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## *Significant events – PTWS*

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## PTWS – PTWC Threat-Level Events since 2/19/25

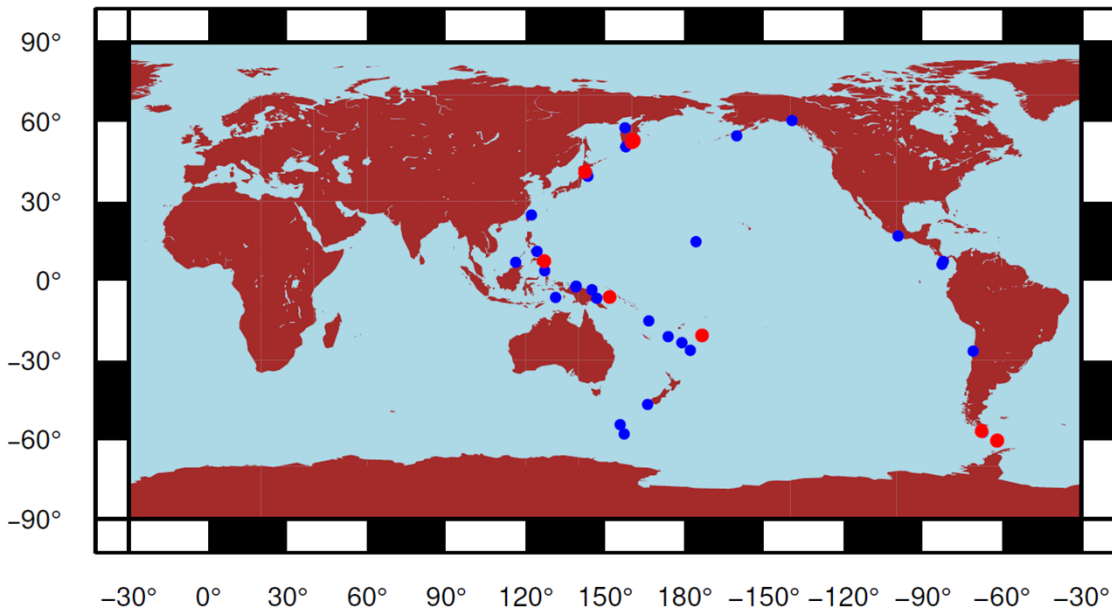
Date	Time (UTC)	Lat	Lon	Dep (km)	Mag (Mw)	Location	Msg Type	# Msgs	Max (cm)
03/30/25	1219	20.6S	173.4W	59	7.3	Tonga	Threat	3	5
04/04/25	2005	6.2S	151.6E	33	7.2	New Britain Region, PNG	Threat	4	-
05/02/25	1259	56.8S	67.9W	48	7.5	Drake Passage	Threat	5	14
07/20/25	0649	52.5N	160.5E	24	7.5	Off the East Coast of Kamchatka	Threat	3	153
07/29/25	2325	52.2N	160.0E	74	8.0-8.8	Off the East Coast of Kamchatka	Threat	24	1700
08/22/25	0216	60.4S	62.0W	10	8.0/7.5	Drake Passage	Threat	2	17
09/13/25	0238	53.0N	160.4E	10	7.5	Near the East Coast of Kamchatka	Threat	4	10
09/18/25	1858	53.0N	160.8E	10	7.8	Off the East Coast of Kamchatka	Threat	4	31
10/10/25	0144	7.4N	126.9E	23	7.4	Mindanao, Philippines	Threat	4	30
10/10/25	2029	60.3S	61.9W	10	7.8	Drake Passage	Threat	5	-
12/08/25	1415	41.0N	142.3E	51	7.6	Hokkaido, Japan Region	Threat	5	70

And 31 Tsunami Information Statements



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# Tsunami bulletin issued by the PTWC from Feb.2025 to 23 Feb.2026



## PTWC

- The number of events : 43 (28 in the last period)
- The number of bulletins : 95 (41 in the last period)
- The number of tsunami threat message : 63
- The number of tsunami information statement : 32

