

**Intergovernmental Oceanographic Commission**  
*Reports of Governing and Major Subsidiary Bodies*



**Intergovernmental Coordination  
Group for the Tsunami and Other  
Coastal Hazards Warning System  
for the Caribbean Sea  
and Adjacent Regions  
(ICG/CARIBE EWS)**

**Sixth Session**

Santo Domingo, Dominican Republic  
26–29 April 2011

**UNESCO**

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## Executive summary

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The Sixth Session of the Intergovernmental Coordination Group for the Tsunami and Other Coastal Hazards Warning System for the Caribbean and Adjacent Regions (ICG/CARIBE EWS-V) was held in Santo Domingo, Dominican Republic, from 26 to 29 April 2011. The meeting was attended by 70 participants from 18 Caribbean countries and three observer organizations (UNDP, CDEMA and WMO). Main topics discussed during the meeting were the establishment of a Caribbean Tsunami Warning Center (CTWC) in Puerto Rico and the Caribbean Tsunami Information Center (CTIC) in Barbados ( as well as the lessons learnt and report of the CARIBE WAVE 11 exercise.

**The ICG encouraged** ICG members to make annual financial contributions to the CTIC. It also **agreed** that CTIC should develop a robust training and communications programme between the CTIC and key stakeholders within Member States throughout the region on all aspects of the warning system.

**The ICG furthermore agreed** that CTIC shall create a business plan that includes (1) an annual work plan, (2) a five year strategy; (3) a four-year budget and fund-raising plan; (4) a partnership strategy (5) a communications plan (6) an annual report.

**The ICG agreed** that it is important to explore methodologies to assess after a tsunami event the amount of lives saved due to tsunami preparedness.

**The ICG decided** to establish of a Task Team composed by the ICG Officers, Director of the Pacific Tsunami Warning Center (PTWC) and Manager of the Caribbean Tsunami Warning Programme (CTWP) to provide feedback during the development of enhanced tsunami warning products for the ICG/CARIBE EWS, validate these new products, procedures and implementation and provide a report to the Seventh session of the ICG/CARIBE EWS. This Task Team will be chaired by the director of the PTWC.

**The ICG instructed** Working Group 1 to establish a Task Team to address the full implementation of the observing networks by providing support to Member States to allow them to contribute their observational data to CARIBE EWS and efforts.

**The ICG decided** to organize a training on ComMit (NOAA's MOST model) to be hosted by France in the second half of 2011.

**The ICG instructed** Working Group 2 on Hazard Assessment to provide a catalogue of tsunamigenic sources in the Caribbean region (tectonic, landslide, volcanoes) and coordinate a validation process for the tsunami run-up data in the NOAA/NGDC database for the Caribbean. It **further instructed** Working Group 2 to make an inventory of tsunami models being used in the Caribbean.

**The ICG requested** that the Technical Secretariat defines a web page for sharing Standard Operating Procedures protocols and standards.

**The ICG agreed** to revise the ICG/CARIBE EWS Communications Plan to include the following schedule for PTWC TWFP communication tests:

- (i) Hold communication tests on the first Thursday of every month at 15:30 (UTC/GMT) as from 1st September 2011. Members States TWFP's should report only issues and errors during these monthly tests to the PTWC and IOC Secretariat;
- (ii) Hold twice yearly TWFP "No Notice" verification communication tests. For these tests, Member States' TWFPs shall verify PTWC communication (and all means received and not received) within one (1) hour of the "No Notice" test;

- (iii) all verifications by Countries for issues from monthly tests shall be sent to the PTWC within one (1) hour to facilitate “active action” or “repetitive action” education on a monthly basis;
- (iv) The ICG **instructed** WG 3 on Warning Dissemination and Communication to evaluate automated feedback mechanisms for communication tests and report to the Seventh session of the ICG.

**The ICG further agreed** that the Technical Secretariat notifies ICG Member States of the testing to be held routinely. It also **encouraged** Member States to internally document messages received from PTWC and others.

**The ICG agreed** that the CTWP collects from each Member State the receiving method for tsunami products using a template to be sent to Member States by the Technical Secretariat. Each Member State should identify at least two (2) ways of receiving the PTWC notification at the TWFP. This should be an ongoing task in the Implementation Plan.

**The ICG instructed** the Working Group 3 on Warning Dissemination and Communication to address, in cooperation with the CTWP, the multi-lingual issue in the Caribbean for tsunami alerts, warning and testing messages.

**The ICG instructed** Working Group 3 to explore whether faxing each Watch message during an actual incident is essential, with a view to decide if only the initial Watch Message could be faxed during an actual incident unless fax is the only means of notification. It **further instructed** PTWC to explore alternate technologies for sending fax messages to include (eFax) and report at the next ICG meeting.

**The ICG acknowledged** that United States has agreed to work with ICG/CARIBE-EWS for the submission and approval of requests for additional high rate slots, and will work toward providing as many GOES slots to the Caribbean Region as possible.

**The ICG recommended** to review and revise the following areas in the Communications Plan: (i) Section 4, Page 8 —Product Dissemination— to add new currently used technologies such as EMWIN, WIS etc and reflected new terms in the Acronym list; (ii) Section 5, Page 9 —Communications Test— to revise Tsunami Warning testing schedule; and (iii) Working Groups 1 & 3 to evaluate the sample products in Appendix 2.

**The ICG appointed** Mr Juan Luis Guzman (Bolivarian Rep. of Venezuela) as chair of Working Group 4 on Preparedness, Readiness and Resilience and Mr Juan Salado (Dominican Republic) as vice-chair.

**The ICG urged** the USA to continue the phased implementation with the establishment of the Caribbean Tsunami Warning Center to serve the Caribbean and Western Atlantic Basin by December 2012; and requested the USA to present a schedule for fulfilling the requirements approved by the CARIBE-EWS for the Caribbean Tsunami Warning Center including its full staffing at the Seventh session of the ICG.

**The ICG encouraged** Nicaragua’s and the Bolivarian Republic of Venezuela’s continued efforts and technical advances for the establishment of an additional Regional Tsunami Warning Center in support of the Caribbean Tsunami Warning Center; **invited** the Bolivarian Republic of Venezuela to present a document defining the roles of the additional regional tsunami warning centres at the Seventh session of the ICG and **encouraged** other nations to further develop their capacities and additional tsunami warning centres in support of the Caribbean Tsunami Warning Center.

**The ICG agreed** to have the next CARIBE-WAVE in 2013. It will be then evaluated for annual vs biannual. The ICG **recommended** that the exercise be conducted, when

feasible, in partnership with the US LANTEX exercise. The ICG **further recommended** that the CARIBE-WAVE be the basis and platform for testing outreach and education effectiveness at the Country level.

**The ICG requested** the Technical Secretariat to update the CARIBE-EWS Implementation Plan and to submit it to Member States by July 2011

**The ICG acknowledged** the offer from Curacao with appreciation and **agreed to** hold the Seventh session of the ICG/CARIBE-EWS in Curacao during the first semester of 2012.

**The ICG agreed** March 2013 as a target date for the Eighth Session of the ICG/CARIBE-EWS. Trinidad and Tobago offered to host the ICG/CARIBE EWS-VIII.



## Résumé exécutif

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Le Groupe intergouvernemental de coordination du Système d'alerte aux tsunamis et autres risques côtiers dans la mer des Caraïbes et les régions adjacentes (GIC/CARIBE-EWS) a tenu du 26 au 29 avril 2011 sa sixième session à Saint-Domingue (République dominicaine). Y ont assisté 70 représentants de 18 pays de la région et les observateurs de 3 organisations (PNUD, CDEMA et OMM). Parmi les principales questions examinées à la session figuraient notamment les suivantes: création, à Porto Rico, d'un Centre d'alerte aux tsunamis dans les Caraïbes (CTWC) et, à la Barbade, d'un Centre d'information sur les tsunamis dans les Caraïbes (CTIC), ainsi que les enseignements tirés de CARIBE WAVE 11 et le compte rendu de l'exercice.

**Le GIC a encouragé** ses membres à verser des contributions financières annuelles au CTIC. Il est aussi **convenu** que le CTIC devrait élaborer avec les parties prenantes clés au sein des États membres, à travers toute la région, un solide programme de formation et de communications sur le système d'alerte sous tous ses aspects.

**Le GIC est convenu en outre** que le CTIC établirait un plan d'action qui comprendrait (1) un plan annuel de travail; (2) une stratégie quinquennale; (3) un budget et un plan de collecte de fonds de quatre ans; (4) une stratégie de partenariat; (5) un plan de communications; et (6) un rapport annuel.

**Le GIC est convenu** qu'il importait de prospector les méthodes qui permettraient, au lendemain d'une catastrophe liée à un tsunami, de faire une estimation du nombre de vies humaines sauvées grâce à la préparation aux tsunamis.

**Le GIC a décidé** de créer une Équipe spéciale composée de son bureau, du directeur du Centre d'alerte aux tsunamis dans le Pacifique (PTWC) et du responsable du Programme d'alerte aux tsunamis dans les Caraïbes (CTWP), laquelle fournirait un retour d'information pendant la mise au point de produits améliorés d'alerte aux tsunamis pour le GIC/CARIBE-EWS, validerait ces nouveaux produits, procédures et applications, et lui soumettrait un rapport, à sa septième session. L'Équipe spéciale sera présidée par le directeur du PTWC.

**Le GIC a chargé** le Groupe de travail 1 de créer une Équipe spéciale qui s'emploierait à la mise en œuvre intégrale des réseaux d'observation en apportant un appui aux États membres afin qu'ils puissent contribuer au CARIBE-EWS, avec leurs données d'observation et actions.

**Le GIC a décidé** d'organiser un stage de formation au Modèle d'interface pour les tsunamis à l'intention des communautés (modèle MOST de la NOAA), lequel sera accueilli par la France au cours du second semestre de 2011.

**Le GIC a chargé** le Groupe de travail 2 sur l'évaluation des risques d'établir un catalogue des sources tsunamigènes dans la région caraïbe (tectonique, glissement de terrain, volcans) et de coordonner un processus de validation pour les données relatives au run up dans la base de données de la NOAA/NGDC pour les Caraïbes. Il **a chargé par ailleurs** le Groupe 2 de dresser un inventaire des modèles de tsunamis qui sont actuellement utilisés dans les Caraïbes.

**Le GIC a demandé** que le Secrétariat technique définisse une page Web pour la mise en commun des procédures opérationnelles normalisées, protocoles et normes.

**Le GIC est convenu** de réviser le plan de communications du GIC/CARIBE-EWS, qui comprendrait les tests de communication des TWFP du PTWC, comme suit:

- (i) procéder à des tests de communication le premier jeudi de chaque mois à 15 h 30 (UTC/GMT), à compter du 1er septembre 2011. Les TWFP des États membres devraient, pendant ces tests mensuels, ne signaler au PTWC et au Secrétariat de la COI que les problèmes et erreurs;
- (ii) procéder deux fois par an, aux fins de la vérification par les TWFP, les tests de communication inopinés. Pour ces tests, les TWFP des États membres vérifieront la communication du PTWC (et tous les moyens reçus et non reçus) dans l'heure qui suit (1 heure) le commencement du test inopiné;
- (iii) toutes les vérifications par les pays se rapportant à des problèmes découlant des tests mensuels seront envoyés au PTWC dans l'heure (1 heure) afin de faciliter, sur une base mensuelle, l'éducation relative à «l'action active» ou à «l'action répétitive».

**Le GIC a chargé** le Groupe de travail 3 sur l'alerte, la diffusion et la communication d'évaluer les mécanismes automatisés de retour d'information aux fins des tests de communication et de lui faire rapport à sa septième session.

**Le GIC est convenu** par ailleurs que le secrétariat technique notifie aux États membres du GIC les tests qui doivent être effectués à titre d'activité courante. Il a aussi encouragé les États membres à répertorier, sur le plan interne, les messages reçus du PTWC et d'autres.

**Le GIC est convenu** que le CTWP recueillerait auprès de chaque État membre la méthode de réception des produits relatifs aux tsunamis en utilisant une matrice que le secrétariat technique ferait parvenir aux États membres. Chaque État membre devrait identifier au moins deux (2) modes de réception, au TWFP, de l'avis du PTWC. Cela devrait être une tâche permanente dans le plan de mise en œuvre.

**Le GIC a chargé** le Groupe de travail 3 sur l'alerte, la diffusion et la communication de résoudre, en coopération avec le CTWP, le problème que présente pour les messages d'alerte et d'essai le multilinguisme dans les Caraïbes.

**Le GIC a chargé** le Groupe de travail 3 de déterminer s'il est indispensable d'envoyer par télécopie chaque message de veille pendant un incident réel, le but étant de décider si seul le message de veille initial pourrait être envoyé par télécopie pendant cet incident, à moins que la télécopie ne soit le seul moyen de transmission. Il **a chargé en outre** le PTWC de prospecter les technologies de rechange pour l'envoi des messages par télécopie, y compris eFax et de lui rendre compte à sa prochaine session.

**Le GIC a pris acte** que les États-Unis étaient convenus de contribuer, avec le GIC/CARIBE-EWS, à la soumission et à l'approbation des demandes de tranches horaires supplémentaires à forte redevance et s'emploiera à fournir à la région des Caraïbes autant de tranches horaires du GOES que possible.

**Le GIC a recommandé** d'examiner et de réviser les domaines suivants dans le plan de communications: (i) section 4, page 8 – diffusion des produits – ajouter les technologies actuellement utilisées, tels EMWIN et SIO, et, dans la Liste des sigles et abréviations, les nouveaux termes correspondants; (ii) section 5, page 9 – test de communications – réviser le calendrier des tests d'alerte aux tsunamis, et (iii) les Groupes de travail 1 et 3 évalueront les échantillons de l' Appendice 2.

**Le GIC a nommé** M. Juan Luis Guzman (République bolivarienne du Venezuela) Président du Groupe de travail 4 sur la préparation, la disponibilité opérationnelle et la résilience, et M. Juan Salado (République dominicaine) Vice-Président.

**Le GIC a exhorté** les États-Unis à continuer la mise en œuvre graduelle avec la création du Centre d'alerte aux tsunamis dans les Caraïbes pour desservir les Caraïbes et le bassin de l'Atlantique Ouest avant décembre 2012, et **a prié** les États-Unis de présenter, à sa septième session, un calendrier pour la mise en conformité avec les spécifications approuvées par le CARIBE-EWS pour le Centre d'alerte aux tsunamis dans les Caraïbes, y compris la dotation complète en effectif.

**Le GIC a encouragé** l'action soutenue que mènent le Nicaragua et la République bolivarienne du Venezuela et les progrès techniques réalisés pour la création de centres régionaux supplémentaires d'alerte aux tsunamis à l'appui du Centre d'alerte aux tsunamis dans les Caraïbes, **a invité** la République bolivarienne du Venezuela à présenter, à sa septième session, un document dans lequel seraient définis les rôles des centres régionaux supplémentaires d'alerte aux tsunamis et **encouragé** d'autres pays à renforcer encore leur capacité et à poursuivre la mise au point des centres supplémentaires d'alerte aux tsunamis à l'appui du Centre d'alerte aux tsunamis dans les Caraïbes.

**Le GIC est convenu** de mener en 2013 le prochain exercice CARIBE WAVE. À cette date une évaluation serait faite pour déterminer si l'exercice aurait lieu chaque année ou tous les deux ans. Le GIC a recommandé de mener l'exercice, lorsque cela est possible, en partenariat avec l'exercice américain LANTEX. Le GIC **a recommandé en outre** que CARIBE WAVE serve de base et la plate-forme pour tester l'efficacité de la mobilisation des publics et l'éducation au niveau national.

**Le GIC a demandé** au secrétariat technique de mettre à jour le Plan de mise en œuvre du CARIBE-EWS et de le soumettre aux États membres avant juillet 2011.

**Le GIC a pris acte**, en l'appréciant, de l'offre faite par Curaçao et est convenu d'y tenir sa septième session au cours du premier semestre de 2012.

Le GIC est convenu de mars 2013 comme date cible pour sa huitième session et Trinité-et-Tobago a offert d'accueillir la session.

## Resumen dispositivo

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La sexta reunión del Grupo Intergubernamental de Coordinación del Sistema de Alerta contra los Tsunamis y otras Amenazas Costeras en el Caribe y regiones adyacentes (ICG/CARIBE EWS-VI) se celebró en Santo Domingo (República Dominicana) del 26 al 29 de abril de 2011. Asistieron a la reunión 70 participantes de 18 países del Caribe y tres observadores de organizaciones (el PNUD, el CDEMA y la OMM). Los principales temas discutidos en la reunión fueron el establecimiento de un Centro de Alerta contra los Tsunamis en el Caribe (CTWC) en Puerto Rico y el Centro de Información sobre los Tsunamis en el Caribe (CTIC) en Barbados, así como las lecciones aprendidas y el informe del ejercicio CARIBE WAVE 11.

**El ICG alentó** a los miembros del ICG a aportar contribuciones financieras anuales al CTIC. También **convino** en que el CTIC debía dotarse de un vigoroso programa de formación y comunicaciones entre el CTIC y los principales interesados en los Estados Miembros en la región, relativo a todos los aspectos del sistema de alerta.

**El ICG acordó además** que el CTIC debía preparar un plan institucional que comprendiera: 1) un plan de trabajo anual; 2) una estrategia quinquenal; 3) un presupuesto cuatrienal y un plan de recaudación de fondos; 4) una estrategia de asociación; 5) un plan de comunicaciones; y 6) un informe anual.

**El ICG convino** en que era importante buscar metodologías para estimar, después de un tsunami, la cantidad de vidas salvadas gracias a la preparación para el fenómeno.

**El ICG decidió** establecer un equipo de trabajo compuesto por la Mesa del ICG, el Director del Centro de Alerta contra los Tsunamis en el Pacífico (PTWC) y el Administrador del Programa de Alerta contra los Tsunamis en el Caribe (CTWP) encargado de reenviar información durante la elaboración de productos mejorados de alerta contra los tsunamis para el ICG/CARIBE EWS, validar esos nuevos productos, procedimientos y puesta en práctica, y presentar un informe en la Séptima reunión del ICG/CARIBE EWS. Este equipo de trabajo será presidido por el Director del PTWC.

**El ICG encargó** al Grupo de Trabajo 1 que estableciera un equipo de trabajo que abordara la implantación completa de las redes de observación prestando apoyo a los Estados Miembros para permitirles aportar al CARIBE EWS sus datos de observaciones y actividades.

**El ICG decidió** organizar una actividad de formación sobre el ComMit (modelo MOST de la NOAA) que será acogida por Francia en el segundo semestre de 2011.

**El ICG encargó** al Grupo de Trabajo 2 sobre Evaluación de riesgos que suministrara un catálogo de fuentes tsunamigénicas en la región del Caribe (tectónicas, deslizamiento de tierras, volcanes) y coordinara un proceso de validación para los datos sobre la altura de inundación de tsunamis en la base de datos NGDC de la NOAA para el Caribe. **Encargó además** al Grupo de Trabajo 2 que preparara un inventario de los modelos de tsunamis que se utilizan en el Caribe.

**El ICG pidió** que la Secretaría Técnica diseñara una página web para intercambiar protocolos y normas sobre procedimientos normalizados de operaciones.

**El ICG convino** en revisar el Plan de Comunicaciones del ICG/CARIBE EWS para incluir el siguiente calendario de pruebas de comunicación del PTWC con los Puntos focales de alerta contra los tsunamis (TWFP):

- (i) Efectuar pruebas de comunicación el primer jueves de cada mes a las 15.30 horas (UTC/GMT) a partir del 1° de septiembre de 2011. Los Estados Miembros de los TWFP deben informar solamente de los problemas y errores ocurridos en estas pruebas mensuales al PTWC y a la Secretaría de la COI.
- (ii) Efectuar dos veces por año pruebas "sin aviso previo" de verificación de comunicación con los TWFP. Para estas pruebas, los TWFP de los Estados Miembros deberán verificar la comunicación con el PTWC (así como todos los medios recibidos y no recibidos) a más tardar una (1) hora después de la prueba sin aviso previo.
- (iii) Todos los problemas observados por los países en estas pruebas mensuales deberán comunicarse al PTWC a más tardar una (1) hora después para facilitar cada mes la educación sobre "acción activa" o "acción repetitiva".

