



SOLOMON ISLANDS
GOVERNMENT



INTERNATIONAL TSUNAMI INFORMATION CENTRE

A UNESCO/IOC – NOAA Partnership
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Solomon Islands Meteorological Service (SIMS) National Weather forecasting and Warning Center



Tsunami warnings System in the Solomons Islands

11 August 2023

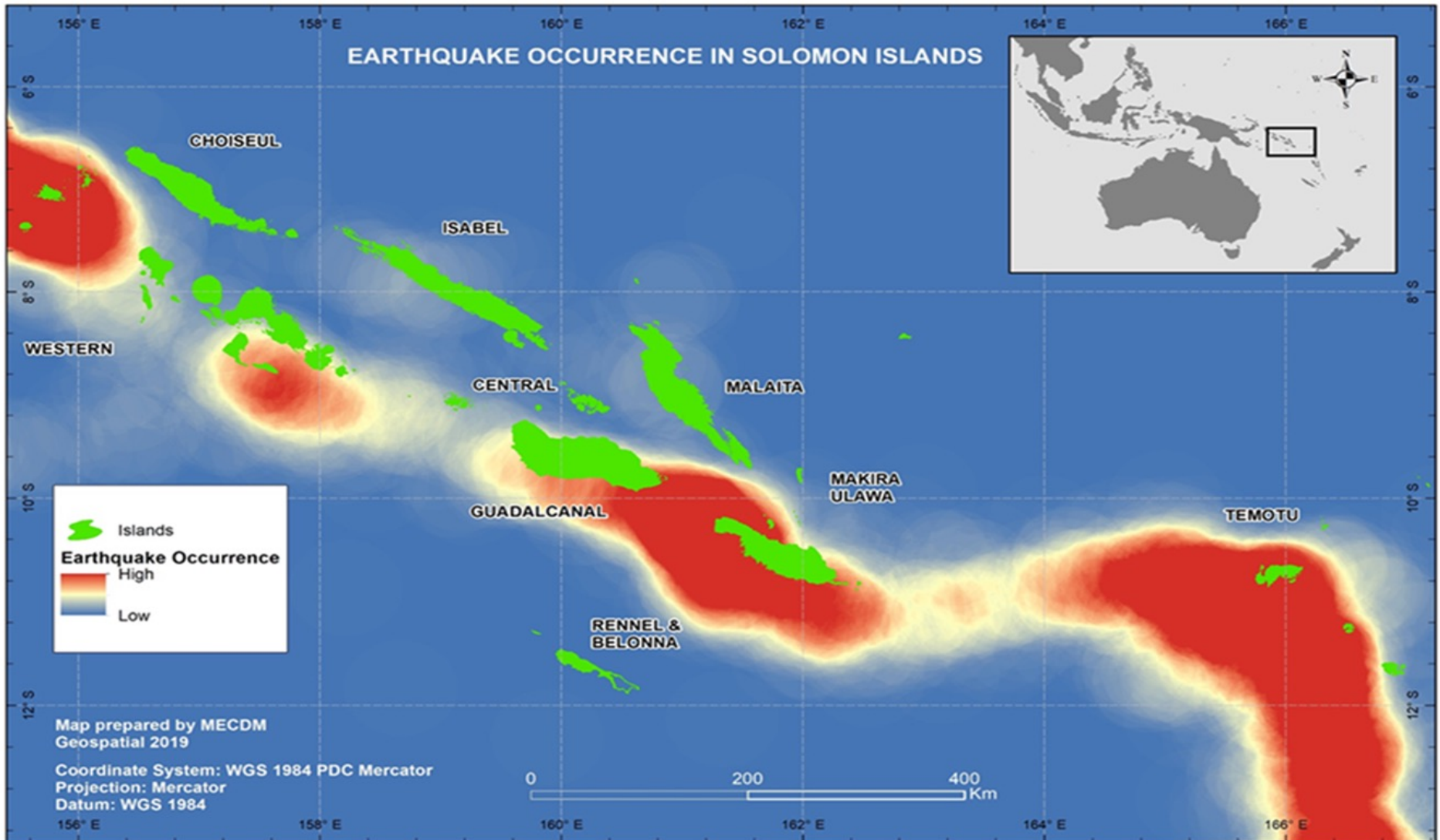
Presenter: Frank Bale



