

# An Operation Center's Pivotal Role in Tsunami Operations across the Pacific

Patrick Cioffi  
Emergency Response Specialist  
Pacific Region Headquarters  
Non-Competitive



## Background:

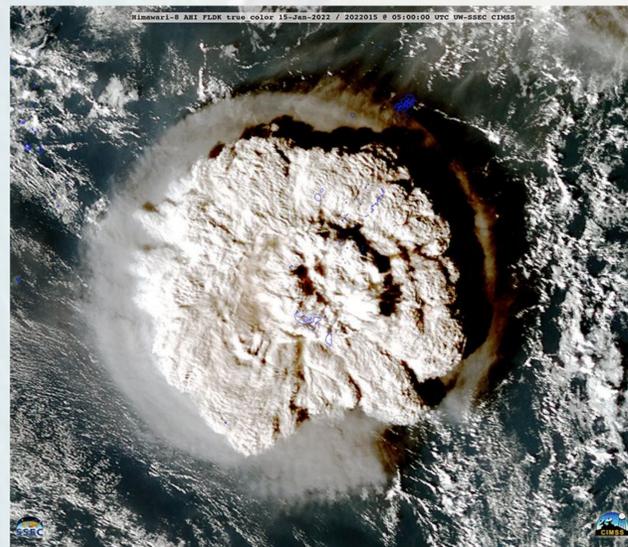
The National Weather Service (NWS) Pacific Region Headquarters (PRH) is colocated with the Pacific Tsunami Warning Center (PTWC) and the International Tsunami Information Center (ITIC). PRH works closely with these offices, as well as the National Tsunami Warning Center in Palmer, AK. PRH is also responsible for Weather Forecast Office (WFO) Honolulu (HFO), WFO Guam (GUM), and Weather Service Office (WSO) American Samoa (PPG).



The United States is served by two tsunami warning centers. The National Tsunami Warning Center serves the areas in red, and the Pacific Tsunami Warning Center, the areas in yellow.

## Volcano Information:

The Hunga Tonga-Hunga Ha'apai volcano, located at 20.536°S/175.382°, most recent eruption period was 20 Dec 2021 - 15 Jan 2022. The last and most significant eruption during that period occurred on 15 Jan 2022 at 0427Z (6:27pm HST).

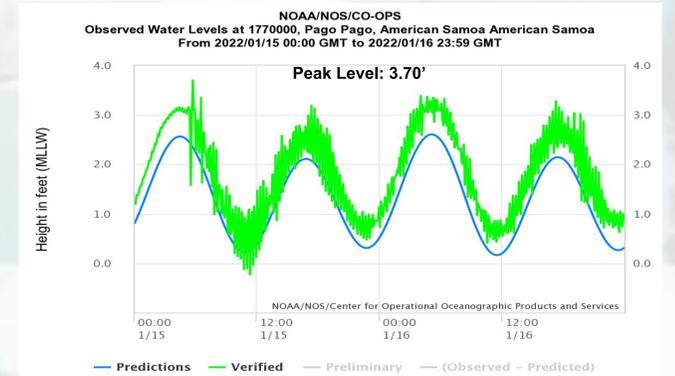
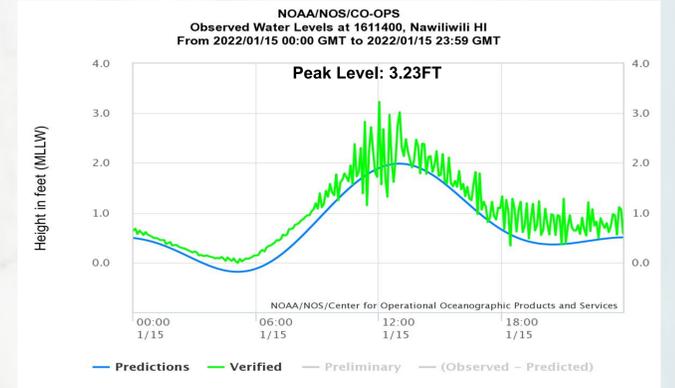


Himawari-8 satellite image of the Hunga Tonga-Hunga Ha'apai volcano from January 15 0500Z. (UW-SSEC CIMSS).

