

TSP Indonesia Report on Service Updates



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Outline:

1. TSP Indonesia Performance 2023 - 2024
2. TSP Indonesia development since last ICG
3. TSP Indonesia development and innovation plans

1. TSP Indonesia Performance 2023-2024

TSP Indonesia KPIs 2023 and 2024 – M6.8+

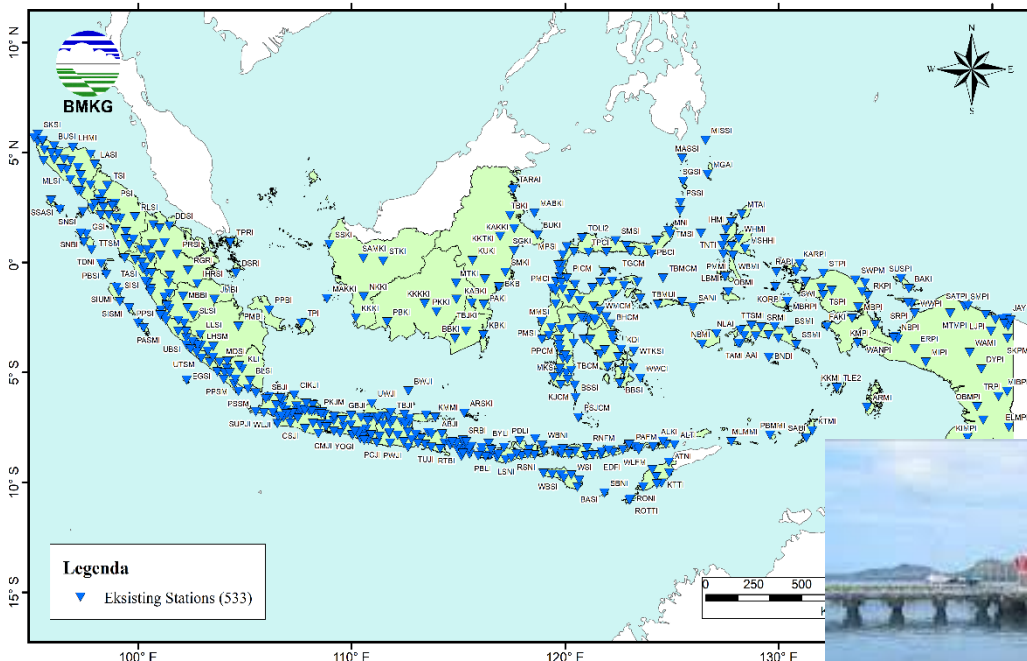
TSP	Service Level 1 EQ Bulletins					Service Level 2 Threat / No Threat Bulletins		
	KPI 1	KPI 2	KPI 3	KPI 4	KPI 5	KPI 6	KPI 7	KPI 8
	ET First EQ Bull	POD EQs GE M6.8	EQ Mag	EQ Depth	EQ Location	ET First Threat Bull	POD Tsunami Waves	Tsunami Height Accuracy
	Target: 10 mins (% met)	Target: 100%	Target: 0.3 (% met)	Target: 30 km (% met)	Target: 30 km (% met)	Target: 20 mins (% met)	Target: 100%	Target: Factor of 2
Indonesia (2023)	11.4 (86%)	(92%)	0.22 (76%)	27.91 (78%)	27.38 (78%)	16.0 (100%)	N/A	N/A
Indonesia (Jan-July 2024)	9.5 (83%)	(86%)	0.26 (67%)	25.88 (67%)	21.88 (83%)	N/A	N/A	N/A

Meets Target	Near Target	Misses Target
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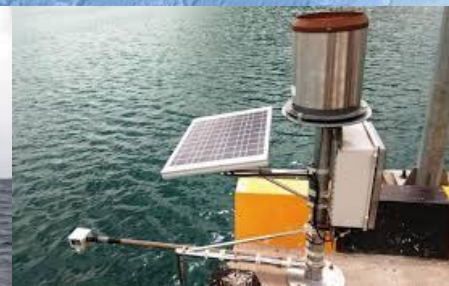
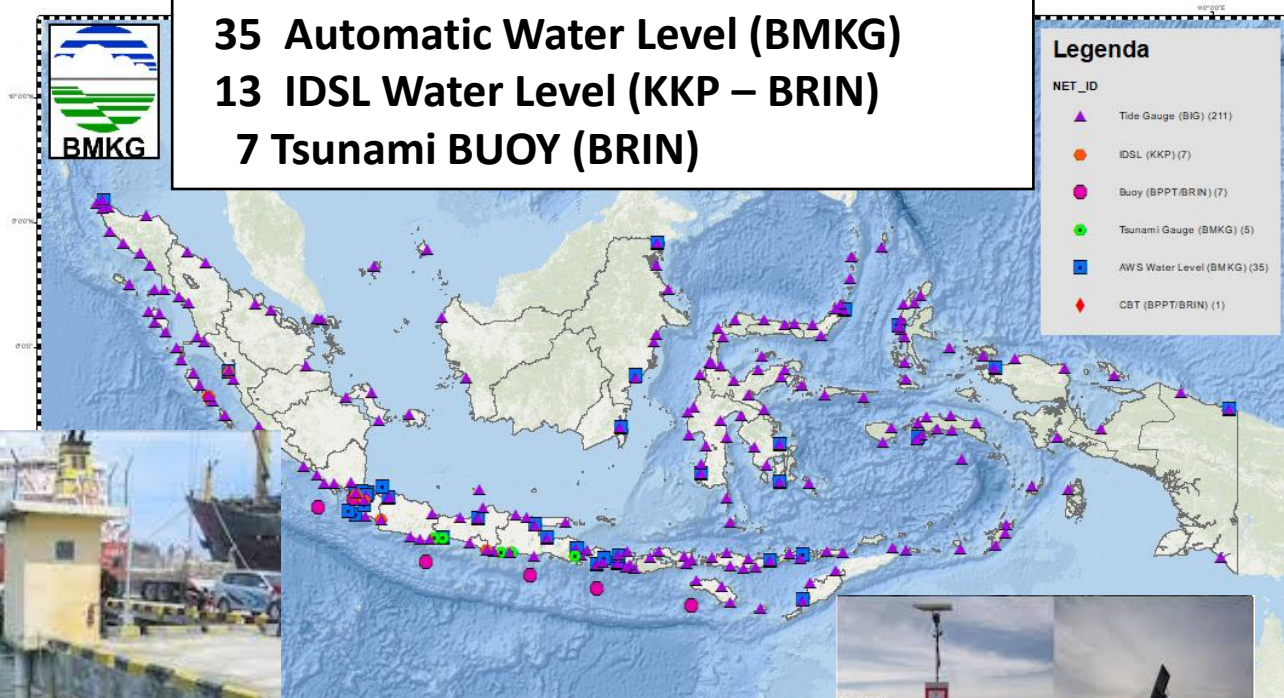
2. TSP Indonesia development since last ICG

EARTHQUAKE AND TSUNAMI MONITORING SYSTEM

533 Seismic Sites for Earthquake Detection



- 211 Tide Gauge (BIG)
- 5 Tsunami Gauge (BMKG)
- 35 Automatic Water Level (BMKG)
- 13 IDSL Water Level (KKP – BRIN)
- 7 Tsunami BUOY (BRIN)



