



NOAA

SENTINELS OF THE COAST

Ensuring Storm Tide Data Are Available When Needed Most

NOAA Sentinels are water level observing stations which have been strengthened to deliver real-time storm tide data during severe coastal events. Elevated atop substantial single pile platforms, these stations are specifically designed to withstand category four hurricanes. NOAA Sentinels measure and disseminate real-time water level and meteorological observations. All of this information helps coastal authorities prepare for, mitigate, and respond to storm tides generated by severe coastal storms.

HOW DO NOAA SENTINELS HELP PROTECT COASTAL COMMUNITIES?

Coastal communities are vulnerable to a wide range of coastal hazards including severe storm events, sea level rise, tsunamis, shoreline erosion, and coastal ecosystem degradation. Preventive actions and emergency response planning can help to reduce this vulnerability, bolster community resilience, and help communities recover from disruptions in basic services and economic activity.

NOAA water level and meteorological data have long been key components of coastal decision making before, during, and after major storm events. This information is critical for developing vulnerability assessments, providing more accurate marine weather and flood forecasts, evacuation planning and execution, determining when to open and close locks, and facilitating the reopening of ports after storms pass. The NOAA Sentinels hardening effort was borne out of NOAA's recognition of the critical need for accurate data at the height of storms.

WHAT ARE NOAA SENTINELS?

The Center for Operational Oceanographic Products and Services (CO-OPS), part of NOAA's National Ocean Service (NOS), is responsible for operating the National Water Level Observation Network (NWLON). By virtue of their location at the ocean's edge, water level observing stations are exposed to severe damage by the very storms which make their operation so important. Strengthening key NWLON stations ensures that observations of water level, wind speed and direction, barometric pressure, and air and water temperature will be available when the information is needed most.

NOAA Sentinels are large single-pile structures. A single-pile structure presents a minimal profile to a storm coming from any direction. Engineering specifications based on Category 4 generated wind and wave action analysis determined that the platforms stand at least 25 feet above the sea surface on a 4-foot diameter single pile. The piles are driven 60-80 feet into the seafloor to ensure stability.

WHERE ARE NOAA SENTINELS?

NOAA Sentinels are deployed in coastal areas most vulnerable to severe storms such as Hurricanes Rita and Katrina. Sentinels are being established at four locations which were selected based on two objectives; re-establish NWLON stations either destroyed or heavily damaged by recent hurricanes; and establish new stations in areas identified as gaps in the NWLON. Additional Sentinels will be established as funding becomes available.

WHAT PRODUCTS COME FROM NOAA SENTINELS?

Real-time data from all of NOAA's NWLON stations are available on the internet <http://tidesonline.nos.noaa.gov> and show observed water levels in relation to tidal datums and predicted levels. During tropical storm warnings CO-OPS provides Storm QuickLook, a compilation of near real-time oceanographic and meteorological observations within the affected coastal area. An overlay map of NOAA satellite imagery and National Weather Service forecast information displays storm characteristics relative to CO-OPS water level measurement stations. The plotted data are summarized along with the time of the next predicted high tides.



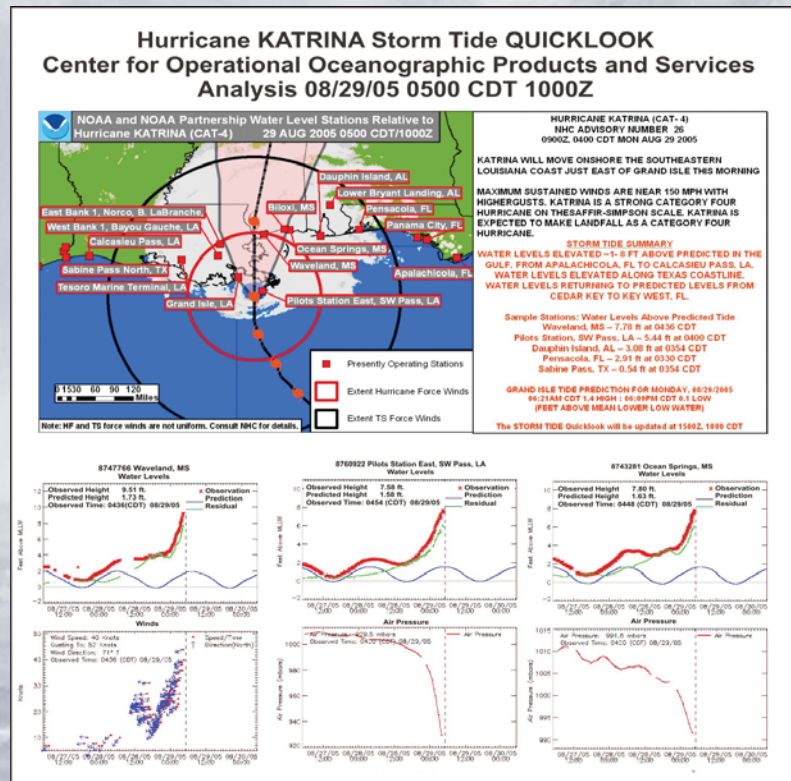
Sentinel Locations in the Gulf

Sentinels will provide vertical control for emergency hydrographic surveys required to re-open ports and harbors for commerce. Post-storm reports are created using verified data to provide an overview of the storm water level impacts. Technical reports also supply a more detailed analysis of storm-induced water levels and historical storm comparisons.

In addition to the real-time uses of NOAA Sentinels information, archived data are used in many coastal protection engineering projects including levee construction and evacuation route planning, and verification of storm surge forecast models.

FOR MORE INFORMATION

NOAA's Center for Operational Oceanographic Products and Services (CO-OPS) mission is turning operational oceanographic data into meaningful information for the Nation. To access NOAA's real-time water level, currents, and meteorological data, as well as background information on CO-OPS products and services, visit the CO-OPS website at <http://tidesandcurrents.noaa.gov>.



Hurricane Katrina QuickLook