**El ICG encargó** al Grupo de Trabajo 3 sobre Difusión y Comunicación de Alertas que evaluara los mecanismos de retorno automatizado de información para las pruebas de comunicación e informara al respecto en la Séptima reunión del ICG.

**El ICG acordó además** que la Secretaría Técnica notificara a los Estados Miembros del ICG acerca de las pruebas de rutina previstas. También alentó a los Estados Miembros a que documentaran en el plano interno los mensajes recibidos del PTWC y otros.

**El ICG convino** en que el CTWP recabara de cada Estado Miembro el método de recepción de los productos sobre tsunamis mediante una plantilla que será enviada a los Estados Miembros por la Secretaría Técnica. Cada Estado Miembro ha de señalar al menos dos (2) métodos de recepción de la notificación del PTWC al TWFP. Esta tarea debería tener carácter permanente en el Plan de implantación.

**El ICG encargó** al Grupo de Trabajo 3 sobre Difusión y Comunicación de Alertas que, en cooperación con el CTWP, examinara la cuestión del multilingüismo en el Caribe para los mensajes de alerta contra tsunamis y los mensajes de prueba.

**El ICG encargó** al Grupo de Trabajo 3 que averiguara si es indispensable faxear todos los Mensajes de Vigilancia durante un incidente real, a fin de determinar si se podría faxear únicamente el Mensaje de Vigilancia inicial durante un incidente real, a menos que el fax sea el único medio de notificación. **Encargó asimismo** al PTWC que buscara otras tecnologías de envío de mensajes por fax, incluyendo el fax electrónico, e informara al respecto en la siguiente reunión del ICG.

**El ICG apreció** que los Estados Unidos de América hubieran aceptado colaborar con el ICG CARIBE-EWS para la presentación y aprobación de solicitudes de conexiones adicionales de alta velocidad, y que procuraran proporcionar todas las conexiones que fuera posible con los satélites GOES para la región del Caribe.

**El ICG recomendó** que se examinaran y revisaran los siguientes aspectos del Plan de Comunicaciones: i) Sección 4, Página 8 – Difusión de productos, a fin de añadir nuevas tecnologías actualmente en uso tales como EMWIN, WIS, etc., y los correspondientes nuevos términos en la lista de siglas y acrónimos; ii) Sección 5, Página 9 – Prueba de comunicaciones, a fin de revisar el calendario de pruebas de Alerta contra tsunamis; y iii) la evaluación de los productos de muestra del Apéndice 2 por los Grupos de Trabajo 1 y 3.

**El ICG designó** Presidente del Grupo de Trabajo 4 sobre Preparación, Capacidad operacional y Recuperación al Sr. Juan Luis Guzmán (Venezuela) y Vicepresidente al Sr. Juan Salado (República Dominicana).

**El ICG instó** a los Estados Unidos de América a proseguir el establecimiento gradual, antes de diciembre de 2012, del Centro de Alerta contra los Tsunamis en el Caribe para atender a la cuenca del Caribe y el Atlántico Occidental; y pidió a los Estados Unidos que en la Séptima reunión del ICG presentaran un calendario de cumplimiento de los criterios aprobados por el ICG/CARIBE EWS para el Centro de Alerta contra los Tsunamis en el Caribe, comprendida su plantilla completa.

**El ICG alentó** a Nicaragua y la República Bolivariana de Venezuela a proseguir sus esfuerzos y avances técnicos para el establecimiento de un Centro Regional de Alerta contra los Tsunamis adicional en apoyo al Centro de Alerta contra los Tsunamis en el Caribe; **invitó** a la República Bolivariana de Venezuela a presentar en su Séptima reunión un documento en el que se definan las funciones de los centros regionales de alerta adicionales; y **alentó** a otros países a desarrollar sus capacidades y establecer centros regionales de alerta adicionales para apoyar al Centro de Alerta contra los Tsunamis en el Caribe.

**El ICG convino** en organizar el próximo ejercicio CARIBE WAVE en 2013, tras lo cual se determinará si conviene que tenga periodicidad anual o bienal. El ICG **recomendó** que el ejercicio se realizara, en lo posible, en asociación con el ejercicio LANTEX de los Estados Unidos de América. El ICG **recomendó además** que CARIBE WAVE constituyera la base y la plataforma de ensayo del alcance y la eficacia educativa en el plano nacional.

**El ICG pidió** a la Secretaría Técnica que actualizara el Plan de implantación del CARIBE EWS y lo presentara a los Estados Miembros en julio de 2011.

**El ICG agradeció** la propuesta de Curaçao y **acordó** celebrar su Séptima reunión en Curaçao en el curso del primer semestre de 2012.

**El ICG acordó** que marzo de 2013 sería la fecha apropiada para celebrar su Octava reunión. Trinidad y Tobago ofreció acoger esa reunión.

## Рабочее резюме

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Шестая сессия Межправительственной координационной группы по Системе предупреждения о цунами и опасности других бедствий в прибрежных районах Карибского бассейна и прилегающих регионов (МКГ/КАРИБ-СРП-VI) состоялась в г. Санто-Доминго, Доминиканская Республика, 26-29 апреля 2011 г. На сессии присутствовали 70 участников из 18 стран Карибского региона и наблюдатели от трех организаций (ПРООН, КДЕМА и ВМО). В числе основных тем, обсуждавшихся на встрече, были учреждение Центра предупреждения о цунами в Карибском бассейне (ЦПЦК) в Пуэрто-Рико и Карибского центра информации о цунами (КЦИЦ) в Барбадосе, а также уроки, извлеченные после проведения учений КАРИБСКАЯ ВОЛНА 11, и рассмотрение соответствующего доклада.

**МКГ призвала** своих членов внести ежегодные финансовые взносы в КЦИЦ. Она **также согласилась** с тем, что КЦИЦ следует разработать функциональную программу по обучению и коммуникации между КЦИЦ и основными заинтересованными сторонами из числа государств-членов региона, касающуюся всех аспектов системы предупреждения.

**МКГ также согласилась** с тем, что КЦИЦ необходимо разработать бизнес-план, включающий следующие элементы: (1) ежегодный план работы; (2) пятилетнюю стратегию; (3) четырехлетний план бюджета и сбора средств; (4) стратегию в отношении партнерских связей; (5) план коммуникации; (6) ежегодный доклад.

**МКГ согласилась** с важностью изучения методологий, позволяющих провести количественную оценку жизней, сохраненных благодаря обеспечению подготовленности к цунами, после случившегося события.

**МКГ постановила** учредить целевую группу, состоящую из должностных лиц МКГ, директора Центра предупреждения о цунами в Тихом океане (ПТВЦ) и руководителя Программы предупреждения о цунами в Карибском бассейне (КППЦ), для предоставления информации о результатах подготовки усовершенствованных продуктов по предупреждению о цунами для МКГ/КАРИБ-СРП, утверждения этих новых продуктов, процедур и их внедрения, а также для представления соответствующего доклада на седьмой сессии МКГ/КАРИБ-СРП. Эта целевая группа будет работать под руководством директора ПТВЦ.

**МКГ поручила** Рабочей группе 1 создать целевую группу для решения вопросов по комплексному внедрению сетей наблюдения посредством предоставления поддержки государствам-членам, которая позволит им внести данные своих наблюдений в КАРИБ-СРП и содействовать их усилиям.

**МКГ постановила** организовать обучение по модели ComMit (модель NOAA MOST), которое пройдет во Франции в первой половине 2011 г.

**МКГ поручила** Рабочей группе 2 об оценке опасности бедствий подготовить каталог цунамигенных очагов в регионе Карибского бассейна (тектонического, оползневого и вулканического происхождения) и провести координацию процесса аттестации данных по цунами за предшествующий период, предназначенных для внесения в базу данных NOAA/НЦГД по Карибскому региону. Она **также поручила** Рабочей группе 2 провести инвентаризацию моделей цунами для использования в Карибском регионе.

**МКГ просила** Технический секретариат выделить веб-страницу для обмена протоколами и нормами Стандартных оперативных процедур.

**МКГ пришла к договоренности** о пересмотре Плана коммуникации МКГ/КАРИБ-СРП с целью включения в него следующего графика по тестовым мероприятиям в области коммуникации для ПТВЦ КПЦ:

- (i) Проведение тестовых мероприятий в области коммуникации в первый четверг каждого месяца в 15 часов 30 минут (ВКВ/GMT), начиная с 1 сентября 2011 г. Государства – члены КПЦ должны будут информировать ПТВЦ и Секретариат МОК только о проблемах и неисправностях, констатированных в ходе проведения этих ежемесячных тестовых мероприятий.
- (ii) Проведение КПЦ два раза в год проверки связи без предварительного предупреждения. Для выполнения данных тестовых мероприятий государства – члены КПЦ должны проверить коммуникацию в рамках ПТВЦ (а также все полученные и не полученные сигналы) в течение одного (1) часа проверки без предварительного предупреждения.
- (iii) Все параметры проверки по странам, полученные из ежемесячных тестовых мероприятий, необходимо направлять в ПТВЦ в течение одного (1) часа для содействия осуществлению обучения «активной деятельности» или «периодической деятельности» на ежемесячной основе. МКГ поручила Рабочей группе 3 об оповещении, распространении информации и коммуникации провести оценку автоматизированных механизмов обратной связи для тестовых мероприятий в области коммуникации и представить соответствующий доклад на седьмой сессии МКГ.

**МКГ также** согласилась с предоставлением информации о проведении тестирования в плановом порядке, подготовленной Техническим секретариатом для государств-членов. Она также призвала государства-члены фиксировать сообщения, полученные от ПТВЦ и других структур.

**МКГ согласилась**, что КППЦ соберет данные, предоставленные каждым государством-членом в отношении способа регистрации сигналов для продуктов по предупреждению цунами с использованием модуля, который Технический секретариат направит государствам-членам. Каждое государство-член должно выбрать как минимум два (2) способа получения уведомления ПТВЦ в рамках КПЦ. Это мероприятие должно быть внесено в План осуществления в качестве текущей задачи.

**МКГ поручила** Рабочей группе 3 об оповещении, распространении информации и коммуникации в сотрудничестве с КППЦ решить вопрос о многоязычии в отношении оповещений об опасности цунами, предупреждений и тестовых мероприятий в регионе Карибского бассейна.

**МКГ поручила** Рабочей группе 3 изучить вопрос о необходимости отправления по факсу сообщений о наблюдениях при чрезвычайных ситуациях с тем, чтобы принять решение о возможности отправления по факсу только первого сообщения о наблюдениях, за исключением случаев, когда факс является единственным способом уведомления. МКГ также поручила ПТВЦ рассмотреть альтернативные факсу технологии (eFax) и представить соответствующий доклад на следующей сессии МКГ.

**МКГ высоко** оценила готовность Соединенных Штатов сотрудничать с МКГ/КАРИБ-СРП в области представления и утверждения заявок на установку дополнительных высокочастотных антенн и будет работать в данном направлении для предоставления Карибскому региону необходимого количества антенн для ГОЕС.



**МКГ рекомендовала** пересмотреть и внести поправки в следующие области Плана коммуникации: (i) Раздел 4, страница 8 – Распространение продуктов – добавить новые используемые в настоящее время технологии, например, EMWIN, ИСВ и т.д. и внести новые термины в список сокращений; (ii) Раздел 5, страница 9 – Проверка связи – пересмотреть график тестовых мероприятий по оповещению о цунами; и (iii) Рабочие группы 1 и 3 – провести оценку образцов продуктов, приводящихся в Приложении 2.

**МКГ назначила** г-на Хуана Луиса Гузмана (Венесуэла) председателем Рабочей группы 4 о подготовленности, готовности и способности противостоять бедствиям и г-на Хуана Саладо (Доминиканская Республика) – заместителем председателя.

**МКГ призвала** США продолжать поэтапную процедуру ввода в эксплуатацию Центра предупреждения о цунами в Карибском бассейне для обеспечения обслуживания Карибского бассейна и западной части Атлантического океана к декабрю 2012 г. и обратилась с просьбой к США представить на седьмую сессию МКГ график выполнения требований, утвержденных КАРИБ-СРП в отношении Центра предупреждения о цунами в Карибском бассейне, включая полную комплектацию его штата.

**МКГ приветствовала** предпринимаемые усилия и технические достижения Никарагуа и Боливарианской Республики Венесуэла в создании дополнительного Регионального центра предупреждения о цунами для поддержки Центра предупреждения о цунами в Карибском бассейне; предложила Боливарианской Республике Венесуэла представить на седьмой сессии МКГ документ, определяющий роли дополнительных региональных центров предупреждения о цунами, и призвала другие государства продолжать усилия по развитию их потенциала и созданию дополнительных региональных центров предупреждения о цунами для поддержки Центра предупреждения о цунами в Карибском бассейне.

**МКГ пришла к договоренности** о проведении следующего учения КАРИБСКАЯ ВОЛНА в 2013 г., оценка которого будет проводиться один раз в год вместо двух раз в год. МКГ рекомендовала провести учения по возможности в партнерстве с ЛАНТЕКС США. МКГ также рекомендовала преобразовать учения КАРИБСКАЯ ВОЛНА в базу и платформу для проверки эффективности охвата и обучения на страновом уровне.

**МКГ попросила** Технический секретариат актуализировать План осуществления КАРИБ-СРП и представить его государствам-членам к июлю 2011 г.

**МКГ высоко** оценила и приняла предложение Кюрасао о проведении седьмой сессии МКГ/КАРИБ-СРП в Кюрасао в течение первого полугодия 2012 г.

МКГ одобрила в качестве запланированной даты проведения восьмой сессии МКГ/КАРИБ-СРП март 2013 г. Государство Тринидад и Тобаго предложило провести МКГ/КАРИБ-СРП-VIII на его территории.

## 1. WELCOME AND OPENING

1. The Sixth Session of the IOC Intergovernmental Coordination Group for the Tsunami and other Coastal Hazards Warning System for the Caribbean and Adjacent Regions (ICG/CARIBE EWS-VI) was held at the Hotel Meliá, Santo Domingo, Dominican Republic, from 26 to 29 April 2011.
2. The Session was opened on Tuesday, 26 April 2011 under the Chairship of Dr Lorna Inniss (Barbados), Chair of the ICG/CARIBE EWS.
3. Mr Bernardo Aliaga, Technical Secretary ICG/CARIBE-EWS, on behalf of UNESCO's Director General, Ms Irina Bokova, and IOC's Executive Secretary, Ms Wendy Watson-Wright, thanked kindly the Government of the Dominican Republic for receiving the coordination group in Santo Domingo. During his intervention, Mr Aliaga stressed that lives are the most valuable asset that we have and losing them by neglect or ignorance is unacceptable. He indicated that while the lessons learnt from the Indian Ocean tsunami on 26 December 2004 are still on the wall, new disasters in Chile, Haiti or Japan came to remind threatened communities not to relax efforts to build warning capabilities, preparedness measures and community based response. He expressed that thanks to the impulse of the ICG, the Caribbean sea level and seismic observational networks and emergency communication mechanisms are improving at an accelerated rate, which are good news for the region.
4. Chair Dr Lorna Inniss in turn welcomed the delegations emphasizing that as a Member of a small island developing state herself, she fully appreciates the efforts made to overcome both financial and capacity challenges in order to support the process engaged through the ICG. Then, she acknowledged the progress made in Haiti since 2010, towards the development of a resilient national multi-hazard warning system, and invited the audience to stand up with her and have a moment of silence to reflect on those in Japan, who are still weeping, because of the tragic loss of loved ones.
5. She expressed that every major catastrophic event reminds us of the enormity of the task at hand. And when we consider that Japan is one of the best prepared countries in the world for major earthquakes and tsunamis, the tendency is to exchange complacency for futility. Chairperson Dr Inniss shared her concern about complacency when speaking about disasters. She reminded that the recent events showed clearly that preparedness minimizes losses – both loss of life and assets. She added that media are a key partner to prepare for, and respond to, these events, and suggested working with media as a priority consideration for the work of the ICG going forward.
6. Dr Inniss indicated that improved capability for tsunami response was tested very well at the recently conducted CARIBE WAVE 2011 tsunami exercise held on 23 March. She offered, on behalf of the ICG, congratulations and sincere thanks to ICG Vice-Chair and head of the CARIBE WAVE 2011 ICG Task Team, Ms Christa von Hillebrandt for her extremely hard work and dedication in ensuring success in the first ever tsunami test throughout the region. She also stressed the crucial role of the Tsunami Unit at UNESCO/IOC towards the tsunami programme in the region.
7. She conveyed heartfelt thanks to the Government and people of the Dominican Republic and its high level of commitment and support for the goals and ideals of the ICG that are source of inspiration to others to follow its great example.
8. Engineer Gloria Ceballos, General Director of the Dominican Republic's Meteorology National Office (ONAMET), expressed her satisfaction of having the privilege of hosting the ICG/CARIBE EWS-VI. Ms Ceballos stressed the important role of all the scientist and technicians that work to mitigate the impact of tsunamis in the region which represents a very important asset for communities that live with this permanent threat. She highlighted as well the

crucial role of education to prevent losses of lives in case of tsunami, the importance of having response plans at community level and of looking for synergies among all the relevant institutions. On behalf of the Government of the Dominican Republic, Eng. Ceballos warmly welcomed all participants.

## 2. ORGANIZATION OF THE SESSION

### 2.1 ADOPTION OF THE AGENDA

9. The Chair informed the Plenary that the agenda was prepared by the Secretariat and the Officers taking into account the Recommendations and instructions given at ICG/CARIBE EWS-V, as well as the relevant parts of the IOC Rules of Procedures. She also informed delegates that the Officers suggest one amendment to the agenda, to replace under agenda item 5.1, the presentation on the experience of Bridgetown (Barbados) with a presentation on the Tsunami Manual for Port Operators, to be presented by a representative of the Puerto Rico Seismic Network (PRSN).
10. United Kingdom (Anguilla) proposed to include under agenda item 3.5, a report about the Common Alerting Protocols (CAP) Implementers Workshop held in Geneva, Switzerland, on 6 and 7 April 2011.
11. The agenda **was approved** with the above amendments.

### 2.2 DESIGNATION OF THE RAPPORTEUR

12. The Chair requested delegates to propose candidates for Rapporteur of the meeting. As customary at the ICG/CARIBE EWS meetings, it was requested to choose one rapporteur for each of the three languages of the meeting (English, French and Spanish).
13. United States, France and Dominican Republic were proposed to provide rapporteurs.
14. The Chair informed the Session that, as per established practices for subsidiary bodies, there is not a line by line approval of the report but only of the decisions and recommendations.
15. **The ICG approved** the proposals and **thanked** the United States, France and Dominican Republic for providing the rapporteurs.

### 2.3 CONDUCT OF THE SESSION, TIMETABLE AND DOCUMENTATION

16. The Chair noted that interpretation was available in French, English and Spanish. She informed the Plenary that in order to facilitate the proceedings of the meeting a timetable had been prepared by the Secretariat in coordination with the Officers and the local organising committee. At this point, she offered the floor to the local host to provide logistic details above the planned field trip to the locality of Matancitas in Nagua, to the north east of Dominican Republic. The Secretariat was solicited about the logistics for Working Groups and Plenary. The chair opened the floor for comments from delegates on the timetable, contained in Document ICG/CARIBE EWS-VI/1 Prov. Provisional Timetable (English only).
17. In response to a question from France, the ICG **decided** to discuss and exchange views about the Tohoku earthquake and tsunami in Japan under point 3.6. PTWC was asked to provide a report on the operational response to this event.
18. The Timetable **was approved** as is by delegates.
19. In order to smooth the work of the session and facilitate the generation of recommendations and agreements, the plenary **decided** to set up six intra-sessionnal Working Groups to address some of the major issues to be discussed at the meeting. Four of them to

contribute to update the four main components of the CARIBE EWS Implementation Plan (Monitoring and Detection Systems and Warning Guidance; Hazard Assessment; Warning Dissemination and Communication; and Preparedness, Readiness and Resilience), all of them under the Chairmanship of their respective inter-sessional established Working Groups, one to address the Work Plan of the Caribbean Tsunami Information Center (CTIC) under the Chairmanship of Saint Lucia and one to discuss about Programme & Budget for 2012–2013 under the Chairship of USA.

