

## NATIONAL REPORT

Submitted by FRANCE (NEW CALEDONIA)

### BASIC INFORMATION

#### 1. ICG/PTWS Tsunami National Contact (TNC)

Name: Helene Hebert

Title: Dr.

Organization: Commissariat à l'Energie Atomique et aux Énergies Alternatives

Postal Address: 91297 Arpajon

E-mail Address: [helene.hebert@cea.fr](mailto:helene.hebert@cea.fr)



#### 2. ICG/PTWS Tsunami Warning Focal Point (TWFP)

##### **TWFP Agency name #1:**

Direction de la sécurité civile et de la gestion des risques - DSCGR - Government of New Caledonia

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

Name: Manon Brasseur

Position : Operations Department Manager



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

Name of office, operational unit or position:



##### **TWFP Agency name #2:**

Centre opérationnel de surveillance et de sauvetage de Nouvelle-Calédonie - COSS-NC

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

Name:

Position:



##### **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:

##### **TWFP Agency name #3:**

Etat-major interministériel de zone - EMIZ - French state

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

Name:

Position:

[REDACTED]

**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:

**TWFP alternate:**

Institut de recherche pour le développement - IRD

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

Name:

Position:

[REDACTED]

Email Address: [tsunami.nc@ird.fr](mailto:tsunami.nc@ird.fr)

Postal Address:

101 Promenade Roger Laroque, BP A5, 98848 Nouméa Cedex, New Caledonia

**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:

Direction de la sécurité civile et de la gestion des risques - DSCGR -

Government of New Caledonia COG988

NTWC Agency Contact or Officer in Charge (person):

Name:

Position:

Telephone Number:

Email address: [operations.dscgr@gouv.nc](mailto:operations.dscgr@gouv.nc)

Postal Address:

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

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

Name: Jérôme Aucan

Title: IRD research scientist (in secondment)

Postal Address: CPS – BP D5, 98848 Nouméa Cedex, New Caledonia

E-mail Address: [jeromea@spc.int](mailto:jeromea@spc.int)

Emergency Telephone Number:

Emergency Fax Number:

Emergency Cellular Telephone Number:

Regulatory framework in New Caledonia

- 28 August 2012 - Tsunami civil security response organization plan (ORSEC)
- 15 June 2016, updated on 28 September 2021 - Tsunami operational procedure
- 31 July 2017 - Order No. 2017-008196 relating to the alert signal in New Caledonia

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

The local tsunami threat is the local seismicity and the Vanuatu trench, with epicenter distance ranging between 70 and 500 km from New Caledonia (area 3 of the analysis grid - New Caledonia and Vanuatu, see figure p.5 of the report).

Given this proximity, natural evacuation criteria is given as shaking lasting more than 20 seconds and/or unabling to stand. For the watch officer at DSCGR, it is then an immediate reaction for triggering sirens and following ORSEC procedure.

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

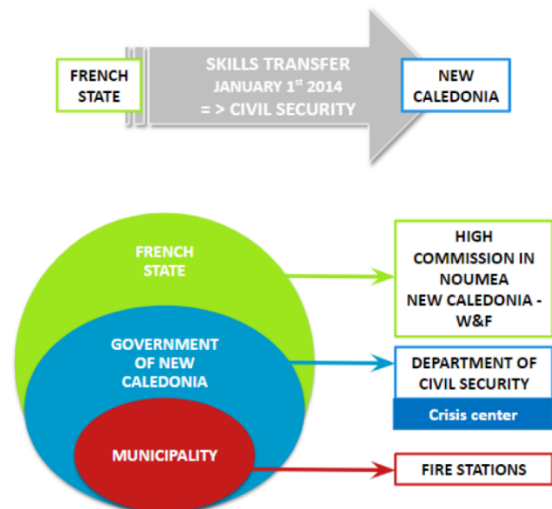
For each situation, please provide the following:

- What organization identifies and characterizes tsunamigenic events?
- What is the threshold or criteria for declaring a potential tsunami emergency?
- What organization acts on the information provided by the agency responsible for characterizing the potential tsunami threat?
- How is the tsunami information (warning, public safety action, etc) disseminated within country? Who is it disseminated to?
- How is the emergency situation terminated?
- For Distant Tsunami Procedures:  
What actions were taken in response to tsunami bulletins issued by PTWC, NWPTAC, and/or SCSTAC during the intersessional period?

