

## **NATIONAL REPORT**

Submitted by Grenada

### **BASIC INFORMATION**

#### **1. ICG/CARIBE EWS Tsunami National Contact (TNC)**

*The person designated by a Member State to an Intergovernmental Coordination Group (ICG) 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. The person may be the Tsunami Warning Focal Point, from the national disaster management organization, from a technical or scientific institution, or from another agency with tsunami warning and mitigation responsibilities.*

Name: **Dr. Terence Walters**

Title: **National Disaster Coordinator**

Organization: **National Disaster Management Agency (NaDMA)**

Postal Address: **Morne Jaloux, St. George**

E-mail Address: **coordinator@nadma.gd**

Telephone Number: **1-473-440-8390 ext 63009**

Fax Number: **N/A**

Cellular Telephone Number: **1-473-405-0110/1-473-423-0990**

#### **2. ICG/CARIBE EWS Tsunami Warning Focal Point (TWFP)**

*The 7x24 contact person, or other official point of contact or address, is available at the national level for rapidly receiving and issuing tsunami event information (such as warnings). The Tsunami Warning Focal Point either is the emergency authority (civil defense or other designated agency responsible for public safety), or has the responsibility of notifying the emergency authority of the event characteristics (earthquake and/or tsunami), in accordance with national standard operating procedures. The Tsunami Warning Focal Point receives international tsunami warnings from the PTWC, or other regional warning centres.*

Name: **Grenada Meteorological Office (Ms. Kassia Johnson)**

Title: **Meteorological Forecaster**

Responsible Organization: **Grenada Airports Authority, Meteorological Office**

Postal Address: **Burns Point, St. George's PO Box 385**

E-mail Address: [meteorology@gaa.gd](mailto:meteorology@gaa.gd) [kjohnson@gaa.gd](mailto:kjohnson@gaa.gd)

Emergency Telephone Number: **1-473-444-4142**

Emergency Fax Number: **1-473-444-1574**

Emergency Cellular Telephone Number: **1-473-534-5234 1-473-449-8318**

**National Tsunami Warning Centre (if different from the above)**

Person in Charge:

Title:

Responsible Organization:

Postal Address:

E-mail Address:

Emergency Telephone Number:

Emergency Fax Number:

Emergency Cellular Telephone Number:

**3. Tsunami Advisor(s), if applicable**

(Person, Committee or Agency managing Tsunami Mitigation in country)

Name:

Title:

Postal Address:

E-mail Address:

Emergency Telephone Number:

Emergency Fax Number:

Emergency Cellular Telephone Number:

#### **4. Tsunami Standard Operating Procedures for a Local Tsunami (when a local tsunami threat exists, less than 1 hour travel time)**

##### **PURPOSE**

To provide procedural guidance and action steps to be followed in responding to a PTWC issued Tsunami Threat Message that indicates Grenada as threatened and arrival times are within three hours.

##### **GENERAL**

Pacific Tsunami Warning Center will issue a TSUNAMI THREAT MESSAGE depending on the initial earthquake parameters and the estimated travel times. If a TSUNAMI THREAT MESSAGE is issued, updates will be provided until a FINAL THEAT MESSAGE is issued. The updated threat messages will provide the tsunami heights for the areas under threat as well as expected time of arrival and observations. It is possible that a FINAL THEAT MESSAGE is issued shortly after the initial threat message with no updates or enhanced graphical products having been issued.

In the case of a tsunami threat, once the quantitative forecast is provided by PTWC the NTWC will issue an update which includes the forecasted tsunami height for Grenada. Based on this information, the NTWC will update Warning, downgrade to an Advisory, or issue a Cancellation.

If Grenada is included within the countries where there might be hazardous tsunami waves, a warning will be issued only if the estimated time of arrival (ETA) is 3 hours or under. The Tsunami warning alert will be indicated by the color **RED**.

##### **ACTIONS CHECKLIST**

A TSUNAMI WARNING HAS BEEN ISSUED. THIS IS AN URGENT TSUNAMI WARNING FOR all areas listed in the Vulnerable Location form. A local tsunami has been generated. Immediately evacuate all beaches and all low-lying coastal areas. Move inland to higher ground; do not approach harbors until the tsunami all clear has been announced. If your vessel is near the harbors, move away from land to a location further out. Stay tuned for more information.