### 3. REPORT ON INTERSESSIONAL ACTIVITIES

#### 3.1 IOC EXECUTIVE SECRETARY'S REPORT

20. The Technical Secretary for ICG/CARIBE EWS, Mr Bernardo Aliaga, presented the report of the Executive Secretary. He referred to document ICG/CARIBE EWS-VI/5 and briefly reported on actions led or coordinated by the Secretariat in 2010–2011, in particular Standard Operating Procedures (SOP) trainings held in Haiti and in several countries of the Indian Ocean including Tanzania and Mozambique. He also made reference to post-event assessments conducted after the 27 February 2010 Earthquake and Tsunami in Chile, and after the 25 October 2010 Sumatra Tsunami that affected the Mentawai Islands in Indonesia. He further mentioned specific projects to develop or reinforce tsunami early warning systems in Oman, South America and Haiti, and one risk assessment and awareness project in the Makran zone, Indian Ocean. He emphasized that all these initiatives are guided by the respective ICGs and are developed jointly by Member States.

21. **The ICG noted** the report of the Executive Secretary

#### 3.2 CHAIRPERSON'S REPORT

22. The Chair of ICG/CARIBE EWS, Dr Lorna Inniss, presented the report recalling that the South Sandwich Islands event on 6 March 2011 was the only event triggering the CARIBE EWS since the last ICG session.

23. She stated that monitoring and detection is one of the areas where there are still challenges. She noted that it is the responsibility of each Member State to contribute to ensure monitoring and detection systems capabilities for tsunami are in place in the region. She encouraged Member States to have a multi-hazard approach aligned with standards for tsunami warning. Regarding communication systems, Dr Inniss recalled that for those countries that have Meteorological services as TWFP, they should ensure that the WMO Global telecommunication System (GTS) is working correctly, and encouraged those countries that do not have access to GTS to secure alternate reception modes including the Emergency Managers Weather Information Network (EMWIN).

24. Dr Inniss noted the need of training for local meteorological offices that are TWFP and mentioned that Saint Lucia developed specific training for TWFP and Tsunami National Contacts (TNC). Santa Lucia offered a copy of the training programme to those delegates interested in this training programme.

25. Furthermore, Dr Inniss informed that the Caribbean Institute for Meteorology and Hydrology (CIMH) has been invited to become an observer of the ICG and mentioned the possible cooperation that CIMH could provide regarding EMWIN training and hazard assessment in the region. She stressed the need for more interaction among ICGs and recognised the usefulness and contributions of the inter-ICG task teams and the Working Group on Tsunamis and Other Hazards Related to Sea-Level Warning and Mitigation Systems (TOWS-WG).

26. Finally, she mentioned that the ICG/CARIBE has gained some visibility among other fora and meetings as in the Annual Comprehensive Disaster Management Conference held from 6

to 10 December 2010 in Montego Bay, Jamaica; the Technical Cooperation Workshop for Development of the Caribbean Regional Cooperation Programme in Multi-Hazard Early Warning System organised in Barbados from 2 to 5 November 2010 in Christ Church, Barbados; the Workshop on Enhancing Resilience in the Caribbean organised by UNDP on 2 and 3 March 2011 in Bridgetown, Barbados, and the Regional Risk Reduction Initiative (R3I) Technical Meetings organised in Anguilla (UK) from 26 to 29 January 2011.

27. **The ICG noted** the report of the Chair.

### 3.3 CARIBE EWS SECRETARIAT REPORT

28. The Technical Secretary for ICG/CARIBE EWS, Mr Bernardo Aliaga, presented the report of the Secretariat. He referred to document ICG/CARIBE EWS-VI/8 "ICG/CARIBE EWS-V Recommendations Status Report" and briefly addressed the status of accomplishment of the recommendations agreed by the ICG at previous meetings. Mr Aliaga indicated that the TWFP and TNC list was fully checked before the CARIBE WAVE 11 Exercise and described in detail the procedure indicated in the CARIBE EWS Communications Plan to nominate and update contact details for TWFP and TNC. He praised the support of Caribbean Member States Permanent Delegations in UNESCO that have greatly contributed to raise funding towards the completion of the tsunami sea level network in the region, with financial contributions from Brazil, Monaco and Saint Vincent and The Grenadines.

29. Under this item, the floor was offered as well to Mr Cesar Toro, Secretary for the IOC Sub-Commission for the Caribbean Sea and Adjacent Regions (IOCARIBE) to report on IOCARIBE activities. Mr Toro introduced his presentation referring to the contributions of the IOCARIBE towards the High-Level Objectives and Actions of the IOC Medium and Long-Term Strategy. Mr Toro referred in particular to the IOCARIBE-GOOS Strategic Planning Meeting which updated the IOCARIBE-GOOS governance component, decided the creation of an IOCARIBE-GOOS Working Group and recommended developing a six year Implementation Plan that shall address the sea level and coastal meteorology components of the observing system. It also was agreed the establishment of National GOOS Committees for the IOCARIBE Region.

30. Furthermore, Mr Toro noted that IOC of UNESCO and UNESCO Sciences sector organised jointly with Barbados Coastal Zone Management Unit (CZMU) a Caribbean Regional Workshop on Integrated Coastal Management from 16 to 18 March 2011 in Barbados. The main objective of the meeting was to assist Member States in building the resilience of SIDS economies mainly dependant on coastal tourism using knowledge and expertise of the CZMU to help them developing their own capacity to manage coastal areas.

31. Following the report of Mr Toro, the Chair stressed the importance of national internal coordination among TWFP/TNC and the IOC Official Focal Point. IOCARIBE Secretary recalled delegates the advantages of having close contact with Permanent Delegations of UNESCO in Paris as well to promote IOC programmes.

32. **The ICG noted** the report of the ICG/CARIBE EWS and IOCARIBE Secretariats.

### 3.4 REPORT OF THE CARIBBEAN TSUNAMI INFORMATION CENTER (CTIC)

33. The Chair opened this item by recalling delegates that ICG/CARIBE EWS-IV recommended that Member States identify funding for CTIC activities within their annual regular budgets (Recommendation ICG/CARIBE EWS-IV.6) and that ICG/CARIBE EWS-IV agreed to address the issue of Member States financial contributions to the CTIC during this session. The Technical Secretary for ICG/CARIBE EWS, Mr Bernardo Aliaga, recalled that the CTIC is been established thanks to a three-year funding agreement between UNDP OECS Subregional Office and the Government of Italy, under the framework of the project "Enhancing Resilience to

reduce vulnerability in the Caribbean". He referred to the diplomatic note received from the Permanent Delegation of Barbados to UNESCO stating its willingness to host CTIC and reported that the Government of Barbados and UNESCO are yet to identify the administrative mechanisms to run such a centre.

34. Mr Aliaga stressed that it is necessary that the ICG has a clear definition about financial support that Member States can provide to CTIC in order to finalize officially the agreement with the Government of Barbados and UNPD.
35. The representative of UNPD OECS Subregional Office, Mr Ian King, informed that a work plan regarding the structure of the CTIC has been developed and revised and expressed its willingness to continue working with the Government of Barbados and UNESCO for the further formulation of this plan. Mr King stated that it is expected to have significant advance on this matter by the end of 2011.
36. The Chair recalled that France and Venezuela have undertaken initiatives regarding possible contributions and encouraged Member States to participate at the intra-sessional Working Group on CTIC and define mechanisms to explicit financial contributions because concrete offers are needed to go forward with the project.
37. Ms Dawn French (St Lucia), Chair of the intra-sessional Working Group established for this agenda item, reported on the proposed updates to the CTIC Work Plan for 2011.
38. The sessional Working Group recommended that CTIC and ITIC, as the regional information centre for the Caribbean and Pacific, respectively, work together to share resources and training opportunities, especially targeting small island nations and countries that share both the ocean basins. It was also proposed to develop a web-based information management system for the CTIC to achieve its objectives in all relevant languages before 2013.
39. The group also proposed that CTIC realize an inventory and compile the available information resources and conduct a gap analysis, both in terms of information, as well as availability in English, French and Spanish, to the extent possible by 2014, and develop a strategy to fill the gaps.
40. The group proposed to invite collaborative programmes and donor partnerships with such regional organizations as Cariforum, ACS, OAS, among others. Ms French indicated that the group considered that having finalized these institutional arrangements, the partners in CTIC and the wider Caribbean region will be able to secure resources (financial, human, equipment and others) to support the 2011–2014 programme.
41. The CTIC Work Plan will be based on four pillars: (i) finalize the tsunami education strategies at the national level; (ii) support education and awareness efforts in schools (iii) develop and distribute an array of culturally appropriate public education materials; (iv) develop a similar partnership initiative for the wider Caribbean region as appropriate. In addition, CTIC will support the full Integration of Countries in Regional Decision-making on the Tsunami Warning System, and will assist Member States to participate in Working Groups and ICG plenary meetings to the extent possible according to the UNESCO rules. Moreover, training programmes for key operators with national responsibilities within the warning system will be undertaken. It is planned also to conduct training for tsunami warning focal points and alternates between 2011–2012, and training on SOPs and communications protocols between 2011–2014.
42. Barbados indicated its willingness to finalize a formal agreement with UNESCO in 2011. Barbados, Venezuela and France **agreed** to formalize their collaborative roles working with the CTIC to fulfil its overall objectives, taking into account language and diversity of the region.
43. **The ICG encouraged** ICG members to make annual financial contributions to the CTIC.

44. **The ICG agreed** that CTIC should develop a robust training and communications programme between the CTIC and key stakeholders within Member States throughout the region on all aspects of the warning system.
45. **The ICG furthermore agreed** that CTIC shall create a business plan that includes: (i) an annual work plan; (ii) a five-year strategy; (iii) a four-year budget and fund-raising plan; (iv) a partnership strategy; (v) a communications plan; and (vi) an annual report.
46. **The ICG adopted** [Recommendation ICG/CARIBE EWS-VI.1](#).

### 3.5 REPORTS FROM UN AND NON UN ORGANISATIONS

47. Mr Edgard Cabrera, Head of the Marine Services Division of the World Meteorological Organization (WMO), noted the progress that ICG/CARIBE has reached since its first meeting in Barbados in 2006. He provided a brief introduction of WMO and its specialized programmes, highlighting the marine programme that was initially designed to serve Navy and Marine Merchant activities but that has been extended to other coastal and oceans users.
48. Mr Cabrera recalled that WMO supports IOC in tsunami warning issues and recalled that globally 50% of TWFP are meteorological offices. He referred to the Storm Surges Workshop held in Santo Domingo in February 2011, and mentioned that WMO promotes a multi-hazard approach for the Caribbean Region. Furthermore, Mr Cabrera highlighted the limitations in the observational component and recalled that WMO has a policy of free and not restricted data exchange.
49. Trinidad and Tobago inquired about coordination matters regarding WMO meetings. The representative of Bermuda and Mr Cabrera reported that a web site is being used to post advanced notice of WMO meetings to raise awareness among potential participants.
50. Saint Lucia pointed out the importance of providing access to communication tools used by WMO and training also to alternate TWFPs like the Police and Fire Department in the case of St Lucia.
51. Anguilla (UK) reported on the WMO facilitated Common Alert Protocol Implementers Workshop, Geneva, Switzerland, on 6 and 7 April 2011, which was a high level meeting with some key technology players such as Google, ITU, Sahana, Bing and ESRI, as well as key implementers and interested countries and territories such as Japan, Australia, New Zealand and Anguilla (UK). Anguilla (UK) indicated that they are in an advance stage of implementing CAP for all hazards including tsunamis.

### 3.6 STATUS OF OTHER ICGs

52. This item was presented by Mr Bernardo Aliaga, Technical Secretary for ICG/CARIBE EWS. He summarized the status of progress of ICG/IOTWS, ICG/NEAMTWS and ICG/PTWS. He indicated that for the Indian Ocean the new Regional Tsunami Service Provider scheme (RTSP) will come into service later in 2011. Under this scheme there will be a forecast based system, defining threat/no threat zones, with sea level used for confirmation. RTSP public bulletins and website will reflect national warning status as supplied by the National Tsunami Warning Centres (NTWCs).
53. A presentation about the Tohoku, Japan, earthquake and tsunami on 11 March 2011 was also delivered under this agenda item. Dr Charles McCreery, Head of the Pacific Tsunami Warning Center (PTWC), presented a time line of the actions of the PTWC and the North West Pacific Tsunami Advisory Center (NWPTAC) during the Tohoku, Japan, earthquake and tsunami. He presented also the RIFT models developed for this event to forecast inundation and run-up. Mr McCreery stated that it was a 500–1000 year event, with amplitudes superior to 2 m as far away as Chile. It caused probably more than 25,000 casualties in Japan and there were

two casualties outside Japan. He considered the monitoring a general success for PTWS and stated that probably hundreds of thousands of lives were saved due to tsunami awareness and preparedness including through warning systems.

54. As lessons learned, Mr McCreery mentioned that it is necessary to be prepared for the largest credible event – even if a 500–1000 year event and that another level of warning for potential mega-tsunami could be implemented. Furthermore, he recommended to locate nuclear power plant emergency generators above maximum credible tsunami.
55. The discussion in plenary focused on the importance of changing the paradigm from lives lost to lives saved, underpinning financial efforts for tsunami risk reduction. In this respect, Curacao proposed an agenda item for next ICG meeting in order to define a scheme to stress lives saved in the communication activities and encouraged other ICG Members to propose ideas in this respect.
56. The ICG/CARIBE EWS Vice-Chair Dr Christa von Hillebrandt-Andrade noted that there are reports indicating that not all of mitigation structures including sea wall and earthquake resistant buildings were washed away. The ICG/CARIBE EWS Technical Secretary emphasized the need for adequate territorial planning, avoiding building residences in high risk zones. Finally, the Chairperson noted the importance of including tsunami and storm surges mitigation initiatives into integrated coastal management.
57. **The ICG agreed** that it is important to explore methodologies to assess after a tsunami event the amount of lives saved due to tsunami preparedness.

### 3.7 NATIONAL PROGRESS REPORTS

58. Delegates made short presentations on main actions and status of their national tsunami and other coastal hazards warning systems. Anguilla (UK), Aruba (Kingdom of the Netherlands), Barbados, Bermuda (UK), Curacao (Kingdom of the Netherlands), Dominican Republic, France, Haiti, Panama, Saint Lucia, United States, and Venezuela presented national reports.
59. The delegate of Anguilla (UK) stated that the Government of Anguilla, National Disaster Management Committee, the Department of Disaster Management, and partner stakeholders, are committed to the completion of a comprehensive multilingual-multimedia all hazard alert, warning and notification system for the country. The first and second phases of the process included standardized International Telecommunications Union (ITU) Common Alerting Protocol (CAP) 2006 Piloted RDS, implemented communications backbone, SMS, Roster email, Popup, RDS and Radio Interrupt 2007/8; The delegate of Anguilla indicated that the national level Warning Working Group for activation of protocols and policy development, and TWFP(s) are clearly defined and trained. The third phase is in progress and includes Tsunami Hot Button Activation; VHF SkyKing Radio; evaluate social media security issues; and developing and testing R3I mutual aid activation concept. The delegate also informed that a Pre-R3I Meeting coordination meeting was held with France, Netherland Antilles and IGC/CARIBE EWS. She indicated that the development of the R3I Multi-Lingual Public Registration Portal is in progress.
60. Aruba reported on the new department responsible for meteorological and seismological activities on Aruba. The new department named 'Departamento Meteorologico Aruba (DMA)' has been appointed by the government of Aruba as the source for Meteorological, Seismological and Climatological data for Aruba, as well as the official governmental entity to issue severe weather bulletins for Aruba. Employees of DMA will receive seismological training in 2011 by a private company, and the same company will upgrade the seismological softwares of DMA. DMA will be upgrading its tsunami SOPs in 2011 and will be conducting exercises related to natural disasters with the local Emergency Management Office of Aruba.



61. Barbados informed that national Working Groups have been established matching the regional framework, plus one Working Group on coastal evacuation. These Working Groups form the Standing Committee on Coastal Hazards with Department of Emergency Management (DEM) and CZMU as Co-Chairs. The private sector has been invited to participate at the Committee. Activities of the Committee include monitoring of the seismic network information, upgrading tide gauges once funding is identified and development of public awareness activities. The Committee was also responsible of organizing the participation of Barbados at the CARIBE WAVE Exercise.
62. Bermuda (UK) reported on the events they faced during the inter-sessional period including a 4.6 magnitude earthquake on 18 April 2011 (at 12:38 PM local time) that was triggered around 50 miles west of Bermuda. There was not tsunami danger and the West Coast and Alaska Tsunami Warning Center (WCATWC) phoned in as a courtesy to advice on details. The delegate informed that the Minister of Environment has been briefed on local needs for bathymetry mapping, monitoring systems, hazard assessment, mitigation and public awareness and preparation. Bermuda also reported on its participation in the CARIBE WAVE Exercise.
63. Curacao informed that works related to tsunami hazard are delegated to a national commission (CoTsuRiMa - Commissie Tsunami Risk Management). Curacao mentioned their efforts regarding risk assessment, and monitoring and detection systems. In this regard, a sea level station (CUR) has been installed in cooperation with UHSLC & NOAA and the PRSN, EMWIN is available and three seismometers have been installed (Corporation KNMI). Plans include an additional seismometer and GPS-system. Curacao also reported on its participation at the CARIBE WAVE Exercise where gaps were identified as need of response plans at community level. In addition to the presentation, Curacao informed that the Netherlands Antilles has ceased to exist as part of the Kingdom of the Netherlands on 10 October 2010. From that day on, the Kingdom consists of four parts: the Netherlands, Aruba, Curacao and Saint Martin. The islands enjoy internal self-government within the Kingdom, which implies a new structure of the meteorological services, having each island its own meteorological service.
64. Dominican Republic reported on the implementation of a tsunami unit at ONAMET and active cooperation with PRSN. The delegate indicated that Dominican Republic has received equipment and training for EWMIN and has conducted several activities for tsunami awareness. The country participated as well at the CARIBE WAVE Exercise.
65. France reported on its efforts to improve the seismological network (five seismic stations contributing to the Caribbean) and the tide gauge network. The delegate reported that shallow water bathymetry (isobaths–30 m and topography) for Guadeloupe and Martinique will be delivered in 2012.
66. Haiti presented their efforts to install a seismic network and the activities conducted within the framework of the project “Strengthening Haitian Tsunami Warning Services for Coastal Hazards” coordinated by a Steering Committee of national agencies and UNESCO. Among the activities mentioned, it is to note the participation at the Caribbean EMWIN training in Puerto Rico, a visit to the PRSN and a SOP workshop held in Port-au-Prince. Plans include the installation of a tide gauge in Port-au-Prince and the installation of a CTBTO National Data Centre at the Bureau de Mines et de l’Energie (BdME).
67. Panama reported on the efforts to improve the infrastructure of the Geosciences Institute that will host the National Tsunami Warning Centre. It is planned to acquire tide gauges and EMWIN equipments as well as to develop redundant communication system with the ports and other relevant areas.
68. Saint Lucia presented a video developed for tsunami awareness. The delegate of Saint Lucia expressed her willingness to share this material to delegations interested.

