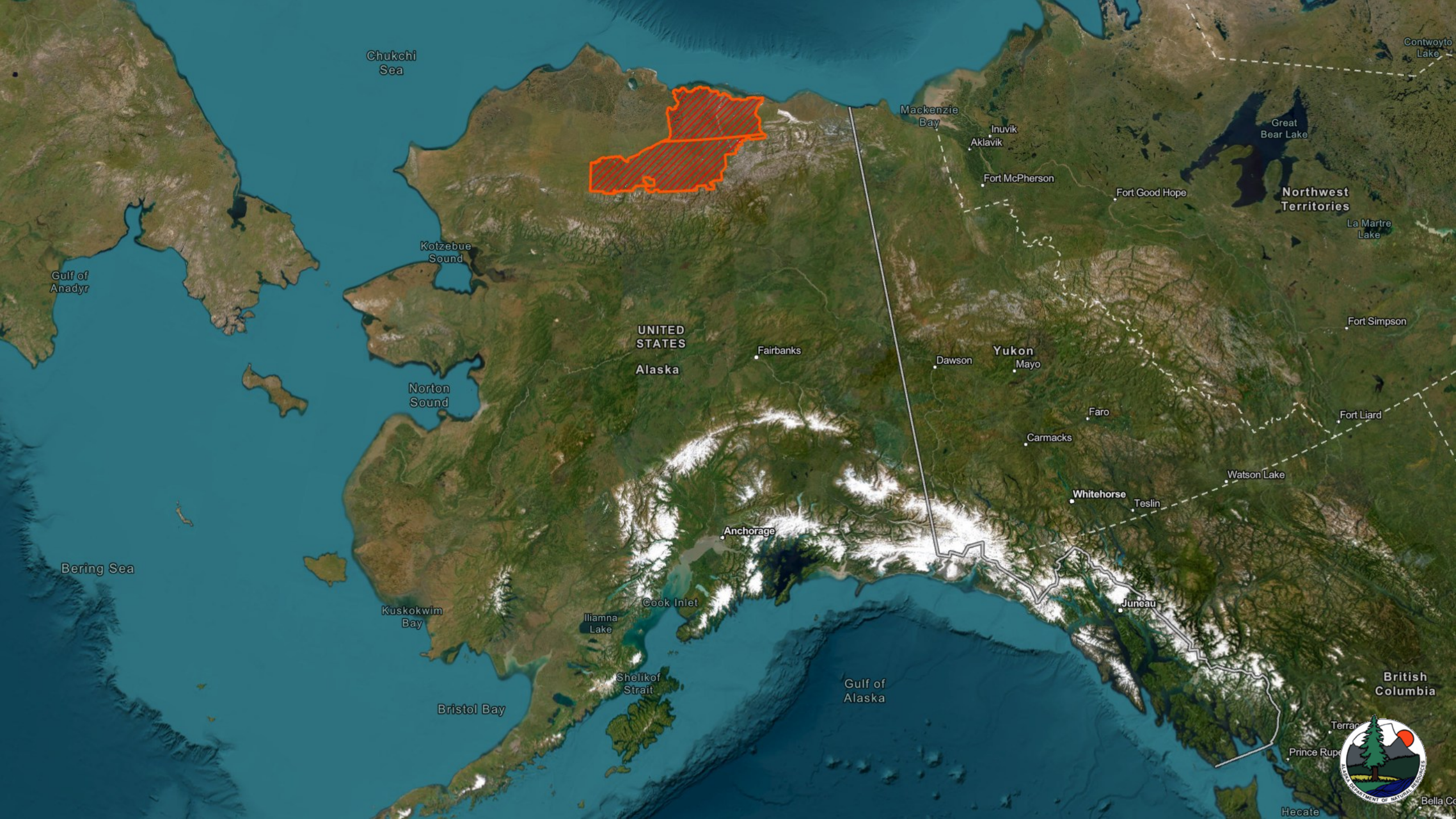


State of Alaska North Slope Tundra Travel Management

Alaska Department of Natural Resources
Becky Baird and Alex Zinck





Chukchi
Sea

Gulf of
Anadyr

Bering Sea

Kotzebue
Sound

Norton
Sound

Kuskokwim
Bay

Bristol Bay

UNITED
STATES
Alaska

Fairbanks

Anchorage

Cook Inlet

Iliamna
Lake

Shelikof
Strait

Mackenzie
Bay

Inuvik
Aklavik

Fort McPherson

Fort Good Hope

Great
Bear Lake

La Martre
Lake

Northwest
Territories

Fort Simpson

Dawson

Yukon
Mayo

Faro

Carmacks

Whitehorse

Teslin

Watson Lake

Fort Liard

Juneau

Gulf of
Alaska

British
Columbia



Terrace
Prince Rupert

Hecate

Bella Co

On the North Slope of Alaska,
the Department of Natural
Resources has jurisdiction over
land between the Canning and
Colville Rivers.



And there aren't many roads



Many activities involve tundra travel

- Oil and gas exploration
- North Slope Borough's Community Winter Access Trails
- Scientific Research
- Access to outlying production facilities
- Infrastructure inspection, maintenance, and repair



DNR Tundra Travel Permitting

- Typically issue 5-year permit for either off-road travel or ice road/ice pad construction
- Authorization for individual travel activities or ice roads are provided on a case-by-case basis under the permits

