



United Nations
Educational, Scientific and
Cultural Organization



Intergovernmental
Oceanographic
Commission

TTTWO Agenda Item 3

IOTWMS Tsunami Watch Operations

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Thanks to Karyono, Patanjali, Robert Greenwood, Nora Gale and Yuelong Miao, Ajay, JP

**TOWS-WG Task Team Tsunami Watch
Operations**

22-23 Feb 2022

CURRENT STATUS

Detection, Warning and Dissemination

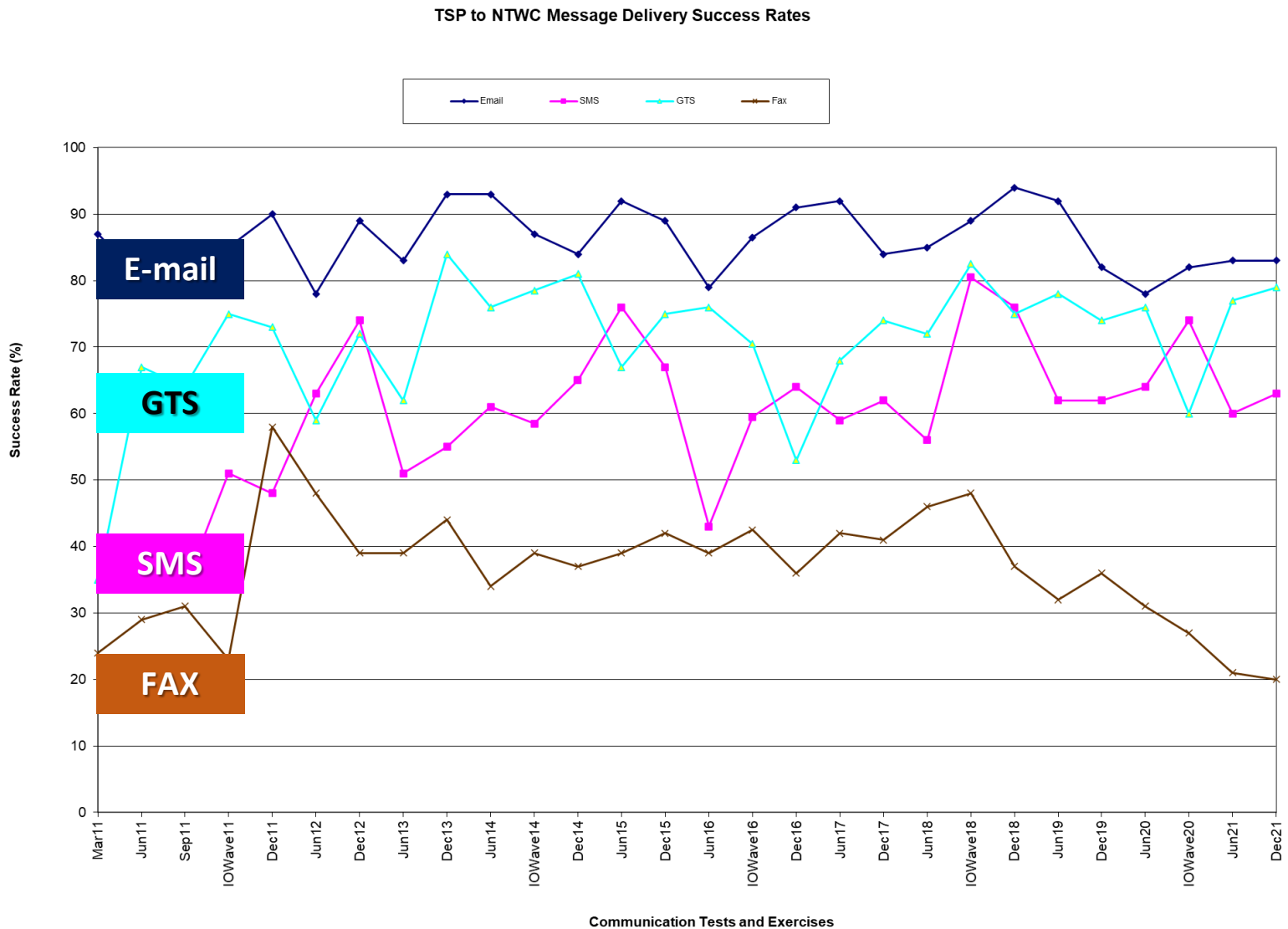


- Service Definition: AoS, Stations, Products, Thresholds, CFZs, Formats;
- Tsunami Service Framework:
 - 3 inter-operable Tsunami Service Providers (Australia, India, Indonesia);
 - Network of NTWCs.
- Greatly expanded seismic and sea level monitoring networks;
- Harmonised threat information by TSPs;

