



INTERGOVERNMENTAL COORDINATION GROUP FOR THE TSUNAMI AND OTHER COASTAL HAZARDS WARNING SYSTEM FOR THE CARIBBEAN AND ADJACENT REGIONS (ICG/CARIBE EWS)¹

ORGANIZATIONAL STRUCTURE AND GOVERNANCE

ICG/CARIBE EWS Organizational Structure and Governance

The Intergovernmental Coordination Group for the Tsunami and Other Coastal Hazards Warning System for the Caribbean and Adjacent Regions (ICG/CARIBE EWS) is a subsidiary body of the Intergovernmental Oceanographic Commission (IOC) of the United Nations Educational, Scientific, and Cultural Organization (UNESCO). It was established in 2005, and is currently comprised of 28 IOC Member States, 12 Territories, 7 Associate Member States of UNESCO and 1 Observer Member State in the Caribbean and Adjacent Regions (Annex 1). The CARIBE EWS also has several Invited Observer Organizations (Annex 2). Each Member State is responsible for officially designating a Tsunami National Contact (TNC), a Tsunami Warning Focal Point (TWFP), as well as a National Tsunami Warning Center (NTWC).

The ICG/CARIBE EWS coordinates international tsunami warning and mitigation activities including the issuance of timely and understandable tsunami bulletins in the Caribbean and comprehensive tsunami mitigation programmes which include complementary and sustained activities in tsunami hazard risk assessment, tsunami warning and emergency response, and preparedness. Stakeholder involvement and coordination is essential, and community-based, people-centered mitigation activities will help to build tsunami resiliency.

More information on the ICG/CARIBE EWS is available from <http://www.ioc-tsunami.org>.

The following describes the various components of the ICG and how they work together to enable an effective international warning system.

Intergovernmental Coordination Group (ICG)

The ICG/CARIBE EWS is an IOC subsidiary body that reports to the IOC Assembly or Executive Council. It was established by IOC Resolution XXIII-13 in 2005 as a regional international body and has met every year since 2006.

¹ Updated March 21, 2019

Official delegates to the ICG/CARIBE EWS represent member states' interests in the ICG/CARIBE EWS. The ICG/CARIBE EWS activities are member state driven according to the needs of the region taking the advice of experts contributing to Working Groups and other tertiary bodies. As a regional subsidiary body, the ICG/CARIBE EWS Terms of Reference specify that it is comprised of Member States in that region. Non IOC Member States and countries outside the region, and organizations are considered Observers to the ICG/CARIBE EWS.

In addition to the ICG/CARIBE EWS, the ICG/PTWS was established by IOC in 1965 as a regional international body, and has met every two years since 1968. In 2005 ICG's were also established for the Indian Ocean (ICG/IOTWS), and North East Atlantic and Mediterranean and Connected Seas (ICG/NEAMTWS), and have met regularly starting in 2005. The development of these systems is based on a basin-focused strategy and approach that considers the characteristics of the region and the communities at risk. It acknowledges a region's unique oceanographic, geophysical, technical, educational, cultural, and political interests.

Officers

ICG/CARIBE EWS leadership is guided by member state's elected Officers (Chairperson, 3 Vice-Chairpersons) along with the elected Officers (Chair and Vice Chairs) of the Working Groups. The Chairperson shall declare the opening and closing of each session, direct the discussions, ensure observance of the Rules of Procedure, accord the right to speak, put questions to the vote and announce decisions. He/She shall rule on points of order and, subject to the Rules of Procedures, shall control the proceedings and maintain order and shall strive to work by consensus (IOC Rule of Procedure 38). The Vice-Chairpersons shall be responsible for assisting the Chairperson, taking over from him/her in the event of his/her absent (from a meeting) or indisposition and by undertaking special tasks allocated to him/her by the Chairperson (IOC Manual).

