

Intergovernmental Oceanographic Commission

Workshop Report No. 286



Preparing for the Next Tsunami: Reducing Losses and Damages in the Coastal Western Mediterranean Areas

Summary Recommendations

Rabat, Morocco

15–16 November 2018

UNESCO

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* Annexes are available in English only.

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1. INTRODUCTION

Representatives of governmental, scientific and emergency management institutions from the Maghreb countries gathered in Rabat, Morocco, on the 15 and 16 November 2018 for a workshop on *Preparing for the Next Tsunami: Reducing Losses and Damages in the Coastal Western Mediterranean Areas*. The aim of the workshop was to present the development of the Tsunami Early Warning and Mitigation System in the North-Eastern Atlantic, the Mediterranean and Connected Seas (NEAMTWS) as well as to discuss national tsunami hazard, risk, preparedness and mitigation in Maghreb/ISESCO countries.

The workshop was organized by the Intergovernmental Oceanographic Commission ([IOC](#)) of UNESCO together with the Islamic Educational, Scientific and Cultural Organization ([ISESCO](#)), the UNESCO for the Maghreb based in Rabat, and the Centre National pour la Recherche Scientifique et Technique of Morocco ([CNRST](#)).

The workshop was held back-to-back with the [Experts Meeting on the Identification and Prioritization of Capacity-Building activities related to Natural Hazards, 12–13 November 2018](#) organized by the Earth Sciences and Geo-Hazards Risk Reduction section of the ISESCO/UNESCO.

The meeting was opened by Dr Abdulaziz Othman Altwajiri, Director General of ISESCO, Mrs Golda El Khoury, Director of UNESCO Rabat Office; and Dr Denis Chang Seng, Technical Secretary for ICG/NEAMTWS of IOC/UNESCO.

2. THE BACKGROUND

The Mediterranean has experienced one of the deadliest tsunamis ever, generated by the A.D. 365 Crete earthquake. The North-East Atlantic area is also an area at risk where well-known earthquake sources can generate tsunamis causing extensive loss of life and property (e.g. the 1755 Lisbon earthquake and tsunami that impacted coastal areas of Portugal, Spain, Morocco and the Caribbean).

Over the last few years several tsunamis have been recorded in the NEAMTWS region e.g. Aegean Sea (21 July 2017), in Alboran Sea (25 January 2016) and in the Ionian Sea (17 November 2015). Although moderate in size, these events highlight that the tsunami threat in the NEAM region is real. Although tsunamis are relatively rare in the region, exposure, vulnerability, risk and impacts to coastal areas are high because of the increasing coastal population density, including coastal tourism and coastal infrastructures.

Following the 26 December 2004 Indian Ocean Tsunami, Member States of the Intergovernmental Oceanographic Commission requested the IOC to coordinate the development of three new tsunami early warning systems (in Indian Ocean, Caribbean and NE Atlantic and Mediterranean and connected seas [NEAM]) in addition to the Pacific Tsunami Warning System (PTWS) which IOC had coordinated since 1965. For the NEAMTWS region, this coordination is provided in the IOC Intergovernmental Coordination Group for the Tsunami Early Warning and Mitigation System in the North-Eastern Atlantic, the Mediterranean and Connected Seas (ICG/NEAMTWS) which was formally established during the 23rd Intergovernmental Oceanographic Commission (IOC) Assembly ([IOC-XXIII/3](#)) held in 2005. ICG/NEAMTWS is made up of 40 Member States of both Mediterranean, Black Sea and North-Eastern Atlantic regions.

The coordination and development work for NEAMTWS has focus on three strategic areas of work: (i) Tsunami hazard assessment; (ii) preparedness and awareness; and (iii) warning system development. The warning system part of NEAMTWS has developed steadily and is

now operational with four accredited Tsunami Service Providers (TSPs) (France, Greece, Italy and Turkey) and one soon to be accredited TSP in Portugal all of which provide Tsunami alert services to NEAM Member States that wish to receive these alerts. There is room for further improvement in terms of effectively linking the TSPs with National Warning Centres and Civil Protection Organizations to enhance tsunami preparedness in the region.

3. THE WORKSHOP

The workshop was organized in five sessions: (i) NEAMTWS and national capacities in tsunami warning and mitigation; (ii) Reception of alerts and decision making process, emergency response; (iii) Tsunami hazard, risk assessment & communication; (iv) Community preparedness & recognition initiatives; and (v) Regional and global initiatives. The workshop was closed with a discussion session on the way forward.

4. RECOMMENDATIONS

This section provides a summary of key recommendations grouped under the three pillars of Tsunami Early Warning and Mitigation System: Tsunami Hazard and Risk Assessment, Warning System Development (Warning Guidance, Preparedness, Awareness and Mitigation) as well as governance related issues.

Tsunami Hazard and Risk Assessment

- Understand tsunami risk perceptions in Maghreb countries in order to better design and implement education and preparedness activities/ programmes.
- Improved tsunami hazard, vulnerability, risk and impact assessment (e.g., maximum wave and inundation expected) to better inform evacuation planning, mitigation actions and response.
- Countries to consider incorporating climate change sea level rise in tsunami hazard assessments to better understand coastal inundation impacts. This will better inform mitigation actions and evacuation planning.
- Maghreb countries to continue developing collaboration and partnerships with European counterpart countries to further advance tsunami early warning and mitigation systems.

Warning System Development

Warning Guidance

- More effort is needed to address existing tsunami detection and monitoring gaps (sea level and seismic networks).
- Financial support is required to maintain existing instruments and observation/detection system.

Preparedness, Awareness and Mitigation

- In the NEAM region, there is a continuous need for education, training and preparedness. Participation in future regional tsunami exercise is instrumental in developing awareness and response capacities to tsunami.

- Participation of Maghreb countries in the World Tsunami Awareness Day, 5 November is also instrumental in developing a culture of tsunami awareness and risk reduction strategies.
- Governmental support is needed from national authorities (e.g. Disaster Management and Civil Protection Agencies) to further advance preparedness and response capacities from coastal hazards, including tsunami.
- Sensitize authorities and the communities at risk concerning tsunami evacuation plans to guarantee they successfully implemented.

Governance

- Official National Tsunami Warning Focal Points (TWFP) and Tsunami National Contacts (TNC) should be designated as soon as possible noting that only Morocco and Egypt have TWFP and TNC in Maghreb countries
- Maghreb countries are encouraged to subscribe to C (TSPs) in order to receive tsunami services and alerts.
- Maghreb countries are encouraged to support tsunami related workshops and activities when and where possible.

5. PRESENTATIONS

- *Overview of the Workshop and Main Goals.* Denis Chang Seng, Intergovernmental Oceanographic Commission of UNESCO;
- *The Status of NEAMTWS and Challenges.* Gerasimos Papadopoulos, Intergovernmental Coordination Group for the Tsunami Early Warning and Mitigation System in the North-eastern Atlantic, the Mediterranean and connected seas (ICG/NEAMTWS) Chair;
- *The Tsunami Alert System for the Atlantic and Mediterranean Coast of Morocco.* Nacer Jabour, Centre National pour la Recherche Scientifique et Technique (CNRST);
- *The CENALT, France Tsunami Service Provider / National Tsunami Warning Center - Experiences from six Years of Operation.* François Schindelé, Commissariat à l'Énergie Atomique / CENTre d'Alerte aux Tsunamis (CEA/CENALT);
- *Portugal National Tsunami Warning Center and Candidate Tsunami Service Provider.* Fernando Carrilho, Instituto Português do Mar e da Atmosfera (IPMA);
- *The Italian National Tsunami Warning Center and Tsunami Service Provider.* Fabrizio Romano, Centro di Allerta Tsunami at Istituto Nazionale di Geofisica e Vulcanologia (CAT-INGV);
- *The Greek National Tsunami Warning Center and Tsunami Service Provider.* Gerasimos Papadopoulos, National Observatory of Athens (NOA);
- *Early Warning Capacities in Tunisia and Challenges.* Samir Ben Abdallah, Institut national de la météorologie (INM);

- *The risk of tsunami around the Alboran Sea: State of research and main potentially Tsunamigenic sources/structures.* Fida Medina, Association of Geosciences;
- *High Frequency Sea-Level Monitoring and its Importance in Coastal Flood Risk Reduction.* Yacin Hemdane, Université des Sciences et de la Technologie Houari Boumediene (USTHB);
- *The Spanish Tsunami Warning System and Joint Activities with the Civil Protection Agency.* Elena Tel, Instituto Espanol de Oceanografia (IEO);
- *The Italian Alert and Response System for Tsunamis: Status, Achievements and Challenges.* Marzia Santini, Civil Protection Agency (CPA);
- *Exercise and Implementation of Tsunami Emergency Plan in France.* François Schindelé, Commissariat à l'Énergie Atomique / CENTre d'Alerte aux Tsunamis (CEA/CENALT);
- *Establishment of a Generic Approach for Tsunami Risk Modeling in Morocco.* Abderrahman Atillah, Centre Royal de Télédétection Spatiale (CRTS);
- *Tsunami Hazard Assessment in Morocco and Procedures to Reduce Losses in Moroccan Coastal Zones (case of Tangier city).* Sabah Benchekroun, Centre National pour la Recherche Scientifique et Technique (CNRST);
- *Worst Case Scenario of Tsunami Along the Egyptian Coast in the Mediterranean.* Amr Hamouda, National Institute of Oceanography and Fisheries (NIOF);
- *Hazard / Risk / Impact Assessments: ASTARTE Results.* Gerasimos Papadopoulos, National Observatory of Athens (NOA);
- *Probabilistic Tsunami Hazard Mapping in the NEAM Region: [The TSUMAPS - NEAM Project](#).* Jacopo Selva and the "probabilistic TSUNAMI hazard MAPS for the NEAM region" Team (TSUMAPS- NEAM);
- *Tsunami Hazard Assessment Along the Northern Coast of Oman.* Issa El – Hussain, Earthquake Monitoring Center ;
- *Cannes Tsunami Exercise on 5 November 2018.* François Schindelé, Commissariat à l'Énergie Atomique / CENTre d'Alerte aux Tsunamis (CEA/CENALT);
- *Towards a Community Preparedness and Recognition Programme in NEAM Region.* Marzia Santini, Civil Protection Agency (CPA) and, Denis Chang Seng, Intergovernmental Oceanographic Commission of UNESCO (IOC/UNESCO);
- *Towards Tsunami Preparedness for Beaches in the Maltese Islands.* Anton Micallef, Council of Europe EUR-OPA Major Hazards Agreement;
- *Report on the UNESCO-ISESCO Experts Meeting on the Identification and Prioritization of Capacity-Building Activities Related to Natural Hazards (13-14 November 2018).* Jair Torres, UNESCO Natural Science Sector ;
- *Findings Related to Tsunami EWS in Morocco and Capacity Building on Disaster Risk Reduction.* Charles Baubion, Organisation for Economic Co-operation and Development (OECD);

- *TWS in the Context of the Sendai Framework for DRR and the UN Decade of Ocean Science for Sustainable Development.* Denis Chang Seng, Intergovernmental Oceanographic Commission of UNESCO (IOC/UNESCO);
- *Towards Future Tsunami/DRR Activities in the North-African Region.* Denis Chang Seng, Intergovernmental Oceanographic Commission of UNESCO (IOC/UNESCO).

6. CONTACT

Dr Denis Chang Seng, Intergovernmental Oceanographic Commission (IOC) of UNESCO, Technical Secretary for ICG/NEAMTWS, e-mail: d.chang-seng@unesco.org.

REFERENCES AND FURTHER INFORMATION ON NEAMTWS:

- 10 years of the North-Eastern Atlantic, the Mediterranean and Connected Seas Tsunami Warning and Mitigation System (NEAMTWS): accomplishments and challenges in preparing for the next tsunami ([IOC/INF-1340](#))
- North-Eastern Atlantic and Mediterranean Tsunami Information Centre (NEAMTIC) <http://neamtic.ioc-unesco.org/>
- Intergovernmental Coordination Group for the Tsunami Early Warning and Mitigation System in the North-Eastern Atlantic, the Mediterranean and Connected Seas (ICG/NEAMTWS): http://www.ioc-tsunami.org/index.php?option=com_content&view=article&id=10&Itemid=14&lang=en

Synthèse des recommandations

Se préparer au prochain tsunami : limiter les pertes et les dommages dans les régions côtières occidentales de la Méditerranée

Rabat, Maroc
15–16 novembre 2018

1. INTRODUCTION

Des représentants d'institutions gouvernementales, scientifiques et de gestion des situations d'urgence des pays du Maghreb se sont réunis à Rabat (Maroc) les 15 et 16 novembre 2018 dans le cadre d'une réunion de travail ayant pour thème « Se préparer au prochain tsunami : limiter les pertes et les dommages dans les régions côtières occidentales de la Méditerranée ». L'objectif de l'atelier était de présenter l'évolution du Système d'alerte rapide aux tsunamis et de mitigation dans l'Atlantique du Nord-Est, la Méditerranée et les mers adjacentes (NEAMTWS), ainsi que de discuter des dangers et risques de tsunami, de la préparation aux tsunamis et de l'atténuation de leurs effets dans les pays maghrébins de l'ISESCO.