- National Warnings Sovereign responsibility of authorized national agencies;
- During the reporting period Indian Ocean witnessed 4 events, (i)12-May-2021 M6.6 at Mauritius-Reunion Region, (ii) 14-May-2021 M6.7 at Off West Coast of Northern Sumatra, (iii) 12-Aug-2021 M8.1 at South Sandwich Islands (iv) 14-Jan-2022 M6.6 at Sunda Strait, Indonesia
- Yearly performance assessments against Key Performance Indicators;
- 6-monthly Communications tests – every June & December;
- Updates to contact database & observing networks.

CURRENT STATUS

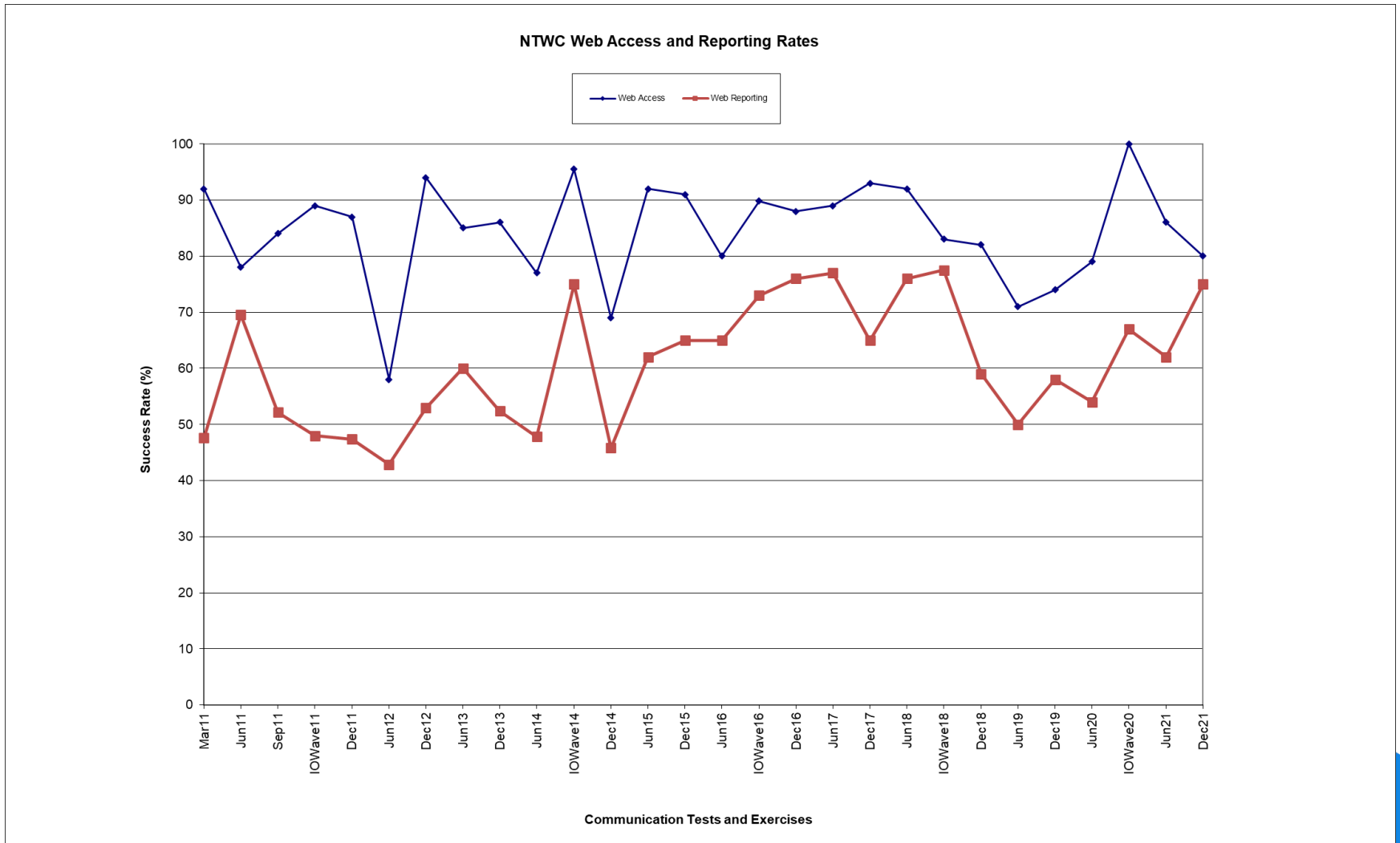
TSP TO NTWC SUCCESSFUL DELIVERY RATE OF NOTIFICATION MESSAGES



CURRENT STATUS

NTWCs Web Access and Reporting Rates

(i.e., accessing the password-protected TSP Webpages for threat information and products; and then reporting back what each country's warning status is)



