



INTERGOVERNMENTAL OCEANOGRAPHIC COMMISSION
(of UNESCO)

Fourth Session of the Intergovernmental Coordination Group for the Tsunami and other Coastal Hazards Warning System for the Caribbean and Adjacent Regions

Fort-de-France, Martinique
2–4 June 2009

EXECUTIVE SUMMARY REPORT

In accordance with Rule of Procedure 48.3, ICG/CARIBE EWS, as a primary Subsidiary Body of IOC, is required to report to a Governing Body on its sessions.

The IOC Assembly at its 25th Session will be invited to consider this Executive Summary.

- 1 The Fourth Session of the Intergovernmental Coordination Group for the Tsunami and Other Coastal Hazards Warning System for the Caribbean and Adjacent Regions (ICG/CARIBE EWS-IV), was held in Fort-de-France, Martinique, 2–4 June, 2009. The meeting was attended by nearly 60 participants from 11 countries in the Caribbean Region and six regional organizations.
- 2 **The ICG reviewed the progress** made during the intersessional period, noted reports and recommendations from its Working Groups and received progress reports on training activities, as well as, on the process of nominations of Tsunami Warning Focal Points (TWFP) and Tsunami National Contact (TNC): up to 2 June 2009, 23 Member States have now confirmed tsunami focal point information (both TNC and TWFP).
- 3 **The ICG approved the criteria** for a Regional Tsunami Warning Centre as defined in “Technical, Logistical, and Administrative Requirements of a Regional Tsunami Warning Centre for the CARIBE EWS”, (Doc. ICG/CARIBE-EWS IV/13).
- 4 **The ICG acknowledged with thanks** the significant resources from the Government of France (Programme INTERREG III-B and INTERREG IV-B Espaces Caraïbes) and the Government of Italy (via the United Nations Development Programme – Barbados and the Organization of Eastern Caribbean States) for activities on natural hazard vulnerability and risk reduction, including tsunami and coastal hazards.
- 5 **The Group agreed** to convene a hands-on-training workshop in 2010 in a Member State that has been affected by a tsunami and that has a community-based warning system in place.

- 6 **The ICG decided** to establish the Caribbean Tsunami Information Centre (CTIC) and endorsed the Barbados proposal to host the CTIC. **The ICG recommended** as well to update continuously the CARIBE-EWS Implementation Plan for the Establishment of the Tsunami and other Coastal Hazards Warning System for the Caribbean in order to better assess the implementation rate and performance measures (Ref. IOC-ICG/CARIBE EWS-III/13).
- 7 **The ICG endorsed** the list of criteria and standards for the sea level stations in the Caribbean as described in the IOC/JCOM/GLOSS/PRSN Caribbean Training Course for Operators of Sea Level Stations and defined in the section 3.1.3 of the Implementation Plan.
- 8 **The ICG endorsed** the new and expanded core network of sea level stations in the region as defined in the Implementation Plan.
- 9 **The ICG decided** to hold its Fifth Session (ICG/CARIBE EWS-V) in March 2010 and **recommended** to accept the offer from the Government of Nicaragua to host it. The ICG extended its deep appreciation to the Government of France and the *Conseil Général de La Martinique* for hosting the meeting.
- 10 Based on the reports of the Four Working groups and the discussions at the plenary sessions, **the ICG adopted** seven Recommendations: (i) Monitoring and Detection Systems, Warning Guidance; (ii) Hazard assessment; (iii) Warning, dissemination and communication; (iv) Preparedness, readiness and resilience; (v) Regional Tsunami Warning Centre; (vi) Caribbean Tsunami Information Centre (CTIC); (vii) CARIBE-EWS Budget for the Biennium (2020–2011).

ANNEX I

AGENDA

1. WELCOME AND OPENING

- 1.1. DR PETER KOLTERMANN, HEAD OF THE TSUNAMI COORDINATION UNIT, UNESCO'S INTERGOVERNMENTAL OCEANOGRAPHIC COMMISSION
- 1.2. DR LORNA INNISS: DEPUTY DIRECTOR, COASTAL ZONE MANAGEMENT UNIT
- 1.3. MR CLAUDE LISE, SENATEUR ET PRESIDENT DU CONSEIL GENERAL DE LA MARTINIQUE

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. REPORTS FROM UN AND NON UN AGENCIES
 - 3.4.1 CTBTO report on availability and access to IMS data**
- 3.5. STATUS OF OTHER ICGS
- 3.6. NATIONAL PROGRESS REPORTS
- 3.7. 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. POLICY MATTERS

