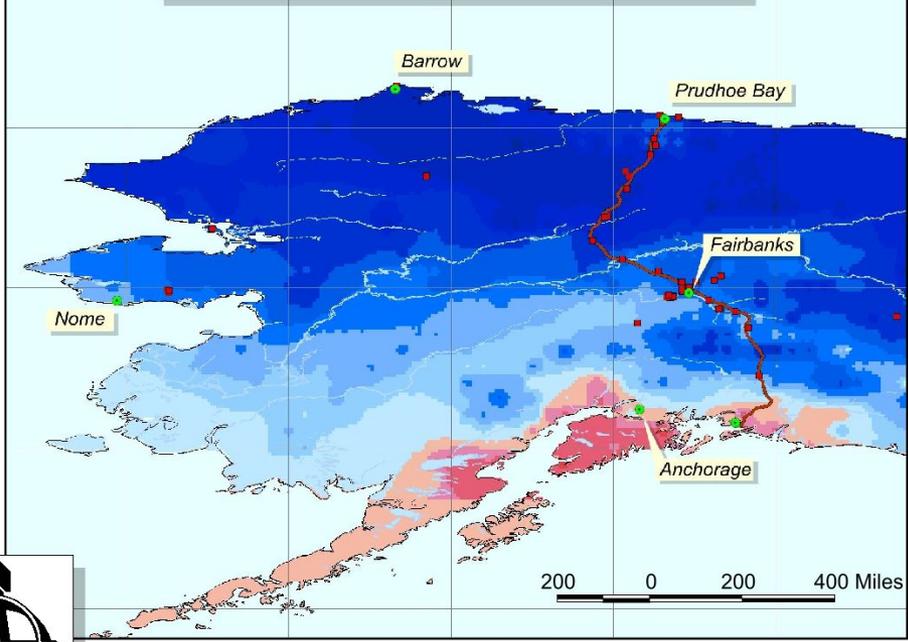
Permafrost Construction Challenges



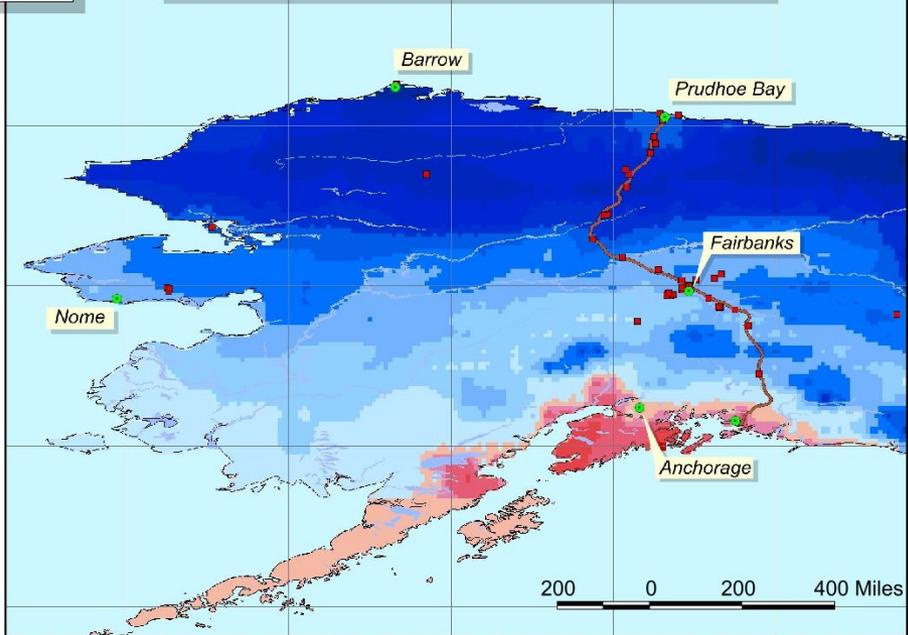
Mean Annual Temperature at 2 m Depth



Mean Annual Temperature at 5 m Depth

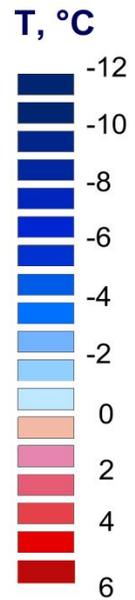


Mean Annual Temperature at 20 m Depth

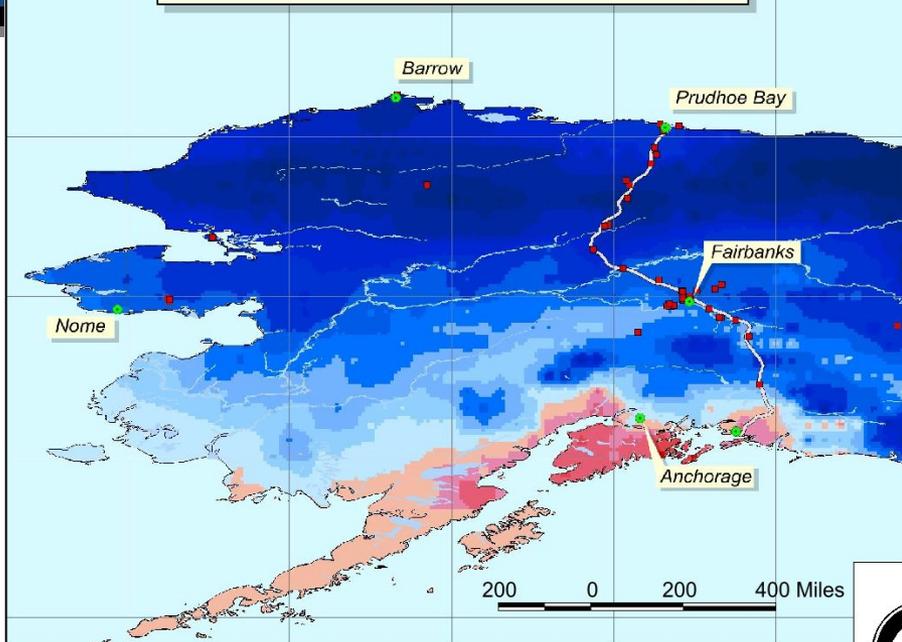


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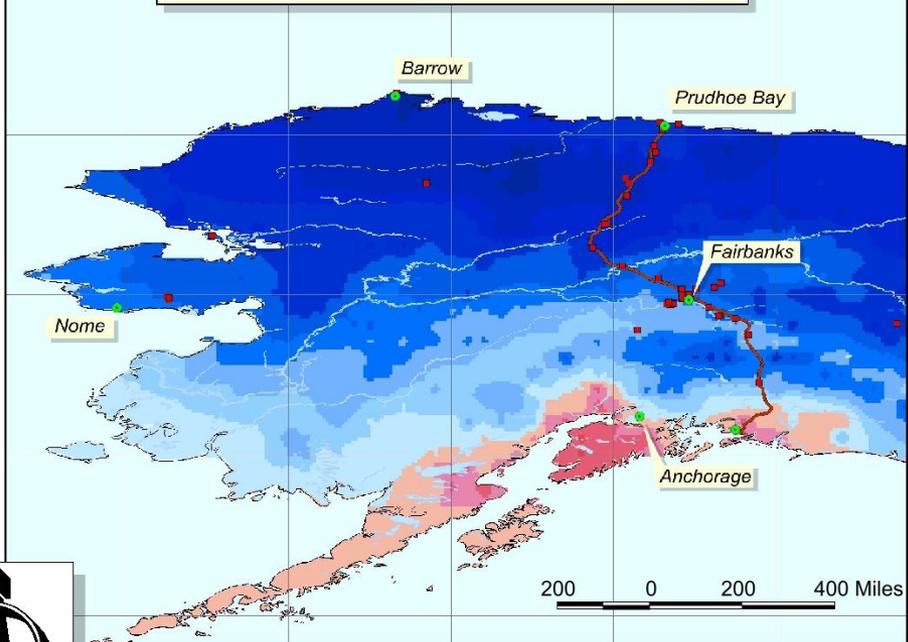
Spatially Distributed Model of Permafrost Dynamics in Alaska



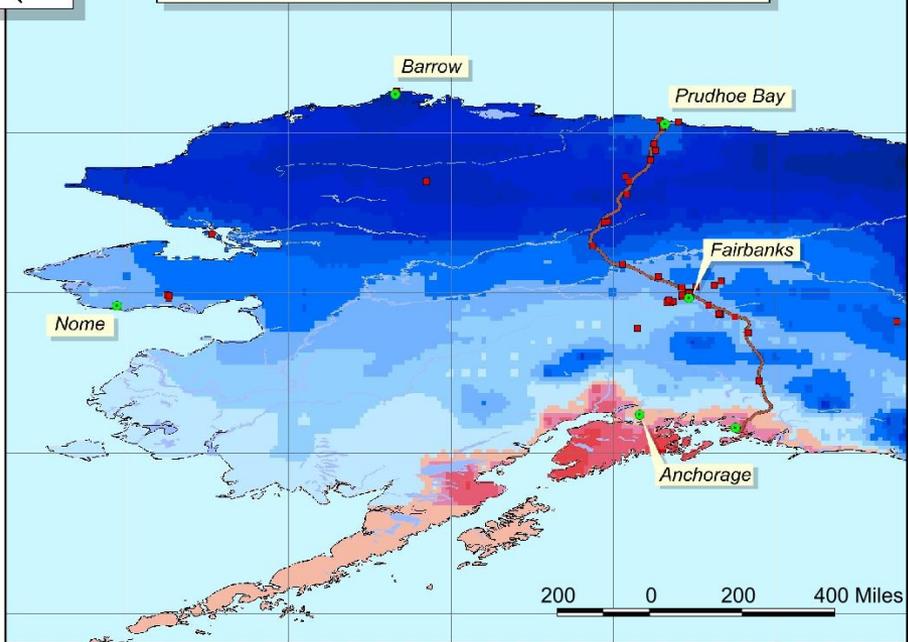
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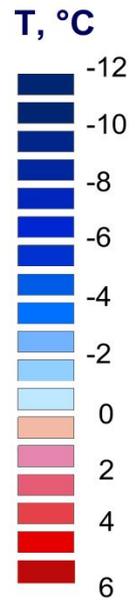


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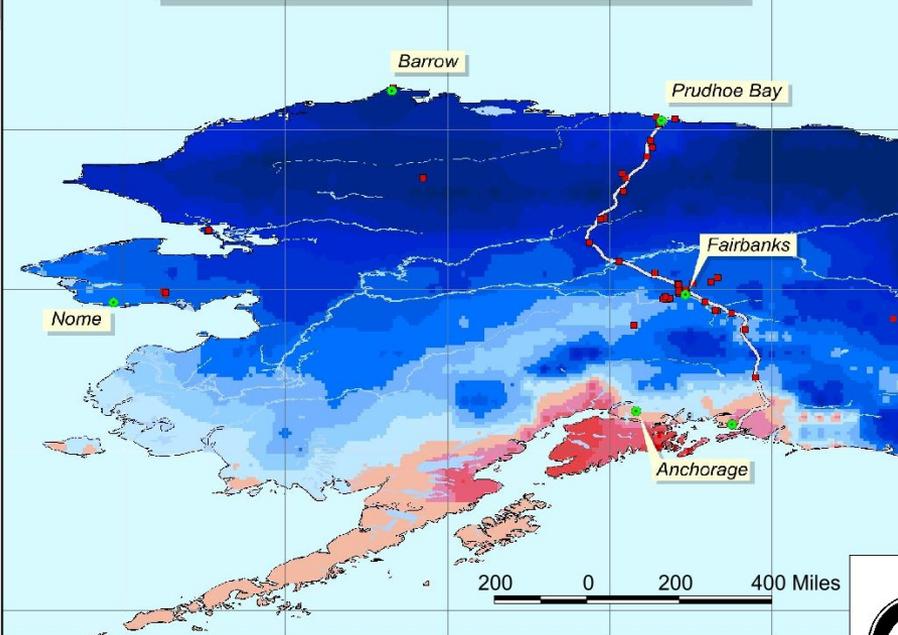


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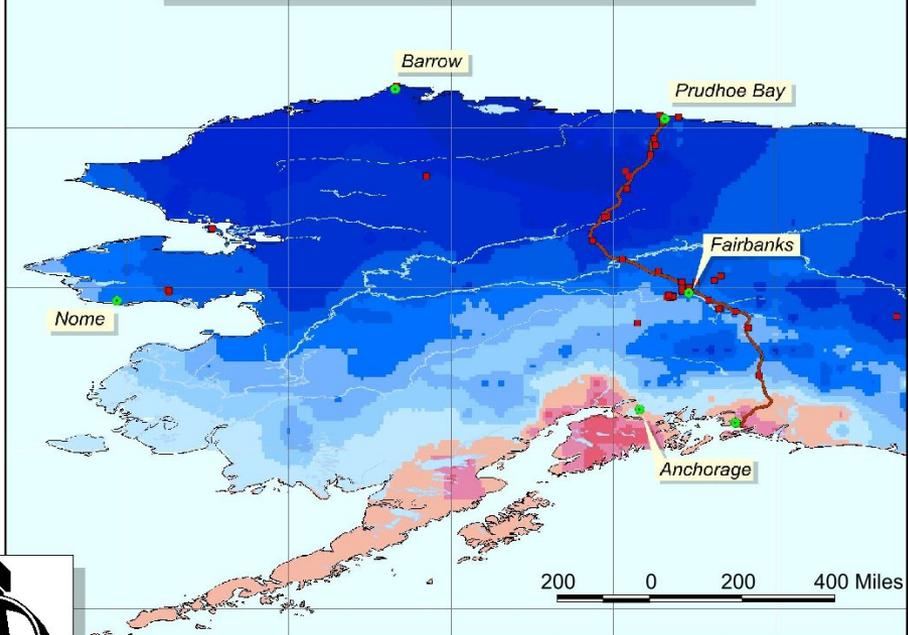
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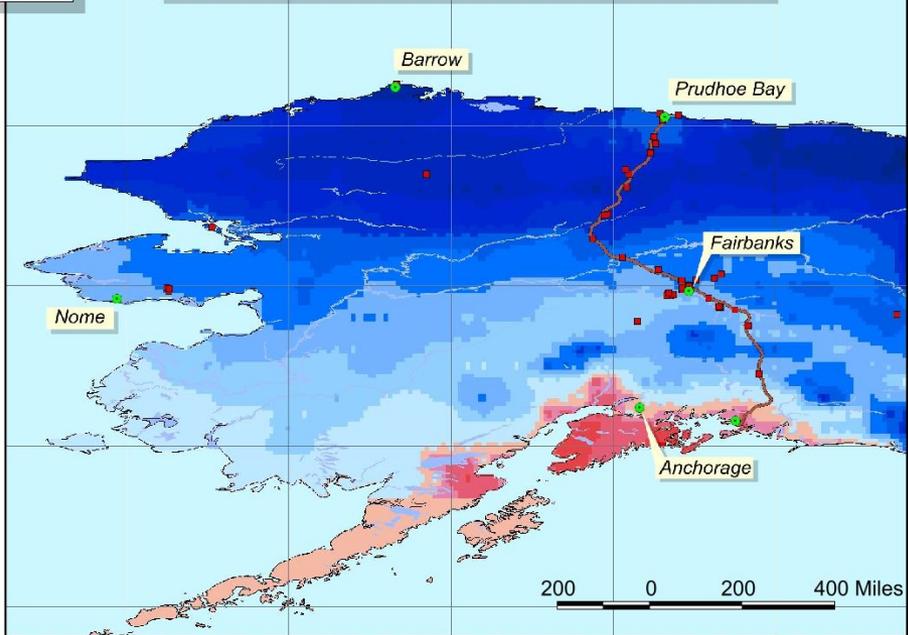
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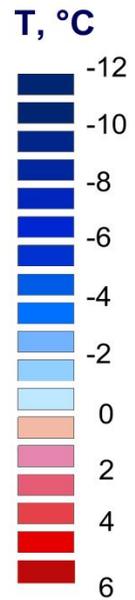


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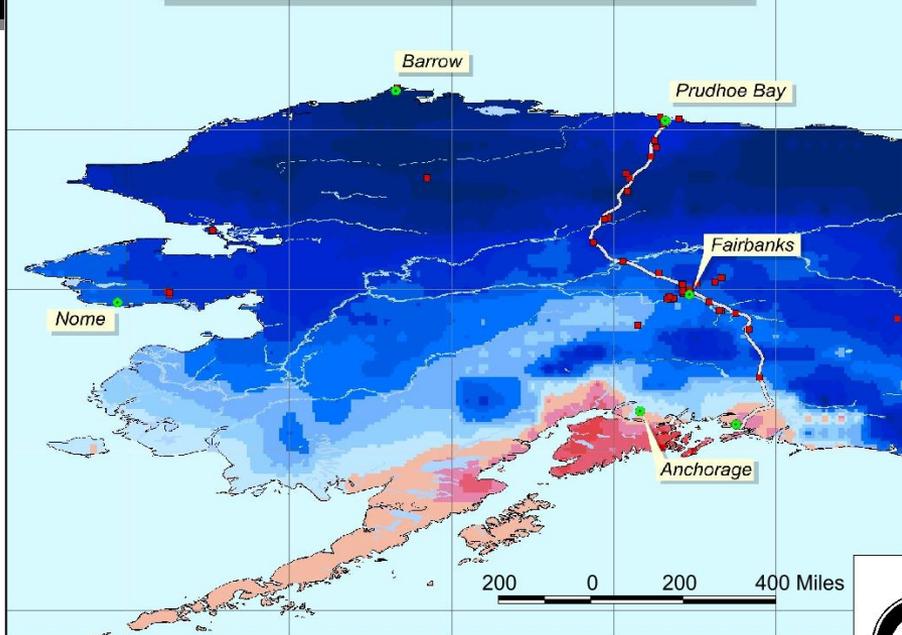


1960

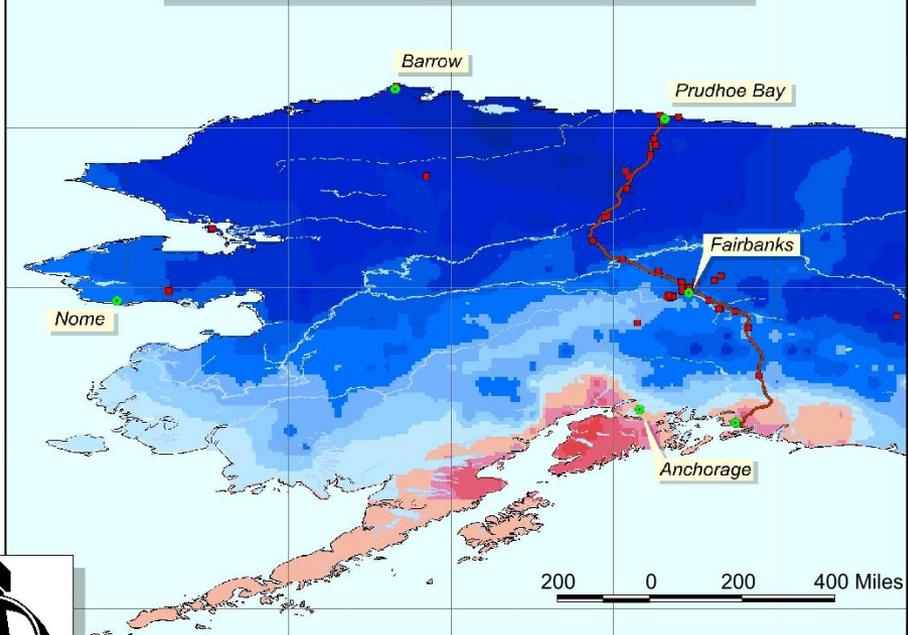
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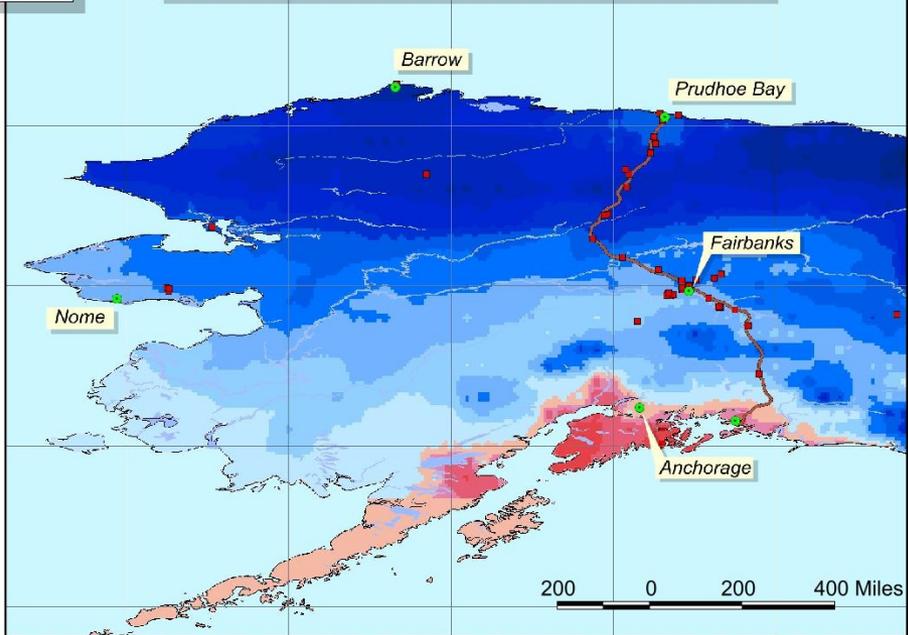
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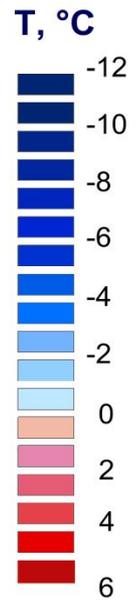


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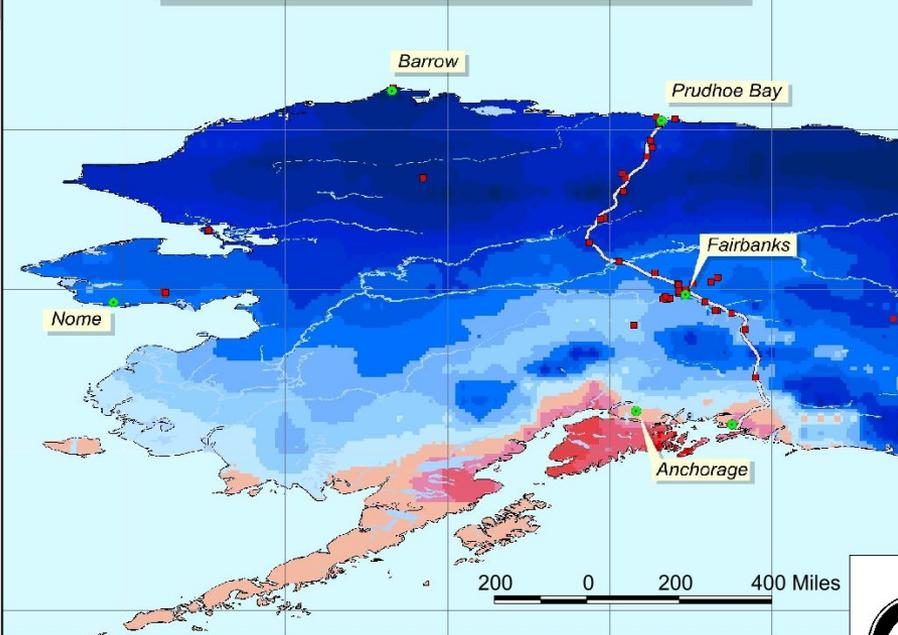


