

National Geodetic Survey Update

National Spatial Reference System Modernization and Coastal Mapping Activities

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National Geodetic Survey

Hydrographic Services Review Panel Virtual Meeting
September 23, 2020



Outline

1. NSRS Modernization Delay Messaging
2. Foundation CORS Infrastructure
3. Emergency Response Imagery - Hx Laura & Hx Isaias
4. 2018 and 2019 Hurricane Supplemental Progress
5. Coastal Mapping Status
6. VDatum Update
7. Socioeconomic Benefit Studies

Delayed Release of the Modernized NSRS

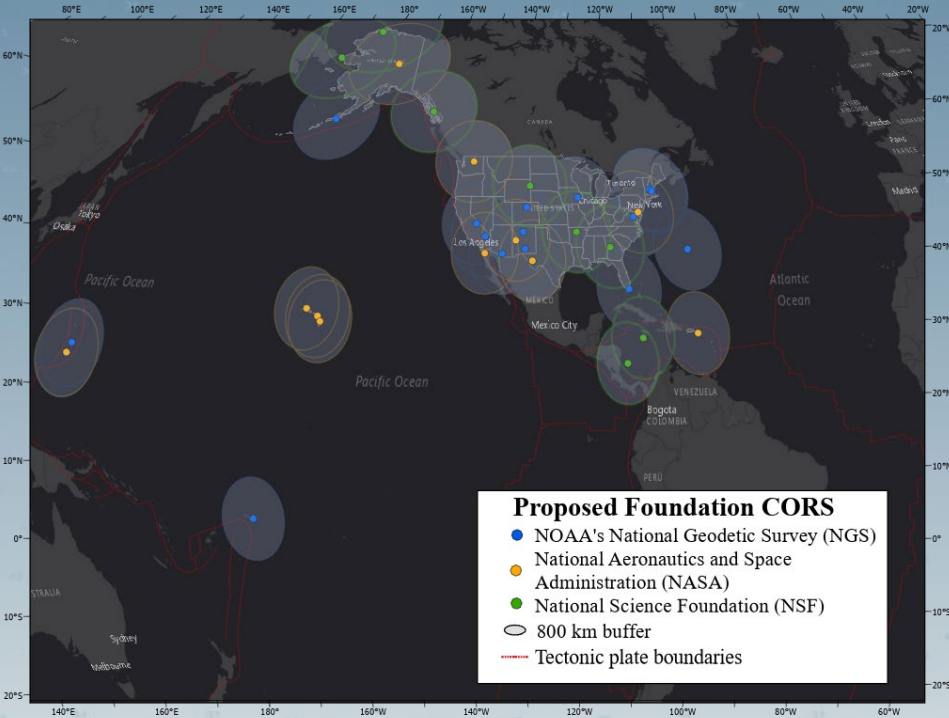
In June 2020, NGS announced a delay in the release of the modernized National Spatial Reference System (NSRS). Decision was driven by difficulties in workforce hiring and retention and numerous challenges meeting GRAV-D data collection milestones.

Outreach includes NGS News announcement, updated webpage, articles in newsletters, updates to federal partners, NGS geodetic advisor network, and

NGS webinar (August 2020) - 437 people from 46 states, DC, and PR

- Most people expected the delay.
- Many people and state agencies expressed relief at having more time to prepare.
- The overriding sentiment is that NGS should take the time required to do it correctly and to engage with vendors that can make implementation easier for end users.

The NOAA Foundation CORS Network (NFCN)



Station Distribution:

26 in North America
4 in the Pacific
3 in the Caribbean
3 in the Marianas

Phases of Foundation CORS

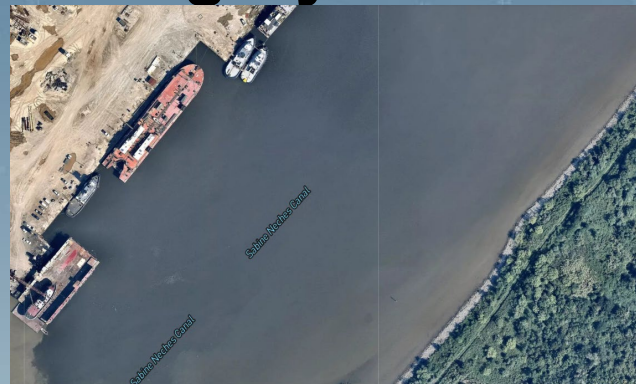
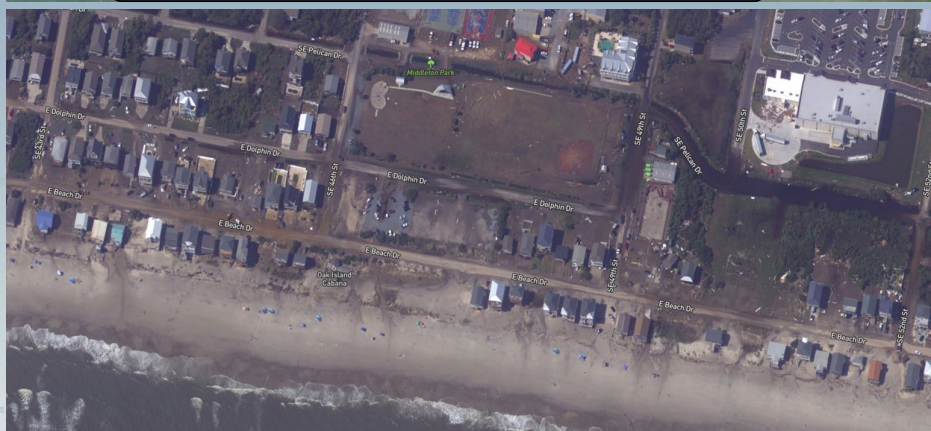
- 1. Incorporate partner stations**
Existing NASA and NSF stations brought into the NFCN [NASA Agreement signed 12/18/2019. Discussions ongoing with NSF.]
- 2. Upgrade existing NGS CORs**
Upgrades include fully-GNSS capable equipment, RINEX3 support, and submission to IGS.
- 3. Construct ~9 new stations**
These NGS-owned stations will be co-located at sites with existing space geodetic techniques.

Current status: 19 of 36 stations established

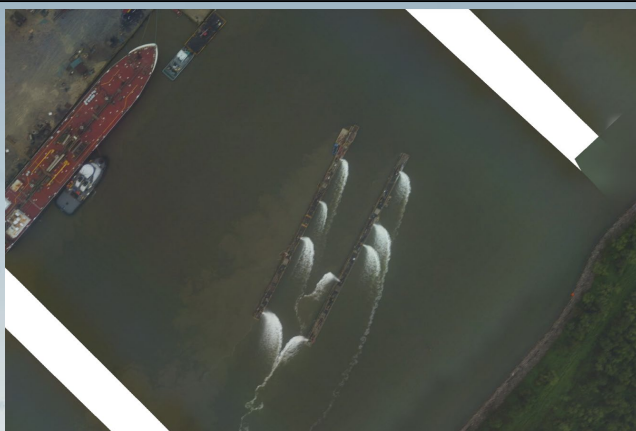
Emergency Response Imagery



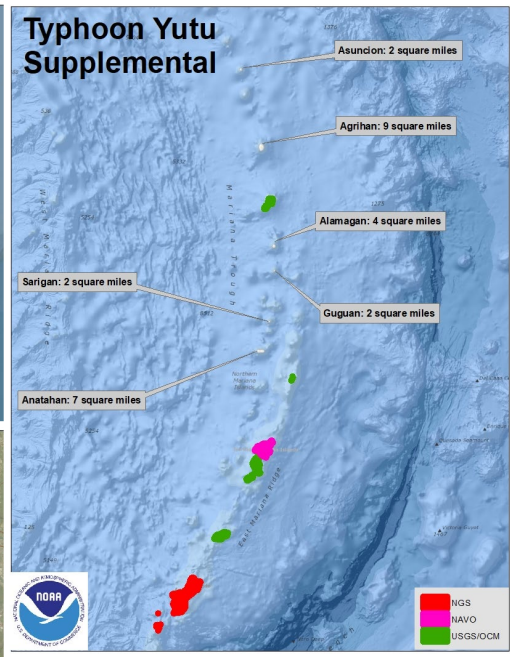
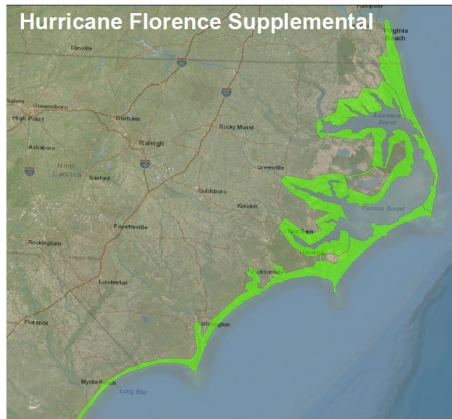
Hx Isaias - Oak Island, NC



Hx Laura - Sabine Neches Canal, TX



Coastal Mapping: Hurricane Supplemental



Coastal Mapping Updates

Exceeded FY20 performance targets:

- Delivered 6.8% of the national shoreline.
- Updated shoreline for 57 of the nation's priority ports, 35 priority ports analyzed for change.
- Collected and delivered 1422 square miles of topobathy lidar which was used to update 270+ ENC's.

