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

**WG3: Tsunami Warning Dissemination and Communication**

Communication Methods and Training Needs Report

CARIBE EWS Member States Existing Tsunami Communication Methods

and Training Needs

April 30, 2025

Introduction

The ICG/CARIBE-EWS Working Group 3 Tsunami Warning Dissemination and Communication[1] exists with the purpose of examining current and developing capacities and to advise the ICG about the definition and composition of early warnings and tsunami products and the methods and best practices for effective end-to-end dissemination and communication. In order to achieve this, in 2023-2024, with the support of the International Tsunami Information Center Caribbean Office (ITIC-CAR), it prepared and presented to the ICG at its XVII Session an Inventory of Tsunami Warning Dissemination and Communication Methods for the Caribbean and Adjacent Regions. The ICG instructed the WG 3 to use the Inventory to document the dissemination capabilities, existing alert guidance and capacity enhancement needs in each of the Member States of the ICG/CARIBE-EWS.
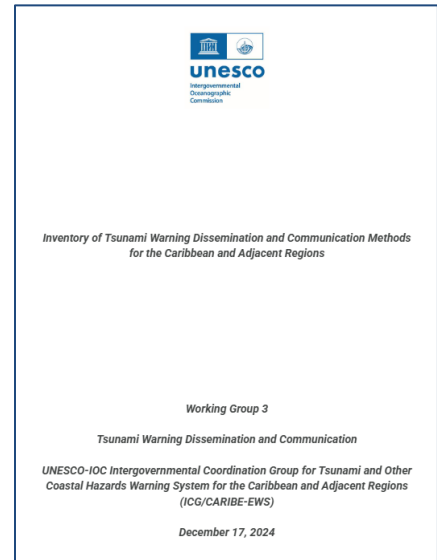
The inventory provides an overview of the methods and mechanisms used at different levels by different agencies. It addresses communication between TSP's, national authorities down to local governments, the private sector, local communities, and the media. This inventory contains over 30 methods available for the reception of TSP products and dissemination and reception of tsunami warnings and other related products, as well as the challenges of these methods, and systems for people with disabilities. It serves as a basis for inventory within Member States and to identify Capacity Development activities.

For this document, the term Warning, refers to advance notification of impending hazardous events. It does not refer to specific alert level.

In December 2024 the Working Group 3 sent an email to the ICG CARIBE EWS Member States requesting them to review the Inventory and answer a survey on the communication methods they had in place for tsunamis and their training needs in the area of communication. The request was made to the designated contacts for the National Tsunami Warning Centers and Tsunami Warning Focal Points. The Tsunami National Contact was included in the communication.

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[1] **Membership**: Asim Frett, Charles McCreery, Christa von Hillebrandt-Andrade (Chair), Eva Merceron, Gael Rakoto, Jair Torres, José Antonio Tojil Jiménez, Junior Aimable, Kaza Hippolyte, Kristel Espinoza, Mabius Francis, Maria Torres, Miguel Ángel Flores Ticay, Ocal Necmioglu, Pablo Daniel Martínez Zeceña, Racquel Davis, Rodney Martínez Güingla, Susan Hodge (Vice-Chair), Wilberth Steban Forero Wagner, Wilfried Strauch.

The most recent version of the Inventory can be accessed at the meeting website of the ICG CARIBE EWS XVIII Session.

Summary of Feedback

Thirty three of forty eight (69%) CARIBE EWS member states and territories completed the survey on communication methods employed and training needs (Table 1, Figure 2). Based on their responses, the most common method used for communicating tsunami warnings is email with 26 and 23 selections for reception and dissemination, respectively (Table 2). For reception, websites and phone call tree were also widely used, along with CISN Display. After email, for dissemination the most common methods were phone call/tree and social media platforms like Facebook, X, and Instagram, followed by WhatsApp and websites. Methods that were used by few of the respondents were AWIPS, GEONETCast Americas (GNC-A), WMO Global Maritime Distress and Safety System, AISR/AFTN, RANET Alert Watcher (RAW), Really Simple Syndication (RSS), and Slack with a total of 2 selections or less.