● Tsunami threat message issued

● Tsunami information statement issued

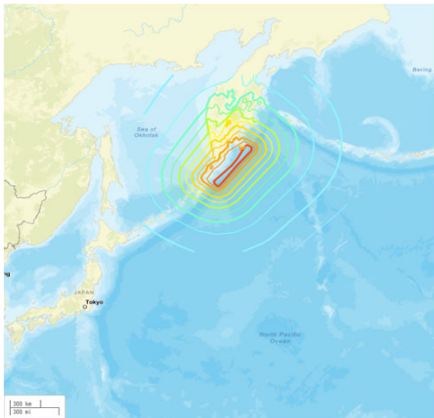
# M>7 Earthquakes from Feb.2025 to Feb.2026

	date	time (UTC)	latitude	longitude	depth	mag	magType	place	Max. tsunami height (m)
1	2025/03/30	12:18:50.362Z	-20.30	-174.07	29	7	mww	61 km SSE of Pangai, Tonga	0.05
2	2025/05/02	12:58:26.014Z	-56.81	-68.10	10	7.4	mww	2025 Drake Passage Earthquake	0.14
3	2025/07/16	20:37:41.667Z	54.57	-160.47	38	7.3	mww	2025 Sand Point, Alaska Earthquake	0.1
4	2025/07/20	06:49:04.327Z	52.83	160.68	34	7.4	mww	2025 Eastern Kamchatka, Russia Earthquake	1.53
5	2025/07/28	22:10:35.109Z	-57.61	157.04	31	7	mww	Macquarie Island region	No Tsunami
6	2025/07/29	23:24:52.483Z	52.49	160.24	35	8.8	mww	2025 Kamchatka Peninsula, Russia Earthquake	17
7	2025/08/22	02:16:18.246Z	-60.32	-61.92	10	7.5	mww	2025 Southern Drake Passage Earthquake	0.17
8	2025/09/13	02:37:56.761Z	53.20	160.19	58	7.4	mww	105 km E of Petropavlovsk-Kamchatsky, Russia	0.1
9	2025/09/18	18:58:14.939Z	53.14	160.72	27	7.8	mww	140 km E of Petropavlovsk-Kamchatsky, Russia	0.31
10	2025/10/10	01:43:59.585Z	7.29	126.69	59.425	7.4	mww	12 km E of Santiago, Philippines	0.3
11	2025/10/10	20:29:20.075Z	-60.19	-61.82	5.639	7.6	mww	Drake Passage	No Tsunami
12*	2025/12/08	14:15:10.1Z	40.97	142.29	54	7.4	mww	East Hokkaido, Japan	0.64*
13	2026/02/22	16:57:46.240Z	6.83	116.26	619.849	7.1	mww	55 km NNW of Kota Belud, Malaysia	No Tsunami

- Earthquake source parameters by USGS, except for \* by Japan Meteorological Agency (JMA)
- Max tsunami height by NGDC/WDS Global Historical Tsunami Database, except for \* by JMA

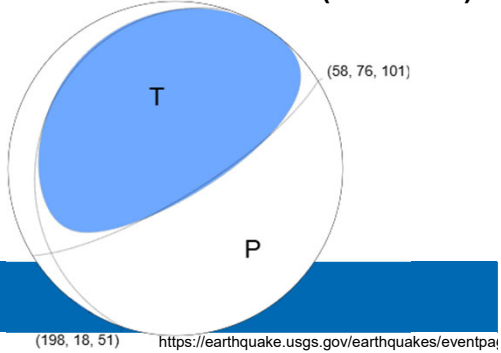
# 29 July 2025 M8.8 Kamchatka Earthquake and Tsunami