#### Tsunami risk management organization in New Caledonia

Since the transfer of skill for civil security in 2014, government of New Caledonia through Directorate for Civil Security and Risk Management (DSCGR) is responsible for prevention of risks of all kinds, informing and alerting populations as well as protection of people, property and environment throughout the territory.

An officer of the operational center of the government (COG 988) is on call H24 and 7/7. He is connected with the on-call duties of the other operational rooms (COSS NC and State) to cross-check the information and with IRD/CPS experts.



#### Three steps

##### A) Reception of alerts

The three TWFP agency contacts, which are operational rooms, receive:

1/ **Seismic information directly from the IRD/ORSNET** system, based at IRD in Noumea, via text message and email. These messages provide location, depth and magnitude within minutes of the event.

SMS:

ird2023opcydt \* 4 \* Vanuatu Islands Mw(Mwp)=6.6 2023/07/26 12:44:36.7 14.87 S 167.85 E 5 km <https://bit.ly/3OwaxCH>

Email:

*ird2023opcydt Vanuatu Islands Mw(Mwp)=6.6 2023/07/26 12:44:36.7 14.87 S 167.85 E 5 km*

Oceania Regional Seismic Network (ORSNET) - <http://www.orsnet.org>  
This is an automatic detection: event has not yet been reviewed by a seismologist  
For subsequent updates, maps, and technical information, see <https://bit.ly/3OwaxCH>  
Alert ird2023opcydt: determined by 21 stations, type A  
LOCSAT solution with earthmodel iasp91\_scanloc (with start solution, 21 stations used, weight 21):  
Vanuatu Islands Mw(Mwp)=6.6 2023/07/26 12:44:36.7 14.87 S 167.85 E 5 km  
Stat Net Date Time Amp Per Res Dist Az mb ML mB  
MRNO VU 23/07/26 12:44:40.0 0.0 0.0 -0.9 0.2 117 0.0 6.0 0.0 etc.  
RMS-ERR: 1.52  
First location: 2023/07/26 12:46:28  
This location: 2023/07/26 12:49:04

2/ **PTWC tsunami information statement**, from PTWC based in Hawaiï, via email, several minutes after the IRD/ORSNET messages.

Also, the warning can be provided from tsunami experts from IRD or any civil security actor through several phone calls.

**TWFP #1 / NTWC** is the country NDMO, **TWFP #2** is the Maritime Safety Agency and **TWFP #3** is the French State.

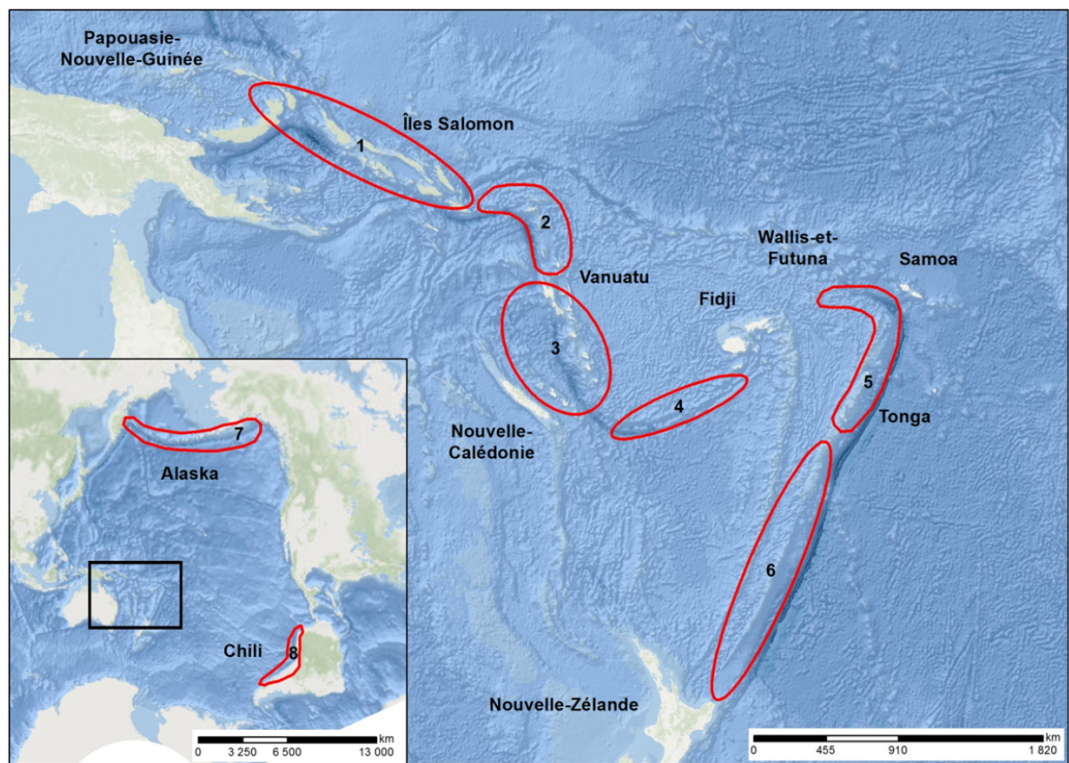
- TWFP #1 and #3 will disseminate information for entire country and more specifically on land, TWFP #2 to mariners and ships.
- TWFP #3 is in charge of Wallis-and-Futuna.
- TWFPs are exchanging information throughout the event.

