

# National Geodetic Survey

## Director's Update to the HSRP

Juliana Blackwell, Director

September 27, 2023



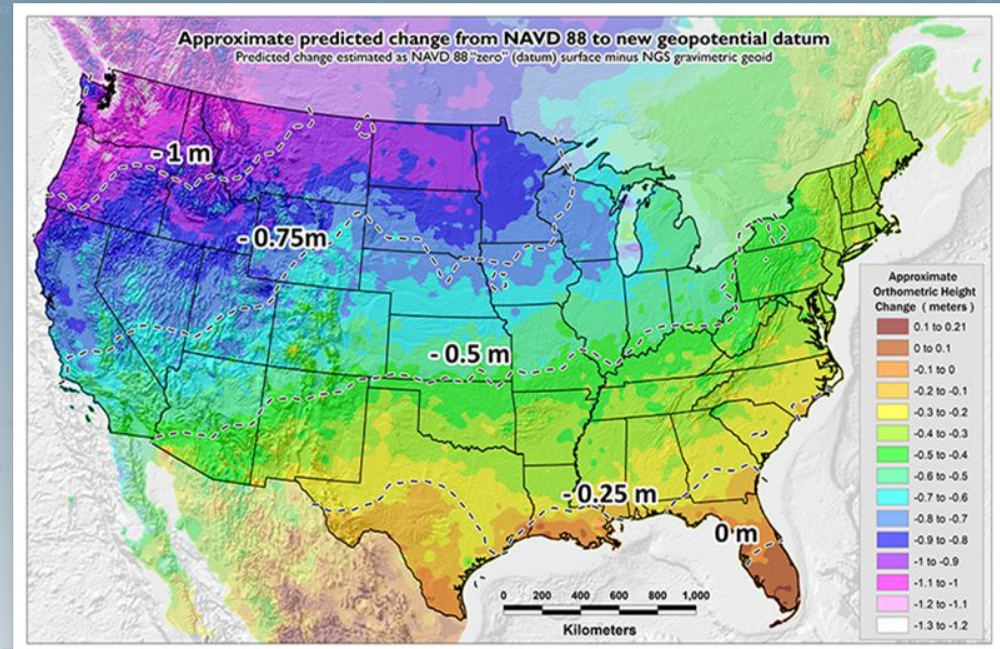
# Benefits of Modernizing the NSRS

## Why Modernize?

- **Current Datums** were defined *before* GPS technology and rely on old tech & physical survey marks in the ground

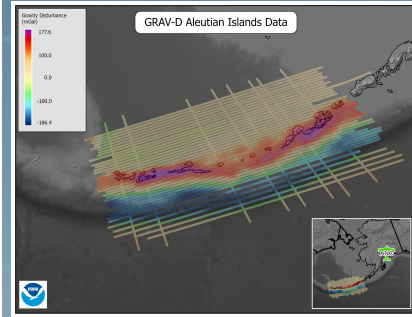
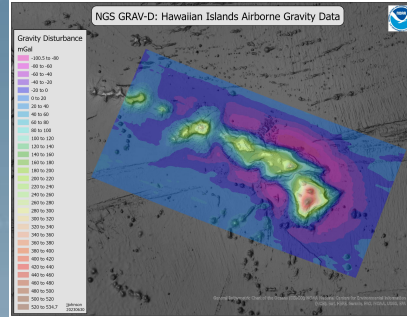
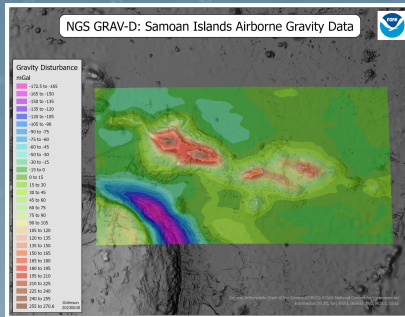
## Modernization will:

