NCEI WATER LEVEL REPORT – Tsunami

UPDATE
February 17, 2021

Services

Recent Tsunami, Meteotsunami, Storms, and Hurricanes

A tsunami was observed October 19, 2020, at Hilo, Hawaii (NOS ID 1617760), and Kahului, Maui (NOS ID 1615680), due to a M7.5 earthquake southeast of Sand Point, Alaska.

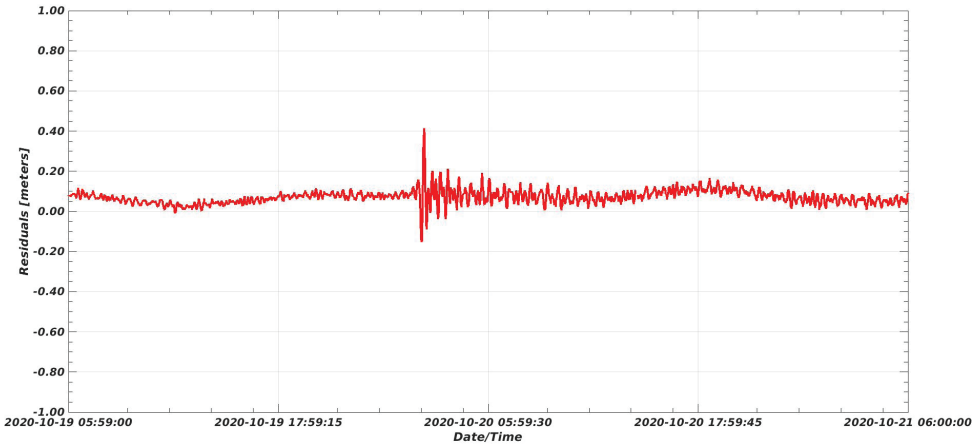

Figure 1a: Water levels at Hilo, Hawaii (NOS ID 1617760), with tide removed, before and after the arrival of a small tsunami.

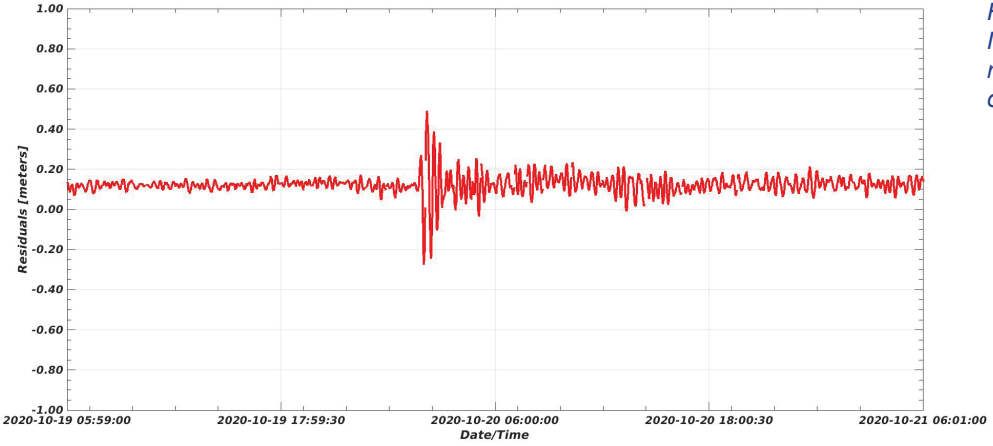

Figure 1b: Water levels at Kahului, Maui (NOS ID 1615680), with tide removed, before and after the arrival of a small tsunami.

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Services (cont'd)

A meteotsunami (1-m peak-to-trough) was observed April 23, 2020, at Panama City Beach, Florida (NOS ID 8729210), and another meteotsunami (also 1-m peak-to-trough) was observed June 13, 2020, at Clearwater Beach Florida (NOS ID 8726724).