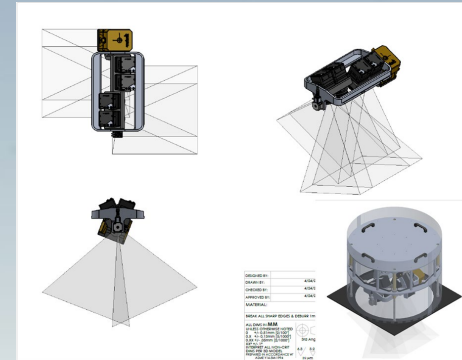
FY 21:

- Expect to meet similar metrics to FY20 for shoreline and ports.
- Travel restrictions will impact delivery of topobathy lidar and possibly imagery collection.



Upgraded topobathy lidar system:

- 140K pps
- Full-Waveform
- Depth range of 2.7/Kd



Upgraded camera system:

- 2 x 150mp RGB
- 2 x 100mp NIR
- 123° Field of View

VDatum Update



VDatum Version 4.1 Released !!

June 25, 2020

New Features Include:

- Integration of VERTCON 3.0 release 20190601
- Support for ITRF 2014
- GEOID18 incorporation
- xGEOID19b incorporation
- Spatially Varying Uncertainty (SVU) implementation for limited regional models:
 - New Jersey - coastal embayment - North, Version 1.2
 - New York - The Great South Bay, Version 3.4
 - New Jersey/New York/Connecticut - Northern NJ, NY Harbor, western Long Island Sound, Version 3.4
 - New York/Connecticut/Rhode Island - Outer NY Bight, eastern Long Island Sound, Block Island Sound, Version 3.4

Bug Fixes Include:

- Fixes an issue that could cause Well Kr
- Fixes NAD27 SPC zone list issue
- Fixes NADCON5 converting issue
- Fixes forward/backward consistency in
- Fixes NAD83 (2011) to PRVD02 convert
- Enhancement of xGEOID transform for
- Fix command line issue calling HTDP w
- files
- Fixed NullPointer Error when processing
- file conversion.



VDatum Version 4.1.1 Released !!

September 10, 2020

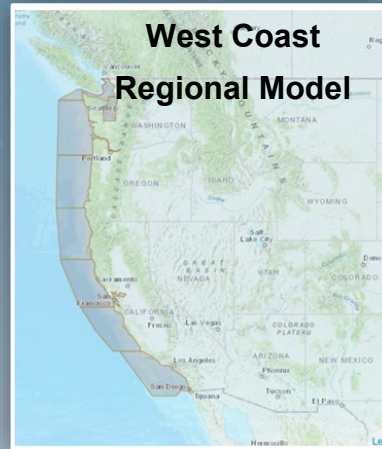
New Features Include:

- Added support for NAD83(PA11) and NAD83(MA11) to work with State Plane Coordinates.
- Enhancement on GEOID list logic and selection

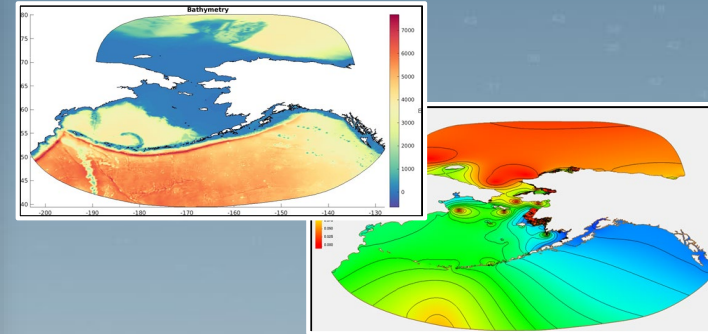
Bug Fixes Include:

- Fixes Combined Factor issue
- Fixes Feet to Meter conversion issue
- Fixes as issue in the online version that caused the GEOID value to be missing during ASCII Conversion
- Fixes a broken link for AK - Southeast on the download page

[Learn More -->](#)

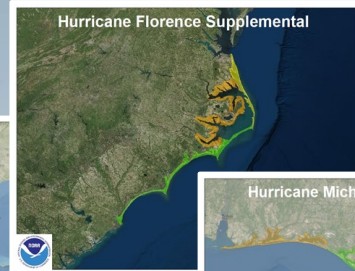


AK Exploratory Model Run



Supplemental

2018 VDatum Supplemental Request



Socioeconomic Benefit Studies

The NGS Aeronautical Survey Program (ASP) provides airport geodetic control, runway, navigational aid, obstruction, and other aeronautical data critical to operating the National Airspace System.

A new study estimates the ASP provides between \$3 billion and \$13.2 billion to the U.S. economy over the next decade.

Other studies on NGS' benefits to the Nation:

- The NGS Gravity Program - \$4.2 and \$13.3 billion over ten years, with a middle scenario of \$8.7 billion.
- The Regional Geodetic Advisor Program - estimated 2018 annual total benefits between \$18.6 and \$38.7 million.
- NOAA's Coastal Mapping Program - estimated 2011 annual total benefits to be \$241 million
- The Value of CORS and GRAV-D to the U.S. economy - CORS benefits is estimated as \$758 million per year (2008)

