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МЕЖПРАВИТЕЛЬСТВЕННАЯ ОКЕАНОГРАФИЧЕСКАЯ КОМИССИЯ

اللجنة الدولية الحكومية لعلوم المحيطات

政府间海洋学委员会

UNESCO – 7 Place de Fontenoy - 75352 Paris Cedex 07 SP, France  
<http://ioc.unesco.org> - contact phone: +33 (0)1 45 68 03 18  
E-mail: [v.ryabinin@unesco.org](mailto:v.ryabinin@unesco.org)

**IOC Circular Letter No 2877**  
(Available in English only)

IOC/VR/BA/ah  
31 January 2022

- To :** Tsunami National Contacts (TNCs),  
National Tsunami Warning Centres (NTWCs),  
Tsunami Warning Focal Points (TWP) of the Intergovernmental Coordination Group  
of the Pacific Tsunami Warning and Mitigation System (ICG/PTWS)
- cc. :** Official National Coordinating Bodies for liaison with the IOC,  
Permanent Delegates/Observer Missions to UNESCO of IOC ICG/PTWS Member States  
Directors of UNESCO and IOC Regional Offices in the Asia/Pacific Region  
Permanent Observers to ICG/PTWS  
Director Pacific Tsunami Warning Center (PTWC)  
Director, Northwest Pacific Tsunami Advisory Center (NWPTAC)  
Director, South China Sea Advisory Center (SCSTAC)  
Director, International Tsunami Information Center (ITIC)  
ICG/PTWS Officers

**Subject: Post-event assessment of the Hunga-Tonga Hunga-Ha'apai volcanic eruption and tsunamis of 15 January 2022**

The massive explosion on the volcanic island of Hunga Tonga-Hunga Ha'apai, about 30 km (19 mi) south-southeast of Fonuafo'ou island in Tonga, on Saturday 15 January 2022 at 4:14 UTC, generated a tsunami that caused damages locally, regionally, and across the Pacific.

Upon detection of the explosion and the measures of coastal and deep-ocean sea level gauges, the Pacific Tsunami Warning and Mitigation System (PTWS) coordinated by UNESCO/IOC entered into action. Tonga National Tsunami Warning Centre (NTWC) hosted at the Tonga Meteorological Centre issued a tsunami warning at 4:31 UTC. Fiji, Vanuatu, New Zealand, and Samoa NTWCs issued tsunami advisories at 6:35, 7:35, 7:41 and 8:45 UTC, respectively. The United States issued a tsunami advisory warning for American Samoa at 5:48 UTC, for Hawaii at 10:43 UTC and for the Pacific Coast of North America (United States and Canada) at 12:53 UTC. Across the Pacific, several other PTWS Member States issued tsunami advisories and/or warnings.

The Pacific Tsunami Warning Center (PTWC) in Hawaii (USA) issued an initial threat bulletin for the entire Pacific Ocean at 6:23 UTC, two hours after the time of the eruption and after receiving real-time sea-level data from Nuku'alofa, Tonga sea level station, indicating that a tsunami was generated. The message indicated that "hazardous tsunami waves from this eruption are possible

**Chairperson**

Mr Ariel Hernan TROISI  
Technical Secretary  
Navy Hydrographic Service  
Av. Montes de Oca 2124  
C1270ABV Buenos Aires  
ARGENTINA

**Executive Secretary**

Dr Vladimir RYABININ  
Intergovernmental Oceanographic  
Commission — UNESCO  
7 Place de Fontenoy  
75352 Paris Cedex 07 SP  
FRANCE

**Vice-Chairpersons**

Dr Marie-Alexandrine SICRE  
Directrice de Recherche  
Centre national de la recherche scientifique  
(CNRS)  
3 rue Michel Ange  
75016 Paris  
FRANCE

Dr Alexander FROLOV  
Assistant to the President  
National Research Center "Kurchatov Institute"  
Academika Kurchatova pl., 1  
123182 Moscow  
RUSSIAN FEDERATION

Mr Frederico Antonio SARAIVA NOGUEIRA  
Navy Captain (Ret) Directorate  
of Hydrography and Navigation  
Rua Barao de Jaceguai S/N  
24048-900 Niterói  
BRAZIL

Dr Srinivasa Kumar TUMMALA  
Director  
Indian National Centre for Ocean  
Information Services (INCOIS)  
Pragathi Nagar (BO), Nizampet (SO)  
Hyderabad 500090  
INDIA