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EXPOSURE TO EARTHQUAKE GENERATED TSUNAMI



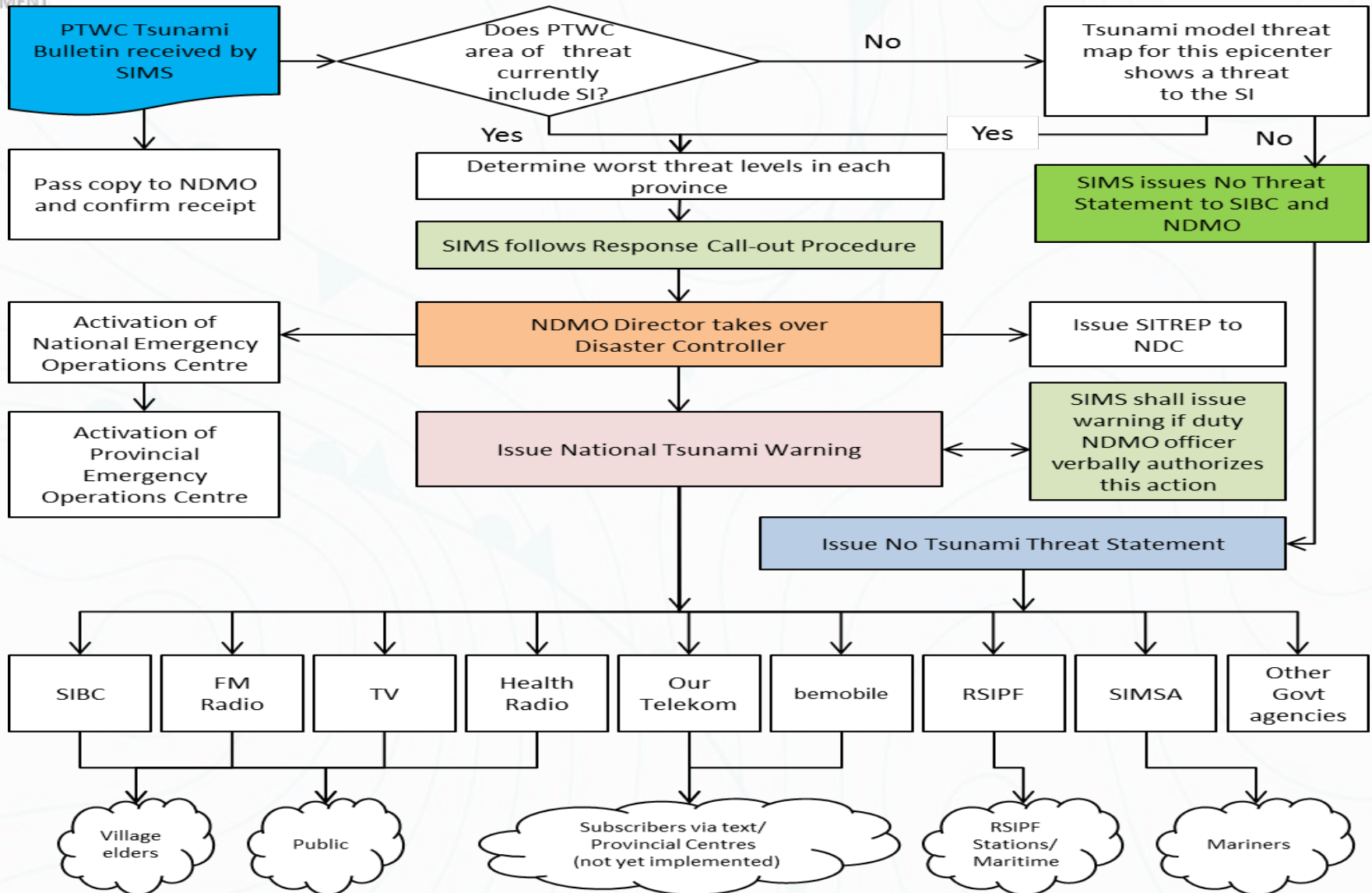


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Tsunami Warning Sub-plan

- Sub plan of the DRM Plan
- Latest version is the 2013



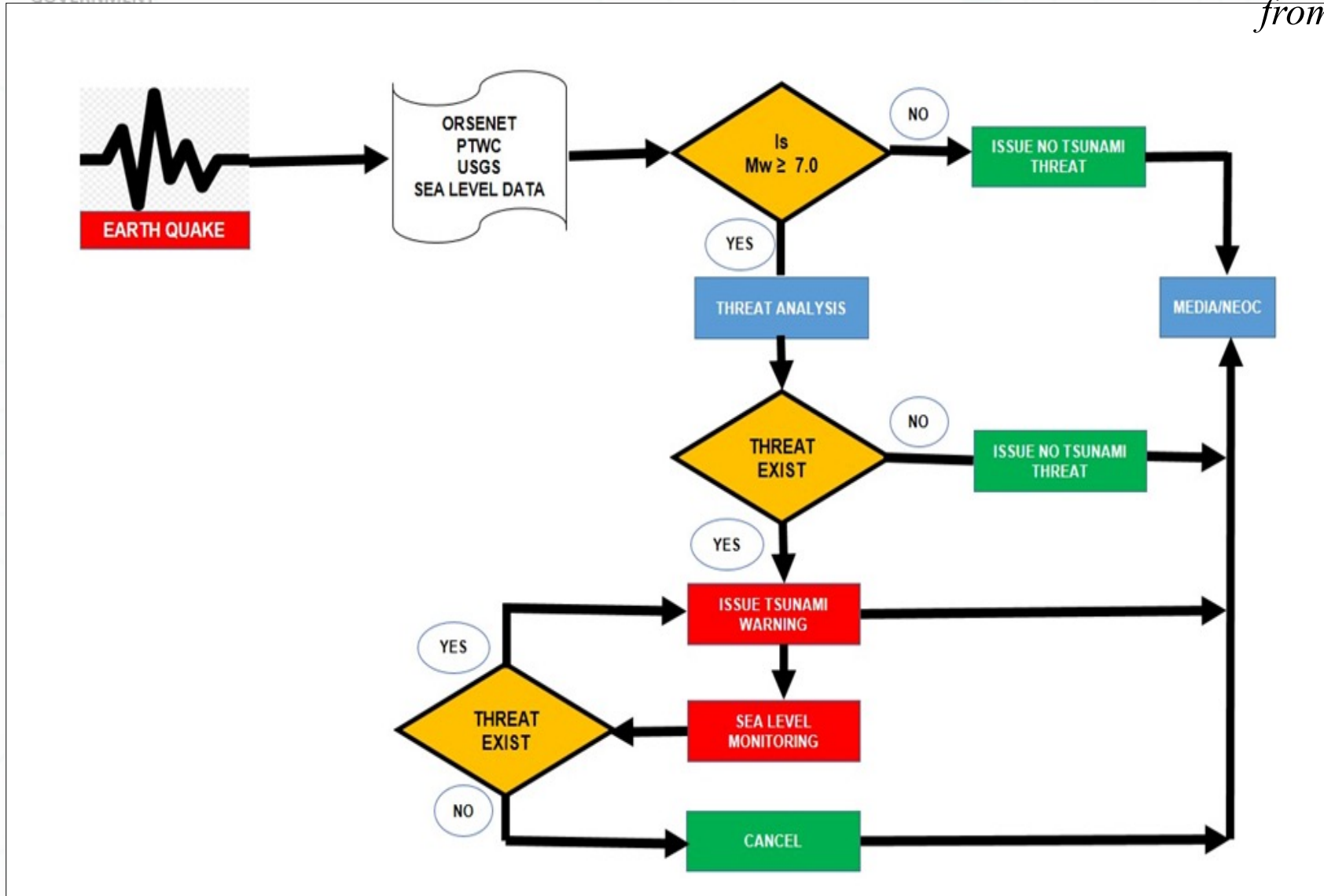


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SIMS CALL OUT PROCEDURE



