

The Alaska Groundwater Monitoring Program and the U.S. Geological Survey National Groundwater Monitoring Network Data Portal (NGWMN)

Status Report Prepared for the National Groundwater
Data Providers Meeting, Las Vegas Nevada

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NGWMN Round I

April 2016 – USGS awarded AKDNR \$28,702 to register and categorize Alaska's groundwater stations and develop web services between the state's database and the NGWMN under Cooperative Agreement G16AC00076.

Total project costs \$57,427 over 24 months (project duration 7/1/2016 through 6/30/2018)

Budget components:

\$28,702 federal contribution

\$28,725 state contribution

NGWMN Round II

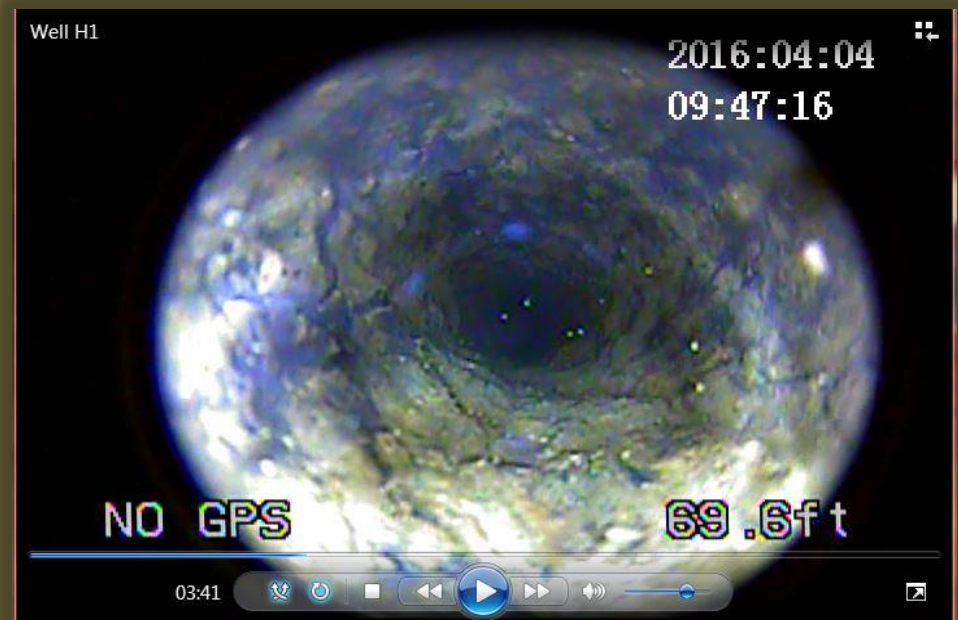
September 2016 – USGS awarded AKDNR \$14,687 under cooperative agreement G16AC00368 to drill a new observation well and conduct well maintenance

Total project costs are \$29,377 over a 12-month period (project duration 10/31/2016 through 10/30/2017)

Budget components:

\$14,687 federal contribution

\$14,690 state contribution



History of Groundwater Monitoring in Alaska (1972-present)

- ❑ 1972 USGS maintained 80 observation wells and 1 spring in Alaska
- ❑ 2012 USGS maintained one observation well in Alaska
- ❑ 2013 the state began an ad-hoc groundwater monitoring program