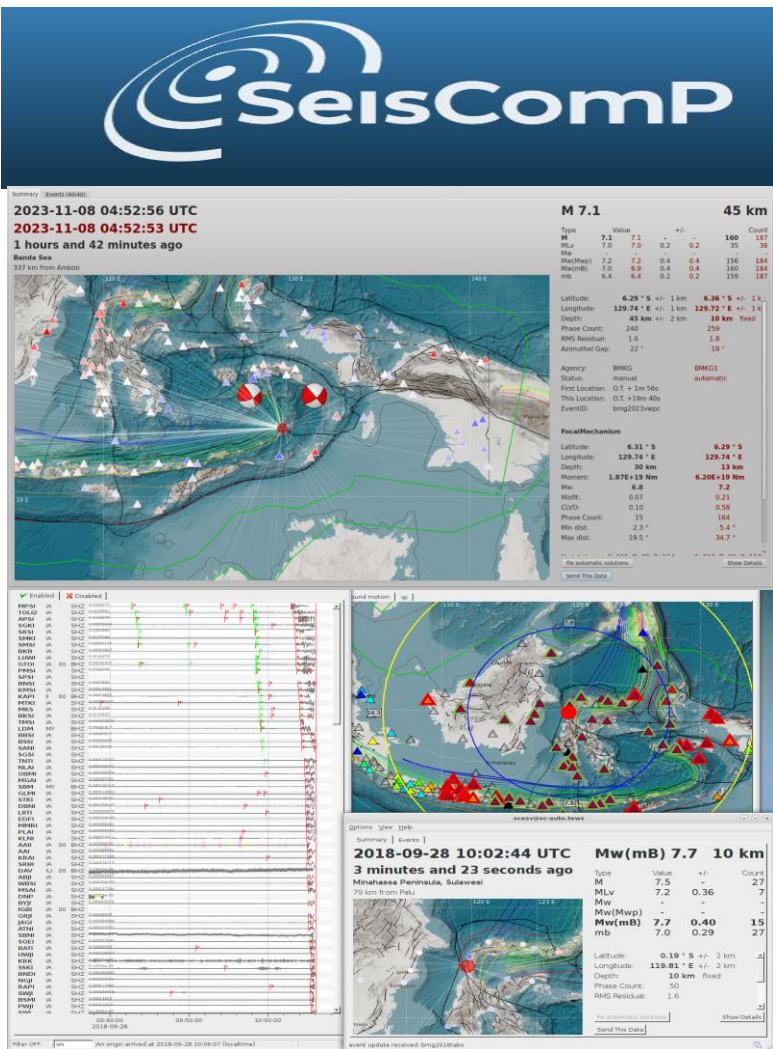
Shelter

Buoy

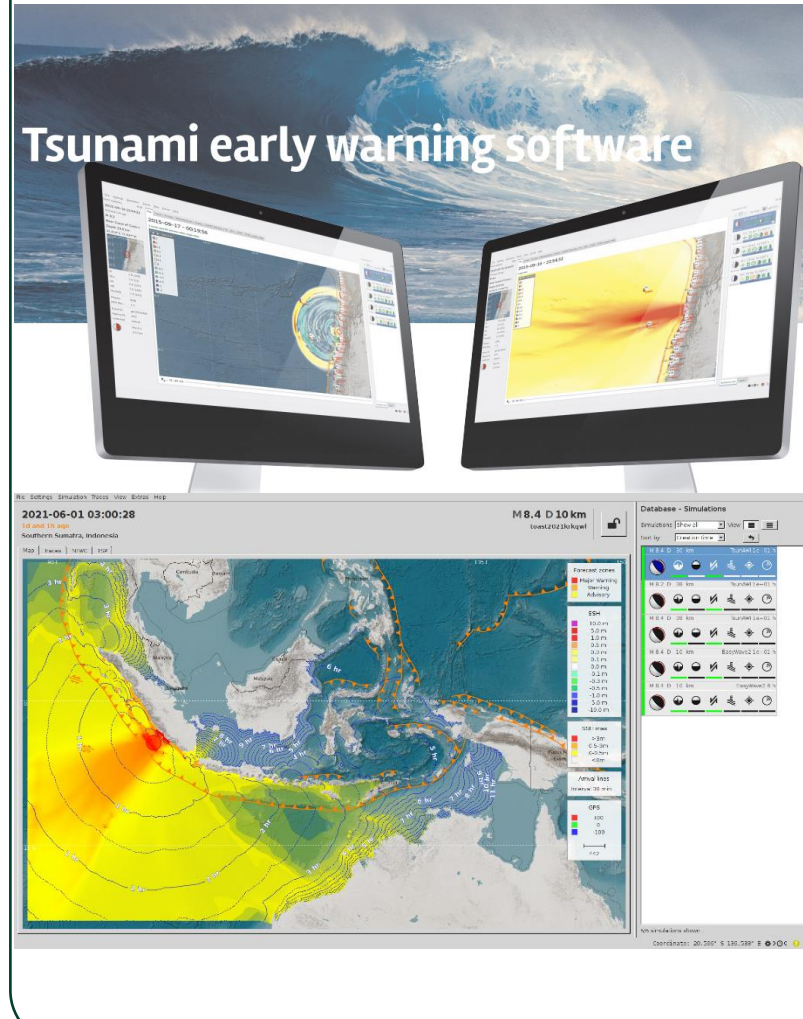
Water Level

EARTHQUAKE AND TSUNAMI PROCESSING SYSTEM

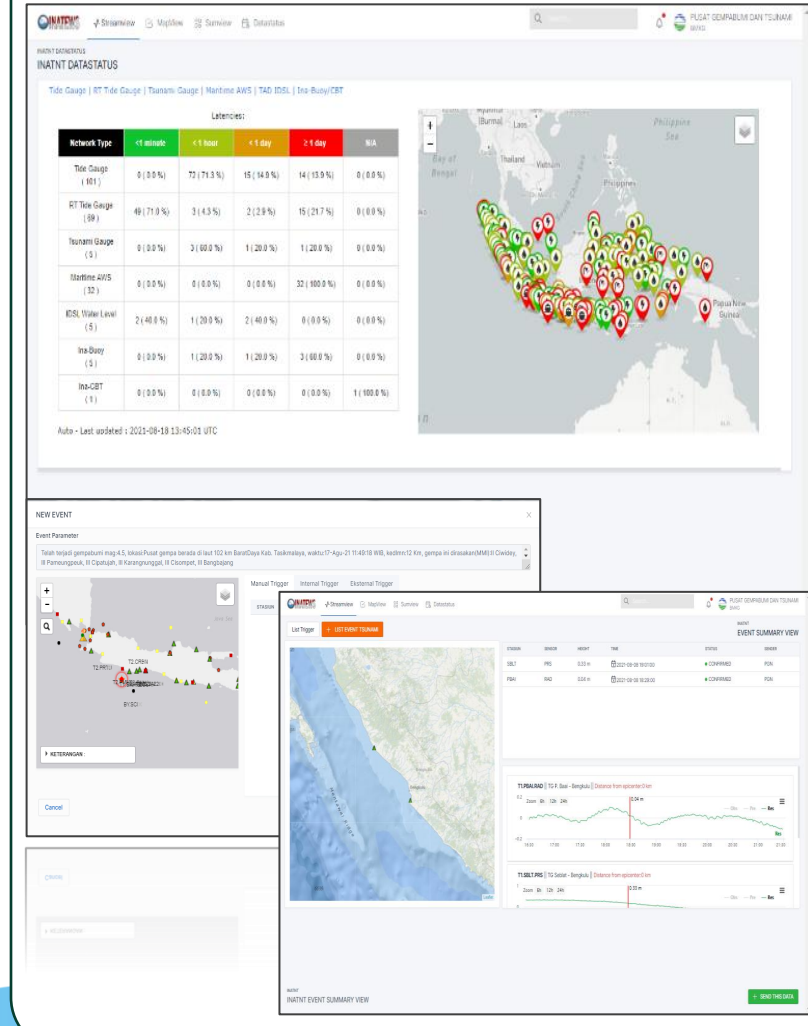
SEISCOMP

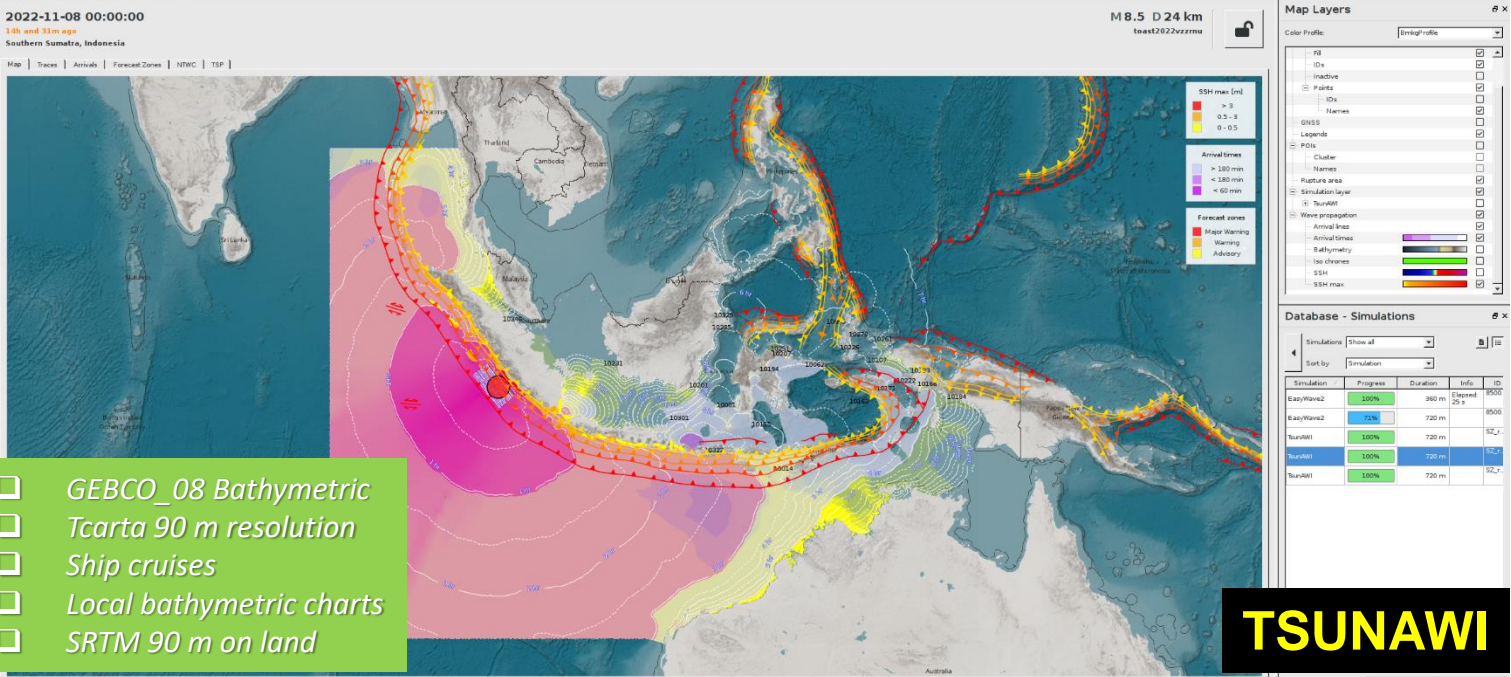