1965

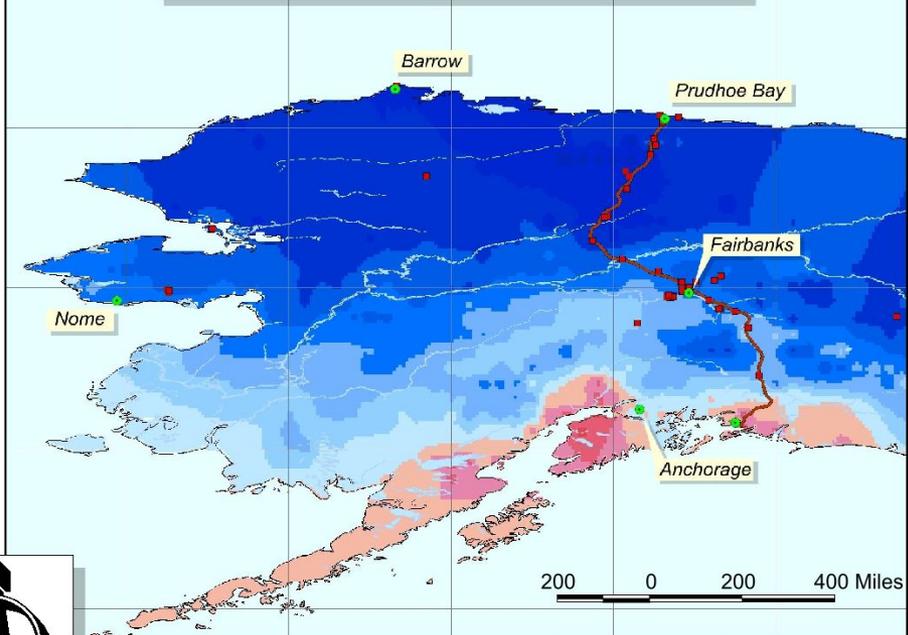
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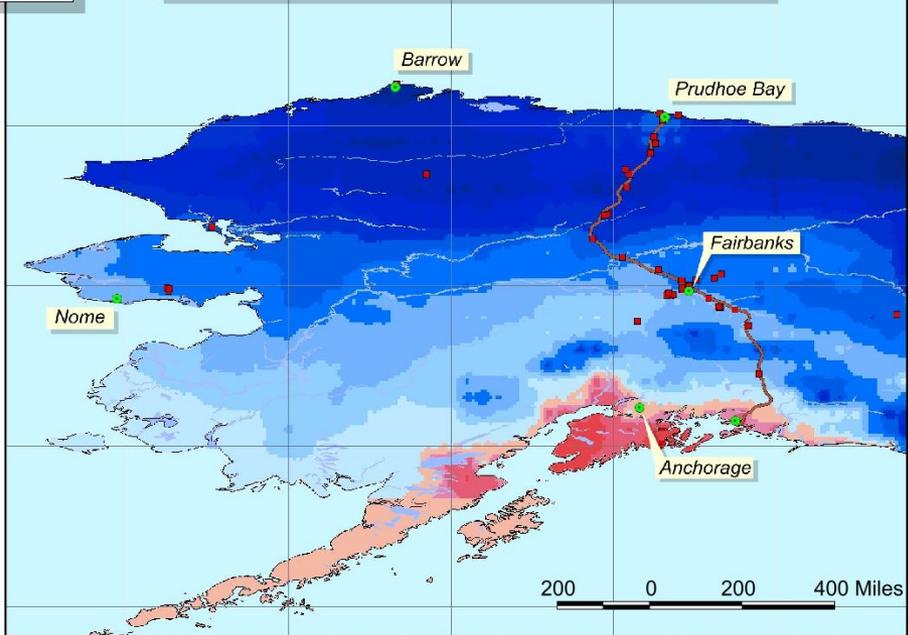
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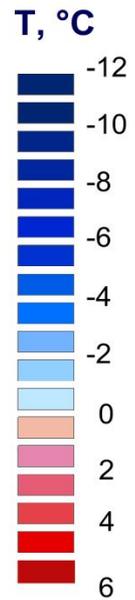


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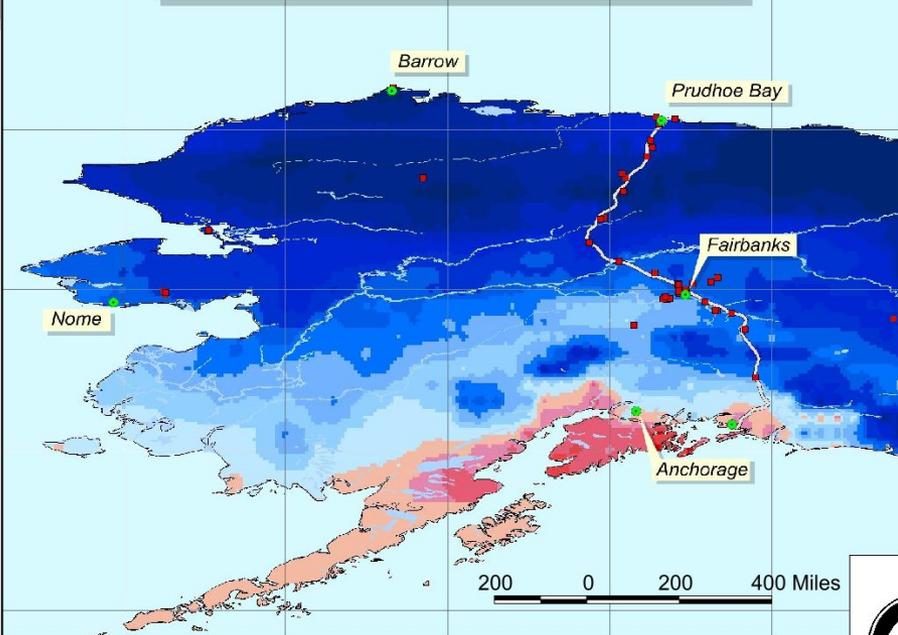


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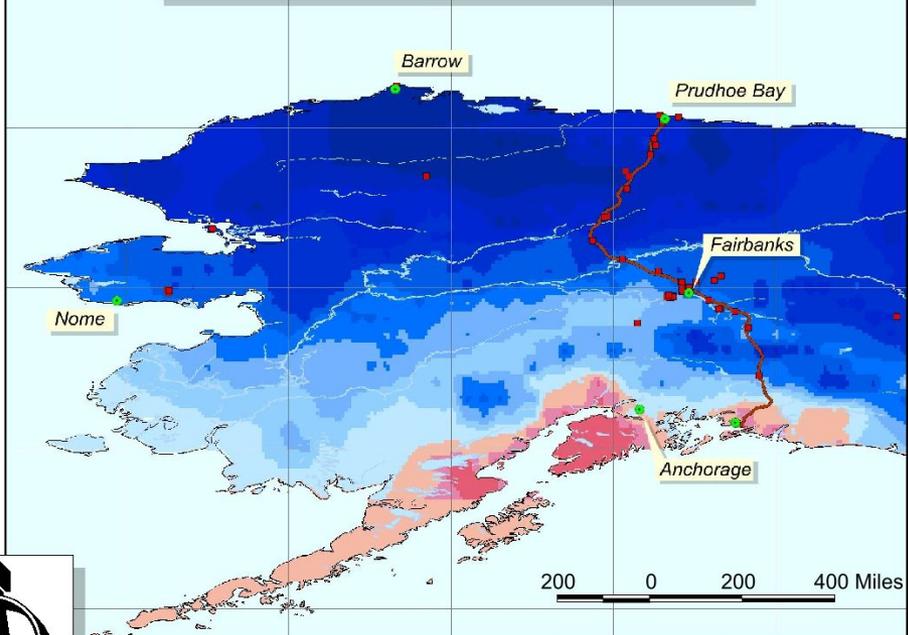
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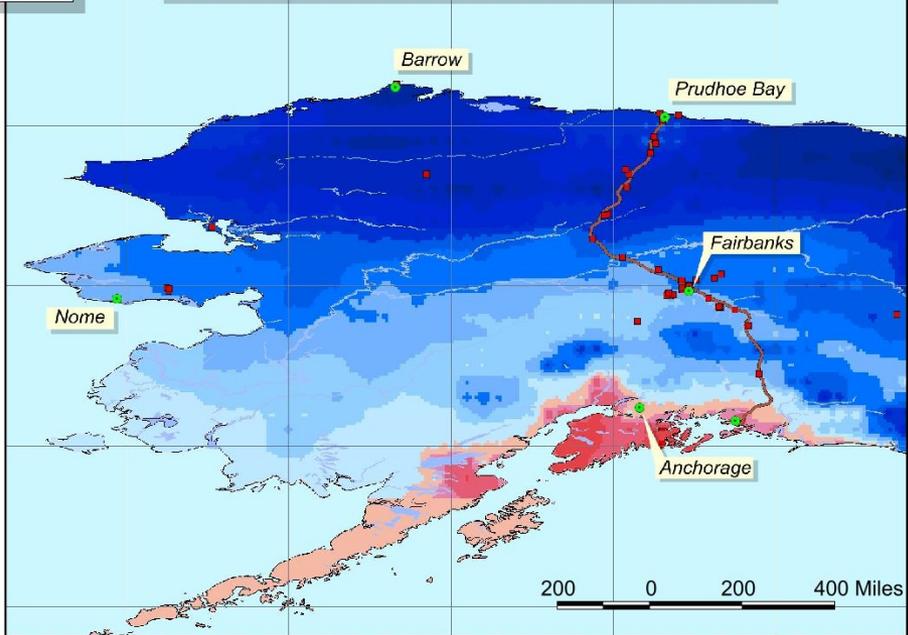
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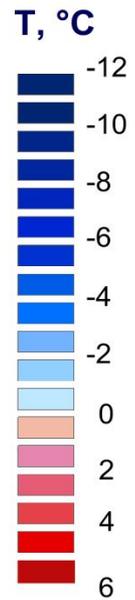


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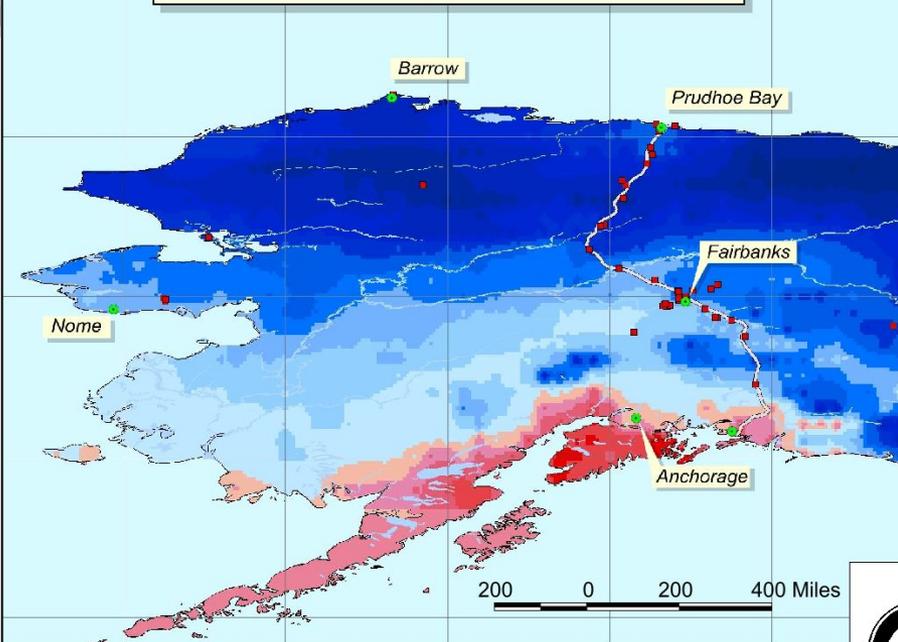


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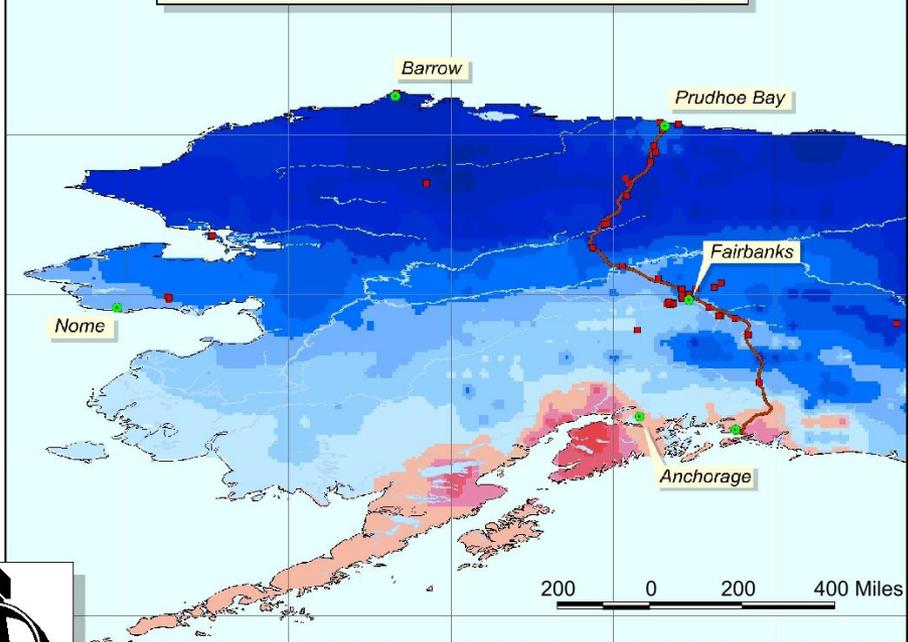
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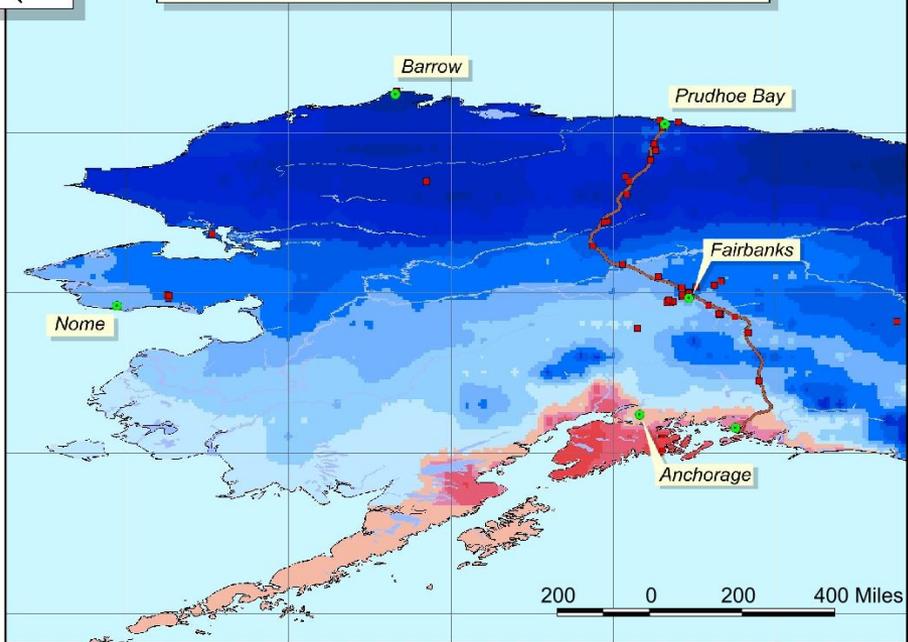
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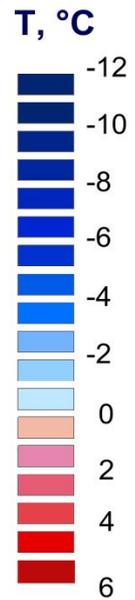


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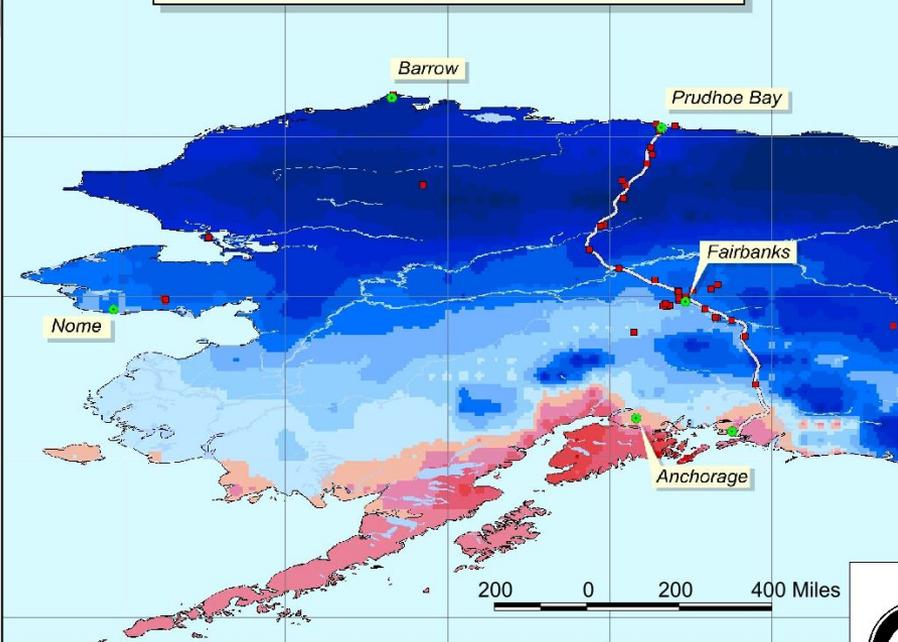


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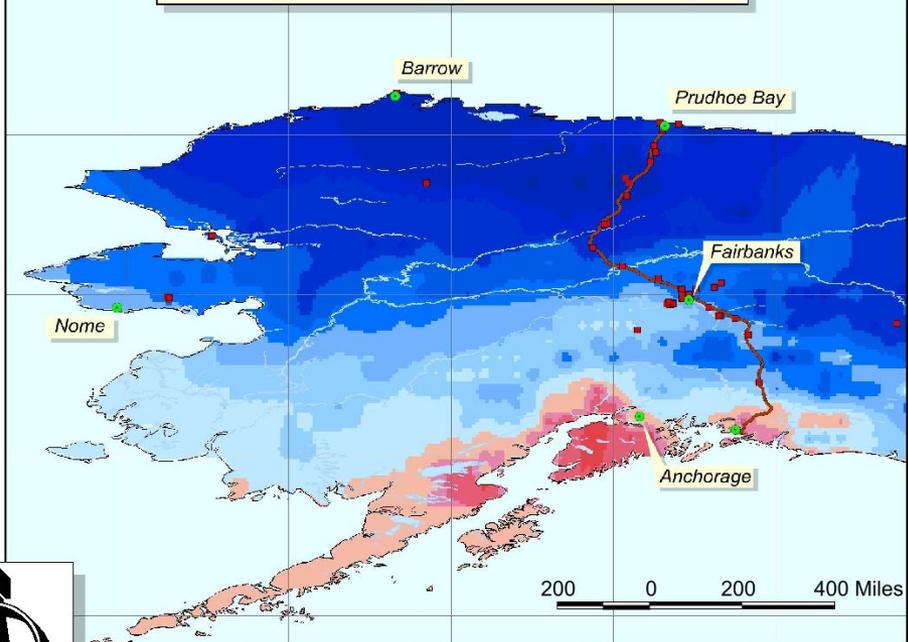
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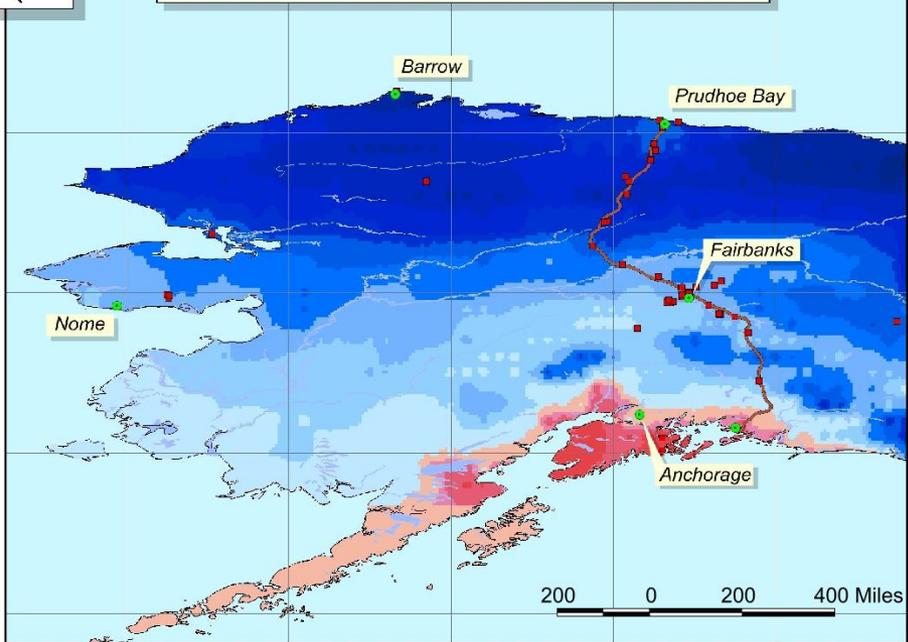
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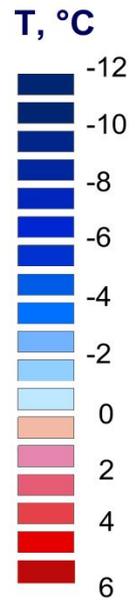


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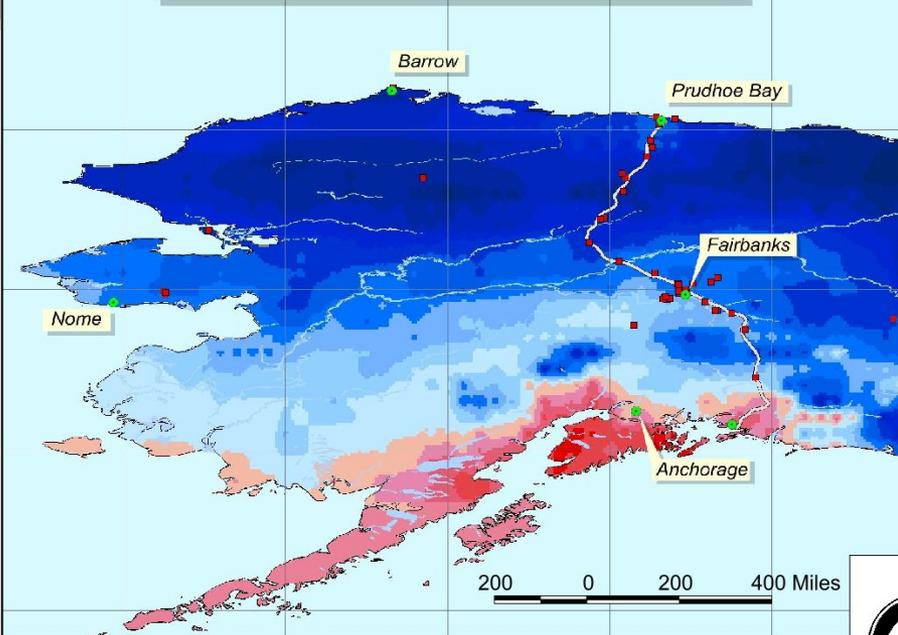


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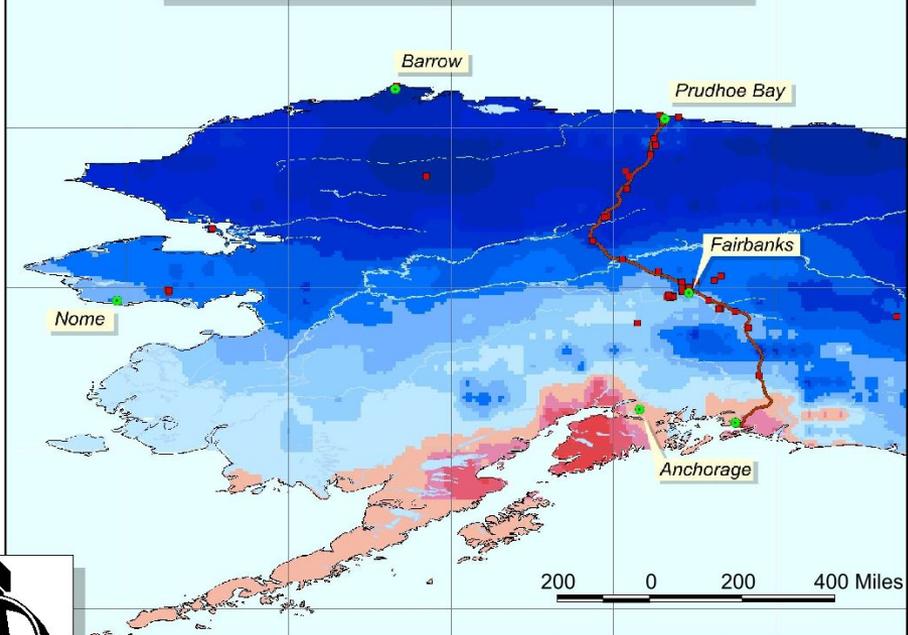
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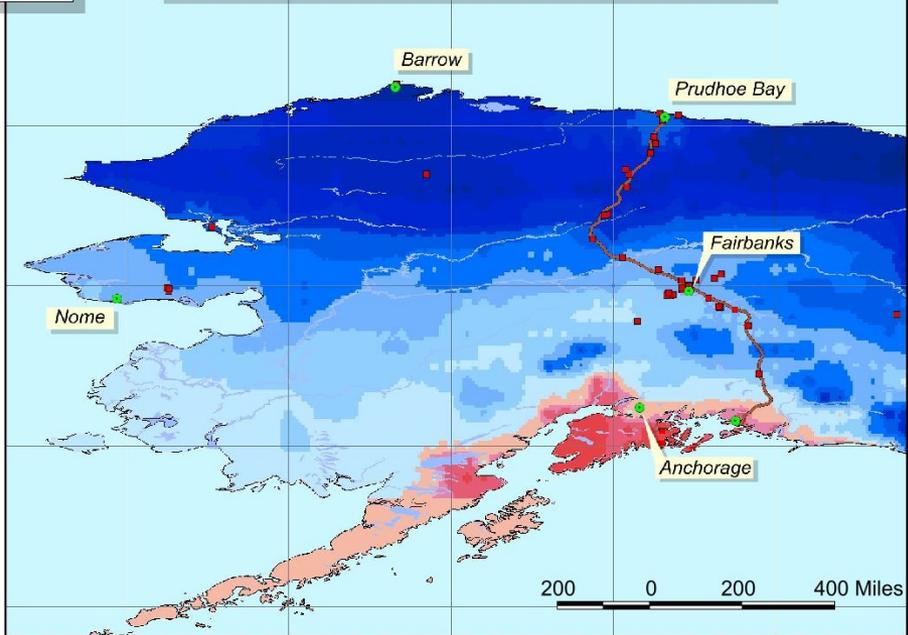
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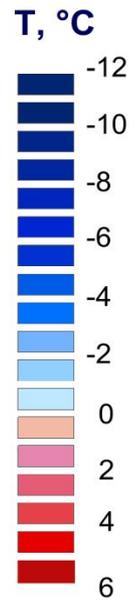