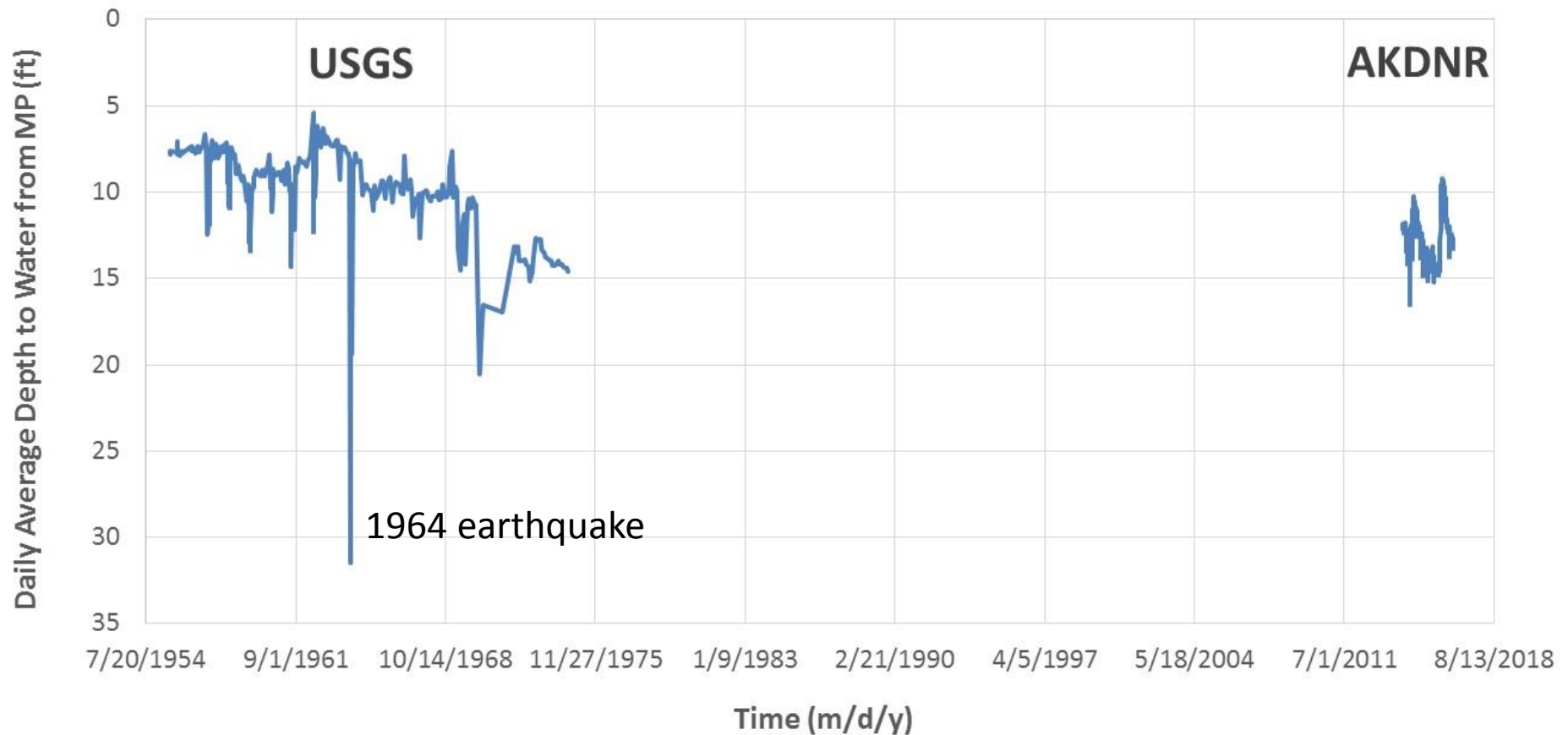
Since 2013, combined efforts among local, state, and federal agencies with cooperation from private landowners, has increased the number of observation wells in Alaska to 29

AKDNR's Authority

- The Alaska Hydrologic Survey within the Department of Natural Resources is mandated by Alaska Statute (AS) 41.08.017, AS 41.08.020 and Department Order 115 *to collect, record, and require filing of data on the quantity, location and quality of water in the subsurface, surface, or along the coasts.*
- Unfunded mandates
- State's groundwater monitoring program is still in its infancy, only one *water level station* has 5 years or more of data

Trend Water Level Station

UAF AG 613406149152103



November 4, 2016 we released the Alaska Groundwater Database

The screenshot shows the Alaska Department of Natural Resources website. At the top, there is a navigation bar with links for "myAlaska", "My Government", "Resident", "Business in Alaska", "Visiting Alaska", and "State Employees". Below this is the department's logo and a search bar. The main heading reads "Welcome to the Alaska Groundwater Database!". A sub-heading states: "Alaska Statute 41.08.020(b)(1)(2) directs the Alaska Hydrologic Survey to collect, distribute, and publish data on the water of the state." A button labeled "Download Groundwater Data" with a download icon is present. A paragraph of text expresses appreciation to various local, state, and federal partners, including Anchorage Water and Wastewater Utility, City of Unalaska, Kenai Peninsula Borough, Alaska Department of Fish and Game, University of Alaska - Fairbanks, Alaska Department of Environmental Conservation, Alaska Department of Transportation and Public Facilities, and the U.S. Forest Service. Below the text are eight logos of the partner organizations. At the bottom, a disclaimer states: "This page is provided as a public service by the Alaska Division of Mining, Land and Water. The Division makes NO representation regarding completeness or accuracy of the data in the database or data extraction procedures provided. Data are provisional. The user assumes total responsibility for verification." The footer contains links for "Privacy", "Copyright", "System Status", and "Webmaster", along with contact information for the Department of Natural Resources.