La réunion a été organisée par la Commission océanographique intergouvernementale ([COI](#)) de l'UNESCO en coopération avec l'Organisation islamique pour l'éducation, les sciences et la culture ([ISESCO](#)), le Bureau de l'UNESCO pour le Maghreb basé à Rabat et le Centre national pour la recherche scientifique et technique du Maroc ([CNRST](#)).

L'événement s'est déroulé à la suite de la [réunion d'experts sur la définition et la hiérarchisation d'activités de renforcement des capacités en lien avec les risques naturels \(12-13 novembre 2018\)](#), qui était organisée par la Section des sciences de la Terre et de la réduction des géorisques de l'ISESCO/UNESCO.

La réunion a été ouverte par M. Abdulaziz Othman Altwajiri, Directeur général de l'ISESCO, Mme Golda El Khoury, Directrice du Bureau de l'UNESCO à Rabat, et M. Denis Chang Seng, Secrétaire technique du GIC/NEAMTWS de la COI de l'UNESCO.

2. LE CONTEXTE

La Méditerranée a été le lieu de l'un des tsunamis les plus meurtriers de l'histoire, provoqué par un séisme qui a touché la Crète en 365 après J.-C. La région de l'Atlantique du Nord-Est est elle aussi une région menacée, des sources sismiques bien connues pouvant déclencher des tsunamis qui provoqueraient des pertes humaines et matérielles considérables (tels que le séisme qui a frappé Lisbonne en 1755 et le tsunami qui a touché les zones côtières du Portugal, de l'Espagne, du Maroc et des Caraïbes).

Ces dernières années, la région du NEAMTWS a enregistré plusieurs tsunamis, par exemple dans la mer Égée (21 juillet 2017), la mer d'Alboran (25 janvier 2016) et la mer Ionienne (17 novembre 2015). Bien que d'une ampleur modérée, ces événements mettent en évidence l'existence d'un risque de tsunami dans la région. Ces phénomènes sont relativement peu fréquents dans la région, mais les conséquences qu'ils engendrent, les risques qu'ils présentent, ainsi que l'exposition et la vulnérabilité des zones littorales sont considérables du fait de l'augmentation de la densité de population sur les côtes, qui englobe le tourisme côtier et les infrastructures littorales.

Suite au tsunami survenu le 26 décembre 2004 dans l'océan Indien, les États membres de la COI ont demandé à la Commission de coordonner la mise en place de trois nouveaux systèmes d'alerte rapide aux tsunamis (dans l'océan Indien, dans la mer des Caraïbes et dans l'Atlantique du Nord-Est, la Méditerranée et les mers adjacentes (NEAM)) en plus du Système

d'alerte aux tsunamis dans le Pacifique qu'elle coordonnait depuis 1965. Pour la région du NEAMTWS, la coordination est assurée par 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), qui a été officiellement créé lors de la 23^e session de l'Assemblée de la COI en 2005. Le GIC/NEAMTWS est composé de 40 États membres des régions de la Méditerranée, de la mer Noire et de l'Atlantique du Nord-Est.

Le travail de coordination et de développement du NEAMTWS a porté sur trois domaines d'action stratégiques : (i) l'évaluation des risques de tsunami ; (ii) la préparation et la sensibilisation ; (iii) la mise en place d'un système d'alerte. La partie système d'alerte du NEAMTWS a été élaborée de manière continue ; elle est désormais opérationnelle grâce à quatre prestataires accrédités de services relatifs aux tsunamis (TSP) (en France, en Grèce, en Italie et en Turquie), un prestataire supplémentaire devant bientôt être accrédité au Portugal. Tous les prestataires fournissent des services d'alerte aux tsunamis aux États membres de la région qui souhaitent recevoir des alertes. Il reste encore des améliorations à apporter s'agissant d'établir un lien efficace entre les TSP et les centres nationaux d'alerte et organisations de la protection civile pour améliorer la préparation aux tsunamis dans la région.

3. LA RÉUNION

La réunion a comporté cinq séances : (i) le NEAMTWS et les capacités nationales d'alerte aux tsunamis et d'atténuation de leurs effets ; (ii) la réception d'alertes, le processus décisionnel, l'intervention d'urgence ; (iii) les risques de tsunami, l'évaluation des risques et la communication ; (iv) les initiatives d'information et de préparation des populations ; (v) les initiatives régionales et mondiales. La réunion s'est achevée par un débat sur la voie à suivre.

4. RECOMMANDATIONS

La présente section résume les principales recommandations classées en trois volets : le système d'alerte rapide aux tsunamis et de mitigation (évaluation des dangers et risques de tsunami), la mise en place du système d'alerte (conseils en matière d'alerte, préparation, sensibilisation et atténuation des conséquences), et les questions relatives à la gouvernance.

Évaluation des dangers et risques de tsunami

- Comprendre comment les pays du Maghreb perçoivent les tsunamis pour améliorer la conception et la mise en œuvre des activités/programmes de sensibilisation et de préparation.
- Améliorer l'évaluation des dangers, de la vulnérabilité, des risques et des conséquences (par exemple, vague et inondation maximales attendues) pour mieux guider la planification des évacuations, les interventions et les mesures d'atténuation.
- Les pays doivent envisager d'incorporer l'élévation du niveau de la mer découlant du changement climatique dans les évaluations des risques de tsunami pour mieux comprendre les conséquences des inondations côtières et orienter les mesures d'atténuation et la planification des évacuations.
- Les pays du Maghreb doivent continuer de renforcer leur collaboration et leurs partenariats avec leurs homologues européens pour faire progresser les systèmes d'alerte rapide aux tsunamis et de mitigation.

Mise en place du système d'alerte

Conseils en matière d'alerte

- De plus amples efforts doivent être déployés pour combler les lacunes existantes dans la détection et le suivi des tsunamis (réseaux marégraphiques et sismiques).
- Un soutien financier est requis pour assurer le fonctionnement des instruments en place et du système d'observation/détection.

Préparation, sensibilisation et atténuation

- Les besoins en matière de sensibilisation, de formation et de préparation sont constants dans la région NEAM. La participation au futur exercice régional relatif aux tsunamis est essentielle pour faire connaître ce phénomène et développer les capacités d'intervention.
- La participation des pays du Maghreb à la Journée mondiale de sensibilisation aux tsunamis (5 novembre) est également essentielle pour mettre en place une culture de la sensibilisation aux tsunamis et élaborer des stratégies de réduction des risques.
- Les autorités nationales (par exemple, les organismes de gestion des catastrophes et de protection civile) doivent fournir un soutien gouvernemental pour faire avancer la préparation et développer les capacités d'intervention pour faire face aux risques côtiers, y compris aux tsunamis.
- Faire connaître les plans d'évacuation en cas de tsunamis aux autorités et aux populations menacées pour qu'ils puissent être mis en œuvre efficacement.

Gouvernance

- Il convient de désigner des points focaux nationaux officiels pour l'alerte aux tsunamis (TWFP) et des contacts nationaux pour les tsunamis (TNC) le plus tôt possible, seuls le Maroc et l'Égypte disposant de TWFP et de TNC parmi les pays du Maghreb.
- Les pays du Maghreb sont encouragés à se rapprocher des candidats-prestataires de services relatifs aux tsunamis (CTSP) pour recevoir les services et alertes relatifs aux tsunamis.
- Les pays du Maghreb sont encouragés à soutenir les ateliers et activités relatifs aux tsunamis dans la mesure du possible.

5. EXPOSÉS

- *Overview of the Workshop and Main Goals (Présentation de la réunion de travail et de ses principaux objectifs)*. Denis Chang Seng, Commission océanographique intergouvernementale de l'UNESCO ;
- *The Status of NEAMTWS and Challenges (Situation du NEAMTWS et défis)*. Gerasimos Papadopoulos, Président du 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) ;

- *The Tsunami Alert System for the Atlantic and Mediterranean Coast of Morocco (Le système d'alerte aux tsunamis pour la côte atlantique et méditerranéenne du Maroc).* Nacer Jabour, Centre National pour la Recherche Scientifique et Technique (CNRST) ;
- *The CENALT, France Tsunami Service Provider / National Tsunami Warning Center - Experiences from six Years of Operation (Le CENALT, prestataire de services relatifs aux tsunamis de la France / centre national d'alerte aux tsunamis – Expérience de six années de fonctionnement).* François Schindelé, Commissariat à l'énergie atomique / Centre d'alerte aux tsunamis (CEA/CENALT) ;
- *Portugal National Tsunami Warning Center and Candidate Tsunami Service Provider (Centre national d'alerte aux tsunamis et candidat-prestataire de services relatifs aux tsunamis du Portugal).* Fernando Carrilho, Instituto Português do Mar e da Atmosfera (IPMA) ;
- *The Italian National Tsunami Warning Center and Tsunami Service Provider (Le Centre national italien d'alerte aux tsunamis et prestataire de services relatifs aux tsunamis).* Fabrizio Romano, Centro di Allerta Tsunami at Istituto Nazionale di Geofisica e Vulcanologia (CAT-INGV) ;
- *The Greek National Tsunami Warning Center and Tsunami Service Provider (Le Centre national grec d'alerte aux tsunamis et prestataire de services relatifs aux tsunamis).* Gerasimos Papadopoulos, Observatoire national d'Athènes (NOA) ;
- *Early Warning Capacities in Tunisia and Challenges (Capacités d'alerte rapide en Tunisie et défis).* Samir Ben Abdallah, Institut national de la météorologie (INM) ;
- *The risk of tsunami around the Alboran Sea: State of research and main potentially Tsunamigenic sources/structures (Le risque de tsunamis autour de la mer d'Alboran : état de la recherche et principales sources/structures potentiellement tsunamigènes).* Fida Medina, Association des géosciences ;
- *High Frequency Sea-Level Monitoring and its Importance in Coastal Flood Risk Reduction (Importance du suivi des données haute fréquence sur le niveau des mers pour la réduction des risques d'inondations côtières).* Yacin Hemdane, Université des sciences et de la technologie Houari Boumediène (USTHB) ;
- *The Spanish Tsunami Warning System and Joint Activities with the Civil Protection Agency (Le Centre espagnol d'alerte aux tsunamis et les activités menées conjointement avec la Protection civile).* Elena Tel, Instituto Espanol de Oceanografia (IEO) ;
- *The Italian Alert and Response System for Tsunamis: Status, Achievements and Challenges (Le système italien d'alerte et de réponse aux tsunamis : situation, réussites et défis).* Marzia Santini, Protection civile ;
- *Exercise and Implementation of Tsunami Emergency Plan in France (Exercice et mise en œuvre du plan d'urgence en cas de tsunami en France).* François Schindelé, Commissariat à l'énergie atomique / Centre d'alerte aux tsunamis (CEA/CENALT) ;
- *Establishment of a Generic Approach for Tsunami Risk Modeling in Morocco (Mise en place d'une approche générique de la modélisation des risques de tsunamis au Maroc).* Abderrahman Atillah, Centre Royal de Télédétection Spatiale (CRTS) ;

- *Tsunami Hazard Assessment in Morocco and Procedures to Reduce Losses in Moroccan Coastal Zones (case of Tangier city) (Évaluation des risques de tsunami au Maroc et procédures pour limiter les pertes sur les zones côtières marocaines – cas de la ville de Tanger)*. Sabah Benchekroun, Centre National pour la Recherche Scientifique et Technique (CNRST);
- *Worst Case Scenario of Tsunami Along the Egyptian Coast in the Mediterranean (Pire scénario de tsunami le long de la côte égyptienne de la Méditerranée)*. Amr Hamouda, Institut national d'océanographie et de pêche (NIOF);
- *Hazard / Risk / Impact Assessments : ASTARTE Results (Évaluations des dangers / risques / impacts : les résultats du projet ASTARTE)*. Gerasimos Papadopoulos, Observatoire national d'Athènes (NOA) ;
- *Probabilistic Tsunami Hazard Mapping in the NEAM Region: [The TSUMAPS - NEAM Project](#) (Cartographie probabiliste des risques de tsunami dans la région NEAM : le Projet TSUMAPS – NEAM)*. Jacopo Selva et l'équipe « probabilistic TSUunami hazard MAPS for the NEAM region » (TSUMAPS-NEAM) ;
- *Tsunami Hazard Assessment Along the Northern Coast of Oman (Évaluation des risques de tsunami le long de la côte nord d'Oman)*. Issa El – Hussain, Earthquake Monitoring Center ;
- *Cannes Tsunami Exercise on 5 November 2018 (Exercice d'alerte aux tsunamis mené à Cannes le 5 novembre 2018)*. François Schindelé, Commissariat à l'énergie atomique / Centre d'alerte aux tsunamis (CEA/CENALT) ;
- *Towards a Community Preparedness and Recognition Programme in NEAM Region (Vers un programme d'information et de préparation des populations dans la région NEAM)*. Marzia Santini, Protection civile, et Denis Chang Seng, Commission océanographique intergouvernementale de l'UNESCO (COI/UNESCO) ;
- *Towards Tsunami Preparedness for Beaches in the Maltese Islands (Vers une préparation aux tsunamis des plages des îles maltaises)*. Anton Micallef, Accord EUR-OPA risques majeurs du Conseil de l'Europe ;
- *Report on the UNESCO-ISESCO Experts Meeting on the Identification and Prioritization of Capacity-Building Activities Related to Natural Hazards (13-14 November 2018) (Compte rendu de la réunion d'experts UNESCO-ISESCO sur la définition et la hiérarchisation d'activités de renforcement des capacités en lien avec les risques naturels, 13-14 novembre 2018)*. Jair Torres, Secteur des sciences exactes et naturelles de l'UNESCO ;
- *Findings Related to Tsunami EWS in Morocco and Capacity Building on Disaster Risk Reduction (Résultats liés aux systèmes d'alerte rapide aux tsunamis au Maroc et renforcement des capacités pour la réduction des risques de catastrophe)*. Charles Baubion, Organisation de coopération et de développement économiques (OCDE) ;
- *TWS in the Context of the Sendai Framework for DRR and the UN Decade of Ocean Science for Sustainable Development (Les TWS dans le contexte du Cadre d'action de Sendai pour la réduction des risques de catastrophe et de la Décennie des Nations Unies pour les sciences océaniques au service du développement durable)*. Denis Chang Seng, Commission océanographique intergouvernementale de l'UNESCO (COI/UNESCO) ;

- *Towards Future Tsunami/DRR Activities in the North-African Region (Vers de futures activités relatives aux tsunamis et à la réduction des risques de catastrophe dans la région de l'Afrique du Nord)*. Denis Chang Seng, Commission océanographique intergouvernementale de l'UNESCO (COI/UNESCO).