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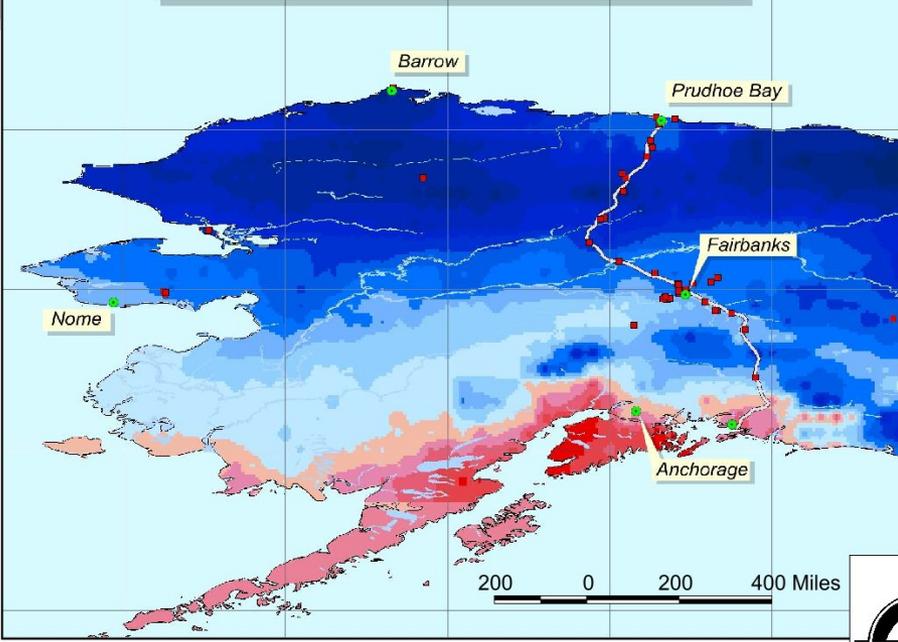


1990

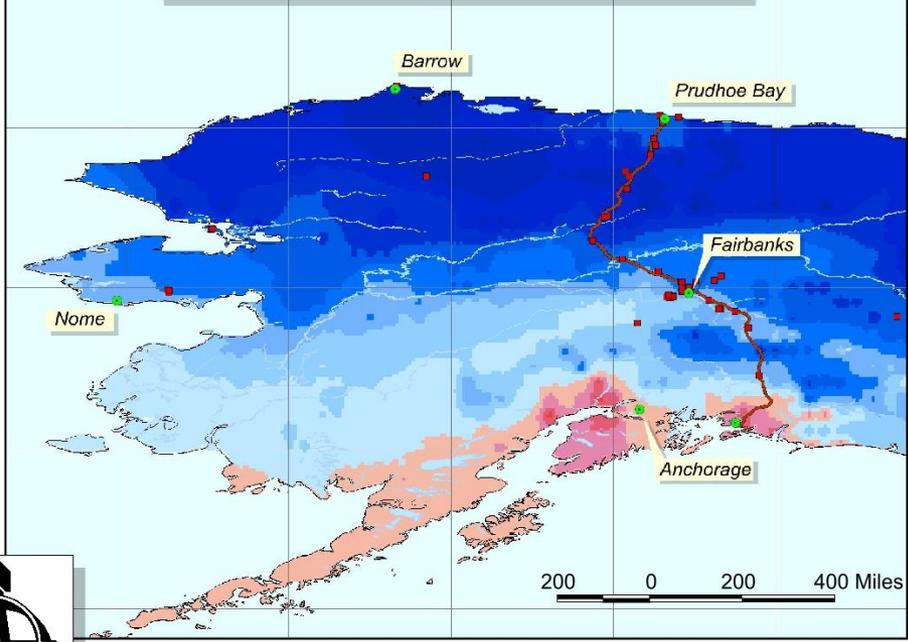
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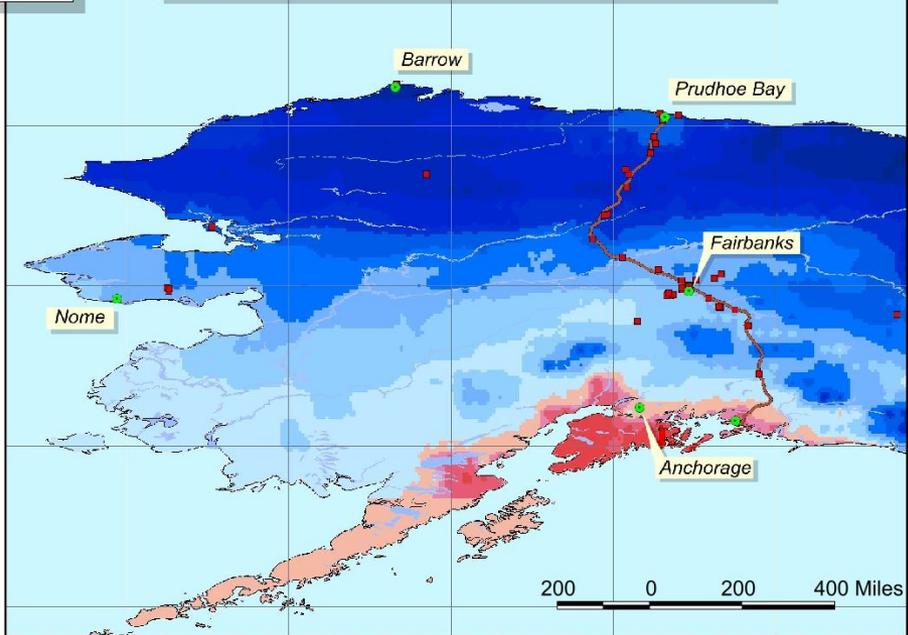
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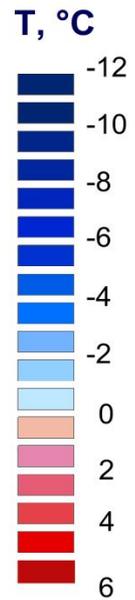


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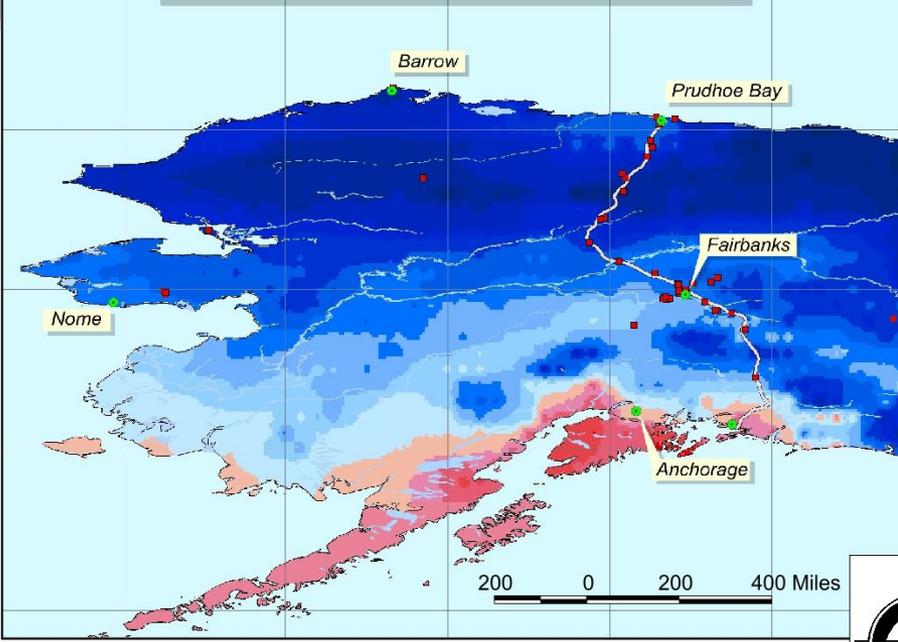


1995

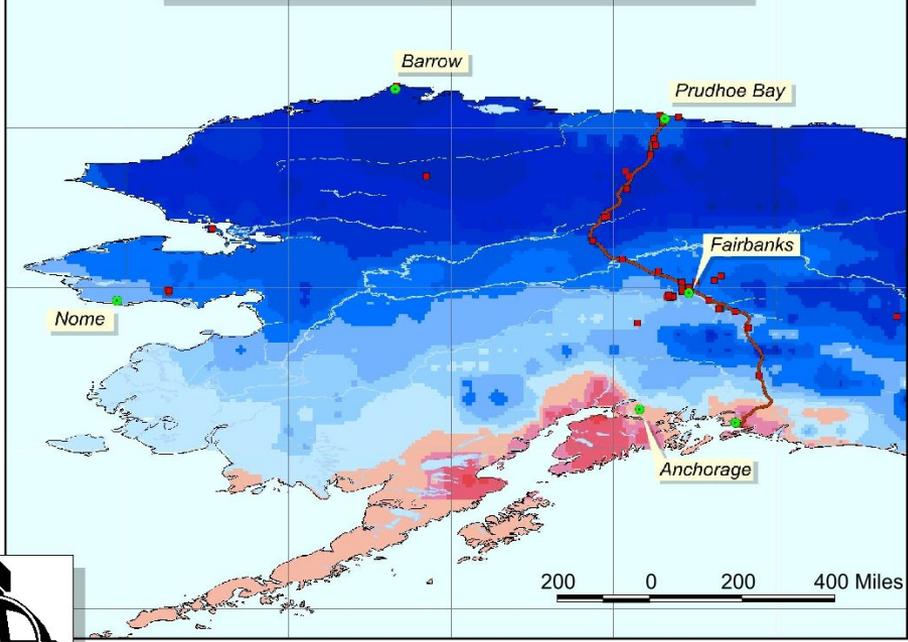
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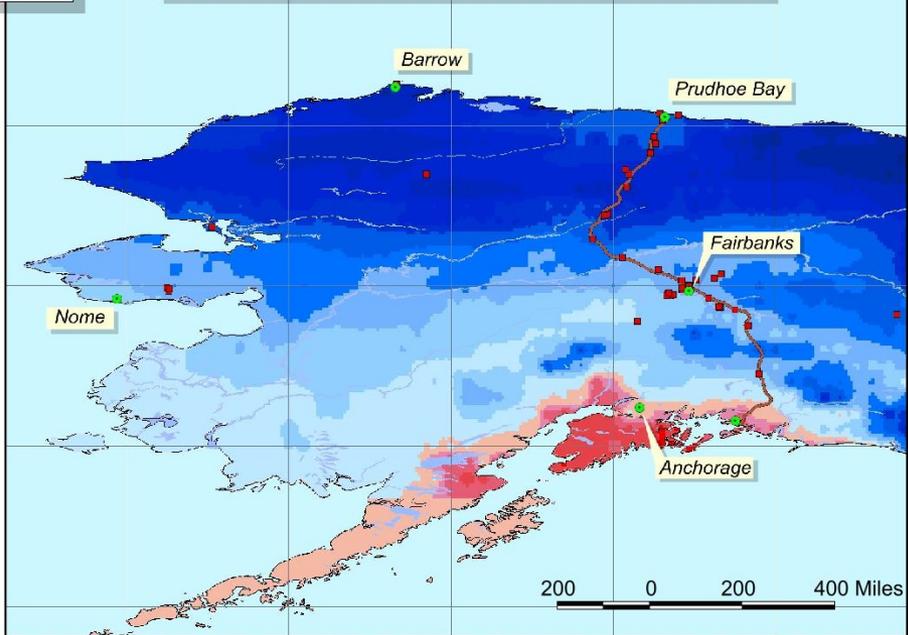
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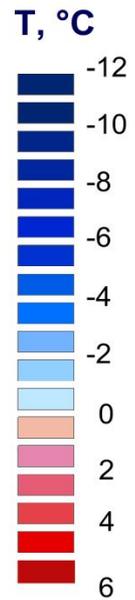


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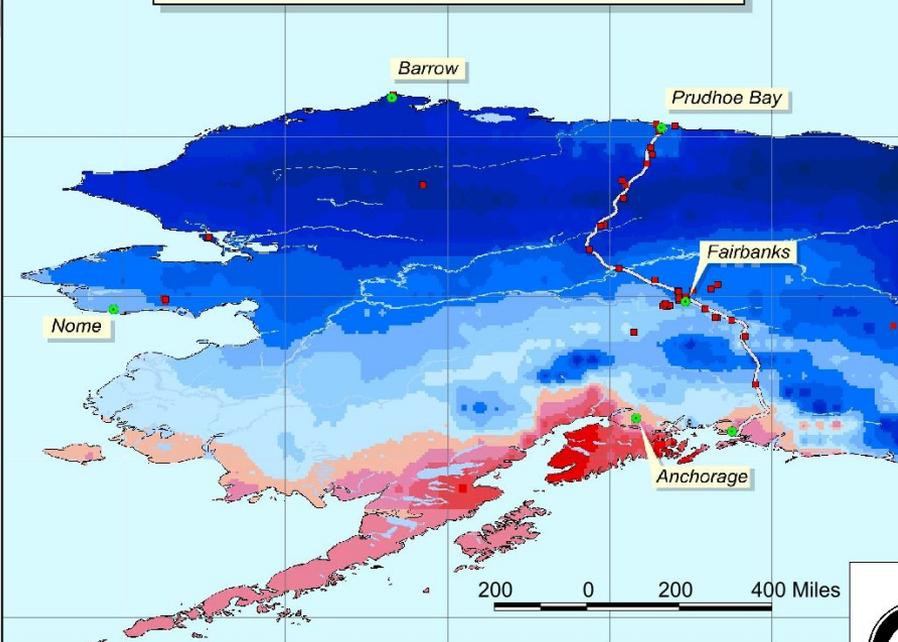


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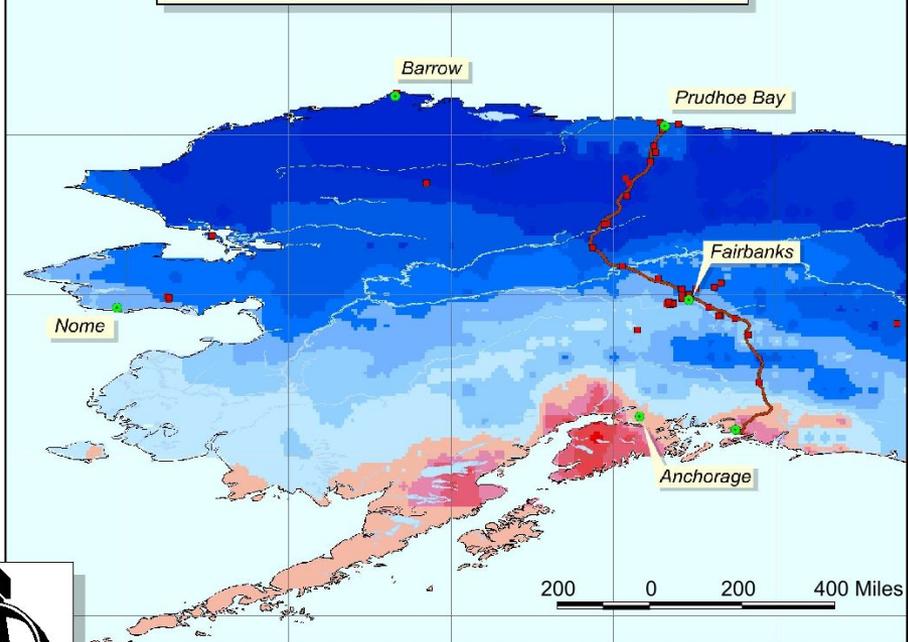
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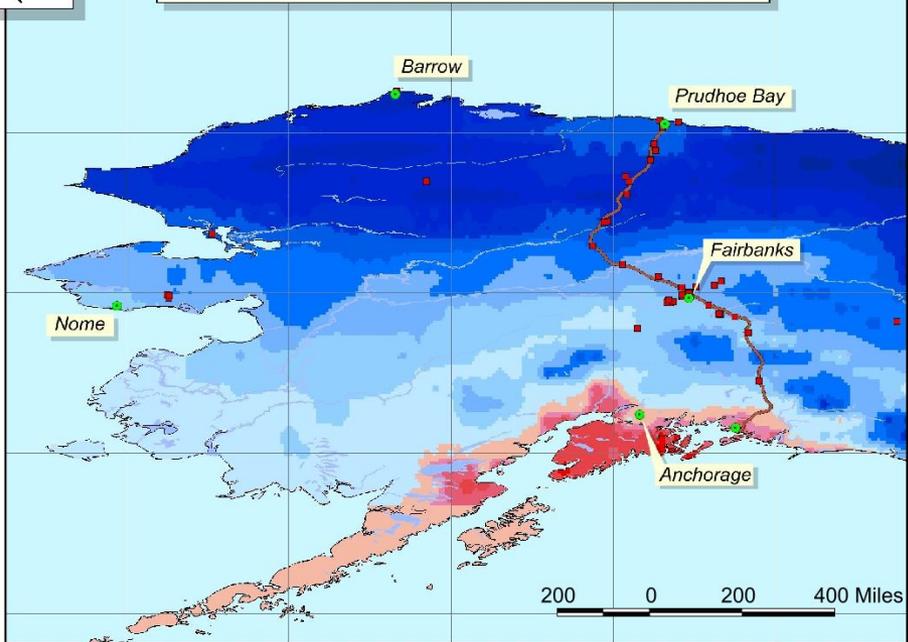
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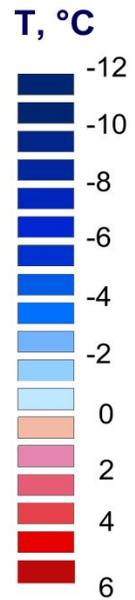


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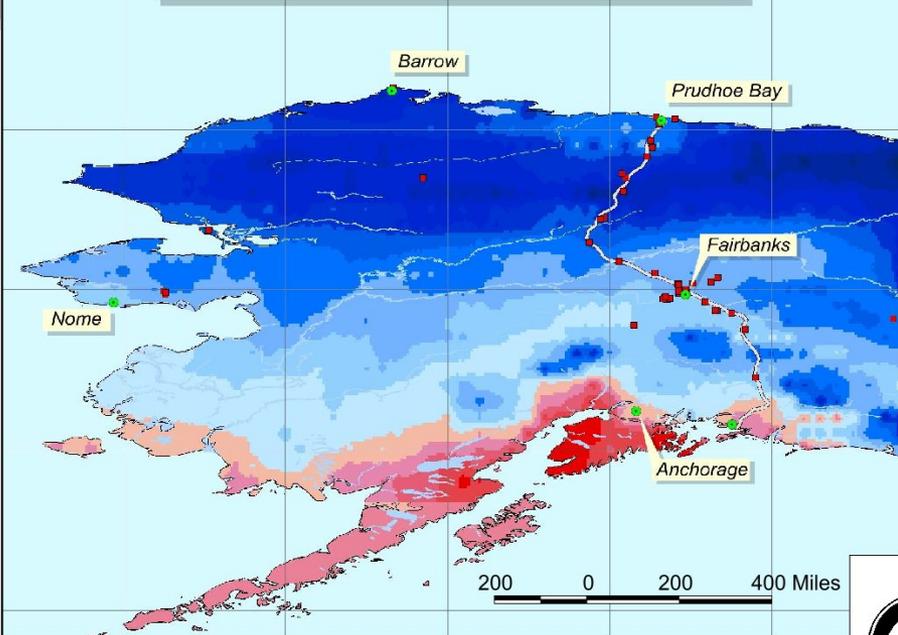


2005

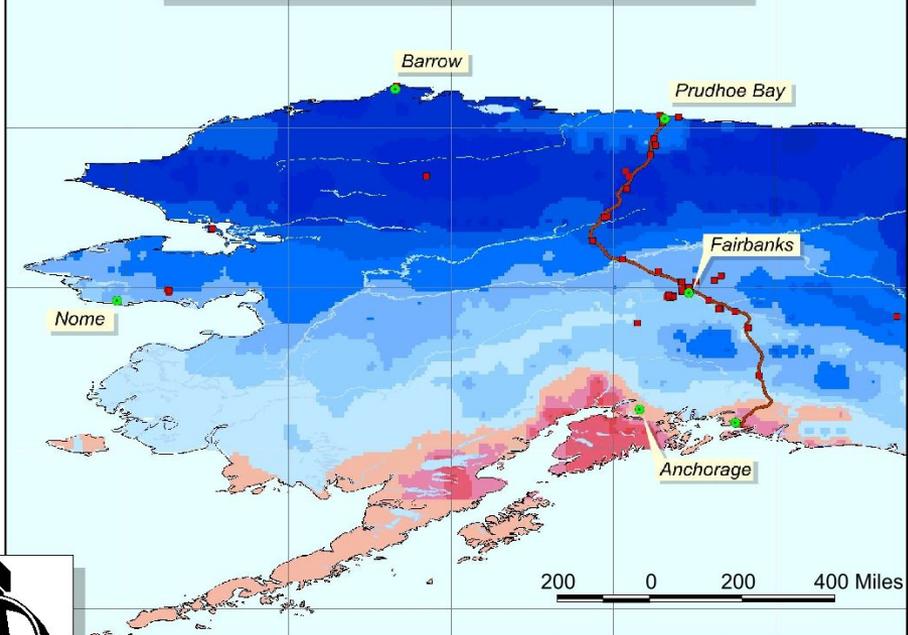
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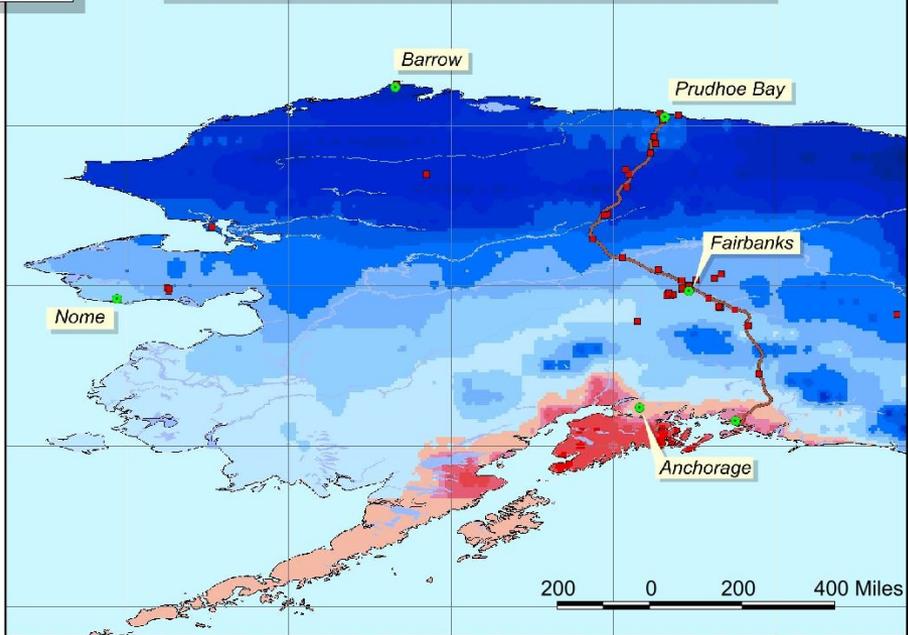
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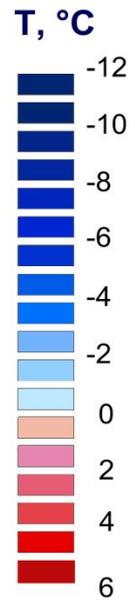


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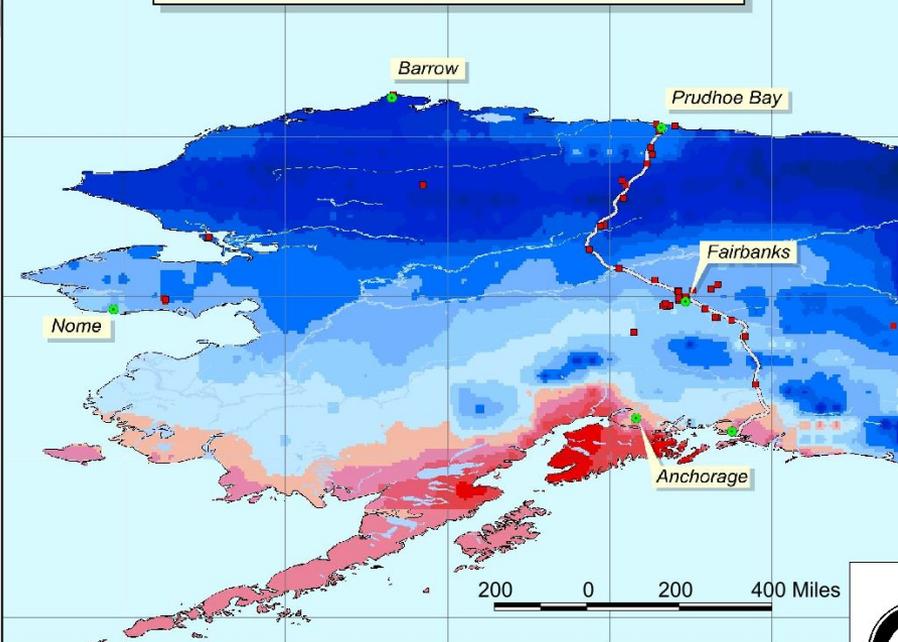