69. United States reaffirmed that the responsibility for issuing tsunami warning information to the Caribbean is currently shared by the Pacific Tsunami Warning Center (PTWC) and the West Coast/Alaska Tsunami Warning Center (WC/ATWC). The Area of Responsibility (AOR) of the WC/ATWC includes the East Coast and Gulf of Mexico of the USA, Eastern Canada, and in the interim includes Puerto Rico and the Virgin Islands. PTWC covers the rest of the Caribbean and Western Atlantic. The delegate of USA indicated that on 1 February 2010, NWS established the Caribbean Tsunami Warning Program (<http://www.srh.noaa.gov/srh/ctwp>), collocated with the Puerto Rico Seismic Network at the University of Puerto Rico in Mayagüez. Currently it is staffed by the Manager and one student. Plans are underway to hire additional personnel by September 2011. This is the first step of the U.S. phased deployment of a Caribbean Tsunami Warning Center. The CTWP worked with local, national and international stakeholders and partner to improve tsunami monitoring (Sea Level, Seismic and GPS), warning (new forecast models), communications (EMWIN Workshop and the CARIBE WAVE exercise) and education and preparedness efforts, including the TsunamiReady program.
70. Venezuela (Bolivarian Rep. of) reported on its efforts to conduct hazard assessment and improve the national seismic network, which include the installation of Earthworm to process seismic data. Studies on paleotsunamis have been conducted in different zones and different education and public awareness initiatives have been undertaken, especially with schools. Venezuela participated at the CARIBE WAVE which included the elaboration of a website for information to the public and drills at community level.
71. All National Reports presented at this session of the ICG are available at: [http://www.ioc-tsunami.org/index.php?option=com\\_oe&task=viewEventDocs&eventID=774&lang=en&Itemid=](http://www.ioc-tsunami.org/index.php?option=com_oe&task=viewEventDocs&eventID=774&lang=en&Itemid=)
- 3.8 INTERIM ADVISORY SERVICES REPORT (PTWC)
72. Dr Chip McCreery presented a report from PTWC on the interim services provided to ICG/CARIBE EWS.
73. Dr McCreery stated that PTWC responded to more than 500 global earthquakes during the last year. PTWC issued Observatory Messages for 16 earthquakes in the Caribbean with more than 6 minutes average response time (more seismic data) and Observatory Messages for 13 earthquakes in the Atlantic. Furthermore, PTWC issued Caribbean Tsunami Bulletins for just 1 of the earthquakes above: A Tsunami Information Statement for a magnitude 6.6 Mw earthquake in the South Sandwich Islands.
74. Dr McCreery further stated that based on the CARIBE WAVE Exercise feedback, most TWFPs appear to be receiving Bulletins from PTWC in a timely way, but that communication tests are currently unable to verify or confirm most designated methods of communication. He explained that communication tests are difficult because the level of response is inadequate to really test the system. He proposed to conduct monthly tests on a particular day and particular hour.
75. Dr McCreery recalled that the current message criteria are based on limited historical data and are very conservative for safety reasons, which may lead to over-warning. In addition, there is no information about levels of impact. Considering these limitations of current warning criteria, Dr McCreery presented a series of proposed changes in message criteria and solicited feedback to PTWC on the development of new procedures, criteria and products based on model forecasts; testing and staging their implementation; taking into account the strengths and limitations of forecasting, the needs of the Member States; and also taking into account the TOWS-WG recommendations. In addition, he mentioned that one of the shortcomings of the proposed model for the Caribbean is that the model needs to be confirmed with sea level readings which might be a problem if the current gaps for real time sea level data in the Caribbean persist.

76. Dr McCreery indicated that PTWC is having high fax costs for event messaging. He proposed to send just the first message by fax for tsunami events and continue through other mechanisms (web, email), also that for countries having provided several fax numbers they should confirm if all the numbers are necessary.
77. The Chair, inquired about methods of message dissemination in the region. Most of the countries confirmed to receive warning messages by mail, SMS and fax. Some use GTS but reported problems with the audio. Curacao (Kingdom of the Netherlands) and Bermuda (UK) indicated they agree to use fax as starting point and move afterwards to email and SMS. Bermuda (UK) proposed that GTS should be considered as primary channel for countries that have access to it.
78. Saint Lucia reported problems for its alternate TWFP to receive warning products.
79. The Chair reminded that every TWFP must be aware of the ICG/CARIBE EWS-II/11 "Communications Plan for the Interim Tsunami Advisory Information Service to the Caribbean Sea and Adjacent Regions", particularly to be able to propose amendments if required.
80. In the exchange of views that followed, there was no agreement on the way forward with respect to the establishment of a fix day/time for communication tests. This matter was discussed by the intra-sessional group on Warning Dissemination and Communication (Agenda item 4.3.).

#### **4. WORKING GROUP PROGRESS REPORTS**

##### **4.1 WORKING GROUP 1 PROGRESS REPORT: MONITORING AND DETECTION SYSTEMS, WARNING GUIDANCE**

81. This agenda item was presented by Mr Emilio Talavera (Nicaragua), Chair of Working Group 1. He referred to document ICG/CARIBE EWS-V/9, Working Group 1 Report.
82. Mr Talavera informed that in 2010 the National Science Foundation funded the Continuously Operating Caribbean GPS Observational Network (COCONet). As part of this project, the plan is to install 50 GPS stations in the Caribbean and integrate 50 existing GPS stations. A meeting of USA and Caribbean stakeholders and researchers was held on 3 and 4 February 2011 in San Juan Puerto Rico.
83. The Workshop "Geophysical Hazards and Plate Boundary Processes in Central America, Mexico, and the Caribbean" was held from 24 to 27 October 2010 in Heredia, Costa Rica, to build seismological collaboration and capacity. In February 2011, the leaders of the Working Groups met again to follow-up on actions, it was also proposed to call the initiative ALMA (Alliance for Middle America).
84. Mr Talavera reported that the Caribbean Tsunami Warning Programme (CTWP) has been tracking data availability from the CARIBE EWS seismic stations in real time for tsunami warning purposes and at IRIS for research applications. As of March 2011, 74 % (73/98) of the seismic stations of the CARIBE EWS Implementation Plan are contributing in real time. Sixteen per cent (16/98) do not contribute data to the system, for 8 stations funding needs to be identified, while 2 are in planning stages. There are 26 stations from the Atlantic and 6 from the Pacific that are also monitored for tsunami warning purposes. Mr Talavera noted that this marks a significant improvement over last year with new data being contributed from Mexico, Colombia and the Cayman Islands. On IRIS, a virtual seismic network was established to view the status of seismic data from Caribbean seismic stations being archived at the Data Management Centre (<http://www.iris.edu/gmap/>). The PRSN also has a graphical tool where one can view data from seismic stations contributing to the warning component of the system (<http://prsn.uprm.edu>).

85. Mr Talavera recalled that within the framework of the CPER project, in the next two years, 4 Broadband (BB) stations will be installed in the Guadeloupe archipelago, one will be installed in Saint Barthélemy (close to Saint Martin). As well, the two-year TSUAREG InterReg project (European Commission) aiming at strengthening the seismological monitoring network and the sea-level monitoring network in the Lesser Antilles has been funded. It is a collaborative project between the Martinique and Guadeloupe Volcanological and seismological Observatories (from the Institute de Physique du Globe de Paris, IPGP), the SHOM (French Naval Hydrographic and Oceanographic Service), Météo-France (French Meteorological Service), the "Conseil Général de la Martinique" (Martinique General Council, CGMA) and the Seismological Research Center SRC (The University of the West Indies, Trinidad and Tobago).
86. In addition, four real-time-broad band stations will be installed in Martinique Island and four real time broadband stations will be installed in Carriacou, Northern Santa Lucia, Northern Dominica and Antigua in collaboration with SRC. Nicaragua has installed one new BB station in Cosiguina Volcano and will install eight BB stations in the north of country, in 2011–2012. Data will be delivered in real time and shared with other institutions.
87. Mr Talavera reported that with the support of IOCARIBE, the CTWP developed a Google Map interface to view the status of sea level stations in the Caribbean and Adjacent regions. It can be accessed through the Caribbean Tsunami Warning Program website (<http://www.srh.noaa.gov/srh/ctwp/>). Currently, the implementation plan includes 106 sea level stations. Seven correspond to DART buoys, while 99 are coastal sea level stations in the Caribbean. Of these 99 coastal stations, 31 % (31) are contributing data within 6 minutes over GOES and FTP, 27 stations are existing, but either the data is not available or is transmitted with a time delay greater than 6 minutes, 28 stations are planned to be installed while funding needs to be identified for 9 stations to cover gap areas. There are two stations whose status is unknown, while two others are non operational, but not considered a priority. Over the past year, new stations were installed by the University of Hawaii Sea Level Center (UHSLC) and the PRSN in Dominican Republic (2) and Curacao (1). By June 2011, additional stations in Haiti, Dominica, Grenada and Barbuda will have been installed or upgraded. Moreover, the three sea level gauges belonging to SHOM (Île Royale in French Guyana, Fort de France in Martinique, and Pointe à Pitre in Guadeloupe) will be upgraded and the transmission will be real time. The Martinique General Council will upgrade its sea level gauge (Le Prêcheur) and install a new tide gauge on the eastern coast of Martinique.
88. Mr Talavera indicated that WG1 has inquired and be assured that the United States can assign priority for available slots on GOES for high frequency transmission rates, recognizing its relevance for tsunami warning purposes.
89. Mr Talavera also reported on the second UNESCO/IOC/CARIBE EWS-GLOSS Caribbean Training Course for Operators of Sea Level Stations that took place from 24 to 28 January 2011 in St. George, Grenada. The first course had been held in June 2008 in Mayagüez, Puerto Rico.
90. Curacao nominated Ms Pédzi V.J. Girigori to Working Group 1.
91. The intra-sessional Working Group highlighted in its report to the plenary that the core observing networks are not fully implemented and priority should be placed on: (i) ensuring that those observing stations, that are not currently contributing to the CARIBE EWS, be integrated into the system on a priority basis; and (ii) funding the acquisition, installation and operation of the stations required to fill the gaps of the core network.
92. The intra-sessional Working Group considered that the PTWC and other warning and monitoring centres are currently working on developing new tsunami warning operational products and recognized the recommendations of IOC Working Group on Tsunamis and Other Hazards related to Sea Level Warning and Mitigation Systems (TOWS-WG) in this respect.

93. The ICG decided to establish a Task Team composed by the ICG Officers, Director of the PTWC and Manager of CTWP, to provide feedback during the development of enhanced tsunami warning products for the ICG/CARIBE EWS, validate these new products, procedures and implementation and provide a report to the Seventh session of the ICG/CARIBE EWS. This Task Team will be chaired by the director of the PTWC.
94. **The ICG instructed** Working Group 1 to establish a Task Team to address the full implementation of the observing networks by providing support to Member States to allow them to contribute their observational data to CARIBE EWS and install seismic, sea level and GPS observation system. The Task Team should present a report at the Seventh session of the ICG/CARIBE EWS.
- 4.2 WORKING GROUP 2 PROGRESS REPORT:  
HAZARD ASSESSMENT
95. This agenda item was introduced by Dr Aurelio Mercado (USA), Chair of Working Group 2. He referred to document ICG/CARIBE EWS-VI/10 Working Group 2 Report.
96. Dr Mercado started his intervention by reporting on the activities conducted in Puerto Rico (USA). Among these activities, he mentioned that computer runs have been finalized for a new generation of tsunami inundation maps for 276 local sources using the MOST model. During the summer of 2011, inundation maps for selected landslide tsunamis scenarios will be started. He indicated that paleotsunami studies are being carried out by Ms Zamara Fuentes, from the Geology Department at the University of Puerto Rico, Mayagüez Campus, under the guidance of Dr Brian Atwater of the United States Geological Survey (USGS).
97. Ms Elizabeth Klute (Anguilla, UK) presented the activities conducted in Anguilla regarding hazard assessment in the framework of the R3I project. She mentioned, among others, the workshop that was held in Anguilla from 26 to 29 January 2011, which included the topic of tsunami deposits. She noted as well that full new GIS data layer takeoffs, GIS database development are key deliverables as well as a 50 cm Digital Terrain Model (DTM) for flood and tsunami modelling for Anguilla. These will guide their national hazard, risk and vulnerability assessment, sea level change monitoring, evacuation planning and siren location modelling.
98. Dr Mercado reported as well on the activities held in different Caribbean countries and territories. In British Virgin Islands and in Saint Martin, bathymetry and topography data were gathered as part of the R3I project to produce tsunami and storm surge inundation maps. He also confirmed that the bathymetry and topography high resolution LIDAR data collected for Guadeloupe and Martinique in 2010–2011 will be available in December 2012. In Dominican Republic, tsunamis were included in the JCOMM/TCP Workshop for Storm Surges and Waves Forecasting, held at Santo Domingo from 21 to 26 February 2011 (WMO). In addition, Dr Mercado reported on the main outcomes of the systematic search of paleotsunamis in the geologic record of Venezuela low coastlands that was launched in 2009.
99. Bermuda (UK) asked what the minimum resolution is for tsunami modelling purposes for countries that do not have bathymetry. Dr Mercado answered that 90 meters resolution or higher. This is especially important for islands in the Caribbean where the coast is very irregular and therefore there is a high level of dissipation.
100. Barbados informed that funding has been secured to conduct tsunami hazard assessment in the country.
101. The intra-session group reaffirmed the need of high resolution bathymetry and topography and that it be shared. It also suggested to Integrate tsunami warning system with existing and planned coastal hazard mitigation and preparedness systems, as part of the tasks of Working Group 4 on Preparedness Readiness and Resilience.

102. The intra-sessional group recommended to update and enlarge existing tsunami hazard maps building on the existing CDEMA and CEPREDENAC previous efforts.
103. **The ICG decided** to organize a training on ComMit (NOAA's MOST model) to be hosted by France in the second half of 2011.
104. **The ICG instructed** Working Group 2 on Hazard Assessment to provide a catalogue of tsunamigenic sources in the Caribbean region (tectonic, landslide, volcanoes) and coordinate a validation process for the tsunami run-up data in the NOAA/NGDC database for the Caribbean. It **further instructed** Working Group 2 to make an inventory of tsunami models being used in the Caribbean.
- 4.3 WORKING GROUP 3 PROGRESS REPORT:  
WARNING DISSEMINATION AND COMMUNICATION
105. This agenda item was presented by Mr Rafael Mojica (USA), Chair of Working Group 3. He referred to document ICG/CARIBE EWS-VI/11 Working Group 3 Report.
106. Mr Mojica reported on the Caribbean EMWIN training held in San Juan, Puerto Rico, from 21 to 25 February 2011 that was attended by 50 participants. As a result of this initiative, supported by NOAA and USAID, 36 EMWIN systems will be distributed across the region to national meteorological and emergency management offices. As well, UNDP is hosting another EMWIN training in Aruba from 4 to 6 May 2011 for British and Dutch overseas territories in the framework of the R3I project.
107. Mr Mojica mentioned that CIMH is a training institution for MET officers in the Caribbean and they plan to begin holding regional EMWIN training. This will ensure the sustainability of the program regionally.
108. Furthermore, PTWC conducted two communication tests for the CARIBE EWS during the inter-sessional period, in addition to the CARIBE WAVE 11 Exercise.
109. WG 3 Chair reported his participation as the ICG/CARIBE EWS representative in the Strengthening Regional Cooperation to Support Forecasting with Multi-Hazard Approach held in Cayman Islands on 7 March 2011, where he conducted a presentation on the CARIBE EWS and the Caribbean Tsunami Warning Programme. WG 3 Chair also participated as representative of the CARIBE EWS during the WMO RA IV Hurricane Committee meeting in Cayman Islands on 8 March 2011. One of the recommendations of the meeting was that Member States' 24/7 focal points, and their alternates, must be reminded to actively participate in the tsunami warning centre's communications tests. In addition, regional centre should try to issue communication tests on a monthly basis.
110. Mr Mojica addressed one of the points mentioned under point 3.8 regarding the use of an alternate internet-based communication method based on the CISN Global Earthquake Reporting Display/Interface.
111. Dominican Republic nominated Mr Fabian Espinal from ONAMET to Working Group 3.
112. The intra-sessional Working Group outlined revisions and additions to the ICG/CARIBE EWS Implementation Plan and verified references to the Implementation and Communications Plans of the ICG/CARIBE.
113. **The ICG requested** that the Technical Secretariat defines a webpage for sharing Standard Operating Procedures protocols and standards.
114. **The ICG agreed** to revise the ICG/CARIBE EWS Communications Plan to include the following schedule for PTWC TWFP communication tests:

- (i) Hold communication tests on the first Thursday of every month at 15:30 (UTC/GMT) as from 1st September 2011. Member States TWFP's should report only issues and errors during these monthly tests to the PTWC and IOC Secretariat;
  - (ii) Hold twice yearly TWFP "No Notice" verification communication tests. For these tests, Member States' TWFPs shall verify PTWC communication (and all means received and not received) within one (1) hour of the "No Notice" test;
  - (iii) All verifications by Countries for issues from monthly tests shall be sent to the PTWC within one (1) hour to facilitate "active action" or "repetitive action" education on a monthly basis.
115. The ICG **instructed** WG 3 on Warning Dissemination and Communication to evaluate automated feedback mechanisms for communication tests and report to the Seventh session of the ICG.
116. **The ICG further agreed** that the Technical Secretariat notifies ICG Member States of the testing to be held routinely. It also encouraged Member States to internally document messages received from PTWC and others.
117. **The ICG agreed** that the CTWP collects from each Member State the receiving method for tsunami products using a template to be sent to Member States by the Technical Secretariat. Each Member State should identify at least two (2) ways of receiving the PTWC notification at the TWFP. This should be an ongoing task in the Implementation Plan.
118. **The ICG instructed** the Working Group 3 on Warning Dissemination and Communication to address, in cooperation with the CTWP, the multi-lingual issue in the Caribbean for tsunami alerts, warning and testing messages.
119. **The ICG instructed** Working Group 3 to explore whether faxing each Watch message during an actual incident is essential, with a view to decide if only the initial Watch Message could be faxed during an actual incident unless fax is the only means of notification. It further instructed PTWC to explore alternate technologies for sending fax messages to include (eFax) and report at the next ICG meeting.
120. **The ICG acknowledged** that United States has agreed to work with ICG/CARIBE EWS for the submission and approval of requests for additional high rate slots, and will work toward providing as many GOES slots to the Caribbean Region as possible.
121. **The ICG recommended** to review and revise the following areas in the Communications Plan: (i) Section 4, Page 8 – Product Dissemination – to add new currently used technologies such as EMWIN, WIS etc and reflected new terms in the Acronym list; (ii) Section 5, Page 9 – Communications Test – to revise Tsunami Warning testing schedule; and (iii) Working Groups 1 & 3 to evaluate the sample products in Appendix II.

#### 4.4 WORKING GROUP 4 PROGRESS REPORT: PREPAREDNESS, READINESS AND RESILIENCE

122. This agenda item was introduced by Mr Juan Luis Guzman (Venezuela), Vice-Chair of Working Group 4. He referred to document ICG/CARIBE EWS-V/12 Working Group IV Report. Two additional members of WG-IV joined the meeting via Skype for this session: Ms Julie Leonard (USA) and Ms Stacey Edwards (Seismic Research Centre, University of the West Indies, Trinidad & Tobago).
123. Mr Guzman reported on the TsunamiReady Summit that was held from 10 to 14 May, 2010 in Mayagüez, Puerto Rico. The meeting was organized by PRSN with funding from NOAA and USAID. It was attended by 96 participants from the local, regional, state, national and Caribbean emergency management agencies and earthquake and tsunami monitoring

institutions from Puerto Rico, Virgin Islands, the wider Caribbean and the US mainland. The purpose of the Summit was to update the participants about the TsunamiReady program and provide them with tools so that they can strengthen their Tsunami preparedness.

124. He also reported on the activities related to preparedness developed by Barbados, United States and Venezuela.
125. The Technical Secretary reported that it has not been possible to contact the nominated Chair of this Working Group from the previous session therefore the ICG should assume that the post is vacant.
126. Under this agenda item, Mr Patrick Parrish, Senior Project Manager at the COMET Program/University Corporation for Atmospheric Research, presented a project that consists in the development of e-learning modules regarding tsunami science, warning systems and preparedness. Audiences expected for this product include tsunami warning focal points/warning coordinators, disaster response professionals decision makers, educators and students, and general public. The COMET is a cooperative programme sponsored by NOAA NWS, NOAA NESDIS, US Navy, EUMETSAT, MSC and others. It is to note that all materials are free to use, borrow, translated and adapt.
127. Dominican Republic nominated Mr Juan Salado from ONAMET to Working Group 4.
128. Ms Julie Leonard presented the major conclusions and recommendations of the “Best Practices on Tsunami and Coastal Hazards Community Preparedness and Readiness in Central America and the Caribbean” workshop, on the occasion of the release of the workshop report. Among the relevant recommendations for ICG/CARIBE EWS consideration are:
- Identify communities vulnerable to tsunamis and other coastal hazards, and specific populations within these communities, such as physically handicapped, elderly, hospitalized, etc. Risk assessments should target these groups;
  - Develop educational and public awareness materials and campaigns that target vulnerable communities and take into account people with special needs. Warnings can only be effective if they reach the people who need to respond in a timely fashion and in a culturally understandable context;
  - Build bridges between the scientific and local communities to improve hazard mapping and evacuation planning;
  - Develop evacuation maps, and preparedness and mitigation plans, in collaboration with vulnerable populations, to ensure the shared identification of problems and solutions;
  - Encourage and facilitate participation by non-governmental and private sector organizations in the development of national components of their early warning systems;
  - Utilize the services of the regional tsunami warning and information centres once established to support the above activities;
  - Hold hands-on training/workshops in areas that have been affected by a tsunami and that have a community-based warning system in place, e.g. Masachapa, Nicaragua; Tumaco, Colombia; Mayagüez, Puerto Rico, USA.
129. The intra-sessional group recommended to update and revise the actions specified in the Implementation Plan and to establish an agenda for meetings and a database online to publish educational material.
130. **The ICG appointed** Mr Juan Luis Guzman (Venezuela) as Chair of Working Group 4 on Preparedness, Readiness and Resilience, and Mr Juan Salado (Dominican Republic) as Vice-Chair.



