National Geodetic Survey Update

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NGS' Mission

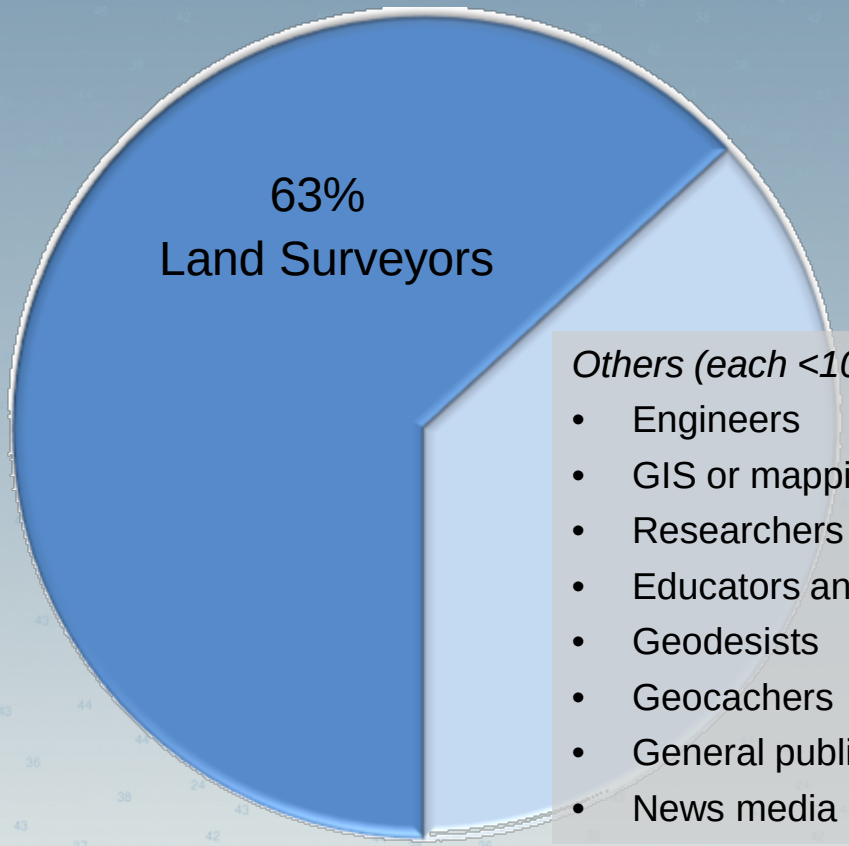
To define, maintain and provide access to the National Spatial Reference System (NSRS) to meet our Nation's economic, social, and environmental needs.

The NSRS is a consistent coordinate system that defines latitude, longitude, height, scale, gravity, orientation, and shoreline throughout the United States.

NGS Constituents

Geodesy Program's traditional users are land surveyors, and other user groups are growing.

Visits to geosdesy.noaa.gov include:



Others (each <10%) include:

- Engineers
- GIS or mapping users
- Researchers
- Educators and students
- Geodesists
- Geocachers
- General public
- News media

Coastal Mapping Program also shares data via Digital Coast.

Visitors to coast.noaa.gov/digitalcoast/ include:

- Emergency response managers
- Coastal resource managers
- Government agencies
- GIS users
- Commercial mapping vendors
- Commercial shipping industry
- Port authorities
- Recreational boaters/fishers
- Insurance companies
- Archaeologists and historians
- General public

The National Geodetic Survey Ten-Year Plan

Support the users of the National Spatial Reference System.

Modernize and improve the National Spatial Reference System.

Expand the National Spatial Reference System stakeholder base through partnerships, education, and outreach.

Develop and enable a workforce with a supportive environment.

Improve organizational and administrative functionality.

http://www.geodesy.noaa.gov/web/news/Ten_Year_Plan_2013-2023.pdf

New Datums Are Coming in 2022!

