

BULETIN TAHUNAN GEMPABUMI DAN TSUNAMI TAHUN 2021



**BADAN METEOROLOGI KLIMATOLOGI DAN GEOFISIKA
STASIUN GEOFISIKA KLAS I WINANGUN MANADO**

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BULETIN GEMPABUMI 2021

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KATA PENGANTAR

Puji dan syukur kehadiran Tuhan Yang Maha Esa, Badan Meteorologi, Klimatologi, dan Geofisika (BMKG), Stasiun Geofisika Klas 1 Manado yang selanjutnya disebut Stasiun Geofisika Manado pada awal tahun 2021 dapat menerbitkan Buletin Gempabumi dan Tsunami tahun 2021 sebagai salah satu produk informasi.

Buletin Gempabumi dan Tsunami Stasiun Geofisika Manado tahun 2021 ini dibuat berdasarkan hasil analisa gempabumi menggunakan perangkat lunak Sesicomp3. Besar harapan kami, agar buletin ini dapat memenuhi kebutuhan masyarakat dalam pelayanan data gempabumi beserta seluruh parameternya.

Ucapan terimakasih ditujukan kepada seluruh pihak yang telah mendukung terbitnya buletin ini.

Manado, Januari 2022
Kepala Stasiun Geofisika Manado

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DATA STASIUN SEISMIK
DALAM WILAYAH STASIUN GEOFISIKA MANADO

1. Alamat Stasiun : Jl. Harapan No.42 Winangun, Manado, Sulawesi Utara
2. Koordinat Stasiun : 01°26'35" LU dan 124°50'21" BT
3. Kode Stasiun : MNI
4. Batuan : Basalt Peroksin
5. Ketinggian : 128 Meter DPL
6. Sistem Monitoring : Seiscomp3 dan INASEIS (JIS-view)

DAFTAR SENSOR SEISMOMETER DAN AKSELEROMETER TANGGUNG JAWAB
STASIUN GEOFISIKA MANADO

1. Kode stasiun : MNI
Lokasi : Manado, Sulawesi Utara
Digitizer : Taurus
Sensor : Trilium-120P (seismometer)
2. Kode stasiun : SLM1
Lokasi : Manado, Sulawesi Utara
Digitizer : Nanometrics Taurus
Sensor : Metrozet TSA-100S (akselerometer)
3. Kode stasiun : TMS1
Lokasi : Tondano, Sulawesi Utara
Digitizer : Trident-305
Sensor : Trilium-120P (seismometer) dan Titan (akselerometer)
4. Kode stasiun : KMS1
Lokasi : Kotamobagu, Sulawesi Utara
Digitizer : Trident-305
Sensor : Trilium-120Q (seismometer) dan TSA-100S (akselerometer)
5. Kode stasiun : SGS1
Lokasi : Sangihe, Sulawesi Utara
Digitizer : Trident-305
Sensor : Trilium-120Q (seismometer) dan BBAS-2 (akselerometer)
6. Kode stasiun : MGAI
Lokasi : Melonguane, Sulawesi Utara
Digitizer : Trident-305
Sensor : Trilium-120P (seismometer) dan TitanOpen (akselerometer)
7. Kode stasiun : PSSI
Lokasi : Siau, Sulawesi Utara

- Digitizer : Centaur
Sensor : Trilium-120Q (seismometer) dan Titan (akselerometer)
8. Kode stasiun : PBCI
Lokasi : Poigar, Bolaang Mongondow
Digitizer : Centaur
Sensor : Titan
9. Kode stasiun : TBMCM
Lokasi : Tutuyan, Bolaang Mongondow Timur
Digitizer : -
Sensor : -
10. Kode stasiun : SAMI
Lokasi : Sam Ratulangi, Sulawesi Utara
Digitizer : Titan
Sensor : Titan AG (akselerometer)
11. Kode stasiun : KWSI
Lokasi : Kayuwatu, Sulawesi Utara
Digitizer : Titan
Sensor : Titan AG (akselerometer)
12. Kode stasiun : BTSI
Lokasi : Bitung, Sulawesi Utara
Digitizer : Titan
Sensor : Titan AG (akselerometer)

DAFTAR ISTILAH

Daftar istilah yang digunakan dalam memahami hasil analisa dan informasi gempabumi adalah sebagai berikut:

a. *Date*

Menunjukkan tanggal terjadinya gempabumi.

b. *OT (Origin Time)*

Menunjukkan waktu terjadinya gempabumi yang terdiri atas HH:MM:SS

HH : Jam terjadinya gempabumi

MM : Menit terjadinya gempabumi

SS : Detik terjadinya gempabumi

c. *Latitude*

Menunjukkan lokasi lintang sumber gempabumi (episenter).

d. *Longitude*

Menunjukkan lokasi bujur sumber gempabumi (episenter).

e. *Depth*

Menunjukkan kedalaman sumber gempabumi, dinyatakan dalam kilometer.

f. *Magnitudo* atau *mag*

Menunjukkan Magnitudo atau kekuatan gempabumi.

g. *TypeMag*

Menunjukkan tipe magnitudo yang digunakan dalam perhitungan kekuatan gempabumi.

h. *Region*

Menunjukkan daerah zona seismik berdasarkan pembagian yang dilakukan oleh Flinn-Engdahl.

i. *Intensitas*

Menunjukkan dampak gempabumi di permukaan bumi misalnya, di suatu tempat terjadi kerusakan atau hanya dirasakan getarannya.

j. *MMI*

Modified Mercally Intencity (MMI) merupakan salah satu jenis skala intensitas gempabumi

k. *SIG*

Skala Intensitas Gempabumi (SIG) merupakan salah satu jenis skala intensitas gempabumi.

l. *Epicenter* atau *epic*

Titik lokasi di permukaan bumi yang merupakan hasil proyeksi dari pusat terjadinya gempa di dalam bumi.

m. PGN

Pusat Gempa Nasional, sebagai pusat informasi gempabumi nasional yang bertempat di Jakarta.

n. PGR

Pusat Gempa Regional, sebagai pusat informasi gempabumi di masing-masing regional.

o. Gempa Tele

Kejadian gempa dengan jarak lebih dari 2° (± 220 km) dari lokasi stasiun.

p. Gempa Lokal

Kejadian gempa dengan jarak kurang dari 2° (± 220 km) dari lokasi stasiun.

q. *Shakemap*

Peta tingkat guncangan akibat kejadian gempabumi.

r. Seismisitas

Katalog yang memuat persebaran lokasi pusat gempabumi

s. *WRS*

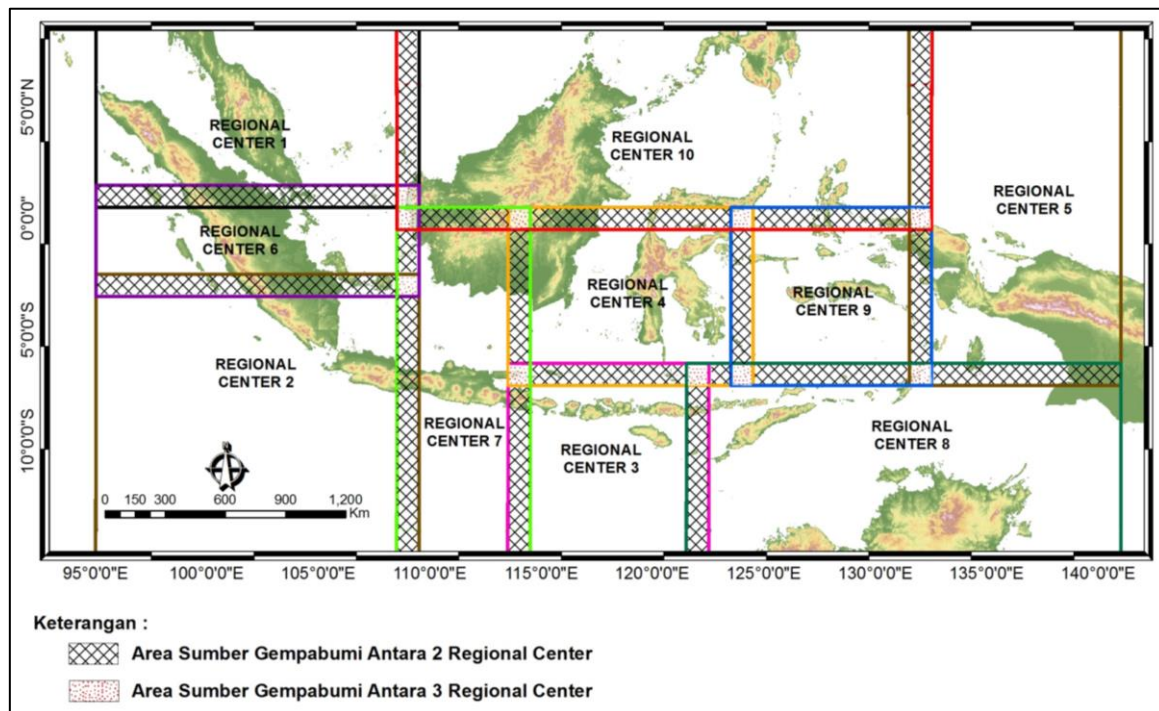
Warning Receiver System, sistem peringatan dini tsunami yang terdiri dari 2 jenis yaitu *WRS2Way* dan *WRS DVB (WRS-Digital Video Broadcast)*.

I. PENDAHULUAN

Gempabumi merupakan fenomena alam yang tidak dapat dihindarkan dan jika terjadi dengan kekuatan signifikan membawa bencana bagi umat manusia. Dampak gempabumi merusak dapat menyebabkan korban jiwa dan kerusakan infrastruktur.

Badan Meteorologi Klimatologi dan Geofisika (BMKG) sebagai instansi pemerintah yang salah satu tugasnya adalah melakukan pengamatan fenomena gempabumi, wajib memberikan informasi yang tepat dan akurat untuk keselamatan masyarakat. Buletin tahunan ini adalah salah satu informasi BMKG untuk masyarakat dan para *stakeholder* yang berisi hasil analisa seismogram berupa kejadian gempabumi yang terjadi di wilayah pemantauan Stasiun Geofisika Kelas 1 Manado yang selanjutnya disebut Stasiun Geofisika Manado sebagai Pusat Gempa Regional (PGR) 10, yang meliputi bagian Utara dari Pulau Kalimantan, sebagian Sulawesi Tengah, Gorontalo, Sulawesi Utara, dan Maluku Utara.

Stasiun Geofisika Manado yang juga sebagai PGR 10, dalam fungsi pemantauan kejadian gempabumi di wilayahnya melakukan koordinasi dengan Stasiun Geofisika Gorontalo dan Stasiun Geofisika Ternate. Parameter gempabumi yang dimasukkan dalam buletin ini dikeluarkan oleh Pusat Gempabumi Regional untuk gempabumi dengan Magnitudo kurang dari 5 ($M < 5$), sementara untuk gempabumi dengan kekuatan $M \geq 5$ dikeluarkan oleh Pusat Gempabumi Nasional (PGN) di kantor pusat BMKG Jakarta. Pembagian wilayah pemantauan kejadian gempabumi dari setiap regional BMKG di Indonesia adalah seperti digambarkan dalam Gambar 1.



Gambar 1 Regionalisasi sumber gempabumi di Indonesia

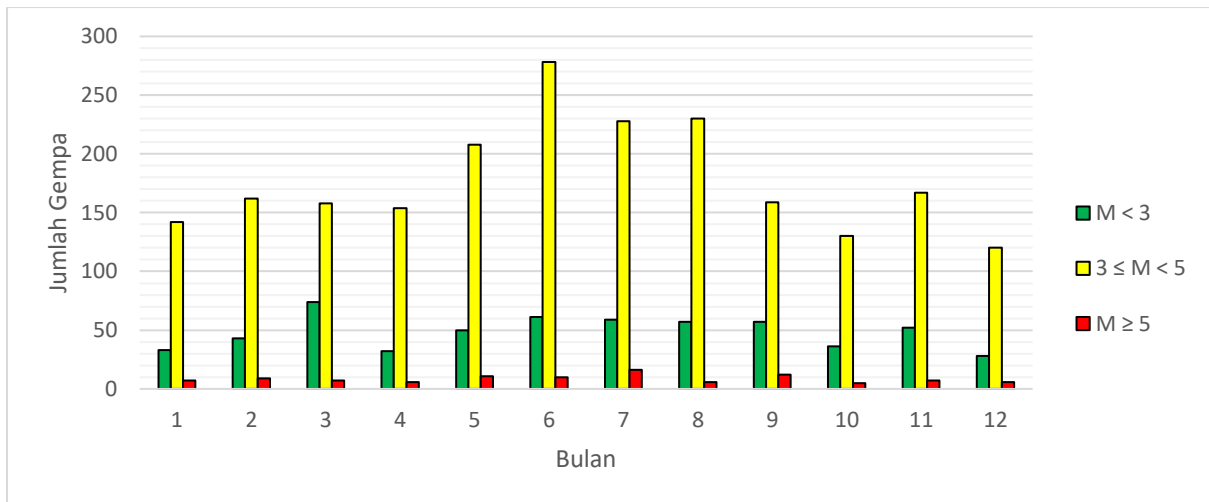
II. REKAPITULASI KEJADIAN GEMPABUMI TAHUN 2021

Jumlah gempabumi yang tercatat di Stasiun Geofisika Manado pada tahun 2021 berjumlah total 2820 kejadian. Dengan bulan Juni menunjukkan jumlah gempabumi terbanyak sebanyak 349 kejadian dan terendah pada bulan Desember sebanyak 154 kejadian.

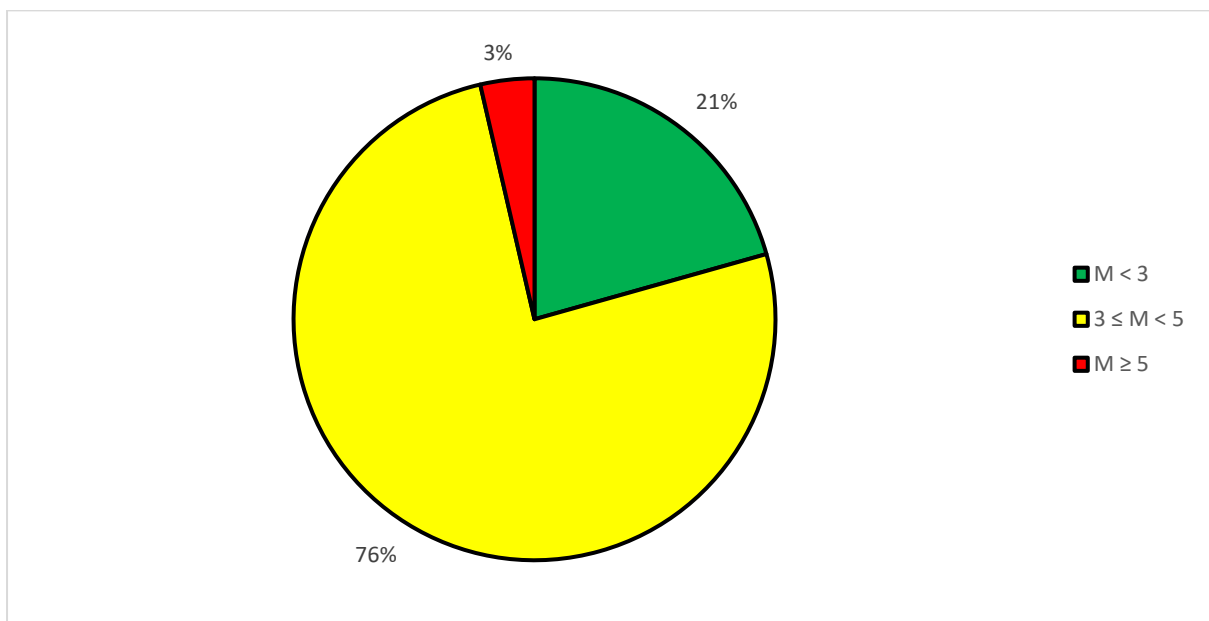
Dari sisi Magnitudo, kejadian gempabumi dengan magnitudo lebih dari sama dengan 3 dan kurang dari 5 terjadi paling sering sebanyak 2136 kejadian. Diikuti oleh gempabumi dengan magnitudo $M < 3$ sebanyak 582 kejadian, dan magnitudo $M \geq 5$ sebanyak 102 kejadian. Pada Tabel 1 ditunjukkan jumlah kejadian total gempabumi setiap bulan serta jumlah gempabumi dirasakan yang parameter rincinya dijelaskan pada Tabel 2. Gambar 2 dan 3 masing-masing menunjukkan grafik kejadian gempabumi berdasarkan klasifikasi magnitudo setiap bulan dan prosentase kejadian gempabumi berdasarkan klasifikasi megnitudo. Peta sebaran episenter gempabumi di wilayah PGR 10 selama tahun 2021 digambarkan pada Gambar 4.

Tabel 1 Rekapitulasi kejadian gempabumi tahun 2021

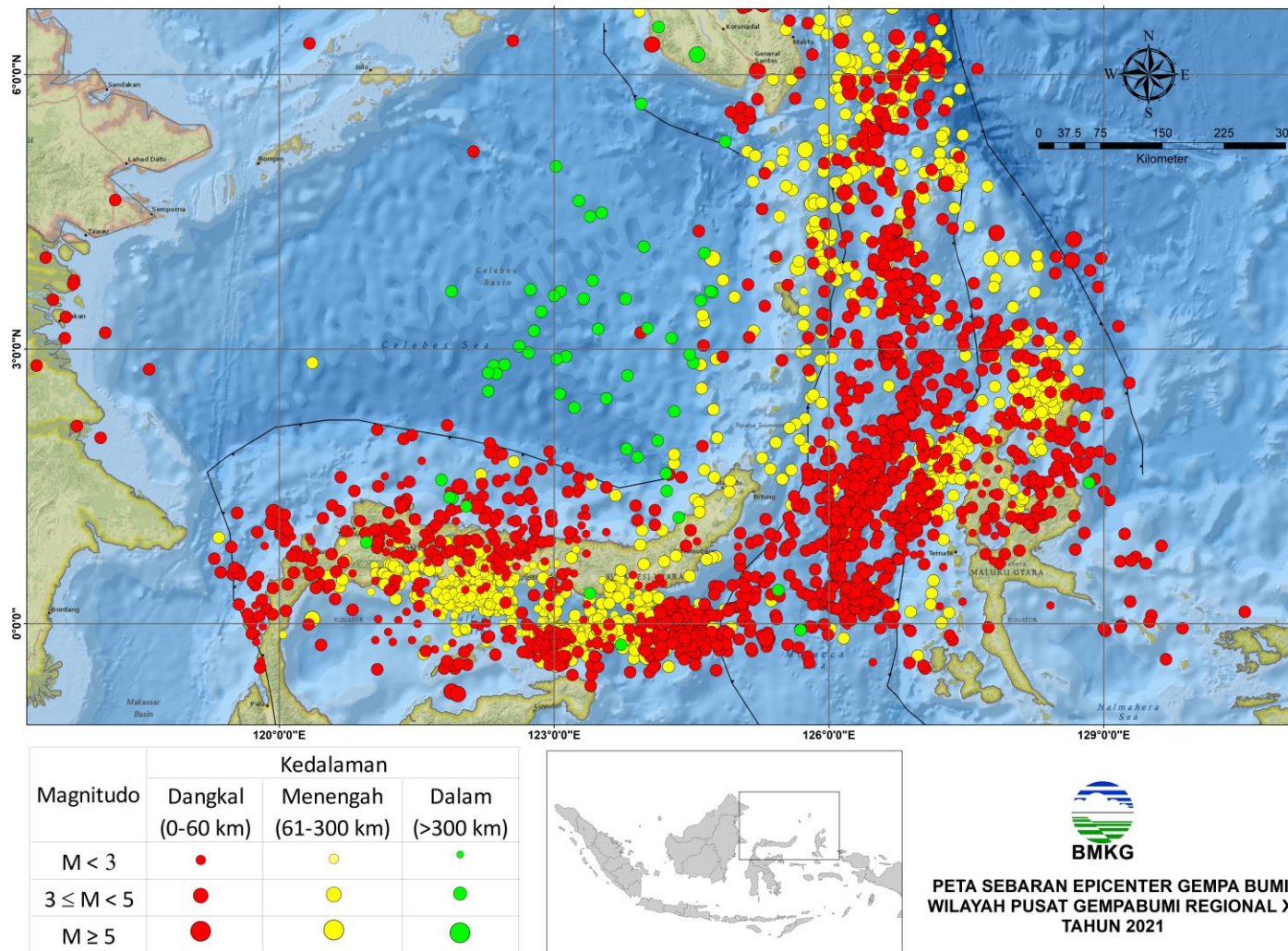
Bulan	Jumlah Gempa	Jumlah Gempa Dirasakan	Menurut Magnitudo		
			$M < 3$	$3 \leq M < 5$	$M \geq 5$
Januari	182	9	33	142	7
Februari	214	10	43	162	9
Maret	239	7	74	158	7
April	192	7	32	154	6
Mei	269	4	50	208	11
Juni	349	10	61	278	10
Juli	303	11	59	228	16
Agustus	293	8	57	230	6
September	228	14	57	159	12
Oktober	171	8	36	130	5
November	226	5	52	167	7
Desember	154	7	28	120	6
Total	2820	100	582	2136	102



Gambar 2 Kejadian gempabumi menurut kekuatan Magnitudo



Gambar 3 Prosentase kejadian gempabumi menurut magnitudo dari Stasiun Geofisika Manado



Gambar 4 Peta sebaran episenter gempabumi wilayah PGR 10 tahun 2021

Tabel 2 Rekapitulasi kejadian gempabumi dirasakan tahun 2021

NO	TANGGAL (WIB)	WAKTU (WIB)	LINTANG	BUJUR	MAG	KED (Km)	DIRASAKAN	KETERANGAN
1	07/01/2021	03:59:37	0.1 LS	123.05 BT	6.4	131	Gorontalo, Morowali (II - III MMI), Labuha (I - II MMI)	Pusat Gempa 71 km Barat Daya Bone Bolango, Gorontalo
2	11/01/2021	08:57:28	1.22 LU	119.94 BT	5.2	10	Toli - Toli (II - III MMI)	Pusat Gempa 86 km Barat Toli-Toli, Sulawesi Tengah
3	12/01/2021	17:11:55	4.01 LU	125.42 BT	4.8	10	Tahuna (II MMI)	Pusat Gempa 45 km Barat Laut Tahuna - Kep. Sangihe, Sulawesi Utara
4	14/01/2021	00:33:06	1.56 LU	128.21 BT	5.0	10	Tobelo, Galela, Morotai (II - III MMI)	Pusat Gempa 30 km Tenggara Tobelo, Maluku Utara
5	16/01/2021	06:00:05	1.44 LU	126.02 BT	5.2	73	Tondano (II - III MMI), Bitung (I - II MMI)	Pusat Gempa 95 km Timur Bitung, Sulawesi Utara
6	19/01/2021	06:56:40	0.14 LU	120.07 BT	4.9	16	Toribulu, Mepanga (Sulteng) (III MMI)	Pusat Gempa 67 km Timur Laut Donggala, Sulawesi Tengah
7	21/01/2021	19:23:08	4.94 LU	127.44 BT	7.0	119	Melonguane, Tahuna, Ondong Siau (IV MMI), Manado, Bitung (III MMI), Galela, Gorontalo, Morotai, Halmahera Utara, Halmahera Barat (II-III MMI), Bolaang Uki (II MMI), Ternate, Sofifi, Halmahera Tengah (I-II MMI)	Pusat Gempa 132 km Timur Laut Melonguane, Kabupaten Kepulauan Talaud
8	27/01/2021	11:19:58	0.17 LS	123.59 BT	4.9	131	Luwuk (II MMI)	Pusat Gempa 99 km Tenggara Gorontalo
9	29/01/2021	00:42:00	2.03 LU	118.05 BT	4.1	10	Tanjung Redeb, Taballar (II-III MMI)	Pusat Gempa 76 km Tenggara Berau, Kalimantan Timur
10	01/02/2021	08:02:13	2.16 LU	117.79 BT	3.7	10	Samburakat (Berau) (II MMI)	Pusat Gempa 40 km Timur Laut Berau - Kalimantan Timur
11	02/02/2021	11:36:00	2.18 LU	128.26 BT	4.8	69	Tobelo, Morotai (III MMI)	Pusat Gempa 15 km Barat

								Laut Daruba, Maluku Utara
12	02/02/2021	21:37:40	3.87 LU	126.59 BT	5.1	10	Melonguane (III MMI)	Pusat Gempa 17 km Barat Daya Melonguane, Sulawesi Utara
13	02/02/2021	21:44:59	4.07 LU	126.6 BT	4.7	10	Melonguane (III MMI)	Pusat Gempa 11 km Barat Laut Melonguane, Sulawesi Utara
14	06/02/2021	03:34:44	0.23 LS	124.5 BT	5.2	10	Kotamobagu (II MMI)	Pusat Gempa 82 km Tenggara Bolaang Uki, Bolaang Mongondow Selatan
15	11/02/2021	19:21:19	1.09 LU	126.33 BT	4.9	10	Ternate Tidore (II- III MMI)	Pusat Gempa 120 km Barat Laut Ternate
16	14/02/2021	15:44:46	1.11 LU	119.93 BT	5.5	10	Toli-toli Buol (III MMI)	Pusat Gempa 86 km Barat Laut Toli-Toli, Sulawesi Tengah
17	17/02/2021	21:31:01	4 LU	117.45 BT	4.4	34	Tanjung Selor, Nunukan (III MMI)	Pusat Gempa 64 km Timur Laut Tanatidung, Kalimantan Utara
18	19/02/2021	19:50:23	1.53 LU	127.1 BT	4.5	23	Ternate (II-III MMI)	Pusat Gempa 58 km Barat Laut Halmahera Barat, Maluku Utara
19	23/02/2021	02:22:09	1.5 LU	121.97 BT	5.8	10	Buol (IV MMI), Bone Bolango dan Toli-toli (III MMI)	Pusat Gempa 90 km Timur Laut Buol, Sulawesi Tengah
20	04/03/2021	18:25:05	2.12 LU	121.07 BT	4.6	10	Toli-Toli (III MMI)	Pusat Gempa 131 km Barat Laut Buol, Sulawesi Tengah
21	10/03/2021	19:50:00	1.02 LU	124.49 BT	4.3	10	Modayag (III MMI), Tomohon (II MMI)	Pusat Gempa 24 km Barat Daya Amurang, Minahasa Selatan
22	13/03/2021	21:29:16	0.13 LS	123.34 BT	4.9	138	Kota Gorontalo (II MMI)	Pusat Gempa 77 km Tenggara Bonebolango, Gorontalo
23	17/03/2021	23:20:50	2.3 LU	128.19 BT	5.0	73	Tobelo (II-III MMI)	Pusat Gempa 30 km Barat Lat Daruba, Maluku Utara

24	20/03/2021	21:02:31	1.02 LU	126.93 BT	5.3	11	Ternate, Halbar, Tidore (III MMI)	Pusat Gempa 57 km Barat Laut Kota Ternate, Maluku Utara
25	23/03/2021	20:16:13	1.01 LU	126.89 BT	4.1	14	Ternate (II MMI)	Pusat Gempa 59 km Barat Laut Ternate, Maluku Utara
26	27/03/2021	16:46:13	1.56 LU	127.06 BT	5.5	110	Bitung, Tahuna (I-II MMI)	Pusat Gempa 56 km Barat Laut Jailolo, Halmahera Barat
27	01/04/2021	17:12:25	3.45 LU	126.67 BT	5.5	10	Tahuna, Siau (II MMI)	Pusat Gempa 62 km Selatan Kota Melonguane, Kabupaten Kepulauan Talaud
28	10/04/2021	16:30:45	3.99 LU	124.73 BT	6.0	295	Talaud (III MMI), Sanana, Tobelo, Ternate, Kao (II-III MMI)	Pusat Gempa 94 km Barat Laut Tahuna, Kepulauan Sangihe
29	13/04/2021	22:47:31	0.71 LU	126.1 BT	5.2	10	Bitung, Manado (II MMI)	Pusat Gempa 139 km Tenggara Kota Bitung, Sulawesi Utara
30	14/04/2021	07:25:26	0.18 LS	125.32 BT	5.0	10	Kotamobagu (II MMI)	Pusat Gempa 133 km Tenggara Bolaang Mongondow Timur, Sulawesi Utara
31	17/04/2021	03:55:14	3.58 LU	126.81 BT	5.6	10	Melonguane, Tahuna (II-III MMI)	Pusat Gempa 43 km Tenggara Kota Melonguane, Kepulauan Talaud
32	25/04/2021	13:17:18	0.98 LU	120.01 BT	4.4	10	Soni, Toli-Toli (II- III MMI)	Pusat Gempa 83 km Barat Laut Toli-Toli, Gorontalo
33	25/04/2021	13:33:22	0.47 LU	122.33 BT	4.7	118	Limboto (II MMI) , Kota Gorontalo (II- III MMI)	Pusat Gempa 6 km Barat Daya Boalemo, Gorontalo
34	05/05/2021	05:59:12	1.53 LU	127.19 BT	5.7	133	Bitung dan Manado (III MMI), Ternate, Molibagu (II MMI)	Pusat Gempa 64 km Barat Laut Jailolo, Kabupaten Halmahera Barat, Maluku Utara
35	06/05/2021	01:13:33	0.11 LS	123.04 BT	5.1	102	Limboto (II MMI), Luwuk, Gorontalo (III MMI), Gorontalo Utara, Boalemo, Bone Bolango,	Pusat Gempa 71 km Barat Daya Kota Gorontalo, Gorontalo

							Pohuwato (II-III MMI)	
36	08/05/2021	04:41:12	2.82 LU	117.35 BT	4	11	Kabupaten Bulungan, Kalimantan Utara III MMI	Pusat Gempa 41 km Tenggara Bulungan, Kalimantan Utara
37	29/05/2021	08:25:14	1.07 LU	120.03 BT	5.3	27	Tolitoli, Balukang (III-IV MMI)	Pusat Gempa 84 km Barat Laut Toli - Toli, Sulteng
38	03/06/2021	09:31:37	4.71 LU	126.17 BT	5.2	51	Tahuna (II MMI)	Pusat Gempa 102 km Barat Laut Kota Melonguane, Kabupaten Kepulauan Talaud
39	03/06/2021	17:09:58	0.35 LU	126.22 BT	6.1	10	Ternate (III MMI), Labuha, Manado (II - III MMI)	Pusat Gempa 134 km Barat Kota Ternate, Maluku Utara
40	04/06/2021	20:45:15	0.38 LU	126.28 BT	5.4	10	Ternate (II - III MMI)	Pusat Gempa 130 km Barat Kota Ternate, Maluku Utara
41	06/06/2021	05:57:40	0.35 LU	126.39 BT	5.1	10	Jailolo (II MMI), Ternate (I MMI)	Pusat Gempa 112 km Barat Daya Kota Ternate, Maluku Utara
42	07/06/2021	10:52:55	0.31 LU	122.12 BT	4.6	165	Bone Bolango (III MMI), Kabupaten Gorontalo (II - III MMI), Telaga Biru, Kota Gorontalo (II MMI)	Pusat Gempa 21 km Tenggara Paguat, Gorontalo
43	08/06/2021	12:00:34	0.35 LU	123.75 BT	5.3	185	Bolaang Mongondow Selatan (II MMI)	Pusat Gempa 28 km Barat Laut Bolaang Mongondow Selatan, Sulawesi Utara
44	11/06/2021	09:23:42	0.06 LS	124.4 BT	5.7	14	Gorontalo, Kotamobagu, Bolaang Mongondow Utara, Minahasa Selatan, Bolaang Mongondow, Tutuyan (III - IV MMI), Manado, Bitung (III MMI), Tondano (II - III MMI), Taliabu (II MMI)	Pusat Gempa 58 km Tenggara Bolaang Uki, Kabupaten Bolaang Mongondow Selatan
45	17/06/2021	11:44:31	0.6 LU	126.67 BT	4.2	27	Ternate (II MMI)	Pusat Gempa 79 km Barat Daya Ternate, Maluku Utara

46	29/06/2021	21:24:35	2.49 LU	128.83 BT	4.8	10	Daruba (III MMI)	Pusat Gempa 77 km Timur Laut Daruba, Maluku Utara
47	30/06/2021	07:55:40	0.11 LS	119.75 BT	2.7	10	Labean (Kab. Donggala) (II MMI)	Pusat Gempa 7 km Timur Malei, Kabupaten Donggala
48	01/07/2021	18:26:05	0.55 LU	121.06 BT	4.7	71	Tolitoli (II-III MMI)	Pusat Gempa 10 km Barat Laut Taopa, Kabupaten Parigi Moutong
49	07/07/2021	04:35:02	2 LU	127.72 BT	4.3	11	Galela (III MMI)	Pusat Gempa 42 km Barat Laut Tobelo, Maluku Utara
50	09/07/2021	20:31:11	0.01 LS	123.72 BT	5.9	106	Gorontalo, Kotamobagu, Bolaang Mongondow Timur, Bolaang Mongondow Selatan, Bone Bolango, Pohuwato (III - IV MMI), Luwuk (III MMI), Pulau Taliabu (II - III MMI), Manado, Tibawa , Minahasa, Minahasa Selatan (II MMI)	Pusat Gempa 50 km Barat Daya Bolaang Uki, Bolaang Mongondow Selatan
51	10/07/2021	07:43:55	2.99 LU	126.63 BT	6.2	10	Sangihe (III-IV MMI), Tomohon, Bitung, Bolaang Mongondow Timur (II MMI)	Pusat Gempa 112 km Barat Daya Melonguane, Kepulauan Talaud
52	11/07/2021	00:59:04	0.76 LU	120.57 BT	4.2	10	Mepasa , Palasa, Tomini (III MMI)	Pusat Gempa 5 km Tenggara Tinabogan, Kabupaten Toli- Toli
53	11/07/2021	19:51:02	0.28 LU	109.87 BT	3.0	10	Desa Mandor Kiru, Kalimantan Barat (II MMI)	Pusat Gempa 71.4 km Tenggara Pontianak
54	18/07/2021	17:40:02	0.02 LU	123.8 BT	5.0	95	Kabupaten Gorontalo, Kota Gorontalo, Kotamobagu (II MMI)	Pusat Gempa 44 km Barat Daya Bolaang Uki, Kabupaten Bolaang Mongondow Selatan
55	19/07/2021	07:55:45	0.04 LS	123.24 BT	5.2	141	Kab. Gorontalo, Luwuk, Ampana, Bone Bolango (III MMI), Taliabu, Poso, Banggai Laut, Morowali Utara (II - III MMI), Kota Gorontalo, Toli - toli (II MMI)	Pusat Gempa 67 km Tenggara Kabupaten Bone Bolango, Gorontalo

56	24/07/2021	20:07:20	2.91 LU	126.64 BT	5.6	10	Siau (II - III MMI), Manado (II MMI)	Pusat Gempa 113 km Tenggara Kota Melonguane, Sulawesi Utara
57	26/07/2021	10:52:03	0.74 LS	121.88 BT	5.8	10	Ampana (III-IV MMI), Poso, Wakai (III MMI), Malili, Palu (II-III MMI), Toli-Toli (II MMI)	Pusat Gempa 55 km Timur Laut Kabupaten Tojo Una, Sulawesi Tengah
58	26/07/2021	19:09:07	0.77 LS	121.95 BT	6.3	10	Ampana (V-VI MMI), Luwuk, Poso, Morowali (V MMI), Bolmong Selatan, Bolmong Timur, Kotamobagu, Kota Gorontalo, Kabupaten Gorontalo, Buol, Bone Bolango, Pohuwatu (III-IV MMI), Tomohon, Manado, Ratahan, Bobong, Konawe Utara, Kolaka Utara, Masamba (II-III MMI), Mamuju Tengah, Polewali (II MMI)	Pusat Gempa 58 km Timur Laut Kabupaten Tojo Una, Sulawesi Tengah
59	01/08/2021	18:39:17	0.08 LS	124.86 BT	4.9	10	Kotamobagu (II - III MMI)	Pusat Gempa 98 km Tenggara Tutuyan, Sulawesi Utara
60	02/08/2021	22:04:26	1.8 LU	127.29 BT	5.3	96	Galela, Halmahera Barat, Siau (II-III MMI), Manado, Minahasa Utara, Boltim, Bitung, Sangihe (II MMI)	Pusat Gempa 59 km Barat Laut Halmahera Barat
61	05/08/2021	16:46:09	3.75 LU	117.76 BT	4.4	5	Tarakan (III MMI), Bulungan (II MMI)	Pusat Gempa 47 km Timur Laut Tarakan, Kalimantan Utara
62	06/08/2021	23:01:39	1.06 LU	125.58 BT	4.4	27	Bitung (III MMI), Manado (II MMI)	Pusat Gempa 66 km Tenggara Bitung, Sulawesi Utara
63	12/08/2021	00:46:17	6.41 LU	126.74 BT	7.1	51	Talaud (IV MMI), Sangihe, Bitung (II - III MMI)	Pusat Gempa 270 km Utara Melonguane, Kabupaten Kepulauan Talaud
64	21/08/2021	22:37:19	1.3 LU	127.12 BT	4.8	10	Ternate (III MMI)	Pusat Gempa 47 km Barat Laut Jailolo, Maluku Utara

65	22/08/2021	18:07:23	1.45 LU	120.82 BT	4.6	17	Tolitoli (III MMI)	Pusat Gempa 18 km Barat Laut Laulalang, Kabupaten Toli- Toli
66	27/08/2021	17:22:20	6.04 LU	125.22 BT	6.1	10	Tahuna (III MMI)	Pusat Gempa 238 km Barat Laut Tahuna, Kepulauan Sangihe
67	01/09/2021	10:28:23	1.15 LU	128.24 BT	3.9	5	Buli dan Wasile - Halmahera Timur (III MMI)	Pusat Gempa 53 km Barat Laut Maba, Maluku Utara
68	04/09/2021	22:52:47	0.24 LS	124.5 BT	4.9	11	Kotamobagu (II MMI), Boltim (II-III MMI)	Pusat Gempa 88 km Tenggara Bolaang Uki, Bolaang Mongondow Selatan
69	07/09/2021	17:35:44	0.29 LS	122.91 BT	4.6	10	Ampana, Luwuk (II-III MMI), Toili, Banggai laut (II MMI)	Pusat Gempa 95 km Barat Daya Bone Bolango, Gorontalo
70	08/09/2021	19:56:25	0.4 LS	123.09 BT	4.4	69	Luwuk, Banggai Kepulauan (II MMI)	Pusat Gempa 70 km Timur Laut Luwuk, Kabupaten Banggai
71	15/09/2021	03:58:32	1.12 LU	128.15 BT	2.9	4	Subaim (II-III MMI)	Pusat Gempa 51 km Barat Laut Maba, Maluku Utara
72	15/09/2021	04:03:36	1.11 LU	128.17 BT	3.9	5	Subaim (II-III MMI)	Pusat Gempa 41 km Barat Daya Halmahera Timur, Maluku Utara
73	15/09/2021	05:55:02	1.08 LU	128.2 BT	3.2	4	Subaim (II-III MMI)	Pusat Gempa 46 km Barat Daya Halmahera Timur, Maluku Utara
74	15/09/2021	07:49:47	1.28 LU	122.16 BT	5.4	20	Boalemo (III MMI), Buol (II-III MMI), Manado (II MMI), Kabupaten Gorontalo (I-II MMI)	Pusat Gempa 83 km Utara Kota Tilamuta, Kabupaten Boalemo, Gorontalo
75	15/09/2021	15:56:29	1.15 LU	128.09 BT	3.7	7	Subaim (III MMI)	Pusat Gempa 57 km Barat Laut Maba, Maluku Utara
76	15/09/2021	17:26:21	3.71 LU	117.75 BT	3.6	10	Tanah Merah (II-III MMI)	Pusat Gempa 42 km Timur Laut Tarakan, Kalimantan Utara
77	19/09/2021	02:42:35	1.14 LU	128.15 BT	4.0	5	Subaim (III MMI)	Pusat Gempa 54 km Barat Laut Maba, Maluku Utara

78	21/09/2021	19:29:48	3.12 LU	117.66 BT	3.9	10	Tarakan (III-IV MMI)	Pusat Gempa 27 km Tenggara Tarakan, Kalimantan Utara
79	22/09/2021	19:03:29	1.85 LU	126.6 BT	5.2	10	Manado, Ternate (II MMI)	
80	28/09/2021	13:25:12	0.56 LU	126.4 BT	4.9	10	Ternate (II-III MMI)	Pusat Gempa 109 km Barat Daya Ternate, Maluku Utara
81	04/10/2021	17:59:19	1.04 LU	126.96 BT	4.7	17	Ternate (III MMI)	Pusat Gempa 54 km Barat Laut Ternate, Maluku Utara
82	09/10/2021	12:38:18	1.33 LU	121.32 BT	4.9	17	Toli - toli (III MMI)	Pusat Gempa 40 km Barat Laut Buol, Sulawesi Tengah
83	11/10/2021	19:34:35	0.83 LU	126.15 BT	5.8	10	Bolaang Mongondow (IV MMI), Bitung, Minahasa (III MMI), Ternate, Manado ,Airmadidi (II - III MMI)	Pusat Gempa 122 km Tenggara Kota Bitung, Sulawesi Utara
84	11/10/2021	22:27:54	0.98 LU	126.11 BT	4.9	57	Manado, Bitung (II - III MMI)	Pusat Gempa 121 km Tenggara Bitung, Sulawesi Utara
85	12/10/2021	00:30:30	0.97 LU	126.07 BT	4.8	10	Bitung (III MMI), Manado (II MMI)	Pusat Gempa 117 km Tenggara Bitung, Sulawesi Utara
86	14/10/2021	22:16:28	1.32 LU	126.19 BT	5.8	10	Manado, Bitung, Bolaang Mongondow Timur, Bolaang Mongondow Selatan (III MMI), Minahasa, Minahasa Utara, Ternate, Tidore (II - III MMI)	Pusat Gempa 119 km Tenggara Bitung, Sulawesi Utara
87	21/10/2021	02:17:28	3.35 LU	117.67 BT	3.7	10	Tarakan - Kalimantan Utara (III -IV MMI)	Pusat Gempa 9 km Timur Tarakan, Kalimantan Utara
88	26/10/2021	16:46:08	1.51 LU	127.01 BT	5.1	92	Jailolo (II-III MMI)	Pusat Gempa 66 km Barat Laut Halmahera Barat, Maluku Utara
89	03/11/2021	21:11:29	0.36 LS	124.01 BT	5.0	61	Luwuk, Bunta, Salakan (III MMI), Kotamobagu, Bolaang Mongondow Selatan (II MMI)	Pusat Gempa 84 km Tenggara Bolaang Uki, Bolaang Mongondow Selatan

90	06/11/2021	21:37:37	0.16 LS	124.35 BT	6.2	20	Boltim (IV - V MMI), Kotamobagu (III- IV MMI), Bolmong, Talibu, Gorontalo dan Bitung (III MMI), Kota Tomohon, Manado (II-III MMI)	Pusat Gempa 68 km Tenggara Bolaang Uki, Bolaang Mongondow Selatan
91	16/11/2021	10:42:29	0.13 LS	122.85 BT	4.8	151	Luwuk (II-III MMI)	Pusat Gempa 80 km Barat Daya Bonebolango, Gorontalo
92	22/11/2021	16:59:08	0.64 LU	122.28 BT	4.5	96	Kota Gorontalo (II MMI)	Pusat Gempa 15 km Barat Laut Tilamuta, Kabupaten Boalemo
93	27/11/2021	13:01:54	4.67 LU	126.42 BT	5.8	57	Tahuna, Kec. Gemeh-Talaud (II MMI)	Pusat Gempa 78 km Barat Laut Kota Melonguane, Kabupaten Kepulauan Talaud
94	05/12/2021	06:47:58	3.99 LU	128 BT	6.2	158	Bitung, Morotai (III MMI), Tobelo (II MMI)	Pusat Gempa 147 km Tenggara Melonguane, Sulawesi Utara
95	11/12/2021	01:39:20	0.1 LS	122.96 BT	5.1	141	Kotamobagu, Gorontalo (III MMI), Wakai (II-III MMI)	Pusat Gempa 72 km Barat Daya Gorontalo
96	26/12/2021	22:01:31	0.06 LS	123.49 BT	5.5	90	Kotamobagu (III MMI), Gorontalo, Luwuk, Malili (II - III MMI), Poso, Morowali (II MMI), Gorontalo Utara (I MMI)	Pusat Gempa 73 km Barat Daya Bolaang Uki, Bolaang Mongondow Selatan
97	30/12/2021	01:09:24	2.78 LU	118.58 BT	4.4	10	Tarakan, Tanjung Selor, Nunukan (III MMI)	Pusat Gempa 126 km Tenggara Tarakan, Kalimantan Utara
98	30/12/2021	20:13:16	0.16 LS	125.31 BT	5.6	10	Boltim, Kab. Gorontalo, Kota Gorontalo, Poso (III MMI), Gorontalo Utara (II MMI), Kotamobagu, Tomohon (I-II MMI)	Pusat Gempa 128 km Tenggara Tutuya, Bolaang Mongondow Timur
99	30/12/2021	23:02:13	3.54 LU	117.53 BT	3.5	10	Tarakan (II-III MMI)	Pusat Gempa 25 km BaratLaut Tarakan, Kalimantan Utara

100	31/12/2021	12:53:41	0.05 LU	120.36 BT	5.0	87	Toli-toli, Kotaraya (III MMI), Kalukuba (II MMI)	Pusat Gempa 76 Km Barat Daya Parigi Moutong, Sulawesi Tengah
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III. DATA KEJADIAN GEMPABUMI BULANAN TAHUN 2021

A. Data Gempabumi Bulan Januari 2021

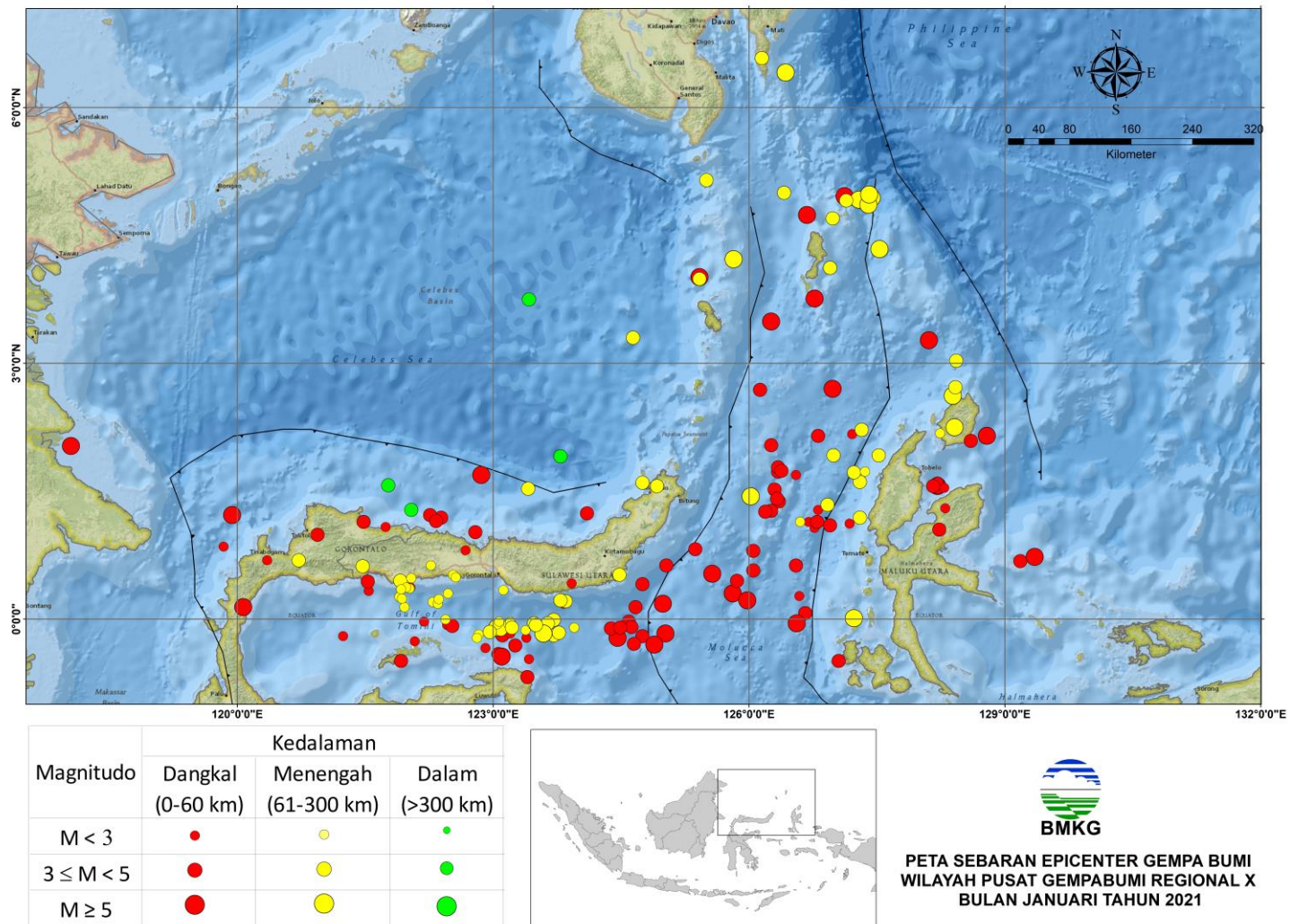
Tabel 3 Data kejadian gempabumi bulan Januari 2021

No	Date	OT (UTC)	Epicenter		Depth (km)	Mag	PGA (gals) / SLMI			Region
			Lat	Long			X	Y	Z	
1	01/01/2021	01:12:29	1.1	121.7	27	2.9				Minahassa Peninsula
2	01/01/2021	04:05:14	-0.2	124.5	11	4.5				Southern Molucca Sea
3	01/01/2021	05:28:08	0.2	122.3	97	2.4				Minahassa Peninsula
4	01/01/2021	06:41:14	1.1	126.8	10	3.1				Northern Molucca Sea
5	01/01/2021	11:32:17	2.2	127.3	66	3.6				Northern Molucca Sea
6	01/01/2021	23:24:25	0.3	126.6	54	3.1				Northern Molucca Sea
7	02/01/2021	03:43:08	0.4	122	157	3				Minahassa Peninsula
8	02/01/2021	05:18:59	0.5	121.9	97	3.7				Minahassa Peninsula
9	02/01/2021	12:21:04	-0	123.7	117	3.9				Minahassa Peninsula
10	02/01/2021	15:10:05	0.4	123.9	10	2.8				Minahassa Peninsula
11	02/01/2021	18:30:50	5	126.4	188	3.9				Mindanao, Philippines
12	02/01/2021	23:54:02	0.5	122.5	95	2.8				Minahassa Peninsula
13	03/01/2021	03:01:40	2.1	128.6	31	3.7				Halmahera
14	03/01/2021	03:33:59	0.6	122.3	99	3.3				Minahassa Peninsula
15	03/01/2021	04:56:49	-0	124.6	11	3.3				Minahassa Peninsula
16	03/01/2021	05:56:24	0.3	125.8	29	4.1				Northern Molucca Sea
17	03/01/2021	14:14:32	0.3	121.9	183	3.3				Minahassa Peninsula
18	03/01/2021	14:32:23	-0.2	122.8	138	3.1				Minahassa Peninsula
19	03/01/2021	16:43:25	0.1	122	177	2.9				Minahassa Peninsula
20	03/01/2021	23:29:16	1.9	127	84	3.7				Northern Molucca Sea
21	04/01/2021	04:54:44	1.1	126.7	10	3.1				Northern Molucca Sea
22	04/01/2021	05:47:09	4	125.4	156	4				Talaud
23	04/01/2021	15:37:50	3.3	124.6	288	4.3				Celebes Sea
24	04/01/2021	20:39:26	1.4	126.4	10	3.3				Northern Molucca Sea
25	05/01/2021	00:38:55	0.6	126.1	19	3.3				Northern Molucca Sea
26	05/01/2021	01:57:46	1.1	126.8	28	3.8				Northern Molucca Sea
27	05/01/2021	03:26:38	1.6	124.9	202	3.9				Minahassa Peninsula
28	05/01/2021	04:59:12	3.5	126.3	2	4				Talaud
29	05/01/2021	06:00:19	-0.2	124.8	44	3.6				Southern Molucca Sea
30	05/01/2021	11:07:58	-0.2	123.4	24	2.8				Minahassa Peninsula
31	05/01/2021	17:43:49	6.4	126.4	161	4.8				Mindanao, Philippines
32	05/01/2021	21:28:02	-0	123.2	70	2.8				Minahassa Peninsula
33	05/01/2021	22:06:42	-0.1	123.6	125	3.7				Minahassa Peninsula
34	05/01/2021	22:53:38	0.2	122.4	142	2.6				Minahassa Peninsula
35	06/01/2021	05:43:42	1.1	128.2	4	3.3				Halmahera
36	06/01/2021	13:26:01	-0.1	124.6	56	3.8				Southern Molucca Sea
37	06/01/2021	20:59:37	-0.1	123.1	131	6.4	0.5237	0.7313	-95865	Southern Molucca Sea
38	07/01/2021	06:30:45	0.9	119.8	13	2.8				Minahassa Peninsula

39	07/01/2021	08:40:00	-0.1	123.1	156	4.2				Minahassa Peninsula
40	07/01/2021	11:48:10	0.8	125.4	50	3.8				Northern Molucca Sea
41	07/01/2021	21:26:53	1.2	124.1	10	3.4				Minahassa Peninsula
42	08/01/2021	12:37:39	0.7	120.7	75	4.1				Minahassa Peninsula
43	08/01/2021	23:23:51	6.6	126.2	161	4.3				Mindanao, Philippines
44	09/01/2021	03:32:07	3	128.4	210	4.1				North of Halmahera
45	09/01/2021	11:22:55	1.2	122.4	29	3.6				Minahassa Peninsula
46	09/01/2021	21:07:49	-0.5	127.1	19	3.3				Halmahera
47	09/01/2021	22:37:52	0.7	120.4	10	3				Minahassa Peninsula
48	10/01/2021	04:04:43	1.7	126.6	36	3.1				Minahassa Peninsula
49	10/01/2021	04:28:35	-0.3	123.3	5	3.3				Minahassa Peninsula
50	10/01/2021	09:29:35	1	122.8	18	3.4				Minahassa Peninsula
51	10/01/2021	11:40:24	0.4	122	183	2.9				Minahassa Peninsula
52	10/01/2021	13:53:50	5.2	125.5	209	4.3				Mindanao, Philippines
53	11/01/2021	01:13:38	0.7	129.2	10	3.4				Halmahera
54	11/01/2021	01:57:28	1.2	119.9	10	5.2				Minahassa Peninsula
55	11/01/2021	03:20:57	1.2	122.3	10	3.6				Minahassa Peninsula
56	11/01/2021	05:59:14	0.3	121.5	7	2.5				Minahassa Peninsula
57	11/01/2021	13:02:02	0.8	122.7	54	2.2				Minahassa Peninsula
58	11/01/2021	13:37:17	2.7	126.1	49	3.8				Northern Molucca Sea
59	11/01/2021	14:53:05	4.7	127	132	4.3				Talaud
60	11/01/2021	15:38:20	0.2	122.4	148	3				Minahassa Peninsula
61	11/01/2021	17:10:22	-0	122.4	125	2.8				Minahassa Peninsula
62	11/01/2021	18:08:37	1.6	127.3	115	4.3				Halmahera
63	11/01/2021	20:09:02	0.3	122.5	107	2.7				Minahassa Peninsula
64	11/01/2021	20:34:29	0.6	121.5	97	3.8				Minahassa Peninsula
65	11/01/2021	23:51:40	1.7	127.2	116	3.5				Halmahera
66	12/01/2021	02:38:16	0.1	126.7	27	3.2				Northern Molucca Sea
67	12/01/2021	06:23:52	1.5	126.3	10	3.6				Northern Molucca Sea
68	12/01/2021	10:11:55	4	125.4	10	4.8				Talaud
69	12/01/2021	11:51:32	2.3	128.4	225	4.8				Halmahera
70	12/01/2021	13:28:11	-0.3	124.7	9	3.5				Southern Molucca Sea
71	12/01/2021	19:52:33	-0.2	122.8	101	2.9				Minahassa Peninsula
72	12/01/2021	22:20:29	-0.1	123.1	143	2.8				Minahassa Peninsula
73	13/01/2021	03:10:10	-0.1	124.4	24	3.9				Southern Molucca Sea
74	13/01/2021	09:22:29	-0.2	123.1	10	2.8				Minahassa Peninsula
75	13/01/2021	10:48:31	0.3	123.1	81	3.1				Minahassa Peninsula
76	13/01/2021	11:09:31	4.1	127	141	4				Talaud
77	13/01/2021	12:03:56	1.2	127.3	117	4.1				Halmahera
78	13/01/2021	17:33:06	1.6	128.2	10	5				Halmahera
79	13/01/2021	19:51:40	0.5	122	105	3.2				Minahassa Peninsula
80	13/01/2021	20:44:29	1.6	128.2	10	3.5				Halmahera
81	13/01/2021	21:30:02	1.6	128.2	10	3.6				Halmahera
82	13/01/2021	22:33:18	-0.1	124	135	3.2				Minahassa Peninsula
83	13/01/2021	23:03:58	1.9	127.5	136	4.1				Halmahera
84	14/01/2021	07:30:36	0.4	124.8	17	3.7				Minahassa Peninsula
85	14/01/2021	10:37:06	1.6	124.8	212	4.2				Minahassa Peninsula
86	14/01/2021	12:12:59	-0.5	123.4	10	3.1				Minahassa Peninsula
87	14/01/2021	23:05:39	-0.2	123.1	24	3.4				Minahassa Peninsula
88	15/01/2021	02:50:55	0	127.2	120	4.6				Halmahera
89	15/01/2021	03:31:14	1.4	126.3	58	3.3				Northern Molucca Sea
90	15/01/2021	03:37:49	1.6	128.2	10	3.1				Halmahera