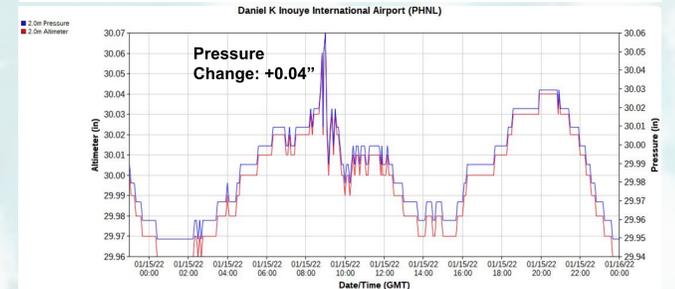
## January 15, 2022 Timeline of Significant Operational Events:

- 0427Z — Significant eruption of Hunga Tonga-Hunga Ha'apai Volcano begins.
- 0548Z — PTWC issues a Tsunami Advisory for American Samoa.
- 0556Z — PTWC called the Pacific Region (PR) Regional Operations Center (ROC) to notify a Tsunami Advisory had been issued for American Samoa.
- 0600Z — ROC Duty Officer notified the PR ROC team of the eruption/tsunami and initiated Tsunami Playbook operations.
- 0607Z — PPG notified the PR ROC that they had issued a local Tsunami Warning and were planning to evacuate the office.
- 0612Z — PR ROC notified PTWC about the local Tsunami Warning and PPG evacuation.
- 0620Z — PR ROC calls HFO to request service backup on behalf of PPG.
- 0621Z — PPG begins a Facebook Live to announce they are evacuating.
- 0635Z — PR ROC called PTWC to request a Tsunami Warning be issued for consistency with the PPG Tsunami Warning.
- 0636Z — PTWC issues a Tsunami Warning for American Samoa.
- 0647Z — NWS Senior Duty Meteorologist (SDM) and PR ROC coordinate to declare an 8 hour Critical Weather Day (CWD).
- 0649Z — PR ROC called NWS Operations Center to notify them of the tsunami and PPG evacuation.
- 0656Z — Local TV media contacted PR ROC to inquire about potential threat to the State of Hawaii.
- 0700Z — PR ROC contacts FEMA Region IX Pacific Watch Office to advise them PTWC issued a Tsunami Warning for American Samoa and advise of volcanic explosion.
- 0709Z — The Meteorologist-In-Charge (MIC) of PPG called PR ROC to report large waves were still coming onshore.
- 0719Z — PR-ROC enters into a level 2 service level with extended hours of operation.
- 0738Z — As waves diminished, the MIC of PPG called to coordinate the cancellation of the Tsunami Warning with PTWC and the PR ROC.
- 0742Z — FEMA Region IX Watch officers called to request documentation on the Hunga Tonga-Hunga Ha'apai explosion.
- 0757Z — PR ROC called the SDM to cancel the Critical Weather Day.
- 0801Z — PPG MIC called PR ROC to communicate PPG staff had returned to the office and they were spinning up operations.
- 0802Z — PR ROC notified HFO that service backup for PPG was no longer needed. HFO stated they would coordinate with PPG for the hand off.
- 0818Z — PR ROC notified Pacific Region leadership that the Tsunami Warning had been cancelled and that service backup had ended.
- 1040Z — PTWC issues a Tsunami Advisory for the State of Hawaii after further evaluation.
- 1754Z — PTWC cancels the Tsunami Advisory for the State of Hawaii.

## Impacts



Observed water levels (ft) at Pago Pago, AS and Nawiliwili, HI Jan 15, 2020 (NOAA)



Observed barometric pressure (in Hg) at PGSN and PHNL Jan 15, 2020 (NOAA)

**Conclusion:** The Hunga Tonga-Hunga Ha'apai eruption created worldwide impacts requiring PR ROC to provide Impact-Based Decision Support Services (IDSS) to their partners. With the use of an in-house tsunami playbook, PR ROC aided in maximizing efforts of all involved to assist in moving people out of harm's way.