



United Nations  
Educational, Scientific and  
Cultural Organization



Intergovernmental  
Oceanographic  
Commission



International  
Tsunami Information  
Center

## **Intergovernmental Coordination Group for the Pacific Tsunami Warning and Mitigation System (ICG/PTWS)**

### **PTWS Post-event Brief I:**

#### **[15 January 2022, Hunga-Tonga-Hunga-Ha'apai Volcanic Eruption and Tsunami](#)**

**20 January 2022, 2200-2400 UTC (virtual)**

The 15 January 2022 Hunga-Tonga-Hunga-Ha'apai Eruption generated a tsunami that caused damage locally, regionally, and across the Pacific. Waves up to 15 m high hit the west coasts of the Tongatapu Islands, 'Eua, and Ha'apai Islands (Government of Tonga), and elsewhere waves up to 2 m in amplitude were reported by the Pacific Tsunami Warning Centre (PTWC). To save lives, countries issued warning and advisory alerts, and in some places evacuated coastal populations. Altogether, the PTWC issued 12 bulletins over a 20-hour time span and reported 117 tsunami wave measurements from 26 countries.

The gigantic explosion, heard by several countries in the region, obliterated the subaerial remnants of the island, generating an atmospheric disturbance that extended into the stratosphere and that was observed by international satellites. The explosion also generated a pressure wave that traversed the globe, and in some places coupling with the ocean surface caused the generation of small tsunami waves observed in the Caribbean, Atlantic, and the Indian Ocean.

Previous eruptions were in March 2009 and November-December 2014, but none of them generated tsunamis. The volcanic activity resumed in December 2021. On 13 January, a smaller eruption occurred for which the Tonga NTWC issued a tsunami advisory lasting about one day – the advisory was cancelled at 1102 local time. Unfortunately, while the potential for continued volcanic activity was expected, a gigantic eruption was not planned for.

This is the first time that the PTWS has had to respond to a destructive volcanic event of these characteristics as the PTWS has primarily focused on earthquake-generated tsunamis that cause nearly 90% of the world's tsunamis. To move forward, the PTWS is immediately convening Post-Event Briefs to share information and experience, and provide interim guidance should another volcanic eruption occur.

## Provisional Agenda – Post-Event Brief I

1. Welcome and Logistics – Dr. Laura Kong, Director, ITIC
2. Opening Remarks – Yuji Nishimae, PTWS Chair, Japan Meteorological Agency
3. Volcano history (10 min) – Dr. Geoff Kilgour, Dr. Nico Fournier, Principal Scientists, New Zealand GNS Science
4. PTWC Actions (10 min) – Dr. Charles McCreery, Director, PTWC
5. What to do if it happens again? Interim Guidance (60 min) - David Coetzee, PTWS Vice-Chair, Manager, New Zealand Regional Partnerships
  - Problem setting – David Coetzee
  - Proposal (short term, long term) – Dr. Bill Fry, PTWS WG 2 (Tsunami Detection, Warning, Dissemination) Chair, Principal Scientist, New Zealand GNS Science
    - 5..1. 15 January 2022 coastal sea level / DART observations
    - 5..2. Expected impacts using 15 Jan 2022 observations as proxy
    - 5..3. Expected lead time for alerting – will observations be fast enough for useful warnings to nearby islands and coastlines?
  - Discussion of proposal – David Coetzee
  - Implementation Plan – David Coetzee
    - 5..1. Alert Products
      - Local / Regional Countries
        - Immediate Message to Tonga and PICT
        - Message from PTWC to Pacific
      - Distant Countries - Message from PTWC to Pacific
    - 5..2. Alert Dissemination (multiple)
    - 5..3. Timeline
      - Stepwise, starting immediately – Dr. Charles McCreery, David Coetzee
      - Official announcement through IOC Circular Letter – PTWS Technical Secretary, Bernardo Aliaga
  - Discussion and Question and Answer
6. If time permits: Country information Sharing – what happened (TWC, Alert Level) – Dr. Laura Kong
  - Nearby / Regional Actions by TWCs
    - 6..1. Tonga - TWC and Response
    - 6..2. New Zealand actions (TWC incl DART, Alert Level)
    - 6..3. Pacific Island Countries and Territories actions ) - Countries / PTWS PICT WG
  - Distant Actions by TWCs
    - 6..1. Western, Northwest Pacific
    - 6..2. Meso-America - Countries / PTWS CA-Pacific WG
    - 6..3. South America – Countries / PTWS SEP WG
7. Actions forward (10 min) – Dr. Laura Kong, Director, ITIC
  - Interim Guidance recap
  - IOC Post-Event Assessment Questionnaire Survey (TOWS-WG-VIII, APP V, 2015)
  - Date for Post-Event Brief II
8. Closing - Yuji Nishimae, PTWS Chair, Japan Meteorological Agency

**To participate in Brief I (GoToMeeting) please:**

1. Register (maximum 250 participants, open to all)

<https://oceanexpert.org/registerEvent/3380>

2. Join Brief I from your computer, tablet or smartphone (GotoMeeting)

<https://www.gotomeet.me/ITIC/ptws-post-event-brief-i-15-january-2022>

For connection by voice only, see below

3. Visit Meeting site for agenda documents

<https://oceanexpert.org/event/3380>

4. Visit the ITIC 15 Jan 2022 event site for more information about the tsunami

[http://itic.ioc-unesco.org/index.php?option=com\\_content&view=article&id=2186:15-january-2022-hunga-tonga-hunga-ha-apai-volcanic-eruption-and-tsunami&catid=2664&Itemid=3265](http://itic.ioc-unesco.org/index.php?option=com_content&view=article&id=2186:15-january-2022-hunga-tonga-hunga-ha-apai-volcanic-eruption-and-tsunami&catid=2664&Itemid=3265)