

NTWC_CN Response to Kamchatka Tsunami on 29th July, 2025 & Lesson Learned

Submitted by National Marine Environmental Forecasting Center of China

Operational Response

In response to the earthquake tsunami, the National Tsunami Warning Center under the auspices of the Ministry of Natural Resources of China responded promptly and issued 6 bulletins subsequently, including 3 tsunami information statements, 2 tsunami warning messages and the last warning cancellation.

CST/BJT (UTC +8)	NTWC Actions and References
7:34, 30 July	Issued 1 st tsunami information with earthquake of M7.6 assessed by our own earthquake detection system. Concluded no tsunami threat to China, but regional tsunami would be generated.
7:51, 30 July	Issued 2 nd tsunami information with earthquake of M8.0 based on our own system and PTWC's first bulletin. Concluded no tsunami threat to China, but regional tsunami would be generated.
8:55, 30 July	Issued 3 rd tsunami information with earthquake of M8.7 based on CMT solution generated by the W-Phase program, PTWC and NWPTAC messages. Concluded no tsunami threat to China, but nearly 30-cm tsunami amplitude was estimated to appear along some coast of Taiwan province, China, based on our numerical model.
10:19, 30 July	Issued 4 th tsunami warning messages with earthquake of M8.8 based on CMT solution generated by the W-Phase program and USGS's Moment Tensor.

	<p>Concluded hazardous tsunami waves were estimated to impact Taiwan province, Zhejiang province and Shanghai, slightly over 0.3 m amplitudes were forecasted by our numerical model.</p> <p>Considering the potential overlapping effect of the storm surge induced by the typhoon “Zhujiacao”, we made the most conservative conclusion.</p>
14:15, 30 July	<p>Issued 5th tsunami warning continuously to Taiwan, lifting warnings to Zhejiang and Shanghai based on comparison between tsunami forecasts and observations.</p> <p>After analyzing sea level data recorded along Japan's eastern coastline and some Pacific islands, we found that the actual tsunami energy propagating into the East China Sea was significantly less than what numerical models had projected.</p>
18:09, 30 July	Issued 6 th tsunami cancellation message.

Lesson learned

1. The magnitude of giant earthquakes tends to be underestimated during the initial automatic assessment. A more accurate result can be typically generated in 15-18 minutes by the W-phase program.
2. The criteria of tsunami warning (Yellow Level: 0.3 ~ 1.0 m) referring to PTWC seems not be applicable to China. If the tsunami amplitude is less than 1 meter, tidal effects should be taken more seriously given the relatively larger tidal range along the coast of China.
3. Tsunami awareness and product interpretation should be improved in China. The question of the greatest concern after the issuance of the tsunami warning, whether from the public or the authorities, centers on what potential impacts would produce on the inhabitants and their livelihoods.