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MARSHALL ISLANDS TSUNAMI WARNING AND PREPAREDNESS, MAJURO TSUNAMI READY
Tsunami Warning and Preparedness Strengthening Workshop
13-14 January 2026
Majuro, Republic of Marshall Islands

Recent Tsunami Events affecting RMI

Dr. Laura Kong
Director
International Tsunami Information Center



Dr. Charles McCreery
Director
Pacific Tsunami Warning Center

Tsunamis since 2014 (PTWC RIFT forecast available)

Forecasts

- Only 3 times RMI in 0.3-1m bin

2014 - N Chile

2015 - C Chile

2025 - Russia

2011 – Japan

- All rest (21) RMI in <0.3m bin

Observations

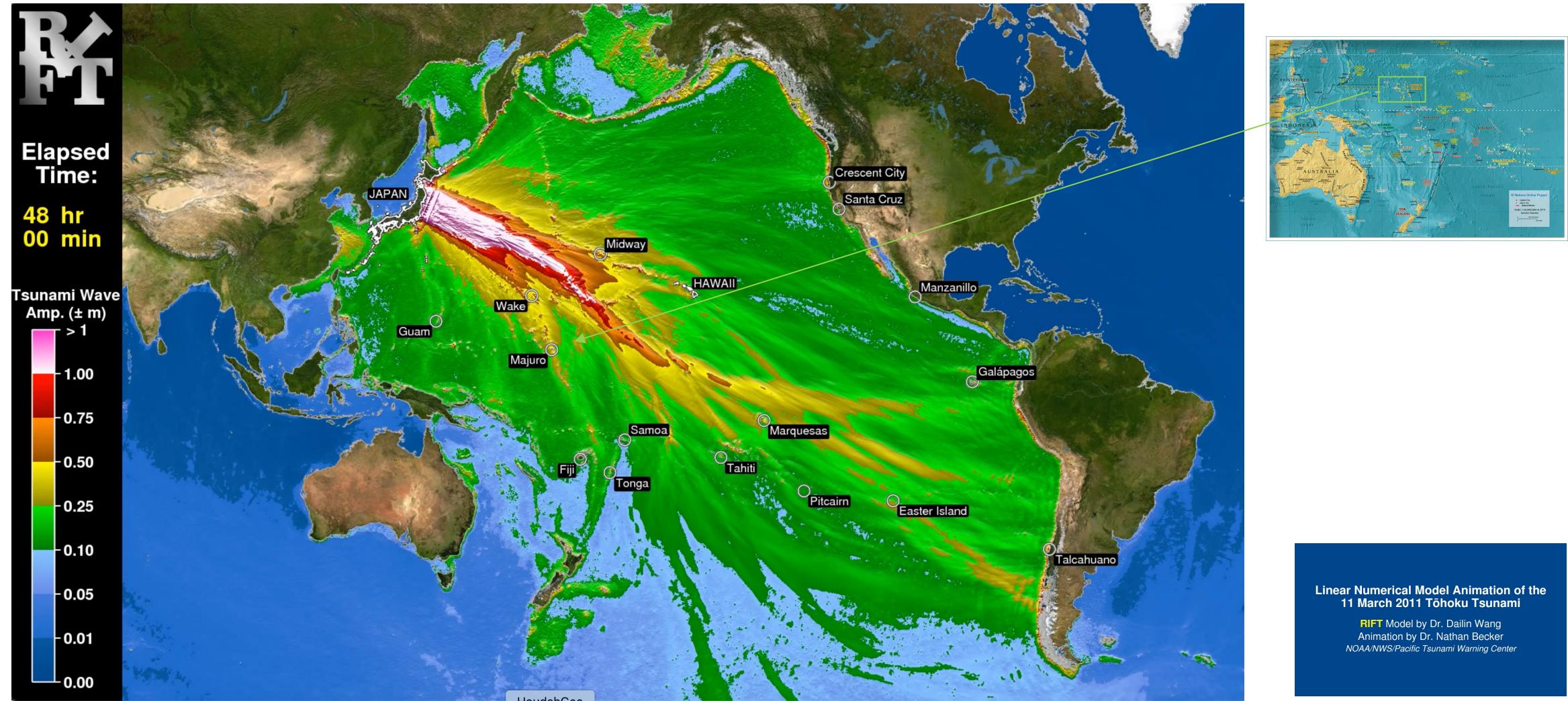
less than

Forecasts

SHOA

							CM	CM	INCHES	INCHES
x	4	1	14	8.2	Northern Chile					
x	4	13	14	7.4	Solomon Is					
x	4	19	14	7.5	Solomon Is					
x	3	29	15	7.6	New Ireland					
x	9	16	15	8.3	Central Chile					
x	4	16	16	7.7	Ecuador					
x	12	8	16	7.8	Solomon Is					
x	1	22	17	7.9	Solomon Is					
x	7	17	17	7.8	Komandorskiye Islands					
x	9	8	17	8.2	Chiapas Mexico					
x	8	29	18	7.1	Loyalty Islands					
x	12	5	18	7.6	Loyalty Islands					
x	5	14	19	7.7	New Britain					
x	7	22	20	7.8	Alaska					
x	2	10	21	7.7	Loyalty Is					
x	3	4	21	8.1	Kermadec Is		3		1.2	
x	7	29	21	8.2	Alaska					
x	1	15	22	0	Hunga Tonga		9		3.5	
x	9	19	22	7.6	Michoacan, Mexico					
x	5	19	23	7.8	Loyalty Is					
x	12	2	23	7.6	Mindinao, Philippines					
x	7	29	25	8.7	Kamchatka, Russia		6		2.4	
x	9	13	25	7.5	Kamchatka, Russia					
x	12	8	25	7.6	Hokkaido, Japan					
	3	11	11	9.1	Honshu, Japan		66	51	26.0	20.1

11 March 2011 – Tohoku, Japan Tsunamim M9.1



25 July 2025 Highlights

- **6th largest earthquake in History.**
Near to 1952 M9.0 earthquake that generated a destructive Pacific-wide tsunami.