Concerning capacity development and training needs (Table 3), the Member States and Territories were asked to name five methods for which they would like to receive training. The top results were Common Alert Protocol (CAP), WMO Information System (WIS), GNC-A, WMO Global Maritime Distress and Safety System, and Emergency Alert System (EAS).

Table 1. Member States and Territories with Provided Responses

- Antigua & Barbuda
- Bahamas
- Barbados
- Belize
- Brazil
- Canada*
- Colombia
- Costa Rica
- France (Guadeloupe, Saint Barthelemy, Saint Martin, Martinique, Guyane)
- Grenada
- Guatemala
- Guyana
- Haiti
- Honduras
- Jamaica
- Mexico
- Netherlands (Curacao)
- Nicaragua
- Panama
- Saint Kitts and Nevis
- Saint Vincent and the Grenadines
- Trinidad and Tobago
- UK (Anguilla, British Virgin Islands, Cayman Islands)
- US (Puerto Rico)
- Venezuela

*Observer CARIBE EWS

Figure 1. Member States and Territories of the CARIBE EWS that answered the survey on tsunami warning communication methods and training needs.

Survey Results

METHOD	RECEPTION	DISSEMINATION	TOTAL RESPONSES
Email	26	23	26
Phone call/tree	10	19	20
Websites	12	17	20
Social Media (FB, X, Instagram)	6	19	19
Whatsapp	5	18	18
SMS	7	14	15
Television	4	12	13
CISN Display	12	1	13
Megaphones	2	13	13
Fixed Sirens	2	11	11
Mobile Sirens/Soundtrucks	2	11	11
Common Alert Protocol (CAP)	2	8	10
Cell Broadcast (e.g. WEA)	2	7	8
Loudspeakers	2	7	8
Amateur ("Ham") radio operators	3	8	8
Fax	7	2	7
Emergency Alert System (EAS)	4	6	7
WMO Information System (WIS - GITS/GISC)	6	1	6
US NOAA Weather Wire Service (NWWS)	5	2	5
Church Bells	1	4	4
US National Warning System (NAWAS)	3	3	4
Tsunami Flags	1	3	3
EMWIN/HRIT	3	0	3
Emergency broadcast radios (e.g. NOAA Weather Radio)	3	1	3

Advanced Weather Interactive Processing System (AWIPS)	2	1	2
GEONETCast Americas (GNC-A)	2	0	2
WMO Global Maritime Distress and Safety System	1	2	2
AISR/AFTN	1	0	1
RANET Alert Watcher (RAW)	1	0	1
Really Simple Syndication (RSS)	0	1	1
Slack	1	1	1

Table 2. Compilation of answers to the question "Which communication systems/methods are used in your country/territory for the reception (including CATAC and PTWC) and dissemination of tsunami products and warnings?"