2025-07-29 23:24:52 (UTC)  
52.495° N 160.240° E 35.0 km depth

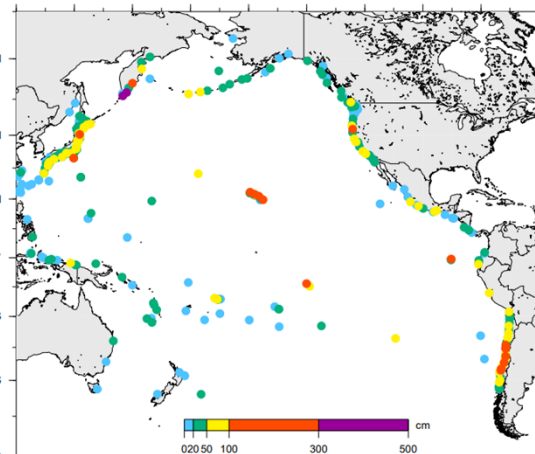
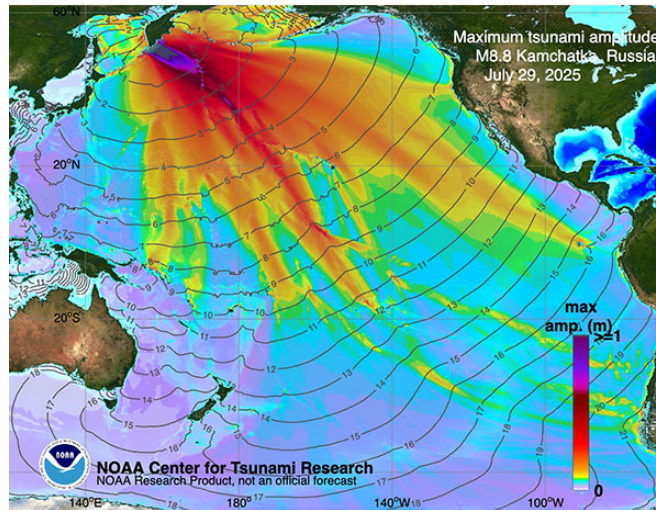


<https://earthquake.usgs.gov/earthquakes/eventpage/us6000qw60/ma>

## W-phase Moment Tensor (M<sub>ww</sub>8.83)



<https://earthquake.usgs.gov/earthquakes/eventpage/>



(draft) 29 July 2025 M8.8 Kamchatka Earthquake and Tsunami Post Event Assessment of PTWS Performance

Observed maximum height, data by NOAA tsunami database  
<https://www.ncei.noaa.gov/access/metadata/landing-page/bin/iso?id=gov.noaa.ngdc.mgg.hazards:G02151>

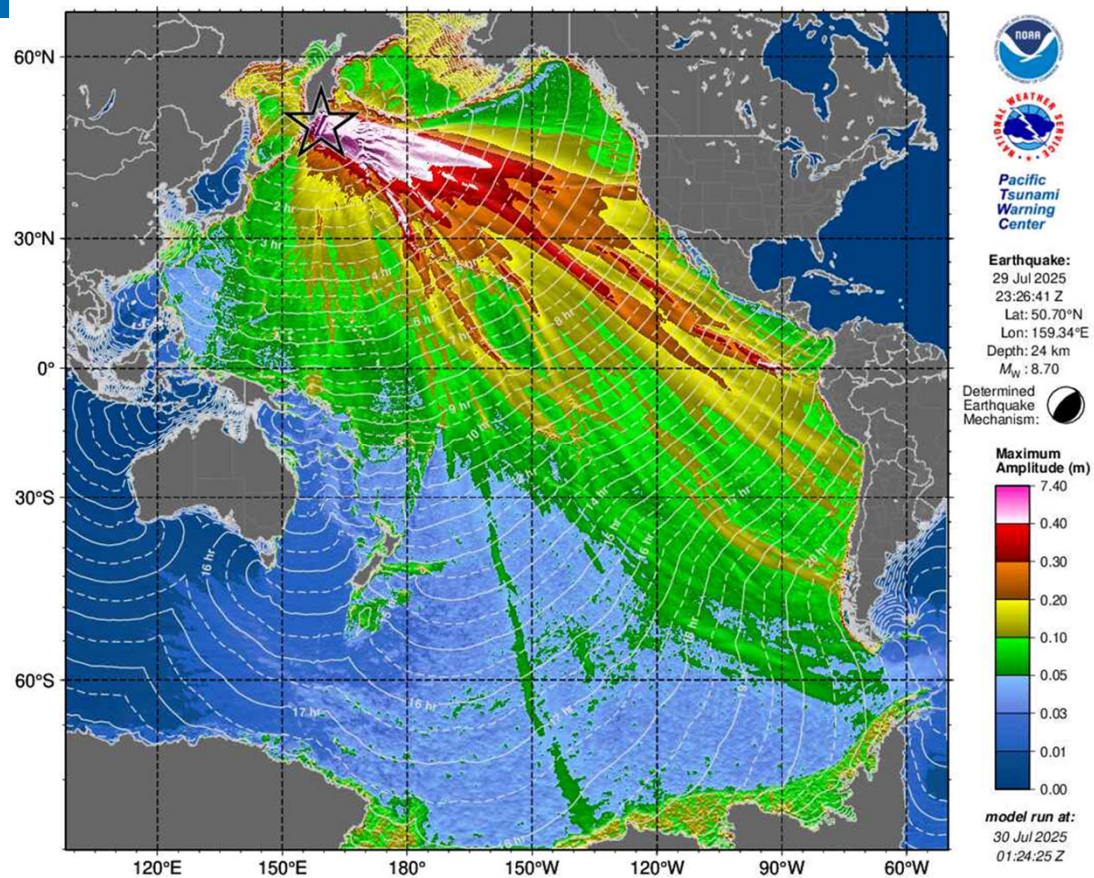
- Mw8.8, the strongest Earthquakes since the 2011 Tohoku earthquake in Japan.
- Significant tsunami amplitudes were recorded across the Pacific, including 1.74m in Kahakui, Maui (Hawaii), 1.13m in Crescent City (California), 1.04m in Baltra (Galapagos Islands, Ecuador), and 1.12m in Coliumo (Chile).