CURRENT STATUS

TSP KPIs (20Feb2021-11Feb2022)

	Service Level 1 EQ Bulletins					Service Level 2 Threat / No Threat Bulletins		
TSP	KPI 1	KPI 2	KPI 3	KPI 4	KPI 5	KPI 6	KPI 7	KPI 8
	ET First EQ Bull	POD IO EQs GE M6.8	EQ Mag	EQ Depth	EQ Location	ET First Threat Bull	POD Tsunami Waves	Tsunami Height Accuracy
	Target: 10 mins (% met)	Target: 100%	Target: 0.3 (% met)	Target: 30 km (% met)	Target: 30 km (% met)	Target: 20 mins (% met)	Target: 100%	Target: Factor of 2
Australia	12.6 min (31.6%)	n/a	0.08 (100%)	18.3 (80.0%)	26.1 (70.0%)	21.3 (33.3%)	n/a	41%
India	12.2 min (57.7%)	n/a	0.14 (88.4%)	17.4 (76.9%)	17.8 (84.6%)	27 min* (0.0%)	n/a	n/a
Indonesia	9.11 min (78.6%)	n/a	0.22 (78.6%)	16.4 (82.1%)	22.3 (71.4%)	n/a	n/a	n/a

NOTES

KPI 2: No IO events >= M6.8

KPI 6:

India issued three No Threat Bulletins

* For the recent South Sandwich Island event, TSP India has issued a no threat bulletin as an information. This event is not considered for calculation of KPI 6.

TSP Indonesia issued two No Threat Bulletins as earthquake information. Both events are not considered for the calculation of KPI 6.

TSP Australia issued 1 No Threat, 1 Potential threat, and 1 Confirmed threat Bulletin

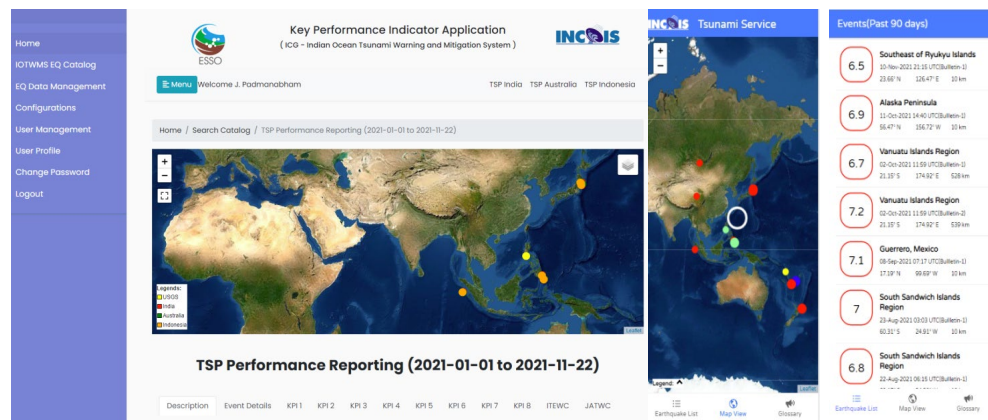
KPI 7: No events caused threat-level tsunami waves.

KPI 8: Based on 4 observations in CFZ's from the 12 Aug South Sandwich Islands event

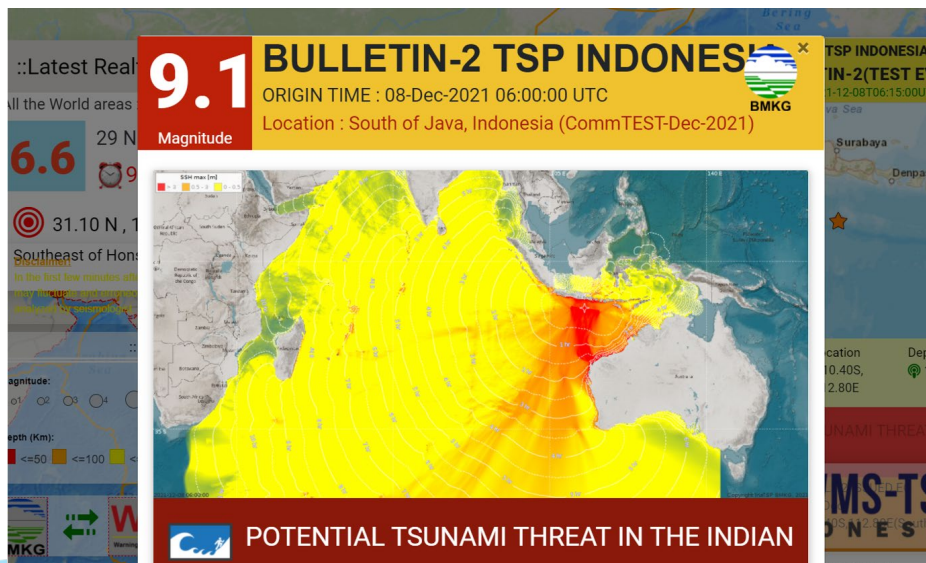
Meets Target	Near Target	Misses Target
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ICG/IOTWMS WG2 – 2022 Highlights