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Welcome to the Alaska Groundwater Database!

Alaska Statute 41.08.020(b)(1)(2) directs the Alaska Hydrologic Survey to collect, distribute, and publish data on the water of the state.

Download Groundwater Data

Sincerest thanks and appreciation are extended to our local, state, and federal cooperative partners at Anchorage Water and Wastewater Utility, City of Unalaska Department of Public Works and Utilities, Kenai Peninsula Borough, Alaska Department of Fish and Game, University of Alaska - Fairbanks, Alaska Department of Environmental Conservation, Alaska Department of Transportation and Public Facilities, and the U.S. Forest Service. We also extend our gratitude to our cooperative partners at the Division of Geological and Geophysical Surveys and to the private landowners participating in the groundwater monitoring program.

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<http://dnr.alaska.gov/groundwater/>

Why are these data needed?

Understanding water availability requires: 1) **measurement of existing water sources**, 2) tracking allocated quantities, and 3) actual water use.

“[y]ou can’t manage what you don’t measure,”

*Conrad Pryce, Section Head, Water Allocation, British Columbia
Ministry of Forest, Lands and Natural Resource Operations*

Climate changes in the arctic and Alaska are occurring faster than in mid-latitude regions

Upwelling in streams/biologic impacts

AKDNR's Monitoring Networks

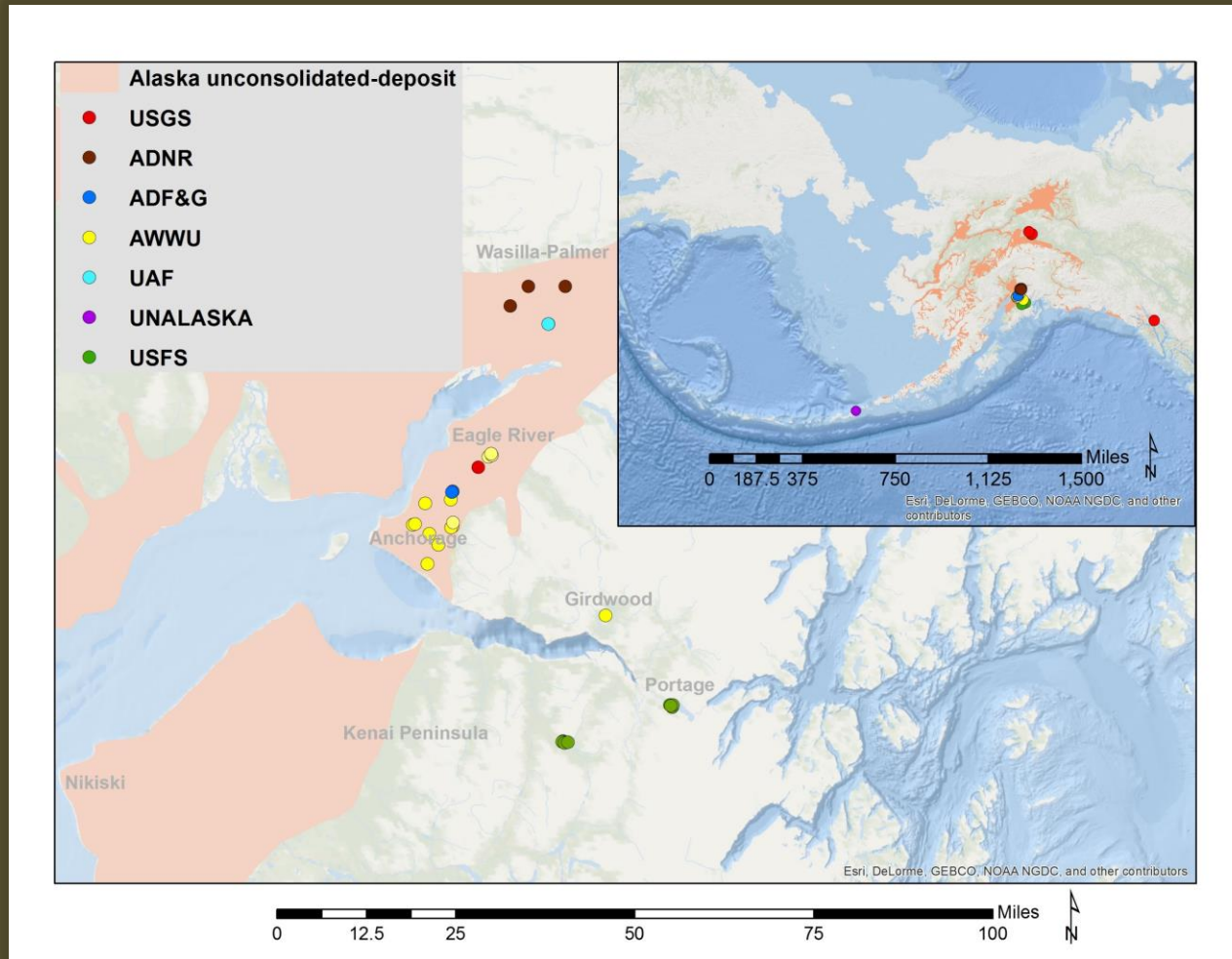
Water quality network – approximately 9 stations (all public supply wells no springs at this time)