*Maximum time
from earthquake*

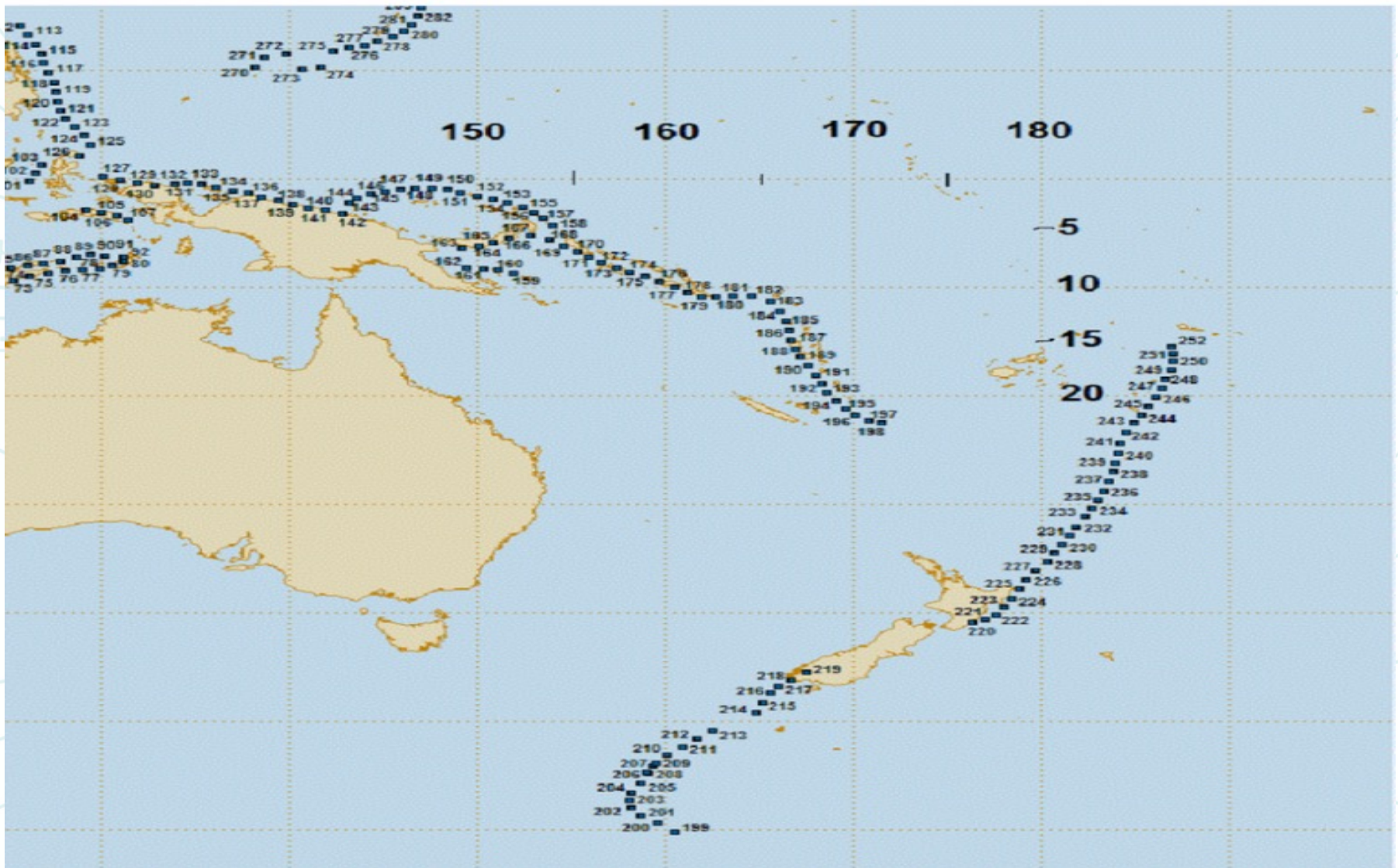


05mins

5-10mins

60mins

A threat assessment shall be made based on preliminary earthquake parameters, the nearest matching scenario from pre-run model scenario (MOST) database will be selected.

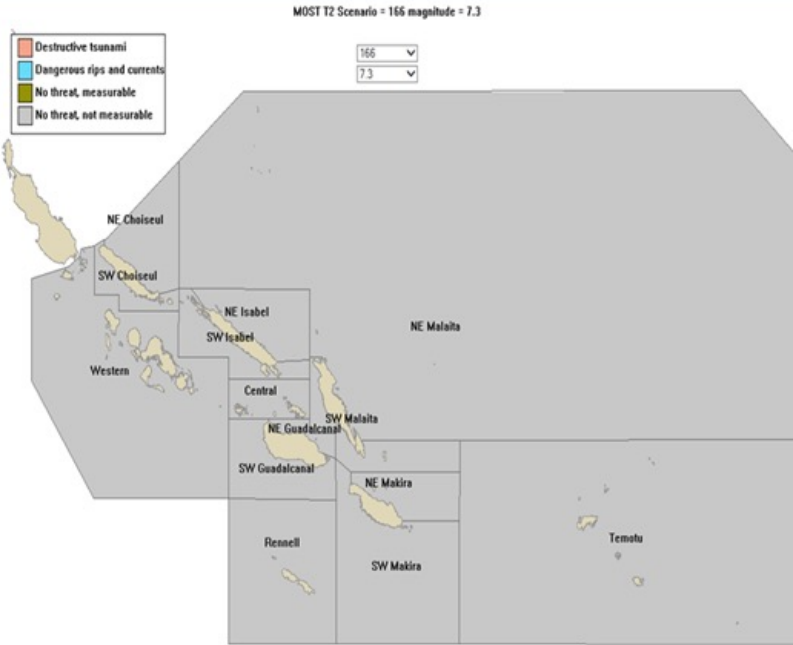
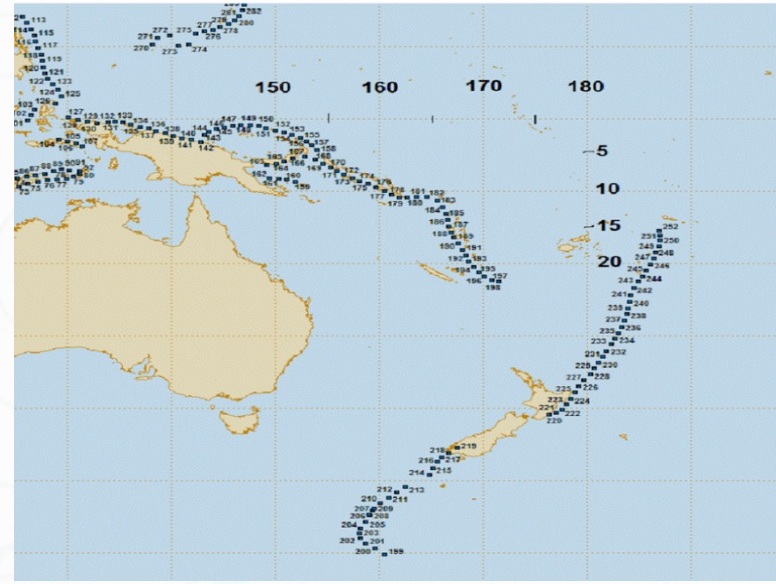