6. CONTACT

M. Denis Chang Seng, Commission océanographique intergouvernementale (COI) de l'UNESCO, Secrétaire technique du GIC/NEAMTWS, courriel : d.chang-seng@unesco.org.

RÉFÉRENCES ET INFORMATIONS COMPLÉMENTAIRES SUR LE NEAMTWS :

- *10 years of the North-Eastern Atlantic, the Mediterranean and Connected Seas Tsunami Warning and Mitigation System (NEAMTWS): accomplishments and challenges in preparing for the next tsunami* ([IOC/INF-1340](#))
- Centre d'information sur les tsunamis pour l'Atlantique du Nord-Est, la Méditerranée et les mers adjacentes <http://neamtic.ioc-unesco.org/>
- 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) :
http://www.ioc-tsunami.org/index.php?option=com_content&view=article&id=10&Itemid=14&lang=fr

موجز التوصيات

التحضير للتسونامي القادم: الحد من الخسائر والأضرار في المناطق الساحلية غرب البحر الأبيض المتوسط

الرباط، المغرب

15-16 تشرين الثاني/نوفمبر 2018

1 - المقدمة

اجتمع ممثلون عن المؤسسات الحكومية والعلمية ومؤسسات إدارة حالات الطوارئ من بلدان المغرب العربي في الرباط بالمغرب في 15 و16 تشرين الثاني/نوفمبر 2018 في حلقة عمل بشأن التحضير للتسونامي القادم: الحد من الخسائر والأضرار في المناطق الساحلية غرب البحر الأبيض المتوسط. وكان الهدف من حلقة العمل عرض تطوير نظام الإنذار المبكر بأموج التسونامي والتخفيف من أثارها في شمال شرق المحيط الأطلسي والبحر الأبيض المتوسط والبحار المتصلة به ومناقشة أخطار أمواج التسونامي على الصعيد الوطني ومخاطرها والتأهب لها والتخفيف من حدتها في بلدان المغرب العربي/الإيسيسكو.

ونظمت اللجنة الدولية الحكومية لعلوم المحيطات التابعة لليونسكو حلقة العمل بالاشتراك مع المنظمة الإسلامية للتربية والعلوم والثقافة (الإيسيسكو)، ومكتب اليونسكو في المغرب العربي الذي يوجد مقره في الرباط، والمركز الوطني للبحث العلمي والتقني في المغرب.

وعقدت حلقة العمل بالتعاقب مع اجتماع الخبراء المعني بتحديد وترتيب أولويات أنشطة بناء القدرات المتعلقة بالمخاطر الطبيعية، الذي نظمته في 12 و13 تشرين الثاني/نوفمبر 2018 شعبة علوم الأرض والحد من أخطار الكوارث الطبيعية التابعة للإيسيسكو/اليونسكو.

وافتح الاجتماع الدكتور عبد العزيز عثمان التويجري، المدير العام للإيسيسكو، والسيدة غولدا الخوري، مديرة مكتب اليونسكو بالرباط؛ والدكتور دينيس تشانج سينغ، الأمين التقني لفريق التنسيق الدولي الحكومي المعني بنظام الإنذار المبكر بأموج التسونامي وتخفيف أثارها في المنطقة الشمالية الشرقية من المحيط الأطلسي وفي البحر المتوسط والبحار المتصلة به والتابع للجنة الدولية الحكومية لعلوم المحيطات/اليونسكو.

2 - الخلفية

شهدت منطقة البحر الأبيض المتوسط كارثة من أشد كوارث أمواج التسونامي فتكاً على الإطلاق، نتجت عن زلزال كريت الذي حدث في سنة 365 ميلادية. كما أن منطقة شمال شرق المحيط الأطلسي منطقة معرضة للخطر حيث يمكن لمصادر الزلازل المعروفة أن تولد أمواج التسونامي التي تتسبب في خسائر فادحة في الأرواح والممتلكات (من قبيل زلزال لشبونة في عام 1755 وأمواج التسونامي التي اجتاحت المناطق الساحلية في البرتغال وإسبانيا والمغرب ومنطقة البحر الكاريبي).

وعلى مدار السنوات القليلة الماضية، تم تسجيل العديد من أمواج التسونامي في منطقة شمال شرق المحيط الأطلسي والبحر الأبيض المتوسط والبحار المتصلة به مثلما حدث في بحر إيجه (21 تموز/يوليو 2017)، وبحر البوران (25 كانون الثاني/يناير 2016) والبحر الأيوني (17 تشرين الثاني/نوفمبر 2015). ورغم أن هذه الأحداث معتدلة في حجمها، فإنها تؤكد أن خطر أمواج التسونامي في منطقة شمال شرق المحيط الأطلسي والبحر الأبيض المتوسط والبحار المتصلة به خطر حقيقي. وعلى الرغم من أن أمواج التسونامي نادرة نسبياً في المنطقة، فإن قابلية تعرض المناطق الساحلية لها وقلة مناعة هذه المناطق ومخاطر وقوع أمواج التسونامي والآثار المرتبة عليها مرتفعة بسبب تزايد الكثافة السكانية في المناطق الساحلية، بما في ذلك السياحة الساحلية والبنى التحتية الساحلية.

وفي أعقاب كارثة التسونامي التي وقعت في المحيط الهادئ في 26 كانون الأول/ديسمبر 2004، طلبت الدول الأعضاء في اللجنة الدولية الحكومية لعلوم المحيطات إلى اللجنة أن تنسق تطوير ثلاثة نظم جديدة للإنذار المبكر بأموج التسونامي (في المحيط الهندي ومنطقة البحر الكاريبي والمحيط الأطلسي والبحر الأبيض المتوسط والبحار المتصلة به)، بالإضافة إلى نظام الإنذار بالتسونامي في المحيط الهادئ الذي ما فتئت تنسقه اللجنة الدولية الحكومية لعلوم المحيطات منذ عام 1965. وبالنسبة لمنطقة نظام الإنذار المبكر بأموج التسونامي والتخفيف من أثارها في شمال شرق المحيط الأطلسي والبحر الأبيض المتوسط والبحار المتصلة به، يقوم بهذا التنسيق فريق التنسيق الدولي الحكومي المعني بنظام الإنذار المبكر بأموج التسونامي وتخفيف أثارها في المنطقة الشمالية الشرقية من المحيط الأطلسي وفي البحر المتوسط والبحار المتصلة به (فريق التنسيق) الذي أنشئ رسمياً خلال الدورة الثالثة والعشرين لجمعية اللجنة الدولية الحكومية لعلوم المحيطات المعقودة في عام 2005. ويتكون فريق التنسيق من 40 دولة عضواً تنتمي إلى مناطق البحر الأبيض المتوسط والبحر الأسود وشمال شرق المحيط الأطلسي.

ويركز عمل التنسيق والتطوير لفريق التنسيق على ثلاثة مجالات عمل استراتيجية هي: (1) تقييم مخاطر التسونامي؛ (2) والتأهب والتوعية؛ (3) وتطوير نظام الإنذار. وتطور الجزء المتعلق بنظام الإنذار من عمل فريق التنسيق بشكل مطرد وبات الآن يعمل مع أربع جهات معتمدة معنية بتقديم الخدمات الخاصة بأموج التسونامي (في فرنسا واليونان وإيطاليا وتركيا) وجهة أخرى سيتم اعتمادها قريباً في البرتغال، وتقدم كلها خدمات الإنذار بأموج التسونامي إلى الدول الأعضاء من منطقة شمال شرق المحيط الأطلسي والبحر الأبيض المتوسط التي ترغب في تلقي هذه الإنذارات. وثمة مجال لمزيد من التحسين من حيث الربط الفعال بين الجهات المعنية بتقديم الخدمات الخاصة بأموج التسونامي والمراكز الوطنية للإنذار ومنظمات الحماية المدنية لتعزيز التأهب للتسونامي في المنطقة.

3 - حلقة العمل

نُظمت حلقة العمل في خمس جلسات: (1) نظام الإنذار المبكر بأمواج التسونامي والتخفيف من أثارها في شمال شرق المحيط الأطلسي والبحر الأبيض المتوسط والبحار المتصلة به والقدرات الوطنية في مجال الإنذار بأمواج التسونامي والتخفيف من أثارها؛ (2) تلقي الإنذارات وعملية صنع القرار، والاستجابة لحالات الطوارئ؛ (3) تقييم أخطار أمواج التسونامي ومخاطرها والإبلاغ عنها؛ (4) مبادرات تأهب المجتمعات المحلية لأمواج التسونامي وتعرفها عليها؛ (5) المبادرات الإقليمية والعالمية. واختتمت حلقة العمل بجلسة مناقشة بشأن آفاق المستقبل.

4 - التوصيات

يقدم هذا الفرع ملخصاً للتوصيات الرئيسية التي تتمحور ضمن الركائز الثلاث لنظام الإنذار المبكر بأمواج التسونامي والتخفيف من أثارها (تقييم أخطار أمواج التسونامي ومخاطرها، وتطوير نظام للإنذار (توجيهات بشأن الإنذار، والتأهب، والتوعية والتخفيف) بالإضافة إلى المسائل المتعلقة بالحوكمة.

تقييم أخطار أمواج التسونامي ومخاطرها

- فهم تصورات مخاطر أمواج التسونامي في بلدان المغرب العربي من أجل تصميم وتنفيذ أنشطة/برامج التوعية والتأهب على أحسن وجه.
- تحسين تقييم أخطار أمواج التسونامي، وقلة المناعة تجاهها، ومخاطرها وأثرها (على سبيل المثال، الحد الأقصى للموجة والغمر المتوقع) لتحسين توجيه عمليات الإخلاء وإجراءات التخفيف والاستجابة.
- إمكانية إدراج البلدان لمسألة ارتفاع مستوى سطح البحر الناجم عن التغيرات المناخية في تقييمات أخطار أمواج التسونامي لفهم آثار الغمر الساحلي. وهذا ما سيفضي إلى تحسين إجراءات التخفيف والتخطيط للإخلاء.
- مواصلة بلدان المغرب العربي تطوير التعاون والشراكات مع البلدان الأوروبية النظرية لتعزيز نظم الإنذار المبكر بأمواج التسونامي والتخفيف من أثارها.

تطوير نظام الإنذار (توجيهات الإنذار)

- ينبغي بذل المزيد من الجهد لمعالجة الثغرات الموجودة في كشف ورصد أمواج التسونامي (شبكات رصد مستوى سطح البحر والزلازل).
- ينبغي تقديم الدعم المالي لصيانة الأدوات الحالية ونظام المراقبة/الكشف.

التأهب والتوعية والتخفيف

- ثمة حاجة مستمرة للتوعية والتدريب والتأهب، في منطقة شمال شرق المحيط الأطلسي والبحر الأبيض المتوسط والبحار المتصلة به. وتعد المشاركة في عمليات التدريب الإقليمية بشأن أمواج التسونامي أمراً أساسياً في تطوير قدرات التوعية والاستجابة في حالة أمواج التسونامي.
- تعد مشاركة بلدان المغرب العربي في اليوم العالمي للتوعية بأمواج التسونامي، يوم 5 تشرين الثاني/نوفمبر، ضرورية أيضاً لتطوير ثقافة التوعية بأمواج التسونامي واستراتيجيات الحد من مخاطرها.
- يلزم أن توفر السلطات الوطنية (من قبيل وكالات إدارة الكوارث والحماية المدنية) الدعم الحكومي لزيادة تعزيز قدرات التأهب والاستجابة في حالات الأخطار الساحلية، بما في ذلك أمواج التسونامي.
- توعية السلطات والمجتمعات المحلية المعرضة للخطر بخطط الإخلاء في حالة أمواج التسونامي لضمان تنفيذها بنجاح.

