

# Report of the meeting of TOWS-WG Task Team on Tsunami Watch Operations (21-22 Feb 2022)

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*ICG/IOTWMS Steering Group Meeting  
14-15 July 2022*

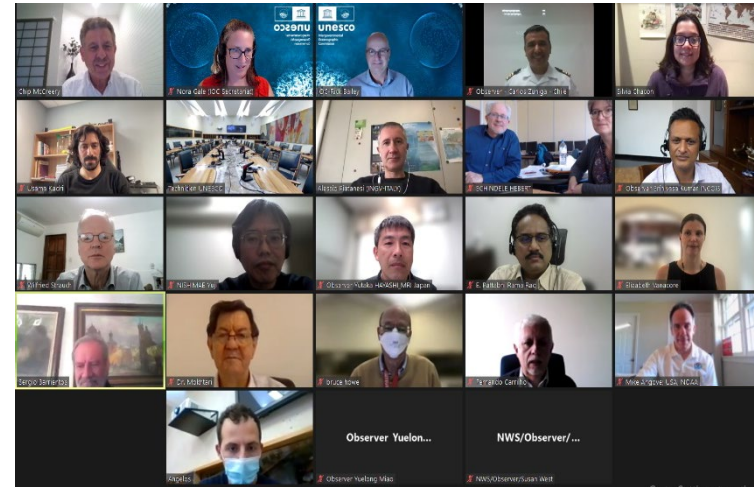


# TOWS-WG TT TWO Report

- **Task Team on Tsunami Watch Operations**
- Meeting held during 24 – 25 February 2022, Online
- IOTWMS Attendance: E. Pattabhi Rama Rao and Mohammad Mokthari as Members of TTTWO and T. Srinivasa Kumar and Yuelong Miao as Observers, Rick Bailey and Nora Gale from IOTWMS Secretariat
- Purpose: Coordination amongst 4 ocean basins on tsunami detection, warning and dissemination
- Joint Sessions of TTDMP & TTTWO

J1. Welcome & Introduction, J2-Atypical Tsunamis, J3-Wave Exercises and Significant Tsunami Events, J4- Global KPIs, J5- Local Source SOPs, J6-Training Competencies, J7-Tsunami Glossary Update, J8- IUGG Update, J9-Planning for Ocean Decade, J10- Planning for WTAD 2022, J11-Planning for next Symposium

- **Highlights:**
  - Handling of tsunamis from non-seismic sources and non-subduction zone earthquakes
  - Local Source Tsunami SOPs'
  - Development of KPIs in relation to SFDRR
  - NTCW Competency Framework
  - Products for the Maritime Community
  - Planning for the Ocean Decade, WTAD2022, next Symposium



# TT TWO Recommendations

No	TT TWO Recommendations
1	A cost-benefit analysis be first undertaken for monitoring non-seismic tsunami sources based on a hazard and risk assessment.
2	Each ICG encourage sea-level network operators to undertake regular and routine calibration of their sea-level monitoring instrumentation, following recommendations of IOC Manuals & Guides No #3.
3	<p>The Report be published as an IOC Technical Manual</p> <p>The term “atypical tsunamis” not be used and that tsunamis be classified as either: a) Seismic generated tsunamis; or b) Non-seismic generated tsunamis; or c) Complex source generated tsunamis;</p> <p>TSPs and NTWCs of each ICG identify all coastal areas or near-shore faults that could generate large earthquakes and submarine landslides and be prepared to issue warnings as appropriate. TOWS-WG establish a specific <i>Ad Hoc Team on Meteo-tsunamis</i> under the TT-TWO chaired by Mr Mike Angove with ToRs:</p> <ol style="list-style-type: none"><li>1. Review and advise on gaps related to meteo-tsunami monitoring and warning systems.</li><li>2. Develop guidelines on SOPs to monitor and warn for meteo-tsunamis.</li><li>3. Review relationship required between TSPs/NTWCs and Regional/National Met Services to monitor and warn for meteo-tsunamis</li><li>4. Write a report to submit to the TT TWO for its next session in February 2023</li></ol>

# TT TWO Recommendations

No	TT TWO Recommendations
	<p>Establishment of an <i>Ad Hoc Team on Tsunamis Generated by Volcanoes</i> chaired by Dr Francois Schindele with ToR:</p> <ol style="list-style-type: none"><li>1. Confirm the list of tsunami sources related to volcanoes and volcanic eruptions</li><li>2. Complete the list of potential threat volcanoes (referred to in annex to ATS Report)</li><li>3. Identify methodologies to monitor and detect volcanic sources of tsunami</li><li>4. Review relationship required between TSPs/NTWCs and Volcanic Ash Advisory Centres (VAACs) and other relevant agencies to monitor and warn for volcano generated tsunamis</li><li>5. Develop guidelines on SOPs to monitor, detect and warn for any the induced tsunami waves</li><li>6. Write a report to submit to the TT TWO for its next session in February 2023</li></ol>
4	<p><i>Requests that the Task Team on DMP continue to work on coordination of the conduct and reporting of exercises with the aim of having standard practices among the ICGs.</i></p>
5	<p>TSPs and especially NTWCs investigate utilization of social media platforms/tools for effective and broad dissemination of tsunami warnings to at-risk communities where feasible.</p>
6	<p>The Chair of the TOWS WG invite IOC Member States with coasts bordering or within the southern Atlantic basin to consider, and provide feedback prior to the 2022 IOC Executive Council Meeting, an expansion of the IOC's Global Tsunami Warning and Mitigation System to include coverage of the southern Atlantic and portions of Antarctica not already covered by that system.</p>