- Improve **accuracy, access, and alignment** of our positioning systems
- Provide ~\$8.7 B in benefits to the nation over 10 years, more for early adopters
- Enable better alignment of NOAA data to support a Climate Ready Nation
- Provide more Equitable Access across ¼ of the Earth

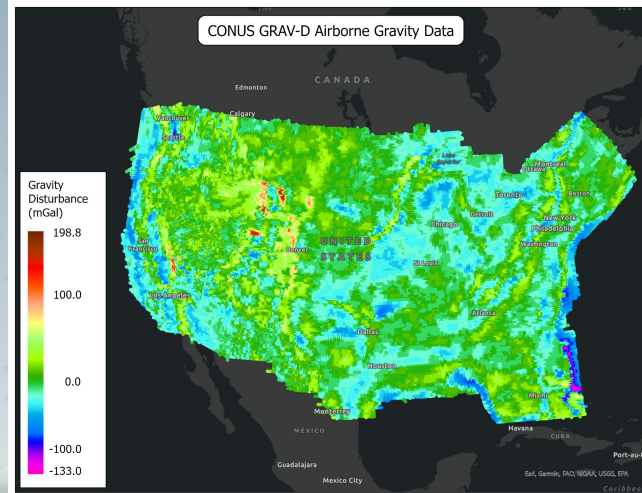
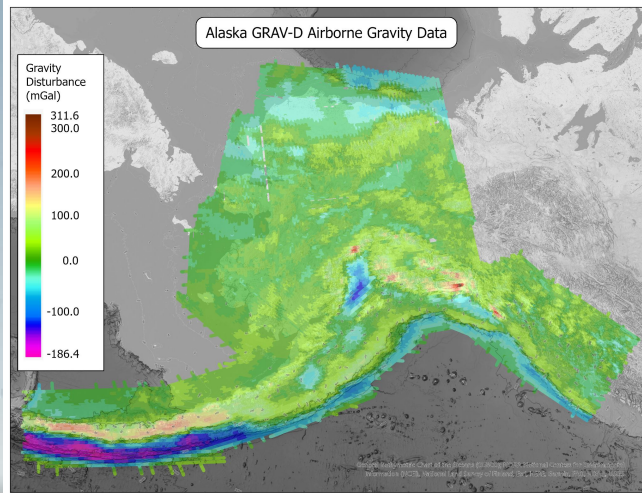


# GRAV-D Update

Target Area is **100% Complete**, and NGS continues to collect data to improve the dataset



This year we completed data collection in American Samoa, Hawaii, the Aleutian Islands and in CONUS! Plan to have a processed data set for Geoid modelers by December 2023.



# US Government Geodesy Community of Practice

## Current Participants:

- National Geospatial-Intelligence Agency (NGA), Office of Geomatics
- NOAA, National Geodetic Survey (NGS)
- National Aeronautics and Space Administration (NASA)
- Department of Interior, United States Geological Survey (USGS)

Met in person twice so far, created working groups coordinating around common themes



September 2023 - NGA hosted NGS, NASA, and USGS for Summit at Moonshot Labs in St. Louis

# Geospatial Modeling Grants

- NGS awarded ~ \$4 million in grant funding in response to the Geospatial Modeling Grant.
- Projects will directly address the nationwide deficiency of geodesists.
- In addition, these projects will develop tools and models to advance the modernization of the National Spatial Reference System (NSRS).

