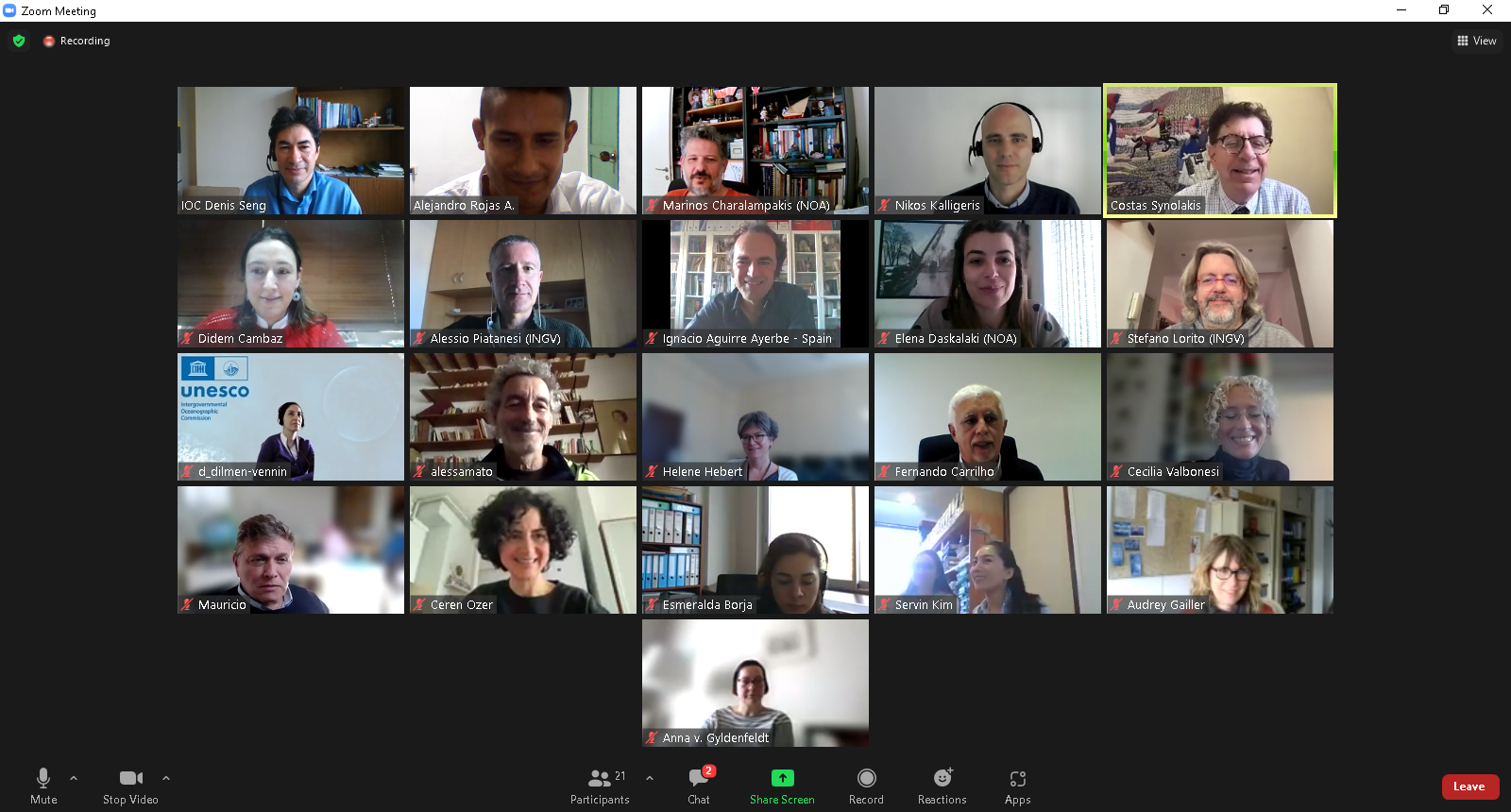


**INTERGOVERNMENTAL OCEANOGRAPHIC COMMISSION (of UNESCO)**

**Virtual ICGNEAMTWS Steering Committee Meeting 2022**

**8 and 11 April 2022**

**SUMMARY REPORT**



**Day 1**

1. **OPENING AND ORGANIZATION OF THE MEETING**

The Chair of the Intergovernmental Coordination Group for the North-Eastern Atlantic, the Mediterranean and Connected Seas Tsunami Warning and Mitigation System (ICG/NEAMTWS), Ms Maria Ana Baptista opened the virtual ICG/NEAMTWS Steering Committee (SC) meeting on April 8, 2022 at 14:30 and welcomed everyone.

1. **ADOPTION OF THE AGENDA**

The Chair introduced the provisional agenda. The Group adopted the agenda, as included in [Annex III](#tyjcwt).

1. **UPDATE FROM THE ICG/NEAMTWS CHAIR AND TECHNICAL SECRETARIAT**

*ICG/NEAMTWS CHAIR UPDATE*

The Chair [reported](https://oceanexpert.org/event/3418#agenda) on the activities of the ICG/NEAMTWS since the last ICG Session. She highlighted recent meetings including the kick off meeting of the CoastWAVE project on 17 and 20 December 2021, the Fifteen Meeting of the Working Group on Tsunamis and Other Hazards related to Sea Level Warning and Mitigation Systems (TOWS-WG) XV from 24-25 February 2022, and the joint TOWS-WG Task Team on Disaster Management and Preparedness (TTDMP) and TOWS-WG Task Team on Tsunami Watch Operations (TTTWO) meeting from 21-22 February 2022.

The chair highlighted key recommendations from the joint TOWS-WG-TT DMP-XV and TOWS-WG-TT TWO-XV including the establishment of a specific Ad Hoc Team on Meteo-tsunamis under the TT-TWO chaired by Mr Mike Angove, Director of the National Oceanic Atmospheric Administration (NOAA) Tsunami Programme, with Terms of Reference (ToRs) and the establishment of an Ad Hoc Team on Tsunamis Generated by Volcanoes chaired by Mr Francois Schindele, International expert CENALT, with ToRs. She also provided information on the Ocean Decade Tsunami Programme (ODTP) Scientific Committee (SC), which is responsible to prepare the 10-Year Research, Development and Implementation Plan for the Ocean Decade Tsunami Programme.

The Chair reminded the audience on the upcoming activities, including:

* The Second World Conference on Meteo-tsunamis, 18-20 May, 2022.
* The annual European Geosciences Union (EGU) General Assembly, 23-27 May, 2022.
* The 7th Session of the Global Platform for Disaster Risk reduction (GP2022), 23-28 May, 2022.

*TECHNICAL SECRETARIAT UPDATE*

Mr Denis Chang Seng, ICG/NEAMTWS Technical Secretary, [reported](https://oceanexpert.org/event/3418#agenda) on the activities and meetings of the ICG/NEAMTWS since the last ICG Session. He reported that the Secretariat has received and is reviewing the final report of the ICG/NEAMTWS NEAMWave21 Exercise Evaluation and the Malta21 Exercise Evaluation report prepared by JRC concerning the end -to-end exercise conducted in Marsaxlokk as part of the Tsunami Last Mile Phase 2 initiative. The Secretariat highlighted recent meetings organized including the workshop to evaluate and review the CoastWAVE Coastal Multi-Hazard and Risk Perception Survey on 5 and 13 April 2022, and the United Nations (UN) Ocean Decade Safe Ocean Laboratory on 7 April 2022 which was attended by approximately 60 participants from the Asian and European regions.

The Intergovernmental Oceanographic Commission of the United Nations Educational Scientific and Cultural Organization (IOC-UNESCO) is coordinating input as an organizing team member in the Global Platform for Disaster Risk Reduction (GP2022) on thematic session 3 about “Multi Hazard and Multi Sector in DRR” as well as thematic session 15 on “Early Warning Early Actions”. He is also contributing to the organization of the Third Multi-Hazard Early Warning Conference (MHEWC-III) and contributor to the Words into Actions (WiA) Guide on Multi-Hazard Early Warning Systems (MHEWS). IOC-UNESCO will co-organize with the World Meteorological Organization (WMO) a session on the effectiveness in Early Warning System (EWS) and support other sessions including: Governance / inclusiveness in EWS, and preparedness / community based in EWS.

The ICG/NEAMTWS Secretariat has been invited by the National Institute of Oceanography and Fisheries (NIOF), Egypt to organize a side event for the kick off African Conference on Priority Setting and Partnership Development for the UN Decade of Ocean Science for Sustainable Development from 10-12 May, 2022. There is also a Safe Ocean side event that will take place during the 2022 UN Ocean Conference in Lisbon from 27 June to 1 July 2022. The Tsunami Section is collaborating with the United Nations Disaster Risk Reduction (UNDRR) office to submit a side event proposal.

**Action 1** The Secretariat encourages active support where possible of the ICG/NEAMTWS Task Teams and Working Groups in the preparation and contribution to ICGs participation in important events including GP2022, the kick off African Conference on Priority Setting and Partnership Development for the UN Decade of Ocean Science for Sustainable Development, and the 2022 UN Ocean Conference.