Threat Analysis - Scenario 1



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 HENDERSON OFFICE TEL: 36310/933 FAX: 36091
 Email: forecast@met.gov.sb
 Website: www.met.gov.sb

MEDIA: PLEASE BROADCAST THIS INFORMATION IMMEDIATELY!

NO THREAT STATEMENT

.....

Issued by the Solomon Islands Meteorological Service at 8:50pm on Monday 04th July 2016.

NO TSUNAMI THREAT TO THE SOLOMON ISLANDS

.....

An undersea earthquake of magnitude 6.0 occurred at 8:25pm this evening on 04th July 2016 near (Latitude 10.6 degrees South and Longitude 165.0degrees East). This is approximately 87km east of West of Trevanion Island (Santa Cruz), Temotu Province.

THERE IS NO TSUNAMI THREAT TO THE SOLOMON ISLANDS

No further updates will be issued unless the situation changes.

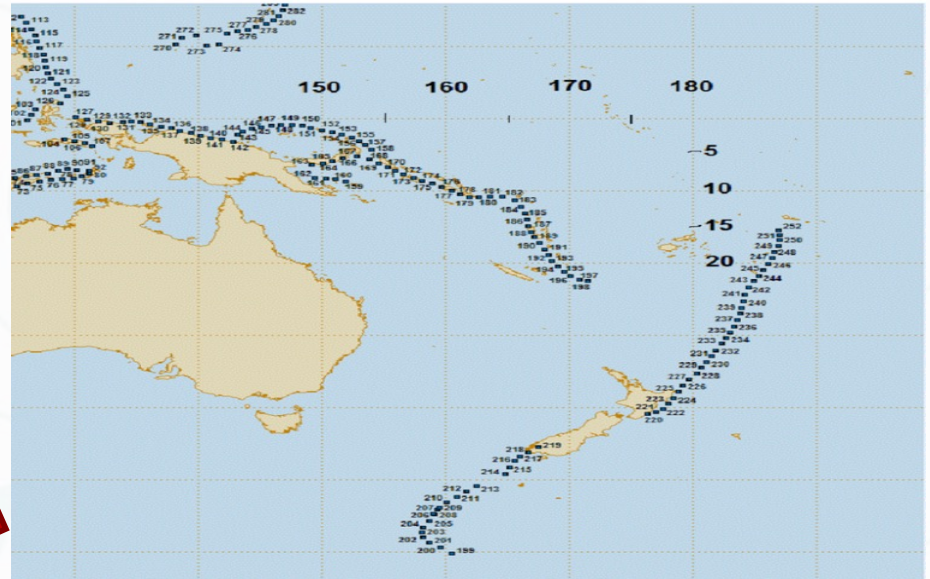
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Threat Analysis - Scenario 2



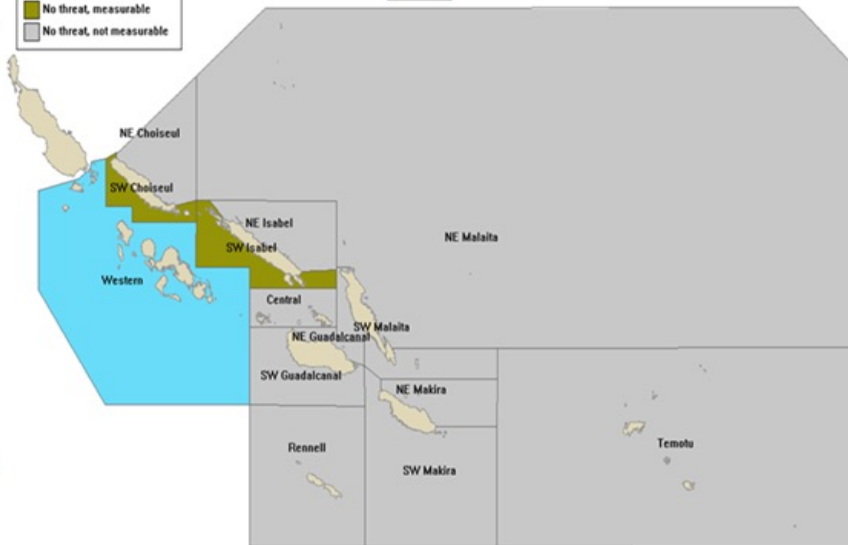
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MOST T2 Scenario = 172 magnitude = 7.3

- Destructive tsunami
- Dangerous rips and currents
- No threat, measurable
- No threat, not measurable

172
7.3



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NO THREAT STATEMENT

.....

Issued by the Solomon Islands Meteorological Service at 8:50pm on Monday 04th July 2016.

NO TSUNAMI THREAT TO THE SOLOMON ISLANDS

.....

An undersea earthquake of magnitude 7.3 occurred at 8:25pm this evening on 04th July 2016 near (Latitude 08.1 degrees South and Longitude 155.0degrees East). This is approximately 45km north of Tetepari Island, Western Province.