Training Priorities
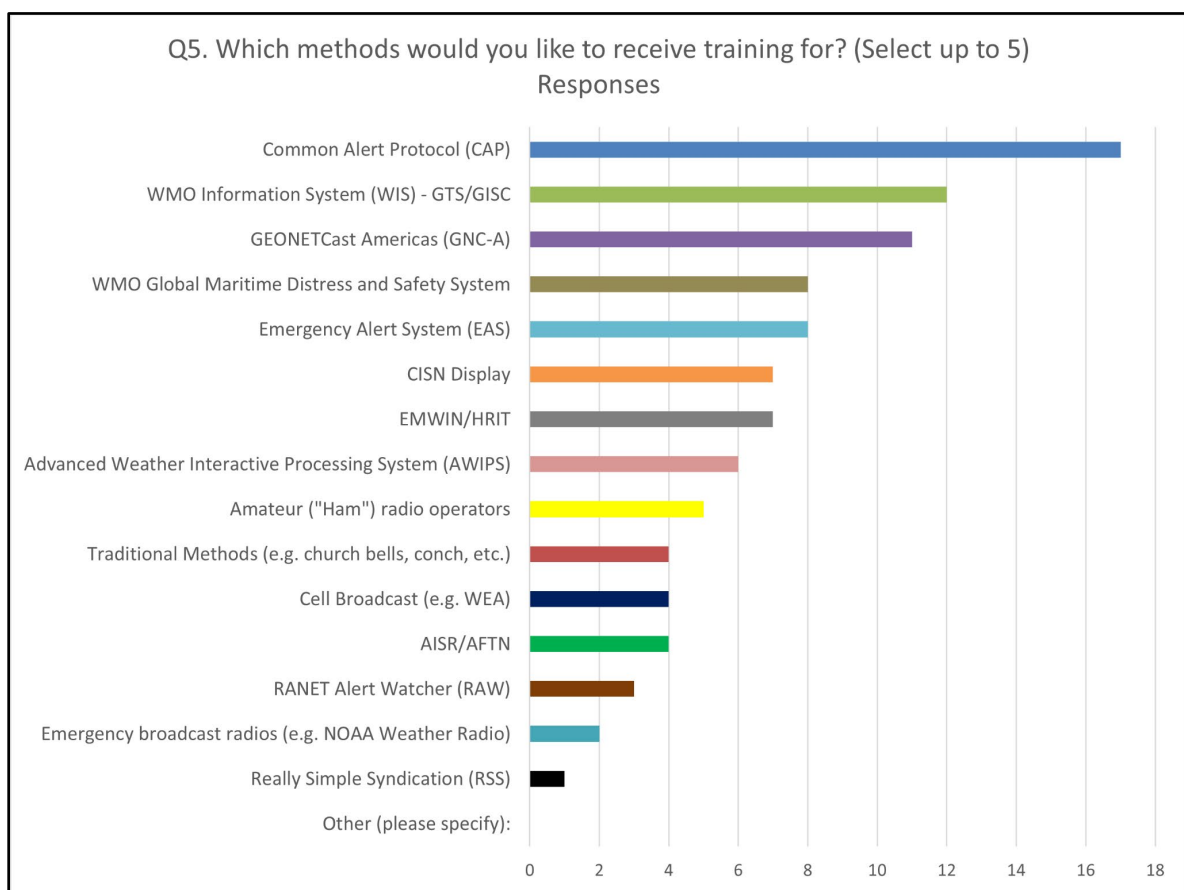
Graph 1 Methods for which Member States and Territories would like to receive training.

Member States/Territories comments on Inventory Document

Q6. Is there any part of the document that you found particularly interesting or useful?

- **Bahamas:** "The Warning and Dissemination Information for People with Disabilities is of particular interest as we work on inclusivity."

- **Belize:** "The document as a whole, as it entails all forms of dissemination available, presently. As well as including along with details of each."

- **Brazil:** "There are much more systems than I'd imagined."

- **Colombia:** "Challenges for warning dissemination and communication"

- **Curacao:** "Warning dissemination and communication for people with disabilities"

- **France:** "Yes: 1) synthesis of communication methods 2) CW exercise statistics on communication methods. However, can it be specified here (p27) that TSP products are send only by email? (this has been corrected) 3) volcano-generated tsunamis p34"

- **Guatemala:** "For our institution, the GEONETCast method was of great interest since this method was intended to be implemented in the institution some years ago, however, we lacked the costs and necessary supplies to complete the project, however, we are interested in resuming training for this type of system since we do not have a wide range of reception and dissemination of information and this could be a good starting point for a new method of reception and dissemination of warning information in case of a tsunami that affects our coasts."

- **Grenada:** "The entire document was useful as it highlighted the many other communications methods not used by Grenada."

- **Guyana:** "Dissemination methods and its pros and cons"

- **Honduras:** "Yes, there are more efficient and modern warning methods than those currently operated in Honduras. It is interesting to know that some could be implemented with few resources."