5.1. ESTABLISHMENT OF A CARIBBEAN TSUNAMI WARNING CENTER

5.2. ESTABLISHMENT OF A CARIBBEAN TSUNAMI INFORMATION CENTER (CTIC)

5.3. SECRETARIAT TO ICG/CARIBE EWS

5.4 ICG/CARIBE EWS COMMENTS TO THE WG TOWS REPORT

6. UPDATES TO THE CARIBE EWS IMPLEMENTATION PLAN

7. PROGRAMME AND BUDGET FOR 2010–2011

8. NEXT MEETING

8.1. CONFIRMATION OF DATE AND PLACE OF ICG/CARIBE EWS-V

8.2. TARGET DATE FOR ICG/ CARIBE EWS-VI

9. ANY OTHER BUSINESS

10. ADOPTION OF DECISIONS AND RECOMMENDATIONS

11. CLOSE OF MEETING

ANNEX II

ADOPTED RECOMMENDATIONS

Recommendation ICG/CARIBE EWS-IV.1

MONITORING AND DETECTION SYSTEMS, WARNING GUIDANCE

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

Noting the report of Working Group 1 Monitoring and Detection Systems, Warning Guidance,

Having considered the reports of the Regional Seismic Network Operators Workshop (Trinidad and Tobago, 2008), the IOC/JCOMM/GLOSS/PRSN Caribbean Training Course for Operators of Sea Level Stations (Puerto Rico, 2008),

Having reviewed the status of the seismic and sea level stations in the region,

Endorses the revised core network of seismic stations as defined in the section 3.1.2 of the CARIBE-EWS Implementation Plan;

Recognizes and acknowledges the efforts of member states and stakeholders in the continued improvement quality of the seismic data and the number of seismic stations contributing to the CARIBE EWS,

Encourages that the continuous seismic data be sent to global data centres to facilitate research to improve the understanding of the seismic hazards;

Welcomes the Memorandum of Cooperation between the CTBTO and IOC to facilitate the access of primary and secondary data to the CARIBE-EWS;

Endorses the new and expanded core network of sea level stations as defined in the section 3.1.3 of CARIBE EWS Implementation Plan;

Recognizes that the existing network of sea level stations in the region does not meet the needs of the CARIBE EWS as defined in the core network;

Urges Member States and other stakeholders to provide funding to support the acquisition, installation, maintenance and operation of core seismic and sea level stations contributing data to meet the full needs of the CARIBE-EWS and strengthen the communication systems of the monitoring centres exchanging data with the warning centres to ensure data availability;

Acknowledges that the United States plans to install eleven (11) sea level stations in the region;

Acknowledges also NOAA NESDIS for providing a GOES channel for the near real time transmission of Caribbean Sea level data;

Endorses the list of criteria and standards for the sea level stations in the Caribbean as described in the IOC/JCOMM/GLOSS/PRSN Caribbean Training Course for Operators of Sea Level Stations and defined in the section 3.1.3 of the CARIBE EWS Implementation Plan.

Recommendation ICG/CARIBE EWS-IV.2

HAZARD ASSESSMENT

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

Having considered the Report of Working Group 2 on Hazard Assessment (ICG/CARIBE-EWS IV/10),

Recalling the ICG/CARIBE-EWS II-III 3.3 Recommendations Status Report,

Acknowledging with appreciation the excellent work of the Norwegian Geotechnical Institute NGI, in support of the CARIBE EWS,

Noting that France has conducted and is planning several bathymetric mapping projects, and United States is conducting mapping activities,

Noting the benchmarks described in NOAA Technical Memorandum OAR PMEL-135, Standards, Criteria and Procedures for NOAA Evaluation of Tsunami Numerical Models (<http://nctr.pmel.noaa.gov/> benchmark and the corresponding document for ICG/IOTWS) for inundation modelling and forecasting,

Recognizes the importance of developing methodologies that ensure compatibility of tsunami computer models for propagation and inundation modelling and forecasting;

Agrees that ICG/CARIBE EWS propose to TOWS to establish a task team as soon as possible to develop appropriate modelling standards;

Supports the recommendation to evaluate shallow bathymetry obtained from satellite imagery;

Encourages Member States to obtain bathymetric data from deep to shallow water, in support of modelling efforts, especially in the transition depths from 30 to 200 metres, as well as coastal topographic data;

Instructs Working Group 2 to revisit recommendation ICG/CARIBE EWS-III.2 to identify priority areas that need ICG attention;

Further instructs Working Group 2 to report to ICG Officers no later than 30 September 2009 for subsequent submission by the secretariat to Member States for their comments and for consideration at ICG/CARIBE EWS-V.