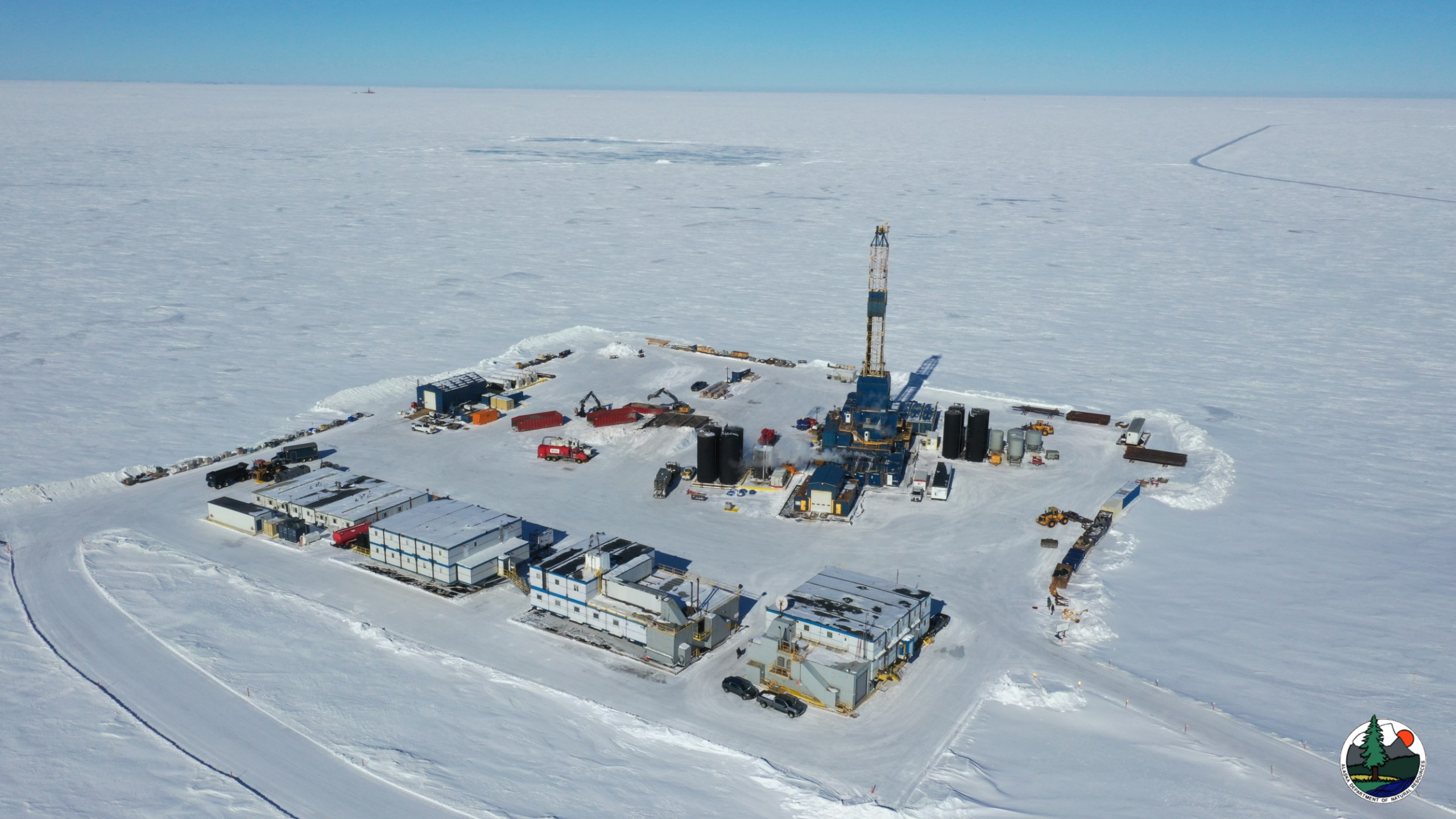


Goal

Maximize use while
minimizing damage









Off-road
travel

- One to few passes
- Heavy loads depend on vehicle type
- No improvements

Snow
trails

- Multiple passes
- Heavy loads depend on vehicle type
- Improved

Ice roads

- Heavy traffic volumes
- Not dependent on vehicle type
- Intensive



Spring

- No off-road travel from close of winter travel season until July 15

Summer

- Only approved vehicles
- Payloads limited to tested weight

Prepacking

- Summer approved vehicles with some exceptions

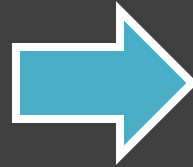
Winter

- Soil temperatures and snow depths must meet criteria
- Any vehicle



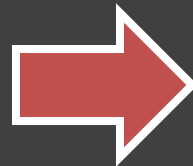
Origins of our current practices...