91	15/01/2021	08:21:15	2.6	128.4	214	4.7				Halmahera
92	15/01/2021	23:00:05	1.4	126	73	5.2	1.3069	2.0541	2.3472	Northern Molucca Sea
93	16/01/2021	02:56:21	-0.2	123	140	3.5				Minahassa Peninsula
94	16/01/2021	05:22:40	1.7	127.4	102	3.1				Halmahera
95	16/01/2021	08:16:30	1.6	128.2	22	3				Halmahera
96	16/01/2021	12:05:08	0.7	129.4	10	4				Halmahera
97	16/01/2021	17:22:18	2	126.3	10	3.5				Northern Molucca Sea
98	17/01/2021	03:34:24	-0.2	125	10	4				Southern Molucca Sea
99	17/01/2021	16:10:11	0.5	124.5	96	4.3				Minahassa Peninsula
100	18/01/2021	05:50:32	-0.1	124.5	10	3.6				Minahassa Peninsula
101	18/01/2021	10:39:24	2.7	128.4	212	4.1				Halmahera
102	18/01/2021	23:56:40	0.1	120.1	16	4.9				Minahassa Peninsula
103	19/01/2021	05:19:42	-0.3	124.9	10	4.3				Southern Molucca Sea
104	19/01/2021	13:51:15	0.4	122	10	2.8				Minahassa Peninsula
105	19/01/2021	14:46:09	1.6	128.2	11	3.2				Halmahera
106	19/01/2021	16:33:21	1.1	127	10	3.5				Halmahera
107	20/01/2021	04:25:52	0.2	121.9	166	2.9				Minahassa Peninsula
108	20/01/2021	04:51:50	3.3	128.1	10	4.1				Halmahera
109	20/01/2021	16:45:26	1.3	126.8	29	3.1				Northern Molucca Sea
110	20/01/2021	17:24:39	-0.2	123.7	131	3.8				Minahassa Peninsula
111	20/01/2021	20:03:56	3.4	124.6	300	3.7				Celebes Sea
112	21/01/2021	00:16:24	2.2	127.2	21	2.8				Northern Molucca Sea
113	21/01/2021	12:23:08	4.9	127.4	119	7	1.54571	2.7340	3.2632	Talaud Islands
114	21/01/2021	14:40:30	4.9	127.3	137	4.7				Talaud Islands
115	21/01/2021	16:01:58	4.9	127.1	161	4.5				Talaud Islands
116	21/01/2021	17:37:38	4.3	127.5	237	4.7				Talaud Islands
117	21/01/2021	23:30:11	1.7	126.3	29	3.7				Northern Molucca Sea
118	22/01/2021	05:23:16	0.4	121.5	10	3.5				Minahassa Peninsula
119	22/01/2021	10:45:53	4.9	127.4	67	5.1				Talaud Islands
120	22/01/2021	11:52:59	1.8	126.3	10	3.6				Northern Molucca Sea
121	22/01/2021	13:02:02	-0.2	123.2	10	2.8				Minahassa Peninsula
122	22/01/2021	15:53:24	1.3	128.3	25	2.5				Halmahera
123	22/01/2021	22:35:13	0.2	123.9	150	3.9				Minahassa Peninsula
124	23/01/2021	15:40:16	1.1	126.6	79	2.7				Northern Molucca Sea
125	23/01/2021	19:00:10	0.2	125	29	4.2				Minahassa Peninsula
126	23/01/2021	19:36:01	2.2	126.8	16	3.4				Northern Molucca Sea
127	24/01/2021	01:57:01	-0.1	126.6	2	4.2				Southern Molucca Sea
128	24/01/2021	02:47:46	0.8	126.1	8	3.6				Northern Molucca Sea
129	24/01/2021	04:08:38	2.2	128.8	10	4.6				Halmahera
130	24/01/2021	05:24:44	-0.2	121.2	10	2.4				Minahassa Peninsula
131	24/01/2021	09:53:22	1.5	128.3	16	2.7				Halmahera
132	24/01/2021	11:38:35	0.2	123.8	10	2.6				Minahassa Peninsula
133	24/01/2021	13:51:50	-0.1	123.4	144	2.9				Minahassa Peninsula
134	24/01/2021	17:01:17	-0.1	123.2	144	2.8				Minahassa Peninsula
135	24/01/2021	19:53:01	-0.1	122.5	10	2.1				Minahassa Peninsula
136	24/01/2021	21:27:07	1.9	123.8	709	3.9				Minahassa Peninsula
137	24/01/2021	22:16:13	-0.7	123.4	10	3.7				Minahassa Peninsula
138	24/01/2021	22:41:30	-0.5	121.9	15	3.2				Minahassa Peninsula
139	24/01/2021	22:55:46	-0.4	123.1	49	3.8				Minahassa Peninsula
140	25/01/2021	03:27:43	4.2	125.8	157	4.8				Talaud Islands
141	25/01/2021	05:03:08	1	120.9	10	3.4				Minahassa Peninsula
142	25/01/2021	06:59:57	0.4	122	180	2.4				Minahassa Peninsula

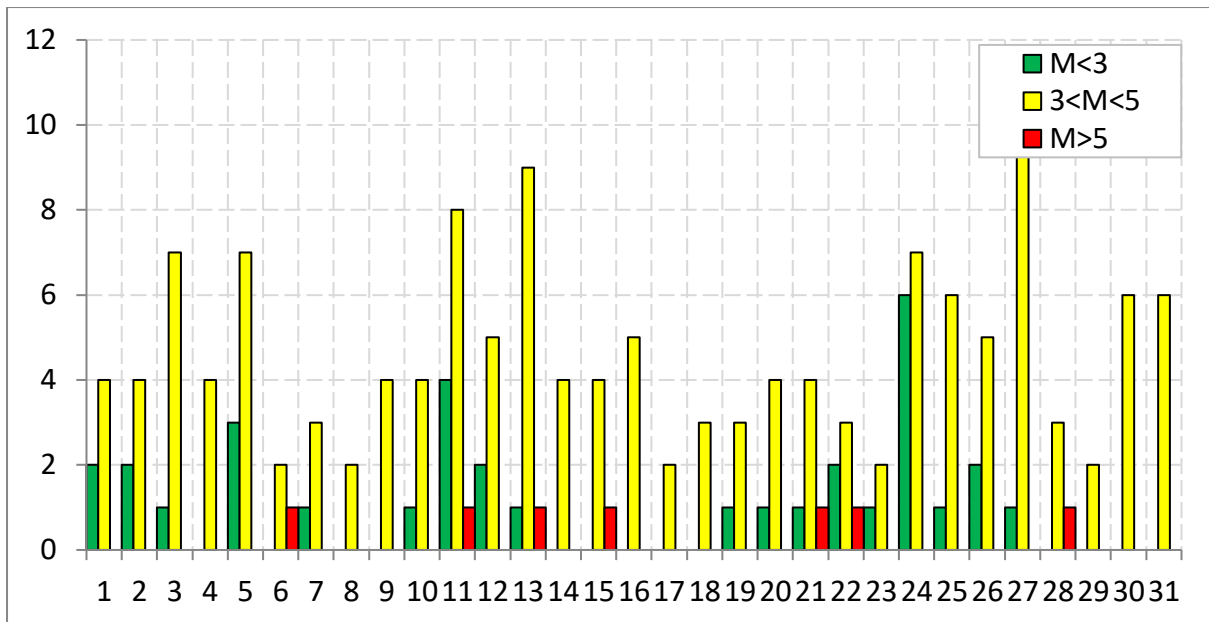
143	25/01/2021	14:14:41	1.7	122.9	26	4.1				Minahasa Peninsula
144	25/01/2021	14:30:59	4.7	126.7	12	4.2				Talaud Islands
145	25/01/2021	20:59:48	1.3	126.9	76	3.5				Northern Molucca Sea
146	25/01/2021	22:12:46	1.1	121.5	10	3.9				Minahasa Peninsula
147	26/01/2021	09:52:41	-0.1	122.5	10	3.4				Minahasa Peninsula
148	26/01/2021	10:05:46	-0.1	123.5	99	3.5				Minahasa Peninsula
149	26/01/2021	10:37:23	-0	123.2	144	3.1				Minahasa Peninsula
150	26/01/2021	10:57:30	0.4	121.9	159	2.8				Minahasa Peninsula
151	26/01/2021	12:39:28	3.8	123.4	472	4.3				Celebes Sea
152	26/01/2021	18:03:55	1.3	126.3	10	3.7				Northern Molucca Sea
153	26/01/2021	23:25:27	-0.3	122.1	10	2.5				Minahasa Peninsula
154	27/01/2021	00:18:59	-0	122.2	13	2.5				Minahasa Peninsula
155	27/01/2021	04:19:58	-0.2	123.6	131	4.9				Minahasa Peninsula
156	27/01/2021	04:47:42	0.2	126	10	4.3				Northern Molucca Sea
157	27/01/2021	05:23:32	0.5	125.9	10	3.4				Northern Molucca Sea
158	27/01/2021	07:56:45	1.1	127.2	10	3				Halmahera
159	27/01/2021	11:03:57	1.3	126.2	10	3.6				Northern Molucca Sea
160	27/01/2021	11:43:27	1.7	126.4	18	3.5				Northern Molucca Sea
161	27/01/2021	15:29:48	-0.4	123.1	43	4.1				Minahasa Peninsula
162	27/01/2021	16:53:55	0.2	123.8	196	4.2				Minahasa Peninsula
163	27/01/2021	19:27:48	-0.2	123.8	123	3.5				Minahasa Peninsula
164	27/01/2021	19:50:33	-0.3	122.9	48	3				Minahasa Peninsula
165	28/01/2021	02:29:57	0.6	125	13	3.8				Minahasa Peninsula
166	28/01/2021	05:28:58	0.1	124.7	36	3.6				Minahasa Peninsula
167	28/01/2021	07:57:12	5	127.4	103	5				Talaud Islands
168	28/01/2021	17:42:00	2	118.1	10	4.1				Borneo
169	29/01/2021	09:08:56	1.5	123.4	208	4				Minahasa Peninsula
170	29/01/2021	19:31:31	2.7	127	10	4.2				Northern Molucca Sea
171	30/01/2021	03:15:32	-0.1	123.5	126	4.1				Minahasa Peninsula
172	30/01/2021	09:32:21	1.6	121.8	480	4.1				Minahasa Peninsula
173	30/01/2021	09:50:07	1.3	122	471	4.2				Minahasa Peninsula
174	30/01/2021	17:00:57	0.5	125.6	10	4.5				Northern Molucca Sea
175	30/01/2021	19:16:42	5	127.1	10	4.3				Talaud Islands
176	30/01/2021	23:32:24	1.2	122.3	47	3.3				Minahasa Peninsula
177	31/01/2021	03:44:39	-0	123.1	149	3.1				Minahasa Peninsula
178	31/01/2021	08:47:31	0.5	122.6	99	3.1				Minahasa Peninsula
179	31/01/2021	09:34:45	2.2	128.2	61	3.4				Halmahera
180	31/01/2021	09:38:05	-0.1	123.2	109	3.9				Minahasa Peninsula
181	31/01/2021	13:59:18	0.6	126.6	10	3.3				Northern Molucca Sea
182	31/01/2021	19:58:36	3.8	126.8	10	4.2				Talaud Islands



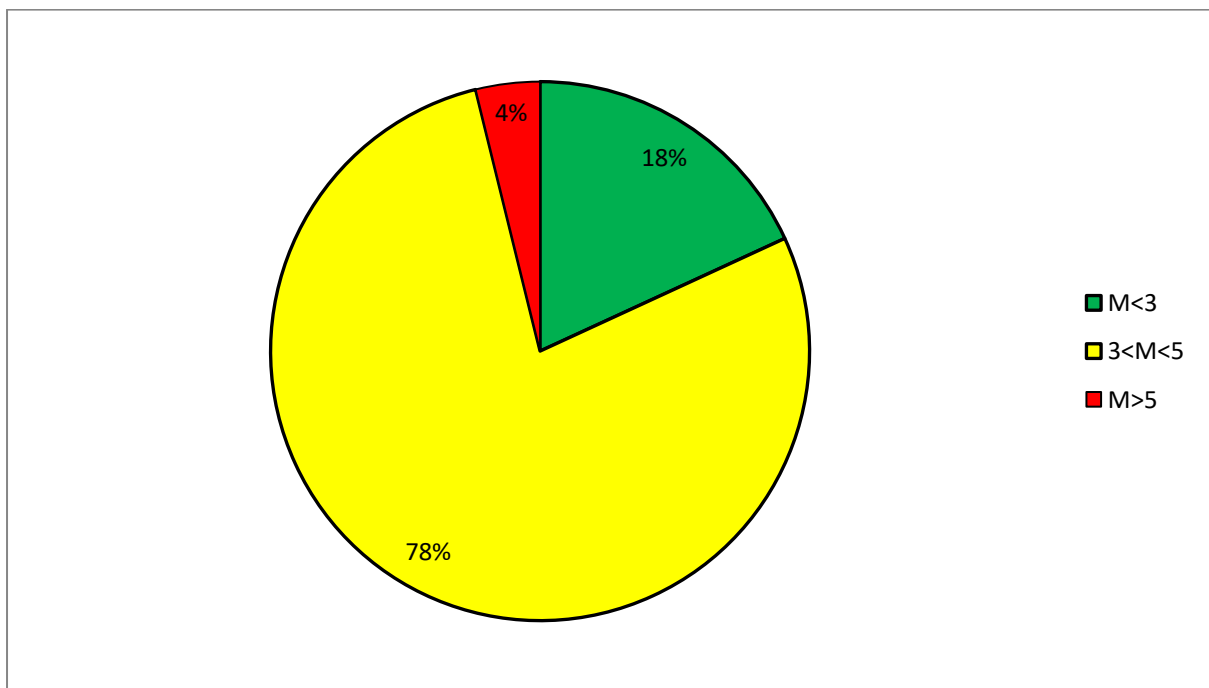
Gambar 5 Sebaran episenter gempabumi bulan Januari 2021

Tabel 4 Rekapitulasi gempabumi berdasarkan magnitudo bulan Januari 2021

Tanggal (UTC)	Magnitudo			Jumlah Total	Jumlah Gempa Signifikan	
	M<3	3≤M<5	M≥5		Dirasakan	Merusak
1	2	4	0	6	0	0
2	2	4	0	6	0	0
3	1	7	0	8	0	0
4	0	4	0	4	0	0
5	3	7	0	10	0	0
6	0	2	1	3	1	0
7	1	3	0	4	0	0
8	0	2	0	2	0	0
9	0	4	0	4	0	0
10	1	4	0	5	0	0
11	4	8	1	13	1	0
12	2	5	0	7	1	0
13	1	9	1	11	1	0
14	0	4	0	4	0	0
15	0	4	1	5	1	0
16	0	5	0	5	0	0
17	0	2	0	2	0	0
18	0	3	0	3	1	0
19	1	3	0	4	0	0
20	1	4	0	5	0	0
21	1	4	1	6	1	0
22	2	3	1	6	0	0
23	1	2	0	3	0	0
24	6	7	0	13	0	0
25	1	6	0	7	0	0
26	2	5	0	7	0	0
27	1	10	0	11	1	0
28	0	3	1	4	1	0
29	0	2	0	2	0	0
30	0	6	0	6	0	0
31	0	6	0	6	0	0
Jumlah gempa	33	142	7	182	9	0



Gambar 6 Grafik gempabumi berdasarkan magnitudo bulan Januari 2021



Gambar 7 Grafik persentase gempabumi berdasarkan magnitudo bulan Januari 2021

B. Data Gempabumi Bulan Februari 2021

Tabel 5 Data kejadian gempabumi bulan Februari 2021

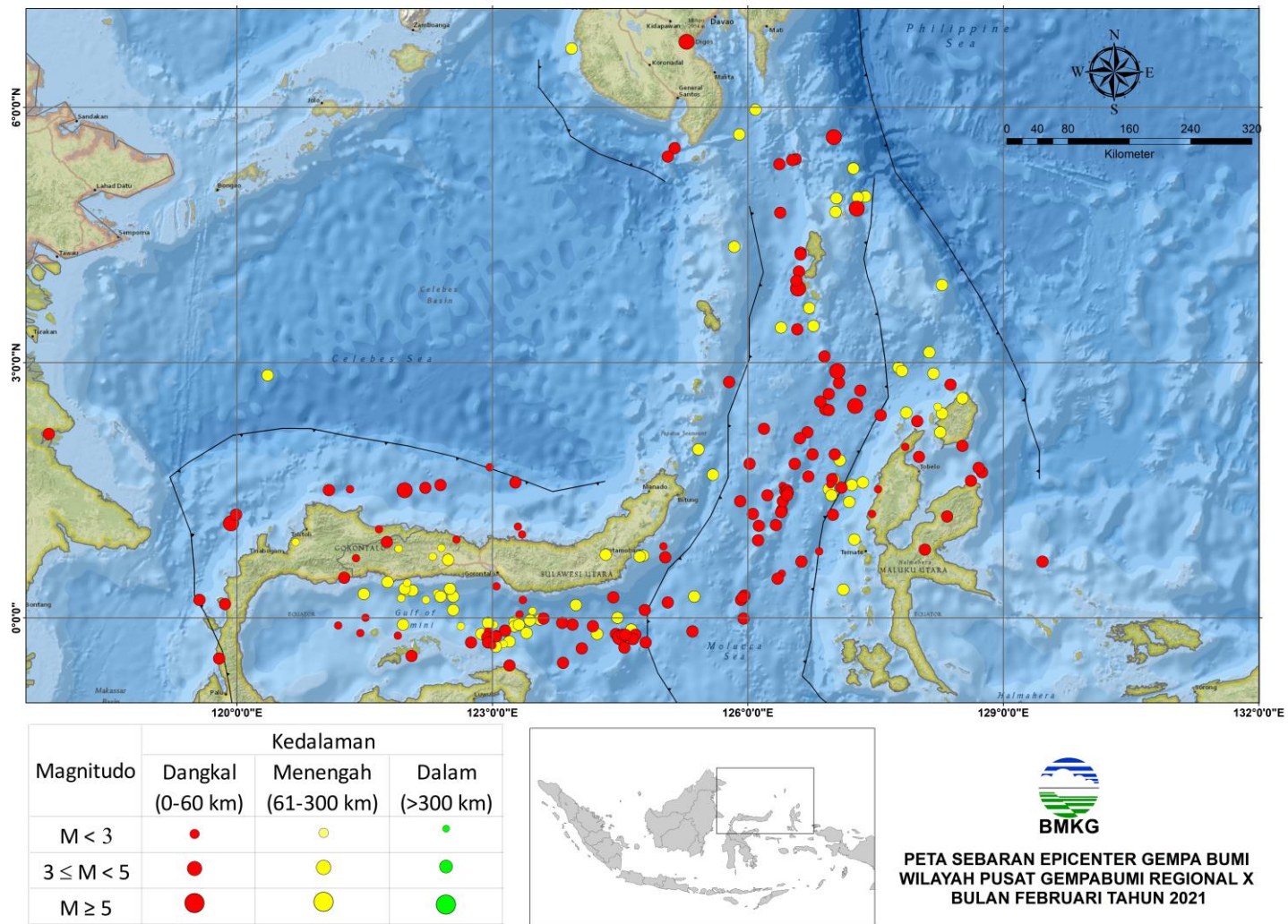
No	Date	OT (UTC)	Epicenter		Depth (km)	Mag	PGA (gals) / SLMI			Region
			Lat	Long			X	Y	Z	
1	01/02/2021	01:02:13	2.16	117.79	10	3.7				Borneo
2	01/02/2021	02:14:24	0.42	121.77	209	3.2				Minahasa Peninsula
3	01/02/2021	04:47:09	1.37	121.89	463	4.1				Minahasa Peninsula
4	01/02/2021	05:31:48	4.29	126.62	31	4.6				Talaud Islands
5	01/02/2021	06:18:14	2.02	128.52	24	3.5				Halmahera
6	01/02/2021	09:47:57	1.56	122.39	10	4				Minahasa Peninsula
7	01/02/2021	10:09:33	4.27	126.62	10	4.2				Talaud Islands
8	01/02/2021	12:22:24	-0.19	124.45	20	4.3				Southern Molucca Sea
9	01/02/2021	17:14:49	4.95	127.38	145	4.7				Talaud Islands
10	01/02/2021	18:51:52	0.84	125.01	55	2.9				Northern Molucca Sea
11	02/02/2021	03:05:35	1.50	121.08	27	3.8				Minahasa Peninsula
12	02/02/2021	03:24:08	0.21	125.92	10	3.7				Northern Molucca Sea
13	02/02/2021	04:36:00	2.18	128.26	69	4.8				Halmahera
14	02/02/2021	07:05:56	2.45	126.91	10	3.4				Northern Molucca Sea
15	02/02/2021	10:28:55	0.16	119.86	43	3.1				Minahasa Peninsula
16	02/02/2021	13:42:16	2.44	126.95	17	3.1				Northern Molucca Sea
17	02/02/2021	14:37:40	3.87	126.59	10	5.1	0.136	0.167	-0.094	Talaud Islands
18	02/02/2021	14:44:59	4.07	126.60	10	4.7				Talaud Islands
19	02/02/2021	14:49:33	3.96	126.57	18	4.2				Talaud Islands
20	02/02/2021	17:11:14	4.77	127.03	201	4.3				Talaud Islands
21	02/02/2021	17:27:05	1.71	128.75	2	4				Halmahera
22	02/02/2021	18:21:34	-0.20	124.68	33	4.3	-0.023	-0.015	0.016	Minahasa Peninsula
23	03/02/2021	04:00:42	1.66	126.71	10	3.7				Northern Molucca Sea
24	03/02/2021	05:24:45	0.47	121.26	31	3.3				Minahasa Peninsula
25	03/02/2021	06:04:25	-0.29	124.80	10	3.9				Southern Molucca Sea
26	03/02/2021	07:20:09	0.21	119.56	18	3.7				Minahasa Peninsula
27	03/02/2021	10:40:23	-0.48	119.79	10	3.9				Minahasa Peninsula
28	03/02/2021	12:10:30	0.71	125.03	8	3.5				Minahasa Peninsula
29	03/02/2021	13:30:39	2.40	128.28	190	3.9				Halmahera
30	03/02/2021	21:32:16	0.00	124.47	68	3.2				Minahasa Peninsula
31	04/02/2021	02:16:18	0.80	128.08	10	3				Halmahera
32	04/02/2021	03:57:44	2.31	127.99	10	3.4				Halmahera
33	04/02/2021	04:45:49	-0.14	124.63	114	3.7				Minahasa Peninsula
34	04/02/2021	09:31:02	-0.05	123.26	65	3.3				Minahasa Peninsula
35	04/02/2021	15:57:55	-0.36	124.05	11	4				Minahasa Peninsula
36	05/02/2021	01:49:28	-0.09	121.19	22	2.9				Minahassa Peninsula
37	05/02/2021	02:37:35	-0.08	121.95	261	3.5				Minahassa Peninsula
38	05/02/2021	10:07:13	3.43	126.77	170	4.2				Talaud Islands
39	05/02/2021	13:27:58	0.23	121.93	174	2.6				Minahassa Peninsula
40	05/02/2021	20:34:44	-0.23	124.50	10	5.2	0.582	0.847	0.346	Minahassa Peninsula
41	05/02/2021	21:53:48	-0.56	123.20	10	4.1				Minahassa Peninsula
42	06/02/2021	01:28:19	-0.28	123.20	186	3				Minahassa Peninsula
43	06/02/2021	07:25:02	-0.08	123.94	10	3.2				Minahassa Peninsula
44	06/02/2021	16:14:28	1.26	126.40	9	3.5				Northern Molucca Sea

45	07/02/2021	04:22:58	6.77	125.28	23	6.1				Mindanao, Philippines
46	07/02/2021	06:35:00	2.48	128.23	142	2.9				Halmahera
47	07/02/2021	09:01:05	1.56	127.22	71	4				Halmahera
48	07/02/2021	10:37:55	-0.08	123.02	106	2.6				Minahassa Peninsula
49	07/02/2021	10:54:31	2.76	127.07	1	3.6				Talaud Islands
50	07/02/2021	11:19:06	5.39	126.56	27	4.8				Talaud Islands
51	07/02/2021	14:32:09	-0.08	123.34	125	2.8				Minahassa Peninsula
52	07/02/2021	14:40:54	-0.21	121.89	10	2.6				Minahassa Peninsula
53	07/02/2021	14:52:55	1.59	123.27	10	3.8				Minahassa Peninsula
54	07/02/2021	15:59:00	0.09	122.54	154	3.2				Minahassa Peninsula
55	07/02/2021	17:30:21	1.81	126.02	37	3.6				Northern Molucca Sea
56	07/02/2021	19:00:29	1.55	126.41	10	2.8				Northern Molucca Sea
57	07/02/2021	19:26:01	5.33	126.37	24	4.3				Talaud Islands
58	07/02/2021	21:24:37	0.30	122.00	180	2				Minahassa Peninsula
59	07/02/2021	22:10:57	0.21	122.22	158	2.9				Minahassa Peninsula
60	07/02/2021	22:47:08	0.74	124.33	205	3.4				Minahassa Peninsula
61	08/02/2021	00:00:42	5.65	127.01	11	5.6				Philippine Islands Region
62	08/02/2021	01:30:24	5.52	125.14	11	4.6				Mindanao, Philippines
63	08/02/2021	05:36:02	0.21	123.36	17	2.7				Minahassa Peninsula
64	08/02/2021	06:03:10	-0.01	123.60	35	3.1				Minahassa Peninsula
65	08/02/2021	06:20:32	-0.18	123.40	65	3.5				Minahassa Peninsula
66	08/02/2021	08:40:30	1.53	122.21	14	3				Minahassa Peninsula
67	08/02/2021	14:07:58	1.68	125.59	113	3.6				Northern Molucca Sea
68	08/02/2021	19:31:51	1.81	126.55	10	3.6				Northern Molucca Sea
69	08/02/2021	21:46:57	5.97	126.09	129	4.5				Mindanao, Philippines
70	08/02/2021	22:54:19	0.18	125.06	10	3.8				Minahassa Peninsula
71	09/02/2021	00:46:33	-0.10	123.26	130	3.2				Minahassa Peninsula
72	09/02/2021	09:05:16	0.72	122.47	70	2.9				Minahassa Peninsula
73	09/02/2021	13:32:01	1.51	126.95	73	3.3				Northern Molucca Sea
74	10/02/2021	03:30:23	1.63	126.99	41	3.1				Northern Molucca Sea
75	10/02/2021	08:59:21	0.32	122.06	149	3.4				Minahassa Peninsula
76	10/02/2021	09:08:52	-0.29	122.75	13	4.5				Minahassa Peninsula
77	10/02/2021	10:03:12	4.81	127.28	10	5.3				Talaud Islands
78	10/02/2021	11:08:41	1.19	128.34	10	3.1				Halmahera
79	10/02/2021	11:14:53	0.04	123.32	40	2.8				Minahassa Peninsula
80	10/02/2021	12:16:21	0.73	124.77	93	3.3				Minahassa Peninsula
81	10/02/2021	14:16:03	-0.06	123.82	18	3.5				Minahassa Peninsula
82	10/02/2021	15:38:35	0.72	122.30	84	2.5				Minahassa Peninsula
83	10/02/2021	17:50:42	0.66	129.46	10	3.3				Halmahera
84	11/02/2021	06:16:15	1.22	127.46	6	2.8				Halmahera
85	11/02/2021	12:21:19	1.09	126.33	10	4.9	0.781	0.912	0.546	Halmahera
86	11/02/2021	15:34:40	2.94	127.77	153	3.7				Northern Molucca Sea
87	11/02/2021	15:56:34	2.74	128.38	10	3.4				Halmahera
88	11/02/2021	18:07:37	5.68	125.90	260	4.1				Talaud Islands
89	12/02/2021	18:53:50	2.54	126.85	8	3.4				Northern Molucca Sea
90	11/02/2021	19:59:48	0.24	124.42	10	3.2				Minahassa Peninsula
91	11/02/2021	20:45:24	1.85	127.08	69	4.4				Halmahera
92	11/02/2021	21:40:10	0.70	121.40	11	2.9				Minahassa Peninsula
93	12/02/2021	01:42:17	2.63	126.95	10	3.8				Northern Molucca Sea
94	12/02/2021	02:10:00	1.77	122.97	32	2.5				Minahassa Peninsula
95	12/02/2021	02:26:37	1.92	127.02	22	3.2				Northern Molucca Sea
96	12/02/2021	04:05:44	0.37	123.05	40	2.2				Minahassa Peninsula

97	12/02/2021	04:38:45	1.49	126.44	10	4.2				Northern Molucca Sea
98	12/02/2021	11:39:07	2.41	127.86	161	4.3				Halmahera
99	12/02/2021	19:09:47	1.98	125.42	79	3.7				Northern Molucca Sea
100	12/02/2021	19:55:15	1.08	126.13	19	3.8				Northern Molucca Sea
101	13/02/2021	00:23:25	0.08	123.47	70	2.5				Minahassa Peninsula
102	13/02/2021	01:12:26	2.18	126.70	10	3.8				Northern Molucca Sea
103	13/02/2021	02:01:12	0.15	123.98	185	3.2				Minahassa Peninsula
104	13/02/2021	02:07:57	2.11	126.61	10	3.5				Northern Molucca Sea
105	13/02/2021	12:23:05	0.25	122.54	99	3.1				Minahassa Peninsula
106	13/02/2021	12:25:14	5.38	126.52	15	4.5				Talaud Islands
107	13/02/2021	22:06:17	-0.16	122.95	23	2.9				Minahassa Peninsula
108	14/02/2021	00:37:50	4.93	127.04	176	4.6				Talaud Islands
109	14/02/2021	02:44:44	1.63	127.01	140	3.9				Northern Molucca Sea
110	14/02/2021	08:44:46	1.11	119.93	10	5.5				Minahassa Peninsula
111	14/02/2021	10:12:35	4.05	124.64	338	4.6				Talaud Islands
112	14/02/2021	10:16:56	1.37	125.91	35	3.5				Northern Molucca Sea
113	14/02/2021	18:50:14	0.26	125.96	6	3.3				Northern Molucca Sea
114	14/02/2021	23:22:19	0.52	126.40	10	2.9				Northern Molucca Sea
115	15/02/2021	11:24:08	0.09	124.79	10	3.3				Minahassa Peninsula
116	15/02/2021	18:27:42	1.92	126.76	10	3.5				Northern Molucca Sea
117	16/02/2021	03:41:26	1.21	127.00	36	3.9				Northern Molucca Sea
118	16/02/2021	06:12:54	0.89	120.69	76	2.7				Minahassa Peninsula
119	16/02/2021	21:01:36	2.90	127.81	137	3.6				Northern Molucca Sea
120	17/02/2021	00:48:39	-0.31	123.13	120	2.5				Minahassa Peninsula
121	17/02/2021	05:37:29	0.00	12.12	96	2.5				Minahassa Peninsula
122	17/02/2021	12:06:19	-0.25	124.65	5	3.6				Minahassa Peninsula
123	17/02/2021	14:31:01	4.00	117.45	34	4.4				Borneo
124	17/02/2021	20:27:32	-0.34	123.04	78	3.3				Minahassa Peninsula
125	17/02/2021	21:34:43	1.21	119.99	10	4.3				Minahassa Peninsula
126	18/02/2021	00:30:29	3.41	126.39	101	4.5				Talaud Islands
127	18/02/2021	02:17:02	-0.15	123.15	32	3				Minahassa Peninsula
128	18/02/2021	08:10:21	0.89	121.76	10	3.1				Minahassa Peninsula
129	18/02/2021	08:35:46	0.72	124.73	67	4				Minahassa Peninsula
130	18/02/2021	14:21:11	0.24	125.94	10	3.8				Northern Molucca Sea
131	18/02/2021	16:38:25	-0.19	123.05	31	2.9				Minahassa Peninsula
132	19/02/2021	07:43:21	3.39	126.58	10	4				Talaud Islands
133	19/02/2021	11:07:26	2.22	126.19	10	4.1	0.115	0.118	0.119	Northern Molucca Sea
134	19/02/2021	12:50:23	1.53	127.10	23	4.5				Halmahera
135	19/02/2021	17:13:25	0.68	122.48	62	3				Minahassa Peninsula
136	19/02/2021	19:19:36	-0.16	125.35	9	3.6				Minahassa Peninsula
137	19/02/2021	20:00:01	3.64	126.72	62	4				Talaud Islands
138	19/02/2021	22:11:59	1.64	124.22	306	3.9				Celebes Sea
139	20/02/2021	08:42:03	1.89	128.01	10	3.8				Halmahera
140	20/02/2021	08:47:44	2.87	128.18	152	4.1				Halmahera
141	20/02/2021	11:48:52	-0.23	122.94	10	3				Minahassa Peninsula
142	20/02/2021	16:46:41	1.44	126.98	105	4.2				Northern Molucca Sea
143	20/02/2021	20:08:21	2.77	125.78	10	3.2				Talaud Islands
144	21/02/2021	13:47:45	-0.10	123.30	121	2.6				Minahassa Peninsula
145	21/02/2021	20:55:56	0.34	121.97	169	3.1				Minahassa Peninsula
146	21/02/2021	21:41:37	1.36	127.19	61	4.7				Halmahera
147	21/02/2021	23:40:46	4.94	127.29	144	4.7				Talaud Islands
148	22/02/2021	03:00:22	2.49	127.26	10	5.1	0.165	0.236	0.156	Northern Molucca Sea

149	22/02/2021	06:31:24	0.00	121.51	10	2.8				Minahassa Peninsula
150	22/02/2021	08:13:10	2.38	127.56	51	3.2				Northern Molucca Sea
151	22/02/2021	08:41:54	-0.08	123.31	110	3.1				Minahassa Peninsula
152	22/02/2021	10:37:49	3.12	128.13	149	3.4				Halmahera
153	22/02/2021	14:31:20	5.28	127.24	70	4.5				Talaud Islands
154	22/02/2021	17:26:17	-0.02	123.56	131	4.7	0.086	0.068	0.069	Minahassa Peninsula
155	22/02/2021	19:22:09	1.50	121.97	10	5.8	0.208	0.224	0.127	Minahassa Peninsula
156	22/02/2021	23:52:49	2.67	127.32	11	4				Halmahera
157	23/02/2021	03:24:57	1.37	126.41	8	4				Northern Molucca Sea
158	23/02/2021	03:28:28	1.50	126.46	21	4.1				Northern Molucca Sea
159	23/02/2021	03:30:17	1.47	126.47	32	3.7				Northern Molucca Sea
160	23/02/2021	05:52:39	-0.01	125.95	27	4				Southern Molucca Sea
161	23/02/2021	06:37:58	1.44	126.46	10	3.8				Northern Molucca Sea
162	23/02/2021	08:36:50	0.41	122.00	170	2.5				Minahassa Peninsula
163	23/02/2021	08:45:02	-0.10	124.18	15	3.3				Minahassa Peninsula
164	23/02/2021	08:48:48	0.34	122.50	120	3.3				Minahassa Peninsula
165	23/02/2021	09:56:03	-0.18	121.45	10	2.9				Minahassa Peninsula
166	23/02/2021	10:02:29	0.78	126.84	35	2.9				Northern Molucca Sea
167	23/02/2021	16:19:19	4.36	125.84	146	4.6				Talaud Islands
168	23/02/2021	20:40:37	-0.19	122.87	125	3.7				Minahassa Peninsula
169	23/02/2021	22:25:54	2.90	127.05	10	5.3	0.266	0.230	0.157	Northern Molucca Sea
170	24/02/2021	02:10:57	0.92	122.58	10	2.9				Minahassa Peninsula
171	24/02/2021	02:48:34	-0.19	124.23	69	3.6				Southern Molucca Sea
172	24/02/2021	02:52:11	1.61	128.62	11	3.5				Halmahera
173	24/02/2021	08:08:12	-0.03	123.44	118	3.3				Minahassa Peninsula
174	24/02/2021	11:29:02	1.51	127.53	10	2.5				Halmahera
175	24/02/2021	11:46:57	0.82	122.40	62	2.1				Minahassa Peninsula
176	24/02/2021	11:52:47	1.04	121.67	9	2.6				Minahassa Peninsula
177	24/02/2021	12:05:30	-0.10	122.63	80	2.8				Minahassa Peninsula
178	24/02/2021	16:22:18	0.29	122.35	152	2.5				Minahassa Peninsula
179	24/02/2021	17:43:13	1.44	126.23	10	3.2				Northern Molucca Sea
180	24/02/2021	20:18:56	2.58	128.52	212	3.3				Halmahera
181	24/02/2021	21:22:48	0.25	125.37	188	3.7				Northern Molucca Sea
182	24/02/2021	22:57:19	6.69	123.93	252	4.3				Mindanao, Philippine
183	24/02/2021	23:15:08	3.91	128.28	155	4.1				North of Halmahera
184	25/02/2021	00:13:48	1.22	126.06	12	3.1				Northern Molucca Sea
185	25/02/2021	00:46:21	1.76	128.71	11	3				Halmahera
186	25/02/2021	03:00:28	1.59	127.35	137	3.2				Halmahera
187	25/02/2021	03:30:41	-0.06	122.95	158	3.2				Minahassa Peninsula
188	25/02/2021	06:22:21	-0.22	123.04	26	3.3				Minahassa Peninsula
189	25/02/2021	15:14:21	0.81	121.90	208	2.6				Minahassa Peninsula
190	25/02/2021	15:38:14	3.07	126.90	10	3.5				Talaud Islands
191	25/02/2021	16:00:58	1.57	126.97	33	2.9				Talaud Islands
192	25/02/2021	17:45:17	5.42	125.06	10	4.6				Mindanao, Philippine
193	25/02/2021	17:49:16	-0.20	124.53	24	3.8				Minahassa Peninsula
194	25/02/2021	17:50:45	-0.20	124.56	21	4				Minahassa Peninsula
195	25/02/2021	22:26:19	-0.29	122.95	51	3.3				Minahassa Peninsula
196	26/02/2021	04:10:54	2.85	120.36	210	3.6				Celebes Sea
197	26/02/2021	06:22:37	0.25	122.39	152	3.9				Minahassa Peninsula
198	26/02/2021	09:18:22	2.01	127.85	5	2.7				Halmahera
199	26/02/2021	09:39:11	0.33	127.12	121	3.5				Halmahera
200	26/02/2021	11:40:40	1.07	123.30	10	2.2				Minahassa Peninsula

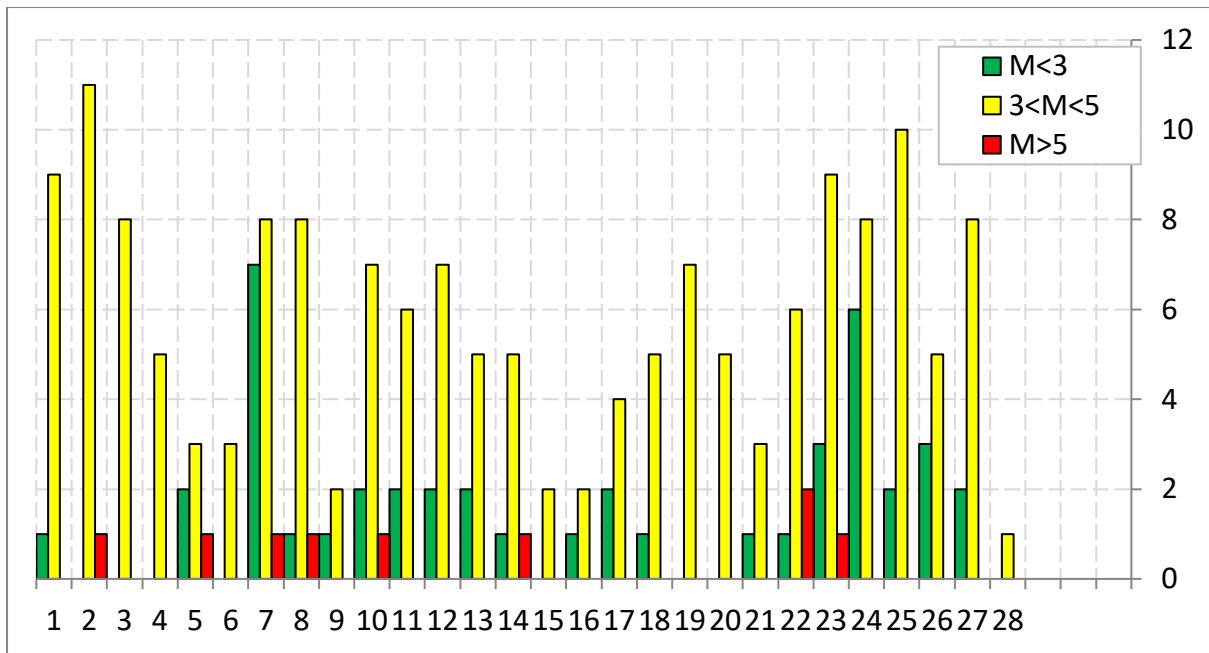
201	26/02/2021	14:14:33	0.98	123.35	10	2.7				Minahassa Peninsula
202	27/02/2021	16:31:06	0.46	126.35	10	3.1				Northern Molucca Sea
203	26/02/2021	17:19:35	0.92	127.25	159	3.5				Halmahera
204	26/02/2021	19:44:13	-0.35	124.55	10	4.3	0.068	0.061	0.036	Southern Molucca Sea
205	27/02/2021	02:32:48	4.76	126.38	10	4.8				Talaud Islands
206	27/02/2021	04:49:25	-0.45	122.05	10	4.7				Minahassa Peninsula
207	27/02/2021	06:53:12	-0.53	123.83	36	4.8				Southern Molucca Sea
208	27/02/2021	14:48:29	1.24	126.39	18	3.2				Northern Molucca Sea
209	27/02/2021	17:40:32	1.51	121.33	15	2.1				Minahassa Peninsula
210	27/02/2021	18:42:48	-0.32	123.00	23	2.6				Minahassa Peninsula
211	27/02/2021	19:53:36	2.82	122.34	567	3.8				Celebes Sea
212	27/02/2021	21:13:29	0.28	121.49	210	3.5				Minahassa Peninsula
213	27/02/2021	22:16:20	0.91	126.12	10	3.9				Northern Molucca Sea
214	28/02/2021	22:47:54	0.66	126.63	30	3.1				Northern Molucca Sea



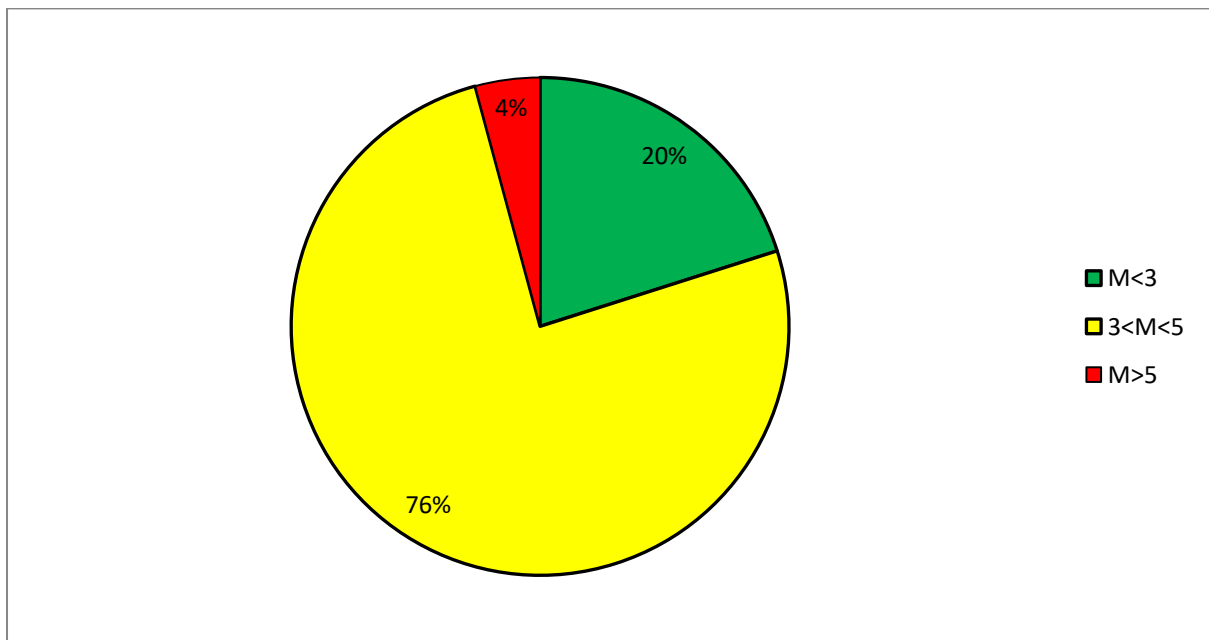
Gambar 8 Sebaran episenter gempabumi bulan Februari 2021

Tabel 6 Rekapitulasi gempabumi berdasarkan magnitudo bulan Februari 2021

Tanggal (UTC)	Magnitudo			Jumlah Total	Jumlah Gempa Signifikan	
	M<3	3≤M<5	M≥5		Dirasakan	Merusak
1	1	9	0	10	1	0
2	0	11	1	12	3	0
3	0	8	0	8	0	0
4	0	5	0	5	0	0
5	2	3	1	6	1	0
6	0	3	0	3	0	0
7	7	8	1	16	0	0
8	1	8	1	10	0	0
9	1	2	0	3	0	0
10	2	7	1	10	0	0
11	2	6	0	8	1	0
12	2	7	0	9	0	0
13	2	5	0	7	0	0
14	1	5	1	7	1	0
15	0	2	0	2	0	0
16	1	2	0	3	0	0
17	2	4	0	6	1	0
18	1	5	0	6	0	0
19	0	7	0	7	1	0
20	0	5	0	5	0	0
21	1	3	0	4	0	0
22	1	6	2	9	1	0
23	3	9	1	13	0	0
24	6	8	0	14	0	0
25	2	10	0	12	0	0
26	3	5	0	8	0	0
27	2	8	0	10	0	0
28	0	1	0	1	0	0
Jumlah gempa	43	162	9	214	10	0



Gambar 9 Grafik gempabumi berdasarkan magnitudo bulan Februari 2021



Gambar 10 Grafik persentase gempabumi berdasarkan magnitudo bulan Februari 2021

C. Data Gempabumi Bulan Maret 2021

Tabel 7 Data kejadian gempabumi bulan Maret 2021

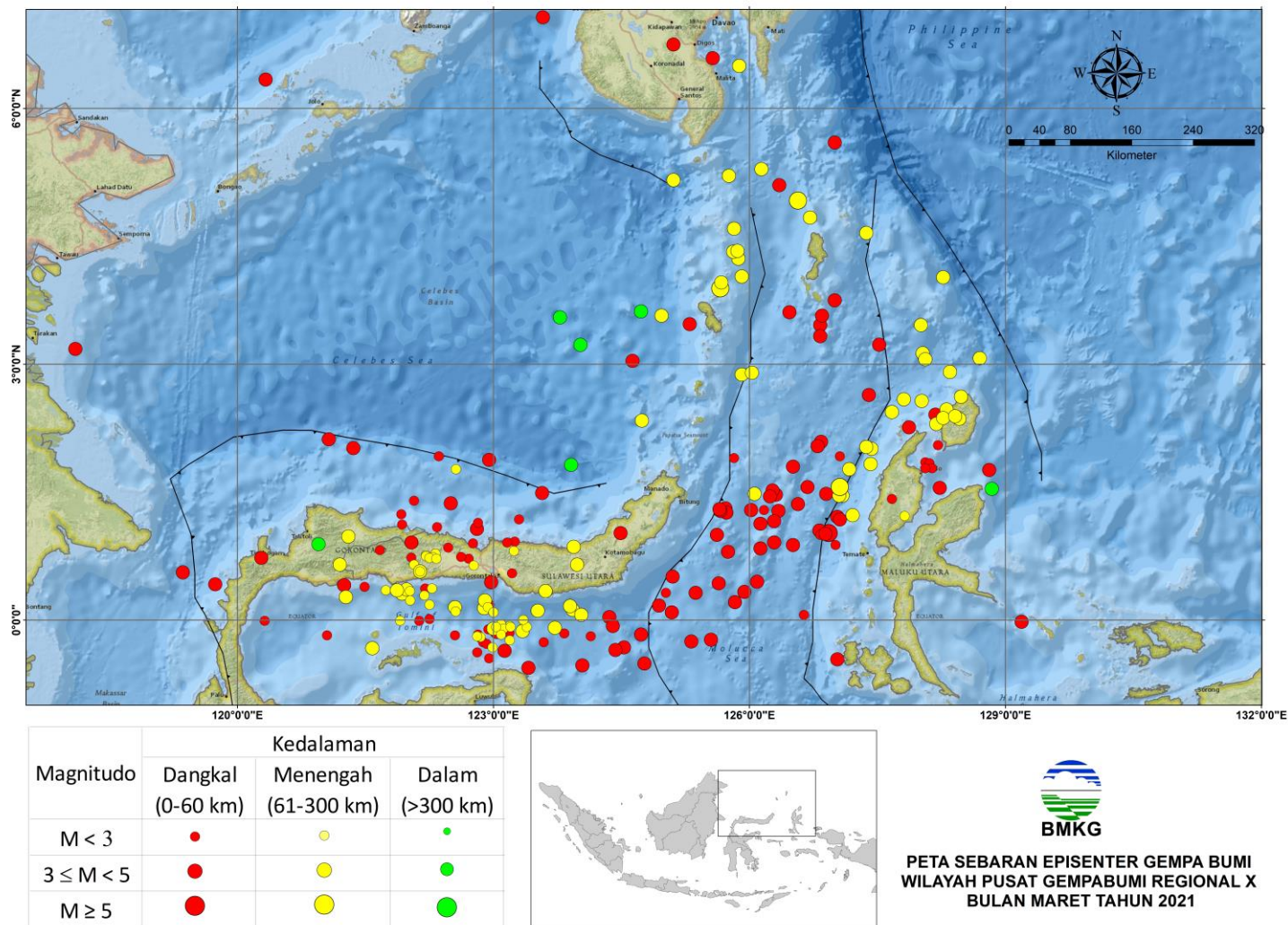
No	Date	OT (UTC)	Epicenter		Depth (km)	Mag	PGA (gals) / SLMI			Region
			Lat	Long			X	Y	Z	
1	01/03/2021	00:07:00	2.91	128.35	188	3.5				Halmahera
2	01/03/2021	02:47:10	0.32	121.97	157	2.8				Minahasa Peninsula
3	01/03/2021	04:04:51	1.07	122.81	38	3.5				Minahasa Peninsula
4	01/03/2021	06:25:31	1.18	123.30	10	2.8				Minahasa Peninsula
5	01/03/2021	07:47:46	-0.14	123.04	60	3.1				Minahasa Peninsula
6	01/03/2021	09:35:03	0.72	122.71	58	2.7				Minahasa Peninsula
7	01/03/2021	15:29:12	4.24	125.87	71	4.3				Talaud Islands
8	01/03/2021	16:24:58	1.22	127.82	73	2.7				Halmahera
9	01/03/2021	16:37:42	1.49	123.57	10	3.1				Minahasa Peninsula
10	01/03/2021	21:11:21	0.65	121.20	78	3.5				Minahasa Peninsula
11	01/03/2021	23:08:54	0.32	125.02	10	2.9				Northern Molucca Sea
12	02/03/2021	00:17:40	0.74	122.62	35	2.4				Minahasa Peninsula
13	02/03/2021	00:24:12	0.76	122.21	178	2.4				Minahasa Peninsula
14	02/03/2021	03:06:08	2.09	126.84	17	3.3				Northern Molucca Sea
15	02/03/2021	08:09:07	3.46	128.01	125	4.1				North of Halmahera
16	02/03/2021	12:30:51	-0.02	129.19	34	3.4				Halmahera
17	02/03/2021	14:50:39	0.51	125.10	6	3.6				Northern Molucca Sea
18	02/03/2021	18:39:51	-0.20	122.85	63	2.3				Minahasa Peninsula
19	03/03/2021	04:24:26	-0.18	121.05	10	2.8				Minahasa Peninsula
20	03/03/2021	05:09:43	0.12	123.93	105	3.3				Minahasa Peninsula
21	03/03/2021	05:46:14	1.92	122.36	31	2.7				Minahasa Peninsula
22	03/03/2021	11:31:46	3.13	128.03	137	4.5				North of Halmahera
23	03/03/2021	13:58:30	0.29	122.19	128	2.3				Minahasa Peninsula
24	03/03/2021	21:48:15	0.86	123.94	253	3.9				Minahasa Peninsula
25	04/03/2021	04:13:36	-0.36	123.13	28	3.4				Minahasa Peninsula
26	04/03/2021	10:39:23	1.83	127.42	103	3.8				Halmahera
27	04/03/2021	11:25:05	2.12	121.07	10	4.6				Celebes Sea
28	04/03/2021	14:36:43	6.75	125.11	10	4.9				Mindanao, Philippines
29	04/03/2021	15:00:08	-0.25	125.32	10	3.8				Southern Molucca Sea
30	04/03/2021	16:35:59	-0.33	121.58	155	3.1				Minahasa Peninsula
31	04/03/2021	19:17:36	0.41	121.25	10	3.5				Minahasa Peninsula
32	05/03/2021	00:19:35	1.46	127.09	96	4.4				Halmahera
33	05/03/2021	04:58:16	2.41	128.18	11	3.8				Halmahera
34	05/03/2021	06:16:28	1.28	126.34	10	4.0				Northern Molucca Sea
35	05/03/2021	19:46:13	-0.23	125.55	19	4.1				Southern Molucca Sea
36	06/03/2021	06:22:36	3.75	127.00	31	4.1				Talaud Islands
37	06/03/2021	06:26:31	-0.26	123.59	11	3.0				Minahasa Peninsula
38	07/03/2021	02:48:43	-0.09	123.72	112	3.8				Minahasa Peninsula
39	07/03/2021	02:52:57	1.48	126.90	29	3.8				Northern Molucca Sea
40	07/03/2021	04:43:25	4.59	125.82	133	5.0				Talaud Islands
41	07/03/2021	06:39:39	0.55	123.22	10	2.4				Minahasa Peninsula
42	07/03/2021	06:48:12	3.61	126.47	10	4.2				Talaud Islands
43	07/03/2021	07:17:51	1.13	126.13	10	4.0				Northern Molucca Sea
44	07/03/2021	08:53:50	-0.32	124.53	8	4.2				Southern Molucca Sea
45	07/03/2021	12:14:35	-0.53	124.04	10	3.2				Southern Molucca Sea

