

NCEI WATER LEVEL REPORT – Tsunami

UPDATE

Sept. 27, 2023

Services

National Tsunami Warning Center sends data from new tide gauge station to NCEI

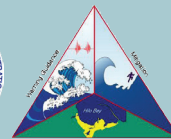
This summer, the NOAA National Tsunami Warning Center (NTWC) installed a new tide gauge at [Whittier, AK, \(9454958\)](#), designed to collect data every 15 seconds. These and other NTWC tide gauge data are sent to NCEI every 15 minutes, validated and archived, and made available via [NCEI's TWC water level data API](#) and picked up by the [NOAA Center for Operational Products and Services \(CO-OPS\) Tides and Currents website](#). Members of NCEI's Operations and Maintenance Team and Natural Hazards Team helped troubleshoot an irregularity with the data logger clock at this new station. When the record is sufficiently long for tidal analysis (> 3 months), NCEI will add these data to its quality-controlled and de-tided products.

Pacific Tsunami Warning Center submits 2022 water level data to NCEI

The National Weather Service's Pacific Tsunami Warning Center (PTWC) has submitted for archive at NCEI one year (2022) of 10-second-resolution water level data from 12 tide gauge stations PTWC operates in Hawaii. The tsunami generated by the January 15, 2022, eruption of Hunga Tonga-Hunga Ha'apai Volcano is clearly visible at five of the stations. NCEI has created quality-controlled and de-tided products at each station from the raw data. The data and products have been converted to netCDF and CSV formats at NCEI and are available for discovery and access via the [tide gauge layer of the Natural Hazards Map Viewer](#) and via the [tide gauge data inventory timeline](#) (select Data Source -> PTWC).

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Services (cont'd)

Meteotsunami observed at Clearwater Beach, FL, on June 21

NCEI quality-controlled and de-tided 1-minute water level data from the NOAA tide station at Clearwater Beach, FL, on the Gulf Coast of Florida showing evidence of a meteotsunami on June 21, 2023 (Figure 1).