THERE IS NO TSUNAMI THREAT TO THE SOLOMON ISLANDS

However, unusual sea currents will be experienced along the coasts of Western Province and the southwestern coasts of Choiseul and Isabel provinces.

No further updates will be issued unless the situation changes.

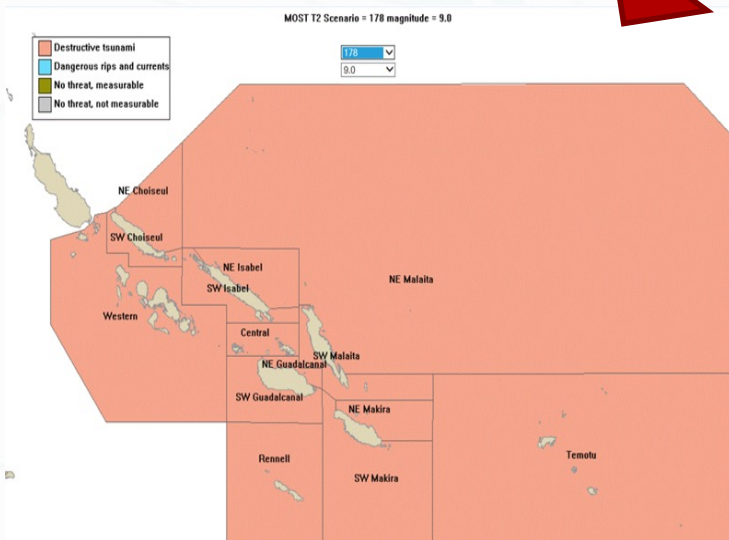
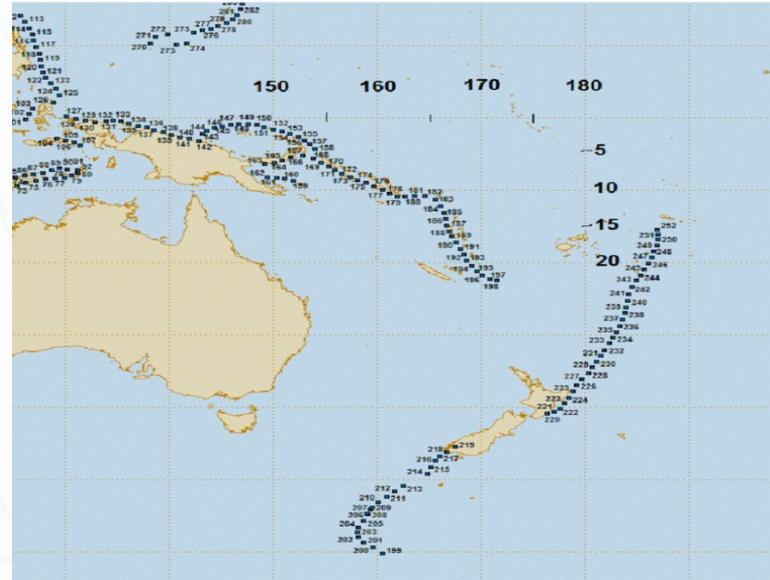
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Threat Analysis - Scenario 3



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Website: www.met.gov.sb

MEDIA: PLEASE BROADCAST THIS INFORMATION IMMEDIATELY

TSUNAMI WARNING NUMBER 1

.....
Issued by the Solomon Islands Meteorological Service at 8:50pm on Monday 04th July 2016.
.....

A strong earthquake of magnitude 7.9 has occurred at 3:30pm this afternoon approximately near 48km West of Arawa, Bougainville, PNG, (Latitude 6.3 degrees South and Longitude 155.1 degrees East).

Based on the initial threat assessment there is a potential for tsunami.

A **Tsunami Warning** is enforced for the following Provinces: Temotu, Makira, Malaita, Central, Isabel, Western, and Choiseul

A **Tsunami Watch** is enforced for: Guadalcanal, Rennell and Bellona Provinces.

People living along the threatened coastal areas should look out for unusual sea behaviour. These might be tsunamis. If you see anything unusual, you should get to high ground immediately.

Be aware there may be aftershocks that can also cause damage. People should get out of buildings if they are showing signs of damage.

Next update will be issued when new information comes in hand.

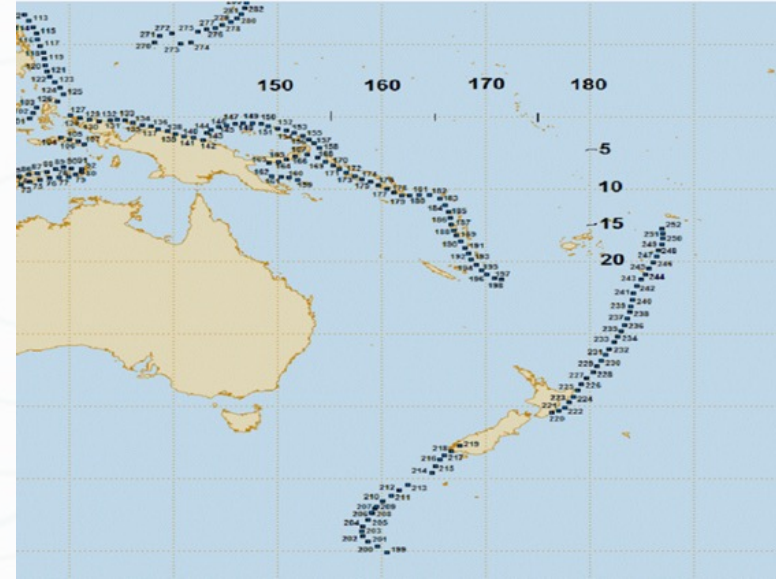
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Distant source - Scenario 4



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MOST T2 Scenario = 178 magnitude = 9.0

- Destructive tsunami
- Dangerous rips and currents
- No threat, measurable
- No threat, not measurable

178
9.0



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FAX: 23029
FAX: 36091

MEDIA: PLEASE BROADCAST THIS INFORMATION IMMEDIATELY!