Working Groups

ICG/CARIBE EWS work is enabled through Working Groups (WG). Intra-sessional (or sessional) WGs work during an ICG session and report back to the ICG session in which they were established. Inter-sessional WGs work between ICG sessions and report at the next ICG session. Inter-sessional WGs may decide to meet, or may carry their work out through e-mail, teleconferences, in-person meetings, or other means. Terms of Reference for WGs are stated through Recommendations endorsed by the ICG. The Recommendation may also state the WG members. A WG Chair may be designated by the ICG or elected by WG members. The Chair provides leadership for the WG and is responsible for annual written reports summarizing its work. Working Group members are nominated by Member States according to their individual abilities to contribute to the tasks of the WG. The nomination should be accompanied by a CV of the candidate. A WG should dissolve after its tasks have been completed. The ICG/CARIBE EWS has the following four working groups:

WG1: Monitoring and Detection Systems.

Purpose: To review and recommend to the ICG priorities and actions required towards the full establishment of a coordinated regional tsunami warning system.

Tasks:

- Advise member states on the monitoring and detection capabilities needed for operating national tsunami warning centers.
- Define the threshold criteria for the monitoring and warning systems.
- Assure the compliance with the agreed standards for the detection systems.
- Ensure the effectiveness of the warning system by promoting the open exchange of seismic, sea level and other observational data in real time.
- Promote the sharing of experience and expertise, and capacity building essential to the effective monitoring and issuance of warnings.
- Support the establishment of a fully interoperable regional tsunami warning system.

WG2: Hazard Assessment

Purpose: To advise the ICG on the identification and characterization of coastal hazards, their assessment and the required modelling.

Tasks:

- Review and evaluate the required methods and data sets, including bathymetry and coastal topography for determining the coastal hazards.
- Advise the member states on the requirements for operating the appropriate models.
- Develop capacity building for the appropriate modelling.

WG3: Tsunami Related Services

Purpose: To examine current and developing capacities in each country of the region and advise the ICG about the definition and composition of early warnings and tsunami products and the methods and best practices for effective procedures for end to end communication and dissemination of early warnings and tsunami products.

Tasks:

- Explore and document the capabilities for dissemination of existing guidance and alerts in the countries of the region.
- Identify the difficulties and challenges existing in the region for effective “end to end” communication and dissemination of early warnings.
- Establish strategies for the development and implementation of methods and technologies to strengthen the interaction with the media and dissemination of early warnings in the countries of the region.

- Evaluate communication tests and tsunami exercises, in order to identify weaknesses and make recommendations to help strengthen these delivery systems.
- Create communication protocol and standardized information identifying the minimum acceptable levels for communication and dissemination of tsunami early warning in all countries for approval by the ICG.
- Provide feedback to the Pacific Tsunami Warning Center (PTWC), as the CARIBE-EWS TSP, to help make its tsunami products for the CARIBE-EWS more understandable, actionable, and otherwise effective.
- Serve as a reviewing and approving body for proposed changes to PTWC products for the CARIBE-EWS, or determine that the proposed changes warrant going to the ICG for review and approval.

WG4: Preparedness, Readiness and Resilience

Purpose: To advise and recommend to the ICG strategies to enhance public awareness, education and resilience capacities and to develop the necessary recommendations, tools and procedures..

Tasks:

- Identify the public awareness and education strategies and tools that the Member States can integrate into their risk reduction and emergency management programs.
- Support the development of guidelines for preparedness, response and recovery plans for communities and local governments and organisations which should include sharing of training and evacuation best practices.
- To closely cooperate with the Caribbean Tsunami Information Centre (CTIC) in carrying out its mandate and in the implementation of its program.

Group of Experts for Other Coastal Hazards

Purpose:

To develop and recommend to the ICG a work and implementation plan to enhance the warning system by including other coastal hazards.

Functions:

1. Advise and seek advise from member states about other coastal hazards that can be included into the warning system.
2. Determine the scope and the stakeholders should be involved in the planning to enhance the warning system by including other coastal hazards.
3. Identify the opportunities, difficulties and challenges existing in the region for effective implementation of a plan to enhance the warning system by including other coastal hazards.
4. Establish strategies for the development and implementation of the plan to enhance the warning system by including other coastal hazards.

5. Develop an action plan composed of action steps, responsibilities, timelines, cost estimations, indicators and communications strategy.
6. Support the implementation of the plan to enhance the warning system by including other coastal hazards.
7. Promote the sharing of experience, expertise and capacity building.