1. **UPDATE OF WORK PLANS AND ACTIVITIES BY WORKING GROUPS AND TASK TEAMS CO-CHAIRS**

The Co-Chairs of the Working Groups (WGs) and the Task Teams (TTs) [reported](https://oceanexpert.org/event/3418#agenda) on the past, ongoing and upcoming activities for the period 2021-2022. In addition, they provided the Plan of Actions (POAs) for 2022, [Annex II](#3znysh7).

* **Working Group 1 on Hazard Assessment and Modelling.**
* **Working Group 2 and 3 on Seismic and Geophysical Measurements.**
* **Working Group 4 on Public Awareness, Preparedness and Mitigation.**
* **Task Team on Documentation.**
* **Task Team on Operations.**
* **Task Team on Tsunami Exercise.**
* **Task Team on Tsunami Ready.**

Mr Nikos Kalligeris, Co-Chair of the Task Team on Documentation (TT-Doc), offered to provide data to the WG1 about the May 2020 South Crete Tsunami event for the NEAM Benchmarking Project (NEAMBP). He also highlighted the importance of agreeing on the Tsunami Ready Guidelines for the NEAM region.

Mr Mauricio Gonzalez, Co-Chair of Working Group 1 (WG1), agrees that defining the Tsunami Ready Guidelines is a high priority given the early stages of the CoastWAVE project implementation in Member States.

Ms Cecilia Valbonesi, Chair of Working Group 4 (WG4), informed that WG4 is available to start the draft of a guideline on risk application (preparation, mitigation, evacuation) along with WG1.

Mr Denis Chang Seng, expressed that one of the key issues to look at in the CoastWAVE project is to discuss methodologies and procedures for hazard and risk assessment and to do that the Secretariat intends to engage with WGs and TTs.

Mr Alessandro Amato, TSP representative of INGV, added that one of the key themes of the hazard and risk assessment discussion is the importance of preparing evacuation zones based on hazard assessment evaluations.

Mr Denis Chang Seng, reminded participants that the Secretariat has been working on compiling a data base on the detection system with the aim of updating the sea level and seismic networks maps in the NEAM region. Ms Claire Jaffrézic, Tsunami Section intern, has been gathering information from the Tsunami Service Providers (TSPs) about the stations that are operational and contribute to the EWS of the NEAM region.

Ms Claire Jaffrézic informed that the Secretariat has collected updated status of the sea level and seismic stations from NOA (Greece), CENALT (France) and KOERI (Turkey). The goal is to continue gathering the information from the remaining TSPs (INGV, Italy and IPMA, Portugal).

Mr Alessio Piatanesi, Co-Chair of the Task Team on Operations (TT-O), presented a common spatial dataset on forecast point harmonization in the NEAM region. It is an interactive map which includes all the Forecast Points (FPs) of the ICG/NEAMTWS TSPs, and information such as the name of the FP, latitude, longitude, bathymetric depth and association to a sea level station.

Mr Alessandro Amato, queried about the first bulletin recommended in the Global Service Definition document, should it have the threat level indicator included?

Mr Alessio Piatanesi, responded that the first bulletin should be issued within the first minutes of the earthquake event and have information about the earthquake parameters and a generic level of threat. The threat level will be further specified in the following bulletin.

Mr Nikos Kalligeris, enquired how TSPs of other basins deal with the restriction to have a specification of the threat level in the first bulletin, if there is an earthquake near the coast (for which the available warning window is smaller)?

Mr Alessio Piatanesi informed the SC that this is an issue given that in certain cases there is a very short time to alert the population.

Mr Nikos Kalligeris, asked if there is any other basin where TSPs are presently interoperating?

Mr Fernando Carrilho, Co-Chair of the TT-O, provided an example of interoperability in the Indian Ocean, where there is a common web portal with restricted access to National Focal Points, in which all TSPs operating in the region provide a report. Mr Alessio Piatanesi, also informed about a possible case of interoperability between the Pacific Tsunami Warning and Mitigation System (PTWS) and the Alaska Tsunami Warning Centre (WCATWC).

Mr Alessio Piatanesi clarified that the ICG/NEAMTWS is a recipient of public bulletins via GTS, and email communication methods.

Ms Maria Ana Baptista thanked the Task Team on Documentation (TT-Doc) for their proposal to update the current structure and content of the Interim Operational Users Guide (IOUG, 2011) and offered her support to complete this task.

Mr Denis Chang Seng, noted the proposal from TT-Doc to update the IOUG document and added that the Secretariat would be available for support, starting with the upcoming TT-Doc meeting proposed after the SC. In regards to the IOUG content, he advised on including Standard Operating Procedures (SOPs) about non-seismic sources as a key topic of the UN Ocean Decade Tsunami programme.

Mr Stefano Lorito, Co-Chair of the TT-Doc, responded that there are several aspects that are key to the IOUG including non-seismic sources. However, the TT-Doc needs to have a clear idea of the operational standards of these aspects to be able to write what is mandatory and what is intended for the future. For this, the TT-Doc needs to interact and undergo discussions on the operation of the ICG/NEAMTWS with the TT-O.

Mr Alessandro Amato, advised that inter cooperation between TTs and WGs should be a responsibility of the different members and not only of the Chairs / Co-Chairs.

Mr Alejandro Rojas, Tsunami Section Consultant, requested the WGs and TTs Chairs / Co-Chairs to provide the Secretariat with a list of members to update the IOC-Tsunami website contact list of the ICG/NEAMTWS.

Mr Stefano Lorito, advised the Secretariat to disseminate a Circular Letter to update the list of members of the WGs and TTs, given that they are presently outdated.

Mr Denis Chang Seng, noted the proposal to conduct the NEAMWave23 exercise will be in November 2023. He also noted on the possibility to have a triple joint scenario by 3 TSPs, simulating real cases and to find ways to integrate the NEAMWAVe23 exercise with the CoastWAVE Tsunami Ready activities. He also reminded that in preparation to the TOWS-WG-TTDMP-XV, the different ICGs shared experiences and best practices in Wave Tsunami Exercise with the intention to learn and executive common practices in Wave exercise in all regions.

Mr Alessandro Amato and Mr Nikos Kalligeris agree that it is an ambitious and a good idea to link Tsunami Ready implementation with the NEAMWave23 exercise.

Mr Ignacio Aguirre, Co-Chair of the Task Team on Tsunami Ready (TT-TR), informed that the TT-TR will prepare a template to monitor the progress of TR communities in the NEAM region, including those from the CoastWAVE project. The template will be circulated to partners and the Secretariat.

Mr Denis Chang Seng, equally informed that the Secretariat is preparing documents concerning monitoring the progress of TR in the NEAM region. This will help to assess NEAMTWS capabilities across the Tsunami Early Warning System (TEWS). To avoid duplication, this document will also be the monitoring document for the TT on TR.

**Action 2** The ICG/NEAMTWS Task Teams and Working Groups to provide support to complement the NEAM Benchmarking Project (NEAMBP). Including data about the May 2020 South Crete Tsunami event.

**Action 3** Working Group 1 to prepare a guideline on risk application (preparation, mitigation, and evacuation) along with Working Group 4.

**Action 4** The Secretariat to compile the detection system data base and produce an update detection and monitoring map of sea level and seismic network in the NEAM region. The Tsunami Service Providers (INGV and IPMA) to consider providing updated status of the detection and monitoring network to the Secretariat.

**Action 5** Task Team on Operations and Working Group 4 to resolve problems highlighted on the Adoption of Tsunami Threat Level in the NEAM region, in particular concerning threat level 0.

**Action 6** The ICG/NEAMTWS Task Team on Documentation with the support of other Working Groups and Task Teams to update the current structure and content of the Interim Operational Users Guide (IOUG, 2011).

**Action 7** Task Team on Documentation and Task Team on Operations to organize a meeting on defining the operational standards of the ICG/NEAMTWS for the update of the IOUG document.

**Action 8** The Secretariat to invite Member States to submit list of members of the ICG/NEAMTWS Task Teams and Working Groups.

**Action 9** The Secretariat with the support of the Task Team on Tsunami Ready to prepare a template to monitor the progress of tsunami ready communities in the NEAM region.

**Action 10** TheSteering Committee toprepare a list with examples of TSPs in other basins interoperating. The list will serve as a reference to the ICG/NEAMTWS in terms of the preparation of a future web portal / platform for the interoperability of TSPs in the region.

1. **UPDATE OF IOC-UNESCO AND EU DG-ECHO, NEAMTWS COASTWAVE PROJECT**

Ms Derya Venin, new IOC-UNESCO Associate Project Officer, [reported](https://oceanexpert.org/event/3418#agenda) on the progress of the joint UNESCO and European Union (EU) Directorate-General for European Civil Protection and Humanitarian Aid Operations (DG ECHO), CoastWAVE Project. One of the main objectives of the project is to have seven Tsunami Ready recognized communities in the NEAM region by the end of 2023.