- i. NTWFP/ NTWC Duty Officer must review the message from the PTWC and learn if the tsunami is forecast to arrive at Grenada.
- ii. The NTWFP/ NTWC Duty Officer must identify the potential risk locations coordinates on the map provided for this purpose and available in their offices.

iii. If the seismic event does not threaten the Grenada coastline then the NTFWP/ NTWC should continue to monitor information about the event, advise NaDMA and the Radio room of the Royal Grenada Police Force (NaDMA and the Royal Grenadian Police Force for the Initial Tsunami Alert Notification Group) via email and phone about the message and the assessment that it will not impact Grenada but take no further action.

NTFWP/ NTWC Duty Officer must IMMEDIATELY:

A. Notify Royal Grenada Police Dispatch that a tsunami warning is being issued.

B. The following public alerting tools will be used in the vulnerable areas by the corresponding entities:

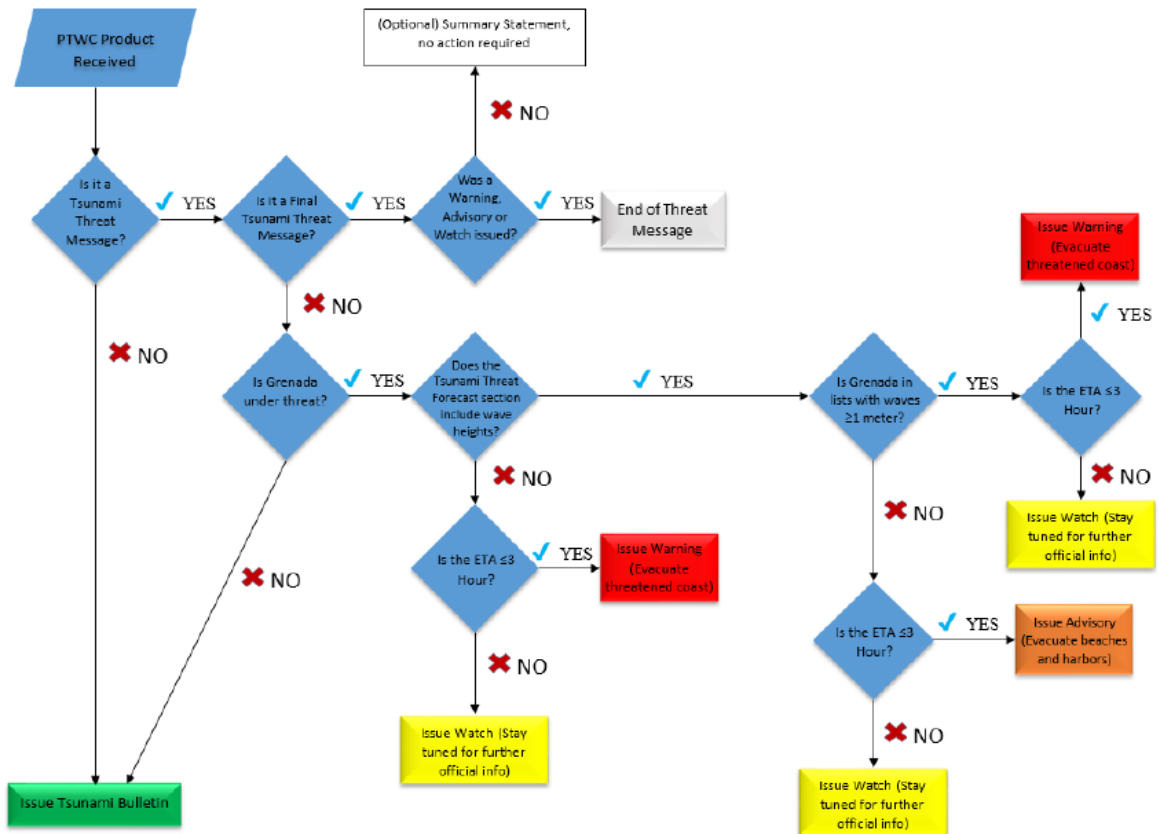
- Airport Siren
- Fire Station Sirens
- Police Sirens/Vehicle Loudspeakers
- Church Bells

C. NTFWP Duty Officer must contact the primary broadcast stations and provide the Tsunami Alert message.

D. NTFWP/NTWC Duty Officer reports to the NaDMA Director at the EOC to provide continuing assistance throughout the remainder of the alert.