Task Teams (TT)

Task teams are small ad hoc subsidiary bodies formed by the ICG/CARIBE EWS to carry out specific tasks. Upon completion of the assigned tasks, the task team is disbanded. The Member States concerned normally appoint the corresponding governmental experts. The ICG/CARIBE EWS also nominates a Chairperson and a Vice-Chairperson. The members, chairs and vice chairs normally serve for one intersessional period, unless there is a decision for renewal. In the Intersessional Period 2018-2019 there are five task teams: Tsunami Ready, CARIBE WAVE, Tsunami Procedures for Volcanic Crisis, Tsunami Evacuation Maps and CTIC Terms of Reference and Business Model.

National Tsunami Warning Centre (NTWC)

A centre officially designated by a government to monitor and issue tsunami warnings and other related statements within their country according to established National Standard Operating Procedures.

Tsunami National Contact (TNC)

The person designated by an ICG Member State government to represent his/her country in the coordination of international tsunami warning and mitigation activities. The person is part of the main stakeholders of the national tsunami warning and mitigation system program.

Tsunami Warning Focal Point (TWFP)

A 24 x 7 point of contact (office, operational unit or position, not a person) officially designated by the NTWC or the government to receive and disseminate tsunami information from an ICG Tsunami Service Provider according to established National Standard Operating Procedures. The TWFP may or not be the NTWC.

Tsunami Service Provider (TSP)

A Tsunami Service Provider (TSP) is a Centre that monitors seismic and sea level activity and issues timely tsunami threat information within an ICG framework to National Tsunami Warning Centres/Tsunami Warning Focal Points and other TSPs operating within an ocean basin. The NTWCs/TWFPs may use these products to develop and issue tsunami warning for their countries. TSPs may also issue Public messages for an ocean basin and act as National

Tsunami Warning Centres providing tsunami warnings for their own countries. Several ICG Tsunami Service Providers have been established.

Bi-lateral, multi-lateral and subregional arrangements may also exist to provide products for a sub set of Member States within an ICG. The criteria may or may not be established by the ICG.

In the case of the ICG/CARIBE EWS, the TSP is the US Pacific Tsunami Warning Center. A sub regional TSP, the Central America Tsunami Advisory Center (CATAC), is in the process of being established in Nicaragua.

Invited Observer Organizations

Observer organizations can be a UN or non-UN regional and international organizations contributing significantly to the ICG/CARIBE EWS. These organizations include technical and scientific bodies, as well as emergency and disaster management organizations. Annex 2 has a list of these organizations.

Tsunami Unit (TSU) - IOC Secretariat

The IOC Tsunami Unit (TSU) presently coordinates the four tsunami warning and mitigation systems and works to identify the commonalities in terms of specifications, guidelines, standards, procedures and processes including developing synergies with existing technical groups dealing with related matters. The TSU as part of the IOC Secretariat is located through several offices including at UNESCO Headquarters in Paris, France, and UNESCO Office in Jakarta, Indonesia and through hosting arrangements in Perth, Australia Suva, Fiji and Bridgetown, Barbados. It is composed of the Unit Head, the Secretariats of the ICGs, and technical and professional staff. The TSU provides guidance for the final integration of ICG's basin-driven work that occurs at the IOC Governing Bodies level.

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

Through Resolution XXIV-14 the IOC Assembly at its 24th Session decided on the establishment of a Working Group on Tsunamis and Other Hazards Related to Sea-Level Warning and Mitigation Systems (TOWS-WG). It is tasked primarily to advise the IOC Governing Bodies on co-ordinated development and implementation activities on warning and mitigation systems for tsunamis and other hazards related to sea level of common priority to all Intergovernmental Coordination Groups for regional Tsunami Warning and Mitigation Systems (ICG/TWSs). The Chair of the ICG/CARIBE EWS represents the ICG in the WG. The Working Group also has two task teams: Tsunami Watch Operations and Disaster Management and Preparedness. The Task Team members are nominated by the respective ICG chairs and the chair is appointed by the IOC chairs.

