

Intergovernmental Oceanographic Commission
Reports of Governing and Major Subsidiary Bodies



**Intergovernmental Coordination
Group for the Tsunami Early
Warning and Mitigation System
in the North-Eastern Atlantic,
the Mediterranean and Connected
Seas (ICG/NEAMTWS)**

Seventeenth Session

Online Meeting
24–26 November 2021

UNESCO 2021

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ICG/NEAMTWS-XVII
English only¹

¹The Executive Summary is available in English.

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The Intergovernmental Coordination Group for the Tsunami Early Warning and Mitigation System in the North-Eastern Atlantic, the Mediterranean and Connected Seas (ICG/NEAMTWS) gathered representatives of 16 Member States at its 17th session online on 24–26 November 2021. The ICG took the following decisions and recommendations:

The ICG/NEAMTWS,

Noted the positive results of the fourth tsunami exercise for the region, NEAMWave21 conducted on 8–10 March 2021 and the major increase in media interest;

Expressed its thanks to Co-Chairs of the Task Team on Exercises and members for drafting the NEAMWave21 Evaluation Report and **requested** them to finalize the report in the first quarter of 2022;

Recognized the continued awareness raising efforts on tsunami hazards and preparedness by Member States during the intersessional period in line with and as a contribution to World Tsunami Awareness Day, 5 November 2021;

Appreciated the Tsunami Exercises conducted in France and Malta to commemorate the World Tsunami Awareness Day (WTAD);

Noted the work carried out by the Tsunami Ready Group within the Working Group 4 on Public Awareness, Preparedness and Mitigation during the intersessional period;

Further appreciated the progress made by the communities of Bouches-du-Rhône and Cannes (France); Kos (Greece); Israel; Minturno, Pachino, Palmi (Italy); Marsaxlokk (Malta); Azores, Cascais, Lagos, Lisbon, Madeira, Portimão, Setúbal (Portugal); Chipiona (Spain), Bodrum and Istanbul (Turkey) towards becoming tsunami prepared and or Tsunami Ready;

Welcomed the finalization of the ICG/NEAMTWS 2021–2030 Strategy document;

Expressed its thanks to the Co-Chairs of Task Team on Documentation for preparing the ICG/NEAMTWS 2021-2030 Strategy and **encouraged** Member States and partners to contribute to its implementation;

Welcomed the nominations of a Tsunami National Contact and a Tsunami Warning Focal Point in Libya;

Further welcomed the new European Union DG-ECHO project on “Strengthening the Resilience of Coastal Communities in the Northeast Atlantic, Mediterranean Region to the Impact of Tsunamis and Other Sea Level-Related Coastal Hazards”;

Took note of the study prepared by the Secretariat on Coastal Multi-Hazard Risk Perception, Resilience and Survey Questionnaires which contributes to the implementation of the new European Union DG-ECHO project on “Understanding and Communication of Tsunami and other Sea-level Related Risk”;

Acknowledged the support of the European Commission (EC) and the Joint Research Centre (JRC) in capacity development, including infrastructure and research and new sea-level instrumentation and provision of measurements, especially for the Last Mile Project Phase 2 implemented in Malta and the support provided to the organization of the first end-to-end tsunami exercise in Marsaxlokk (Malta);

Accepted Additional recommendations of Working Groups and Task Teams as outlined in Appendix.

Decided to establish at least ten Tsunami Ready recognized communities in the Mediterranean region in the next two years, contributing to making 100% of communities at risk of tsunami prepared for and resilient to tsunamis by 2030 through the implementation of the UNESCO/IOC Tsunami Ready Programme and other initiatives;

Further decided to:

- i. continue the merged activities of Working Groups 2 and 3 in accordance with the revised Terms of Reference (Appendix 1 to Decision ICG/NEAMTWS-XVII.1);
- ii. continue the Task Team on Documentation according to the revised Terms of Reference (Appendix 2 to Decision ICG/NEAMTWS-XVII.1);
- iii. continue the Task Team on Tsunami Exercises according to the revised Terms of Reference (Appendix 3 to Decision ICG/NEAMTWS-XVII.1);
- iv. continue the activities of the Task Team on Operations according to the revised Terms of Reference (Appendix 4 to Decision ICG/NEAMTWS-XVII.1);
- v. formally establish a Task Team on Tsunami Ready with Terms of Reference (Appendix 5 to Decision ICG/NEAMTWS-XVII.1);
- vi. continue the activities of the Steering Committee during the intersessional period according to revised Terms of Reference (Appendix 6 to Decision ICG/NEAMTWS-XVII.1); and
- vii. conduct NEAMWave23 within the first week of November 2023;

Recommended to increase the involvement of Member States in the ICG activities, with particular focus on tsunami education, awareness and preparedness, and to further explore and share experiences in piloting of Tsunami Ready for the NEAM region;

Further recommended that:

- i. each Tsunami Service Provider continues to provide alert level information based on their best practices, including (possibly different) decision matrices, scenario databases or other methods; these methodologies needing to be documented in the [NEAMTWS Operational Users Guide](#);
- ii. that Tsunami Warning Focal Points (TWFP), in close connection with their National Tsunami Warning Centres (NTWC), if applicable, develop standard operating procedures in order to handle diverging Tsunami Service Provider (TSP) warning messages as provided in the guidance document "Guidelines on TSP Messages Uncertainty" by Working Group 1 in 2017;
- iii. that all sea-level data should be made available to the TSPs and NTWCs using bilateral agreements, between TSPs/NTWCs, whenever possible;
- iv. to increase the number of seismic and sea level stations available in the North of Africa, and for sea level, especially in consideration of tsunamis originated from non-

subduction zones, as well as from non-seismic sources, to increase sampling rate (towards 1 sps) and reduce the latency to 1 minute or less as far as possible;

Encouraged Member States to host ICG/NEAMTWS-XVIII;

Thanked the Secretariat for hosting the online Seventeenth Session of ICG/NEAMTWS.

Résumé Exécutif

Le Groupe intergouvernemental de coordination du Système d'alerte rapide aux tsunamis et de mitigation dans l'Atlantique du Nord-Est, la Méditerranée et les mers adjacentes (GIC/NEAMTWS) a réuni les représentants de 16 États membres lors de sa 17^e session, qui s'est tenue en ligne du 24 au 26 novembre 2021. Le GIC a adopté les décisions et recommandations ci-après :

Le GIC/NEAMTWS,

Prend note des résultats positifs du quatrième exercice d'alerte aux tsunamis dans la région, NEAMWave21, organisé du 8 au 10 mars 2021, ainsi que de la nette augmentation de l'intérêt des médias pour cet exercice ;

Remercie les coprésidents et les membres de l'Équipe spéciale sur les exercices pour avoir élaboré le rapport d'évaluation du NEAMWave21, et les **prie** de finaliser ledit rapport au premier trimestre de 2022 ;

Prend acte des actions continues de sensibilisation et de préparation aux risques de tsunami menées par les États membres au cours de la période intersessions, parallèlement et à titre de contribution à la Journée mondiale de sensibilisation aux tsunamis, le 5 novembre 2021 ;

Se félicite des exercices d'alerte aux tsunamis organisés en France et à Malte à l'occasion de la Journée mondiale de sensibilisation aux tsunamis ;

Prend note des travaux menés par le Groupe Tsunami Ready au sein du Groupe de travail 4 sur la sensibilisation de la population, la préparation et la mitigation pendant la période intersessions ;

Se félicite également des progrès accomplis par les communautés des Bouches-du-Rhône et de Cannes (France) ; de Kos (Grèce) ; d'Israël ; de Minturno, de Pachino et de Palmi (Italie) ; de Marsaxlokk (Malte) ; des Açores, de Cascais, de Lagos, de Lisbonne, de Madère, de Portimão et de Setúbal (Portugal) ; de Chipiona (Espagne), et de Bodrum et d'Istanbul (Turquie), qui sont de plus en plus préparées ou prêtes à faire face aux tsunamis ;

Accueille avec satisfaction la finalisation du document stratégique ICG/NEAMTWS 2021-2030 ;

Remercie les coprésidents de l'Équipe spéciale sur la documentation pour avoir établi la stratégie ICG/NEAMTWS 2021-2030 et **encourage** les États membres et les partenaires à contribuer à sa mise en œuvre ;

Se félicite de la nomination d'un contact national pour les tsunamis et d'un point focal pour l'alerte aux tsunamis en Libye ;

Se félicite également du nouveau projet de la direction générale de la protection civile et des opérations d'aide humanitaire européennes (DG-ECHO) de l'Union européenne intitulé « Renforcer la résilience des communautés côtières de l'Atlantique du Nord-Est et de la région méditerranéenne face à l'impact des tsunamis et autres aléas côtiers liés au niveau de la mer » ;

Prend note de l'étude réalisée par le Secrétariat sur la perception des risques côtiers multiples, la résilience face à ceux-ci et les questionnaires d'enquête, qui contribue à la mise en œuvre du nouveau projet de la DG-ECHO de l'Union européenne intitulé « Compréhension et communication relatives aux tsunamis et aux autres aléas liés au niveau de la mer » ;

Prend note également de l'aide fournie par la Commission européenne (CE) et son Centre commun de recherche (CCR) pour le développement des capacités, y compris à l'appui des infrastructures, de la recherche, des nouveaux instruments de mesure du niveau de la mer et

de la fourniture de mesures, notamment pour la phase 2 du projet « Dernier kilomètre » mis en œuvre à Malte, ainsi que de l'aide fournie pour organiser le premier exercice de bout en bout d'alerte au tsunami à Marsaxlokk (Malte) ;

Accepte les autres recommandations formulées par les groupes de travail et les équipes spéciales, telles qu'énoncées dans l'annexe ;

Décide d'établir au moins 10 communautés disposant de la certification « Tsunami Ready » dans la région méditerranéenne au cours des deux prochaines années, de façon à ce que 100 % des communautés exposées aux tsunamis soient préparées et résilientes face à ce risque d'ici à 2030, grâce à la mise en œuvre du Programme Tsunami Ready de l'UNESCO/COI et d'autres initiatives ;

Décide également :

- i. de poursuivre les activités fusionnées des Groupes de travail 2 et 3, conformément au mandat révisé (annexe 1 à la décision ICG/NEAMTWS-XVII.1) ;
- ii. de maintenir l'Équipe spéciale sur la documentation avec un mandat révisé (annexe 2 à la décision ICG/NEAMTWS-XVII.1) ;
- iii. de maintenir l'Équipe spéciale sur les exercices d'alerte aux tsunamis avec un mandat révisé (annexe 3 à la décision ICG/NEAMTWS-XVII.1) ;
- iv. de poursuivre les activités de l'Équipe spéciale sur les opérations avec un mandat révisé (annexe 4 à la décision ICG/NEAMTWS-XVII.1) ;
- v. de créer officiellement une équipe spéciale sur le Programme Tsunami Ready et de définir son mandat (annexe 5 à la décision ICG/NEAMTWS-XVII.1) ;
- vi. de poursuivre les activités du Comité directeur pendant la période intersessions avec un mandat révisé (annexe 6 à la décision ICG/NEAMTWS-XVII.1) ; et
- vii. de conduire l'exercice NEAMWave23 d'alerte aux tsunamis d'ici la première semaine de novembre 2023 ;

Recommande d'accroître la participation des États membres aux activités du GIC, en mettant l'accent sur l'éducation, la sensibilisation et la préparation aux tsunamis, et de continuer à explorer et partager les données de l'expérience pilote du Programme Tsunami Ready dans la région de l'Atlantique du Nord-Est, de la Méditerranée et des mers adjacentes ;

Recommande également :

- i. que chaque prestataire de services relatifs aux tsunamis (TSP) continue de fournir des informations sur le niveau de menace fondées sur leurs bonnes pratiques, notamment des matrices de décision (éventuellement différentes), des bases de données sur les scénarios ou d'autres méthodes, ces dernières devant être documentées dans le [Guide opérationnel des utilisateurs du NEAMTWS](#) ;
- ii. que les points focaux pour l'alerte aux tsunamis élaborent, en lien étroit avec leur Centre national d'alerte aux tsunamis (NTWC), le cas échéant, des procédures opérationnelles normalisées afin d'être en mesure de réagir de façon appropriée en cas de messages d'alerte divergents émis par les prestataires de services relatifs aux tsunamis (TSP), conformément au document d'orientation « Guidelines on TSP Messages Uncertainty » élaboré par le Groupe de travail 1 en 2017 ;
- iii. que toutes les données concernant le niveau de la mer soient mises à la disposition des prestataires de services relatifs aux tsunamis (TSP) et des centres nationaux

d'alerte aux tsunamis (NTWC), au moyen d'accords bilatéraux conclus entre ceux-ci, chaque fois que cela est possible ;

- iv. d'augmenter le nombre de stations sismiques et marégraphiques disponibles en Afrique du Nord et, en ce qui concerne les données relatives au niveau de la mer, s'agissant notamment des tsunamis qui se forment en dehors des zones de subduction, ou sans cause sismique, d'accroître le taux d'échantillonnage (à environ 1 échantillon par seconde) et de réduire, autant que possible, la latence à 1 minute ou moins ;

Encourage les États membres à organiser la 18^e session du GIC/NEAMTWS ;

Remercie le Secrétariat pour avoir organisé la 17^e session du GIC/NEAMTWS en ligne.