E. End of Threat Message.

If a Tsunami Warning, Advisory or Watch is issued, once the threat has passed or the evaluation yields there is no threat to Grenada, an End of Threat Message will be issued by the NTFWP/NTWC. This only indicates that there is no longer a tsunami threat, but if there has been a tsunami impact, people will have to wait for an All Clear to be issued by NaDMA indicating it is safe to return.



PTWC Product Received

Is it a Tsunami Threat Message?

NO

Issue Tsunami Bulletin

Is it a Final Tsunami Threat Message?

NO

Is Grenada under threat?

NO

(Optional) Summary Statement, no action required

NO

Is the ETA ≤ 3 Hour?

NO

Issue Watch (Stay tuned for further official info)

Does the Tsunami Threat Forecast section include wave heights?

NO

Is the ETA ≤ 3 Hour?

YES

Issue Warning (Evacuate threatened coast)

Does the Tsunami Threat Forecast section include wave heights?

YES

Is Grenada in lists with waves ≥ 1 meter?

NO

Is the ETA ≤ 3 Hour?

NO

Issue Watch (Stay tuned for further official info)

Is Grenada in lists with waves ≥ 1 meter?

YES

Is the ETA ≤ 3 Hour?

YES

Issue Advisory (Evacuate beaches and harbors)

Is Grenada in lists with waves ≥ 1 meter?

YES

Issue Watch (Stay tuned for further official info)

Is the ETA ≤ 3 Hour?

NO

Issue Watch (Stay tuned for further official info)

Issue Warning (Evacuate threatened coast)

YES

Issue Warning (Evacuate threatened coast)

## **5. Tsunami Standard Operating Procedures for a Regional Tsunami (when a regional tsunami threat exists, 1–3 hour travel time)**

### **PURPOSE**

To provide procedural guidance and action steps to be followed in responding to a Pacific Tsunami Warning Center issued TSUNAMI THREAT MESSAGE due to a seismic event to determine whether the Tsunami threat message identifies Grenada as threatened by dangerous, strong currents (not flooding).

### **GENERAL**

In Grenada an ADVISORY is issued when PTWC indicates that waves of .3 to 1 m could impact any location in Grenada within the next 3 hours. People should be advised to move out of the water, off the beaches and out of harbors and marinas. The color for this alert level is **ORANGE**.

### **ACTIONS CHECKLIST**

NTWFP Duty Officer must review the message from the PTWC and learn if the tsunami is forecasted to arrive in Grenada, its Expected Time of Arrival, forecasted tsunami wave heights and the specific areas that are vulnerable.

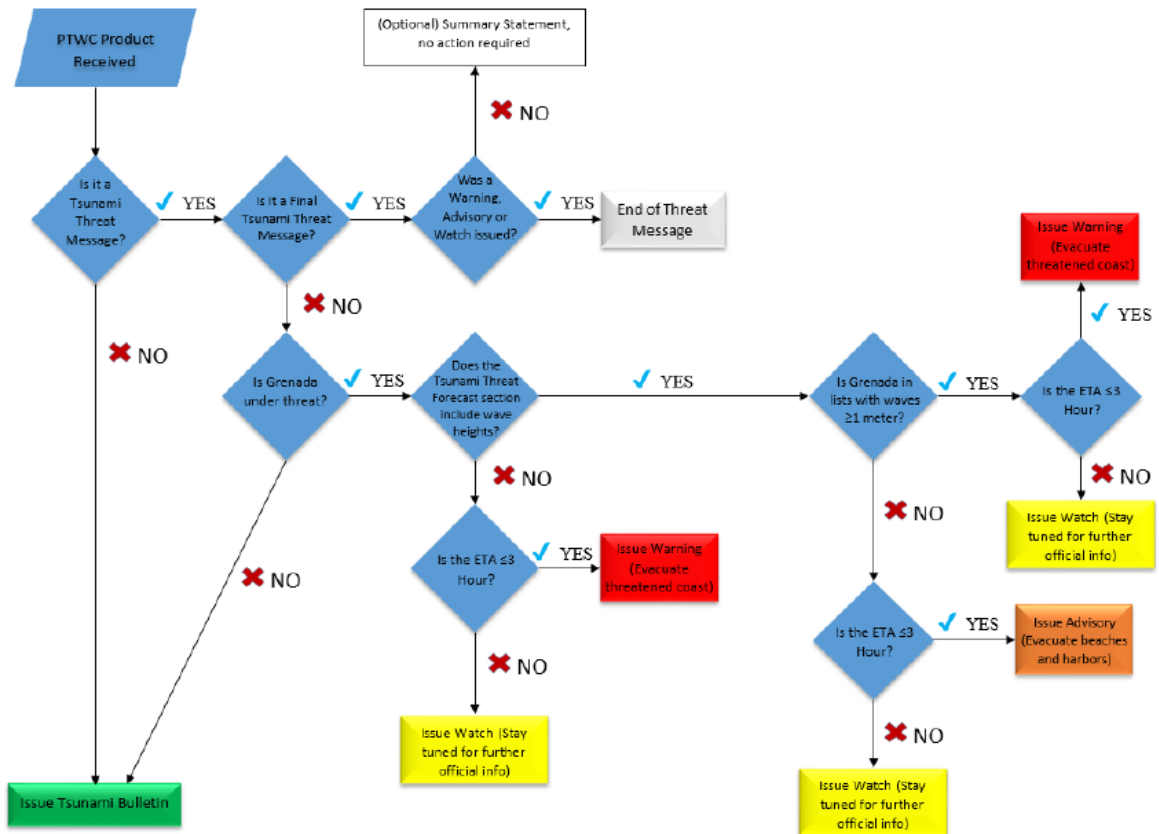
Grenada's NTWFP Duty Officer will initiate dialogue with the PTWC to verify assessment of tsunami wave arrival time, potential size of wave, and verification of potential wave arrival sites. It is presumed that this should take no longer than 15 to 20 minutes. Following this discussion, Grenada's National NTWFP/TWCP Duty Officer should issue the Tsunami Advisory and proceed to remainder of the SOP.