- **Nicaragua:** "Referring the Fax Point, I think is important to evolve to Apps instead of Fax to disseminate information. It was a good decision to give time for the transition until March 31st, 2025"

- **Panama:** "The inventory of Tsunami Warning Dissemination and Communication Methods for the Caribbean and Adjacent Regions itself is useful for future activities"

- **Saint Kitts and Nevis:** "Yes. All the different ways to communicate during a disaster"

- **Trinidad and Tobago:** "The Chapter on Volcano-Generated Tsunamis was very interesting. What stood out was the fact that there is no protocol for issuing volcano-generated tsunami alerts or detecting eruptions in real time without human supervision. While a flank collapse of the Mt. Pelee Volcano was exercised in 2023, in light of the underwater volcano Kick 'em Jenny being in close proximity to Trinidad & Tobago it would be useful to perhaps have one of the future CARIBE-WAVE exercises simulate an eruption of a submarine volcano to test our response and preparedness for not just tsunamis but other marine hazards caused by such events. With no protocols for volcano generated tsunami alerts, simulating a submarine eruption in CARIBE-WAVE exercises could identify gaps, test response systems and guide the development of effective procedures"

- **Venezuela:** "It is very interesting and useful to be able to manage all the ways to communicate effectively in the event of a tsunami warning"

Q7. Are there any warning/dissemination methods that were absent and should be included in the document?

- **France:** "Our NTWCs indicate that dissemination methods should be different according to the ETA: for example, in case of far field tsunami, they will use radio and TV, while for local tsunami, they have no means to directly interrupt radio and TV programs. Can it be mention somewhere?" (Note: the document was updated to note this)

- **Honduras:** "At the moment I am unaware of other alert methods."

- **Nicaragua:** "Maybe other apps like telegram, and Digital TV" (Note: Telegram was added in section on WhatsApp and Digital TV added to section on TV).

- **Venezuela:** "For now, I think all methods are covered."

Q8. Do you have any suggestions for the improvement of this document? In addition to making your selection and comments below, you are also welcome to send the document with comments and recommendations to christa.vonh@noaa.gov

- **Curacao:** "* Add use of channels for whatsapp for dissemination of messages as pro, and con the use of whatsapp group for disseminating messages to larger groups is cumbersome. (Note: This was added) * Chapter on Volcanic generated Tsunamis is very technical, should be revised to layman's terms"

- **France:** "Many many thanks for this synthetic, compressive and exhaustive document. For French State authorities, the firewall is especially strict, and many websites indicated in the documents are not accessible (e.g. CATAC website). When it is mentioned "national something", could you specify "US national" (eg, National Weather Service (NWS) p5; EAS, p10, NAWAS p16, etc). About Fax: Pros: it could be added something as: "direct impression of the message" and "no delay between the arrival and the reading". About Whatsapp: it could be added that "It is free to use, even for international calls" (NOTE: All suggestions were integrated). About World Meteorological Organization Global Maritime Distress and Safety System: can you indicate more information? Is it able to disseminate CW messages, is it able to disseminate text and image products?"

- **Haiti:** "I suggest translating the document in French and Spanish. The document needs some images and color in the structure. It has to be updated from time to time. Other changes and suggestions will be done in the future. Please review the first page. Needs amazing"

- **Saint Kitts and Nevis:** "Acronyms need to be clearly defined."

- **Venezuela:** "I don't have any suggestions for the moment. I congratulate the WG3 for the initiative to develop this document so that ours countries can work on the warning messages and their dissemination jointly."

ACRONYMS

AISR - Aeronautical Information System Replacement

AFTN - Aeronautical Fixed Telecommunications Network

AWIPS - Advanced Weather Interactive Processing System

CAP - Common Alert Protocol

CATAC - Central America Tsunami Advisory Center

CISN - California Integrated Seismic Network

EAS - Emergency Alert System

EMWIN - Emergency Managers Weather Information Network

HRIT - High Rate Information Transmission

GIS - Geographic Information System

GISC - Global Information System Centres

GNC-A - GEONETCast Americas

GTS - Global Telecommunications System

ICG CARIBE EWS - The Intergovernmental Coordination Group for the Tsunami and Other Coastal Hazards Warning System for the Caribbean and Adjacent Regions

ITIC - International Tsunami Information Center

NTWC - National Tsunami Warning Center

PTWC - Pacific Tsunami Warning Center

RAW - RANET Alert Watcher

RSS - Really Simple Syndication

TSP - Tsunami Service Providers

TWFP - Tsunami Warning Focal Points

WEA - Wireless Emergency Alert

WIS - WMO Information System

WMO - World Meteorological Organization