Dr Karim HILMI  
Head of Oceanography Department  
Institut National de Recherche  
Halieutique (INRH)  
02, Boulevard Sidi Abderrahmane  
Ain Diab  
20180 Casablanca  
MOROCCO

within 1,000 km of the volcano along the coasts of Tonga, Niue, Fiji, Wallis and Futuna, American Samoa, Samoa and Kermadec Islands". Due to the nature of the event, PTWC was not able to issue the first tsunami messages through its normal communications channels, and it could only forecast estimated arrival times but not expected tsunami heights. However, in subsequent messages, as sea level readings became available, PTWC was able to provide more detailed estimates and re-enable its message dissemination system to provide an efficient response from the whole Pacific Tsunami Warning System.

Altogether, 12 tsunami threat bulletins were issued by the PTWC over a 20-hour time span and 117 tsunami wave measurements were reported from 26 countries. The maximum amplitudes were recorded in Tonga (with waves greater than 1 meter in amplitude), in Chile, in New Caledonia and in Vanuatu. Many countries experienced waves greater than 0.3 meter in amplitude, which typically triggers marine advisories recommending to citizens to stay out of the water as strong currents and/or unusual waves may occur.

The gigantic explosion obliterated the subaerial remnants of the island, generating an atmospheric disturbance that extended into the stratosphere and that was observed by international satellites. The resulting shockwaves were measured as they traversed the globe. In some regions, the coupling of the air wave with the ocean surface generated small 'tsunami' waves that were observed on coastal gauges in the Caribbean and across the Atlantic in the Azores and Madeira and as far as Cabo Verde, as well as in the Indian Ocean in Mauritius.

Previous volcanic eruptions on the island occurred in March 2009 and November-December 2014, however none of them generated measurable tsunamis. The volcanic activity resumed in December 2021. On 13 January 2022, the Tonga NTWC issued a tsunami marine warning after a smaller volcanic eruption. The ensuing gigantic explosion hours later was unprecedented.

This is the first time that the PTWC had to respond to such an event since the system is primarily focused on earthquake-generated tsunamis causing nearly 90% of the world's historical tsunamis.

In 2015 at its 8<sup>th</sup> session, the IOC Working Group on Tsunamis and Other Hazards related to Sea-Level Warning and Mitigation Systems (TOWS-WG) decided to adopt an IOC all-ICG<sup>1</sup> Post-Event Assessment Questionnaire to be triggered when there is a tsunami threat of more than 1 m-amplitude forecast in one or more countries of a region. The decision to trigger the post-event questionnaire is taken by the regional Tsunami Information Centre (TIC) in consultation with the ICG Steering Group and Secretariat concerned taking into consideration whether the tsunami resulted in a national response in one or more countries.

For the 15 January 2022 Hunga Tonga-Hunga Ha'apai volcanic explosion and shockwave, no amplitude forecast was possible during the event since it was not triggered by an earthquake. However, observations of more than 1 m amplitude waves were measured in several countries and tsunami advisories or warnings were issued by more than one country, thus meeting the existing formal criteria for triggering the assessment. Further consultation by the International Tsunami Information Centre and the Technical Secretary of the ICG for the Pacific Tsunami Warning and Mitigation System with the PTWS Steering Committee in the week following the event indicated consensus to proceed with the dissemination of the post-event assessment.

An editable copy of the "IOC Post-Event Survey Questionnaire for the 15 January 2022 Hunga-Tonga Hunga-Ha'apai volcanic eruption and tsunami" that is made available online at <https://www.surveymonkey.com/r/PTWS-PEA-15jan22> is attached to this letter. TNCs, NTWCs and TWFPs are kindly requested to provide one national consolidated response to the online questionnaire for their country by 15 February 2022. The responses received will be compiled and made public through a publication to be released by 1 April 2022.