الحوكمة

- ينبغي تعيين جهات التنسيق الوطنية للإنذار بأمواج التسونامي وجهة الاتصال الوطنية المعنية بأمواج التسونامي في أقرب وقت ممكن إذ يلاحظ أن المغرب ومصر هما البلدان الوحيدان اللذان عينا جهة التنسيق الوطنية للإنذار بأمواج التسونامي وجهة الاتصال الوطنية المعنية بأمواج التسونامي في بلدان المغرب العربي.

- تُشجع بلدان المغرب العربي على الاشتراك في مركز معلومات الجهات المعنية بتقديم الخدمات الخاصة بأمواج التسونامي من أجل تلقي الخدمات والإنذارات المتعلقة بالتسونامي.
- تُشجع بلدان المغرب العربي على تقديم الدعم لحلقات العمل والأنشطة المتعلقة بأمواج التسونامي كلما وحيثما كان ذلك ممكناً.

- 5 - العروض

- نظرة عامة عن حلقة العمل والأهداف الرئيسية. دينيس تشانغ سنغ، اللجنة الدولية الحكومية لعلوم المحيطات التابعة لليونسكو؛
- حالة نظام الإنذار المبكر بأمواج التسونامي والتخفيف من آثارها في شمال شرق المحيط الأطلسي والبحر الأبيض المتوسط والبحار المتصلة به والتحديات القائمة. جيراسيموس بابادوبولوس، رئيس فريق التنسيق الدولي الحكومي المعني بنظام الإنذار المبكر بأمواج التسونامي وتخفيف آثارها في المنطقة الشمالية الشرقية من المحيط الأطلسي وفي البحر المتوسط والبحار المتصلة به؛
- نظام الإنذار بأمواج التسونامي لساحلي المغرب على المحيط الأطلسي والبحر الأبيض المتوسط. ناصر جبور، المركز الوطني للبحث العلمي والتقني؛
- مركز الإنذار بالتسونامي، الجهات المعنية بتقديم الخدمات الخاصة بالتسونامي في فرنسا/المركز الوطني للإنذار بالتسونامي - تجارب من ست سنوات من التشغيل. فرانسوا شاندييه، مفوضية الطاقة النووية/مركز الإنذار بالتسونامي؛
- المركز الوطني للإنذار بالتسونامي في البرتغال والجهة المرشحة لتقديم الخدمات الخاصة بأمواج التسونامي. فرناندو كاريو، المعهد البرتغالي لشؤون البحار والغلاف الجوي؛
- المركز الوطني الإيطالي للإنذار بالتسونامي والجهة المعنية بتقديم الخدمات الخاصة بأمواج التسونامي. فابريزيو رومانو، مركز الإنذار بالتسونامي في المعهد الوطني للجيوفيزياء وعلم البراكين؛
- المركز الوطني اليوناني للإنذار بالتسونامي والجهة المعنية بتقديم الخدمات الخاصة بالتسونامي. جيراسيموس بابادوبولوس، المرصد الوطني لأثينا؛
- قدرات الإنذار المبكر في تونس والتحديات. سمير بن عبد الله، المعهد الوطني للرصد الجوي؛
- خطر تسونامي في بحر البوران. حالة البحث والمصادر/لهيكل الرئيسية المحتمل توليدها لأمواج التسونامي. فيدا ميدينا، جمعية علوم الأرض؛
- الرصد العالي التردد لمستوى سطح البحر وأهميته في الحد من مخاطر الفيضانات الساحلية. ياسين حمدان، جامعة هواري بومدين للعلوم والتكنولوجيا؛
- النظام الإسباني للإنذار بالتسونامي والأنشطة المشتركة مع وكالة الحماية المدنية. إينا تيل، المعهد الإسباني للأوقيانوغرافيا؛
- النظام الإيطالي للإنذار والاستجابة في حالة التسونامي: الوضع الراهن والإنجازات والتحديات. مارزيا سانتيني، وكالة الحماية المدنية؛
- عملية وضع خطة حالات الطوارئ المتعلقة بالتسونامي وتنفيذها في فرنسا. فرانسوا شاندييه، مفوضية الطاقة النووية/مركز الإنذار بالتسونامي؛
- وضع نهج عام لنمذجة مخاطر التسونامي في المغرب. عبد الرحمن العاطي الله، المركز الملكي للاستشعار البعدي الفضائي؛
- تقييم مخاطر تسونامي في المغرب وإجراءات الحد من الخسائر في المناطق الساحلية المغربية (حالة مدينة طنجة). ناصر بنشقرن، المركز الوطني للبحث العلمي والتقني؛
- سيناريو أسوأ حالة تسونامي على طول الساحل المصري في البحر الأبيض المتوسط. عمرو حمودة، المعهد القومي لعلوم البحار والمصايد؛

- تقييم الأخطار/المخاطر/الأثر: نتائج تقييم التسونامي واستراتيجيته والحد من مخاطره في أوروبا. جيراسيموس بابادوبولوس، المرصد الوطني لأثينا؛
- رسم خرائط احتمالية لأخطار أمواج التسونامي في منطقة شمال شرق المحيط الأطلسي والبحر الأبيض المتوسط والبحار المتصلة به: مشروع [TSUMAPS - NEAM](#). جاكوبو سيلفا وفريق رسم خرائط احتمالية لأخطار أمواج التسونامي في منطقة شمال شرق المحيط الأطلسي والبحر الأبيض المتوسط والبحار المتصلة به؛
- تقييم أخطار التسونامي على طول الساحل الشمالي لسلطنة عمان. عيسى الحسين، مركز رصد الزلازل؛
- عملية كان المتعلقة بالتسونامي في 5 تشرين الثاني/نوفمبر 2018. فرانسوا شاندييه، مفوضية الطاقة النووية/مركز الإنذار بالتسونامي؛
- نحو برنامج لتأهب المجتمعات المحلية للتسونامي وتعرفها عليه في منطقة شمال شرق المحيط الأطلسي والبحر الأبيض المتوسط والبحار المتصلة به. مارزيا سانتيني، وكالة الحماية المدنية ودينيس تشانغ سينغ، اللجنة الدولية الحكومية لعلوم المحيطات التابعة لليونسكو التابع لليونسكو؛
- نحو التأهب لمواجهة التسونامي في شواطئ الجزر المالطية. أنطون ميكليف، مجلس أوروبا، اتفاق أوروبا والبحر الأبيض المتوسط المتعلق بالأخطار الكبرى؛
- تقرير عن اجتماع خبراء اليونيسكو - الإيسيسكو بشأن تحديد وترتيب أولويات أنشطة بناء القدرات المتعلقة بالمخاطر الطبيعية (13-14 تشرين الثاني/نوفمبر 2018). جير تورييس، قطاع العلوم الطبيعية التابع لليونسكو؛
- النتائج المتعلقة بنظام الإنذار المبكر بالتسونامي في المغرب وبناء القدرات للحد من مخاطر الكوارث. شارل بوبيان، منظمة التعاون والتنمية في الميدان الاقتصادي؛
- نظام الإنذار المبكر في سياق إطار سينداي للحد من مخاطر الكوارث وعقد الأمم المتحدة لعلوم المحيطات من أجل التنمية المستدامة. دينييس تشانغ سينغ، اللجنة الدولية الحكومية لعلوم المحيطات التابعة لليونسكو؛
- نحو أنشطة الحد من مخاطر الكوارث/التسونامي/مستقبلا في منطقة شمال إفريقيا. دينييس تشانغ سينغ، اللجنة الدولية الحكومية لعلوم المحيطات التابعة لليونسكو؛

6 - جهة الاتصال

الدكتور دينييس تشانغ سينغ، اللجنة الدولية الحكومية لعلوم المحيطات التابعة لليونسكو، الأمين التقني لفريق التنسيق الدولي الحكومي المعني بنظام الإنذار المبكر بأمواج التسونامي وتخفيف أثارها في المنطقة الشمالية الشرقية من المحيط الأطلسي وفي البحر المتوسط والبحار المتصلة به التابع للجنة الدولية الحكومية لعلوم المحيطات/اليونيسكو، البريد الإلكتروني:

d.chang-seng@unesco.org.

مراجع ومعلومات أخرى بشأن نظام الإنذار المبكر بأمواج التسونامي والتخفيف من أثارها في شمال شرق المحيط الأطلسي والبحر الأبيض المتوسط والبحار المتصلة به:

- 10 سنوات من نظام الإنذار المبكر بأمواج التسونامي والتخفيف من أثارها في شمال شرق المحيط الأطلسي والبحر الأبيض المتوسط والبحار المتصلة به: الإنجازات والتحديات في الاستعداد للتسونامي القادم <https://unesdoc.unesco.org/ark:/48223/pf0000247393>

- مركز معلومات التسونامي في شمال شرق المحيط الأطلسي والبحر الأبيض المتوسط

<http://neamtic.ioc-unesco.org/>

- فريق التنسيق الدولي الحكومي المعني بنظام الإنذار المبكر بأمواج التسونامي وتخفيف أثارها في المنطقة الشمالية الشرقية من المحيط الأطلسي وفي البحر المتوسط والبحار المتصلة به:

http://www.ioc-tsunami.org/index.php?option=com_content&view=article&id=10&Itemid=14&lang=en

ANNEX I

AGENDA

DAY 1 (Thursday 15 Nov)		
08:45-09:15	REGISTRATION	
09:15-09:45	BRIEF WELCOME AND OPENING REMARKS	<i>MC: ISESCO/UNESCO Rabat</i> ISESCO Representative Denis Chang Seng, IOC/UNESCO
	Overview of the Workshop and Main Goals	Denis Chang Seng, IOC/UNESCO
09:45-12:30	NEAMTWS AND NATIONAL CAPACITIES IN TSUNAMI WARNING AND MITIGATION	CHAIR: Mohamed Said, Chair of IOC Sub Commission for Africa and the Adjacent Island States
	The Status of NEAMTWS and Challenges	Gerasimos Papadopoulos, ICG/NEAMTWS Chair
	The Tsunami Alert System for the Atlantic and Mediterranean Coast of Morocco	Nacer Jabour CNRST, Morocco
10:30-11:00	<i>Tea/Coffee Break</i>	
	CENALT, France Tsunami Service Provider / National Tsunami Warning Center - Experiences from six Years of Operation	François Schindelé, CEA/CENALT, France
	Portugal National Tsunami Warning Center and Candidate Tsunami Service Provider	Fernando Carrilho, IPMA, Portugal
	The Italian National Tsunami Warning Center and Tsunami Service Provider	Fabrizio Romano, CAT-INGV, Italy
	The Greek National Tsunami Warning Center and Tsunami Service Provider	Gerasimos Papadopoulos, NOA, Greece
	Early Warning Capacities in Tunisia and Challenges	Samir Ben Abdallah, INM, Tunisia
	The risk of tsunami around the Alboran Sea: State of Research and Main Potentially Tsunamigenic Sources/structures	Dr Fida Medina, Association of Geosciences, Morocco
	High Frequency Sea-Level Monitoring and its Importance in Coastal Flood Risk Reduction	Yacin Hemdane, USTHB, Algeria
12:30-13:30	<i>Lunch Break</i>	
13:30-14:30	RECEPTION OF ALERTS AND DECISION MAKING PROCESS, EMERGENCY RESPONSE	CHAIR : Nacer Jabour CNRST, Morocco

	The Spanish Tsunami Warning System and Joint Activities with the Civil Protection Agency	Elena Tel, IEO, Spain
	The Italian Alert and Response System for Tsunamis: Status, Achievements and Challenges	Marzia Santini, CPA, Italy
	Exercise and Implementation of Tsunami Emergency Plan in France	François Schindelé, CEA / CENALT France
14:30-15:00	Tea Break / Coffee Break	
15:00-17:00	TSUNAMI HAZARD, RISK ASSESSMENT & COMMUNICATION	CHAIR: Denis Chang Seng, IOC/UNESCO
	Establishment of a Generic Approach for Tsunami Risk Modeling in Morocco	Abderrahman Atillah
	Tsunami Hazard Assessment in Morocco and Procedures to Reduce Losses in Moroccan Coastal Zones (case of Tangier city)	Sabah Benchekroun Rabat, Morocco
	Worst Case Scenario of Tsunami Along the Egyptian Coast in the Mediterranean	Amr Hamouda, NIOF, Alexandria, Egypt
	Hazard / Risk / Impact Assessments: ASTARTE Results	Gerasimos Papadopoulos, NOA, Greece
	Probabilistic Tsunami Hazard Mapping in the NEAM Region: The TSUMAPS - NEAM Project	Jacopo Selva and the TSUMAPS-NEAM Team
	Tsunami Hazard Assessment Along the Northern Coast of Oman	Issa El - Hussain Earthquake Monitoring Center, Oman
17:00	End of Day 1	