The Secretariat met on 5 and 13 April, 2022 with members of the TT-TR, WG4 and National Focal Points of CoastWAVE Member States to discuss the preparation and organization of a Coastal Multi-Hazard and Risk Perception Survey. The Secretariat is planning to have a meeting in June - July 2022 to discuss the adoption and dissemination of the Manuals and Guides (MG) 74, Tsunami Ready Guidelines in the NEAM region. In addition, the Secretariat has discussed the procurement and delivery of essential spare parts and maintenance tools of the Inexpensive Device for Sea Level Measurement (IDSL) with the European Commission (EC) Joint Research Centre (JRC) and operators in selected NEAMTWS Member States. The Secretariat has received six technical and financial proposals from CoastWAVE Member States for the implementation of the project. Presently, they have been approved by the IOC-UNESCO and are in the process of validation for Implementation Partner Agreements (IPA).

The next steps of the CoastWAVE project implementation are to: finalize discussions on IPA; distribute a final version of the Coastal Multi-Hazard and Risk Perception Survey questionnaire; to familiarize the existing Tsunami Ready Guidelines in the NEAM region; to create Request For Quotations (RFQs) for IDSL stations and open call for Tsunami Alert Devices (TADs); and to organize a side event in the kick off African Conference on Priority Setting and Partnership Development for the UN Ocean Decade.

Mr Nikos Kalligeris advised to have a discussion about the Tsunami Ready Guidelines involving a description of the twelve indicators, from language structure to what needs to be developed in detail.

Mr Denis Chang Seng, informed that each (ICG) will need to implement TR according to the latest version of the MG 74 document. He also expressed delight at the improved synergy in the NEAM region of the ICG/NEAMTWS Secretariat with key partners including the University of Malta, and the Chouaib Doukkali University, El Jadida, Morocco, among others.

Mr Denis Chang Seng, Ms Claire Jaffrézic, and Mr Alejandro Rojas, IOC-UNESCO Tsunami Section, provided a [report](https://oceanexpert.org/event/3418#agenda) of the review of the Coastal Multi-Hazard and Risk Perception Survey questionnaire and workshop which took place on 5 April 2022. Mr Denis Chang Seng, informed that the survey seeks to contribute to better understanding of sea level related hazards, and risks and how it will help be useful in communication strategies as well as the implementation of TR in the NEAM region and CoastWAVE project countries. It is also a part of component 1 and activities 4, 5, and 6 of the CoastWAVE Project framework. The workshop was intended to present and review the updated survey questionnaire, and to propose methods on how best to carry out the survey in selected project countries.

Ms Claire Jaffrézic added that the review of the survey by the Secretariat, the TT-R and WG4 helped to reduce the number of questions and improve the questionnaire in terms of organization, language, usefulness of questions and their relationship to different social sectors. The survey targets 5 societal sectors including the General Public, Tourism, Education, Emergency Respondents, and Children under 14 years old. The survey is divided into five sections including Personal Information; Awareness and knowledge; Exposure and Sense of Exposure; Assessment, Preparedness and Response; and Governance.

Mr Alejandro Rojas, presented the online survey questionnaire method to be implemented with the software Alchemer. He highlighted that Alchemer has specific logic and validation features that allows the survey questions to be modified according to Member States and societal sector specifications. He informed that the online survey will be available to respondents in the native language of the selected CoastWAVE Member States including a French, Spanish, and Arabic translation provided by the UNESCO office. In addition, Alchemer provides different administrative features including the ability to provide statistical (pie charts, percentages) reports of the answers as excel, pdf or word files. Features also allow to filter the responses of the questionnaire according to the choices made by a selected member state or societal sector. Last but not least, Alchemer allows to export individual response forms for compilation purposes as pdf files.

Ms Maria Ana Baptista, recommended to have the survey translated to the native language of all the Member States.

Mr Alejandro Rojas, reminded that the UNESCO office will provide full translations in French, Spanish and Arabic. For any other language, another mechanism of translation needs to be explored and defined.

Mr Alessandro Amato, informed that Italy would like to be one of the selected countries to benefit from the survey. He noted that Italy will provide its own translation to the questionnaire. In addition, he expressed a concern about the uncertainty of the statistical parameters in the online questionnaire. Is there a tool to make the statistic less robust, or to control the quality standards of the responses?

Mr Alejandro Rojas, answered that distinctions can be made between those forms that have been fully completed in comparison to those that were partially completed. This could be one method to control quality standards.

Mr Alessandro Amato, informed that in the risk perception survey study done in Italy, they used the Computer Assisted Telephone Interviewing (CATI) technique, to be able to target a specific group of people and consequently have a better control of the quality standards of the responses. However, the technique comes with an economical cost and the sample size of respondents is lower.

Mr Denis Chang Seng, expressed that the intention is to target a group representative of a societal sector, e.g. Teachers and students from schools located in vulnerable coastal communities, and to obtain a comprehensive sample size of respondents. The Secretariat will be looking at ways to reduce the uncertainty level of the survey responses.

**Action 11** The Task Team on Tsunami Ready to create a cross-country collaboration group to share documents, achievements and best practices on Tsunami Ready implementation in the NEAM region.

**Action 12** The IOC-UNESCO office to provide a full translation of the Coastal Multi-Hazard and Risk Perception Survey in French, Spanish, and Arabic after receiving feedbacks from project countries in May.

**Action 13** The Secretariat is planning to organize a workshop in June - July 2022, to discuss and familiarise ICG/NEAMTWS Member States with the Tsunami Ready Guidelines and tools, Manual and Guides 74 document.

**Day 2**

The second day of the SC was chaired by Mr Costas Synolakis, Vice-Chair of the ICG/NEAMTWS, as Ms Maria Ana Baptista could not attend.

1. **BRIEF UPDATE FROM TSPs / CPAs**

*IPMA*

Mr Fernando Carrilho, [reported](https://oceanexpert.org/event/3418#agenda) on IPMA’s activities since the ICG/NEAMTWS XVII Session. The sea level station monitoring capabilities of IPMA are lacking real time operational tide gauge measurements in the North West African coast specifically the coasts of Morocco. IPMA runs a few IDSL stations developed by JRC, but it is planning to replace the network system by one that is being developed in Portugal. One station is about to become operational in Albufeira, Portugal and there are plans to install 5 additional stations.

For the analysis of tsunami information in IPMA, there is a Tsunami Analysis And Report (TAAR) platform, composed of three levels of analytical interest: 1. Testing Purposes; 2. Exercise Mode; 3. Real Events and Communication Tests. Analysts have access to information regarding expected tsunami arrival times, alert level, and scenario data base comparisons.

IPMA is following closely the new submarine cable ring connecting Portugal Mainland-Azores-Madeira opportunity for a SMART system (SMART CAM). The project has been in the general budget of the state for 2022. In addition, IPMA is looking at the opportunity to be one of the countries that will support and benefit from the submarine cable – MEDUSA Smart system. The cable plans to connect Lisbon-Gibraltar-Barcelona-Marseille-Sicily-Crete-with branches to North Africa (9 countries; possible +2 in Turkey and Libya). The project relies on international coordination efforts to support the SMART component of the system.

Mr Denis Chang Seng, queried if there has been an improvement in the sea level monitoring system in Portugal for the last two years and if PMA intends to increase its number of subscribers in this particular region, following TOWS WG decision to extend the coverage in the Atlantic Ocean?

Mr Fernando Carrilho, responded that most of the sea level monitoring improvements in Portugal occurred during the period when IPMA became operational and an accredited Tsunami Service Provider in 2019. He also recalled that there are a few tide gauge sea level stations that have been installed in Mauritania (1) and Senegal (1), but agreed that there is a global concern about the tsunami monitoring capabilities of West Coast African Member States and efforts should be done to address this gap.

*CENALT*

Ms Hélène Hébert, ICG/NEAMTWS representative for the TOWS-WG-TTTWO, [reported](https://oceanexpert.org/event/3418#agenda) on CENALT’s activities since the ICG/NEAMTWS XVII Session. The French Tide Gauge Network (RONIM), a partner of CENALT at the national level, is undergoing a network update with major improvements including the replacement of data-loggers and transmissions systems, installation of new sensors, better assessment of real time recording and transmission issues, and an improvement of the network reliability. The network update is being monitored for scientific purposes including the CENALT’s tsunami monitoring system, and the goal of RONIM is to finalize the update by mid-2022.

CENALT recorded a magnitude 6 earthquake event on 18 March, 2021 which took place in North Algeria. This is the first tsunami ever recorded by CENALT since it became operational. The event caused a sea level rise of 5 – 10 centimeter in height in France.

CENALT has a close interaction and working group with the French Civil Protection Agency to implement Common Alerting Protocol (CAP) messages dissemination (via SMS) to local authorities. Presently, the platform to disseminate the CAP messages is being developed.

CENALT is following the initiative on SMART cables, project MEDUSA. Presently, there are not many tide gauge stations available in the North African Coast, and this project would represent a good opportunity to obtain information about the first tsunami motion and full wave available, for a scenario near the North African coast.