46	07/03/2021	12:41:29	1.55	128.23	4	3.6				Halmahera
47	07/03/2021	13:55:29	-0.07	123.19	115	2.4				Minahasa Peninsula
48	07/03/2021	19:43:59	1.09	122.34	31	2.8				Minahasa Peninsula
49	07/03/2021	23:57:11	0.65	123.98	262	3.7				Minahasa Peninsula
50	08/03/2021	05:14:48	0.91	122.04	30	3.2				Minahasa Peninsula
51	08/03/2021	06:12:33	0.17	124.94	10	3.7				Minahasa Peninsula
52	08/03/2021	12:52:20	-0.16	123.83	10	2.9				Minahasa Peninsula
53	08/03/2021	18:28:59	3.47	125.30	22	3.7				Talaud Islands
54	08/03/2021	19:43:33	4.32	125.81	102	3.8				Talaud Islands
55	08/03/2021	20:06:31	0.65	122.07	166	2.3				Minahasa Peninsula
56	08/03/2021	20:08:24	1.92	127.06	34	2.8				Northern Molucca Sea
57	08/03/2021	20:33:15	2.36	128.46	231	4.0				Halmahera
58	08/03/2021	21:09:50	1.14	122.82	34	2.0				Minahasa Peninsula
59	09/03/2021	01:24:31	2.26	127.87	3	3.1				Northern Molucca Sea
60	09/03/2021	04:09:43	1.21	127.03	9	3.1				Halmahera
61	09/03/2021	06:11:00	-0.18	122.55	10	2.8				Minahasa Peninsula
62	09/03/2021	13:03:22	-0.24	123.19	95	2.4				Minahasa Peninsula
63	09/03/2021	13:56:58	0.29	121.92	176	2.7				Minahasa Peninsula
64	09/03/2021	14:19:00	0.06	126.64	10	2.8				Northern Molucca Sea
65	09/03/2021	16:15:04	2.05	128.21	10	2.9				Halmahera
66	09/03/2021	16:30:19	0.81	123.24	94	2.1				Minahasa Peninsula
67	09/03/2021	16:35:01	0.82	121.67	10	2.4				Minahasa Peninsula
68	09/03/2021	20:19:27	0.92	123.25	35	2.0				Minahasa Peninsula
69	09/03/2021	21:21:55	3.23	127.52	10	3.9				Talaud Islands
70	09/03/2021	22:29:29	0.31	121.93	159	3.6				Minahasa Peninsula
71	10/03/2021	00:05:06	1.12	121.93	24	2.2				Minahasa Peninsula
72	10/03/2021	02:09:57	4.33	125.86	76	4.9				Talaud Islands
73	10/03/2021	02:10:01	3.89	125.66	128	5.1				Talaud Islands
74	10/03/2021	03:24:47	-0.21	122.85	2	2.7				Minahasa Peninsula
75	10/03/2021	04:33:57	0.64	122.77	69	2.9				Minahasa Peninsula
76	10/03/2021	05:48:23	0.32	125.37	28	3.9				Northern Molucca Sea
77	10/03/2021	08:49:41	6.34	120.33	10	4.9				Sulu Archipelago, Philippines
78	10/03/2021	09:28:39	1.42	127.67	26	2.3				Halmahera
79	10/03/2021	12:50:00	1.02	124.49	10	4.3	0.922	0.809	0.609	Minahasa Peninsula
80	10/03/2021	23:58:18	-0.56	123.41	12	4.0				Minahasa Peninsula
81	11/03/2021	03:36:17	1.40	122.07	1	2.7				Minahasa Peninsula
82	11/03/2021	08:16:38	-0.05	123.09	142	2.6				Minahasa Peninsula
83	11/03/2021	12:05:05	1.46	127.05	111	3.6				Halmahera
84	11/03/2021	12:37:30	-0.10	123.00	162	3.9				Minahasa Peninsula
85	11/03/2021	14:48:00	0.78	122.32	73	2.9				Minahasa Peninsula
86	12/03/2021	01:51:32	4.03	125.91	151	4.3				Talaud Islands
87	12/03/2021	02:57:30	0.06	124.03	83	3.2				Minahasa Peninsula
88	12/03/2021	03:21:35	-0.17	122.82	34	2.9				Minahasa Peninsula
89	12/03/2021	10:26:56	1.48	126.06	218	3.4				Northern Molucca Sea
90	12/03/2021	17:38:18	1.29	126.02	10	3.3				Northern Molucca Sea
91	12/03/2021	18:17:24	-0.01	120.32	40	3.0				Minahasa Peninsula
92	12/03/2021	20:14:05	4.92	126.57	62	5.1				Talaud Islands
93	12/03/2021	22:31:15	0.84	126.13	13	4.4	0.461	0.371	0.456	Northern Molucca Sea
94	13/03/2021	00:39:24	0.37	122.20	23	2.8				Minahasa Peninsula
95	13/03/2021	03:32:30	0.15	122.55	153	4.0				Minahasa Peninsula
96	13/03/2021	10:51:01	0.57	122.14	107	4.3				Minahasa Peninsula
97	13/03/2021	14:29:16	-0.13	123.34	138	4.9				Minahasa Peninsula

98	13/03/2021	16:00:27	-0.51	124.77	11	4.1				Southern Molucca Sea
99	13/03/2021	16:57:16	0.74	122.29	76	2.4				Minahasa Peninsula
100	13/03/2021	17:07:10	-0.08	123.39	131	2.6				Minahasa Peninsula
101	13/03/2021	21:01:40	2.88	125.91	107	3.5				Talaud Islands
102	13/03/2021	23:06:53	3.07	128.70	253	3.9				North of Halmahera
103	14/03/2021	06:07:29	5.29	126.14	116	4.7				Mindanao, Philippines
104	14/03/2021	15:09:00	0.11	123.52	157	4.9				Minahasa Peninsula
105	14/03/2021	15:29:03	1.90	125.82	22	2.8				Northern Molucca Sea
106	14/03/2021	16:19:27	3.55	123.78	468	4.3				Celebes Sea
107	14/03/2021	17:17:49	3.96	125.67	124	4.2				Talaud Islands
108	15/03/2021	02:00:32	0.27	121.27	158	3.7				Minahasa Peninsula
109	15/03/2021	04:17:02	-0.01	122.13	32	2.4				Minahasa Peninsula
110	15/03/2021	11:22:45	3.04	124.63	10	3.9				Celebes Sea
111	15/03/2021	12:31:19	4.02	128.27	108	4.6				North of Halmahera
112	15/03/2021	13:10:46	8.12	126.78	135	5.1				Mindanao, Philippines
113	15/03/2021	14:08:14	-0.01	121.91	146	2.3				Minahasa Peninsula
114	15/03/2021	18:33:35	3.46	126.83	10	3.8				Talaud Islands
115	15/03/2021	23:21:03	0.75	122.21	117	3.0				Minahasa Peninsula
116	16/03/2021	09:03:55	-0.19	124.14	59	3.0				Southern Molucca Sea
117	16/03/2021	11:09:48	0.37	122.28	103	3.0				Minahasa Peninsula
118	16/03/2021	13:00:17	-0.26	122.88	27	2.5				Minahasa Peninsula
119	16/03/2021	15:51:18	1.77	122.56	192	3.0				Minahasa Peninsula
120	16/03/2021	16:47:12	-0.46	127.03	52	3.2				Halmahera
121	16/03/2021	18:36:37	-0.32	122.99	68	3.0				Minahasa Peninsula
122	16/03/2021	20:48:45	1.80	126.51	10	3.3				Northern Molucca Sea
123	16/03/2021	22:55:57	1.76	128.81	16	4.4				Halmahera
124	17/03/2021	00:55:48	-0.10	123.12	145	2.4				Minahasa Peninsula
125	17/03/2021	05:15:31	2.34	124.74	264	3.7				Celebes Sea
126	17/03/2021	09:59:41	3.33	126.83	10	3.9				Talaud Islands
127	17/03/2021	10:23:49	1.85	128.06	20	3.0				Halmahera
128	17/03/2021	10:41:38	1.84	128.11	3	2.3				Halmahera
129	17/03/2021	10:48:49	1.78	128.14	7	2.2				Halmahera
130	17/03/2021	10:58:11	3.62	124.73	311	4.0				Celebes Sea
131	17/03/2021	13:56:52	0.57	122.14	93	2.5				Minahasa Peninsula
132	17/03/2021	14:29:03	0.36	121.98	171	3.1				Minahasa Peninsula
133	17/03/2021	15:30:07	0.35	121.74	169	2.3				Minahasa Peninsula
134	17/03/2021	16:20:50	2.30	128.19	73	5.0				Halmahera
135	17/03/2021	17:19:07	1.24	121.92	22	2.7				Minahasa Peninsula
136	17/03/2021	21:23:30	2.47	128.31	188	4.5				Halmahera
137	18/03/2021	09:31:32	0.01	122.25	10	2.6				Minahasa Peninsula
138	18/03/2021	10:22:48	-0.11	122.94	30	2.5				Minahasa Peninsula
139	18/03/2021	21:51:44	7.93	126.59	120	4.8				Mindanao, Philippines
140	19/03/2021	02:41:30	0.73	120.28	10	3.6				Minahasa Peninsula
141	19/03/2021	05:43:15	1.78	128.06	27	2.9				Halmahera
142	19/03/2021	16:37:09	3.57	126.85	10	3.8				Talaud Islands
143	19/03/2021	20:05:07	1.37	122.50	9	3.6				Minahasa Peninsula
144	20/03/2021	07:08:11	1.56	126.68	16	3.4				Northern Molucca Sea
145	20/03/2021	14:02:31	1.02	126.93	11	5.3				Northern Molucca Sea
146	20/03/2021	15:15:10	1.05	126.82	12	3.3				Northern Molucca Sea
147	20/03/2021	15:25:15	1.00	126.83	10	2.7				Northern Molucca Sea
148	20/03/2021	16:40:45	4.54	127.37	157	4.2				Talaud Islands
149	20/03/2021	17:10:51	1.01	126.88	10	2.7				Northern Molucca Sea

150	20/03/2021	17:29:47	2.37	128.27	115	3.8				Halmahera
151	20/03/2021	23:47:36	0.90	122.76	32	2.5				Minahasa Peninsula
152	21/03/2021	22:12:31	0.73	122.25	100	3.0				Minahasa Peninsula
153	21/03/2021	04:11:24	0.88	127.01	9	2.8				Halmahera
154	21/03/2021	06:15:30	0.35	121.87	164	3.2				Minahasa Peninsula
155	21/03/2021	13:38:29	2.64	127.40	10	3.5				Northern Molucca Sea
156	21/03/2021	16:08:26	2.57	128.02	168	3.2				Halmahera
157	21/03/2021	16:30:08	2.44	127.67	102	4.4				Northern Molucca Sea
158	21/03/2021	18:08:39	1.82	123.91	331	3.7				Minahasa Peninsula
159	21/03/2021	18:37:55	0.91	126.29	10	3.4				Northern Molucca Sea
160	21/03/2021	18:46:16	2.59	127.81	141	3.4				Northern Molucca Sea
161	22/03/2021	00:30:31	0.42	119.74	53	4.1				Minahasa Peninsula
162	22/03/2021	01:34:31	0.45	126.09	7	4.3				Northern Molucca Sea
163	22/03/2021	04:53:16	3.57	124.97	289	4.6				Celebes Sea
164	22/03/2021	06:42:42	-0.38	122.81	10	2.6				Minahasa Peninsula
165	22/03/2021	10:16:03	6.50	125.88	150	4.8				Mindanao, Philippines
166	22/03/2021	11:58:28	0.43	125.64	16	3.7				Northern Molucca Sea
167	22/03/2021	15:01:57	-0.15	123.19	10	2.3				Minahasa Peninsula
168	22/03/2021	15:31:44	3.06	128.06	127	4.9				Halmahera
169	22/03/2021	16:10:36	2.62	128.48	215	4.3				Halmahera
170	22/03/2021	19:16:46	0.14	122.89	160	3.1				Minahasa Peninsula
171	23/03/2021	02:03:27	0.21	125.83	10	3.8				Northern Molucca Sea
172	23/03/2021	05:59:45	1.77	127.17	103	3.1				Halmahera
173	23/03/2021	08:39:06	0.23	122.90	103	3.5				Minahasa Peninsula
174	23/03/2021	12:04:36	5.10	126.35	10	4.3				Mindanao, Philippines
175	23/03/2021	12:11:31	0.98	121.30	67	3.9				Minahasa Peninsula
176	23/03/2021	12:31:06	-0.08	123.20	127	2.6				Minahasa Peninsula
177	23/03/2021	13:16:13	1.01	126.89	14	4.1				Northern Molucca Sea
178	23/03/2021	15:09:53	5.60	127.00	19	4.6				Mindanao, Philippines
179	23/03/2021	15:47:19	1.18	127.06	26	3.1				Halmahera
180	23/03/2021	17:47:05	0.56	119.36	13	4.0				Minahasa Peninsula
181	23/03/2021	18:44:21	5.16	125.11	63	4.1				Mindanao, Philippines
182	23/03/2021	20:52:00	1.31	125.72	10	4.8	2.906	3.112	1.593	Northern Molucca Sea
183	24/03/2021	08:34:20	1.26	125.73	59	3.5				Northern Molucca Sea
184	24/03/2021	09:10:54	2.90	126.03	110	4.1				Northern Molucca Sea
185	24/03/2021	11:24:03	2.01	127.43	112	3.1				Northern Molucca Sea
186	24/03/2021	13:16:26	-0.19	122.81	69	2.5				Minahasa Peninsula
187	24/03/2021	16:26:42	-0.28	122.92	28	2.7				Minahasa Peninsula
188	24/03/2021	17:35:56	-0.17	124.73	10	4.4				Southern Molucca Sea
189	24/03/2021	18:11:54	-0.17	123.09	101	2.8				Minahasa Peninsula
190	24/03/2021	21:23:05	0.89	120.95	550	4.8				Minahasa Peninsula
191	24/03/2021	02:02:07	-0.45	122.95	25	3.0				Minahasa Peninsula
192	25/03/2021	05:46:59	1.88	122.95	10	3.4				Minahasa Peninsula
193	25/03/2021	07:34:16	1.47	126.31	23	4.2	0.340	0.334	0.203	Northern Molucca Sea
194	25/03/2021	12:35:09	1.52	126.27	10	3.2				Northern Molucca Sea
195	25/03/2021	14:09:09	2.04	126.80	23	4.4				Northern Molucca Sea
196	25/03/2021	14:46:46	-0.35	124.43	10	4.8				Southern Molucca Sea
197	25/03/2021	16:35:10	4.72	126.71	149	4.2				Talaud Islands
198	25/03/2021	19:00:31	0.88	126.51	16	3.1				Northern Molucca Sea
199	25/03/2021	21:03:29	7.07	123.58	10	4.7				Mindanao, Philippines
200	26/03/2021	03:15:40	1.45	126.24	29	3.5				Northern Molucca Sea
201	26/03/2021	03:42:43	1.28	125.66	53	3.9				Northern Molucca Sea

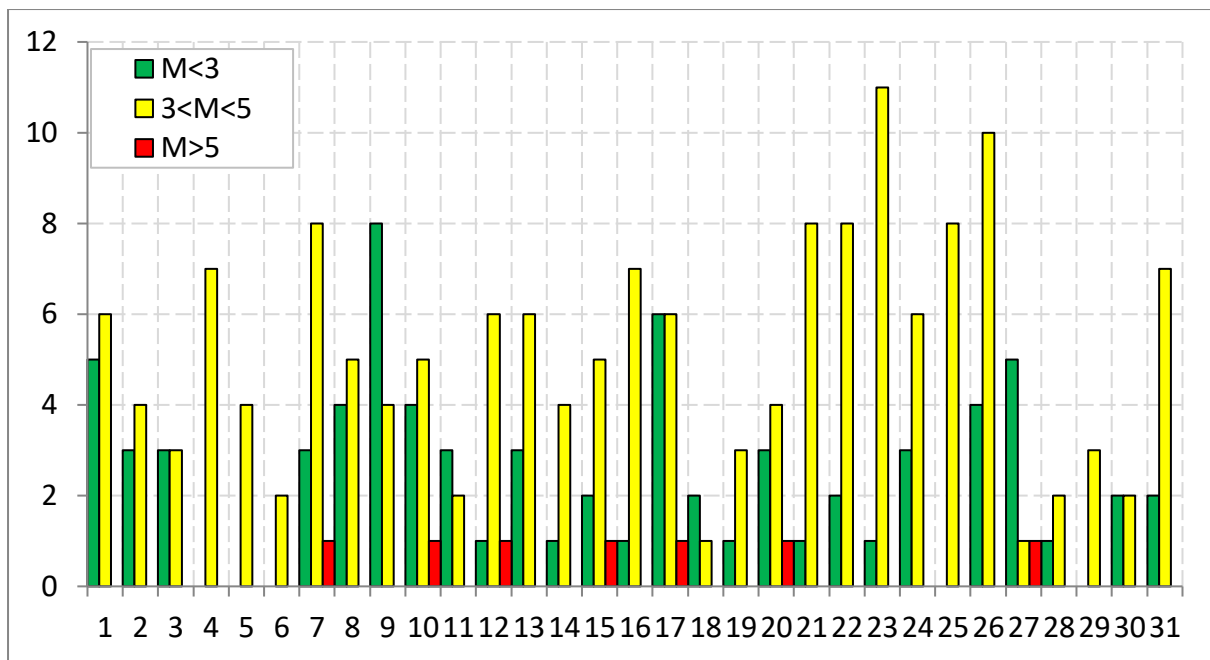
202	26/03/2021	04:37:14	0.10	122.56	132	2.6				Minahasa Peninsula
203	26/03/2021	09:04:12	2.03	127.37	119	3.4				Northern Molucca Sea
204	26/03/2021	10:09:03	1.36	126.57	15	3.2				Northern Molucca Sea
205	26/03/2021	16:29:29	0.80	125.75	21	4.2	1.285	1.015	0.613	Northern Molucca Sea
206	26/03/2021	16:42:23	2.39	128.41	208	3.9				Halmahera
207	26/03/2021	16:52:59	0.72	122.33	75	2.2				Minahasa Peninsula
208	26/03/2021	18:25:59	1.29	126.17	10	3.0				Northern Molucca Sea
209	26/03/2021	20:18:32	1.00	125.62	19	3.1				Northern Molucca Sea
210	26/03/2021	21:31:26	1.30	125.65	10	3.2				Northern Molucca Sea
211	26/03/2021	22:34:39	2.02	121.36	10	3.5				Celebes Sea
212	26/03/2021	23:15:37	0.39	121.49	28	2.9				Minahasa Peninsula
213	26/03/2021	23:34:14	0.85	122.47	58	2.0				Minahasa Peninsula
214	27/03/2021	00:46:37	0.44	122.97	56	3.3				Minahasa Peninsula
215	27/03/2021	03:20:47	0.15	122.93	90	2.5				Minahasa Peninsula
216	27/03/2021	09:46:13	1.56	127.06	110	5.5	1.882	2.342	1.203	Halmahera
217	27/03/2021	12:25:33	0.18	122.95	22	2.8				Minahasa Peninsula
218	27/03/2021	21:19:39	0.23	122.02	140	2.3				Minahasa Peninsula
219	27/03/2021	21:34:24	0.91	123.16	13	2.9				Minahasa Peninsula
220	27/03/2021	22:14:37	0.00	123.35	128	2.4				Minahasa Peninsula
221	28/03/2021	03:29:32	0.33	125.94	22	3.1				Northern Molucca Sea
222	28/03/2021	04:18:24	3.23	124.02	360	3.5				Celebes Sea
223	28/03/2021	07:55:28	-0.16	123.10	27	2.8				Minahasa Peninsula
224	29/03/2021	06:56:37	0.16	123.90	94	3.8				Minahasa Peninsula
225	29/03/2021	08:01:34	1.16	126.29	10	3.9				Northern Molucca Sea
226	29/03/2021	18:02:00	3.18	118.10	14	3.2				Celebes Sea
227	30/03/2021	01:14:30	0.73	122.04	10	2.9				Minahasa Peninsula
228	30/03/2021	16:13:50	0.04	124.36	28	3.9				Minahasa Peninsula
229	30/03/2021	17:01:30	0.34	122.02	191	2.9				Minahasa Peninsula
230	30/03/2021	23:54:19	0.09	123.00	79	3.0				Minahasa Peninsula
231	31/03/2021	01:16:30	1.23	127.21	138	4.2				Halmahera
232	31/03/2021	05:12:39	0.09	125.09	10	3.9				Northern Molucca Sea
233	31/03/2021	11:47:30	6.59	125.57	10	4.9				Mindanao, Philippines
234	31/03/2021	16:13:49	-0.07	124.40	19	4.2				Southern Molucca Sea
235	31/03/2021	16:51:11	5.21	125.76	205	4.2				Mindanao, Philippines
236	31/03/2021	17:40:26	-0.08	123.03	108	2.3				Minahasa Peninsula
237	31/03/2021	18:49:36	0.18	122.25	152	2.4				Minahasa Peninsula
238	31/03/2021	21:23:39	1.54	128.84	337	3.6				Halmahera
239	31/03/2021	23:50:48	0.34	123.61	236	3.9				Minahasa Peninsula



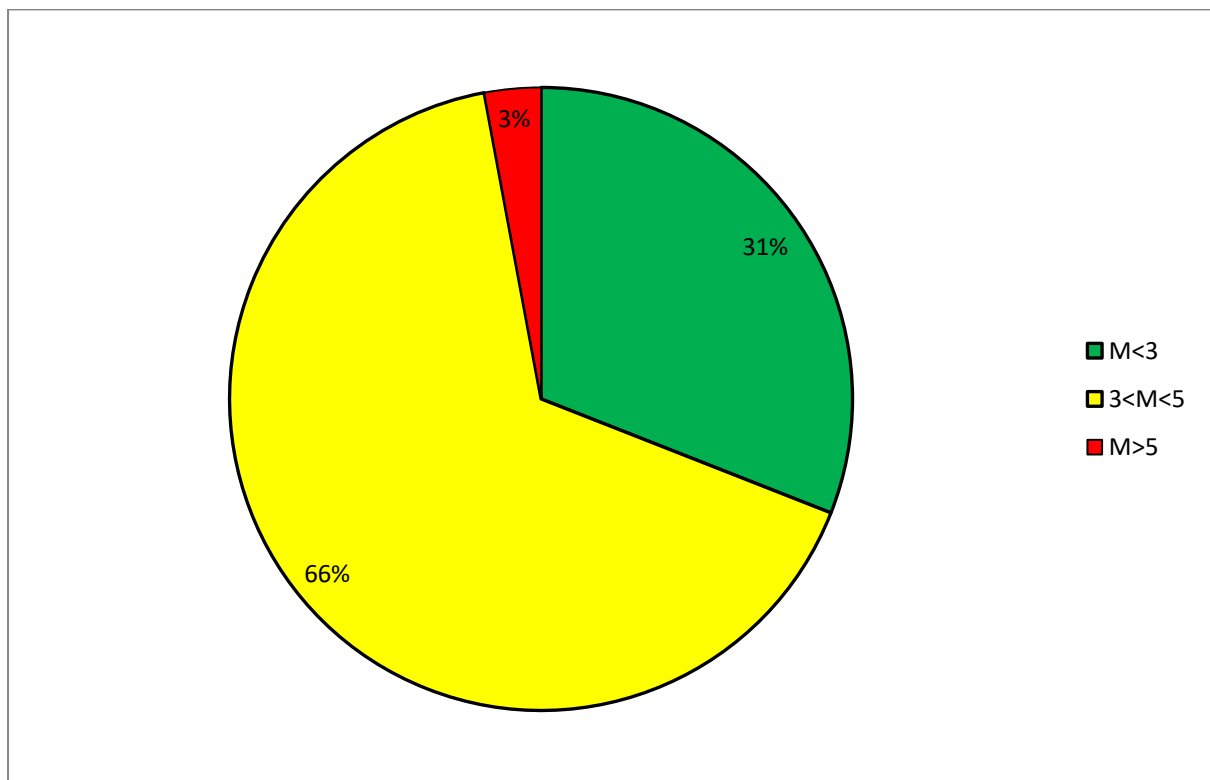
Gambar 11 Sebaran episenter gempabumi bulan Maret 2021

Tabel 8 Rekapitulasi gempabumi berdasarkan magnitudo bulan Maret 2021

Tanggal (UTC)	Magnitudo			Jumlah Total	Jumlah Gempa Signifikan	
	M<3	3≤M<5	M≥5		Dirasakan	Merusak
1	5	6	0	11	0	0
2	3	4	0	7	0	0
3	3	3	0	6	0	0
4	0	7	0	7	1	0
5	0	4	0	4	0	0
6	0	2	0	2	0	0
7	3	8	1	12	0	0
8	4	5	0	9	0	0
9	8	4	0	12	0	0
10	4	5	1	10	1	0
11	3	2	0	5	0	0
12	1	6	1	8	0	0
13	3	6	0	9	1	0
14	1	4	0	5	0	0
15	2	5	1	8	0	0
16	1	7	0	8	0	0
17	6	6	1	13	1	0
18	2	1	0	3	0	0
19	1	3	0	4	0	0
20	3	4	1	8	1	0
21	1	8	0	9	0	0
22	2	8	0	10	0	0
23	1	11	0	12	1	0
24	3	6	0	9	0	0
25	0	8	0	8	0	0
26	4	10	0	14	0	0
27	5	1	1	7	1	0
28	1	2	0	3	0	0
29	0	3	0	3	0	0
30	2	2	0	4	0	0
31	2	7	0	9	0	0
Jumlah gempa	74	158	7	239	7	0



Gambar 12 Grafik gempabumi berdasarkan magnitudo bulan Maret 2021



Gambar 13 Grafik persentase gempabumi berdasarkan magnitudo bulan Maret 2021

D. Data Gempabumi Bulan April 2021

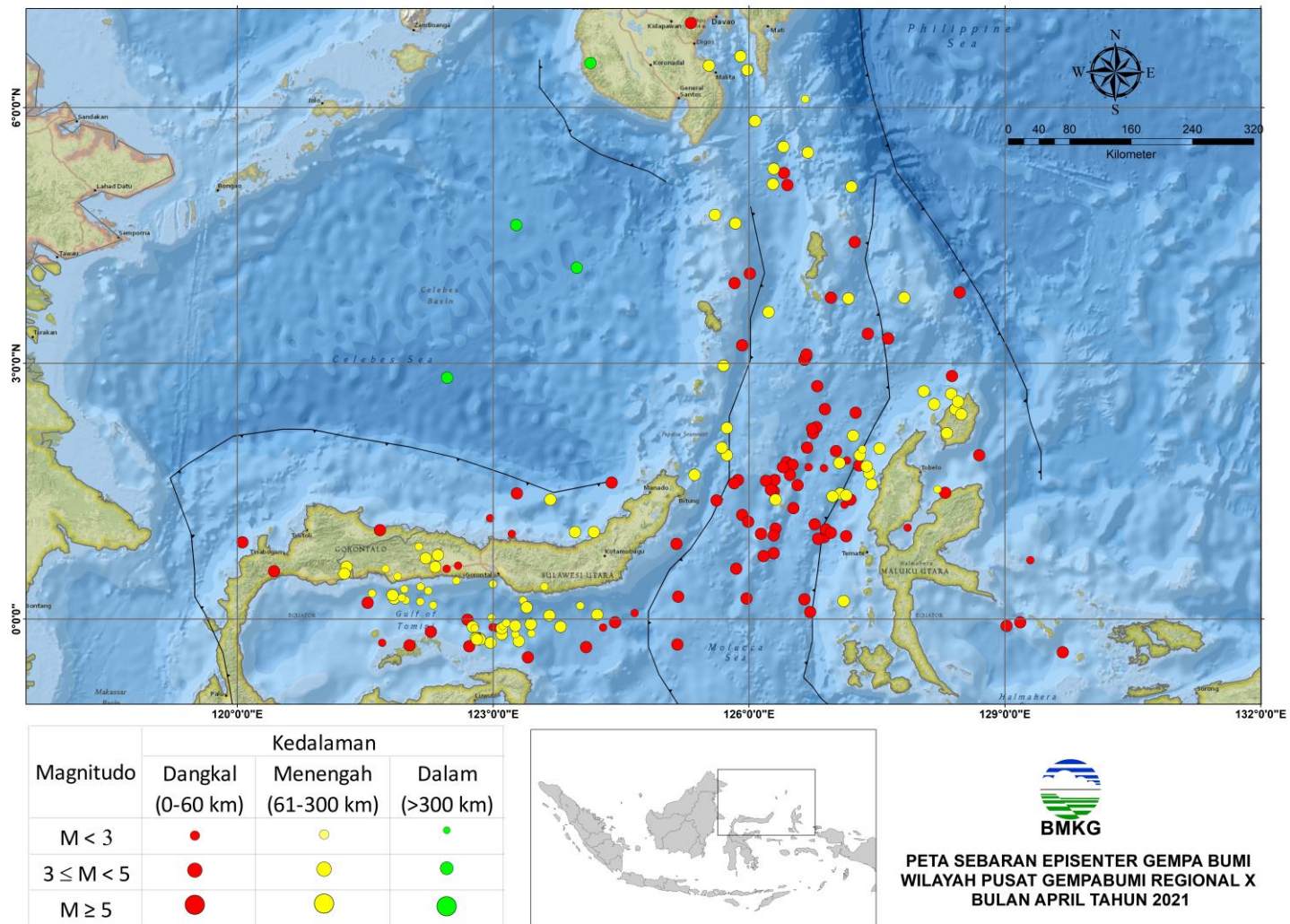
Tabel 9 Data kejadian gempabumi bulan April 2021

No	Date	OT (UTC)	Epicenter		Depth (km)	Mag	PGA (gals) / SLMI			Region
			Lat	Long			X	Y	Z	
1	01/04/21	08:58:21	-0.09	122.76	135	4.5				Minahassa Peninsula
2	01/04/21	10:12:25	3.45	126.67	10	5.5	0.305	0.295	0.194	Talaud Islands
3	01/04/21	12:45:02	3.76	127.16	138	4.0				Talaud Islands
4	01/04/21	13:26:11	1.11	126.77	52	3.6				Halmahera
5	01/04/21	13:38:12	1.58	127.44	78	3.9				Halmahera
6	01/04/21	13:51:21	1.50	126.29	7	3.3				Northern Molucca Sea
7	01/04/21	13:55:09	1.80	127.29	36	4.5				Halmahera
8	01/04/21	22:50:44	5.54	126.40	167	4.4				Talaud Islands
9	02/04/21	07:52:26	0.19	121.53	21	4.2				Minahassa Peninsula
10	02/04/21	09:03:18	1.47	123.28	22	3.5				Minahassa Peninsula
11	02/04/21	10:51:10	3.35	127.39	50	4.4				Talaud Islands
12	02/04/21	15:12:28	1.01	126.93	13	3.1				Halmahera
13	02/04/21	22:55:52	0.16	122.30	144	2.8				Minahassa Peninsula
14	03/04/21	03:54:36	1.47	127.07	85	4.6				Halmahera
15	03/04/21	11:26:56	0.22	121.98	167	2.6				Minahassa Peninsula
16	04/04/21	02:30:59	-0.10	122.99	35	3.0				Minahassa Peninsula
17	04/04/21	12:18:15	3.29	127.63	10	3.6				Talaud Islands
18	04/04/21	13:06:53	1.97	127.02	22	3.1				Halmahera
19	04/04/21	19:07:56	-0.31	122.02	10	3.9				Minahassa Peninsula
20	04/04/21	21:38:06	0.05	124.22	67	3.1				Northern Molucca Sea
21	05/04/21	05:40:37	3.77	126.96	10	4.5				Talaud Islands
22	05/04/21	05:49:54	1.63	125.87	9	3.7				Northern Molucca Sea
23	05/04/21	11:21:20	0.75	122.35	81	3.3				Minahassa Peninsula
24	05/04/21	23:31:48	5.84	126.07	210	4.2				Talaud Islands
25	06/04/21	00:16:26	0.63	122.59	54	2.6				Minahassa Peninsula
26	06/04/21	02:32:43	0.22	123.35	94	2.9				Minahassa Peninsula
27	06/04/21	04:15:41	0.24	121.84	209	3.5				Minahassa Peninsula
28	06/04/21	06:29:00	0.13	123.39	178	3.2				Minahassa Peninsula
29	06/04/21	10:30:28	1.44	126.98	102	3.8				Halmahera
30	06/04/21	11:52:10	0.71	122.21	87	3.8				Minahassa Peninsula
31	06/04/21	13:43:15	1.06	126.31	18	3.5				Halmahera
32	06/04/21	15:39:55	0.38	123.60	248	2.6				Minahassa Peninsula
33	06/04/21	20:08:45	6.10	126.66	167	0.0				Talaud Islands
34	06/04/21	21:44:21	-0.04	124.43	27	4.1				Northern Molucca Sea
35	07/04/21	02:10:09	1.92	127.30	109	3.3				Halmahera
36	07/04/21	18:57:01	2.46	128.42	220	3.6				Halmahera
37	07/04/21	21:26:01	1.30	126.52	12	3.3				Halmahera
38	08/04/21	00:57:57	3.83	128.47	10	4.5				Talaud Islands
39	08/04/21	03:16:49	0.98	126.29	10	3.5				Northern Molucca Sea
40	08/04/21	05:26:54	2.83	122.46	531	4.8				Celebes Sea
41	08/04/21	11:02:12	-0.11	122.78	129	2.3				Minahassa Peninsula
42	08/04/21	11:11:56	-0.20	122.83	25	2.5				Minahassa Peninsula
43	08/04/21	12:16:47	-0.39	129.68	14	3.8				Halmahera
44	08/04/21	13:21:20	1.77	126.88	14	3.0				Halmahera
45	08/04/21	16:59:21	1.04	121.67	10	3.3				Minahassa Peninsula
46	08/04/21	17:48:57	1.02	124.18	242	3.9				Northern Molucca Sea
47	08/04/21	20:53:10	0.59	121.74	70	2.9				Minahassa Peninsula
48	08/04/21	21:55:29	2.18	128.32	233	3.6				Halmahera
49	08/04/21	22:44:58	0.97	127.14	10	3.8				Halmahera

50	09/04/21	04:58:57	5.28	126.29	94	4.6				Talaud Islands
51	09/04/21	05:44:51	-0.21	122.86	90	2.5				Minahassa Peninsula
52	09/04/21	12:10:44	1.52	128.21	69	2.9				Halmahera
53	09/04/21	12:36:55	1.48	128.30	5	3.1				Halmahera
54	09/04/21	13:09:23	1.83	127.06	99	3.4				Halmahera
55	09/04/21	13:39:44	6.44	125.98	126	4.2				Talaud Islands
56	09/04/21	15:03:17	0.23	126.65	27	3.6				Halmahera
57	09/04/21	15:25:38	0.69	129.30	7	3.0				Halmahera
58	09/04/21	17:55:05	2.40	128.49	220	4.5				Halmahera
59	10/04/21	00:36:55	1.02	123.96	273	4.0				Northern Molucca Sea
60	10/04/21	09:30:45	3.99	124.73	295	6.0	0.618	0.817	0.946	Talaud Islands
61	10/04/21	16:38:51	2.52	128.17	134	3.6				Halmahera
62	10/04/21	19:23:57	2.73	126.80	24	3.9				Talaud Islands
63	10/04/21	20:47:31	1.69	125.36	108	3.4				Northern Molucca Sea
64	10/04/21	21:55:06	0.96	126.88	38	3.7				Halmahera
65	11/04/21	18:34:41	0.08	126.72	10	3.4				Halmahera
66	11/04/21	18:55:33	-0.07	123.12	115	2.6				Minahassa Peninsula
67	11/04/21	20:03:25	-0.18	123.10	73	4.0				Minahassa Peninsula
68	11/04/21	21:32:35	-0.28	121.70	10	2.8				Minahassa Peninsula
69	11/04/21	21:59:51	1.05	126.90	24	3.4				Halmahera
70	12/04/21	02:09:43	2.67	128.05	131	3.8				Halmahera
71	12/04/21	02:26:28	2.64	128.37	217	4.8				Halmahera
72	12/04/21	03:40:31	3.08	126.67	16	3.8				Talaud Islands
73	12/04/21	04:47:34	0.04	123.66	130	3.9				Northern Molucca Sea
74	12/04/21	07:54:07	0.94	126.81	27	3.1				Halmahera
75	12/04/21	08:40:35	1.07	127.86	10	2.5				Halmahera
76	12/04/21	08:56:57	0.20	122.15	160	2.6				Minahassa Peninsula
77	13/04/21	05:38:13	0.56	120.43	10	3.8				Minahassa Peninsula
78	13/04/21	06:44:15	1.92	125.74	82	3.8				Northern Molucca Sea
79	13/04/21	11:22:11	0.33	122.24	128	2.4				Minahassa Peninsula
80	13/04/21	15:47:31	0.71	126.10	10	5.2	1.695	1.664	1.206	Northern Molucca Sea
81	13/04/21	16:51:17	1.84	126.44	19	3.9				Halmahera
82	13/04/21	18:38:56	5.47	126.69	89	4.9				Talaud Islands
83	13/04/21	21:46:12	1.45	127.14	115	4.0				Halmahera
84	14/04/21	00:25:26	-0.18	125.32	10	5.0				Northern Molucca Sea
85	14/04/21	03:21:12	-0.17	123.45	84	2.5				Northern Molucca Sea
86	14/04/21	12:42:42	-0.09	123.79	115	3.5				Northern Molucca Sea
87	14/04/21	12:44:26	1.99	127.33	92	2.9				Halmahera
88	14/04/21	21:39:14	3.77	127.82	174	4.3				Talaud Islands
89	14/04/21	21:56:46	0.61	121.28	83	3.9				Minahassa Peninsula
90	15/04/21	03:36:52	-0.10	123.03	10	3.0				Minahassa Peninsula
91	15/04/21	07:32:59	2.55	128.45	225	3.7				Halmahera
92	15/04/21	15:32:05	1.22	125.92	49	3.8				Northern Molucca Sea
93	15/04/21	15:35:48	0.41	123.00	100	3.0				Minahassa Peninsula
94	15/04/21	21:05:51	1.40	123.67	97	3.9				Northern Molucca Sea
95	16/04/21	01:43:22	1.57	126.57	14	3.3				Halmahera
96	16/04/21	07:52:28	2.01	126.68	10	4.1				Halmahera
97	16/04/21	12:17:53	4.74	125.60	179	4.9				Talaud Islands
98	16/04/21	18:35:35	0.16	124.02	68	2.5				Northern Molucca Sea
99	16/04/21	19:23:50	-0.11	123.10	155	3.2				Minahassa Peninsula
100	16/04/21	20:55:14	3.58	126.81	10	5.6	0.298	0.304	0.204	Talaud Islands
101	16/04/21	22:22:17	-0.24	122.84	77	3.3				Minahassa Peninsula
102	17/04/21	09:57:53	4.42	127.24	10	4.4				Talaud Islands
103	17/04/21	16:55:05	1.34	127.12	30	3.0				Halmahera
104	17/04/21	18:24:56	6.52	124.14	452	4.4				Talaud Islands
105	17/04/21	19:52:02	1.71	127.41	125	3.8				Halmahera
106	17/04/21	20:17:29	1.01	126.96	14	3.8				Halmahera
107	17/04/21	20:43:30	6.60	125.90	122	4.2				Talaud Islands

108	17/04/21	21:24:14	1.40	126.31	82	4.0				Northern Molucca Sea
109	17/04/21	22:31:54	-0.06	123.44	97	3.6				Minahassa Peninsula
110	18/04/21	11:12:46	1.81	126.51	6	4.7	0.441	0.301	0.280	Northern Molucca Sea
111	18/04/21	11:50:47	0.88	125.15	59	3.6				Minahassa Peninsula
112	18/04/21	13:42:28	-0.26	123.30	149	3.1				Minahassa Peninsula
113	18/04/21	19:04:37	2.00	127.53	136	4.2				Halmahera
114	18/04/21	19:33:10	4.12	123.98	381	4.3				Talaud Islands
115	19/04/21	07:35:00	0.77	126.29	10	4.7				Halmahera
116	19/04/21	13:57:22	-0.15	122.27	8	3.1				Minahassa Peninsula
117	19/04/21	16:23:07	1.69	126.48	10	3.2				Halmahera
118	19/04/21	19:33:02	1.18	122.97	10	3.0				Minahassa Peninsula
119	20/04/21	06:17:17	0.85	122.13	94	2.8				Minahassa Peninsula
120	20/04/21	06:31:46	1.00	123.22	10	2.9				Northern Molucca Sea
121	20/04/21	07:40:09	2.18	126.75	19	3.8				Halmahera
122	20/04/21	18:16:45	1.79	127.38	115	4.7	0.172	0.190	0.154	Halmahera
123	20/04/21	18:38:24	1.78	126.40	10	3.4				Halmahera
124	20/04/21	20:18:57	0.61	122.32	71	3.6				Minahassa Peninsula
125	21/04/21	17:27:24	1.78	126.70	10	2.8				Halmahera
126	21/04/21	17:51:29	2.42	127.25	30	3.2				Halmahera
127	21/04/21	21:24:33	2.01	125.68	79	4.1				Northern Molucca Sea
128	21/04/21	22:54:40	3.94	125.83	19	4.2				Talaud Islands
129	21/04/21	23:52:44	-0.18	123.26	145	3.0				Minahassa Peninsula
130	22/04/21	09:17:20	-0.28	122.97	101	3.7				Minahassa Peninsula
131	22/04/21	12:50:50	1.60	124.39	15	3.5				Northern Molucca Sea
132	22/04/21	13:09:26	-0.08	123.26	144	3.9				Minahassa Peninsula
133	22/04/21	18:33:32	3.21	125.92	10	4.8	0.244	0.272	-0.154	Talaud Islands
134	22/04/21	20:32:12	6.99	125.32	10	4.4				Talaud Islands
135	22/04/21	22:16:47	1.92	128.70	13	3.4				Halmahera
136	22/04/21	22:41:22	1.86	127.15	30	3.0				Halmahera
137	23/04/21	04:24:59	1.63	126.30	23	3.5				Northern Molucca Sea
138	23/04/21	06:29:09	2.97	125.70	137	3.6				Talaud Islands
139	23/04/21	11:15:13	3.04	126.65	10	4.1				Talaud Islands
140	23/04/21	12:06:01	3.10	126.67	10	3.9				Talaud Islands
141	23/04/21	12:09:11	6.49	125.53	214	4.7				Talaud Islands
142	23/04/21	13:10:18	0.07	124.66	57	3.0				Northern Molucca Sea
143	23/04/21	13:23:55	-0.10	124.29	27	2.9				Northern Molucca Sea
144	23/04/21	18:45:33	5.09	126.45	10	5.0				Talaud Islands
145	23/04/21	21:51:12	4.05	126.01	12	4.0				Talaud Islands
146	23/04/21	22:25:04	-0.04	129.18	0	3.7				Halmahera
147	23/04/21	22:39:20	3.60	126.23	61	3.9				Talaud Islands
148	23/04/21	23:09:25	5.10	126.28	97	4.8				Talaud Islands
149	24/04/21	02:17:36	2.85	128.38	29	3.9				Halmahera
150	24/04/21	14:11:03	-0.22	122.80	79	3.6				Minahassa Peninsula
151	24/04/21	15:40:44	-0.32	122.72	53	4.0				Minahassa Peninsula
152	24/04/21	17:39:17	1.59	125.83	16	3.7				Northern Molucca Sea
153	24/04/21	23:37:53	0.02	122.98	106	2.7				Minahassa Peninsula
154	25/04/21	01:35:25	1.00	126.14	28	3.8				Northern Molucca Sea
155	25/04/21	06:14:34	0.90	120.06	10	4.2				Minahassa Peninsula
156	25/04/21	06:17:18	0.98	120.01	10	4.4				Minahassa Peninsula
157	25/04/21	06:33:22	0.47	122.33	118	4.7	0.355	0.328	0.152	Minahassa Peninsula
158	25/04/21	15:39:46	0.21	127.11	110	3.8				Halmahera
159	25/04/21	17:26:54	-0.33	124.09	36	3.6				Northern Molucca Sea
160	25/04/21	20:59:26	-0.01	122.70	11	3.2				Minahassa Peninsula
161	26/04/21	02:51:42	0.35	121.96	172	2.8				Minahassa Peninsula
162	26/04/21	10:38:42	0.53	121.26	63	3.9				Minahassa Peninsula
163	26/04/21	11:09:38	1.62	126.20	10	3.6				Northern Molucca Sea
164	26/04/21	12:41:00	0.50	121.88	115	2.4				Minahassa Peninsula
165	26/04/21	22:36:04	2.24	125.74	116	3.7				Talaud Islands

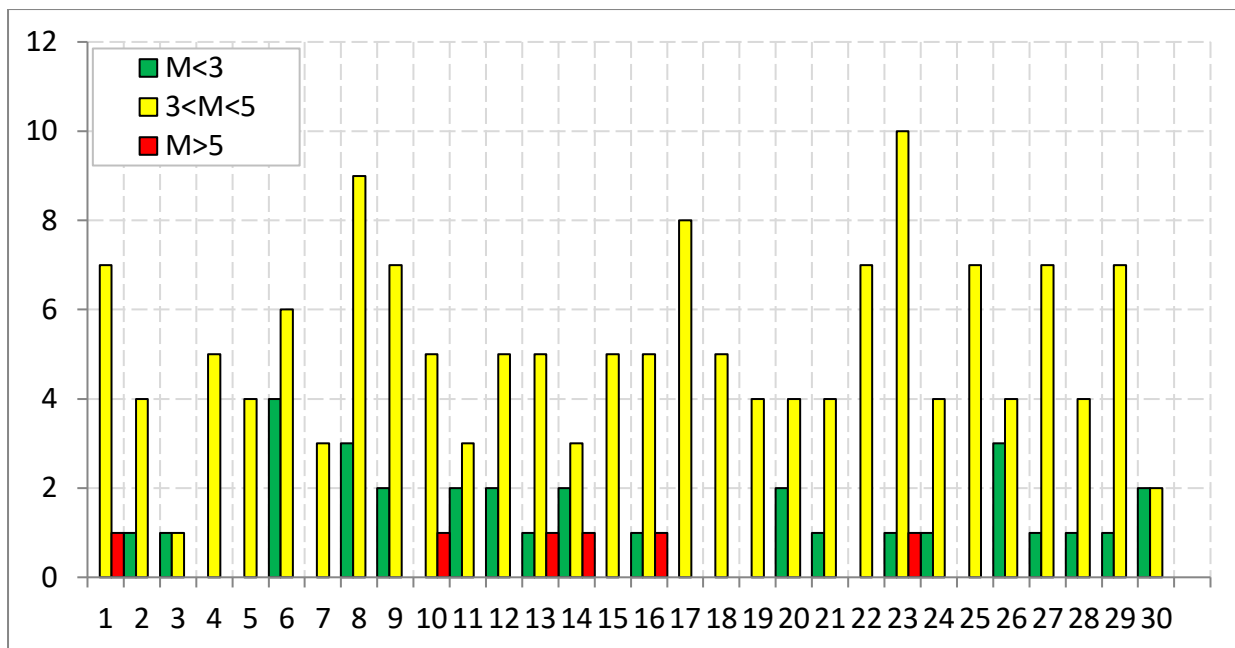
166	26/04/21	23:28:39	-0.30	125.16	10	3.8				Northern Molucca Sea
167	26/04/21	23:48:36	0.38	122.15	129	2.4				Minahassa Peninsula
168	27/04/21	01:50:02	-0.45	123.41	10	3.2				Minahassa Peninsula
169	27/04/21	04:36:40	1.39	125.62	14	3.4				Northern Molucca Sea
170	27/04/21	06:51:46	0.28	121.82	185	3.4				Minahassa Peninsula
171	27/04/21	10:25:25	-0.08	129.02	10	3.2				Halmahera
172	27/04/21	16:15:16	0.59	125.85	17	3.1				Northern Molucca Sea
173	27/04/21	16:58:06	5.23	126.41	10	4.7				Talaud Islands
174	27/04/21	17:17:08	-0.24	122.81	99	4.0				Minahassa Peninsula
175	27/04/21	20:23:27	0.45	122.57	226	2.8				Minahassa Peninsula
176	28/04/21	00:40:56	0.24	125.97	25	3.6				Northern Molucca Sea
177	28/04/21	01:24:10	0.26	125.17	30	3.7				Northern Molucca Sea
178	28/04/21	06:24:11	1.40	127.19	11	3.2				Minahassa Peninsula
179	28/04/21	07:11:03	-0.08	123.11	129	2.8				Talaud Islands
180	28/04/21	22:44:44	4.62	123.27	541	4.4				Halmahera
181	29/04/21	00:54:57	2.46	126.89	10	4.7				Halmahera
182	29/04/21	03:49:56	2.15	127.22	74	3.1				Halmahera
183	29/04/21	06:46:32	0.74	126.17	23	3.5				Halmahera
184	29/04/21	13:19:09	4.64	125.84	156	3.8				Talaud Islands
185	29/04/21	16:22:00	2.25	126.79	8	3.3				Halmahera
186	29/04/21	16:36:39	1.14	125.99	15	3.1				Northern Molucca Sea
187	29/04/21	18:15:28	2.23	126.74	10	3.8				Halmahera
188	29/04/21	22:25:29	0.25	121.93	175	2.9				Minahassa Peninsula
189	30/04/21	04:55:46	0.30	121.58	137	2.5				Minahassa Peninsula
190	30/04/21	06:33:49	0.59	122.46	33	2.4				Minahassa Peninsula
191	30/04/21	09:03:09	-0.05	123.15	156	3.0				Minahassa Peninsula
192	30/04/21	10:19:12	1.52	126.26	10	3.2				Northern Molucca Sea



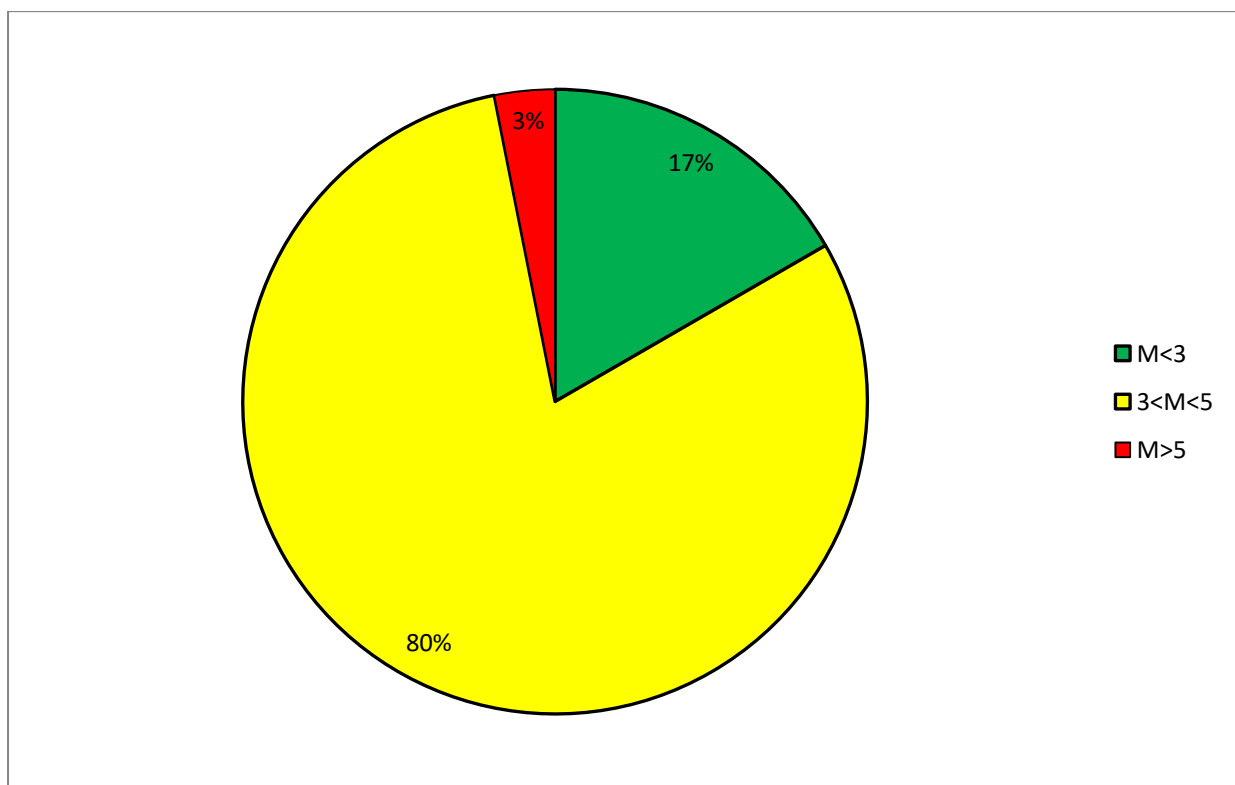
Gambar 14 Sebaran episenter gempabumi bulan April 2021

Tabel 10 Rekapitulasi gempabumi berdasarkan magnitudo bulan April 2021

Tanggal (UTC)	Magnitudo			Jumlah Total	Jumlah Gempa Signifikan	
	M<3	3≤M<5	M≥5		Dirasakan	Merusak
1	0	7	1	8	1	0
2	1	4	0	5	0	0
3	1	1	0	2	0	0
4	0	5	0	5	0	0
5	0	4	0	4	0	0
6	4	6	0	10	0	0
7	0	3	0	3	0	0
8	3	9	0	12	0	0
9	2	7	0	9	0	0
10	0	5	1	6	1	0
11	2	3	0	5	0	0
12	2	5	0	7	0	0
13	1	5	1	7	1	0
14	2	3	1	6	1	0
15	0	5	0	5	0	0
16	1	5	1	7	1	0
17	0	8	0	8	0	0
18	0	5	0	5	0	0
19	0	4	0	4	0	0
20	2	4	0	6	0	0
21	1	4	0	5	0	0
22	0	7	0	7	0	0
23	1	10	1	12	0	0
24	1	4	0	5	0	0
25	0	7	0	7	2	0
26	3	4	0	7	0	0
27	1	7	0	8	0	0
28	1	4	0	5	0	0
29	1	7	0	8	0	0
30	2	2	0	4	0	0
Jumlah gempa	32	154	6	192	7	0