(draft) 29 July 2025 M8.8 Kamchatka Earthquake and Tsunami Post Event Assessment of PTWS Performance

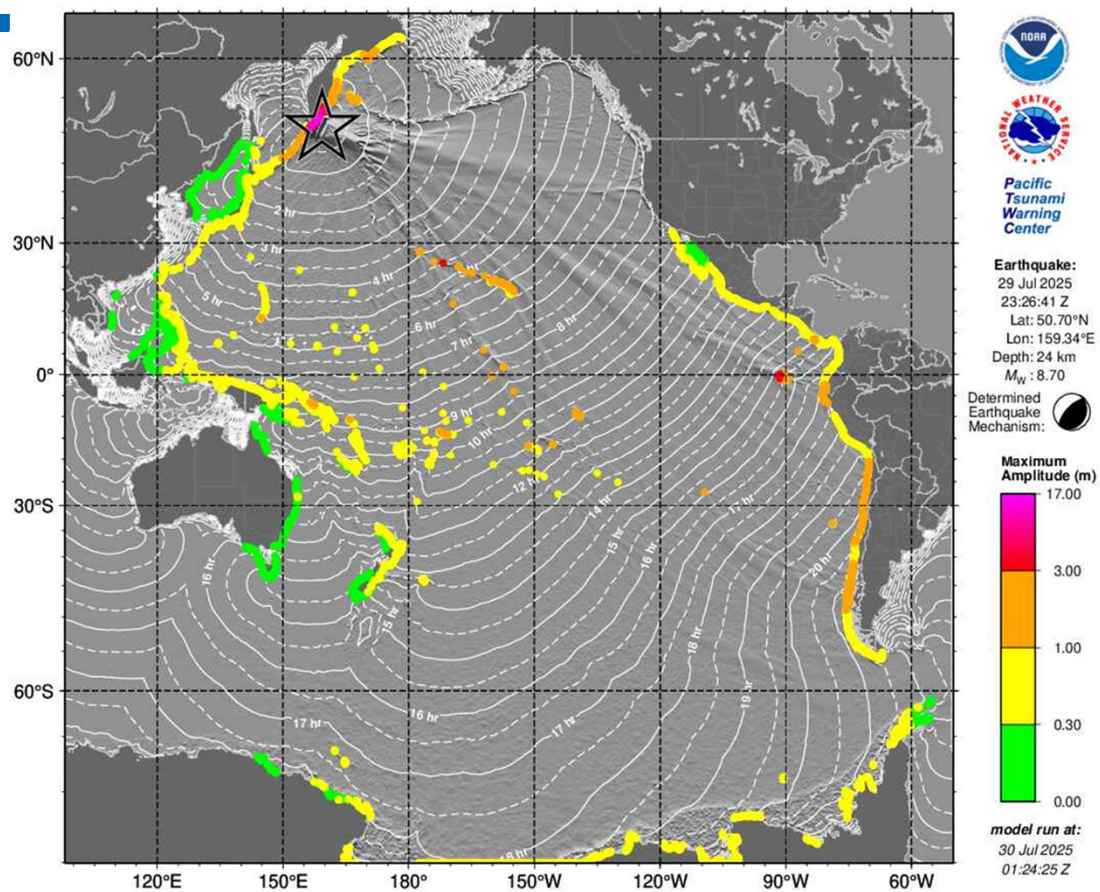
# PTWC Response to 7/29/25 Kamchatka Mw 8.7