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<sup>1</sup> Intergovernmental Coordination Groups that pilot the four regional Tsunami Warning and Mitigation Systems

I am counting on your active participation in this assessment and remain,

Yours sincerely,

*[signed]*

Vladimir Ryabinin  
Executive Secretary

Attachment: Editable copy of the online IOC Post-Event Survey Questionnaire for the 15 January 2022 Hunga Tonga-Hunga Ha'apai volcanic eruption and tsunami (*PDF- English only*)



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ASSESSMENT QUESTIONNAIRE**

**PTWS TNCs, NTWCs and TWFPs are kindly requested to provide one national consolidated response through this online questionnaire for their country by 15 February 2022. Responses will be compiled and a publication released by 1 April 2022.**

**If you have difficulty submitting online, you may submit your Questionnaire by email using a fillable-PDF form to the IOC PTWS Technical Secretary or the ITIC:**

**Bernardo Aliaga, PTWS Technical Secretary, [b.aliaga@unesco.org](mailto:b.aliaga@unesco.org)**

**Laura Kong, Director, International Tsunami Information Center, [laura.kong@noaa.gov](mailto:laura.kong@noaa.gov)**



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**HUNGA TONGA-HUNGA HA'APAI VOLCANIC ERUPTION AND TSUNAMI POST-EVENT  
ASSESSMENT QUESTIONNAIRE**

**CONTACT DETAILS**

Country

Contact Name

Name of Organization

Address

Phone

E-mail

Name of National Tsunami Warning Centre (NTWC)

NTWC Contact Email

Name of National Disaster Management Office or equivalent (NDMO)

NDMO Contact Email



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**HUNGA TONGA-HUNGA HA'APAI VOLCANIC ERUPTION AND TSUNAMI POST-EVENT  
ASSESSMENT QUESTIONNAIRE**

**SECTION A – INFORMATION FROM TSUNAMI SERVICE PROVIDER (To be completed by  
NTWC)**

A.1. When did you receive the first (1st) information that a big volcanic eruption had occurred? Who provided this information? Please list the time (UTC) and information source.

Time (UTC):

How (Information Source):

A.2. How did you receive the first (1st) information about the big volcanic eruption?

- Email
- Phone
- Fax
- SMS
- GTS
- Website
- Other (please specify):

A.3. Did you receive tsunami messages from the PTWS TSP (Pacific Tsunami Warning Center)?

- Yes
- No

If the answer to question A.3. is Yes, please fill out the tables below (A.4-6) (all times in UTC)

PTWC Messages (Msg)

- |                                |                                     |
|--------------------------------|-------------------------------------|
| 1: 0623 UTC, 15 Jan, Message 1 | 7: 2006 UTC, 15 Jan, Message 7      |
| 2: 0720 UTC, 15 Jan, Message 2 | 8: 2146 UTC, 15 Jan, Message 8      |
| 3: 0852 UTC, 15 Jan, Message 3 | 9: 2311 UTC, 15 Jan, Message 9      |
| 4: 1246 UTC, 15 Jan, Message 4 | 10: 0043 UTC, 16 Jan, Message 10    |
| 5: 1432 UTC, 15 Jan, Message 5 | 11: 0145 UTC, 16 Jan, Message 11    |
| 6: 1645 UTC, 15 Jan, Message 6 | 12: 0246 UTC, 16 Jan, Final Message |

A.4. What time were the messages received (UTC)?

	Date	Hours	Minutes
PTWC Msg 1			
PTWC Msg 2			
PTWC Msg 3			
PTWC Msg 4			
PTWC Msg 5			
PTWC Msg 6			
PTWC Msg 7			
PTWC Msg 8			
PTWC Msg 9			
PTWC Msg 10			
PTWC Msg 11			
PTWC Msg 12			

Comments



A.5. How were the messages received?

	Msg 1	Msg 2	Msg 3	Msg 4	Msg 5	Msg 6	Msg 7	Msg 8	Msg 9	Msg 10	Msg 11	Msg 12
GTS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fax	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Email	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
SMS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Website	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Comments

A.6. Was the TSP (PTWC) website accessible?

	Yes	No
PTWC Msg 1	<input type="radio"/>	<input type="radio"/>
PTWC Msg 2	<input type="radio"/>	<input type="radio"/>
PTWC Msg 3	<input type="radio"/>	<input type="radio"/>
PTWC Msg 4	<input type="radio"/>	<input type="radio"/>
PTWC Msg 5	<input type="radio"/>	<input type="radio"/>
PTWC Msg 6	<input type="radio"/>	<input type="radio"/>
PTWC Msg 7	<input type="radio"/>	<input type="radio"/>
PTWC Msg 8	<input type="radio"/>	<input type="radio"/>
PTWC Msg 9	<input type="radio"/>	<input type="radio"/>
PTWC Msg 10	<input type="radio"/>	<input type="radio"/>
PTWC Msg 11	<input type="radio"/>	<input type="radio"/>
PTWC Msg 12	<input type="radio"/>	<input type="radio"/>

Other (please specify)

A.7. Did you receive tsunami-related information from other sources? If Yes, please provide the time (UTC):

- Yes
- No

If the answer to question A.7. is Yes, please fill out the tables below (A.8-10) (all times in UTC)

A.8. What time was this information received (UTC) from other sources?