2010

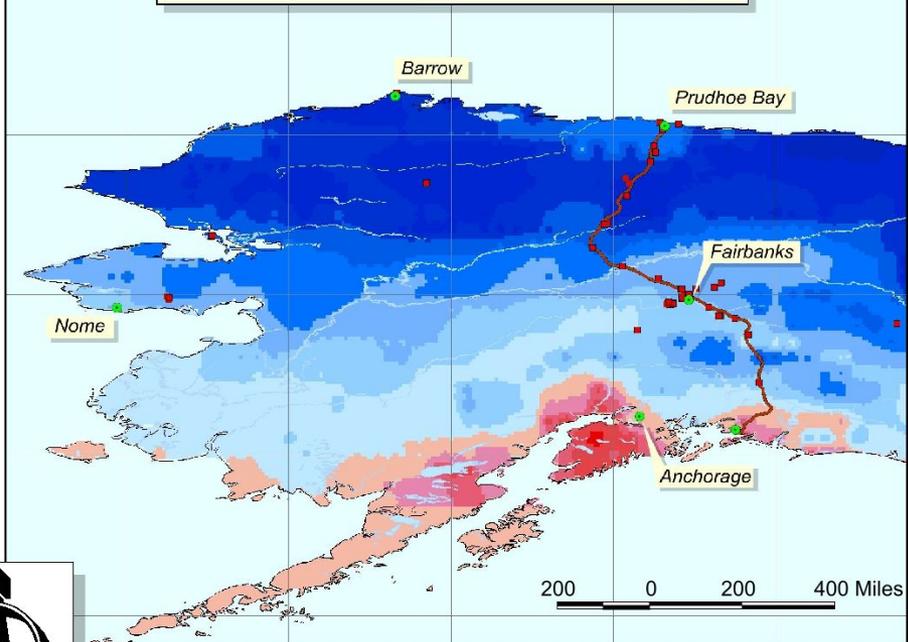
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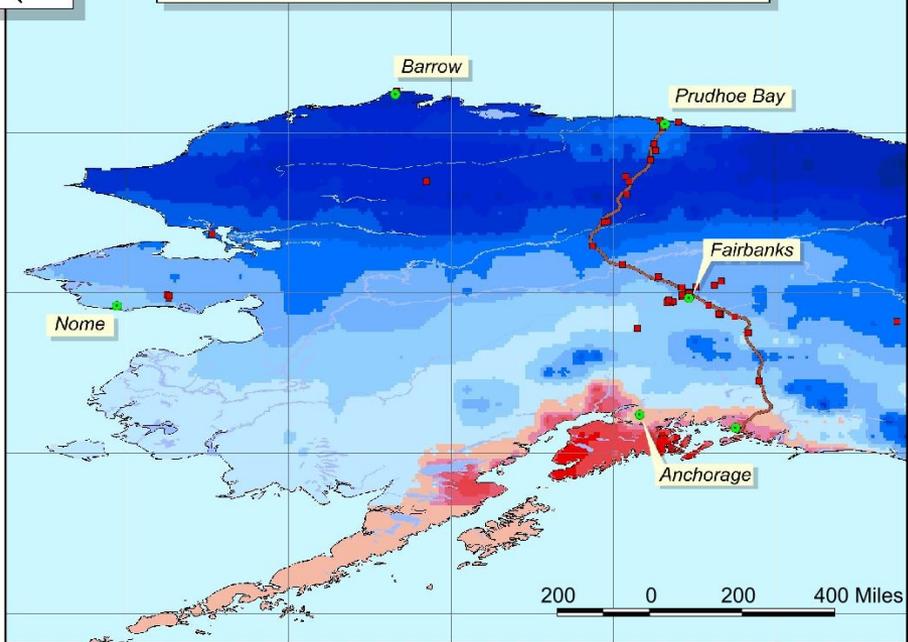
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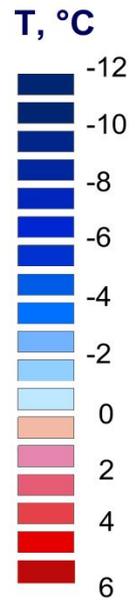


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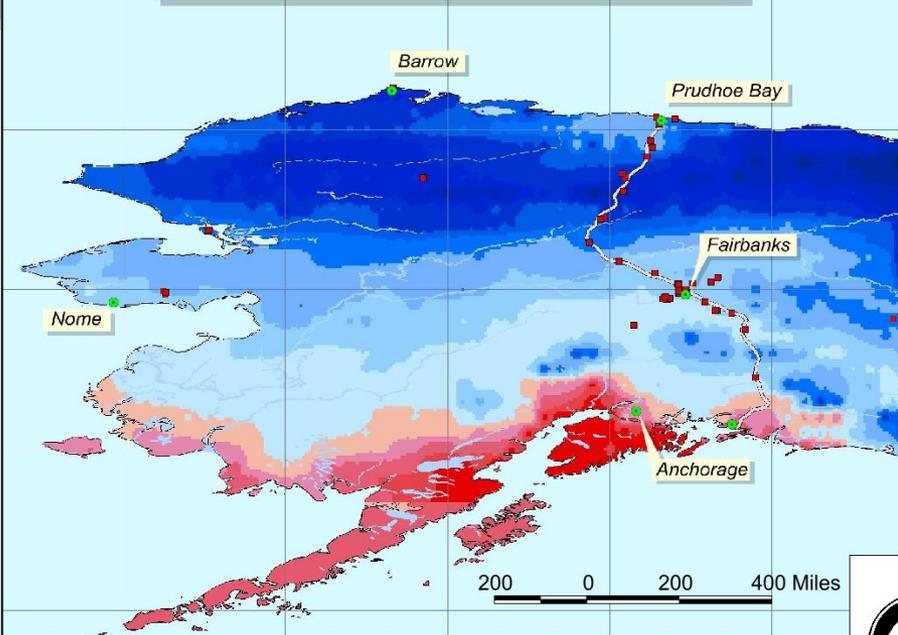


2015

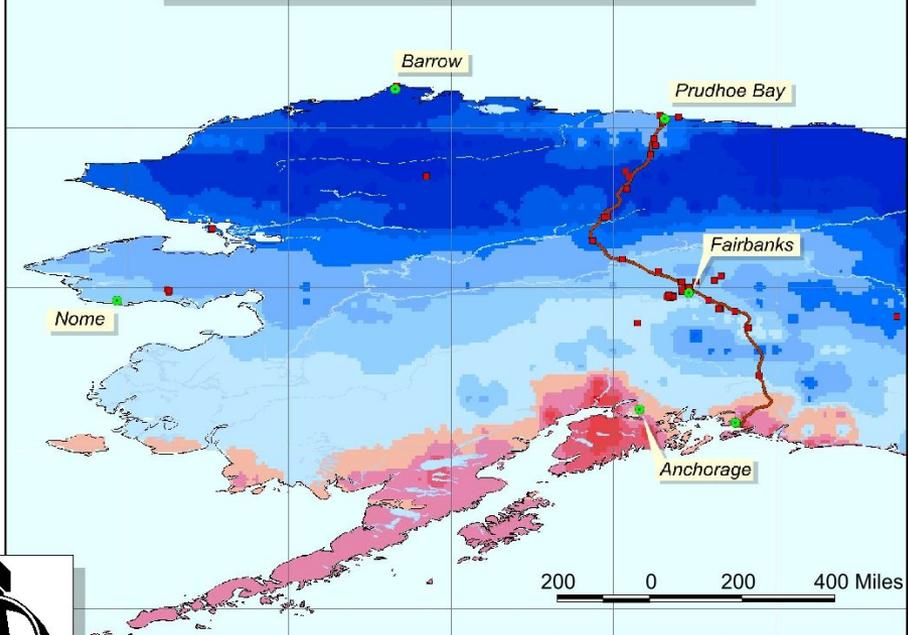
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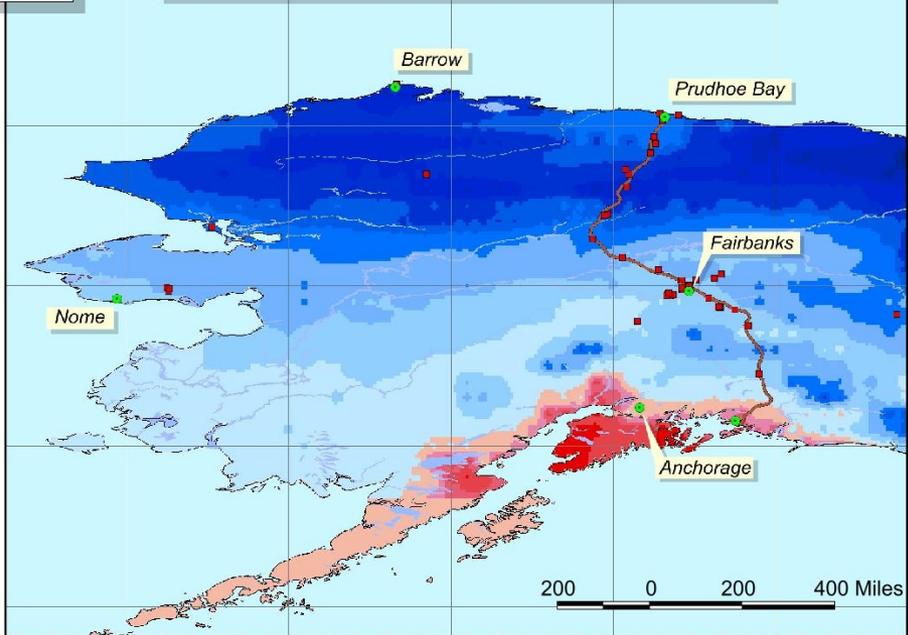
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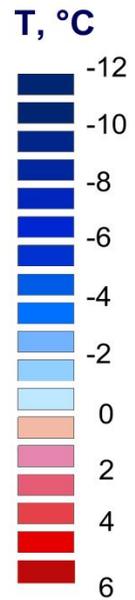


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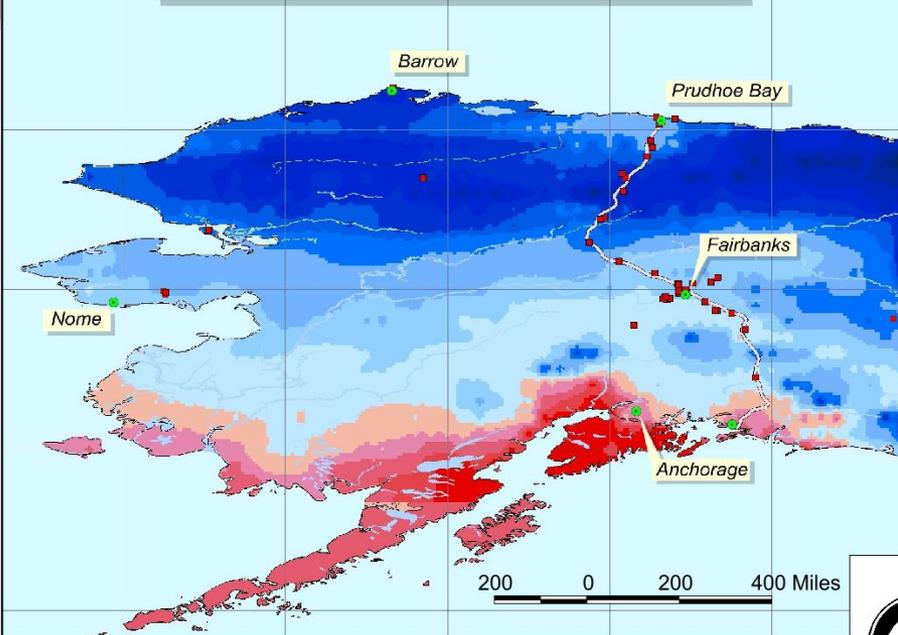


2020

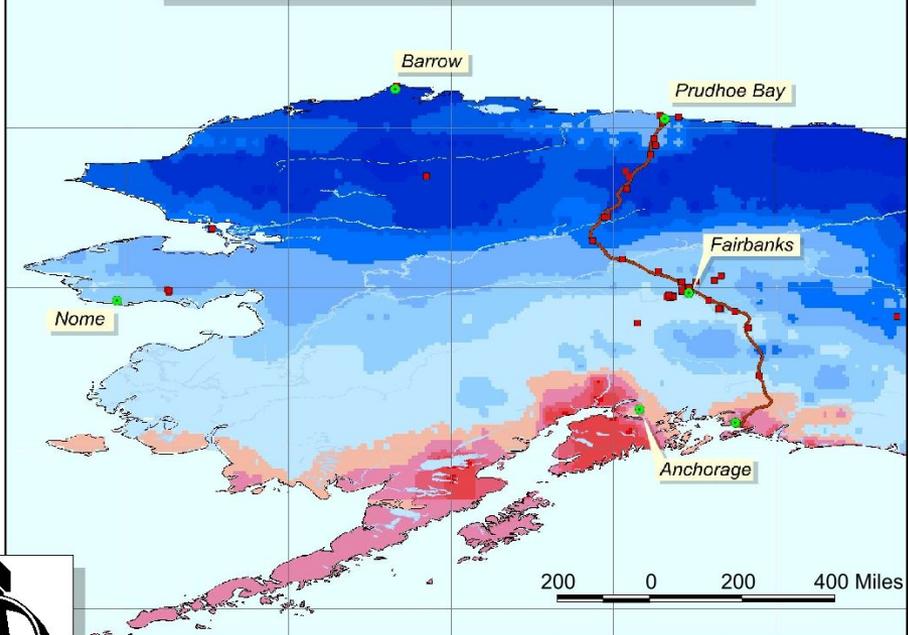
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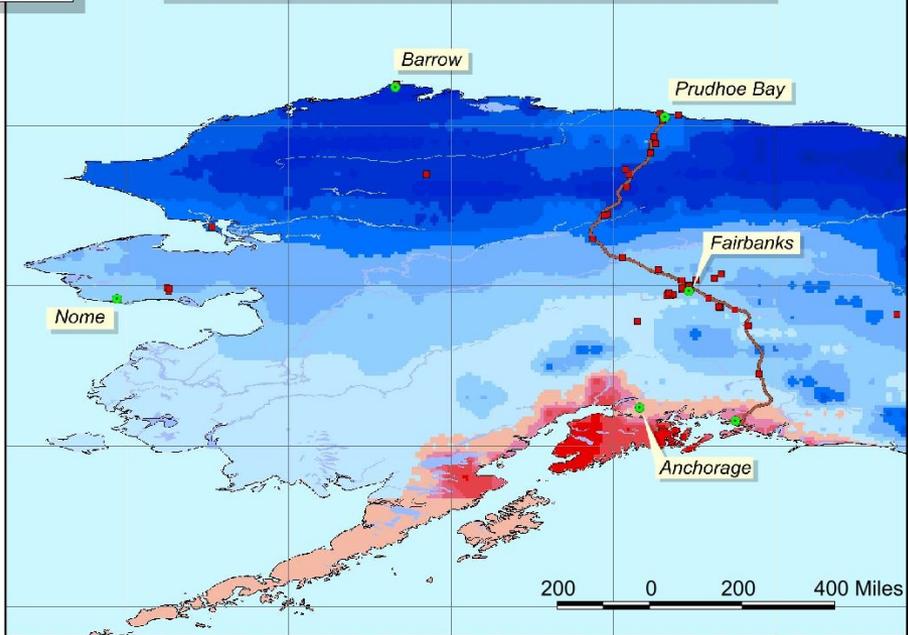
Mean Annual Temperature at 2 m Depth



Mean Annual Temperature at 5 m Depth

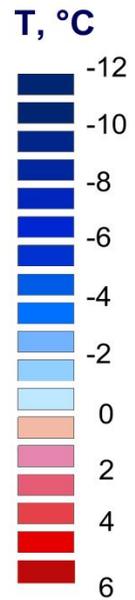


Mean Annual Temperature at 20 m Depth

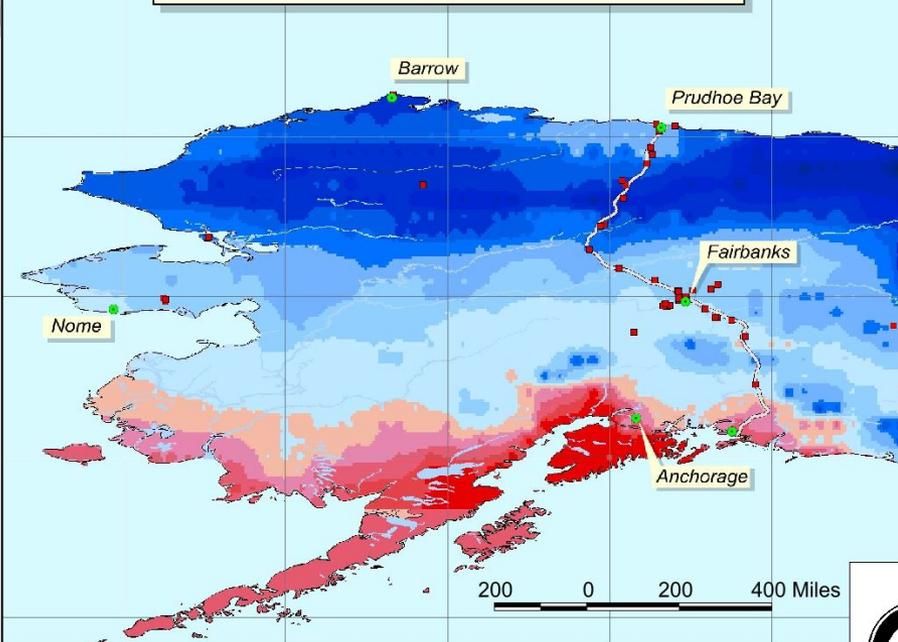


2025

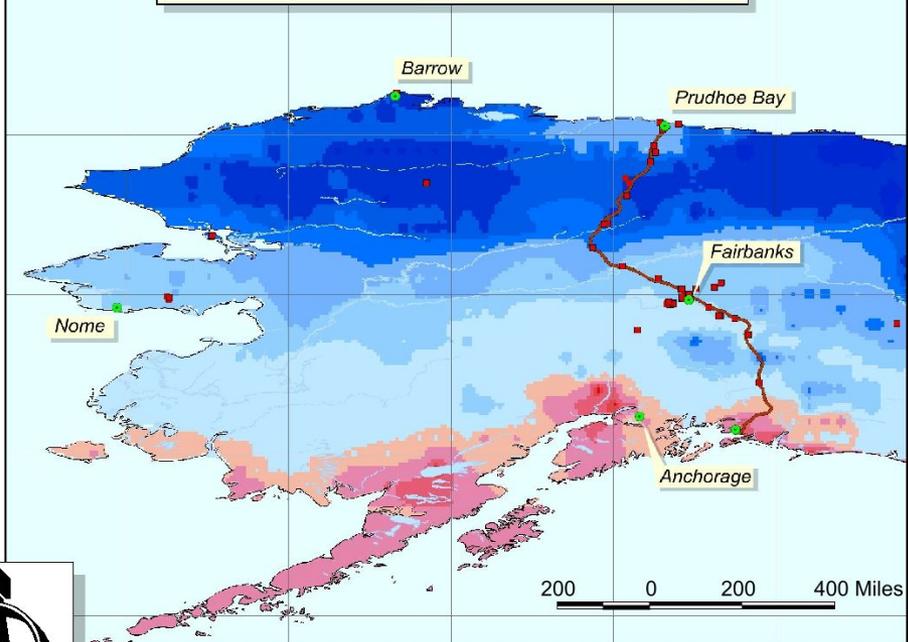
Spatially Distributed Model of Permafrost Dynamics in Alaska



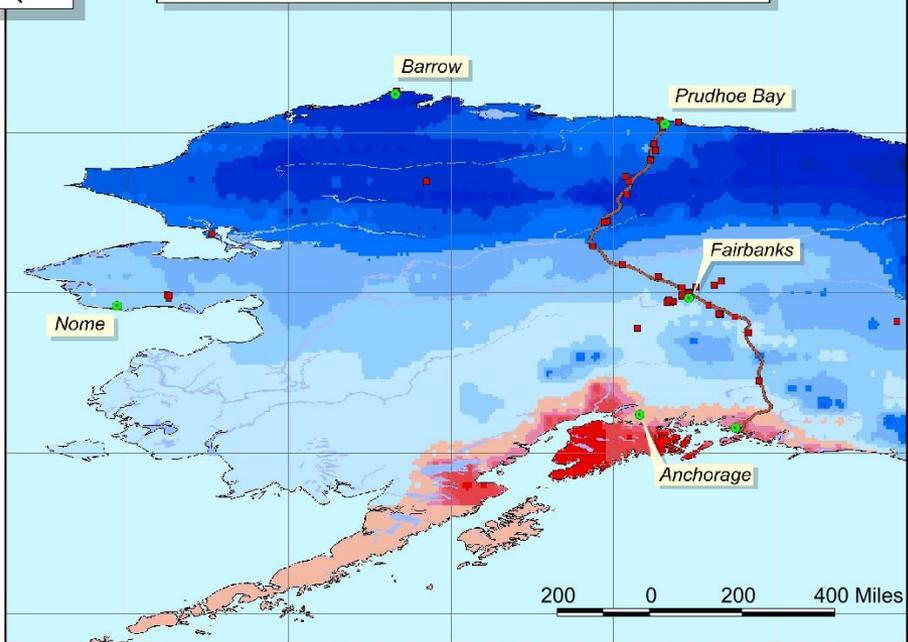
Mean Annual Temperature at 2 m Depth



Mean Annual Temperature at 5 m Depth

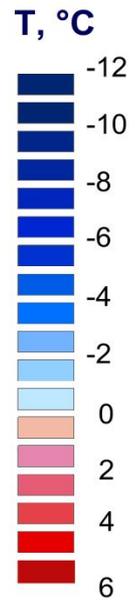


Mean Annual Temperature at 20 m Depth

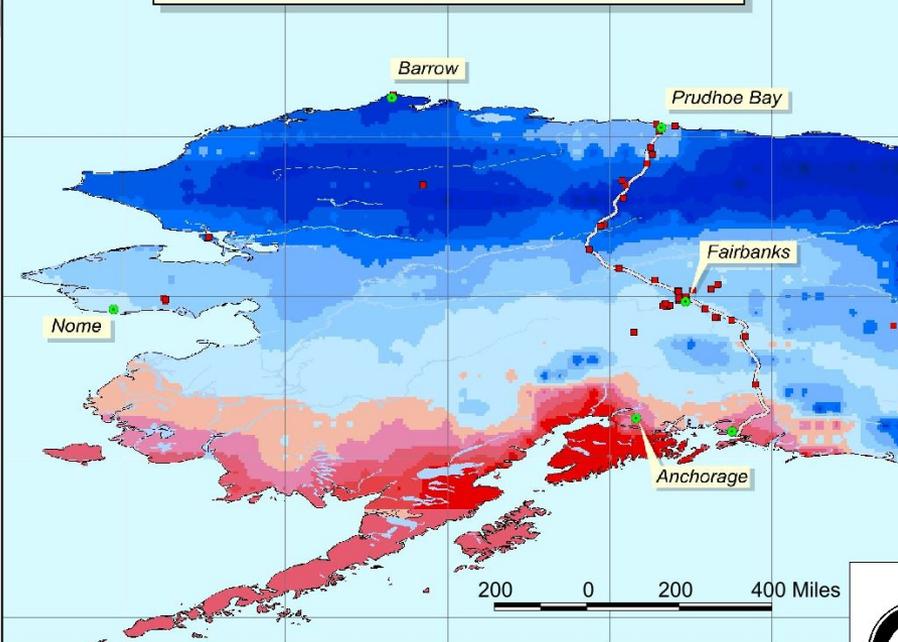


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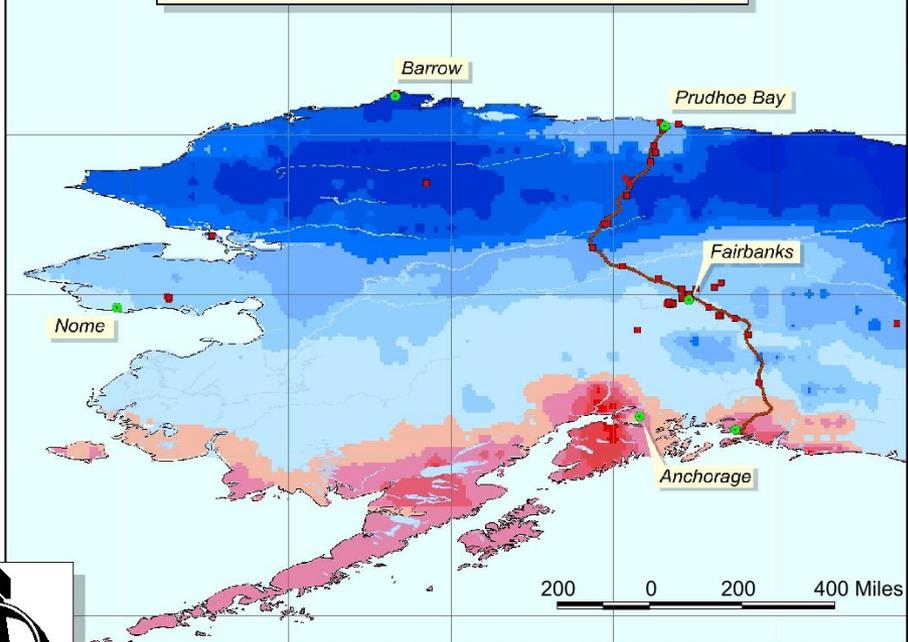
Spatially Distributed Model of Permafrost Dynamics in Alaska



