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# GLOBAL NTWC COMPETENCY FRAMEWORK

## PTWS

ITP-Hawaii 2023, 7-18 August 2023  
Laura Kong, ITIC

TT TWO - TT DMP JOINT, 28 Feb 2023, Item J7  
Laura Kong, ITIC, 'Ofa Fa'anunu, Tonga Met Svcs and Coast Radio

# Global Progress - TOWS TT-TWO / DMP 2022



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## Recommendation 13 for training competencies:

- **Notes with appreciation** the work of the [PTWS to develop a NTWC Competency Framework \(2019\)](#), and the [ITIC's leadership to pilot](#) training courses based on the Framework,
- **Noting** the interest of other ICGs, requests the PTWS to share its document with other regions, and invite comments and feedback,
- **Also noting** the challenges in developing and implementing a global competency framework.
- **Requests** the [TT TWO](#) and [TT DMP](#) to continue to consider [development of guidelines](#) for a global NTWC competency framework based on the available set of documents and Pacific input, noting that [implementation can be at a regional level](#)

## PTWS WG2 Task Team: Minimum Competency Levels for National Tsunami Warning Centre (NTWC) Operations Staff

ICG/PTWS-XXIX.1 (2021)



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This expert Task Team will establish and document the minimum competency levels for NTWC operations staff and develop a framework for the competencies and training requirements of the roles of a NTWC.

1. Establish the minimum competency levels required for NTWC operations staff.
2. Establish a framework for the required competencies required by the roles of a NTWC.
3. Establish what training is required to ensure NTWC staff meeting minimum competency levels.
4. Investigate and document what schemes are currently in existence and what guidelines and principles can be adapted for this purpose.

The Task Team will be composed of Wilfried Strauch (Nicaragua), Ofa Fa'anunu (Tonga), Yuelong Miao (Australia), Chip McCreery (USA), Lara Bland (NZ), Laura Kong (USA), and Ken Gledhill (NZ). Co-Chairs are Mr Ofa Fa'anunu (Tonga, second term) and Dr Laura Kong (United States, first term)

**Draft document, “NTWC Competency Framework”, produced at ICG/PTWS-XXVIX (2019).  
Final draft to be presented at ICG/PTWS-XXX (Sept 2023)**

# Competencies

## (Tier 2: Comprehensive, Expert, Tier 1: Basic)



- **Core science KNOWLEDGE:** Basic tsunami science / earthquake source knowledge
- **Advanced science KNOWLEDGE :** Adv tsunami science / earthquake source knowledge, tsunami forecast modelling
- **Core OPERATIONAL competency**
  - Understand & use TSP text / graphical products, core set of decision support tools. Perform all core NTWC SOPs
  - Identify potential regional, distant, and local source tsunami threats
- **Advance OPERATIONAL competency**
  - Understand and produce tsunami threat maps
  - Explain relationship of tsunami warning products to evacuation maps and routes
  - Use a comprehensive set of decision support tools
  - Advanced practical seismology (locate / characterise EQs), sea-level observations: measure & interpret records
- **Core AGENCY competencies**
  - **Liaise with NDMO and response agencies**, Post-event activities, **Manage media inquiries** and organise TV/Radio interviews, Monitor enquiries from general public, then prioritise response

# PTWS Pacific Island Countries and Territories Working Group Task Team on Capacity Development

ICG/PTWS-XXIX.1 (2021)



