

National Reports will be posted to the ICG/PTWS-XXVII web site without TWFP contact details

NATIONAL REPORT
Submitted by Costa Rica

BASIC INFORMATION

1. ICG/PTWS 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: Silvia Chacón-Barrantes

Title: Dr.

Organization: SINAMOT-UNA

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2. ICG/PTWS 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.

TWFP Agency name: CNE (Comisión Nacional de Emergencias)
(if different from NTWC agency)

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

[REDACTED]

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

Name of office, operational unit or position: Operador de Telecomunicaciones

[REDACTED]

National Tsunami Warning Centre (if different from the above)

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

NTWC Agency Name: SINAMOT (Sistema Nacional de Monitoreo de Tsunamis)

NTWC Agency Contact or Officer in Charge (person):

Name: Silvia Chacón-Barrantes
Position: Coordinator

3. Tsunami Advisor(s), if applicable

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

Name: Silvia Chacón-Barrantes

Title: Dr.rer.nat., expertise on tsunami modeling

Postal Address: Departamento de Física, Universidad Nacional, Apdo. 86-3000, Heredia, Costa Rica

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Name: Marino Protti

Title: Ph.D. Seismologist, Advisor on tsunami sources

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

- *What organization identifies and characterizes tsunamigenic events?*

SINAMOT obtains seismic data from OVSICORI, RSN and/or LIS (the three seismic networks in Costa Rica). These data include: Mw, depth, location and source (local fault, subduction, etc.)

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

A coastal earthquake $M_w \geq 6.5$

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

CNE

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

Time permitting, it is sent to Municipal Emergency Committees through radio and telephone. They should communicate to coastal communities.

- *How is the emergency situation terminated?*

When SINAMOT recommends and CNE decides. If there are no tsunami reports near the source region within two hours, the emergency situation is terminated.

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

- *What organization identifies and characterizes tsunamigenic events?*

We receive seismic information from PTWC, USGS and CISN.

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

There are several criteria. Seismic magnitude, depth, travel time, historical events, etc.

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

CNE

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

The CNE communicates the information to radio bases in coastal communities and municipalities, to the officer in turn and to the link officers of the affected regions. They shall communicate to the Regional, Local and Community Emergency Committees, and those Committees to the public.

- *How is the emergency situation terminated?*

When SINAMOT recommends it to the CNE, the CNE decides and communicates it further.

- *For Distant Tsunami Procedures:
What actions were taken in response to warnings issued by PTWC and/or US NTWC, during the intersessional period?*

SINAMOT analyzed the information for 96 and 77 earthquakes over the threshold during 2023 and 2024, respectively, and sent a Report to CNE. In all cases there was no tsunami threat for Costa Rica. In most cases the information was posted at our Facebook page.

6. National Sea Level Network

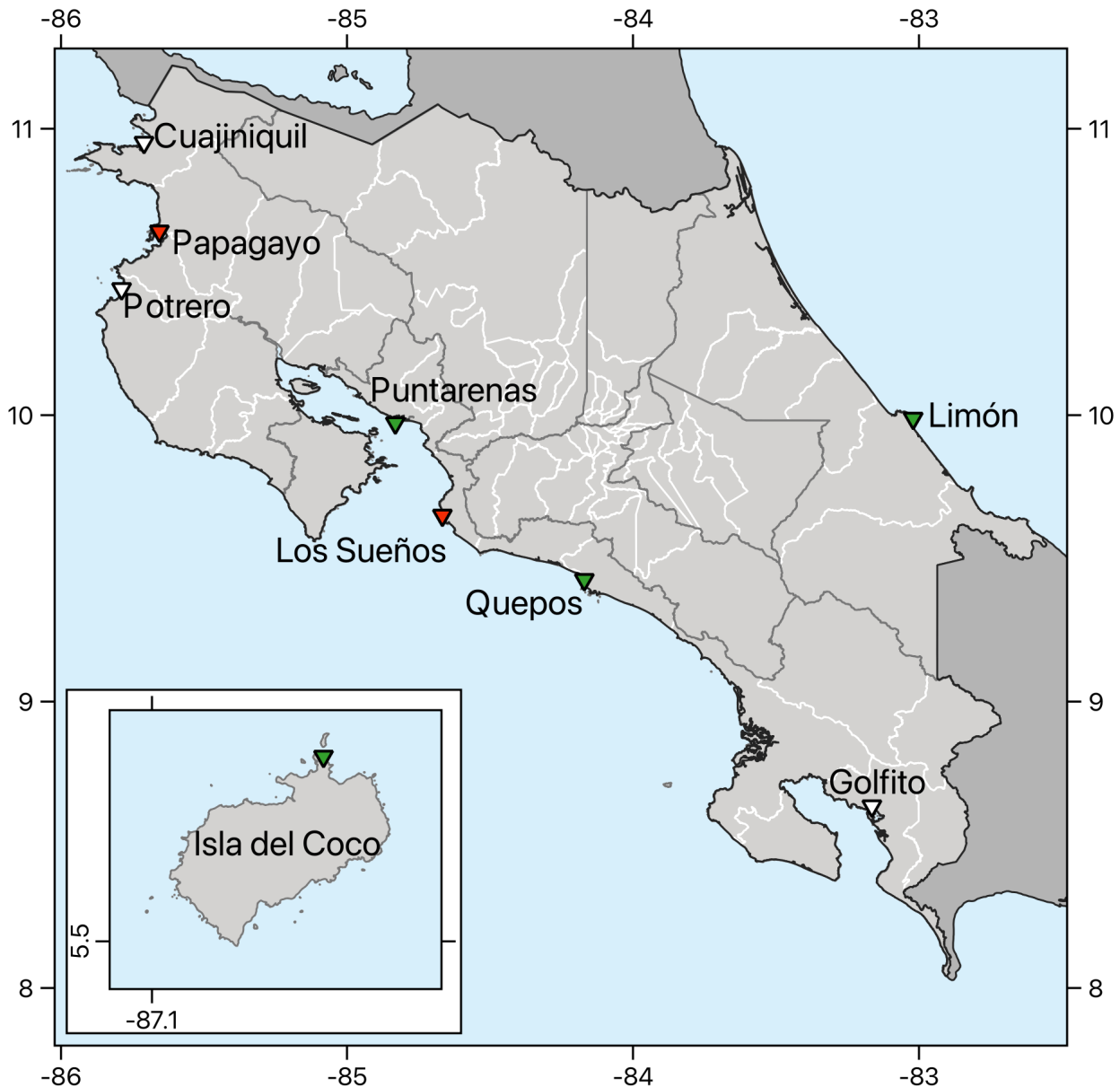
Please include a table with position and description of stations/sensors, and a map.