- Both a new geometric and a new vertical datum will be released in 2022.
- The realization of the new datums will be through GNSS receivers.
- NGS will provide the tools to easily transform between the new and old datums.

2016 Activities

Gravity for the Redefinition of the American Vertical Datum (GRAV-D)

As of March 3, 2016

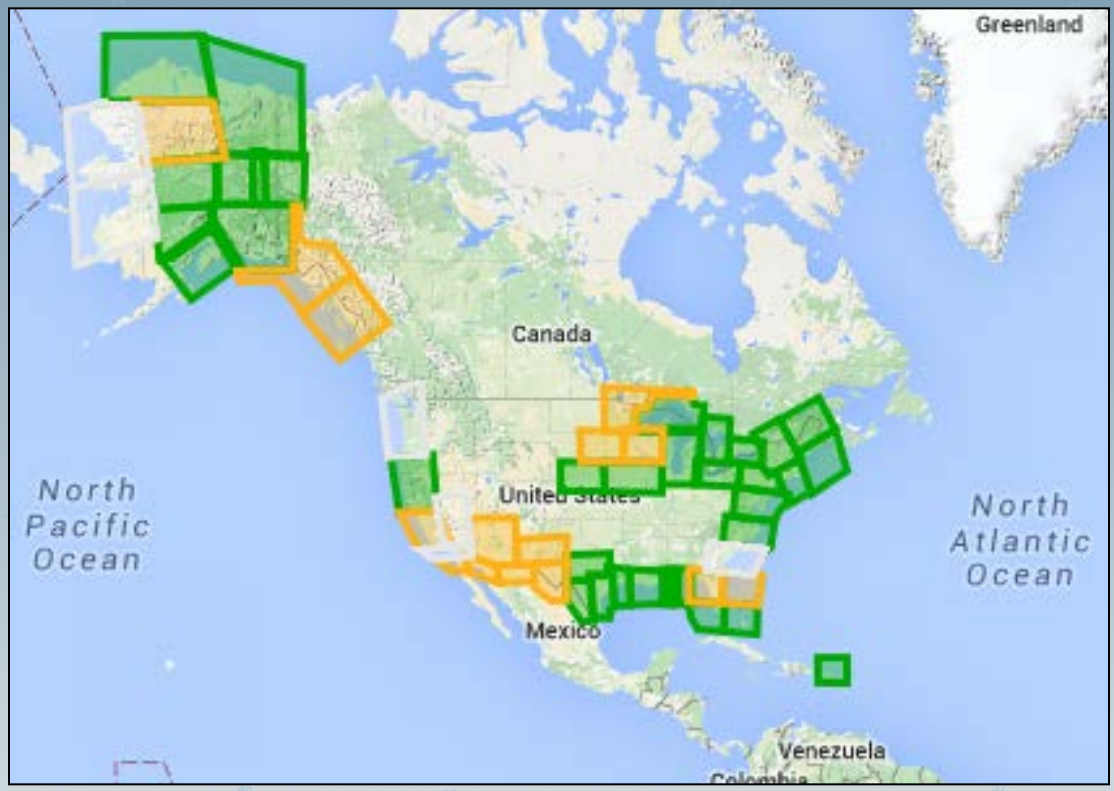
Complete GRAV-D surveys for 53% of the U.S. and territories.

- Currently at **49.5%**
- Survey areas: FL, TX, AZ, AK

Survey 60% of Alaska.

GRAV-D project to collect data to redefine the U.S. vertical datum by 2022 (at current funding levels).