Largest 1960 M9.5 Chile earthquake and tsunami that established the PTWS (ITSU) in 1965
- **1st Pacific-wide tsunami since 2011 M9.1 Great East Japan earthquake and tsunami**
- **PTWS Tsunami Service Providers issued 1st Threat Message 10 min after Earthquake Origin Time.** PTWC monitored and issued 24 threat forecast information bulletins until waves hit Chile, 26 hours later. NWPTAC issued 15 bulletins for 20 hrs
- **National Tsunami Warning Centres issued alerts prompting localized evacuations**
 - **Warnings: Russia, Japan, USA, Pacific Island Countries (French Polynesia, Cook Islands, Tonga, Papua New Guinea), South America (Ecuador, Chile)**
- **Tsunami monitoring by DART systems, coastal sea level stations (IOC SLMF, PTWC Tide Tool)**
 - 5 DART systems NW Pacific triggered, and used to calibrate forecasts – largest 0.9 m ampl
 - > 100 tsunami measurements on coastal gauges – largest 1.74 m, Kahului, Maui, Hawaii
- **Earthquake was thrust/reverse faulting, but rupture was complex.**
Initial earthquake magnitude of M8.0 upgraded to M8.7/8.8, updating tsunami forecast.
Later processing (finite fault solution) showed 2 bursts of rupture. (PTWS WG 2, NZ)

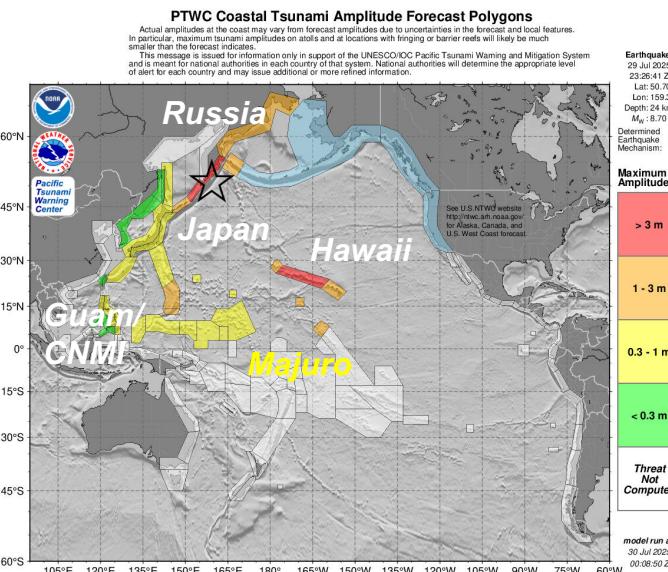
29 July 2025 – PTWC Event Timeline

UTC	Elapsed	Msg	Event
23:24:52	00:00:00		Earthquake occurs
23:34:28	00:09:39	1	Mw=8.0, Threat for Russia and Japan, no forecast yet
00:16:32	00:51:40	2	Mw=8.7, forecast for NW Pacific based on PTWC WCMT
01:07:40	01:42:48	3	Forecast for entire Pacific based on USGS WCMT
		4-6	Forecast for entire Pacific based on PTWC WCMT
06:23:14	06:58:22	7	Mw=8.8 (USGS) Forecast Unchanged
		8-23	Forecast Unchanged
01:57:16	26:32:24	24	Final Threat Message