Gambar 15 Grafik gempabumi berdasarkan magnitudo bulan April 2021



Gambar 16 Grafik persentase gempabumi berdasarkan magnitudo bulan April 2021

E. Data Gempabumi Bulan Mei 2021

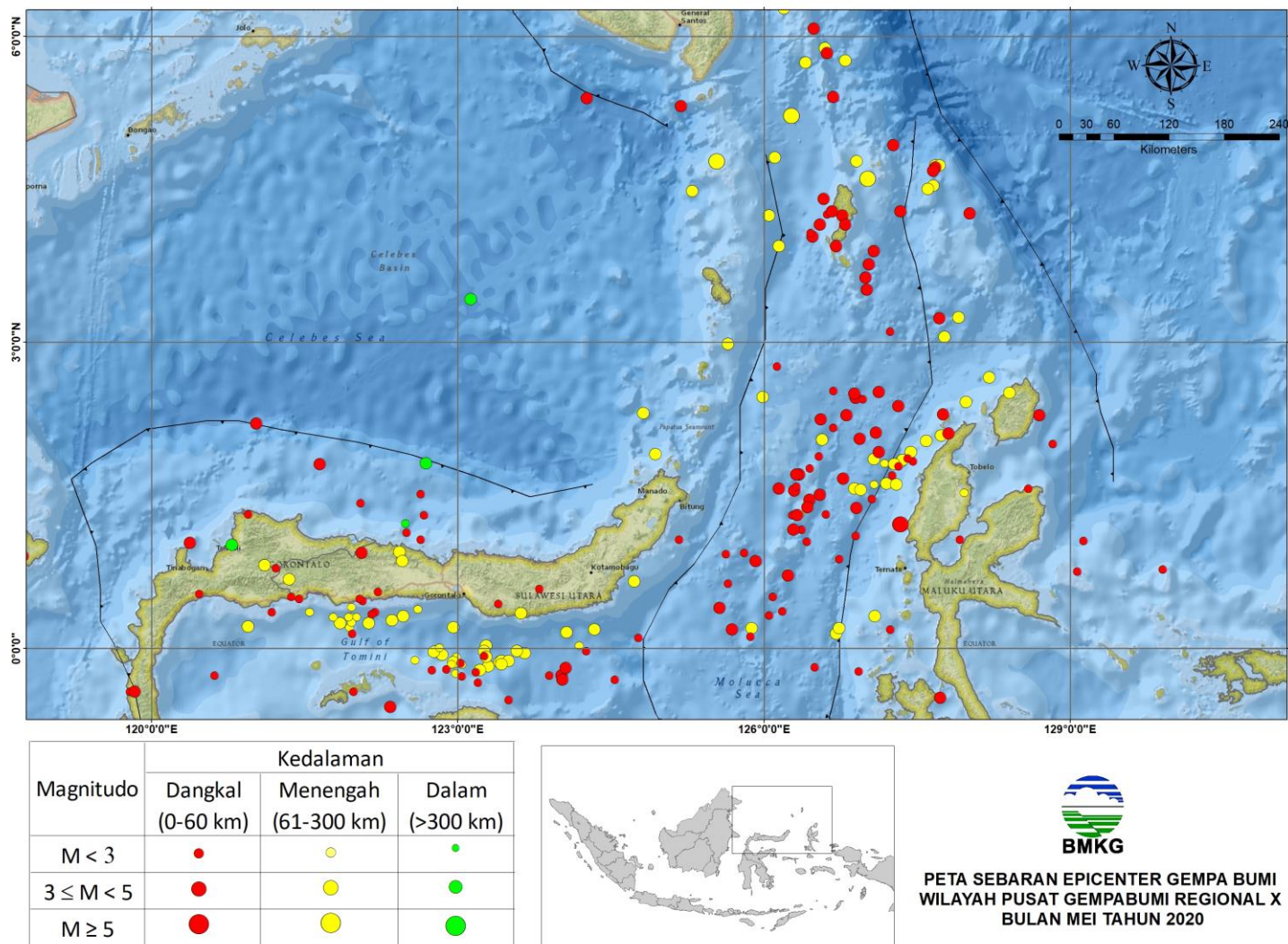
Tabel 11 Data kejadian gempabumi bulan Mei 2021

No	Date	OT (UTC)	Epicenter		Depth (km)	Mag	PGA (gals) / SLMI			Region
			Lat	Long			X	Y	Z	
1	01/05/2021	04:44:51	2.84	125.91	113	4.3				Talaud Island
2	01/05/2021	05:15:52	2.03	128.36	39	4.4				Halmahera
3	01/05/2021	14:54:41	2.90	126.20	15	3.7				Northern Molucca Sea
4	01/05/2021	16:59:31	-0.34	122.94	58	3.8				Minahassa Peninsula
5	01/05/2021	21:38:46	3.15	126.42	57	3.4				Talaud Island
6	02/05/2021	04:23:55	2.41	126.21	29	4.2	0.1357	-0.1790	0.1431	Northern Molucca Sea
7	02/05/2021	04:32:49	3.09	127.03	10	3.9				Talaud Island
8	02/05/2021	05:31:39	3.06	126.97	10	3.9				Talaud Island
9	02/05/2021	18:24:25	2.16	127.13	33	3.7				Northern Molucca Sea
10	03/05/2021	08:08:34	1.81	121.18	29	3.3				Celebes Sea
11	03/05/2021	13:38:56	2.39	128.13	163	4.0				Halmahera
12	03/05/2021	17:09:17	4.34	126.67	13	3.9				Talaud Island
13	03/05/2021	17:19:25	-0.31	122.26	152	3.7				Minahassa Peninsula
14	03/05/2021	17:28:55	4.28	126.67	20	4.0				Talaud Island
15	03/05/2021	18:23:20	-0.18	124.66	10	4.0				Southern Molucca Sea
16	03/05/2021	19:11:58	4.05	126.64	22	3.8				Talaud Island
17	03/05/2021	22:22:33	4.29	126.79	11	5.1				Talaud Island
18	03/05/2021	22:46:13	4.31	126.77	14	4.7				Talaud Island
19	03/05/2021	23:40:44	-0.22	123.08	10	3.5				Minahassa Peninsula
20	04/05/2021	01:02:39	0.08	129.49	17	3.4				Halmahera
21	04/05/2021	02:24:12	4.24	126.64	16	3.2				Talaud Island
22	04/05/2021	10:50:02	0.74	122.28	67	3.3				Minahassa Peninsula
23	04/05/2021	12:51:04	5.97	125.17	10	3.6				Mindanao
24	04/05/2021	16:06:02	3.87	126.56	10	3.6				Talaud Island
25	04/05/2021	18:34:33	2.51	128.39	206	3.3				Halmahera
26	04/05/2021	19:54:45	3.37	126.31	9	3.9				Talaud Island
27	04/05/2021	21:02:13	1.96	123.69	328	5.5	0.4017	0.4625	0.3271	Minahassa Peninsula
28	04/05/2021	23:51:01	4.32	126.80	9	4.8				Talaud Island
29	05/05/2021	00:05:40	4.24	126.68	17	4.7				Talaud Island
30	05/05/2021	01:39:54	1.07	122.77	49	3.4				Minahassa Peninsula
31	05/05/2021	03:07:14	4.20	126.74	20	4.5				Talaud Island
32	05/05/2021	04:42:01	4.12	126.69	10	4.7				Talaud Island
33	05/05/2021	08:57:19	-0.13	124.50	10	4.4				Southern Molucca Sea
34	05/05/2021	09:30:09	0.38	122.69	106	3.0				Minahassa Peninsula
35	05/05/2021	10:13:51	2.78	128.06	107	4.6				Halmahera
36	05/05/2021	12:33:23	1.69	125.60	74	4.7	0.3387	0.3881	0.3083	Northern Molucca Sea
37	05/05/2021	13:55:31	4.18	126.71	20	4.6				Talaud Island
38	05/05/2021	14:40:04	3.17	122.67	537	4.4				Celebes Sea
39	05/05/2021	19:48:09	5.80	126.78	179	3.8				Mindanao
40	05/05/2021	19:50:27	-0.44	124.56	15	3.1				Southern Molucca Sea
41	05/05/2021	22:13:41	5.28	125.43	208	4.2				Mindanao
42	05/05/2021	23:14:38	1.82	127.32	31	4.2	0.3689	0.3506	0.2783	Halmahera
43	05/05/2021	23:59:54	1.41	126.30	10	4.7				Southern Molucca Sea
44	06/05/2021	03:56:45	4.19	126.69	19	4.3				Talaud Island
45	07/05/2021	07:19:13	2.56	122.44	497	4.9				Celebes Sea

46	07/05/2021	11:45:57	-0.28	122.97	152	2.8				Minahassa Peninsula
47	07/05/2021	13:03:43	4.17	125.84	143	4.0				Talaud Island
48	07/05/2021	13:07:47	5.49	126.38	181	4.1				Mindanao
49	07/05/2021	14:34:19	1.79	127.24	135	3.8				Halmahera
50	07/05/2021	21:28:43	0.57	125.49	14	4.2	0.1475	-0.1784	0.1007	Southern Molluca Sea
51	08/05/2021	10:03:19	1.54	127.02	107	4.0				Halmahera
52	08/05/2021	15:37:30	2.55	128.19	148	3.4				Halmahera
53	08/05/2021	20:04:36	6.25	126.81	105	4.1				Mindanao
54	08/05/2021	21:03:38	3.27	128.07	150	3.8				Halmahera
55	09/05/2021	00:32:37	0.20	122.36	132	2.8				Minahassa Peninsula
56	09/05/2021	04:33:56	0.63	127.35	10	3.7				Halmahera
57	09/05/2021	05:57:45	0.61	126.16	10	3.8				Southern Molluca Sea
58	09/05/2021	14:04:09	3.04	128.28	58	3.8				Halmahera
59	10/05/2021	00:32:26	2.10	126.93	24	4.3	0.1572	0.1699	-0.1228	Northern Molluca Sea
60	10/05/2021	01:42:09	0.79	122.09	28	3.8				Minahassa Peninsula
61	10/05/2021	02:57:51	2.47	128.07	9	3.3				Halmahera
62	10/05/2021	15:12:38	2.46	118.78	29	4.1				Celebes Sea
63	10/05/2021	18:09:24	4.23	126.81	22	3.8				Talaud Island
64	10/05/2021	20:57:59	1.70	126.57	19	3.9	0.0651	-0.0561	0.0600	Northern Molluca Sea
65	11/05/2021	00:23:30	2.29	128.17	10	4.3				Halmahera
66	11/05/2021	00:31:43	1.78	127.16	33	3.3				Halmahera
67	11/05/2021	03:38:46	0.69	122.16	40	3.4				Minahassa Peninsula
68	11/05/2021	14:14:56	0.20	122.47	110	2.5				Minahassa Peninsula
69	11/05/2021	18:17:24	0.18	119.51	10	4.0				Minahassa Peninsula
70	11/05/2021	18:55:43	0.05	124.10	104	3.8				Southern Molluca Sea
71	11/05/2021	21:56:42	4.12	126.49	78	2.9				Talaud Island
72	11/05/2021	22:37:17	5.81	126.70	150	3.8				Mindanao
73	11/05/2021	23:43:42	0.63	122.30	91	4.6	0.3105	0.3921	0.1998	Minahassa Peninsula
74	13/05/2021	03:59:41	5.68	125.83	148	4.7				Mindanao
75	13/05/2021	10:53:21	5.26	125.78	169	4.6				Mindanao
76	13/05/2021	19:11:08	2.39	126.80	10	3.3				Northern Molluca Sea
77	13/05/2021	19:18:05	2.41	126.89	14	3.4				Northern Molluca Sea
78	14/05/2021	00:52:43	0.83	120.03	5	3.7				Minahassa Peninsula
79	14/05/2021	12:15:56	0.85	120.05	5	3.6				Minahassa Peninsula
80	14/05/2021	14:13:01	3.58	126.73	18	4.0				Talaud Island
81	14/05/2021	17:11:28	3.34	126.44	10	3.1				Talaud Island
82	14/05/2021	18:57:32	2.21	126.66	10	4.0				Northern Molluca Sea
83	14/05/2021	19:23:51	2.19	126.64	10	3.4				Northern Molluca Sea
84	15/05/2021	02:02:54	-0.06	123.01	130	3.7				Minahassa Peninsula
85	15/05/2021	09:02:14	2.23	124.59	239	3.8				Celebes Sea
86	15/05/2021	13:28:19	4.35	126.77	15	4.7				Talaud Island
87	15/05/2021	14:36:58	2.92	128.53	215	3.8				Halmahera
88	15/05/2021	22:24:03	-0.87	122.15	30	3.0				Minahassa Peninsula
89	16/05/2021	00:48:13	3.17	127.70	92	4.5				Halmahera
90	16/05/2021	01:07:14	4.88	125.50	184	4.4				Talaud Island
91	16/05/2021	03:56:18	1.74	126.25	10	4.6	0.7098	0.6386	0.5497	Northern Molluca Sea
92	16/05/2021	16:51:44	3.44	127.52	94	3.8				Talaud Island
93	16/05/2021	17:12:56	2.01	127.45	96	3.3				Halmahera
94	17/05/2021	12:03:36	1.55	126.63	10	3.7				Northern Molluca Sea
95	17/05/2021	12:21:00	0.19	127.10	113	4.7	0.3678	0.3386	0.1594	Halmahera
96	17/05/2021	13:03:16	0.22	122.89	51	3.4				Minahassa Peninsula
97	17/05/2021	15:18:22	2.53	128.40	216	4.5				Halmahera

98	17/05/2021	16:58:36	2.51	128.27	178	4.0				Halmahera
99	17/05/2021	17:23:00	1.67	128.95	10	3.3				Halmahera
100	18/05/2021	11:16:17	-0.16	123.73	112	3.2				Minahassa Peninsula
101	18/05/2021	12:28:25	0.69	126.02	10	3.6				Northern Molluca Sea
102	18/05/2021	12:31:50	0.86	126.05	10	3.1				Northern Molluca Sea
103	18/05/2021	12:47:53	1.08	121.36	10	2.9				Minahassa Peninsula
104	18/05/2021	17:17:38	1.81	126.41	20	3.8				Northern Molluca Sea
105	19/05/2021	10:56:03	1.58	125.11	133	3.7				Northern Molluca Sea
106	20/05/2021	04:52:46	2.41	128.21	24	4.2				Halmahera
107	20/05/2021	06:52:43	4.07	123.32	544	4.4				Celebes Sea
108	20/05/2021	14:12:39	3.09	122.97	494	4.1				Celebes Sea
109	20/05/2021	18:22:46	2.26	126.73	10	4.0				Northern Molluca Sea
110	20/05/2021	22:08:49	1.57	126.48	10	3.6				Northern Molluca Sea
111	21/05/2021	12:22:38	0.05	122.32	141	2.5				Minahassa Peninsula
112	21/05/2021	13:55:04	2.16	124.89	215	3.5				Celebes Sea
113	21/05/2021	15:26:45	2.40	125.92	68	3.3				Northern Molluca Sea
114	21/05/2021	18:42:45	1.03	122.12	16	5.2	0.8342	0.9018	0.2969	Minahassa Peninsula
115	22/05/2021	04:40:04	3.95	126.38	21	3.6				Talaud Island
116	22/05/2021	06:58:41	4.48	127.45	82	4.2				Talaud Island
117	22/05/2021	10:52:21	4.57	127.00	36	4.7				Talaud Island
118	23/05/2021	09:18:41	-0.03	122.04	245	3.6				Minahassa Peninsula
119	23/05/2021	11:31:44	1.57	127.27	80	4.5	0.2105	0.1935	0.1582	Halmahera
120	23/05/2021	12:49:21	1.43	122.51	405	3.6				Minahassa Peninsula
121	23/05/2021	13:52:08	2.03	127.15	27	3.4				Halmahera
122	23/05/2021	15:06:47	1.74	127.31	78	3.2				Halmahera
123	23/05/2021	17:10:09	2.65	126.72	67	4.4				Northern Molluca Sea
124	24/05/2021	03:37:03	1.03	121.68	10	4.3				Minahassa Peninsula
125	24/05/2021	13:16:47	1.87	127.30	95	3.7				Halmahera
126	24/05/2021	13:22:27	2.82	125.63	10	4.0	0.0867	0.1031	0.0994	Talaud Island
127	24/05/2021	16:00:30	0.29	121.80	186	2.5				Minahassa Peninsula
128	25/05/2021	02:36:42	0.35	121.22	10	2.6				Minahassa Peninsula
129	25/05/2021	12:10:01	0.47	126.01	10	3.3				Southern Molluca Sea
130	26/05/2021	05:29:30	-0.19	126.18	10	4.1				Southern Molluca Sea
131	26/05/2021	10:33:39	0.28	125.43	10	5.0	0.3194	0.2704	0.2134	Southern Molluca Sea
132	26/05/2021	11:44:32	1.37	126.68	118	3.5				Northern Molluca Sea
133	26/05/2021	17:00:05	2.10	128.42	15	4.6				Halmahera
134	26/05/2021	20:21:12	-0.27	119.89	10	3.0				Minahassa Peninsula
135	27/05/2021	01:45:18	1.76	126.19	8	3.5				Northern Molluca Sea
136	27/05/2021	13:34:01	0.29	121.99	173	3.9				Minahassa Peninsula
137	28/05/2021	03:07:05	2.37	128.48	219	4.3				Halmahera
138	28/05/2021	11:54:51	0.70	121.52	86	2.3				Minahassa Peninsula
139	28/05/2021	16:22:35	0.31	123.60	244	3.2				Minahassa Peninsula
140	28/05/2021	17:08:00	2.25	128.15	148	3.0				Halmahera
141	29/05/2021	02:31:53	0.03	123.05	20	3.0				Minahassa Peninsula
142	29/05/2021	15:40:52	2.40	127.23	58	4.0				Northern Molluca Sea
143	29/05/2021	18:13:18	2.77	128.29	12	4.4				Halmahera
144	29/05/2021	18:26:35	0.59	119.78	10	3.4				Minahassa Peninsula
145	29/05/2021	21:11:14	2.10	128.32	59	4.0				Halmahera
146	29/05/2021	21:23:11	-0.31	125.75	34	3.8				Southern Molluca Sea
147	29/05/2021	22:13:46	2.15	128.31	57	4.9				Halmahera
148	30/05/2021	00:28:11	0.97	121.64	10	4.2				Minahassa Peninsula
149	30/05/2021	04:33:23	0.07	119.76	10	4.4				Minahassa Peninsula

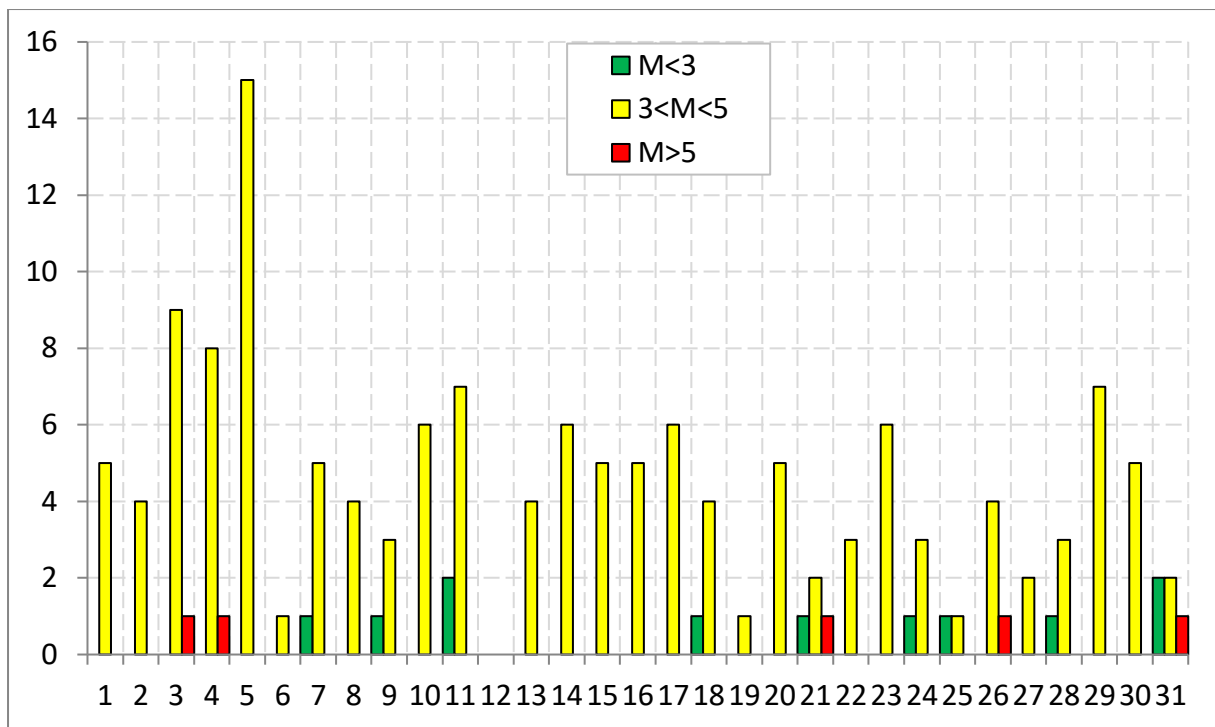
150	30/05/2021	10:30:34	2.48	126.84	3	3.6				Northern Molluca Sea
151	30/05/2021	15:23:36	0.02	123.75	134	3.3				Minahassa Peninsula
152	30/05/2021	18:17:07	0.31	122.11	137	4.0				Minahassa Peninsula
153	31/05/2021	10:12:33	6.14	126.53	112	6.3				Mindanao
154	31/05/2021	10:25:05	0.31	122.09	163	3.6				Minahassa Peninsula
155	31/05/2021	11:27:46	0.13	123.05	21	2.9				Minahassa Peninsula
156	31/05/2021	11:45:48	0.37	121.96	156	2.4				Minahassa Peninsula
157	31/05/2021	20:04:25	0.12	126.71	76	3.3				Southern Molluca Sea



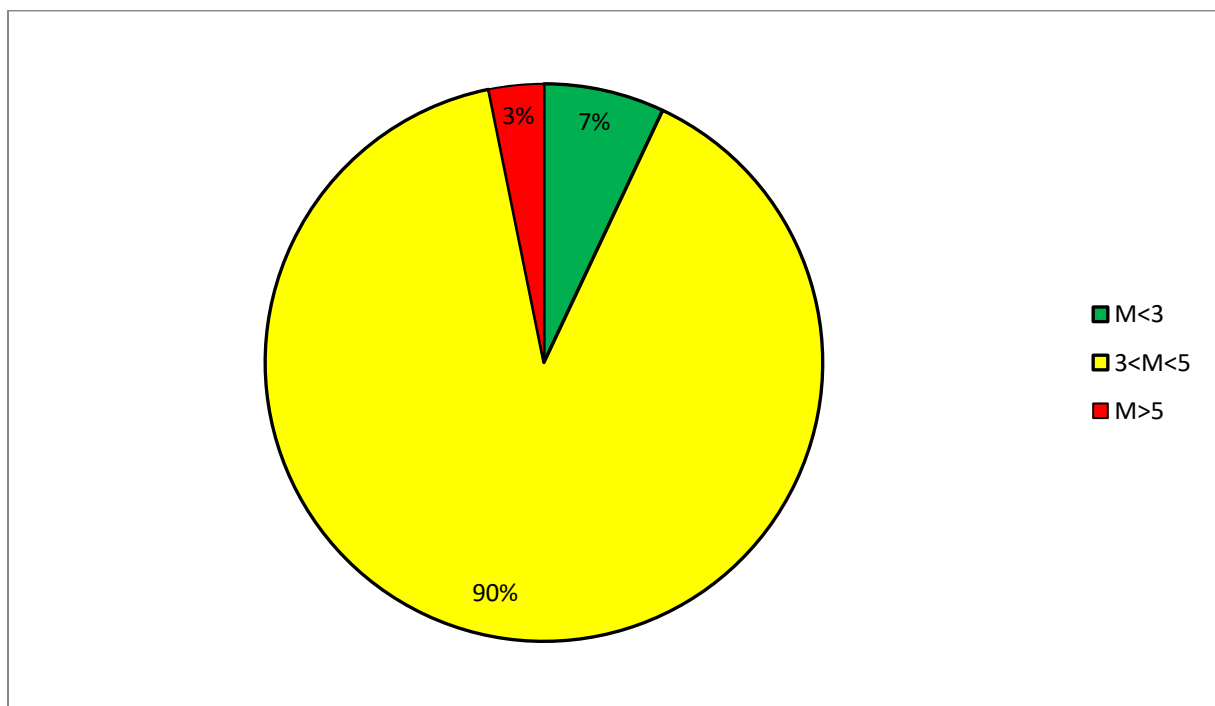
Gambar 17 Sebaran episenter gempabumi bulan Mei 2021

Tabel 12 Rekapitulasi gempabumi berdasarkan magnitudo bulan Mei 2021

Tanggal (UTC)	Magnitudo			Jumlah Total	Jumlah Gempa Signifikan	
	M<3	3≤M<5	M≥5		Dirasakan	Merusak
1	0	5	0	5	1	0
2	0	4	0	4	0	0
3	0	9	1	10	1	0
4	0	8	1	9	3	0
5	0	15	0	15	1	0
6	0	1	0	1	0	0
7	1	5	0	6	0	0
8	0	4	0	4	0	0
9	1	3	0	4	1	0
10	0	6	0	6	0	0
11	2	7	0	9	2	0
12	0	0	0	0	0	0
13	0	4	0	4	0	0
14	0	6	0	6	1	0
15	0	5	0	5	1	0
16	0	5	0	5	1	0
17	0	6	0	6	1	0
18	1	4	0	5	0	0
19	0	1	0	1	0	0
20	0	5	0	5	0	0
21	1	2	1	4	1	0
22	0	3	0	3	0	0
23	0	6	0	6	0	0
24	1	3	0	4	0	0
25	1	1	0	2	0	0
26	0	4	1	5	1	0
27	0	2	0	2	0	0
28	1	3	0	4	0	0
29	0	7	0	7	1	0
30	0	5	0	5	1	0
31	2	2	1	5	1	0
Jumlah gempa	11	141	5	157	18	0



Gambar 18 Grafik gempabumi berdasarkan magnitudo bulan Mei 2021



Gambar 19 Grafik persentase gempabumi berdasarkan magnitudo bulan Mei 2021

F. Data Gempabumi Bulan Juni 2021

Tabel 13 Data kejadian gempabumi bulan Juni 2021

No	Date	OT (UTC)	Epicenter		Depth (km)	Mag		PGA (gals) / SLMI			Region
			Lat	Long			X	Y	Z		
1	01/06/2021	00.14.20	1,38	126,92	45	3,8				Northern Molucca Sea	
2	01/06/2021	07.41.54	1,80	127,15	108	3,9				Halmahera	
3	01/06/2021	15.02.59	5,02	127,33	100	4,7				East of Philippine Islands	
4	01/06/2021	16.31.51	4,89	127,37	128	4,3				Talaud Islands	
5	01/06/2021	17.01.09	1,91	126,63	10	3,9				Northern Molucca Sea	
6	01/06/2021	22.41.57	1,45	126,99	57	3,3				Northern Molucca Sea	
7	02/06/2021	06.43.09	-0,19	124,01	56	3,0				Southern Molucca Sea	
8	02/06/2021	07.45.04	1,00	126,08	145	3,9				Northern Molucca Sea	
9	02/06/2021	12.45.28	4,84	126,63	79	3,9				Talaud Islands	
10	02/06/2021	12.55.38	-0,36	123,44	39	3,6				Minahasa Peninsula	
11	02/06/2021	20.23.31	0,83	122,73	28	4,1				Minahasa Peninsula	
12	03/06/2021	00.30.58	0,30	126,21	17	3,4				Northern Molucca Sea	
13	03/06/2021	02.31.37	4,71	126,17	51	5,2				Talaud Islands	
14	03/06/2021	04.20.24	2,94	127,76	21	4,9				Northern Molucca Sea	
15	03/06/2021	04.56.37	4,78	127,73	79	4,1				Talaud Islands	
16	03/06/2021	09.28.17	-0,06	123,38	127	2,9				Minahasa Peninsula	
17	03/06/2021	09.43.05	1,80	127,21	101	3,4				Halmahera	
18	03/06/2021	10.09.58	0,35	126,22	10	6,1	0,5889	1,01059	-0,96031	Northern Molucca Sea	
19	03/06/2021	10.17.11	0,32	126,34	10	4,6				Northern Molucca Sea	
20	03/06/2021	10.21.37	0,03	126,18	23	4,7				Northern Molucca Sea	
21	03/06/2021	10.23.31	0,61	126,36	7	4,7				Northern Molucca Sea	
22	03/06/2021	10.28.18	0,27	126,32	10	4,3				Northern Molucca Sea	
23	03/06/2021	10.33.35	0,22	126,17	27	4,1				Northern Molucca Sea	
24	03/06/2021	10.49.27	0,34	126,24	10	3,9				Northern Molucca Sea	
25	03/06/2021	11.11.38	0,40	126,38	10	3,5				Northern Molucca Sea	
26	03/06/2021	11.14.13	0,22	126,42	10	4,2				Northern Molucca Sea	
27	03/06/2021	11.19.00	0,24	126,46	10	4,6				Northern Molucca Sea	
28	03/06/2021	11.34.11	0,09	126,38	13	3,1				Northern Molucca Sea	
29	03/06/2021	11.36.43	0,49	126,37	58	3,5				Northern Molucca Sea	
30	03/06/2021	11.51.33	0,39	126,30	10	3,6				Northern Molucca Sea	
31	03/06/2021	12.03.02	0,34	126,45	30	4,1				Northern Molucca Sea	
32	03/06/2021	12.12.28	0,19	126,54	20	3,3				Northern Molucca Sea	
33	03/06/2021	12.33.29	0,42	126,54	6	2,9				Northern Molucca Sea	
34	03/06/2021	13.01.07	0,19	126,42	5	3,6				Northern Molucca Sea	
35	03/06/2021	13.21.43	0,22	126,31	4	3,5				Northern Molucca Sea	
36	03/06/2021	13.35.33	0,28	126,46	10	3,3				Northern Molucca Sea	
37	03/06/2021	13.53.52	0,25	126,49	6	4,1				Northern Molucca Sea	
38	03/06/2021	14.22.08	0,25	126,46	10	3,4				Northern Molucca Sea	
39	03/06/2021	14.43.27	0,29	126,48	10	3,5				Northern Molucca Sea	
40	03/06/2021	14.45.59	0,32	126,48	12	3,1				Northern Molucca Sea	
41	03/06/2021	14.50.11	0,35	126,33	7	3,1				Northern Molucca Sea	
42	03/06/2021	15.19.01	0,19	126,41	10	3,2				Northern Molucca Sea	
43	03/06/2021	15.27.19	0,24	126,48	24	3,6				Northern Molucca Sea	
44	03/06/2021	16.18.13	0,27	126,49	18	3,5				Northern Molucca Sea	
45	03/06/2021	16.28.17	2,17	126,71	4	4,2				Northern Molucca Sea	
46	03/06/2021	16.35.30	0,33	126,43	8	3,6				Northern Molucca Sea	
47	03/06/2021	16.56.08	2,69	128,41	214	4,0				Halmahera	
48	03/06/2021	17.14.41	0,37	126,41	10	3,3				Northern Molucca Sea	
49	03/06/2021	17.27.08	0,24	127,46	17	2,7				Northern Molucca Sea	
50	03/06/2021	18.51.05	0,26	126,46	9	3,4				Northern Molucca Sea	
51	03/06/2021	18.55.00	0,56	126,09	251	3,5				Northern Molucca Sea	

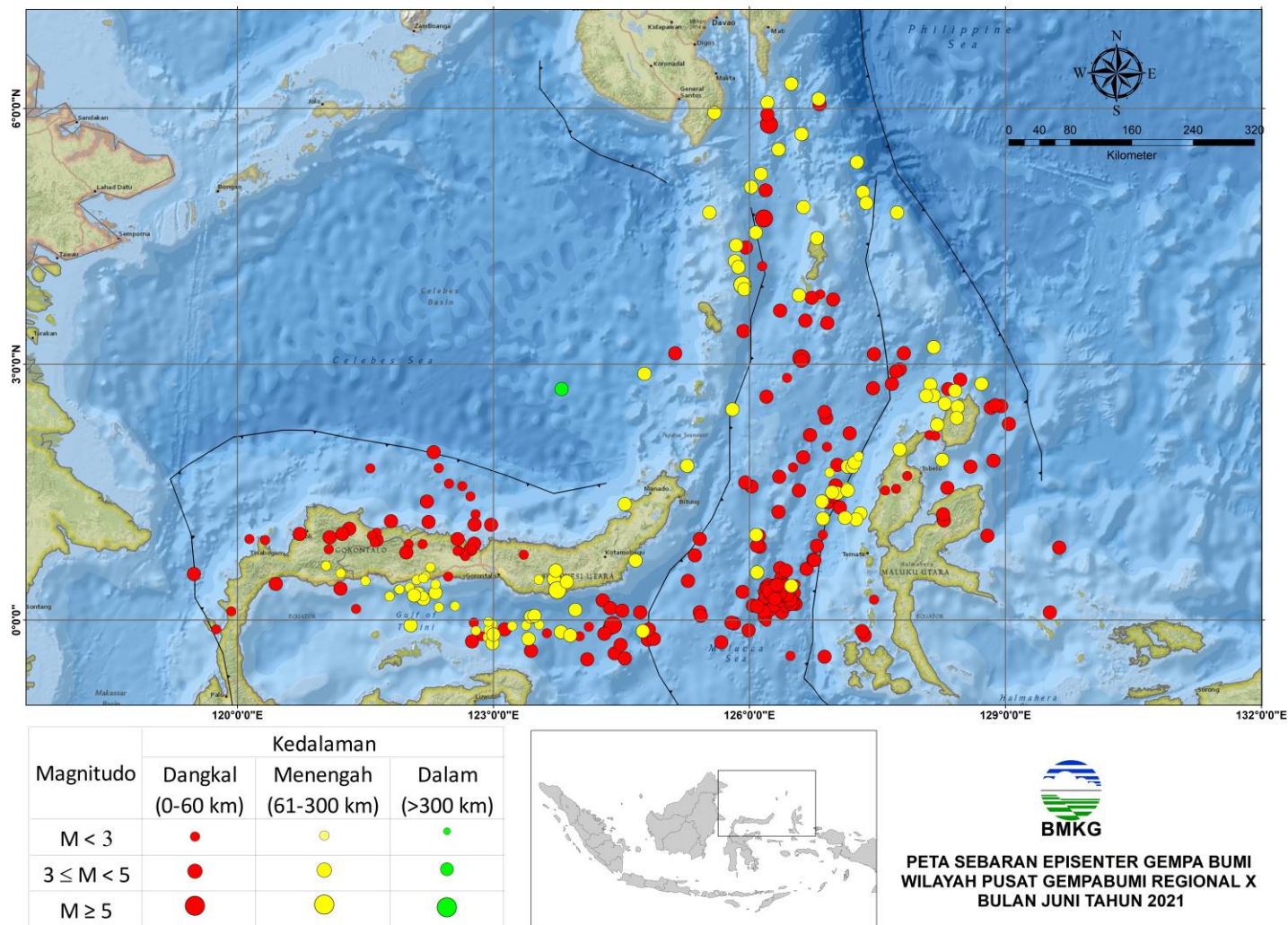
52	03/06/2021	19.17.02	0,31	126,31	10	3,4				Northern Molucca Sea
53	03/06/2021	19.35.25	0,24	126,39	10	3,4				Northern Molucca Sea
54	03/06/2021	20.00.00	0,38	126,44	18	3,2				Northern Molucca Sea
55	03/06/2021	20.11.23	0,41	126,52	124	2,9				Northern Molucca Sea
56	03/06/2021	22.52.49	0,40	126,49	84	3,2				Northern Molucca Sea
57	03/06/2021	23.01.46	2,76	128,12	145	3,6				Halmahera
58	03/06/2021	23.07.18	0,86	126,12	25	3,7				Northern Molucca Sea
59	04/06/2021	00.45.29	5,70	126,61	162	4,2				Mindanao, Philippines
60	04/06/2021	01.30.11	-0,20	122,93	90	2,9				Minahasa Peninsula
61	04/06/2021	01.54.03	0,12	126,24	8	3,9				Northern Molucca Sea
62	04/06/2021	03.23.52	0,33	126,33	10	3,6				Northern Molucca Sea
63	04/06/2021	03.31.10	0,33	126,40	7	3,8				Northern Molucca Sea
64	04/06/2021	07.47.30	0,89	122,01	26	2,9				Minahasa Peninsula
65	04/06/2021	09.25.47	0,28	126,32	11	3,8				Northern Molucca Sea
66	04/06/2021	11.02.23	1,25	127,30	105	4,1				Halmahera
67	04/06/2021	11.27.03	0,51	122,20	112	2,1				Minahasa Peninsula
68	04/06/2021	11.35.48	1,85	127,23	70	3,1				Halmahera
69	04/06/2021	11.47.34	0,26	126,41	16	4,2				Northern Molucca Sea
70	04/06/2021	12.24.15	0,22	126,37	10	4,0				Northern Molucca Sea
71	04/06/2021	12.33.03	0,17	126,29	10	3,2				Northern Molucca Sea
72	04/06/2021	12.45.04	1,24	122,79	13	2,5				Minahasa Peninsula
73	04/06/2021	13.45.15	0,38	126,28	10	5,4	0,2064	0,201	0,23064	Northern Molucca Sea
74	04/06/2021	14.07.59	0,38	126,29	5	4,2				Northern Molucca Sea
75	04/06/2021	14.25.31	0,30	126,25	9	3,6				Northern Molucca Sea
76	04/06/2021	14.50.19	0,25	122,18	157	3,8				Minahasa Peninsula
77	04/06/2021	15.11.09	0,24	126,44	10	3,3				Northern Molucca Sea
78	04/06/2021	15.17.47	0,26	126,28	10	4,6				Northern Molucca Sea
79	04/06/2021	15.24.45	0,27	126,33	14	4,9				Northern Molucca Sea
80	04/06/2021	15.39.18	0,10	126,17	14	3,2				Northern Molucca Sea
81	04/06/2021	17.36.25	0,47	123,53	110	2,5				Minahasa Peninsula
82	04/06/2021	17.54.55	0,40	126,25	10	3,6				Northern Molucca Sea
83	04/06/2021	18.01.43	0,26	126,28	10	3,6				Northern Molucca Sea
84	04/06/2021	23.37.50	1,15	122,24	40	3,7				Minahasa Peninsula
85	05/06/2021	02.56.36	0,33	126,42	6	3,5				Northern Molucca Sea
86	05/06/2021	05.08.39	0,85	129,63	10	4,2				Halmahera
87	05/06/2021	07.10.02	0,58	126,43	10	3,6				Northern Molucca Sea
88	05/06/2021	09.28.22	5,08	126,02	118	4,0				Mindanao, Philippines
89	05/06/2021	09.54.43	3,51	126,66	10	3,5				Talaud Islands
90	05/06/2021	13.02.18	0,25	126,45	10	4,1				Northern Molucca Sea
91	05/06/2021	13.24.50	0,33	126,46	10	3,7				Northern Molucca Sea
92	05/06/2021	14.20.36	1,01	120,73	16	3,5				Minahasa Peninsula
93	05/06/2021	17.05.23	-0,06	122,03	221	3,6				Minahasa Peninsula
94	05/06/2021	19.42.48	4,21	125,83	78	4,6				Talaud Islands
95	05/06/2021	20.41.02	0,04	123,44	150	3,5				Minahasa Peninsula
96	05/06/2021	21.11.43	0,20	126,51	14	4,5				Northern Molucca Sea
97	05/06/2021	21.30.52	0,29	126,50	51	3,7				Northern Molucca Sea
98	05/06/2021	22.57.40	0,35	126,39	10	5,1				Northern Molucca Sea
99	05/06/2021	23.13.38	0,28	126,41	17	4,2				Northern Molucca Sea
100	05/06/2021	23.35.37	0,17	126,43	7	3,5				Northern Molucca Sea
101	05/06/2021	23.51.46	0,32	126,47	10	3,3				Northern Molucca Sea
102	06/06/2021	01.35.59	0,26	126,46	22	3,3				Northern Molucca Sea
103	06/06/2021	03.17.33	0,39	126,20	9	3,4				Northern Molucca Sea
104	06/06/2021	03.25.48	0,36	121,89	158	2,9				Minahasa Peninsula
105	06/06/2021	04.02.40	0,35	126,44	10	3,9				Northern Molucca Sea
106	06/06/2021	04.10.15	0,12	123,96	71	3,6				Minahasa Peninsula
107	06/06/2021	04.15.41	0,26	126,41	12	3,6				Northern Molucca Sea
108	06/06/2021	04.22.56	0,19	126,49	14	3,8				Northern Molucca Sea
109	06/06/2021	06.21.01	-0,19	122,86	11	2,6				Minahasa Peninsula
110	06/06/2021	08.06.40	0,97	121,08	24	3,5				Minahasa Peninsula
111	06/06/2021	09.07.31	3,07	126,61	10	5,2				Talaud Islands

112	06/06/2021	10.23.50	0,22	126,46	8	3,7				Northern Molucca Sea
113	06/06/2021	11.27.41	0,32	122,32	111	3,5				Minahasa Peninsula
114	06/06/2021	13.16.17	-0,05	122,99	130	3,0				Minahasa Peninsula
115	06/06/2021	13.39.58	0,31	126,37	10	3,6				Northern Molucca Sea
116	06/06/2021	15.55.46	0,32	126,52	10	3,3				Northern Molucca Sea
117	06/06/2021	16.03.55	0,09	125,42	10	3,4				Northern Molucca Sea
118	06/06/2021	18.37.30	-0,15	123,63	10	2,8				Minahasa Peninsula
119	06/06/2021	20.25.44	-0,23	124,81	10	3,6				Southern Molucca Sea
120	06/06/2021	22.07.25	-0,18	122,96	10	2,8				Minahasa Peninsula
121	06/06/2021	22.40.42	0,28	126,36	21	3,5				Northern Molucca Sea
122	06/06/2021	22.46.56	0,95	125,42	10	3,9				Northern Molucca Sea
123	07/06/2021	00.51.52	2,54	128,29	213	3,9				Halmahera
124	07/06/2021	02.06.33	0,25	126,47	10	4,0				Northern Molucca Sea
125	07/06/2021	03.52.55	0,31	122,12	165	4,6				Minahasa Peninsula
126	07/06/2021	07.16.25	2,92	127,72	10	3,8				Northern Molucca Sea
127	07/06/2021	10.20.07	1,27	126,34	10	4,1				Northern Molucca Sea
128	07/06/2021	11.56.24	0,37	126,36	9	3,2				Northern Molucca Sea
129	07/06/2021	12.36.20	0,33	126,18	10	3,3				Northern Molucca Sea
130	07/06/2021	12.39.35	1,56	127,14	112	3,0				Halmahera
131	07/06/2021	18.50.24	2,63	128,16	112	4,0				Halmahera
132	07/06/2021	20.39.00	0,48	123,71	242	4,4				Minahasa Peninsula
133	07/06/2021	21.30.24	0,27	126,19	10	3,1				Northern Molucca Sea
134	07/06/2021	22.40.41	0,17	126,04	15	3,3				Northern Molucca Sea
135	08/06/2021	01.04.11	0,75	122,67	22	2,1				Minahasa Peninsula
136	08/06/2021	03.19.31	1,39	122,22	10	3,3				Minahasa Peninsula
137	08/06/2021	05.00.34	0,35	123,75	185	5,3	0,21458	0,31069	0,355729	Minahasa Peninsula
138	08/06/2021	06.51.11	3,04	126,61	10	3,4				Talaud Islands
139	08/06/2021	07.03.53	1,49	127,03	130	4,0				Halmahera
140	08/06/2021	08.34.40	0,32	126,47	10	3,3				Northern Molucca Sea
141	08/06/2021	12.44.21	0,15	122,36	150	2,5				Minahasa Peninsula
142	08/06/2021	14.25.27	0,34	126,37	7	3,8				Northern Molucca Sea
143	08/06/2021	14.52.31	0,34	126,35	27	3,2				Northern Molucca Sea
144	08/06/2021	14.55.06	-0,13	124,75	77	3,2				Southern Molucca Sea
145	08/06/2021	15.04.45	0,29	126,39	5	3,7				Northern Molucca Sea
146	08/06/2021	15.08.03	0,37	126,36	6	3,8				Northern Molucca Sea
147	08/06/2021	15.42.54	0,39	126,42	4	3,2				Northern Molucca Sea
148	08/06/2021	16.28.32	-0,27	122,99	73	3,1				Minahasa Peninsula
149	09/06/2021	03.05.16	4,48	126,79	112	4,1				Talaud Islands
150	09/06/2021	12.14.49	2,19	127,17	12	3,1				Northern Molucca Sea
151	09/06/2021	12.22.06	0,23	126,37	31	3,1				Northern Molucca Sea
152	09/06/2021	12.42.14	0,37	121,21	15	3,3				Minahasa Peninsula
153	09/06/2021	20.32.24	3,20	128,16	148	3,5				North of Halmahera
154	09/06/2021	21.15.59	-0,39	124,42	27	3,9				Southern Molucca Sea
155	09/06/2021	21.33.54	1,12	122,97	22	3,7				Minahasa Peninsula
156	09/06/2021	22.00.30	3,76	126,98	55	3,9				Talaud Islands
157	10/06/2021	01.58.53	0,83	121,07	10	3,0				Minahasa Peninsula
158	10/06/2021	02.42.23	5,81	126,23	10	5,3				Mindanao, Philippines
159	10/06/2021	02.58.18	0,27	126,43	10	3,7				Northern Molucca Sea
160	10/06/2021	03.27.22	1,50	126,97	104	4,4				Northern Molucca Sea
161	10/06/2021	09.23.53	-0,10	124,36	36	4,4				Southern Molucca Sea
162	10/06/2021	10.50.25	0,76	125,36	10	3,8				Northern Molucca Sea
163	10/06/2021	12.00.57	0,79	122,64	53	2,8				Minahasa Peninsula
164	10/06/2021	13.36.48	1,46	126,98	57	3,3				Northern Molucca Sea
165	10/06/2021	17.02.43	0,42	122,32	84	2,9				Minahasa Peninsula
166	10/06/2021	19.18.16	0,99	126,11	10	3,7				Northern Molucca Sea
167	10/06/2021	21.48.23	1,58	127,01	11	3,5				Halmahera
168	10/06/2021	23.59.54	0,43	126,38	10	3,6				Northern Molucca Sea
169	11/06/2021	00.53.22	1,78	122,36	28	2,4				Minahasa Peninsula
170	11/06/2021	02.23.42	-0,06	124,40	14	5,7	1,1021	1,8249	1,632564	Southern Molucca Sea
171	11/06/2021	02.42.16	0,95	120,14	10	2,7				Minahasa Peninsula

172	11/06/2021	04.24.55	-0,03	122,77	11	2,8				Minahasa Peninsula
173	11/06/2021	07.51.57	0,23	124,28	52	3,3				Minahasa Peninsula
174	11/06/2021	08.07.09	-0,11	122,94	92	3,0				Minahasa Peninsula
175	11/06/2021	16.41.45	4,78	125,53	254	3,7				Talaud Islands
176	11/06/2021	18.33.26	1,12	122,78	13	3,6				Minahasa Peninsula
177	11/06/2021	18.51.27	1,18	127,25	136	3,8				Halmahera
178	11/06/2021	19.26.16	1,80	128,59	10	3,1				Halmahera
179	11/06/2021	21.37.56	5,93	126,21	10	5,0				Mindanao, Philippines
180	11/06/2021	23.12.40	1,20	127,12	119	3,9				Halmahera
181	11/06/2021	23.38.34	0,46	121,50	78	2,9				Minahasa Peninsula
182	12/06/2021	06.16.15	0,41	126,41	10	3,8				Northern Molucca Sea
183	12/06/2021	08.48.47	1,87	128,86	10	3,4				Halmahera
184	12/06/2021	08.56.02	0,29	126,37	8	3,8				Northern Molucca Sea
185	12/06/2021	13.19.07	1,07	121,31	2	4,2				Minahasa Peninsula
186	12/06/2021	13.44.56	1,01	121,23	10	3,9				Minahasa Peninsula
187	13/06/2021	01.14.52	1,36	124,54	211	4,8	0,7011	0,5974	0,344163	Minahasa Peninsula
188	13/06/2021	01.59.31	1,19	126,86	107	3,5				Northern Molucca Sea
189	13/06/2021	04.10.25	0,41	126,22	10	3,4				Northern Molucca Sea
190	13/06/2021	07.22.22	3,81	126,58	79	4,0				Talaud Islands
191	13/06/2021	12.39.56	1,57	126,02	10	3,6				Northern Molucca Sea
192	13/06/2021	14.31.31	3,63	126,36	47	3,5				Talaud Islands
193	13/06/2021	18.04.16	-0,14	123,79	109	4,2	-0,048	0,0431	-0,03984	Minahasa Peninsula
194	14/06/2021	01.22.52	0,24	126,48	24	3,7				Northern Molucca Sea
195	14/06/2021	01.55.08	0,28	121,78	188	2,4				Minahasa Peninsula
196	14/06/2021	08.14.55	0,90	122,77	46	3,4				Minahasa Peninsula
197	14/06/2021	11.44.51	3,12	127,46	10	3,9				Talaud Islands
198	14/06/2021	12.20.37	1,39	126,85	110	3,2				Northern Molucca Sea
199	14/06/2021	12.40.37	4,40	125,85	154	3,2				Talaud Islands
200	14/06/2021	16.52.15	-0,43	126,88	13	3,2				Southern Molucca Sea
201	14/06/2021	17.19.34	1,73	126,94	64	3,0				Northern Molucca Sea
202	14/06/2021	18.06.54	4,37	125,96	9	4,2				Talaud Islands
203	14/06/2021	19.56.52	0,16	122,55	135	2,3				Minahasa Peninsula
204	14/06/2021	22.02.25	0,77	123,35	37	2,9				Minahasa Peninsula
205	15/06/2021	01.12.07	2,00	127,76	221	4,0				Northern Molucca Sea
206	15/06/2021	04.25.59	2,72	127,45	24	3,2				Northern Molucca Sea
207	15/06/2021	06.04.35	2,37	126,90	10	3,5				Northern Molucca Sea
208	15/06/2021	07.54.01	1,17	128,28	12	3,1				Halmahera
209	15/06/2021	13.40.07	5,23	126,13	164	4,3				Mindanao, Philippines
210	15/06/2021	16.37.13	3,13	125,13	18	3,4				Talaud Islands
211	15/06/2021	21.17.17	0,29	126,44	10	3,8				Northern Molucca Sea
212	16/06/2021	07.53.36	0,14	124,37	59	3,7				Minahasa Peninsula
213	16/06/2021	13.36.25	0,94	121,63	13	3,2				Minahasa Peninsula
214	16/06/2021	13.40.13	0,89	122,17	33	3,0				Minahasa Peninsula
215	16/06/2021	18.37.48	0,87	126,79	21	3,7				Northern Molucca Sea
216	16/06/2021	19.16.08	0,28	122,18	160	2,5				Minahasa Peninsula
217	16/06/2021	19.42.07	1,54	127,72	10	2,8				Halmahera
218	17/06/2021	04.44.31	0,60	126,67	27	4,2				Northern Molucca Sea
219	17/06/2021	06.36.00	2,44	126,88	5	3,5				Northern Molucca Sea
220	17/06/2021	16.19.43	0,46	125,28	27	3,3				Northern Molucca Sea
221	17/06/2021	17.39.24	1,79	126,51	10	3,0				Northern Molucca Sea
222	17/06/2021	21.31.16	-0,46	124,10	51	4,9	-0,0737	0,1219	0,134341	Southern Molucca Sea
223	18/06/2021	00.08.19	0,62	122,26	70	2,9				Minahasa Peninsula
224	18/06/2021	00.32.19	5,37	127,26	157	3,9				East of Philippine Islands
225	18/06/2021	01.00.02	2,50	128,44	202	3,4				Halmahera
226	18/06/2021	09.54.12	0,31	126,24	12	3,3				Northern Molucca Sea
227	18/06/2021	12.59.51	3,48	126,91	10	3,8				Talaud Islands
228	19/06/2021	03.38.51	6,05	126,82	21	4,6				Mindanao, Philippines
229	19/06/2021	05.03.32	0,87	126,09	10	3,6				Northern Molucca Sea
230	19/06/2021	11.57.27	0,09	124,72	56	3,1				Minahasa Peninsula
231	19/06/2021	14.01.12	1,00	126,86	13	2,8				Northern Molucca Sea

232	19/06/2021	19.28.45	6,11	126,81	175	3,9				Mindanao, Philippines
233	19/06/2021	20.59.21	0,09	129,52	6	3,4				Halmahera
234	19/06/2021	21.39.24	2,77	128,72	256	3,8				Halmahera
235	20/06/2021	01.37.01	6,07	126,21	145	4,7				Mindanao, Philippines
236	20/06/2021	03.20.54	5,04	126,19	23	4,9				Mindanao, Philippines
237	20/06/2021	05.44.39	-0,04	125,82	10	4,5				Southern Molucca Sea
238	20/06/2021	07.38.57	1,69	127,85	10	2,9				Halmahera
239	20/06/2021	12.58.17	1,02	121,63	10	2,4				Minahasa Peninsula
240	20/06/2021	16.23.57	0,81	122,60	20	1,9				Minahasa Peninsula
241	20/06/2021	19.26.45	-0,03	125,79	10	3,3				Southern Molucca Sea
242	20/06/2021	20.10.32	0,51	122,47	27	2,3				Minahasa Peninsula
243	21/06/2021	04.04.55	1,97	122,30	26	3,1				Minahasa Peninsula
244	21/06/2021	04.58.44	1,61	125,95	10	3,8				Northern Molucca Sea
245	21/06/2021	09.08.04	-0,45	124,54	10	4,4				Southern Molucca Sea
246	21/06/2021	09.44.09	-0,12	125,99	15	3,5				Southern Molucca Sea
247	21/06/2021	13.39.35	-0,29	124,49	23	4,6				Southern Molucca Sea
248	21/06/2021	14.00.58	0,54	119,49	10	3,5				Minahasa Peninsula
249	21/06/2021	15.17.32	0,71	126,75	24	4,3				Northern Molucca Sea
250	21/06/2021	15.23.01	0,70	126,76	26	3,9				Northern Molucca Sea
251	21/06/2021	16.01.23	-0,02	126,20	10	2,9				Southern Molucca Sea
252	21/06/2021	16.13.15	-0,42	126,48	10	2,8				Southern Molucca Sea
253	21/06/2021	17.26.29	0,95	122,58	22	3,5				Minahasa Peninsula
254	21/06/2021	17.49.58	2,47	125,80	106	3,5				Talaud Islands
255	21/06/2021	18.21.57	-0,25	122,75	10	3,1				Minahasa Peninsula
256	21/06/2021	23.22.56	0,27	126,32	9	4,1				Northern Molucca Sea
257	21/06/2021	23.25.45	0,33	125,92	10	3,9				Northern Molucca Sea
258	21/06/2021	23.42.15	0,16	126,09	10	3,6				Northern Molucca Sea
259	22/06/2021	00.24.30	0,99	121,58	28	2,5				Minahasa Peninsula
260	22/06/2021	01.22.24	1,88	128,26	102	3,6				Halmahera
261	22/06/2021	01.57.12	-0,22	124,88	10	4,0				Southern Molucca Sea
262	22/06/2021	13.25.31	0,31	126,36	10	4,6				Northern Molucca Sea
263	22/06/2021	13.55.09	2,63	128,07	144	3,7				Halmahera
264	22/06/2021	16.19.28	0,64	121,04	71	2,5				Minahasa Peninsula
265	22/06/2021	17.14.04	0,79	121,98	52	3,6				Minahasa Peninsula
266	22/06/2021	17.49.28	0,99	128,79	10	3,5				Halmahera
267	23/06/2021	01.05.20	0,55	121,21	64	2,4				Minahasa Peninsula
268	23/06/2021	06.20.00	2,62	126,20	19	4,8				Northern Molucca Sea
269	23/06/2021	06.33.32	2,71	123,80	393	4,3				Celebes Sea
270	23/06/2021	11.33.13	1,60	122,48	17	2,8				Minahasa Peninsula
271	23/06/2021	20.59.43	2,29	128,20	144	3,3				Halmahera
272	24/06/2021	01.37.50	0,91	121,61	11	2,5				Minahasa Peninsula
273	24/06/2021	04.08.40	0,11	124,51	54	3,5				Minahasa Peninsula
274	24/06/2021	09.16.27	1,78	121,56	24	2,6				Minahasa Peninsula
275	24/06/2021	16.37.31	-0,17	123,00	75	4,0				Minahasa Peninsula
276	24/06/2021	19.05.03	0,38	126,24	10	3,3				Northern Molucca Sea
277	24/06/2021	22.31.20	0,47	122,10	169	2,5				Minahasa Peninsula
278	25/06/2021	05.21.29	-0,11	123,13	60	3,5				Minahasa Peninsula
279	25/06/2021	09.06.06	5,95	125,59	71	4,6				Mindanao, Philippines
280	25/06/2021	11.47.32	1,52	127,15	63	3,4				Halmahera
281	25/06/2021	12.44.34	-0,13	122,80	114	2,4				Minahasa Peninsula
282	25/06/2021	16.00.26	-0,08	124,12	29	2,8				Southern Molucca Sea
283	25/06/2021	17.26.52	1,81	125,27	162	3,8				Northern Molucca Sea
284	25/06/2021	19.27.35	-0,22	123,41	168	4,5				Minahasa Peninsula
285	25/06/2021	22.57.14	0,38	122,02	151	2,6				Minahasa Peninsula
286	25/06/2021	23.01.16	0,81	122,58	20	2,8				Minahasa Peninsula
287	26/06/2021	02.50.03	0,05	125,43	10	3,9				Northern Molucca Sea
288	26/06/2021	04.16.44	6,29	126,49	140	4,5				Mindanao, Philippines
289	26/06/2021	05.08.13	1,82	127,03	37	4,0				Halmahera
290	26/06/2021	08.59.00	1,57	122,63	22	3,0				Minahasa Peninsula
291	26/06/2021	13.58.32	2,03	126,91	7	2,9				Northern Molucca Sea