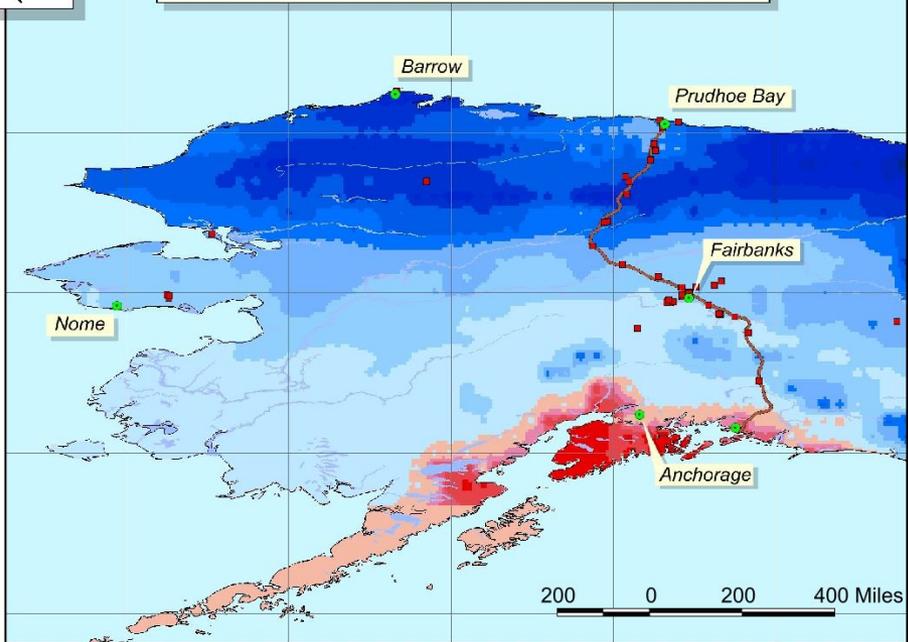
Mean Annual Temperature at 2 m Depth



Mean Annual Temperature at 5 m Depth

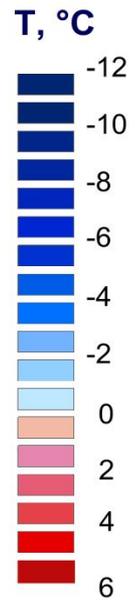


Mean Annual Temperature at 20 m Depth

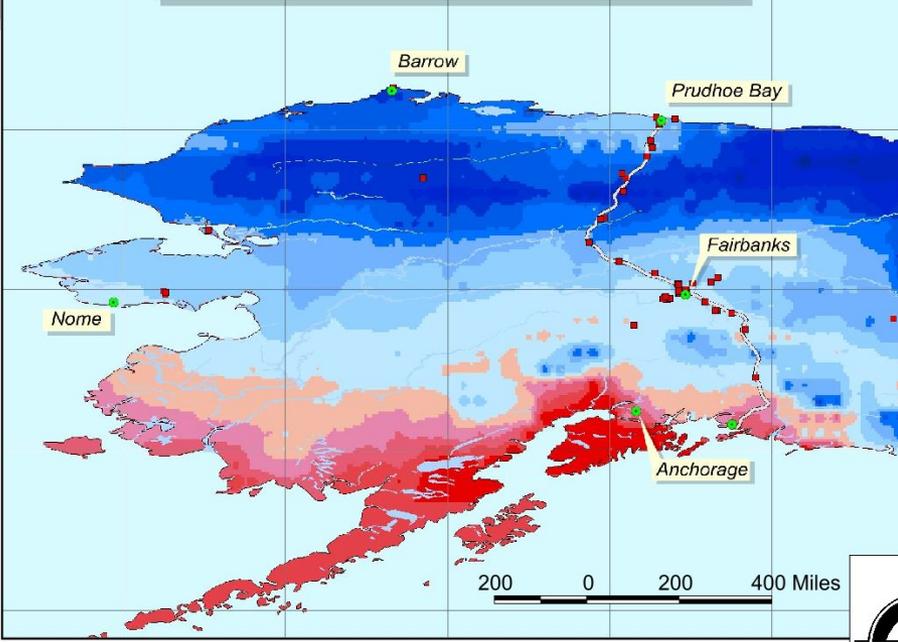


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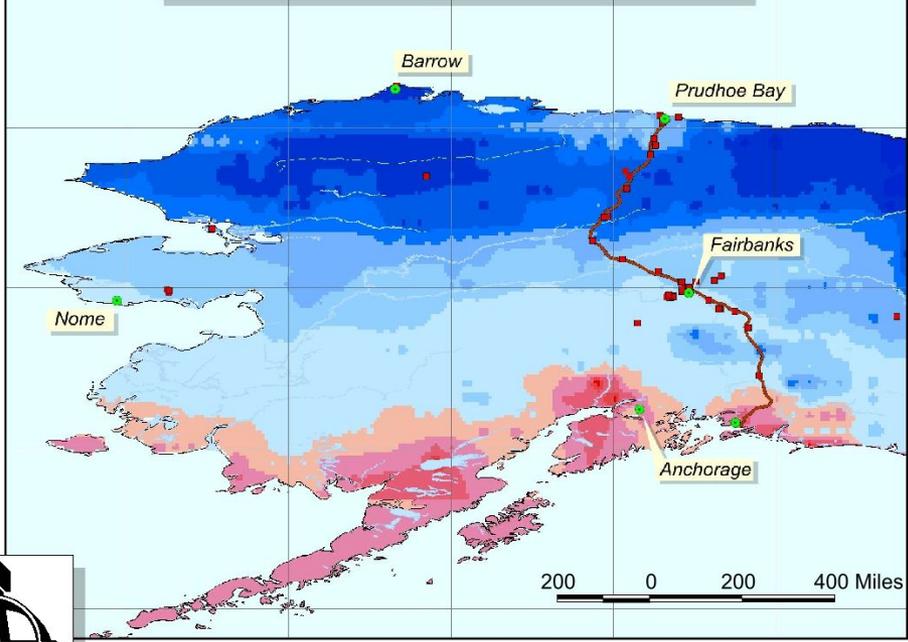
Spatially Distributed Model of Permafrost Dynamics in Alaska



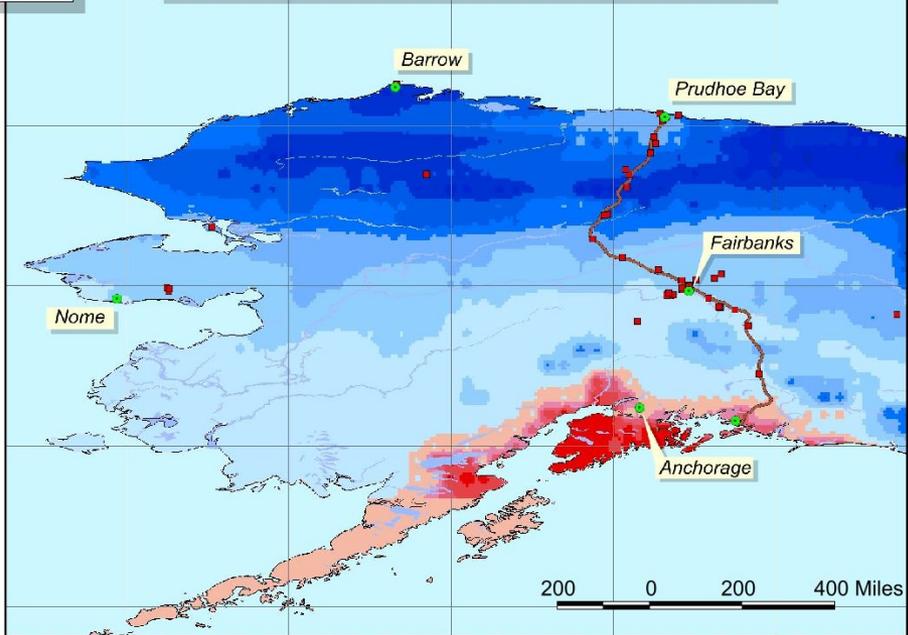
Mean Annual Temperature at 2 m Depth



Mean Annual Temperature at 5 m Depth

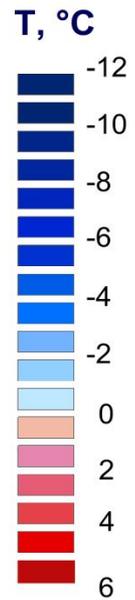


Mean Annual Temperature at 20 m Depth

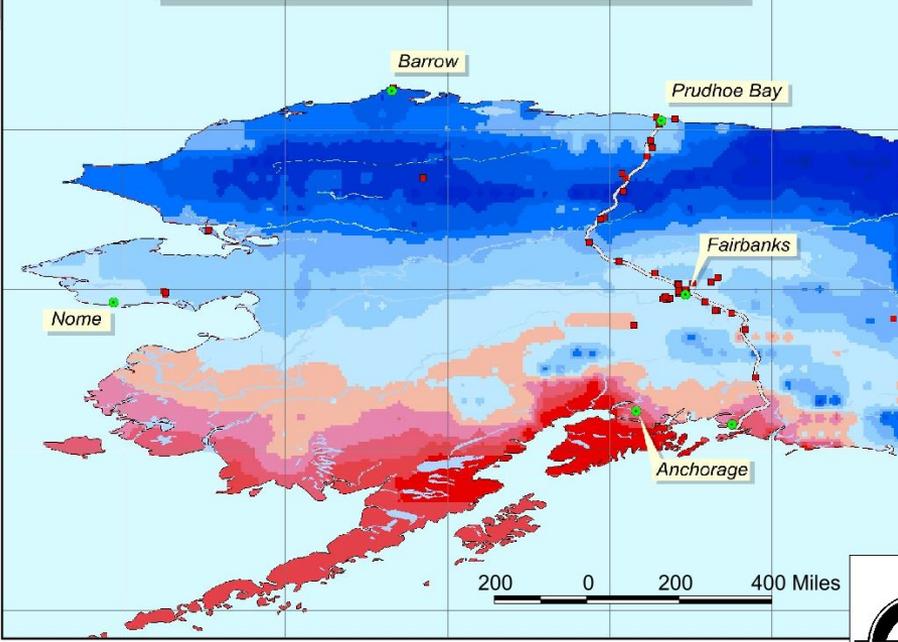


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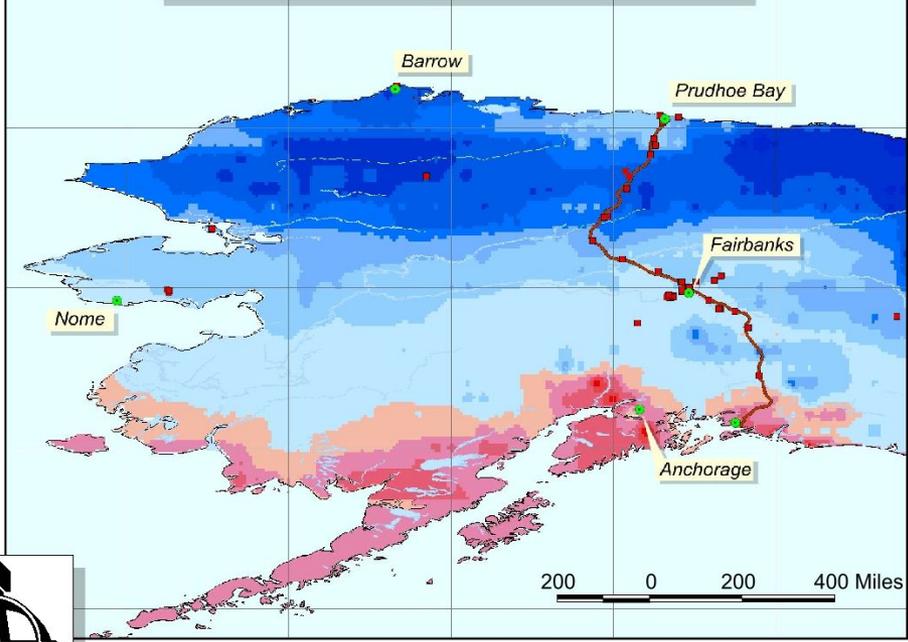
Spatially Distributed Model of Permafrost Dynamics in Alaska



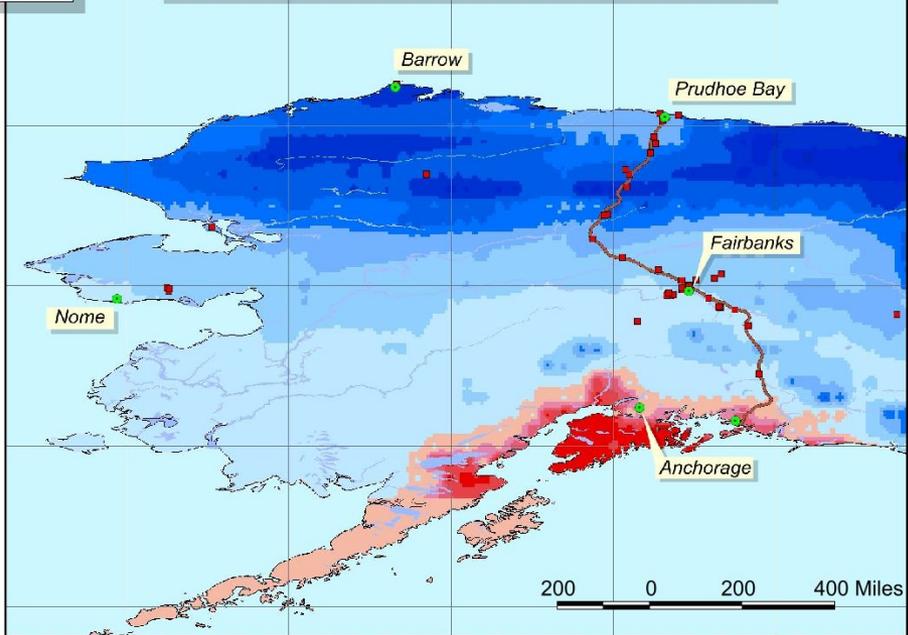
Mean Annual Temperature at 2 m Depth



Mean Annual Temperature at 5 m Depth

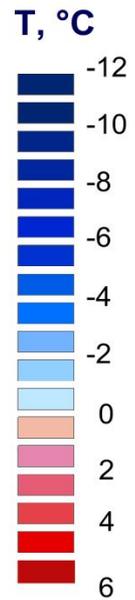


Mean Annual Temperature at 20 m Depth

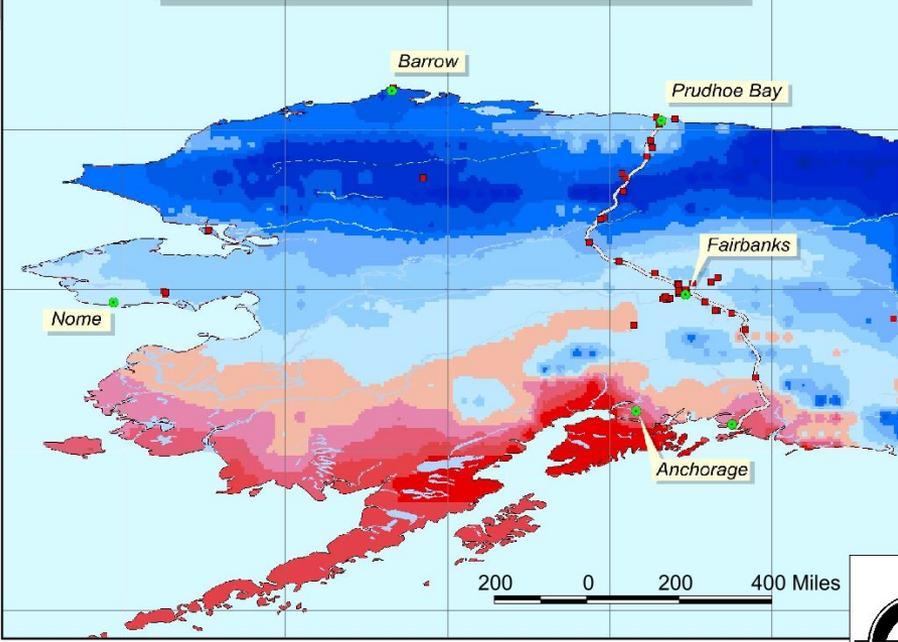


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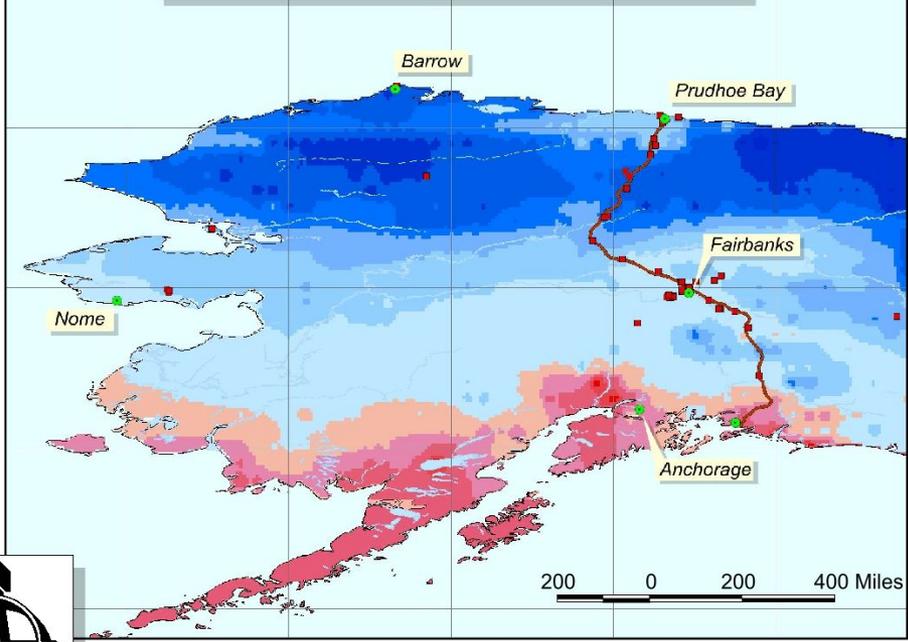
Spatially Distributed Model of Permafrost Dynamics in Alaska



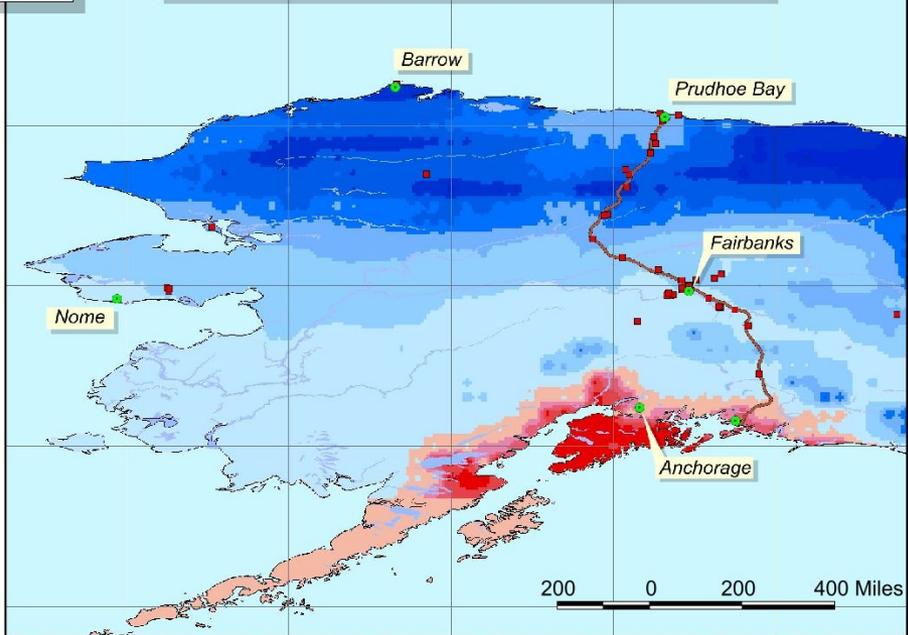
Mean Annual Temperature at 2 m Depth



Mean Annual Temperature at 5 m Depth

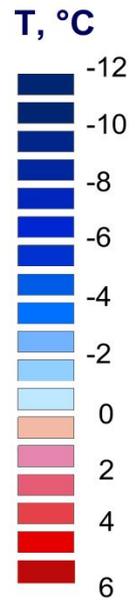


Mean Annual Temperature at 20 m Depth

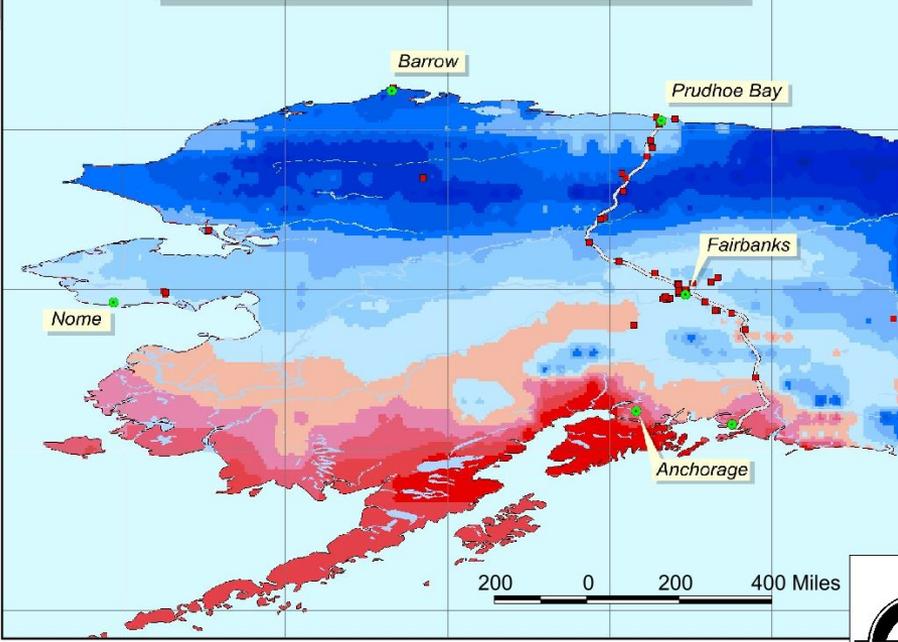


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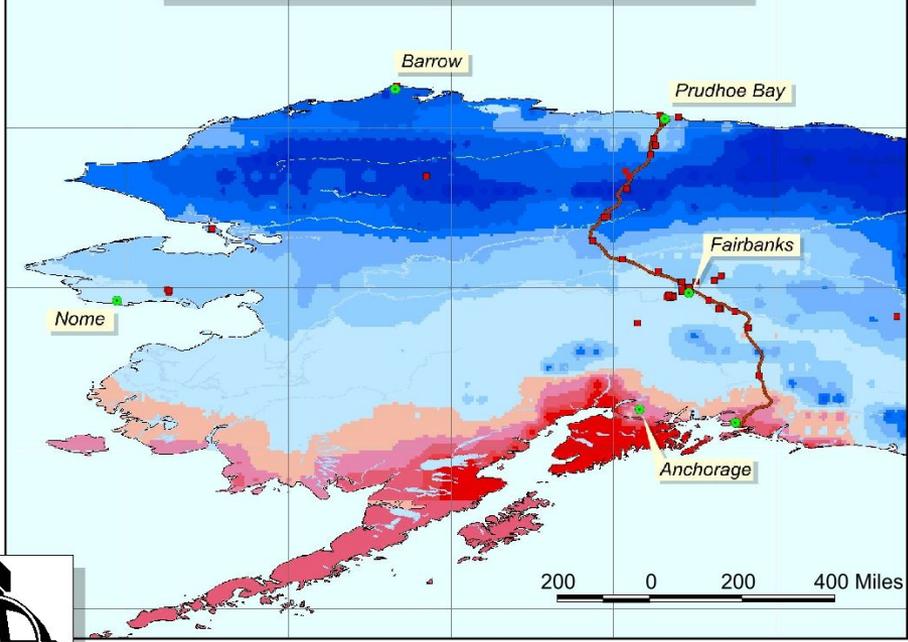
Spatially Distributed Model of Permafrost Dynamics in Alaska