DAY 2 (Friday 16 Nov)		
09:30-10:30	COMMUNITY PREPAREDNESS & RECOGNITION INITIATIVES	CHAIR: Issa El-Hussain, Earthquake Monitoring Center, Oman
	Cannes Tsunami Exercise on 5 November 2018	François Schindelé, CEA, CENALT, France
	Towards a Community Preparedness and Recognition Programme in NEAM Region	Marzia Santini, CPA, Italy / Denis Chang Seng, IOC/UNESCO
	Towards Tsunami Preparedness for Beaches in the Maltese Islands	Anton Micallef Council of Europe EUR- OPA Major Hazards Agreement
	Report on the UNESCO-ISESCO Experts Meeting on the Identification and Prioritization of Capacity-Building Activities Related to Natural Hazards (13-14 November 2018)	Jair Torres, UNESCO Natural Science Sector
10:30-11:00	Tea/Coffee 'Super' Break	

11:00-13:00	REGIONAL AND GLOBAL INITIATIVES	CHAIR: Foued EL Ayni, ISESCO
	Findings Related to Tsunami EWS in Morocco and Capacity Building on Disaster Risk Reduction	Charles Baubion, OECD, France
	TWS in the Context of the Sendai Framework for DRR and the UN Decade of Ocean Science for Sustainable Development	Denis Chang Seng, IOC/UNESCO
	Towards Furture Tsunami/DRR Activities in the North-African Region	Denis Chang Seng, IOC/UNESCO/ALL
	WRAPPING-UP: Consolidated Report and Discussion Final Remarks by: <ul style="list-style-type: none"> • Local Authorities • Organisers 	
13:00	End of Workshop	

ANNEX II

LIST OF PARTICIPANTS

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ANNEX III

LIST OF ACRONYMS

CAT-INGV	Istituto Nazionale di Geofisica e Vulcanologia - Centro Allerta Terremoti (Italy)
CENALT	CENtre d'Alerte aux Tsunamis (France)
CNRST	Centre National pour la Recherche Scientifique et Technique (Morocco)
CRTS	Centre Royal de Télédétection Spatiale (Morocco)
CPA	Civil Protection Agency
IEO	Instituto Espanol Oceanografia (Spain)
ICG/NEAMTWS	Intergovernmental Coordination Group for the Tsunami Early Warning and Mitigation System in the North-Eastern Atlantic, the Mediterranean and Connected Seas
INGV	Istituto Nazionale di Geofisica e Vulcanologia (Italy)
INM	Institut National de la Météorologie (Tunisia)
IOC	Intergovernmental Oceanographic Commission (UNESCO)
IPMA	Instituto Português do Mar e da Atmosfera (Portugal)
ISESCO	Islamic Educational, Scientific and Cultural Organization
NEAM region	North-Eastern Atlantic, the Mediterranean and Connected Seas region
NEAMTIC	Tsunami Information Centre for the North-Eastern Atlantic, the Mediterranean and Connected Seas
NEAMTWS	Tsunami Early Warning and Mitigation System in the North-Eastern Atlantic, the Mediterranean and Connected Seas
NIOF	National Institute of Oceanography and Fisheries (Egypt)
NOA	National Observatory of Athens (Greece)
NTWC	National Tsunami Warning Centres
OECD	Organisation for Economic Co-operation and Development
TFP	Tsunami Forecast Point
TNC	Tsunami National Contact
TSUMAPS-NEAM	Probabilistic Tsunami Hazard Maps for the NEAM region

TWFP	Tsunami Warning Focal Point
TWP	Tsunami Watch Provider
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNISDR	United Nations Office for Disaster Risk Reduction
USTHB	Université des Sciences et de la Technologie Houari Boumediene (Algeria)

IOC Workshop Reports

The Scientific Workshops of the Intergovernmental Oceanographic Commission are sometimes jointly sponsored with other intergovernmental or non-governmental bodies. In most cases, IOC assures responsibility for printing, and copies may be requested from:

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No.	Title	Languages	No.	Title	Languages	No.	Title	Languages
1	CCOP-IOC, 1974, Metallogenesis, Hydrocarbons and Tectonic Patterns in Eastern Asia (Report of the IDOE Workshop on); Bangkok, Thailand, 24-29 September 1973 UNDP (CCOP).	E (out of stock)		5-9 June 1978 (UNESCO reports in marine sciences, No. 5, published by the Division of Marine Sciences, UNESCO).		40	24-29 September 1985. IOC Workshop on the Technical Aspects of Tsunami Analysis, Prediction and Communications; Sidney, B.C., Canada, 29-31 July 1985.	E
2	CICAR Ichthyoplankton Workshop, Mexico City, 16-27 July 1974 (UNESCO Technical Paper in Marine Sciences, No. 20).	E (out of stock) S (out of stock)	20	Second CCOP-IOC Workshop on IDOE Studies of East Asia Tectonics and Resources; Bandung, Indonesia, 17-21 October 1978	E	40 Suppl.	First International Tsunami Workshop on Tsunami Analysis, Prediction and Communications, Submitted Papers; Sidney, B.C., Canada, 29 July-1 August 1985.	E
3	Report of the IOC/GFCM/ICSEM International Workshop on Marine Pollution in the Mediterranean; Monte Carlo, 9-14 September 1974.	E, F E (out of stock)	21	Second IDOE Symposium on Turbulence in the Ocean; Liège, Belgium, 7-18 May 1979.	E, F, S, R	41	FAO/IOC/WHO/IAEA/UNEP Project on Monitoring of Pollution in the Marine Environment of the West and Central African Region (WACAF/2); Dakar, Senegal, 28 October-1 November 1985.	E
4	Report of the Workshop on the Phenomenon known as 'El Niño'; Guayaquil, Ecuador, 4-12 December 1974.	E (out of stock) S (out of stock)	22	Third IOC/WMO Workshop on Marine Pollution Monitoring; New Delhi, 11-15 February 1980.	E, F, S, R	41	IOC Workshop on the Results of MEDALPEX and Future Oceanographic Programmes in the Western Mediterranean; Venice, Italy, 23-25 October 1985.	E
5	IDOE International Workshop on Marine Geology and Geophysics of the Caribbean Region and its Resources; Kingston, Jamaica, 17-22 February 1975	E (out of stock) S	23	WESTPAC Workshop on the Marine Geology and Geophysics of the North-West Pacific; Tokyo, 27-31 March 1980.	E, R	43	IOC-FAO Workshop on Recruitment in Tropical Coastal Demersal Communities; Ciudad del Carmen, Campeche, Mexico, 21-25 April 1986.	E (out of stock) S
6	Report of the CCOP/SOPAC-IOC IDOE International Workshop on Geology, Mineral Resources and Geophysics of the South Pacific; Suva, Fiji, 1-6 September 1975.	E	24	Workshop on the Inter-calibration of Sampling Procedures of the IOC/WMO/UNEP Pilot Project on Monitoring Background Levels of Selected Pollutants in Open-Ocean Waters; Bermuda, 11-26 January 1980.	E (out of stock)	44	IOC-FAO Workshop on Recruitment in Tropical Coastal Demersal Communities, Submitted Papers; Ciudad del Carmen, Campeche, Mexico, 21-25 April 1986.	E
7	Report of the Scientific Workshop to Initiate Planning for a Co-operative Investigation in the North and Central Western Indian Ocean, organized within the IDOE under the sponsorship of IOC/FAO (IOFC)/UNESCO/ EAC; Nairobi, Kenya, 25 March-2 April 1976.	E, F, S, R	25	IOC Workshop on Coastal Area Management in the Caribbean Region; Mexico City, 24 September- 5 October 1979.	E, S	44 Suppl.	IOC-FAO Workshop on Recruitment in Tropical Coastal Demersal Communities, Submitted Papers; Ciudad del Carmen, Campeche, Mexico, 21-25 April 1986.	E
8	Joint IOC/FAO (IPFC)/UNEP International Workshop on Marine Pollution in East Asian Waters; Penang, 7-13 April 1976	E (out of stock)	26	CCOP/SOPAC-IOC Second International Workshop on Geology, Mineral Resources and Geophysics of the South Pacific; Noumea, New Caledonia, 9-15 October 1980.	E	45	IOCARIBE Workshop on Physical Oceanography and Climate; Cartagena, Colombia, 19-22 August 1986.	E
9	IOC/CMG/SCOR Second International Workshop on Marine Geoscience; Mauritius 9-13 August 1976.	E, F, S, R	27	FAO/IOC Workshop on the effects of environmental variation on the survival of larval pelagic fishes. Lima, 20 April-5 May 1980.	E	46	Reunión de Trabajo para Desarrollo del Programa "Ciencia Oceánica en Relación a los Recursos No Vivos en la Región del Atlántico Sud-occidental"; Porto Alegre, Brasil, 7-11 de abril de 1986.	S
10	IOC/WMO Second Workshop on Marine Pollution (Petroleum) Monitoring; Monaco, 14-18 June 1976	E, F E (out of stock) R	28	WESTPAC Workshop on Marine Biological Methodology; Tokyo, 9-14 February 1981.	E	47	IOC Symposium on Marine Science in the Western Pacific: The Indo-Pacific Convergence; Townsville, 1-6 December 1966	E
11	Report of the IOC/FAO/UNEP International Workshop on Marine Pollution in the Caribbean and Adjacent Regions; Port of Spain, Trinidad, 13-17 December 1976.	E, S (out of stock)	29	International Workshop on Marine Pollution in the South-West Atlantic; Montevideo, 10-14 November 1980.	E (out of stock) S	47	IOCARIBE Mini-Symposium for the Regional Development of the IOC-UN (OETB) Programme on 'Ocean Science in Relation to Non-Living Resources (OSNLR)'; Havana, Cuba, 4-7 December 1986.	E, S
11 Suppl.	Collected contributions of invited lecturers and authors to the IOC/FAO/UNEP International Workshop on Marine Pollution in the Caribbean and Adjacent Regions; Port of Spain, Trinidad, 13-17 December 1976	E (out of stock), S	30	Third International Workshop on Marine Geoscience; Heidelberg, 19-24 July 1982.	E, F, S	48	AGU-IOC-WMO-CPPS Chapman Conference: An International Symposium on 'El Niño'; Guayaquil, Ecuador, 27-31 October 1986.	E
12	Report of the IOCARIBE Interdisciplinary Workshop on Scientific Programmes in Support of Fisheries Projects; Fort-de-France, Martinique, 28 November-2 December 1977.	E, F, S	31	UNU/IOC/UNESCO Workshop on International Co-operation in the Development of Marine Science, and the Transfer of Technology in the context of the New Ocean Regime; Paris, France, 27 September-1 October 1982.	E, F, S	49	CCALR-IOC Scientific Seminar on Antarctic Ocean Variability and its Influence on Marine Living Resources, particularly Krill (organized in collaboration with SCAR and SCOR); Paris, France, 2-6 June 1987.	E
13	Report of the IOCARIBE Workshop on Environmental Geology of the Caribbean Coastal Area; Port of Spain, Trinidad, 16-18 January 1978.	E, S	32 Suppl.	Papers submitted to the UNU/IOC/ UNESCO Workshop on International Co-operation in the Development of Marine Science, and the Transfer of Technology in the Context of the New Ocean Regime; Paris, France, 27 September-1 October 1982.	E	50	CCOP/SOPAC-IOC Workshop on Coastal Processes in the South Pacific Island Nations; Lae, Papua-New Guinea, 1-8 October 1987.	E
14	IOC/FAO/WHO/UNEP International Workshop on Marine Pollution in the Gulf of Guinea and Adjacent Areas; Abidjan, Côte d'Ivoire, 2-9 May 1978	E, F	33	Workshop on the IREP Component of the IOC Programme on Ocean Science in Relation to Living Resources (OSLR); Halifax, 26-30 September 1983.	E	51	SCOR-IOC-UNESCO Symposium on Vertical Motion in the Equatorial Upper Ocean and its Effects upon Living Resources and the Atmosphere; Paris, France, 6-10 May 1985.	E
15	CPPS/FAO/IOC/UNEP International Workshop on Marine Pollution in the South-East Pacific; Santiago de Chile, 6-10 November 1978.	E (out of stock)	34	IOC Workshop on Regional Co-operation in Marine Science in the Central Eastern Atlantic (Western Africa); Tenerife, 12-17 December, 1963.	E, F, S	52	IOC Workshop on the Biological Effects of Pollutants; Oslo, 11-29 August 1986.	E
16	Workshop on the Western Pacific, Tokyo, 19-20 February 1979.	E, F, R	35	CCOP/SOPAC-IOC-UNU Workshop on Basic Geo-scientific Marine Research Required for Assessment of Minerals and Hydrocarbons in the South Pacific; Suva, Fiji, 3-7 October 1983.	E	53	Workshop on Sea-Level Measurements in Hostile Conditions; Bidston, UK, 28-31 March 1988.	E
17	Joint IOC/WMO Workshop on Oceanographic Products and the IGOS Data Processing and Services System (IDPSS); Moscow, 9-11 April 1979.	E, F, R	36	IOC/FAO Workshop on the Improved Uses of Research Vessels; Lisbon, Portugal, 28 May-2 June 1984.	E	54	IBCCA Workshop on Data Sources and Compilation, Boulder, Colorado, 18-19 July 1988.	E
17 suppl.	Papers submitted to the Joint IOC/WMO Seminar on Oceanographic Products and the IGOS Data Processing and Services System; Moscow, 2-6 April 1979.	E	36 Suppl.	Papers submitted to the IOC/FAO Workshop on the Improved Uses of Research Vessels; Lisbon, 28 May-2 June 1984	E	55	IOC-FAO Workshop on Recruitment of Penaeid Prawns in the Indo-West Pacific Region (PREP); Cleveland, Australia, 24-30 July 1988.	E
18	IOC/UNESCO Workshop on Syllabus for Training Marine Technicians; Miami, U.S.A., 22-26 May 1978 (UNESCO reports in marine sciences, No. 4 published by the Division of Marine Sciences, UNESCO).	E (out of stock), F, S (out of stock), R	37	IOC/UNESCO Workshop on Regional Co-operation in Marine Science in the Central Indian Ocean and Adjacent Seas and Gulfs; Colombo, 8-13 July 1985.	E	56	IOC Workshop on International Co-operation in the Study of Red Tides and Ocean Blooms; Takamatsu, Japan, 16-17 November 1987.	E
19	IOC Workshop on Marine Science Syllabus for Secondary Schools; Llantwit Major, Wales, U.K.,	E (out of stock), S, R, Ar	38	IOC/ROPME/UNEP Symposium on Fate and Fluxes of Oil Pollutants in the Kuwait Action Plan Region; Basrah, Iraq, 8-12 January 1984.	E	57	International Workshop on the Technical Aspects of the Tsunami Warning System; Novosibirsk, USSR, 4-5 August 1989.	E
			39	CCOP (SOPAC)-IOC-IFREMER-ORSTOM Workshop on the Uses of Submersibles and Remotely Operated Vehicles in the South Pacific; Suva, Fiji,	E	58 Suppl.	Second International Workshop on the Technical Aspects of Tsunami Warning Systems, Tsunami Analysis, Preparedness,	E