	Hours	Minutes
Other Message 1		
Other Message 2		
Other Message 3		
Other Message 4		
Other Message 5		

Additional Other Messages, or Comments

A.9. How was this information received from other sources?

	Other Message 1	Other Message 2	Other Message 3	Other Message 4	Other Message 5
GTS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fax	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Email	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
SMS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Website	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other (Please specify)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Additional Other Messages, or Comments

A.10. Was the Other Information Source's website accessible?

	Yes	No
Other Message 1	<input type="radio"/>	<input type="radio"/>
Other Message 2	<input type="radio"/>	<input type="radio"/>
Other Message 3	<input type="radio"/>	<input type="radio"/>
Other Message 4	<input type="radio"/>	<input type="radio"/>
Other Message 5	<input type="radio"/>	<input type="radio"/>

Additional Other Messages, or Comments:



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ASSESSMENT QUESTIONNAIRE**

**SECTION B – NATIONAL ACTIONS**

**The purpose of this section is to find out what actions were taken by National Tsunami Warning Centres, including independent analysis of the tsunami event, notification of relevant organizations, issuing and cancellation of warnings.**

B.1. Was any action taken BEFORE receiving the TSP PTWC messages?

- Yes  
 No

If Yes, please give details. Include time (UTC) and action:

B.2. What action was taken AFTER receiving the PTWC messages? Please list times (UTC) as well as actions. Include details of organizations or government agencies contacted.

Action Taken  
(Time UTC)

Action Taken  
(Time UTC)

Action Taken  
(Time UTC)

Action Taken  
(Time UTC)

Action Taken  
(Time UTC)

Action Taken  
(Time UTC)

Action Taken  
(Time UTC)

Action Taken  
(Time UTC)

Additional Actions or  
Comments:

B.3. Did your National Tsunami Warning Centre issue a tsunami warning and other tsunami related information to other agencies or organizations, and/or the Public?

Yes

No

Comments

If the answer to question B.3. is No, please go to Section C.  
If the answer to question B.3. is Yes, please specify the type of information released, time (UTC), and to which agencies or organisations (B.4-6).

**B.4. Type of Information released to agencies or organisations (Tick all that apply):**

- Warning (Evacuate to high ground or inland)
- Marine Warning / Advisory (Stay out of water, away from beaches and waterways)
- Watch (Prepare, more information to follow)
- Information (No tsunami threat or no action needed at this time)

Comment

**B.5. Time of Information released to agencies or organisations (please list times (UTC) as needed):**

Warning	<input type="text"/>
Marine Warning / Advisory	<input type="text"/>
Watch	<input type="text"/>
Information	<input type="text"/>
Other (Please specify):	<input type="text"/>

**B.6. Information released directly to which agencies or organisations (Tick all that apply):**

- National Disaster or Emergency Management Agency
- Media
- First Responder (such as Police, Fire, Ocean / Beach Safety)
- Critical Infrastructure or Utilities (Electricity, Gas, etc)
- Marine or Port Authority
- Tourism Sector – Hotels
- Health Sector – Hospitals
- Education Sector - Schools
- Civil Society (social, gender, culture, age, language, religious, and other organizations)
- Other (please specify):



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ASSESSMENT QUESTIONNAIRE**

**SECTION B – NATIONAL ACTIONS**

B.7. How was the warning or other tsunami related information issued to agencies or organisations (Tick all that apply)?

- Phone - dedicated line
- Phone - commercial line
- SMS
- Email
- Fax
- Radio – dedicated
- Social Media (Please specify)
- Other Methods (Please specify)

Comments

B.8. Was a tsunami warning and other tsunami related information issued to the Public?

