

Submission: 9408

Integrating Volcanic Sources into the Tsunami Warning System for the Caribbean and Adjacent Regions

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Page: Abstract Information

Abstract Title

Integrating Volcanic Sources into the Tsunami Warning System for the Caribbean and Adjacent Regions

Abstract Description

One of the goals of the UN Decade Ocean Science Tsunami Programme is that by 2030 actionable notifications are issued for all tsunamis, irrespective of source. In the Caribbean, 14% of all probable and definite historical tsunamis are associated with volcanoes (NOAA National Centers for Environmental Information). A tsunami triggered by the the Hunga Tonga Hunga Ha'apai eruption of January 15, 2022, was the most recent to be observed in the Caribbean and adjacent regions. This event as well as the eruption and related tsunami at Anak Krakatau (2018) and the eruptions of Kick'em Jenny (2015, 2017, 2018, 2020), Saint Vincent (2020) and La Palma (2021) reinforced the need for a tsunami warning system that can handle such non-seismic events.

The UNESCO/IOC Intergovernmental Coordination Group for the Tsunami and Other Coastal Hazards Warning System for the Caribbean and Adjacent Regions was established in 2005. It coordinates tsunami warning and mitigation activities, including the issuance of tsunami bulletins for its 48 Member States and territories. Following the eruptions of Kick'em Jenny in 2015, it established the Volcanic Sources Task Team to address the challenge of these non-seismic sources. A warning system, as the one operated by Tsunami Service Providers, (TSP, ie, the Pacific Tsunami Warning Center), is classically based on seismic and sea level data.

Determined earthquake locations and magnitudes trigger initial action from the TSP, while sea level data confirm tsunami generation and help refine forecasts. For volcano sources, the task team has proposed that volcano observatories send messages to the TSP's alerting them to potential and ongoing eruptions. These messages, vis a vis seismic information, would be the basis for TSP's to issue initial standardized bulletins and products. The 2019 and 2023 CARIBE WAVE exercises included scenarios to test products and procedures for volcanic sources. However, more actions are required, including advancing the modeling of volcano scenarios and forecasting of triggered tsunamis, as well as expanding observations, including seismic and geodetic.

Page: Technical Sessions**Technical Session**

The Future of Tsunami Science, Preparedness and Response

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