No.	Title	Languages	No.	Title	Languages	No.	Title	Languages
	Observation and Instrumentation. Submitted Papers; Novosibirsk, USSR, 4-5 August 1989.			Meeting for the Organization of an International Conference on Coastal Change; Bordeaux, France, 30 September-2 October 1992.		103	Liège, Belgium, 5-9 May 1994.	E
59	IOC-UNEP Regional Workshop to Review Priorities for Marine Pollution Monitoring Research, Control and Abatement in the Wider Caribbean; San José, Costa Rica, 24-30 August 1989.	E, F, S	83	IOC Workshop on Donor Collaboration in the Development of Marine Scientific Research Capabilities in the Western Indian Ocean Region; Brussels, Belgium, 12-13 October 1992.	E	104	Workshop on Integrated Coastal Management; Dartmouth, Canada, 19-20 September 1994.	E
60	IOC Workshop to Define IOCARIBE-TRODERP proposals; Caracas, Venezuela, 12-16 September 1989.	E	84	Workshop on Atlantic Ocean Climate Variability; Moscow, Russian Federation, 13-17 July 1992.	E	105	BORDOMER 95: Conference on Coastal Change; Bordeaux, France, 6-10 February 1995.	E
61	Second IOC Workshop on the Biological Effects of Pollutants; Bermuda, 10 September-2 October 1988.	E	85	IOC Workshop on Coastal Oceanography in Relation to Integrated Coastal Zone Management; Kona, Hawaii, 1-5 June 1992.	E	105 Suppl.	Conference on Coastal Change: Proceedings; Bordeaux, France, 6-10 February 1995.	E
62	Second Workshop of Participants in the Joint FAO-IOC-WHO-IAEA-UNEP Project on Monitoring of Pollution in the Marine Environment of the West and Central African Region; Accra, Ghana, 13-17 June 1988.	E	86	International Workshop on the Black Sea; Varna, Bulgaria, 30 September - 4 October 1991.	E	106	IOC/WESTPAC Workshop on the Paleographic Map; Bali, Indonesia, 20-21 October 1994.	E
63	IOC/WESTPAC Workshop on Co-operative Study of the Continental Shelf Circulation in the Western Pacific; Bangkok, Thailand, 31 October-3 November 1989.	E	87	Taller de trabajo sobre efectos biológicos del fenómeno «El Niño» en ecosistemas costeros del Pacífico Sudeste; Santa Cruz, Galápagos, Ecuador, 5-14 de octubre de 1989.	S only (summary in E, F, S)	107	IOC-ICSU-NIO-NOAA Regional Workshop for Member States of the Indian Ocean - GODAR-III; Dona Paula, Goa, India, 6-9 December 1994.	E
64	Second IOC-FAO Workshop on Recruitment of Penaeid Prawns in the Indo-West Pacific Region (PREP); Phuket, Thailand, 25-31 September 1989.	E	88	IOC-CEC-ICSU-ICES Regional Workshop for Member States of Eastern and Northern Europe (GODAR Project); Obninsk, Russia, 17-20 May 1993.	E	108	UNESCO-IHP-IOC-IAEA Workshop on Sea-Level Rise and the Multidisciplinary Studies of Environmental Processes in the Caspian Sea Region; Paris, France, 9-12 May 1995.	E
65	Second IOC Workshop on Sardine/Anchovy Recruitment Project (SARP) in the Southwest Atlantic; Montevideo, Uruguay, 21-23 August 1989.	E	89	IOC-ICSEM Workshop on Ocean Sciences in Non-Living Resources; Perpignan, France, 15-20 October 1990.	E	108 Suppl.	UNESCO-IHP-IOC-IAEA Workshop on Sea-Level Rise and the Multidisciplinary Studies of Environmental Processes in the Caspian Sea Region; Submitted Papers; Paris, France, 9-12 May 1995.	E
66	IOC ad hoc Expert Consultation on Sardine/Anchovy Recruitment Programme; La Jolla, California, U.S.A., 1989.	E	90	IOC Seminar on Integrated Coastal Management; New Orleans, U.S.A., 17-18 July 1993.	E	109	First IOC-UNEP CEPPOP Symposium; San José, Costa Rica, 14-15 April 1993.	E
67	Interdisciplinary Seminar on Research Problems in the IOCARIBE Region; Caracas, Venezuela, 28 November-1 December 1989.	E (out of stock)	91	Hydroblack'91 CTD Inter-calibration Workshop; Woods Hole, U.S.A., 1-10 December 1991.	E	110	IOC-ICSU-CEC regional Workshop for Member States of the Mediterranean - GODAR-IV (Global Oceanographic Data Archeology and Rescue Project) Foundation for International Studies, University of Malta, Valletta, Malta, 25-28 April 1995.	E
68	International Workshop on Marine Acoustics; Beijing, China, 26-30 March 1990.	E	92	Réunion de travail IOCEA-OSNLR sur le Projet « Budgets sédimentaires le long de la côte occidentale d'Afrique » Abidjan, Côte d'Ivoire, 26-28 juin 1991.	E	111	Chapman Conference on the Circulation of the Intra-Americas Sea; La Parguera, Puerto Rico, 22-26 January 1995.	E
69	IOC-SCAR Workshop on Sea-Level Measurements in the Antarctica; Leningrad, USSR, 28-31 May 1990.	E	93	IOC-UNEP Workshop on Impacts of Sea-Level Rise due to Global Warming; Dhaka, Bangladesh, 16-19 November 1992.	E	112	IOC-IAEA-UNEP Group of Experts on Standards and Reference Materials (GESREM) Workshop; Miami, U.S.A., 7-8 December 1993.	E
69 Suppl.	IOC-SCAR Workshop on Sea-Level Measurements in the Antarctica; Submitted Papers; Leningrad, USSR, 28-31 May 1990.	E	94	BMTC-IOC-POLARMAR International Workshop on Training Requirements in the Field of Eutrophication in Semi-enclosed Seas and Harmful Algal Blooms, Bremerhaven, Germany, 29 September-3 October 1992.	E	113	IOC Regional Workshop on Marine Debris and Waste Management in the Gulf of Guinea; Lagos, Nigeria, 14-16 December 1994.	E
70	IOC-SAREC-UNEP-FAO-IAEA-WHO Workshop on Regional Aspects of Marine Pollution; Mauritius, 29 October - 9 November 1990.	E	95	SAREC-IOC Workshop on Donor Collaboration in the Development of Marine Scientific Research Capabilities in the Western Indian Ocean Region; Brussels, Belgium, 23-25 November 1993.	E	114	International Workshop on Integrated Coastal Zone Management (ICZM) Karachi, Pakistan; 10-14 October 1994.	E
71	IOC-FAO Workshop on the Identification of Penaeid Prawn Larvae and Postlarvae; Cleveland, Australia, 23-28 September 1990.	E	96	IOC-UNEP-WMO-SAREC Planning Workshop on an Integrated Approach to Coastal Erosion, Sea Level Changes and their Impacts; Submitted Papers 1. Coastal Erosion; Zanzibar, United Republic of Tanzania, 17-21 January 1994.	E	115	IOC/GLOSS-IAPSO Workshop on Sea Level Variability and Southern Ocean Dynamics; Bordeaux, France, 31 January 1995.	E
72	IOC/WESTPAC Scientific Steering Group Meeting on Co-Operative Study of the Continental Shelf Circulation in the Western Pacific; Kuala Lumpur, Malaysia, 9-11 October 1990.	E	96 Suppl.	IOC-UNEP-WMO-SAREC Planning Workshop on an Integrated Approach to Coastal Erosion, Sea Level Changes and their Impacts; Submitted Papers 2. Sea Level; Zanzibar, United Republic of Tanzania, 17-21 January 1994.	E	116	IOC/WESTPAC International Scientific Symposium on Sustainability of Marine Environment: Review of the WESTPAC Programme, with Particular Reference to ICAM, Bali, Indonesia, 22-26 November 1994.	E
73	Expert Consultation for the IOC Programme on Coastal Ocean Advanced Science and Technology Study; Liège, Belgium, 11-13 May 1991.	E	97	IOC Workshop on Small Island Oceanography in Relation to Sustainable Economic Development and Coastal Area Management of Small Island Development States; Fort-de-France, Martinique, 8-10 November, 1993.	E	117	Joint IOC-CIDA-Sida (SAREC) Workshop on the Benefits of Improved Relationships between International Development Agencies, the IOC and other Multilateral Inter-governmental Organizations in the Delivery of Ocean, Marine Affairs and Fisheries Programmes; Sidney B.C., Canada, 26-28 September 1995.	E
74	IOC-UNEP Review Meeting on Oceanographic Processes of Transport and Distribution of Pollutants in the Sea; Zagreb, Yugoslavia, 15-18 May 1989.	E	98	CoMSBlack '92A Physical and Chemical Inter-calibration Workshop; Erdemli, Turkey, 15-29 January 1993.	E	118	IOC-UNEP-NOAA-Sea Grant Fourth Caribbean Marine Debris Workshop; La Romana, Santo Domingo, 21-24 August 1995.	E
75	IOC-SCOR Workshop on Global Ocean Ecosystem Dynamics; Solomons, Maryland, U.S.A., 29 April-2 May 1991.	E	99	IOC-SAREC Field Study Exercise on Nutrients in Tropical Marine Waters; Mombasa, Kenya, 5-15 April 1994.	E	119	IOC Workshop on Ocean Colour Data Requirements and Utilization; Sydney B.C., Canada, 21-22 September 1995.	E
76	IOC/WESTPAC Scientific Symposium on Marine Science and Management of Marine Areas of the Western Pacific; Penang, Malaysia, 2-6 December 1991.	E	100	IOC-SOA-NOAA Regional Workshop for Member States of the Western Pacific - GODAR-II (Global Oceanographic Data Archeology and Rescue Project); Tianjin, China, 8-11 March 1994.	E	120	International Training Workshop on Integrated Coastal Management; Tampa, Florida, U.S.A., 15-17 July 1995.	E
77	IOC-SAREC-KMFRI Regional Workshop on Causes and Consequences of Sea-Level Changes on the Western Indian Ocean Coasts and Islands; Mombasa, Kenya, 24-28 June 1991.	E	101	IOC Regional Science Planning Workshop on Harmful Algal Blooms; Montevideo, Uruguay, 15-17 June 1994.	E	121	Atelier régional IOC-CERESCOR sur la gestion intégrée des zones littorales (ICAM), Conakry, Guinée, 18-22 décembre 1995.	F
78	IOC-CEC-ICES-WMO-ICSU Ocean Climate Data Workshop Goddard Space Flight Center, Greenbelt, Maryland, U.S.A., 18-21 February 1992.	E	102	First IOC Workshop on Coastal Ocean Advanced Science and Technology Study (COASTS);	E	122	IOC-EU-BSH-NOAA-(WDC-A) International Workshop on Oceanographic Biological and Chemical Data Management; Hamburg, Germany, 20-23 May 1996.	E
79	IOC/WESTPAC Workshop on River Inputs of Nutrients to the Marine Environment in the WESTPAC Region; Penang, Malaysia, 26-29 November 1991.	E				123	Second IOC Regional Science Planning Workshop on Harmful Algal Blooms in South America; Mar del Plata, Argentina, 30 October-1 November 1995.	E, S
80	IOC-SCOR Workshop on Programme Development for Harmful Algae Blooms; Newport, U.S.A., 2-3 November 1991.	E				124	GLOBEC-IOC-SAHFOS-MBA Workshop on the Analysis of Time Series with Particular Reference to the Continuous Plankton Recorder Survey; Plymouth, U.K., 4-7 May 1993.	E
81	Joint IAPSO-IOC Workshop on Sea Level Measurements and Quality Control; Paris, France, 12-13 October 1992.	E				125	Atelier sous-régional de la COI sur les ressources marines vivantes du Golfe de Guinée; Cotonou, Bénin, 1-4 juillet 1996.	E
82	BORDOMER 92: International Convention on Rational Use of Coastal Zones. A Preparatory	E						