A scientific workshop will be organized to celebrate the 10 year anniversary of CENALT on 29-30 September, 2022.

Mr Costas Synolakis, enquired if the scientific workshop organized by CENALT will be attended specifically by the French scientific community.

Ms Hélène Hébert, responded that CENALT is looking to invite and have participants from the French scientific community, the ICG/NEAMTWS, and other scientific partners from the region. CENALT will circulate an invitation to this event in the upcoming weeks/months.

Mr Nikos Kalligeris, queried about the time frame from which Cannes, France has been working to become Tsunami Ready recognized.

Ms Hélène Hébert, answered that it has taken Cannes approximately 2-4 years to arrive to the present status of Tsunami Ready implementation. In addition, there is a strong reliability on very motivated stakeholders from a local level.

*INGV*

Mr Alessandro Amato, [reported](https://oceanexpert.org/event/3418#agenda) on INGV’s activities since the ICG/NEAMTWS XVII Session. New Standard Operating Procedures have been done and approved by the INGV CdA in December 2021. Through the National Plan of Recovery and Resilience, INGV has submitted a proposal with other national institutions such as the Istituto Superiore per la Protezione  
e la Ricerca Ambientale (ISPRA), for an improvement of the national sea monitoring system, including 10 new generation Tide-Gauge stations – pending approval for funding.

INGV has published a Probabilistic Tsunami Forecast (PTF) article, and is presently testing the procedure. There is an ongoing review of the procedure by the INGV scientific committee through an international panel and the national civil protection department. INGV will ask for a review by other TSPs for the operational aspects and asks for validation.

A Tsunami Risk Perception study has been carried out, currently the analysis of the national data is in progress after surveys were conducted in two schools, including the participation of Civil Protection volunteers. INGV will repeat the survey in the next two months.

The Italian Civil Protection has tested the Cell Broadcast System for sending messages to the population (IT-ALERT) system. The system worked but there is criticism on the safety of the technological infrastructure, the framework on the public early warning system and governance of the system. It is not ready to be operational yet due to the very short time of response.

Mr Nikos Kalligeris, queried about the testing of the operational PTF procedure. Is there going to be a reduction in the number of possible fault plain parameters? In regards to the IT-ALERT system, is this a phone application or will an alert reach a cell phone within a certain area range?

Mr Alessandro Amato, responded that the IT-ALERT is a forecast system, not an application. The alert is received through a specific cell phone connection channel. Presently, there is a need to improve the content and length of the messages to prevent public confusion.

Mr Stefano Lorito, answered on the PTF procedure that the sources remain the same and are pre-computed linear combinations.

Ms Hélène Hébert, advised that it is very important to have a development in SMART cables in the Mediterranean Sea. She asked if Italy is following up and has the intention to ask for funding to support SMART cable implementations in the region.

Mr Alessandro Amato, responded that through the National Plan of Recovery and Resilience funds could be potentially provided. INGV is in contact with the European Multidisciplinary Seafloor and water column Observatory (EMSO) Regional Faculty, which is installing submarine cables and observatories on the western Ionian Sea. INGV is open for proposals to support Smart cable implementation.

Ms Hélène Hébert, expressed that it is also key to involve other TSPs such as KOERI and NOA in the development of SMART cables.

Mr Denis Chang Seng, expressed that the possibility to improve the national sea monitoring system in Italy aligns with the strategic objectives of not only the tsunami section but also the Global Ocean Observing System (GOOS) section of IOC-UNESCO. He noted the possibility of IOC-UNESCO to follow the recommendation to take phone (CATI) interviews for the Coastal Multi-Hazard Risk Perception study. Additionally, he proposed the Steering Committee consider having an integrated mapping tool or platform to assess NEAMTWS capabilities across TEWS and be able to track the evolution of the system over time.

Mr Alessandro Amato, advised that the common spatial dataset on forecast point harmonization in the NEAM region, developed by the TT-O is a good starting point to further develop this concept. In regards to the validation of the PTF procedure, he advised that there should always be a discussion among TSPs every time there is a modification in a procedure and before it is put back in operation.

*NOA-HL-NTWC*

Mr Nikos Kalligeris, [reported](https://oceanexpert.org/event/3418#agenda) on NOA-HL-NTWC activities since the ICG/NEAMTWS XVII Session. National Tsunami Warning Messages (TWMs) have been finalized in cooperation with the Greek national CPA. Greek Forecast points were also updated, but not used operationally yet. The operational updates will be shared with the Secretariat and the TT-O in due time.

NOA is a member of the Aristolte-eENHSP consortium which provides services to the EC Emergency Response Coordination Centre (ERCC). NOA will participate in the Geo-INQUIRE project with the goal to provide enhanced access to geophysical products and services to improve monitoring of the dynamic processes taking place in the geosphere. In addition, NOA will have an active role in the integration of the EPOS Tsunami Thematic Core Service.

NOA published a manuscript about the 2 May 2020 South Crete Mw 6.6 Earthquake and Tsunami. The field data will be shared with WG1 for the development of the NEAM Benchmarking Project (NEAMBP).

*KOERI*

Ms Didem Cambaz, Co-Chair of WG2/3, [reported](https://oceanexpert.org/event/3418#agenda) on KOERI activities since the ICG/NEAMTWS XVII Session. She reported that KOERI is operating 22 Sea level Tide Gauge Stations. KOERI performs communication tests with the National CPA and with the TSPs, in the first Monday and Tuesday of each month, respectively.

KOERI also conducts scenario based daily test of the operational system using TsuComp, including testing of the access to the sea-level data. The TsuComp software has been used in operations to send tsunami messages since 1 January 2018. Presently, KOERI is making improvements in the software to better visualise sea level measurements.

KOERI participates in the Aristolte-eENHSP consortium, and the EPOS Tsunami Thematic Core Service. There has been a change in the responsible Duty Officers of Turkey including the election of Ms Didem Cambaz as (Primary Tsunami National Contact (TNC) and KOERI TSP representative), and Mr Ahmet Yalciner as (Secondary TNC).

Mr Denis Chang Seng, expressed a concern about the reliance of NEAMTWS TSPs on email communication in case of possible loss of internet access during a major earthquake and tsunami event. How will the ICG/NEAMTWS confront this likely challenge given the high success rate of using email tsunami alert dissemination messages?

Mr Costas Synolakis, agrees that it is a big concern that internet access could hinder the dissemination of tsunami alert messages during a time of emergency. This is an important theme of discussion that needs to be addressed for solutions.

**Action 14** The ICG/NEAMTWS Secretariat to develop an integrated mapping tool or platform to assess NEAMTWS capabilities across TEWS.

1. **DECADE TSUNAMI PROGRAMME AND IOC-UNESCO TSUNAMI READY RECOGNITION PROGRAMME**

Ms Cecilia Valbonesi, Chair of WG4, [reported](https://oceanexpert.org/event/3418#agenda) on the Decade Tsunami Programme and the IOC-UNESCO Tsunami Ready Recognition Programme. At the TOWS-WG-XV, Ms Laura Kong, Director of the International Tsunami Information Centre (ITIC), introduced a document on Tsunami Ready Programme for TT-DMP discussion and approval for recommendation, to be endorsed by IOC at its next Governing meeting in June 2022. The intent is to transition from a Pilot to a Programme. The document presents the main features of the Tsunami Ready Programme (i.e. aim, planning, promotion, scientific and technical guidance, standard setting, etc).

There are new projects in each ICG. For example, the Intergovernmental Coordination Group for the Indian Ocean Tsunami Warning and Mitigation System (ICG/IOTWMS) reported the United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP) TTF-29 – Phase 2 and the Indian Ocean Tsunami Information Centre (IOTIC) - Meteorology, Climatology, and Geophysical Agency (BMKG) Programme plans to develop a UNESCO-IOC Tsunami Ready recognition online application. The IOCARIBE-led UN Decade Actions for the Intergovernmental Coordination Group for the Tsunami and Other Coastal Hazards Warning System for the Caribbean and Adjacent Regions (ICG/CARIBE-EWS) reported two new projects, the TAC-OOS and the iCHEWS TAC, from which in the later, a total of 34 Member States and Territories in the region will benefit from. The Intergovernmental Coordination Group for the Pacific Tsunami Warning and Mitigation System (ICG/PTWS) announced that it has received funding from the US to implement Tsunami Ready in the Republic of Marshall Islands, Federated States of Micronesia, Palau and Fiji.

The progress and plans of the UN Ocean Decade Tsunami Programme Scientific Committee and the Tsunami Ready Coalition were also reported at the TOWS-WG-XV. The ToRs of the Scientific Committee, the appointed members, and a time line to prepare the 10-Year Research, Development and Implementation Plan for the Ocean Decade Tsunami Programme were presented. The Tsunami Ready Coalition mandate, goals, objectives, composition and challenges were discussed and reported from a meeting of the TT-DMP that took place in October 2021.