NTWFP/NTWC Duty Officer must IMMEDIATELY:

A. Advise NaDMA, Grenada Police Force and all the corresponding stakeholders about the message and the assessment

B. The following public alerting tools will be used in the vulnerable areas by the corresponding entities:

- Airport Siren
- Fire Station Sirens
- Police Sirens/Vehicle Loudspeakers
- Church Bells



PTWC Product Received

Is it a Tsunami Threat Message?

NO

Issue Tsunami Bulletin

Is it a Final Tsunami Threat Message?

NO

Is Grenada under threat?

NO

(Optional) Summary Statement, no action required

NO

Is the ETA ≤ 3 Hour?

NO

Issue Watch (Stay tuned for further official info)

Does the Tsunami Threat Forecast section include wave heights?

NO

Is the ETA ≤ 3 Hour?

NO

Issue Watch (Stay tuned for further official info)

Was a Warning, Advisory or Watch issued?

NO

End of Threat Message

Is Grenada in lists with waves ≥ 1 meter?

NO

Is the ETA ≤ 3 Hour?

NO

Issue Watch (Stay tuned for further official info)

Issue Warning (Evacuate threatened coast)

YES

Issue Watch (Stay tuned for further official info)

Issue Advisory (Evacuate beaches and harbors)

Issue Watch (Stay tuned for further official info)

Issue Watch (Stay tuned for further official info)

YES

NO

Issue Advisory (Evacuate beaches and harbors)

Issue Watch (Stay tuned for further official info)

Issue Watch (Stay tuned for further official info)

YES

NO

Issue Watch (Stay tuned for further official info)

Issue Advisory (Evacuate beaches and harbors)

Issue Watch (Stay tuned for further official info)

Issue Watch (Stay tuned for further official info)

YES

NO

Issue Watch (Stay tuned for further official info)

Issue Advisory (Evacuate beaches and harbors)

Issue Watch (Stay tuned for further official info)

Issue Watch (Stay tuned for further official info)

YES

NO

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Issue Advisory (Evacuate beaches and harbors)

Issue Watch (Stay tuned for further official info)

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YES

NO

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YES

NO

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Issue Advisory (Evacuate beaches and harbors)

Issue Watch (Stay tuned for further official info)

Issue Watch (Stay tuned for further official info)

YES

NO

Issue Watch (Stay tuned for further official info)

Issue Advisory (Evacuate beaches and harbors)

Issue Watch (Stay tuned for further official info)

Issue Watch (Stay tuned for further official info)

## **6. Tsunami Standard Operating Procedures for a Distant Tsunami (when a distant tsunami threat exists, more than 3-hour travel time)**

### **PURPOSE**

To provide procedural guidance and action steps to be followed in responding to a Pacific Tsunami Warning Center issued TSUNAMI BULLETIN due to a seismic event that is distant from Grenada (travel time is greater than 3 hours) and local threat is under evaluation.