## **5. SPECIAL INVITED LECTURES: COMMUNITY-BASED TSUNAMI WARNING SYSTEM**

131. Under this agenda item, the Chairp referred to the Recommendation ICG/CARIBE EWS-IV.4, which urges Member States to consider the recommendations of the “Best Practices on Tsunami and Coastal Hazards Community Preparedness and Readiness in Central America and the Caribbean” workshop, held in August 2008 in Panama. In this respect, representatives of Dominican Republic were invited to present their activities in the area of Nagua, Dominican Republic, with focus on the development of their community-based warning systems.
132. Due to time constraints, it was decided to hold the session regarding the activities in the area of Nagua in Dominican Republic on site during the field trip. Delegates had the opportunity to speak to survivors of the 1946 earthquake and tsunami from the locality of Matancitas, in the area of Nagua, Dominican Republic, during the field trip. They also interacted with representatives of the Civil Defence and local school students.
133. Ms Carolina Hincapie, Education Expert at the PRSN, presented the draft of the Tsunami Guideline Plan for Operators of Caribbean Ports. The content of the guidelines was reviewed and discussed at the NSF/PRSN/NOAA-NWS Tsunami Ports Operators Workshop held on 2 and 3 November 2010 in Mayagüez, Puerto Rico. The guideline presents the procedures that port operators must follow before, during and after a tsunami. The purpose of this guideline is to suggest the plan’s document content and proposed actions to be acquired in case of a tsunami. Ms Hincapie encouraged the ICG members to provide comments on the document to improve it, and enhance its usefulness for the countries of the region.

## **6. POLICY MATTERS**

### **6.1 ESTABLISHMENT OF A CARIBBEAN TSUNAMI WARNING CENTER (CTWC)**

134. The Chair introduced this topic recalling that according to Recommendation ICG/CARIBE EWS-II.3, the Group decided to establish a Caribbean Tsunami Warning Center to be located in the region. Also, through Recommendation ICG/CARIBE EWS-II.12, it agreed to actively plan to take over the full responsibility for the system with a Caribbean Tsunami Warning Center in the region by 2010. She recalled that at its Fifth session in March 2010, the ICG welcomed and appreciated Venezuela’s efforts and technical advances for the establishment of a Caribbean Tsunami Warning Center, welcomed and appreciated Nicaragua’s efforts and technical advances for the establishment of a Caribbean Tsunami Warning Center and welcomed and appreciated the United States efforts for establishing a Caribbean Tsunami Warning Program at the University of Puerto Rico, Mayagüez in Puerto Rico, USA, as part of a phased contribution to the establishment of a Caribbean Tsunami Warning Center.
135. The Chair offered the floor to Member States to report on progress made in the establishment of a CTWC.
136. United States recalled and confirmed that a phased approach has been adopted for the establishment of such a centre in the USA. The first step towards this phased approach was the selection of a manager to contribute improving the capabilities of the region. The delegate stressed the PRSN expertise in the region. The delegate further noted the strong cooperation of the PTWC and the WC/ATWC with the Caribbean Region and the support from political authorities for a Regional Warning Centre including the Governor for Virgin Islands and Puerto Rico. In conclusion, the Delegate manifested his optimism of moving forward to a phase of implementation of the CTWC at the PRSN, University of Puerto Rico.
137. Nicaragua acknowledged the progress made for the development of the CTWC and pointed out also the progress made by Nicaragua regarding monitoring capacities. Building on

these capabilities the delegate put forward the option of having an alternate centre hosted in Nicaragua.

138. Venezuela (Bolivarian Rep. of) presented apologies on behalf of Mr Francisco Garces, Vice-Chair of ICG, for not being able to attend the meeting due to previous engagements related to his duties as Minister for Transport and Communications. The delegate emphasized the efforts that Venezuela has undertaken in the study of vulnerability to different natural hazards, including tsunamis. Venezuela is conducting projects to update the seismic and tide gauge network, including installation of GPS equipments. Venezuela endorses the US proposal of hosting the Centre considering the technical capacities and the support of the Government. In addition, considering possible communication problems and language issues, Venezuela supported the proposal of Nicaragua of establishing an alternate Centre.
139. Saint Lucia expressed its agreement with the proposal of having an alternate Centre considering the recommendations of CDEMA to look for redundancies in communication. Curacao also supported the proposal and suggested that it be included in the recommendations for the ICG.
140. Barbados recalled that in a previous occasion the country did support the proposal of United States of hosting the CTWC.
141. **The ICG urged** the USA to continue the phased implementation with the establishment of the Caribbean Tsunami Warning Center to serve the Caribbean and Western Atlantic Basin by December 2012; and requested the USA to present a schedule for fulfilling the requirements approved by the CARIBE EWS for the Caribbean Tsunami Warning Center, including its full staffing at the Seventh session of the ICG.
142. **The ICG encouraged** Nicaragua's and the Bolivarian Republic of Venezuela's continued efforts and technical advances for the establishment of an additional Regional Tsunami Warning Center in support of the Caribbean Tsunami Warning Center; **invited** the Bolivarian Republic of Venezuela to present a document defining the roles of the additional regional tsunami warning centres at the Seventh session of the ICG, and **encouraged** other nations to further develop their capacities and additional tsunami warning centres in support of the Caribbean Tsunami Warning Center.
143. **The ICG approved** [Recommendation ICG/CARIBE EWS-VI.2.](#)

## 6.2 REPORT OF THE CARIBBEAN TSUNAMI EXERCISE (CARIBE WAVE 2011)

144. The Chair introduced this topic recalling that the CARIBE WAVE 11 was conducted on 23 March 2011, and that 34 Member States participated. She offered then the floor to Dr Christa G. von Hillebrandt-Andrade (USA), CARIBE EWS Task Team leader CARIBE WAVE 2011, to present the report and the findings of the post exercise survey performed by the ICG. She referred to Document ICG/CARIBE EWS-VI/13.
145. Dr von Hillebrandt-Andrade recalled the chronology, the objectives and the scenario of the exercise. She pointed out the difficulties in the translation of the terms for warning level into Spanish. She informed that press releases were sent prior to the exercise at the local and international level, which helped limit the number of false alarms and encouraged participation. The exercise had broad media coverage with at least 300 citations.
146. Dr von Hillebrandt-Andrade highlighted the high participation with 35 participating countries, which she considered as excellent bearing in mind that it was the first time a regional exercise was held. Thirty-three completed questionnaires were received from 35 countries and territories (Bahamas and St. Eustatius did not send final evaluation). Two of the countries, Canada and Peru (member outside the region) did not participate. In addition, 28 local and

private institutions submitted reports. At least 188 schools participated as well as 130 private entities (hotels, ports operators, media outlets).

147. Dr von Hillebrandt-Andrade stated that most objectives were met and there was a generalized satisfaction with the event. The exercise was recognised as very useful to identify gaps in the system. From the results of the exercise, it arises that alternatives need to be identified at the local level for the reception and dissemination of messages. In addition, care must be taken with the translation of terms used in the tsunami bulletins and some countries suggested that bulletins be also in French and Spanish.
148. Bermuda requested clarification about the term “regional” and expressed concern as Bermuda is not within the Caribbean Sea. Ms von Hillebrandt-Andrade explained that the CARIBE EWS has officially the mandate over the Caribbean and adjacent regions. She noted that IOC must ensure that all regions are covered by a warning system.
149. Curacao noted that the length of the messages might be too long. Dominican Republic underscored the concern about the confusion about warning translation into Spanish (alerta and aviso).
150. Ms von Hillebrandt-Andrade explained that the wording in different languages is a problem at global level, and that the recommendation has been to refer to the level of threat, in other words, whether there is going to be inundation or not. In short, a proposal for harmonization of terms should be developed in order to use only two levels of threat and provide more detailed information to Member States.
151. Regarding communication issues with GTS raised during the discussion, the Representative of WMO indicated that GTS is the most enduring system, but it has constraints. Therefore, it is evolving to the WMO Information System (WIS) which can disseminate the same information but in a more friendly way, by transmitting not just messages but also the products. The representative of WMO further stated that EWMIN is very useful system but the core of it is GTS. GTS works properly under normal circumstances. He suggested to have a pre-operational exercise to ensure that the system is working properly before WAVE exercises. He informed that WMO is ready to provide advice and follow up for WAVE exercises.
152. Saint Lucia proposed to have another exercise in two years to give countries the opportunity to amend current gaps.
153. **The ICG agreed** to have the next CARIBE WAVE in 2013. It will be then evaluated for annual vs biannual. **The ICG recommended** that the exercise be conducted, when feasible, in partnership with the US LANTEX exercise. **The ICG further recommended** that the CARIBE WAVE be the basis and platform for testing outreach and education effectiveness at the Country level.

## 7. UPDATES TO THE CARIBE EWS IMPLEMENTATION PLAN

154. At the intra-sessional Working Groups several proposals for update of the CARIBE EWS Implementation Plan were developed with the information provided by Member States.
155. The Technical Secretariat was requested to update the CARIBE EWS Implementation Plan (IOC Technical Series, 78) following the recommendations of the intra-sessional groups and the recommendations and decisions approved during this session of the ICG.
156. **The ICG requested** the Technical Secretariat to update the CARIBE EWS Implementation Plan and to submit it to Member States by July 2011.

## 8. PROGRAMME AND BUDGET 2012–2013

157. The Chair offered the floor to the Chair of the intra-sessional Commission established under agenda item 2.3 to deliver the conclusions and recommendations of the group. Mr Bill Proenza (USA) indicated that in order to complete the compilation of financial data on the contributions of Member States to the ICG/CARIBE EWS, the Technical Secretariat **agreed** to resend the template to Tsunami National Contacts for indicating the national budget allowances contributing to the CARIBE EWS Implementation Plan.
158. **The ICG approved** [Recommendation ICG/CARIBE EWS-VI.3](#).

## 9. NEXT MEETING

### 9.1 CONFIRMATION OF DATE AND PLACE OF ICG/CARIBE EWS-VII

159. The Chair introduced this item by recalling that at ICG/CARIBE EWS-IV there were no offers for hosting the Seventh session. As well, she will recall that the group agreed to target March 2012 for that session. She then opened the floor for Member States to indicate their interest to host.
160. Curacao (Kingdom of the Netherlands) offered to host the ICG/CARIBE EWS-VII.
161. **The ICG acknowledged** this offer with appreciation and **agreed** to hold the Seventh session of the ICG/CARIBE EWS in Curacao during the first semester of 2012.

### 9.2 TARGET DATE FOR ICG/CARIBE EWS-VIII

162. **The ICG agreed** March 2013 as a target date for the Eighth Session of the ICG/CARIBE EWS. Trinidad and Tobago offered to host the ICG/CARIBE EWS-VIII.

## 10. ANY OTHER BUSINESS

163. Under this agenda item, Mr Bill Proenza, Head of the Delegation of USA, presented the results of a research publication entitled “Tsunami Hazard and Total Risk in the Caribbean Basin” (Science of Tsunami Hazards, Vol. 29, No. 2, p. 70, 2010), co-authored with Mr George Maul. In his concluding remarks, Mr Proenza explained that while tsunami hazards in the Caribbean is lower than in Pacific coastal areas, the total risk to life and property is at least as high as the USA West Coast, Hawaii or Alaska. This is due to the higher Caribbean population density and beach tourism so attractive to more than 35 million visitors a year. It is to note that the total risk is defined as hazard (frequency of tsunami events) times measures of elements at risk (human exposure), times measures of vulnerability (preparedness) in a given epoch. Considering this level of risk, the allocation of resources by governments, industry and insurers needs to be adjusted for a better protection of life, for coastal engineering, and for infrastructure.

## 11. ADOPTION OF DECISIONS AND RECOMMENDATIONS

164. Based on the reports of the Working Groups and discussions at the Plenary Sessions, the ICG adopted three recommendations.

## 12. CLOSURE OF THE MEETING

165. The ICG/CARIBE EWS Chair thanked the Government of Dominican Republic for hosting the meeting and thanked the Local Organizing Committee for the excellent facilities provided for the organization of the meeting.
166. Dominican Republic, Barbados, Curacao and Haiti took the floor and expressed their satisfaction with the results of the meeting, thanked the Government of Dominican Republic for

hosting the meeting and highlighted the importance of continue strengthening the bonds of cooperation among all Member States.

167. The Sixth Session of the IOC Intergovernmental Coordination Group for the Tsunami and Other Coastal Hazards Warning System for the Caribbean Sea and Adjacent Regions was closed at 4.00 p.m. on Friday, 26 April 2011.

ANNEX I

**AGENDA**

**1. WELCOME AND OPENING**

- 1.1. REPRESENTATIVE OF THE INTERGOVERNMENTAL OCEANOGRAPHIC COMMISSION OF UNESCO
- 1.2. DR. LORNA INNISS: DEPUTY DIRECTOR, COASTAL ZONE MANAGEMENT UNIT CZMU – BARBADOS, ICG/CARIBE EWS CHAIR
- 1.3. WELCOME ADDRESS BY NATIONAL AUTHORITIES

**2. ORGANIZATION OF THE SESSION**

- 2.1. ADOPTION OF AGENDA
- 2.2. DESIGNATION OF THE RAPPORTEUR
- 2.3. CONDUCT OF THE SESSION, TIMETABLE AND DOCUMENTATION

**3. REPORT ON INTERSESSIONAL ACTIVITIES**

- 3.1. IOC EXECUTIVE SECRETARY'S REPORT
- 3.2. CHAIRMAN'S REPORT
- 3.3. CARIBE EWS SECRETARIAT REPORT
- 3.4. REPORT OF THE CARIBBEAN TSUNAMI INFORMATION CENTER (CTIC)
- 3.5. REPORTS FROM UN AND NON UN ORGANISATIONS
- 3.6. STATUS OF OTHER ICGS
- 3.7. NATIONAL PROGRESS REPORTS
- 3.8. INTERIM ADVISORY SERVICES REPORT (PTWC)

**4. WORKING GROUP PROGRESS REPORTS**

- 4.1. WORKING GROUP 1 PROGRESS REPORT: MONITORING AND DETECTION SYSTEMS, WARNING GUIDANCE
- 4.2. WORKING GROUP 2 PROGRESS REPORT: HAZARD ASSESSMENT
- 4.3. WORKING GROUP 3 PROGRESS REPORT: WARNING, DISSEMINATION AND COMMUNICATION
- 4.4. WORKING GROUP 4 PROGRESS REPORT: PREPAREDNESS, READINESS AND RESILIENCE

**5. SPECIAL INVITED LECTURES:  
COMMUNITY-BASED TSUNAMI WARNING SYSTEM**

- 5.1. MICHES, DOMINICAN REPUBLIC (DURING FIELD TRIP)

5.2. TSUNAMI MANUAL FOR PORTS OPERATORS

**6. POLICY MATTERS**

6.1. ESTABLISHMENT OF A CARIBBEAN TSUNAMI WARNING CENTER

6.2. REPORT OF THE CARIBBEAN TSUNAMI EXERCISE (CARIBE WAVE 11)

**7. UPDATES TO THE CARIBE EWS IMPLEMENTATION PLAN**

**8. PROGRAMME AND BUDGET FOR 2012–2013**

**9. NEXT MEETING**

9.1. CONFIRMATION OF DATE AND PLACE OF ICG/CARIBE EWS-VII

9.2. TARGET DATE FOR ICG/CARIBE EWS-VIII

**10. ANY OTHER BUSINESS**

**11. ADOPTION OF DECISIONS AND RECOMMENDATIONS**

**12. CLOSURE OF THE MEETING**

ANNEX II

**ADOPTED RECOMMENDATIONS**

Recommendation ICG/CARIBE EWS-VI.1

**CARIBBEAN TSUNAMI INFORMATION CENTER**

The Intergovernmental Coordinating Group for Tsunamis and Coastal Hazards Warning System for the Caribbean and Adjacent Regions,

**Recalling** Recommendation ICG/CARIBE EWS-IV.6 on the establishment of a Caribbean Tsunami Information Center, and the acceptance by the ICG/CARIBE EWS of the offer by Barbados to host the Centre,

**Acknowledging** the generous contribution by the Government of Italy through UNDP for the operations and activities of the CTIC for the first three years,

**Requests** the IOC Executive Secretary to ensure the arrangements for the operationalization of the CTIC before 2012;

**Request further** that Barbados, France, Venezuela and others to initiate discussions on joint programmes that advance the activities of the CTIC in the three major languages of the region;

**Instructs** the Working Group IV to begin developing CTIC first business plan and to present the 2012 work plan at ICG VII;

**Invites** Member States to begin providing human resources and other support to the CTIC in the short and medium term;

**Urges** the IOC Executive Secretary to invite annual contributions from all Member States to CTIC when the final agreement is negotiated;

**Requests** continued CTIC/ITIC collaboration in provision of education and training to the Caribbean region.

Recommendation ICG/CARIBE EWS-VI.2

**Caribbean Tsunami Warning Centre**

The Intergovernmental Coordination Group for Tsunami and Other Coastal Hazards Warning System for the Caribbean and Adjacent Regions,

**Recalling** Recommendation ICG/CARIBE EWS-V.2 welcoming consideration of Member States contributions to a Regional Tsunami Warning Centre,

**Underscoring** the importance of Member States support to the strengthening of monitoring and observing capacity in accordance with the criteria identified in the "Technical and Logistical and Administrative Requirements of the Regional Tsunami Warning Centre for the CARIBE EWS in support of the Caribbean Tsunami Warning Centre" approved at the Fourth session of the ICG/CARIBE EWS,



**Acknowledging** the USA phased approach for implementing the Caribbean Tsunami Warning Center co-located with the Puerto Rico Seismic Network at the University of Puerto Rico at Mayagüez,

**Recognizing** the support that USA has been providing for the ICG/CARIBE EWS in the past year through the Caribbean Tsunami Warning Program for improved tsunami monitoring, outreach, education and preparedness and in particular through the leadership provided for the immensely successful tsunami CARIBE WAVE 2011 exercise,

**Urges** the USA to continue the phased implementation for the establishment of the Caribbean Tsunami Warning Centre to serve the Caribbean and Western Atlantic Basin by December 2012;

**Requests** the USA to present a schedule for fulfilling the requirements approved by the ICG/CARIBE EWS for the Caribbean Tsunami Warning Centre including its full staffing at the Seventh session of the ICG;

**Encourages** Nicaragua's and Bolivarian Republic of Venezuela's continued efforts and technical advances for the establishment of additional Regional Tsunami Warning Centers in support of the Caribbean Tsunami Warning Centre;

**Invites** the Bolivarian Republic of Venezuela to present a document defining the roles of additional regional tsunami warning centres at the Seventh session of the ICG/CARIBE EWS;

**Encourages** other nations to further develop their capacities and additional tsunami warning centres in support of the Caribbean Tsunami Warning Centre.