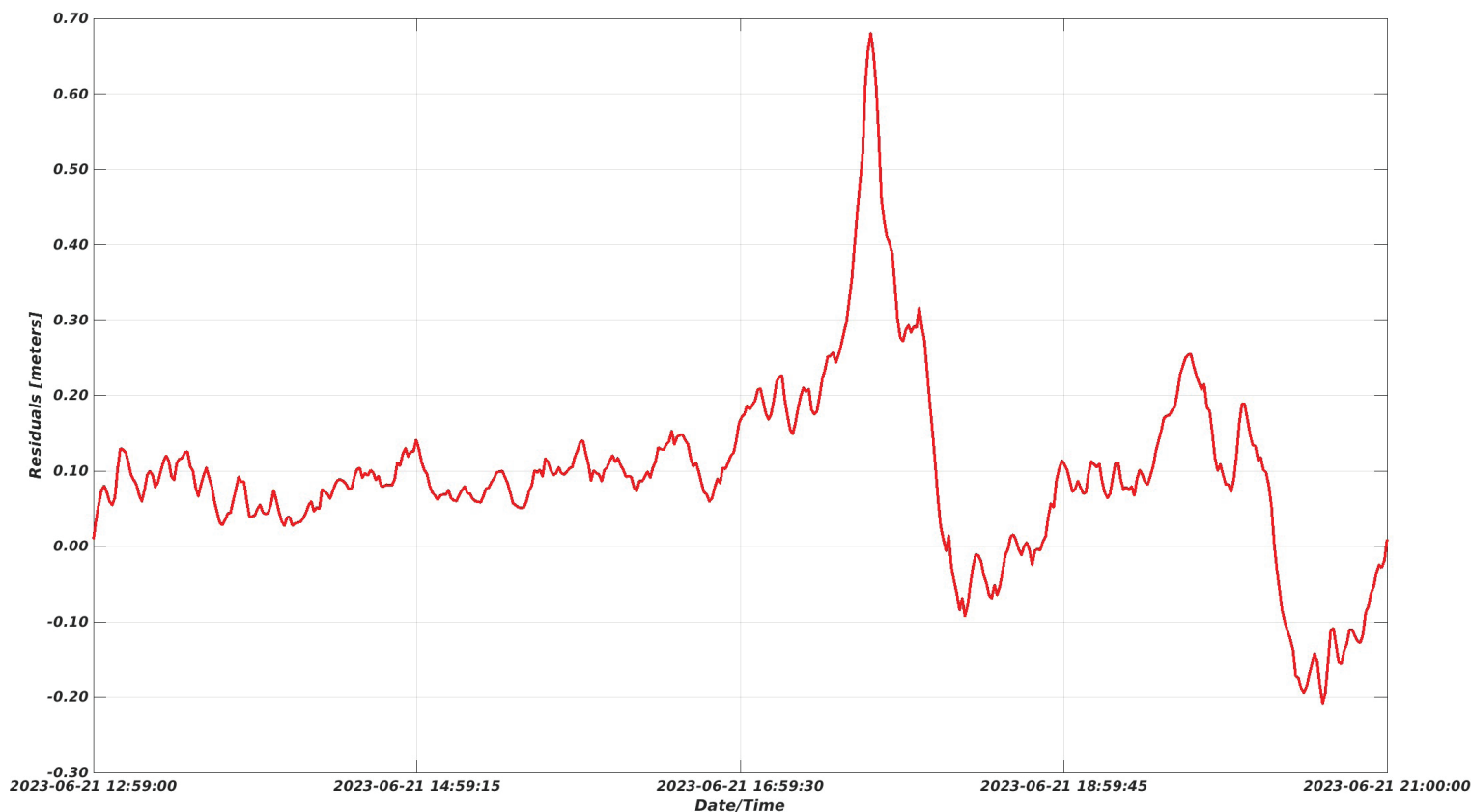


Figure 1: Quality-controlled and de-tided water levels (“residuals”) at Clearwater Beach, FL, (NOS ID 8726724) during the meteotsunami on June 21, 2023. Times are UTC (four hours ahead of local time).

Backfilling the archive of National Tsunami Warning Center water level data between 2015 and 2019

NCEI has archived 15-second resolution water level data submitted by the National Weather Service’s National Tsunami Warning Center (NTWC) to backfill archival gaps between December 10, 2015, and July 16, 2019. NTWC operates six coastal tide gauges in Alaska and one in Ventura, California. The backfill data add up to 117 additional days of data between 2015 and 2019, or approximately 9% more data over this 1315 day period. Notably, this backfill includes observations from two stations of a small tsunami on Jan. 23, 2018, and water level data collected by NTWC during the government shutdown between Dec. 22, 2018, and Jan. 25, 2019. Quality-controlled and de-tided water level products have been created from these data. The data and products have been converted to netCDF and CSV formats at NCEI and are available for discovery and access via the [tide gauge layer of the Natural Hazards Map Viewer](#) and via the [tide gauge data inventory timeline](#) (select Data Source -> NTWC).

NCEI/CIRES at IUGG General Assembly Tsunami Symposium

NCEI/CIRES Tsunami Water Level Data Manager Dr. Aaron Sweeney presented a poster during the Tsunami Symposium at the 28th General Assembly of the International Union of Geodesy and Geophysics (IUGG) in Berlin, July 14-16, 2023. The Tsunami Symposium brought together international researchers to discuss topics including tsunami generation and propagation, forecast and warning, studies of past events, response, mitigation, and recovery efforts, observations, and hazard and risk. The title of the poster is “[Products and services available from U.S. NOAA NCEI archive of tsunami water level data.](#)” The poster highlights to this international audience some of the work done at NCEI in support of the U.S. Tsunami Program.

Services (cont'd)

NDBC DART ocean bottom pressure data archived and processed

NCEI received and archived eight new Deep-ocean Assessment and Reporting of Tsunamis (DART) ocean bottom pressure data packages from sites maintained by the National Weather Service's National Data Buoy Center (NDBC) in the Pacific ([32413](#), [46402](#), [46411](#), and [46416](#)) and Atlantic Oceans ([41420](#), [42407](#), [42409](#), and [44403](#)), recovered from the seafloor in 2023. Quality-controlled and de-tided ocean bottom pressure products have been created from these data. The period of coverage varies among the sites (one to three years). Observations of a small tsunami generated by the January 15, 2022 eruption of Hunga Tonga-Hunga Ha'apai Volcano were reported by the Tsunami Warning Centers for four of the DARTs (Pacific: 32413, 46402, and 46411; Atlantic: 42409). These data, recorded at 15-second resolution, are not available until the data are physically retrieved from the seafloor instrument. The data and products may be viewed and downloaded from NCEI by exploring either the [DART layer of the Natural Hazards Map Viewer](#) or the [DART data inventory timeline](#).

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Tide Gauge Data Page: <https://www.ncei.noaa.gov/products/natural-hazards/tsunamis-earthquakes-volcanoes/tsunamis/tide-gauge-data>

DART Ocean Bottom Pressure Data Page: <https://www.ncei.noaa.gov/products/natural-hazards/tsunamis-earthquakes-volcanoes/tsunamis/dart-ocean-bottom-pressure>