UC San Diego



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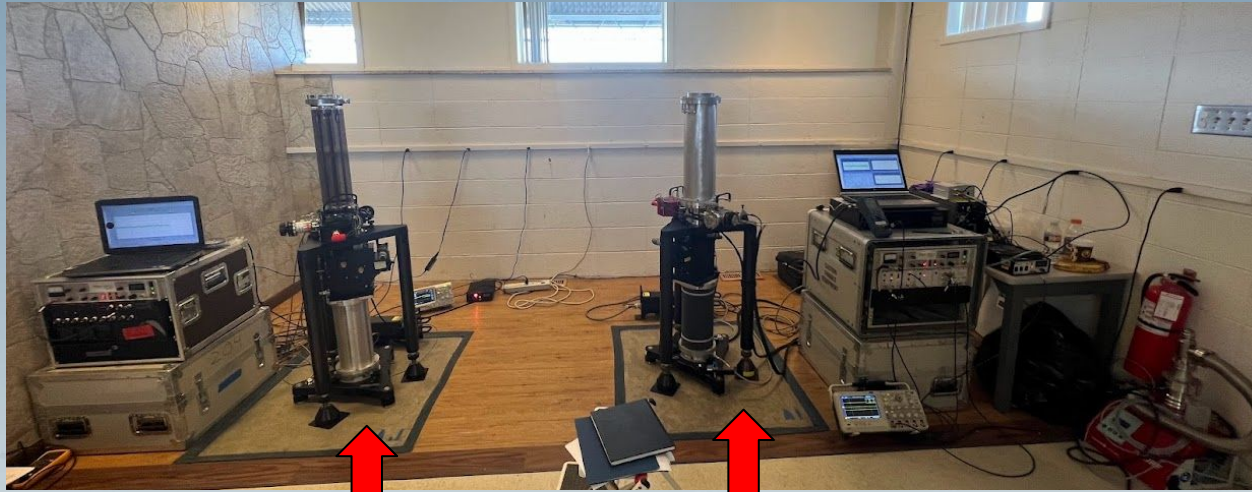
MICHIGAN STATE  
UNIVERSITY



**Oregon State**  
University

# International Comparison of Absolute Gravimeters

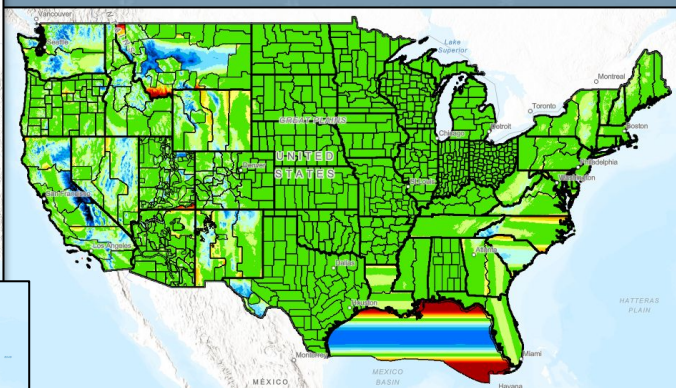
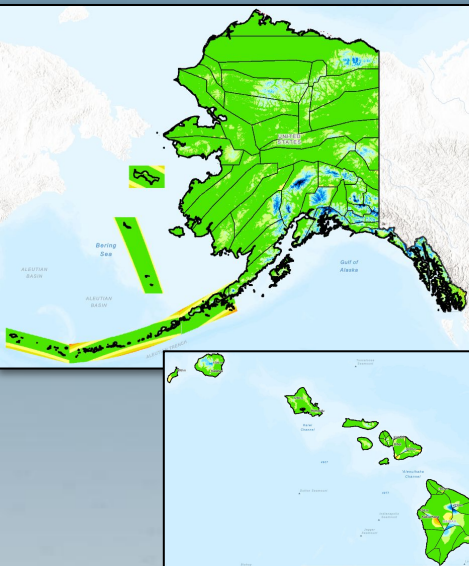
*If you have unique instruments that measure a fundamental force of nature, how do you know which ones are right?*



