



NATIONAL DATA BUOY CENTER

OUR MISSION

The National Data Buoy Center (NDBC) maintains the world's largest real-time marine observation network dedicated to maritime safety and environmental observations for now and the future.

NDBC's network includes moored-ocean buoys, fixed coastal stations, and mobile observing platforms that observe, report, and disseminate atmospheric, oceanographic, meteorological, and tsunami measurements. The observations gathered by NDBC support operational and research programs at the National Oceanic and Atmospheric Administration (NOAA) and other organizations, as well as the understanding and predictions of patterns in weather, oceans, and coasts.

Located at Stennis Space Center along the Mississippi Gulf Coast, NDBC has provided crucial data for weather forecasting and safety at sea for nearly 60 years.

NDBC's data is instrumental to understanding real-time marine conditions and contributing to future predictions of the atmosphere, oceans, waves, tsunamis, and weather, offering both knowledge and economic impact.



STENNIS SPACE CENTER, MS

Our world class calibration and testing facilities are located on the SSC complex right along the Mississippi Gulf Coast.



160 PERSONNEL

NDBC's multi-sector workforce consists of about 160 individuals, including Federal Civil Servants, U.S Coast Guard officers, NOAA Corps officers, and contractors.



1,300 OBSERVATION STATIONS via global network

In addition to the data from our network of over 240 stations, NDBC obtains and distributes observations from partner organizations across the world.

REAL TIME DATA

NDBC provides full-spectrum quality services for millions of real-time observations. Through our Mission Control Center (MCC), we support over 700 platforms by collecting, quality controlling, and distributing the observations in real-time to the World Meteorological Organization's (WMO) Global Telecommunications System (GTS) and to our public website.

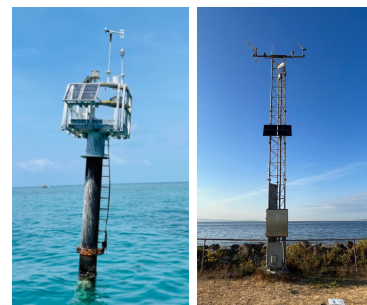
The historical observations are available on the NDBC website and are sent monthly to NOAA's National Centers for Environmental Information (NCEI) for the national archives.

OUR STATIONS PROVIDE...

WEATHER OBSERVATIONS

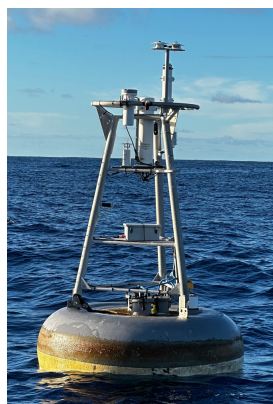
Via over 100 moored buoys and 50 land-based Coastal-Marine Automated Network (C-MAN) stations, data is collected for use in operational forecasting, warnings, and numerical models.

- Additionally, volunteer vessels provide observations through the Voluntary Observing Ship (VOS) program.
- Buoys are deployed in the Western Atlantic to the Pacific Ocean around Hawaii, and from the Bering Sea to the South Pacific.
- Buoys measure and transmit: barometric pressure; wind direction, speed and gust; air and sea temperature; relative humidity; and the wave energy spectra from which significant wave height, dominant wave period, average wave period, and direction of wave propagation are derived
- C-MAN stations are installed on lighthouses, at capes and beaches, on near-shore islands, and on offshore platforms
- C-MAN station data typically include: barometric pressure; wind direction, speed and gust; air temperature; and relative humidity



ATMOSPHERIC DATA

The Tropical Atmosphere Ocean Array (TAO) is designed for the study of year-to-year variations related to El Niño and the Southern Oscillation (ENSO). Located in the equatorial Pacific Ocean, the array consists of 52 moored buoys extending from 9° N to 8° S Latitude and 95° W to 165° E Longitude.



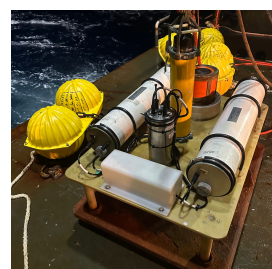
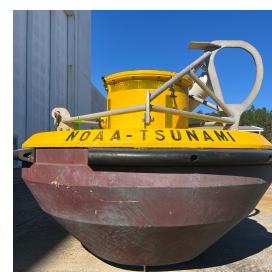
The buoys collect real-time air temperature, relative humidity, wind speed and direction, ocean temperature, and pressure. Some buoys also collect barometric pressure, longwave radiation, shortwave radiation, rainfall amounts, and ocean currents.

In addition to their use in forecasting, warnings, and models, weather buoy and C-MAN station data are used for scientific research programs, emergency response to chemical spills, and engineering designs. A critical element in the success of NDBC accomplishing its mission is the USCG ship and aircraft support for buoy launching, maintenance, and transportation to and from stations.

TSUNAMI DETECTION

Deep-ocean Assessment and Reporting of Tsunami (DART) systems are located in regions with a history of generating destructive tsunamis throughout the Pacific and Atlantic Oceans.

These 39 systems ensure early detection of tsunamis and acquire data critical to real-time forecasts. Each system consists of an anchored seafloor Bottom Pressure Recorder (BPR) and a companion moored surface buoy for real-time communication, utilizing acoustic transmissions.



Learn more about
the NDBC mission.
Find us online and
on social media!