1. **IOC-UNESCO TSUNAMI READY TOOLS**

Mr Denis Chang Seng, [reported](https://oceanexpert.org/event/3418#agenda) on the Tsunami Ready Tools that were presented at the TOWS-WG-TTDMP-XV. The MG 74 on Standard Guidelines for the Tsunami Ready Recognition Programme and the Tsunami Ready Logo have gone through a series of revisions and updates. The MG74 document is being processed by an IOC-UNESCO Assistant Publication Officer for finalization before publication. Municipalities that started the accreditation procedure using the previous scheme of TR indicators should update it to the new one if they apply for accreditation, after the approval of the new guidelines.

The TOWS-WG requested that only communities that have received recognition of TR can have automatic approval for the use of the TR logo in its official products and documents for the duration of their TR status. If there has been not recognition status approved yet, any other entities (including National TR Boards) must request approval from IOC-UNESCO Secretariat to use the TR Logo. The TOWS-WG further requested the automatic approval for the usage of the logo by Tsunami Ready communities be informed by the IOC Secretariat in the Tsunami Ready designation letter with regards to MG 74.

The Tsunami Ready Map Viewer is driven by a populated Excel data spreadsheet. The map is completed and it is currently being reviewed by UNESCO Public Relations. The Tsunami Ready website ([www.tsunamiready.org](http://www.tsunamiready.org)), hosted by ITIC, contains information about the Programme, easy links to the Tsunami Ready Map Viewer and an information page on each community that has been recognized as IOC-UNESCO Tsunami Ready. Presently, there are 28 Tsunami Ready Recognized communities globally. Last but not least, IOTIC presented a Tsunami Ready Board Game and Animation Video Series as part of the Tsunami Ready Communication Tools.

Mr Alessandro Amato, queried if the most recent update of the MG74 document has been published. In addition, he asked if the Tsunami Ready website stores documentation of already recognized Tsunami Ready communities or if it also contains documents from communities in the process of TR implementation?

Mr Denis Chang Seng, informed that the MG74 is close to being published. He added that once the new version of the document is published, Member States will have to submit a letter informing the Secretariat that they are joining the implementation process to become Tsunami Ready Recognized. This information will be shared to Member States through an email after the conclusion of the SC meeting. Documents showcasing the progress on TR implementation may be uploaded in the Tsunami Ready website only after this procedure has been completed.

Mr Nikos Kalligeris, enquired if Member States will have to follow the new Tsunami Ready guidelines or if they can continue implementation from the previous guidelines? He also recommended that products and tools be translated to the native language of Member States for better dissemination of information and implementation of the activities (e.g. complete translation of Tsunami Ready Board Game, etc).

Mr Denis Chang Seng, reminded that Member States will have to follow the most recent version of the Tsunami Ready Guidelines, once the document is published and if a community has not been TR recognized yet. In addition, he informed that the June - July Workshop on Tsunami Ready Recognition Programme, TR Standards and Guidelines and other Supporting Materials and Tools will involve the ICG Member States and not only the selected CoastWAVE project countries.

Mr Costas Synolakis, expressed excitement at the new Tsunami Ready Board Game and suggested an improved marketing strategy to sell and promote the tool.

**Action 15** Unpack and translate tsunami ready tools such as the Tsunami Ready Board Game into the native language of NEAM Member States, and explore marketing strategies.

1. **NON-SEISMIC TSUNAMIS AND LOCAL SOURCE SOP**

Ms Hélène Hébert, reported on Non-Seismic Tsunamis and Local Source SOPs discussion and recommendations provided at the TOWS-WG-XV. There are at least 100 volcanoes with the potential to generate tsunamis. The recent Hunga-Tonga Hunga Ha‘apai (HTHH) volcanic eruption and tsunami event has highlighted the urgency to undertake further work.

At the TOWS-WG-XV, Mr Mohammad Mokhtari, Director of National Center for Earthquake Prediction Iran, recommended from experiences in the Northwest Indian Ocean that work needs to be undertaken to better understand the generation of tsunamis from splay faulting and submarine landslides, which can also add to and worsen the magnitude of any more subduction zone generated tsunamis. Meteo-tsunamis have also been observed in the Persian Gulf.

About local source (SOPs), the ICG/PTWS released Version 1 of its Local-Source Tsunami Response Best Practice (ICG/PTWS-XXVIII, 2019), for use by ICG/PTWS Member States.  The document focused on response to earthquake-generated tsunamis and their natural tsunami warnings and emphasized self-evacuation and public awareness and education. In the aftermath of the January Tonga volcanic eruption and tsunami, the ICG/PTWS, with the TSP PTWC and advised by an ad Hoc Hunga-Tonga Hunga Ha’apai Task Team, is urgently implementing as a best-endeavors effort Interim volcano tsunami procedures, with training, for the HTHH volcano .

The ICG/IOTWMS has a Task Team on Tsunami Preparedness for a Near-Field Tsunami Hazard. Also due to the near-field threat of tsunamis in the Northwest Indian Ocean due to the Makran Source Zone (MSZ), the UNESCAP funded project “Strengthening Tsunami Warning in the North West Indian Ocean” is helping Member States in the region to develop national tsunami warning chains with well-developed SOPs. It has been recommended that the Global Service Definition Document (GSDD) be updated on forecast techniques, public bulletins and products, procedure for reporting of estimated and observed sea levels, and earthquake parameters. Furthermore, a new chapter on ‘Interim Hunga Tonga Hunga Ha’apai Warning System’ was proposed.

1. **WORLD TSUNAMI AWARENESS DAY 2022**

Mr Denis Chang Seng, reported on the planning of World Tsunami Awareness Day (WTAD) 2022. In 2021, the UNDRR changed the communications officer that supports WTAD activities with IOC-UNESCO. The new officer, Ms Rosalind Cook. She provided a report of WTAD 2021 and planning for 2022 during the TOWS-WG-TTDMP-XV and TOWS-WG-XV. The new theme for WTAD 2022 will highlight the Sendai Framework global target G to, “*Substantially increase the availability of and access to multi-hazard early warning systems and disaster risk information and assessments to the people by 2030”,* and align with the TOWS-WG in the context of the UN Ocean Decade. She emphasised to continue a strong collaboration between UNDRR and IOC-UNESCO for the commemoration of WTAD.

After the TOWS-WG-XV, the IOC-UNESCO Tsunami Section, discussed the preparation of a concept note and strategy for WTAD. The WTAD will continue with routine communication and outreach events, e.g. short videos on WTAD. The ICG/NEAMTWS Secretariat will ask Member States to provide proposals to create a maximum of 2 videos of approximately 2 minutes long for WTAD 2022. One key theme to capture is the 10th year anniversary since TSPs became operational in the NEAM region.

IOC-UNESCO is discussing with the UNDRR about conducting a side event at the UN Ocean Conference in Lisbon. Mr Bernardo Aliaga, Head of Tsunami Section, is preparing a draft of the side event which will be submitted by the UNDRR. The side event will take a similar approach to the event organized during the UN Ocean Decade Safe Ocean Laboratory activity on 7 April, 2022, but it will focus on WTAD and TR. There is an interest to invite the highest officers in IOC-UNESCO, UNDRR and National Ministers.

**Action 16** The ICG/NEAMTWS Secretariat in partnership with the UNDRR to produce a maximum of 2 videos about Tsunami Ready in NEAM Member States for the commemoration of World Tsunami Awareness Day 2022

1. **NEXT TSUNAMI SYMPOSIUM AND OTHER RELEVANT MEETINGS**

Mr Marinos Charalampakis, ICG/NEAMTWS representative for the TOWS-WG-TTDMP, [reported](https://oceanexpert.org/event/3418#agenda) on the next Tsunami Symposium and other relevant meetings. The Tsunami Symposium, aims to examine lessons learnt from past events and recent efforts in further developing tsunami warning and mitigation systems to enable enhanced community responses. Future needs and suggested developments will contribute to the following areas: (i) Detection and Warning; (ii) Emergency Management; (iii) Community Awareness and Preparedness; (iv) National Initiatives; and (v) International Initiatives.

The TOWS-WG-TT DMP nominatedMs Harkunti Rahayu, Bandung Institute of Technology Indonesia, as a co-chair of the Tsunami Symposium Organizing Committee. The ITIC suggested that the Tsunami Information Centres (TICs) be included as part of the Organizing Committee on behalf of ICG Member States, and this was endorsed by the TT-DMP Chair and TT-DMP nominated Co-Chair to the Symposium. The task team also recommended that the Symposium Organizing Committee include representatives of the International Scientific Organizations, e.g. The EC JRC, the International Union of Geodesy and Geophysics - Joint Tsunami Commission (IUGG-JTC), and other relevant bodies such as WMO and UNDRR.

Other relevant meetings included the UN Ocean Decade Safe Ocean Laboratory (5-7 April 2022). The topics discussed included the SMART Subsea Cables contribution to a safer ocean, the TR recognition programme, and further challenges to the Tsunami Warning System with focus on non-seismic tsunami sources including volcanic, land-slides, and meteo-tsunamis. The Second World Conference on Meteo-Tsunamis will take place in Menorca, Spain from 18-20 May 2022. It aims to deepen, extend and share knowledge on scientific, technical and societal aspects of meteo-tsunamis.

