

NATIONAL REPORT

Submitted by TNC of Cuba

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BASIC INFORMATION

1. Tsunami Standard Operating Procedures for a Local Tsunami (when a local tsunami hazard exists)

- *What organization identifies and characterizes tsunamigenic events?*
 - 1) In Cuba, it is the institution officially designated to identify the possibility of tsunamis occurrence due to earthquake is the National Center for Seismological Research / Centro Nacional de Investigaciones Sismológicas (CENAI) of Ministry of Science, Technology and Environment, based on official national and international available networks data sources, in any case when a local tsunami hazard exists.
 - 2) In Cuba, the National Tide Gauge Network / Red Mareográfica Nacional (RMN) of Geocuba Geodesa of Ministry of the Revolutionary Armed Forces it is the institution officially designated to provide real time sea level tsunami signal data recorded by Cuban tide gauges for tsunami warning systems, and for other coastal hazard systems too.
 - 3) In Cuba, CENAI is responsible for operational reports to the National Headquarters for Civil Defense (Estado Mayor Nacional de la Defensa Civil – EMNDC) about everything related to the possibility of a tsunami, in any case when a local tsunami hazard exists.
 - 4) Cuban Institute of Meteorology / Instituto de Meteorología de Cuba (INSMET) of Ministry of Science, Technology and Environment, actively participates in the “Tsunami and Other Coastal Hazards Warning System for the Caribbean and Adjacent Regions” along with EMNDC, CENAI and RMN, because it is the Cuban institution with the largest number of experienced specialists on atmosphere and sea physical processes, with vast experience on numerical modeling and time series analysis of marine waves, including tsunamis, coastal flooding, hazard assessment and its coastal impact.

- *What is the threshold or criteria for declaring a potential tsunami emergency?*

A coastal earthquake $M_w \geq 7.0$ and the earthquake source tsunami generating potential knowledge.

- *What organization acts on the information provided by the agency responsible for characterizing the potential tsunami threat?*

The National Headquarter for the Civil Defence (Estado Mayor Nacional de la Defensa Civil - EMNDC).

- *How is the tsunami information (warning, public safety action, etc) disseminated within country? Who is it disseminated to?*

The National Headquarter for the Civil Defence (Estado Mayor Nacional de la Defensa Civil - EMNDC) a través de los medios de comunicación estatales.

- *How is the emergency situation terminated?*

When the The National Headquarter for the Civil Defence (Estado Mayor Nacional de la Defensa Civil - EMNDC) decides, taking into consideration, all available information coming from CENAIIS.

5) Tsunami Standard Operating Procedures for a Distant Tsunami (when a distant tsunami hazard exists)

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5) National Sea Level Network

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

All sea level stations are managed by National Sea Level Network / Red Mareográfica Nacional (RMN) belongs to Geocuba Geodesa of Ministry of the Revolutionary Armed Forces (Figure 1).

No	Tide Gauge	Latitud N	Longitud W	Tecnología
1	Los Morros,	21°53'58"	84°54'24"	RADAR, A
2	Mariel	23°01'09	82°45'16	RADAR, A
3	Siboney	23°05'34"	82°28'13"	RADAR, A
4	Habana	23°08'03"	82°20'17"	RADAR, A, FS
5	La Isabela	22°56'24"	80°00'47"	RADAR, A
6	Playa Victoria	22°22'58"	79°12'05"	RADAR, A
7	Cayo Coco	22°28'59"	78°18'29"	RADAR, A
8	Nuevitas Bufadero	21°33'35"	77°14'12"	ANALOGICA
9	Nuevitas Pta. de Prácticos	21°36'11"	77°05'53"	RADAR, A
10	Puerto Padre	21°12'06"	76°35'59"	ANALOGICA, FS
11	Gibara	21°06'29"	76°07'30"	RADAR, A
12	Baracoa	20°20'31"	74°29'26"	RADAR, SA
13	Maisí	20°14'48"	74°08'41"	ANALÓGICA
14	Baitiquirí	20°01'35"	74°51'32"	RADAR, A
15	Daiquirí	19°55'15"	75°38'30"	RADAR, A
16	Santiago de Cuba	19°59'05"	75°52'30"	RADAR, A, FS
17	Cabo Cruz	19°50'23"	77°43'41"	RADAR, A, FS
18	Manzanillo	20°20'17"	77°08'49"	RADAR, A
19	Santa Cruz del Sur	20°41'57"	77°59'33"	ANALOGICA
20	Casilda	21°45'11"	79°59'30"	ANALOGICA, FS
21	Cayo Loco	22°09'06"	80°27'17"	RADAR, SA
22	Carapachibey	21°26'53"	82°55'18"	RADAR, A, FS
23	La Coloma	22°14'12"	83°34'18"	RADAR, A