TSUNAMI WARNING NUMBER 1

Issued by the Solomon Islands Meteorological Service at 8:50pm on Monday 04th July 2016.

A strong earthquake of magnitude 7.9 has occurred at 3:30pm this afternoon approximately near 48km West of Arawa, Bougainville, PNG, (Latitude 6.3 degrees South and Longitude 155.1 degrees East).

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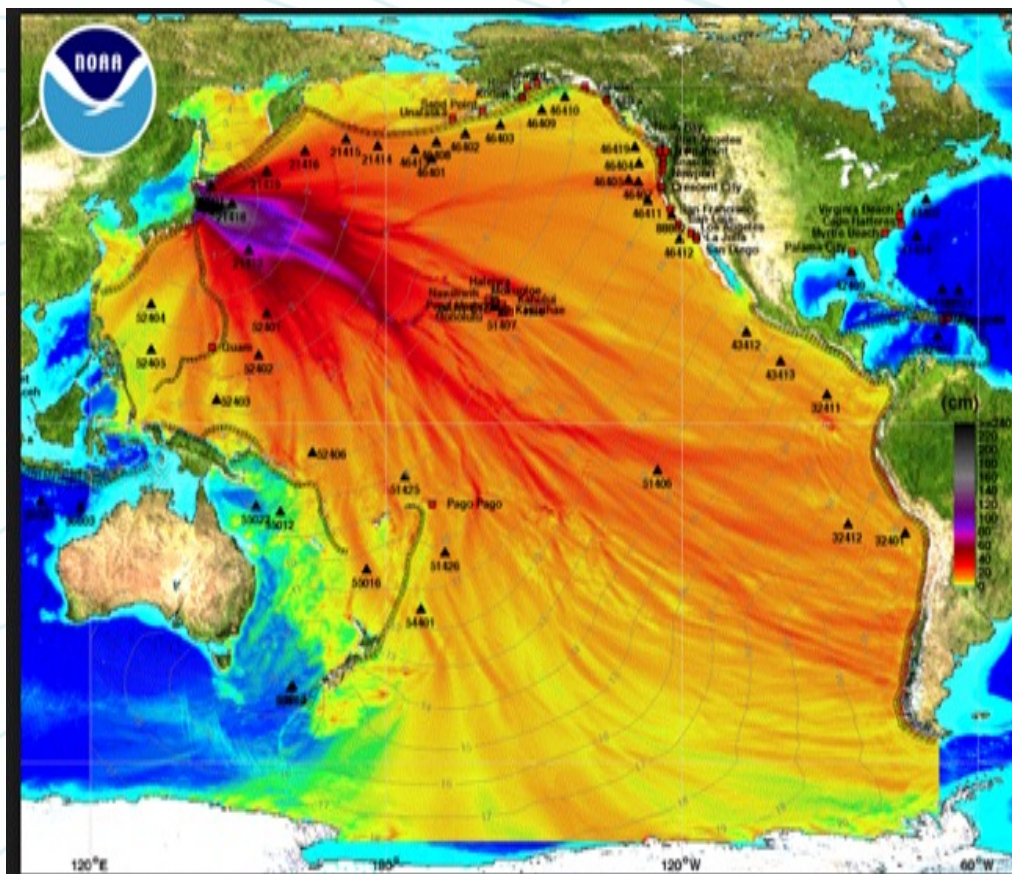
Be aware there may be aftershocks that can also cause damage. People should get out of buildings if they are showing signs of damage.


Next update will be issued when new information comes in hand.

SCENARIO 5

If the bulletins from PTWC indicated a tsunami has been generated BUT originating from a faraway source generally more than 1,000 km away and there is an imminent threat of a tsunami then,

- A Tsunami Watch message shall be used and sent out to all radio outlets and NDMO immediately, updated hourly and inform the Director of Meteorology and the Director of National Disaster Management Office.



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TSUNAMI WATCH NUMBER 1

.....
Issued by the Solomon Islands Meteorological Service at 8:50pm on Monday 04th July 2016.
.....

A strong earthquake of magnitude 7.9 has occurred at 3:30pm this afternoon approximately near 48km West of Arawa, Bougainville, PNG, (Latitude 6.3 degrees South and Longitude 155.1 degrees East).

Based on the initial threat assessment, A TSUNAMI WATCH is enforced for the following Provinces: Temotu, Makira, Malaita, Central, Isabel, Western, and Choiseul

People living along the threatened coastal areas should look out for unusual sea behaviour. These might be tsunamis. If you see anything unusual, you should get to high ground immediately.

Be aware there may be aftershocks that can also cause damage. People should get out of buildings if they are showing signs of damage.

Next update will be issued when new information comes in hand.

.....