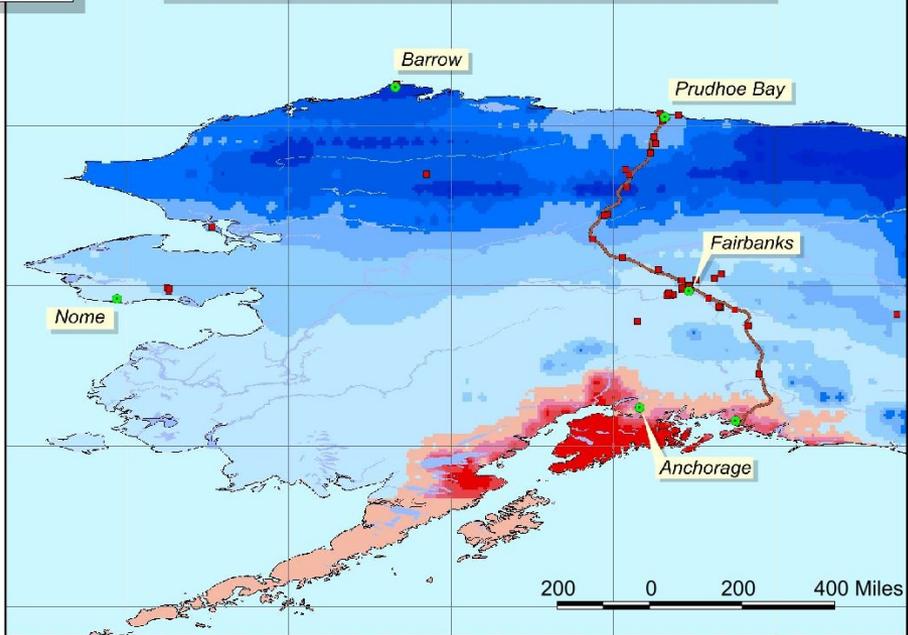
Mean Annual Temperature at 2 m Depth



Mean Annual Temperature at 5 m Depth

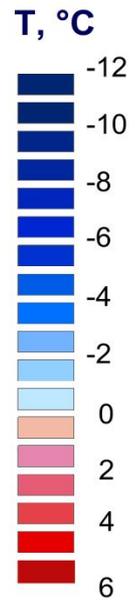


Mean Annual Temperature at 20 m Depth

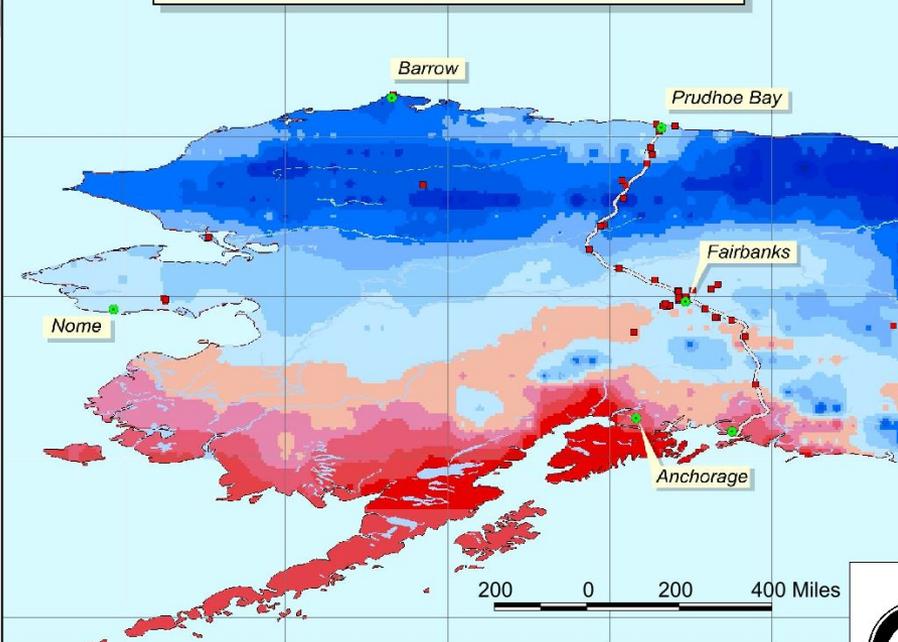


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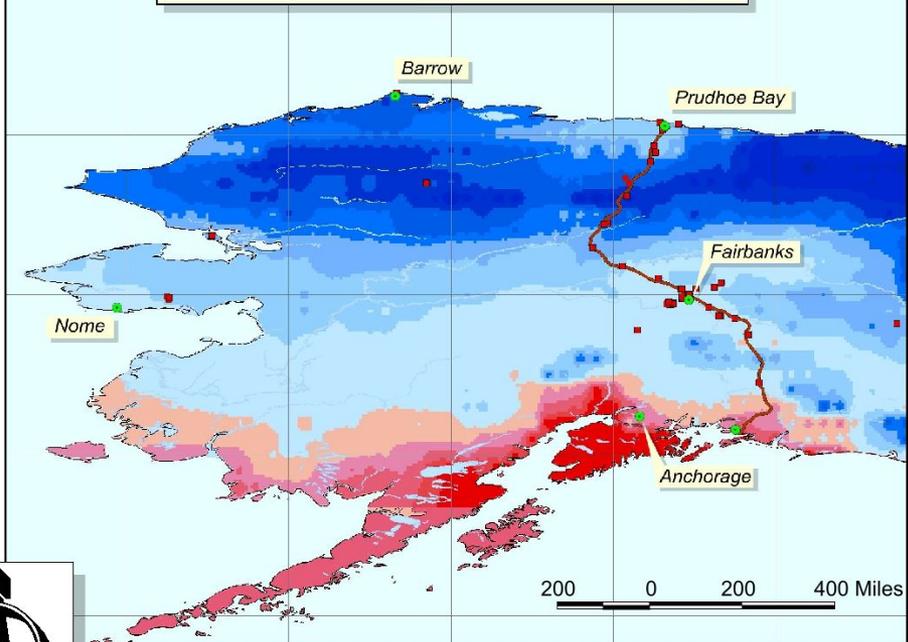
Spatially Distributed Model of Permafrost Dynamics in Alaska



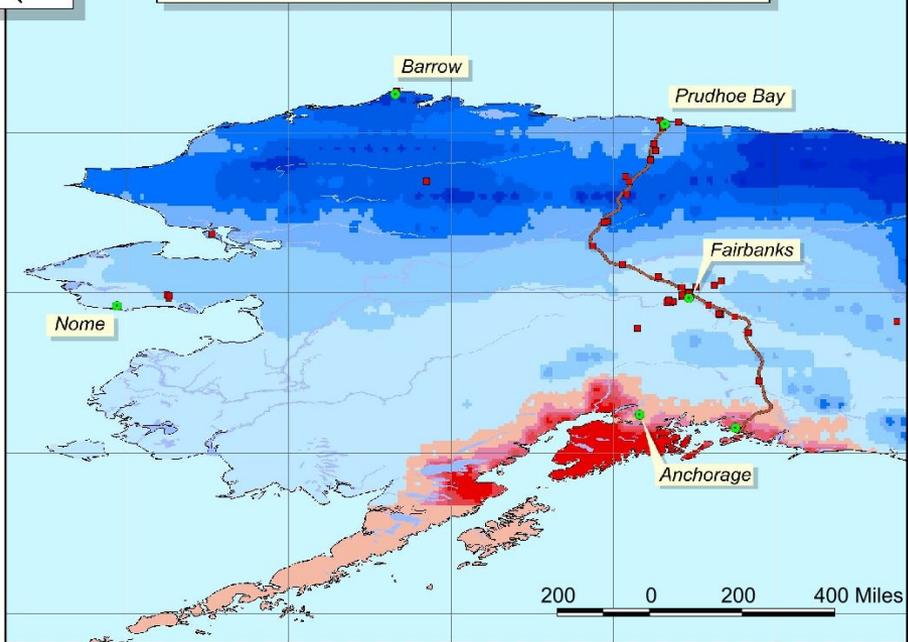
Mean Annual Temperature at 2 m Depth



Mean Annual Temperature at 5 m Depth

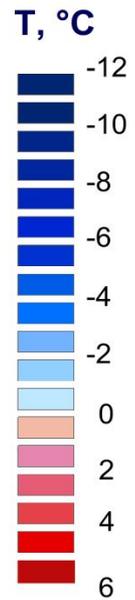


Mean Annual Temperature at 20 m Depth

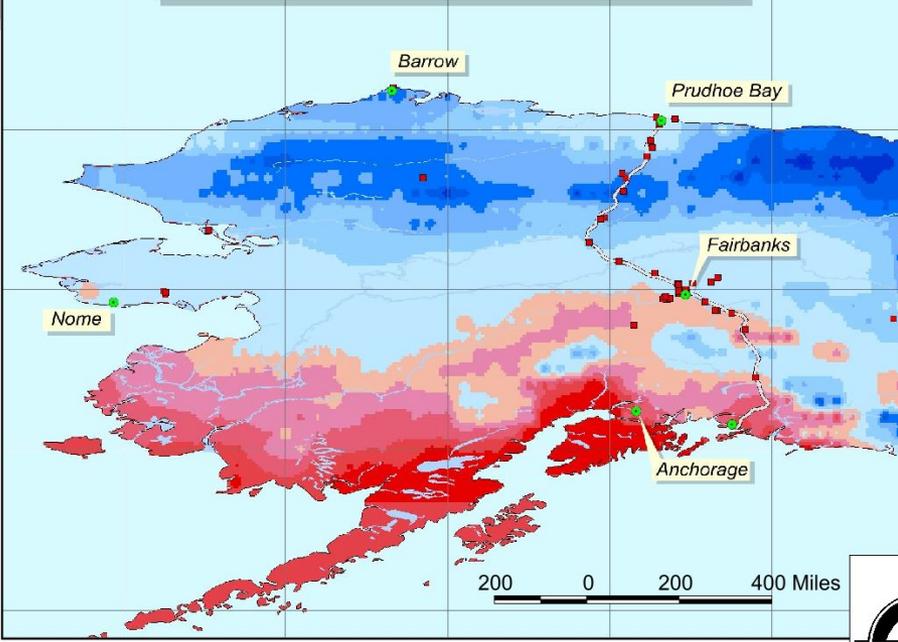


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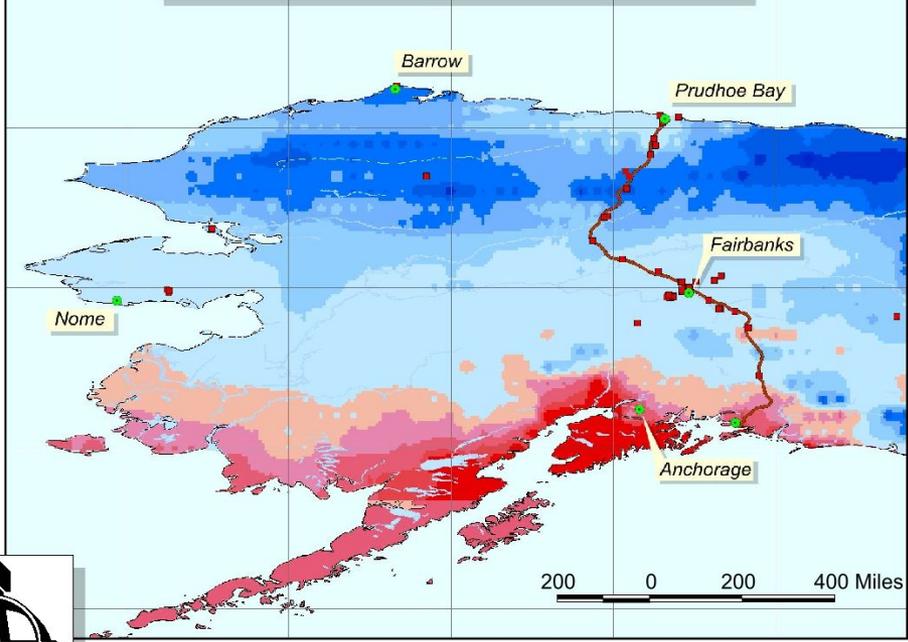
Spatially Distributed Model of Permafrost Dynamics in Alaska



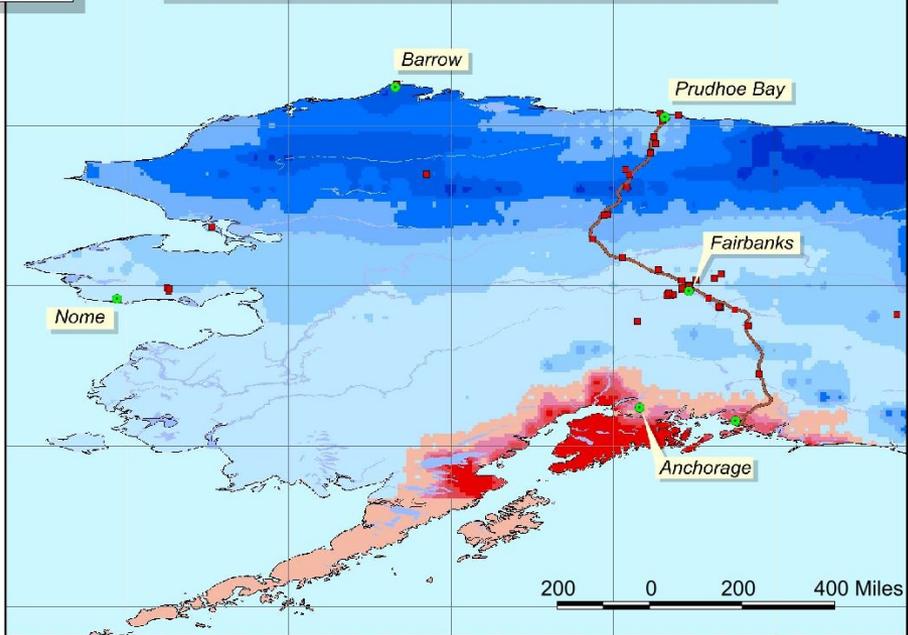
Mean Annual Temperature at 2 m Depth



Mean Annual Temperature at 5 m Depth

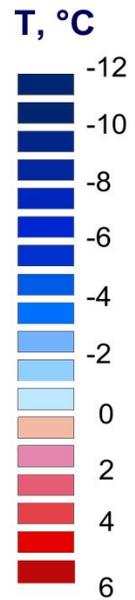


Mean Annual Temperature at 20 m Depth

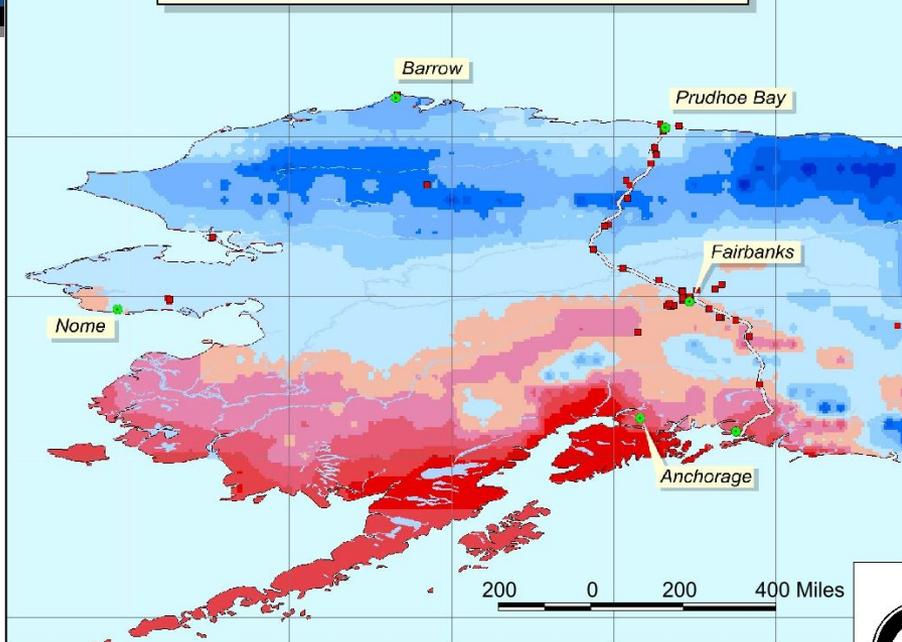


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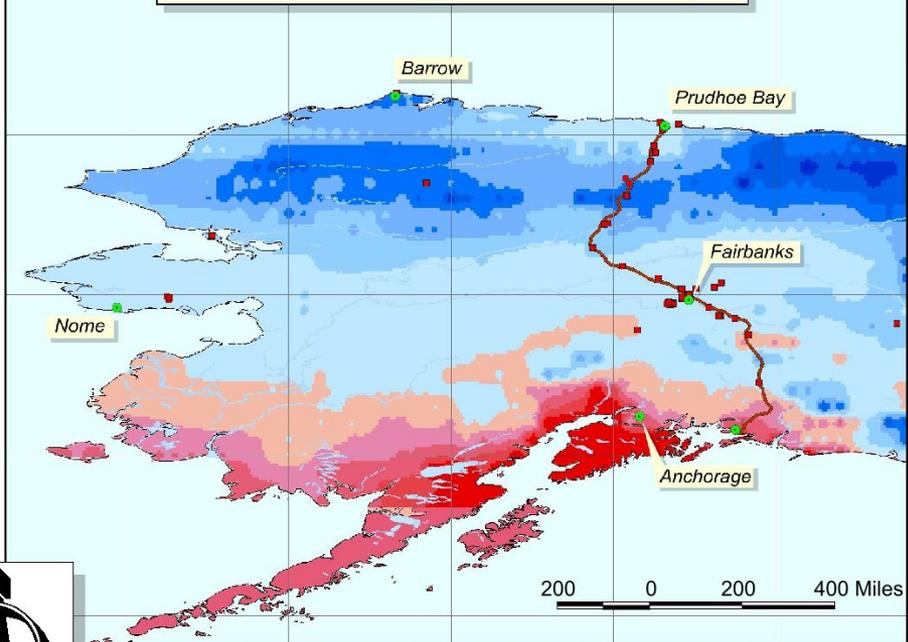
Spatially Distributed Model of Permafrost Dynamics in Alaska



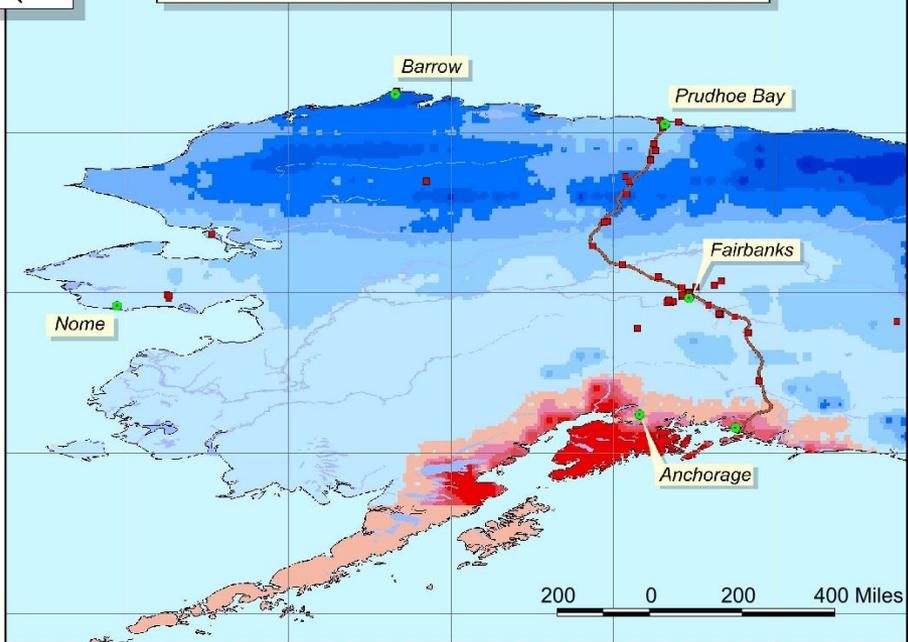
Mean Annual Temperature at 2 m Depth



Mean Annual Temperature at 5 m Depth

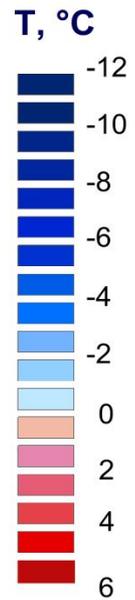


Mean Annual Temperature at 20 m Depth

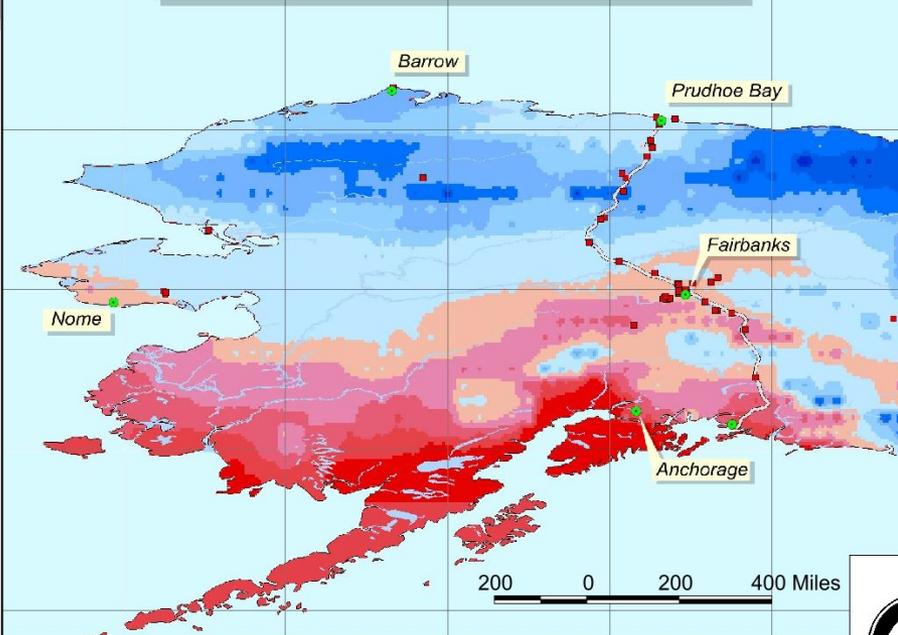


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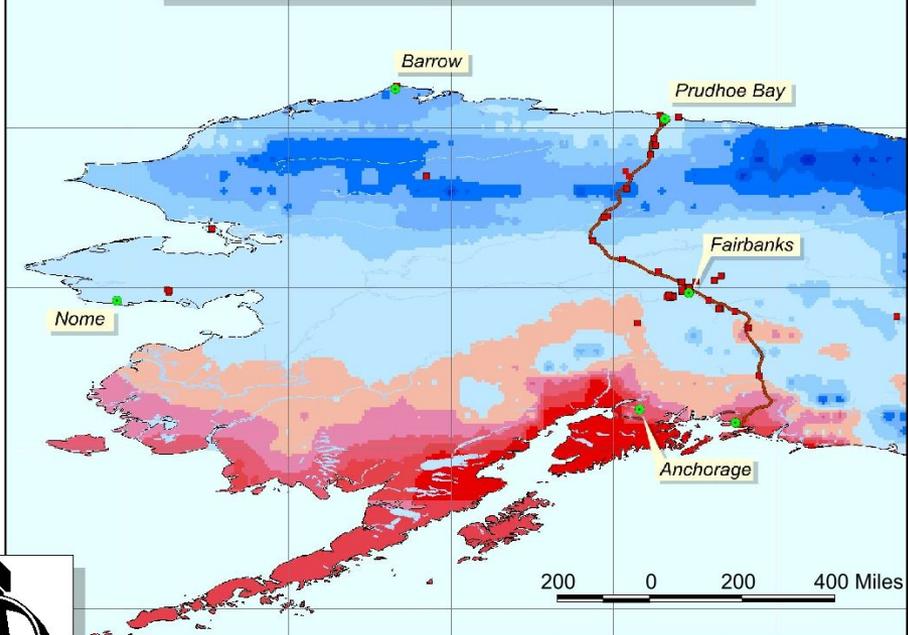
Spatially Distributed Model of Permafrost Dynamics in Alaska