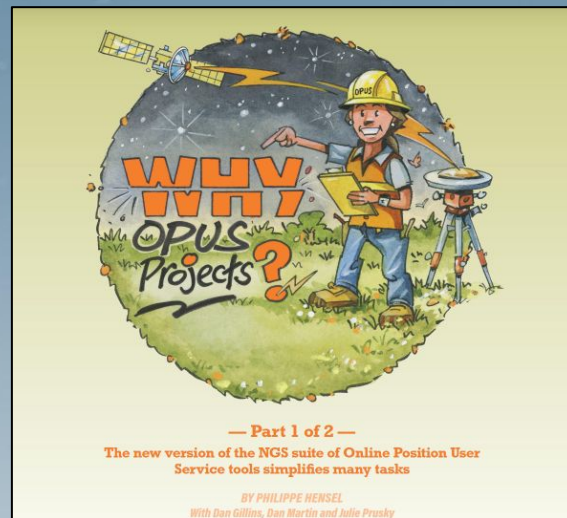
Instruments set on 8 specifically designed piers isolated from the building structure at Table Mountain Gravity Observatory



# Highlights of NSRS Modernization



<https://alpha.ngs.noaa.gov/>



- **SPCS 2022 now on new NGS Alpha Site**
- Zone definitions and formats for ~1,000 new State Plane zones & web map to explore them
- Alpha version of NGS Coordinate Conversion and Transformation Tool (NCAT) available for testing
- OPUS Projects series in trade journal and comprehensive new User Manual
- Multi-GNSS (M-PAGES) coming to Beta OPUS Static in October 2023

# NSRS Modernization Timeline

## Late 2023 / Early 2024:

- Roll out of new NGS Research Plan
- Beta release of CORS Station Pages for Data Delivery System
- Geodetic Data eXchange (GDx) to replace GNSS Vector eXchange (GVX) format
- Beta releases of adjustment program, transformation engine, Euler pole parameters
- Alpha Reference Epoch Coordinate (REC) Adjustment -- the first set of new coordinates on 100,000+ marks
- Dynamic heights from GNSS tool - for use in water management



# NSRS Modernization Timeline

## Late 2023 through 2024:

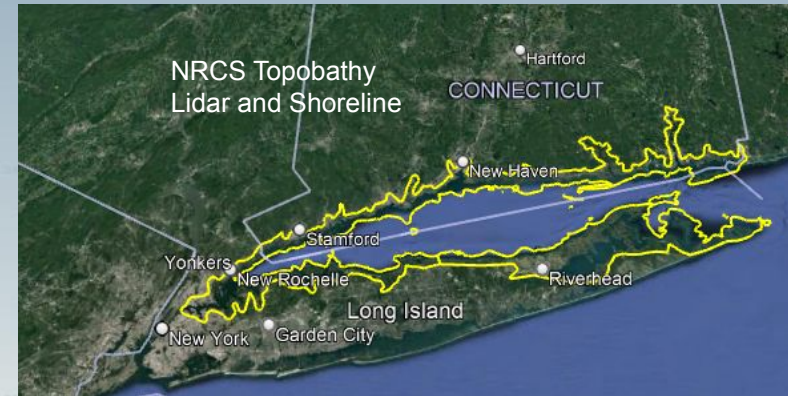
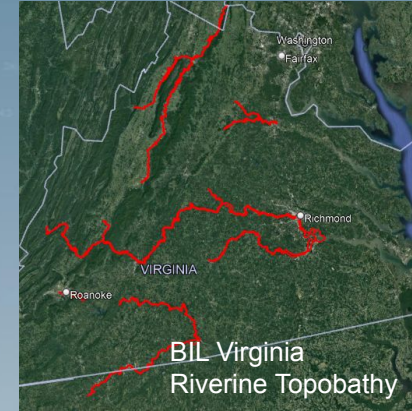
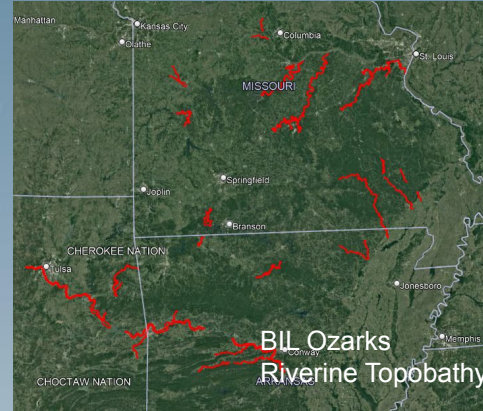
- ITRF2020 CORS Coordinate Functions to describe the dynamic nature of how stations in NOAA CORS Network move over time
- First Alpha release of GEOID2022 with all GRAV-D data
- VDatum Updates:
  - New model for TX and LA coast
  - Users able to include the uncertainty of their own mapping data into equation
- Contract work begins on Foundation CORS (with BIL funds)
- GRAV-D reflights for Gulf Coast and other specific lines
- Collaboration with NGA to survey Canadian Rockies