Mr Denis Chang Seng, informed that there is an interest from the EC JRC to support discussions and co-design on meteo-tsunamis session at the next Symposium. This will be discussed within the Symposium Organizing Committee.

1. **UPDATE ON PREPARATIONS FOR NEXT ICG/NEAMTWS**

Mr Alessandro Amato, provided an update on the proposal to host the ICG/NEAMTWS XVIII Session in the city of Erice, Italy. He informed that the Secretary of the Ettore Majorana Foundation and Centre for Scientific Culture has been contacted to discuss the possibility of hosting the meeting in this location. It is an easily reached location, on top of a rocky mountain by the western Sicily Trapani. Airport transport is provided from Palermo to this location.

He proposed a 5 day meeting, 2 days to discuss the ICG/NEAMTWS XVIII Session and an extra 2 days to discuss Tsunami Science, inviting in the process the AGITHAR community, among others. The Ettore Majorana Centre is only available from the 5 – 10 December 2022 or later dates. There is a full cost per person of approximately 150 Euros per day including transportation, lodging, and meals.

Mr Costas Synolakis, reminded that the proposed dates to have the ICG/NEAMTWS XVIII Session are close to the American Geophysical Union (AGU) which will take place from the 12-16 December 2022, and therefore this proposal needs to be studied more carefully.

Mr Alessandro Amato, informed that there are no other booking dates available.

**Action 17** Agree on a date to host the ICG/NEAMTWS XVIII Session in Erice, Italy.

1. **ANY OTHER BUSINESS**

Mr Costas Synolakis, reminded that there is a need to engage in future discussion about the dissemination of alert messages in circumstances of limited internet access.

Mr Denis Chang Seng, highlighted the importance of staying up to date with TOWS-WG developments and encouraged ICG/NEAMTWS members to continue the support of such activities especially now that two new Ad Hoc Teams have been created on Meteo-tsunamis and Tsunamis Generated by Volcanoes.

1. **CLOSURE**

Mr Costas Synolakis thanked everyone for the great work and effort that has been done in the previous months and congratulated everyone for a successful SC meeting. He then closed the meeting as scheduled.

**ANNEX I**

**ICG/NEAMTWS SC ACTIONS**

**Action 1** The Secretariat encourages active support where possible of the ICG/NEAMTWS Task Teams and Working Groups in the preparation and contribution to ICGs participation in important events including GP2022, the kick off African Conference on Priority Setting and Partnership Development for the UN Decade of Ocean Science for Sustainable Development, and the 2022 UN Ocean Conference.

**Action 2** The ICG/NEAMTWS Task Teams and Working Groups to provide support to complement the NEAM Benchmarking Project (NEAMBP). Including data about the May 2020 South Crete Tsunami event.

**Action 3** Working Group 1 to prepare a guideline on risk application (preparation, mitigation, and evacuation) along with Working Group 4.

**Action 4** The Secretariat to compile the detection system data base and produce an update detection and monitoring map of sea level and seismic network in the NEAM region. The Tsunami Service Providers (INGV and IPMA) to consider providing updated status of the detection and monitoring network to the Secretariat.

**Action 5** Task Team on Operations and Working Group 4 to resolve problems highlighted on the Adoption of Tsunami Threat Level in the NEAM region, in particular concerning threat level 0.

**Action 6** The ICG/NEAMTWS Task Team on Documentation with the support of other Working Groups and Task Teams to update the current structure and content of the Interim Operational Users Guide (IOUG, 2011).

**Action 7** Task Team on Documentation and Task Team on Operations to organize a meeting on defining the operational standards of the ICG/NEAMTWS for the update of the IOUG document.

**Action 8** The Secretariat to invite Member States to submit list of members of the ICG/NEAMTWS Task Teams and Working Groups.

**Action 9** The Secretariat with the support of the Task Team on Tsunami Ready to prepare a template to monitor the progress of tsunami ready communities in the NEAM region.

**Action 10** TheSteering Committee toprepare a list with examples of TSPs in other basins interoperating. The list will serve as a reference to the ICG/NEAMTWS in terms of the preparation of a future web portal / platform for the interoperability of TSPs in the region.

**Action 11** The Task Team on Tsunami Ready to create a cross-country collaboration group to share documents, achievements and best practices on Tsunami Ready implementation in the NEAM region.

**Action 12** The IOC-UNESCO office to provide a full translation of the Coastal Multi-Hazard and Risk Perception Survey in French, Spanish, and Arabic after receiving feedbacks from project countries in May.

**Action 13** The Secretariat is planning to organize a workshop in June - July 2022, to discuss and familiarise ICG/NEAMTWS Member States with the Tsunami Ready Guidelines and tools, Manual and Guides 74 document.

**Action 14** The ICG/NEAMTWS Secretariat to develop an integrated mapping tool or platform to assess NEAMTWS capabilities across TEWS.

**Action 15** Unpack and translate tsunami ready tools such as the Tsunami Ready Board Game into the native language of NEAM Member States, and explore marketing strategies.

**Action 16** The ICG/NEAMTWS Secretariat in partnership with the UNDRR to produce a maximum of 2 videos about Tsunami Ready in NEAM Member States for the commemoration of World Tsunami Awareness Day 2022

**Action 17** Agree on a date to host the ICG/NEAMTWS XVIII Session in Erice, Italy.

**ANNEX II**

**Working Groups and Task Teams Plan of Actions for 2022**

**Working Group 1: Hazard Assessment and Modelling**

**Plan of Action for 2022**

**CO-CHAIRS :** Audrey Gailler (CEA, France), Mauricio Gonzalez (IH-Cantabria, Spain)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Task/Action** | **Timeline** | **Responsibility** | **Time Frame** | **Status1** | **Priority** |
| Update of WG1 TOR for a future Hazards and Risk WG | NEAMTWS-XVII | WG Chairs/ SC | All intersessional period | O | high |
| Discuss methodologies for defining the inundation maps (availablility and understanding for stakeholders) | NEAMTWS-XVII | WG1 + WG4 | All intersessional period | N | high |
| Elaborate on Cancellation policies and local vs. remote tsunami SOPs | NEAMTWS-XVII | WG1+TT OP + WG4 | All intersessional period | O | medium |
| Review on gaps for hazard and risk assessment | NEAMTWS-XVII | WG1 Chairs + Cost Action | All intersessional period | N | medium |
| Classical numerical benchmarking for the NEAM region (1969 Atlantic event and 2003 Algerian event) | NEAMTWS-XVII/XVIII | WG1 Participants + Cost Action | All intersessional period | N | medium |
| PTHA components benchmarking (comparison of results provided by different rapid forecasting approaches based on empirical amplification laws) | ? | WG 1 Participants + Cost Action | All intersessional period | N | low |
| Provision of data for benchmarking (seismic parameters, topo-bathymetry, sea level data, run-up....) of a Greek event | NEAMTWS-XVII/XVIII | Greece? | All intersessional period | O | medium |

1 Notes: – Status: N – New, O – Ongoing

**Working Group 2 and 3: Seismic, Geophysical & Sea Level Measurements:**

**Plan of Action for 2022**

**CO-CHAIRS :** Anna von Gyldenfeldt (Federal Maritime and Hydrographic Agency / Germany),

Musavver Didem Cambaz (Kandilli Observatory and Earthquake Research Institute / Turkey

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Strategic Area** | **Activity** | **Target / Result Indicators** | **Time Frame** | **Responsible Per / Ins** |
| **Working Group 2 and 3: Seismic, Geophysical & Sea Level Measurements**  Anna von Gyldenfeldt (BSH, Germany) &  Musavver Didem Cambaz (KOERI, Turkey) | a) Identify reference contacts for Seismic, Geophysical & Sea Level networks, to be included in the sensor data-bases, in order to facilitate bilateral agreements (persons not neccesarily included in the list of experts). | IOC Circular Letter | 2022 | WG 2+3 / IOC Secretariat |
| b) Continue the evaluation of ocean bottom instruments,the progress of MS in the instalation of offshore facilities and their possible inclusion in the operations of the TSPs. | Report to ICG | Ongoing | WG 2+3 |
| c) Maintain and strengthen cooperation with EC-JRC in providing real time data for the NEAMTWS. | Report to ICG and update relevant list | Ongoing | WG 2+3 / JRC |
| d) Provide a list and/or identify online repositories of possible sea level stations by following developments in the EuroSea Project. | Update list and compile online resources | 2022 | WG 2+3 |
| e) Promotion of possible cooperation(s), with EuroGOOS Task Teams, like the one on HF radars for possible tsunami detection. | Report to ICG | Ongoing | WG 2+3 |
| f) Participation of WG2+3 co-chairs to meetings and the Steering Committee report progress to the ICG/NEAMTWS. | 1. Co-Chairs meetings.  2. Participation in SC 2022.  3. Progress report to ICG/NEAMTWS. | 2022 | WG 2+3 |
| g) Explore together with WG4, possibilities of conveying useful information of WG2+3 work content through NEAMTIC (to be confirmed with the WG4 Co-Chairs at the next Steering Committee meeting). | Report to ICG | 2022 | WG 2+3 / WG 4 |