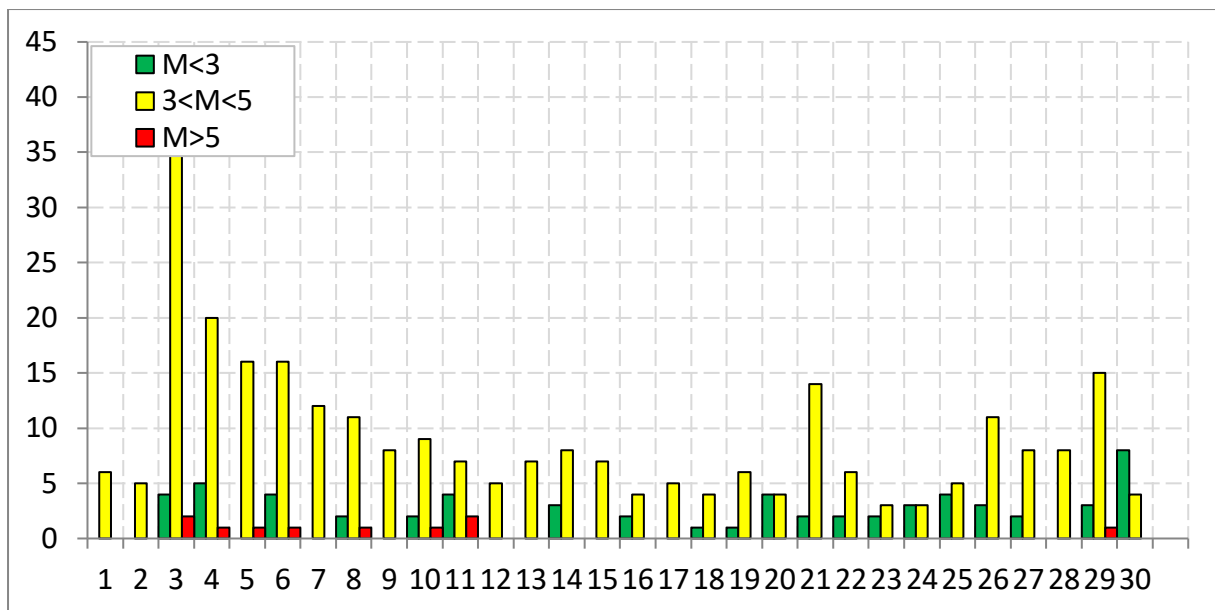
292	26/06/2021	14.44.37	0,40	126,37	10	3,4				Northern Molucca Sea
293	26/06/2021	15.07.31	-0,06	123,54	173	3,0				Minahasa Peninsula
294	26/06/2021	15.24.23	1,68	126,35	5	3,5				Northern Molucca Sea
295	26/06/2021	16.39.09	1,32	127,06	14	3,9				Halmahera
296	26/06/2021	19.37.08	-0,11	124,82	13	3,6				Southern Molucca Sea
297	26/06/2021	19.58.22	0,36	121,90	169	2,0				Minahasa Peninsula
298	26/06/2021	21.14.45	-0,07	123,22	112	2,6				Minahasa Peninsula
299	26/06/2021	21.19.32	2,89	124,77	267	3,6				Celebes Sea
300	26/06/2021	23.04.17	2,37	128,43	231	3,6				Halmahera
301	27/06/2021	00.14.19	2,77	127,67	18	3,3				Northern Molucca Sea
302	27/06/2021	08.52.45	0,05	123,48	74	3,2				Minahasa Peninsula
303	27/06/2021	13.24.34	-0,18	127,35	1	3,1				Halmahera
304	27/06/2021	14.35.02	0,83	122,75	14	2,8				Minahasa Peninsula
305	27/06/2021	16.14.26	2,17	128,11	51	2,9				Halmahera
306	27/06/2021	16.21.26	0,37	126,21	7	3,7				Northern Molucca Sea
307	27/06/2021	16.48.53	0,34	126,23	10	3,8				Northern Molucca Sea
308	27/06/2021	18.09.14	-0,13	127,32	10	3,2				Halmahera
309	27/06/2021	22.05.25	0,58	123,73	246	4,1				Minahasa Peninsula
310	27/06/2021	22.51.21	1,55	128,32	56	3,7				Halmahera
311	28/06/2021	05.14.11	0,10	119,93	40	3,0				Minahasa Peninsula
312	28/06/2021	07.41.19	4,54	126,07	96	4,1				Talaud Islands
313	28/06/2021	10.35.42	2,71	128,33	60	3,4				Halmahera
314	28/06/2021	15.06.24	3,39	125,93	12	4,2				Talaud Islands
315	28/06/2021	19.18.19	-0,26	125,67	10	3,2				Southern Molucca Sea
316	28/06/2021	20.03.05	0,42	120,45	18	4,2				Minahasa Peninsula
317	28/06/2021	21.10.31	-0,16	124,30	26	3,9				Southern Molucca Sea
318	28/06/2021	22.48.28	0,45	123,86	266	3,4				Minahasa Peninsula
319	29/06/2021	01.32.43	4,14	125,87	134	4,3				Talaud Islands
320	29/06/2021	06.33.11	3,13	127,81	16	3,9				Talaud Islands
321	29/06/2021	06.59.00	-0,18	123,90	88	4,3				Minahasa Peninsula
322	29/06/2021	07.21.20	1,52	126,58	13	3,1				Northern Molucca Sea
323	29/06/2021	07.35.28	3,93	125,92	141	5,3				Talaud Islands
324	29/06/2021	08.51.16	-0,02	122,94	144	2,6				Minahasa Peninsula
325	29/06/2021	11.11.47	1,92	127,28	79	2,9				Halmahera
326	29/06/2021	13.15.37	0,49	122,18	108	2,6				Minahasa Peninsula
327	29/06/2021	13.40.37	2,51	128,95	3	4,5				Halmahera
328	29/06/2021	14.24.35	2,49	128,83	10	4,8				Halmahera
329	29/06/2021	14.29.51	2,52	128,88	10	4,6				Halmahera
330	29/06/2021	15.18.59	2,30	129,04	18	3,6				Halmahera
331	29/06/2021	17.23.17	0,29	122,07	181	3,2				Minahasa Peninsula
332	29/06/2021	17.55.36	0,25	126,30	2	4,0				Northern Molucca Sea
333	29/06/2021	19.07.20	2,82	128,47	12	3,1				Halmahera
334	29/06/2021	19.26.17	3,82	126,83	37	3,0				Talaud Islands
335	29/06/2021	20.31.07	3,78	126,73	31	3,9				Talaud Islands
336	29/06/2021	22.24.14	0,41	126,32	10	3,2				Northern Molucca Sea
337	29/06/2021	23.36.20	3,88	125,94	140	4,8				Talaud Islands
338	30/06/2021	00.55.40	-0,11	119,75	10	2,7				Minahasa Peninsula
339	30/06/2021	01.10.44	0,94	120,32	32	2,9				Minahasa Peninsula
340	30/06/2021	06.19.37	0,70	124,66	101	3,5				Minahasa Peninsula
341	30/06/2021	07.08.07	0,13	121,39	10	2,1				Minahasa Peninsula
342	30/06/2021	13.56.03	1,24	128,27	10	3,4				Halmahera
343	30/06/2021	15.17.27	4,15	126,15	22	1,9				Talaud Islands
344	30/06/2021	15.33.49	2,84	126,44	10	2,3				Northern Molucca Sea
345	30/06/2021	16.52.09	1,52	127,59	18	2,7				Halmahera
346	30/06/2021	16.54.28	2,16	128,18	48	2,4				Halmahera
347	30/06/2021	18.53.42	5,52	126,34	169	4,2				Mindanao, Philippines
348	30/06/2021	19.10.55	1,45	122,73	28	2,2				Minahasa Peninsula
349	30/06/2021	19.47.58	1,16	121,80	15	3,4				Minahasa Peninsula



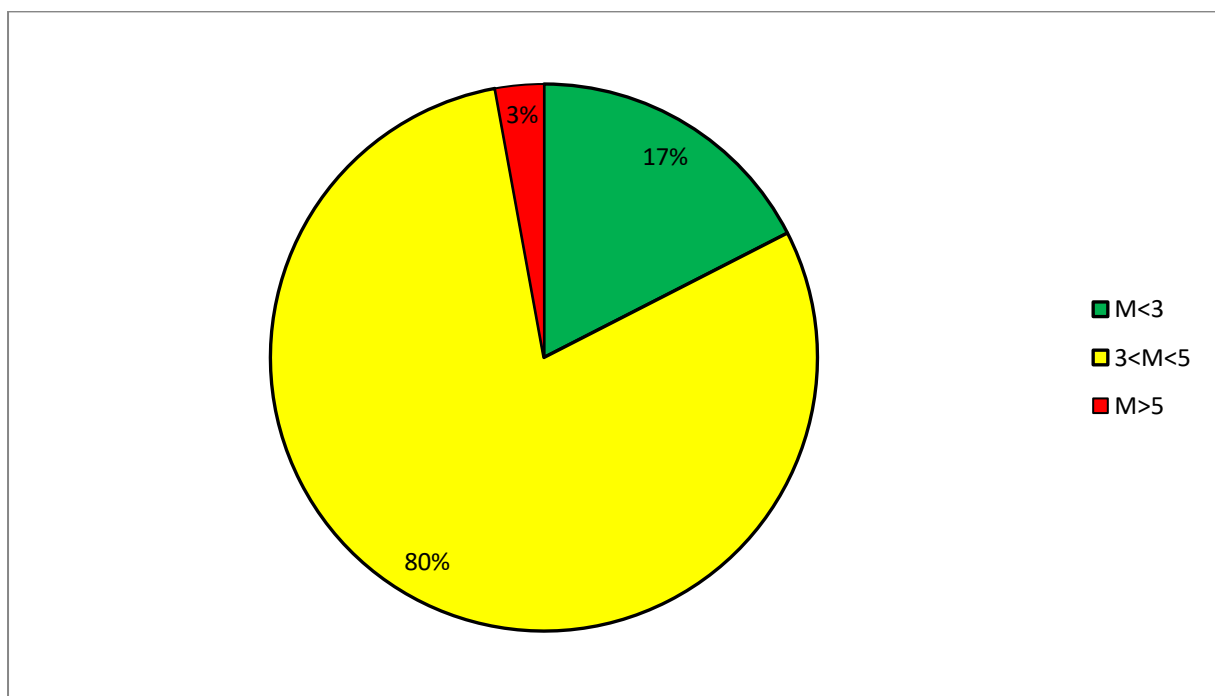
Gambar 20 Sebaran episenter gempabumi bulan Juni 2021

Tabel 14 Rekapitulasi gempabumi berdasarkan magnitudo bulan Juni 2021

Tanggal (UTC)	Magnitudo			Jumlah Total	Jumlah Gempa Signifikan	
	M<3	3≤M<5	M≥5		Dirasakan	Merusak
1	0	6	0	6	0	0
2	0	5	0	5	0	0
3	4	41	2	47	2	0
4	5	20	1	26	1	0
5	0	16	1	17	0	0
6	4	16	1	21	0	0
7	0	12	0	12	1	0
8	2	11	1	14	1	0
9	0	8	0	8	0	0
10	2	9	1	12	0	0
11	4	7	2	13	1	0
12	0	5	0	5	0	0
13	0	7	0	7	0	0
14	3	8	0	11	0	0
15	0	7	0	7	0	0
16	2	4	0	6	0	0
17	0	5	0	5	1	0
18	1	4	0	5	0	0
19	1	6	0	7	0	0
20	4	4	0	8	0	0
21	2	14	0	16	0	0
22	2	6	0	8	0	0
23	2	3	0	5	0	0
24	3	3	0	6	0	0
25	4	5	0	9	0	0
26	3	11	0	14	0	0
27	2	8	0	10	0	0
28	0	8	0	8	0	0
29	3	15	1	19	1	0
30	8	4	0	12	1	0
Jumlah gempa	61	278	10	349	9	0



Gambar 21 Grafik gempabumi berdasarkan magnitudo bulan Juni 2021



Gambar 22 Grafik persentase gempabumi berdasarkan magnitudo bulan Juni 2021

G. Data Gempabumi Bulan Juli 2021

Tabel 15 Data kejadian gempabumi bulan Juli 2021

No	Date	OT (UTC)	Epicenter		Depth (km)	Mag	PGA (gals) / SLM			Region
			Lat	Long			X	Y	Z	
1	7/1/2021	2:37:12	-0.14	122.92	18	3.3				Minahassa Peninsula
2	7/1/2021	7:54:47	0.29	122.22	160	3.0				Minahassa Peninsula
3	7/1/2021	9:22:57	1.16	126.10	10	3.4				Northern Molucca Sea
4	7/1/2021	9:28:15	-0.08	123.10	134	3.0				Minahassa Peninsula
5	7/1/2021	10:18:04	0.31	122.78	10	3.0				Minahassa Peninsula
6	7/1/2021	11:26:05	0.55	121.06	71	4.7				Minahassa Peninsula
7	7/1/2021	12:12:41	-0.22	124.13	75	3.2				Northern Molucca Sea
8	7/1/2021	12:59:39	1.62	127.16	106	4.0				Halmahera
9	7/1/2021	14:44:16	5.27	125.98	184	3.6				Talaud Islands
10	7/1/2021	17:08:57	1.88	128.73	7	4.2				Halmahera
11	7/1/2021	17:36:22	0.17	121.94	173	3.5				Minahassa Peninsula
12	7/1/2021	19:12:10	2.50	128.59	17	3.3				Halmahera
13	7/1/2021	21:39:08	2.23	126.71	10	3.3				Halmahera
14	7/2/2021	7:16:21	1.70	123.15	10	4.1				Northern Molucca Sea
15	7/2/2021	13:39:42	6.81	123.15	13	4.6				Talaud Islands
16	7/2/2021	13:43:12	1.88	127.18	121	3.5				Halmahera
17	7/3/2021	2:12:28	4.15	126.81	20	3.3				Talaud Islands
18	7/3/2021	4:48:05	5.03	127.26	105	3.7				Talaud Islands
19	7/3/2021	6:34:14	0.42	124.95	10	3.3				Minahassa Peninsula
20	7/3/2021	11:26:52	2.51	128.81	7	3.7				Halmahera
21	7/3/2021	13:21:15	-0.18	124.48	16	3.9				Northern Molucca Sea
22	7/3/2021	23:27:34	0.34	122.47	150	2.6				Minahassa Peninsula
23	7/4/2021	1:16:11	1.45	126.63	25	3.3				Halmahera
24	7/4/2021	3:47:19	5.57	126.18	205	4.2				Talaud Islands
25	7/4/2021	6:30:39	0.46	119.71	21	3.3				Minahassa Peninsula
26	7/4/2021	16:39:25	1.34	126.35	10	4.3				Halmahera
27	7/4/2021	18:47:15	2.56	128.68	10	3.2				Halmahera
28	7/4/2021	19:20:48	3.70	126.79	41	4.1				Talaud Islands
29	7/4/2021	20:00:19	1.18	126.62	23	3.0				Halmahera
30	7/4/2021	22:13:42	3.20	122.78	511	4.4				Northern Molucca Sea
31	7/4/2021	22:34:51	0.19	122.06	181	3.0				Minahassa Peninsula
32	7/4/2021	23:27:12	3.17	126.12	45	3.5				Talaud Islands
33	7/4/2021	23:33:10	0.35	121.81	186	2.8				Minahassa Peninsula
34	7/4/2021	23:52:57	2.83	128.49	214	4.4				Halmahera
35	7/5/2021	10:23:34	-0.14	123.03	66	2.8				Minahassa Peninsula
36	7/5/2021	13:43:38	-0.17	122.70	5	2.5				Minahassa Peninsula
37	7/5/2021	23:33:10	0.35	121.81	186	2.8				Minahassa Peninsula
38	7/5/2021	23:46:05	4.54	126.21	10	3.6				Talaud Islands
39	7/6/2021	4:55:50	0.93	121.75	15	2.7				Minahassa Peninsula
40	7/6/2021	12:50:58	0.48	122.96	84	2.5				Minahassa Peninsula
41	7/6/2021	12:56:30	0.20	124.60	70	3.2				Minahassa Peninsula
42	7/6/2021	13:37:21	1.23	126.33	6	3.6				Halmahera
43	7/6/2021	14:21:34	0.91	122.35	10	3.0				Minahassa Peninsula
44	7/6/2021	14:38:16	7.49	125.52	10	4.5				Mindanao
45	7/6/2021	15:28:44	3.43	126.82	10	3.1				Talaud Islands
46	7/6/2021	21:35:02	2.00	127.72	11	4.3				Talaud Islands
47	7/7/2021	0:55:06	0.92	122.14	28	3.7				Minahassa Peninsula
48	7/7/2021	7:05:16	-0.09	123.66	127	3.1				Northern Molucca Sea
49	7/7/2021	11:35:23	-0.34	122.36	10	3.2				Minahassa Peninsula
50	7/7/2021	13:58:13	0.28	121.97	159	2.8				Minahassa Peninsula
51	7/7/2021	17:16:30	-0.07	124.62	80	3.2				Southern Molucca Sea

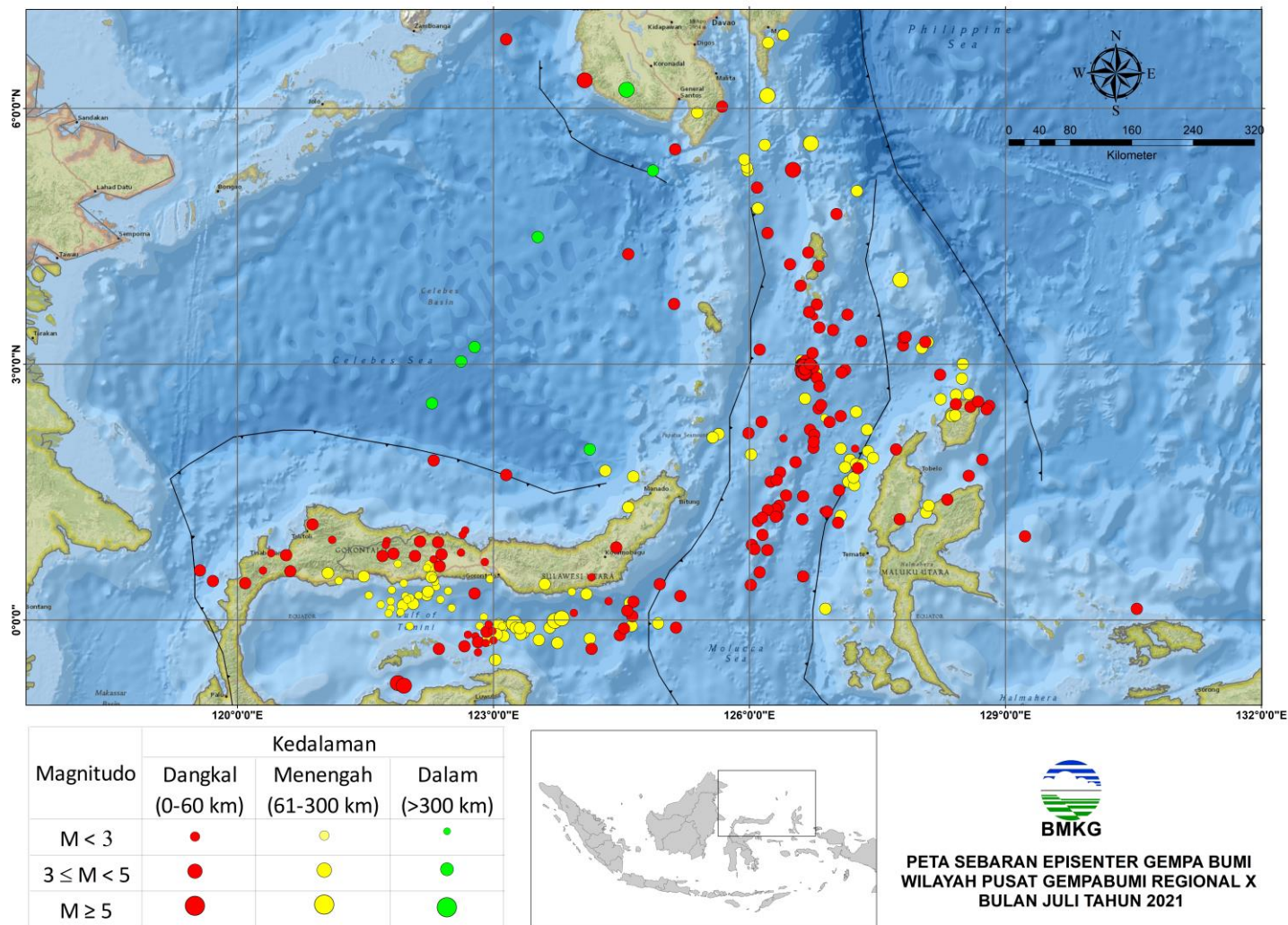
52	7/7/2021	18:33:52	0.29	121.54	182	2.5				Minahassa Peninsula
53	7/7/2021	20:58:51	5.95	125.39	190	4.6				Mindanao
54	7/8/2021	10:09:17	5.28	126.51	10	5.1				Talaud Islands
55	7/8/2021	10:36:34	-0.47	123.02	70	3.8				Minahassa Peninsula
56	7/8/2021	11:04:59	-0.19	123.12	146	4.3				Minahassa Peninsula
57	7/8/2021	16:17:11	-0.19	122.79	30	2.9				Minahassa Peninsula
58	7/8/2021	20:36:11	4.49	123.52	498	4.4				Talaud Islands
59	7/8/2021	20:40:25	4.31	126.69	10	3.8				Talaud Islands
60	7/8/2021	20:50:19	3.92	126.60	10	4.5				Talaud Islands
61	7/9/2021	0:24:45	5.31	125.97	153	4.5				Talaud Islands
62	7/9/2021	0:26:38	0.51	121.48	120	3.8				Minahassa Peninsula
63	7/9/2021	0:52:46	1.12	120.88	7	3.4				Minahassa Peninsula
64	7/9/2021	4:12:26	3.26	128.09	136	4.2				Halmahera
65	7/9/2021	5:09:45	0.56	126.12	10	3.9				Halmahera
66	7/9/2021	9:31:37	2.17	126.76	25	4.0				Halmahera
67	7/9/2021	10:38:09	1.26	128.07	108	3.7				Halmahera
68	7/9/2021	12:02:23	2.32	126.94	16	3.8				Halmahera
69	7/9/2021	13:31:11	-0.01	123.72	106	5.9	1.081	1.214	1.359	Northern Molucca Sea
70	7/9/2021	15:05:02	0.41	126.02	7	3.1				Northern Molucca Sea
71	7/9/2021	15:11:33	3.19	128.02	135	4.1				Halmahera
72	7/9/2021	19:21:38	0.98	129.23	10	3.4				Halmahera
73	7/9/2021	23:58:13	2.32	126.14	44	3.4				Talaud Islands
74	7/10/2021	0:43:55	2.99	126.63	10	6.2	1.766	2.224	1.126	Talaud Islands
75	7/10/2021	0:51:07	2.98	126.68	10	5.8	0.601	0.805	0.483	Talaud Islands
76	7/10/2021	0:58:13	2.99	126.64	34	5.1	0.260	0.250	0.133	Talaud Islands
77	7/10/2021	1:07:00	2.93	126.66	22	3.5				Talaud Islands
78	7/10/2021	1:08:10	2.94	126.70	10	4.0				Talaud Islands
79	7/10/2021	1:10:36	2.97	126.69	10	3.9				Talaud Islands
80	7/10/2021	1:14:09	2.95	126.71	10	3.9				Talaud Islands
81	7/10/2021	1:18:07	2.94	126.70	10	4.0				Talaud Islands
82	7/10/2021	1:24:24	2.87	126.65	10	3.7				Talaud Islands
83	7/10/2021	1:26:20	3.03	126.67	10	3.8				Talaud Islands
84	7/10/2021	1:35:14	3.27	127.31	10	3.7				Talaud Islands
85	7/10/2021	1:38:54	3.04	126.61	142	3.2				Talaud Islands
86	7/10/2021	1:56:57	2.99	126.64	10	3.5				Talaud Islands
87	7/10/2021	2:01:58	2.95	126.65	21	3.5				Talaud Islands
88	7/10/2021	2:20:22	2.94	126.70	8	4.3				Talaud Islands
89	7/10/2021	2:26:11	2.95	126.68	18	4.2				Talaud Islands
90	7/10/2021	2:28:55	1.73	126.36	9	3.8				Northern Molucca Sea
91	7/10/2021	2:30:55	2.96	126.70	10	4.8				Talaud Islands
92	7/10/2021	2:33:34	2.99	126.73	10	4.4				Talaud Islands
93	7/10/2021	2:51:56	2.95	126.67	9	3.5				Talaud Islands
94	7/10/2021	3:00:40	2.92	126.66	8	4.0				Talaud Islands
95	7/10/2021	3:13:41	2.60	126.65	121	3.2				Talaud Islands
96	7/10/2021	3:30:51	2.92	126.70	35	4.3				Talaud Islands
97	7/10/2021	3:54:29	2.90	126.64	36	3.4				Talaud Islands
98	7/10/2021	4:03:03	2.94	126.69	66	3.1				Talaud Islands
99	7/10/2021	4:45:20	2.96	126.69	15	3.3				Talaud Islands
100	7/10/2021	4:52:58	2.94	126.68	32	3.3				Talaud Islands
101	7/10/2021	5:00:59	2.95	126.67	30	4.2				Talaud Islands
102	7/10/2021	5:22:19	2.98	126.61	10	3.9				Talaud Islands
103	7/10/2021	5:35:31	2.96	126.68	24	3.5				Talaud Islands
104	7/10/2021	5:47:18	2.91	126.65	10	3.9				Talaud Islands
105	7/10/2021	7:09:51	2.95	126.65	10	2.8				Northern Molucca Sea
106	7/10/2021	7:25:51	3.04	126.66	10	4.1				Talaud Islands
107	7/10/2021	7:58:28	2.94	126.68	10	3.5				Northern Molucca Sea
108	7/10/2021	8:11:33	2.65	128.57	237	4.8				Halmahera
109	7/10/2021	9:03:46	2.98	126.67	33	4.1				Talaud Islands

110	7/10/2021	9:52:51	3.13	126.74	10	3.6				Talaud Islands
111	7/10/2021	10:04:51	2.94	126.73	10	4.8	0.226	0.253	0.118	Talaud Islands
112	7/10/2021	10:06:33	2.89	126.78	62	4.9	0.226	0.253	-0.124	Talaud Islands
113	7/10/2021	11:49:57	0.42	123.60	254	4.1				Southern Molucca Sea
114	7/10/2021	12:22:01	0.61	122.26	101	3.1				Minahassa Peninsula
115	7/10/2021	12:30:01	3.00	128.50	215	4.2				Halmahera
116	7/10/2021	13:22:11	0.66	121.88	160	1.9				Minahassa Peninsula
117	7/10/2021	15:38:42	-0.34	124.15	33	3.2				Minahassa Peninsula
118	7/10/2021	17:59:04	0.76	120.57	10	4.2				Minahassa Peninsula
119	7/10/2021	18:45:17	6.33	124.07	10	5.4				Talaud Islands
120	7/10/2021	19:26:29	2.90	126.61	6	3.3				Talaud Islands
121	7/10/2021	21:05:02	0.88	126.03	10	3.4				Northern Molucca Sea
122	7/10/2021	22:11:13	3.56	126.76	10	2.8				Talaud Islands
123	7/10/2021	22:15:01	-0.13	122.99	28	2.7				Minahassa Peninsula
124	7/10/2021	22:56:06	2.13	126.40	11	2.5				Northern Molucca Sea
125	7/11/2021	2:13:01	2.90	126.72	10	4.0				Talaud Islands
126	7/11/2021	2:16:32	-0.15	123.35	131	4.8				Minahassa Peninsula
127	7/11/2021	2:36:34	2.88	126.66	14	3.8				Talaud Islands
128	7/11/2021	2:50:01	0.71	122.30	49	1.8				Minahassa Peninsula
129	7/11/2021	2:55:11	0.18	121.68	190	2.0				Minahassa Peninsula
130	7/11/2021	3:33:28	1.52	127.05	27	3.0				Halmahera
131	7/11/2021	4:07:42	-0.23	123.53	100	3.7				Minahassa Peninsula
132	7/11/2021	4:24:43	4.83	126.10	98	4.8				Talaud Islands
133	7/11/2021	11:39:16	2.94	126.60	10	3.2				Talaud Islands
134	7/11/2021	12:25:43	0.28	125.19	10	3.4				Northern Molucca Sea
135	7/11/2021	15:18:00	1.62	126.25	8	3.0				Northern Molucca Sea
136	7/11/2021	16:03:46	1.68	124.64	77	3.0				Minahassa Peninsula
137	7/11/2021	16:07:31	2.99	126.65	10	4.3				Talaud Islands
138	7/11/2021	16:52:20	-0.09	125.14	10	3.2				Minahassa Peninsula
139	7/11/2021	17:43:50	2.98	126.62	10	3.1				Talaud Islands
140	7/11/2021	18:02:08	1.98	127.39	103	3.1				Minahassa Peninsula
141	7/11/2021	19:12:27	-0.04	124.93	179	3.4				Talaud Islands
142	7/11/2021	19:16:08	2.99	126.63	10	3.6				Talaud Islands
143	7/11/2021	20:21:14	-0.04	123.07	125	2.7				Minahassa Peninsula
144	7/12/2021	0:02:46	3.22	127.80	10	4.9				Halmahera
145	7/12/2021	12:04:15	1.94	126.02	109	3.8				Northern Molucca Sea
146	7/12/2021	15:01:20	0.08	123.94	10	2.9				Northern Molucca Sea
147	7/12/2021	16:02:01	2.97	126.69	10	3.4				Talaud Islands
148	7/12/2021	20:50:00	2.37	126.88	67	2.9				Northern Molucca Sea
149	7/12/2021	22:04:39	0.39	122.33	91	2.5				Minahassa Peninsula
150	7/12/2021	22:31:32	3.31	127.81	2	3.6				Talaud Islands
151	7/12/2021	22:42:01	0.88	121.74	38	2.1				Minahassa Peninsula
152	7/13/2021	3:45:48	2.01	127.07	64	3.2				Northern Molucca Sea
153	7/13/2021	9:02:53	1.34	128.10	105	4.1				Halmahera
154	7/13/2021	15:45:17	-0.07	122.02	254	2.3				Minahassa Peninsula
155	7/13/2021	16:35:23	2.39	128.37	192	4.1				Halmahera
156	7/13/2021	16:52:52	2.96	126.75	10	3.5				Talaud Islands
157	7/13/2021	18:12:19	0.45	122.32	65	2.5				Minahassa Peninsula
158	7/13/2021	18:35:26	2.93	127.12	10	3.4				Talaud Islands
159	7/13/2021	19:36:33	2.02	126.75	10	3.2				Halmahera
160	7/13/2021	19:40:45	2.90	127.08	10	3.3				Talaud Islands
161	7/13/2021	19:46:53	0.82	126.21	10	4.2				Minahassa Peninsula
162	7/14/2021	5:47:26	0.29	122.12	127	2.3				Talaud Islands
163	7/14/2021	7:29:32	3.71	125.12	21	3.6				Talaud Islands
164	7/14/2021	8:12:22	-0.09	123.42	133	3.1				Minahassa Peninsula
165	7/14/2021	12:58:20	1.87	122.30	10	4.2				Halmahera
166	7/14/2021	14:46:24	1.58	127.23	109	4.2				Halmahera
167	7/14/2021	17:21:00	5.27	124.87	324	4.4				Mindanao

168	7/14/2021	17:52:59	1.00	126.15	10	4.8	0.859	0.953	0.595	Northern Molucca Sea
169	7/14/2021	18:44:42	2.01	127.24	21	2.8				Halmahera
170	7/15/2021	0:22:24	1.28	126.87	10	2.5				Northern Molucca Sea
171	7/15/2021	13:00:30	2.84	126.79	10	4.5				Talaud Islands
172	7/15/2021	16:44:59	0.77	122.39	31	3.0				Minahassa Peninsula
173	7/15/2021	18:48:50	1.78	127.27	10	3.8				Halmahera
174	7/15/2021	19:07:20	0.50	124.15	46	2.8				Southern Molucca Sea
175	7/15/2021	19:10:45	6.86	126.40	107	4.4				Mindanao
176	7/15/2021	19:29:58	0.13	130.54	10	3.9				Irian Jaya
177	7/15/2021	19:38:58	3.58	127.15	14	4.1				Talaud Islands
178	7/15/2021	20:00:54	2.44	127.25	82	3.3				Halmahera
179	7/15/2021	20:37:38	2.47	128.78	7	3.7				Halmahera
180	7/15/2021	21:26:59	0.83	126.06	10	3.7				Northern Molucca Sea
181	7/15/2021	22:03:33	5.07	126.09	10	3.9				Halmahera
182	7/15/2021	22:25:42	2.53	128.42	14	3.3				Halmahera
183	7/16/2021	2:39:54	1.90	127.45	102	3.9				Halmahera
184	7/16/2021	4:34:38	0.78	121.83	42	3.0				Minahassa Peninsula
185	7/16/2021	4:58:41	0.75	122.08	50	3.2				Minahassa Peninsula
186	7/16/2021	10:38:48	0.75	121.70	50	3.3				Minahassa Peninsula
187	7/16/2021	10:52:06	0.43	120.09	15	3.3				Minahassa Peninsula
188	7/16/2021	17:47:05	0.61	122.27	81	1.9				Minahassa Peninsula
189	7/16/2021	18:08:35	-0.05	123.06	156	3.4				Minahassa Peninsula
190	7/16/2021	19:15:53	2.23	127.38	101	3.3				Northern Molucca Sea
191	7/17/2021	5:19:46	0.22	124.35	56	2.9				Minahassa Peninsula
192	7/17/2021	7:56:27	-0.07	122.84	100	2.6				Minahassa Peninsula
193	7/17/2021	12:24:01	2.18	125.64	142	3.6				Talaud Islands
194	7/17/2021	12:58:41	1.83	127.25	94	4.5				Halmahera
195	7/17/2021	14:17:58	0.33	123.92	177	2.9				Minahassa Peninsula
196	7/17/2021	15:09:02	2.64	128.42	206	4.0				Halmahera
197	7/17/2021	15:42:34	0.04	124.63	35	3.1				Minahassa Peninsula
198	7/17/2021	17:04:59	-0.26	122.82	60	3.2				Minahassa Peninsula
199	7/17/2021	17:57:32	0.13	126.89	77	3.8				Northern Molucca Sea
200	7/17/2021	18:19:59	2.19	125.99	28	3.5				Talaud Islands
201	7/17/2021	19:53:45	0.43	121.95	155	2.2				Minahassa Peninsula
202	7/17/2021	20:16:07	0.24	122.38	91	1.9				Minahassa Peninsula
203	7/17/2021	20:18:50	-0.25	132.28	10	3.8				Irian Jaya
204	7/18/2021	0:09:40	6.15	126.21	84	5.2				Mindanao
205	7/18/2021	1:23:54	3.40	126.98	10	4.1				Talaud Islands
206	7/18/2021	3:08:34	6.22	124.56	397	5.0				Mindanao
207	7/18/2021	6:29:37	1.30	126.31	16	3.6				Northern Molucca Sea
208	7/18/2021	9:17:12	0.03	123.78	136	3.6				Minahassa Peninsula
209	7/18/2021	9:39:17	1.29	126.22	10	3.5				Northern Molucca Sea
210	7/18/2021	10:40:02	0.02	123.80	95	5.0				Minahassa Peninsula
211	7/18/2021	11:13:12	0.14	122.51	129	2.6				Minahassa Peninsula
212	7/18/2021	12:09:45	6.02	125.68	12	4.4				Mindanao
213	7/18/2021	13:16:30	0.50	122.27	88	3.1				Minahassa Peninsula
214	7/18/2021	16:21:13	2.54	122.28	523	4.3				Celebes Sea
215	7/18/2021	17:31:11	6.77	126.22	121	4.4				Mindanao
216	7/18/2021	21:54:47	0.57	120.62	58	4.1				Minahassa Peninsula
217	7/18/2021	23:15:26	0.22	121.80	163	2.5				Minahassa Peninsula
218	7/18/2021	23:59:20	-0.02	123.21	143	2.5				Minahassa Peninsula
219	7/19/2021	0:55:45	-0.04	123.24	141	5.2				Minahassa Peninsula
220	7/19/2021	2:30:25	0.65	122.24	61	2.3				Minahassa Peninsula
221	7/19/2021	2:38:54	0.51	126.63	21	4.4				Northern Molucca Sea
222	7/19/2021	5:06:17	1.67	127.22	107	4.3				Halmahera
223	7/19/2021	7:28:05	8.03	126.52	96	5.0				Mindanao
224	7/19/2021	10:08:19	2.09	126.75	28	3.6				Northern Molucca Sea
225	7/19/2021	17:52:19	0.61	122.22	64	2.1				Minahassa Peninsula

226	7/19/2021	19:24:15	3.61	126.70	10	3.7				Talaud Islands
227	7/19/2021	19:55:25	2.39	127.07	10	3.8				Northern Molucca Sea
228	7/19/2021	22:05:11	1.22	127.07	124	4.0				Halmahera
229	7/19/2021	22:46:59	0.68	122.90	10	2.9				Minahassa Peninsula
230	7/20/2021	9:47:07	4.29	124.58	30	4.2				Celebes Sea
231	7/20/2021	11:10:47	0.46	121.19	63	2.8				Minahassa Peninsula
232	7/20/2021	16:02:13	1.21	126.31	10	3.1				Northern Molucca Sea
233	7/20/2021	18:29:42	0.58	120.30	59	2.9				Minahassa Peninsula
234	7/20/2021	19:04:16	2.48	126.81	10	3.7				Northern Molucca Sea
235	7/20/2021	20:26:48	5.59	126.72	91	5.3	0.0921	0.1117	0.0594	Mindanao
236	7/21/2021	2:18:07	1.82	127.32	89	4.2				Halmahera
237	7/21/2021	3:51:02	2.40	128.41	215	3.6				Halmahera
238	7/21/2021	13:03:39	0.26	122.03	190	2.7				Minahassa Peninsula
239	7/21/2021	16:02:13	1.21	126.31	10	3.1				Northern Molucca Sea
240	7/22/2021	2:04:29	1.41	128.32	19	4.1				Halmahera
241	7/22/2021	2:57:34	-0.09	123.26	97	4.0				Minahassa Peninsula
242	7/22/2021	10:26:48	0.33	122.23	131	3.6				Minahassa Peninsula
243	7/22/2021	13:16:17	1.18	127.76	12	3.7				Halmahera
244	7/22/2021	21:38:40	0.58	119.56	7	3.4				Minahassa Peninsula
245	7/22/2021	22:53:08	1.27	126.91	51	4.4				Northern Molucca Sea
246	7/23/2021	3:58:37	5.40	125.94	97	4.4				Mindanao
247	7/23/2021	4:20:12	3.26	128.06	10	3.7				Halmahera
248	7/23/2021	15:10:25	0.11	124.57	8	3.4				Minahassa Peninsula
249	7/23/2021	15:15:21	-0.17	123.04	161	3.7				Minahassa Peninsula
250	7/23/2021	15:28:36	2.14	125.57	83	3.8				Talaud Islands
251	7/23/2021	20:48:36	4.76	127.02	10	4.5				Talaud Islands
252	7/24/2021	1:22:02	-0.27	122.91	10	2.8				Minahassa Peninsula
253	7/24/2021	2:26:15	-0.10	124.53	17	4.1				Southern Molucca Sea
254	7/24/2021	9:30:24	1.05	122.67	10	2.4				Minahassa Peninsula
255	7/24/2021	9:37:59	1.00	122.64	10	2.1				Minahassa Peninsula
256	7/24/2021	11:03:12	-0.17	123.32	148	3.2				Minahassa Peninsula
257	7/24/2021	13:07:20	2.91	126.64	10	5.6	0.539	0.515	0.293	Northern Molucca Sea
258	7/24/2021	14:44:39	2.97	126.61	67	4.3				Northern Molucca Sea
259	7/24/2021	22:20:29	-0.31	122.66	10	3.6				Minahassa Peninsula
260	7/25/2021	2:40:04	4.17	126.48	14	3.6				Talaud Islands
261	7/25/2021	3:06:56	-0.24	122.93	85	3.9				Minahassa Peninsula
262	7/25/2021	5:32:42	2.94	126.64	25	3.9				Northern Molucca Sea
263	7/25/2021	8:35:42	0.13	121.80	154	2.5				Minahassa Peninsula
264	7/25/2021	14:48:08	0.94	121.11	45	2.6				Minahassa Peninsula
265	7/25/2021	22:01:45	3.03	122.62	501	4.2				Celebes Sea
266	7/25/2021	22:25:28	1.64	126.32	16	3.8				Northern Molucca Sea
267	7/26/2021	0:25:58	2.94	126.65	10	3.7				Northern Molucca Sea
268	7/26/2021	3:52:03	-0.74	121.88	10	5.8	0.284	0.255	0.206	Minahassa Peninsula
269	7/26/2021	12:09:07	-0.77	121.95	10	6.3	0.675	0.618	0.368	Minahassa Peninsula
270	7/26/2021	22:57:59	0.63	122.37	54	3.1				Minahassa Peninsula
271	7/27/2021	0:12:19	-0.10	123.31	137	4.0				Minahassa Peninsula
272	7/27/2021	1:37:08	-0.05	122.95	29	2.8				Minahassa Peninsula
273	7/27/2021	17:27:54	-0.24	123.00	36	2.4				Minahassa Peninsula
274	7/27/2021	20:31:08	5.52	125.13	28	3.9				Minahassa Peninsula
275	7/27/2021	23:56:41	1.14	127.04	23	3.4				Halmahera
276	7/28/2021	11:25:28	-0.07	123.10	126	2.8				Minahassa Peninsula
277	7/28/2021	12:30:35	3.00	126.71	10	3.5				Northern Molucca Sea
278	7/28/2021	14:41:07	0.08	121.77	167	2.5				Minahassa Peninsula
279	7/28/2021	14:44:02	0.09	121.91	135	2.7				Minahassa Peninsula
280	7/28/2021	15:12:58	2.52	126.84	10	3.8				Northern Molucca Sea
281	7/28/2021	17:40:22	1.46	126.43	10	4.1				Northern Molucca Sea
282	7/28/2021	21:10:42	2.88	128.24	10	4.1				Halmahera
283	7/28/2021	21:13:45	1.85	126.54	10	4.3				Northern Molucca Sea

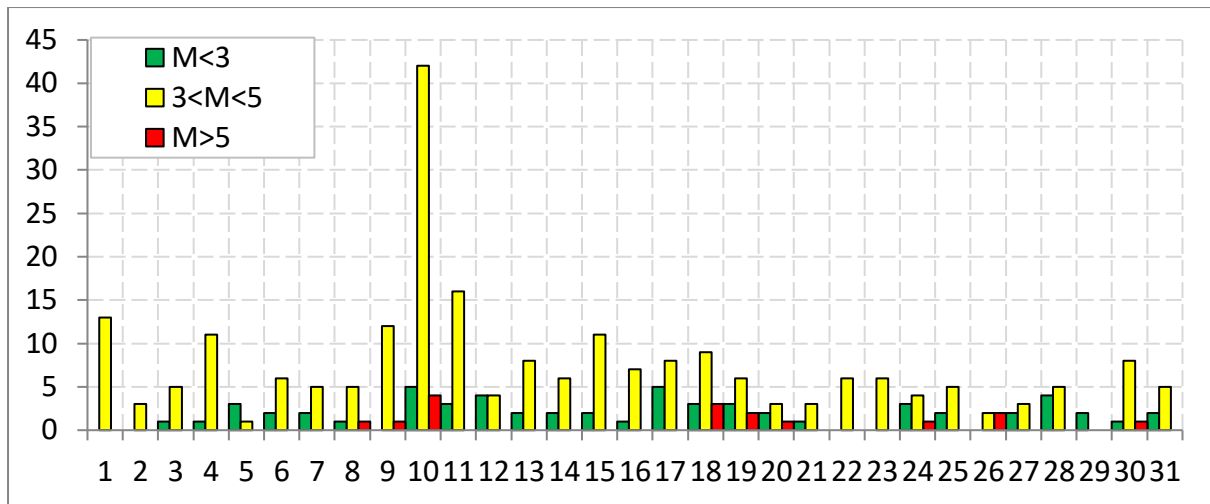
284	7/28/2021	21:24:51	0.79	122.62	15	2.8				Minahassa Peninsula
285	7/29/2021	16:35:39	0.24	121.99	163	2.7				Minahassa Peninsula
286	7/29/2021	20:59:43	0.49	122.29	73	2.1				Minahassa Peninsula
287	7/30/2021	9:50:02	2.00	124.13	332	3.6				Minahassa Peninsula
288	7/30/2021	10:07:47	1.32	124.58	236	4.0				Minahassa Peninsula
289	7/30/2021	10:17:30	2.74	126.82	10	3.8				Northern Molucca Sea
290	7/30/2021	11:30:03	3.32	127.83	10	3.8				Talaud Islands
291	7/30/2021	12:03:39	1.69	128.57	10	3.7				Halmahera
292	7/30/2021	12:29:17	0.30	124.09	98	3.0				Minahassa Peninsula
293	7/30/2021	14:00:49	0.78	120.40	10	2.4				Minahassa Peninsula
294	7/30/2021	16:54:57	0.85	124.44	28	3.1				Minahassa Peninsula
295	7/30/2021	17:52:04	3.99	127.77	113	5.4				Talaud Islands
296	7/30/2021	23:23:47	0.21	124.64	58	3.6				Minahassa Peninsula
297	7/31/2021	1:28:39	-0.27	123.75	73	4.2				Minahassa Peninsula
298	7/31/2021	3:37:10	2.59	128.24	143	3.8				Halmahera
299	7/31/2021	5:29:24	1.75	124.31	278	4.3				Minahassa Peninsula
300	7/31/2021	14:22:25	1.79	127.12	118	3.5				Halmahera
301	7/31/2021	22:01:08	1.20	126.15	16	3.0				Northern Molucca Sea
302	7/31/2021	23:39:56	-0.38	122.82	9	2.9				Minahassa Peninsula
303	7/31/2021	23:57:31	0.03	122.89	164	2.1				Minahassa Peninsula



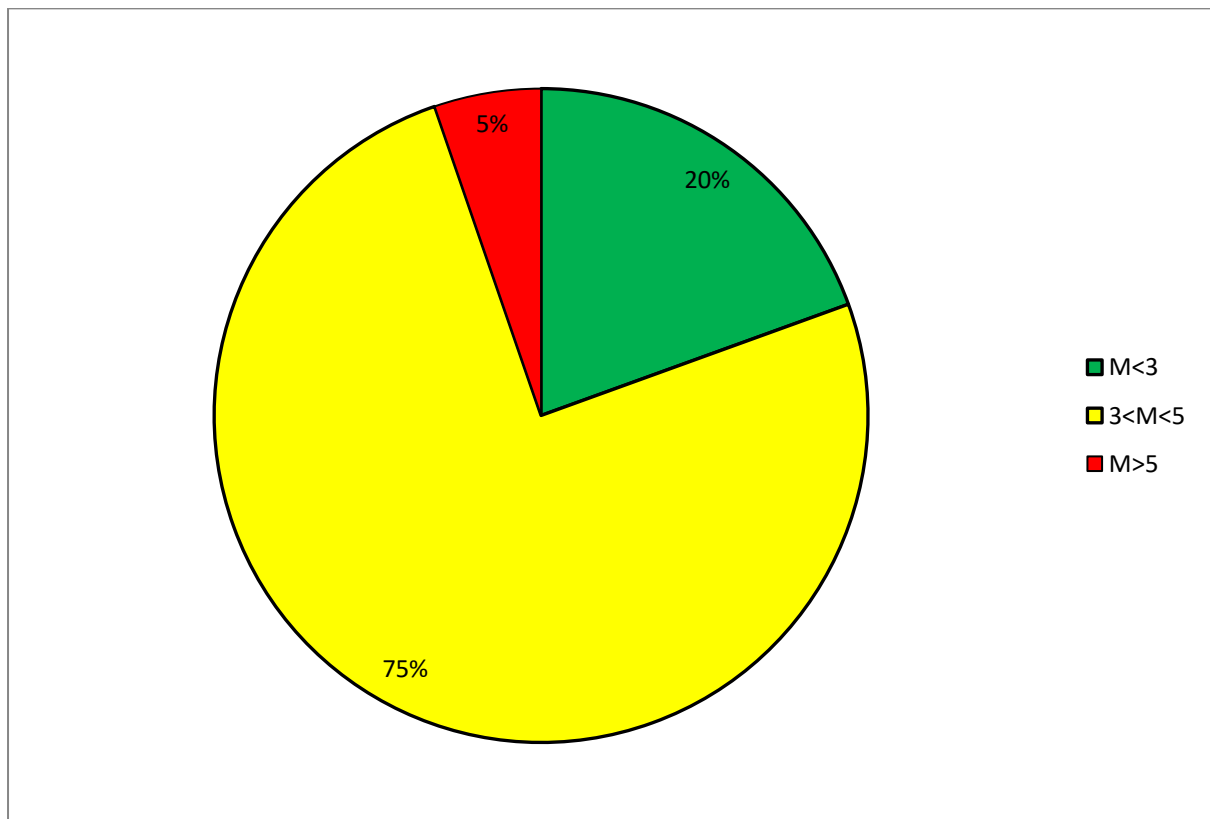
Gambar 23 Sebaran episenter gempabumi bulan Juli 2021

Tabel 16 Rekapitulasi gempabumi berdasarkan magnitudo bulan Juli 2021

Tanggal (UTC)	Magnitudo			Jumlah Total	Jumlah Gempa Signifikan	
	M<3	3≤M<5	M≥5		Dirasakan	Merusak
1	0	13	0	13	1	0
2	0	3	0	3	0	0
3	1	5	0	6	0	0
4	1	11	0	12	0	0
5	3	1	0	4	0	0
6	2	6	0	8	1	0
7	2	5	0	7	0	0
8	1	5	1	7	0	0
9	0	12	1	13	1	0
10	5	42	4	51	2	0
11	3	16	0	19	1	0
12	4	4	0	8	0	0
13	2	8	0	10	0	0
14	2	6	0	8	0	0
15	2	11	0	13	0	0
16	1	7	0	8	0	0
17	5	8	0	13	0	0
18	3	9	3	15	1	0
19	3	6	2	11	1	0
20	2	3	1	6	0	0
21	1	3	0	4	0	0
22	0	6	0	6	0	0
23	0	6	0	6	0	0
24	3	4	1	8	1	0
25	2	5	0	7	0	0
26	0	2	2	4	2	0
27	2	3	0	5	0	0
28	4	5	0	9	0	0
29	2	0	0	2	0	0
30	1	8	1	10	0	0
31	2	5	0	7	0	0
Jumlah gempa	59	228	16	303	11	0



Gambar 24 Grafik gempabumi berdasarkan magnitudo bulan Juli 2021



Gambar 25 Grafik persentase gempabumi berdasarkan magnitudo bulan Juli 2021

H. Data Gempabumi Bulan Agustus 2021

Tabel 17 Data kejadian gempabumi bulan Agustus 2021

No	Date	OT (UTC)	Epicenter		Depth (km)	Mag	PGA (gals) / SLM			Region
			Lat	Long			X	Y	Z	
1	01/08/2021	02:24:24	0.23	122.49	116	3.5				Minahassa Peninsula
2	01/08/2021	06:18:53	3.53	124.60	304	4.4				Celebes Sea
3	01/08/2021	07:04:50	2.36	128.39	219	3.6				Halmahera
4	01/08/2021	11:39:17	-0.08	124.86	10	4.9	0.163571	0.177168	0.216569	Souther Molucca Sea
5	01/08/2021	17:09:15	2.27	126.90	15	3.3				Northern Molucca Sea
6	01/08/2021	17:53:49	1.94	128.29	113	3.5				Halmahera
7	01/08/2021	20:29:23	1.58	125.49	80	3.4				Northern Molucca Sea
8	01/08/2021	21:48:22	3.82	126.85	40	3.6				Talalud Islands
9	02/08/2021	03:14:01	-0.12	123.29	125	2.5				Minahassa Peninsula
10	02/08/2021	05:40:45	-0.05	123.02	85	2.9				Minahassa Peninsula
11	02/08/2021	09:10:21	1.70	126.32	10	3.9				Northern Molucca Sea
12	02/08/2021	10:09:40	0.25	122.15	164	2.2				Minahassa Peninsula
13	02/08/2021	14:14:34	1.72	126.28	10	3.1				Northern Molucca Sea
14	02/08/2021	15:04:26	1.80	127.29	96	5.3	0.943608	1.6024	2.019846	Halmahera
15	02/08/2021	16:38:29	3.08	126.64	43	3.8				Talalud Islands
16	02/08/2021	16:44:57	5.14	127.21	106	4.1	0.110852	0.054363	0.081456	East of Philippines Islands
17	02/08/2021	17:32:44	2.06	126.76	10	3.4				Northern Molucca Sea
18	03/08/2021	00:07:45	0.26	124.13	64	3				Minahassa Peninsula
19	03/08/2021	02:40:52	5.99	126.53	156	4.7				Mindanao, Philippines
20	03/08/2021	09:47:25	-0.21	122.26	85	2.7				Minahassa Peninsula
21	03/08/2021	10:07:00	1.70	126.37	10	3.8				Northern Molucca Sea
22	03/08/2021	13:22:33	-0.25	124.46	14	3				Souther Molucca Sea
23	03/08/2021	15:37:04	0.25	122.39	122	2.3				Minahassa Peninsula
24	04/08/2021	04:10:16	0.25	126.44	10	4				Northern Molucca Sea
25	04/08/2021	04:44:30	3.95	126.05	124	4.5				Talalud Islands
26	04/08/2021	05:42:37	2.41	125.92	112	4.6				Talalud Islands
27	04/08/2021	11:45:35	0.35	121.00	85	2.3				Minahassa Peninsula
28	04/08/2021	16:21:25	0.62	122.32	73	3.4				Minahassa Peninsula
29	04/08/2021	16:56:49	4.92	125.30	36	4.9				Talalud Islands
30	04/08/2021	18:29:08	0.84	126.20	10	4				Northern Molucca Sea
31	04/08/2021	19:11:36	4.86	127.42	84	5.1	0.075673	0.070251	0.084685	Talalud Islands
32	05/08/2021	00:16:02	1.50	126.59	10	3.6				Northern Molucca Sea
33	05/08/2021	05:10:37	0.71	122.24	91	4.8	0.210683	0.267394	0.264551	Minahassa Peninsula
34	05/08/2021	06:03:01	1.16	124.36	302	3.9				Minahassa Peninsula
35	05/08/2021	07:44:21	1.45	124.23	333	3.4				Minahassa Peninsula
36	05/08/2021	08:07:21	3.72	127.58	10	3.8				Talalud Islands
37	05/08/2021	09:46:09	3.75	117.76	5	4.4				Borneo
38	05/08/2021	13:58:38	2.05	128.42	33	3.3				Halmahera
39	05/08/2021	14:40:52	3.79	126.01	10	4				Talalud Islands
40	05/08/2021	19:28:59	1.26	126.10	93	3.2				Northern Molucca Sea
41	06/08/2021	00:07:14	2.96	126.66	32	3.8				Northern Molucca Sea
42	06/08/2021	03:42:54	6.06	127.62	25	4.6				East of Philippines Islands
43	06/08/2021	05:24:08	5.10	127.45	112	4.6	0.072882	0.087947	0.097509	East of Philippines Islands
44	06/08/2021	06:41:45	-0.18	122.88	38	2.7				Minahassa Peninsula
45	06/08/2021	07:41:17	2.13	126.82	10	4				Northern Molucca Sea
46	06/08/2021	13:09:28	0.25	122.43	115	3				Minahassa Peninsula
47	06/08/2021	16:01:39	1.06	125.58	27	4.4	1.649725	1.89021	2.450122	Northern Molucca Sea
48	06/08/2021	16:08:58	5.00	123.02	557	4.7				Celebes Sea
49	06/08/2021	20:17:18	0.94	119.34	133	3.3				Minahassa Peninsula
50	06/08/2021	21:17:21	-0.10	125.33	10	3.8				Souther Molucca Sea
51	06/08/2021	23:26:30	0.19	122.34	155	2.4				Minahassa Peninsula