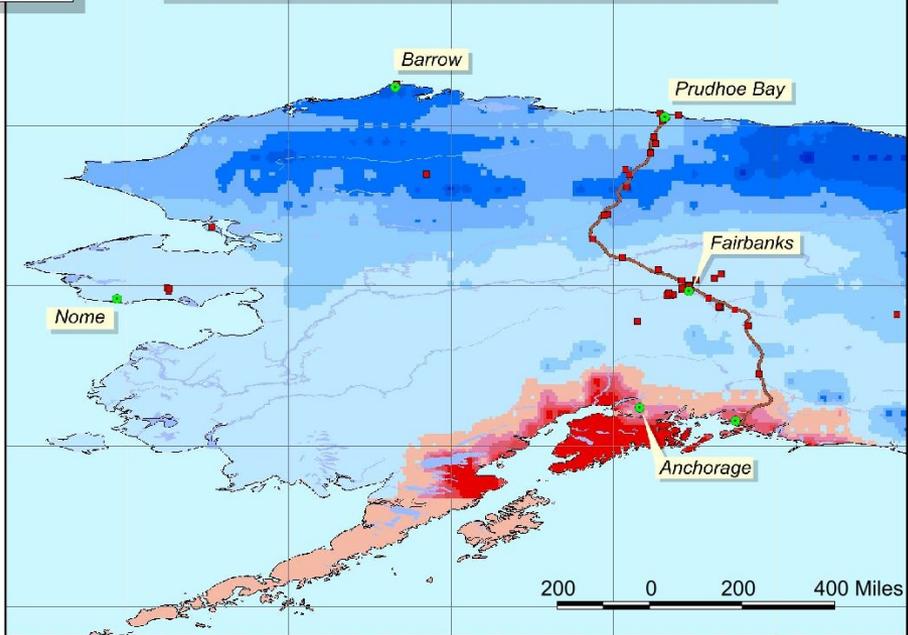
Mean Annual Temperature at 2 m Depth



Mean Annual Temperature at 5 m Depth

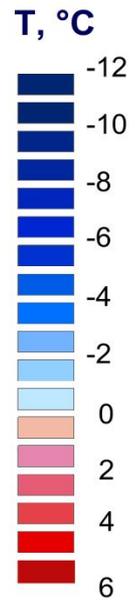


Mean Annual Temperature at 20 m Depth

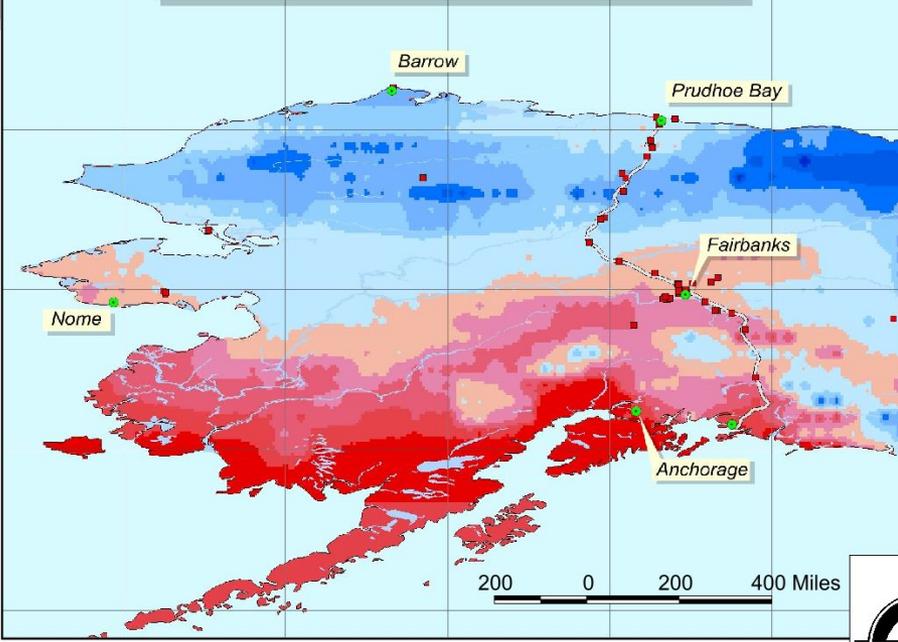


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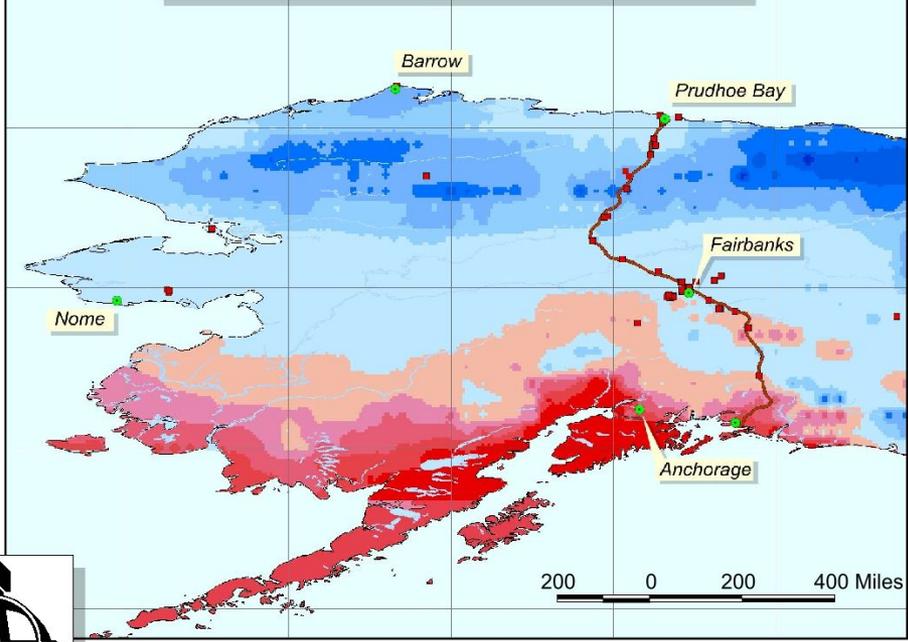
Spatially Distributed Model of Permafrost Dynamics in Alaska



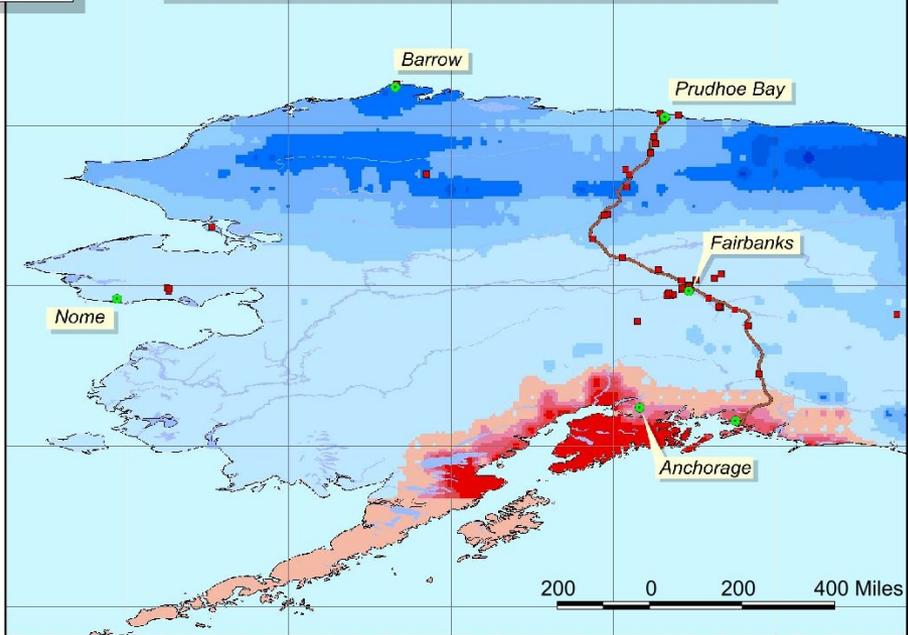
Mean Annual Temperature at 2 m Depth



Mean Annual Temperature at 5 m Depth

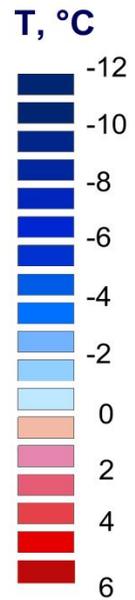


Mean Annual Temperature at 20 m Depth

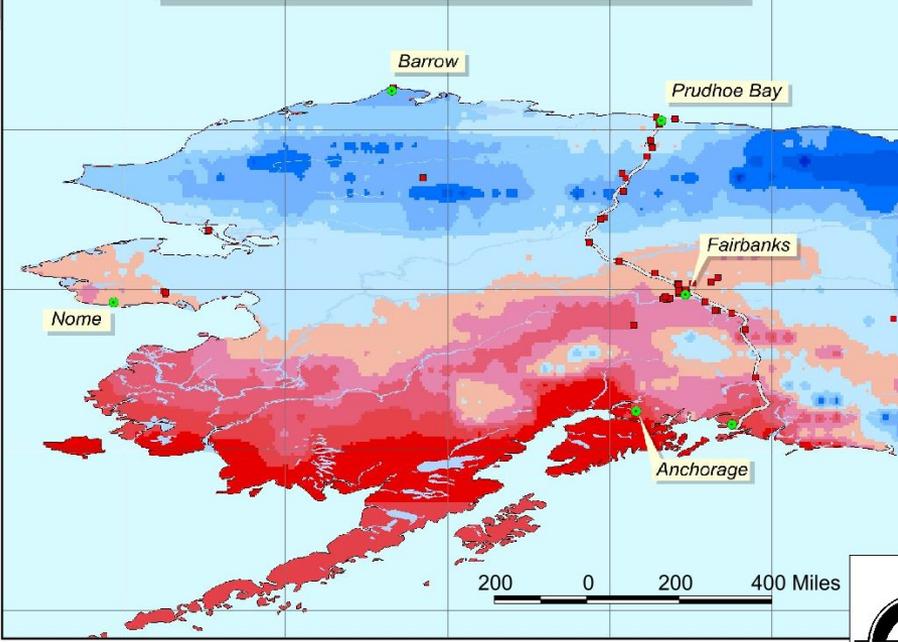


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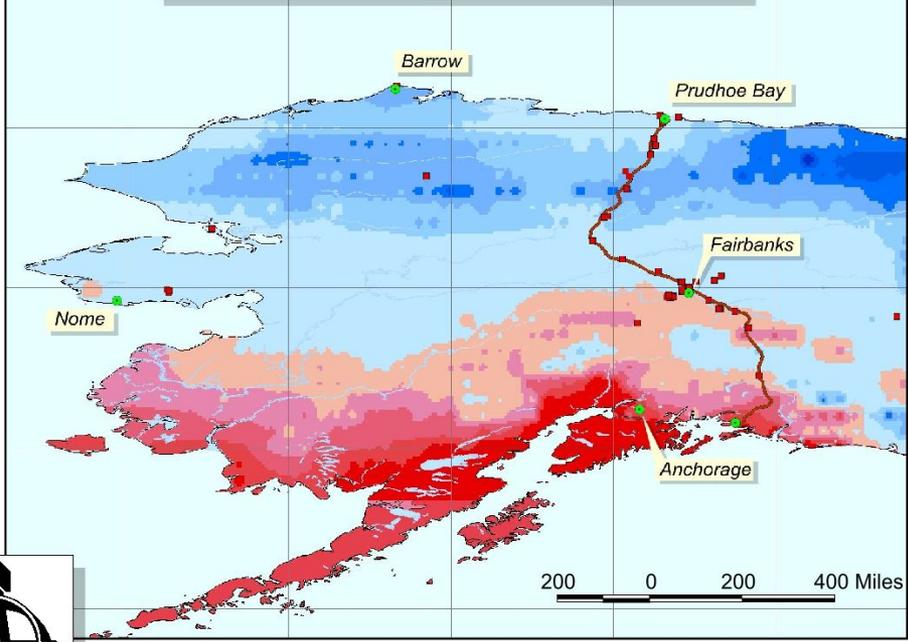
Spatially Distributed Model of Permafrost Dynamics in Alaska



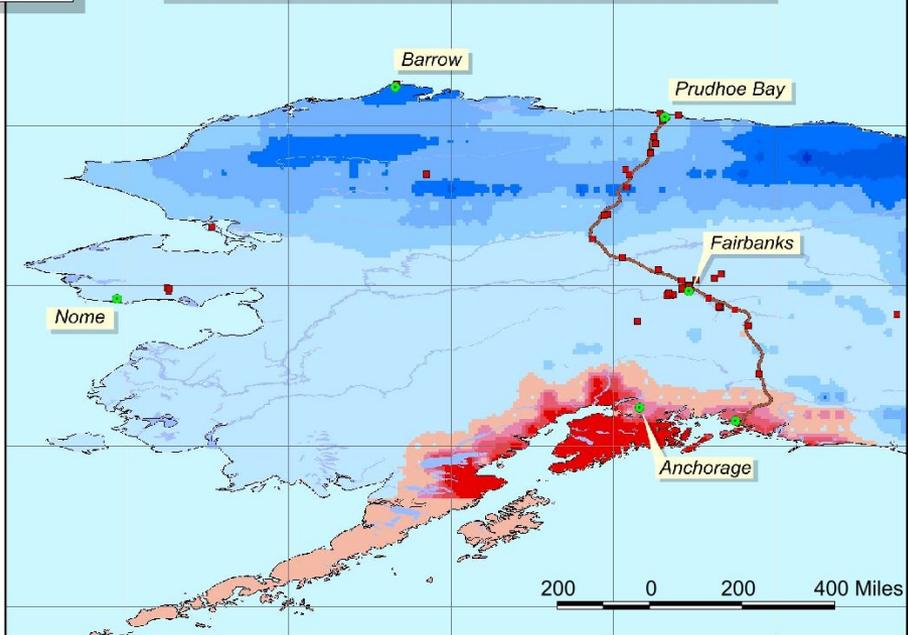
Mean Annual Temperature at 2 m Depth



Mean Annual Temperature at 5 m Depth

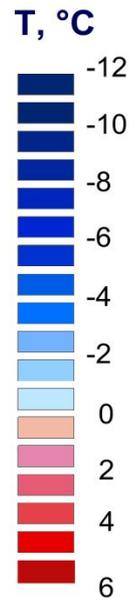


Mean Annual Temperature at 20 m Depth

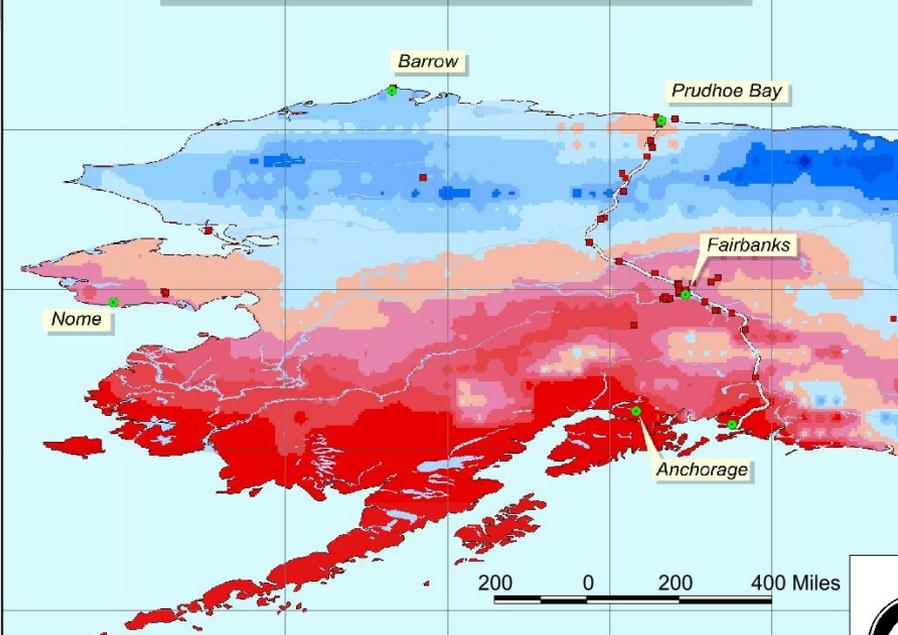


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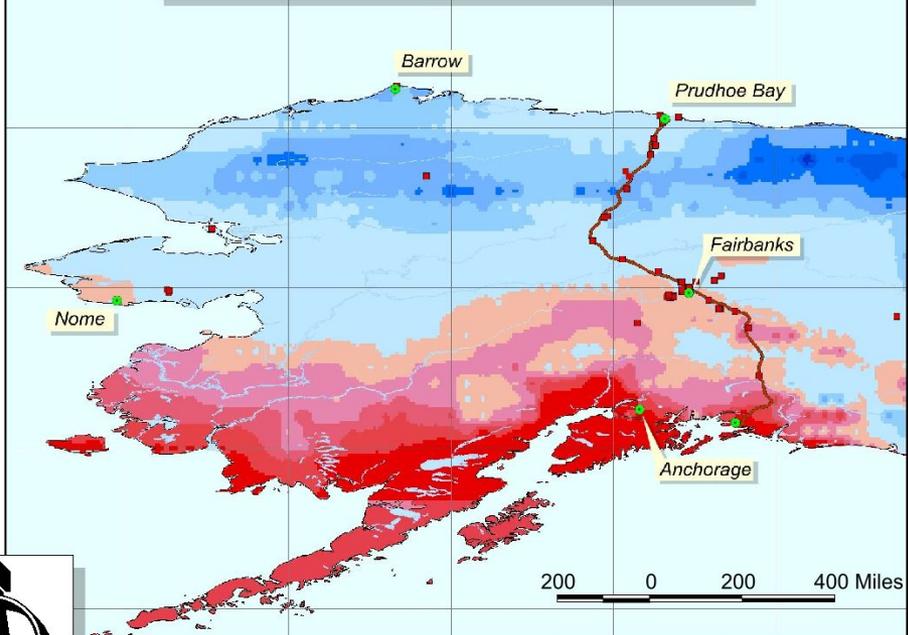
Spatially Distributed Model of Permafrost Dynamics in Alaska



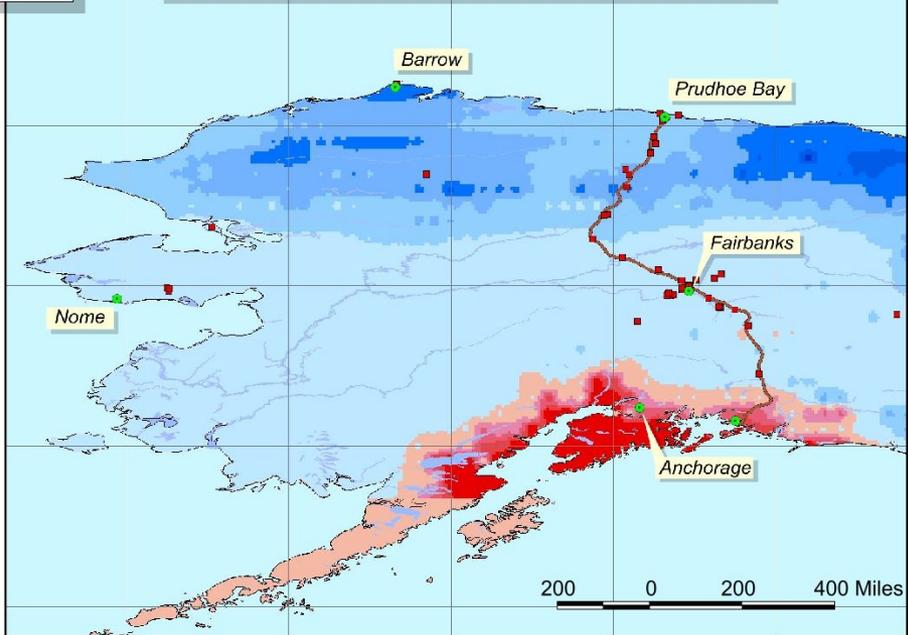
Mean Annual Temperature at 2 m Depth



Mean Annual Temperature at 5 m Depth

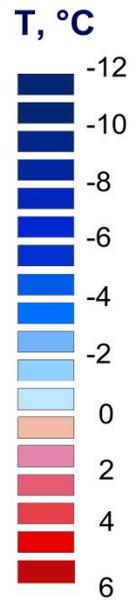


Mean Annual Temperature at 20 m Depth

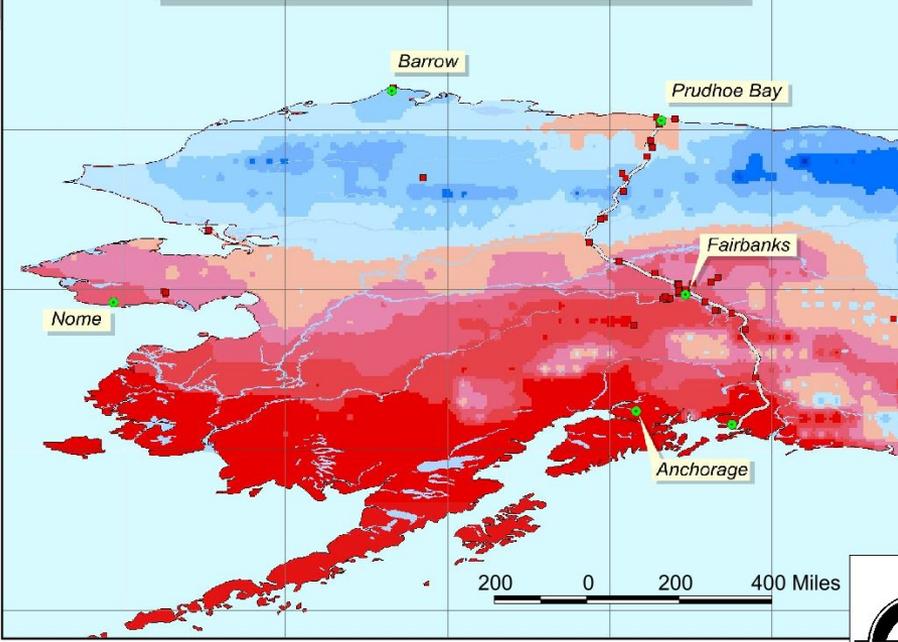


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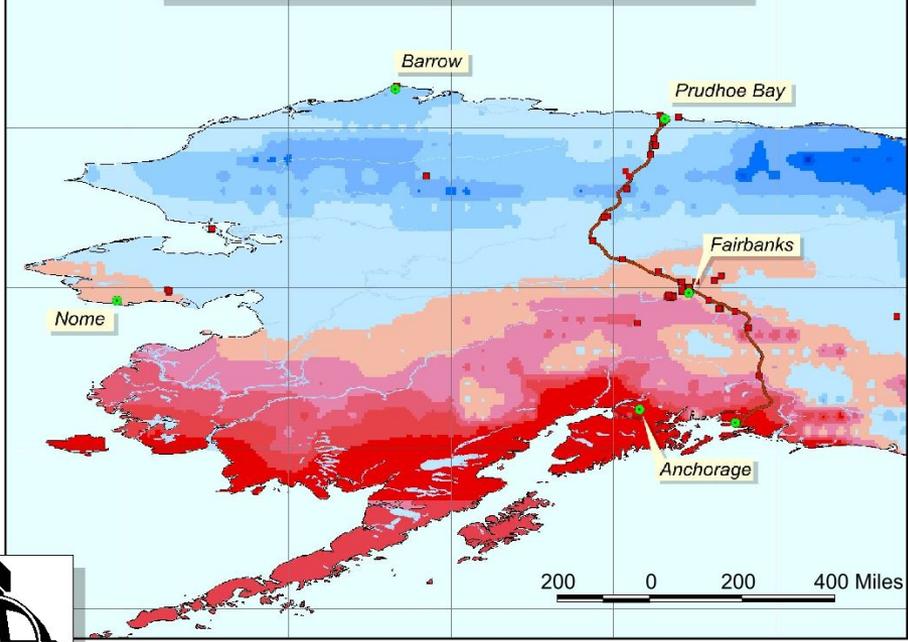
Spatially Distributed Model of Permafrost Dynamics in Alaska