**Working Group 4: Public Awareness, Preparedness and Mitigation**

**Plan of Action for 2022**

**CHAIR:** Cecilia Valbonesi (University of Florence, Italy)

| **Strategic Area** | **Objectives** | **Activity** | **Target / Result Indicators** | **Time Frame** | **Responsible Per/ Inst** |
| --- | --- | --- | --- | --- | --- |
| Working Group 4: Public Awareness, Preparedness and Mitigation | Promote community preparedness and initiatives at national level and in the framework of international projects, fostering synergies whenever possible and appropriate | Assessment of the tsunami risk perception in NEAM region | An online roundtable on ongoing studies in different Countries | All intersessional period | Cecilia Valbonesi  In cooperation with Secretariat |
| Interact with the TT on Tsunami Ready, with focus on: | - Participate in Tsunami Ready TT meetings  - Workshop on methodologies to define inundation areas and how to communicate to local stakeholders; in cooperation with WG1  - Promote discussion on alert dissemination methodologies;  -Webinar to enhance the development of TR in NEAM region and gain experience by interacting with experts from other ICGs | All intersessional period | Cecilia Valbonesi  In cooperation with  TT on Tsunami Ready  and  Secretariat |
| Encourage and support the development of the downstream (Preparedness and Response) component of the ICG/NEAMTWS programme | Evaluation of and discussion on legal implications of piloting Tsunami Ready-like initiatives in some test Countries of the NEAM region | Share the study on the impact of TR guidelines on the responsibilities of the local and the national TR board members.  Study on the UNESCO’s role in the recognition of a municipality as TR. | -All intersessional period | Cecilia Valbonesi  In cooperation with  TT on Tsunami Ready |
| Improving information and experience exchange on tsunami risk and disaster management within NEAM region | Involvment of TSPs and NTWCs in keeping the NEAMTIC website updated and to enriching its content. | Periodic contibutions from TSPs and NTWCs on recent events, historical anniversaries, published papers, drills, exercises, projects etc. | -All intersessional period | Cecilia Valbonesi  with the support of the Secretariat |
| Enhancing interdisciplinarity in tsunami risk and disaster management | To explore contributions and views of social scientists on tsunami threat levels. | - A report that will focus on the review of research literature and operational reports to address strength, weakness, opportunities and problemsì of threat level based EWS systems within the NEAMTWS context, as a base for further empirical research. | -All intersessional period | Andrea Cerase (University of Rome "La Sapienza") and Lorenzo Cugliari (INGV) |
| Represent WG4 in ICG/NEAMTWS and in INTER-ICG TOWS TASK TEAM on DMP (Disaster Management and Preparedness) | -Represent WG4 at the online and in person meeting of the inter-ICG Task Team on “Disaster management and preparedness”  -According to Secretariat, share with the WG4 the information about INTER-ICG TOWS TASK TEAM on DMP  Prepare a WG4 annual PoA  Report progress to Steering Committee and to ICG | -Report to the ICG  -Participation to the SC meeting/WG4 presentation  -Draft PoA for WG4 | -All intersessional period | Cecilia Valbonesi  Secretariat |
| Cooperation with other Working Groups and Task Teams as needed and requested | Support when needed and provide feedbacks | Participation to online and in person meetings, input/provide feedbacks to reference documents upon request | -All intersessional period | Cecilia Valbonesi |

**Task Team on Documentation: Plan of Action for 2022**

**CO-CHAIRS:** Stefano Lorito (Instituto Nazionale di Geofisica e Vulcanologia, Italy) & Nikos Kalligeris(National Observatory of Athens, Greece)

| **Strategic Area** | **Objectives** | **Activity** | **Target / Result Indicators** | **Time Frame** | **Responsible Per/ Inst** |
| --- | --- | --- | --- | --- | --- |
| Task Team on Documentation | Revise Operational Users Guide | Prepare a draft of selected sections of the revised Operational Users Guide | Draft of selected sections of the revised Operational Users Guide | January 2022 – March 2022 | TT-Docs co-chairs |
| Share draft of the revised Operational Users Guide with TT-Docs/TT-OP members | Receive feedback from TT-Docs/TT-OP members | March 2022 | TT-Docs co-chairs / members/TT-OP members |
| Implement feedback from TT-Docs/TT-OP members | Revised draft of selected sections of the Operational Users Guide | March 2022-SC2022 | TT-Docs co-chairs |
| Present progress at the Steering Committee | Receive feedback from SC | SC2022 | TT-Docs co-chairs/SC members |
| Continue revising Operational Users Guide | 2nd draft of revised Operational Users Guide | SC2022-June 2022 | TT-Docs co-chairs |
| Share 2nd draft of the revised Operational Users Guide with TT-Docs/TT-OP members | Receive feedback from TT-Docs/TT-OP members | June 2022-September 2022 | TT-Docs co-chairs / members/TT-OP members |
| Implement feedback from TT-Docs/TT-OP members and finalize revision | Revised Operational Users Guide | September 2022-November 2022 | TT-Docs co-chairs |
| Present revised Operational Users Guide to ICG |  | November 2022 | TT-Docs co-chairs |

**Task Team on Operations: Plan of Action for 2022**

**CO-CHAIRS:** Fernando Carrilho (Instituto Português do Mar e da Atmosfera, Portugal) & Alessio Piatanesi (Istituto Nazionale di Geofisica e Vulcanologia, Italy)

| **Strategic Area** | **Activity** | **Target / Result Indicators** | **Time Frame** | **Responsible Per/ Inst** |
| --- | --- | --- | --- | --- |
| Task Team on Operations | Evaluate the recommendations made by inter-ICG/TOWS working group on Tsunami Operation for possible implementation by ICG/NEAMTWS; specifically continue the assessment of the Global Service Definition Document (GSDD) and investigate its adaptability by the NEAMTWS. | Report to SC and ICG | February 2022-October 2022 | TTO co-chairs |
| Conduct a TT meeting in the 1st quarter of 2022 in coordination with the meetings of Steering Committee and other Task Teams. | Report to SC and ICG | March 2022-April 2022 | TTO co-chairs and members |
| Coordinate with TSP's the development of sea-level reading procedures for NEAMTWS purposes and the formalization of which and how non-instrumental information/observations can be included in the ONGOING messages. | Report to SC and ICG | March 2022-May 2022 | TTO co-chairs/ TSPs |
| Coordinate with TSP's the definition of a common TSU-CAP template to issue tsunami messages that may serve both NEAMTWS and national needs at the same time. | Report to SC and ICG | March 2022-June 2022 | TTO co-chairs/ TSPs |
| Advice on the modalities of operation, interoperability, methods and standards for the development and issuance of warnings, such as methods and reporting of magnitudes, and requirements in terms of coordination and operation of NEAMTWS. | Report to SC and ICG | All intersessional period | TTO co-chairs/ TSPs |
| Foster the development of the Tsunami Service Provider Inter-Operability Tool (TSP-IOT) | Report to SC and ICG | All intersessional period | TTO co-chairs/ TSPs |
| Continue to improve the Performance Monitoring Framework for  NEAMTWS upstream components, based on the functions-requirements defined in the approved accreditation procedure and performance indicators developed for Communication Test Exercises. | Report to SC and ICG | All intersessional period | TTO co-chairs |
| Support the Task Team on Documentation by reviewing the Interim Operational User’s Guide to identify sections that require corrections, modifications and/or updates according the progress made in NEAMTWS. | Revised Operational Users Guide | All intersessional period | TTO co-chairs/TT Documentation co-chairs |
| Support Task Team on Tsunami Exercises in the preparation of the NEAMWave23 Exercise. | Manual for the exercise | All intersessional period | TTO co-chairs/TT on Exercise |
| Report progress to ICG/NEAMTWS-XIX. | Report to ICG | November 2022 | TTO co-chairs |

**Task Team on Tsunami Exercise: Plan of Action for 2022**

**CO-CHAIRS:** Ceren Ozer Sozdinler (Gebze Technical University Department of Civil Engineering, Turkey), Marinos Charalampakis (National Observatory of Athens/ Greece)

| **Strategic Area** | **Activity** | **Time Frame** | **Responsible Per/ Inst** |
| --- | --- | --- | --- |
| **Task Team on Tsunami Exercise** | Submission of the final version of the Evaluation Report of NEAMWave21 | February 2022 | TT-TE co-chairs, exercise team & IOC Secretariat |
| Planning of NEAMWave23 (proposal to the TSPs) | Whole intersessional period | TT-TE co-chairs, exercise team & IOC Secretariat |
| Having online meetings with DG-ECHO and CPA representatives | March - April 2022 | TT-TE co-chairs, WG-04 & IOC Secretariat |
| Request Civil Protection Authorities with exercises experience to prepare a one-page guiding document to share with other non-experienced CPAs, describing their experience in implementing Phase B of NEAMWave Exercises | April - May 2022 | TT-TE co-chairs, exercise team & IOC Secretariat |
| Work together with the Secretariat to prepare a concept information paper to inform CPAs about the general concept of NEAMWave | May 2022 | TT-TE co-chairs, exercise team & IOC Secretariat |
| Revision of online tools (subscription & evaluation) | September – October 2022 | TT-TE co-chairs, exercise team & IOC Secretariat |
| Having online meetings with DG-ECHO and CPA representatives | October - November 2022 | TT-TE co-chairs, WG4 & IOC Secretariat |