Water level network – currently 12 stations (all wells no springs at this time – more wells may come online during Spring 2017)

More wells may come online within the next 12 months

- New NGWMN drilled well (awarded in Round II) & Anchorage Water and Wastewater Utility (AWWU) - Eagle River
- U.S. Forest Service (USFS) - Tern Lake on the Kenai Peninsula
- Division of Geological & Geophysical Surveys (DGGs) – Goldstream Interior Alaska

Alaska is data poor



Map showing location of monitoring stations. Location of USGS groundwater monitoring stations are included to assist with identification of data gaps in the NGWMN. Source for Alaska unconsolidated-deposit aquifers (Miller et al., 1999)

<http://water.usgs.gov/lookup/getglist> accessed on May 25, 2016.

Goals

Short-term goals:

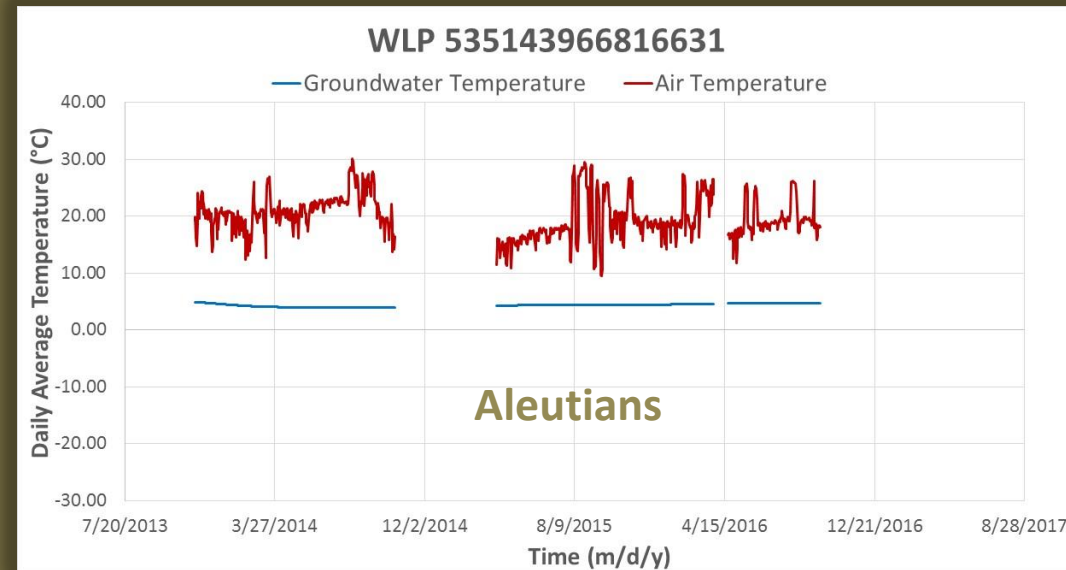
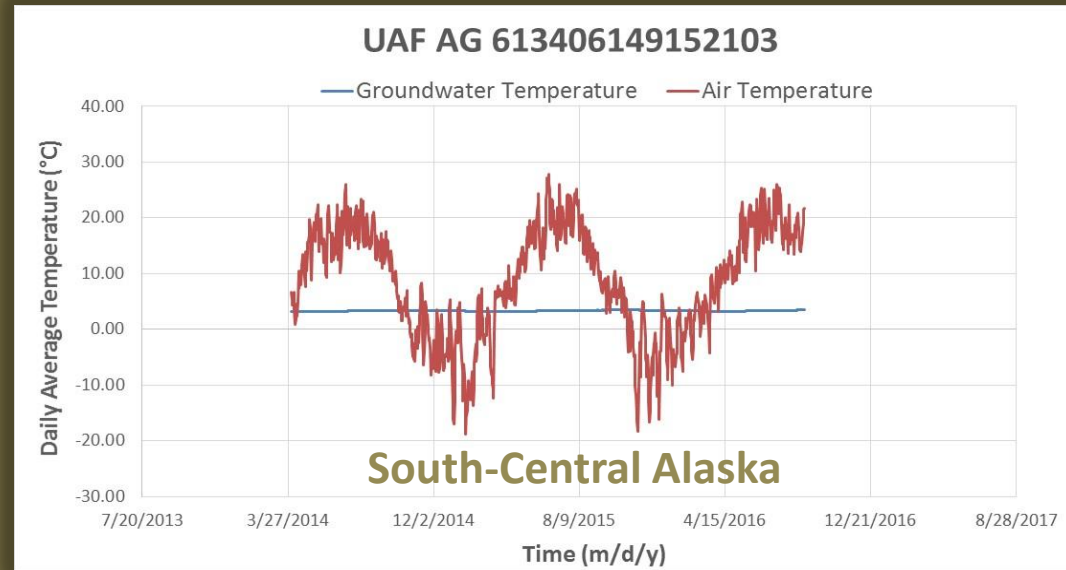
- establish web services to connect information stored in the state's databases to the NGWMN data portal by June 30, 2017
- drill a new well in Eagle River and conduct maintenance on an NGWMN well by 10/30/2017