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

# PTWC Deep-Ocean Forecast – 7/29/25 Kamchatka



# PTWC Coastal Forecast – 7/29/25 Kamchatka

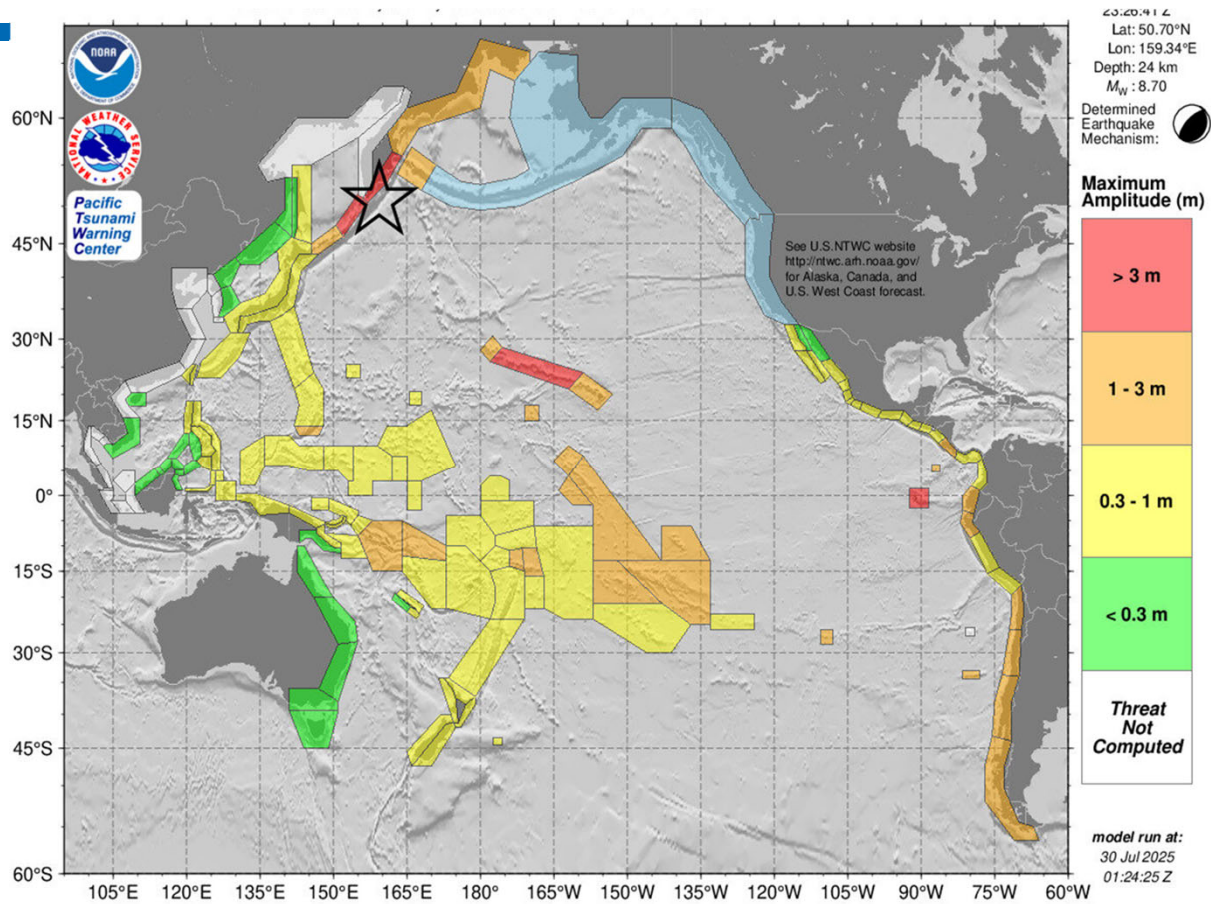


# PTWC Polygons Forecast – 7/29/25 Kamchatka



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# TSPs messages (PTWC and NWPTAC)