Resumen

El Grupo Intergubernamental de Coordinación del Sistema de Alerta Temprana contra los Tsunamis y Atenuación de sus Efectos en el Atlántico Nororiental y el Mediterráneo y Mares Adyacentes (ICG/NEAMTWS) congregó a representantes de 16 Estados Miembros en su 17ª reunión, celebrada en línea del 24 al 26 de noviembre de 2021. El ICG aprobó las siguientes decisiones y recomendaciones:

El ICG/NEAMTWS,

Tomó nota de los resultados positivos de la cuarta simulación de tsunamis en la región, NEAMWave21, realizada del 8 al 10 de marzo de 2021, y del gran aumento del interés de los medios de comunicación;

Expresó su agradecimiento a los copresidentes y a los miembros del Equipo de Trabajo sobre Simulaciones de Tsunamis por la redacción del informe de evaluación de NEAMWave21 y les **pidió** que finalizaran el informe en el primer trimestre de 2022;

Reconoció la labor constante de sensibilización sobre el riesgo de tsunamis y la preparación para afrontarlos llevada a cabo por los Estados Miembros durante el periodo entre reuniones, en consonancia con el Día Mundial de Concienciación sobre los Tsunamis (5 de noviembre de 2021) y como contribución a él;

Apreció las simulaciones de tsunamis realizadas en Francia y Malta para conmemorar el Día Mundial de Concienciación sobre los Tsunamis;

Tomó nota también del trabajo realizado durante el periodo entre reuniones por el Grupo “Tsunami Ready”, dentro del Grupo de Trabajo 4: Sensibilización del público, preparación y atenuación de los efectos;

Apreció también los progresos logrados por las comunidades de Bouches-du-Rhône y Cannes (Francia); Kos (Grecia); Israel; Minturno, Pachino y Palmi (Italia); Marsaxlokk (Malta); Azores, Cascais, Lagos, Lisboa, Madeira, Portimão y Setúbal (Portugal); Chipiona (España); y Bodrum y Estambul (Turquía) con miras a la preparación para los tsunamis o “Tsunami Ready”;

Acogió con beneplácito la finalización del documento de la Estrategia ICG/NEAMTWS 2021-2030;

Expresó su agradecimiento también a los copresidentes del Equipo de Trabajo sobre Documentación por la preparación de la Estrategia ICG/NEAMTWS 2021-2030 y **alentó** a los Estados Miembros y a los asociados a que contribuyeran a su aplicación;

Acogió con beneplácito también el nombramiento de un contacto nacional sobre tsunamis y de un punto de contacto de alerta contra los tsunamis en Libia;

Acogió con beneplácito además el nuevo proyecto de la Dirección General de Protección Civil y Operaciones de Ayuda Humanitaria Europeas (ECHO) de la Unión Europea denominado “Fortalecimiento de la resiliencia de las comunidades costeras en la región del Atlántico Nororiental y el Mediterráneo ante el impacto de los tsunamis y otros peligros costeros relacionados con el nivel del mar”;

Tomó nota además del estudio preparado por la Secretaría sobre la percepción de los peligros costeros múltiples, la resiliencia y los cuestionarios de encuesta, que contribuye a la ejecución del nuevo proyecto de la Dirección General ECHO de la Unión Europea denominado “Comprensión y comunicación de los riesgos de tsunami y otros riesgos relacionados con el nivel del mar”;

Reconoció también el apoyo prestado por la Comisión Europea y el Centro Común de Investigación (CCI) en materia de desarrollo de capacidades, en particular la infraestructura, la investigación y los nuevos instrumentos para la medición del nivel del mar y el suministro de mediciones, especialmente para la fase 2 del proyecto “Last Mile”, ejecutado en Malta, y el apoyo prestado a la organización de la primera simulación completa de tsunamis en Marsaxlokk (Malta);

Aceptó las recomendaciones adicionales de los grupos de trabajo y los equipos de trabajo que figuran en el apéndice;

Decidió establecer al menos 10 comunidades reconocidas en el marco de “Tsunami Ready” en la región del Mediterráneo en los próximos dos años, a fin de contribuir a lograr el objetivo de que el 100 % de las comunidades con riesgo de tsunami estén preparadas y sean resilientes ante los tsunamis de aquí a 2030 mediante la ejecución del programa “Tsunami Ready” de la COI/UNESCO y otras iniciativas;

Decidió también:

- i) continuar las actividades fusionadas de los grupos de trabajo 2 y 3, de conformidad con su mandato revisado (apéndice 1 de la decisión ICG/NEAMTWS-XVII.1);
- ii) mantener el Equipo de Trabajo sobre Documentación, de conformidad con su mandato revisado (apéndice 2 de la decisión ICG/NEAMTWS-XVII.1);
- iii) mantener el Equipo de Trabajo sobre Simulaciones de Tsunamis, de conformidad con su mandato revisado (apéndice 3 de la decisión ICG/NEAMTWS-XVII.1);
- iv) proseguir las actividades del Equipo de Trabajo sobre Operaciones, de conformidad con su mandato revisado (apéndice 4 de la decisión ICG/NEAMTWS-XVII.1);
- v) establecer oficialmente un equipo de trabajo sobre “Tsunami Ready” con un mandato (apéndice 5 de la decisión ICG/NEAMTWS-XVII.1);
- vi) proseguir las actividades del Comité de Dirección durante el periodo entre reuniones, de conformidad con su mandato revisado (apéndice 6 de la decisión ICG/NEAMTWS-XVII.1);
- vii) llevar a cabo NEAMWave23 en la primera semana de noviembre de 2023;

Recomendó que aumentara la participación de los Estados Miembros en las actividades del ICG, prestando especial atención a la educación, la sensibilización y la preparación con respecto a los tsunamis, que se siguiera estudiando la aplicación de forma experimental de “Tsunami Ready” en la región del Atlántico Nororiental y el Mediterráneo y que se compartieran las experiencias al respecto;

Recomendó también que:

- i) cada proveedor de servicios sobre tsunamis siguiera proporcionando información sobre el nivel de alerta basándose en sus mejores prácticas, en particular matrices de decisión (posiblemente diferentes), bases de datos sobre hipótesis u otros métodos, en el entendimiento de que esas metodologías deberían documentarse en la guía operacional para usuarios ([Operational Users Guide](#)) del NEAMTWS;
- ii) los puntos de contacto de alerta contra los tsunamis (TWFP), en estrecha relación con sus centros nacionales de alerta contra los tsunamis (NTWC), según proceda, elaboraran procedimientos operativos estándar para poder gestionar los mensajes de alerta divergentes emitidos por los proveedores de servicios sobre tsunamis (TSP), de conformidad con el documento de orientación titulado “Guidelines on TSP Messages

Uncertainty” (Directrices en caso de incertidumbre sobre los mensajes de los TSP), elaborado por el Grupo de Trabajo 1 en 2017;

- iii) todos los datos sobre el nivel del mar se pusieran a disposición de los TSP y los NTWC mediante acuerdos bilaterales entre los TSP y los NTWC, siempre que fuera posible;
- iv) aumentara el número de estaciones sísmicas y de medición del nivel del mar disponibles en el norte de África y, para el nivel del mar, especialmente teniendo en cuenta los tsunamis originados en zonas de no subducción, así como en fuentes no sísmicas, que aumentara la tasa de muestreo (hacia 1 sps) y se redujera la latencia a un minuto o menos en la medida de lo posible;

Alentó también a los Estados Miembros a que acogieran la ICG/NEAMTWS-XVIII;

Agradeció a la Secretaría el haber acogido la 17ª reunión en línea del ICG/NEAMTWS.

Рабочее резюме

Межправительственная координационная группа по системе раннего предупреждения о цунами и смягчения их последствий в Северо-Восточной Атлантике, Средиземном и прилегающих морях (МКГ/СПЦСВАСМ) провела свою 17-ю сессию 24-26 ноября 2021 г. в режиме онлайн. В ней приняли участие представители 16 государств-членов. МКГ утвердила следующие решения и рекомендации:

МКГ/СПЦСВАСМ

приняла к сведению положительные результаты четвертых учений по предупреждению о цунами в регионе СВАСМ (Волна-21), проведенных 8-10 марта 2021 г., и значительное увеличение интереса к ним со стороны средств информации;

выразила признательность сопредседателям и членам целевой группы по учениям за подготовку доклада об оценке учений Волна-21 в регионе СВАСМ и **просила** их завершить работу над докладом в первом квартале 2022 г.;

отметила продолжающуюся работу по повышению осведомленности государств-членов об опасности цунами и обеспечению готовности к ним в межсессионный период, которая внесла вклад в проведение Всемирного дня распространения информации о проблеме цунами 5 ноября 2021 г. и соответствовала его принципам;

высоко оценила учения по цунами во Франции и на Мальте, приуроченные ко Всемирному дню распространения информации о проблеме цунами;

приняла к сведению также работу, проведенную в межсессионный период группой по сертификации готовности к цунами в рамках рабочей группы 4 по информированию общественности, обеспечению готовности и смягчению последствий;

высоко оценила также прогресс, достигнутый населенными пунктами в департаменте Буш-дю-Рон и городом Канны (Франция), населенными пунктами острова Кос (Греция), населенными пунктами Израиля, коммунами Минтурно, Пачино, Пальми (Италия), деревней Марсашлокк (Мальта), коммунами Азорских островов, Кашкайш, Лагуш, Лиссабон, острова Мадейра, Портиман, Сетубал (Португалия), коммунами Чипионы (Испания), Бодрумом и Стамбулом (Турция) в обеспечении готовности к цунами и подготовке к получению соответствующего сертификата;

приветствовала завершение работы над стратегическим документом МКГ/СПЦСВАСМ на 2021-2030 гг.;

выразила признательность сопредседателям целевой группы по документации за подготовку стратегии МКГ/СПЦСВАСМ на 2021-2030 гг. и **призвала** государства-члены и партнеров внести свой вклад в ее реализацию;

приветствовала также назначение контактного лица по цунами на национальном уровне и координатора по предупреждению о цунами в Ливии;

приветствовала далее новый проект генерального директората Европейского Союза по гражданской обороне и европейским операциям гуманитарной помощи под названием «Укрепление потенциала прибрежных сообществ в регионе Северо-Восточной Атлантики и Средиземноморья в области противодействия цунами и другим опасным явлениям, связанным с изменением уровня моря»;

приняла к сведению далее подготовленное Секретариатом исследование, посвященное восприятию множественных рисков в прибрежных районах и устойчивости к ним, а также составлению вопросников по этой тематике, в качестве вклада в реализацию нового проекта генерального директората Европейского Союза по гражданской обороне и европейским операциям гуманитарной помощи под названием

«Понимание риска цунами и других рисков, связанных с уровнем моря, а также информирование о них»;

отметила также поддержку со стороны Европейской комиссии (ЕК) и Объединенного исследовательского центра (ОИЦ) в области укрепления потенциала, включая развитие материально-технической базы и оснащение новым оборудованием для проведения исследований и измерения уровня моря, а также предоставление данных о проведенных замерах, в частности, в рамках второго этапа проекта «Последняя миля», осуществляемого на Мальте, и поддержку, оказанную в организации первых учений полного цикла по цунами в деревне Марсашлокк (Мальта);

одобрила дополнительные рекомендации рабочих и целевых групп, изложенные в приложении;

постановила в ближайшие два года подготовить к получению сертификата по готовности к цунами не менее десяти общин в Средиземноморском регионе, с тем чтобы внести свой вклад в обеспечение к 2030 г. готовности и устойчивости к цунами 100% подверженных риску цунами общин посредством реализации программы МОК ЮНЕСКО по сертификации готовности к цунами и других инициатив;

постановила также:

- i. продолжить совместную работу рабочих групп 2 и 3 в соответствии с пересмотренным кругом ведения (приложение 1 к решению ICG/NEAMTWS-XVII.1);
- ii. продолжить работу целевой группы по документации в соответствии с пересмотренным кругом ведения (приложение 2 к решению ICG/NEAMTWS-XVII.1);
- iii. продолжить работу целевой группы по учениям, связанным с цунами, в соответствии с пересмотренным кругом ведения (приложение 3 к решению ICG/NEAMTWS-XVII.1);
- iv. продолжить работу целевой группы по операциям в соответствии с пересмотренным кругом ведения (приложение 4 к решению ICG/NEAMTWS-XVII.1);
- v. официально создать целевую группу по сертификации готовности к цунами с соответствующим кругом ведения (приложение 5 к решению ICG/NEAMTWS-XVII.1);
- vi. продолжить работу руководящего комитета в межсессионный период в соответствии с пересмотренным кругом ведения (приложение 6 к решению ICG/NEAMTWS-XVII.1);
- vii. провести учения Волна-23 в регионе СВАСМ в течение первой недели ноября 2023 г.;

рекомендовала расширить участие государств-членов в деятельности МКГ, уделяя особое внимание образованию в области цунами, повышению осведомленности и обеспечению готовности к цунами, а также продолжить исследования и обмен опытом в ходе реализации программы сертификации готовности к цунами для региона СВАСМ;

рекомендовала также:

- i. всем поставщикам услуг в области цунами продолжить представление информации об уровне готовности с использованием успешно зарекомендовавших себя методологий, включая (по возможности различные)

матрицы принятия решений, базы данных по возможным сценариям и другие методики, которые необходимо отразить в [Оперативном руководстве для пользователей СПЦСВАСМ](#);

- ii. координаторам по предупреждению о цунами (КПЦ) в тесном взаимодействии со своими национальными центрами предупреждения о цунами разработать в необходимых случаях стандартные оперативные процедуры реагирования в случае поступления от поставщиков услуг в области цунами (ПУЦ) противоречивых предупреждений, руководствуясь подготовленными рабочей группой 1 в 2017 г. методическими указаниями «Руководящие принципы в отношении неясных сообщений ПУЦ»;
- iii. предоставить, по возможности, ПУЦ и НЦПЦ доступ ко всем данным об уровне моря на основании двусторонних соглашений между ПУЦ и НЦПЦ;
- iv. увеличить число сейсмических станций и станций измерения уровня моря на севере Африки, при этом при измерении уровня моря, особенно с учетом цунами, возникающих в районах, не относящихся к зоне субдукции, а также имеющих несейсмическое происхождение, увеличить частоту выборки (до 1 образца в секунду) и сократить задержку до 1 минуты или менее, насколько это возможно;

призвала также государства-члены принять у себя 18-ю сессию МКГ/СПЦСВАСМ;

поблагодарила Секретариат за проведение 17-й сессии МКГ/СПЦСВАСМ в режиме онлайн.

