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TSP Australia Report

Robert Greenwood (Bureau)
Adrienne Mosely (GA)

Robert.greenwood@bom.gov.au

Adrienne.moseley@ga.gov.au

ICG/IOTWMS Working Group 2 Meeting, 25 August 2025

TSP Australia Structure

TSP Australia is operated by the JATWC (Joint Australian Tsunami Warning Centre), consisting of:

Geoscience Australia (GA), Canberra: Earthquake Monitoring and Alerting
Bureau of Meteorology (BOM), Melbourne & Brisbane: Sea Level Monitoring and Tsunami Warning



JATWC staff located at Geoscience Australia (left) and Bureau of Meteorology (right)

TSP Australia Recent Developments

The Bureau's Tsunami Warning Services for both national and Indian Ocean responsibilities, has been internationally accredited as an ISO 9001 compliant quality managed system in July 2020. It was re-accredited in 2023 for a further 3-year to 2026. Annual surveillance audit occurred in 2024, and the next is scheduled for early July 2025.

Bureau-JATWC has implemented 2 minor updates to The Tsunami Observation and Simulation Terminal (TOAST) system. These updates contain bug fixes and ease of use features.

Bureau-JATWC recently restored two DART stations in the Tasman Sea. Only one out of 6 DART stations is now non-functioning.

GA-JATWC has commenced work towards ISO 9001:2015 accreditation for GA-JATWC systems (as input to BOM-JATWC accredited system).

GA-JATWC have upgraded to SeisComP6 – currently in test

GA-JATWC have tested seismic array processing and are running the processor in real-time, in parallel to GA-JATWC operations. Assessment of performance is continuing ahead of plans to operationalise the seismic array processor.

TSP Australia NAVAREA Trial

TSP Australia has been generating NAVAREA products with no active distribution for many years.

As part of IOTWMS Comms Test 29, TSP Australia agreed to trail NAVAREA products to a small group. Products were generated but failed to disseminate. A small config change was made to our dissemination system, and the final bulletin was re-issued the following day.

NAVAREA products will continue to be sent to the trial participants and NAVAREA coordinators will be invited to trial them during IOWAVE25

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TEST TSP AUSTRALIA TSUNAMI BULLETIN NUMBER 3 FOR

NAVAREA VII, NAVAREA VIII, NAVAREA IX, NAVAREA X, NAVAREA XI

THE ENTIRE INDIAN OCEAN

TSUNAMI CANCELLATION MESSAGE ISSUED BY TSUNAMI SERVICE PROVIDER AUSTRALIA IN
SUPPORT OF THE UNESCO/IOC INDIAN OCEAN TSUNAMI WARNING AND MITIGATION SYSTEM AT
0645 UTC WEDNESDAY 11 JUNE 2025.

THE THREAT HAS NOW LARGELY PASSED FOR THE TSUNAMI GENERATED BY A MAGNITUDE 9.0
EARTHQUAKE THAT OCCURRED NEAR NICOBAR ISLANDS, INDIA REGION [7.20N, 92.90E] AT
0600 UTC 11 Jun 2025.

HOWEVER, SHIPS APPROACHING THE COAST SHOULD STILL CONSULT LOCAL AUTHORITIES
REGARDING LOCAL CONDITIONS AND ADVICES.

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TSP Australia Performance

	Service Level 1 EQ Bulletins (Change to report Mag 6.8 and above in all source zones)					Service Level 2 Threat / No Threat Bulletins			General
TSP	KPI 1 ET First EQ Bull Target: 10 mins (% met)	KPI 2 POD EQs Target: 100%	KPI 3 EQ Mag Target: 0.3 (% met)	KPI 4 EQ Depth Target: 30 km (% met)	KPI 5 EQ Location Target: 30 km (% met)	KPI 6 ET First Threat Bull Target: 20 mins (% met)	KPI 7 POD Tsunami Waves Target: 100%	KPI 8 Tsunami Height Accuracy Target: Factor of 2	KPI 9 False / Incorrect Bulletins Issued Target: 0
2024	10.1 (86%)	100%	0.08 (100%)	14.3 (93%)	23.3 (71%)	N/A	N/A	N/A	6
2025 (Jan-June)	9.8 (100%)	100%	0.06 (100%)	20.2 (80%)	21.0 (80%)	N/A	N/A	N/A	4

Notes on KPI 9 False/Incorrect Bulletins issued in 2024 and 2025, totalling 10:

- 5 EQ bulletins issued despite of EQs outside ESZ, due to a problem with the auto-product generation and dissemination software. This problem has now been fixed.
- 5 No Threat bulletins issued despite of not meeting Service Level 2 criteria. This is caused by human error and additional training has been provided since.

Meets Target

Near Target

Misses Target

TSP Australia Future Developments

Bureau-JATWC has plans for TOAST updates, including updating the national service to contain an additional land inundation threat tier for use by emergency services only, no change to the public service.


Bureau-JATWC will be transitioning its national tsunami warnings to a new Bureau public facing website.

JATWC to engage in the recently approved national project which is to develop a volcanically generated tsunami source scenario database with potential tsunami impact to Australia.


JATWC to work toward adapting Tsunami products to meet the Australian Warning System requirements.

JATWC Response to 29 July 2025 M8.8 Kamchatka earthquake and tsunami

Time Since Earthquake	Key Events
00:00	Earthquake occurs.
00:16	No Threat issued for initial assessment of M7.8.
00:30	Revised No Threat issued for M8.3.
00:32	GA Manual Solution for M8.6 received. No update issued. Specialist monitoring activated (tsunami on-call support).
00:45	GA Manual Solution for M8.7 received. No update issued.
01:05	M6.8 aftershock at 00:16 UTC meets the criteria for issuing a new No Threat. The new No Threat replaced the main event on the public website.
01:20	DART observation of 0.8m from DART 21416 indicated that the event was consistent with a M8.6-9.0. Identified that the event would need to be upgraded to M9.0 to result in Warnings for Australia.
02:30	Emergency services for the state of New South Wales were concerned about the conflicting advice from PTWC and the JATWC. Extra briefings were required to raise their confidence with the No Threat assessment.
05:00	Revised No Threat issued for M8.7 to have the public facing webpage display the main event rather than an aftershock.
08:35	Coral Sea DART buoy stations 1 and 2 were manually triggered. Unfortunately, only station 1 was successful.
10:25	Coral Sea 1 DART buoy recorded 0.02m. This was consistent with expected wave height for M8.8 and with No Threat assessment.
13:30	Tsunami duty officer stood down.
14:00+	Small tsunami waves, well below JATWC marine threat level (and also below PTWC threat level), were observed at Australian locations.


Bureau of Meteorology, Australia @BOM_au · Jul 30

No #tsunami threat to Australia from magnitude 8.7 #earthquake near OFF EAST COAST OF KAMCHATKA. Latest advice at bom.gov.au/tsunami.



Key Considerations

- Australian No Threat issued but was actively monitored for approximately 13.5 hours.
- Conflicting public advice of Marine Threat from PTWC made communication of No Threat more difficult. It is important that TSP products are not publicly available to minimise confusion during these rare events.
- JATWC to consider improving the decision support tool to include subsequent earthquake information for No Threat products.
- JATWC to consider further improvement to internal sea level visualisation tools.

THANK YOU

Robert Greenwood (Bureau)
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Robert.greenwood@bom.gov.au

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