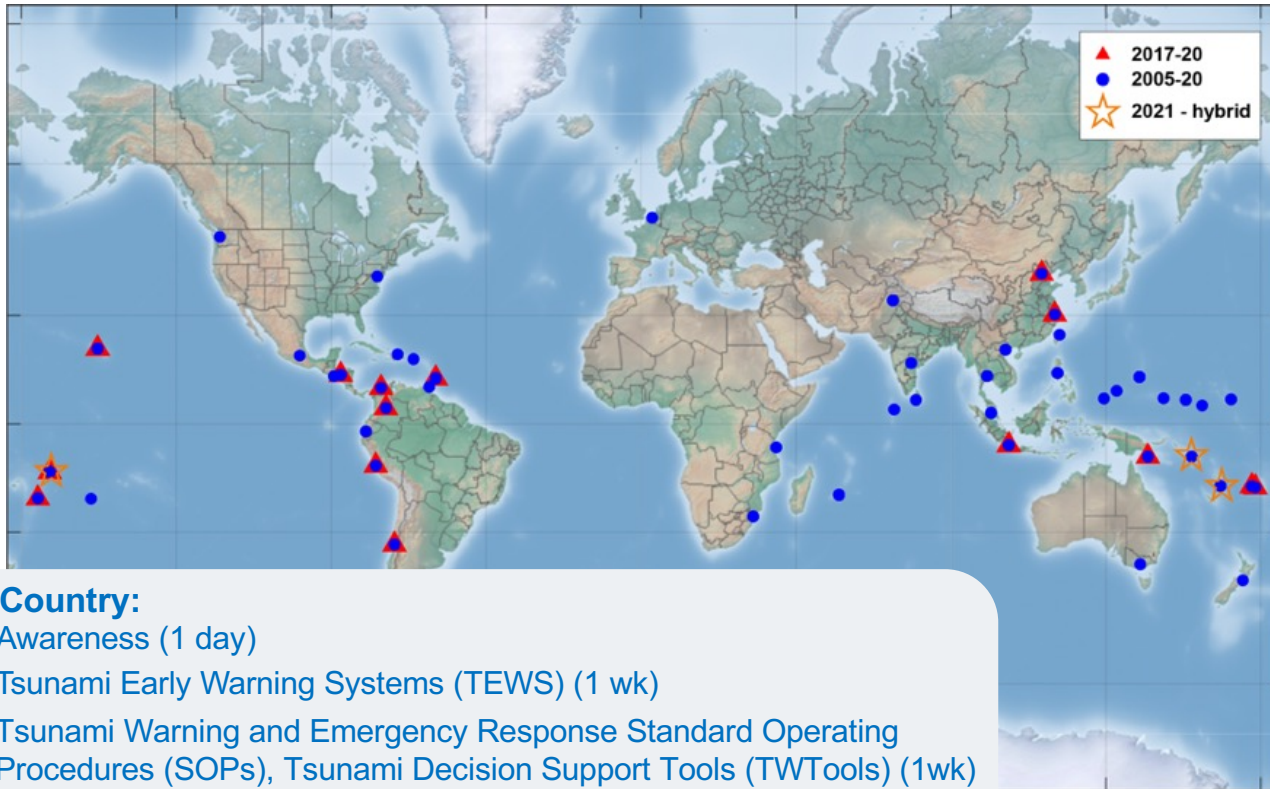
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- 1. Continue the development of competency framework for National Tsunami Warning Centres personnel and pilot it in Australia, Vanuatu, Fiji, Samoa and Tonga and report progress and lessons learnt to ICG/PTWS WG 1, 2 and 3.**
2. Continue to monitor and coordinate the Pilot Tsunami Ready Programme and TEMPP in Samoa, Tonga, Fiji, Cook Islands, Solomon Islands and Vanuatu and review the Tsunami Ready Checklist for schools and communities in PICT.
3. Continue to develop the guideline for National Tsunami Warning Centres in responding to local tsunami and report to WG 1, 2 and 3.
4. Develop an online survey of warning and mitigation capabilities in the Pacific Island Countries and Territories (Member countries and IOC).

The Task Team Members: Australia, New Caledonia (Co-Chair), Tonga (Co-Chair), Samoa, Vanuatu, New Zealand, Solomon Islands, Fiji, PNG, ITIC, SPREP, SPC, IOC, PTWC. Chair Mr Ofa Fa'anunu (Tonga, third term) .

# ITIC - IOC TSUNAMI CAPACITY BUILDING (2005-2021, >130 trainings)



## Best practice - commitment to continuous training over time – Tonga

- In-Country -2009, 2010, 2015, 2019
- ITP-Hawaii – 2006, 2009, 2011, 2014, 2016, 2018, 2019 (14 total)

## ITIC training challenge

- Staff turnover, so continual request from Countries
- Limited resources



### In Country:

- Awareness (1 day)
- Tsunami Early Warning Systems (TEWS) (1 wk)
- Tsunami Warning and Emergency Response Standard Operating Procedures (SOPs), Tsunami Decision Support Tools (TWTTools) (1wk)
- Tsunami Evacuation Maps, Plans, Procedures (TEMPP) (5 1-wk)

At ITIC/PTWC: ITP-Hawaii (TEWS, 2-wk)



# PTWS Progress – 15 January 2022

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- **Competency Framework piloted, NTWC Training, Tonga 14-24 Oct 2019.**
- **15 January 2022 HTHH event => Tonga from recent events:**
  - Gaps – need better understanding of volcano monitoring within NTWC;
  - Need attachment of operational staff at PTWC in Hawaii or other NTWC;
  - Met Svc operational staff familiarize with Seismic Monitoring
- **Solomon Islands Met Svc**
  - Following Impact Based Forecasting Training, identified forecasters need to understand DRR aspects in issuance of warnings => include in NTWC competency framework.