1. OPENING SESSION

The online Seventeenth session of the Intergovernmental Coordination Group for the Tsunami Early Warning and Mitigation System in the North-Eastern Atlantic, the Mediterranean and Connected Seas (ICG/NEAMTWS-XVII) was opened on Monday 24 November 2021 at 10:00 by Mrs Maria Ana Baptista, Chairperson of ICG/NEAMTWS, who welcomed the participants to the meeting.

Mr Bernardo Aliaga, Head of Tsunami Section (a.i) in his opening remarks thanked the Co-Chairs of the Task Team on Documentation for their contribution in the preparation of the ICG/NEAMTWS Strategy (2021-2030). The new strategy is aligned with the United Nations Decade of Ocean Science for Sustainable Development (2021-2030) and other frameworks, in particular the Sendai Framework for Disaster Risk Reduction. He acknowledged the successful organisation and conduction of the NEAMWave21 Tsunami Exercise from 8-10 March 2021 and expressed his gratitude for the efforts of the NEAMTWS Tsunami Service Providers (TSPs), Civil Protection Agencies (CPAs) and the Co-Chairs of Task Team on Tsunami Exercise for their key leadership roles in its success.

He congratulated the ICG/NEAMTWS for being awarded the new project CoastWAVE “Strengthening the Resilience of Coastal Communities in the North-East Atlantic and Mediterranean Region to the Impact of Tsunamis and Other Sea Level-Related Coastal Hazard”, a project funded by the European Union (EU) Directorate-General for European Civil Protection and Humanitarian Aid Operations (DG-ECHO) and placed under the responsibility of the UNESCO/IOC and the ICG/NEAMTWS Technical Secretary.

Mr Bernardo Aliaga further invited EU DG-ECHO and JRC experts to be members of the ICG/NEAMTWS Working Groups and Task Teams to continue strengthening collaboration in disaster risk reduction for the benefit of all Member States in the NEAM region.

In closing, he wished the participants a productive and successful meeting.

2. ORGANIZATION OF THE SESSION

2.1. ADOPTION OF THE AGENDA

Mrs Maria Ana Baptista, the Chairperson of the ICG/NEAMTWS, introduced the provisional Agenda. The Group adopted the Provisional Agenda with no changes, as included in [Annex II](#).

2.2. DESIGNATION OF THE RAPPORTEUR

The ICG/NEAMTWS Technical Secretary assigned Mr Alejandro Rojas (ICG/NEAMTWS Consultant) rapporteur of the ICG/NEAMTWS-XVII session as there were no volunteers offered from the Member States.

2.3. CONDUCT OF THE SESSION, TIMETABLE AND DOCUMENTATION

Ms Anna von Gyldenfeldt and Mr Öcal Necmioğlu agreed to prepare the first draft Decisions and Recommendations of the ICG/NEAMTWS-XVII session.

3. REPORT ON ICG/NEAMTES INTERSESSIONAL ACTIVITIES

3.1. REPORT BY THE CHAIRPERSON

Mrs Maria Ana Baptista, Chairperson of the ICG/NEAMTW [reported](#) on the activities undertaken since the ICG/NEAMTWS-XVI Session in Cannes, France, 2-4 December 2019.

Key activities and meetings carried out included the Emergency Response Coordination Centre (ERCC) tsunami training meeting on the 19 and 23 February, the Working Group on Tsunamis and Other Hazards Related to Sea-Level Warning and Mitigation Systems (TOWS-WG) meeting on 25 February, the conduction of NEAMWave21 Exercise from 8-10 March. She also reported on the ICG/NEAMTWS activities at the 31st Session of the IOC Assembly, 14-25 June. She outlined the contributions of Member States for the commemoration of the World Tsunami Awareness Day (WTAD) on 5 November 2021.

She noted that there is increasing visibility of NEAMTWS within the past year thanks to the improved Secretariat communication capacity e.g. more published news articles and the creation of new NEAMTIC social media platforms/channels. Key documents prepared included the ICG/NEAMTWS 2021-2030 Strategy, the ICG/NEAMTWS NEAMWave21 Exercise Manual; the ICG/NEAMTWS Status on Tsunami Education, Awareness and Preparedness, and the publication of the “Safer Coastal Zones by 2030” article in the ECO Magazine UN Decade special edition.

Mr Öcal Necmioğlu asked the Chair to clarify how the ICG/NEAMTWS representatives to the TOWS-WG TT-DMP and TOWS WG-TT-TWO were nominated.

Ms Maria Ana Baptista clarified that as Chair she was requested through [IOC CL 2853](#) to nominate the ICG/NEAMTWS representatives to the TOWS WG TT-DMP and TOWS-WG TT-TWO.

3.2. REPORT BY THE IOC SECRETARIAT

Mr Denis Chang Seng, Technical Secretary of ICG/NEAMTWS [reported](#) on the IOC Secretariat activities for the intersessional period. He thanked Mr Alejandro Rojas and Ms Fiona Schmid for their consultancy services and support.

The Secretariat published nine news articles, an increase in the number of publications in comparison to previous years. A two minutes video was also prepared on the new UNESCO/IOC EU DG-ECHO CoastWAVE project with contribution from Spain to commemorate the WTAD, 5 November 2021.

He participated as an evaluator to the JRC Tsunami Last Mile (TLM) - Phase 2 End-to-End exercise in Marsaxlokk, Malta on 5 November on the occasion of the WTAD 2021. The exercise was a good opportunity to observe activities on the ground and directly engage with CPAs and different stakeholders, including the University of Malta at national level. He also participated in the 5th Arab Regional Platform for Disaster Risk Reduction from 8-11 November 2021. As a panellist he gave a talk on how IOC and ICG/NEAMTWS are scaling up tsunami preparedness in the region.

Mr Denis Chang Seng informed that he has been assigned a new role as TOWS Task Team on Disaster Management and Preparedness Technical Secretary.

Mr Denis Chang Seng informed that he is coordinating the UNESCO/IOC input to the Seventh Session of the Global Platform for Disaster Risk Reduction (GPDRR) to be held from 23 to 28 May 2022, Bali, Indonesia. He is involved as an Organizing Team member of Thematic Session 3 on Multi-Hazard and Multi-Sector Approach, and Thematic Session 15 on Early Warning and Early Action (EWEA).

Mr Öcal Necmioğlu informed the Group that a European Forum for Disaster Risk Reduction is taking place in Portugal from 24-26 November 2021. He mentioned that it would be important to avoid meeting overlaps, and this was agreed by the Secretariat.

REPORT OF CONSULTANTS

Mr Alejandro Rojas, UNESCO/IOC and ICG/NEAMTWS Consultant, reported on the progress regarding the documentation of the most recent status of Sea Level Tide Gauge Stations network in North African Member States. This is an ongoing activity coordinated by the IOC Sub-Commission for Africa and the Adjacent Island States and the UNESCO/IOC Tsunami Section. The main objective of this documentation is to update the Global Sea Level Observing System (GLOSS). The Secretariat is carrying out an exercise to document (operational, real time or near real time measurements) the SL network in the North Africa region with the objectives to better understand which SL devices are part of the Global Sea Level Observing System (GLOSS), the Inexpensive Device for Sea Level Measurements (IDSL), or other networks, and to who are the authorities responsible of the SL stations. The consultant requested the delegations and Working Group 2 and 3 (Seismic and Geophysical Measurements and Sea Level Data Collection and Exchange, Including Offshore Tsunami Detection and Instruments) to support the completion of this SL documentation exercise.

The consultant informed the session that the newly launched NEAMTIC social media channels have a very low number of members and likes. He invited the participants to share the NEAMTIC social media links within their professional networks.

Mr Fernando Carrilho, Co-Chair of Task Team on Operations, queried if the stations from Morocco captured in the documentation exercise are providing real time or near real data.

Mr Alejandro Rojas informed that the SL stations in Morocco are providing both real time and near real time data. The present operational status of the stations in Morocco is reported in an Excel sheet.

Mr Alessandro Amato, Co-Chair of Task Team on Documentation informed that Italy is ready to assist in this task. He also advised to refer to the UNESCO/IOC International Oceanographic Data and Information Exchange (IODE), Sea Level Station Monitoring Facility for further information. He also suggested to increase NEAMTIC social media interactions with the social media sites used by the National Delegations and to incorporate and publish their information and publications.

Ms Fiona Schmid, UNESCO/IOC ICG/NEAMTWS consultant [reported](#) on the progress towards the development of a coastal multi risk perception and resilience study and survey questionnaire commissioned by the Secretariat as a contribution to the new UNESCO/IOC EUDG ECHO CoastWAVE project. The literature analysis examined 60 publications. Two questionnaires have been prepared consisting of over 60 questions. The key objectives of the study are to better understand sea level related hazards and risk perceptions in order to understand crucial gaps and misconceptions of local populations. It will investigate preparedness measures and response patterns, including the willingness of people to evacuate in the case of an anticipated coastal sea level related hazardous event, and better understand people's trust and confidence in risk management authorities and governments in order to improve awareness, education measures and communication strategies. The overall goal is to support the establishment of pilot tsunami ready communities in the NEAM region and measure the status of resilience among the pilot communities.

The survey target groups may include the education sector (e.g. schools, universities, pupils, students, teachers, children under 14 will be considered separately); the tourism sector (e.g. hotels, restaurants, shop owners, and tourists); and the Disaster Risk Reduction (DRR) sector, including the civil protection agencies, line ministries, DRR stakeholders, civil societies and individuals at community level. The survey methods include: focus groups interviews, information or interactive workshops, web based surveys, and citizen summits workshops. The content of the questionnaires will be composed of four DRR components with a resilience criteria approach.

Mr Öcal Necmioğlu inquired about “understanding people's trust and confidence in risk management authorities and governments”, and if it was approved by a higher authority. He

warned that the ICG/NEAMTWS needs to be cautious about assessing people's trust in governmental authorities under an intergovernmental context. He suggested rephrasing the idea.

Ms Fiona Schmid noted that the questionnaire has not been approved yet. Mr Denis Chang Seng, clarified that the Secretariat intention is to work closely with Working Group 4 on Public Awareness, Preparedness and Mitigation to discuss the questionnaire, and find ways to improve and refine the concept and questions.

Mr Matthieu Peroche, Université Paul-Valéry Montpellier, informed the session that France has already conducted a similar type of survey within the Strategy And Risk Reduction for Tsunamis in Europe (ASTARTE) project. He asked if the ICG/NEAMTWS plans to disseminate the survey to Member States outside of the new project.

Mr Denis Chang Seng informed the session that the consultant had examined the ASTARTE project work, however it focused only on tsunami risk perceptions. The current study focuses on coastal sea level related risk, including tsunami, storm surge and sea level rise. The aim is to conduct the survey in the project countries. He noted that if findings are encouraging and successful, the results and strategies would be shared with other Member States of the region who are interested in conducting similar work.

3.3. REPORT BY THE WORKING GROUP ON TSUNAMIS AND OTHER HAZARDS RELATED TO SEA-LEVEL WARNING AND MITIGATION SYSTEMS (TOWS-WG)

Mrs Cecilia Valbonesi, ICG/NEAMTWS representative in the TOWS-WG-TT-DMP [reported](#) on the Fourteenth Meeting of the Working Group on Tsunamis and Other Hazards Related to Sea-Level Warning and Mitigation System (TOWS-WG-XIV) which was held on 25–26 February 2021 online.

The Group confirmed that the UN Decade of Ocean Science provides a once-in-a-generation opportunity to address and potentially fill capability gaps by leveraging novel tools, platforms, techniques and infrastructures in order to more rapidly detect, measure, forecast and warn for tsunamis.

She reported on some important TOWS-WG-XIV session Decisions and Recommendations:

- The TOWS-WG will perform Global Steering Committee functions for *the Ocean Decade Tsunami programme*;
- The Tsunami Decade Scientific Committee to be established will be tasked to develop a Draft 10-Year Research, Development and Implementation Plan for the *Programme*;
- A special Tsunami Decade Coalition for Tsunami Ready will be created in collaboration with other critical stakeholders across the UN structures, as well as national Civil Protection Agencies;
- Expansion of existing observational systems and the deployment of new technologies to address observational gaps that cannot be covered by existing networks;
- Expansion of data access and availability and development of capability for real-time and near-real time sea level, seismic and GNSS-derived land motion data;
- Increase access and regularly update the collection of coastal topographic and bathymetric data;
- The adoption and continued implementation of the UNESCO/IOC Tsunami Ready Guidelines and Indicators as the international standard for evidence-based community preparedness for tsunamis;
- Enhanced integration to minimize tsunami disaster impacts.

The Group recommended to the IOC Assembly at its 31st session in 2021 to encourage Member States to:

- Consider approving the establishment of the Ocean Decade Tsunami Programme and the Scientific Committee to prepare the Draft 10-Year Research, Development and Implementation Plan;
- Include the IOTIC compilation of school Disaster Risk Reduction (DRR) and preparedness materials as a resource, and especially as part of Tsunami Ready pilots that include schools;
- Continue the strong collaboration between the UNESCO/IOC and UNDRR to commemorate WTAD;
- Urgently complete Tsunami Ready Guidelines (IOC Manuals and Guides, 74);
- Include local source tsunami Standard Operating Procedures as an important component of the UNESCO/IOC Tsunami Ready programme;

TOWS Task Team – Development of Global Tsunami Performance Monitoring Framework

Mr Öcal Necmioğlu [reported](#) on the activities of the TOWS Task Team – Development of Global Tsunami Performance Monitoring Framework. The main responsibility of this task team is to review the current Pacific Tsunami Warning and Mitigation System (PTWS) performance monitoring framework, compare this with other similar ICG initiatives and develop a consistent global performance monitoring framework.

