NOS's Navigation Services offices: Portfolio of data, products and services v21Apr2020

Below is a synopsis of data, products and services that are provided from the navigation services offices in the National Ocean Service:

- NOS National Geodetic Survey (NGS),
- NOS Center for Operational Oceanographic Products and Services (CO-OPS),
- NOS Office of Coast Survey (OCS), and
- Joint Hydrographic Center (NOAA/ University of New Hampshire) at the Center for Coastal and Ocean Mapping (CCOM)

National Geodetic Survey (NGS)

- National geospatial reference system and datum systems: http://www.ngs.noaa.gov/INFO/WhatWeDo.shtml
  GNSS & GPS Data; Remote Sensing; Land Surveying; Geodesy; Datums and Transformations; Training and Education;
- GNSS & GPS Data - The NOAA Continuously Operating Reference Station (CORS) Network (NCN) is a multi-purpose cooperative network of GNSS stations from over 200 government, academic, and private organizations. Its primary objective is to enable GNSS users by providing precise positioning relative to the U.S. National Spatial Reference System (NSRS) https://www.ngs.noaa.gov/CORS/
- NOAA's Online Positioning User Service (OPUS) provides free access to high-accuracy National Spatial Reference System (NSRS) coordinates. OPUS uses software which computes coordinates using the NCN: https://www.ngs.noaa.gov/OPUS/about.jsp
- Gravity Data: NOAA's Gravity Program leads the Nation's efforts to enhance the vertical aspect of the NSRS through its Gravity for the Re-Definition of the American Vertical Datum (GRAV-D) initiative. GRAV-D is a long-term project to collect airborne gravity data and build the Nation's gravimetric geoid model. GRAV-D will ultimately lead to a new, highly accurate national vertical datum, allowing GPS to establish more accurate elevations for all positioning needs. https://www.ngs.noaa.gov/GRAV-D/index.shtml
- Survey Marks and Datasheets: NGS provides Information about survey marks (including bench marks) in text datasheets or in GIS shapefiles. https://geodesy.noaa.gov/datasheets/
- GPS on Bench Marks (GPSonBM) - NGS' crowdsourcing approach for working with Federal and State government agencies, universities, and private sector firms to find and report back on existing NGS survey control marks and collect and share survey-grade GPS data on a prioritized list of marks that will provide the most benefit for improving the local accuracy of national scale models and tools that NGS builds to serve the Nation (see GEOID18, and GPS for Transformation Tool Campaign)
- Post-storm event imagery: http://storms.ngs.noaa.gov/eri_page/index.html
  The imagery posted on this site was acquired by the **NOAA Remote Sensing Division** to support NOAA homeland security and FEMA emergency response requirements.
- National shoreline data: https://www.ngs.noaa.gov/NSDE/
  NOAA's National Geodetic Survey (NGS) produces the national shoreline which provides critical baseline data for updating nautical charts; defining our nation's territorial limits, including the Exclusive Economic Zone; and managing our coastal

resources. The national shoreline contributes to our nation's economy by supporting: maritime trade and transportation, coastal and marine spatial planning, coastal engineering, academic research, and insurance activities, to provide a means for enhancing our global competitiveness and more efficiently managing our resources.

- Coastal lidar: http://coast.noaa.gov/dataregistry/search/collection/info/coastallidar
  Looking for NOAA lidar, imagery, or land cover data? Use the Data Access Viewer https://coast.noaa.gov/dataviewer/#/
- Coastal Imagery Viewer – https://geodesy.noaa.gov/storm_archive/coastal/viewer/index.html
  NOAA Coastal Imagery were acquired at a 37.5 degree look angle using the NOAA King Air platform
- Customer Assistance: https://www.ngs.noaa.gov/INFO/NGSinfo.shtml

NOS Center for Operational Oceanographic Products and Services (CO-OPS)