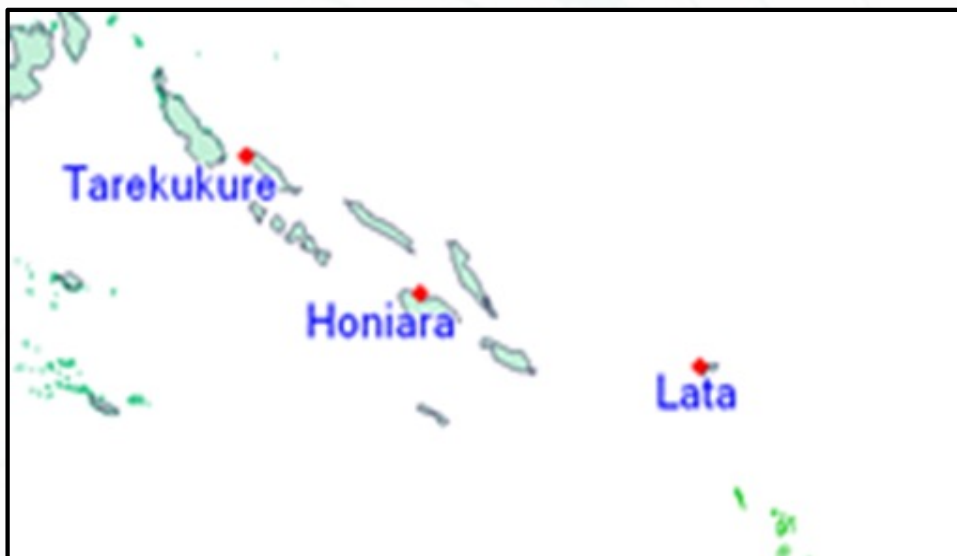
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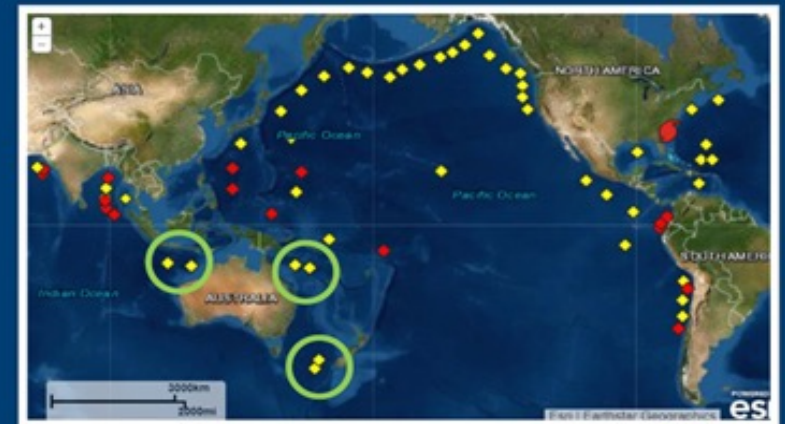
Sea-level Monitoring

Monitor for Tsunami Waves

- **Tide gauges** - On the coast, fixed locations - can observe impact of tsunamis - useful for verification
- **Dart Buoy (Tsunameter)** - located anywhere in deep water - good for warning



Tsunameters



<https://www.ndbc.noaa.gov/>

WARNING CANCELLATION:

Occur based on changed input data, usually a downgrade of earthquake magnitude, or through sea level observations. If they are available, Observations from reliable witnesses along threatened coasts provide a better source of guidance than gauges.

If using sea level gauge data, check that the gauge data is being correctly interpreted and that it is from a site relatively free from local effects that might mask a signal. Common errors are not realising a gauge is off-line due to communications outages or making a decision on the signal before the expected ETA of the first tsunami impacts. If no wave was observed at the expected time at a gauge, you need to wait enough time to allow for inaccuracies in the estimated travel time.

In the situation where tsunami impacts occurred, but based on ground reports, there are no further significant waves being observed, the Cancellation of National Tsunami Warning should be issued no earlier than 2 hours after the last reported damaging waves.

NOTE: ALL CLEAR messages for the community to re-enter a threatened area is the responsibility of the NDMO.

Tsunami cancellation Template



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MEDIA: PLEASE BROADCAST THIS INFORMATION IMMEDIATELY!

TSUNAMI CANCELLATION

Issued by the Solomon Islands Meteorological Service at 7:50 am this morning on Tuesday 05th July 2016.

A strong earthquake of magnitude 8.9 occurred at 3:30 pm yesterday afternoon on Monday 04th July 2016, approximately 48km West of Arawa, Bougainville, Papua New Guinea.

Based on the latest information and Tsunami threat re-assessment, ALL TSUNAMI WARNINGS FOR Temotu, Makira, Malaita, Central Isabel, Western, and Choiseul ARE NOW CANCELLED.