He informed the session that an ICG/NEAMTWS meeting was held on 14 July 2021 in which the steering committee agreed on the following three actions:

- Establish an informal Team on the Development of Global Ocean Performance Monitoring (GOPM). Members of the new team 'preferably', but not limited to one of the existing co-chairs of WGs and TTs.
- WG4 and Tsunami Ready Task Team (TR-TT) to propose a member.
- Mr Öcal Necmioğlu to find out from other ICGs how they are approaching this rather complex and demanding task e.g. structure and organization.

He noted that the ICG/NEAMTWS Steering Committee (SC) had been informed that the WG 4 and the Tsunami Ready Group are not able to offer support to this activity. On this note, Mr Alessio Piatanesi, the current co-chair of Task Team on Operations (TT-O) kindly offered his support concerning the development of a global tsunami performance monitoring framework until the present ICG Meeting.

Mr Öcal Necmioğlu highlighted that within the Global Tsunami Performance Monitoring Framework (GTPMF) and the *Assessment Table*, Goal 4 on Tsunami Event Response and Recovery is a target that has not been addressed within the ICG/NEAMTWS, however there is value to examine this aspect, in particular from the lessons learned on the recent earthquake and tsunami which impacted Samos (Greece) and Izmir (Turkey) on 30 October 2020.

The proposed performance matrix monitoring framework and the assessment table is expected to be finalised in January 2022 with the aim to report back at the TOWS-WG-XV meeting in February 2022.

Mr Bernardo Aliaga highlighted that the ICG/NEAMTWS need to go one step beyond national reporting. The direction of this work is to have a more simplified mechanism to report taking into account the three TEWS pillars from each of the ICGs: hazard assessment, operations and forecasting, and preparedness and management response.

Mr Jörn Behrens, University of Hamburg, asked if the ICG/NEAMTWS could foresee if it needs to adjust the accreditation criteria and procedures according to the GTPMF, *Assessment Table*.

Mr Öcal Necmioğlu pointed out that he has not reviewed the document from that perspective. He suggested that the Task Team on Operations examine the matter and report back to the ICG/NEAMTWS SC in the first quarter of 2022.

3.4. REPORTS BY THE WORKING GROUPS AND TASK TEAM

The Chair invited the Co-Chairs of the Working Groups (WGs) and Task Teams (TTs) to report on the progress achieved during the past intersessional period with respect to the recommendations adopted at the earlier session of the ICG/NEAMTWS.

Working Group 1 on Hazard Assessment and Modelling

Mr Mauricio Gonzalez, Co-Chair of Working Group 1 [reported](#) on the activities from the intersessional period. There are two areas of focus, one is on how to use the Probabilistic Tsunami Hazard Analysis (PTHA) products to inform the civil protection authorities, and the provision of data for tsunami modeling benchmarking.

Ms Maria Ana Baptista recalled sending data for the benchmarking of the Cape Saint Vicente earthquake and tsunami of 1969. She asked if WG1 needed any more information regarding this benchmark.

Mr Jorge Macías, Universidad de Málaga, informed the session that WG1 is analysing the data and the webpage. They will make it available to the community as soon as possible.

Mr Denis Chang Seng questioned the overall aim and objectives of the benchmarking exercise, if it would be integrated into tsunami forecasting systems.

Mr Mauricio Gonzales responded that the idea is to make comparisons to the different tsunami numerical models. It would provide a common set up for the bathymetry, data, and resolution to see how different models simulate such a set of data. Mr Öcal Necmioğlu added that there are two important elements. One is to develop a scientific credibility on the inundation maps that have been prepared and second, from a TSP perspective, it would allow the issue of tsunami warning messages based on near real time modelling and make use of high computing infrastructure.

Mr Alessandro Annunziato, EC- JRC, added that the European Commission Joint Research Centre could benefit a lot from this benchmark activity given the good efficiency demonstrated in the benchmarking in terms of the calculation of the one hundred sensitivity analysis for each event.

Mr Stefano Lorito, INVG informed the session that the coastal wave evacuation and inundation maps are currently being finalised and integrated within the civil protection plans in Italy.

Working Group 2 on Seismic and Geophysical Measurements and Working Group 3 on Sea Level Data Collection and Exchange, Including Offshore Tsunami Detection and Instruments

Ms Anna Von Gyldenfeldt, Co-Chair of Working Group 2 and 3 [reported](#) on the activities for the intersessional period.

The Group is exploring potential cooperation with EuroGOOS Task Teams on High Frequency (HF) Radars for possible early tsunami detection. They are also examining how to convey information into NEAMTIC with the assistance of WG4.

The Group is also currently searching for sea level data inventories and portals that can be accessed by the public such as the European Integrated Data Archive (EIDA) project, the new EuroGOOS tide gauge inventory, the Sea Level Station Monitoring Facility of UNESCO/IOC, the Copernicus Marine Environment Monitoring Service (CMEMS) in situ Thematic Assembly Centre (TAC), the TAD server of the EC-JRC, and the European Marine Observation and the

Data Network (EMODnet) physics map. It would be interesting to discover if the sea level data portals are included in the operations and routines for national tsunami warning. Member States were invited to provide this information.

Mr Luis Matias, Universidade de Lisboa, highlighted that the WG 2 and 3 is also closely following the progress related to the SMART seafloor cable systems initiative proposed in the North-East Atlantic and Mediterranean.

Mr Öcal Necmioğlu highlighted that it is critical to report at least on an annual basis which seismic and sea level stations contribute directly to the TSPs operations.

Working Group 4 on Public Awareness, Preparedness and Mitigation

Ms Areti Plessa, Co-Chair of Working Group 4 [reported](#) on the progress and development since ICG/NEAMTWS-XVI.

The main activity of WG4 in the intersessional period has been linked to the Tsunami Ready initiative. The ICG/NEAMTWS Working Groups and Task Teams online meeting held on 24-26 November 2020 established a dedicated Group on Tsunami Ready within WG 4.

Other key activities reported by WG 4 are the assessment of the legal implications of piloting Tsunami Ready like initiatives in some test countries of the NEAM region; and a research by social scientists regarding tsunami threat levels.

Ms Areti Plessa informed the session that she will step down as Co-Chair of WG4, however, she will continue as a member of WG 4.

Mr Denis Chang Seng, on behalf of the IOC Secretariat thanked Ms Areti Plessa for her leadership and contribution to WG 4, as well as the Tsunami Ready Group. He reminded the session that the Tsunami Ready Group was created in 2020 as an informal group within WG 4. In addition, he informed that a decision will have to be taken by the end of the session to either continue with a Tsunami Ready Group within WG 4 or establish a new Task Team on Tsunami Ready with new Co-Chairs.

Task Team on Tsunami Exercise

Mr Marinos Charalampakis, Co-Chair of the Task Team on Tsunami Exercise (TT-TE) [reported](#) on the activities accomplished for the intersessional period. He provided a time table of the NEAMWave21 exercise. All the activities were on track aside from a six month postponement of the exercise because of the ongoing COVID19 Pandemic. A draft report of the NEAMWave21 Evaluation has been submitted to the ICG/NEAMTWS Secretariat. He indicated that the report will be hopefully published in the first quarter of 2022.

The TT-TE Co-Chairs were invited to participate in a TOWS Task Team Disaster Management (DMP) Regional Wave Exercise meeting on 15 September 2021, along with the Co-Chairs and Secretariat of the other ICGs. As an agreed outcome to the Wave Exercise meeting, ICGs will prepare the regional Wave Exercise objectives, success criteria, best practices, lessons learned, and future activities for discussion at TOWS–WG meeting in February 2022 to improve coordination and share best practices for the conduction and evaluation of Wave Exercises.

Task Team on Operations

Mr Alessio Piatanesi, Co-Chair of the Task Team on Operations (TT-O) [reported](#) on the activities accomplished for the intersessional period. He informed the session regarding a list of actions and progress where TT-O was involved.

The TT on Operations has begun to make progress in 4 actions strictly interconnected and mainly driven by the need for NEAM TSPs to be more inter-operable. For this, there is a collaboration among all NEAM TSPs to start developing the Tsunami Service Provider Inter-Operability Tool (TSP-IOT).

In addition, the TT on Operations have stalled and made no progress to develop a mechanism that will provide a clear status of the seismic network; and on the organization of a meeting with WG4 on adopting a Tsunami Threat Level in the NEAM region.

Mr Öcal Necmioğlu inquired if there is any progress on the update of the TSPs messages for the Maritime community. Mr Denis Chang Seng and Mr Alessio Piatanesi informed the session that there is no progress on this matter.

Mr Öcal Necmioğlu reminded the Group that the concept of the TSPs messages for the maritime community would be issued to Navarea coordinators. The ICG/NEAMTWS needs to be careful in implementing this concept because it could jeopardize agreement on the service area concept and may influence the TSP area of responsibility.

Task Team on Documentation

Mr Alessandro Amato, Co-Chair of the Task Team on Documentation (TT-Doc) [reported](#) on the progress in the development of a new ICG/NEAMTWS 2021-2030 Strategy (see also discussion under agenda item 3.5).

The TT-Doc had started the revision of the Interim Operational Users Guide (2011) to be drafted before the Steering Committee in spring 2022. The session noted that experts directly affiliated with TSPs would be better technical expertise to take on this task.

Mr Öcal Necmioğlu proposed partial updates to the ICG/NEAMTWS Operational Users Guide. For example, WGs and TTs (e.g. TT-O) can provide updates on the guidance on sea level measurements, or improvement on the ongoing messages. He highlighted that improvements can be done partially and be approved by the ICG/NEAMTWS once every year.

Mr Alessandro Amato and Mr Brian McConnell informed the session that they are stepping down as Co-Chairs to the TT-Doc.

3.5. ICG/NEAMTWS 2021-2030 STRATEGY

Mr Alessandro Amato, Co-Chair of the Task Team on Documentation reported on the situation concerning the new ICG/NEAMTWS 2021-2030 Strategy. The Strategy has been finalised and it is presently in the process of being published.

In the document there is a figure about the probabilistic tsunami hazard assessment of the NEAM region. There was a long discussion on what kind of risk information narrative should be conveyed through such PTHA assessment figures. The PTHA figure included in the new strategy shows the probability of an earthquake-generated tsunami exceeding a maximum inundation height (MIH) of 1 m in 50 years evaluated every ~ 20 km on the NEAM region coastlines. The map was derived from the NEAM Tsunami Hazard Model 2018 (NEAMTHM18; Basili et al., 2021), which is a product of the TSUMAPS-NEAM project funded by the Directorate General European Civil Protection and Humanitarian Aid Operations (DG-ECHO).

The Group also discussed how to improve the current NEAMTWS seismic network map included in the strategy.

The new ICG/NEAMTWS Strategy 2021-2030 is designed and centred on the three pillars of the ICG/NEAMTWS: pillar 1 on tsunami hazard and risk assessment; pillar 2 on detection, warning and dissemination; and pillar 3 on awareness and preparedness. In the case of Pillar 2, several requests from WGs and TTs are reflected in the long term strategy such as Tsunami Threat Levels and additional sources of tsunami observations. Pillar 3 consists of eight objectives including risk perception to strengthen the awareness of the authorities and the public, and to roll out the “Tsunami Ready” initiative in coastal communities.

Mr Denis Chang Seng on behalf of IOC apologized to the ICG/NEAMTWS XVII Session for the long delay beyond his scope in the publication of the ICG/NEAMTWS 2021-2030 Strategy. He thanked Mr Alessandro Amato, Mr Brian McConnell and all the authors for their contributions.

The Chairperson informed the session that after consulting with the ICG/NEAMTWS TSPs, Mr Stefano Lorito from INGV (Italy) and Nikos Kalligeris from NOA (Greece) were proposed new Co-Chairs of the TT on Documentation. The session welcomed the nomination of the two new co-chairs. Mr Necmioğlu raised his concerns about the approach employed for proposing the two co-chair candidates and noted that KOERI was not consulted.

Tsunami Threat Levels: First Insights

Mr Andrea Cerase, Sapienza University of Rome, [reported](#) via a recording, on the Tsunami Threat Level: first insights from a research. The concept of Tsunami Threat Levels (TTL) is a way to link tsunami expected impacts with emergency response at both individual and societal level. Research should investigate underlying factors that would make messages clear, meaningful and properly understood by receivers for a proper response to a tsunami event.

The implementation of TTL should lie on a comprehensive and consistent understanding of physical hazard, civil protection decisions and self-effective measures e.g. stay away from beaches, self-evacuation, and sheltering. Social and psychological research can investigate people’s awareness and test a TTL communication strategy to improve its effectiveness. Research on tsunami risk perception and citizens’ comprehension of tweets issued by INGV provided useful insights to be applied in crisis communication.

4. IMPLEMENTATION

4.1. STATUS AND REPORTS FOR ESTABLISHMENT OF NATIONAL TSUNAMI WARNING CENTRES AND TSUNAMI SERVICE PROVIDER

Tsunami Service Providers (TSPs), National Tsunami Warning Centers (NTWCs) and other centers supporting tsunami work provided detailed presentations available at the following links below.

NEAM Tsunami Service Providers (TSPs)

- France ([CENALT](#)), Ms H el ene H ebert, represented by Mr Pascal Roudil
- Greece ([NOA](#)), Mr Nikos Kalligeris
- Italy ([INGV](#)), Mr Alessandro Amato
- Portugal (IPMA), Mr Fernando Carrilho
- Turkey ([KOERI](#)), Mr  cal Necmio lu

NEAM National Tsunami Warning Centers / National Efforts

- Romania ([NIEP](#)), Mr Constantin Ionescu
- Spain, ([NTC](#)), Ms Beatriz Gaite and Mr Jose-Luis Rubio.