#### B) Risk analysis according to a grid

The Tsunami operational procedure is implemented as soon as alert messages are received, taking into account the location, magnitude (greater than 6.5) and depth (between 0 and 100 km) and/or the feelings of the population following an earthquake / the call from a tsunami expert.

For the location of the earthquake, eight (8) geographical areas have been identified with the IRD experts. Depending on the area, scenarios and operational responses are different.

Tsunami heights are monitored on the IOC sea-level monitoring website for neighboring tide gauge stations, and on the NOAA/NDBC and GEONET webpages for DART stations.



1	LOCATION OF EARTHQUAKE	2	3	MAGNITUDE	4	IRD EXPERTISE	5	PTWC
AREA 1	New Britain New Ireland Papua New Guinea Solomon Islands	D E P T H  L E S S  T H A N  1 0 0  K M	0.0	6.5	7.9	<b>Contact the IRD expert for further information:</b> - when the risk is not proven and magnitude greater than 6.5 - when the risk is confirmed	<b>Refine the risk analysis:</b> using the elements sent to the PTWC (KMZ...).	<div></div> <div></div>
AREA 2	Banks Islands Santa Cruz Islands Torres Islands		0.0	6.5	7.6			
AREA 3	New Caledonia Vanuatu		0.0	6.5	7.2			
AREA 4	Fiji Minerva Reefs		0.0	6.5	7.6			
AREA 5	Tonga Trench Wallis and Futuna		0.0	6.5	7.9			
AREA 6	New Zealand Kermadec Ridge		0.0	6.5	7.9			
AREA 7	Alaska		0.0	6.5	8.5			
AREA 8	Chile		0.0	6.5	8.5			