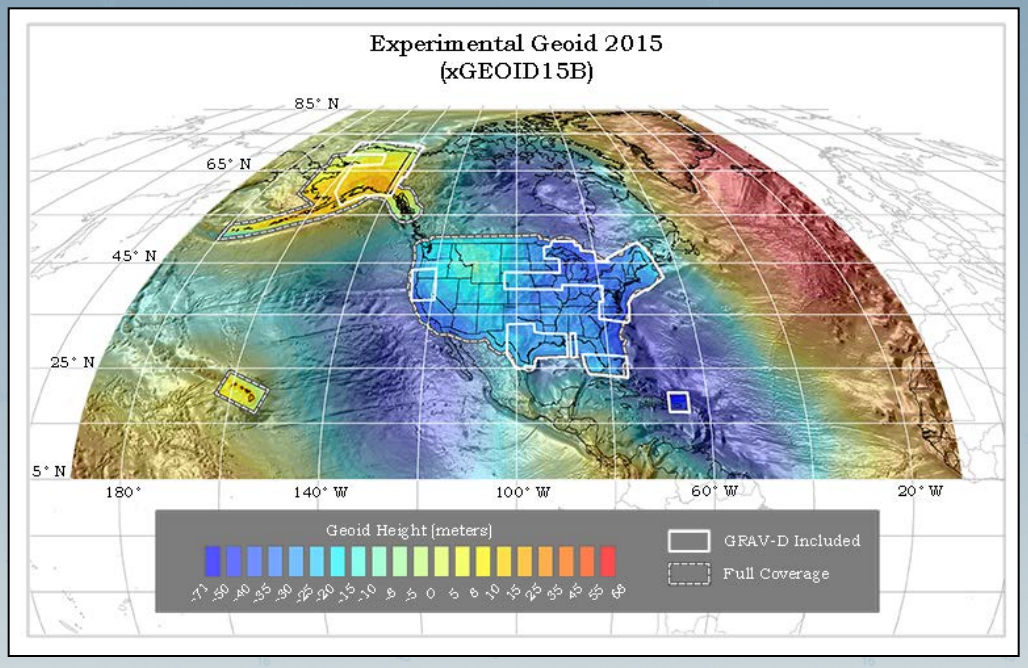
Benefits: **$240 million** from improved floodplain mapping alone!



http://www.geodesy.noaa.gov/GRAV-D/

Experimental Geoid Model

Develop a third experimental geoid model with attention given to specific users in specific areas (e.g., Alaska and lidar applications).



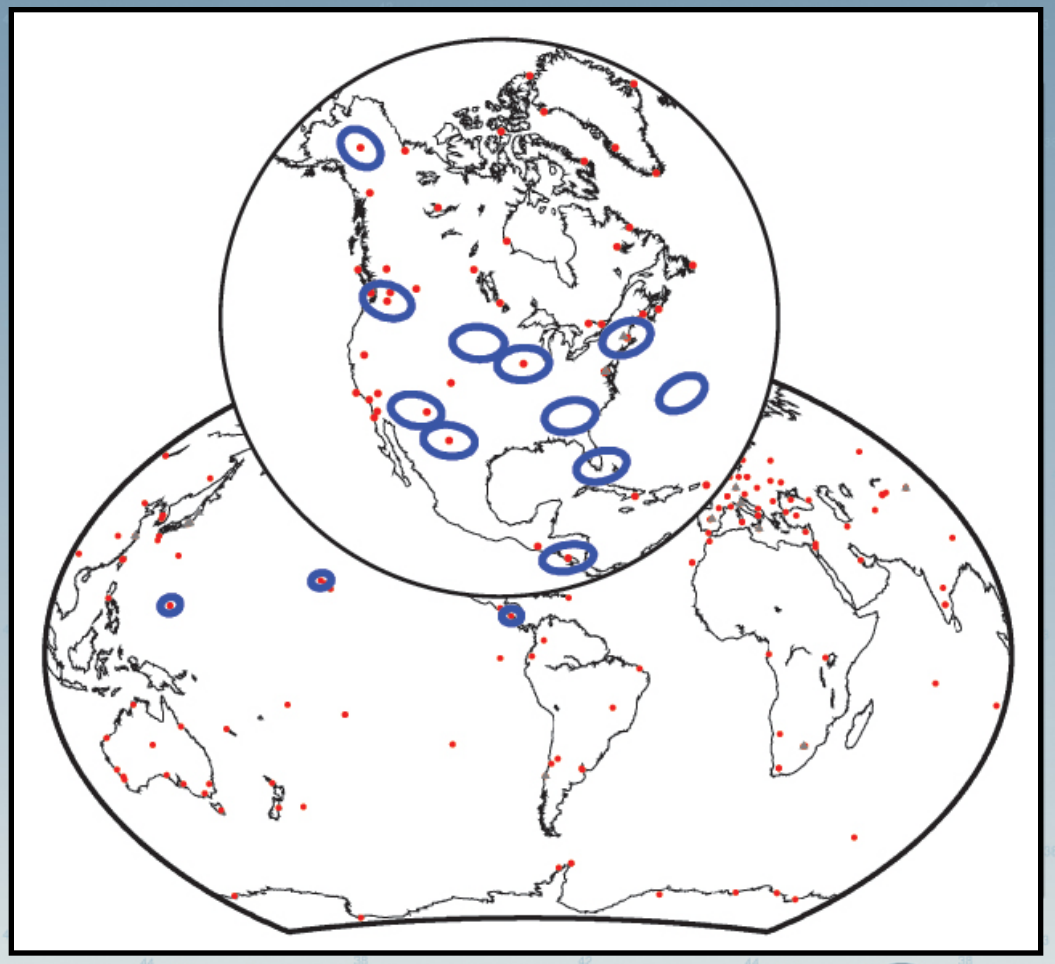
- Provides an accurate view of the 2022 new reference frame changes.
- Since 2012, annual xGEOID models are continually improved.
- Each subsequent model incorporates the new airborne gravity data released within the preceding year.