TOAST



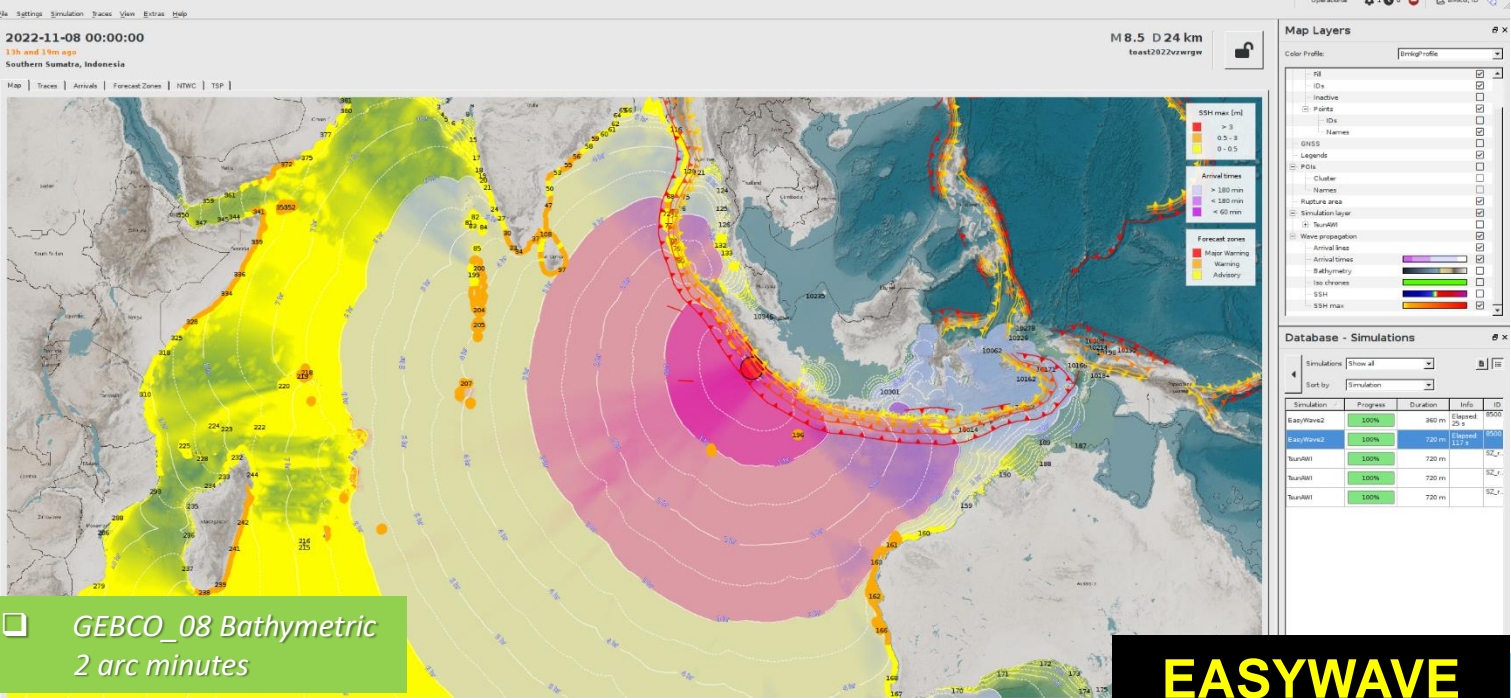
InaTNT





Integration of the new 4000 TsunAWI scenarios into TOAST

- GEBCO_08 Bathymetric
- Tcarta 90 m resolution
- Ship cruises
- Local bathymetric charts
- SRTM 90 m on land