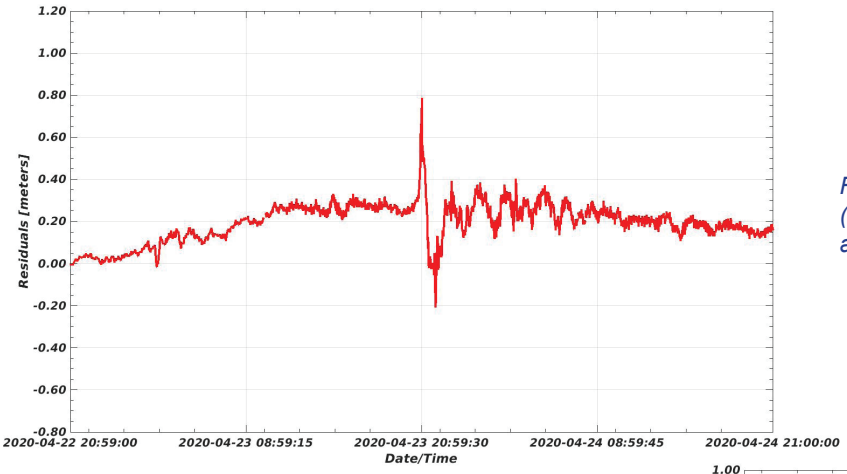

Figure 2a: Water levels at Panama City Beach, Florida (NOS ID 8729210), with tide removed, before and after the arrival of a small meteotsunami.

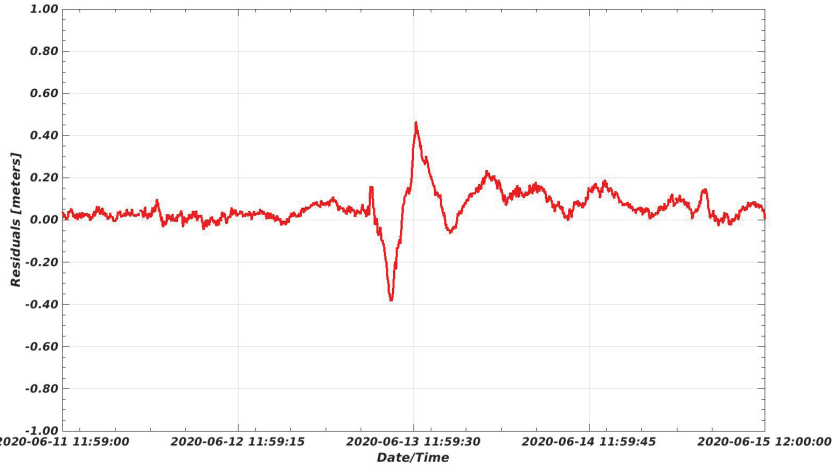

Figure 2b: Water levels at Clearwater Beach, Florida (NOS ID 8726724), with tide removed, before and after the arrival of a small meteotsunami.

Storm surges due to four hurricanes (Hanna, Laura, Teddy, and Delta) were observed along the Texas coast from July through October 2020.