# TT TWO Recommendations

No	TT TWO Recommendations
7	PTWS Earthquake Source Zone be expanded to include the southernmost Atlantic seismic region to routinely provide Member States of the PTWS with information about the frequent large earthquakes from this region and any subsequent tsunami threat.
8	Each ICG routinely monitors the status of monitoring seismic and sea level related networks. Each ICG encourage sea level network operators to undertake regular and routine calibration of their sea level monitoring instrumentation, following recommendations of IOC Manuals & Guides #3
9	IOC Member States to endorse the efforts of JTF SMART Cables and DOOS to establish ocean bottom pressure as an Essential Ocean Variable within GOOS.
10	TSPs/NTWCs consider negotiating with Member States on a bilateral basis with regards to the exchange of non-accessible data.
11	Requests the team to finalize the data and information contained in the measures, and to develop on-going documents and user guidance for survey completion/reporting aligned with the framework
12	Requests the ICGs to share their local source SOPs with other ICG's with a view on consistent approaches (ICGs, Secretariat)

# TT TWO Recommendations

No	TT TWO Recommendations
13	<b>Requests</b> 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
14	<b>Agrees</b> to postpone the next update of the Tsunami Glossary to 2023 to facilitate the incorporation of important changes,
15	<b>Welcomes</b> the offer of the IUGG Joint Tsunami Commission to further collaborate with the IOC and its ICGs, such as through the JTC Working Groups, international science symposia, and tsunami publications.
16	<b>Encourages</b> Member States, ICGs, IOC Tsunami Unit, Tsunami Information Centers and the UN Decade Tsunami Programme to purposely support, contribute to, and manage the integration of tsunami warning system capabilities with other coastal hazard early warning systems and services
17	The Co-chairs of the Tsunami Symposium Organising Committee be drawn from TT TWO, TT DMP, the Chair of the new Scientific Committee, and IUGG-JTC
18	The GSDD be updated with suggested changes by TT TWO, including warning for non-seismic generated tsunamis. ICGs monitor sea level data exchanges and encourage 1 sample/second data transmissions

# TT TWO Actions

No	Action
1	Share links to information and debriefs organised by PTWS on the HTHH volcanic eruption and tsunami event of 15 Jan 2022. (Secretariat)
2	PTWC share algorithms and systems used to automatically alert for tsunami signals on real-time sea level data streams. (Chip McCreery; Secretariat)
3	NAVAREA operators in Indian Ocean to advise of new products available for the maritime community from TSPs and obtain preferred contact details for distribution. (Secretariat)
4	TSPs for all ICGs to develop a plan to implement maritime products, taking in to account redundancies, and update TT TWO on status at next meeting. (TSP representative for each ICG)
5	Yuelong Miao to enquire with Antarctic Consortium best way to approach tsunamis warnings for Antarctica. (Yuelong Miao; Carlos Zuniga)
6	Update ICG AoS and ESZ maps, subject to and as CATAC being formalised and South Atlantic, Arctic and Antarctic coverage reviewed. (Secretariat)
7	Provide latest feedback on DBCP proposed survey on ocean data requirements for tsunami warning services, including need to incorporate all contributing data networks and not just tsunameters, issue survey to TSPs and NTWCs of each ICG, work with DBCP to analyse result, work with DBCP and ODTP Science Committee to organise a workshop to discuss the results and opportunities from new technologies to meet tsunami warning requirements. (Secretariat; Chair ODTP SC)

# TT TWO Actions

No	Action
8	Review standardisation of metadata for sea level data with GLOSS. (Secretariat)
9	Distribute information on SMART Cables to TT TWO Members and ICG Secretariats for distribution to Member States. (Secretariat)
10	Identify a TSP / NTWC to help test and examine viability of an operational version of the trial system for detecting tsunamis from acoustic-gravity waves by enabling access to relevant CTBTO data. (Secretariat)
11	ICG/PTWS share interim SOPs for tsunamis generated by HTHH volcano with other ICGs. (Chip McCreery; Secretariat)
12	ICG/PTWS share draft Tsunami Warning Competency Framework with other ICGs for review and feedback with regards to developing global guidelines and harmonization. (Laura Kong; Secretariat)
13	Seek the support of IAEM, IFRC, ITU, OASIS and WMO to implement two workshops (to best span all time zones) on implementing CAP for NTWCs of each ICG. (Secretariat)
14	ICG/IOTWMS to further develop and share guidelines on implementing CAP format for warnings for review and feedback by other ICGs. (IOTWMS representatives)
15	GSDD to be updated with agreed changes, including warning for non-seismic generated tsunamis. (Chip McCreery; Secretariat)
16	Chip McCreery take over task of updating GSDD from Francois Schindele. (Chip McCreery)



# TT TWO New Membership

## Future Task Team Members (post Feb22 meeting)

Name	Country	Organization	IOC System
Yuji Nishimae, Chair	Japan	Japan Meteorological Agency	PTWS
Dakui Wang	China	National Marine Environmental Forecasting Centre (NMEFC)	PTWS
Helene Hebert	France	Centre d'alerte aux Tsunamis	NEAMTWS
Alessio Piatanesi	Italy	National Institute of Geophysics and Volcanology	NEAMTWS
Elizabeth Vanacore	USA	Puerto Rico Seismic Network	CARIBE-EWS
Charles McCreery, Chair	USA	Pacific Tsunami Warning Center	CARIBE-EWS
Mohammad Mokhtari	Iran	International Inst. of Seismology and Earthquake Engineering	IOTWMS
Pattabhi Rama Rao Eluri	India	Indian National Centre for Ocean Information Services	IOTWMS

***Thank you***