- GEBCO_08 Bathymetric 2 arc minutes

Database - Simulations

Simulations: Show all

Sort by: Simulation

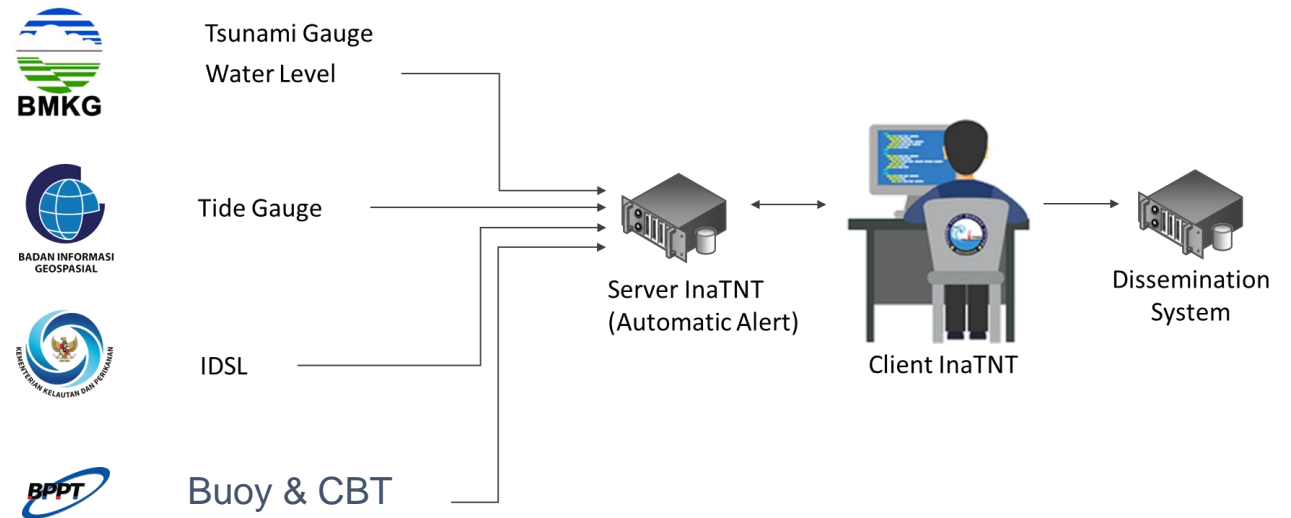
Simulation	Progress	Duration	Info	ID
EasyWave2	100%	360 m	Elapsed: 25 s	8500
EasyWave2	100%	720 m	Elapsed: 117 s	8500
TsunAWI	100%	720 m		SZ_r..
TsunAWI	100%	720 m		SZ_r..
TsunAWI	100%	720 m		SZ_r..

InaTNT (Indonesia Tsunami Non Tectonic) Application For Indian Ocean Region

InaTNT

INDONESIA TSUNAMI NON TEKTONIK

InaTNT is an integrated system that functions to **detect sea level change anomalies that indicate a tsunami is recorded by sea level observation sensors** owned by BMKG, BIG, BPPT and KKP. The presence of InaTNT will improve the performance of the InaTEWS System in detecting tsunamis caused by tectonic and non-tectonic sources.



InaTNT : INTEGRATED SEA SURFACE MONITORING SENSORS FROM INATEWS INSTITUTIONS

SENSOR MONITORING MUKA LAUT UNTUK PENDETEKSIAN TSUNAMI INATEWS

PGT - BMKG



TSUNAMI GAUGE

BPPT/BRIN



IDSL - WATER LEVEL

BIG



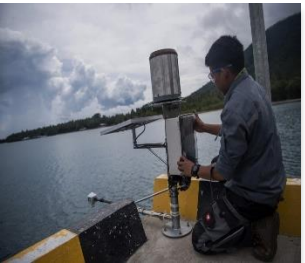
TIDE GAUGE

BPPT/BRIN



TSUNAMI BUOY

PUSMAR - BMKG

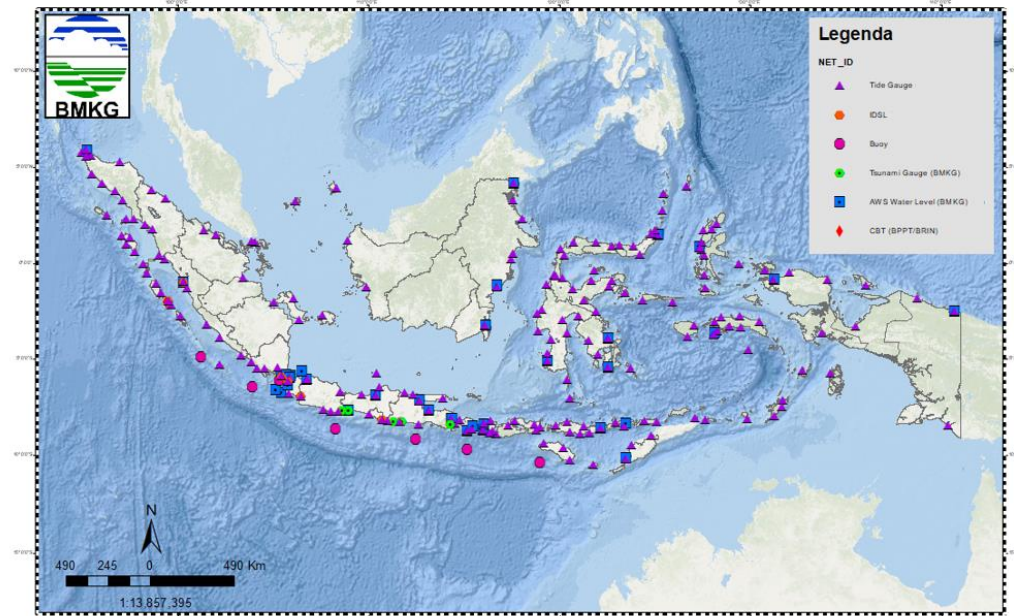


AWS - WATER LEVEL

BPPT/BRIN



Cable Based Tsunameter (CBT)



NO	NETWORK	TOTAL	OWNER
1	AWS Water Level	35	BMKG
2	Tsunami Gauge	5	BMKG
3	Tide Gauge 1	237	BIG
4	Tide Gauge 2 (RT)	26	BIG
5	IDSL	11	KKP/BRIN
6	Buoy	7	BPPT/BRIN
7	CBT	2	BPPT/BRIN

Number of Integrated Sea Level Monitoring Sensors : 298 Sensors

InaTNT : TELE-TSUNAMI OBSERVATION (INDIAN OCEAN)



NO	NETWORK	TOTAL	OWNER
1	Dart Buoy NOAA	33	NOAA
2	Tide Gauge IOC	165	IOC
3	Tide Gauge INCOIS (India)	7	INCOIS
	TOTAL	205	

InaTNT (Indonesia Tsunami Non Tectonic) Application



NEW EVENT

Event Parameter

Telah terjadi gempa bumi mag:4,5, lokasi:Pusat gempa berada di laut 102 km BaratDaya Kab. Tasikmalaya, waktu:17-Agu-21 11:49:18 WIB, kedim:12 Km, gempa ini dirasakan(MMI)II Ciwiday, III Pameungpeuk, III Cipatuhaj, III Karangnunggal, III Cisompet, III Bangbajang

