



2025 Geosummit Workshop

Preparing for NSRS Modernization in Alaska: A Hands-on Training with
Products, Tools, and Services



Alaska GeoSummit 2025 Workshop

Preparing for NSRS Modernization in Alaska :
Tools, Products, and Services

Dena'ina Civic and Convention Center, Anchorage, AK
April 11, 2025

Lynda Bell, NOAA NGS Alaska Regional Geodetic Advisor

Nate Murry, NOAA CO-OPS Vdatum Technical Coordinator

Jeff Jalbrzikowski, NOAA NGS Appalachian Regional Geodetic Advisor

Nathan Wardwell, JOA Surveys, LLC, Anchorage, Alaska

Gwen Gervelis, Alaska DNR Chief, Survey Section, NOAA NGS State Coordinator

Joel Cusick, Alaska Region National Park Service GIS Specialist



2025 Geosummit Workshop Agenda

1:30 -1:45 Intro : Preparation in the Alaska Region for NSRS Modernization

1:45 -3:45 NOAA's VDatum 4.7 : Training with NOAA/NGS Team

3:45-4:00 Break

4:00 -5:00 Alaska Partner Presentations, Demonstrations, and Discussion



What is the NSRS?

National Spatial Reference System (NSRS)

“The NSRS is a consistent coordinate system that defines latitude, longitude, height, scale, gravity, orientation, and shoreline throughout the U.S”



What is NSRS Modernization?

Improving the National Spatial Reference System

The National Geodetic Survey has been working over the last ten plus years to remove inaccuracies in the existing datums of the United States.

By tracking the dynamic nature of the Earth, and giving users tools to account for it, NGS will provide a new National Spatial Reference System that is semi-dynamic.

“By fully embracing the benefits of GNSS as the positioning tool of today, and of the future, NGS will effectively link the replacements for NAD 83 and NAVD 88 through a geocentric reference frame and gravimetric geoid model”

*-Dr. Dru Smith, Chief Geodesist,
National Geodetic Survey, 2010*



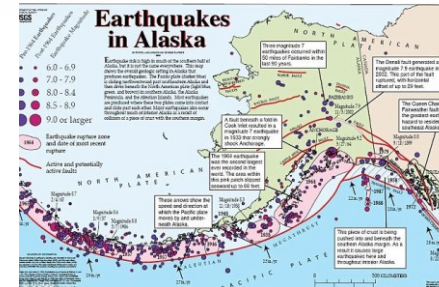
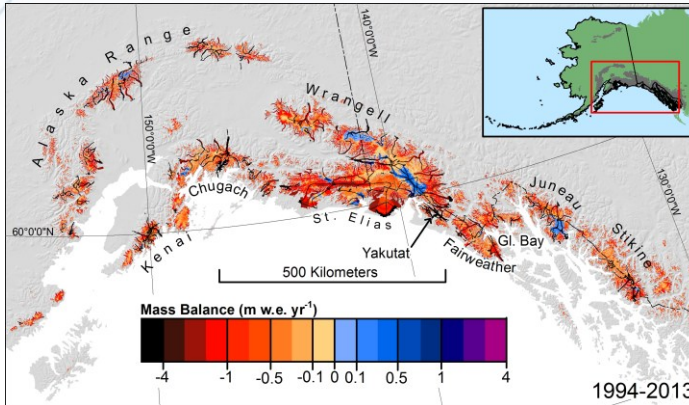
Positioning & Modernization Challenges in Alaska: **Solutions : Acquire Accurate Positioning Data for Alaska and the Arctic**





Positioning Challenges in Alaska:

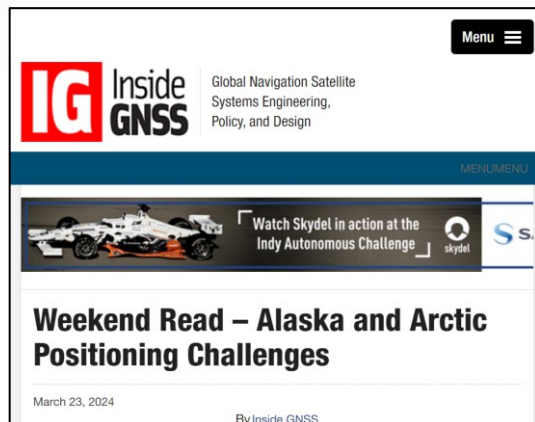
The Setting: Active Plate Boundary,
Glacial Retreat, Isostatic Rebound,
Periodic Strain Release





Mapping Challenges in Alaska: Size, Remoteness, and Data Gaps

<https://insidegnss.com/weekend-read-arctic-positioning-challenges/>, Published March 23, 2024, Inside GNSS





National Ocean Service: The Arctic Oceans & Coasts *Accurate Positioning Data for Alaska and the Arctic*

<https://oceanservice.noaa.gov/arctic/ngs-arctic.html>

Published 2024





Enhancing and Densification of Geodetic Survey Control through Partnerships

Positioning – improvements in both vertical and horizontal positioning

Ground truthing – improve base station positions for LIDAR, aerial, drone, photogrammetric, altimetric data

Datum consistency -throughout multiple data sets used for digital elevation modeling





Positioning & Modernization Challenges in Alaska: **Solutions : Support Regional Preparation**

- Improving Geodetic Survey Control and Coastal Mapping in Alaska through Federal, State, and Industry Partnerships
- Building NOAA CORS in Alaska with NOAA CORS Network (NCN) Improvements through AK Earthscope, AK DNR Alaska Continuously Operating Network (ACORN), and AK National Park Service partnerships
- GRAV-D Completion 2024! Continue to improve gravity models through GeMs program 2024 and beyond in Alaska
- VDATUM Completion 2025 through Alaska State and Industry Partnerships
- University Outreach : training the future geodetic workforce



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