Long-term goals:

- maintain the existing water level and water quality stations
- increase the number and types of stations in our network
- expand the groundwater monitoring program spatially
- conduct maintenance as needed for the web services and groundwater stations

Temperature data for several water level stations

Link to water well logs



Methods & Procedures



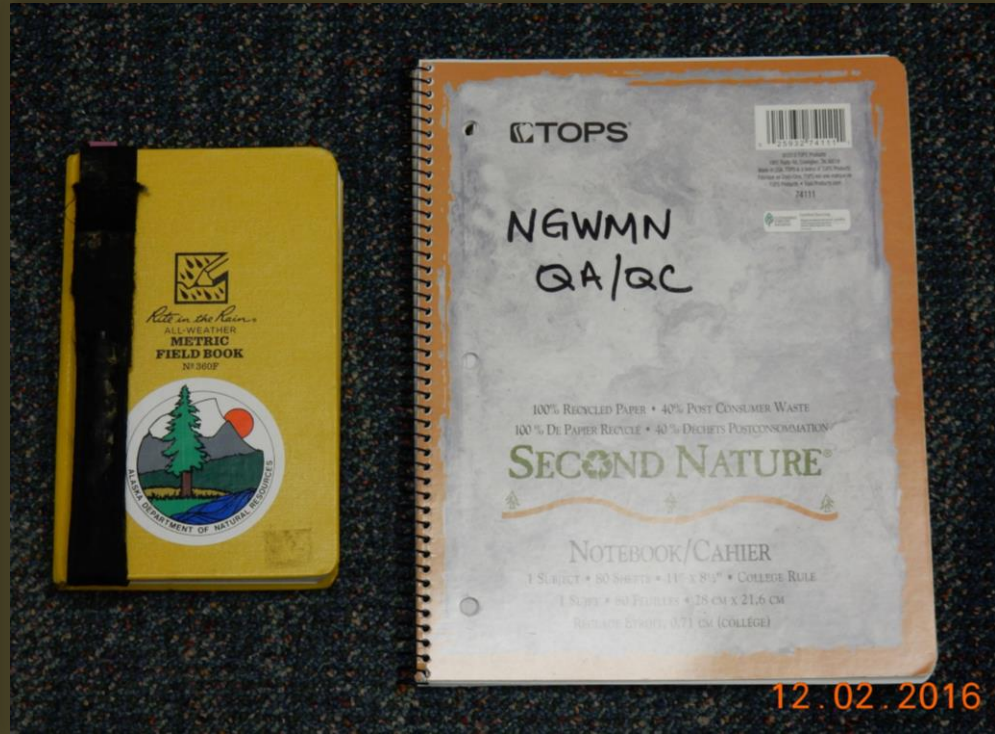
Office of Groundwater

Groundwater Technical Procedures of the U.S. Geological Survey



Techniques and Methods 1-A1

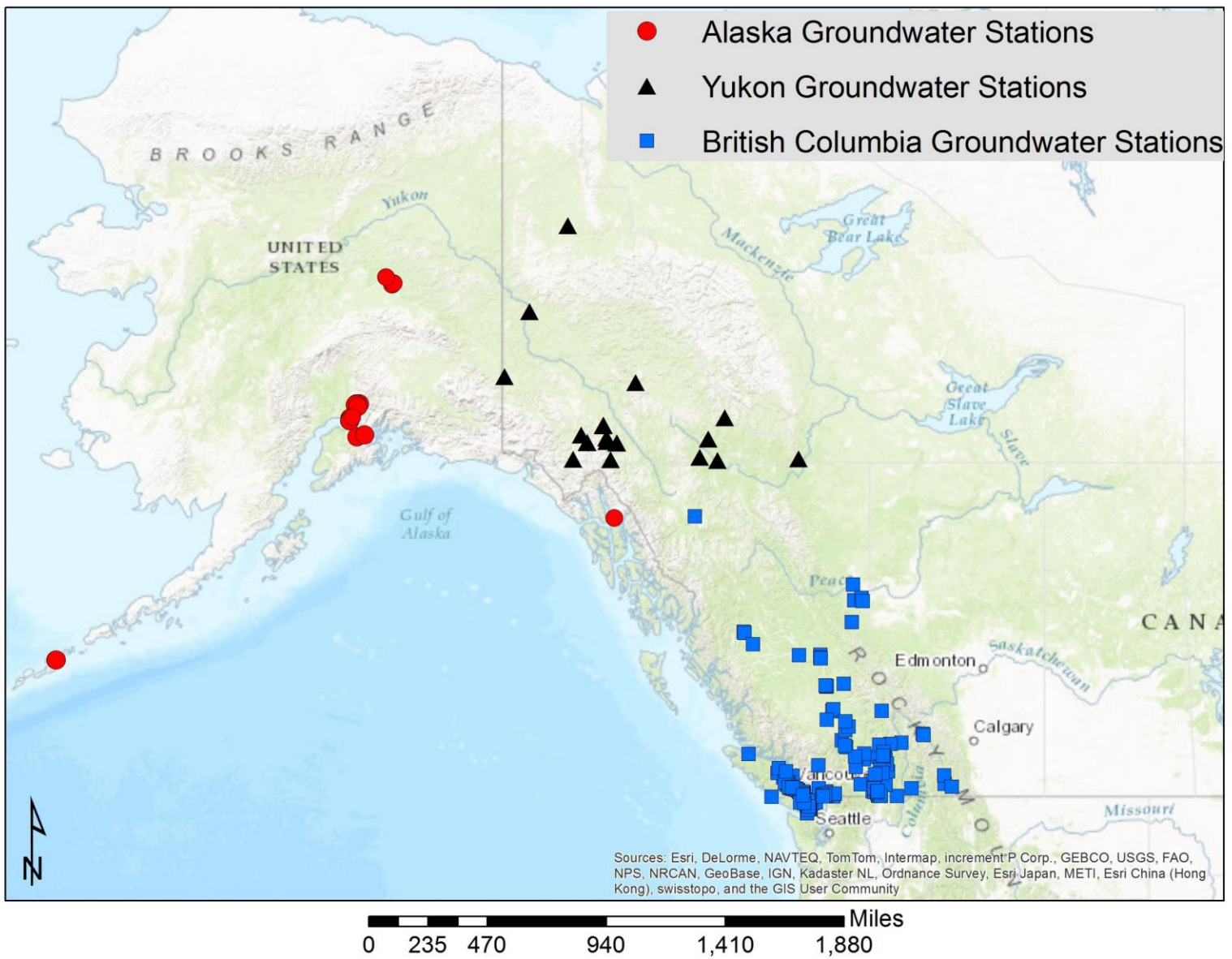
U.S. Department of the Interior
U.S. Geological Survey



12.02.2016

<http://pubs.usgs.gov/tm/1a1/>

Transboundary Issues



NGWMN Round III funding opportunity

Eligible objectives under consideration:

maintenance of web services (\$5,000)
possibly well maintenance

Budget Summary

From May 2013 through June 2018 both the state of Alaska and the USGS (*through cooperative agreements G16AC00076 and G16AC00368*) have collectively invested \$120,706 to expand the groundwater observation network in Alaska

Budget contributions:

federal \$43,389 contributions cooperative agreements

federal \$1,480.11 estimated travel for out-of-state NGWMN meetings

total federal \$44,869.11

state \$43,415 contributions cooperative agreements

state \$27,121.44 instrumentation, video logger, Liqui-nox, etc.

state \$5,300 groundwater database

total state \$75,836.44

Questions

Contact information

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