Manual Trigger Internal Trigger Eksternal Trigger

STASIUN	SENSOR	LOCATION	HEIGHT	TIME	STATUS	SENDER	ACTION

CREATE EVENT

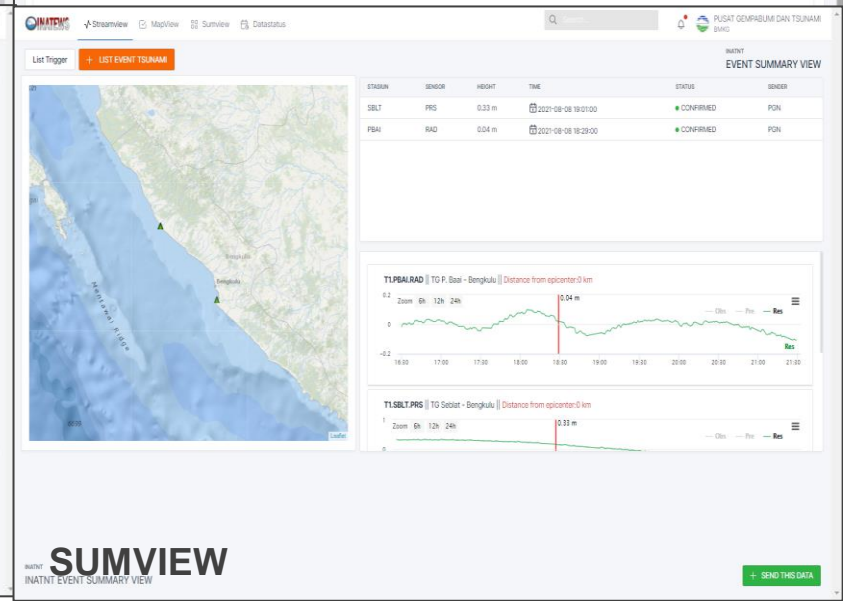
INATNT DATASTATUS

Tide Gauge | RT Tide Gauge | Tsunami Gauge | Maritime AWS | TAD IDSL | Ina-Buoy/CBT

Network Type	< 1 minute	< 1 hour	< 1 day	> 1 day	N/A
Tide Gauge (801)	0 (0.0 %)	72 (71.3 %)	15 (14.9 %)	14 (13.9 %)	0 (0.0 %)
RT Tide Gauge (89)	49 (71.0 %)	3 (4.3 %)	2 (2.9 %)	15 (21.7 %)	0 (0.0 %)
Tsunami Gauge (2)	0 (0.0 %)	3 (60.0 %)	1 (20.0 %)	1 (20.0 %)	0 (0.0 %)
Maritime AWS (32)	0 (0.0 %)	0 (0.0 %)	0 (0.0 %)	32 (100.0 %)	0 (0.0 %)
IDSL Water Level (5)	2 (40.0 %)	1 (20.0 %)	2 (40.0 %)	0 (0.0 %)	0 (0.0 %)
Ina-Buoy (2)	0 (0.0 %)	1 (20.0 %)	1 (20.0 %)	3 (60.0 %)	0 (0.0 %)
Ina-CBT (1)	0 (0.0 %)	0 (0.0 %)	0 (0.0 %)	0 (0.0 %)	1 (100.0 %)

Auto - Last updated : 2021-08-18 13:45:01 UTC

DATA STATUS



InaTNT : Automatic Sea Level Anomaly Monitoring

MONITORING GUI AUTOMATIC SEA LEVEL ANOMALY DETECTION

Water Level Anomaly Alert Monitoring

User: user [supervisor]

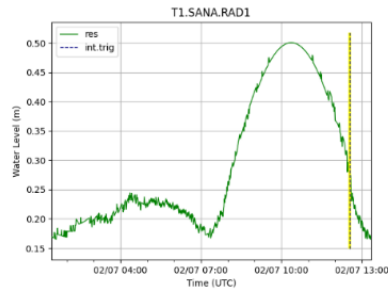
Home Coast Cam Logout

Detection Alert

Real-Time Alert Archive Events Sensors

Sound Alert

Latest Sea Level Anomaly



Associated Event: None	
Alert Level: 8.850	Method: sl
SNR: 0.728	Source: Internal (InaTNT)

Height -0.073 m
(Low Tide)

T1.SANA.RAD1
(TG Sanana - Malut)

Ts(AIC)	2023-07-02 12:26:00UTC
Ts	2023-07-02 12:32:00UTC
Last Samp. Time	2023-07-02 12:50:00UTC
ID	1688302502046

INFO GEMPA: Telah terjadi gempa bumi mag:4.5, lokasi: di darat 43 km BaratDaya Ransiki, waktu:02-Jul-23 18:40:28 WIB, kedlmn:43 Km, gempa ini dirasakan(MMI):III Ransiki, III Oransbari:BMKG [UJI COBA WHATSAPP AUTO BROADCAST] 19:07

Terdeteksi anomali muka laut di stasiun Tsunami Gauge Pacitan (TS.PACJ1) pada:
- Sensor RAD dengan tinggi 11.117 m, pukul 2023-07-02 12:24:30 UTC dan tidak ada event gempa bumi yang terasosiasi.
[SNR: 0.806, Level: 7.8, Method: zd, Src: INT, LastDT: 2023-07-02 12:33:10].
Harap periksa melalui link berikut ini :
<https://inatnt.bmkg.go.id/tntmon/stasiunstatus.php?net=TS&sta=PACJ1>
InaTNT-BMKG 19:33

AutomaticEQ Mag:3.5, 02-Jul-23 20:03:57 WIB, Lok: 2.92 LS - 141.37 BT (Near North Coast of Papua New Guinea), Kdlmn:11 Km:::BMKG [UJI COBA WHATSAPP AUTO BROADCAST] 20:07