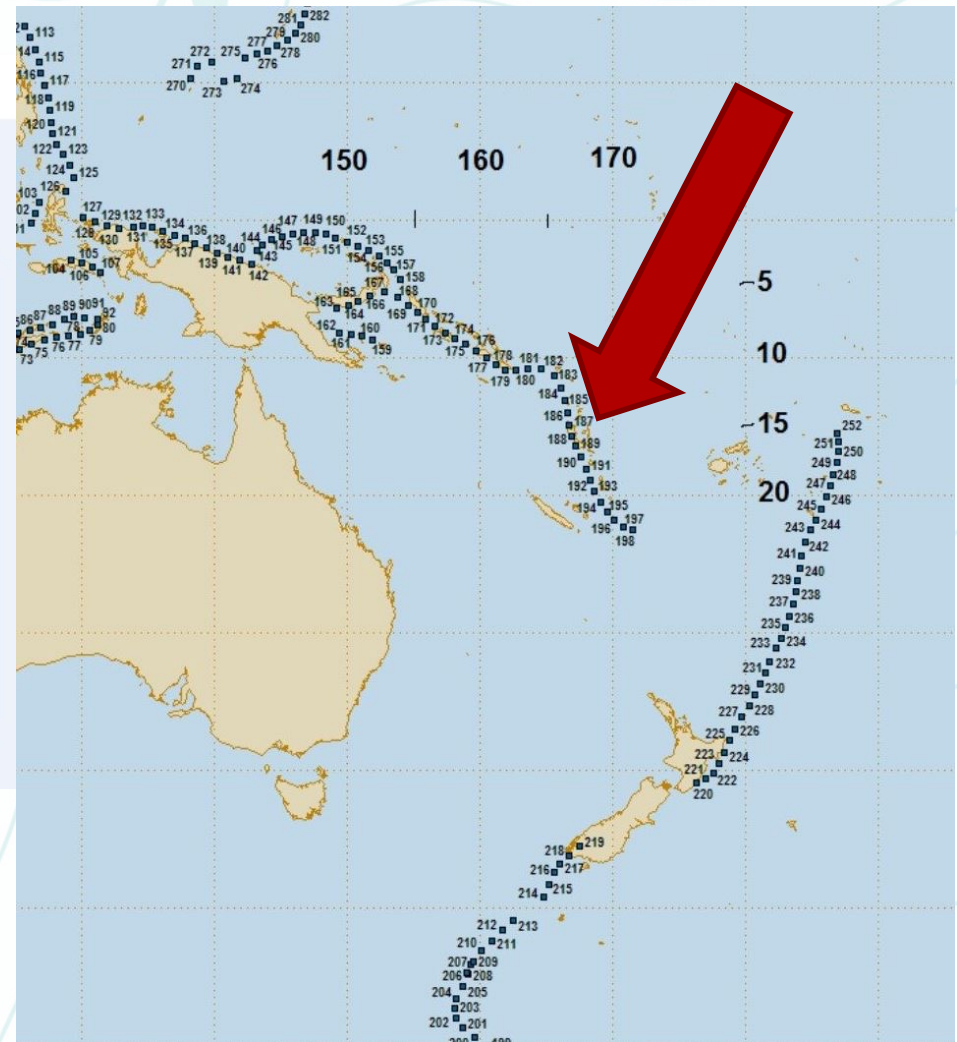
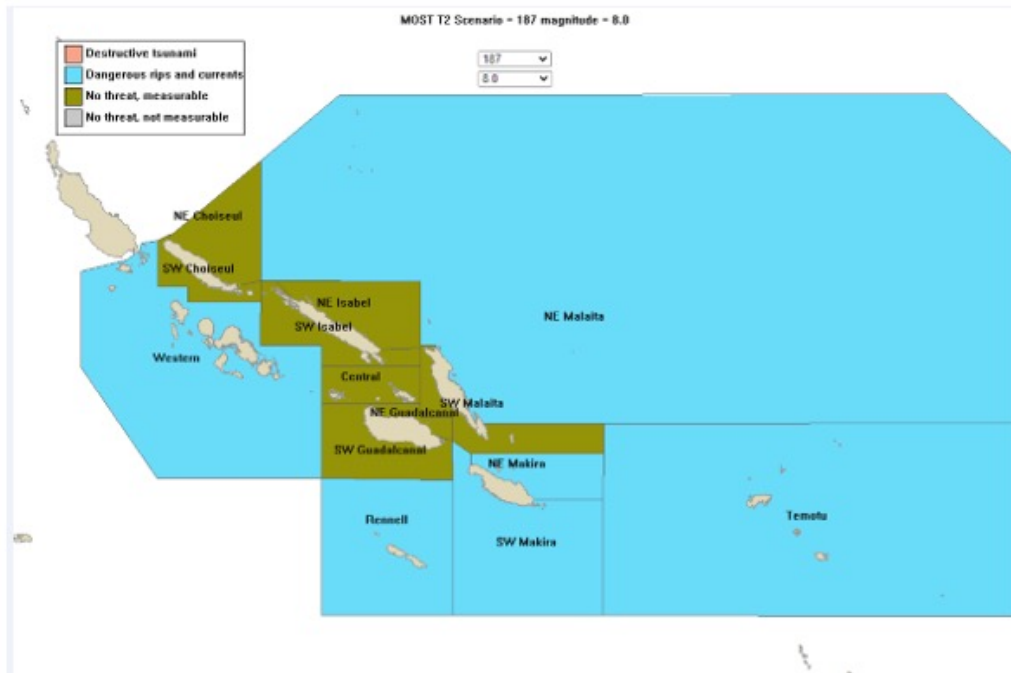
However, people living along the coastal areas and Mariners are advised to take precautionary measures as unusual sea behaviour will still be experienced during today.

Please take note that the final ALL CLEAR message will be issued by the National Disaster Management Office.

No further updates will be issued unless the situation changes.

Proposed - Scenario 6

Tsunami Advisory... for dangerous rips and Currents
Vanuatu Trench-Scenario 187, Mag:8.0



WE ARE LOOKING INTO IBF TSUNAMI MATRIX





Types of Warnings -Official Warnings

- **No Tsunami Threat** – Issued when felt or local earthquake generated but there is no dangerous waves and Destructive Tsunami expected.
- **Tsunami Watch** –There is a chance of a tsunami being generated from an earthquake /Volcano that has the potential to affect Solomon Islands(Local, Regional or Distant Earthquakes).
- **Proposed:**
Advisory: There is potential for dangerous rips and currents for most waters or provinces.
- **Tsunami Warning** –issued due to the imminent threat of a tsunami from a large undersea earthquake (local earthquake)or following confirmation that a potentially destructive tsunami is underway.
- **Distant Tsunami Information** – for tsunamis originating from a far away source generally more than 1,000 km away. For the SI, the source regions would be near Chile coast



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Natural Warnings -Local Tsunami

- **Natural – Strong ground shaking and/or rapidly receding sea-level.**
- **Self Evacuation – Key to Surviving Local Tsunamis with very short lead times**
- **Official Warnings Supplementary to Natural Warnings – Official warnings reinforce self-evacuations & assist all-clear decisions**



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Strength and challenges from past events and exercises

Strength

- Traditional knowledge are still in existence
- Improved TEWS
- Partnership amongst SIG technical agencies/stakeholders/communities
- Establishment of Exercise Island Wave
- On-going awareness
- **Proposed**: Tsunami Advisory to cater for dangerous rips and currents from Earthquake and Volcanic Eruptions.

Challenges

- Issuing of Warnings for localize tsunamis
- Updating of SOPs – New PTWC products/IBFWS-Matrix
- Updating of tsunami systems/tools
- Resourcing technical agencies GSD, SIMS & NDMO -- seismic and sea level stations



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THANK YOU

Be prepared Be Tsunami Ready!

Contact Details:

Meteorological Division, Phone: 27658 or 933
Ministry of Environment, Climate Change,
Disaster Management and Meteorology, Phone : 23031

Life and Death Situations: 999
National Disaster Council: 955

READY FOR TSUNAMI

Let's prepare the community
in case of Tsunami

**Evacuate your family and community
as soon as there are Tsunami Signs**

BEFORE

Run to a safe place in
high ground or at least
2 km inside the island



DURING

Wait during at least
2-3 hours after the
first wave to return
to the village



Don't forget

A warning alert on radio

YELLOW ALERT
Tsunami likely
in 3+ hours
RED ALERT
Tsunami happen
inside 3 hours

If you feel a strong earthquake

- **RUN** to a safe place
- Do **NOT WAIT** to be told
- Do **NOT WAIT** until you see the wave



The others signs of Tsunami are :

- Any unusual change in sea level
- A "roaring" noise



Ghizo, Western Province, Tsunami 2007