- Yes
- No



**B.9. Type of Information issued to Public (Tick all that apply):**

- Warning
- Marine Warning / Advisory
- Watch
- Information
- Other (Please specify)

Comments

**B.10. Time of Information issued to Public (please list times (UTC) as needed):**

Warning	<div style="border: 1px solid black; height: 20px;"></div>
Marine Warning / Advisory	<div style="border: 1px solid black; height: 20px;"></div>
Watch	<div style="border: 1px solid black; height: 20px;"></div>
Information	<div style="border: 1px solid black; height: 20px;"></div>
Other (Please specify):	<div style="border: 1px solid black; height: 20px;"></div>

**B.11. Authority issuing information to Public:**

- National Tsunami Warning Center (NTWC)
- National Disaster Management Office (NDMO), National Emergency Management Agency (NEMA), or equivalent
- Local Disaster Management Office (DMO), Emergency Management Agency (EMA), or equivalent
- Other (Please specify)

Comments:

**B.12. Was the decision to issue or not to issue a tsunami warning to the Public based on information from the TSP (PTWC), from Other Sources, and/or determined by your National Tsunami Warning Centre (Tick all that apply)?**

- TSP PTWC
- National TWC
- Other Sources (Please specify)

Comments:

B.13. If a Tsunami Warning or Marine Warning / Advisory was issued to the Public, was a tsunami arrival time or wave height forecast provided?

- Yes, Tsunami Arrival Time forecast
- Yes, Tsunami Wave Height forecast
- Yes, both a Tsunami Arrival Time and Wave Height forecast
- No Arrival Time or Wave Height forecast

Comments

B.14. How was the warning/information communicated to the Public (Tick all that apply)?

- Telephone
- SMS
- Cell/mobile phone broadcast
- Radio
- TV
- Twitter
- Facebook
- RSS
- Websites
- Sirens
- Public announcement systems
- Public call centre
- Police
- Door-to-door announcements
- Other (Please specify), and Comments

**B.15. Who is responsible for communicating with the Media?**

- NTWC/TWFP
- NDMO
- Both NTWC/TWFP and NDMO
- Local / Regional DMO
- Other (Please specify)

Comments

**B.16. Did your National Tsunami Warning Centre or Disaster Management Office send tsunami warning or other tsunami related information to the National Media?**

- Yes
- No

Comments:

If the answer to question B.16. is Yes, please specify:

**B.17. Method of communication used to send to National Media (Tick all that apply)**

- Phone
- Email
- Fax
- SMS
- Other (please specify):

B.18. Type of electronic media (Tick all that apply)

- TV
- Radio
- Website
- Social Media
- Other (please specify):

B.19. If TV or Radio used, please list the TV and radio stations:

B.20. Method of information broadcast by National Media (Tick all that apply)

- Programme Interruption (TV, radio)
- Scrolling/running text (TV)
- Other (please specify)

B.21. Time (UTC) of first broadcast by National Media

B.22. If a Warning or Marine Warning/Advisory was issued, at what time was it  canceled (UTC)?

Time (UTC):

B.23. What was the reason for the cancellation?

- No damaging waves
- Other (Please specify)

Comments:

B.24. How was this information communicated to the Public? (Tick all that apply)?

- Telephone
- SMS
- Cell/mobile phone broadcast
- Radio
- TV
- Twitter
- Facebook
- RSS
- Websites
- Sirens
- Public announcement systems
- Public call centre
- Police
- Door-to-door announcements
- Other (please specify):

B.25. Were there any communication problems with distributing the tsunami warning or cancellation information? (e.g., mobile phone network or websites overload or broken, people not answering phones, etc).

- Yes
- No

If Yes, please provide details or Comments:



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**SECTION C – NATIONAL RESPONSE**

**The purpose of this section is to find out what the national and local response was to the event after the Tsunami Warning or Marine Warning / Advisory had been issued by the National Tsunami Warning Centre.**

C.1. Were any actions taken by the National Disaster Management Office (NDMO, or equivalent national response organization)?

- Yes
- No

C.2. If the answer to question C.1. is Yes, what actions were taken? Please list times (UTC) as well as actions. Include details of organizations or government agencies.

Action Taken (Time UTC)	<input type="text"/>
Action Taken (Time UTC)	<input type="text"/>
Action Taken (Time UTC)	<input type="text"/>
Action Taken (Time UTC)	<input type="text"/>
Action Taken (Time UTC)	<input type="text"/>
Action Taken (Time UTC)	<input type="text"/>
Action Taken (Time UTC)	<input type="text"/>
Action Taken (Time UTC)	<input type="text"/>
Action Taken (Time UTC)	<input type="text"/>
Comments:	<input type="text"/>

C.3. Did the National Disaster Management Office (or equivalent national response organization) maintain communication with the National Tsunami Warning Centre throughout the event?