23:24 UTC, 29 July – Earthquake occurs				
PTWC Messages (Msg)		NWPTAC Messages (Msg)		
23:34 UTC, 29 Jul, Msg 1	Mw=8.0, Threat for Russia and Japan, no forecast yet	23:45 UTC, 29 Jul, Msg 1	M=8.0, based on pre-simulated DB	
00:16 UTC, 30 Jul, Msg 2	Mw=8.7, forecast for NW Pacific based on PTWC WCMT	00:49 UTC, 30 Jul, Msg 2	Mw=8.7	
01:07 UTC, 30 Jul, Msg 3	Forecast for entire Pacific based on USGS WCMT	01:19 UTC, 30 Jul, Msg 3	Bulletin issued with graphical products	
01:48 UTC, 30 Jul, Msg 4	Forecast for entire Pacific based on PTWC WCMT	01:44 UTC, 30 Jul, Msg 4	Bulletins issued with observed sea level changes - Provided ETA and Wave Amplitude for 45 Forecast Points out of 61 points	
03:07 UTC, 30 Jul, Msg 5		02:18 UTC, 30 Jul, Msg 5		
04:37 UTC, 30 Jul, Msg 6		02:55 UTC, 30 Jul, Msg 6		
06:23 UTC, 30 Jul, Msg 7	Mw=8.8 (USGS) – Forecast unchanged	03:51 UTC, 30 Jul, Msg 7		
07:24 UTC, 30 Jul, Msg 8	Forecast unchanged	04:43 UTC, 30 Jul, Msg 8		
08:35 UTC, 30 Jul, Msg 9		05:39 UTC, 30 Jul, Msg 9		
09:36 UTC, 30 Jul, Msg 10		08:10 UTC, 30 Jul, Msg 10		
11:03 UTC, 30 Jul, Msg 11		10:52 UTC, 30 Jul, Msg 11		
12:04 UTC, 30 Jul, Msg 12		13:57 UTC, 30 Jul, Msg 12		
13:11 UTC, 30 Jul, Msg 13		14:21 UTC, 30 Jul, Msg 13		
14:17 UTC, 30 Jul, Msg 14		17:01 UTC, 30 Jul, Msg 14		
15:18 UTC, 30 Jul, Msg 15		19:23 UTC, 30 Jul, Msg 15		Final message
16:32 UTC, 30 Jul, Msg 16				
17:36 UTC, 30 Jul, Msg 17				
18:36 UTC, 30 Jul, Msg 18				
20:27 UTC, 30 Jul, Msg 19				
21:36 UTC, 30 Jul, Msg 20				
22:36 UTC, 30 Jul, Msg 21				
23:38 UTC, 30 Jul, Msg 22				
00:37 UTC, 31 Jul, Msg 23				
01:57 UTC, 31 Jul, Msg 24	Final message			

- PTWC issued its first threat message within 10 minutes of the O.T, followed by 23 messages over 26 hours. NWPTAC issued 15 bulletins over 20 hours.

(draft) 29 July 2025 M8.8 Kamchatka Earthquake and Tsunami Post-Event Assessment of PTWS Performance,