### Recommendation ICG/CARIBE EWS-VI.3

#### **Implementation Plan (2011–2014) and ICG/CARIBE EWS Budget (2012–2013)**

The Intergovernmental Coordination Group for Tsunami and Other Coastal Hazards Warning System for the Caribbean and Adjacent Regions,

**Recognizing** the establishment of a Tsunami and other Coastal Hazards Warning System for the Caribbean Sea and Adjacent Regions,

**Noting** the need for continuous funding for building and maintaining the ICG/CARIBE EWS,

**Recalling** the decisions and results of ICG/CARIBE EWS V, Recommendations ICG/CARIBE EWS-V.5 and IOC Resolutions XXIII.13 and XXIV.13,

**Acknowledging** that Member States and other UN bodies and organizations are willing to assist in the establishment of a Tsunami and Other Coastal Hazards Warning System for the Caribbean and Adjacent Regions,

**Acknowledging further** the ICG/CARIBE EWS Implementation Plan,

**Calls on** the recommendations of the previous five sessions of the ICG in Barbados, Venezuela, Panama, Martinique and Nicaragua;

**Decides** to update the CARIBE-EWS Implementation Plan for the Tsunami and Other Coastal Hazards Warning System for the Caribbean and Adjacent Regions, considering the discussions held at ICG-CARIBE-VI and to submit it to Member States by July 2011;

**Urges** Member States to seek financial resources to implement the Tsunami and other Coastal Hazards Warning System for the Caribbean Sea and Adjacent Regions;

**Requests** the IOC Executive Secretary to seek funding for the implementation of the Tsunami and other Coastal Hazards Warning System for the Caribbean Sea and Adjacent Regions, and to ensure the finalization of the 2012–2013 budget by October 2011.

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Financial Implications: USD 30,000 (IOC Regular Programme)

## ANNEXE II

### RECOMMANDATIONS ADOPTÉES

#### Recommandation ICG/CARIBE EWS-VI.1

##### **Centre d'Information sur les Tsunamis dans les Caraïbes**

Le Groupe intergouvernemental de coordination du Système d'alerte aux tsunamis et autres risques côtiers dans la mer des Caraïbes et les régions adjacentes,

**Rappelant** la recommandation GIC/CARIBE-EWS-IV.6 relative à la création d'un Centre d'information sur les tsunamis dans les Caraïbes, et l'acceptation par le GIC/CARIBE-EWS de l'offre faite par la Barbade d'accueillir le centre,

**Reconnaissant** la contribution généreuse du Gouvernement italien, par l'intermédiaire du PNYD, au fonctionnement et aux activités du CITC pendant les trois premières années,

**Prie** la Secrétaire exécutive de la COI de veiller à prendre des dispositions pour que le CITC devienne opérationnel avant 2012;

**Demande par ailleurs** que la Barbade, la France, la République bolivarienne du Venezuela et d'autres pays entament l'examen de programmes communs qui feraient avancer les activités du CITC dans les trois principales langues de la région;

**Charge** le Groupe de travail IV de commencer l'élaboration du premier plan d'action du CTIC et de présenter le plan de travail 2012 à la septième session du GIC;

**Invite** les États membres à commencer à fournir au CITC des ressources humaines et autre appui dans le court et moyen terme;

**Prie** instamment la Secrétaire exécutive de la COI à inviter tous les États membres à verser leur contribution annuelle au CITC lorsque l'accord définitif sera négocié;

**Demande** une collaboration suivie CTIC/CIIT visant à dispenser un enseignement et une formation dans la région des Caraïbes.

#### Recommandation ICG/CARIBE EWS-VI.2

##### **Centre d'Alerte aux Tsunamis dans les Caraïbes**

Le Groupe intergouvernemental de coordination du Système d'alerte aux tsunamis et autres risques côtiers dans la mer des Caraïbes et les régions adjacentes,

**Rappelant** la recommandation GIC/CARIBE-EWS-V.2 saluant le fait que les États membres envisagent de verser des contributions à un centre régional d'alerte aux tsunamis,

**Soulignant** l'importance de l'appui des États membres au renforcement de la capacité de surveillance et d'observation, conformément aux critères définis dans les «spécifications techniques, logistiques et administratives du Centre régional d'alerte aux tsunamis pour le CARIBE EWS à l'appui du Centre d'alerte aux tsunamis dans les Caraïbes» approuvés par le GIC/CARIBE-EWS à sa quatrième session,

**Sachant** la démarche graduelle adoptée par les États-Unis dans la mise en œuvre du Centre d'alerte aux tsunamis dans les Caraïbes implanté à Université de Porto Rico à Mayagüez, où se trouvait déjà le Réseau sismique de Porto Rico,

**Reconnaissant** l'appui que les États-Unis ont apporté au GIC/CARIBE-EWS au cours de l'année écoulée par le biais du Programme d'alerte aux tsunamis dans les Caraïbes en vue d'améliorer la surveillance, la mobilisation des publics, l'éducation et la préparation aux tsunamis, et, en particulier, grâce à leur rôle de chef de file qui a fait de l'exercice CARIBE WAVE 2011 une réussite exceptionnelle,

**Prie instamment** les États-Unis de continuer, par étapes, la mise en œuvre de la création, avant décembre 2012, du Centre d'alerte aux tsunamis dans les Caraïbes pour desservir les Caraïbes et le bassin de l'Atlantique Ouest;

**Demande** aux États-Unis de présenter, à la septième session du GIC, un calendrier pour la satisfaction des spécifications approuvées par le GIC/CARIBE-EWS pour le Centre d'alerte aux tsunamis dans les Caraïbes, y compris sa dotation complète en effectif;

**Encourage** l'action soutenue que mènent le Nicaragua et la République bolivarienne du Venezuela et les progrès techniques réalisés pour la création de centres régionaux supplémentaires d'alerte aux tsunamis à l'appui du Centre d'alerte aux tsunamis dans les Caraïbes;

**Invite** la République bolivarienne du Venezuela à présenter, à la septième session du GIC/CARIBE-EWS, un document définissant les rôles des centres régionaux supplémentaires d'alerte aux tsunamis;

**Encourage** d'autres pays à renforcer encore leur capacité et à poursuivre la mise au point des centres supplémentaires d'alerte aux tsunamis à l'appui du Centre d'alerte aux tsunamis dans les Caraïbes.

### Recommandation ICG/CARIBE EWS-VI.3

#### **Plan de mise en œuvre (2011-2014) et budget du GIC/CARIBE-EWS (2012-2013)**

Le Groupe intergouvernemental de coordination du Système d'alerte aux tsunamis et autres risques côtiers dans la mer des Caraïbes et les régions adjacentes,

**Reconnaissant** la création d'un Système d'alerte aux tsunamis et aux autres risques côtiers dans la mer des Caraïbes et les régions adjacentes,

**Notant** la nécessité d'un financement permanent pour établir le GIC/CARIBE-EWS et en assurer le fonctionnement,

**Rappelant** les décisions et conclusions de GIC/CARIBE-EWS V, la recommandation GIC/CARIBE-EWS-V.5 et les résolutions XXIII.13 et XXIV.13 de la COI,

**Sachant** que les États membres et d'autres organismes et institutions des Nations Unies sont prêts à aider à la création d'un Système d'alerte aux tsunamis et aux autres risques côtiers dans la mer des Caraïbes et les régions adjacentes,

**Notant** par ailleurs le Plan de mise en œuvre du GIC/CARIBE-EWS,

**Rappelle** les recommandations formulées lors des cinq sessions précédentes du GIC, à la Barbade, en République bolivarienne du Venezuela, à Panama, en Martinique et au Nicaragua;

**Décide** de mettre à jour le plan de mise en œuvre du GIC/CARIBE-EWS pour le Système d'alerte aux tsunamis et autres risques côtiers dans la mer des Caraïbes et les régions adjacentes, compte tenu des échanges de vues qui ont lieu à ICG-CARIBE-VI et de le soumettre aux États membres avant juillet 2011;

**Exhorte** les États membres à chercher des ressources financières permettant de mettre en œuvre le Système d'alerte aux tsunamis et autres risques côtiers dans la mer des Caraïbes et les régions adjacentes;

**Prie** la Secrétaire exécutive de la COI de rechercher le financement de la mise en œuvre du Système d'alerte aux tsunamis et autres risques côtiers dans la mer des Caraïbes et les régions adjacentes, et de veiller à ce que le budget 2012-2013 soit arrêté avant octobre 2011.

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Incidences financières: 30 000 dollars des États-Unis (programme ordinaire de la COI)

## ANEXO II

### RECOMENDACIONES APROBADAS

#### Recomendación ICG/CARIBE EWS-VI.1

##### **Centro de Información sobre los Tsunamis en el Caribe**

El Grupo Intergubernamental de Coordinación del Sistema de Alerta contra los Tsunamis y otras amenazas costeras en el Caribe y regiones adyacentes,

**Recordando** la Recomendación ICG/CARIBE EWS–IV.6 sobre el establecimiento de un Centro de Información sobre los Tsunamis en el Caribe (CTIC), y la propuesta de Barbados de albergar el Centro, aceptada por el ICG/CARIBE EWS,

**Agradeciendo** la generosa contribución del Gobierno de Italia aportada por conducto del Programa de las Naciones Unidas para el Desarrollo (PNUD) destinada al funcionamiento y las actividades del CTIC durante los primeros tres años,

**Pide** a la Secretaría Ejecutiva de la COI que tome las disposiciones necesarias para que el Centro pueda comenzar a funcionar antes de 2012;

**Pide además** que Barbados, Francia, Venezuela y otros emprendan discusiones sobre programas conjuntos que impulsen las actividades del CTIC en las tres lenguas principales de la región;

**Encarga** al Grupo de Trabajo IV que comience a preparar el primer plan institucional del CTIC y presente el plan de trabajo para 2012 en la Séptima reunión del ICG/CARIBE EWS;

**Invita** a los Estados Miembros a comenzar a proporcionar recursos humanos y otros tipos de apoyo al CTIC a corto y medio plazo;

**Insta** a la Secretaría Ejecutiva de la COI a que invite a todos los Estados Miembros a ofrecer contribuciones anuales al CTIC cuando se haya negociado el acuerdo definitivo;

**Pide** una colaboración permanente entre el CTIC y el Centro Internacional de Información sobre los Tsunamis de la COI (ITIC), en cuanto al suministro de educación y formación para la región del Caribe.

#### Recomendación ICG/CARIBE EWS-VI.2

##### **Centro de Alerta contra los Tsunamis en el Caribe**

El Grupo Intergubernamental de Coordinación del Sistema de Alerta contra los Tsunamis y otras amenazas costeras en el Caribe y regiones adyacentes,

**Recordando** la Recomendación ICG/CARIBE EWS-V.2 en la que se agradecían las contribuciones de los Estados Miembros a un centro regional de alerta contra los tsunamis,

**Subrayando** la importancia de que los Estados Miembros respalden el fortalecimiento de la capacidad de seguimiento y observación de conformidad con los criterios definidos en el documento “Technical and Logistical and Administrative Requirements of the Regional Tsunami

Warning Center for the CARIBE EWS in support of the Caribbean Tsunami Warning Center” [Requisitos técnicos, logísticos y administrativos de un Centro Regional de Alerta contra los Tsunamis para el Caribe y regiones adyacentes] aprobado en la Cuarta reunión del ICG/CARIBE EWS;

**Reconociendo** el enfoque de los Estados Unidos de América de establecimiento gradual del Centro de Alerta contra los Tsunamis en el Caribe situado conjuntamente con la Red Sísmica de Puerto Rico en la Universidad de Puerto Rico, en Mayagüez,

**Agradeciendo** el apoyo prestado por los Estados Unidos de América al ICG/CARIBE EWS durante el año pasado mediante el Programa de alerta sobre los tsunamis en el Caribe con miras a mejorar la vigilancia, difusión, educación y preparación respecto de los tsunamis, y, en particular, gracias a la conducción del ejercicio CARIBE WAVE 2011 sobre tsunamis, que tuvo gran éxito,

**Insta** a los Estados Unidos de América a proseguir el establecimiento gradual, antes de diciembre de 2012, del Centro de Alerta contra los Tsunamis en el Caribe para atender a la cuenca del Caribe y el Atlántico occidental;

**Pide** a los Estados Unidos que en la Séptima reunión del ICG presenten un calendario de cumplimiento de los criterios aprobados por el ICG/CARIBE EWS para el Centro de Alerta contra los Tsunamis en el Caribe, comprendida su plantilla completa;

**Alienta** a Nicaragua y la República Bolivariana de Venezuela a proseguir sus esfuerzos y avances técnicos para el establecimiento de un centro regional de alerta contra los tsunamis adicional para apoyar al Centro de Alerta contra los Tsunamis en el Caribe;

**Invita** a la República Bolivariana de Venezuela a presentar en su Séptima reunión un documento en el que se definan las funciones de los centros regionales de alerta adicionales;

**Alienta** a otros países a desarrollar sus capacidades y establecer centros regionales de alerta adicionales para apoyar al Centro de Alerta contra los Tsunamis en el Caribe.

### Recomendación ICG/CARIBE EWS-VI.3

#### **Plan de implantación (2011–2014) y presupuesto del ICG/CARIBE-EWS (2012–2013)**

El Grupo Intergubernamental de Coordinación del Sistema de Alerta contra los Tsunamis y otras amenazas costeras en el Caribe y regiones adyacentes,

**Reconociendo** el establecimiento de un Sistema de Alerta contra los Tsunamis y otras Amenazas Costeras en el Caribe y regiones adyacentes,

**Tomando nota** de la necesidad de una financiación continua para establecer y mantener el CARIBE EWS,

**Recordando** las decisiones y los resultados de la Quinta reunión del ICG/CARIBE EWS, la Recomendación ICG/CARIBE EWS-V.5 y las Resoluciones XXIII.13 and XXIV.13 de la COI,

**Considerando** que los Estados Miembros y otros organismos de las Naciones Unidas desean colaborar en el establecimiento de un Sistema de Alerta contra los Tsunamis y otras Amenazas Costeras en el Caribe y regiones adyacentes,

**Reconociendo además** el Plan de implantación del CARIBE EWS;

**Pone de relieve** las recomendaciones de las cinco reuniones anteriores del ICG en Barbados, Venezuela, Panamá, Martinica y Nicaragua;

**Decide** actualizar el Plan de implantación del Sistema de Alerta contra los Tsunamis y otras Amenazas Costeras en el Caribe y regiones adyacentes, habida cuenta de los debates celebrados en la Sexta reunión del ICG/CARIBE EWS, y someterlo a los Estados Miembros en julio de 2011;

**Insta** a los Estados Miembros a buscar recursos financieros para implantar el Sistema de Alerta contra los Tsunamis y otras Amenazas Costeras en el Caribe y regiones adyacentes;

**Pide** a la Secretaria Ejecutiva de la COI que busque financiación para la implantación del Sistema de Alerta contra los Tsunamis y otras amenazas costeras en el Caribe y regiones adyacentes, y que finalice el presupuesto para 2012–2013 en octubre de 2011.

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Consecuencias financieras: 30.000 dólares estadounidenses (Programa Ordinario de la COI)



## ПРИЛОЖЕНИЕ II

### ПРИНЯТЫЕ РЕКОМЕНДАЦИИ

#### Рекомендация ICG/CARIBE EWS-VI.1

##### **Карибский Центр Информации о Цунами**

Межправительственная координационная группа по Системе предупреждения о цунами и опасности других бедствий в прибрежных районах Карибского бассейна и прилегающих регионов,

напоминая о рекомендации ICG/CARIBE EWS-IV.6 об учреждении Карибского центра информации о цунами и принятии МКГ/КАРИБ СРП предложения Барбадоса разместить Центр на своей территории,

высоко оценивая щедрый взнос правительства Италии через ПРООН на осуществление деятельности и мероприятий КЦИЦ в течение первых трех лет,

просит Исполнительного секретаря МОК принять меры для введения в эксплуатацию КЦИЦ до 2012 г.;

**просит также** Барбадос, Францию, Венесуэлу и другие страны провести дискуссии по совместным программам, которые будут способствовать проведению мероприятий КЦИЦ на трех основных языках региона;

поручает Рабочей группе 4 приступить к разработке первого бизнес-плана КЦИЦ и представить на МКГ-VII план работы на 2012 г.;

предлагает государствам-членам приступить к выделению людских ресурсов и других видов помощи КЦИЦ на краткосрочный и среднесрочный период;

призывает Исполнительного секретаря МОК предложить всем государствам-членам внести ежегодный взнос на деятельность КЦИЦ после заключения окончательного соглашения;

**просит** продолжать сотрудничество КЦИЦ/ИТИК в области осуществления мероприятий по обучению и подготовке в Карибском регионе.

#### Рекомендация ICG/CARIBE EWS-VI.2

##### **Центр предупреждения о цунами в Карибском бассейне**

Межправительственная координационная группа по Системе предупреждения о цунами и опасности других бедствий в прибрежных районах Карибского бассейна и прилегающих регионов,

напоминая о рекомендации ICG/CARIBE EWS-V.2, в которой государствам-членам выражена благодарность за взносы, выделенные на деятельность Регионального центра предупреждения о цунами,

подчеркивая важность поддержки государств-членов в области укрепления потенциала мониторинга и наблюдения в соответствии с критериями, определенными в Технических, организационных и административных требованиях Регионального центра предупреждения о цунами для КАРИБ СРП при поддержке Центра предупреждения о цунами в Карибском бассейне, утвержденными на четвертой сессии МКГ/КАРИБ-СРП;

высоко оценивая поэтапный подход США в области ввода в эксплуатацию Центра предупреждения о цунами в Карибском бассейне, совмещенного с Сейсмической сетью Пуэрто-Рико при университете Пуэрто-Рико в Маягуэсе,

выражая признательность за поддержку США, оказанную в прошлом году МКГ/КАРИБ-СРП Программе предупреждения о цунами в Карибском бассейне, направленную на улучшение мониторинга, охвата, образования и подготовленности к цунами, в частности, посредством выполнения ведущей роли при реализации весьма успешных учений КАРИБСКАЯ ВОЛНА 11,

призывает США продолжать поэтапную процедуру ввода в эксплуатацию Центра предупреждения о цунами в Карибском бассейне для обеспечения обслуживания Карибского бассейна и западной части Атлантического океана к декабрю 2012 г.;

просит США представить на седьмой сессии МКГ график выполнения требований, утвержденных МКГ/КАРИБ-СРП в отношении Центра предупреждения о цунами в Карибском бассейне, включая полную комплектацию его штата;

**приветствует** предпринимаемые усилия и технические достижения Никарагуа и Боливарианской Республики Венесуэла в создании дополнительного Регионального центра предупреждения о цунами для поддержки Центра предупреждения о цунами в Карибском бассейне;

предлагает Боливарианской Республике Венесуэла представить на седьмой сессии МКГ/КАРИБ-СРП документ, определяющий роли дополнительных региональных центров предупреждения о цунами;

**призывает** другие государства продолжать усилия по развитию их потенциала и созданию дополнительных региональных центров предупреждения о цунами для поддержки Центра предупреждения о цунами в Карибском бассейне.

### Рекомендация ICG/CARIBE EWS-VI.3

#### **План Осуществления (2011–2014 гг.) и Бюджет Мкг/Кариб-срп (2012–2013 гг.)**

Межправительственная координационная группа по Системе предупреждения о цунами и опасности других бедствий в прибрежных районах Карибского бассейна и прилегающих регионов,

отмечая ход создания Системы предупреждения о цунами и опасности других бедствий в прибрежных районах Карибского бассейна и прилегающих регионов,

отмечая необходимость в постоянном финансировании с целью создания и эксплуатации МКГ/КАРИБ-СРП,

напоминая о решениях и результатах МКГ/КАРИБ-СРП-V, рекомендациях ICG/CARIBE EWS-V.5 и резолюциях МОК XXIII.13 и XXIV.13,

учитывая, что государства-члены и другие органы и организации системы ООН готовы оказать содействие в создании Системы предупреждения о цунами и опасности других бедствий в прибрежных районах Карибского бассейна и прилегающих регионов,

принимая также к сведению План осуществления МКГ/КАРИБ-СРП,

напоминает о рекомендациях предыдущих пяти сессий МКГ, проходивших в Барбадосе, Венесуэле, Панаме, Мартинике и Никарагуа;

постановляет актуализировать План осуществления КАРИБ-СРП для Системы предупреждения о цунами и опасности других бедствий в прибрежных районах Карибского бассейна и прилегающих регионов с учетом состоявшихся на МКГ/КАРИБ-СРП-VI дискуссий и представить его на рассмотрение государств-членов к июлю 2011 г.;

настоятельно призывает государства-члены изыскать финансовые ресурсы для реализации системы предупреждения о цунами и опасности других бедствий в прибрежных районах Карибского бассейна и прилегающих регионов;

просит Исполнительного секретаря МОК изыскать средства для внедрения Системы предупреждения о цунами и опасности других бедствий в прибрежных районах Карибского бассейна и прилегающих регионов и завершить подготовку бюджета на 2012–2013 гг. к октябрю 2011 г.