- Yes
- No

C.4. If the answer to question C.3. is Yes, what information was shared (Tick all the apply):

- Tsunami Source information (volcanic eruption time, location)
- Tsunami Wave Information (wave forecast arrival time and/or amplitude), wave observations
- Alert level (warning, marine warning, watch, information, etc)
- Evacuation guidance or Evacuation areas reports
- Safe-to-return or All-Clear guidance or reports
- Other (please specify), Comments:

C.5. Did the National Disaster Management Office (or equivalent national response organization) maintain communication with Local or Regional disaster management organisations (or equivalent)?

- Yes
- No

Comments

C.6. If the answer to question C.5. is Yes, what information was provided by the NDMO (or equivalent national response organization) (Tick all the apply):

- Tsunami Source information (volcanic eruption time, location)
- Tsunami Wave Information (wave forecast arrival time and/or amplitude), wave observations
- Alert level (warning, marine warning, watch, information, etc)
- Evacuation guidance or Evacuation areas reports
- Safe-to-return or All-Clear guidance or reports
- Other (please specify):

C.7. Were any actions taken by the Local or Regional disaster management offices (or equivalent)?

- Yes
- No

C.8. If the answer to question C.7. is Yes, what actions were taken? Please list times (UTC) and actions. Include details of organizations or government agencies.

Action Taken (Time UTC)	<input type="text"/>
Action Taken (Time UTC)	<input type="text"/>
Action Taken (Time UTC)	<input type="text"/>
Action Taken (Time UTC)	<input type="text"/>
Action Taken (Time UTC)	<input type="text"/>
Action Taken (Time UTC)	<input type="text"/>
Action Taken (Time UTC)	<input type="text"/>
Action Taken (Time UTC)	<input type="text"/>
Action Taken (Time UTC)	<input type="text"/>
Action Taken (Time UTC)	<input type="text"/>
Comments:	<input type="text"/>



C.9. Were any areas evacuated?

Yes

No

C.10. If the answer to question C.9. is Yes, provide details on the areas evacuated, time (UTC), and estimated number of people evacuated.

Area evacuated

Time (UTC)

Nbr of people

Area Evacuated

Time (UTC)

Nbr of people

Area Evacuated

Time (UTC)

Nbr of people

Area Evacuated

Time (UTC)

Nbr of people

Area Evacuated

Time (UTC)

Nbr of people

Area Evacuated

Time (UTC)

Nbr of people

Area Evacuated

Time (UTC)

Nbr of people

Area Evacuated

Time (UTC)

Nbr of people

Area Evacuated

Time (UTC)

Nbr of people

Area Evacuated

Time (UTC)

Nbr of people

Comments:

C.11. Were Tsunami Inundation Maps available for evacuated areas?

Yes

No

Comments:

C.12. Were Tsunami Evacuation Maps available for evacuated areas?

Yes

No

Comments:

C.13. If an evacuation occurred, did the process happen smoothly?

Yes

No

If No, please provide details of problems encountered:

C.14. Did people in some areas self-evacuate before a Warning was issued?

Yes

No

None of the above

Comments

C.15. If the answer to question C.14. is Yes, please provide details on the area, time (UTC), and estimated number of people who self-evacuated.

Area Self-evacuated

Time (UTC)

Nbr of people

Area Self-evacuated

Time (UTC)

Nbr of people

Area Self-evacuated

Time (UTC)

Nbr of people

Area Self-evacuated

Time (UTC)

Nbr of people

Area Self-evacuated

Time (UTC)

Nbr of people

Area Self-evacuated

Time (UTC)

Nbr of people

Area Self-evacuated

Time (UTC)

Nbr of people

Area Self-evacuated

Time (UTC)

Nbr of people

Area Self-evacuated

Time (UTC)

Nbr of people

Area Self-evacuated

Time (UTC)

Nbr of people

Comments:



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ASSESSMENT QUESTIONNAIRE**

**SECTION D – MONITORING AND MODELLING**

D.1. Were sea level data monitored during the event?