Other Key Highlights

- NOA is restructuring the tsunami messages by putting more emphasis on the important sections of the messages first.
- KOERI informed the session that 2022 will mark the 10th anniversary of the operational NEAMTWS, when both CENALT and KOERI were candidates to be Tsunami Service Providers of the ICG/NEAMTWS. The ICG/NEAMTWS needs to consider organising a workshop to discuss in detail all the technical aspects and progress of the Tsunami Service Providers (TSPs)
- In May 2021, the State Plan of Civil Protection against the Risk of Tsunami was approved in Spain. It was jointly elaborated with the Instituto Geográfico Nacional (IGN) and the Dirección General de Protección Civil y Emergencias (DGPCE). The plan will make it easier for regions and municipalities to make their own plans in a relatively harmonized way, there are already basic guidelines with a legal character for such homogeneous elaboration. At a regional level, a full scale exercise was carried out in October 2021, by the Junta de Andalusia, where one of the disasters was a tsunami at the coast of Huelva, Spain.

Mr Öcal Necmioğlu informed that he will no longer be the Tsunami National Contact (TNC) of Turkey after the ICG/NEAMTWS XVII Session because his affiliation with KOERI ends in December 2021. He will be joining the Disaster Risk Management for the European Commission, Joint Research Centre, Directorate for Space, Security and Migration, in Italy.

The Chair, Secretariat and participants thanked Mr Öcal Necmioğlu for his leadership and very important contributions to the ICG/NEAMTWS activities.

4.2. REPORTS BY OTHER CIVIL PROTECTION AGENCIES/ORGANIZATIONS

No other reports were provided by other Civil Protection Agencies/Organizations, aside from the joint report of INGV and Civil Protection Agency, Italy.

4.3. EVALUATION OF NEAMWAVE21

Mrs Ceren Sozdinler, Co-Chair of the Task Team on Tsunami Exercise (TT-TE) [reported](#) on the NEAMWave21 Exercise Evaluation. The exercise was composed of three earthquake scenarios executed by the five TSPs of the NEAM region.

Exercise Subscription and Participation

The Evaluation survey shows that eleven Member States subscribed to the exercise, from which fifty evaluation forms were filled in and received. For phase A of the exercise, TSPs reported that overall, it was a positive experience. However, there was a delay in the distribution of the exercise document to the participants. The ICG/NEAMTWS Exercise Manual – parts 1 and 2 were distributed to the ICG/NEAMTWS Member States on 25 January, 2021. She emphasized that the distribution of the Exercise Manual was late compared to the expected work plan. Key recommendations include:

- Timely distribution of the Exercise Manual to Member States;

- Organize more frequent, Phase A type exercises in order to verify the operational readiness of TSPs and message recipient lists; and the identification of the responsible person or people for submitting the evaluation from both the TT-TE and the participants' side.

Phase A and Tsunami Service Recipients (TSRs)

For the Phase A and Tsunami Service Recipients (TSRs) position, the exercise was useful in the confirmation of communication, contacts, transmission times, evaluating procedures, and becoming familiar with the English text message formats of the NEAMTWS. Key Aspects to consider in the next exercise:

- Improved clarity of TSP messages and presentation of text;
- More information from the TSPs about the wave height or run-up. Make available a chat function between TSPs and TSRs and have a password protected information website;
- Triple joint scenarios

Phase B

In the evaluation of Phase B, there were eight subscriptions, however only five evaluation forms were received from four Member States. Member States reported that these exercises are good and interesting, if it further contributes to tsunami preparedness and awareness. Some Member States requested for longer messages similar to tsunami warnings that are issued in the Pacific region.

Phase C

In the evaluation of Phase C, two Member States requested and three offered international assistance. There were some issues concerning connection to the Common Emergency Communication Information System (CESIS). It was recommended to have a mandatory link check 2 days before the exercise between the participants and the organizers.

The Emergency Response and Coordination Center (ERCC) reported that the Phase C of the exercise was a valuable experience with clear benefits including lessons to enhance ERCC working processes. There is a need for more resilient IT systems and clearly identified back up processes.

Ms Ceren Sozdinler informed the session that a draft version of the exercise evaluation report has been completed and submitted to the ICG/NEAMTWS Secretariat for review.

4.4. REPORT ON TSUNAMI READY IMPLEMENTATION

Mrs Cecilia Valbonesi, Co-Chair of WG4 [reported](#) on the development of the Tsunami Ready Programme in the NEAM region. In Spain, the IHCantabria is finalizing the first phase of a project, in collaboration with the University of Malaga and sponsored by the Municipality of Chipiona, aimed at preparing the municipality of Chipiona, Spain, for a potential tsunami event. Tsunami inundation modeling and evacuation maps were produced for the municipality and the preliminary results of these maps were presented last September to a group of key stakeholders. The work developed also included an exercise, held on October 2021, in which the time needed for the coastal population to move on foot to a safe area along the evacuation routes was analysed. A regional drill "RespuestaA 21" took place, while a Tsunami Ready office with a permanent exhibition was inaugurated in Chipiona to commemorate WTAD 2021.

In the municipality of Cannes, France, several important actions have been carried out: These actions include: experiments of the population alert capacities; finalization of evacuation plans and the online publication of an interactive map; validation of a tsunami signage; extension of the tsunami charter to hotel owners; and a tsunami exercise on WTAD 2021. At the national level, France will create the French Regional Committee and funding is being requested in order to work on the prevention of tsunami risks. The standard operating procedures of the

Bouches-du-Rhône department were also reviewed and tested during an exercise on WTAD 2021.

In Italy, the municipality of Palmi, has completed several of the UNESCO/IOC 12 Tsunami Ready Indicators and on 15 November, 2021, a new Regulatory Plan and Civil Protection Plan was officially approved (including tsunami risk). The municipality of Marzamemi officially joined the project with a Municipal Council Resolution on 28 April, 2021. In the municipality of Minturno, the TR Local Committee was nominated, and most of the UNESCO/IOC 12 Tsunami Ready Indicators will be completed in the near future.

In Turkey, the Last Mile Project implemented in Bodrum contributed to the development of some UNESCO/IOC Tsunami Ready Indicators. The municipalities of Didim, Marmaris, Fethiye and Kaş were identified as additional potential Tsunami Ready community candidates. Significant progress has been made in Istanbul, where tsunami modelling, vulnerability and hazard analysis reports have been prepared for each coastal municipality. This progress has been published online by the Istanbul Metropolitan Municipality in close cooperation with the Middle East Technical University (METU). Tsunami evacuation signs began to be installed in Istanbul in September 2021.

In Portugal, the Autoridade Nacional de Protecção Civil (ANPC) organized a webinar and announced the publication of the “Reference Guide for Tsunami Evacuation Planning” for the commemoration of WTAD 2021.

In Malta, in the context of the JRC Tsunami Last Mile Phase 2 Project, all the newly installed devices for tsunami warning of the local community were tested; the alert messages from the regional Tsunami Service Provider (CAT-INGV) were received and integrated in the draft tsunami emergency protocol (SOP). The residents in the expected inundation area of Marsaxlokk were invited to evacuate. An analysis of the exercise in comparison to the 12 UNESCO/IOC Tsunami Ready Indicators will also be performed.

In Greece, the Municipality of East Samos impacted by the October 2020 tsunami, has agreed to participate in the new EU DG-ECHO and UNESCO/IOC project. Meanwhile, the establishment of the National Tsunami Ready Board/Committee is ongoing.

A study on the impact of TR guidelines in Italy on the responsibility of scientists, public administrators and civil protection officers, and the responsibilities of the members of the local and the national TR Board, as well as the evaluation of the role of UNESCO in the recognition of a municipality as TR has been finalised. The study will be translated into English.

4.5. UPDATE ON NEAMTWS EUROPEAN UNION DG ECHO PROJECT

Mr Denis Chang Seng, ICG/NEAMTWS Technical Secretary [reported](#) on the new UNESCO/IOC and European Union (EU) Directorate-General for European Civil Protection and Humanitarian Aid Operations (DG-ECHO) project, “Strengthening the Resilience of Coastal Communities in the North–East Atlantic and Mediterranean Region to the Impact of Tsunamis and Other Sea Level Related Coastal Hazard”. The project will be implemented in seven countries: Cyprus, Egypt, Morocco, Greece, Malta, Turkey, and Spain; and it will also involve the technical expertise and advice of Member States such as Italy and France who are already implementing Tsunami Ready communities.

The project aims to improve understanding of tsunami and sea-level related risks, develop better communication strategies, enhance real-time detection and monitoring capacities, improve alert and warning capacity and eventually implement at least seven Tsunami Ready recognized communities by 2023 in the seven selected countries.

The Tsunami Ready Programme requires both a bottom up and top down approach, therefore, the project needs to be implemented with partners such as local government/authorities and community leaders and local emergency response teams. Other key partners include TSPs, NTWCs, CPAs, the education sector (schools), the tourism sector (hotels), the EC-JRC, UNDRR, scientific/research organizations and universities, etc.

The project will build up on the JRC Last Mile Projects implemented in Greece, Malta, and Turkey. A risk perception study may also be conducted in Malta with the assistance of the University of Malta. In the case of Cyprus, Egypt, and Morocco, the project will install and commission tsunami detection and alerting systems at selected sites and train operators in their use and maintenance, among several more activities.

A Communication and Visibility Plan (CVP) has been approved by the EU DG-ECHO. The different tools to be used in the CVP include: circular letters, press, media conferences, and workshops/webinars/ information meetings, as well as through survey results and focus group discussions, maps and videos (UNDRR partnership), and use of websites (e.g. NEAMTIC), social media channels (e.g. Facebook, LinkedIn, Twitter, Instagram), articles, other publications and reports.

He pointed out that the project has been branded 'CoastWAVE Project' because of its focus on coastal sea level related hazards, in particular tsunami.

He stressed that a project work plan will need to be updated to reflect the starting date of the project of 1st September 2021 compared to what was included in the project proposal in January 2021. Presently, the Secretariat is focused on processing the recruitment for two project staff members to be based at Headquarters, a Project Assistance (Finance and Administration) and Associate Project Officer. He expects that by January of 2022, the two positions will be filled in.

Mr Öcal Necmioğlu, reminded that one of the objectives of the project is to provide an improved framework for the sustainability of the existing IDSL Network. He asked, in the case that an IDSL is broken or requires change of a sensor or any other technical equipment, what would be the role of the UNESCO/IOC in providing that support.

Mr Denis Chang Seng responded that a survey will be conducted first to understand the status and any problems in the IDSL devices. This will help to identify which countries need support to maintain their IDSL devices.

Mr Alessandro Amato raised the question if it is the project objective to have accelerometers for local warning, since this is a critical issue for regional TEWS and if the project will evaluate the local early warning systems in some manner. Another question was whether a country that develops a local warning system will still be following the NEAMTWS system of receiving an early warning from the TSPs or if that would change.

Mr Denis Chang Seng clarified that the project has a focus to establish detection systems such as sea level stations and seismic devices in the countries that need it e.g. Cyprus, Morocco. The project will seek to have a proper connection, synergy and link from TSPs down to the local level through the NTWC.

Mr Öcal Necmioğlu added that the local systems implemented through the Last Mile Project and now the CoastWAVE project, would not contradict with the general structure of the NEAMTWS, but rather complement it, and address gaps in the present system.

Mr Amir Yahav, Head of the Israel Delegation, said that Israel would be happy to share its experiences and knowledge in tsunami early warning and mitigation system to the project Member States and organizations at the appropriate time.

Mr Alessandro Annunziato, EC-JRC, added that the NEAMTWS system is integrated within the national early warning system of a Member State. In the case of Malta, the Last Mile Project tsunami exercise was not a near shore event, therefore, the regional warning system

primarily issued the warning messages. In the case of a near shore event, this situation may change. As a result, one of the objectives of the project would be to improve the functionality of the early warning system in the region for both a near shore and far shore event.

Mr Alessandro Amato remarked that the local early warning system has to be well implemented to avoid false alarms, that is, a warning message could not rely on one accelerometer, but rather a well-established network.

The Technical Secretary agreed that such a well-established detection network is always desirable, however it is up to each Member State to determine what works best for them according to existing resources, noting that the ICG/NEAMTWS and the Secretariat provides the requirements, frameworks and best practices to implement effective TEWS. The Secretariat will organise a technical meeting in 2022 to reach a better consensus and understanding on the matter.

4.6. UPDATE ON OCEAN DECADE AND TSUNAMI PROGRAMME

Mr Bernardo Aliaga, Head of the UNESCO/IOC Tsunami Section (a.i), [reported](#) on the UN Ocean Decade and Tsunami Programme.

He stressed that the main social outcome of the UN Ocean Decade for Tsunamis is ‘to make 100% of communities at risk of tsunami prepared for and resilient to tsunamis by 2030’. There is a mechanism or structure to develop that. The Working Group on Tsunamis and Other Hazards Related to Sea-Level Warning and Mitigation Systems (TOWS-WG) will perform Global Steering Committee functions for the programme. It will be supported by a Scientific Committee that will be tasked to develop a Draft 10-Year Research, Development and Implementation Plan for the programme by endorsement of the TOWS-WG in its next session. The goal of the ICGs is to perform regional steering committee functions. On top of this, there is a special Coalition for Tsunami Ready that will be established in collaboration with other critical stakeholders across the UN structure and National Civil Protection Agencies.

The Tsunami Decade Scientific Community, the Tsunami Ready Coalition, and the 10-Year Research, Development and Implementation Plan are components to the governance process of the Tsunami Early Warning and Mitigation System Globally. The Tsunami Ready Coalition will play an advocacy role of co-design, partnership, and providing resources, while the scientific community will be providing guidance by drafting the ‘*Programme*’ document that will be approved by the TOWS-WG.

The TOWS-WG Task Team on Disaster Management and Preparedness (TT-DMP) and the Task Team on Tsunami Watch Operations (TT-TWO) will have a role in terms of defining the standards. The TOWS-WG will have the role as an advisory body to the governance of the UNESCO/IOC Executive Council and the Assembly. The four ICGs have a role of coordination for the regional implementation of TWS and a key function on capacity development.

In terms of technology, one key activity to follow is the SMART cable initiative established by the International Telecommunication Union (ITU), the World Meteorological Organization (WMO) and the UNESCO/IOC to explore the feasibility of using telecommunication cables to install observing systems to improve the capability of protection of tsunami warning centers. Another important activity is the use of GNSS stations from public networks around the world.