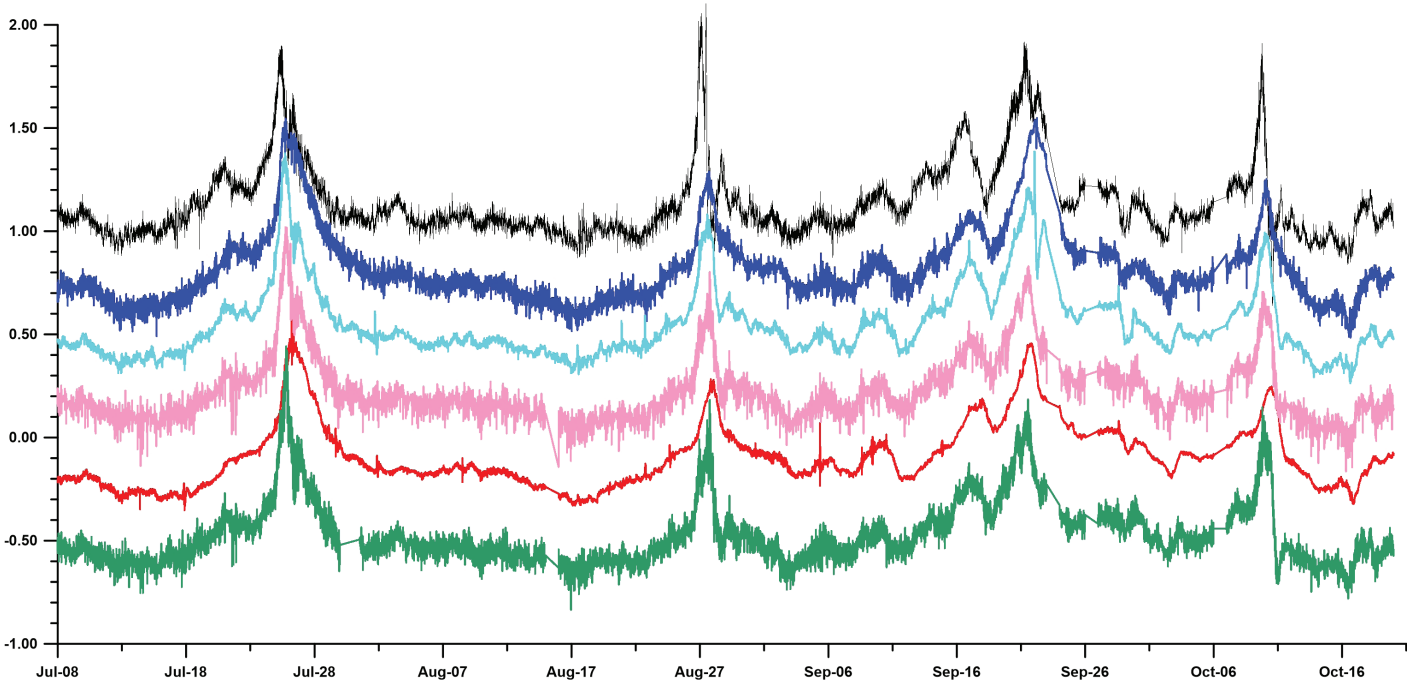

Figure 3: Water levels at six stations along the Texas coast, with tide removed, during the 2020 hurricane season.
Legend: Freeport Harbor (black), Matagorda City (blue), Port O'Connor (cyan), Rockport (red), Port Aransas (pink), Aransas Pass (green).

Services (cont'd)

2020 PTWC Water Levels Added to Archive

The National Weather Service's Pacific Tsunami Warning Center (PTWC) has submitted for archive at NCEI one year (2020) of 10-second-resolution water level data from 9 tide gauge stations PTWC operates in Hawaii. Two tsunami events were observed at these stations in 2020. A small 5 cm tsunami was observed at Haleiwa, Oahu, on Mar. 25, due to a M7.5 earthquake that occurred near the Kuril Islands, Russia. A later tsunami event on Oct. 19, due to a M7.6 earthquake near Sand Point, Alaska, was observed at Nawiliwili (9 cm) and Hanalei (26 cm), both on Kauai, and again at Haleiwa, Oahu (19 cm). These data 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. Work to quality-control and de-tide these data is underway.

Atlantic DART Data Archived and Processed

NCEI has received and archived two new Deep-ocean Assessment and Reporting of Tsunamis (DART) ocean bottom pressure data packages from two sites maintained by NOAA's National Data Buoy Center (NDBC) in the Atlantic Ocean. The data have been quality-controlled and tides analyzed by OGSSD/GSDB/CMGS's Water Level Team. These data include evidence of a small meteotsunami (4-cm amplitude) detected at the site 130 nautical miles southeast of Fire Island, New York, on May 15, 2018. The period of coverage is 2016-2019 for the site near New York and 2018-2019 for the site near Puerto Rico. 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 at these web pages: DART 41420 and DART 44402.

Pacific DART Data Archived and Processed

NCEI has received and archived six new Deep-ocean Assessment and Reporting of Tsunamis (DART) ocean bottom pressure data packages from six sites maintained by NOAA's National Data Buoy Center (NDBC) in the Pacific Ocean. The data have been quality-controlled and tides analyzed by OGSSD/GSDB/CMGS's Water Level Team. These data include evidence of two small tsunamis: a 2-cm amplitude wave detected at the site northwest of Lima, Peru (DART 32413), due to a M8.2 earthquake on Sept. 8, 2017, offshore Chiapas, Mexico, and a 2-cm amplitude wave detected at the site west of Mendocino Bay, California (DART 46411), due to a M7.9 earthquake on Jan. 23, 2018, near Kodiak, Alaska. The period of coverage is 2017-2019 for most of the sites. 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 at these web pages: 21415, 32413, 46409, 46411, 51407, and 52402.

Updated URLs

The marigram search was migrated to the Hazard Event Lookup (HazEL) application and has a new URL: marigram search. The NOAA-internal Google Site used to monitor data transfer from CO-OPS and NTWC to NCEI has been migrated to the new Google Site format and has a new URL: waterlevel data ingest monitoring (requires a NOAA login).