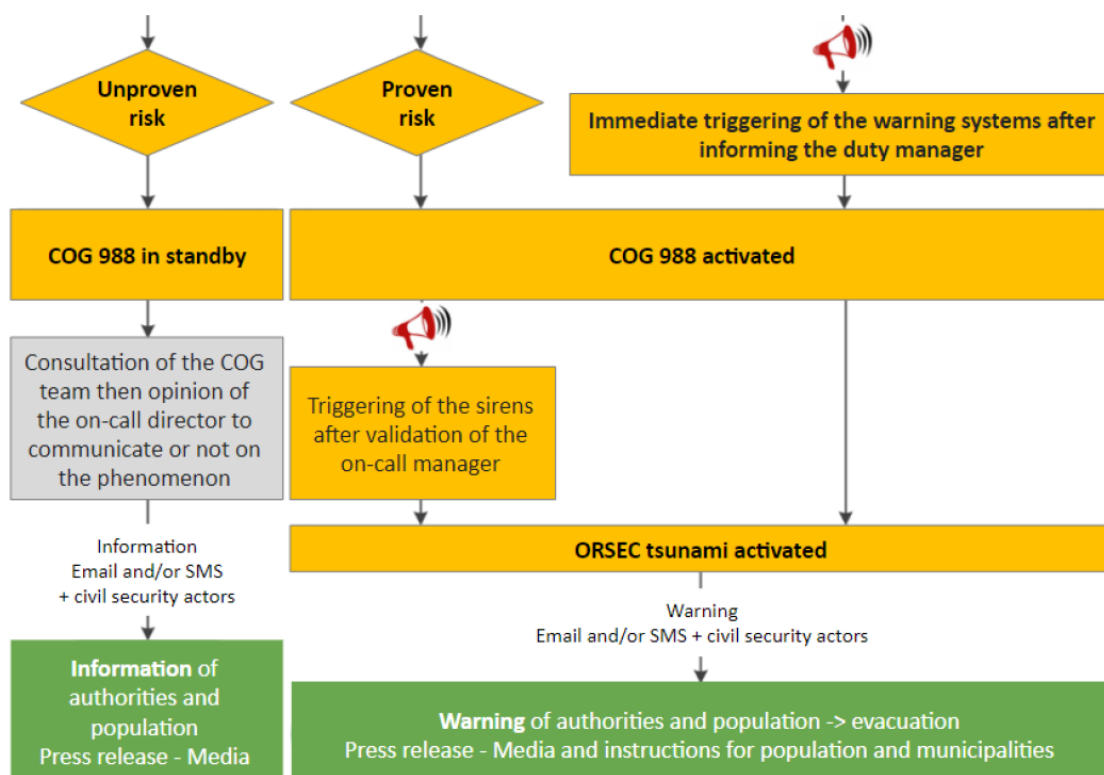
### C) Operational response

Two scenarios are possible:

1/ **A reflex reaction with an immediate triggering** of the sirens according to well-defined criteria - earthquake felt significantly in New Caledonia AND/OR earthquake with a proven and immediate risk according to the analysis grid (zone 3 - New Caledonia and Vanuatu) AND/OR reasoned opinion from the IRD/CPS expert to the DSCGR.

2/ **A risk analysis** with the exploitation of the different messages and sources of information, using an analysis grid, and in connection if possible with an IRD/CPS expert (TWFP alternate and/or tsunami advisor).

- Either the risk is not proven: there is no action required from the population.
- Either the risk is proven:
  - o There is an evacuation of the coast / coastal strip in the geographical sector concerned, following abnormal movements of the sea level (no sirens triggered); OR
  - o There is an evacuation to high points or refuge areas in the geographical sector concerned (areas defined as points of altitude higher than 12 meters and/or located more than 300 meters from the coast) following the triggering of the sirens.



Triggering of the sirens (in reflex reaction or after analysis of the phenomenon) is carried out by the COG 988 officer after validation by the director of the DSCGR, in conjunction with the President of the government of New Caledonia. It is carried out using an application developed by Assystem with three geographical sectors: the East coast and the islands (Loyalty Islands and Île des Pins) / the West coast (Bourail) / the entire territory.

Information is then disseminated by DSCGR:

- To institutions and local authorities (ORSEC list) by email, SMS, telephone call with transmission of the press release, instructions to the mayor and the population and the decree if the ORSEC Tsunami plan is activated;

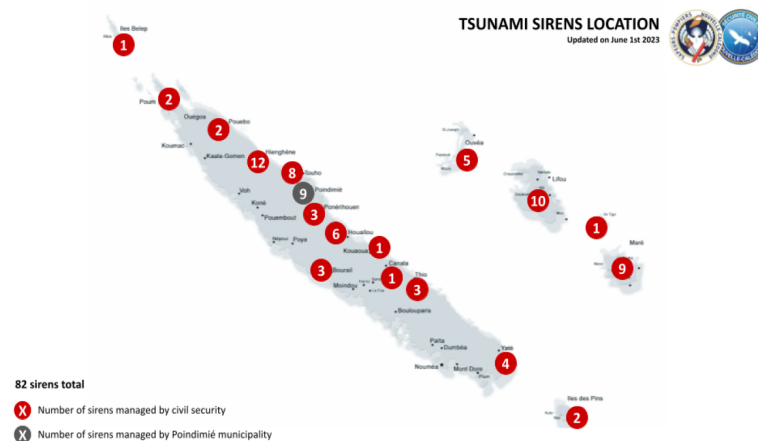


- To the public via the media and social networks. The websites that can be consulted are those of the DSCGR (securite-civile.gouv.nc), the PTWC (tsunami.gov) and the IRD (seismes.nc).

There is a mobilization of operational resources of:

- Municipalities, as part of their municipal safeguard plan;
- Government;
- French state;
- Approved civil security associations, if necessary.

In 2023, the government of New Caledonia (DSCGR) manages all the tsunami warning systems (preventive and curative maintenance carried out by Assystem), with the exception of the nine (9) sirens in the municipality of Poindimié, i.e. a total of 73 sirens.