Finally, Mr Aliaga emphasised that there are gaps in knowledge to address, for example, sea level monitoring in North Africa. For this there is a need to work with Member States and technical experts to improve data exchange. Another key gap is to increase the capacities of tsunami warning and mitigation systems within Small Island Developing States (SIDS) and Least Developed States (LDS).

Mr Jörn Behrens asked how the UN Decade will communicate and deal with uncertainty.

Mr Bernardo Aliaga informed the session that uncertainty is one of the key elements of the third component of the work on tsunami warning and mitigation systems. The idea is to communicate the story of uncertainty and work with communities so they know how to react in the absence or presence of an official early warning. He hopes that the social component will be taken into account seriously by the TOWS WG and TT- DMP.

4.7. REPORTS ON PROJECTS RELATED TO NEAMTWS

Accelerating Global Science in Tsunami Hazard and Risk Analysis (AGITHAR)

Mr Jörn Behrens, University of Hamburg [reported](#) on the progress of the AGITHAR project. The main objectives of the project are to measure and have a quality assurance of the probability methods in tsunami hazard and risk assessment.

AGITHAR created a research topic in the [Frontiers](#) and *Earth Sciences* journals. This is a collection of current methods and achievements from different articles that have been accepted, and the first deliverable of this action is an exhaustive compilation of research gaps on tsunami hazard and risk assessment. This deliverable can also be used as a white paper for future funding initiatives because it values the components and difficulties of the research gaps.

The European Cooperation in Science and Technology (COST) participation should be open to all IOC/UNESCO Member States all over the world. He invited the Delegations to become participants of the COST actions if they are interested.

The future idea of the AGITHAR is to advance knowledge, to develop probabilistic approaches and to make sure that there are some quality assurance, a community understanding on how to do the probabilistic approaches, and to facilitate and sustain a community to be a platform for other initiatives such as EPOS.

Mr Denis Chang Seng questioned if and how the AGITHAR project could fit in with the Ocean Decade Tsunami Programme.

Mr Jörn Behrens responded that he is not clear on how to do that yet. One of the issues of the third and fourth funding periods of AGITHAR is how to engage and reach out to potential stakeholders. The COST Actions receive funding for collaboration and there are initiatives that will be coming out of AGITHAR, perhaps opening a chance to eventually contribute with UNESCO/IOC.

European Plate Observing System (EPOS)

Mr Alexander Rudloff, GFZ German Research Centre for Geosciences [reported](#) on the key activities of EPOS in the intersessional period. The core group has been working on a proposal for a Candidate Thematic Core Service on Tsunami (cTCS). The EPOS ERIC General Assembly adopted the initiative as a Candidate TCS with effect from 22 July 2021.

There are four thematic pillars that need to be formed and filled: (1) Support to Tsunami Service Providers, (2) Tsunami Data, (3) Numerical Models, and (4) Hazard and Risk Products. The core group is involved in several activities, e.g. EPOS ERIC Policy WG, Integration of 2 pilot cTCS Tsunami services, launching of the community web-portal, etc. A vision paper was submitted to *Annals of Geophysics - EPOS Special Issue: A. Babeyko et al.*, with "Towards the new Thematic Core Service Tsunami within the EPOS Research Infrastructure.

Mr Alexander Rudloff invited participants to get involved in the EPOS cTCS Tsunami community as it is inclusive.

4.8. REPORT BY OTHER INTERGOVERNMENTAL ORGANIZATIONS AND OBSERVERS

Directorate-General for European Civil Protection and Humanitarian Aid Operations (DG-ECHO)

Mr Peter Billing, EU DG-ECHO reported on the activities of the European Union (EU) Directorate-General for European Civil Protection and Humanitarian Aid Operations (DG-ECHO) for the intersessional period.

He recalled the functions of the Union Civil Protection Mechanism (UCPM) to prevent, prepare and respond to major disasters including tsunamis striking anywhere on the globe. In 2021, the UCPM had received more than 100 requests for assistance, throughout a whole spectrum of natural disasters. The Emergency Response Coordination Centre (ERCC) is the main coordination heart of the European Commission and offers 24/7 service with permanent presence and cross-sectorial scientific analysis. This is a capability that allows sharing of essential information, filling gaps in information, and building comprehensive situational assessments to bridge the scientific to the operational community.

Over the years, the EU DG-ECHO provided essential support for millions of people in the immediate aftermath of a disaster. Within the framework of the mechanism, the European Commission has significantly invested to develop early warning systems. There is a specific mandate and legal base to proactively use in DG-ECHO, and in the context of tsunami to complement national and UNESCO/IOC efforts to establish and further develop the NEAMTWS in various types of activities. In particular, the EU DG-ECHO funded the European Commission Joint Research Centre (JRC) to develop tsunami scenario databases, analysis tools, and alerting devices.

Previous funding to NEAMTWS include the NEAMTIC project focused on tools and a platform for public awareness dissemination; and the TSUMAPS-NEAM project, which aims to provide the necessary tools for assisting the impact at the target coastline. The EU DG-ECHO participated and co-financed tsunami exercises in the NEAM region, such as the recent NEAMWave21 exercise. Last but not least, DG-ECHO financially supported the Tsunami Last Mile Projects, implemented in the first phase in Greece and Turkey, and for the second phase in Indonesia and Malta.

On the occasion of the WTAD on 5 November, 2021, DG ECHO, JRC and the Maltese authorities ran a tsunami emergency response exercise in Marsaxlokk, Malta. This exercise in Malta, along with the exercise executed in Kos, Greece, have shown that adopting modern detection and alerting techniques, it is possible to alert local populations and to perform effective evacuation of people before the arrival of tsunami waves.

He noted that UNESCO/IOC is taking over this successful pilot project, within the context of the CoastWAVE project, which will continue to be co-funded within the UCPM framework. The innovative and integrated solutions that are tested in the project could and will become a common practice in the Mediterranean region.

Mr Denis Chang Seng thanked the European Union (EU) Directorate-General for European Civil Protection and Humanitarian Aid Operations (DG-ECHO), for supporting the UNESCO/IOC and the ICG/NEAMTWS, in particular in regards to the new CoastWAVE project.

European Commission Joint Research Centre (EC-JRC)

Mr Alessandro Annunziato, EC-JRC [reported](#) on the activities of the European Commission Joint Research Centre (EC-JRC) for the intersessional period.

He provided an update on the Tsunami Last Mile Project. The package concept on the project consists of identifying the largest possible tsunami event for the location, identification of inundation zones and evacuation routes, installation of TLM suite, table top exercises and large scale exercises.

Activities in Bodrum, Turkey and Kos, Greece (Phase 1) were very successful. In the Malta exercise (Phase 2), the University of Malta in collaboration with the National Civil Protection, performed the tsunami analysis, inundation maps and selected the Ionian Sea as the most challenging event for Malta.

A tsunami exercise was conducted in Marsaxlokk, Malta, to commemorate WTAD 2021, with the participation of the National Civil Protection, and INGV which provided the official tsunami warning messages. In comparison to Kos, Greece, the warning sirens were very loud and audible across the small town of Marsaxlokk.

The tsunami exercise in Malta received the attention of the media. JRC is presently preparing a preliminary report on the result of the exercise. However, early conclusions indicate that a detailed planning and coordination between national and local authorities is necessary; it is difficult to balance the economic interest of local authorities with the needs for the exercise simulations given the involvement of local tourism organizations. It is also important to perform 2 or 3 table top exercises well before the real exercise to avoid mistakes and it is key to carefully install devices and signages in strategic positions.

The JRC received a request from IGN, Spain, to install an IDSL (IDSL-50) device in the Canary Islands (La Palma) to monitor the Cumbre Vieja volcanic eruption. The webcam installed can see day and night images of the eruption crater and the lava drop into the sea.

The JRC will no longer install IDSL or TAD panels, but will continue to host the TAD Server for data collection and support. The new IOC UNESCO and EU DG-ECHO project includes maintenance and enlargement of the IDSL network. There is also some remaining material at JRC that may be useful for the new CoastWAVE project.

The JRC is preparing for the DG-ECHO, an activity named 'Global Situation System', a map system composed of many layers, one about the representation of a tsunami matrix for which one can see detailed information about maximum wave height for any earthquake magnitude, and other parameters.

In response to a question from Mr Jörn Behrens, Mr Alessandro Annunziato informed that the life span estimation of IDSL is not easily determined, however he would expect it to be around 3-4 years, or more. Presently, some installations have suffered some discontinuities within 5 years of being installed due to factors such as changing the sensors, however he noted that one of the advantages of IDSL sensors is that they are cheap to replace, costing 100 Euros, while traditional sensors cost 3000 Euros.

5. PROGRAMME FOR 2022

5.1. ACTIVITIES SCHEDULED FOR 2022

Actions and activities follow from adopted decisions and recommendations.

Mr Denis Chang Seng, informed that the seventh session of the [Global Platform \(GP2022\)](#) will be organized by the United Nations Office for Disaster Risk Reduction (UNDRR) from 23 to 28 May, 2022 in Bali, Indonesia. There is also a side event prior to the GPDRR planned by

the International Network on Multi-hazard Early Warning System (IN-MHEWS) on the Third Multi Hazard Early Warning conference.

Other events include the European Geosciences Union (EGU), General Assembly from 3-8 April, 2022 in Vienna, Austria; and [the First International Ocean Decade Conference](#), a Safe Ocean, Ocean Decade Laboratory will take place from 5 – 7 April 2022.

5.2. WORLD TSUNAMI AWARENESS DAY

Mr Denis Chang Seng informed that there is an increase in participation from NEAMTWS Member States in the World Tsunami Awareness Day. The UNESCO/IOC is closely partnering with UNDRR on the WTAD. The Secretariat will continue to request Member States to report on the WTAD activities implemented in their country. This information will be shared within the ICG/NEAMTWS community and also with TT–DMP.

He invited Member States that would like to produce a short video to celebrate WTAD to contact the ICG/NEAMTWS Secretariat in advance.

Mr Alessandro Amato, added that a story map for the Mediterranean tsunamis (videos, animations, and features) could be prepared for the entire NEAM region and the collaboration with all Member States interested.

Mr Denis Chang Seng reported that the UNESCO/IOC Tsunami Unit has commissioned a Tsunami Ready Interactive Map Viewer. This is still a work in progress.

5.3. ESTABLISHMENT OF INTERSESSIONAL WORKING GROUPS AND TASK TEAMS

The ICG/NEAMTWS XVII Session established the following Working Groups and Task Teams with Chairs/Co-Chairs as given below.

- **Working Group 1 - Hazard Assessment and Modelling** - Co-Chairs: Mauricio González (University of Cantabria, Spain) and Audrey Gailler (Commissariat à l'Énergie Atomique et aux Énergies Alternatives, France)
- **Working Group 2 and 3 - Seismic, Geophysical and Sea Level Measurements and Sea Level Data Collection and Exchange, Including Offshore Tsunami Detection and Instruments** - Co-Chairs: Anna von Gyldenfeldt (Federal Maritime and Hydrographic Agency, Germany) and Didem Cambaz (Bogazici University Kandilli Observatory and Earthquake Research Institute, Turkey)
- **Working Group 4 - Public Awareness, Preparedness and Mitigation** - Chair: Cecilia Valbonesi (Università Degli Studi di Firenze, Italy). There were no other nominations after the session for WG 4 co-chair.
- **Task Team on Tsunami Exercises** - Co-Chairs: Ceren Ozer Sözdinler (Gebze Technical University, Turkey) and Marinos Charalampakis (Institute of Geodynamics, National Observatory of Athens, Greece)
- **Task Team on Operations** - Co-Chairs: Alessio Piatanesi (Istituto Nazionale di Geofisica e Vulcanologia, Italy) and Fernando Carrilho (Instituto Português do Mar e da Atmosfera, Portugal)
- **Task Team on Documentation** - Co-Chairs: Stefano Lorito (Istituto Nazionale di Geofisica e Vulcanologia, Italy) and Nikos Kalligeris (National Observatory of Athens, Greece)

- **Task Team on Tsunami Ready** – Co-Chairs: The new co-chairs to be identified after the session. Following the session, Ignacio Aguirre Ayerbe (IHCantabria, Instituto de Hidráulica Ambiental de Cantabria, Spain) and Elena Daskalaki (National Observatory of Athens, Greece) were appointed as the new co-chairs.

Nominations to the Working Group on Tsunamis and Other Hazards Related to Sea-Level Warning and Mitigation Systems (TOWS-WG)

- **Task Team on Disaster Management and Preparedness**- Members: Cecilia Valbonesi (Università Degli Studi di Firenze, Italy) and Marinos Charalampakis (National Observatory of Athens, Greece)
- **Task Team on Tsunami Watch Operations**- Members: H  l  ne H  bert (Commissariat    l'  nergie Atomique et aux   nergies Alternatives, France) and Alessio Piatanesi ((Istituto Nazionale di Geofisica e Vulcanologia Roma, Italy)

6. DATE AND PLACE FOR ICG/NEAMTWS-XVIII

Mrs Maria Ana Baptista, Chair of the ICG/NEAMTWS expressed her hope that by the fourth quarter of 2022 participants will be able to meet in presentia at the next ICG/NEAMTWS -XVIII session.

Ms Anna Von Gyldenfeldt, Co-Chair of WG 2 and 3, informed the session that due to the ongoing sanitary situation, Germany will not be able to host the ICG/NEAMTWS XVIII Session.

Mr Alessandro Amato provisionally expressed interest to host the next ICG/NEAMTWS session in Erice, Sicily, Italy, however he will need to discuss this internally before providing an official offer.

Mr Denis Chang Seng, ICG/NEAMTWS Technical Secretary welcomed the proposal by Italy. He stressed that there is a need to receive another offer from Member States as a backup plan.