AUTOMATIC SEA LEVEL ANOMALY ALERT MESSAGE VIA WHATSAPP

TSUNAMI TRAVEL AND ARRIVAL TIME PREDICTION FROM ALL EARTHQUAKE POSSIBILITIES

Estimated Time Arrival

LAT	LONG	DEPTH	MAG	TSUN. TRV. TIME (MIN)
-8.8888	116.8888	10	4.5	120
-8.5555	117.5555	10	4.5	120
-8.7555	118.2555	10	4.5	120
-8.3888	118.8888	10	4.5	120
-8.2555	119.5555	10	4.5	120
-8.1222	120.2222	10	4.5	120
-7.9999	120.8999	10	4.5	120
-7.8666	121.5666	10	4.5	120
-7.7333	122.2333	10	4.5	120
-7.6000	122.9000	10	4.5	120
-7.4667	123.5667	10	4.5	120
-7.3333	124.2333	10	4.5	120
-7.2000	124.9000	10	4.5	120
-7.0667	125.5667	10	4.5	120
-6.9333	126.2333	10	4.5	120
-6.8000	126.9000	10	4.5	120
-6.6667	127.5667	10	4.5	120
-6.5333	128.2333	10	4.5	120
-6.4000	128.9000	10	4.5	120
-6.2667	129.5667	10	4.5	120
-6.1333	130.2333	10	4.5	120
-6.0000	130.9000	10	4.5	120
-5.8667	131.5667	10	4.5	120
-5.7333	132.2333	10	4.5	120
-5.6000	132.9000	10	4.5	120
-5.4667	133.5667	10	4.5	120
-5.3333	134.2333	10	4.5	120
-5.2000	134.9000	10	4.5	120
-5.0667	135.5667	10	4.5	120
-4.9333	136.2333	10	4.5	120
-4.8000	136.9000	10	4.5	120
-4.6667	137.5667	10	4.5	120
-4.5333	138.2333	10	4.5	120
-4.4000	138.9000	10	4.5	120
-4.2667	139.5667	10	4.5	120
-4.1333	140.2333	10	4.5	120
-4.0000	140.9000	10	4.5	120
-3.8667	141.5667	10	4.5	120
-3.7333	142.2333	10	4.5	120
-3.6000	142.9000	10	4.5	120
-3.4667	143.5667	10	4.5	120
-3.3333	144.2333	10	4.5	120
-3.2000	144.9000	10	4.5	120
-3.0667	145.5667	10	4.5	120
-2.9333	146.2333	10	4.5	120
-2.8000	146.9000	10	4.5	120
-2.6667	147.5667	10	4.5	120
-2.5333	148.2333	10	4.5	120
-2.4000	148.9000	10	4.5	120
-2.2667	149.5667	10	4.5	120
-2.1333	150.2333	10	4.5	120
-2.0000	150.9000	10	4.5	120
-1.8667	151.5667	10	4.5	120
-1.7333	152.2333	10	4.5	120
-1.6000	152.9000	10	4.5	120
-1.4667	153.5667	10	4.5	120
-1.3333	154.2333	10	4.5	120
-1.2000	154.9000	10	4.5	120
-1.0667	155.5667	10	4.5	120
-0.9333	156.2333	10	4.5	120
-0.8000	156.9000	10	4.5	120
-0.6667	157.5667	10	4.5	120
-0.5333	158.2333	10	4.5	120
-0.4000	158.9000	10	4.5	120
-0.2667	159.5667	10	4.5	120
-0.1333	160.2333	10	4.5	120
0.0000	160.9000	10	4.5	120
0.1333	161.5667	10	4.5	120
0.2667	162.2333	10	4.5	120
0.4000	162.9000	10	4.5	120
0.5333	163.5667	10	4.5	120
0.6667	164.2333	10	4.5	120
0.8000	164.9000	10	4.5	120
0.9333	165.5667	10	4.5	120
1.0667	166.2333	10	4.5	120
1.2000	166.9000	10	4.5	120
1.3333	167.5667	10	4.5	120
1.4667	168.2333	10	4.5	120
1.6000	168.9000	10	4.5	120
1.7333	169.5667	10	4.5	120
1.8667	170.2333	10	4.5	120
2.0000	170.9000	10	4.5	120
2.1333	171.5667	10	4.5	120
2.2667	172.2333	10	4.5	120
2.4000	172.9000	10	4.5	120
2.5333	173.5667	10	4.5	120
2.6667	174.2333	10	4.5	120
2.8000	174.9000	10	4.5	120
2.9333	175.5667	10	4.5	120
3.0667	176.2333	10	4.5	120
3.2000	176.9000	10	4.5	120
3.3333	177.5667	10	4.5	120
3.4667	178.2333	10	4.5	120
3.6000	178.9000	10	4.5	120
3.7333	179.5667	10	4.5	120
3.8667	180.2333	10	4.5	120
4.0000	180.9000	10	4.5	120
4.1333	181.5667	10	4.5	120
4.2667	182.2333	10	4.5	120
4.4000	182.9000	10	4.5	120
4.5333	183.5667	10	4.5	120
4.6667	184.2333	10	4.5	120
4.8000	184.9000	10	4.5	120
4.9333	185.5667	10	4.5	120
5.0667	186.2333	10	4.5	120
5.2000	186.9000	10	4.5	120
5.3333	187.5667	10	4.5	120
5.4667	188.2333	10	4.5	120
5.6000	188.9000	10	4.5	120
5.7333	189.5667	10	4.5	120
5.8667	190.2333	10	4.5	120
6.0000	190.9000	10	4.5	120
6.1333	191.5667	10	4.5	120
6.2667	192.2333	10	4.5	120
6.4000	192.9000	10	4.5	120
6.5333	193.5667	10	4.5	120
6.6667	194.2333	10	4.5	120
6.8000	194.9000	10	4.5	120
6.9333	195.5667	10	4.5	120
7.0667	196.2333	10	4.5	120
7.2000	196.9000	10	4.5	120
7.3333	197.5667	10	4.5	120
7.4667	198.2333	10	4.5	120
7.6000	198.9000	10	4.5	120
7.7333	199.5667	10	4.5	120
7.8667	200.2333	10	4.5	120
8.0000	200.9000	10	4.5	120
8.1333	201.5667	10	4.5	120
8.2667	202.2333	10	4.5	120
8.4000	202.9000	10	4.5	120
8.5333	203.5667	10	4.5	120
8.6667	204.2333	10	4.5	120
8.8000	204.9000	10	4.5	120
8.9333	205.5667	10	4.5	120
9.0667	206.2333	10	4.5	120
9.2000	206.9000	10	4.5	120
9.3333	207.5667	10	4.5	120
9.4667	208.2333	10	4.5	120
9.6000	208.9000	10	4.5	120
9.7333	209.5667	10	4.5	120
9.8667	210.2333	10	4.5	120
10.0000	210.9000	10	4.5	120

Earthquake Information

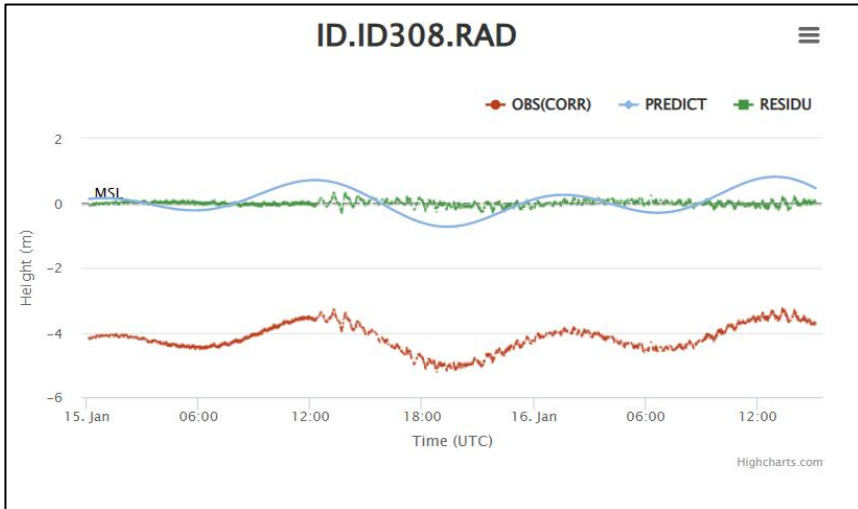
EVENTID	REPORTED	ONLINE TIME	LAT	LONG	DEPTH	MAG	LOCATION	INFO TYPE	MESSAGE
202307020001	2023-07-02 12:24:30	2023-07-02 12:24:30	-4.8667	116.8888	10	4.5	Near North Coast of Papua New Guinea	SL	There is an earthquake mag 4.5 on 02-Jul-23 at 12:24:30 UTC. It is 11.117 km from Sanana, Malut. Depth: 10 km. Source: Internal (InaTNT)

InaTNT displays the predicted time travel and arrival time of the tsunami at each water level station for all possible earthquake events.

Alert notifications will be activated on this GUI when any detected sea level anomaly occurs, displaying the tsunami height, arrival time, potential earthquake event associated with the anomaly, and the detection method used. Each anomaly alert meeting specific criteria will be forwarded via WhatsApp message to the InaTNTInfo group for internal use.