**Task Team on Tsunami Ready: Plan of Action for 2022**

**CO-CHAIRS:** Ignacio Aguirre Ayerbe (Instituto de Hidráulica Ambiental de Cantabria, Spain) & Elena Daskalaki (National Observatory of Athens, Greece)

| **Strategic Area** | **Objectives** | **Activity** | **Target / Result Indicators** | **Time Frame** | **Responsible Per/ Inst** |
| --- | --- | --- | --- | --- | --- |
| Task Team on Tsunami Ready | Membership of Tsunami Ready Task Team. | Confirm membership of the Task Team by former members of TR Group. | Official list of active TR-TT members. | April 2022 | Secretariat with the support of TR-TT co-chairs |
| Promote community preparedness.  Support and promote Tsunami Ready programme in the NEAM region. | Monitoring of TR pilot projects in NEAM area. | Report to ICG through WG4:   * On TR initiatives already in place in NEAM region (TR indicators achievement). * On new TR candidates. | All intersessional period | TR-TT co-chairs / members, in cooperation with WG 4 co-chairs and Secretariat |
| Interact with the WG4 group and foster its activities. | Online meetings with WG4 co-chairs. | All intersessional period | TR-TT co-chairs / members in cooperation with WG 4 co-chairs |
| Encourage and support approval of NEAMTWS TR guidelines, as part of the downstream component of the ICG/NEAMTWS programme. | Establish communication with other ICGs TTs and WGs related to Tsunami Ready, to share/discuss knowledge, experiences and challenges. | Propose online meeting, face-to-face meeting, webinar, etc. | All intersessional period | TR-TT co-chairs and members  WG 4 co-chairs  Secretariat |
| Identify critical points (and promote solutions to address them) of TR guidelines. This includes:  Identify methodologies followed by each TR community to promote discussion on them (e.g., to define inundation areas, to generate adequate maps addressing local particularities, to communicate to local stakeholders, on alert dissemination methodologies). | Online communications.  Summary report. | All intersessional period | TR-TT and WG 4 co-chairs and Secretariat with the support of WG 1. |
| Represent Tsunami Ready TT in ICG/NEAMTWS. | Represent TR-TT at meetings scheduled throughout the year 2022. | Participation to the SC meeting/TR-TT. presentation | All intersessional period | TR-TT co-chairs |
| Cooperation with other Working Groups and Task Teams. | Supporting where appropriate and providing feedback. | Participating in meetings and commenting on background documents as requested. | All intersessional period | TR-TT co-chairs |

**ANNEX III**

**Agenda**

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| **Hour** | **Friday 8th April** | **Presenters** |
| 14:30-15:30 | * WELCOME  1. OPENING AND ORGANIZATION OF THE MEETING | Secretariat & Chair |
| 1. ADOPTION OF THE AGENDA | Chair |
| 1. UPDATE FROM THE ICG/NEAMTWS CHAIR AND TECHNICAL SECRETARIAT | Chair  Secretariat |
| 1. UPDATE OF WORK PLANS AND ACTIVITIES BY WORKING GROUPS AND TASK TEAMS CO-CHAIRS | WGs and TTs co-chairs |
| 15:30-15:45 | BREAK |  |
| 15:45-16:45 | UPDATE OF WORK PLANS AND ACTVITIES BY WORKING GROUPS AND TASK TEAMS CO-CHAIRS (CONT’N)  \*TT Tsunami Report on Monday | WGs / TTs co-chairs |
| 1. UPDATE OF IOC- UNESCO EU NEAMTWS COASTWAVE PROJECT  * Coastal Sea Level Hazard Risk Perception | Ms Derya Venin Ms Claire Jaffrézic & Mr Denis Chang Seng  Mr Alejandro Rojas |
| **END DAY 1** |  |

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| **Hour** | **Monday 11th April** | **Presenters** |
| 10:00-11:00  [60 min] | \*UPDATE OF WORK PLANS AND ACTVITIES BY WORKING GROUPS AND TASK TEAMS CO-CHAIRS   1. BRIEF UPDATE FROM TSPs / CPAs | TT Tsunami Ready  TSPs/CPAs/ NTWCs |
| 11:00-11:15 | BREAK |  |
| 11:15-  13: 00  [105 min] | 1. DECADE TSUNAMI PROGRAMME AND IOC UNESCO TSUNAMI READY RECOGNITION PROGRAMME | Ms Cecilia Valbonesi |
| 1. IOC UNESCO IOC TSUNAMI READY TOOLS | Mr Denis Chang Seng |
| 1. NON-SEISMIC TSUNAMIS AND LOCAL SOURCE SOPS | Ms Hélène Hébert |
| 1. WTAD 2022 | Mr Denis Chang Seng, Mr Marinos Charalampakis |
| 1. NEXT TSUNAMI SYMPOSSIUM AND OTHER RELEVANT MEETINGS | Mr Marinos Charalampakis |
| 1. UPDATE ON PREPARATIONS FOR NEXT ICG/NEAMTWS | Secretariat |
| 1. AOB | Chair |
| 1. CLOSURE | Chair |
| END OF ICG/NEAMTWS SC |  |

**ANNEX IV**

**List of Organizers and Participants**

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| **Mr Alessandro Amato** (TSP Representative of INGV)  National Institute for Geophisics and Vulcanology  Via di Vigna Murata, 605, 00143 Roma Italy  [alessandro.amato@ingv.it](mailto:alessandro.amato@ingv.it) | **Mr Alessio Piatanesi** (Co-chair on Task Team Operations and ICG/NEAMTWS Rep to TOWS TT TWO)  National Institute for Geophisics and Vulcanology  Via di Vigna Murata, 605, 00143 Roma Italy  [alessio.piatanesi@ingv.it](mailto:alessio.piatanesi@ingv.it) |
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| **Ms Audrey Gailler** (Co-Chair WG1) Représentant, CENALT  CEA/DAM Ile-de-France, Bruyères-le-Châtel - 91297 ARPAJON  [audrey.gailler@cea.fr](mailto:audrey.gailler@cea.fr) | **Ms Cecilia Valbonesi** (Co-Chair WG 4 and ICG/NEAMTWS Rep to TOWS TT DMP)  National Institute for Geophisics and Vulcanology  Via Franceschini 31, 40128 Bologna Italy Italy  [cecilia.valbonesi@unifi.it](mailto:cecilia.valbonesi@unifi.it) |
| **Mr Costas Synolakis** (ICG/NEAMTWS Vice-Chair)  Foundation for Research and Technology - Hellas - Institute of Applied & Computational Mathematics Νikolaou Plastira 100, Vassilika Vouton GR - 711 10 Heraklion, [Greececostas@usc.edu](mailto:Greececostas@usc.edu) | **Ms Ceren Özer Sözdinler** (Co-Chair Task Team on Exercise)  Expert - Visiting Researcher  Department of Civil Engineering  Gebze Technical University, Kocaeli, Turkey  [ceren.ozersozdinler@gtu.edu.tr](mailto:ceren.ozersozdinler@gtu.edu.tr) |
| **Ms Claire Jaffrézic**  Intern  Tsunami Unit (ICG/NEAMTWS)  IOC-UNESCO  7, Place de Fontenoy  F-75352 Paris 07 SP, France  [c.jaffrezic@unesco.org](mailto:c.jaffrezic@unesco.org) | **Mr Denis Chang Seng** Programme Specialist Tsunami Unit (ICG/NEAMTWS Technical Secretary) / Ocean Observation & Services Section / GOOS IOC-UNESCO  7, Place de Fontenoy  F-75352 Paris 07 SP, France  Tel: +33 (0) 145 68 39 52  E-mail: [d.chang-seng@unesco.org](mailto:d.chang-seng@unesco.org)  [www.ioc-tsunami.org](http://www.ioc-tsunami.org) |
| **Ms Derya Venin**  Associate Project Officer  Tsunami Unit (ICG/NEAMTWS)  IOC-UNESCO  7, Place de Fontenoy  F-75352 Paris 07 SP, France  Tel: +33145681874  [d.dilmen-vennin@unesco.org](mailto:d.dilmen-vennin@unesco.org) | **Ms Didem Cambaz** (Co-Chair of WG 2/3)  Regional Earthquake and Tsunami Monitoring Center, Boğaziçi University-Kandilli Observatory and Earthquake Research Institute, Istanbul, Turkey  [didem.samut@boun.edu.tr](mailto:didem.samut@boun.edu.tr) |
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