ICG/CARIBE EWS Secretariat

The IOC Executive Secretary provides, upon request by the IOC governing bodies, secretarial support for the ICG. The ICG/CARIBE EWS Technical Secretary (CTS) coordinates and facilitates the activities of the ICG, interacting directly with Member States and regional organizations. The CTS oversees in coordination with the ICG/CARIBE EWS Officers the arrangement, conduct, and reporting of the ICG's sessions and other meetings. The CTS facilitates the ICG's Action Plan working with Member State Tsunami National Contacts for overall international activities, with Tsunami Warning Focal Points for issues directly related to tsunami bulletins, and with the PTWC. The ICG/CARIBE EWS Technical Secretary is part of the IOC's Tsunami Unit.

Caribbean Tsunami Information Center (CTIC)

The Caribbean Tsunami Information Centre (CTIC) is a partnership initiative between the Government of Barbados and the Intergovernmental Oceanographic Commission of the United Nations Educational, Scientific and Cultural Organisation (UNESCO/IOC). This partnership was formalized with the signing of a Memorandum of Understanding (MOU) between the Government of Barbados and UNESCO/IOC in 2013 and renewed in 2017. The CTIC is established at the Coastal Zone Management Unit (CZMU), Barbados under the auspices of the Ministry. Its work is focused on four strategic areas:

- Tsunami knowledge, awareness and education in the Caribbean and adjacent regions is improved.
- A technical training programme for improving tsunami preparedness is established.
- Strategic partnerships and resources to advance the functions of CTIC are enhanced.
- An effective programme for monitoring the ICG/CARIBE EWS system is established.

As of October 2018 a Programme Officer for Coastal Hazards and for the Caribbean Tsunami Information Center (CTIC), member of the IOC's Tsunami Unit, is co-located with CZMU, in Barbados, in the framework of the above-indicated MOU.

The CTIC will benefit from partnership with regional organizations ([Caribbean Tsunami Warning Program](#), [SRC](#), [CIMH](#), [CCCCC](#), [CRID](#), [UN-ISDR](#)) as well as draw on the support of regional disaster management organizations ([CDEMA](#), [CEPREDENAC](#) and [EMIZA](#)). The [International Tsunami Information Center](#) (ITIC) has also providing support and guidance in the development and operations of the CTIC. The activities of the CTIC have been executed to date largely through funding received from an ERC Project, UNESCO/IOC and USAID/OFDA. It also pursues partnerships with regional technical agencies, as well as financial support from donor agencies and contributions from ICG/CARIBE EWS Member States.

Caribbean Tsunami Warning Program (CTWP)

The Caribbean Tsunami Warning Program (CTWP) was established by the US NWS in Mayagüez, Puerto Rico in 2010 in support of the ICG/CARIBE EWS. The office supports an increased capability of the tsunami observational system and the continued enhancement of

tsunami outreach and education capacity, including the coordination of the annual CARIBE WAVE exercise and implementation of the TsunamiReady® and Tsunami Ready Programs. The CTWP works closely with the seismic, sea level and GNSS station operators and the designated National Tsunami Warning Focal Points, National Tsunami Warning Centers and Tsunami National Contacts and the Pacific Tsunami Warning Center as well as providing technical and training services in compliment to the activities of CTIC.

Pacific Tsunami Warning Center (PTWC)

The [Pacific Tsunami Warning Center](#) (PTWC) serves as the Tsunami Service Provider for the ICG/CARIBE EWS. The US National Tsunami Warning Center serves as a backup to the PTWC. The TSP issues tsunami information statements and alerts to designated national authorities in support of their responsibilities to inform and protect their populations.

IOC decisions on ICG/CARIBE EWS

ICG/CARIBE EWS Resolutions and Recommendations are developed by Member States in coordination with the Secretariat. These are reported to the next IOC Governing Body meeting for endorsement and official adoption

Cooperation with other organizations

The ICG/CARIBE EWS, through CTIC, PTWC, CTWP and the ICG/CARIBE EWS Secretariat, cooperates with international agencies in order to support, sustain, and coordinate its operational tsunami warning and mitigation system. The ICG/CARIBE EWS's goal is to save lives, property and livelihood, and as such, seeks to work in partnership with all appropriate agencies. The IOC's United Nations partners include, for example, the IOC Sub-Commission for the Caribbean and Adjacent Regions (IOCARIBE), the International Strategy for Disaster Reduction (ISDR), the United Nations Development Programme (UNDP), the World Meteorological Organization (WMO) and the Preparatory Commission for the Comprehensive Nuclear-Test-Ban Treaty Organization (CTBTO). Specialized and regional organizations include the Incorporated Research Institutions for Seismology (IRIS), International Union of Geodesy and Geophysics Tsunami Commission (IUGG-TC), Non-profit university-governed consortium for geoscience research and education using geodesy (UNAVCO), the Caribbean Disaster and Emergency Management Agency (CDEMA), and Centro de Coordinación de la Prevención de Desastres Naturales en América Central (CEPREDENAC) and EMIZA (Emergency Management Agency French Antilles).