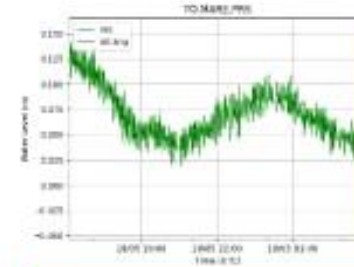
InaTNT : Detected Events

DETECTED TSUNAMI TRIGGERED BY EARTHQUAKE MAGNITUDE 7.7 QUAKE OFF NEW CALEDONIA ON 29 MAY 2023



Device Description	
Name	ID308
Network ID	ID
Station Type	IDSL-WL
Lat/Lon	-8.291638 / 111.731428
Location	Prigi - Jatim
Sensor Type 1	RAD ★
Call Sign I / II	486 / IDSL-308
Datum (LAT/MSL/HAT)	0 m / 0 m / 0 m 📍
Activity Report	
Sampling Period	5 second(s)
Last Data	2023-09-25 01:42:50
Received	2023-09-25 01:43:02
Data Latency	5.2 minutes
Feed Latency	5.0 minutes
Diff.	12.0 seconds
Reported	2023-09-25 01:48:02
Coastal Cam	Latest Image 📷

Sound Alert



Latest Sea Level Anomaly

Height -0.103 m
(Low Tide)

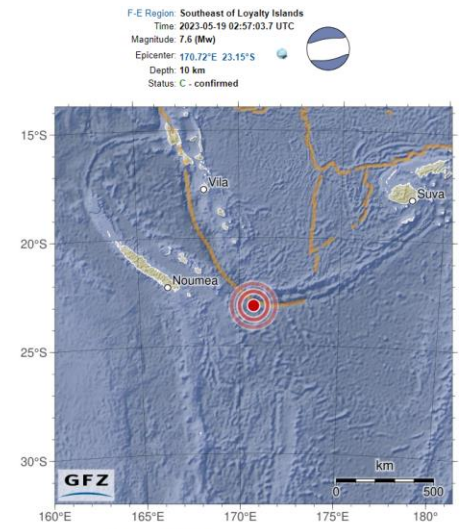
TO.MARE.PRS
(Maré (New Caledonia, Loyalty Islands), France)

To(AIC)	2023-05-19 03:39:00UTC
Til	2023-05-19 03:42:00UTC
Last Samp. Time	2023-05-19 03:49:00UTC
ID	16B44683B2922

Associated Event: None

Alert Level: 6.780	Method: sl
SNR: -0.632	Source: Internal (InaTNT)

STATUS	
Anomaly alert at 2022-01-15 13:14:02 UTC with waveheight 2.35 m (Alert Level : 5.0), please check it	🔗
Anomaly alert at 2022-01-15 13:14:14 UTC with waveheight 2.42 m (Alert Level : 7.0), please check it	🔗
Anomaly alert at 2022-01-15 13:14:50 UTC with waveheight 2.39 m (Alert Level : 10.0), please check it	🔗
Anomaly alert at 2022-01-15 13:37:26 UTC with waveheight 1.86 m (Alert Level : 2.0), please check it	🔗
Anomaly alert at 2022-01-15 13:37:44 UTC with waveheight 1.84 m (Alert Level : 5.0), please check it	🔗
Anomaly alert at 2022-01-15 13:38:14 UTC with waveheight 1.85 m (Alert Level : 10.0), please check it	🔗
Anomaly alert at 2022-01-15 13:49:02 UTC with waveheight 2.16 m (Alert Level : 3.0), please check it	🔗
Anomaly alert at 2022-01-15 13:49:14 UTC with waveheight 2.16 m (Alert Level : 5.0), please check it	🔗
Anomaly alert at 2022-01-15 13:49:32 UTC with waveheight 2.22 m (Alert Level : 8.0), please check it	🔗
Anomaly alert at 2022-01-15 13:49:50 UTC with waveheight 2.22 m (Alert Level : 10.0), please check it	🔗



Meteotsunami / Rissaga Phenomenon From 15 January 2022 Hunga Tonga Volcanic Eruption Blast That Was Detected

InaTNT : IDSL & Tsunami Gauge Sensors Are Equipped By Coastal Cam To Visually Confirm Tsunami Wave



ID.ID301

Device Description

Name	ID301
Network ID	IDSL-WL
Station Type	
Lat/Lon	-5.936647 / 105.512106
Location	P.Sebes - Lampung - Sumatra
Sensor Type 1	ROAD
Call Sign I / II	206 / IDSL-301
Datum (LAT/MSL/HAT)	0.59 m / 0.88 m / 1.23 m ▲

Activity Report

Sampling Period	15 seconds
Last Data	2022-02-05 08:32:17
Received	2022-02-05 08:32:16
Data Latency	47.26 seconds
Feed Latency	46.26 seconds
Dif	1.0 seconds
Reported	2022-02-05 08:33:04
Coastal Cam	Latest Image 🖼️

State of Health (SOH) Status

☀️ Panel : -5.5 V 🔋 Battery : 12.76 V

Location Map

Data Provider

TS.MUNJI

Device Description

Name	MUNJI
Network ID	TS
Station Type	TSUNAMI GAUGE
Lat/Lon	-8.4379 / 114.348
Location	Tsunami Gauge Muncar
Sensor Type 1	ROAD
Sensor Type 2	PRS
Call Sign I / II	1017 / 1017
Datum (LAT/MSL/HAT)	0.68 m / 1.09 m / 1.77 m ▲

Activity Report

Sampling Period	60 second(s)
Last Data	2022-06-23 21:01:00
Received	2022-06-23 21:04:31
Data Latency	5.07 minutes
Feed Latency	1.57 minutes
Dif	3.52 minutes
Reported	2022-06-23 21:06:04
Coastal Cam	Latest Image 🖼️

State of Health (SOH) Status

☀️ Panel : 0.18 V 🔋 Battery : 12.22 V

Location Map

Data Provider



Real-Time Plot **Archive Plot** **Power Status**

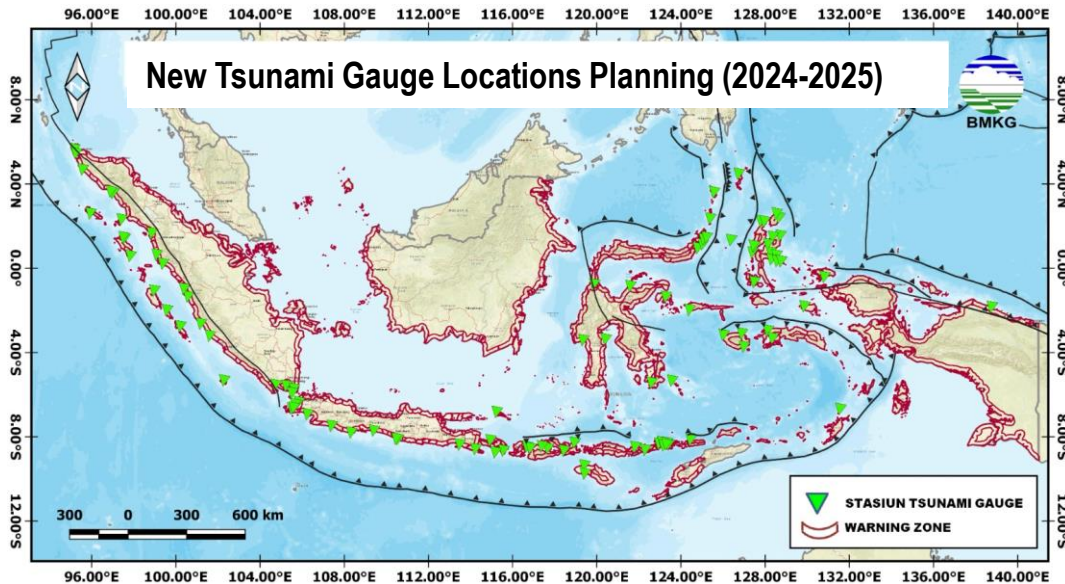
Coastal Cam

23/06/2023 18:47:55 Tsunami Gauge MUNJI



Future Plan : New Tsunami Gauge 2024

BMKG will install New Tsunami Gauge in 100 locations throughout Indonesia



MAIN SENSOR



ADDITIONAL SENSORS

Coastal Cam/CCTV



Tsunami visual validation and confirmation

Barometric / Air Pressure Sensor



Meteotsunami shockwave detection

THE COMMUNITY EDUCATION ACTIVITIES OF SEKOLAH LAPANG GEMPA (SLG) ON CONTRIBUTING TO THE DEVELOPMENT OF TSUNAMI READY COMMUNITY