# PTWS Progress – Vanuatu perspective

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*Ms. Esline Garaebiti (Vanuatu), Chair PICT Working Group:*

- *PICT warning centers equipped with tools but staff needs to be trained*
- *National initiative and support needed from international partners (for example, ITIC to implement, UNDRR, SPC to help scope issues in region)*

**Recommended;**

- 1) Training the Trainer (TTT) might be useful** - more sustainable for countries to maintain their staff through own capacity development to address staff turnover.
- 2) Need should be mapped and framework developed with PICTs.**
- 3) Competency framework for PICTs should not be limited to seismic sources, but also volcanic sources as integrated approach**





# PTWS Progress – Australia, existing training

Others collected: US, India, NZ, Chile



## **Geoscience Australia (GA) - For watch staff**

- Locating earthquakes, analyze, interpret and apply to provide useful info to Bureau of Meteorology (BOM, NTWC).
- Real -time and play back training on different events. Currently working on wave form simulation tools.

## **BOM Australia – For tsunami warning staff and decision support staff**

- Tsunami training framework since 2011.
- 3 main modules; 1) science, 2) decision making tools and 3) SOPs.
- Training online and hands-on component. End is two real scenario exercises with assessment.
- Competency certified at national level for 3 years validity to address turnover of staff, refresher and gather feedback

**GA and BOM conduct monthly joint- exercises.**

# Standalone Training and Info Videos (OTGA) - 2021 -2022

## Tsunami Warning Centers

- PTWC Enhanced Products and Staging (Pacific, Caribbean) (EN-SP-FR)  
10-22 min – 2021-2022, SP-FR captions still in process
- TWC Operations – What happens at PTWC during a Pacific earthquake? (EN)  
18 min - Nov 2022
- Tsunami Forecasting (EN) (req fr PTWS fr 4 Mar 2021 event debrief) – 20 min

## Tsunami Ready - Exercise Informational Videos (EN, SP, FR): 2-3 min each

- **Be Safe. Be Prepared. Get Pacific Tsunami Ready** ([Pacific Islands](#), [Western Pacific](#), [Eastern Pacific](#)) – World Tsunami Awareness Day, 5 Nov 2021
- **Exercise Pacific Wave (EN)** 3 min – Dec 2021 <https://vimeo.com/showcase/9091939/video/654705877>
- **Exercise Caribbean Wave (EN SP FR)** 2 min – Jan 2022 <https://vimeo.com/showcase/9334456>



# ITIC-PTWC training videos – Support Ocean Teacher Global Academy

## TSUNAMI TRAINING

Videos on Tsunami Warning Operations, including from the Pacific Tsunami Warning Center

Pacific Tsunami Warning Center (PTWC)  
Graphical Tsunami Forecast Products for the PTWS

Dr. Charles "Chip" McCreery  
Director, PTWC

22:10

EN - PTWC Products, Pacific - ...

ITIC

Pacific Tsunami Warning Center (PTWC)  
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22:10

EN - PTWC Products, Pacific - ...

ITIC

Pacific Tsunami Warning Center (PTWC)  
Graphical Tsunami Forecast Products for the PTWS

Dr. Charles "Chip" McCreery  
Director, PTWC

22:13

SP - PTWC I

ITIC

Pacific Tsunami Warning Center (PTWC)  
Product Staging from the earthquake, through data collection and analyses, to tsunami forecasting, and product generation and dissemination

10:09

EN - PTWC Product Staging, ...

ITIC

Pacific Tsunami Warning Center (PTWC)  
What happens for a Pacific earthquake?

18:59

Dr. Charles "Chip" McCreery  
Director, PTWC

EN - PTWC TWS Ops - Pacific...

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CaribeWave  
3 Videos / 05:40

2022 JANUARY 15 TONGA EVENT

IOC Wave Exercises:  
Exercise Pacific Wave  
5 Videos / 5:27:44

TSUNAMI TRAINING

2021 MARCH 4 KERMADEC EVENT

Tsunami Ready

<https://vimeo.com/showcase/8956022>

Password: training



UNESCO/IOC-NOAA SHOA  
International Tsunami Information Center

# PTWS Progress – ITIC plans



## Requirements - Content and Training Modality

1. Knowledge – do self-paced, hybrid
2. Operational SOP – do self-paced, hybrid, in-person
3. Real-life Experience – do by attachment to Advanced Centre, e.g., PTWC or others (Australia, Chile, Japan, New Zealand, Philippines...)
4. National Qualification / Certification – by country. IOC / ITIC does not provide certification for tsunami training and cannot certify staff

## ITIC exploring funding for pilot for PTWS in 2024+

Pilot with PICT at PTWC or other Advanced Centers ?

Model after Weather Pacific Training Desk (small cohort group staying 1+ month, incl attachment). Next Steps :

1. Complete Draft Competency Framework for NTWC in 2023 (WG2 TT)
2. Develop Implementation Concept in 2023
3. Pilot in 2024



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