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126	IOC-UNEP-PERSGA-ACOPS-IUCN Workshop on Oceanographic Input to Integrated Coastal Zone Management in the Red Sea and Gulf of Aden. Jeddah, Saudi Arabia, 8 October 1995.	E	127	IOC Regional Workshop for Member States of the Caribbean and South America GODAR-V (Global Oceanographic Data Archeology and Rescue Project); Cartagena de Indias, Colombia, 8-11 October 1996.	E	128	Atelier IOC-Banque Mondiale-Sida/SAREC-ONE sur la Gestion Intégrée des Zones Côtières ; Nosy Bé, Madagascar, 14-18 octobre 1996.	E
129	Gas and Fluids in Marine Sediments, Amsterdam, the Netherlands; 27-29 January 1997.	E	130	Atelier régional de la COI sur l'océanographie côtière et la gestion de la zone côtière ; Moroni, RFI des Comores, 16-19 décembre 1996.	E	131	GOOS Coastal Module Planning Workshop; Miami, USA, 24-28 February 1997	E
132	Third IOC-FANSA Workshop; Punta-Arenas, Chile, 28-30 July 1997	S/E	133	Joint IOC-CIESM Training Workshop on Sea-level Observations and Analysis for the Countries of the Mediterranean and Black Seas; Birkenhead, U.K., 16-27 June 1997.	E	134	IOC/WESTPAC-CCOP Workshop on Paleogeographic Mapping (Holocene Optimum); Shanghai, China, 27-29 May 1997.	E
135	Regional Workshop on Integrated Coastal Zone Management; Chabahar, Iran; February 1996.	E	136	IOC Regional Workshop for Member States of Western Africa (GODAR-VI); Accra, Ghana, 22-25 April 1997.	E	137	GOOS Planning Workshop for Living Marine Resources, Dartmouth, USA; 1-5 March 1996.	E, F
138	Gestión de Sistemas Oceanográficos del Pacífico Oriental; Concepcion, Chile, 9-16 de abril de 1996.	S	139	Sistemas Oceanográficos del Atlántico Sudoccidental, Taller, TEMA; Furg, Rio Grande, Brasil, 3-11 de noviembre de 1997	S	140	IOC Workshop on GOOS Capacity Building for the Mediterranean Region; Valletta, Malta, 26-29 November 1997.	E
141	IOC/WESTPAC Workshop on Co-operative Study in the Gulf of Thailand: A Science Plan; Bangkok, Thailand, 25-28 February 1997.	E	142	Pelagic Biogeography ICoPB II. Proceedings of the 2nd International Conference. Final Report of SCOR/IOC Working Group 93; Noordwijkhout, The Netherlands, 9-14 July 1995.	E	143	Geosphere-biosphere coupling: Carbonate Mud Mounds and Cold Water Reefs; Gent, Belgium, 7-11 February 1998.	E
144	IOC-SOPAC Workshop Report on Pacific Regional Global Ocean Observing Systems; Suva, Fiji, 13-17 February 1998.	E	145	IOC-Black Sea Regional Committee Workshop: 'Black Sea Fluxes' Istanbul, Turkey, 10-12 June 1997.	E	146	Taller Internacional sobre Formación de Capacidades para el Manejo de las Costas y los Océanos en el Gran Caribe. La Habana, - Cuba, 7-10 de Julio de 1998/ International Workshop on Management Capacity-Building for Coasts and Oceans in the Wider Caribbean, Havana, Cuba, 7-10 July 1998	S/E
147	IOC-SOA International Training Workshop on the Integration of Marine Sciences into the Process of Integrated Coastal Management, Dalian, China, 19-24 May 1997.	E	148	IOC/WESTPAC International Scientific Symposium - Role of Ocean Sciences for Sustainable Development Okinawa, Japan, 2-7 February 1998.	E	149	Workshops on Marine Debris & Waste Management in the Gulf of Guinea, 1995-97.	E
150	Primera Sesión del Grupo de Trabajo COI sobre Algas Nocivas en el Caribe y Regiones Adyacentes (IOCARIBE-ANCA)/First Meeting of the IOC Working Group on Harmful Algae in the Caribbean and Adjacent Region (IOCARIBE-ANCA), 29 June - 1 July 1998, Havana, Cuba.	S/E (electronic copy only)	151	Taller Pluridisciplinario TEMA sobre Redes del Gran Caribe en Gestión Integrada de Áreas Costeras Cartagena de Indias, Colombia, 7-12 de septiembre de 1998.	S	152	Workshop on Data for Sustainable Integrated Coastal Management (SICOM) Maputo, Mozambique, 18-22 July 1998	E
			153	IOC/WESTPAC-Sida (SAREC) Workshop on Atmospheric Inputs of Pollutants to the Marine Environment Qingdao, China, 24-26 June 1998	E	154	IOC-Sida-Flanders-SFRI Workshop on Ocean Data Management in the IOCINCWIO Region (ODINEA project) Capetown, South Africa, 30 November-11 December 1998.	E
			155	Science of the Mediterranean Sea and its applications UNESCO, Paris 29-31 July 1997	E	156	IOC-LUC-KMFRI Workshop on RECOSCIX-WIO in the Year 2000 and Beyond, Mombasa, Kenya, 12-16 April 1999	E
			157	'98 IOC-KMI International Workshop on Integrated Coastal Management (ICM), Seoul, Republic of Korea 16-18 April 1998	E	158	The IOCARIBE Users and the Global Ocean Observing System (GOOS) Capacity Building Workshop, San José, Costa Rica, 22-24 April 1999	E
			159	Oceanic Fronts and Related Phenomena (Konstantin Fedorov Memorial Symposium) - Proceedings, Pushkin, Russian Federation, 18-22 May 1998	E	160	Under preparation	
			161	Under preparation		162	Workshop report on the Transports and Linkages of the Intra-american Sea (IAS), Cozumel, Mexico, 1-5 November 1997	E
			163	Under preparation		164	IOC-Sida-Flanders-MCM Third Workshop on Ocean Data Management in the IOCINCWIO Region (ODINEA Project), Cape Town, South Africa, 29 November - 11 December 1999	E
			165	An African Conference on Sustainable Integrated Management; Proceedings of the Workshops, An Integrated Approach, (PACSIKOM), Maputo, Mozambique, 18 -25 July 1998	E, F	166	IOC-SOA International Workshop on Coastal Megacities: Challenges of Growing Urbanization of the World's Coastal Areas; Hangzhou, P.R. China, 27 -30 September 1999	E
			167	IOC-Flanders First ODINAFRICA-II Planning Workshop, Dakar, Senegal, 2-4 May 2000	E	168	Geological Processes on European Continental Margins: International Conference and Eight Post-cruise Meeting of the Training-Through-Research Programme, Granada, Spain, 31 January - 3 February 2000	E
			169	International Conference on the International Oceanographic Data & Information Exchange in the Western Pacific (IODE-WESTPAC) 1999, ICWIP '99, Langkawi, Malaysia, 1-4 November 1999	E	170	IOCARIBE-GODAR-I Cartagena, Colombia, February 2000	under preparation
			171	Ocean Circulation Science derived from the Atlantic, Indian and Arctic Sea Level Networks, Toulouse, France, 10-11 May 1999	E	172	The Benefits of the Implementation of the GOOS in the Mediterranean Region, Rabat, Morocco, 1-3 November 1999	E, F
			173	The Benefits of the Implementation of the GOOS in the Mediterranean Region, Rabat, Morocco, 1-3 November 1999	E, F	174	IOC-SOPAC Regional Workshop on Coastal Global Ocean Observing System (GOOS) for the Pacific Region, Apia, Samoa, 16-17 August 2000	E
			175	Geological Processes on Deep-water European Margins, Moscow-Mozhenka, 28 Jan.-2 Feb. 2001	E	176	MedGLOSS Workshop and Coordination Meeting for the Pilot Monitoring Network System of Systematic Sea Level Measurements in the Mediterranean and Black Seas, Haifa, Israel, 15-17 May 2000	E
			177	(Under preparation)		178	(Under preparation)	
			179	(Under preparation)		180	Abstracts of Presentations at Workshops during the 7th session of the IOC Group of Experts on the Global Sea Level Observing System (GLOSS), Honolulu, USA, 23-27 April 2001	E
			181	(Under preparation)		182	(Under preparation)	
			183	Geosphere/Biosphere/Hydrosphere Coupling Process, Fluid Escape Structures and Tectonics at Continental Margins and Ocean Ridges, International Conference & Tenth Post-cruise Meeting of the Training-through-Research	E	184	Programme, Aveiro, Portugal, 30 January-2 February 2002	
						185	(Under preparation)	
						186	(Under preparation)	
						187	(Under preparation)	
						188	Geological and Biological Processes at deep-sea European Margins and Oceanic Basins, Bologna, Italy, 2-6 February 2003	E
						189	Proceedings of 'The Ocean Colour Data' Symposium, Brussels, Belgium, 25-27 November 2002	E
							Workshop for the Formulation of a Draft Project on Integrated Coastal Management (ICM) in Latin America and the Caribbean (LAC), Cartagena, Colombia, 23-25 October 2003	E F
							Taller de Formulación de un Anteproyecto de Manejo Costero Integrado (MCI) en América Latina y el Caribe (ALC), Cartagena, Colombia, 23-25 de Octubre de 2003	(electronic copy only)
						190	First ODINCARSA Planning Workshop for Caribbean Islands, Christchurch, Barbados, 15-18 December 2003	E
						191	North Atlantic and Labrador Sea Margin Architecture and Sedimentary Processes - International Conference and Twelfth Post-cruise Meeting of the Training-through-research Programme, Copenhagen, Denmark, 29-31 January 2004	E
						192	Regional Workshop on Coral Reefs Monitoring and Management in the ROPME Sea Area, Iran I.R., 14-17 December 2003	E
						193	Workshop on New Technical Developments in Sea and Land Level Observing Systems, Paris, France, 14-16 October 2003	E
						194	IOC/ROPME Planning Meeting for the Ocean Data and Information Network for the Central Indian Ocean Region	(under preparation)
						195	Workshop on Indicators of Stress in the Marine Benthos, Torregrande-Oristano, Italy, 8-9 October 2004	E
						196	International Coordination Meeting for the Development of a Tsunami Warning and Mitigation System for the Indian Ocean within a Global Framework, Paris, France, 3-8 March 2005	E
						197	Geosphere-Biosphere Coupling Processes: The TTR Interdisciplinary Approach Towards Studies of the European and North African Margins; International Conference and Post-cruise Meeting of the Training-Through-Research Programme, Morocco, 2-5 February 2005	E
						198	Second International Coordination Meeting for the Development of a Tsunami Warning and Mitigation System for the Indian Ocean, Grand Baie, Mauritius, 14-16 April 2005	E
						199	International Conference for the Establishment of a Tsunami and Coastal Hazards Warning System for the Caribbean and Adjacent Regions, Mexico, 1-3 June 2005	E
						200	Lagoons and Coastal Wetlands in the Global Change Context: Impacts and Management Issues - Proceedings of the International Conference, Venice, 26-28 April 2004 (ICAM Dossier N° 3)	E
						201	Geological processes on deep-water European margins - International Conference and 15th Anniversary Post-cruise Meeting of the Training-Through-Research Programme, Moscow/Zvenigorod, Russian Federation, 29 January-4 February 2006	E
						202	Proceedings of 'Ocean Biodiversity Informatics': an international conference on marine biodiversity data management Hamburg, Germany, 29 November-1 December 2004	E
						203	IOC-Flanders Planning Workshop for the formulation of a regional Pilot Project on Integrated Coastal Area Management in Latin America, Cartagena de Indias, Colombia, 16-18 January 2007	E
						204	Geo-marine Research along European Continental Margins, International Conference and Post-cruise Meeting of the Training-through-research Programme, Bremen, Germany, 29 January-1 February 2007	E
						205	IODE/ICAM Workshop on the development of the Caribbean marine atlas (CMA), United Nations House, Bridgetown, Barbados, 8-10 October 2007	E
						206	IODE/JCOMM Forum on Oceanographic Data Management and Exchange Standards, Ostend, Belgium, 21-25 January 2008	(Under preparation)
						207	SCOR/IODE Workshop on Data Publishing, Ostend, Belgium, 17-18 June 2008	(Under preparation)