2002 ConocoPhillips
Demonstration Ice
Road Project



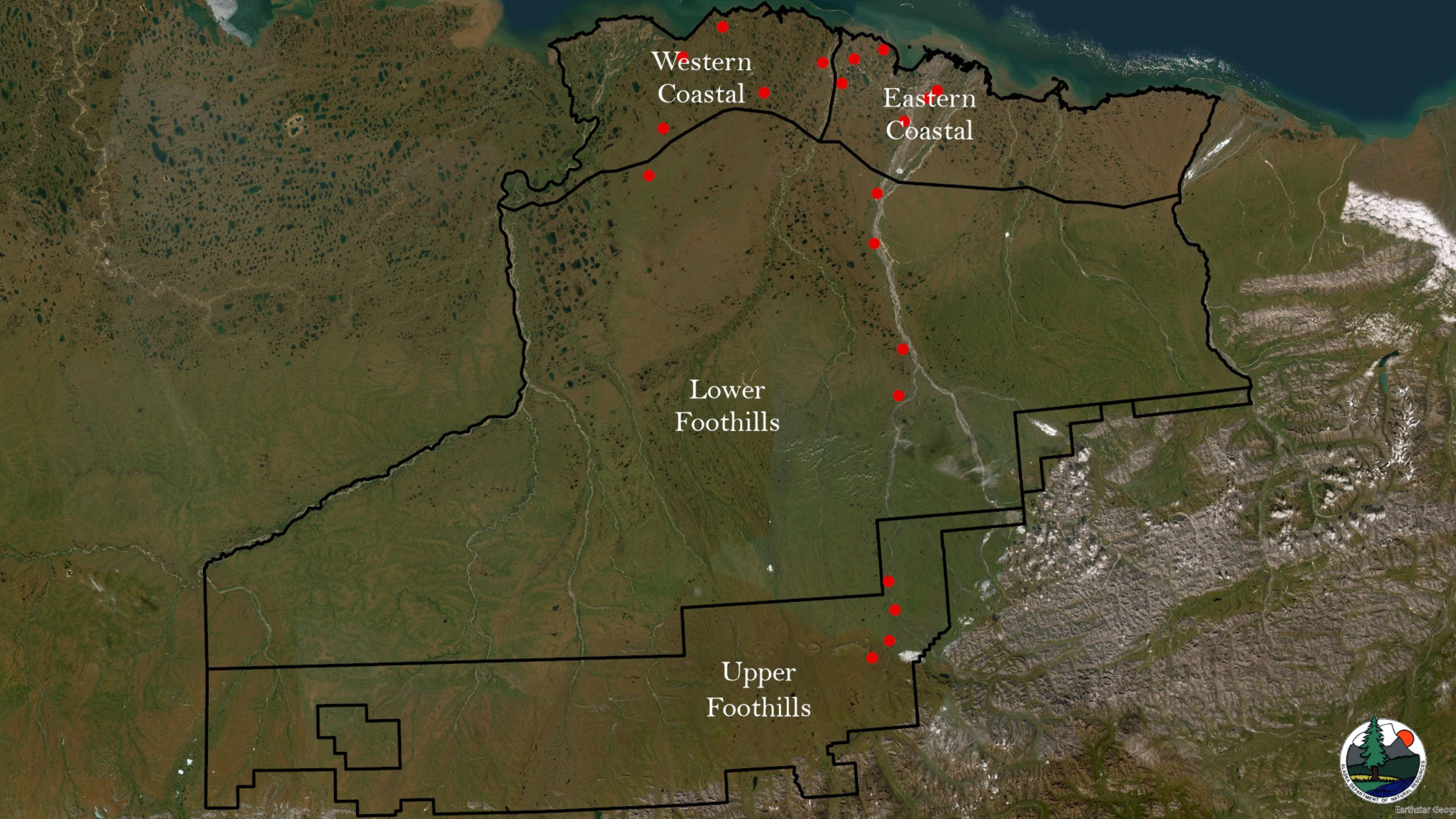
Resulted in four Tundra
Opening Areas

2003
Tundra Travel
Modeling Project



Established monitoring
station locations for annual
winter data collection





Western
Coastal

Eastern
Coastal

Lower
Foothills

Upper
Foothills

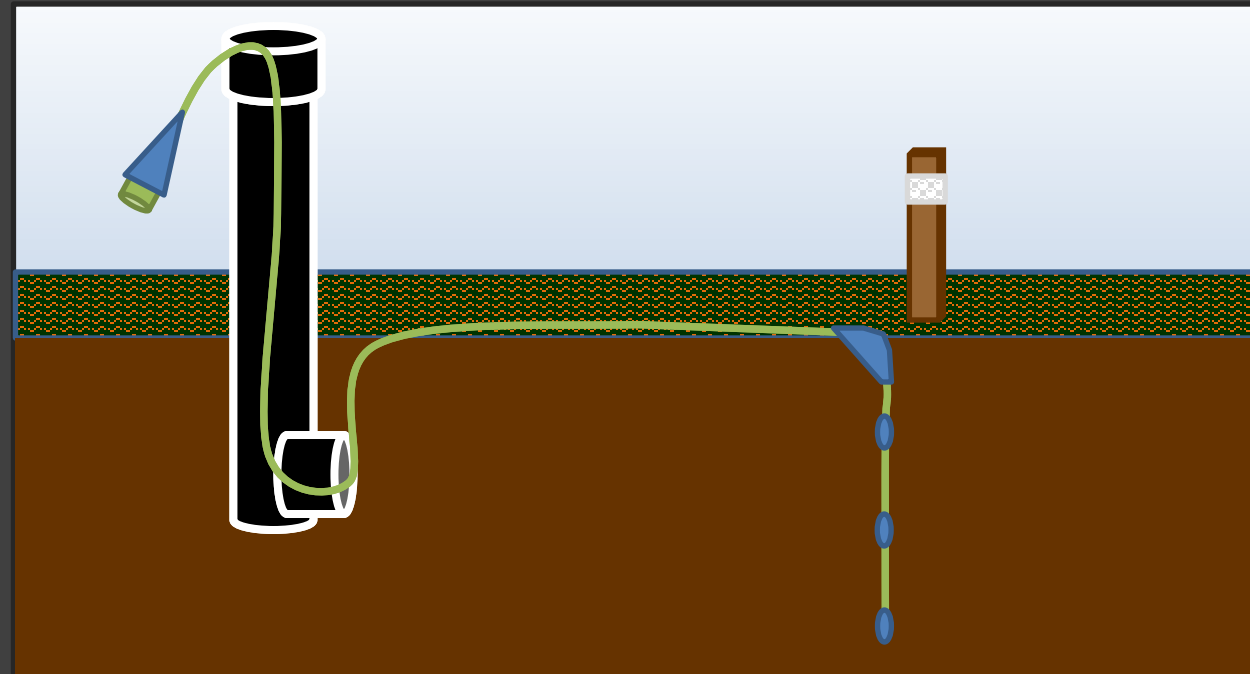
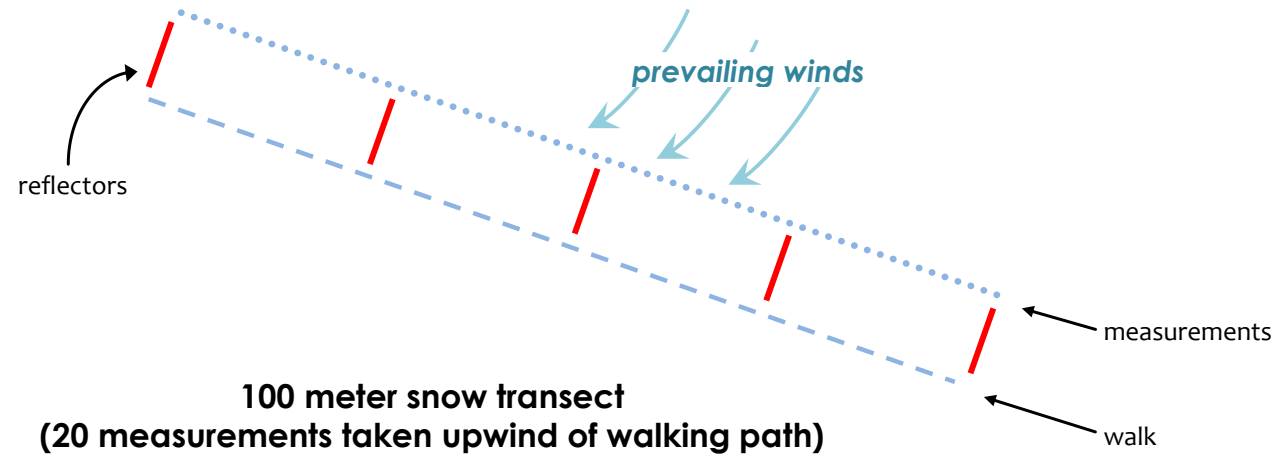