Continuously Operating Reference Stations (CORS)

Install one foundation CORS site for the improvement of the National Spatial Reference System (NSRS) and the International Terrestrial Reference Frame (ITRF).

Develop an RTN validation procedure prototype.

Deliver 350,000 Online Positioning User Service (OPUS) Solutions.



Coastal Mapping Program

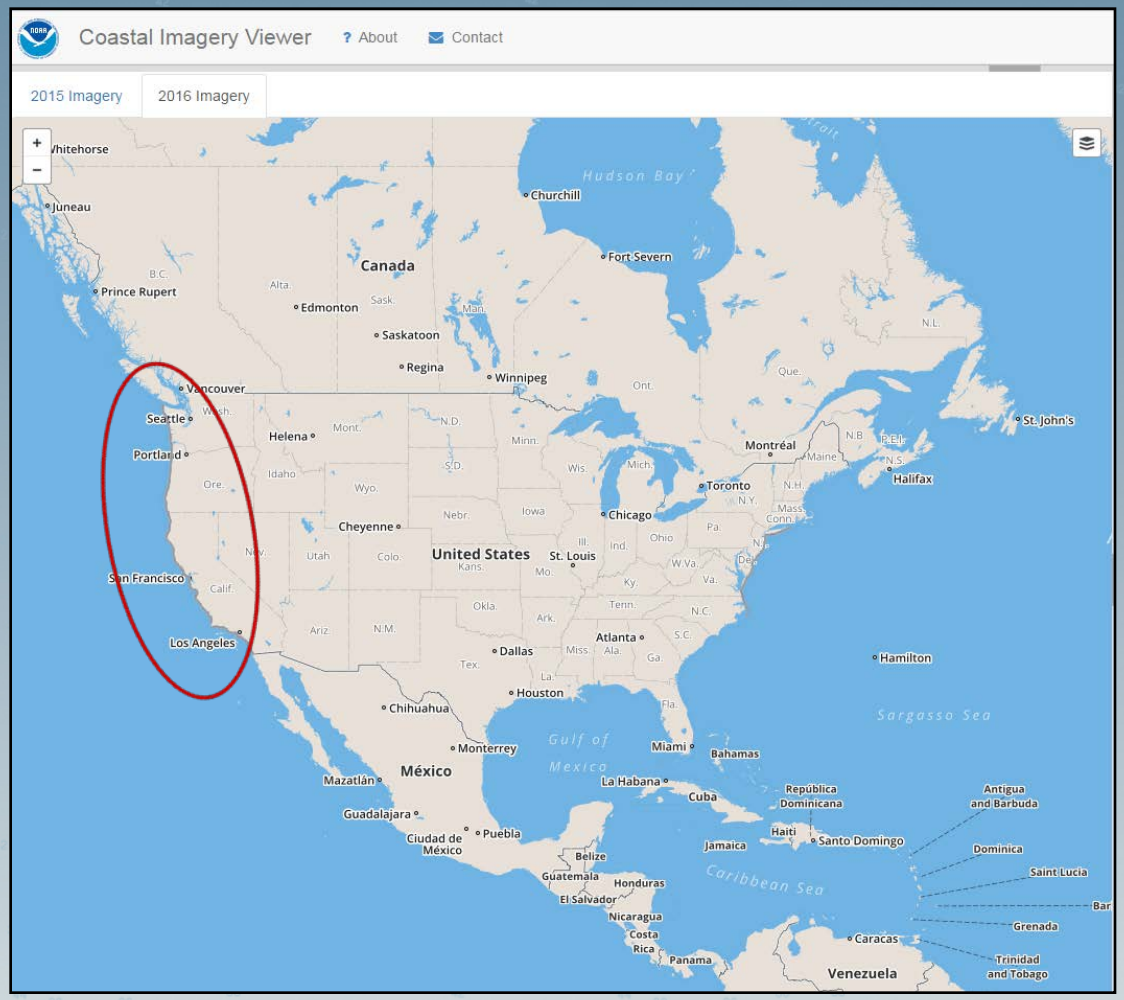
- **Update 5.5% of the National Shoreline with current and new aerial imagery and elevation data to improve navigational safety.**
- **Update shoreline in 35 priority ports and analyze 35 ports for changes.**
- **Process and create special Sandy lidar deliverables for Coast Survey to update nautical charts.**
- **Deliver emergency response imagery.**

NGS produces the Nation's shoreline to define territorial limits. Up-to-date shoreline is an integral component of NOAA Nautical Charts and a wide range of coastal applications.

2016 El Niño Oblique Imagery

Oblique geo-referenced imagery of the entire West Coast collected.

- Data collected to assess impacts to several NOS mission areas, including navigation and coastal zone management.