### **GENERAL**

Pacific Tsunami Warning Center (PTWC) will issue a Tsunami Threat Statement when there is a tsunami threat to one or more countries in the CARIBE EWS.

In Grenada a WATCH product is issued if the ETA is greater than 3 hours, indicating the threat to local area is under evaluation. When a distant event occurs and is under investigation /evaluation. The color for this alert level is **YELLOW**.

### **ACTIONS CHECKLIST**

NTWFP Duty Officer must review the message from the PTWC and learn if the tsunami is forecasted to arrive in Grenada, its Expected Time of Arrival, forecasted tsunami wave heights and the specific areas that are vulnerable.

If the seismic event does not threaten Grenada's coastline then the NTWFP/TWCP should continue to monitor information about the event, advise NaDMA and the Royal Grenadian Police Force (NaDMA and the Royal Grenadian Police Force for the Initial Tsunami Alert Notification Group) via email and phone about the message and the assessment that it will not impact Grenada and to take no further action.

If the event threatens Grenada's coastline, the NTWFP Duty Officer should issue a Tsunami Watch.

Grenada's NTWFP Duty Officer will initiate dialogue with the PTWC to verify assessment of tsunami wave arrival time, potential size of wave, and verification of potential wave arrival sites. It is presumed that this should take no longer than 15 to 20 minutes. Following this discussion, Grenada's NTWFP/NTWC Duty Officer should update message, as required based on discussion of wave arrival sites and proceed to remainder of the SOP.

NTWFP/NTWC Duty Officer must IMMEDIATELY:

A. Advise NaDMA and all the corresponding stakeholders about the message and the assessment via email and phone.



## 7. National Sea Level Network

*Please include a table with position and description of stations/sensors, and a map.*

In Grenada we have one set of monitoring equipment located at the base of the Grenada Coast Guard at Prickly Bay, St. George's.

The equipment is a DCP (Data Collection Platform) and includes three sensors:

1. Radar Sensor
2. Bubble Sensor
3. Pressure Sensor

The Following pictures of images of the equipment:





## **8. Information on Tsunami occurrences/Tsunami Exercises**

*Please include sea level observations, pictures, wave arrival descriptions, public, media, or other responses to warnings, lessons learned, etc.*

### **HISTORY OF TSUNAMI OCCURRENCES IN GRENADA**

The last National Tsunami that affected Grenada was on the 18th day of November 1867 caused by Volcanic eruption. The National Geophysical Data Centre (NGDC) and the National Oceanic and Atmospheric Administration (NOAA) gave the source at the about 750 Km away from Grenada.

Areas affected were Tyrrels Bay, Carriacou, Clarkes Court Inlet, La Baye in St. Andrew, Westerhall Bay all generally 0.6 m above sea level (ASL), Gouyave in St. John (3.05m ASL) and the Carenage, St. George (1.5 m ASL).

The wave also affected parts of St. John (Western side of the island) rising so high at Douglaston Estate as to cover the Bridge at the mouth of the river and destroying the cane fields. Major damages were done to the L'Anse.

Later at 9pm and again at 1am there were heavy earthquakes.

Another recorded Tsunami occurrence in Grenada was in the year 1868 when according to data the sea in St. George's with draw 1.8 meters and returned as a wave flowing over the

wharfs 1.5m. A second wave 1 min. after was of superior elevation and a lesser third followed.

Its impact, undulating eddied occurred in the Carenage for about an hour. 30000-ton sloop placed in the town.

### **Tsunami Exercises:**

Grenada has been participating in the Caribe wave exercise for over ten (10) years. Each year from our first year of participation to 2019 has been a better year. We can boast of increased numbers in reach, country wide awareness, and growing interest among islanders.

### **CaribeWave24**

#### **EVALUATION:**

An earthquake with a preliminary magnitude of 8.5 occurred near the north coast of Colombia at 1500 UTC on Thursday March 21, 2024.

#### **TSUNAMI THREAT FORECAST:**

Tsunami waves reaching 1 to 3 meters above the tide level are possible along some coasts of Grenada, within the next three hours.

#### **ESTIMATED TIME OF ARRIVAL:**

SAINT GEORGES GRENADA 12.0N 61.8W 1806 03/21

#### **RECOMMENDED ACTIONS:**

NaDMA should take action to inform and instruct any coastal populations at risk in accordance with their own evaluation, procedures, and the level of threat.