**Mid 2024 - Mid 2025:** One year roll-out of products, “domino style”, on the beta website

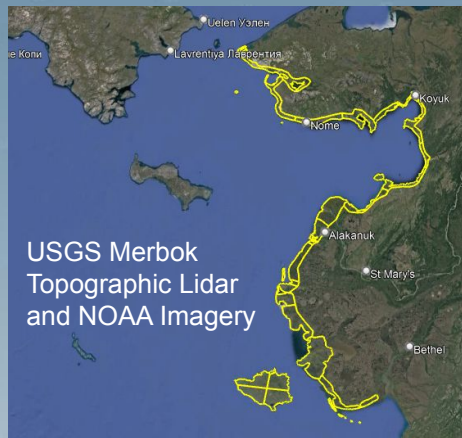
**Mid 2025:** Official announcement of the modernized NSRS

# Highlights of the Coastal Mapping Program

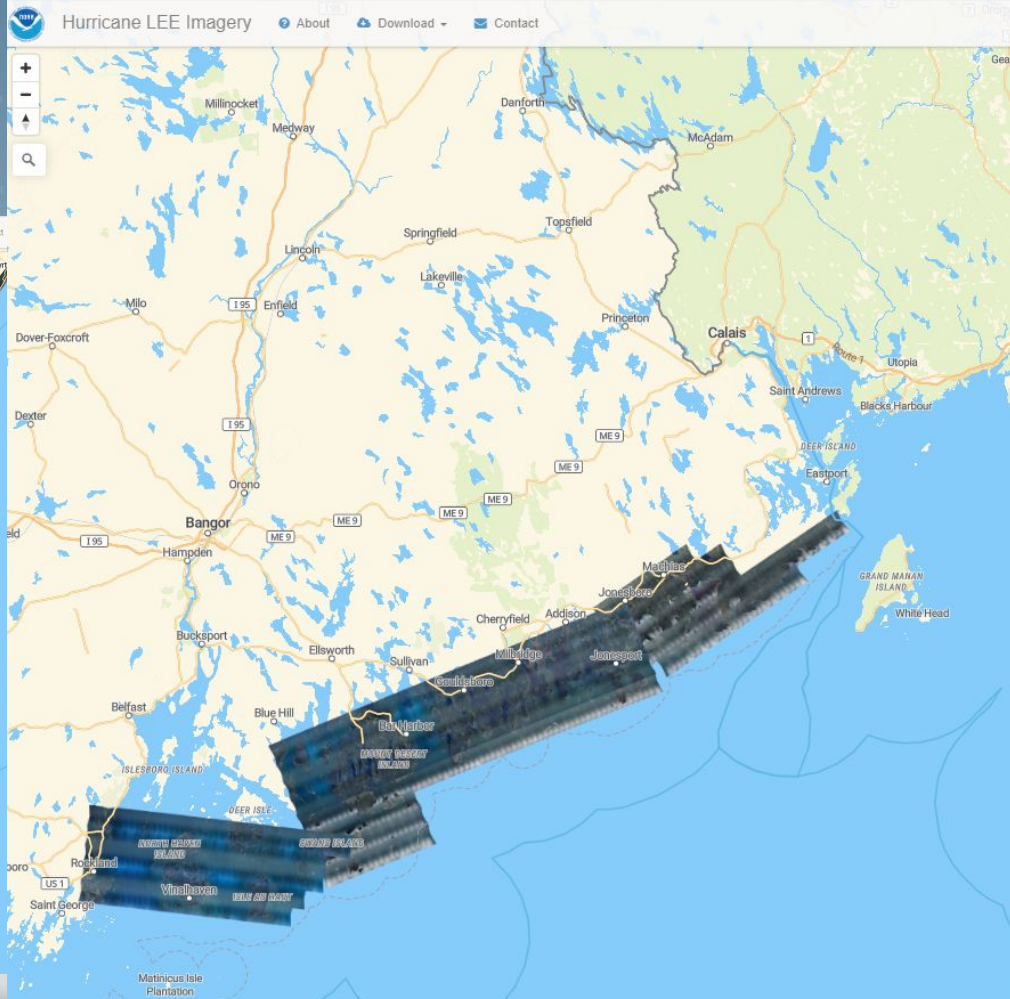
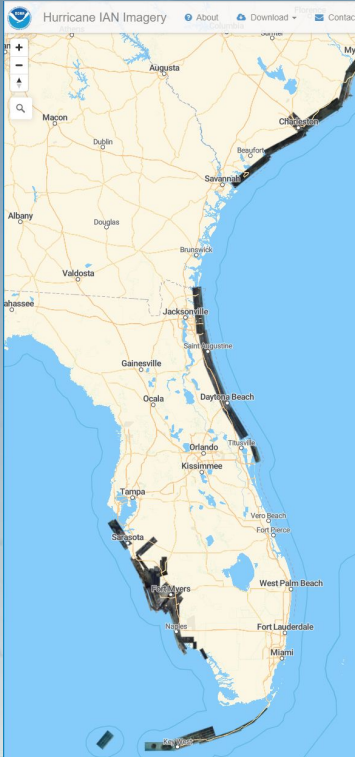
- **21 Task Orders totaling ~\$30M**
- **Funding Sources**
  - NGS Base
  - Hx Ida, Ian, and Merbok Supplementals
  - BIL