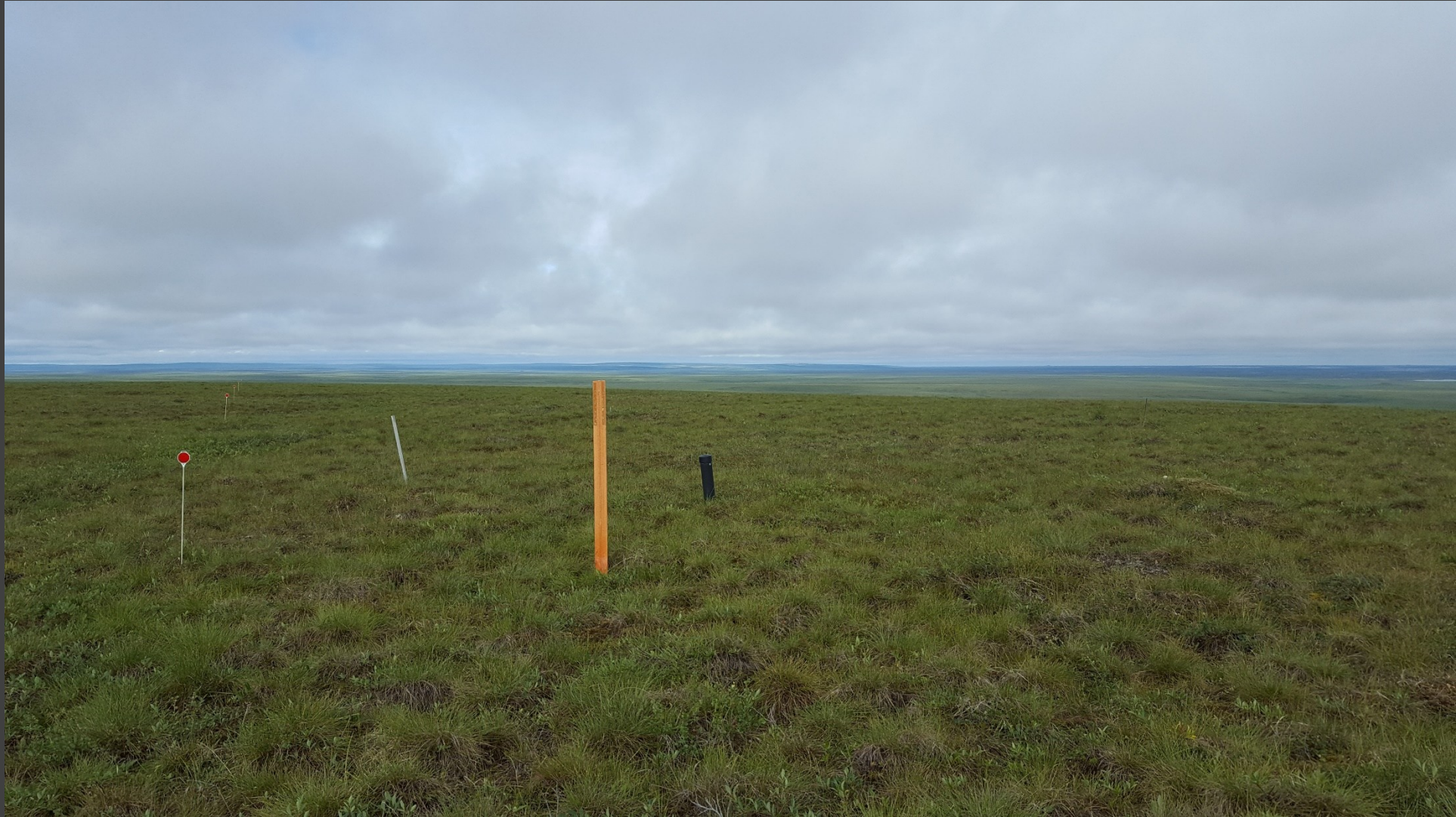
Coastal Areas: Soil temp at depth of 30cm -5°C, 6 inches of snow
Foothills Areas: Soil temp at depth of 30 cm-5°C, 9 inches of snow