Based on the scenario above, the NTWFP/NTWC immediately issued a tsunami warning. The message was sent to NaDMA via email and evacuations commenced at the T.A. Marryshow Community College, Tanteen, St. George, and at Sandals Resort, Point Saline, St. George.

Evaluators were positioned and participants awaited the alerting systems to start the exercise, message received at 11:12 am via email from the Secretariat's administrative officer. The office then proceeded to call the participating institutions as back up communication tool as indicated in the SOP.

Upon receipt of the calls, a siren from the fire brigade and bullhorns sounded to start evacuation; however, some students did not seem to initially know what the alerts meant.

Routes were marshaled by members of the Youth Emergency Action Committee (YEAC) and the Royal Grenada Police Force (RGPF) ensuring traffic was stopped and safety maintained, the students hurried to the muster point via the identified routes indicated by signage.

Everyone was out of the hazard zone within 15-20 minutes of the start of the evacuation.

### **Lessons Learned**

**Strengthening Communication Systems** - More efficient and clearly defined lines of communication are required to ensure timely and accurate dissemination of information across all stakeholders during exercises and real events.

**Enhancing Public Awareness and Training** - Increased public education, awareness campaigns, and targeted training are necessary to improve participation, understanding, and overall effectiveness during emergency responses.

**Establishing Clear Plans, Policies, and Procedures** - Standardized emergency plans, policies, and operational procedures must be clearly defined, formally adopted, and regularly exercised to ensure that all participants understand their roles and responsibilities.

**Developing and Practicing Early Warning Systems** - Early warning systems with hazard-specific tones and signals should be procured, installed, and institutionalized. These systems must be clearly understood and routinely tested through drills to ensure effective response during real events.

## **9. Web sites (URLs) of national tsunami-related web sites**

### **10. Summary plans of future tsunami warning and mitigation system improvements.**

*This information will be used to aid the development of the CARIBE-EWS Implementation Plan*

Grenada remains committed to strengthening its tsunami early warning and mitigation systems through a combination of technological upgrades, institutional strengthening, and

public preparedness initiatives. These efforts will contribute to the development and implementation of the CARIBE-EWS Implementation Plan.

A key priority is the upgrading of the Kick 'em Jenny Volcano Monitoring Network and Volcano Response Plan Project funded by the Caribbean Development Bank (CDB), which will enhance real-time monitoring, data accuracy, and early detection capabilities for volcanic and tsunami-related hazards.

Additionally, Grenada is actively advancing its Tsunami Ready Programme through both recertification and expansion efforts:

- *Recertification of Tsunami Ready Communities:* The parishes of St. Patrick., Carriacou and Petite Martinique, are currently due for recertification. Efforts are underway to meet requirements, including the installation and upgrading of tsunami signage and reinforcement of community preparedness measures.
- *Expansion :* Ongoing work is being undertaken to establish the tsunami hazard zone areas of the parish of St. George (Grenada's Capital) as a Tsunami Ready community, with a strong focus on the erection of tsunami signage, identification of evacuation routes, and strengthening public awareness.
- *Digital Early Warning and Information Systems:*  
The Disaster Management Agency (NaDMA) is scheduled to launch a new national website by May 2026, which will serve as a centralized platform for disaster information and early warning dissemination. The website will feature real-time alerts and notifications for hazards such as tsunamis, hurricanes, and other emergencies, accessible to the general public. Additional functionalities will include situation updates, preparedness guidelines, evacuation information, and hazard-specific safety protocols. The platform is also expected to support improved communication through integration with multiple channels, including mobile-friendly access, links to official social media updates, and notification systems, thereby enhancing public access to timely and reliable information before, during, and after hazard events.
- *Strengthening Early Warning Systems:* Enhancing detection, alerting, and communication systems for timely dissemination of warnings.
- *Public Education and Preparedness:* Continued public awareness campaigns, drills, and simulation exercises.
- *Capacity Building and Training:* Ongoing training for district disaster management committees in tsunami readiness within their monthly meeting sessions.

## **NATIONAL PROGRAMMES AND ACTIVITIES INFORMATION**

### **11. EXECUTIVE SUMMARY**

*Brief statement of no more than one page addressing all items discussed in the Narrative section of the National Report (below).*

Since the last National Report (2019), Grenada has strengthened tsunami warning procedures, preparedness, and public awareness through improved systems, institutional development, and enhanced coordination. Communication among national and district-level responders has been improved, including the procurement of handheld radios to support more efficient real-time information sharing during emergencies.

