

FROM OBSERVATIONS TO APPLICATIONS: ENHANCING COASTAL SCIENCE FOR MANAGERS, PRACTITIONERS, AND THE PUBLIC

*Allison L. Allen, NOAA National Ocean Service, Center for Operational Oceanographic
Products and Services*

Galen A. Scott, NOAA National Ocean Service, National Geodetic Survey

KEYWORDS: tides, sea level, inundation, geodesy, elevation, monitoring, coastal hazards, climate change, restoration, engineering

NOAA's National Ocean Service (NOS) provides navigational services that combine nautical charts, positioning infrastructure, aerial and remote sensing imagery, and accurate tides and water level information to promote safe and efficient navigation. However, the observing systems utilized in the development and maintenance of these products are now being leveraged to support a number of additional coastal applications, from coastal hazard warning and mitigation and climate observation to habitat restoration. Through meaningful partnerships with the coastal community, and innovative engineering and technological advancements, NOAA has been able to apply this accurate information to a new audience.

Through programs such as Coastal Oceanographic Applications and Services of Tides And Lakes (COASTAL), the Center for Operational Oceanographic Products and Services (CO-OPS) and the National Geodetic Survey (NGS) are working with users to identify ways in which water level and land elevation data can be applied to various coastal applications. Understanding variations in water level, and relating that information to changes in the land, allows people to more effectively work, live, and play in the coastal zone, both now and into the future. CO-OPS operates the National Water Level Observation Network (NWLON), a network of long-term tide stations with a record of over 150 years at its longest continuously operating tide station in San Francisco. This provides critical information on sea level trends throughout the country. NGS maintains the National Spatial Reference System (NSRS) including horizontal and vertical geodetic datums and an extensive network of bench marks, as well as the Continuously Operating Reference Station (CORS) network. This provides a critical look at changes in land-based heights. Connections exist between these networks, allowing a more accurate understanding of the land-water interface, and how it changes over time. From these observing systems, and analyses of their data, a suite of products and services have been developed to support the numerous needs of the coastal community.

This session will showcase a number of decision-support tools developed or being developed by NGS and CO-OPS, such as sea level trends, inundation analysis, a GIS-based tool for planting marsh vegetation based on elevation and tidal information, new techniques for defining elevation in a dynamic coastal environment, and extreme water level event analysis. It will be an opportunity to hear about new methods and

technologies currently being utilized by NOAA, and to provide feedback on the needs of the coastal scientist and manager.

Allison L. Allen
NOAA National Ocean Service
SSMC4, Station 7442
1305 East West Highway
Silver Spring, MD 20910
Allison.Allen@noaa.gov
(301) 713-2890 x166