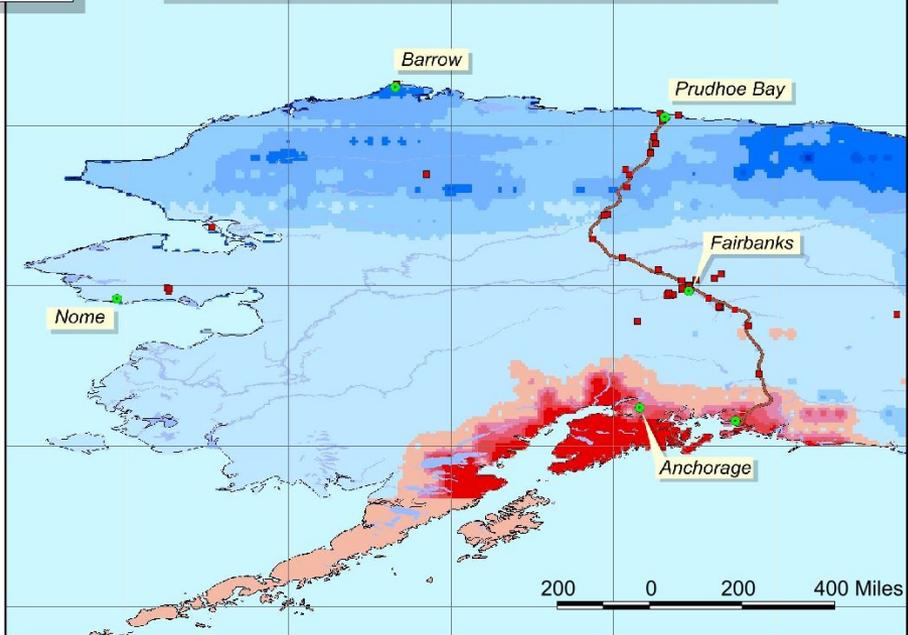
Mean Annual Temperature at 2 m Depth



Mean Annual Temperature at 5 m Depth

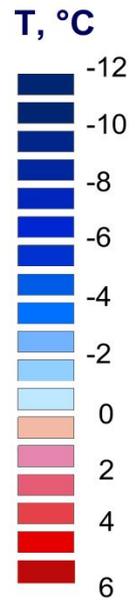


Mean Annual Temperature at 20 m Depth

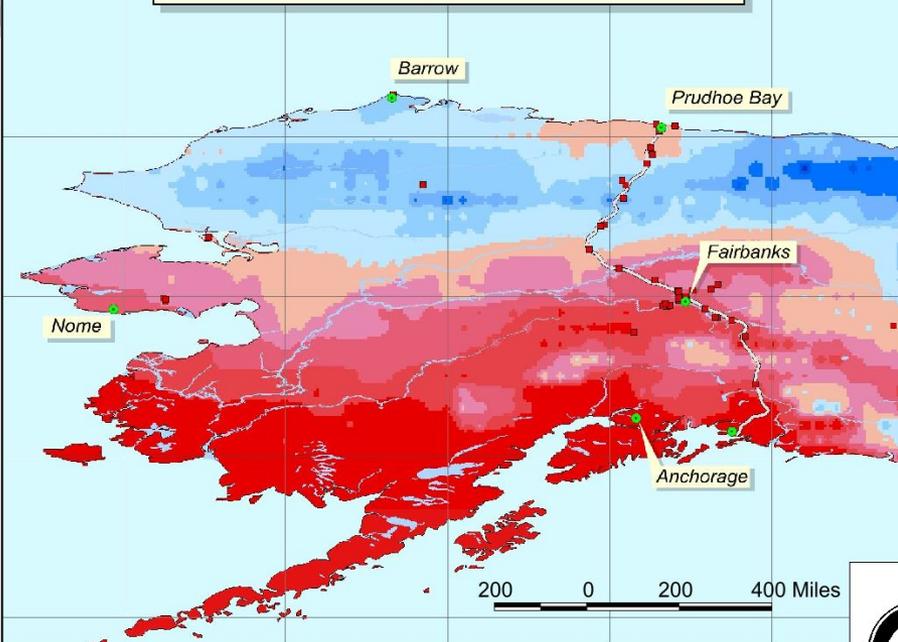


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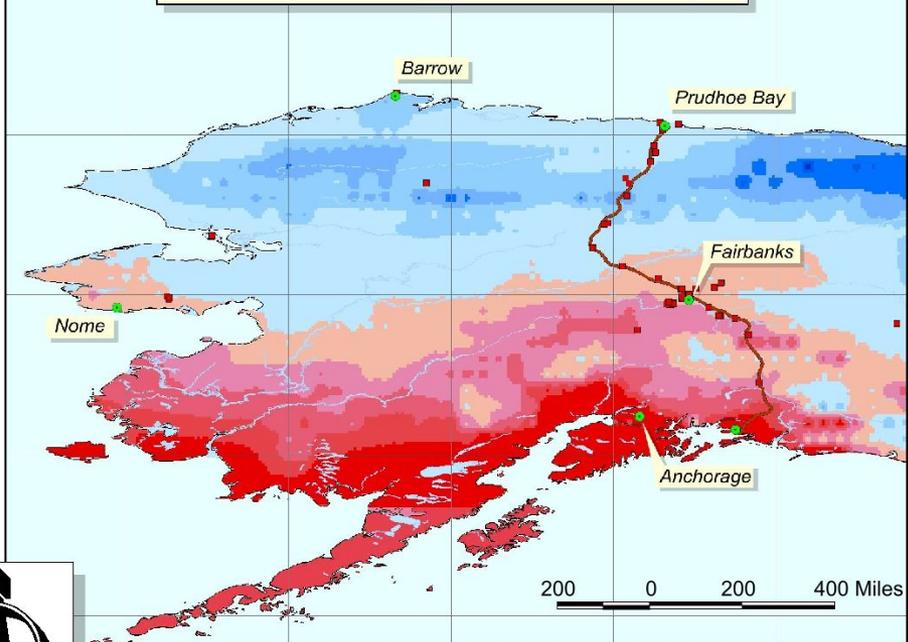
Spatially Distributed Model of Permafrost Dynamics in Alaska



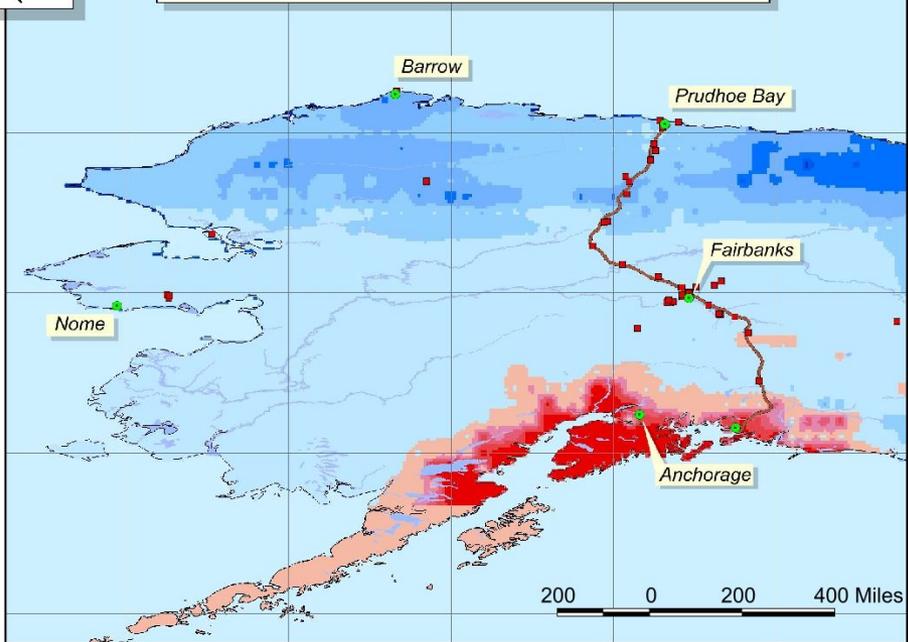
Mean Annual Temperature at 2 m Depth



Mean Annual Temperature at 5 m Depth

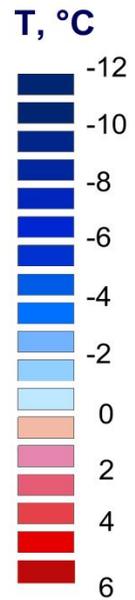


Mean Annual Temperature at 20 m Depth

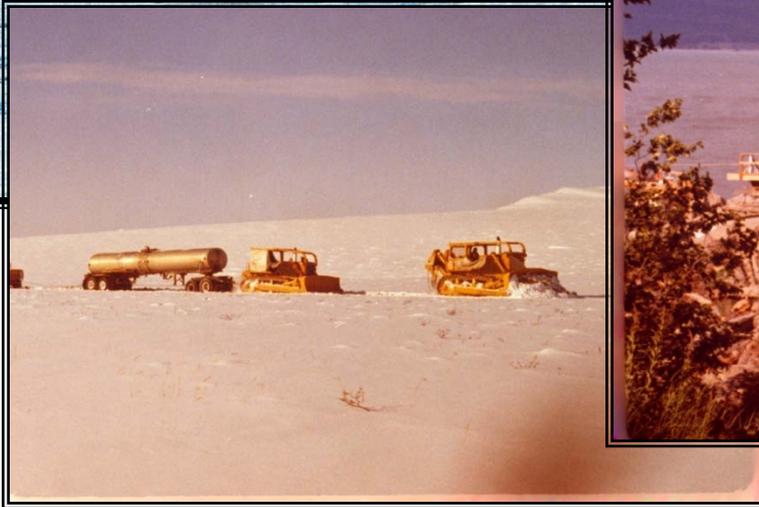


2100

Spatially Distributed Model of Permafrost Dynamics in Alaska



Arctic Construction and Engineering



Technical: Seismic

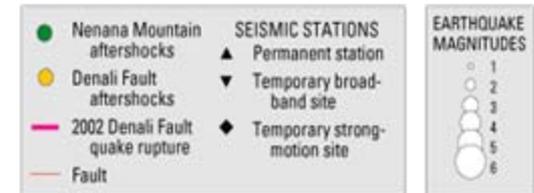
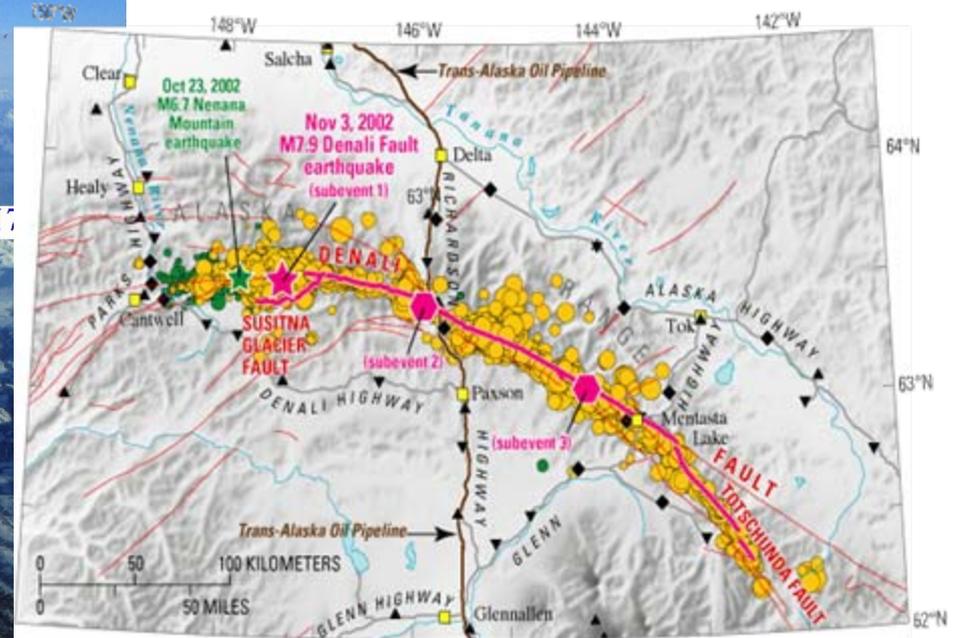
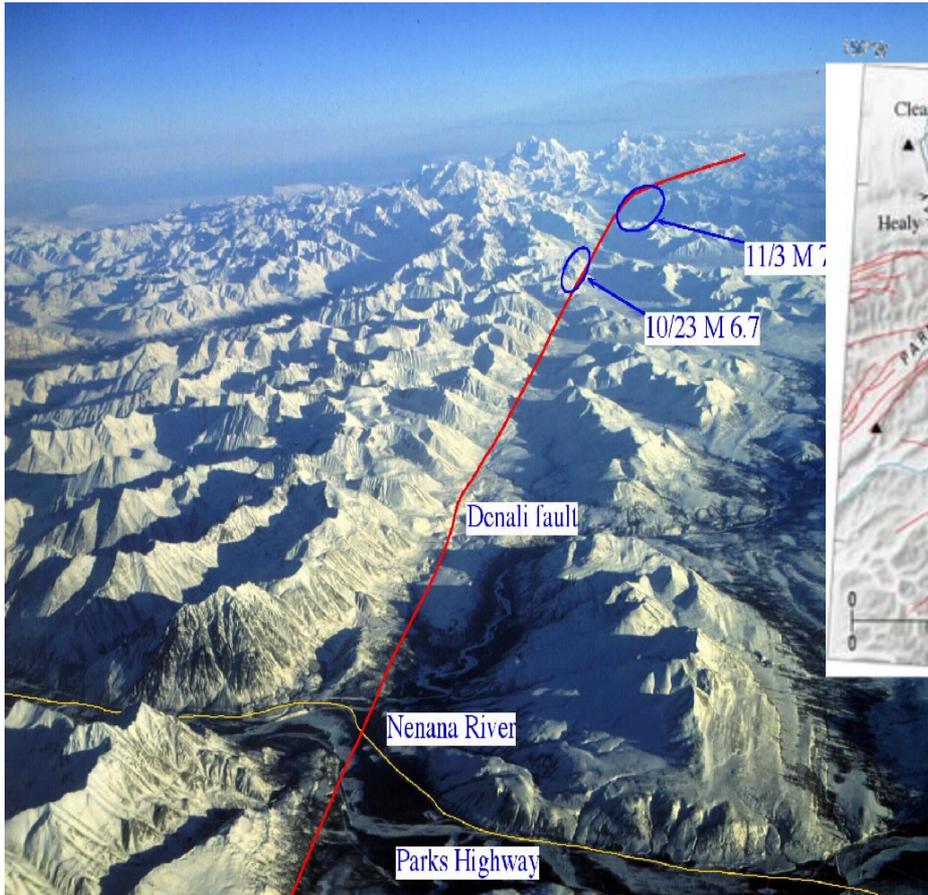


This rupture of the Tok Cutoff Highway in Alaska resulted from a magnitude 7.9 earthquake along the Denali Fault in 2002.



Peter Haeussler, USGS, prepares to measure the offset of a crevasse on the Canwell Glacier.

Seismic



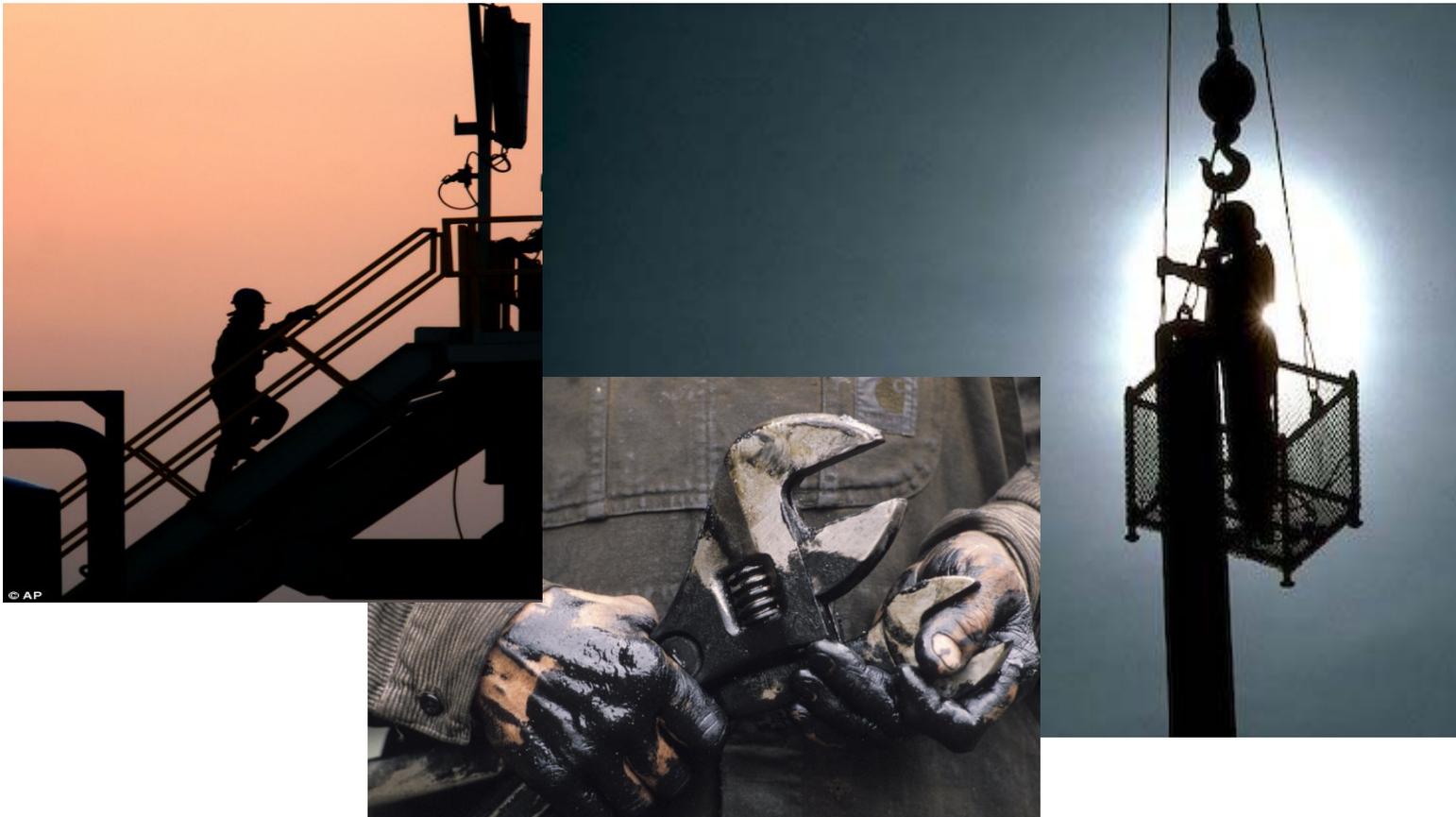
Rights-of-Way



Economic Issues

- Financing a \$26+ billion project
- Development of unconventional natural gas
- Infrastructure for Alaska
- 2.5 million tons of U.S. steel to build pipeline

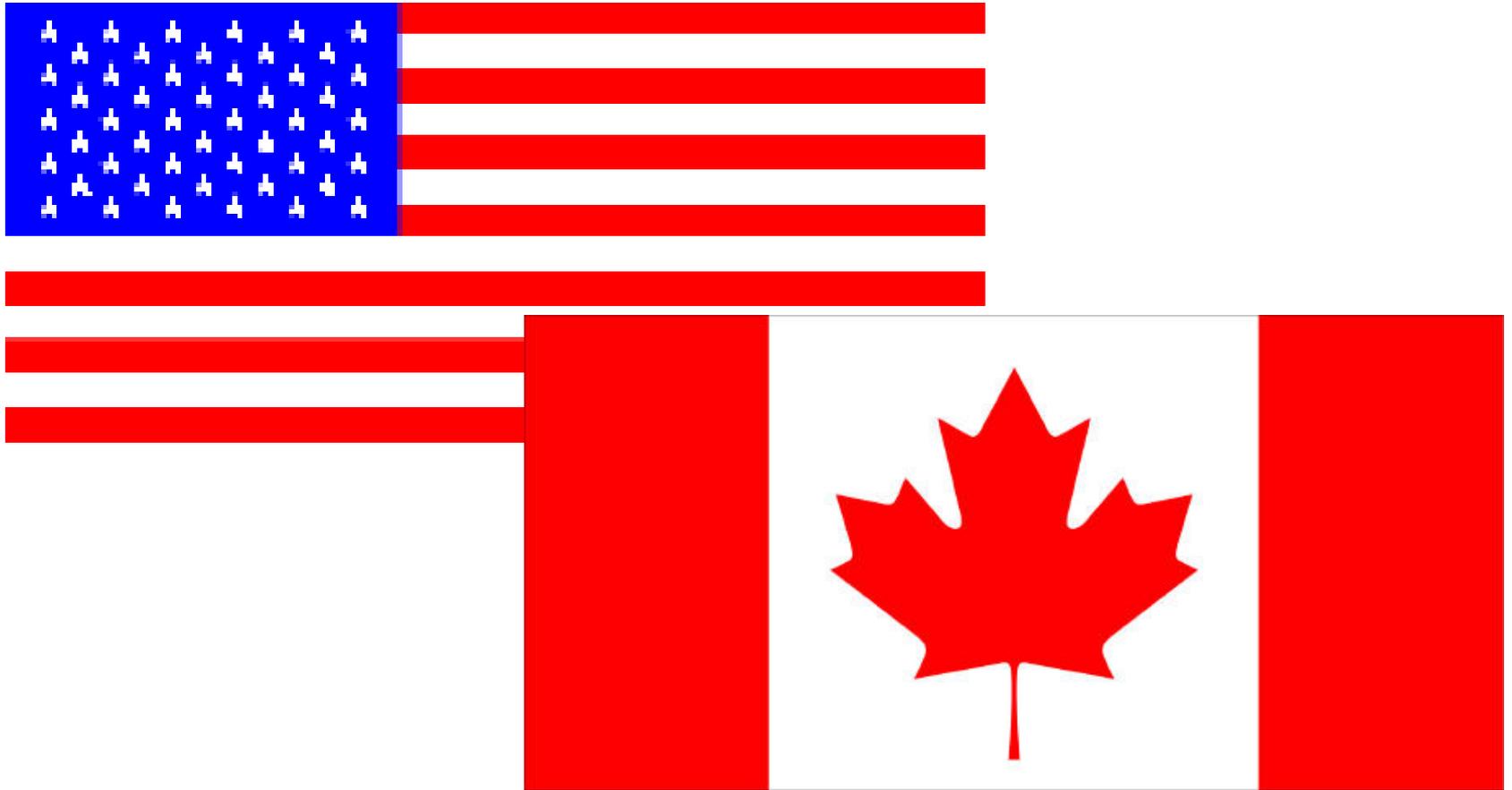
Recruiting, training and retaining a qualified labor pool



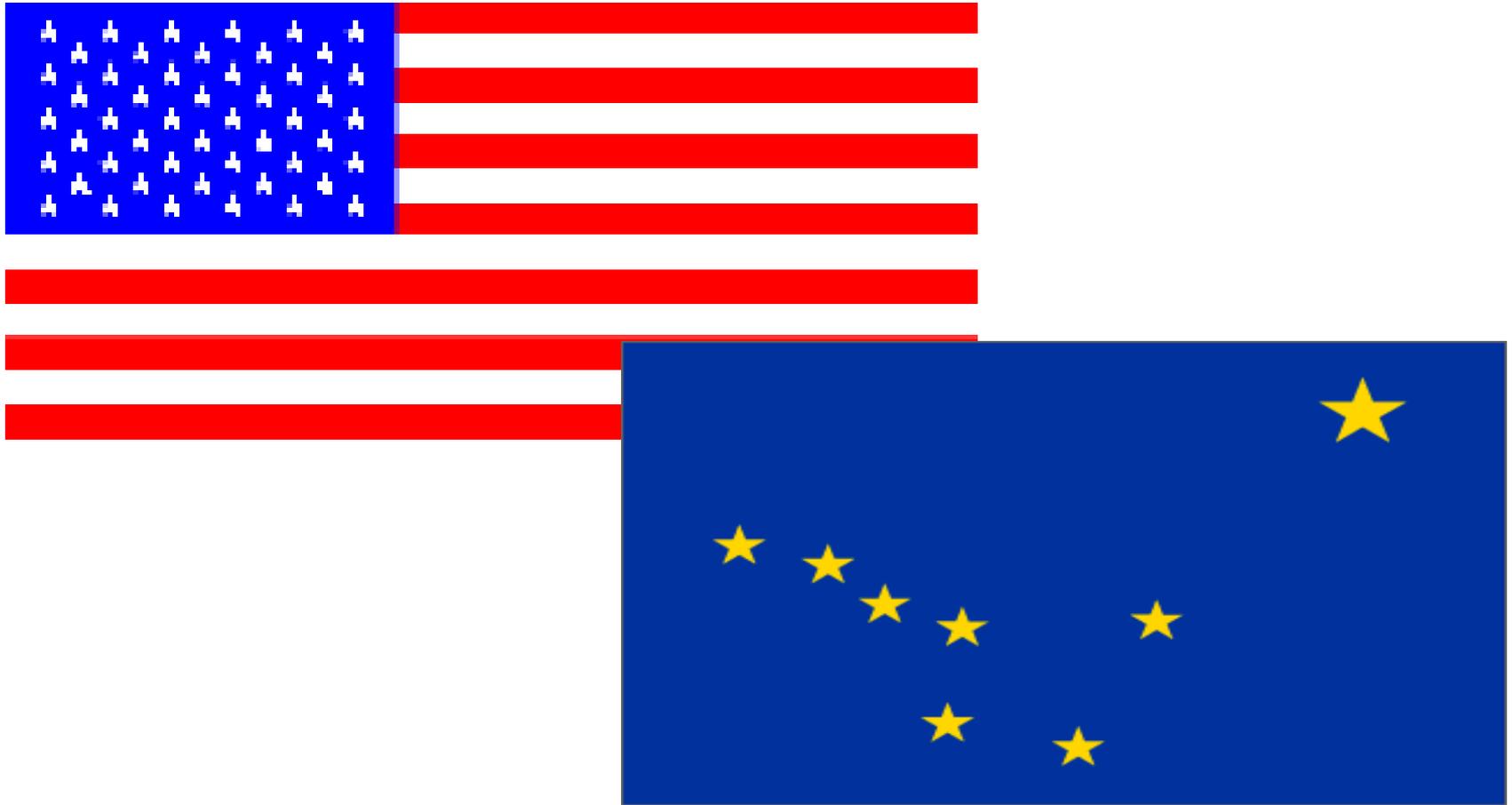
Jobs



Our Partnership with Canada



Our Partnership with Alaska





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

**Washington, DC Location:
1717 H St., NW, Suite 801
Washington, D.C. 20006
(202) 478-9750**

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Anchorage, Alaska 99501
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