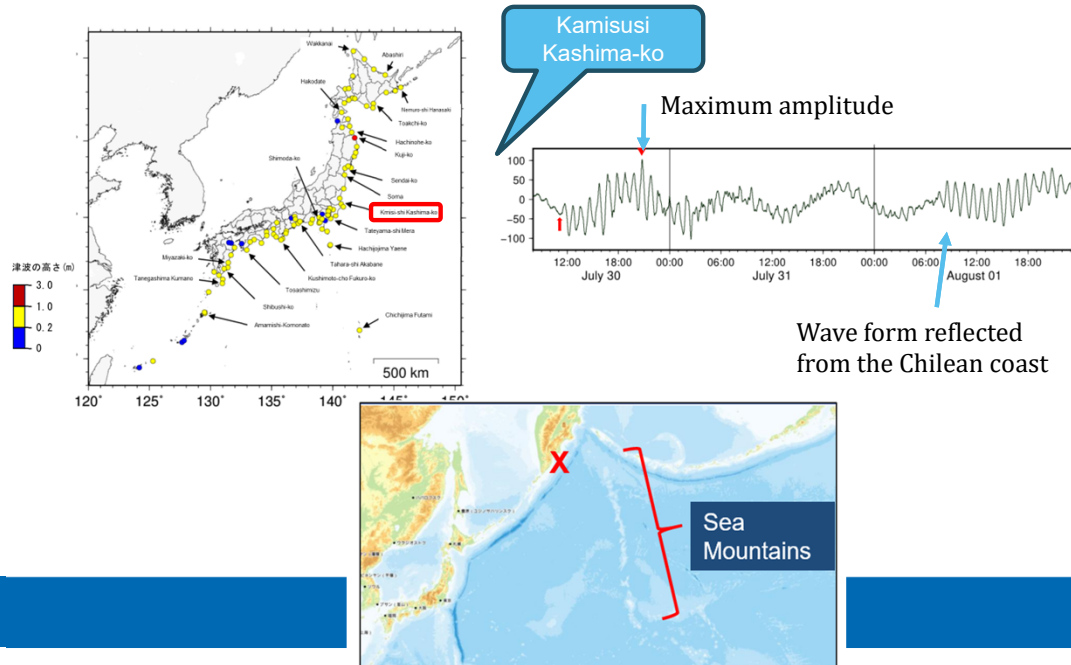
- Magnitude changed M8.0 to 8.7 to 8.8

PTWS Post-event Brief - 29 July 2025, M8.8, Kamchatka Earthquake and Tsunami, 13 Aug 2025

(draft) 29 July 2025 M8.8 Kamchatka Earthquake and Tsunami Post-Event Assessment of PTWS Performance,

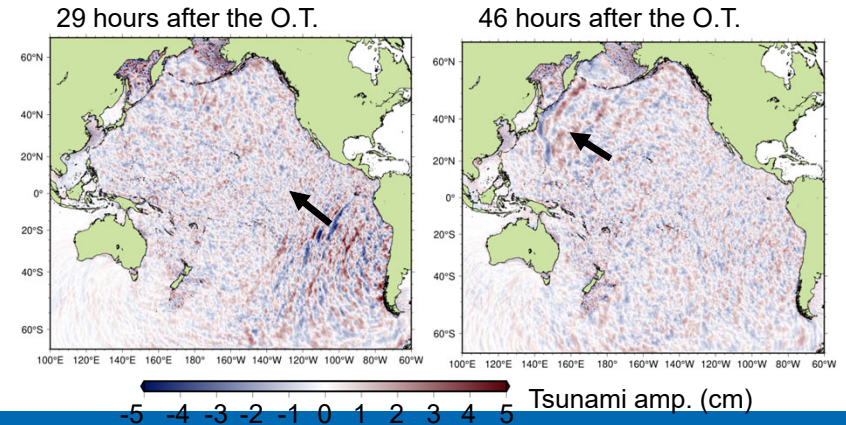
# Long-lasting tsunamis

- High amplitude waves lasted due to diffraction and reflection over the Pacific. For example, some stations in Japan saw reflected waves from sea mountains aligned around E170 several after the first wave arrival.
- Additionally, tsunami waves reflected off the South American coast were observed approximately 48 hours after the earthquake.
- Continuous monitoring and accurate numerical simulations can be basis for deciding whether to continue or cancel warnings. It is also important to inform residents of the reason for continuation to avoid misunderstandings.



## Numerical simulation of long-time tsunami propagation \*

\* Tsushima, H. and Yamamoto, T.,  
International Tsunami Symposium 2025





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# Post-Event Assessment of the Performance of the PTWS during the event



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IOC Circular Letter No 3052  
(Available in English only)

IOC/VH/BA/ON/ha  
8 August 2025

To : ICG/PTWS Tsunami Warning Focal Points (TWFP)  
ICG/PTWS Tsunami National Contacts (TNC)

C.c. : Official National Coordinating Body for liaison with the IOC Member States  
Permanent Delegates/Observers Missions to UNESCO of IOC Member States  
National Commissions for UNESCO in IOC Member States  
PTWS Steering Committee

Subject: Post-Event Assessment of the Performance of the Pacific Tsunami  
Warning and Mitigation System (PTWS) during the 29 July 2025  
M8.8 Kamchatka earthquake and tsunami event

An earthquake at a depth of 21 km with a magnitude of 8.8 (USGS) on 29 July 2025 23:24 (UTC) offshore Kamchatka, Russian Federation, resulted in a TSUNAMI THREAT MESSAGE issued by the Pacific Tsunami Warning Center (PTWC), Tsunami Service Provider (TSP) of the Intergovernmental Coordination Group for the Pacific Tsunami Warning and Mitigation System (ICG/PTWS), 10 minutes after the event indicating the possibility of hazardous tsunami waves (based on magnitude 8.0 and depth of 74 km) for coasts located in Russia and Japan within 300 km of the earthquake epicentre.