User's Guide for the Pacific Tsunami Warning Center Enhanced Products for the CARIBE EWS

The User's Guide is intended for use by National Tsunami Warning Focal Points and National Tsunami Warning Centres as customers receiving the tsunami services from the PTWC as the CARIBE/EWS Tsunami Service Provider. It includes a summary of the operational procedures, instrument networks used, criteria for the reporting and issuing of tsunami alerts, recipients of

the information, and the methods for message transmission, as well as a number of Annexes that provide explanatory and background information on technical evaluation methods and other guidance in order to assist customers in understanding the products that are issued. The User's Guide was published in [2017](#).

ICG/CARIBE EWS Tsunami Service Model

At ICG XI the Logistical and Administrative Requirements of a Regional Tsunami Service Provider for the Caribe-EWS was approved. It was published as Annex IV to the ICG XI report and can be accessed at <http://www.weather.gov/media/ctwp/PDF/ICG-CARIBE-EWS-XI.pdf>

ANNEX 1

IOC CARIBE EWS Member States

1. Bahamas
2. Barbados
3. Belize
4. Brazil
5. Colombia
6. Costa Rica
7. Cuba
8. Dominica
9. Dominican Republic
10. France (Guadeloupe, Guyane, Martinique, Saint Martin, St. Barthelemy)
11. Grenada
12. Guatemala
13. Guyana
14. Haiti
15. Honduras
16. Jamaica
17. Mexico
18. Netherlands (Aruba***, Bonaire, Curacao***, Saba, Sint Maarten***, Sint Eustaius).
19. Nicaragua
20. Panama
21. Saint Kitts and Nevis
22. Saint Lucia
23. Saint Vincent and the Grenadines
24. Suriname
25. Trinidad and Tobago
26. United Kingdom of Great Britain & Northern Ireland (Anguilla***, Bermuda, British Virgin Islands***, Cayman Islands***, Montserrat***, Turks and Caicos)
27. United States (Puerto Rico and US Virgin Islands)
28. Venezuela (Bolivarian Republic of)

***UNESCO Associate Member States participating in IOC CARIBE EWS

IOC CARIBE EWS Observer Member States

1. Antigua and Barbuda (UNESCO, but not IOC, Member State)
2. Canada
3. Peru

ANNEX 2

Observer Organizations

1. Caribbean Disaster and Emergency Management Agency (CDEMA)
2. Caribbean Institute of Meteorology and Hydrology (CIMH)
3. Coordination Centre for the Prevention of Natural Disasters in Central America (CEPRENAC)
4. Puerto Rico Seismic Network, University of Puerto Rico, Mayagüez (PRSN)
5. Seismic Research Center, University of the West Indies, Trinidad and Tobago (SRC)
6. UNAVCO Inc., Non-profit university-governed consortium for geoscience research and education using geodesy
7. United Nations Development Program, Barbados and the OECS (UNDP)
8. World Meteorological Organization (WMO)

ANNEX 3: TWC, TWFP AND TNC NOMINATION FORMS

NATIONAL TSUNAMI WARNING CENTRE (NTWC)
and
24x7 TSUNAMI WARNING FOCAL POINT (TWFP)

NOMINATION FORM

Name of Country: _____

Place in Country*: _____

** Only if this Contact Point informed hereafter is not for the entire country's coast.*

Note that more than one Tsunami Warning Focal Point may be designated using a new form for each nomination. In case a Member State run other NTWC and TWFP in areas covered by other regional tsunami warning systems, e.g. islands or overseas jurisdictions geographically separated from main center(s), information on those contact points should be provided using the Nomination Form of the regional Tsunami Warning System they pertain.