No.	Title	Languages	No.	Title	Languages	No.	Title	Languages
208	JCOMM Technical Workshop on Wave Measurements from Buoys, New York, USA, 2–3 October 2008 (IOC-WMO publication)	(Under preparation)	233	2010 Meeting of the Joint IODE-JCOMM Steering Group on the Global Temperature-Salinity Profile Programme	E (electronic copy only)	263	International Coastal Atlas Network Workshop 6: Expanding Participation in Coastal Web Atlas Development and Use, 16–17 June 2013, University of Victoria, British Columbia, Canada	E (electronic copy only)
209	Collaboration between IOC and OBIS towards the Long-term Management Archival and Accessibility of Ocean Biogeographic Data, Ostend, Belgium, 24–26 November 2008	(Under preparation)	234	Ocean CO ₂ Atlas (SOCAT) Workshop, CSIRO Marine Laboratories, Hobart, Tasmania 16–18 June 2010	E (electronic copy only)	264	9th WESTPAC International Scientific Symposium, Research Directors' Forum: A Healthy and Safe Ocean for Prosperity in the Indo-Pacific region, Nha Trang, Viet Nam, 22 April 2014	E (electronic copy only)
210	Ocean Carbon Observations from Ships of Opportunity and Repeat Hydrographic Sections (IOCCP Reports, 1), Paris, France, 13–15 January 2003	E (electronic copy only)	235	The Caribbean Marine Atlas (CMA) Review and Planning Workshop and Saint Lucia National Coastal Atlas Stakeholder Event, Bay Gardens Inn, Rodney Bay, Saint Lucia, 2–6 August 2010	E (electronic copy only)	265	Electoral Group 1 Consultation on the Future of the IOC, Utrecht, The Netherlands, 26–27 May 2014	E (electronic copy only)
211	Ocean Surface pCO ₂ Data Integration and Database Development (IOCCP Reports, 2), Tsukuba, Japan, 14–17 January 2004	E (electronic copy only)	236	First Session of the IODE Steering Group for the IODE OceanDataPortal (SG-ODP-I), 20–22 September 2010, Ostend, Belgium	E (electronic copy only)	266	IOC-UNESCO-ISESCO workshop on Improving Tsunami Warning and Emergency Response in the North-Eastern Atlantic, Mediterranean and connected seas Rabat, 23–24 September 2014	A/E/F (electronic copy only)
212	International Ocean Carbon Stakeholders' Meeting, Paris, France, 6–7 December 2004	E (electronic copy only)	237	Ad hoc meeting of the IODE Steering Group for OBIS, Ostend, Belgium 18–19 November 2010	E (electronic copy only)	267	Proceedings of the First IOCAFRA Ocean Forecasting workshop for the Western Indian Ocean region, Nairobi, Kenya, 11–15 August 2014	E (electronic copy only)
213	International Repeat Hydrography and Carbon Workshop (IOCCP Reports, 4), Shonan Village, Japan, 14–16 November 2005	E (electronic copy only)	238	Implementing Adaptation to Climate Change in Western and Eastern Africa, Nairobi, Kenya, 3–5 November 2010	E (electronic copy only)	268	Proceedings of the African Summer School on Application of Ocean Data and Modelling Products, Ghana, Kenya, April–September 2014	E (electronic copy only)
214	Initial Atlantic Ocean Carbon Synthesis Meeting (IOCCP Reports, 5), Laugavátn, Iceland, 28–30 June 2006	E (electronic copy only)	239	2nd Advisory Workshop on enhancing forecasting capabilities for North Indian Ocean Storm Surges, 11–15 February 2011, New Delhi, India	E (electronic copy only)	269	Forum on Sustained Ocean Observations and Services in IOC Group V (Africa and Arab countries)	E
215	Surface Ocean Variability and Vulnerability Workshop (IOCCP Reports, 7), Paris, France, 11–14 April 2007	E (electronic copy only)	240	Ocean Biogeographic Information System (OBIS) Infrastructure Meeting, INCOIS, Hyderabad, India, 2–4 March 2011	E (electronic copy only)	270	Second China-Africa Forum on Marine Science and Technology, 9–10 April 2015, Nairobi, Kenya	Under preparation
216	Surface Ocean CO ₂ Atlas Project (SOCAT) 2nd Technical Meeting Report (IOCCP Reports, 9), Paris, France, 16–17 June 2008	E (electronic copy only)	241	Best Practice on Tsunami and Coastal Hazards Community Preparedness and Readiness in Central America and the Caribbean, 11–13 August 2008, Panama City, Panama	E (electronic copy only)	271	WESTPAC Workshop on Research and Monitoring of the Ecological Impacts of Ocean Acidification on Coral Reef Ecosystems, Phuket, Thailand, 19–21 January 2015	E (electronic copy only)
217	Changing Times: An International Ocean Biogeochemical Time-Series Workshop (IOCCP Reports, 11), La Jolla, California, USA, 5–7 November 2008	E (electronic copy only)	242	Integrated Coastal Area Management (ICAM) Training Workshop for the English Speaking Caribbean States, 16–18 March 2011, Bridgetown, Barbados	E (electronic copy only)	272	Second IOCAFRA Planning Meeting for the Second International Indian Ocean Expedition (IIOE-2), 6–8 October 2015, Catembe, Mozambique	E (electronic copy only)
218	Second Joint GOSUD/SAMOS Workshop, Seattle, Washington, USA, 10–12 June 2008	E (electronic copy only)	243	Cancelled		273	Cancelled	
219	International Conference on Marine Data management and Information Systems (IMDIS), Athens, Greece, 31 March–2 April 2008	E	244	SCOR/IODE/MBLWHOI Library Workshop on Data Publication, 4 th Session, British Oceanographic Data Centre, Liverpool, United Kingdom, 3–4 November 2011	E (electronic copy only)	274	First Session of the Advisory Group for the Ocean Data and Information Network for the WESTPAC Region (ODINWESTPAC), Tianjin, China, 27–28 January 2016	E
220	Geo-marine Research on the Mediterranean and European-Atlantic Margins. International Conference and TTR-17 Post-cruise Meeting of the Training-through-research Programme, Granada, Spain, 2–5 February 2009	E (electronic copy only)	245	Cancelled		275	Scientific meeting of experts for coordinated scenario analysis of future tsunami events and hazard mitigation schemes for the South China Sea region, Xiamen, China, 16–18 November 2015	E
221	Surface Ocean CO ₂ Atlas Project Pacific Regional Workshop, Tsukuba, Japan, 18–20 March, 2009 (IOCCP Report Number 12)	E (electronic copy only)	246	NEAMTIC/ICAM Workshop on Coastal Management Approaches for Sea-Level Related Hazards, Paris, UNESCO, 5–7 December 2011	E (electronic copy only)	276	Sources of Tsunamis in the Caribbean with Possibility to Impact the Southern Coast of the Dominican Republic, Santo Domingo, Dominican Republic, 6–7 May 2016	E & S
222	Surface Ocean CO ₂ Atlas Project Atlantic and Southern Oceans Regional Meeting, Norwich, UK, 25–26 June, 2009 (IOCCP Report Number 13)	E (electronic copy only)	247	Technical Workshop on the IODE OceanDataPortal, IOC Project Office for IODE, Ostend, Belgium, 27–29 February 2012	E (electronic copy only)	277	VI IOC Regional Science Planning Workshop on Harmful Algae in the Caribbean and Adjacent Regions, Santo Domingo, Dominican Republic, 26–30 October 2015 / COI – VI Taller Regional de Planificación Científica sobre Algas Nocivas en el Caribe y Regiones Adyacentes, Santo Domingo, República Dominicana, 26–30 Octubre 2015	E/S
223	Advisory Workshop on enhancing forecasting capabilities for North Indian Ocean Storm Surges, Indian Institute of Technology (IIT), New Delhi, India, 14–17 July 2009	E (electronic copy only)	248	Inter-sessional working group for updating the IOC Strategic Plan for Oceanographic Data and Information Exchange (2012–2015), Ostend, Belgium, 1–2 March 2012	E (electronic copy only)			
224	2009 International Nutrients Scale System (INSS) Workshop Report, Paris, France, 10–12 February 2009	E (electronic copy only)	249	Operational Oceanography of IOC (for Group II Member States), 20–22 March 2012 Paris, UNESCO (Advisory Workshop)	E (electronic copy only)			
225	Reunión subregional de planificación de ODINCARSA (Red de Datos e Información Oceanográficos para las Regiones del Caribe y América del Sur)/ ODINCARSA (Ocean Data and Information Network for the Caribbean and South America region) Latin America sub-regional Planning Meeting, Universidad Autónoma de Baja California (UABC), Ensenada (México), 7–10 December 2009, 2010	E/S (electronic copy only)	250	Advisory Workshop on The Future of IOC towards next ten years and its Implications for Member States, Varna, Bulgaria, 19 March 2012	E (electronic copy only)			
226	OBIS (Ocean Biogeographic Information System) Strategy and Work plan Meeting, IOC Project Office for IODE, Ostend, Belgium, 18–20 November 2009	E (electronic copy only)	251	Second Technical Meeting of Ocean Biogeographic Information System (OBIS), Ostend, Belgium, 21–22 June 2012	E (electronic copy only)	278	Tsunami Hazard in Central America: Historical Events and Potential Sources. Meeting of Experts, San José, Costa Rica, 23–24 June 2016	E
227	ODINAFRICA-IV Project Steering Committee, First Session, Ostend, Belgium, 20–22 January 2010, 2010	E (electronic copy only)	252	SCOR/IODE/MBLWHOI Library Workshop on Data Publication, 5 th Session, Woods Hole Oceanographic Institution, Woods Hole, USA, 9–10 October 2012	E (electronic copy only)	279	2nd International Conference on Marine/Maritime Spatial Planning, 15–17 March 2017, UNESCO, Paris	E
228	First IODE Workshop on Quality Control of Chemical Oceanographic Data Collections, Ostend, Belgium, 8–11 February 2010, 2010	E (electronic copy only)	253	Second IODE Workshop on Quality Control of Chemical and Biological Oceanographic Data Collections, 22–24 October 2012, IOC Project Office for IODE, Ostend, Belgium	E (electronic copy only)	280	Information Meeting on North-Eastern Atlantic, the Mediterranean and Connected Seas Tsunami Early Warning and Mitigation System (NEAMTWS) and NEAMWave 17 Tsunami Exercise: Summary Recommendations, Tunis, Tunisia, 13–14 September 2017	E/F/Ar
229	Surface Ocean CO ₂ Atlas Project Equatorial Pacific, North Pacific, and Indian Ocean Regional Workshop, Tokyo, Japan, 8–11 February 2010, 2010 (IOCCP Report Number 18)	E (electronic copy only)	254	Consultation on Scientific and Technical Aspects of Sustained Ocean Observations and Services, 5 th March, 2013, Rio de Janeiro, Brazil	E (electronic copy only)	281	Workshop on Sea-Level Measurements in Hostile Conditions, Moscow, Russian Federation, 13–15 March 2018	E/R
230	SCOR/IODE/MBLWHOI Library Workshop on Data Publication, Paris, France, 2 April 2010	E (electronic copy only)	255	Earthquake and tsunami hazard in Northern Haiti: Historical events and potential sources (Meeting of experts)	E (electronic copy only)	282	IODE/OBIS-Event-Data workshop on animal tagging and tracking, Ostend, Belgium, 23–26 April 2018	E
231	First ODINAFRICA Coastal and Marine Atlases Planning Meeting, Ostend, Belgium, 12–14 October 2009	E (electronic copy only)	256	Sexto Taller Regional de Planificación Científica sobre Floraciones de Algas Nocivas en Sudamérica, Guayaquil, Ecuador, 22–24 Octubre 2003 (Under preparation)	S (electronic copy only)	283	Sixth International XBT Science Workshop, Ostend, Belgium, 18–20 April 2018	E
232	Eleventh International Workshop on Wave Hindcasting and Forecasting and Second Coastal Hazard Symposium, Halifax, Canada, 18–23 October 2009	E (electronic copy only)	257	Noveno Taller Regional-COI de Planificación Científica sobre Florecimientos de Algas Nocivas en Sudamérica, 11–13 enero 2011, Puerto Varas, Chile	S (electronic copy only) (Summary in E)	284	Sargassum and Oil Spills Monitoring Pilot Project for the Caribbean and Adjacent Regions Workshop, Mexico DF, Mexico, 2–4 May 2018	E
			258	Caribbean Marine Atlas Review and Planning Meeting, Miami, USA, 10–13 December 2013		285	Drafting Workshop for the development of a training and Repository Portal for the Caribbean Large Marine Ecosystem	E
			259	Indo-Pacific Ocean Forum on "Charting the Future of Sustained Ocean Observations and Services", Bangkok, Thailand, 25–28 Nov. 2013		286	Preparing for the Next Tsunami: Reducing Losses and Damages in the Coastal Western Mediterranean Areas: Summary Recommendations, Rabat, Morocco, 15–16 November 2018	E/F/Ar
			260	First Planning Workshop For The Ocean Data And Information Network For The Westpac Region (ODINWESTPAC), Tianjin, China, 4–7 March 2014				