Grenada continues to advance the Tsunami Ready Programme, with ongoing discussions toward the recertification of St. Patrick, Carriacou, and Petite Martinique, including the installation and upgrading of tsunami signage. Work is also underway to establish St. George as a Tsunami Ready parish, with a focus on evacuation signage and community awareness. Institutional strengthening includes the finalization of a new disaster management policy to improve the management and security of NaDMA's volunteers, alongside a reactivation drive of national committees within the disaster management structure to enhance coordination and engagement.

Early warning system improvements include planned upgrades to monitoring and detection infrastructure, particularly through the Caribbean Development Bank (CDB)-funded Kick 'em Jenny Volcano Monitoring Network and Volcano Response Plan Project, following damage from Hurricane Beryl in 2024. Participation in Caribe Wave exercises has informed improvements in communication, procedures, and system testing, with lessons integrated into SOPs. National simulation exercises, including one scheduled for May 2026, continue to strengthen response capacity across hazards. Notably, The Disaster Management Agency (NaDMA) is launching its new website by May 2026 which includes early warning notifications and alerts for the general public

Public education and awareness efforts have been expanded through outreach, media engagement, training, and simulation activities to improve understanding of tsunami risks and appropriate response actions. Overall, these initiatives demonstrate Grenada's continued commitment to strengthening national resilience through improved systems, coordination, and public engagement.

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## **12. NARRATIVE**

*Detailed description of innovations or modifications to National tsunami warnings procedures or operations since last National Report, tsunami research projects, tsunami mitigation activities and best practices (especially in preparedness and emergency management), tsunami exercises, as well as public education programmes or other measures taken to heighten awareness of the tsunami hazard and risk.*

Since the last National Report (2019), Grenada has implemented several improvements to strengthen tsunami warning procedures, preparedness, and public awareness.

### **Warning Procedures and Operations:**

Efforts have been made to improve communication pathways and coordination among national agencies and district-level responders. This includes the procurement of handheld radios for District Coordinators, shelters, and other key agencies to enhance real-time communication and response efficiency. Additionally, a new disaster management policy is currently being finalized to strengthen the management, coordination, and security of NaDMA's volunteers, who represent a critical component of the national disaster management framework and personnel.

### **Tsunami Mitigation and Preparedness Activities:**

Grenada continues to advance the Tsunami Ready Programme. Recertification activities are in discussion stages for St. Patrick, Carriacou, and Petite Martinique, including the installation and upgrading of tsunami signage. Additionally, work is ongoing to establish St. George as a Tsunami Ready parish, with a focus on evacuation signage, community engagement, and public awareness. In recent times, there has also been a reactivation drive of national committees within the NaDMA's Secretariat to strengthen coordination, improve sectoral engagement, and enhance overall disaster management capacity.

### **Early Warning System Improvements:**

Plans are in place to upgrade monitoring and detection systems, including enhancements to the Caribbean Development Bank (CDB)-funded Kick 'em Jenny Volcano Monitoring Network and Volcano Response Plan Project, to strengthen early warning capacity for marine hazards. These improvements are particularly important following damage sustained to the system during Hurricane Beryl in 2024.

### **Exercises and Best Practices:**

Participation in regional exercises such as Caribe Wave has highlighted the need for improved communication, standardized procedures, and regular drills. Lessons learned have been incorporated into Standard Operating Procedures (SOPs) for district and

sectoral disaster plans, with increased emphasis on testing systems and improving coordination and communication. National exercise and simulation drives have been prioritized to test emergency response times, interagency coordination, and public awareness across various disaster scenarios. The next national exercise is scheduled for May 2026 and, although not tsunami-specific, will strengthen core response competencies applicable to tsunami preparedness and response.

**Public Education and Awareness:**

Public awareness efforts have been strengthened through community outreach, media engagement, training sessions, and participation in simulation exercises such as Caribe Wave. These initiatives aim to improve understanding of tsunami hazards, warning signals, and appropriate response actions among the general public.

Overall, these efforts reflect Grenada’s commitment to enhancing national resilience through improved systems, coordinated response mechanisms, and increased public engagement.

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Date: 10<sup>th</sup> April 2026

Name: Ms. Kassia Johnson & Ms. Tamara Savoury