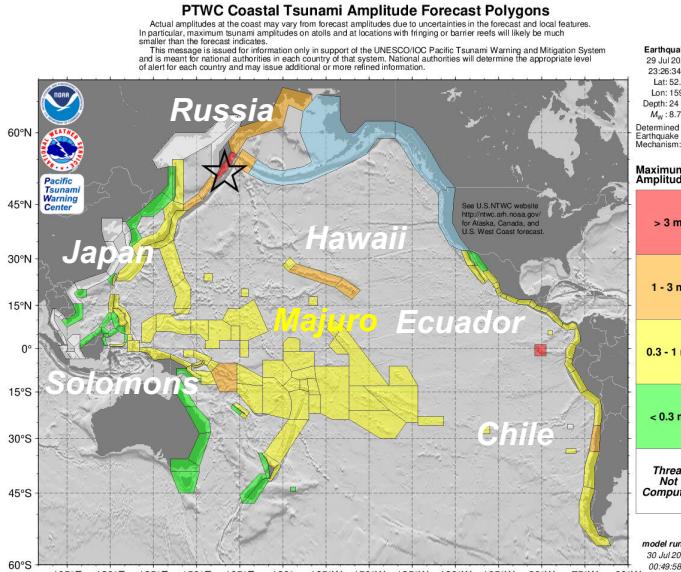
PTWS Tsunami Forecasts - PTWC

- Earliest forecasts sufficient to trigger national decision-making (warning, evacuation) for countries at regional distances
- Essential to be conservative and err on the side of public safety

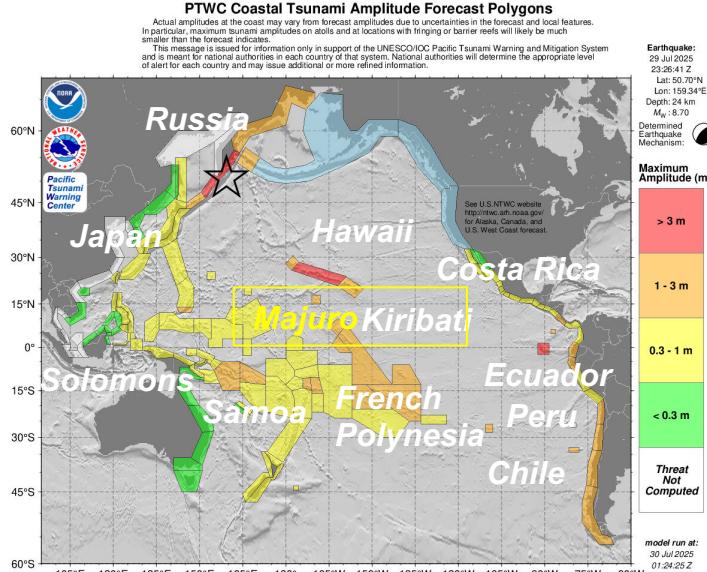
Msg 2 M8.7 (+42 min)
ETA (hr): Japan (2) Guam (5.5),
Hawaii (6)