- NOAA Tides and Currents website: https://tidesandcurrents.noaa.gov/
- Water level observations and records: http://co-ops.nos.noaa.gov/map/
- Tide Predictions: https://tidesandcurrents.noaa.gov/tide_predictions.html
- Tidal Current Predictions: https://tidesandcurrents.noaa.gov/noaacurrents/Regions
- Tidal Datums: https://tidesandcurrents.noaa.gov/stations.html?type=Datums
- Benchmark Sheets: https://tidesandcurrents.noaa.gov/stations.html?type=Bench+Mark+Data+Sheets
- Sea level trends: http://co-ops.nos.noaa.gov/sltrends/sltrends.html
- Coastal water level extremes analysis: http://co-ops.nos.noaa.gov/est/
- Coastal Inundation Dashboard Tool: https://www.co-ops.nos.noaa.gov/inundation/
- Seasonal High tide flooding outlook: https://oceanservice.noaa.gov/news/high-tide-bulletin/spring-2020/
- State of High Tide Flooding and Annual Outlook: https://tidesandcurrents.noaa.gov/HighTideFlooding_AnnualOutlook.html
- Operational Forecast Systems: https://tidesandcurrents.noaa.gov/forecast_info.html *
- NOAA PORTS® (Physical Oceanographic Real-time system) https://tidesandcurrents.noaa.gov/ports.html
- Harmful Algal Bloom Forecast Guidance: https://tidesandcurrents.noaa.gov/hab_info.html
- CO-OPS Publications page https://tidesandcurrents.noaa.gov/pub.html
- Customer Assistance: https://www.co-ops.nos.noaa.gov/contact.html
- Web Services: https://tidesandcurrents.noaa.gov/web_services_info.html

**** Joint products from OCS and CO-OPS***

- Operational Forecast Systems (OFS): https://tidesandcurrents.noaa.gov/models.html and https://oceanservice.noaa.gov/facts/ofs.html

NOS Office of Coast Survey (OCS)

- Electronic nautical charts: https://nauticalcharts.noaa.gov/
- NOAA Custom Chart Prototype: https://devgis.charttools.noaa.gov/pod/
- Seafloor bathymetry from hydrographic surveys: http://maps.ngdc.noaa.gov/viewers/bathymetry/

- Bathymetric Gap analysis: https://noaa.maps.arcgis.com/home/item.html?id=4d7d925fc96d47d9ace970dd5040df0a
- Electronic Nautical Chart Rescheme Plan and Status https://noaa.maps.arcgis.com/apps/webappviewer/index.html?id=ab6ad790ac3f411f8ef96cb26d0c4868
- NOAA/NOS nowCoast is a GIS-based web mapping portal displaying near real-time observations, analyses, tide predictions, model guidance watches/warnings, and forecasts for the coastal U.S. https://nowcoast.noaa.gov/.
- The U.S. Federal Mapping Coordination or Integrated Working Group on Ocean and Coastal Mapping (IWG-OCM) http://www.seasketch.org/#projecthomepage/5272840f6ec5f42d210016e4 The IWG-OCM and the 3D Elevation Program (3DEP) are demonstrating how we can work together to coordinate on mapping requirements and plans of Federal and state agencies around the country. The goal is to help federal agencies and our partners collaborate on mapping data requirements and acquisition, for more opportunities to "**MAP ONCE, USE MANY TIMES**."
- SeaSketch supports collaborative mapping projects: https://www.seasketch.org/home.html
- Customer Assistance: https://www.nauticalcharts.noaa.gov/customer-service/assist/

NOAA-UNH Joint Hydrographic Center, Center for Coastal and Ocean Mapping, University of New Hampshire

- Annual Report: https://ccom.unh.edu/reports The CCOM/JHC Annual Report summarizes the research and outreach activities of the Joint Hydrographic Center under the Center's cooperative agreement funding vehicle.
- U.S. Extended Continental Shelf Mapping: https://maps.ccom.unh.edu/portal/apps/webappviewer/index.html?id=03632a23f76e42de9c99098711862f8a The Joint Hydrographic Center has led the bathymetric mapping effort for the interagency U.S. Extended Continental Shelf Project, mapping more than 3 million square kilometers of seafloor. These data are crucial to establishing the outer limits of the U.S. Extended Continental Shelf and are improving our understanding of oceanographic and seafloor processes of the continental margin. All these data are freely available on both the Center website and through NCEI.
- Customer Assistance: https://ccom.unh.edu/contact-us

**** Joint products from OCS, NGS and CO-OPS***

- VDatum vertical datum transformation tool to provide consistent elevations along the coast: http://vdatum.noaa.gov/ VDatum is designed to vertically transform geospatial data among a variety of tidal, orthometric and ellipsoidal vertical datums - allowing users to convert their data from different horizontal/vertical references into a common system and enabling the fusion of diverse geospatial data in desired reference levels.
- Precision Navigation: https://oceanservice.noaa.gov/economy/precision-navigation/