DMLW Monitoring Station Snow Collection Setup *(aerial view, not to scale)*



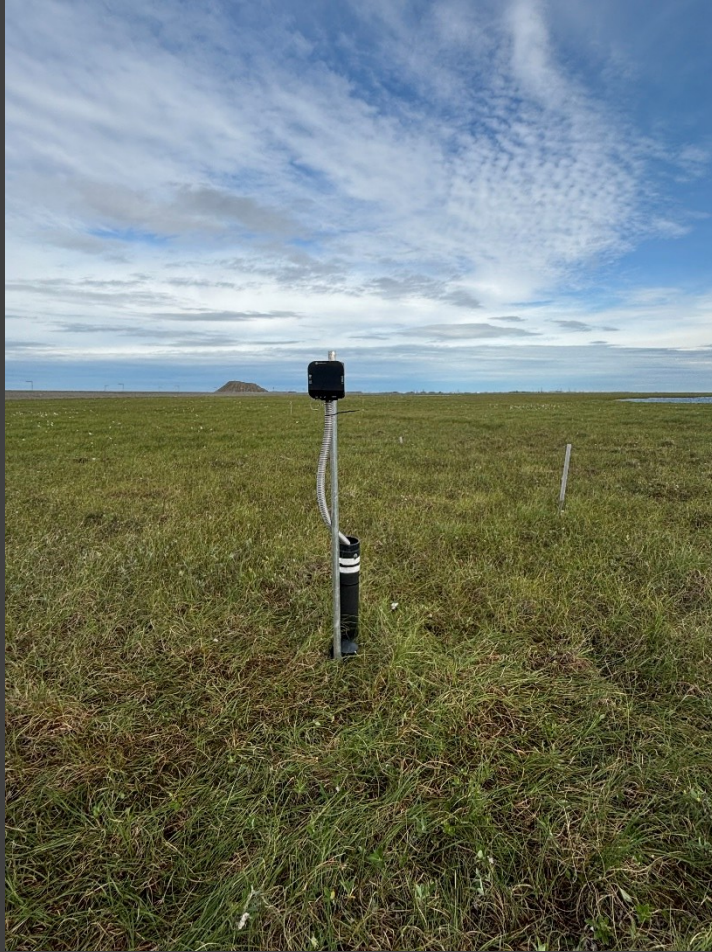
62 Mile Monitoring Station



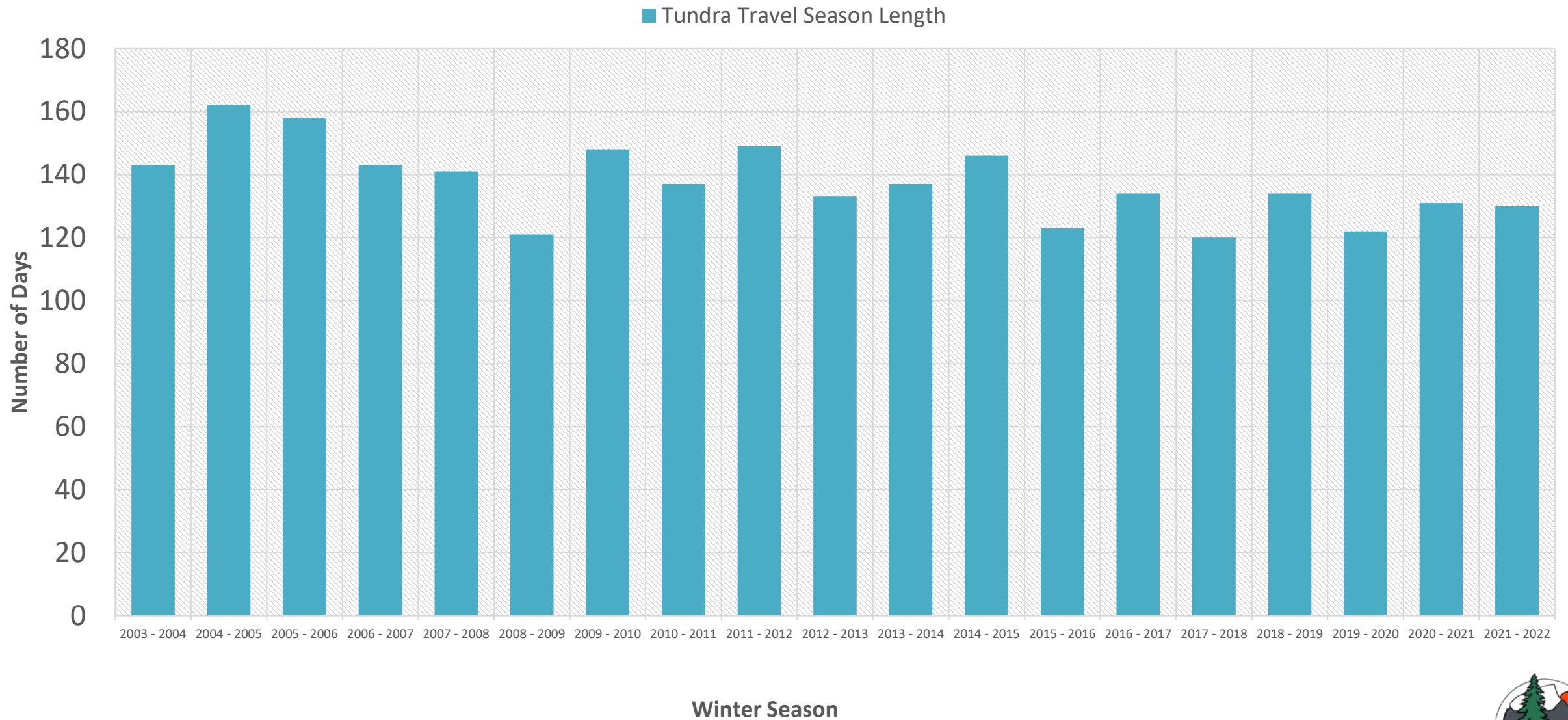
Lower Foothills Tundra Opening Area

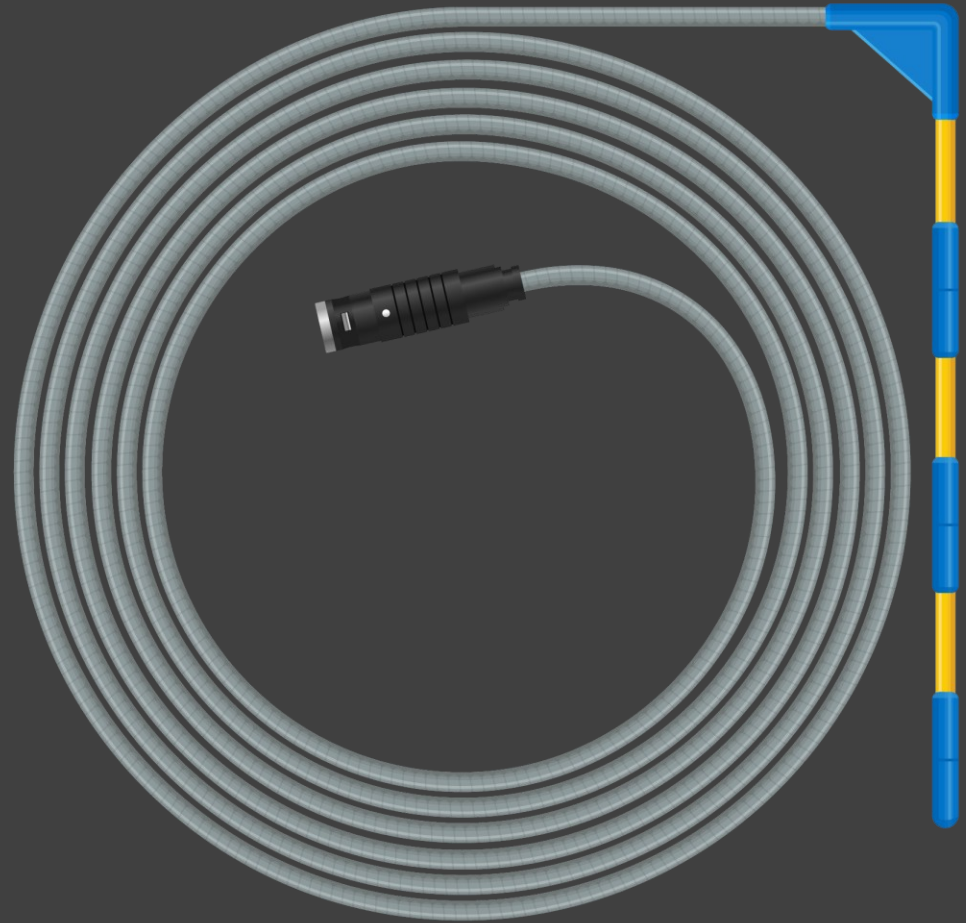


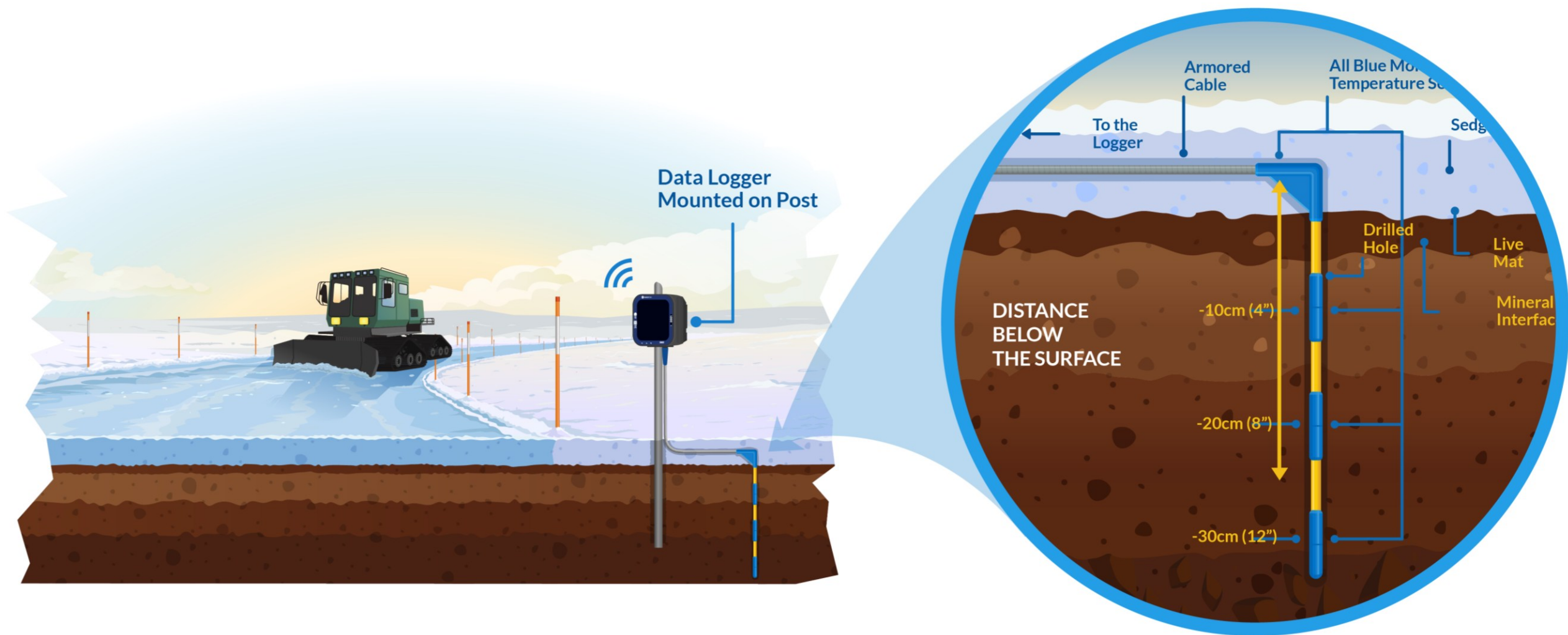