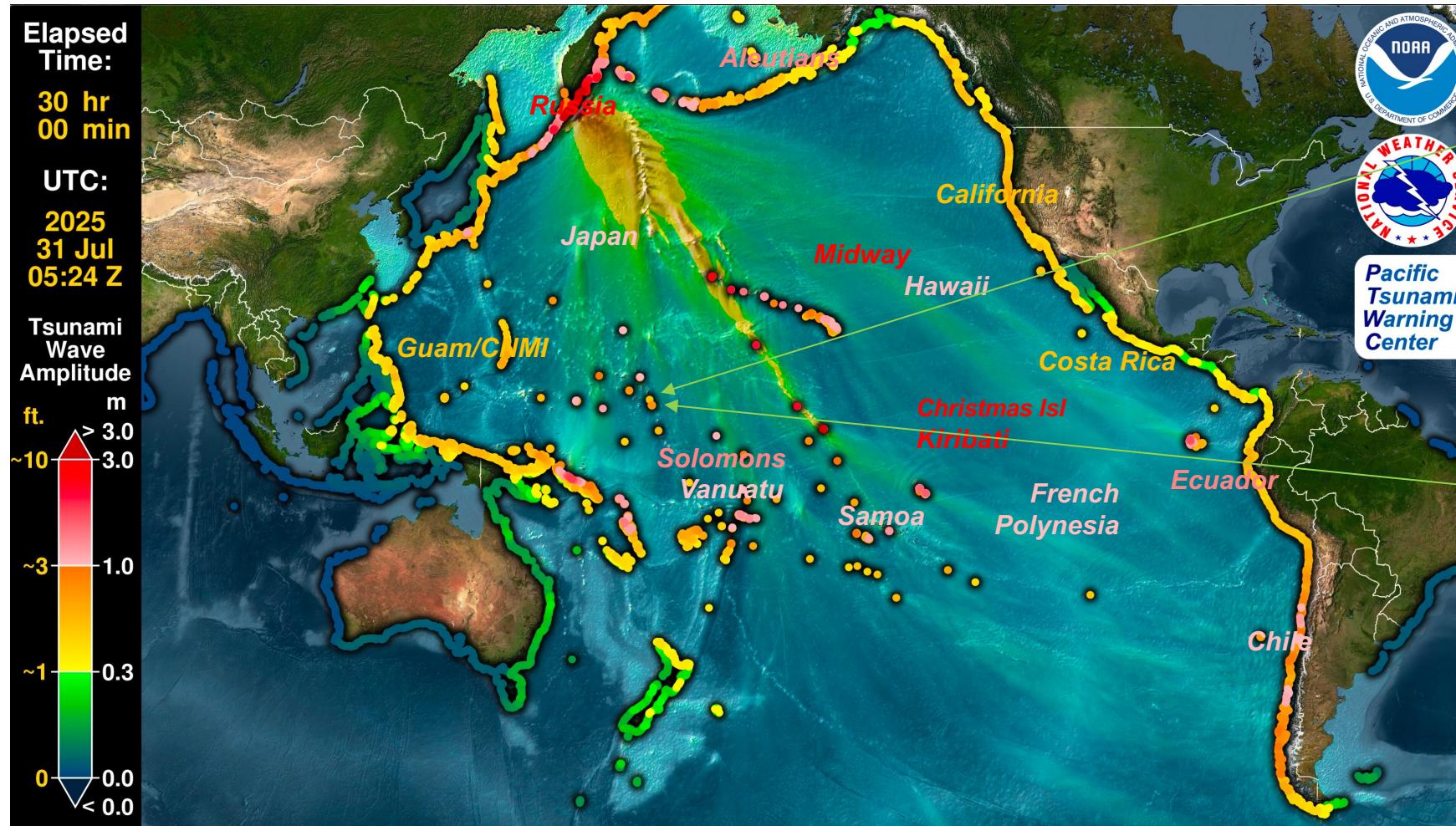
Msg 3 (+1:31 hr, M8.7)
ETA (hr): Solomons (8.5),
Galapagos (16), Chile (18)



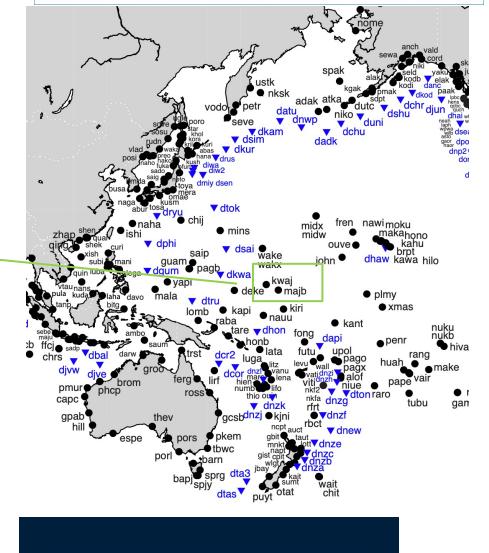
Msg 4 (+2:12 hr, M8.8)
ETA (hr): Kanton, KI (8), Samoa (9.5), FP (11), Costa Rica (14.5), South Amer (16+)



PTWC Forecasts – USGS Finite Fault Solution



* Done post-event



<https://www.youtube.com/watch?v=5X3bF1tCw7s>



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Thank You

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