- No
- Yes, all Pacific Stations
- Yes, some Pacific Stations

Comment

D.2. How where the stations monitored? (Tick all that apply)

- GTS using NTWC tools
- Tide Tool
- IOC Sea Level Station Monitoring Facility
- Other Sources or Tools (please specify):

D.3. If the answer to question D.3. is No, does your National Tsunami Warning Centre know how to access sea level data over the GTS, on the IOC Sea Level Station Monitoring Facility, or by Tide Tool?

	Yes	No
GTS	<input type="radio"/>	<input type="radio"/>
IOC Sea Level Facility	<input type="radio"/>	<input type="radio"/>
Tide Tool	<input type="radio"/>	<input type="radio"/>

Comments:

D.4. Did your National Tsunami Warning Centre use any numerical model tsunami scenarios during the event (deep-ocean propagation and/or coastal inundation models)?

- Yes
- No

If Yes, please describe tools or software, and how they were used:



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**SECTION E – COMMUNITY PREPAREDNESS**

E.1. From 0 (none) to 4 (very high), please rank the scientifically-assessed level of tsunami hazard, the level of community awareness of that hazard, and the level of pre-existing community tsunami preparedness in 5 of the main communities affected by this event.

Please list the names of the communities:

Community 1:

Community 2:

Community 3:

Community 4:

Community 5:

**E.2. Scientifically-assessed Level of Tsunami Hazard**

	0	1	2	3	4
Community 1	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Community 2	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Community 3	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Community 4	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Community 5	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

E.3. Level of Community Awareness

	0	1	2	3	4
Community 1	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Community 2	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Community 3	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Community 4	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Community 5	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

E.4. Level of Pre-existing Community Tsunami Preparedness

	0	1	2	3	4
Community 1	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Community 2	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Community 3	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Community 4	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Community 5	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

E.5. Were there any Tsunami Preparedness activities in these Communities, or nationally, prior to the event?

- Yes
- No

Comments:

E.6. If the answer to question E.5. is Yes, what Preparedness activities were conducted? Please provide dates in Comments (Tick all the apply):

- Tsunami Education in school
- Participatory evacuation planning
- Evacuation map made
- Safe Assembly Area or Evacuation facilities identified
- Tsunami Exercise
- Other (Please specify)

Other (Please specify), Dates of activities, and Comments

E.7. Has there been any government support with regards to the following prior to the event (Tick all the apply)?

- Tsunami Signage
- Vertical Evacuation Sites and Procedures
- Hazard Maps
- Evacuation Maps
- Evacuation Route Mapping
- Other (please specify)





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### SECTION F – CAPACITY DEVELOPMENT REQUIREMENTS

**Capacity development is a fundamental component of all IOC UNESCO programmes. To assist us to prioritise and plan our future training activities within our limited resources, please indicate the training needs you consider to be a high priority for your country.**

F.1. What training events or other assistance from IOC would be useful for your NTWC, NDMO, and other response organizations in the next 12 months? (Tick all that apply, and provide your priority)

- Seismic training
- Sea Level training
- Risk Assessment training
- Standard Operating Procedures training
- Inundation Modelling training
- Evacuation Mapping training
- Community Awareness and Preparedness training
- Exercises and Drills training
- Media Awareness training
- Other support requested (Please specify).

If multiple supports are ticked, please list your priority order.



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**SECTION G – OTHER INFORMATION**

G.1. Please feel free to provide any further information you would like to be included in the report. This could include comments which you can type below, or attachments such as photographs, or any other documents you consider relevant. We would particularly welcome copies of any national post-event assessment reports that are available.

Please send attachments to the PTWS Technical Secretary or the ITIC Director.



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## HUNGA TONGA-HUNGA HA'APAI VOLCANIC ERUPTION AND TSUNAMI POST-EVENT ASSESSMENT QUESTIONNAIRE

Thank you for participating in UNESCO/IOC's Hunga Tonga - Hunga Ha'apai Volcanic Eruption and Tsunami Post-Event Assessment Questionnaire.

If you have further questions or need additional tsunami information, please do not hesitate to contact:  
Bernardo Aliaga ([b.aliaga@unesco.org](mailto:b.aliaga@unesco.org)), ICG/PTWS Technical Secretary  
Laura Kong, ITIC Director ([laura.kong@noaa.gov](mailto:laura.kong@noaa.gov))

Click "Done" to submit your Post-Event Assessment Questionnaire.