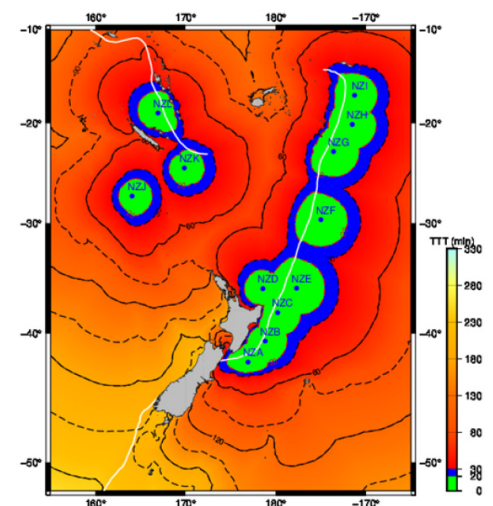


## 6. National Sea Level Network

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

There are seven (7) tide gauges around New Caledonia. SHOM (Service hydrographique et océanographique de la Marine) is taking care of the network.

In addition to the data from the permanent tide gauges, New Caledonia is using the data from New Zealand DART (Deep Assessment and Reporting of Tsunamis) network (12 stations total). 2 DART stations NZK and NZL between New Caledonia and Vanuatu have been installed since July 2021, to record tsunamis generated at the Vanuatu Trench in less than 30 minutes.



Source - Roger & Burbidge, 2022

In addition to seismological and tide gauge networks, New Caledonia should benefit from the TAM TAM SMART Cable coordinated by Ifremer (France), that should be deployed by the end of 2026. The 4 foreseen CC nodes should provide seismological and pressure data for any event occurring on the Vanuatu trench and contribute to a better early warning.

## **7. Information on Tsunami occurrences**

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

Since January 1st 2021, the operational room has received 96 warnings from IRD/ORSNET and PTWC. Timelines and observations of 3 major events: 17.12.2024 / 27.03.2024 / 04.04.2024. Lessons learned from post-event briefs allowed civil security to design an action plan.

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

DSCGR (NDMO): [securite-civile.gouv.nc](http://securite-civile.gouv.nc)

IRD/ORSNET (earthquake detection): [seisme.nc](http://seisme.nc)

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

- ALERT RECEPTION - IMPROVEMENT OF IRD/ORSNET AND PTWC PRODUCTS SINCE 2023

### **IRD/ORSNET products**

They have been adapted to better fit the needs of the crisis center and to have a better coverage of the regions that concern NC and reception of local earthquakes (hazard to be now taken into consideration given the latest studies and the multiplication of the feelings of the population). Instead of receiving messages for worldwide earthquakes with magnitude greater than 6.4 (about 50 messages per year), about 30 messages per year based on:

1. Events of magnitude greater than or equal to 3 within a radius of 300 km around Bourail (this covers the whole of Grande Terre + Belep + Isle of Pines + Loyalty Islands) -> local earthquakes;
2. Events of magnitude greater than or equal to 6.5 within a radius of 3000 km around Noumea. This covers NZ, Kermadec, Tonga, Fiji, Vanuatu, Solomon, PNG, so the entire South West Pacific area;
3. Events of magnitude greater than or equal to 7.5 elsewhere, outside the South West Pacific zone beyond 3000 km around Noumea.

### **PTWC products:**

1. Splitting of the existing polygon that encompasses the entire territory into three polygons, to better reflect the difference in hazard levels in New Caledonia;
2. Additional ETA points nearby tide gauges spread across the entire territory, instead of a single initial one located offshore of Noumea.

Contact lists for both products have been updated for New Caledonia at the same time as all improvements made.



- **MONITORING NETWORK**

New Caledonia is applying to different fundings with governmental technical directorates and partners involved (SHOM, IRD) in order to consolidate and/or extend monitoring networks:

- Tide gauges - extend network by having two more tide gauges in Isle of Pines and up North (location to be defined) to have nine (9) gauges total;
- Seismic stations - consolidate existing network (relocate two stations in Lifou and South-East coast) and extend it with one more station on the North-East coast (Touho or Poindimié, location to be defined) to have eight (8) fully functional stations.

- **CRISIS MANAGEMENT TOOLS**

**TsuCAL project**

The initial objective of TsuCAL, a research project carried out jointly by the research institute for development (IRD) and the civil security and risk management directorate (DSCGR), is to offer duty officers of the operational center of the government (COG 988) an additional decision-making tool for tsunami warning management. This tool has been operational since June 9, 2023.