A: automatic tide gauge SA: semi-automatic tide gauge FS: out of service at present
Shortly, Santiago de Cuba is transitioning to RADAR, A.

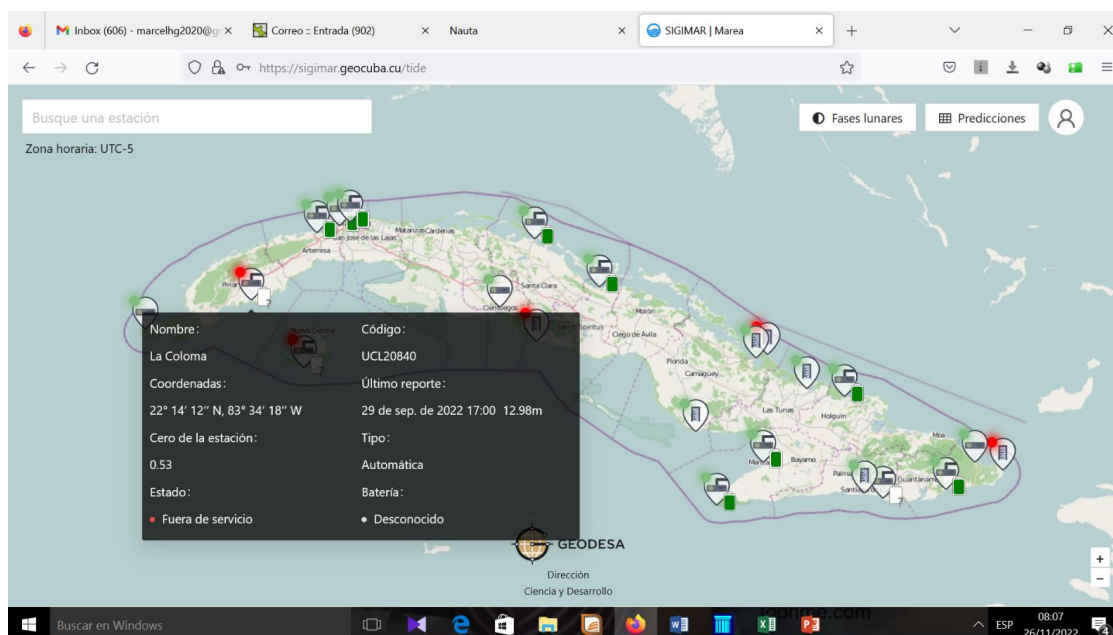


Figure 1. National sea level network 2021.

6) Information on Tsunami occurrences

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

During the intersessional period, there was no tsunami event in the country.

7) Web sites (URLs) of national tsunami-related web sites

<http://www.cenais.cu/cenais/>
<https://sigimar.geocuba.cu/>
<http://www.insmet.cu/>

8) 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.

The Cuban priorities are:

The establishment of real time national and international sea level high frequency data real time transmission of National Tide Network.

Improve evacuation maps for the most threatened coastal localities. Systematically update tsunami hazard, vulnerability, and risk studies.

NATIONAL PROGRAMMES AND ACTIVITIES INFORMATION

9) EXECUTIVE SUMMARY

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

1. Computerized tsunami tools and operational models have been implemented to work at CENAIIS (for operational and research purpose) INSMET (only for research).
2. Tsunamogenic sources with higher probability of impact for Cuba have been identified and the methodological guidelines for tsunami risk studies in Cuba are available.
3. Evacuation maps in case of tsunami events are being created and implemented for Baracoa City.
4. The investment process that has guaranteed a GNSS, National Tide Gauge and Seismological networks at a national level has continued.

10) 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.



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