Mrs Maria Ana Baptista agreed and added that the ICG/NEAMTWS will adapt according to the circumstances by the time the next session approaches.

7. ADOPTION OF DECISIONS AND RECOMMENDATIONS

The meeting reviewed the draft decisions and recommendations from the plenary. The adopted and final version is included in [Annex I](#).

8. ANY OTHER BUSINESS

Mr   cal Necmio  lu raised the need to integrate the meteotsunami related work and use this as an opportunity to get other Member States, e.g. Croatia, involved in the NEAMTWS activities.

9. CLOSURE

The meeting was closed on Friday 26 November at 13:45.

ANNEX I

DECISIONS AND RECOMMENDATIONS

Paris, France, 24–26 November 2021

Decision ICG/NEAMTWS-XVII.1

The Intergovernmental Coordination Group for the Tsunami Early Warning and Mitigation System in the North-Eastern Atlantic, the Mediterranean and Connected Seas (ICG/NEAMTWS),

Having met online for its 17th Session 24–26 November 2021;

Having reviewed the progress made in the implementation of the NEAMTWS;

Notes the positive results of the fourth tsunami exercise for the region, NEAMWave21 conducted between 8-10 March 2021 and the major increase in media interest;

Expresses its thanks to Co-Chairs of the Task Team on Exercises and members for drafting the NEAMWave21 Evaluation Report and **requests** to finalize the report in the first quarter of 2022;

Recognizes the continued awareness raising efforts on tsunami hazards and preparedness by Member States during the intersessional period in line with and as a contribution to World Tsunami Awareness Day, 5 November 2021;

Appreciates the Tsunami Exercises conducted in France and Malta to commemorate the World Tsunami Awareness Day (WTAD);

Takes note of the work carried out by the Tsunami Ready Group within the Working Group 4 on Public Awareness, Preparedness and Mitigation during the intersessional period;

Appreciates the progress made by the communities of Bouches-du-Rhône and Cannes (France); Kos (Greece); Israel; Minturno, Pachino, Palmi (Italy); Marsaxlokk (Malta); Azores, Cascais, Lagos, Lisboa, Madeira, Portimão, Setúbal (Portugal); Chipiona (Spain), Bodrum and Istanbul (Turkey) towards becoming Tsunami Ready and prepared;

Welcomes the finalization of the ICG/NEAMTWS 2021-2030 Strategy Document, **expresses** its thanks to the Co-Chairs of Task Team on Documentation and **encourages** Member States and partners to contribute to its implementation;

Urges those Member States who have not yet subscribed through the IOC to the services of the TSPs to do so as soon as possible;

- **Requests** the Executive Secretary to contact Member States: Who have not nominated or verified both Tsunami Warning Focal Points (TWFPs) and Tsunami National Contacts (TNCs),
- Who have not provided Tsunami Forecast Points (TFPs), and remind them to urgently do so;

Welcomes the TNC and TWFP nominations of Libya;

Encourages the TSPs to finalize their work to produce a harmonized list of Tsunami Forecast Points (TFPs), including coastal zones of NEAMTWS where no officially communicated TFPs exist;

Takes note of the 31st IOC Assembly Decision A-31/3.4.1 concerning Tsunami and Other Coastal Hazards Warning Systems, the approval and the establishment of the Ocean Decade Tsunami Programme (the programme) and a Scientific Committee to prepare the Draft 10-Year Research, Development and Implementation Plan and the programme will be an important theme of the TOWS-WG 15th session, 24–25 February 2022;

Further welcomes the new European Union DG-ECHO project on “Strengthening the Resilience of Coastal Communities in the North East Atlantic, Mediterranean Region to the Impact of Tsunamis and Other Sea Level-Related Coastal Hazards”;

Sets the target to establish at least ten Tsunami Ready recognized communities in Mediterranean countries in the next two years, contributing to making 100% of communities at risk of tsunami prepared for and resilient to tsunamis by 2030 through the implementation of the UNESCO/IOC Tsunami Ready Programme and other initiatives;

Takes note of the study prepared by the Secretariat on Coastal Multi-Hazard Risk Perception, Resilience and Survey Questionnaires to contribute to the implementation of the new European Union DG-ECHO project concerning understanding and communication of tsunami and other sea-level related risk, and task Working Group 4 and new Task Team on Tsunami Ready to examine the survey questionnaires;

Notes the progress in the NEAM Region towards the establishment of a Tsunami Thematic Core Service (TCS) within EPOS – The European Plate Observing System, and European Research Infrastructure Consortium (ERIC) and its approval as a Candidate TCS;

Acknowledges and will follow with interest the COST Action AGITHAR - Accelerating Global Science in Tsunami Hazard and Risk Analysis; EPOS and Smart Cables initiatives;

Acknowledges the support of the European Commission (EC) and the Joint Research Centre (JRC) in capacity development, including infrastructure and research and new sea-level instrumentation and provision of measurements, especially for the Last Mile Project Phase 2 implemented in Malta and the support provided to the organisation of the first end-to-end tsunami exercise in Marsaxlokk (Malta) to address the requirements of tsunami warning, awareness, and mitigation at the local level;

Appreciates the installation of new tide-gauges network in Italy;

Requests the Co-Chairs of the Working Groups and of the Task Teams to prepare, in consultation with the members of their respective Working Groups or Task Teams, a plan of action for the intersessional period, and to submit it to the IOC Secretariat no later than the end of January 2022;

Accepts Additional recommendations of Working Groups and Task Teams as outlined in Annex I;

Decides:

- i. To continue the merged activities of Working Groups 2 and 3 in accordance to the revised Terms of Reference in Appendix I;
- ii. To continue the Task Team on Documentation according to the revised Terms of Reference in Appendix 2;
- iii. To continue the Task Team on Tsunami Exercises according to the revised Terms of Reference in Appendix 3;
- iv. To continue the activities of the Task Team on Operations according to the revised Terms of Reference in Appendix 4;
- v. To formally establish a Task Team on Tsunami Ready with Terms of Reference in Appendix 5;
- vi. To continue the activities of the Steering Committee during the intersessional period according to revised Terms of Reference in Appendix 5;
- vii. To conduct NEAMWave23 within the first week of November 2023;

Recommends:

- i. To increase the involvement of Member States in the ICG activities, with particular focus on tsunami education, awareness and preparedness, and to further explore and share experiences in piloting of Tsunami Ready for the NEAM region, Tsunami Hazard and Tsunami Evacuation Maps, Plans, and Procedures (TEMPP);
- ii. TSPs, NTWCs, WGs, TTs and Member States to provide key documents and reports to the IOC Secretariat at least one month before next ICG/NEAMTWS Session;
- iii. To make available the reports of TOWS meetings to the TNCs and to the ICG/NEAMTWS Working Groups and Task Teams for review;

Further recommends:

- i. That each TSP continues to provide alert level information based on their best practices, including (possibly different) decision matrices, scenario databases or other methods, these methodologies needing to be documented in the NEAMTWS Operational Users Guide;
- ii. That TWFPs, in close connection with their NTWCs, if applicable, to develop SOPs in order to handle diverging TSP warning messages as provided in the guidance document "Guidelines on TSP Messages Uncertainty" by Working Group 1 in 2017;
- iii. That all sea-level data should be made available to the TSPs and NTWCs using bilateral agreements, between TSPs/NTWCs, whenever possible;
- iv. To increase the number of seismic and sea level stations available in the North of Africa, and for sea level, especially in consideration of tsunamis originated from

non-subduction zones, as well as from non-seismic sources, to increase sampling rate (towards 1sps) and reduce the latency to 1 minute or less as far as possible;

- v. That Member States should encourage the active involvement of their national Civil Protection Authorities (CPAs);

Encourages Member States to host ICG/NEAMTWS-XVIII;

Thanks to the Secretariat for hosting the online Seventeenth Session of ICG/NEAMTWS.

Appendix 1 to Decisions and Recommendations ICG/NEAMTWS-XVII

Terms of References for Working Groups 2 and 3 on Seismic and Sea Level Measurements

Mandate

The working group will be responsible for:

- i. Defining, based on existing organizations and functions, detection transnational networks, like seismic, geophysical and sea-level/marine networks as part of early warning tsunami detection instruments;
- ii. Providing recommendations on the data processing and analysis;
- iii. Providing a list of possible sea level stations for the NEAMTWS.

Appendix 2 to Decisions and Recommendations ICG/NEAMTWS-XVII

Terms of Reference of the ICG/NEAMTWS Task Team on Documentation

Mandate

The Task Team will:

- i. Coordinate inputs from Tsunami Service Providers (TSPs), Working Groups and the Task Team on Operations and the Technical Secretariat to produce the NEAMTWS Strategy and Operational User Guide(OUG);
- ii. Report to ICG/NEAMTWS Steering Committee in March/April 2022 and subsequent ICG/NEAMTWS-XVIII.

Modus operandi

The Task Team will mainly work by correspondence, but will meet by teleconference as required.

Membership

- The ICG/NEAMTWS Officers;
- All TSP representatives;
- Co-Chairpersons of existing NEAMTWS Task Teams and Working Groups;

- Co-Chairpersons of the Task Team will be appointed by the ICG/NEAMTWS Chairperson in consultation with Vice-Chairpersons for a one-year term;
- Reappointed, if needed, on a rotational basis.

Appendix 3 to Decisions and Recommendations ICG/NEAMTWS-XVII

Terms of Reference of the ICG/NEAMTWS Task Team on Tsunami Exercise

Mandate

The Task Team will:

- Finalize NEAMWave21 Evaluation report by the ICG/NEAMTWS Steering Committee in the first quarter of 2022;
- Work on the preparations of NEAMWave23 in cooperation with the exercise team members and the IOC Secretariat;
- Prepare the NEAMWave23 Exercise Manual and evaluation questionnaires in collaboration with Task Team on Documentation, Working Group 4, the Exercise Task Team and the IOC Secretariat;
- Support the IOC Secretariat in the preparation of an online system for exercise subscription and evaluation.

Appendix 4 to Decisions and Recommendations ICG/NEAMTWS-XVII

Terms of Reference of the ICG/NEAMTWS Task Team on Operations

Mandate

The Task Team on Operations will facilitate improvements and harmonization of operational implementation of warning centres/systems through:

- 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;
- 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;
- Foster and propose a technical solution for real-time data exchange among TSPs and possible new CTSPs;
- Evaluate the recommendations made by inter-ICG/TOWS Working Group on Tsunami Operation for possible implementation by ICG/NEAMTWS;
- Advice on arrangements for redundancy and back-up arrangements;
- Support the Task Team on Documentation;

- vii. Continue the assessment of the Global Service Definition Document and investigate its adaptability by the NEAMTWS and report progress to ICG/NEAMTWS-XVIII.

Modus operandi

The Task Team will mainly work by correspondence and if required, another one in preparation for the next ICG meeting.

Membership

- The ICG Officers;
- All TSP Representatives;
- NTWC, TWFP and CPA Representatives;
- Co-Chairpersons of existing NEAMTWS Task Teams and Working Groups;

Co-Chairpersons of the Task Team will be appointed by the ICG/NEAMTWS Officers and will be reappointed on a rotational basis every year.

Appendix 5 to Decisions and Recommendations ICG/NEAMTWS-XVII

Terms of Reference of the ICG/NEAMTWS Task Team on Tsunami Ready

Mandate

The Task Team on Tsunami Ready Team will:

- i. Promote the Tsunami Ready programme in the NEAM region and encourage Member States to join the program;
- ii. Coordinate and foster cooperation among NEAM countries and other regions worldwide on the Tsunami Ready programme in place, as well as exchange knowledge, experiences and best practices;
- iii. Provide advice on the procedures to achieve a Tsunami Ready recognition;
- iv. Adapt the standards in NEAM region according to the IOC UNESCO Tsunami Ready guidelines;
- v. Report to and have a strong interaction with the ICGNEAMTWS/WG4.

Modus operandi

The Task Team on Tsunami Ready will mainly work by correspondence. Online meetings will be scheduled as required and agreed.

Membership

Nominated experts by Member States according to [the IOC Circular Letter No2821](#).

The list of experts can be updated by Member States, if needed;

WG 4 members on request to join the Task Team of Tsunami Ready through their respective Tsunami National Contacts;

Steering Committee members.

Appendix 6 to Decisions and Recommendations ICG/NEAMTWS-XVII

Terms of Reference of the ICG/NEAMTWS Steering Committee

Mandate

The Steering Committee shall coordinate and integrate the work of ICG/NEAMTWS in the intersessional periods, as implemented through the various Working Groups and Task Teams, including but not limited to:

- i. Monitor performance and interoperability of the NEAMTWS and report to ICG/NEAMTWS;
- ii. Implement decisions and recommendations of the ICG and provide strategic advice on the implementation of the NEAMTWS;
- iii. Identify relevant funding sources taking account of the resource implications of approved activities;
- iv. Facilitate implementation at the level of the ICG of relevant resolutions, decisions and recommendations of the IOC governing bodies;
- v. Evaluate the feasibility of implementation of the recommendations of the Working Group on Tsunamis and Other Hazards related to Sea-Level Warning and Mitigation Systems (TOWS-WG) in NEAMTWS;
- vi. Develop and maintain the NEAMTWS Implementation Plan and Interim Operations Users Guide;
- vii. Examine continuing compliance of Tsunami Service Providers (TSPs) with the adopted operational and organizational function and requirements;
- viii. Implement the procedures as adopted and the Terms of References (ToRs) for the accreditation of Candidate Tsunami Service Providers (CTSPs);
- ix. Nominate accreditation teams, foster the accreditation process during the coming year;
- x. Liaise with the Steering Committees of equivalent structures of other ICGs;
- xi. Consider the potential re-organization of Working Groups and Task Teams structure;
- xii. Promote increased awareness of NEAMTWS.

Modus operandi

The Steering Committee will mainly work by correspondence, but hold a coordination meeting prior to each ICG session. Other meetings will be held as needed.