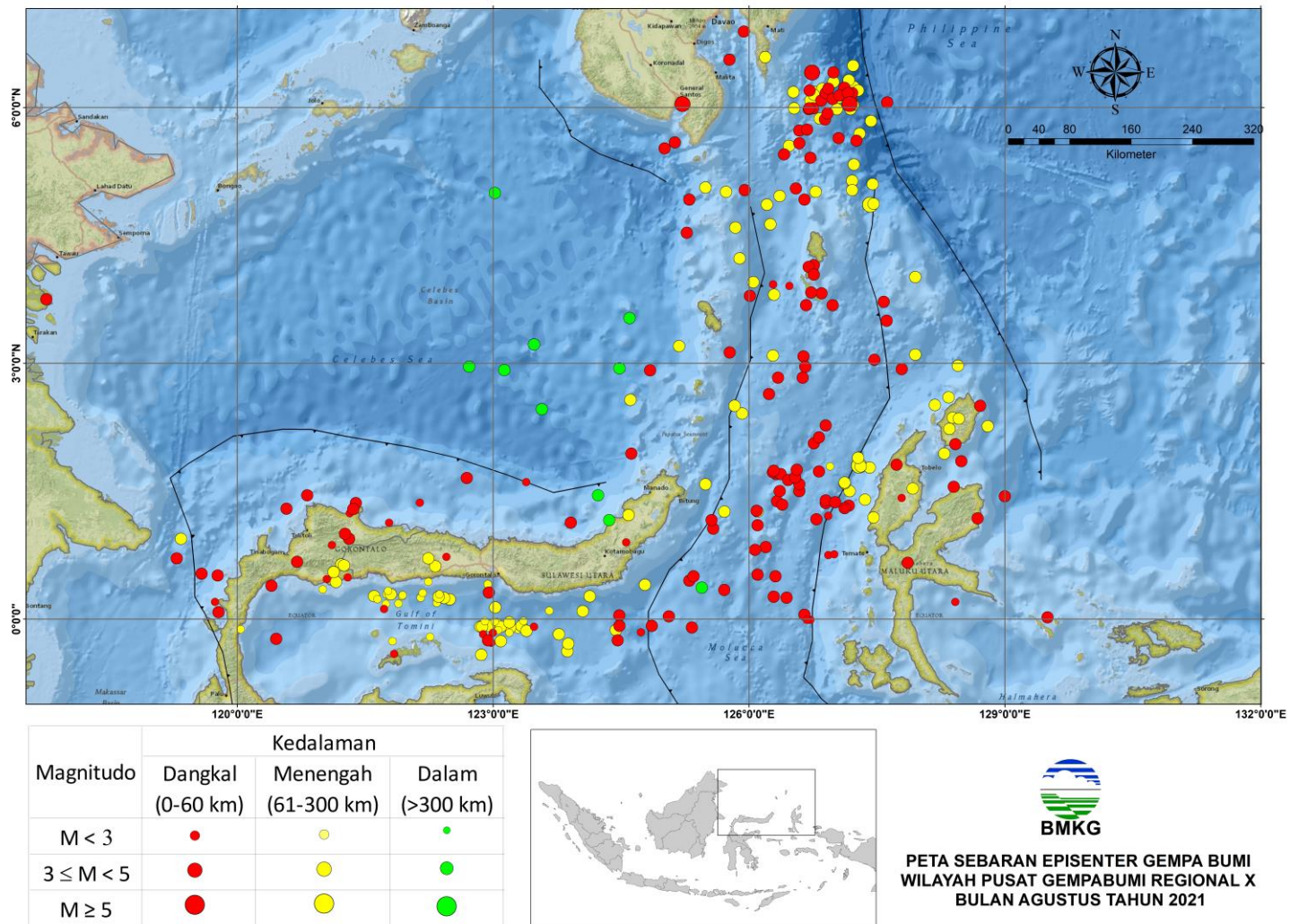
52	07/08/2021	05:03:42	-0.23	120.46	10	3.9				Minahassa Peninsula
53	07/08/2021	05:13:27	0.50	126.31	10	3.6				Northern Molucca Sea
54	07/08/2021	05:34:57	3.50	127.61	12	3.9				Talalud Islands
55	07/08/2021	06:10:31	0.26	126.29	10	3.9				Northern Molucca Sea
56	07/08/2021	06:44:46	0.52	126.10	10	4.3	0.135098	0.239352	0.2668	Northern Molucca Sea
57	07/08/2021	08:07:54	0.26	126.29	18	4				Northern Molucca Sea
58	07/08/2021	11:37:59	2.26	128.80	240	3.8				Halmahera
59	07/08/2021	16:34:04	0.34	125.71	10	3.3				Northern Molucca Sea
60	08/08/2021	00:53:42	1.78	127.42	105	3.4				Halmahera
61	08/08/2021	03:31:22	0.43	121.16	77	3				Minahassa Peninsula
62	08/08/2021	06:03:05	1.85	128.49	19	3.3				Halmahera
63	08/08/2021	07:07:06	1.58	126.59	19	4.2				Northern Molucca Sea
64	08/08/2021	10:22:16	2.96	122.72	540	4				Celebes Sea
65	08/08/2021	13:35:55	1.79	127.31	95	4.8	0.253118	0.317341	0.253665	Halmahera
66	08/08/2021	15:07:56	2.57	124.61	258	3.4				Celebes Sea
67	09/08/2021	01:01:18	-0.16	123.00	35	2.7				Minahassa Peninsula
68	09/08/2021	06:08:32	-0.26	123.09	61	3.7				Minahassa Peninsula
69	09/08/2021	08:01:54	1.26	125.71	175	3.8				Northern Molucca Sea
70	09/08/2021	09:18:15	1.65	122.69	10	3.2				Minahassa Peninsula
71	09/08/2021	15:51:21	-0.38	123.87	67	3.2				Minahassa Peninsula
72	09/08/2021	16:05:36	1.16	125.56	10	3.1				Northern Molucca Sea
73	09/08/2021	18:56:49	1.27	126.09	33	3.2				Northern Molucca Sea
74	09/08/2021	21:44:33	5.03	125.95	10	4				Mindanao, Philippines
75	10/08/2021	00:15:20	1.22	124.59	209	3.6				Minahassa Peninsula
76	10/08/2021	05:13:40	1.74	126.29	10	3.9				Northern Molucca Sea
77	10/08/2021	06:47:50	1.24	121.32	10	2.8				Minahassa Peninsula
78	10/08/2021	06:56:10	0.39	120.40	31	3.8				Minahassa Peninsula
79	10/08/2021	11:22:25	0.75	126.93	10	2.8				Northern Molucca Sea
80	10/08/2021	11:24:56	0.40	124.78	65	3.9				Minahassa Peninsula
81	10/08/2021	11:32:40	4.01	127.95	112	4.4				Talalud Islands
82	10/08/2021	14:26:24	1.17	126.79	35	3.1				Northern Molucca Sea
83	10/08/2021	15:12:16	4.63	126.25	117	3.8				Talalud Islands
84	10/08/2021	16:24:37	-0.10	123.20	84	3.3				Minahassa Peninsula
85	11/08/2021	03:38:48	1.50	127.18	108	3.4				Halmahera
86	11/08/2021	04:48:57	1.38	126.33	18	3.6				Northern Molucca Sea
87	11/08/2021	11:59:16	1.59	127.12	99	3.4				Halmahera
88	11/08/2021	14:55:40	1.61	123.39	10	2.7				Minahassa Peninsula
89	11/08/2021	16:24:51	-0.03	123.02	93	2.1				Minahassa Peninsula
90	11/08/2021	17:46:17	6.41	126.74	51	7.1	0.301511	0.394643	0.387169	Mindanao, Philippines
91	11/08/2021	18:23:46	5.98	126.70	10	4.7				Mindanao, Philippines
92	11/08/2021	18:28:24	5.86	126.89	10	4.8				Mindanao, Philippines
93	11/08/2021	18:44:08	5.93	126.92	10	4.5				Mindanao, Philippines
94	11/08/2021	19:25:25	6.89	125.94	58	4.5				Mindanao, Philippines
95	11/08/2021	20:23:40	6.18	126.77	97	4.1				Mindanao, Philippines
96	11/08/2021	20:53:13	6.20	126.71	10	4.7				Mindanao, Philippines
97	11/08/2021	21:12:22	1.50	126.36	10	3.9				Northern Molucca Sea
98	11/08/2021	21:45:02	-0.16	123.19	112	2.5				Minahassa Peninsula
99	11/08/2021	23:09:09	1.63	126.46	27	3.7				Northern Molucca Sea
100	11/08/2021	23:34:30	6.11	127.05	113	4.5	0.201591	0.18022	0.128764	East of Philippines Islands
101	12/08/2021	00:50:50	2.64	126.23	35	3.2				Northern Molucca Sea
102	12/08/2021	01:52:48	5.87	126.83	140	4.3				Mindanao, Philippines
103	12/08/2021	02:26:12	6.30	126.99	92	4.9	0.139728	0.109955	0.146264	Mindanao, Philippines
104	12/08/2021	05:01:30	5.58	126.59	10	4.1				Mindanao, Philippines
105	12/08/2021	05:25:25	6.08	126.85	10	4.7				Mindanao, Philippines
106	12/08/2021	07:49:52	0.30	122.18	131	2.7				Minahassa Peninsula
107	12/08/2021	08:17:31	6.17	126.90	10	4.5				Mindanao, Philippines
108	12/08/2021	08:49:55	6.23	127.12	10	4.8				East of Philippines Islands
109	12/08/2021	09:07:58	6.14	127.07	70	4.7				East of Philippines Islands
110	12/08/2021	10:37:43	6.49	127.22	99	4.3				East of Philippines Islands

111	12/08/2021	11:25:13	5.69	127.30	135	4.6				East of Philippines Islands
112	12/08/2021	13:00:18	5.73	126.59	12	4.5				Mindanao, Philippines
113	12/08/2021	13:34:36	1.66	126.54	16	4.7				Northern Molucca Sea
114	12/08/2021	13:48:24	6.41	126.99	10	4.4				Mindanao, Philippines
115	12/08/2021	14:03:01	6.22	126.93	10	4.8				Mindanao, Philippines
116	12/08/2021	14:50:57	3.04	127.47	20	3.6				Talalud Islands
117	12/08/2021	14:54:17	6.09	127.20	10	4.9				East of Philippines Islands
118	12/08/2021	16:18:41	5.41	126.72	10	4.1				Mindanao, Philippines
119	12/08/2021	16:25:39	5.98	127.03	67	4.4				East of Philippines Islands
120	12/08/2021	16:58:32	3.09	126.28	90	3.6				Talalud Islands
121	12/08/2021	17:21:03	0.53	119.58	11	4.8				Minahassa Peninsula
122	12/08/2021	17:26:10	0.71	119.29	10	4				Minahassa Peninsula
123	12/08/2021	18:01:34	5.01	126.78	79	4.8	0.07494	0.044993	0.047716	Mindanao, Philippines
124	12/08/2021	18:33:13	4.92	126.65	19	4.3				Talalud Islands
125	12/08/2021	21:14:21	5.99	126.75	28	4.5				Mindanao, Philippines
126	12/08/2021	22:33:13	6.18	126.52	106	4				Mindanao, Philippines
127	13/08/2021	03:56:36	6.24	127.23	124	4.5				East of Philippines Islands
128	13/08/2021	04:37:09	3.13	125.77	7	3.5				Talalud Islands
129	13/08/2021	05:38:02	6.08	126.72	105	4.3				Mindanao, Philippines
130	13/08/2021	07:41:46	1.53	127.92	79	3.6				Halmahera
131	13/08/2021	08:10:52	-0.09	123.48	13	2.7				Minahassa Peninsula
132	13/08/2021	09:26:44	-0.08	123.33	129	3.6				Minahassa Peninsula
133	13/08/2021	10:50:51	6.17	127.21	10	4.4				East of Philippines Islands
134	13/08/2021	10:53:52	0.87	121.11	10	2.9				Minahassa Peninsula
135	13/08/2021	15:02:57	5.98	127.19	104	4.3				East of Philippines Islands
136	13/08/2021	15:31:01	2.83	126.63	10	3.2				Northern Molucca Sea
137	13/08/2021	17:18:39	0.31	122.95	10	3.4				Minahassa Peninsula
138	13/08/2021	17:33:17	6.10	126.98	10	4.8	0.038716	0.027683	0.042455	Mindanao, Philippines
139	13/08/2021	18:03:16	6.14	127.06	10	4.3				East of Philippines Islands
140	13/08/2021	18:17:12	6.17	127.16	10	4.3				East of Philippines Islands
141	13/08/2021	18:25:49	6.22	126.86	109	4.3				Mindanao, Philippines
142	14/08/2021	01:27:41	6.04	127.18	57	5.2				East of Philippines Islands
143	14/08/2021	02:13:58	6.03	127.22	112	4.6				East of Philippines Islands
144	14/08/2021	05:10:19	-0.06	123.04	71	3				Minahassa Peninsula
145	14/08/2021	09:25:12	1.29	120.58	3	3.7				Minahassa Peninsula
146	14/08/2021	12:47:39	0.37	125.45	703	4.4				Northern Molucca Sea
147	14/08/2021	16:34:51	6.59	126.19	86	4.5				Mindanao, Philippines
148	14/08/2021	20:11:06	2.60	128.34	189	3.6				Halmahera
149	15/08/2021	01:54:55	0.49	121.30	54	2.8				Minahassa Peninsula
150	15/08/2021	04:57:22	1.33	127.17	3	3				Halmahera
151	15/08/2021	05:50:16	5.84	127.43	141	4.2				East of Philippines Islands
152	15/08/2021	08:06:32	6.15	126.76	125	4.4	0.136117	0.066083	0.108824	Mindanao, Philippines
153	15/08/2021	10:09:32	0.27	121.60	194	3.1				Minahassa Peninsula
154	15/08/2021	12:42:26	0.81	126.07	3	3.1				Northern Molucca Sea
155	15/08/2021	13:51:55	0.64	121.22	66	3.1				Minahassa Peninsula
156	15/08/2021	14:44:42	-0.28	122.98	7	2.3				Minahassa Peninsula
157	15/08/2021	15:05:38	-0.18	123.77	106	3.5				Minahassa Peninsula
158	15/08/2021	23:30:42	1.44	129.00	10	3.6				Halmahera
159	16/08/2021	05:10:17	1.10	126.10	12	3.2				Northern Molucca Sea
160	16/08/2021	08:37:00	-0.26	121.82	278	2.6				Minahassa Peninsula
161	16/08/2021	11:26:53	0.57	121.16	76	2.9				Minahassa Peninsula
162	16/08/2021	14:38:30	1.36	126.90	29	3.7				Northern Molucca Sea
163	16/08/2021	21:05:40	1.39	126.90	25	3.2				Northern Molucca Sea
164	16/08/2021	22:22:38	5.33	127.23	81	4.2				East of Philippines Islands
165	16/08/2021	22:36:21	-0.09	122.85	127	3				Minahassa Peninsula
166	16/08/2021	22:47:38	0.29	121.75	206	2.8				Minahassa Peninsula
167	17/08/2021	01:01:47	-0.25	122.94	21	3				Minahassa Peninsula
168	17/08/2021	07:27:32	3.68	126.98	30	3.7				Talalud Islands

169	17/08/2021	08:40:36	2.51	128.18	146	3.5				Halmahera
170	17/08/2021	11:07:52	4.96	126.36	92	4				Talalud Islands
171	17/08/2021	12:26:47	-0.13	122.88	117	2.6				Minahassa Peninsula
172	17/08/2021	13:16:21	0.45	125.30	15	3.2				Northern Molucca Sea
173	17/08/2021	14:03:26	1.79	126.95	85	2.9				Northern Molucca Sea
174	17/08/2021	17:17:57	0.09	124.05	72	3.3				Minahassa Peninsula
175	17/08/2021	17:24:02	0.67	120.70	53	3.9				Minahassa Peninsula
176	18/08/2021	00:41:18	1.36	122.14	10	2.5				Minahassa Peninsula
177	18/08/2021	02:47:45	2.97	128.45	216	3.9				Halmahera
178	18/08/2021	03:06:26	1.37	127.01	28	3.4				Halmahera
179	18/08/2021	06:00:11	-0.02	123.36	134	2.9				Minahassa Peninsula
180	18/08/2021	09:28:04	0.47	121.05	13	2.7				Minahassa Peninsula
181	18/08/2021	13:11:25	4.15	126.76	56	4.1	0.10305	0.058149	0.072155	Talalud Islands
182	18/08/2021	16:16:41	0.18	121.89	187	2.6				Minahassa Peninsula
183	18/08/2021	19:37:07	-0.42	122.86	120	3.1				Minahassa Peninsula
184	18/08/2021	22:51:12	0.18	121.74	195	2.5				Minahassa Peninsula
185	19/08/2021	04:53:47	-0.09	123.09	133	3.4				Minahassa Peninsula
186	19/08/2021	14:07:54	1.55	128.40	22	4				Halmahera
187	19/08/2021	15:54:28	1.73	126.82	13	3.1				Northern Molucca Sea
188	19/08/2021	17:18:16	2.92	123.13	467	4.2	0.03647	0.038476	0.03944	Celebes Sea
189	19/08/2021	19:34:23	-0.13	124.44	81	3.2				Souther Molucca Sea
190	19/08/2021	19:42:28	4.23	125.89	143	3.9				Talalud Islands
191	19/08/2021	22:53:36	0.14	123.02	103	3.3				Minahassa Peninsula
192	19/08/2021	22:59:14	4.59	125.84	97	3.6				Talalud Islands
193	20/08/2021	00:20:31	5.05	126.55	8	4.2	0.161173	0.116786	0.187098	Mindanao, Philippines
194	20/08/2021	06:49:38	0.66	127.86	10	3.2				Halmahera
195	20/08/2021	10:14:07	-0.01	126.72	10	2.9				Souther Molucca Sea
196	20/08/2021	16:06:43	0.02	129.50	11	3.1				Halmahera
197	20/08/2021	17:07:58	0.10	123.66	133	2.9				Minahassa Peninsula
198	20/08/2021	20:33:11	0.05	126.65	24	3.1				Northern Molucca Sea
199	20/08/2021	22:21:55	3.22	123.48	486	3.9				Celebes Sea
200	20/08/2021	23:55:06	3.83	126.73	40	4.3				Talalud Islands
201	21/08/2021	02:27:03	1.13	121.78	10	2.2				Minahassa Peninsula
202	21/08/2021	04:43:15	0.29	121.80	185	3.7				Minahassa Peninsula
203	21/08/2021	04:45:26	5.01	125.73	163	4.4				Mindanao, Philippines
204	21/08/2021	07:56:03	1.36	121.39	3	3.2				Minahassa Peninsula
205	21/08/2021	08:19:47	0.41	122.94	109	2.1				Minahassa Peninsula
206	21/08/2021	12:49:49	2.93	127.79	10	3.4				Northern Molucca Sea
207	21/08/2021	14:46:09	0.94	121.31	7	3.3				Minahassa Peninsula
208	21/08/2021	15:31:10	1.29	121.36	1	3.7				Minahassa Peninsula
209	21/08/2021	15:37:19	1.30	127.12	10	4.8	0.070889	0.07856	0.084405	Halmahera
210	21/08/2021	16:14:32	1.30	127.12	10	2.7				Halmahera
211	21/08/2021	20:22:02	1.21	126.93	31	2.8				Northern Molucca Sea
212	21/08/2021	20:28:58	-0.01	126.68	24	2.9				Souther Molucca Sea
213	22/08/2021	03:20:25	4.13	126.70	45	4.6	0.122108	0.083764	0.094897	Talalud Islands
214	22/08/2021	06:26:25	3.80	126.29	106	3.5				Talalud Islands
215	22/08/2021	06:44:53	0.44	122.24	145	2.2				Minahassa Peninsula
216	22/08/2021	10:41:58	0.04	124.48	10	3.9				Minahassa Peninsula
217	22/08/2021	11:07:23	1.45	120.82	17	4.6	0.108932	0.076306	0.105205	Minahassa Peninsula
218	22/08/2021	18:05:43	1.60	127.12	117	3.8				Halmahera
219	22/08/2021	18:12:16	1.13	123.91	4	3.3				Minahassa Peninsula
220	22/08/2021	18:26:41	-0.14	123.39	144	3.1				Minahassa Peninsula
221	22/08/2021	22:19:55	1.18	128.68	13	3.6				Halmahera
222	22/08/2021	23:39:53	0.63	121.25	72	3.6				Minahassa Peninsula
223	23/08/2021	00:11:20	3.68	126.67	10	3.6				Talalud Islands
224	23/08/2021	12:10:47	0.73	122.45	33	2.6				Minahassa Peninsula
225	23/08/2021	12:22:53	2.94	124.48	308	4.2	0.097396	0.058811	0.087396	Celebes Sea
226	23/08/2021	13:43:23	-0.13	123.06	84	2.3				Minahassa Peninsula

227	23/08/2021	14:57:08	3.91	126.47	10	2.8				Talalud Islands
228	23/08/2021	16:12:07	-0.08	122.95	187	4				Minahassa Peninsula
229	23/08/2021	19:37:39	-0.41	121.84	10	2.7				Minahassa Peninsula
230	24/08/2021	09:03:10	-0.09	122.87	172	3.2				Minahassa Peninsula
231	24/08/2021	11:19:44	2.50	128.71	10	4.2				Halmahera
232	24/08/2021	11:45:26	6.56	125.77	10	4.3				Mindanao, Philippines
233	24/08/2021	11:56:56	2.50	125.83	102	3.4				Talaud Islands
234	24/08/2021	12:43:29	2.83	126.34	10	3.1				Northern Molucca Sea
235	24/08/2021	13:22:04	1.42	127.79	12	2.2				Halmahera
236	24/08/2021	16:26:42	2.35	128.46	227	3.2				Halmahera
237	24/08/2021	18:17:53	4.04	126.76	14	4.5				Talalud Islands
238	24/08/2021	19:49:49	2.46	123.57	357	3.4				Celebes Sea
239	24/08/2021	20:39:15	1.19	127.46	143	3				Halmahera
240	24/08/2021	20:59:58	-0.04	123.19	121	3.3				Minahassa Peninsula
241	25/08/2021	03:32:39	1.89	127.28	70	4				Halmahera
242	25/08/2021	05:01:07	1.94	124.62	10	3.2				Minahassa Peninsula
243	25/08/2021	08:33:28	5.74	126.68	10	4.3				Mindanao, Philippines
244	25/08/2021	14:34:15	0.20	128.42	10	2.6				Halmahera
245	26/08/2021	05:27:55	0.08	119.78	27	3.1				Minahassa Peninsula
246	26/08/2021	09:23:14	5.06	125.49	190	4.7				Mindanao, Philippines
247	26/08/2021	14:30:10	4.53	125.27	23	4.8	0.056768	0.042586	0.049405	Talalud Islands
248	26/08/2021	20:39:42	5.55	126.47	129	4.8				Mindanao, Philippines
249	27/08/2021	03:12:42	0.26	122.36	144	4.5				Minahassa Peninsula
250	27/08/2021	04:52:56	0.28	116.47	10	3.4				Borneo
251	27/08/2021	07:15:17	5.64	127.05	10	4.2				East of Philippines Islands
252	27/08/2021	07:38:40	0.23	121.64	148	2.7				Minahassa Peninsula
253	27/08/2021	08:44:04	2.92	124.84	26	4.1				Celebes Sea
254	27/08/2021	10:22:20	6.04	125.22	10	6.1				Mindanao, Philippines
255	27/08/2021	11:36:26	5.59	125.13	10	4.3				Mindanao, Philippines
256	27/08/2021	14:04:42	0.50	125.35	10	3.3				Northern Molucca Sea
257	27/08/2021	14:49:51	5.52	125.01	11	3.9				Mindanao, Philippines
258	27/08/2021	15:02:29	3.10	127.95	104	3.5				Talalud Islands
259	27/08/2021	21:27:46	0.03	125.06	12	3.5				Northern Molucca Sea
260	28/08/2021	02:16:11	3.20	125.18	179	4.2				Talalud Islands
261	28/08/2021	06:56:29	0.51	119.77	7	3				Minahassa Peninsula
262	28/08/2021	10:47:42	-0.29	123.88	81	3.8				Minahassa Peninsula
263	28/08/2021	11:25:08	7.44	127.19	116	4.6				East of Philippines Islands
264	28/08/2021	13:08:17	0.27	121.93	167	2.1				Minahassa Peninsula
265	28/08/2021	13:25:34	-0.12	120.04	67	2.9				Minahassa Peninsula
266	28/08/2021	16:50:11	-0.16	124.73	26	2.9				Souther Molucca Sea
267	28/08/2021	17:44:20	0.55	121.13	64	3.1				Minahassa Peninsula
268	28/08/2021	19:14:48	1.00	121.26	10	3.5				Minahassa Peninsula
269	28/08/2021	19:17:28	5.99	126.71	10	4.2				Mindanao, Philippines
270	28/08/2021	19:22:09	0.33	121.77	190	2.8				Minahassa Peninsula
271	28/08/2021	19:25:08	4.87	127.46	89	4				Talalud Islands
272	28/08/2021	19:30:29	3.92	126.28	18	2.9				Talalud Islands
273	28/08/2021	20:15:18	0.76	127.00	10	2.4				Halmahera, Indonesia
274	28/08/2021	23:34:32	-0.03	122.90	149	2.5				Minahassa Peninsula
275	29/08/2021	03:50:44	0.28	121.94	170	2.8				Minahassa Peninsula
276	29/08/2021	06:53:01	5.61	127.26	10	4.5				East of Philippines Islands
277	29/08/2021	08:34:50	1.75	126.56	10	3.6				Northern Molucca Sea
278	29/08/2021	13:17:24	0.90	124.56	25	2.4				Minahassa Peninsula
279	29/08/2021	14:34:46	4.86	126.21	89	3.9				Talalud Islands
280	29/08/2021	14:44:46	2.23	128.35	241	3.6				Halmahera
281	29/08/2021	14:52:54	8.71	125.76	10	5.2	0.117841	0.056147	0.116762	Mindanao, Philippines
282	29/08/2021	15:05:22	1.40	127.36	115	4.3				Halmahera
283	29/08/2021	16:57:29	1.81	127.73	38	3.2				Halmahera, Indonesia
284	29/08/2021	19:04:21	0.29	122.37	116	2.5				Minahassa Peninsula
285	30/08/2021	05:21:53	5.03	127.21	98	4.3				East of Philippines Islands

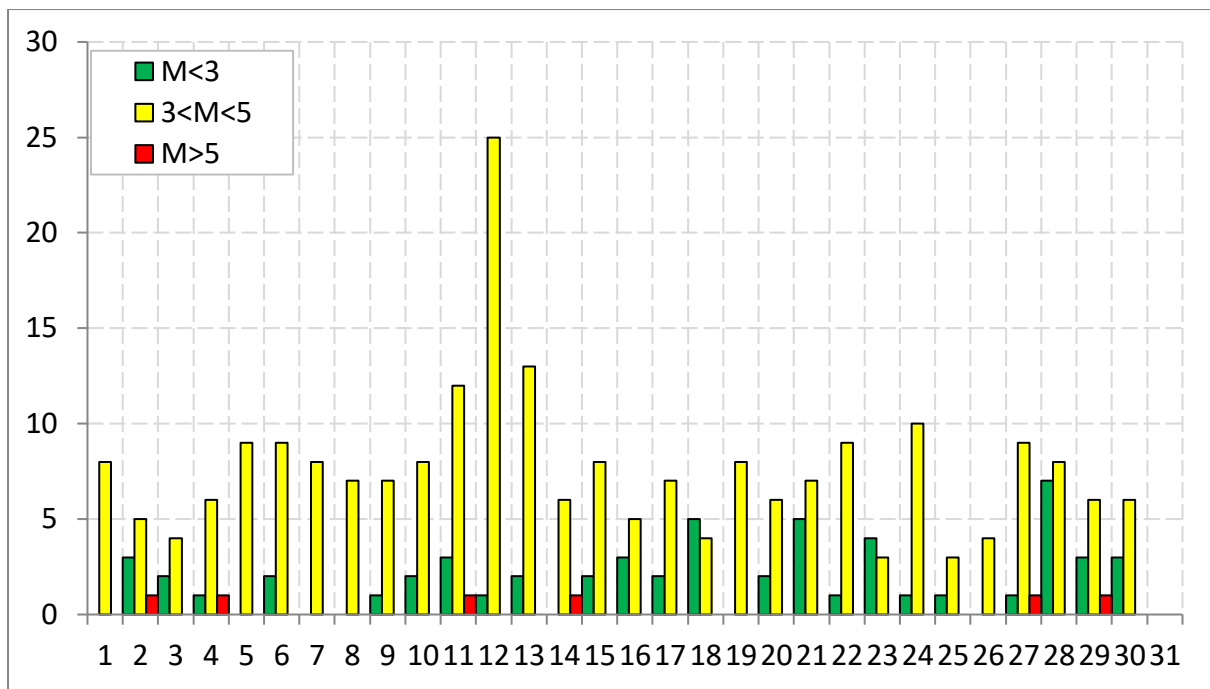
286	30/08/2021	05:51:22	-0.03	123.02	138	2.7				Minahassa Peninsula
287	30/08/2021	06:54:04	6.32	127.17	145	4.3				East of Philippines Islands
288	30/08/2021	10:20:54	5.45	126.41	10	4				Mindanao, Philippines
289	30/08/2021	11:49:04	0.20	119.74	17	2.5				Minahassa Peninsula
290	30/08/2021	13:36:54	6.20	127.28	116	4.3				East of Philippines Islands
291	30/08/2021	17:06:03	1.34	126.39	10	3.5				Northern Molucca Sea
292	30/08/2021	21:05:26	-0.08	124.48	22	4.8	0.074846	0.077412	0.104541	Souther Molucca Sea
293	30/08/2021	23:02:41	0.12	121.72	22	2.3				Minahassa Peninsula



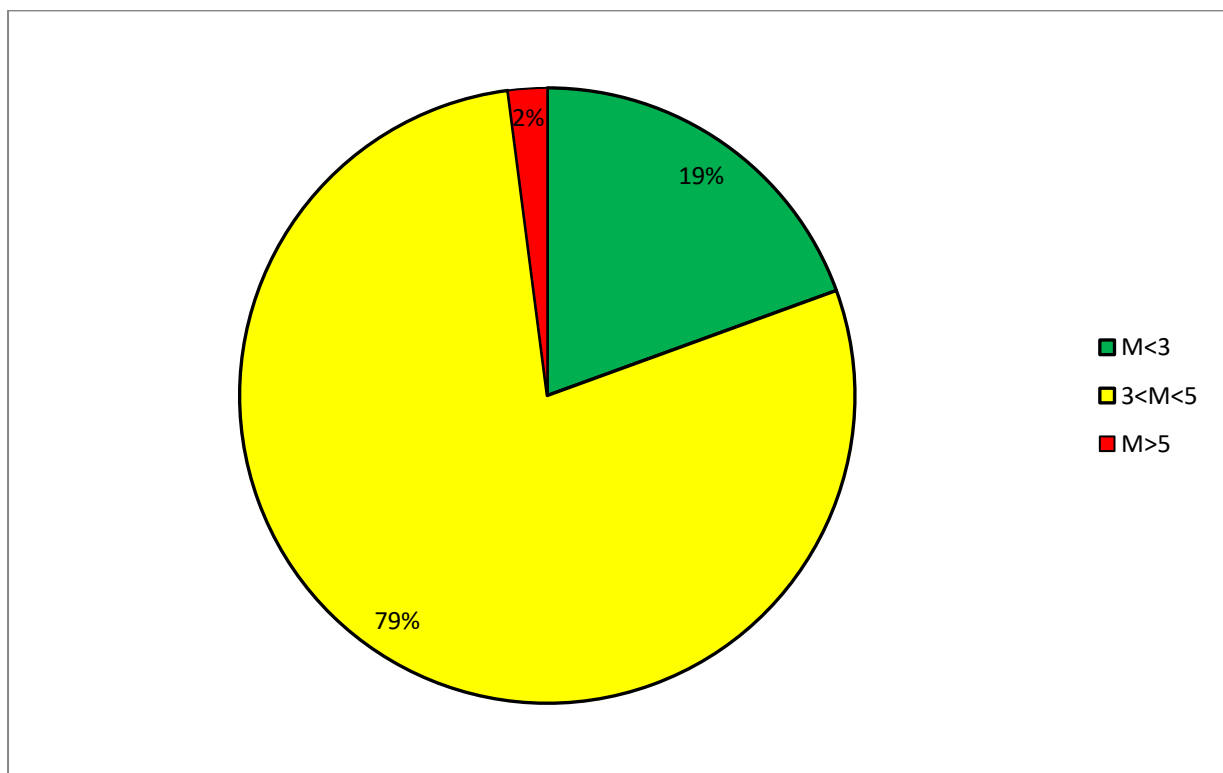
Gambar 26 Sebaran episenter gempabumi bulan Agustus 2021

Tabel 18 Rekapitulasi gempabumi berdasarkan magnitudo bulan Agustus 2021

Tanggal (UTC)	Magnitudo			Jumlah Total	Jumlah Gempa Signifikan	
	M<3	3≤M<5	M≥5		Dirasakan	Merusak
1	0	8	0	8	1	0
2	3	5	1	9	1	0
3	2	4	0	6	0	0
4	1	6	1	8	0	0
5	0	9	0	9	1	0
6	2	9	0	11	1	0
7	0	8	0	8	0	0
8	0	7	0	7	0	0
9	1	7	0	8	0	0
10	2	8	0	10	0	0
11	3	12	1	16	1	0
12	1	25	0	26	0	0
13	2	13	0	15	0	0
14	0	6	1	7	0	0
15	2	8	0	10	0	0
16	3	5	0	8	0	0
17	2	7	0	9	0	0
18	5	4	0	9	0	0
19	0	8	0	8	0	0
20	2	6	0	8	0	0
21	5	7	0	12	1	0
22	1	9	0	10	1	0
23	4	3	0	7	0	0
24	1	10	0	11	0	0
25	1	3	0	4	0	0
26	0	4	0	4	0	0
27	1	9	1	11	1	0
28	7	8	0	15	0	0
29	3	6	1	10	0	0
30	3	6	0	9	0	0
31	0	0	0	0	0	0
Jumlah gempa	57	230	6	293	8	0



Gambar 27 Grafik gempa bumi berdasarkan magnitudo bulan Agustus 2021



Gambar 28 Grafik persentase gempa bumi berdasarkan magnitudo bulan Agustus 2021

I. Data Gempabumi Bulan September 2021

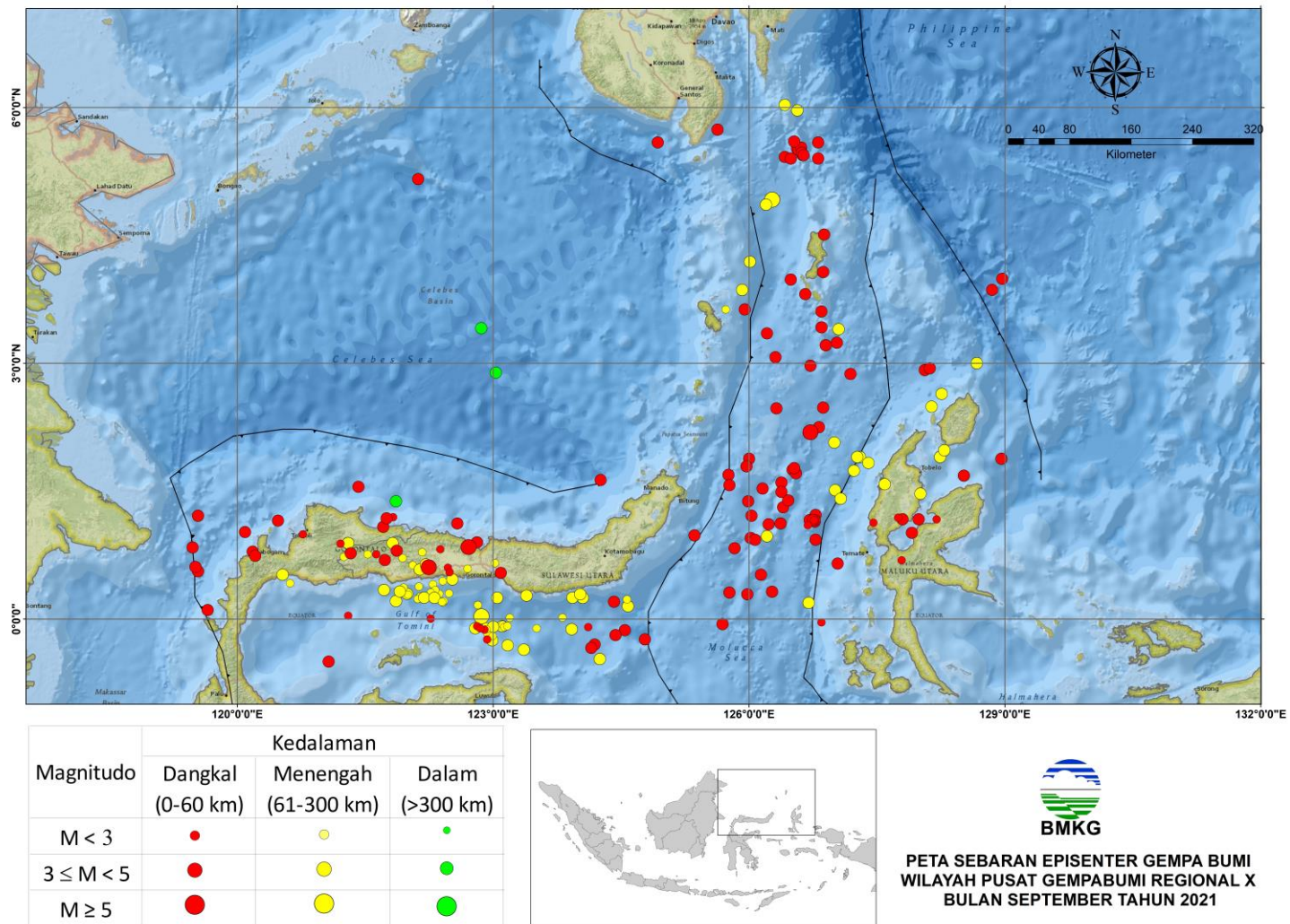
Tabel 19 Data kejadian gempabumi bulan September 2021

No	Date	OT (UTC)	Epicenter		Depth (km)	Mag	PGA (gals) / SLMI			Region
			Lat	Long			X	Y	Z	
1	01/09/2021	3:28:23	1.15	128.24	5	3.9				Halmahera
2	01/09/2021	5:08:05	1.17	127.80	10	3.1				Halmahera
3	01/09/2021	6:38:33	0.72	121.94	72	2.2				Minahassa Peninsula
4	01/09/2021	12:09:43	1.17	128.20	10	2.8				Halmahera
5	01/09/2021	13:18:10	0.93	126.78	38	3.0				Northern Molucca Sea
6	01/09/2021	13:40:38	-0.12	123.92	119	4.5				Minahassa Peninsula
7	01/09/2021	14:33:20	1.13	127.46	6	2.8				Halmahera
8	01/09/2021	15:21:48	-0.04	126.85	13	2.9				Souther Molucca Sea
9	02/09/2021	1:55:12	3.81	126.66	29	4.2				Talalud Islands
10	02/09/2021	2:38:18	1.90	127.30	109	3.5				Halmahera
11	02/09/2021	3:12:29	0.29	121.99	165	3.7				Minahassa Peninsula
12	02/09/2021	8:40:28	0.45	122.41	86	2.3				Minahassa Peninsula
13	02/09/2021	10:27:47	-0.47	124.25	77	3.2				Souther Molucca Sea
14	02/09/2021	14:23:53	0.59	122.70	63	2.5				Minahassa Peninsula
15	02/09/2021	15:48:50	4.19	126.01	129	3.7				Talalud Islands
16	02/09/2021	15:51:07	0.15	124.58	68	3.4				Minahassa Peninsula
17	02/09/2021	16:09:54	5.59	126.81	10	3.8				Mindanao, Philippines
18	02/09/2021	17:52:49	3.98	126.49	31	3.5				Talalud Islands
19	02/09/2021	19:01:04	3.63	125.73	131	2.8				Talalud Islands
20	02/09/2021	19:23:17	-0.24	122.93	22	2.5				Minahassa Peninsula
21	02/09/2021	21:52:45	1.74	127.23	118	3.6				Halmahera
22	02/09/2021	22:18:40	0.69	121.73	60	3.8				Minahassa Peninsula
23	02/09/2021	22:57:29	0.21	121.86	166	3.0				Minahassa Peninsula
24	02/09/2021	23:01:25	5.74	125.63	10	3.9				Mindanao, Philippines
25	02/09/2021	23:21:42	0.16	122.82	129	2.7				Minahassa Peninsula
26	02/09/2021	23:42:16	0.95	126.02	10	3.6				Northern Molucca Sea
27	03/09/2021	1:55:49	1.90	127.27	71	4.4				Halmahera
28	03/09/2021	19:03:45	0.25	124.05	182	3.6				Minahassa Peninsula
29	04/09/2021	0:55:30	0.41	122.29	100	2.3				Minahassa Peninsula
30	04/09/2021	1:16:43	0.30	122.37	189	2.4				Minahassa Peninsula
31	04/09/2021	3:46:05	3.99	128.97	24	4.6				North of Halmahera
32	04/09/2021	9:57:33	1.15	120.48	10	3.7				Minahassa Peninsula
33	04/09/2021	12:32:22	1.02	120.09	10	3.7				Minahassa Peninsula
34	04/09/2021	15:52:47	-0.24	124.50	11	4.9	0.172357	0.240143	0.260058	Souther Molucca Sea
35	05/09/2021	3:06:30	1.21	119.54	23	3.9				Celebes Sea
36	05/09/2021	5:34:37	-0.30	124.19	33	3.7				Souther Molucca Sea
37	05/09/2021	5:56:39	1.60	126.38	8	3.4				Northern Molucca Sea
38	05/09/2021	15:23:12	4.07	126.87	10	4.6				Talalud Islands
39	05/09/2021	17:04:14	0.23	124.57	100	2.9				Minahassa Peninsula
40	05/09/2021	18:58:14	0.73	121.25	70	2.7				Minahassa Peninsula
41	05/09/2021	23:01:01	-0.06	125.69	20	3.8				Souther Molucca Sea
42	06/09/2021	3:16:52	0.29	125.98	10	3.8				Northern Molucca Sea
43	06/09/2021	5:22:39	0.25	123.05	69	3.2				Minahassa Peninsula
44	06/09/2021	5:29:54	0.99	120.77	10	2.9				Minahassa Peninsula
45	06/09/2021	5:42:19	5.52	126.56	10	4.7				Mindanao, Philippines
46	06/09/2021	8:34:03	5.42	126.42	0	4.8				Mindanao, Philippines
47	06/09/2021	10:27:20	5.50	126.58	17	4.6				Mindanao, Philippines
48	06/09/2021	12:02:59	0.31	125.77	28	3.2				Northern Molucca Sea
49	06/09/2021	13:28:51	-0.25	122.99	65	3.4				Minahassa Peninsula
50	06/09/2021	14:34:44	0.60	122.47	5	2.9				Minahassa Peninsula
51	06/09/2021	15:51:34	0.52	120.53	62	3.1				Minahassa Peninsula
52	06/09/2021	16:50:14	5.44	126.63	0	4.5				Mindanao, Philippines
53	06/09/2021	21:16:29	5.53	126.61	10	4.5				Mindanao, Philippines

54	06/09/2021	23:53:46	3.24	127.03	10	4.5				Talalud Islands
55	07/09/2021	0:58:59	3.40	127.05	63	4.5				Talalud Islands
56	07/09/2021	2:29:30	5.40	126.81	10	4.8				Mindanao, Philippines
57	07/09/2021	6:26:19	1.90	128.24	111	3.6				Halmahera
58	07/09/2021	9:00:09	0.38	122.13	139	2.5				Minahassa Peninsula
59	07/09/2021	9:03:58	1.58	127.59	189	3.8				Halmahera
60	07/09/2021	10:35:44	-0.29	122.91	10	4.6				Minahassa Peninsula
61	07/09/2021	14:00:28	5.47	126.62	10	4.2				Mindanao, Philippines
62	07/09/2021	16:13:04	0.34	122.32	110	2.7				Minahassa Peninsula
63	07/09/2021	17:08:03	-0.34	124.15	50	3.4				Souther Molucca Sea
64	08/09/2021	2:04:10	-0.08	123.11	126	3.1				Minahassa Peninsula
65	08/09/2021	12:56:25	-0.40	123.09	69	4.4				Minahassa Peninsula
66	08/09/2021	15:22:57	0.76	121.63	39	2.6				Minahassa Peninsula
67	09/09/2021	3:53:55	1.19	121.83	10	2.4				Minahassa Peninsula
68	09/09/2021	5:19:52	5.97	126.57	133	4.9				Mindanao, Philippines
69	09/09/2021	9:37:49	1.08	121.71	10	3.2				Minahassa Peninsula
70	09/09/2021	15:18:03	5.40	126.49	10	4.4				Mindanao, Philippines
71	09/09/2021	19:32:14	0.84	119.48	10	3.5				Minahassa Peninsula
72	09/09/2021	20:11:50	-0.07	123.11	79	2.9				Minahassa Peninsula
73	09/09/2021	21:00:11	-0.09	122.92	119	2.6				Minahassa Peninsula
74	09/09/2021	22:38:22	0.19	126.70	96	4.2				Northern Molucca Sea
75	10/09/2021	0:20:55	1.75	126.51	10	3.6				Northern Molucca Sea
76	10/09/2021	0:47:14	-0.09	123.13	127	2.7				Minahassa Peninsula
77	10/09/2021	6:21:29	0.90	122.81	17	3.4				Minahassa Peninsula
78	10/09/2021	9:34:24	0.98	125.36	26	3.6				Northern Molucca Sea
79	10/09/2021	10:01:45	3.21	126.90	26	3.5				Talalud Islands
80	10/09/2021	15:33:19	2.92	128.06	10	4.2				Halmahera
81	10/09/2021	16:19:50	1.22	126.78	16	3.1				Northern Molucca Sea
82	10/09/2021	16:24:28	1.71	126.55	16	3.6				Northern Molucca Sea
83	10/09/2021	19:32:17	0.56	119.54	20	3.6				Minahassa Peninsula
84	10/09/2021	19:43:46	0.61	119.51	23	3.4				Minahassa Peninsula
85	10/09/2021	20:36:49	0.34	121.72	180	3.7				Minahassa Peninsula
86	11/09/2021	0:01:29	1.14	126.77	34	4.4				Northern Molucca Sea
87	11/09/2021	2:37:09	0.26	122.14	177	2.5				Minahassa Peninsula
88	11/09/2021	2:54:28	0.52	126.14	28	4.0				Northern Molucca Sea
89	11/09/2021	7:39:35	2.94	128.12	6	4.0				Halmahera
90	11/09/2021	10:48:32	3.00	128.67	86	3.4				Halmahera
91	11/09/2021	15:49:41	0.93	126.07	10	3.9				Northern Molucca Sea
92	11/09/2021	23:17:20	1.69	125.76	10	3.6				Northern Molucca Sea
93	12/09/2021	4:54:03	-0.31	123.17	116	4.0				Minahassa Peninsula
94	12/09/2021	8:36:50	0.02	123.81	88	2.9				Minahassa Peninsula
95	12/09/2021	11:26:14	1.53	126.16	28	3.8				Northern Molucca Sea
96	12/09/2021	12:14:40	5.44	126.64	10	4.6				Mindanao, Philippines
97	12/09/2021	12:57:06	-0.16	122.93	139	2.9				Minahassa Peninsula
98	12/09/2021	13:34:35	3.86	128.85	32	4.8				North of Halmahera
99	12/09/2021	14:39:51	1.16	126.71	15	3.0				Northern Molucca Sea
100	12/09/2021	16:59:06	1.12	126.37	9	3.3				Northern Molucca Sea
101	12/09/2021	22:39:09	0.55	122.49	10	2.9				Minahassa Peninsula
102	13/09/2021	6:40:52	-0.24	124.78	11	3.9				Souther Molucca Sea
103	13/09/2021	9:33:27	0.42	120.62	70	2.8				Minahassa Peninsula
104	13/09/2021	12:09:43	0.27	123.39	261	3.2				Minahassa Peninsula
105	13/09/2021	16:46:07	-0.11	123.51	103	2.9				Minahassa Peninsula
106	13/09/2021	17:19:25	1.88	126.00	22	3.5				Northern Molucca Sea
107	13/09/2021	23:08:59	2.25	126.82	21	4.2				Northern Molucca Sea
108	14/09/2021	9:55:52	5.16	122.12	22	4.7				Celebes Sea
109	14/09/2021	10:26:33	0.63	122.06	79	2.5				Minahassa Peninsula
110	14/09/2021	12:28:07	1.16	126.77	37	3.6				Northern Molucca Sea
111	14/09/2021	13:02:51	1.16	126.75	26	3.0				Northern Molucca Sea
112	14/09/2021	13:32:51	2.97	126.72	28	3.3				Northern Molucca Sea

113	14/09/2021	20:58:32	1.12	128.15	4	2.9				Halmahera
114	14/09/2021	21:03:36	1.11	128.17	5	3.9				Halmahera
115	14/09/2021	22:55:02	1.08	128.20	4	3.2				Halmahera
116	14/09/2021	23:18:43	1.31	126.40	10	3.2				Northern Molucca Sea
117	15/09/2021	0:49:47	1.28	122.16	20	5.4	1.716474	3.243731	2.83094	Minahassa Peninsula
118	15/09/2021	1:48:52	1.57	125.77	10	3.4				Northern Molucca Sea
119	15/09/2021	4:42:03	3.42	126.85	31	4.4				Talalud Islands
120	15/09/2021	8:56:29	1.15	128.09	7	3.7				Halmahera
121	15/09/2021	10:23:56	0.97	126.21	68	3.1				Northern Molucca Sea
122	15/09/2021	10:26:21	3.71	117.75	10	3.6				Borneo
123	15/09/2021	16:30:49	0.25	123.93	205	3.9				Minahassa Peninsula
124	15/09/2021	17:00:57	0.76	121.53	64	2.6				Minahassa Peninsula
125	15/09/2021	18:04:29	-0.09	123.00	113	3.2				Minahassa Peninsula
126	16/09/2021	0:52:21	0.46	122.52	73	3.0				Minahassa Peninsula
127	16/09/2021	3:53:42	3.61	126.85	48	3.4				Talalud Islands
128	16/09/2021	3:57:45	3.86	125.92	138	3.6				Talalud Islands
129	16/09/2021	4:25:45	1.47	128.01	124	3.7				Halmahera
130	16/09/2021	4:47:53	2.64	128.26	140	3.7				Halmahera
131	16/09/2021	5:05:55	0.30	122.48	131	2.8				Minahassa Peninsula
132	16/09/2021	6:41:45	-0.13	122.90	19	2.4				Minahassa Peninsula
133	16/09/2021	10:54:37	1.38	125.99	10	3.3				Northern Molucca Sea
134	16/09/2021	13:39:29	-0.08	122.81	10	2.5				Minahassa Peninsula
135	16/09/2021	17:29:26	1.19	127.75	10	2.7				Halmahera
136	16/09/2021	18:50:13	0.37	121.95	159	2.4				Minahassa Peninsula
137	17/09/2021	0:17:21	0.69	127.79	10	2.7				Halmahera
138	17/09/2021	2:35:05	0.88	121.21	30	2.8				Minahassa Peninsula
139	17/09/2021	3:55:39	0.77	121.33	35	3.8				Minahassa Peninsula
140	17/09/2021	6:42:44	0.80	121.87	39	3.6				Minahassa Peninsula
141	17/09/2021	7:23:40	1.12	122.58	10	4.0				Minahassa Peninsula
142	17/09/2021	8:44:23	1.83	127.40	122	4.6				Halmahera
143	17/09/2021	11:56:30	0.78	122.17	73	2.7				Minahassa Peninsula
144	17/09/2021	12:43:55	4.92	126.27	70	5.0				Talalud Islands
145	17/09/2021	14:03:49	2.47	126.32	23	3.2				Northern Molucca Sea
146	17/09/2021	21:26:24	0.82	122.38	32	2.6				Minahassa Peninsula
147	18/09/2021	1:43:20	-0.13	124.54	8	3.9				Souther Molucca Sea
148	18/09/2021	2:15:32	0.89	121.30	83	3.1				Minahassa Peninsula
149	18/09/2021	3:11:00	4.86	126.20	134	4.3				Talalud Islands
150	18/09/2021	3:40:37	0.79	120.18	10	4.1				Minahassa Peninsula
151	18/09/2021	8:28:57	1.38	121.86	471	3.8				Minahassa Peninsula
152	18/09/2021	9:37:53	6.03	126.42	162	4.4				Mindanao, Philippines
153	18/09/2021	12:35:08	0.65	127.04	10	3.1				Halmahera
154	18/09/2021	17:15:25	0.31	122.27	101	2.1				Minahassa Peninsula
155	18/09/2021	19:42:35	1.14	128.15	5	4.0				Halmahera
156	19/09/2021	7:37:14	-0.11	122.85	22	2.6				Minahassa Peninsula
157	19/09/2021	9:54:15	1.51	127.01	113	3.8				Halmahera
158	19/09/2021	15:14:37	0.83	125.83	22	3.5				Northern Molucca Sea
159	19/09/2021	16:51:17	-0.11	122.79	109	3.4				Minahassa Peninsula
160	19/09/2021	19:22:31	1.16	126.76	10	2.8				Northern Molucca Sea
161	19/09/2021	21:07:13	0.89	121.82	64	3.4				Minahassa Peninsula
162	20/09/2021	2:01:57	1.41	127.07	113	3.5				Halmahera
163	20/09/2021	9:17:57	-0.19	124.43	26	3.8				Souther Molucca Sea
164	20/09/2021	9:48:30	2.07	127.00	78	3.6				Northern Molucca Sea
165	20/09/2021	20:48:51	1.21	126.03	20	3.2				Northern Molucca Sea
166	20/09/2021	23:56:56	1.79	125.97	10	4.8	0.484951	0.813919	0.90262	Northern Molucca Sea
167	21/09/2021	2:57:02	0.00	122.27	16	2.4				Minahassa Peninsula
168	21/09/2021	4:12:18	0.24	122.11	160	2.7				Minahassa Peninsula
169	21/09/2021	12:29:48	3.12	117.66	10	3.9				Borneo
170	21/09/2021	12:58:57	0.58	122.14	79	3.3				Minahassa Peninsula