- The SLG (Earthquake Field School) is a capacity building activity to enhance local government and community awareness and response
- Create Champions from LDMO, Community, Army, stakeholders related to the disaster management and response, School, community, private sector are involved.
- The scope of the SLG:
 1. Field Survey and advocating the implementation of the 12 indicators of Tsunami Ready
 2. TOT Workshop of the SLG
 3. School Exercise
- The Tsunami Ready based on the systematic indicators
- Community should have knowledge of their potential hazard including tsunami, tropical cyclone, coastal flood in order to develop the capacity of preparedness and response



SEKOLAH LAPANG GEMPABUMI

TUJUAN & SASARAN

MANFAAT

PELAKSANAAN SLG

Tahun	Jumlah Lokasi
2015	10 Kota / Kabupaten
2016	23 Kota / Kabupaten
2017	1 Kota
2018	2 Kota
2019	30 Kota / Kabupaten
2020	1 Kota / Kabupaten
2021	30 Kota / Kabupaten
2022	23 Kota / Kabupaten
2023	23 Kota / Kabupaten
Total	114 LOKASI

TSUNAMI READY INDICATORS

Indicator Category	Indicator Description	Category
I ASSESSMENT (ASSESS)	<ol style="list-style-type: none"> 1 ASSESS-1. Tsunami hazard zones are mapped and designated 2 ASSESS-2. The number of people at risk in the tsunami hazard zone is estimated 3 ASSESS-3. Economic, infrastructural, political, and social resources are identified 	Understanding the Hazard and Risk
II PREPAREDNESS (PREP)	<ol style="list-style-type: none"> 4 PREP-1. Easily understood tsunami evacuation maps are approved. 5 PREP-2. Tsunami information including signage is publicly displayed. 6 PREP-3. Outreach and public awareness and education resources are available and distributed. 7 PREP-4. Outreach or educational activities are held at least 3 times a year. 8 PREP-5. A community tsunami exercise is conducted at least every two years 	Community Awareness
III RESPONSE (RESP)	<ol style="list-style-type: none"> 9 RESP-1. A community tsunami emergency response plan is approved. 10 RESP-2. The capacity to manage emergency response operations during a tsunami is in place. 11 RESP-3. Redundant and reliable means to timely receive 24-hour official tsunami alerts are in place. 12 RESP-4. Redundant and reliable means to timely disseminate 24-hour official tsunami alerts to the public are in place. 	Planning and Capacity

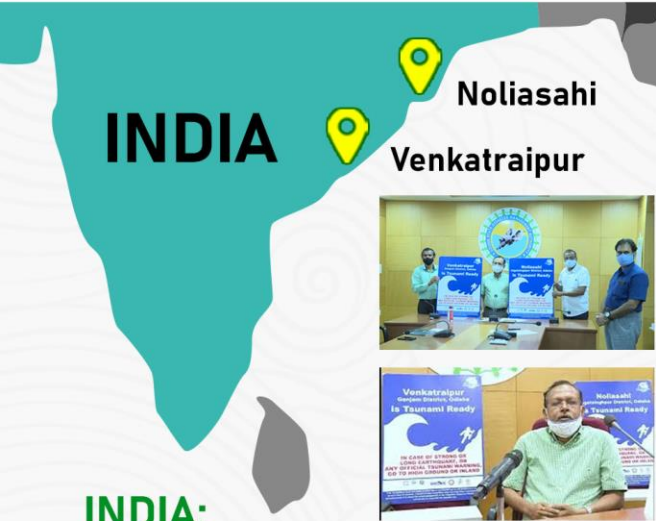


VERIFICATION FOR TSUNAMI EVACUATION ROUTE

For enhancing Earthquake and Tsunami Mitigation, Head of BMKG had conducted Inspection for Tsunami Evacuation Route in Maumere



12 IOC-UNESCO Tsunami Ready Communities in the Indian Ocean



INDIA:

1. Venkatraipur (August, 7th 2020)
2. Noliasahi (August, 7th 2020)

INDONESIA:

1. Tanjung Bena Village (May, 28th 2022)
2. Glagah Village (December, 26th 2022)
3. Kemadang Village (November, 26th 2022)
4. Pangadaran Village (December, 26th 2022)
5. Panggarangan Village (November, 26th 2022)
6. Desa Tambakrejo (November, 26th 2022)
7. Kuta Mandalika Village (December, 26th 2022)
8. Purus Village (December, 26th 2022)
9. Lolong Belanti Village (December, 26th 2022)
10. Tapakih Village (December, 20th 2023)



Participation on the Regular IOTWMS Communication Test 2023 and 2024



Preparation



Coordination



Execution



Continuing the contribution of WRS-TSP Indonesia as a real-time system to alert NTWCs.

WRS-TSP Indonesia can be accessed by any web browser.

WRS is directly connected to the processing and dissemination system of TSP Indonesia (located at BMKG headquarters in Jakarta).

The user guide is available at <https://oceanexpert.org/document/30448>.

FEATURES

- Text2voice Sound Alert (when new information available)
- Real time Earthquake Information (M>6.5) with visualization of time propagation of P and S wave
- TSP Tsunami Bulletin with popup window
- Historical events on TSP web sites.
- Cloud web based application
- User password protected access

WRS-TSP INDONESIA

7.7 IOTWMS TSP INDONESIA FINAL-BULL(REAL EVENT)
Issued: 2020-11-21 10:02:30 UTC

TSP Tsunami Bulletin

Origin Time	Location	Depth
10-Nov-2020 09:40:21 UTC	010.50S, 119.89E	10 Km

Real-time EQ M>6.5

7.7 21 Nov 2020, 08:25:26
10 hours ago
10.50 S, 119.89 E || 10Km
Sumba Region, Indonesia

Legend:

Magnitude	Depth (Km)
6.0-6.9	<=100
7.0-7.9	>100
8.0-8.9	>200
9.0-9.9	>400
10.0-10.9	>600

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WRS-TSP Indonesia (stands for Warning Receiver System of TSP Indonesia) is the real-time system to receive tsunami bulletin using a recommended set of hardware such as a large or **smart display**. WRS-TSP connected online to the processing and dissemination system of TSP Indonesia at BMKG head quarter Jakarta.

WRS-TSP ensures NTWCs of the Indian Ocean Countries **keep informed tsunami bulletin** timely and properly.

NTWCs could immediately take further essential actions right after they received the tsunami bulletin.



Earthquake



➡ TSP INDONESIA



**WRS-TSP
INDONESIA**

On-job Training for the IO Member state (OMAN) – May 2024



3. TSP Indonesia Development Plans

- **Deployment 100 Tsunami Gauge Stations (2024-2025).**
- **Utilization of GNSS data into the Earthquake Processing System (test phase).**
- **Continue work on developing products for tsunamis generated by non-seismic and complex sources.**
- **Continue work on developing maritime product for NAVAREAs.**

THANK YOU