TsuCAL data are intended to form a catalog of exposure maps of New Caledonia coastline to a representative sample of tsunamis from regional and distant sources (about 3000 scenarios). Exposure to the hazard is characterized by maps of maximum amplitude (Hmax) and supplemented by an indication of waves arrival times (Estimated Time of Arrival) for different municipalities. These results are available at a Pdf format and on ARCGIS online at the operational crisis center. Warning messages are sent by email giving the most relevant scenario according to the seismic event.

Establishment of a tsunami committee of experts, whose first meeting was held on 15 June 2023, is to use these TsuCAL modeling results for decision-making support on municipal prevention measures. The municipality of Noumea offered at the conference on tsunami risk on 6 September 2022 to be a test municipality, given the human and material resources available within its GIS department. The method put in place must therefore be replicable on other coastal sectors and applicable at the scale of the territory. It will therefore be necessary to define a local methodological standard.

Three working groups have been identified:

WG 1 - Exploitation of TsuCAL data and cartography

WG 2 - Evacuation and signage

WG 3 - Risk culture / training

**Need of LiDAR type reference data**

Better knowledge of marine and land topography is one of the keys to significantly improve models. Unlike many Pacific Island Countries and Territories (PICTs), much of New Caledonia remains devoid of LiDAR coverage on land, and most of its lagoon, being the largest in the World with an area of 24000 km<sup>2</sup>, is still unknown in terms of high-resolution bathymetry.

In order to make up for this lack of data, a working group has existed since January 2023 and brings together five technical departments of the government of New Caledonia. It is dedicated to find funding to acquire reference data for the purpose of characterizing hazards and associated risks. Several applications are pending in order to cover up to 60% of the coastline of New Caledonia (500 m inside land and 0-20 m bathymetry). This high-resolution data will be used, among other topics, to:

- Improve TsuCAL modeling - for now, only maximum amplitudes have been simulated based on 3000 seismic scenarios, the goal being to have inundation calculations (runup distances and flow depth).
- Design hazard and risk maps and define evacuation roads and safe areas.

### **Access to tsunami expertise by duty officers on-call in case of event**

Since civil security skill transfer in 2014, there is no on-call duty IRD expert in New Caledonia. Different ways are explored to solve this problem:

- Access to 24-hour on-call expertise in France (CENALT) or French Polynesia (LDG-CCPT) -> a request letter has been written by the government of New Caledonia to the French High Commissioner. Action is in progress and an answer is expected.
- Set-up of a persistent tsunami committee of experts, with a contact list of people able to join the crisis center in case of an event.

### **Development plan for warning systems**

- Sirens - existing development plan has to be modified following TsuCal results with a new prioritization of municipalities - 2 to 3 sirens can be installed per year according to available budgets. Also, apart from this plan, there is a project of mutualisation with the municipality of Noumea and the government to install several sirens for both shark and tsunami risks on Noumea coastline. The project to update the siren triggering software is however still pending.
- FR-alert - a warning tool developed by the French state, potentially available and operational in New Caledonia by 2026, allowing sending text messages on individual mobile phones and using cell-broadcast technology in 4G/5G and geolocated SMS in 2G/3G. The project is under development.

## **NATIONAL PROGRAMMES AND ACTIVITIES INFORMATION**

### **Integration of New Caledonia in working groups (WG) and task teams (TT), via France TNC**

- WG-2 - Tsunami detection, warning and dissemination
- WG-3 - Disaster risk management and preparedness
- WG - Pacific Island Countries and Territories (PICT)
- TT - PacWave
- TT - Tsunami Ready

### **Participation of New Caledonia at the regional geohazard workshop**

New Caledonia wished to implement UNESCO's Tsunami Ready program in three test municipalities, one on the east coast, one on the Loyalty Islands and one in Nouméa. However, due to the crisis in 2024, this work had to be halted.

### **Development of a communication plan**

#### *Crisis*

- Creation of templates for press releases according to possible scenarios
- Development of graphical chart and Facebook banners

#### *Public*

- One conference given to a high school

#### *Institutional*

- Permanent link with all institutional levels in New Caledonia from municipalities, provinces, government to French State

### **Training of duty officers**

After the HTHH event in January 2022, annual training has been put in place for duty officers with the participation of tsunami experts (IRD-SPC).

### **10. EXECUTIVE SUMMARY**

*Please provide a brief statement of no more than one page addressing all items discussed in the Narrative section of the National Report (below)*

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### **11. 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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Date: ..... Name: .....