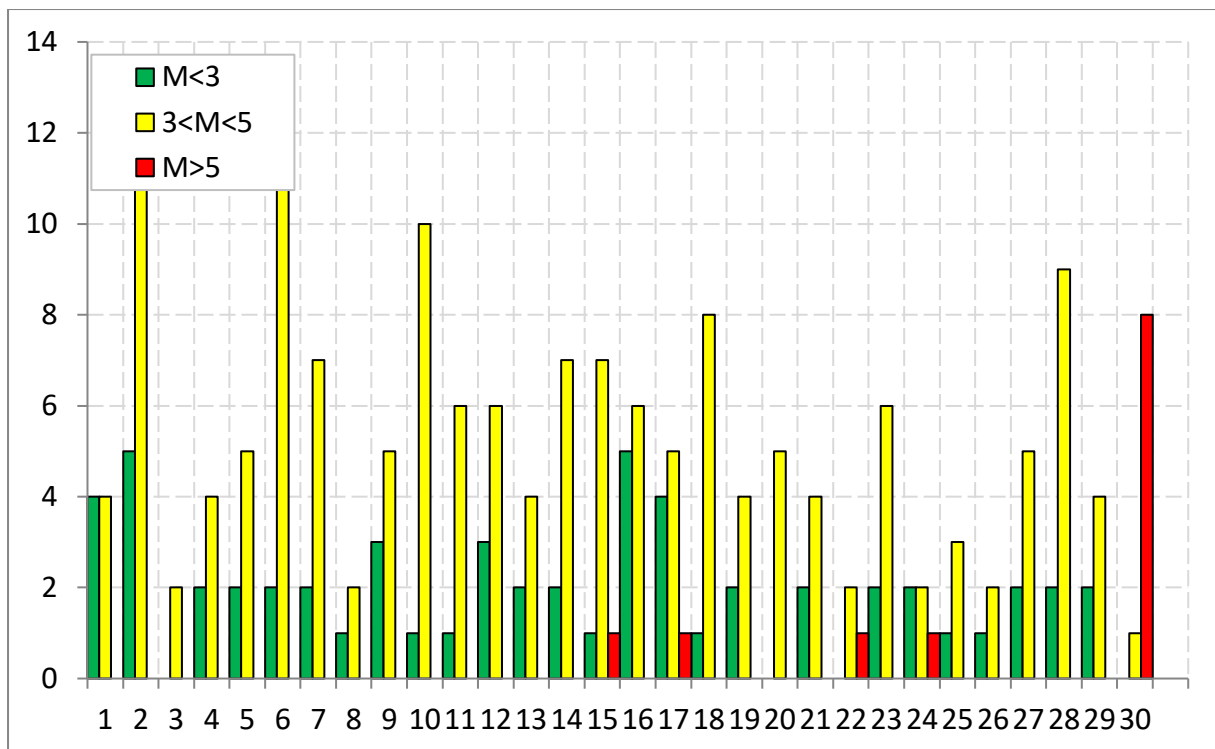
171	21/09/2021	13:59:54	4.51	126.88	11	4.6				Talalud Islands
172	21/09/2021	16:54:56	0.64	122.21	76	3.0				Minahassa Peninsula
173	22/09/2021	12:03:29	1.85	126.60	10	5.2	0.586513	0.788101	0.940851	Northern Molucca Sea
174	22/09/2021	15:03:38	5.60	126.53	10	4.3				Minahassa Peninsula
175	22/09/2021	22:43:47	1.77	126.53	10	4.0				Minahassa Peninsula
176	23/09/2021	1:23:29	1.68	128.52	25	3.4				Minahassa Peninsula
177	23/09/2021	3:52:41	3.41	122.86	530	4.9				Halmahera
178	23/09/2021	4:54:39	0.74	120.21	10	3.0				Halmahera
179	23/09/2021	12:10:52	0.29	122.00	183	2.2				Minahassa Peninsula
180	23/09/2021	13:30:26	0.20	124.42	45	3.0				Minahassa Peninsula
181	23/09/2021	15:09:02	0.19	122.41	146	2.2				Talalud Islands
182	23/09/2021	20:41:21	0.25	122.19	173	3.6				Minahassa Peninsula
183	23/09/2021	21:15:02	2.89	123.03	454	4.1				Minahassa Peninsula
184	24/09/2021	5:28:11	-0.12	122.92	73	2.8				Minahassa Peninsula
185	24/09/2021	6:36:15	2.19	126.72	10	5.1	0.275336	0.421564	0.484921	Minahassa Peninsula
186	24/09/2021	11:35:16	2.87	127.19	51	4.9	0.102898	0.165462	0.176845	Halmahera
187	24/09/2021	14:35:49	-0.10	124.11	22	2.6				Northern Molucca Sea
188	24/09/2021	14:51:34	3.35	126.21	10	3.4				Celebes Sea
189	25/09/2021	0:19:13	1.17	127.99	8	3.4				Souther Molucca Sea
190	25/09/2021	5:56:47	1.11	126.23	23	3.5				Talalud Islands
191	25/09/2021	8:54:59	-0.08	123.17	133	2.3				Minahassa Peninsula
192	25/09/2021	23:53:50	3.63	125.95	10	3.0				Talalud Islands
193	26/09/2021	1:58:45	0.66	123.02	87	2.9				Mindanao, Philippines
194	26/09/2021	4:33:35	0.25	122.31	155	3.1				Halmahera
195	26/09/2021	21:00:25	1.01	127.91	6	3.7				Souther Molucca Sea
196	27/09/2021	0:35:30	1.63	124.26	10	3.3				Halmahera
197	27/09/2021	0:49:47	0.21	122.42	145	2.9				Minahassa Peninsula
198	27/09/2021	2:27:32	2.48	126.87	14	3.7				Northern Molucca Sea
199	27/09/2021	3:44:29	0.29	124.02	125	3.9				Celebes Sea
200	27/09/2021	6:25:55	0.11	119.65	6	3.7				Talalud Islands
201	27/09/2021	12:02:51	-0.20	122.99	70	2.7				Minahassa Peninsula
202	27/09/2021	22:35:20	1.98	128.29	103	4.0				Minahassa Peninsula
203	28/09/2021	6:25:12	0.56	126.40	10	4.9	0.221539	0.216451	0.263787	Mindanao, Philippines
204	28/09/2021	7:34:16	0.20	122.40	140	2.4				Minahassa Peninsula
205	28/09/2021	8:56:40	0.04	121.30	16	2.8				Minahassa Peninsula
206	28/09/2021	9:19:27	0.32	126.27	10	3.8				Northern Molucca Sea
207	28/09/2021	11:10:22	3.07	126.31	50	4.9				Minahassa Peninsula
208	28/09/2021	12:16:09	0.54	123.09	19	3.4				Minahassa Peninsula
209	28/09/2021	12:43:20	-0.50	121.07	10	3.3				Halmahera
210	28/09/2021	13:04:35	1.49	126.38	6	3.1				Halmahera
211	28/09/2021	13:57:36	1.39	126.46	10	3.3				Northern Molucca Sea
212	28/09/2021	16:08:03	1.18	121.75	14	3.3				Souther Molucca Sea
213	28/09/2021	16:41:39	1.55	121.42	10	3.8				Talalud Islands
214	29/09/2021	3:28:09	1.10	126.69	31	2.9				Talalud Islands
215	29/09/2021	15:48:55	5.59	124.93	35	4.9				Minahassa Peninsula
216	29/09/2021	19:05:11	1.88	128.96	10	4.4				Minahassa Peninsula
217	29/09/2021	19:19:02	0.01	123.20	169	2.7				Minahassa Peninsula
218	29/09/2021	20:47:15	-0.36	123.36	99	3.1				Halmahera
219	29/09/2021	22:32:35	2.49	128.14	203	4.0				Minahassa Peninsula
220	30/09/2021	4:59:15	0.37	125.22	10	3.6				Minahassa Peninsula
221	30/09/2021	7:53:37	0.68	124.20	220	3.5				Halmahera
222	30/09/2021	11:38:57	0.84	122.71	27	2.7				Minahassa Peninsula
223	30/09/2021	12:56:08	0.03	122.86	162	2.6				Talalud Islands
224	30/09/2021	13:38:32	0.61	122.25	58	2.4				Minahassa Peninsula
225	30/09/2021	13:45:23	0.32	121.91	172	3.0				Celebes Sea
226	30/09/2021	14:30:35	-0.22	125.46	10	3.6				Minahassa Peninsula
227	30/09/2021	14:57:34	1.33	122.04	10	2.9				Talalud Islands
228	30/09/2021	21:32:47	0.02	123.08	181	3.6				Minahassa Peninsula



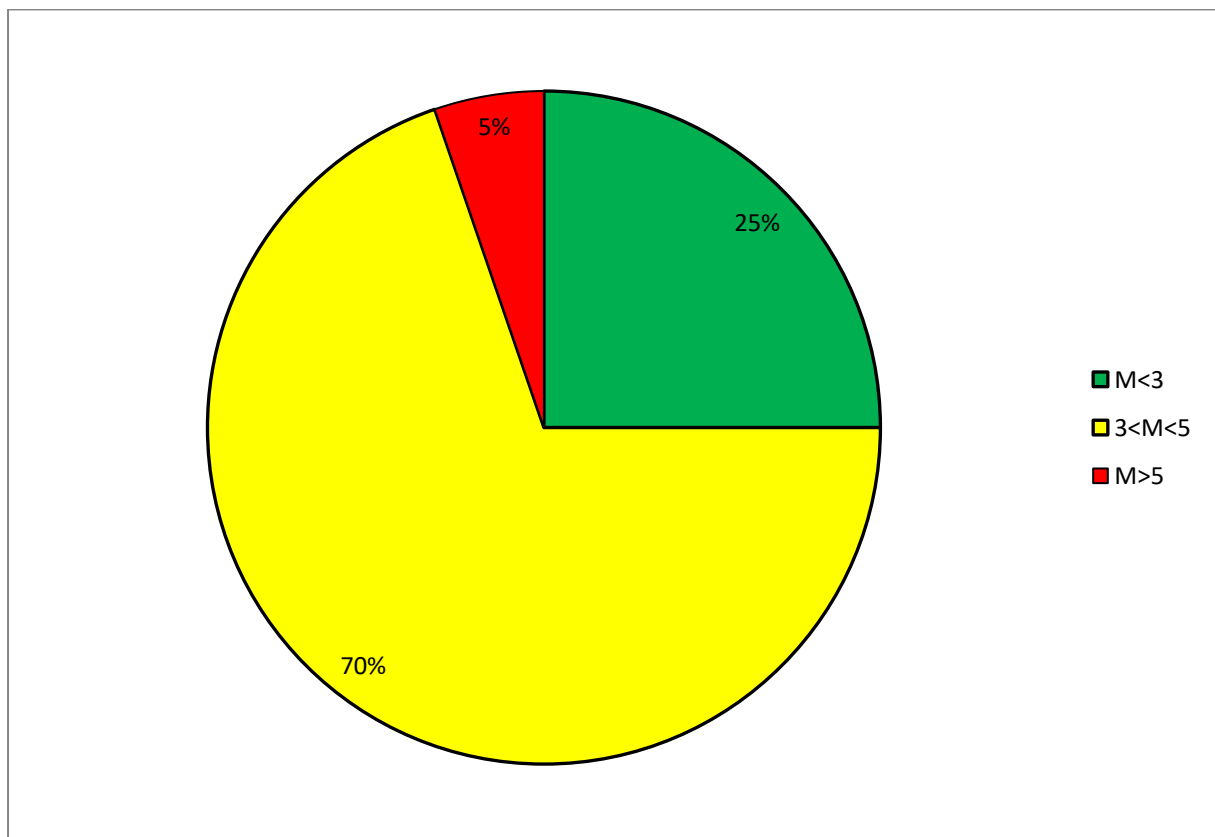
Gambar 29 Sebaran episenter gempabumi bulan September 2021

Tabel 20 Rekapitulasi gempa bumi berdasarkan magnitudo bulan September 2021

Tanggal (UTC)	Magnitudo			Jumlah Total	Jumlah Gempa Signifikan	
	M<3	3≤M<5	M≥5		Dirasakan	Merusak
1	4	4	0	8	1	0
2	5	13	0	18	0	0
3	0	2	0	2	0	0
4	2	4	0	6	1	0
5	2	5	0	7	0	0
6	2	11	0	13	0	0
7	2	7	0	9	1	0
8	1	2	0	3	1	0
9	3	5	0	8	0	0
10	1	10	0	11	0	0
11	1	6	0	7	0	0
12	3	6	0	9	0	0
13	2	4	0	6	0	0
14	2	7	0	9	3	0
15	1	7	1	9	3	0
16	5	6	0	11	0	0
17	4	5	1	10	0	0
18	1	8	0	9	1	0
19	2	4	0	6	0	0
20	0	5	0	5	0	0
21	2	4	0	6	1	0
22	0	2	1	3	1	0
23	2	6	0	8	0	0
24	2	2	1	5	0	0
25	1	3	0	4	0	0
26	1	2	0	3	0	0
27	2	5	0	7	0	0
28	2	9	0	11	1	0
29	2	4	0	6	0	0
30	0	1	8	9	0	0
Jumlah gempa	57	159	12	228	14	0



Gambar 30 Grafik gempabumi berdasarkan magnitudo bulan September 2021



Gambar 31 Grafik persentase gempabumi berdasarkan magnitudo bulan September 2021

J. Data Gempabumi Bulan Oktober 2021

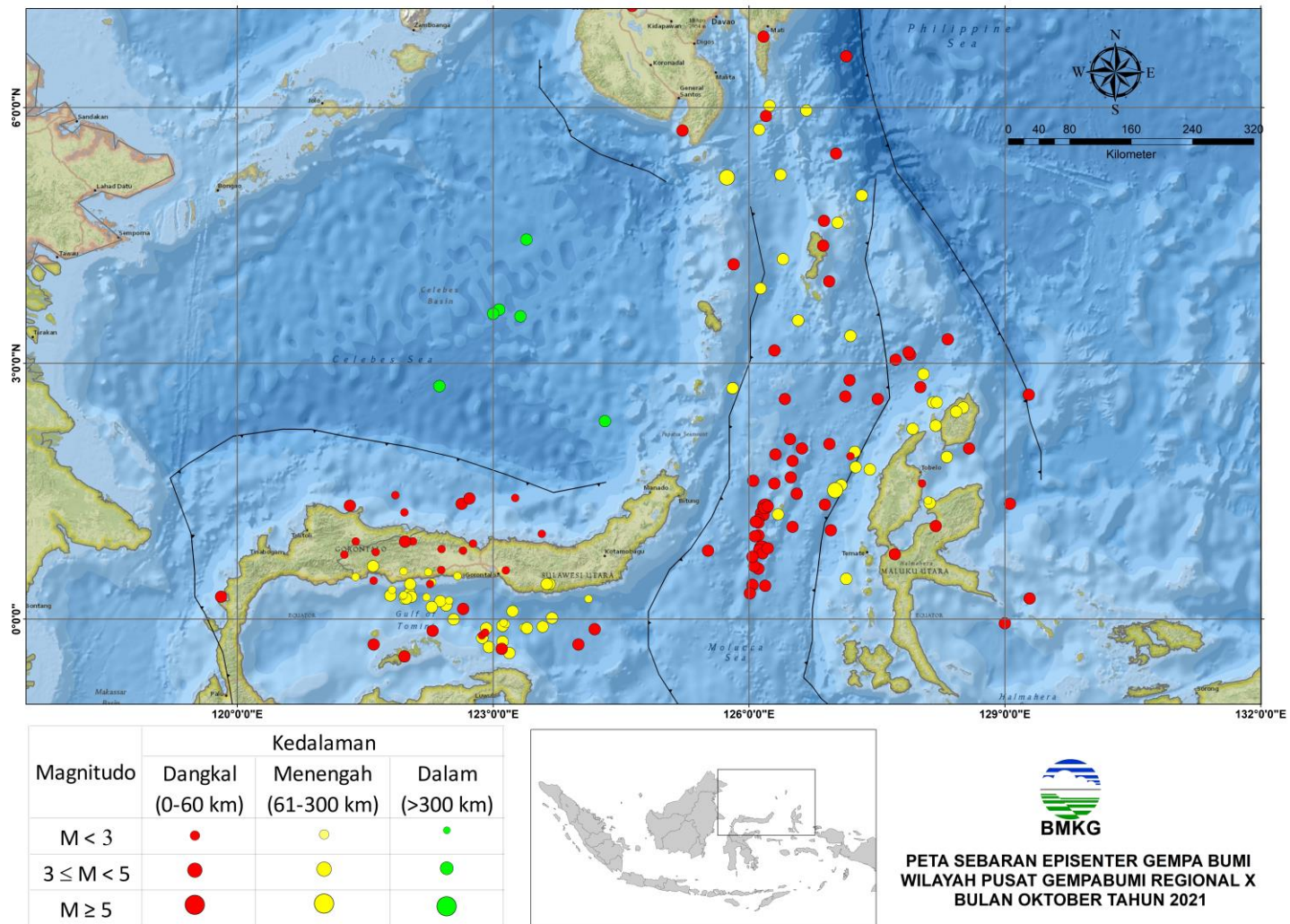
Tabel 21 Data kejadian gempabumi bulan Oktober 2021

No	Date	OT (UTC)	Epicenter		Depth (km)	Mag	PGA (gals) / SLMI			Region
			Lat	Long			X	Y	Z	
1	01/10/2021	02:06:52	1.35	129.06	10	3.5				Halmahera
2	01/10/2021	09:41:14	4.22	126.40	97	4				Talalud Islands
3	01/10/2021	21:36:43	-0.19	122.87	20	2.8				Minahassa Peninsula
4	02/10/2021	11:51:56	0.16	122.45	132	3.1				Minahassa Peninsula
5	02/10/2021	16:14:01	2.58	127.51	21	4				Northern Molucca Sea
6	02/10/2021	23:22:21	2.63	129.28	41	4.6				Halmahera
7	03/10/2021	04:47:46	2.05	126.94	10	3.6				Northern Molucca Sea
8	03/10/2021	05:15:17	0.30	122.02	167	3.1				Minahassa Peninsula
9	03/10/2021	16:48:24	0.59	126.11	10	3.5				Northern Molucca Sea
10	04/10/2021	00:53:39	0.22	121.95	108	2.3				Minahassa Peninsula
11	04/10/2021	01:00:02	0.45	121.60	58	2.4				Minahassa Peninsula
12	04/10/2021	10:10:01	-0.09	123.58	130	4				Minahassa Peninsula
13	04/10/2021	10:59:19	1.04	126.96	17	4.7	0.1325	0.106	0.1547	Northern Molucca Sea
14	04/10/2021	18:36:46	1.90	128.32	97	4				Halmahera
15	05/10/2021	00:51:00	1.47	126.56	10	4.4				Northern Molucca Sea
16	05/10/2021	08:51:09	2.73	122.37	516	4.5				Celebes Sea
17	05/10/2021	14:45:55	4.67	126.88	24	4.6				Talalud Islands
18	05/10/2021	15:33:12	0.76	121.26	56	2.1				Minahassa Peninsula
19	05/10/2021	18:28:19	0.21	122.38	125	4				Minahassa Peninsula
20	05/10/2021	23:10:02	4.65	127.04	83	4.3				Talalud Islands
21	05/10/2021	23:46:43	0.26	122.22	143	2.8				Minahassa Peninsula
22	06/10/2021	01:52:30	0.55	122.24	81	2				Minahassa Peninsula
23	06/10/2021	15:08:37	3.63	123.07	524	4.1				Celebes Sea
24	06/10/2021	16:51:47	4.97	127.32	92	4.5				Talalud Islands
25	06/10/2021	23:40:22	2.54	128.16	171	4.8				Halmahera
26	07/10/2021	01:24:05	-0.08	123.11	128	3.2				Minahassa Peninsula
27	07/10/2021	05:37:22	1.75	127.42	137	4.3				Halmahera
28	07/10/2021	10:50:19	-0.22	122.87	103	3.2				Minahassa Peninsula
29	07/10/2021	11:03:26	2.54	128.20	131	4.7				Halmahera
30	07/10/2021	19:17:00	0.40	126.04	10	4.2				Northern Molucca Sea
31	07/10/2021	23:43:39	2.48	128.51	212	3.6				Halmahera
32	08/10/2021	01:56:24	-0.44	121.96	10	3.8				Minahassa Peninsula
33	08/10/2021	03:45:22	1.59	128.03	57	2.9				Halmahera
34	08/10/2021	07:57:52	-0.10	123.35	125	2.7				Minahassa Peninsula
35	08/10/2021	08:41:42	-0.14	122.29	23	3				Minahassa Peninsula
36	08/10/2021	10:34:33	0.26	122.04	181	3.1				Minahassa Peninsula
37	08/10/2021	11:31:45	3.96	126.94	37	3.9				Talalud Islands
38	08/10/2021	12:44:39	2.00	128.58	35	4.1				Halmahera
39	08/10/2021	13:23:27	1.34	126.89	26	3.7				Northern Molucca Sea
40	08/10/2021	13:25:46	1.00	123.57	15	2.7				Minahassa Peninsula
41	08/10/2021	15:28:00	-0.30	121.60	10	3.6				Minahassa Peninsula
42	08/10/2021	16:23:53	0.26	119.81	36	3.5				Minahassa Peninsula
43	08/10/2021	16:28:47	-0.12	124.19	33	4.3				Souther Molucca Sea
44	09/10/2021	05:38:18	1.33	121.32	17	4.9				Minahassa Peninsula
45	10/10/2021	10:59:08	5.21	126.37	150	4.6				Mindanao, Philippines

46	10/10/2021	11:21:25	0.24	124.12	88	2.7				Minahassa Peninsula
47	10/10/2021	11:32:36	3.58	123.00	521	4.6				Celebes Sea
48	10/10/2021	15:11:17	0.41	122.03	161	3.2				Minahassa Peninsula
49	10/10/2021	16:26:50	0.00	122.54	219	3.1				Minahassa Peninsula
50	10/10/2021	21:54:04	1.08	126.51	2	3.5				Northern Molucca Sea
51	10/10/2021	23:52:11	0.24	121.98	173	3.5				Minahassa Peninsula
52	11/10/2021	01:08:28	1.57	127.08	112	3.3				Halmahera
53	11/10/2021	12:34:35	0.83	126.15	10	5.8				Northern Molucca Sea
54	11/10/2021	12:54:40	0.81	126.12	10	3.6				Northern Molucca Sea
55	11/10/2021	13:17:46	0.62	126.06	10	3.7				Northern Molucca Sea
56	11/10/2021	15:27:54	0.98	126.11	57	4.9	2.035	2.9728	1.5726	Northern Molucca Sea
57	11/10/2021	17:30:30	0.97	126.07	10	4.8	1.9165	1.9509	1.1526	Northern Molucca Sea
58	11/10/2021	17:46:53	0.80	125.52	10	3.2				Northern Molucca Sea
59	11/10/2021	18:03:30	0.39	126.19	10	3.3				Northern Molucca Sea
60	11/10/2021	23:30:24	5.96	126.67	103	4.9				Mindanao, Philippines
61	12/10/2021	06:37:07	0.80	122.65	20	2.6				Minahassa Peninsula
62	12/10/2021	11:17:39	0.24	129.29	10	3.5				Halmahera
63	12/10/2021	16:31:24	2.71	125.81	65	3.3				Talaud Islands
64	12/10/2021	22:20:24	0.09	123.23	142	3.5				Minahassa Peninsula
65	13/10/2021	08:39:11	2.11	126.48	10	3.9				Northern Molucca Sea
66	13/10/2021	10:04:06	0.77	126.16	10	3.6				Northern Molucca Sea
67	13/10/2021	12:10:29	2.61	127.13	10	3.3				Northern Molucca Sea
68	13/10/2021	14:46:14	0.41	123.66	244	3.4				Minahassa Peninsula
69	13/10/2021	17:48:09	4.45	123.39	512	4.4				Celebes Sea
70	14/10/2021	00:03:31	0.27	121.94	174	2.8				Minahassa Peninsula
71	14/10/2021	07:14:36	5.74	126.12	161	4.8				Mindanao, Philippines
72	14/10/2021	11:40:43	1.42	123.26	2	2.9				Minahassa Peninsula
73	14/10/2021	15:16:28	1.32	126.19	10	5.8	7.89	6.7902	5.5823	Northern Molucca Sea
74	14/10/2021	15:32:04	1.24	126.14	10	4.4				Northern Molucca Sea
75	14/10/2021	21:13:16	1.22	126.17	10	4				Northern Molucca Sea
76	14/10/2021	21:19:12	6.60	127.14	10	4.6				East of Philippines Islands
77	15/10/2021	03:30:36	3.55	123.32	469	4.7				Celebes Sea
78	15/10/2021	04:07:20	3.50	126.58	83	3				Talalud Islands
79	15/10/2021	08:35:24	1.16	126.11	10	3.3				Northern Molucca Sea
80	15/10/2021	08:44:01	1.96	127.24	69	3.5				Halmahera
81	15/10/2021	09:03:21	3.88	126.13	108	4				Talalud Islands
82	15/10/2021	11:57:48	0.73	126.04	21	3				Northern Molucca Sea
83	15/10/2021	12:58:48	1.30	126.18	10	3.6				Northern Molucca Sea
84	15/10/2021	15:13:18	0.28	121.79	187	3.6				Minahassa Peninsula
85	15/10/2021	17:55:21	5.46	127.02	19	4.9				East of Philippines Islands
86	16/10/2021	04:16:45	2.72	128.01	10	3.7				Halmahera
87	16/10/2021	07:57:24	0.43	122.29	101	2.6				Minahassa Peninsula
88	16/10/2021	10:08:25	0.83	126.22	10	4.7	0.3235	0.2884	0.306	Northern Molucca Sea
89	16/10/2021	12:47:35	-0.30	124.00	20	3.7				Minahassa Peninsula
90	17/10/2021	02:09:27	2.23	127.92	129	3.7				Northern Molucca Sea
91	17/10/2021	05:49:03	2.43	128.43	220	4.3				Halmahera
92	17/10/2021	17:16:06	4.16	125.82	59	4.2				Talalud Islands
93	17/10/2021	23:02:49	1.35	122.63	11	3.9				Minahassa Peninsula
94	18/10/2021	00:35:54	1.36	128.12	102	4.4				Halmahera
95	18/10/2021	07:03:48	2.87	128.05	159	4.7				Halmahera
96	18/10/2021	13:37:03	1.93	126.31	16	3.7				Northern Molucca Sea
97	18/10/2021	15:09:14	-0.16	122.91	10	2.5				Minahassa Peninsula

98	18/10/2021	16:21:22	1.91	127.19	13	2.9				Halmahera
99	18/10/2021	16:29:20	1.09	128.19	3	4.3				Halmahera
100	18/10/2021	16:48:39	1.13	126.11	10	3.8				Northern Molucca Sea
101	18/10/2021	17:00:30	0.91	122.06	31	2.4				Minahassa Peninsula
102	18/10/2021	21:15:55	-0.33	122.95	73	3.7				Minahassa Peninsula
103	19/10/2021	21:23:14	1.78	127.25	105	3.9				Halmahera
104	20/10/2021	05:15:31	1.45	121.85	33	2.6				Minahassa Peninsula
105	20/10/2021	10:56:11	1.23	126.34	97	3.2				Northern Molucca Sea
106	20/10/2021	12:14:24	1.59	126.30	10	3.4				Northern Molucca Sea
107	20/10/2021	12:50:38	1.62	126.05	6	3.4				Northern Molucca Sea
108	20/10/2021	18:16:37	3.17	127.48	31	2.9				Talaud Islands, Indonesia
109	20/10/2021	19:17:28	3.35	117.67	10	3.7				Borneo
110	20/10/2021	22:33:11	0.50	122.58	72	2.3				Minahassa Peninsula
111	20/10/2021	23:49:17	0.88	122.76	30	2.2				Minahassa Peninsula
112	21/10/2021	04:12:24	2.58	126.42	10	3.5				Northern Molucca Sea
113	21/10/2021	07:47:27	2.80	127.18	10	3.9				Northern Molucca Sea
114	21/10/2021	11:47:41	1.32	126.22	10	3.6				Northern Molucca Sea
115	22/10/2021	02:50:53	0.57	122.39	56	2.4				Minahassa Peninsula
116	22/10/2021	04:36:37	0.34	121.82	196	2.8				Minahassa Peninsula
117	22/10/2021	11:24:48	0.62	121.59	70	3.3				Minahassa Peninsula
118	23/10/2021	00:35:16	0.28	121.95	163	2.4				Minahassa Peninsula
119	23/10/2021	13:25:40	0.91	121.97	4	4				Minahassa Peninsula
120	23/10/2021	16:37:18	0.01	123.69	128	3.1				Minahassa Peninsula
121	24/10/2021	03:22:07	1.66	126.49	10	4.7				Northern Molucca Sea
122	24/10/2021	05:28:05	1.41	122.72	10	4.2				Minahassa Peninsula
123	24/10/2021	08:19:19	3.32	127.19	153	3.7				Talaud Islands
124	24/10/2021	21:54:50	3.10	127.89	11	4.8				Talaud Islands
125	25/10/2021	01:53:41	5.73	125.22	27	4.8				Mindanao, Philippines
126	25/10/2021	02:30:48	0.41	123.63	244	4.9				Minahassa Peninsula
127	25/10/2021	09:02:38	-0.11	123.40	79	3.6				Minahassa Peninsula
128	25/10/2021	22:18:45	-0.35	123.10	11	3.5				Minahassa Peninsula
129	26/10/2021	05:51:03	8.27	126.91	52	5.1				Mindanao, Philippines
130	26/10/2021	06:34:38	0.82	122.40	20	2.4				Minahassa Peninsula
131	26/10/2021	08:44:59	1.25	121.96	13	2.5				Minahassa Peninsula
132	26/10/2021	09:03:52	0.41	122.26	21	2.8				Minahassa Peninsula
133	26/10/2021	09:27:44	-0.06	123.15	135	2.6				Minahassa Peninsula
134	26/10/2021	09:46:08	1.51	127.01	92	5.1	1.2421	1.1021	0.7706	Halmahera
135	26/10/2021	12:02:03	0.91	121.39	20	2.7				Minahassa Peninsula
136	26/10/2021	15:05:17	6.83	126.17	10	3.8				Mindanao, Philippines
137	26/10/2021	23:29:56	2.00	126.62	3	3.4				Northern Molucca Sea
138	27/10/2021	05:01:19	0.78	121.62	46	2.5				Minahassa Peninsula
139	27/10/2021	06:00:08	1.14	126.08	10	3.8				Northern Molucca Sea
140	27/10/2021	11:40:20	-0.11	122.92	152	3.3				Minahassa Peninsula
141	27/10/2021	11:58:59	-0.40	123.19	96	4				Minahassa Peninsula
142	27/10/2021	12:44:25	5.90	126.20	10	4.8				Mindanao, Philippines
143	27/10/2021	13:09:49	7.19	124.63	10	4.8				Mindanao, Philippines
144	27/10/2021	16:44:53	1.85	126.51	12	3.1				Northern Molucca Sea
145	27/10/2021	18:13:47	4.38	126.87	10	4.3				Talaud Islands, Indonesia
146	27/10/2021	20:11:41	-0.27	123.11	79	3.4				Minahassa Peninsula
147	27/10/2021	21:47:23	-0.05	129.00	15	3.5				Halmahera
148	27/10/2021	22:35:40	3.28	128.33	10	4.3				North of Halmahera
149	28/10/2021	08:38:38	0.49	121.39	72	2.4				Minahassa Peninsula

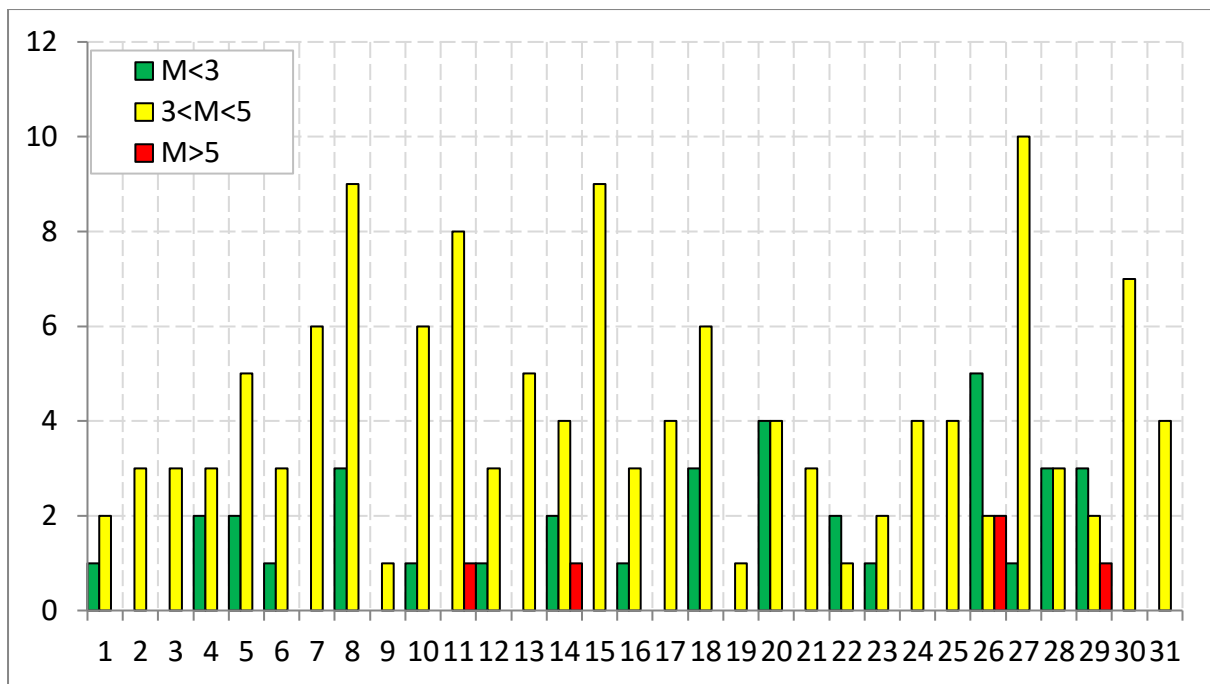
150	28/10/2021	10:00:08	3.13	127.87	14	4.4				Talalud Islands
151	28/10/2021	10:49:34	0.56	121.95	105	1.6				Minahassa Peninsula
152	28/10/2021	12:14:23	3.04	127.72	10	3.8				Talalud Islands
153	28/10/2021	19:07:47	1.39	128.10	80	2.3				Halmahera, Indonesia
154	28/10/2021	20:03:10	0.14	122.28	168	3.4				Minahassa Peninsula
155	29/10/2021	00:51:26	0.22	122.49	123	2.2				Minahassa Peninsula
156	29/10/2021	02:15:11	2.27	128.19	138	4.2				Halmahera
157	29/10/2021	04:33:33	5.18	125.74	169	5.3				Mindanao, Philippines
158	29/10/2021	05:35:31	0.76	127.71	10	3.5				Halmahera
159	29/10/2021	06:04:48	0.57	123.15	10	1.5				Minahassa Peninsula
160	29/10/2021	06:05:59	-0.04	123.12	107	2.5				Minahassa Peninsula
161	30/10/2021	00:18:23	0.12	122.65	12	3.1				Minahassa Peninsula
162	30/10/2021	06:53:16	8.59	126.14	81	4.7				Mindanao, Philippines
163	30/10/2021	09:11:59	0.47	127.14	95	4.2				Halmahera
164	30/10/2021	12:06:58	0.30	126.01	10	3.4				Northern Molucca Sea
165	30/10/2021	12:10:35	6.02	126.24	118	4.8				Mindanao, Philippines
166	30/10/2021	15:16:42	3.15	126.30	10	4				Talalud Islands
167	30/10/2021	19:22:41	2.32	124.31	344	4.2				Celebes Sea
168	31/10/2021	07:30:54	3.22	127.79	10	4.3				Halmahera
169	31/10/2021	09:57:58	3.12	127.74	10	3.9				Halmahera
170	31/10/2021	20:30:47	5.34	127.46	62	4.1				Talalud Islands
171	31/10/2021	23:37:14	1.80	129.07	10	3.6				Halmahera



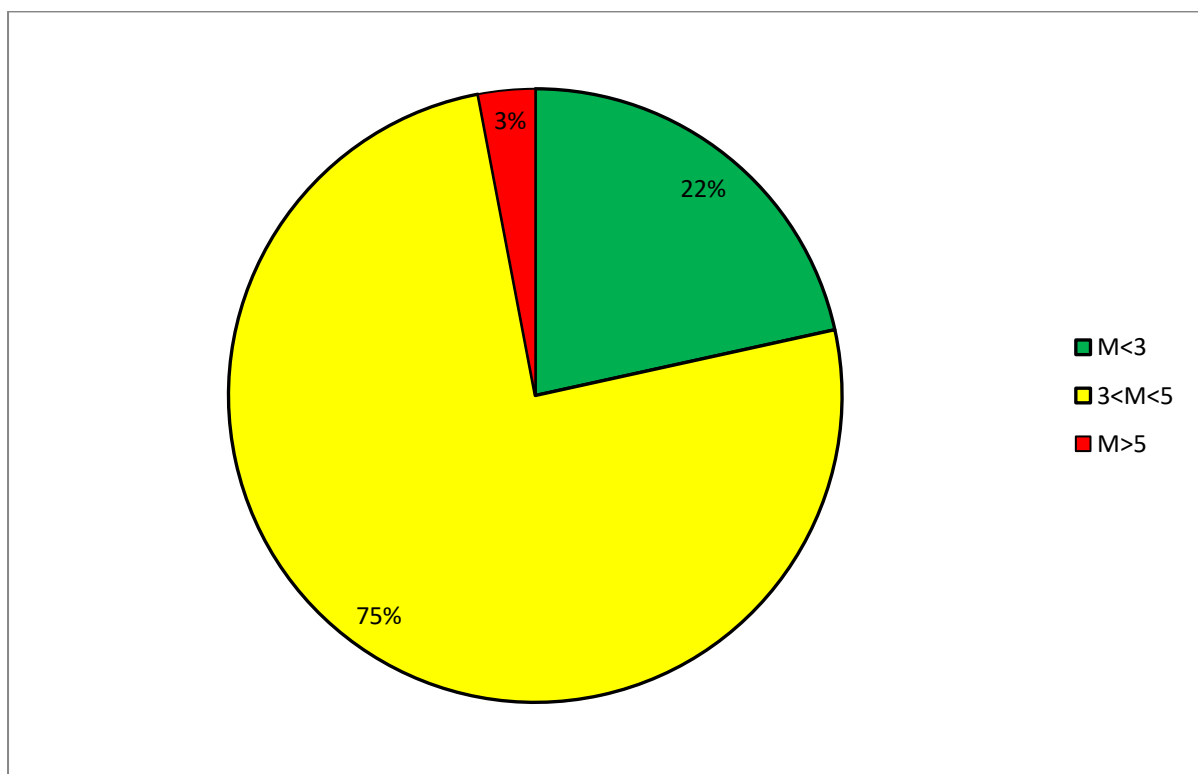
Gambar 32 Sebaran episenter gempabumi bulan Oktober 2021

Tabel 22 Rekapitulasi gempabumi berdasarkan magnitudo bulan Oktober 2021

Tanggal (UTC)	Magnitudo			Jumlah Total	Jumlah Gempa Signifikan	
	M<3	3≤M<5	M≥5		Dirasakan	Merusak
1	1	2	0	3	0	0
2	0	3	0	3	0	0
3	0	3	0	3	0	0
4	2	3	0	5	1	0
5	2	5	0	7	0	0
6	1	3	0	4	0	0
7	0	6	0	6	0	0
8	3	9	0	12	0	0
9	0	1	0	1	1	0
10	1	6	0	7	0	0
11	0	8	1	9	3	0
12	1	3	0	4	0	0
13	0	5	0	5	0	0
14	2	4	1	7	1	0
15	0	9	0	9	0	0
16	1	3	0	4	0	0
17	0	4	0	4	0	0
18	3	6	0	9	0	0
19	0	1	0	1	0	0
20	4	4	0	8	1	0
21	0	3	0	3	0	0
22	2	1	0	3	0	0
23	1	2	0	3	0	0
24	0	4	0	4	0	0
25	0	4	0	4	0	0
26	5	2	2	9	1	0
27	1	10	0	11	0	0
28	3	3	0	6	0	0
29	3	2	1	6	0	0
30	0	7	0	7	0	0
31	0	4	0	4	0	0
Jumlah gempa	36	126	5	171	8	0



Gambar 33 Grafik gempabumi berdasarkan magnitudo bulan Oktober 2021



Gambar 34 Grafik persentase gempabumi berdasarkan magnitudo bulan Oktober 2021

K. Data Gempabumi Bulan November 2021

Tabel 23 Data kejadian gempabumi bulan November 2021

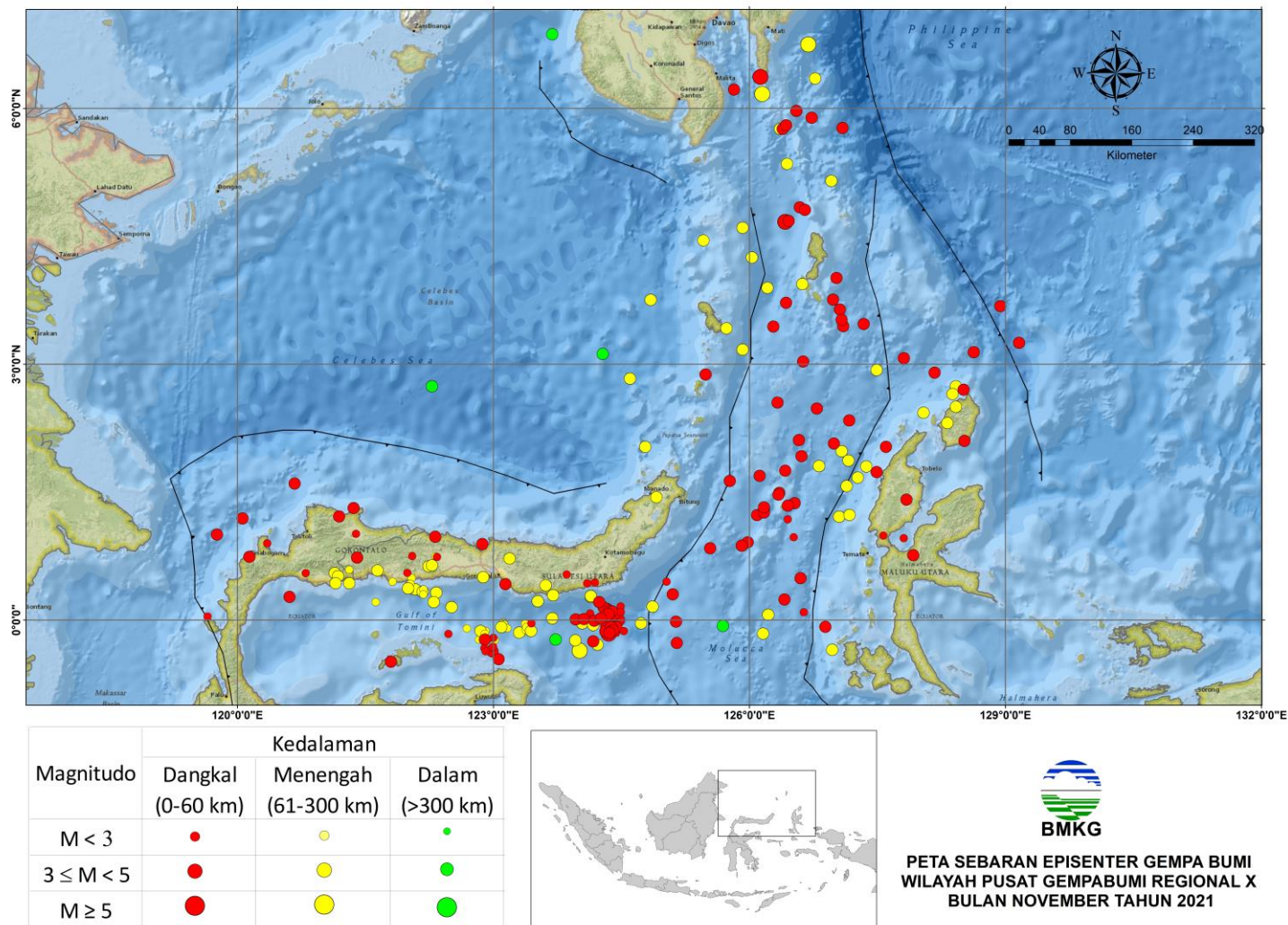
No	Date	OT (UTC)	Epicenter		Depth (km)	Mag	PGA (gals) / SLMI			Region
			Lat	Long			X	Y	Z	
1	01/11/2021	02:48:49	1.41	127.8	10	3.4				Halmahera
2	01/11/2021	04:42:58	-0.37	123	56	3.1				Minahassa Peninsula
3	01/11/2021	06:27:17	0.36	122.1	173	3.4				Minahassa Peninsula
4	01/11/2021	13:30:38	2.74	128.4	223	4.3				Halmahera
5	01/11/2021	13:32:14	1.23	126.1	18	4.3				Northern Molucca Sea
6	01/11/2021	14:41:11	0.21	121.6	178	2.6				Minahassa Peninsula
7	01/11/2021	16:34:01	-0.03	123.1	62	2.2				Minahassa Peninsula
8	01/11/2021	18:13:21	4.60	125.9	109	3.7				Talalud Islands
9	01/11/2021	18:40:19	2.11	126.6	13	3.7				Northern Molucca Sea
10	01/11/2021	22:01:30	-0.16	122.5	12	2.7				Minahassa Peninsula
11	01/11/2021	22:47:39	-0.33	122.9	47	2.9				Minahassa Peninsula
12	02/11/2021	04:27:55	0.90	120.4	10	2.8				Minahassa Peninsula
13	02/11/2021	10:20:36	2.50	128.4	206	4.2				Halmahera, Indonesia
14	03/11/2021	02:31:30	1.69	126.1	15	3.6				Northern Molucca Sea
15	03/11/2021	09:11:17	1.92	126.6	10	4.2				Northern Molucca Sea
16	03/11/2021	14:11:29	-0.36	124	61	5				Southern Molucca Sea
17	04/11/2021	05:48:45	2.07	127	36	4.1				Northern Molucca Sea
18	04/11/2021	14:06:50	1.37	126.5	13	4.4	0.155474	0.1080187	0.122785	Northern Molucca Sea
19	04/11/2021	15:05:14	3.07	127.8	10	3.2				Talud Islands, Indonesia
20	05/11/2021	03:31:59	3.90	126.2	106	3.2				Talalud Islands
21	05/11/2021	14:10:27	0.49	122	170	2.4				Minahassa Peninsula
22	05/11/2021	16:37:01	0.74	120.1	6	3.1				Minahassa Peninsula
23	05/11/2021	19:32:57	1.30	126.2	10	3.4				Northern Molucca Sea
24	05/11/2021	20:04:57	-0.05	123.1	131	2				Minahassa Peninsula
25	05/11/2021	22:51:02	0.33	122.2	164	3.5				Minahassa Peninsula
26	06/11/2021	11:25:32	-0.04	123.4	33	2.5				Minahassa Peninsula
27	06/11/2021	12:40:54	0.43	122	155	2.7				Minahassa Peninsula
28	06/11/2021	14:37:37	-0.16	124.4	20	6.2				Souther Molucca Sea
29	06/11/2021	20:04:52	0.43	124.1	14	2.3				Minahassa Peninsula
30	06/11/2021	22:58:49	0.45	125	23	2.9				Northern Molucca Sea
31	07/11/2021	00:39:56	0.01	124.2	23	2.7				Minahassa Peninsula
32	07/11/2021	02:10:38	0.04	124.4	33	3.8				Minahassa Peninsula
33	07/11/2021	02:40:01	0.96	127.8	20	2.4				Halmahera
34	07/11/2021	03:08:08	0.13	124.3	34	3.1				Minahassa Peninsula
35	07/11/2021	03:50:44	1.00	119.8	10	4.1				Celebes Sea
36	07/11/2021	04:00:33	0.00	124.5	27	3.5				Souther Molucca Sea
37	07/11/2021	04:07:27	1.26	126.2	10	3.5				Northern Molucca Sea
38	07/11/2021	07:03:36	0.01	124	10	3				Minahassa Peninsula
39	07/11/2021	07:27:39	0.15	124.3	40	3.1				Minahassa Peninsula
40	07/11/2021	09:59:27	0.02	124.1	17	2.7				Minahassa Peninsula
41	07/11/2021	13:00:50	-0.15	123.3	142	3.5				Minahassa Peninsula
42	07/11/2021	15:46:47	-0.13	122.9	102	2.7				Minahassa Peninsula
43	07/11/2021	16:52:29	-0.15	124.4	21	2.7				Southern Molucca Sea
44	07/11/2021	18:09:42	8.08	125.7	181	4.5				Mindanao, Philippines
45	07/11/2021	18:24:12	0.07	124.4	34	3.5				Minahassa Peninsula

46	07/11/2021	18:54:22	0.11	124.4	60	3				Minahassa Peninsula
47	07/11/2021	21:32:22	0.02	123.7	125	3.9				Minahassa Peninsula
48	07/11/2021	21:53:14	-0.23	122.8	63	2.7				Minahassa Peninsula
49	07/11/2021	23:30:03	0.10	124.4	36	3.8				Minahassa Peninsula
50	08/11/2021	01:45:21	-0.06	124.3	19	3.3				Souther Molucca Sea
51	08/11/2021	04:16:42	8.43	126.6	106	5				Mindanao, Philippines
52	08/11/2021	04:45:25	0.91	126	10	3.5				Northern Molucca Sea
53	08/11/2021	05:12:00	1.49	126.4	10	4				Northern Molucca Sea
54	08/11/2021	07:04:50	6.37	126.1	35	5.2				Mindanao, Philippines
55	08/11/2021	13:37:12	1.32	126.2	10	3.3				Northern Molucca Sea
56	08/11/2021	15:33:45	1.63	125.8	10	3.5				Northern Molucca Sea
57	08/11/2021	16:18:16	3.72	126.4	33	3.1				Talaud Islands, Indonesia
58	08/11/2021	20:07:51	-0.27	125.2	10	4.8				Souther Molucca Sea
59	08/11/2021	21:50:38	2.34	127.2	29	3.5				Northern Molucca Sea
60	09/11/2021	03:31:33	2.83	124.6	281	4.6				Celebes Sea
61	09/11/2021	03:42:57	-0.12	124.4	24	4				Souther Molucca Sea
62	09/11/2021	06:17:31	1.31	121.4	4	3				Minahassa Peninsula
63	09/11/2021	06:43:40	-0.07	125.7	537	4.5				Souther Molucca Sea
64	09/11/2021	08:57:26	0.84	125.5	5	4.3				Northern Molucca Sea
65	09/11/2021	12:44:05	3.44	127.1	51	3.4				Talalud Islands
66	09/11/2021	15:37:56	5.76	126.4	10	4.8				Mindanao, Philippines
67	09/11/2021	19:53:24	0.55	121.1	121	3				Minahassa Peninsula
68	09/11/2021	20:41:18	1.01	121.4	10	2.8				Minahassa Peninsula
69	09/11/2021	21:07:21	4.45	125.5	222	4.1				Talalud Islands
70	09/11/2021	22:36:36	5.76	126.4	103	4.7				Mindanao, Philippines
71	10/11/2021	01:24:34	5.80	126.4	16	4.2				Mindanao, Philippines
72	10/11/2021	01:49:48	-0.08	124.4	10	4.6				Souther Molucca Sea
73	10/11/2021	06:10:34	-0.13	124.3	22	3				Souther Molucca Sea
74	10/11/2021	06:55:25	-0.04	123.4	157	2.7				Minahassa Peninsula
75	10/11/2021	07:02:02	0.32	122.3	140	3.1				Minahassa Peninsula
76	10/11/2021	15:09:48	2.93	127.5	69	4.9				Northern Molucca Sea
77	10/11/2021	17:40:14	1.44	124.9	201	3.7				Minahassa Peninsula
78	10/11/2021	17:56:42	0.42	123.1	11	3.3				Minahassa Peninsula
79	10/11/2021	18:36:06	-0.29	124.2	77	3.1				Southern Molucca Sea
80	11/11/2021	05:43:14	-0.37	122.9	10	2.5				Minahassa Peninsula
81	11/11/2021	10:11:52	0.43	121.3	74	3.4				Minahassa Peninsula
82	11/11/2021	14:02:30	0.16	124.5	42	2.7				Minahassa Peninsula
83	11/11/2021	15:23:49	0.44	124.2	46	2.7				Minahassa Peninsula
84	11/11/2021	16:22:13	0.51	121.2	63	3				Minahassa Peninsula
85	11/11/2021	17:22:09	0.74	122.3	57	2				Minahassa Peninsula
86	12/11/2021	01:09:59	-0.33	123	21	2.5				Minahassa Peninsula
87	12/11/2021	02:58:48	-0.16	126.2	78	3.4				Souther Molucca Sea
88	12/11/2021	06:45:49	-0.25	124.2	8	4.1				Souther Molucca Sea
89	12/11/2021	11:42:01	-0.08	124.4	11	3.9				Souther Molucca Sea
90	12/11/2021	15:44:19	0.29	123.7	210	3.5				Minahassa Peninsula
91	12/11/2021	19:42:39	0.43	121.2	63	3.2				Minahassa Peninsula
92	12/11/2021	20:30:50	-0.10	124.4	22	2.8				Souther Molucca Sea
93	12/11/2021	21:09:40	3.17	125.9	148	4.3				Talalud Islands
94	13/11/2021	00:01:04	1.87	127.2	103	3.8				Halmahera
95	13/11/2021	07:12:04	-0.12	123.4	129	2.7				Minahassa Peninsula
96	13/11/2021	11:39:10	4.25	126	131	3.8				Talalud Islands
97	13/11/2021	13:30:31	5.89	126.7	10	4.5				Mindanao, Philippines