Do you agree to share your TWFP information with other TWFP and NTWC contacts?

Yes _____ No _____

Definitions (IOC/EC-XLVII/Dec.3.2.1 (IV), 2014):

National Tsunami Warning Centre (NTWC): A centre officially designated by the government to monitor and issue tsunami warnings and other related statements within their country according to established National Standard Operating Procedures

Tsunami Warning Focal Point (TWFP): A 24 x 7 point of contact (office, operational unit or position, not a person) officially designated by the NTWC or the government to receive and disseminate tsunami information from an ICG Tsunami Service Provider according to established National Standard Operating Procedures. The TWFP may or not be the NTWC.

1. National Tsunami Warning Centre (NTWC)

NTWC Agency Name: _____

NTWC Agency Contact or Officer in Charge (person):

Name: _____

Position: _____

Telephone Number: _____

Email address: _____

Postal Address: _____

2. Tsunami Warning Focal Point (TWFP) for receiving Tsunami Bulletins

TWFP Agency name:

(if different from NTWC agency)

TWFP Agency Contact or Officer in Charge *(if different from NTWC Agency)*:

Name:

Position:

Telephone:

Email Address:

Postal Address:

TWFP 24x7 point of contact (office, operational unit or position, **not a person**):

Name of office, operational unit or position: _____

E-mail Address:

Telephone Number:

Cellular phone number:

Fax: _____

3. Designated Communication Method Information (operational on 7/24 basis).

Please specify GTS (WMO-Global Telecommunication System), AFTN (Aeronautical Fixed Telecommunications Network), Fax, or E-mail in a priority order. Note that all dissemination methods designated below will be made simultaneously by the issuing centers, but bulletins may reach their destinations at different times depending on the communication method.

Please note the following:

- In general, the GTS and AFTN dedicated, private communication methods guarantee timely receipt of bulletins within several minutes, whereas Facsimile and E-mail may incur delays of tens of minutes during peak usage times.
- Fax and E-mail alone are not the timeliest and should not be used as the primary means.
- For GTS, include the international 4-letter GTS Location Indicators used in the abbreviated headings. Location Indicators can be found at http://www.wmo.int/pages/prog/www/ois/Operational_Information/VolumeC1/CCCC_en.pdf
- For AFTN, the 8-letter Address Indicators are found in ICAO (International Civil Aviation Organization) Documents 7910 and 8585, and consist of a 4-letter location indicator and 4-letter type-of-operations indicator.

For each dissemination method, please specify the mode (GTS, email, SMS or Fax) and the addresses/contact numbers to use (GTS Location Indicator, email address(es), cellular phone number(s), Fax number):

Primary Method:

Mode (GTS, email, SMS, Fax): _____

Address/contact numbers: _____

Alternate 1:

Mode (GTS, email, SMS, Fax): _____

Address/contact numbers: _____

Alternate 2:

Mode (GTS, email, SMS, Fax): _____

Address/contact numbers: _____

Alternate 3:

Mode (GTS, email, SMS, Fax): _____

Address/contact numbers: _____

Please also specify telephone number for voice communication, in a priority order. In general, due to language barriers, the regional centre does not use voice communication as the primary means of dissemination, but as a backup or for confirmation of message receipt through the above means, when urgently needed.

Primary: _____

Alternate 1: _____

Alternate 2: _____

Alternate 3: _____

4. Comments:

Submitted by: _____

Signature: _____

Position: _____

Government Department/Agency: _____

Date: _____

UNESCO IOC
TSUNAMI NATIONAL CONTACT (TNC) FORM

Note that more than one contact point may be designated using a new Form for each

Name of Country:

Tsunami National Contact

The person designated by an ICG Member State government to represent his/her country in the coordination of international tsunami warning and mitigation activities.

Agency name:

Contact Person in Agency or Officer in Charge:

Name: _____

Position: _____

Telephone Number: _____

Fax: _____

Cellular Telephone Number: _____

E-mail Address: _____

Postal Address: _____

Comments: _____

Date: 05/07/2017_____ Submitted by: **CENAD/SEDEC**

For the CARIBE EWS send copies of correspondence to:

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