- Supports other NOAA offices, USGS, USACE, and FEMA.
- Data available to the public.



http://geodesy.noaa.gov/storm_archive/coastal/viewer/index.html

VDatum
Integrating America's Elevation Data

Release a revised San Francisco Bay vicinity VDatum model.

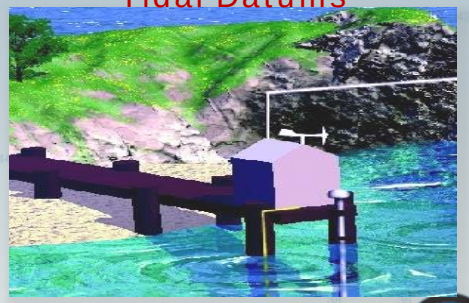
- Supports coastal resilience, intelligence and place-based conservation applications such as coastal inundation modeling, shoreline determination, and habitat restoration.
- Covers approximately 3,300 miles or 2% of the U.S shoreline.

All elevation data are referenced to a vertical datum. Many different vertical datums are used around the Nation. For elevation data sets to be blended together, they must be referenced to the same vertical datum.

Ellipsoidal Datums

Orthometric Datums

Tidal Datums



Increased Customer Engagement

Complete transition to Regional Geodetic Advisor Program.

Provide training to 50% of states.

Conduct monthly educational webinars on programs, projects, products and services to educate constituents.

Increase video library. Visit our playlist on YouTube!

http://www.geodesy.noaa.gov/ADVISORS/