Membership

- The ICG/NEAMTWS Officers (Chairperson and two Vice-Chairpersons);
- The Co-Chairpersons of ICG/NEAMTWS Working Groups and Task Teams;
- Representatives of (C)TSPs
- Representatives to TOWS Task Team on Disaster Management and Preparedness (TT-DMP) and Task Team on Tsunami Watch Operations (TT-TWO)
- Members of Tsunami Decade Scientific Committee and Tsunami Coalition

Annex I to Decisions and Recommendations ICG/NEAMTWS-

XVII Recommendations of Working Groups and Task

Teams

Recommendations of Working Group 1 on Hazard Assessment and Modelling

- i. To collect Probability Tsunami Hazard Assessment (PTHA) methodologies and application guidelines developed in the different countries, in order to have a document showing the state of the art, methodologies and application guidelines in regards PTHA for the NEAM region. It could be an effort conducted within the framework of the COST Action AGITHAR;
- ii. To organize at least one conference with WG 1 participants to present and discuss PTHA methodologies;
- iii. To create guidelines to elaborate Tsunami Ready flooding and evacuation maps in the NEAM region & for local emergency plans;
- iv. To include new benchmark cases provided by NEAM member states to be included in the Web page;
- v. To elaborate in collaboration with TT on Operations on specific SOPs for cancellation of tsunami hazard in relation to different characteristics of local and remote source tsunami events;
- vi. To continue the activities of the WG1 during the intersessional period.

Recommendations of Working Group 2 and 3 on Seismic, Geophysical and Sea level Measurements

- i. Member States are encouraged to actively participate in WG 2 and 3;
- ii. Member States, the JRC, other data providers and repositories to identify further needs for public access for any real time sea-level data for tsunami operations;
- iii. Promote the improvements of the communication channels for the most updated information of station status in the NEAM region;
- iv. Support the IOC Secretariat to explore possible high level approaches to data exchange from detection and monitoring networks in the North African countries, along with active engagement (workshops, technical visits, scientific projects etc.) in order to encourage their involvement and contribution in the NEAMTWS operations;

- v. Investigate and follow ongoing developments in the region about the feasibility of using smart cables, deep-sea observatories and buoys to measure sea level in offshore locations, analyzing optimal configurations for the different NEAMTWS basins;
- vi. Support the development associated with initiatives such as the SMART - CAM and MEDUSA.

Recommendations of Working Group 4 on Public Awareness, Preparedness and Mitigation

Recommendations

- i. To promote the Tsunami Ready initiative in the NEAM region through webinars, social media, videos etc.;
- ii. To continue activities aiming to keep the NEAMTIC website updated and informative in its contents;
- iii. To align future activities with the new ICG/NEAMTWS 2030 Strategy Document;
- iv. To contribute to the Decade Tsunami Programme;
- v. To interact, support and share experiences with the new established Task Team on Tsunami Ready;
- vi. To promote and contribute to a study on threat levels and social risk perceptions;
- vii. To promote the creation of an international network of scholars, Universities and research institution to be involved in such a study across NEAM area countries;
- viii. To link with international and national Ocean Literacy networks to raise general awareness and spread knowledge on tsunamis. (e.g. <https://webgate.ec.europa.eu/maritimeforum/en/node/4510>, EU4 Ocean platform, EuroGOOS working group on OL)

Recommendations of the Task Team on Tsunami Ready

Recommendations

- i. To support all countries implementing Tsunami Ready in communities, including countries participating in the IOC/UNESCO European Union DG-ECHO project;
- ii. To define the most critical points of the TR guidelines, adapting procedures to the peculiar characteristics of NEAM Countries;
- iii. To promote the Tsunami Ready programme in the NEAM region using web sites, social media, videos and webinars etc.;
- iv. Support education programs through Tsunami Ready initiatives (e.g. education programmes in schools, temporary or permanent exhibition etc.);
- v. To continue monitoring the Tsunami Ready initiatives in the NEAM region and sharing knowledge and experiences through meetings and webinars;

- vi. Continue to develop the study on the impact of Tsunami Ready guidelines on the responsibilities of scientists, public administrators and civil protection officers;
- vii. To identify common best practices in order to facilitate the dissemination of the Tsunami Ready programme in the NEAM region;
- viii. To promote longitudinal studies assessing the knowledge gained by communities in which the Tsunami Ready programme is implemented;
- ix. To share Tsunami Ready experience and knowledge with TOWS WG and Task Team on Disaster Management and Preparedness;
- x. To formally establish a Task Team on Tsunami Ready with Terms of Reference as provided in Appendix 5;

Recommendations of the Task Team on Documentation

- i. To finalise the figures and publish the NEAM Strategy 2021-2030 document before the end of 2021;
- ii. Coordinate input from TSPs and the Task Team on Operations to prepare a draft of selected sections of the revised Operational Users Guide before the next SC meeting in the spring of 2022.

Recommendations of the Task Team on Tsunami Exercises

- i. To plan and conduct the next NEAMWave tsunami exercise in 2023 (NEAMWave23);
- ii. To revise NEAMWave Exercise Manual, Part II – Exercise Supplements. Part I – Exercise Instructions updated, only if needed;
- iii. To revise the online tools (subscription and evaluation) to become more user friendly. Subscription mechanism should be clearer in regard to TSPs ordinary recipients and subscribers to the exercise;
- iv. To share the NEAMWave Exercise Manual with the exercise participants early to facilitate the necessary preparations and organizations;
- v. To organize regular online meetings between the Task Team on Tsunami Exercise (including the secretariat) and targeted participant groups, including TSPs, TWFPs, CPAs etc.;
- vi. To organize online meetings with the Emergency Response Coordination Centre (ERCC) and representatives of Civil Protection Authorities before implementing NEAMWave exercises in order to encourage them to participate in the exercises;

- vii. TNCs to encourage Civil Protection Authorities in their country to participate in future NEAMWave exercises;
- viii. Tsunami Service Providers to continue sending exercise messages to their regular message recipients as default;
- ix. IOC Secretariat to continue updating Member States tsunami contact points (TNC & TWFP) through circular letters;
- x. To 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;
- xi. Secretariat to prepare a concept information paper to inform CPAs about the general concept of NEAMWave;
- xii. TSPs to co-operate and prepare joint exercise scenarios

Recommendations of the Task Team on Operations

- i. TSPs to further collaborate to develop the Tsunami Service Provider Interoperability Tool (TSP-IOT);
- ii. TSPs to develop sea-level readings procedures for NEAMTWS purposes and formalizing which and how non-instrumental information/observations can be included in the ONGOING messages;
- iii. TSPs start defining a common TSU-CAP template to issue tsunami messages that may serve both NEAMTWS and national needs at the same time;
- iv. TT on Operations to provide inputs to the TT on Documentation to prepare/update the ICG/NEAMTWS Operational User Guide;
- v. The Steering Committee attends to the accreditation when a TSP implements major updates in their SoP.

ANNEX II

AGENDA

- 1. OPENING**
- 2. ORGANIZATION OF THE SESSION**
 - 2.1 ADOPTION OF THE AGENDA
 - 2.2 DESIGNATION OF THE RAPPORTEUR / LEAD FOR DECISION AND RECOMMENDATION
 - 2.3 CONDUCT OF THE SESSION, TIMETABLE AND DOCUMENTATION
- 3. REPORTS ON ICG/NEAMTWS INTERSESSIONAL ACTIVITIES**
 - 3.1 REPORT BY THE CHAIRPERSON
 - 3.2 REPORT BY THE IOC SECRETARIAT
 - 3.3 REPORT ON THE WORKING GROUP ON TSUNAMIS AND OTHER HAZARD RELATED TO SEA-LEVEL WARNING AND MITIGATION SYSTEMS (TOWS-WG)
 - 3.4 REPORT BY THE WORKING GROUPS AND TASK TEAMS
 - 3.5 ICG/NEAMTWS 2021-2030 STRATEGY
- 4. IMPLEMENTATION**
 - 4.1 STATUS OF ESTABLISHMENT OF NATIONAL TSUNAMI WARNING CENTRES AND TSUNAMI SERVICE PROVIDERS
 - 4.2 REPORT BY OTHER CIVIL PROTECTION AGENCIES/ORGANIZATIONS
 - 4.3 EVALUATION OF NEAMWAVE21
 - 4.4 REPORT ON TSUNAMI READY IMPLEMENTATION
 - 4.5 REPORT ON NEAMTWS EUROPEAN UNION ECHO PROJECT
 - 4.6 UPDATE ON OCEAN DECADE AND TSUNAMI PROGRAMME
 - 4.7 REPORT ON PROJECTS RELATED TO NEAMTWS E.G. AGITHAR
 - 4.8 REPORT BY OTHER INTERGOVERNMENTAL ORGANIZATIONS AND OBSERVERS
- 5. PROGRAMME FOR 2022**
 - 5.1 ACTIVITIES SCHEDULED FOR 2022
 - 5.2 WORLD TSUNAMI AWARENESS DAY
 - 5.3 ESTABLISHMENT OF INTERSESSIONAL WORKING GROUPS AND TASK TEAMS
- 6. DATE AND PLACE FOR ICG/NEAMTWS-XVIII**
- 7. ADOPTION OF DECISIONS AND RECOMMENDATIONS**
- 8. ANY OTHER BUSINESS**
- 9. CLOSURE**

ANNEX III

LIST OF DOCUMENTS

Working Documents

Agenda Item	Document Title and Link
2.5	ICGNEAMTWS XVII Time Table
3.1	Report of ICGNEAMTWS Chair
3.2	Report of IOC Secretariat
3.2	Report of Consultant
3.2	Report of Consultant
3.2	Development of a Coastal Multi-Risk Perception, Resilience Study and Survey Questionnaires
3.3	Report on TOWS-WG Activity
3.3	Report of TOWS-GTPMF
3.3	TOWS TT Global Ocean Tsunami KPI Target
3.4	Report of Task Team on Documentation
3.4	Report of WG1
3.4	Report of WG 2 and 3
3.4	Report of WG 4
3.4	Report of Task Team on Tsunami Exercise
3.4	Report of Task Team on Operations
3.4	Tsunami threat level: first insights from a meta research
3.5	NEAMTWS Strategy 2021-2030
4.1	Romania (NIEP)

4.1	NOA-HL-NTWC
4.1	INGV
4.1	CENALT
4.1	KOERI
4.1	Spain NTC
4.2	JRC
4.3	NEAMWave21 Evaluation Report
4.4	Tsunami Ready Programme Report
4.5	UNESCO/IOC and EU DG ECHO Project
4.6	The UN Ocean Decade Safe Ocean Outcome and Tsunami Early Warning Systems
4.7	AGITHAR
4.7	EPOS cTCS

ANNEX IV

LIST OF PARTICIPANTS

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ANNEX V

LIST OF ACRONYMS

AGITHAR	Accelerating Global science In Tsunami Hazard And Risk analysis
ANPC	Autoridade Nacional de Proteccao Civil
ASTARTE	Assessment, STrategy And Risk Reduction for Tsunamis in Europe
CEA	Commissariat à l'énergie atomique et aux énergies alternatives (France)
CENALT	CENtre d'Alerte aux Tsunamis, France
CESIS	Common Emergency Communication Information System
CMEMS	Copernicus Marine Environment Monitoring Service
COST	European Cooperation in Science and Technology
CPA	Civil Protection Authority
cTCS	Candidate Thematic Core Service on Tsunami
CTE	Communication Test Exercise
DMP	Disaster Management and Preparedness
EU-DG-ECHO	Directorate-General of the European Commission's Humanitarian Aid Office
EGU	European Geoscience Union
EMODnet	European Marine Observation and Data Network
EPOS	European Plate Observing System
ERCC	Emergency Response and Coordination Center
EWEA	Early Warning and Early Action
GFZ	German Research Centre for Geosciences
GLOSS	Global Sea Level Observing System
GNSS	Global Navigation Satellite System
GOPM	Global Ocean Performance Monitoring
GTPMF	Global Tsunami Performance Monitoring Framework
ICG	Intergovernmental Coordination Group
ICG/NEAMTWS	Intergovernmental Coordination Group for the Tsunami Early Warning and Mitigation System in the North-Eastern Atlantic, the Mediterranean and Connected Seas
ICG/PTWS	Intergovernmental Coordination Group for the Pacific Tsunami Warning and Mitigation System
IDSL	Inexpensive Device for Sea Level Measurement

INGV	Istituto Nazionale di Geofisica e Vulcanologia, Italy
IPMA	Instituto Português do Mar e da Atmosfera, Portugal
ITU	International Telecommunication Union
IOC	Intergovernmental Oceanographic Commission (UNESCO)
JRC	Joint Research Centre
KOERI	Kandilli Observatory and Earthquake Research, Turkey
LDS	Least Developed States
METU	Middle East Technical University, Turkey
MOU	Memorandum of Understanding
NEAM	North-Eastern Atlantic, the Mediterranean and Connected Seas
NEAMTIC	Tsunami Information Centre for the North-Eastern Atlantic, the Mediterranean and Connected Seas
NIEP	National Institute for Earth Physics, Romania
NOA	National Observatory of Athens, Greece
NTWC	National Tsunami Warning Centre
OUG	Operational Users Guide
PTHA	Probability Tsunami Hazard Assessment
SIDS	Small Island Developing States
TEMPP	Tsunami Evacuation Maps, Plans, and Procedures
TNC	Tsunami National Contact
ToR	Terms of Reference
TOWS-WG	Working Group on Tsunamis and Other Hazards related to Sea-Level Warning and Mitigation Systems
TR	Tsunami Ready
TSP	Tsunami Service Provider
TSR	Tsunami Service Recipient
TSUMAPS	Probabilistic Tsunami Hazard Maps
TT	Task Team
TTL	Tsunami Threat Levels
TWFP	Tsunami Warning Focal Point
TWO	Tsunami Watch Operations
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNDRR	United Nations Office for Disaster Risk Reduction

WG	Working Group
WTAD	World Tsunami Awareness Day