  - Partner Funds - **NRCS and USGS**
- **Data Purchased**
  - Topobathy Lidar - 5360 sq miles
    - **Riverine - 1222 sq miles (BIL)**
  - Topo Lidar - 8321 sq miles
  - Imagery - 14,338 sq miles
  - Shoreline - 7352 linear miles
  - GRAV-D - 490 flight hours
  - InSAR - 200,000 sq miles



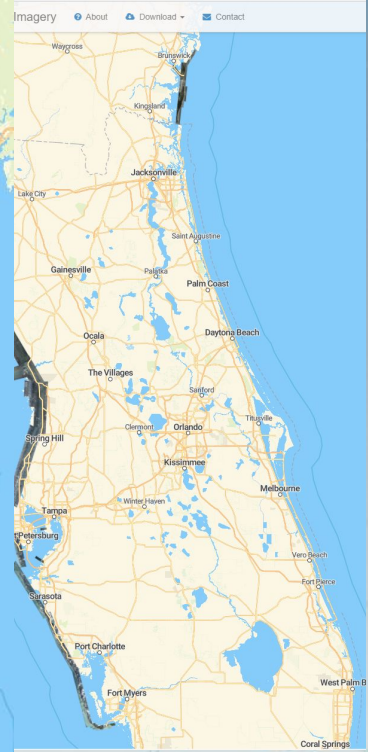
# Highlights of the Coastal Mapping Program



# Hx IAN



# Hx IDALIA





HYDROGRAPHIC SERVICES REVIEW PANEL



noaa