Soil Temperature Satellite Data Loggers



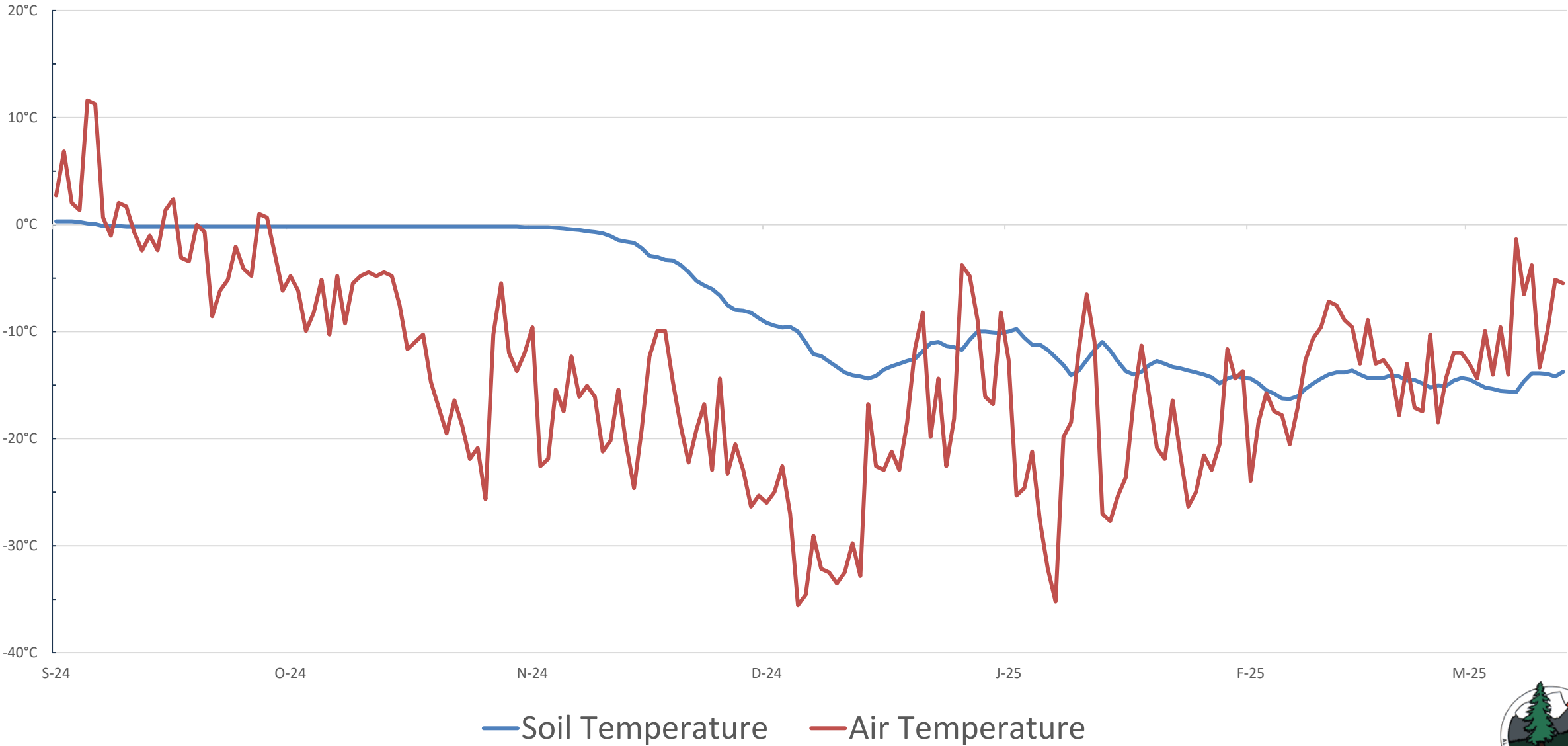
Winter Travel Season Lengths

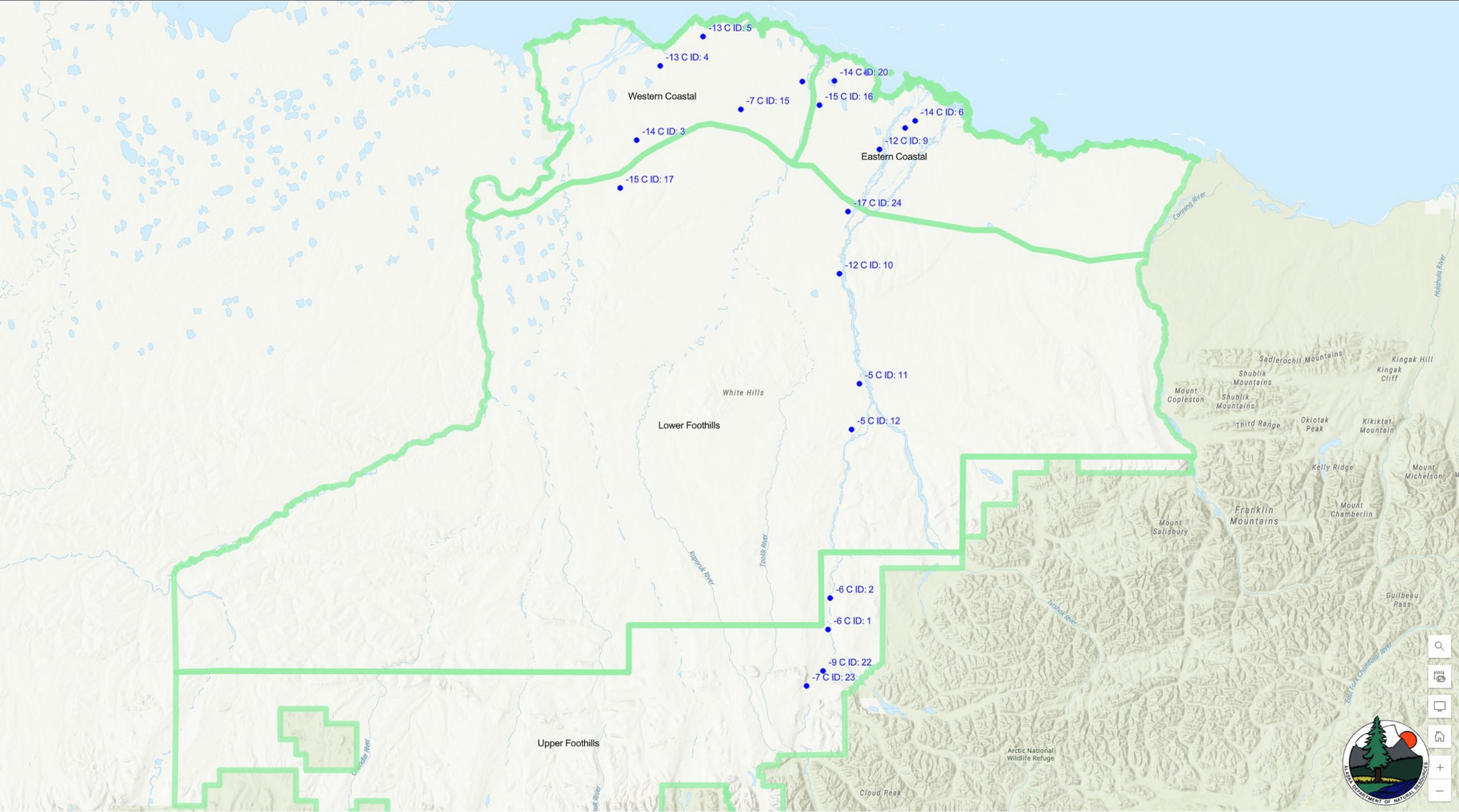






S Pad Soil and Air Temperature





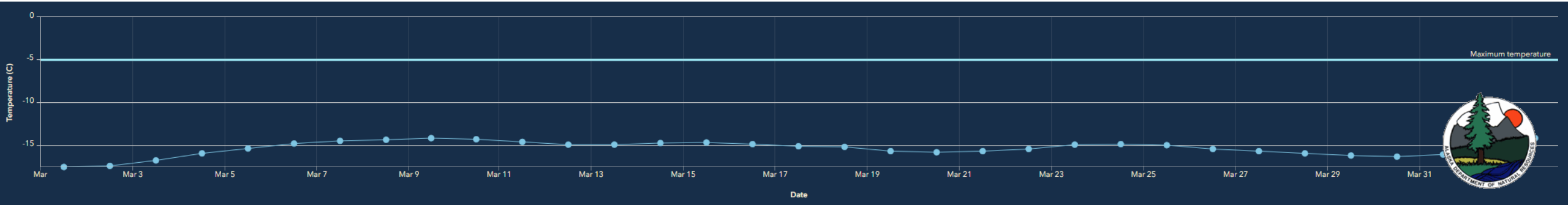
Sensor Site ID: 16

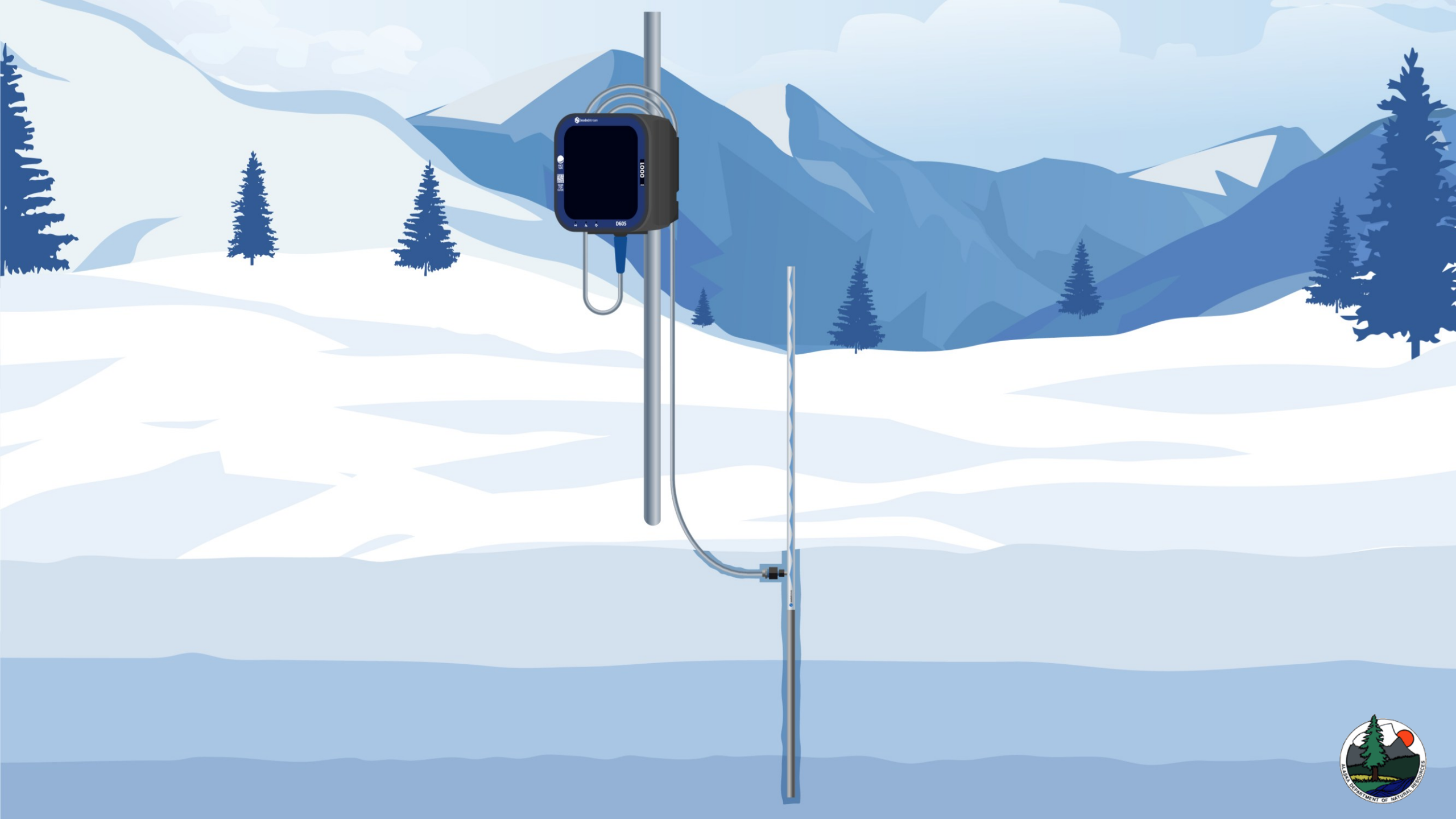
Average Temperature (7 Days)

-14.3



Temperature over Time for Sensor Site ID: 16





Looking to the Future

- Automate assessment for closure of winter season
- Improve coverage outside of road corridors
- Partner opportunities



Useful links

Off-Road Travel on the North Slope
on State Land Factsheet

- ▶ http://dnr.alaska.gov/mlw/factsheet/land_fs/off-road_travel.pdf

Land Use Permit forms

- ▶ http://dnr.alaska.gov/mlw/forms/land/LUP_app_packet.pdf

Webpage

- ▶ <http://dnr.alaska.gov/mlw/tundra/travel/>
- ▶ <https://dog.dnr.alaska.gov/>

Tundra Notification Listserv

- ▶ <http://list.state.ak.us/mailman/listinfo/dmlw.tundra.notification>



Questions?