- TSP Australia implemented Maritime products for NAVAREA Coordinators
- TSP India developed the Key Performance Indicator Application for ICG/IOTWMS.
- TSP India developed the Mobile App
- IOTWMS Comms Tests conducted June 2021 and Dec 2021
- TSP Indonesia's new additional notification tool (WRS) tested in the 2 Comms Tests
- Strategic Pathway proposed for WG2 at the WTAD Indian Ocean Webinar of 10 Nov 2021, aligning with the Tsunami Ocean Decade Program objectives (next 2 slides)
- The WG2 meeting of 3-4 Nov 2021 reviewed progress and endorsed in principle the proposed strategic pathway for WG2.



Event Database and KPI Generator & mobile App



Strategic Pathway

WG2: Tsunami Warning, Detection and Dissemination

Focus

What/how

1

Expansion of existing and deployment of new technologies addressing observational gaps *

Nationally and Regionally

- Demonstration of the importance and identifiable value add of reducing the level of uncertainty of tsunami detection in support of warnings;
- Continuous expansion of existing and deployment of new innovated observational system to and demonstrate meet user needs;
- Continue advocacy through furthering of knowledge as the result of R&D, especially in seismic and sea level observing gaps
- National and regional exercises for both upstream and downstream warning components to demonstrate needed added value of data
- Actively pursue strategic partnerships with other relevant and potential national and international data and information providers

2

Wide expansion of real and near-real time data access and availability *

Nationally and Regionally

- Continuous advocacy on the importance of reducing the level of uncertainty of tsunami detection and warning through timely access to required data;
- Continuous advocacy to help ensure readiness of users of enhanced detection and warning systems
- Strongly advocate the importance of data sharing amongst the Member States as well as with the TSPs for more effective early warning, by monitoring and highlighting data gaps
- Development of MOUs on data access
- Actively pursue strategic partnerships with other relevant and potential national and international data and information providers

3

Access to data, tools and communication platforms, protocols and training to timely and effectively warn coastal and maritime communities *

Nationally and Regionally

- Demonstrations of the effectiveness of enhanced warnings reaching the level of local community
- Regular training on SOPs for early warning to demonstrate value add of data, tools and training itself
- Engage and integrate with other agencies, institutions, organization working on early warning as part of the multi-hazard approach.
- Actively pursue strategic partnerships with other relevant and potential national and international groups involved in R&D, data and warning tool development

** Based on Tsunami Dedicated Program within UNDOS outcome*

Strategic Pathway

WG2: Tsunami Warning, Detection and Dissemination

Focus

Who

1

Expansion of existing and deployment of new technologies addressing observational gaps *

Nationally and Regionally

Engage and involve:

- National agencies responsible in TEWS and MHEWS
- Secretariat IOTWMS and IOTIC (RP);
- R&D Agencies, Universities, and other scientific organizations such as IUGG
- Commercial entities, such as ITU
- National and international data and information providers relevant to tsunami early warning.

2

Wide expansion of real and near-real time data access and availability *

Nationally and Regionally

Engage and involve:

- National agencies responsible in TEWS, MHEWS, R&D, Universities;
- Secretariat IOTWMS and IOTIC (RP);
- National and international authorities responsible for data access
- National and international data and information providers relevant to tsunami early warning

3

Access to data, tools and communication platforms, protocols and training to timely and effectively warn coastal and maritime communities *

Nationally and Regionally

Engage and involve:

- NTWCs, DMOs (Nat & Local);
- Maritime authorities;
- Community leaders and DM/DRR Org.
- NGO or CSO in context of UITR.
- National and international early warning agencies, organizations, or institutions, i.e. WMO and others
- Scientific organizations such as IUGG
- Youth and young professionals platforms and organization

* Based on Tsunami Dedicated Program within UNDOS outcome

Thank you



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BMKG

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