Financial Implications: None

Recommendation ICG/CARIBE EWS-IV.3

WARNING, dissemination and COMMUNICATIONS

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

Recalling Recommendation ICG/CARIBE-EWS-III.3,

Recognizing the urgent need to establish protocols for warning, dissemination and communication for the Tsunami and other Coastal Hazard Warning System for the Caribbean Sea and Adjacent Regions,

Noting the adoption by WMO of the International Telecommunications Union (ITU) Common Alerting Protocol (CAP) standard,

Urges Member States to work with WMO to resolve any GTS programming problems, and to consider EMWIN as an alternate primary system to GTS, therefore embracing it as an official method for receiving tsunami alerts;

Further urges Member States to ensure the necessary close cooperation between national authorities such as National Meteorological and Hydrological Services NMHS and Tsunami Warning Centres to receive and transmit tsunami-related data and information, e.g. using the WMO's GTS;

Requests the Secretariat to translate into French and Spanish the adapted IOC Country Assessment Questionnaire and submit to non-CDERA Member States for complete inventory of their communications capabilities;

Urges Member States to work to standardize national protocols and operating procedures to reduce response time; and to inform about the development of response protocols based on the results of the CDERA Tsunami and Coastal Hazards Warning System Project;

Request Member States Tsunami Warning Focal Points to actively participate in the interim regional warning centre communication tests.

Recommendation ICG/CARIBE EWS-IV.4

Preparedness, Readiness and Resilience

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

Recalling Recommendation ICG CARIBE-EWS III.4,

Taking note of the Working Group 4 Progress Report, including the recommendations from the workshop on "Best Practices on Tsunami and Coastal Hazards Community Preparedness and Readiness in Central America and the Caribbean" held in Panama, in August of 2008,

Recognizing the significant resources from the Government of France (Programme INTERREG III-B and INTERREG IV-B Espaces Caraibes) and the Government of Italy (via the United Nations Development Programme - Barbados and the Organisation of Eastern Caribbean

States) for activities on natural hazard vulnerability and risk reduction, including tsunami and coastal hazards;

Urges Member States to consider the recommendations of the “Best Practices on Tsunami and Coastal Hazards Community Preparedness and Readiness” workshop;

Recommends that, following the example of the Tsunamis in the Caribbean Symposium held in Venezuela in October 2008, Member States consider promoting the participation of the local communities in similar types of events;

Decides to convene a hands-on training workshop in 2010 in a Member State that has been affected by a tsunami and that has a community-based warning system in place, and invite Member States to volunteer to host such a training workshop.

Financial implications: None

Recommendation ICG/CARIBE EWS-IV.5

Regional Tsunami Warning Centre

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

Recalling IOC Resolution EC XLI.6, Recommendations ICG/CARIBE EWS-II.3, II.12 and III.1, and the CARIBE-EWS Implementation Plan,

Acknowledges the interim services provided by the Pacific Tsunami Warning Center (PTWC) to Members States of Caribbean and Adjacent Regions;

Considering the technical, logistical, and administrative requirements of a Regional Tsunami Warning Centre for the CARIBE EWS developed by Working Group 1 on Monitoring and Detection Systems and Warning Guidance (Doc. ICG/CARIBE-EWS V/13),

Welcomes and appreciates the United States deliberations to establish a Caribbean Tsunami Warning Center in Puerto Rico, USA;

Approves the criteria for a Regional Tsunami Warning Center as identified in the Working Group 1 report on the “Technical, Logistical, and Administrative Requirements of a Regional Tsunami Warning Centre for the CARIBE EWS”, (Doc. ICG/CARIBE-EWS IV/13);

Invites Member States to submit proposals for the establishment of a Caribbean Tsunami Warning Centre;

Urges Member States to support the development of monitoring and observing capacity in accordance with the criteria identified in the “Technical, logistical and administrative requirements of a Regional Tsunami Warning Centre for the CARIBE EWS” in support of a Caribbean Tsunami Warning Centre.