Name	Code	Lat. (N)	Lon. (E)	Status	Sensors	Rec. Rate	Transm. Rate
Puntarenas	punta	9.9724 35	-84.830981	Radar Operational Pressure to be installed soon	1. Pressure 2. Radar	1min	5min
Isla del Coco	icoco	5.5560 83	-87.04783	Radar Operational Pressure sensor needs to be repaired	1. Pressure 2. Radar	1min	5min
Quepos	quepo	9.4	-84.1666667	Radar Operational Pressure sensor needs to be repaired	1. Pressure 2. Radar	1min	5min
Golfito		8.6353	-83.1647	Installing on April 1-4	1. Pressure	1min	5min

					2. Radar		
Limón (Caribbean coast)	limon, limn	10	-83.033333	Radar Operational Pressure sensor needs to be repaired	1. Pressure 2. Radar	1min	5min

All stations are administrated by RONMAC Program from the National University of Costa Rica. Same contact person as TNC.

Map: current stations shown in green. Future stations shown in white. Uninstalled stations in red.



7. Information on Tsunami occurrences

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

The last tsunamis registered in our Pacific coasts occurred in 2022 caused by the eruption of the Hunga Tonga – Hunga Ha’apai volcano and the Mexico earthquake.

For the former a paper was published, as it was observed in 24 locations along the Pacific coast:

Chacón-Barrantes, S., Rivera-Cerdas, F. & Murillo-Gutiérrez, A. Impact of the tsunami caused by the Hunga Tonga–Hunga Ha’apai eruption in Costa Rica on 15 January 2022. *Bull Volcanol* 85, 36 (2023). <https://doi.org/10.1007/s00445-023-01648-x>

Some videos of this tsunami:

Cocos Island: https://youtu.be/H5eTrfuCLPo?si=DuPO6gX_37UrPitS

Tamarindo: <https://youtu.be/qMM8j6JBsTA?si=vZzXSTKpmBiYsQms>

Flamingo Marina: <https://youtu.be/IUcHJsCI-js?si=h3fhhgCmNtqugZO7>

The 2022 Mexico tsunami was only observed at Wafer Bay, Cocos Island and not recorded at the tide gauge in Chatham Bay, Cocos Island, nor Quepos.

A tsunami catalogue was published early 2022 in Spanish. It has several new records of old tsunamis. A total of 37 tsunamis have been observed or recorded in Costa Rica Pacific coast since 1854. The book is available in Spanish as a hard copy and eBook:

<https://www.euna.una.ac.cr/index.php/EUNA/catalog/book/330>

8. Web sites (URLs) of national tsunami-related web sites

www.tsunami.una.ac.cr

www.facebook.com/sinamot.cr

9. Summary plans of future tsunami warning and mitigation system improvements.

This information will be used to aid the development of the PTWS Medium Term Strategy and the PTWS Implementation Plan.

- In November 2024, SINAMOT received a donation of four new tide gauges by the European Commission. The first gauge was installed in February in Puntarenas, where a sea level station operated from 1941 to 2003. The second gauge is being installed this week (April 1 to 4) at Golfito, where a sea level station operated from 1998 to 2003. The other two gauges will be deployed at the north Pacific coast (Guanacaste province), before the end of May. With this donation, Costa Rica will have six sea level station monitoring tsunamis in its Pacific coast.
- Tsunami evacuation maps have been developed for 57 communities in Costa Rica Pacific coast, from a total of 273. In January 2025 we started a project working at Municipal rather than community level, to widespread tsunami preparedness. Costa Rica has 15 coastal municipalities in the Pacific coast.
- In January 2025 we started a project to update Tsunami Hazard Assessments at both shores considering stochastic seismic sources and non-seismic sources. The results from this project will be used to update tsunami evacuation maps and create new ones.
- Costa Rica has 10 Tsunami Ready communities in its Pacific coast. However, one of those recognitions expired in 2021 and four more will expire in 2025. Work is being done to renew those five recognitions.

NATIONAL PROGRAMMES AND ACTIVITIES INFORMATION

10. EXECUTIVE SUMMARY

Brief statement of no more than one page addressing all items discussed in the National Report. Should include 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), as well as public education programmes or other measures taken to heighten awareness of the tsunami hazard and

risk.

Tsunami communication protocols are tested regularly.

Two tsunamis were recorded in 2022, and many old records were discovered that lead to a Catalogue published.

Currently, 57 coastal communities have tsunami evacuation maps, and a new project seeks to increase this number by working at Municipal level.

A new tsunami hazard assessment is being undertaken, including stochastic seismic sources and non-seismic sources.

A donation of four sea level station was received and two of them are installed now. The other two will be deployed in the following months.

Half of the 10 Tsunami Ready recognized communities need to renew their recognition during 2025.

Date: 1 April 2025, Name: Silvia Chacón-Barrantes