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Финансовые последствия: 30 000 долл. (Бюджет обычной программы МОК)

ANNEX III

**OPENING SPEECHES**

**Mr Bernardo Aliaga**  
**Technical Secretary ICG/CARIBE EWS**

Estimada Lic. Idalia Acevedo, Viceministra de Asuntos Costeros y Marinos, muy estimada Licenciada Gloria Ceballos, Directora Nacional de ONAMET, Excelencias, señoras y señores, estimados colegas:

Permítaseme, en primer lugar, agradecer, calurosamente, la invitación de convocar el Grupo Intergubernamental de Coordinación del sistema de alerta contra los tsunamis y otras amenazas costeras de la región Caribe aquí, en Santo Domingo (República Dominicana). Hace poco más de un mes, estuvimos en la Isla Española haciendo un curso de Procedimientos Operacionales Estándar en Puerto Príncipe para aproximadamente 80 personas y es un gran privilegio retornar a esta zona del Caribe en tan poco tiempo.

Lives are the most valuable asset we have, losing lives by neglect, ignorance, or carelessness should never happen. Losing livelihoods, that is people's ability to lead the life they care for, should also not happen.

Both do happen when disasters strikes after natural phenomena like earthquakes, storm surges, hurricanes, floods or tsunamis attack unprotected lives of livelihoods.

The lessons learnt from the Indian Ocean tsunami on December 26, 2004 are still on the wall when new disasters in Chile, Haiti or Japan reminded our small community not to relax efforts to build warning capabilities, preparedness measures and community based response.

Science is at the very core of our job because we need to identify the hazard, be aware of the risks and then develop counteracting measures. The recent event in Japan is a solid message to all of us about the importance of what has been called the "forewarning" from the past. More need to be done in this area of tsunami knowledge.

One of the now very obvious counteracting measures is to establish warning centres at the regional level and have basic capacities at the national level to discriminate the level of the threat once a regional warning has been issued. Some countries have made significant progress in this area in the Caribbean and we hope to see the fruit of your hard work at this meeting. In this area we are presently concentrating in developing and refining Standard Operating Procedures to streamline the operation of warning centres.

But where more needed to be done according to the conclusions and recommendations of previous meetings were in the area of observations and communications in the Caribbean. And here we have good news I think: thanks to the efforts of many experts and colleagues, financial support of some key agencies and significantly from national sources, the sea level network, the seismic network and the emergency communication mechanisms within the Caribbean are improving at an accelerated rate.

Since 2005 you have been working hard on the Tsunami Warning System for the Caribbean, CARIBE EWS. Progress has been good, but it takes time.

I wish you, also in the name of the Director General of UNESCO, Mme Bokova and the Executive Secretary of IOC, Mme Wendy Watson-Wright all a successful sixth Meeting of your ICG.

Muchas gracias.

**Dr Lorna Inniss**  
**Chair of the ICG/CARIBE EWS**

Good morning. Master of Ceremonies, Señora Ceballos, National Director of ONAMET, Mr Bernardo Aliaga, Representative of the IOC and the ICG's own beloved Technical Secretary. Delegations of Member States, observers and international organisations, ONAMET staff, members of the media, translators, ladies and gentlemen.

I want to begin by giving a special welcome to you, the delegations, to this VI session of the ICG for the Caribbean and Adjacent Regions. May I say that as a Member of a small island developing state myself, I fully appreciate the efforts made to overcome both financial and capacity challenges in order to be present here today. Last year at the ICG, we were offering condolences to the representatives of one of our own Member States, and we are especially pleased to acknowledge the progress made in Haiti since then, towards the development of a resilient national multi-hazard warning system. But we don't want to forget why our tasks within the ICG are so important; and to help us remember today, please stand with me and let us bow our heads in a moment of silence as we reflect on those in Japan today, who are still weeping, because of the tragic loss of loved ones.

Thank you, please be seated.

Every major catastrophic event reminds us of the enormity of the task at hand. And when we consider that Japan is one of the best prepared countries in the world for major earthquakes and tsunamis, the tendency is to exchange complacency for futility. I am very concerned about the number of people who have said to me since March 11th, "Why are you working so hard? If the Caribbean has an event like Japan, there is nothing we can do. We will all be dead anyway." Ladies and gentlemen, for the past five years we have been fighting complacency. Let us fight futility with just as much vigour. If we have learned nothing else from tsunamis in the Indian Ocean, American Samoa, Haiti, Chile and Japan, we now understand clearly that preparedness minimizes losses – both loss of life and assets. Would it not be wonderful if we could quantify every life saved because of readiness rather than the number of lives lost? I have heard the criticisms by the media and others, being levelled at different Governments coping with losses, and it is clear, in my view that extensive media training improves the resilience of a country and region through mutual cooperation and support. The media are a key partner with us working to prepare for, and respond to, these events, and I view this as a priority consideration for the work of the ICG going forward.

Another top priority, in my view, is a better understanding of the probable sources of those very large earthquakes around the globe, and this issue has already been discussed at the global level; thus we need to follow suit in our regional activities as well.

The ICG has been busy this past year, and I look forward to hearing national as well as working group reports. But it is my hope that we, the Member States of the Tsunamis and Coastal Hazards Warning System for the Caribbean and Adjacent Regions are committed enough and prepared to advance the pace of development of our warning system.

This meeting represents the end of our fifth year of regional activities and operations in this area. While we yet have some work to do in respect of monitoring and detection networks, hazard assessment, national alerting systems and protocols, and public education and awareness, I trust that every country can boast of some tangible improvement in national warning capability and public awareness of this very complex hazard.

And I believe that this improved capability was tested very well at the recently conducted CARIBE WAVE 2011 tsunami exercise held on March 23rd. I am sure that you would wish to join me in offering congratulations and sincere thanks to ICG Vice-Chair and head of the CARIBE WAVE 2011 ICG Task Team, Christa von Hillebrandt at the Caribbean Tsunami

Warning Program for her extremely hard work and dedication, in ensuring success in the first ever tsunami test throughout the region. The ICG Executive has worked hard this year and I would like to thank the other vice Chairs as well.

And we cannot stress enough the crucial role of the Tsunami Unit at IOC/UNESCO to our programs here in the region. During this year our Technical Secretary Bernardo Aliaga, has been working above and beyond normal duties in continuing his commitment to us in the Caribbean, as well as acting for most of the year, as the Head of the Tsunami Unit. I wish to acknowledge Bernardo's dedication to the CARIBE EWS under very challenging circumstances. And on behalf of the Member States of the ICG I would like to welcome the new Tsunami Unit Head, Thorkild Aarup. We have already benefited from his expertise, especially in the advancement of the sea level network, and look forward to working with him during this coming year.

Let me close by expressing our heartfelt thanks to the Government and people of this beautiful country – the Dominican Republic. During these lean years of global economic uncertainty, it is heartening to see such a high level of commitment and support for the goals and ideals of the ICG. Know that you inspire others to follow your great example, and in this respect, let me also express gratitude to all the countries and territories of the region, willing to provide support. There is no such thing as a small contribution – to coin a phrase from our US colleague and friend Bill Proenza, there can be no greater goal than the protection of life. And this is our mission. We intend to have a very productive meeting, and thanks to all of you.

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ANNEX V

**PROVISIONAL LIST OF DOCUMENTS**

**Working Documents**

| <b>Document Code</b>         | <b>Document title</b>  |
|------------------------------|--|
| ICG/CARIBE EWS-VI/1 Prov.    | Provisional Agenda (English, French and Spanish)   |
| ICG/CARIBE EWS-VI/1 Prov. Ad | Provisional Timetable (English only)   |
| ICG/CARIBE EWS-VI/2 Prov     | Provisional annotated agenda (English only)  |
| ICG/CARIBE EWS-VI/3          | Draft Summary Report (to be prepared after the session) (English only with Executive Summary in English/French/Spanish and Russian)  |
| ICG/CARIBE EWS-VI/4Rev       | Provisional List of Documents (English only)   |
| ICG/CARIBE EWS-VI/5          | IOC Executive Secretary's Report (English only)  |
| ICG/CARIBE EWS-VI/6          | Chairman's Report (English)  |
| ICG/CARIBE EWS-VI/7          | ICG/CARIBE EWS Secretariat's report (English only)   |
| ICG/CARIBE EWS-VI/8          | ICG/CARIBE EWS-V Recommendations Status Report (English only)  |
| ICG/CARIBE EWS-VI/9          | Working Group I Report (English/Spanish)   |
| ICG/CARIBE EWS-VI/10         | Working Group II Report (English/Spanish)  |
| ICG/CARIBE EWS-VI/11         | Working Group III Report (English/Spanish)   |
| ICG/CARIBE EWS-VI/12         | Working Group IV Report (English/Spanish)  |
| ICG/CARIBE EWS-VI/13         | Report of the CARIBE Wave Exercise 2011. Caribbean Tsunami Exercise  |
| ICG/CARIBE-EWS-V/3           | Summary Report of the Fifth Session of the Intergovernmental Coordination Group for the Tsunami and other Coastal Hazards Warning System For The Caribbean And Adjacent Regions (ICG/CARIBE EWS-V), Managua, Nicaragua, 15–17 March 2010 |
| ICG/CARIBE EWS-IV/13         | Working Group 1: Technical, logistical and administrative requirements of a Regional Tsunami Warning Centre for the CARIBE EWS   |
| ICG/CARIBE EWS-IV/14         | ITIC's Report of Tsunami signage   |
| IOC/TOWS-WG-IV/3             | Working Group on Tsunamis and Other Hazards Related to Sea-Level Warning and Mitigation Systems (TOWS-WG), Fourth Meeting, UNESCO Headquarters, Paris, France, 21–22 March 2011  |

|                         |  |
|-------------------------|--|
| IOC Technical Series 78 | CARIBE EWS Implementation Plan (English only)  |
| ICG/CARIBE EWS-II/11    | Communications Plan for the Interim Tsunami Advisory Information Service to the Caribbean Sea and Adjacent Regions (English only)  |
| IOC Technical Series 90 | Tsunami and other Coastal Hazards Warning System for the Caribbean and Adjacent Regions (CARIBE EWS), 12 January 2010 Haiti Earthquake and Tsunami Event—Post-Event Assessment of CARIBE EWS Performance |

### Information Documents

| Document Code  | Document title  |
|--|---|
| Information for participants (venue, hotels, airport, bus) (see website) |   |
| ICG/CARIBE EWS-VI/Inf. 1   | List of Caribbean National Contacts updated 6 April, 2011 (posted in the website)   |
|  | IOC Assembly Resolution XXIII-13 (English/Spanish)  |
| CL 2370  | Letter of Invitation to ICG/CARIBE EWS-VI (English/Spanish/French)  |
| ICG/CARIBE EWS-II/12   | A Caribbean Tsunami Information Center: Roles and Functions for the Implementation of an Effective Tsunami and Coastal Hazards Warning and Mitigation System (English only) |
| IOC/INF-1202.rev Dec. 08   | National Report Format (English, French)  |
| Working Groups Fact Sheets   |   |



ANNEX VI

**LIST OF ACRONYMS**

|                   |   |
|-------------------|---|
| <b>ACS</b>        | Association of Caribbean States   |
| <b>ALMA</b>       | Alliance for Middle America   |
| <b>AOR</b>        | Area of Responsibility  |
| <b>AWS</b>        | Anguilla National Warning System (UK)                                   |
| <b>BdME</b>       | Bureau de Mines et de l'Energie   |
| <b>CAP</b>        | Common Alerting Protocol  |
| <b>CDEMA</b>      | Caribbean Emergency Management Agency                                   |
| <b>CEPREDENAC</b> | Central American Coordination Center for Disaster Prevention            |
| <b>CGMA</b>       | Conseil Général de la Martinique  |
| <b>CIMH</b>       | Caribbean Institute for Meteorology and Hydrology                       |
| <b>CISN</b>       | California Integrated Seismic Network                                   |
| <b>COCONet</b>    | Continuously Operating Caribbean GPS Observational Network              |
| <b>COMET</b>      | Cooperative Program for Operational Meteorology, Education and Training |
| <b>CoTsuRiMa</b>  | Commissie Tsunami Risk Management                                       |
| <b>CTBTO</b>      | Comprehensive Nuclear-Test-Ban Treaty Organization                      |
| <b>CTIC</b>       | Caribbean Tsunami Information Centre                                    |
| <b>CTWC</b>       | Caribbean Tsunami Warning Centre  |
| <b>CTWP</b>       | Caribbean Tsunami Warning Programme                                     |
| <b>CZMU</b>       | Coastal Zone Management Unit  |
| <b>DART</b>       | Deep-ocean Assessment and Reporting of Tsunamis                         |
| <b>DEM</b>        | Department of Emergency Management                                      |
| <b>DMA</b>        | Departamento Metereológico Aruba  |
| <b>DTM</b>        | Digital Terrain Model   |
| <b>EMO</b>        | Emergency Management Office   |
| <b>EMWIN</b>      | Emergency Managers Weather Information Network (USA)                    |
| <b>ESRI</b>       | European Space Research Institute                                       |
| <b>EUTMESAT</b>   | European Organisation for the Exploitation of Meteorological Satellites |
| <b>FTP</b>        | File Transfer Protocol  |
| <b>GIS</b>        | Geographic Information System   |
| <b>GLOSS</b>      | Global sea level Observing System (UNESCO/IOC)                          |
| <b>GOES</b>       | Geostationary Operational Environmental Satellite (US/NOAA)             |
| <b>GOOS</b>       | Global Ocean Observing System (WMO-UNEP-IOC)                            |
| <b>GTS</b>        | Global Telecommunication System   |

|                       |  |
|-----------------------|--|
| <b>ICG</b>            | Intergovernmental Coordination Group   |
| <b>ICG/CARIBE EWS</b> | Intergovernmental Coordination Group for the Tsunami and other Coastal Hazards Warning System for the Caribbean and Adjacent Regions                         |
| <b>ICG/IOTWS</b>      | Intergovernmental Coordination Group for the Indian Ocean Tsunami Warning & Mitigation System  |
| <b>ICG/NEAMTWS</b>    | Intergovernmental Coordination Group for the Tsunami Early Warning and Mitigation System in the North-Eastern Atlantic, the Mediterranean and connected Seas |
| <b>ICG/PTWS</b>       | Intergovernmental Coordination Group for the Pacific Tsunami Warning and Mitigation System   |
| <b>INETER</b>         | Instituto Nicaragüense de Estudios Territoriales   |
| <b>INTERREG</b>       | EU-funded programme  |
| <b>IOC</b>            | Intergovernmental Oceanographic Commission [UNESCO]  |
| <b>IOCARIBE</b>       | IOC Sub-Commission for the Caribbean and Adjacent Regions  |
| <b>IPGP</b>           | Institut de Physique du Globe de Paris (France)  |
| <b>IRIS</b>           | Integrated Regional Information Networks   |
| <b>ITIC</b>           | International Tsunami Information Center   |
| <b>ITU</b>            | International Telecommunication Union  |
| <b>JCOMM</b>          | Joint WMO/IOC Technical Commission for Oceanography and Marine Meteorology   |
| <b>LiDAR</b>          | Light Detection And Ranging (optical remote sensing technology)  |
| <b>MOST</b>           | Method of Splitting Tsunami  |
| <b>NESDIS</b>         | National Environmental Satellite, Data and Information Service (USA)   |
| <b>NGDC</b>           | National Geophysical Data Centre (USA)   |
| <b>NOAA</b>           | National Oceanographic Atmospheric Administration (USA)  |
| <b>NSF</b>            | National Science Foundation  |
| <b>NWPTAC</b>         | Northwest Pacific Tsunami Advisory Center  |
| <b>NWS</b>            | National Weather Service   |
| <b>OAS</b>            | Organization of American States  |
| <b>OECS</b>           | Organization of Eastern Caribbean States   |
| <b>ONAMET</b>         | Oficina Nacional de Meteorología   |
| <b>OVSG</b>           | Observatoire Volcanologique et Sismologique de Guadeloupe (France)   |
| <b>PRSN</b>           | Puerto Rico Seismic Network  |
| <b>PTWC</b>           | Pacific Tsunami Warning Center   |
| <b>RANET</b>          | Radio and Internet for the Communication of Hydro-meteorological Information for Rural Development (US/NOAA)   |
| <b>RTWC</b>           | Regional Tsunami Watch Centres   |
| <b>SHOM</b>           | French Naval Hydrographic and Oceanographic Service  |

|                |  |
|----------------|--|
| <b>SIDS</b>    | Small Island Developing States   |
| <b>SMS</b>     | Security Management System   |
| <b>SOP</b>     | Standard Operating Procedure   |
| <b>SRC/UWI</b> | Seismic Research Center of the University of West Indies                       |
| <b>TCP</b>     | Tropical Cyclone Programme (WMO)   |
| <b>TNC</b>     | Tsunami National Contact   |
| <b>TOWS</b>    | Tsunamis and Other Hazards Related to Sea-Level Warning and Mitigation Systems |
| <b>TWFP</b>    | Tsunami Warning Focal Point  |
| <b>TWS</b>     | Tsunami Warning System   |
| <b>UHSLC</b>   | University of Hawaii Sea Level Center  |
| <b>UN</b>      | United Nations   |
| <b>UNDP</b>    | United Nations Development Programme   |
| <b>UNESCO</b>  | United Nations Educational, Scientific & Cultural Organization                 |
| <b>USAID</b>   | United States Agency for International Development                             |
| <b>USGS</b>    | United States Geological Survey  |
| <b>WC/ATWC</b> | West Coast and Alaska Tsunami Warning Center (USA)                             |
| <b>WG</b>      | Working Group  |
| <b>WMO</b>     | World Meteorological Organization  |

**Reports of Governing and Major Subsidiary Bodies**, which was initiated at the beginning of 1984, the reports of the following meetings have already been issued:

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|--|----------------|
| 1. Eleventh Session of the Working Committee on international Oceanographic Data Exchange  | E, F, S, R     |
| 2. Seventeenth Session of the Executive Council  | E, F, S, R, Ar |
| 3. Fourth Session of the Working Committee for Training, Education and Mutual Assistance   | E, F, S, R     |
| 4. Fifth Session of the Working Committee for the Global Investigation of Pollution in the Marine Environment  | E, F, S, R     |
| 5. First Session of the IOC Sub-Commission for the Caribbean and Adjacent Regions  | E, F, S        |
| 6. Third Session of the <i>ad hoc</i> Task team to Study the Implications, for the Commission, of the UN Convention on the Law of the Sea and the New Ocean Regime | E, F, S, R     |
| 7. First Session of the Programme Group on Ocean Processes and Climate   | E, F, S, R     |
| 8. Eighteenth Session of the Executive Council   | E, F, S, R, Ar |
| 9. Thirteenth Session of the Assembly  | E, F, S, R, Ar |
| 10. Tenth Session of the International Co-ordination Group for the Tsunami Warning System in the Pacific   |                |
| 11. Nineteenth Session of the Executive Council, Paris, 1986   | E, F, S, R, Ar |
| 12. Sixth Session of the IOC Scientific Committee for the Global Investigation of Pollution in the Marine Environment  | E, F, S        |
| 13. Twelfth Session of the IOC Working Committee on International Oceanographic Data Exchange  | E, F, S, R     |
| 14. Second Session of the IOC Sub-Commission for the Caribbean and Adjacent Regions, Havana, 1986  | E, F, S        |
| 15. First Session of the IOC Regional Committee for the Central Eastern Atlantic, Praia, 1987  | E, F, S        |
| 16. Second Session of the IOC Programme Group on Ocean Processes and Climate   | E, F, S        |
| 17. Twentieth Session of the Executive Council, Paris, 1987  | E, F, S, R, Ar |
| 18. Fourteenth Session of the Assembly, Paris, 1987  | E, F, S, R, Ar |
| 19. Fifth Session of the IOC Regional Committee for the Southern Ocean   | E, F, S, R     |
| 20. Eleventh Session of the International Co-ordination Group for the Tsunami Warning System in the Pacific, Beijing, 1987   | E, F, S, R     |
| 21. Second Session of the IOC Regional Committee for the Co-operative Investigation in the North and Central Western Indian Ocean, Arusha, 1987                    | E, F           |
| 22. Fourth Session of the IOC Regional Committee for the Western Pacific, Bangkok, 1987  | E only         |
| 23. Twenty-first Session of the Executive Council, Paris, 1988   | E, F, S, R     |
| 24. Twenty-second Session of the Executive Council, Paris, 1989  | E, F, S, R     |
| 25. Fifteenth Session of the Assembly, Paris, 1989   | E, F, S, R     |
| 26. Third Session of the IOC Committee on Ocean Processes and Climate, Paris, 1989   | E, F, S, R     |
| 27. Twelfth Session of the International Co-ordination Group for the Tsunami Warning System in the Pacific, Novosibirski, 1989                                     | E, F, S, R     |
| 28. Third Session of the Sub-Commission for the Caribbean and Adjacent Regions, Caracas, 1989  | E, S           |
| 29. First Session of the IOC Sub-Commission for the Western Pacific, Hangzhou, 1990  | E only         |
| 30. Fifth Session of the IOC Regional Committee for the Western Pacific, Hangzhou, 1990  | E only         |
| 31. Twenty-third Session of the Executive Council, Paris, 1990   | E, F, S, R     |
| 32. Thirteenth Session of the IOC Committee on International Oceanographic Data and Information Exchange, New York, 1990   | E only         |
| 33. Seventh Session of the IOC Committee for the Global Investigation of Pollution in the Marine Environment, Paris, 1991  | E, F, S, R     |
| 34. Fifth Session of the IOC Committee for Training, Education and Mutual Assistance in Marine Sciences, Paris, 1991   | E, F, S, R     |
| 35. Fourth Session of the IOC Committee on Ocean Processes and Climate, Paris, 1991  | E, F, S, R     |
| 36. Twenty-fourth Session of the Executive Council, Paris, 1991  | E, F, S, R     |
| 37. Sixteenth Session of the Assembly, Paris, 1991   | E, F, S, R, Ar |
| 38. Thirteenth Session of the International Co-ordination Group for the Tsunami Warning System in the Pacific, Baja California, 1991                               | E, F, S, R     |
| 39. Second Session of the IOC-WMO Intergovernmental WOCE Panel, Paris, 1992  | E only         |
| 40. Twenty-fifth Session of the Executive Council, Paris, 1992   | E, F, S, R     |
| 41. Fifth Session of the IOC Committee on Ocean Processes and Climate, Paris, 1992   | E, F, S, R     |
| 42. Second Session of the IOC Regional Committee for the Central Eastern Atlantic, Lagos, 1990   | E, F           |
| 43. First Session of the Joint IOC-UNEP Intergovernmental Panel for the Global Investigation of Pollution in the Marine Environment, Paris, 1992                   | E, F, S, R     |
| 44. First Session of the IOC-FAO Intergovernmental Panel on Harmful Algal Blooms, Paris, 1992  | E, F, S        |
| 45. Fourteenth Session of the IOC Committee on International Oceanographic Data and Information Exchange, Paris, 1992  | E, F, S, R     |
| 46. Third Session of the IOC Regional Committee for the Co-operative Investigation in the North and Central Western Indian Ocean, Vascoas, 1992                    | E, F           |
| 47. Second Session of the IOC Sub-Commission for the Western Pacific, Bangkok, 1993  | E only         |
| 48. Fourth Session of the IOC Sub-Commission for the Caribbean and Adjacent Regions, Veracruz, 1992  | E, S           |
| 49. Third Session of the IOC Regional Committee for the Central Eastern Atlantic, Dakar, 1993  | E, F           |
| 50. First Session of the IOC Committee for the Global Ocean Observing System, Paris, 1993  | E, F, S, R     |
| 51. Twenty-sixth Session of the Executive Council, Paris, 1993   | E, F, S, R     |
| 52. Seventeenth Session of the Assembly, Paris, 1993   | E, F, S, R     |
| 53. Fourteenth Session of the International Co-ordination Group for the Tsunami Warning System in the Pacific, Tokyo, 1993   | E, F, S, R     |
| 54. Second Session of the IOC-FAO Intergovernmental Panel on Harmful Algal Blooms, Paris, 1993   | E, F, S        |
| 55. Twenty-seventh Session of the Executive Council, Paris, 1994   | E, F, S, R     |
| 56. First Planning Session of the IOC-WMO-UNEP Committee for the Global Ocean Observing System, Melbourne, 1994  | E, F, S, R     |
| 57. Eighth Session of the IOC-UNEP-IMO Committee for the Global Investigation of Pollution in the Marine Environment, San José, Costa Rica, 1994                   | E, F, S        |
| 58. Twenty-eighth Session of the Executive Council, Paris, 1995  | E, F, S, R     |
| 59. Eighteenth Session of the Assembly, Paris, 1995  | E, F, S, R     |
| 60. Second Session of the IOC-WMO-UNEP Committee for the Global Ocean Observing System, Paris, 1995  | E, F, S, R     |

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| 61.  | Third Session of the IOC-WMO Intergovernmental WOCE Panel, Paris, 1995  | E only     |
| 62.  | Fifteenth Session of the International Co-ordination Group for the Tsunami Warning System in the Pacific, Papete, 1995  | E, F, S, R |
| 63.  | Third Session of the IOC-FAO Intergovernmental Panel on Harmful Algal Blooms, Paris, 1995   | E, F, S    |
| 64.  | Fifteenth Session of the IOC Committee on International Oceanographic Data and Information Exchange   | E, F, S, R |
| 65.  | Second Planning Session of the IOC-WMO-UNEP Committee for the Global Ocean Observing System, Paris, 1995  | E only     |
| 66.  | Third Session of the IOC Sub-Commission for the Western Pacific, Tokyo, 1996  | E only     |
| 67.  | Fifth Session of the IOC Sub-Commission for the Caribbean and Adjacent Regions, Christ Church, 1995   | E, S       |
| 68.  | Intergovernmental Meeting on the IOC Black Sea Regional Programme in Marine Sciences and Services   | E, R       |
| 69.  | Fourth Session of the IOC Regional Committee for the Central Eastern Atlantic, Las Palmas, 1995   | E, F, S    |
| 70.  | Twenty-ninth Session of the Executive Council, Paris, 1996  | E, F, S, R |
| 71.  | Sixth Session for the IOC Regional Committee for the Southern Ocean and the First Southern Ocean Forum, Bremerhaven, 1996   | E, F, S,   |
| 72.  | IOC Black Sea Regional Committee, First Session, Varna, 1996  | E, R       |
| 73.  | IOC Regional Committee for the Co-operative Investigation in the North and Central Western Indian Ocean, Fourth Session, Mombasa, 1997  | E, F       |
| 74.  | Nineteenth Session of the Assembly, Paris, 1997   | E, F, S, R |
| 75.  | Third Session of the IOC-WMO-UNEP Committee for the Global Ocean Observing System, Paris, 1997  | E, F, S, R |
| 76.  | Thirtieth Session of the Executive Council, Paris, 1997   | E, F, S, R |
| 77.  | Second Session of the IOC Regional Committee for the Central Indian Ocean, Goa, 1996  | E only     |
| 78.  | Sixteenth Session of the International Co-ordination Group for the Tsunami Warning System in the Pacific, Lima, 1997  | E, F, S, R |
| 79.  | Thirty-first Session of the Executive Council, Paris, 1998  | E, F, S, R |
| 80.  | Thirty-second Session of the Executive Council, Paris, 1999   | E, F, S, R |
| 81.  | Second Session of the IOC Black Sea Regional Committee, Istanbul, 1999  | E only     |
| 82.  | Twentieth Session of the Assembly, Paris, 1999  | E, F, S, R |
| 83.  | Fourth Session of the IOC-WMO-UNEP Committee for the Global Ocean Observing System, Paris, 1999   | E, F, S, R |
| 84.  | Seventeenth Session of the International Coordination Group for the Tsunami Warning System in the Pacific, Seoul, 1999  | E, F, S, R |
| 85.  | Fourth Session of the IOC Sub-Commission for the Western Pacific, Seoul, 1999   | E only     |
| 86.  | Thirty-third Session of the Executive Council, Paris, 2000  | E, F, S, R |
| 87.  | Thirty-fourth Session of the Executive Council, Paris, 2001   | E, F, S, R |
| 88.  | Extraordinary Session of the Executive Council, Paris, 2001   | E, F, S, R |
| 89.  | Sixth Session of the IOC Sub-Commission for the Caribbean and Adjacent Regions, San José, 1999  | E only     |
| 90.  | Twenty-first Session of the Assembly, Paris, 2001   | E, F, S, R |
| 91.  | Thirty-fifth Session of the Executive Council, Paris, 2002  | E, F, S, R |
| 92.  | Sixteenth Session of the IOC Committee on International Oceanographic Data and Information Exchange, Lisbon, 2000   | E, F, S, R |
| 93.  | Eighteenth Session of the International Coordination Group for the Tsunami Warning System in the Pacific, Cartagena, 2001   | E, F, S, R |
| 94.  | Fifth Session of the IOC-WMO-UNEP Committee for the Global Ocean Observing System, Paris, 2001  | E, F, S, R |
| 95.  | Seventh Session of the IOC Sub-commission for the Caribbean and Adjacent Regions (IOCARIBE), Mexico, 2002   | E, S       |
| 96.  | Fifth Session of the IOC Sub-Commission for the Western Pacific, Australia, 2002  | E only     |
| 97.  | Thirty-sixth Session of the Executive Council, Paris, 2003  | E, F, S, R |
| 98.  | Twenty-second Session of the Assembly, Paris, 2003  | E, F, S, R |
| 99.  | Fifth Session of the IOC Regional Committee for the Co-operative Investigation in the North and Central Western Indian Ocean, Kenya, 2002 (* Executive Summary available separately in E, F, S & R)                               | E*         |
| 100. | Sixth Session of the IOC Intergovernmental Panel on Harmful Algal Blooms, St. Petersburg (USA), 2002 (* Executive Summary available separately in E, F, S & R)  | E*         |
| 101. | Seventeenth Session of the IOC Committee on International Oceanographic Data and Information Exchange, Paris, 2003 (* Executive Summary available separately in E, F, S & R)  | E*         |
| 102. | Sixth Session of the IOC-WMO-UNEP Committee for the Global Ocean Observing System, Paris, 2003 (* Executive Summary available separately in E, F, S & R)  | E*         |
| 103. | Nineteenth Session of the International Coordination Group for the Tsunami Warning System in the Pacific, Wellington, New Zealand, 2003 (* Executive Summary available separately in E, F, S & R)                                 | E*         |
| 104. | Third Session of the IOC Regional Committee for the Central Indian Ocean, Tehran, Islamic Republic of Iran, 21-23 February 2000   | E only     |
| 105. | Thirty-seventh Session of the Executive Council, Paris, 2004  | E, F, S, R |
| 106. | Seventh Session of the IOC-WMO-UNEP Committee for the Global Ocean Observing System, Paris, 2005 (* Executive Summary available separately in E, F, S & R); and Extraordinary Session, Paris, 20 June 2005                        | E*         |
| 107. | First Session of the Intergovernmental Coordination Group for the Indian Ocean Tsunami Warning and Mitigation System (ICG/IOTWS), Perth, Australia, 3-5 August 2005   | E only     |
| 108. | Twentieth Session of the Intergovernmental Coordination Group for the Tsunami Warning System in the Pacific, Viña del Mar, Chile, 3-7 October 2005 (* Executive Summary available separately in E, F, S & R)                      | E*         |
| 109. | Twenty-Third Session of the Assembly, Paris, 21-30 June 2005  | E, F, S, R |
| 110. | First 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), Rome, Italy, 21-22 November 2005 | E only     |
| 111. | Eighth Session of the IOC Sub-commission for the Caribbean and Adjacent Regions (IOCARIBE), Recife, Brazil, 14-17 April 2004 (* Executive Summary available separately in E, F, S & R)  | E*         |
| 112. | First Session of the Intergovernmental Coordination Group for the Tsunami and other Coastal Hazards Warning System for the Caribbean Sea and Adjacent Regions (ICG/CARIBE-EWS), Bridgetown, Barbados, 10-12 January 2006          | E only     |
| 113. | Ninth Session of the IOC Sub-Commission for the Caribbean and Adjacent Regions (IOCARIBE), Cartagena de Indias, Colombia, 19-22 April 2006 (* Executive Summary available separately in E, F, S & R)                              | E S*       |

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| 114. | Second Session of the Intergovernmental Coordination Group for the Indian Ocean Tsunami Warning and Mitigation System (ICG/IOTWS), Hyderabad, India, 14–16 December 2005   | E only     |
| 115. | Second Session of the WMO-IOC Joint Technical Commission for Oceanography and Marine Meteorology, Halifax, Canada, 19–27 September 2005 (Abridged final report with resolutions and recommendations)   | E, F, R, S |
| 116. | Sixth Session of the IOC Regional Committee for the Western Indian Ocean (IOCWIO), Maputo, Mozambique, 2–4 November 2005 (* Executive Summary available separately in E, F, S & R)   | E*         |
| 117. | Fourth Session of the IOC Regional Committee for the Central Indian Ocean, Colombo, Sri Lanka 8–10 December 2005 (* Executive Summary available separately in E, F, S & R)   | E*         |
| 118. | Thirty-eighth Session of the Executive Council, Paris, 20 June 2005 (Electronic copy only)   | E, F, R, S |
| 119. | Thirty-ninth Session of the Executive Council, Paris, 21–28 June 2006  | E, F, R, S |
| 120. | Third Session of the Intergovernmental Coordination Group for the Indian Ocean Tsunami Warning and Mitigation System (ICG/IOTWS), Bali, Indonesia, 31 July–2 August 2006 (*Executive Summary available separately in E,F,S & R)  | E*         |
| 121. | Second 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), Nice, France, 22–24 May 2006   | E only     |
| 122. | Seventh Session of the IOC Intergovernmental Panel on Harmful Algal Blooms, Paris, France, 16–18 March 2005 (* Executive Summary available separately in E, F, S & R)  | E*         |
| 123. | Fourth Session of the Intergovernmental Coordination Group for the Indian Ocean Tsunami Warning and Mitigation System (ICG/IOTWS-IV), Mombasa, Kenya, 30 February-2 March 2007 (* Executive Summary available separately in E, F, S & R)   | E*         |
| 124. | Nineteenth Session of the IOC Committee on International Oceanographic Data and Information Exchange, Trieste, Italy, 12–16 March 2007 (* Executive Summary available separately in E, F, S & R)   | E*         |
| 125. | Third Session of the Intergovernmental Coordination Group for the Tsunami Early Warning and Mitigation System in the North Eastern Atlantic, the Mediterranean and Connected Seas, Bonn, Germany, 7–9 February 2007 (* Executive Summary available separately in E, F, S & R)          | E*         |
| 126. | Second Session of the Intergovernmental Coordination Group for the Tsunami and other Coastal Hazards Warning System for the Caribbean Sea and Adjacent Regions, Cumaná, Venezuela, 15–19 January 2007 (* Executive Summary available separately in E, F, S & R)                        | E*         |
| 127. | Twenty-first Session of the Intergovernmental Coordination Group for the Pacific Tsunami Warning and Mitigation System, Melbourne, Australia, 3–5 May 2006 (* Executive Summary available separately in E, F, S & R)   | E*         |
| 128. | Twenty-fourth Session of the Assembly, Paris, 19–28 June 2007  | E, F, S, R |
| 129. | Fourth Session of the Intergovernmental Coordination Group for the Tsunami Early Warning and Mitigation System in the North Eastern Atlantic, the Mediterranean and Connected Seas, Lisbon, Portugal, 21–23 November 2007 (* Executive Summary available separately in E, F, S & R)    | E*         |
| 130. | Twenty-second Session of the Intergovernmental Coordination Group for the Pacific Tsunami Warning and Mitigation System, Guayaquil, Ecuador, 17–21 September 2007 (* Executive Summary available in E, F, S & R included)  | E*         |
| 131. | Forty-first Session of the Executive Council, Paris, 24 June–1 July 2008   | E, F, R, S |
| 132. | Third Session of the Intergovernmental Coordination Group for the Tsunami and other Coastal Hazards Warning System for the Caribbean Sea and Adjacent Regions, Panama City, Panama, 12–14 March 2008 (* Executive Summary available separately in E, F, S & R)                         | E*         |
| 133. | Eighth Session of the IOC Intergovernmental Panel on Harmful Algal Blooms, Paris, France, 17–20 April 2007 (* Executive Summary available separately in E, F, S & R)   | E*         |
| 134. | Twenty-third Session of the Intergovernmental Coordination Group for the Pacific Tsunami Warning and Mitigation System, Apia, Samoa, 16–18 February 2009 (*Executive Summary available separately in E, F, S & R)  | E*         |
| 135. | Twentieth Session of the IOC Committee on International Oceanographic Data and Information Exchange, Beijing, China, 4–8 May 2009 (*Executive Summary available separately in E, F, S & R)   | E*         |
| 136. | Tenth Session of the IOC Sub-Commission for the Caribbean and Adjacent Regions (IOCARIBE), Puerto La Cruz, Bolivarian Republic of Venezuela, 22–25 October 2008 (*Executive Summary available separately in E, F, S & R)   | E, S*      |
| 137. | Seventh Session of the IOC Sub-Commission for the Western Pacific (WESTPAC-VII), Sabah, Malaysia, 26–29 May 2008 (*Executive Summary available separately in E, F, S & R)  | E*         |
| 138. | Ninth Session of the IOC-WMO-UNEP Committee for the Global Ocean Observing System, Paris, France, 10–12 June 2009 (* Executive Summary available separately in E, F, S & R);   | E*         |
| 139. | Fifth Session of the Intergovernmental Coordination Group for the Tsunami Early Warning and Mitigation System in the North Eastern Atlantic, the Mediterranean and Connected Seas, Athens, Greece, 3–5 November 2008 (* Executive Summary available separately in E, F, S & R)         | E*         |
| 140. | Fourth Session of the Intergovernmental Coordination Group for the Tsunami and other Coastal Hazards Warning System for the Caribbean Sea and Adjacent Regions, Fort-de-France, Martinique, France, 2–4 June 2009 (* Executive Summary available separately in E, F, S & R)            | E*         |
| 141. | Twenty-fifth Session of the Assembly, Paris, 16–25 June 2009   | E, F, R, S |
| 142. | Third Session of the Joint WMO-IOC Technical Commission for Oceanography and Marine Meteorology, Marrakesh, Morocco, 4–11 November 2009  | E, F, R, S |
| 143. | Ninth Session of the IOC Intergovernmental Panel on Harmful Algal Blooms, Paris, France, 22–24 April 2009 (* Executive Summary available separately in E, F, S & R)  | E*         |
| 144. | Fifth Session of the Intergovernmental Coordination Group for the Tsunami and other Coastal Hazards Warning System for the Caribbean Sea and Adjacent Regions, Managua, Nicaragua, 15–17 March 2010 (* Executive Summary available in E, F, S & R)                                     | E*         |
| 145. | Sixth Session of the IOC Regional Committee for the Central and Eastern Atlantic Ocean, Accra, Ghana, 28–30 March 2010 (* Executive Summary available in E, F, S & R)  | E*         |
| 146. | Forty-second Session of the Executive Council; Paris, 15, 19 & 20 June 2009  | E, F, R, S |
| 147. | Forty-third Session of the Executive Council; Paris, 8–16 June 2010  | E, F, R, S |
| 148. | Sixth Session of the Intergovernmental Coordination Group for the Tsunami Early Warning and Mitigation System in the North Eastern Atlantic, the Mediterranean and Connected Seas, Istanbul, Turkey, 11–13 November 2009 (* Executive Summary available separately in Ar, E, F, S & R) | E*         |
| 149. | Seventh Session of the Intergovernmental Coordination Group for the Tsunami Early Warning and Mitigation System in the North Eastern Atlantic, the Mediterranean and Connected Seas, Paris, France, 23–25 November 2010 (* Executive Summary available separately in Ar, E, F, S & R)  | E*         |
| 150. | Sixth Session of the Intergovernmental Coordination Group for the Tsunami and other Coastal Hazards Warning System for the Caribbean Sea and Adjacent Regions, Santo Domingo, Dominican Republic, 26–29 April 2011 (* Executive Summary available in E, F, S & R)                      | E*         |