Financial implications: None

Recommendation ICG/CARIBE EWS-IV.6

CARIBBEAN TSUNAMI INFORMATION CENTRE (CTIC)

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

Notes with appreciation the work of the Coastal Zone Management Unit, Barbados in providing interim CTIC services to the region with the help of ITIC;

Further notes with appreciation that the UNDP has received € 430,000 from the Government of Italy for the establishment of CTIC during the period 2009–2011, as well as that IOC has considered USD 30,000 for CTIC in its Regular Budget 2010–2011;

Declares that the CTIC would provide services to the all ICG/CARIBE-EWS Members States reflecting the full multi-cultural and multi-lingual character of the region;

Recognizes that existing institutions within the region e.g. CRID, CDERA, CEPREDENAC are potential partners of the CTIC;

Takes note of the possibility of using the mechanism of temporary secondments to CTIC, which would facilitate contributions by Member States, language diversity and enhanced Member States' access to dedicated services, capacity building, and adoption of best practices;

Encourages Member States and donors to consider reinforcing the CTIC through the mechanism of secondments;

Acknowledges that Nicaragua and France have indicated a willingness to support the secondment of technical staff to the CTIC and to support the work of CTIC through the provision of technical services and data from existing equipment;

Further acknowledges that France has indicated its willingness to provide support for activities in, and related to, the French-speaking territories in the Caribbean;

Welcomes the offer by France to liaise between the ICG/CARIBE-EWS and the European Commission regarding regional cooperation in the field of civil protection, in order that the needs of the Caribbean zone are taken into account;

Acknowledges that the ITIC has offered to provide technical assistance, training, public awareness materials and other support as requested by the CTIC;

Notes the need for consideration of harmonization between the ITIC and the CTIC especially in relation to those countries having both Pacific and Caribbean coasts,

Requests that the budget of CTIC consider funding to secure continued cooperation and reinforcement of links among National Emergency Managers from all Member States within the Caribbean;

Recommends that Member States identify funding for CTIC activities within their annual regular budgets;

Decides to establish the CTIC and **endorses** the Barbados proposal to host the CTIC.

Instructs the Secretariat to initiate negotiations as soon as possible with UNDP and the Government of Barbados towards the definition of the administrative and logistic arrangements that will lead to establishing and launching CTIC in 2009.

Financial implications: US\$ 30,000 from the Regular Programme Budget
€ 430,000 from UNDP/Italy

Recommendation ICG/CARIBE EWS-IV.7

CARIBE-EWS BUDGET FOR THE BIENNIUM (2010–2011)

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 sustained funding for building and maintaining the CARIBE-EWS,

Recalling the decisions and results of ICG/CARIBE EWS-II, Recommendation ICG/CARIBE EWS-II.10 and IOC Resolutions XXIII-13 and XXIV-13,

Emphasizing the need for enhancing the tsunami warning aspects in a multi-hazards approach in order to use other available systems and financial sources,

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,

Bearing in mind that almost all Member States have a communication system (GTS/EMWIN) at their National Meteorological and Hydrological Services that can be used as the backbone communication system for tsunami warnings,

Having considered the decision of the ICG/CARIBE EWS-II to establish a Regional Tsunami Warning Centre;

Considering also the forthcoming establishment of the CTIC;

Further considering the Recommendations of the ICG/CARIBE-EWS III in Panama City along with its Implementation Plan,

Recommends to update continuously the CARIBE-EWS Implementation Plan for the establishment of the Tsunami and Other Coastal Hazards Warning System for the Caribbean and Adjacent Regions in order to better assess the implementation rate and performance measures;

Invites Member States to indicate the funding they make available to their own national Tsunami Warning Systems and to contribute to the operation of the CARIBE-EWS;

Urges the IOC Secretariat to seek financial resources to implement the Tsunami and other Coastal Hazards Warning System for the Caribbean Sea and Adjacent Regions, noting that IOC has allocated US\$ 60,000 from the Regular Budget 2010–2011 to ICG/CARIBE-EWS to support activities of the interim Secretariat.

Financial Implication: in US\$

CARIBE-EWS Programme and Budget Biennium 2010–2011

		Extra Budgetary		
		Regular Budget	Not available	Available
Capacity Building	30,000	150,000	90,000	270,000
Comm. & Equipment	000		4,980,000	4,980,000
Data collection & Mapping			10,164,000	10,164,000
Administration	30,000			30,000
Operational Warning Services			280,000	280,000
Outreach Education	000		3,093,000	3,093,000
Permanent Secretariat	000	450,000		450,000
TOTAL	60,000	600,000	18,607,000	19,267,000