The IOC Task Team on Tsunami Watch Operations, jointly with the Task Team on Disaster Management and Preparedness recommended that the trigger for implementing a post-event assessment should be a tsunami threat of >1 m amplitude forecast in one or more countries in a region. Over and above this trigger level, the final decision to implement a survey should be decided by the regional Tsunami Information Centre (TIC) in consultation with the ICG Steering Group and the ICG Secretariat based at UNESCO-IOC taking into consideration whether the tsunami resulted in a national response in one or more countries.

From the forecast polygons issued for this event and the sea-level observations as reported in the final message of the PTWC, the trigger threshold was reached. Following consultations with the International Tsunami Information Center (ITIC) and the PTWS Steering Committee, it has been agreed that the recent event provides us with an opportunity to evaluate the performance of the system. This will enable Member States of the ICG/PTWS to identify those components which worked properly and, most importantly, what components did not work in an appropriate manner and require further attention.

CL-3052

29 July 2025 M8.8 Kamchatka earthquake and tsunami: Post-Event Performance Survey

SECTION A - INFORMATION FROM TSUNAMI SERVICE PROVIDER (To be completed by NTWC)

A.1. When did you receive the first (1st) information on the 29 July 2025 23:24 UTC M8.8 Kamchatka earthquake? What provided this information? Please list the time (UTC) and information source.

Time (UTC):

How information received:

A.2. How did you receive the first (1st) information on the 29 July 2025 23:24 UTC M8.8 Kamchatka earthquake?

Email

Phone

Fax

SMS

GPS

Website

Other (please specify):

A.3. Did you receive tsunami messages from the PTWS TSP (Pacific Tsunami Warning Center)?

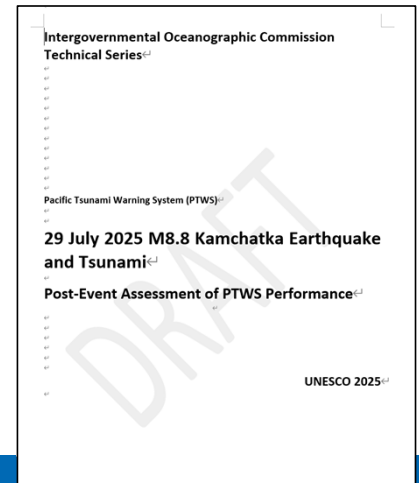
Yes

No

If the answer to question A.3. is Yes, please fill out the table below (A.4.4) (all times in UTC)

- IOC Secretariat and ITIC organized the survey.
- It is expected to provides us with an opportunity to evaluate the performance of the system.
- 8 Aug. 2025 A questionnaire distributed to Member States, to be responded before 5 Sep. 2025.
- Out of 46 PTWS Member States, 30 responded to the survey,
- Summary report to be published.
- According to the draft report;
  - Almost all respondent countries received messages from the covering TSP(s),
  - 93% of respondent countries issued warnings or related information,
  - 52% acted before receiving the TSP PTWC messages,

(draft)  
29 July 2025 M8.8 Kamchatka Earthquake and Tsunami  
Post-Event Assessment of PTWS Performance



# Earthquake in East Hokkaido, Japan, 8 Dec. 2025

- An earthquake of Mjma 7.5 occurred off the eastern coast of North Japan at 23:15 JST on December 8, 2025 with maximum seismic intensity of 6 upper.
- JMA issued a tsunami advisory for areas from Hokkaido to Tohoku in 23:17 JST, then upgraded it to a tsunami warning at 23:23 JST based on updated seismic data. Tsunamis with maximum wave heights of 10-70 cm were observed along the Pacific coast. All the advisories were canceled at 6:20 JST on the following day, December 9.
- During the event, JMA issued **Off the Coast of Hokkaido and Sanriku Subsequent Earthquake Advisory** at 02:00 JST 9 Dec., to call people reconfirm usual earthquake preparations and be ready to evacuate immediately if you feel a tremor or a tsunami warning.