98	13/11/2021	13:42:52	1.80	127.4	103	4.5				Halmahera
99	13/11/2021	15:05:57	2.65	128.4	198	3.1				Halmahera, Indonesia
100	13/11/2021	22:42:24	1.34	126.5	10	3.7				Northern Molucca Sea
101	14/11/2021	02:55:54	3.47	127.3	44	3.9				Talalud Islands
102	14/11/2021	03:26:20	-0.24	123	61	2.6				Minahassa Peninsula
103	14/11/2021	04:44:16	0.09	124.5	29	2.7				Minahassa Peninsula
104	14/11/2021	07:07:04	0.21	124.2	30	3.3				Minahassa Peninsula
105	14/11/2021	09:54:43	2.43	128	158	4.1				Halmahera
106	14/11/2021	10:21:58	0.02	124.4	27	2.5				Minahassa Peninsula
107	14/11/2021	11:06:03	1.75	126.4	20	3.2				Northern Molucca Sea
108	14/11/2021	23:06:19	2.74	122.3	513	3.9				Celebes Sea
109	15/11/2021	02:28:30	3.44	126.3	17	3.3				Talalud Islands
110	15/11/2021	03:35:29	3.14	128.6	10	3.9				North of Halmahera
111	15/11/2021	06:23:48	0.09	126.6	23	2.8				Northern Molucca Sea
112	15/11/2021	08:45:26	2.88	125.5	18	3.7				Talaud Islands
113	15/11/2021	09:56:15	0.08	124.1	26	2.4				Minahassa Peninsula
114	15/11/2021	14:51:36	0.59	121.3	68	2.8				Minahassa Peninsula
115	15/11/2021	15:04:00	1.21	127.1	74	3.2				Halmahera
116	15/11/2021	16:17:51	4.84	126.6	10	4.4				Talalud Islands
117	15/11/2021	16:34:06	4.81	126.7	10	3.8				Talaud Islands
118	15/11/2021	17:27:32	-0.08	126.9	37	3.4				Southern Molucca Sea
119	15/11/2021	18:21:39	-0.04	124	103	3.6				Southern Molucca Sea
120	15/11/2021	19:12:55	2.10	128.5	28	3.2				Halmahera, Indonesia
121	16/11/2021	01:59:18	0.87	125.9	31	3.4				Northern Molucca Sea
122	16/11/2021	02:23:19	0.01	124.1	33	3.3				Minahassa Peninsula
123	16/11/2021	03:42:29	-0.13	122.9	151	4.8				Minahassa Peninsula
124	16/11/2021	08:10:33	2.70	128.5	23	4.6				Halmahera
125	16/11/2021	11:02:06	-0.01	124.2	17	3.3				Souther Molucca Sea
126	16/11/2021	13:51:38	1.80	126.8	183	3.1				Northern Molucca Sea
127	16/11/2021	17:13:03	1.98	127.1	94	3.4				Halmahera
128	16/11/2021	17:25:01	0.99	127.6	5	2.2				Halmahera
129	16/11/2021	17:26:40	0.36	122.2	131	2.1				Minahassa Peninsula
130	16/11/2021	17:30:55	2.31	128.3	151	3.2				Halmahera
131	16/11/2021	17:53:14	6.35	126.8	116	4.5				Mindanao, Philippines
132	16/11/2021	18:12:53	0.53	123.9	12	2.2				Minahassa Peninsula
133	16/11/2021	19:00:41	0.97	126.5	16	2.6				Northern Molucca Sea
134	16/11/2021	21:50:17	1.74	127.5	27	3.8				Halmahera
135	17/11/2021	05:41:18	0.41	123.6	228	3				Minahassa Peninsula
136	17/11/2021	15:20:44	0.07	124.4	36	3.7				Minahassa Peninsula
137	17/11/2021	17:44:27	2.03	124.8	206	3.9				Celebes Sea
138	17/11/2021	18:56:45	2.55	126.3	58	3.2				Northern Molucca Sea
139	17/11/2021	19:51:54	0.97	122.3	37	4.4				Minahassa Peninsula
140	17/11/2021	23:11:07	0.58	121.6	86	3.3				Minahassa Peninsula
141	17/11/2021	23:34:47	0.89	122.9	35	3.4				Minahassa Peninsula
142	17/11/2021	23:58:05	2.03	127.6	5	3.3				Northern Molucca Sea
143	18/11/2021	03:13:17	0.35	122	172	2.3				Minahassa Peninsula
144	18/11/2021	04:30:18	6.87	123.7	566	4.3				Mindanao, Philippines
145	18/11/2021	06:10:07	1.47	126.3	24	4.3				Northern Molucca Sea
146	18/11/2021	09:46:39	-0.08	123.4	118	2.9				Minahassa Peninsula
147	18/11/2021	10:23:23	0.30	122.2	132	2.9				Minahassa Peninsula
148	18/11/2021	11:55:43	0.45	121.8	178	2.4				Minahassa Peninsula
149	18/11/2021	13:26:25	1.18	126.5	22	2.8				Northern Molucca Sea

150	18/11/2021	16:27:24	3.25	129.2	10	4				North of Halmahera
151	18/11/2021	20:09:13	0.24	126.4	10	3.2				Northern Molucca Sea
152	19/11/2021	14:46:04	0.15	122.5	144	4.2				Minahassa Peninsula
153	19/11/2021	14:55:22	0.27	124.1	125	4.2				Minahassa Peninsula
154	19/11/2021	17:20:19	3.64	127.1	21	4.2				Talalud Islands
155	20/11/2021	10:18:11	0.55	122	37	2.6				Minahassa Peninsula
156	20/11/2021	14:09:55	0.72	123.2	87	3.2				Minahassa Peninsula
157	20/11/2021	14:35:45	6.22	125.8	10	4.8				Mindanao, Philippines
158	20/11/2021	16:51:13	0.04	119.7	16	2.4				Minahassa Peninsula
159	20/11/2021	16:56:14	0.63	122.2	91	4.2				Minahassa Peninsula
160	20/11/2021	19:57:55	-0.10	122.7	83	2.9				Minahassa Peninsula
161	20/11/2021	22:42:58	6.75	126.7	93	5.4				Mindanao, Philippines
162	22/11/2021	02:04:49	-0.10	123.2	142	2.9				Minahassa Peninsula
163	22/11/2021	02:53:29	-0.35	127	227	4.5				Souther Molucca Sea
164	22/11/2021	09:59:08	0.64	122.3	96	4.5				Minahassa Peninsula
165	22/11/2021	12:33:04	-0.08	124.4	22	4.5				Souther Molucca Sea
166	22/11/2021	13:59:23	0.55	120.8	51	2.7				Minahassa Peninsula
167	22/11/2021	14:22:53	-0.46	123.1	15	3.6				Minahassa Peninsula
168	22/11/2021	14:51:11	3.52	127.1	56	4.5				Talalud Islands
169	22/11/2021	15:04:46	1.23	127.2	144	3.7				Halmahera
170	22/11/2021	16:06:47	-0.04	124.7	76	4.1				Souther Molucca Sea
171	23/11/2021	03:40:46	3.03	126.6	30	3.4				Talalud Islands
172	23/11/2021	04:08:59	-0.21	123	11	2.5				Minahassa Peninsula
173	23/11/2021	04:23:44	4.01	127	39	4.2				Talalud Islands
174	23/11/2021	13:20:46	0.50	122.9	264	4.3				Minahassa Peninsula
175	23/11/2021	14:31:36	-0.13	123.4	133	4.4				Minahassa Peninsula
176	23/11/2021	16:01:02	-0.13	124.5	10	2.9				Southern Molucca Sea
177	23/11/2021	16:06:09	3.76	127	31	3.8				Talalud Islands
178	23/11/2021	18:38:06	3.68	128.9	10	4.5				North of Halmahera
179	23/11/2021	19:59:43	-0.24	124	91	4.9				Minahassa Peninsula
180	23/11/2021	23:23:53	2.90	128.2	21	4.5				Halmahera
181	24/11/2021	04:03:25	1.19	120.1	10	3.7				Minahassa Peninsula
182	24/11/2021	04:37:02	1.21	121.2	16	3.7				Minahassa Peninsula
183	24/11/2021	09:59:15	5.35	126.4	290	4.5				Mindanao, Philippines
184	24/11/2021	10:50:28	0.21	122.3	159	3.1				Minahassa Peninsula
185	24/11/2021	11:42:57	3.42	125.7	110	3.9				Talalud Islands
186	24/11/2021	14:16:00	0.76	127.9	7	3.6				Halmahera
187	24/11/2021	15:15:31	2.48	126.8	10	4.1				Northern Molucca Sea
188	24/11/2021	15:42:44	5.77	127.1	10	4.4				East of Philippines Islands
189	24/11/2021	16:56:37	-0.12	124.4	16	3.6				Souther Molucca Sea
190	25/11/2021	03:56:03	3.12	124.3	354	4.9				Celebes Sea
191	25/11/2021	07:45:44	0.73	121.4	46	4				Minahassa Peninsula
192	25/11/2021	17:10:48	3.94	126.6	61	4.5				Talalud Islands
193	25/11/2021	21:38:32	5.97	126.6	10	4.5				Mindanao, Philippines
194	25/11/2021	23:14:51	0.16	124.9	98	3.3				Minahassa Peninsula
195	25/11/2021	03:56:03	3.12	124.3	354	4.9				Celebes Sea
196	25/11/2021	07:45:44	0.73	121.4	46	4				Minahassa Peninsula
197	25/11/2021	17:10:48	3.94	126.6	61	4.5				Talalud Islands
198	25/11/2021	21:38:32	5.97	126.6	10	4.5				Mindanao, Philippines
199	25/11/2021	23:14:51	0.16	124.9	98	3.3				Minahassa Peninsula
200	26/11/2021	00:06:49	0.30	125.1	10	3.7				Northern Molucca Sea
201	26/11/2021	06:33:25	0.06	126.2	124	3.5				Northern Molucca Sea

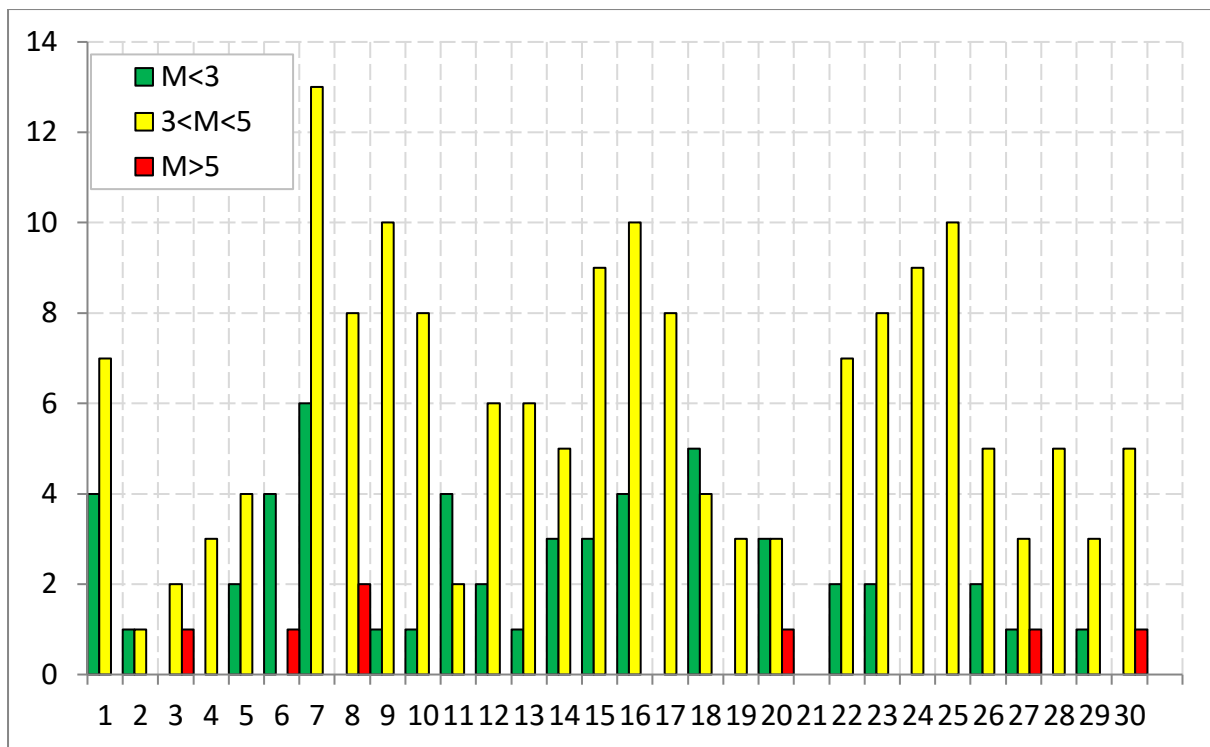
202	26/11/2021	12:24:29	0.28	124.1	179	3.8				Minahassa Peninsula
203	26/11/2021	15:27:42	-0.31	123	26	2.9				Minahassa Peninsula
204	26/11/2021	16:51:36	-0.16	122.9	123	2.9				Minahassa Peninsula
205	26/11/2021	17:50:17	1.57	127.1	115	3.4				Halmahera
206	26/11/2021	21:13:25	-0.02	125.1	32	3.1				Southern Molucca Sea
207	27/11/2021	06:01:54	4.67	126.4	57	5.8				Talalud Islands
208	27/11/2021	06:34:03	0.02	124.3	25	3.8				Minahassa Peninsula
209	27/11/2021	10:40:22	0.75	122.3	62	2.5				Minahassa Peninsula
210	27/11/2021	18:34:55	-0.06	124.2	69	4.1				Souther Molucca Sea
211	27/11/2021	19:38:15	-0.49	121.8	10	3.4				Minahassa Peninsula
212	28/11/2021	02:30:37	0.37	122	157	3.6				Minahassa Peninsula
213	28/11/2021	16:40:59	1.67	127.3	130	3.1				Halmahera, Indonesia
214	28/11/2021	16:50:52	0.22	123.5	84	3.2				Minahassa Peninsula
215	28/11/2021	19:05:15	-0.23	123.7	312	3				Minahassa Peninsula
216	28/11/2021	21:08:13	5.15	127	117	3.7				Mindanao, Philippines
217	29/11/2021	05:00:51	0.75	122	50	2.7				Minahassa Peninsula
218	29/11/2021	08:19:38	3.75	124.8	299	4.8				Celebes Sea
219	29/11/2021	11:46:30	-0.15	124.4	11	4				Souther Molucca Sea
220	29/11/2021	14:47:55	1.60	120.7	28	3.6				Minahassa Peninsula
221	30/11/2021	00:56:17	6.17	126.2	74	5.1				Mindanao, Philippines
222	30/11/2021	04:13:06	0.49	126.6	27	3.4				Northern Molucca Sea
223	30/11/2021	05:31:29	4.68	126.5	55	4.2				Talalud Islands
224	30/11/2021	09:17:47	-0.23	122.9	7	4				Minahassa Peninsula
225	30/11/2021	20:38:05	0.27	120.6	10	3.7				Minahassa Peninsula
226	30/11/2021	21:44:52	-0.08	123.1	147	3.2				Minahassa Peninsula



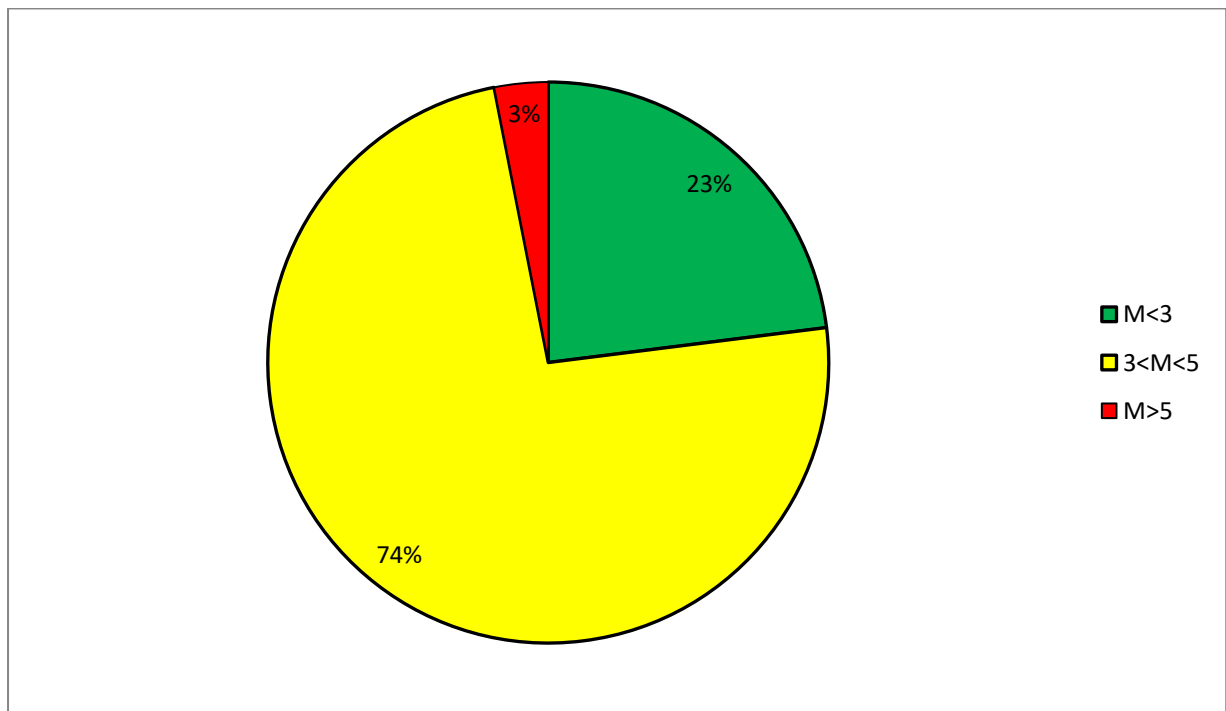
Gambar 35 Sebaran episenter gempabumi bulan November 2021

Tabel 24 Rekapitulasi gempabumi berdasarkan magnitudo bulan November 2021

Tanggal (UTC)	Magnitudo			Jumlah Total	Jumlah Gempa Signifikan	
	M<3	3≤M<5	M≥5		Dirasakan	Merusak
1	4	7	0	11	0	0
2	1	1	0	2	0	0
3	0	2	1	3	1	0
4	0	3	0	3	0	0
5	2	4	0	6	0	0
6	4	0	1	5	1	0
7	6	13	0	19	0	0
8	0	8	2	10	0	0
9	1	10	0	11	0	0
10	1	8	0	9	0	0
11	4	2	0	6	0	0
12	2	6	0	8	0	0
13	1	6	0	7	0	0
14	3	5	0	8	0	0
15	3	9	0	12	0	0
16	4	10	0	14	1	0
17	0	8	0	8	0	0
18	5	4	0	9	0	0
19	0	3	0	3	0	0
20	3	3	1	7	0	0
21	0	0	0	0	0	0
22	2	7	0	9	1	0
23	2	8	0	10	0	0
24	0	9	0	9	0	0
25	0	10	0	10	0	0
26	2	5	0	7	0	0
27	1	3	1	5	1	0
28	0	5	0	5	0	0
29	1	3	0	4	0	0
30	0	5	1	6	0	0
Jumlah gempa	52	167	7	226	5	0



Gambar 36 Grafik gempabumi berdasarkan magnitudo bulan November 2021



Gambar 37 Grafik persentase gempabumi berdasarkan magnitudo bulan November 2021

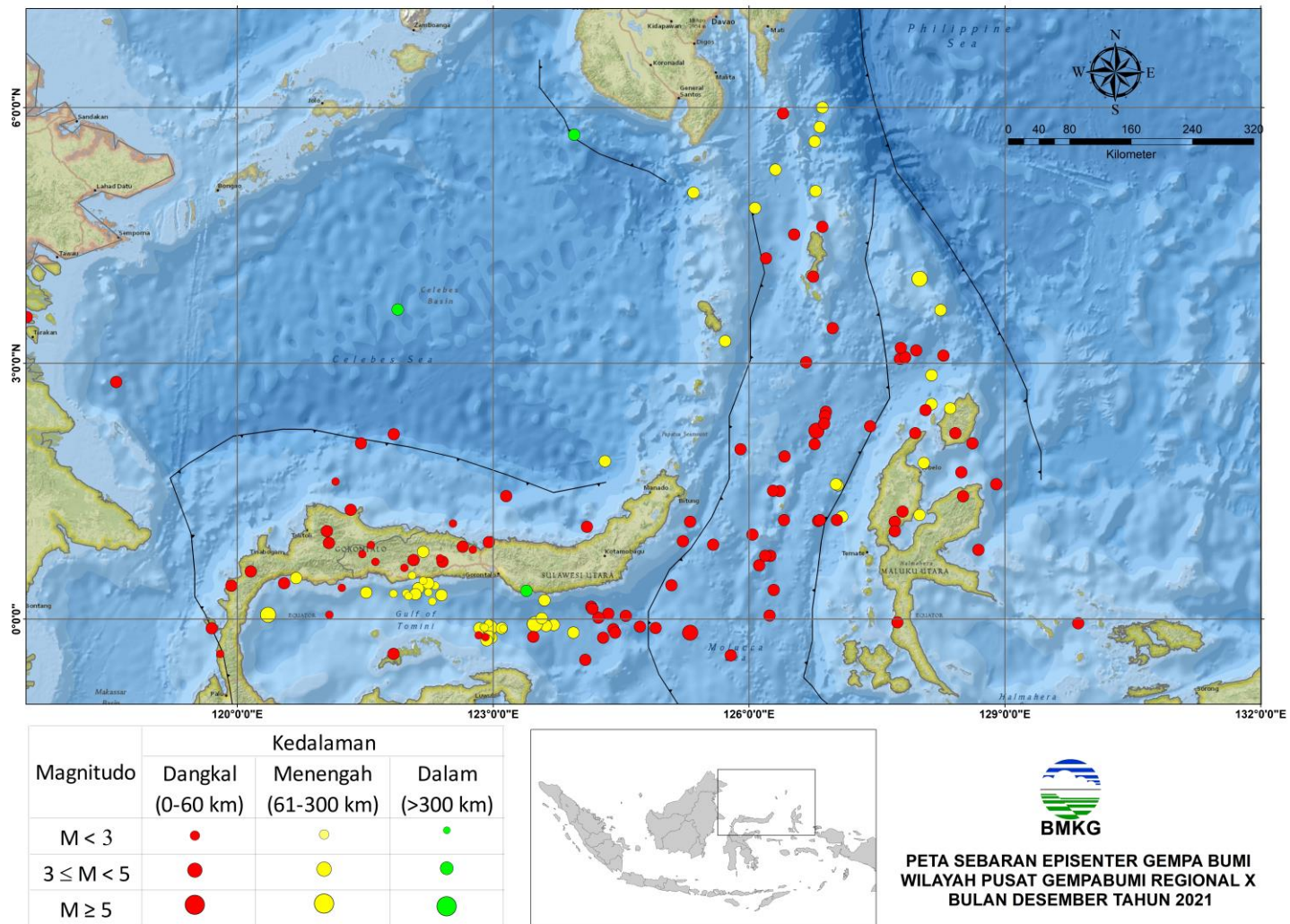
L. Data Gempabumi Bulan Desember 2021

Tabel 25 Data kejadian gempabumi bulan Desember 2021

No	Date	OT (UTC)	Epicenter		Depth (km)	Mag	PGA (gals) / SLMI			Region
			Lat	Long			X	Y	Z	
1	01/12/2021	12:39:51	0.34	126.29	10	3.1				Northern Molucca Sea
2	01/12/2021	15:29:58	-0.12	124.41	28	4.4				Souther Molucca Sea
3	01/12/2021	16:48:57	1.15	126.81	29	3.9				Northern Molucca Sea
4	01/12/2021	18:21:06	0.3864	122.2254	109	2.5				Minahassa Peninsula
5	01/12/2021	20:15:02	2.05	126.77	10	3.3				Northern Molucca Sea
6	01/12/2021	21:32:28	0.143	124.1511	38	3.3				Minahassa Peninsula
7	02/12/2021	6:39:49	0.3	121.98	159	2.7				Minahassa Peninsula
8	02/12/2021	8:48:59	-0.11	122.84	126	3.2				Minahassa Peninsula
9	02/12/2021	12:04:31	1.99	125.9	18	3.3				Northern Molucca Sea
10	02/12/2021	13:39:07	1.14	125.31	10	3.8				Northern Molucca Sea
11	02/12/2021	20:15:10	0.7884	122.1793	72	4				Minahassa Peninsula
12	02/12/2021	21:29:59	1.2	127.09	124	3.3				Halmahera, Indonesia
13	02/12/2021	22:05:04	1.08	124.1	10	3.5				Minahassa Peninsula
14	03/12/2021	0:33:18	0.63	126.12	10	3.6				Northern Molucca Sea
15	03/12/2021	10:41:24	1.14	127.71	10	3.5				Halmahera
16	03/12/2021	11:05:56	0.36	122.12	131	3.6				Minahassa Peninsula
17	03/12/2021	13:27:22	1.4412	123.153	2	3.1				Minahassa Peninsula
18	03/12/2021	17:24:41	0.06	124.35	52	3.8				Minahassa Peninsula
19	04/12/2021	3:59:26	2	117.08	10	3.8				Borneo
20	04/12/2021	11:54:29	0.8491	122.6437	36	3.7				Minahassa Peninsula
21	04/12/2021	12:21:49	3.05	127.77	10	4.2				Talalud Islands
22	04/12/2021	23:47:58	3.99	128	156	6.2				North of Halmahera
23	05/12/2021	1:33:12	-0.41	119.8	10	2.8				Minahassa Peninsula
24	05/12/2021	8:35:32	4.82	126.07	154	4.2				Talalud Islands
25	05/12/2021	9:41:50	0.39	122.32	110	2.3				Minahassa Peninsula
26	05/12/2021	15:01:44	1.85	124.31	202	3.1				Minahassa Peninsula
27	05/12/2021	16:08:00	0.6	121.96	52	2.8				Minahassa Peninsula
28	05/12/2021	21:33:32	-0.07	123.71	118	4.5				Minahassa Peninsula
29	05/12/2021	22:05:38	3.41	126.98	10	4				Talalud Islands
30	06/12/2021	0:19:32	-0.2101	123.4708	23	3.5				Minahassa Peninsula
31	06/12/2021	9:02:40	1.16	126.83	35	4				Northern Molucca Sea
32	06/12/2021	10:21:16	0.2907	122.0882	170	3.6				Minahassa Peninsula
33	06/12/2021	19:37:43	-0.48	124.08	10	4.5				Souther Molucca Sea
34	07/12/2021	3:12:22	-0.08	123.62	107	3				Minahassa Peninsula
35	07/12/2021	7:04:55	0.74	126.25	10	4				Northern Molucca Sea
36	07/12/2021	10:27:14	-0.11	119.7	10	3.3				Minahassa Peninsula
37	07/12/2021	18:58:28	4.23	126.2	55	4.5				Talalud Islands
38	08/12/2021	5:29:01	-0.4091	121.8308	10	3				Minahassa Peninsula
39	08/12/2021	7:58:47	1.6117	121.153	12	2.9				Minahassa Peninsula
40	08/12/2021	20:03:23	1.5	126.36	10	3.5				Northern Molucca Sea
41	08/12/2021	22:45:45	5	125.35	80	4.6				Talalud Islands
42	10/12/2021	3:14:06	4.0159	126.7522	22	4.4				Talalud Islands
43	10/12/2021	3:52:10	1.57	127.04	104	3.6				Halmahera
44	10/12/2021	11:28:24	0.5107	122.0506	91	2.2				Minahassa Peninsula
45	10/12/2021	17:09:17	5.02	126.78	107	4.5				Mindanao, Philippines
46	10/12/2021	18:39:20	-0.1	122.96	141	5.1				Minahassa Peninsula
47	11/12/2021	0:18:03	1.26	127.8	9	3.5				Halmahera
48	11/12/2021	3:07:06	4.6	126.86	32	4.5				Talalud Islands
49	11/12/2021	5:44:36	-0.11	123.1	153	3				Minahassa Peninsula
50	12/12/2021	14:26:00	2.47	128.36	210	4.7				Halmahera
51	12/12/2021	15:44:50	-0.19	122.83	60	2.8				Minahassa Peninsula

52	12/12/2021	17:01:40	1.58	128.9	10	4.6				Halmahera
53	13/12/2021	7:20:50	0.33	123.39	750	3.9				Minahassa Peninsula
54	13/12/2021	8:45:30	0.42	122.24	95	3				Minahassa Peninsula
55	13/12/2021	11:33:51	0.2967	121.8319	152	2.6				Minahassa Peninsula
56	13/12/2021	12:09:44	0.8915	121.0741	29	3				Minahassa Peninsula
57	13/12/2021	17:34:31	2.1672	121.8343	7	3.4				Celebes Sea
58	13/12/2021	21:14:06	0.42	120.55	47	4.7				Minahassa Peninsula
59	14/12/2021	1:14:24	5.6	126.77	136	4.7				Mindanao, Philippines
60	14/12/2021	2:23:46	5.77	126.83	90	4.6				Mindanao, Philippines
61	14/12/2021	12:22:36	0.22	123.6	229	3.2				Minahassa Peninsula
62	14/12/2021	14:11:11	2.06	128.62	10	4				Halmahera
63	15/12/2021	2:44:21	2.86	128.14	120	4.5				Halmahera
64	15/12/2021	13:12:20	7.79	126.89	236	4.9				Mindanao, Philippines
65	15/12/2021	15:18:26	1.12	122.53	10	2.6				Minahassa Peninsula
66	15/12/2021	17:18:03	-0.22	122.98	68	3.4				Minahassa Peninsula
67	15/12/2021	18:48:13	1.83	128.05	87	3				Halmahera, Indonesia
68	17/12/2021	0:32:45	-0.4273	125.7864	27	3.8				Southern Molucca Sea
69	17/12/2021	3:39:14	0.8674	121.5681	18	2.4				Minahassa Peninsula
70	17/12/2021	3:45:27	-0.0923	122.8875	140	2.3				Minahassa Peninsula
71	17/12/2021	7:04:22	3.63	121.88	598	4.5				Celebes Sea
72	17/12/2021	14:34:58	1.16	126.41	10	3.4				Northern Molucca Sea
73	18/12/2021	0:27:19	-0.1119	123.1174	172	2.9				Minahassa Peninsula
74	18/12/2021	9:55:31	1.03	127.71	10	3.5				Halmahera
75	18/12/2021	11:07:43	0.74	126.19	10	3.6				Northern Molucca Sea
76	18/12/2021	11:41:31	3.07	127.83	6	4.7				Talaud Islands
77	18/12/2021	18:55:30	-0.05	129.86	10	4.4				Halmahera
78	19/12/2021	1:54:22	2.26	127.42	10	4.9				Northern Molucca Sea
79	19/12/2021	4:05:35	3.26	125.72	146	3.8				Talaud Islands
80	19/12/2021	11:51:01	0.5578	120.1575	3	3.6				Minahassa Peninsula
81	19/12/2021	11:55:11	0.67	121.62	58	2.7				Minahassa Peninsula
82	19/12/2021	18:20:26	1.16	127.03	15	3.2				Halmahera
83	20/12/2021	1:26:10	0.8136	122.7625	31	2.4				Minahassa Peninsula
84	20/12/2021	9:43:57	3.01	126.67	10	4.3				Talaud Islands
85	20/12/2021	14:59:11	-0.09	124.72	14	3.9				Southern Molucca Sea
86	20/12/2021	17:45:54	-0.05	122.95	186	2.9				Minahassa Peninsula
87	20/12/2021	17:51:44	0.04	126.24	10	3.3				Northern Molucca Sea
88	21/12/2021	0:13:47	-0.3	132.26	10	2.8				Irian Jaya Region
89	21/12/2021	2:55:16	5.27	126.31	65	4.6				Mindanao, Philippines
90	21/12/2021	9:08:14	0.0373	124.5548	13	3.4				Minahassa Peninsula
91	21/12/2021	12:28:03	2.45	128.07	10	3.2				Halmahera, Indonesia
92	21/12/2021	20:10:29	3.18	127.78	10	4.6				Talaud Islands
93	21/12/2021	22:04:18	3.6232	128.2459	78	4.3				North of Halmahera
94	22/12/2021	0:17:15	2.18	127.95	10	4				Northern Molucca Sea
95	22/12/2021	4:20:47	0.39	119.93	44	3.1				Minahassa Peninsula
96	22/12/2021	7:07:27	0.0148	124.2346	24	3.1				Minahassa Peninsula
97	22/12/2021	9:24:26	-0.2061	122.9508	132	3.4				Minahassa Peninsula
98	22/12/2021	10:09:25	0.45	122.18	123	2.4				Minahassa Peninsula
99	22/12/2021	12:19:58	2.4297	126.9005	10	4.9				Northern Molucca Sea
100	22/12/2021	12:27:40	2.38	126.89	10	4.8				Northern Molucca Sea
101	22/12/2021	22:33:25	2.18	128.42	22	4.6				Halmahera
102	23/12/2021	3:01:31	5.68	123.95	497	4.6				Mindanao, Philippines
103	23/12/2021	7:18:07	3.09	128.28	10	4.2				North of Halmahera
104	24/12/2021	2:52:47	1.9055	126.4176	36	3.6				Northern Molucca Sea
105	24/12/2021	3:33:27	0.3663	121.2259	31	2.5				Minahassa Peninsula
106	24/12/2021	5:14:29	-0.04	127.74	12	3.3				Halmahera
107	24/12/2021	6:33:16	0.9115	125.2249	6	4.6	0.355072	0.506143	0.458643	Minahassa Peninsula
108	24/12/2021	6:46:42	0.3957	125.0911	16	3.5				Minahassa Peninsula
109	24/12/2021	15:09:51	0.2072	122.2875	144	2.4				Minahassa Peninsula
110	24/12/2021	17:21:20	1.72	128.49	8	3.4				Halmahera

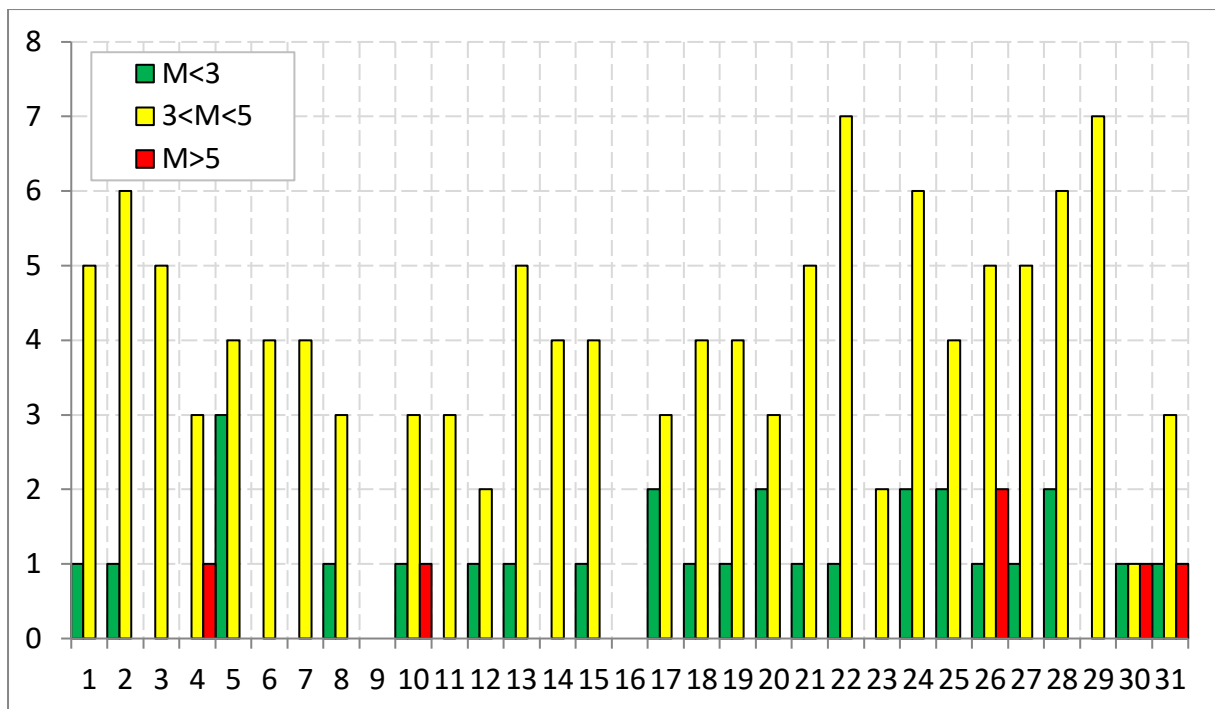
111	24/12/2021	18:58:24	1.5037	126.2825	27	3.5				Northern Molucca Sea
112	25/12/2021	3:11:51	2.52	128.14	132	4.2				Halmahera
113	25/12/2021	12:27:32	0.48	120.69	69	3.1				Minahassa Peninsula
114	25/12/2021	19:21:50	1.28	121.33	39	4.3				Minahassa Peninsula
115	25/12/2021	22:01:15	-0.2123	122.9095	11	2.6				Minahassa Peninsula
116	25/12/2021	23:10:33	1.22	128	77	3.3				Halmahera
117	25/12/2021	23:31:06	0.2691	122.0079	164	2.1				Minahassa Peninsula
118	26/12/2021	0:32:57	-0.2515	122.9246	63	4.7				Minahassa Peninsula
119	26/12/2021	2:22:53	2.21	126.79	10	5.2				Northern Molucca Sea
120	26/12/2021	3:44:41	0.9015	122.9496	16	3.5				Minahassa Peninsula
121	26/12/2021	6:28:28	-0.1063	124.904	12	3.6				Southern Molucca Sea
122	26/12/2021	15:01:31	-0.06	123.49	90	5.5				Minahassa Peninsula
123	26/12/2021	19:48:56	2.06	121.45	14	3.6				Celebes Sea
124	26/12/2021	21:40:18	6	126.86	125	4.6				Mindanao
125	26/12/2021	22:01:15	-0.2123	122.9095	11	2.6				Minahassa Peninsula
126	27/12/2021	0:19:28	0.3118	122.2416	130	2.7				Minahassa Peninsula
127	27/12/2021	4:20:21	1.44	128.51	21	3.1				Halmahera
128	27/12/2021	4:54:46	0.99	126.04	10	4.1				Northern Molucca Sea
129	27/12/2021	5:41:13	0.119	124.1642	35	3.2				Minahassa Peninsula
130	27/12/2021	11:40:48	0.6905	122.0666	57	3.2				Minahassa Peninsula
131	27/12/2021	18:54:32	-0.22	124.29	10	3.1				Southern Molucca Sea
132	28/12/2021	7:29:45	0.6713	122.407	45	3.6				Minahassa Peninsula
133	28/12/2021	7:47:33	4.51	126.53	10	4				Talau Islands
134	28/12/2021	12:15:47	0.87	125.58	10	3.4				Northern Molucca Sea
135	28/12/2021	17:48:22	-0.16	124.43	8	3.7				Southern Molucca Sea
136	28/12/2021	18:31:58	1.58	127.02	114	3.8				Halmahera
137	28/12/2021	20:09:44	0.7603	121.4668	59	2.9				Minahassa Peninsula
138	28/12/2021	21:49:27	2.2908	126.88	10	3.9				Northern Molucca Sea
139	28/12/2021	23:57:25	0.05	121.08	12	2.9				Minahassa Peninsula
140	29/12/2021	3:42:05	1.03	121.05	23	3.2				Minahassa Peninsula
141	29/12/2021	4:04:13	0.28	122.3936	135	4				Minahassa Peninsula
142	29/12/2021	6:46:25	3.15	127.96	53	3.9				Halmahera
143	29/12/2021	8:06:32	5.93	126.4	10	4.8				Mindanao
144	29/12/2021	15:29:04	-0.16	123.94	89	4.6	0.125301	0.124983	0.162424	Minahassa Peninsula
145	29/12/2021	17:54:10	0.81	128.69	10	3.3				Halmahera
146	29/12/2021	18:09:24	2.78	118.58	10	4.4				Borneo
147	30/12/2021	13:13:16	-0.16	125.31	10	5.6				Southern Molucca Sea
148	30/12/2021	16:02:13	3.54	117.53	10	3.5				Borneo
149	30/12/2021	16:17:25	-0.1	122.9	82	2.8				Minahassa Peninsula
150	31/12/2021	1:54:52	0.31	121.51	140	3.4				Minahassa Peninsula
151	31/12/2021	5:53:41	0.05	120.36	87	5				Minahassa Peninsula
152	31/12/2021	8:17:44	0.0079	123.5698	131	3.4				Minahassa Peninsula
153	31/12/2021	10:56:11	0.7114	122.377	48	2.1				Minahassa Peninsula
154	31/12/2021	18:17:32	7.77	126.73	142	4.7				Mindanao



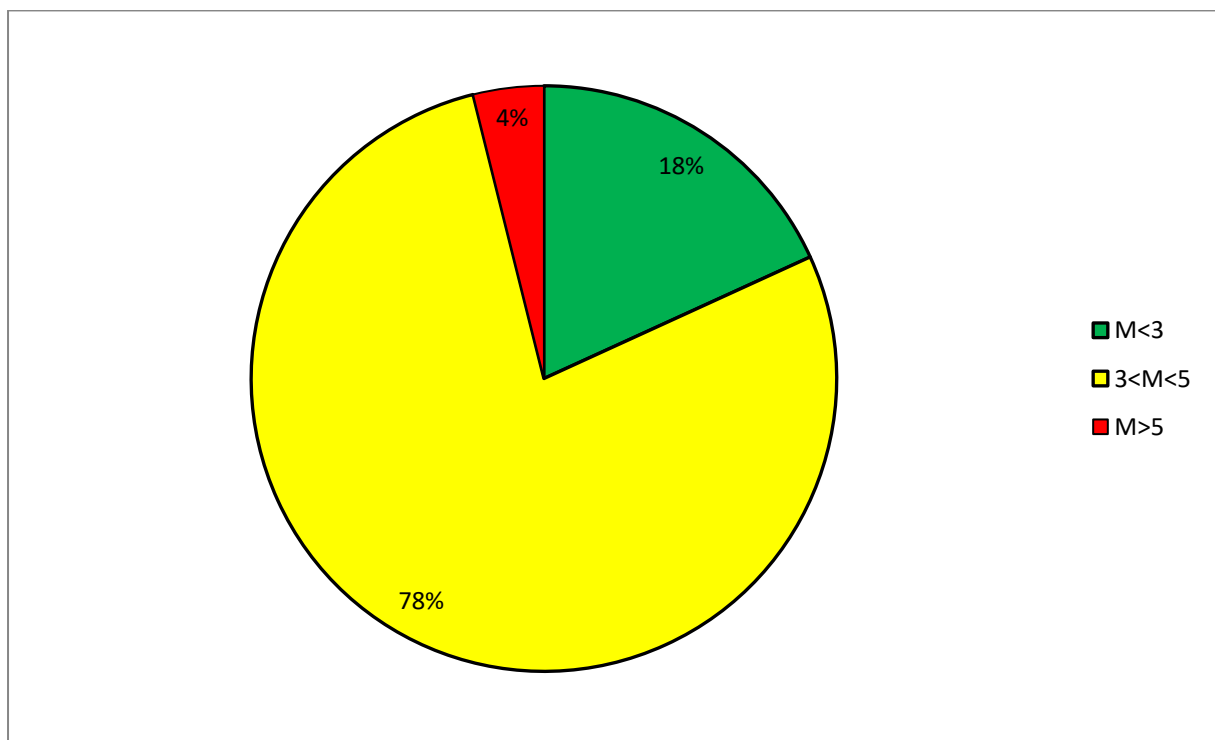
Gambar 38 Sebaran episenter gempabumi bulan Desember 2021

Tabel 26 Rekapitulasi gempabumi berdasarkan magnitudo bulan Desember 2021

Tanggal (UTC)	Magnitudo			Jumlah Total	Jumlah Gempa Signifikan	
	M<3	3≤M<5	M≥5		Dirasakan	Merusak
1	1	5	0	6	0	0
2	1	6	0	7	0	0
3	0	5	0	5	0	0
4	0	3	1	4	1	0
5	3	4	0	7	0	0
6	0	4	0	4	0	0
7	0	4	0	4	0	0
8	1	3	0	4	0	0
9	0	0	0	0	0	0
10	1	3	1	5	1	0
11	0	3	0	3	0	0
12	1	2	0	3	0	0
13	1	5	0	6	0	0
14	0	4	0	4	0	0
15	1	4	0	5	0	0
16	0	0	0	0	0	0
17	2	3	0	5	0	0
18	1	4	0	5	0	0
19	1	4	0	5	0	0
20	2	3	0	5	0	0
21	1	5	0	6	0	0
22	1	7	0	8	0	0
23	0	2	0	2	0	0
24	2	6	0	8	0	0
25	2	4	0	6	0	0
26	1	5	2	8	1	0
27	1	5	0	6	0	0
28	2	6	0	8	0	0
29	0	7	0	7	1	0
30	1	1	1	3	2	0
31	1	3	1	5	1	0
Jumlah gempa	28	120	6	154	7	0



Gambar 39 Grafik gempabumi berdasarkan magnitudo bulan Desember 2021



Gambar 40 Grafik persentase gempabumi berdasarkan magnitudo bulan Desember 2021

IV. PETA GONCANGAN GEMPABUMI TERASA DI WILAYAH REGIONAL 10 TAHUN 2021

Peta Guncangan (*Shakemap*) merupakan Peta yang menggambarkan getaran/guncangan tanah yang diakibatkan oleh gempa. Melalui shakemap, daerah yang merasakan getaran akibat gempabumi dapat diketahui secara cepat dan tepat. Untuk gempa dengan kekuatan yang besar hingga menimbulkan korban yang cukup besar, shakemap dapat digunakan untuk mengetahui lokasi yang terkena dampak signifikan, sehingga bantuan dapat diberikan secara tepat.

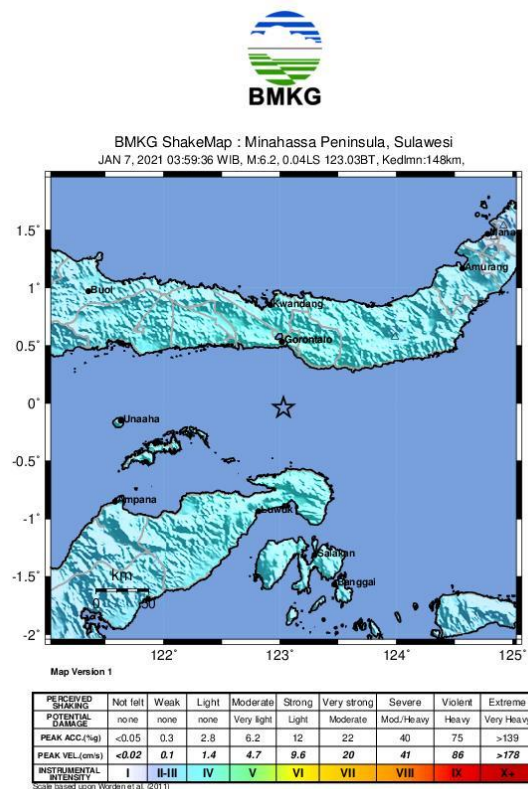
Peta guncangan yang dikeluarkan BMKG memiliki 2 jenis satuan, yaitu MMI (*Modified Mercalli Intensity*) dan SIG BMKG (Skala Intensitas Gempabumi BMKG). Di dalam Buletin Gempabumi Stasiun Geofisika Manado ini, Peta Guncangan disajikan dengan menggunakan skala MMI. Skala MMI adalah satuan yang dibuat oleh Giuseppe Mercalli pada tahun 1902. Skala MMI dibagi menjadi 12 bagian berdasarkan informasi dari orang-orang yang selamat dari gempa tersebut dan juga dengan melihat serta membandingkan tingkat kerusakan akibat gempa tersebut. Oleh karena itu, Skala MMI bersifat sangat subjektif karena didasarkan pada penilaian manusia. Pada gambar berikut ditunjukkan pembagian skala MMI berdasarkan nilai percepatan tanah dan getaran yang dirasakan.

PERCEIVED SHAKING	Not felt	Weak	Light	Moderate	Strong	Very strong	Severe	Violent	Extreme
POTENTIAL DAMAGE	none	none	none	Very light	Light	Moderate	Mod./Heavy	Heavy	Very Heavy
PEAK ACC. (%g)	<0.05	0.3	2.8	6.2	12	22	40	75	>139
PEAK VEL. (cm/s)	<0.02	0.1	1.4	4.7	9.6	20	41	86	>178
INSTRUMENTAL INTENSITY	I	II–III	IV	V	VI	VII	VIII	IX	X+

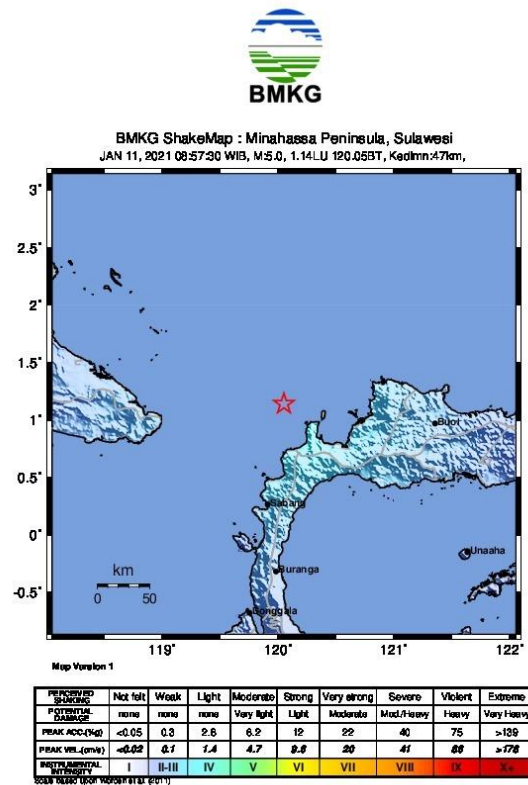
Scale based upon Worden et al. (2012)

Gambar 41 Perbandingan antara skala MMI dengan percepatan tanah maksimum

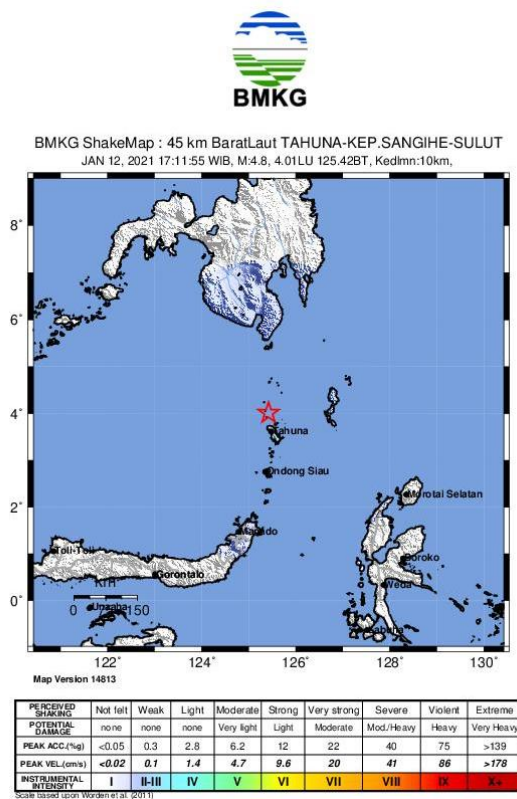
A. Peta Guncangan (*Shakemap*) Gempabumi Bulan Januari 2021



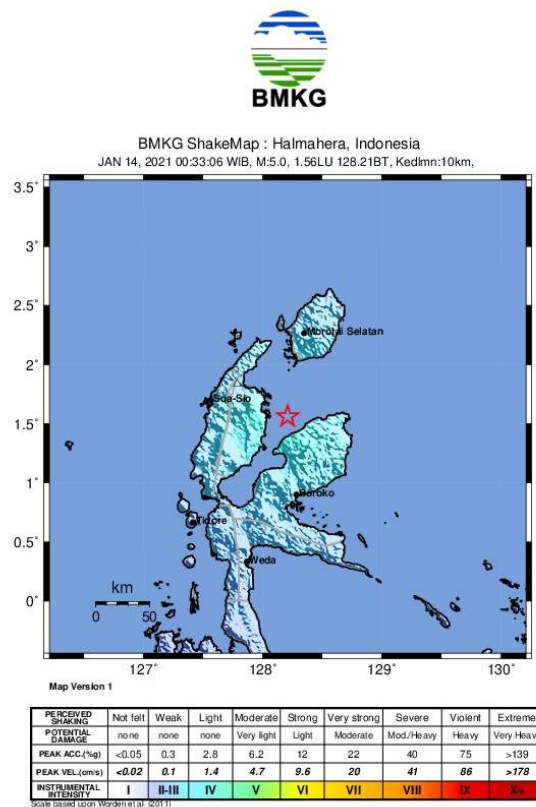
Gambar 42 Peta Guncangan Gempabumi 7 Januari 2021 pukul 03:59:36 WIB



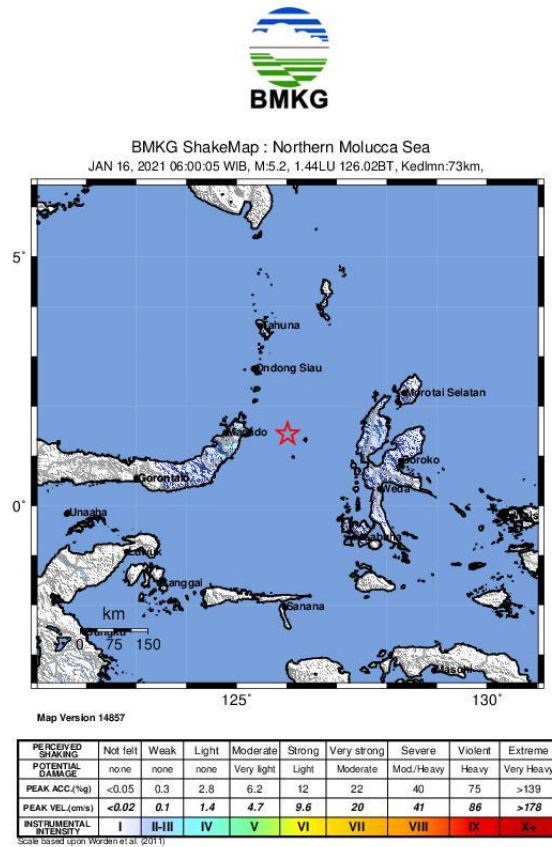
Gambar 43 Peta Guncangan Gempabumi 11 Januari 2021 pukul 08:57:30 WIB



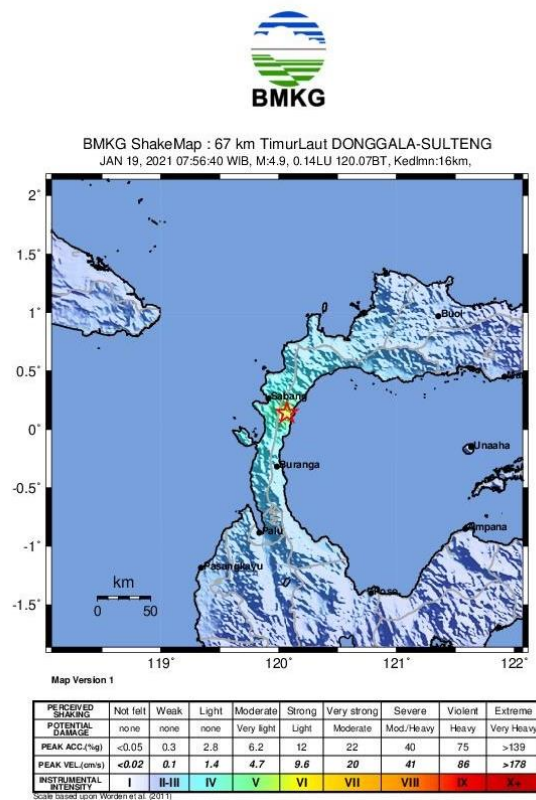
Gambar 44 Peta Guncangan Gempabumi 12 Januari 2021 pukul 17:11:55 WIB



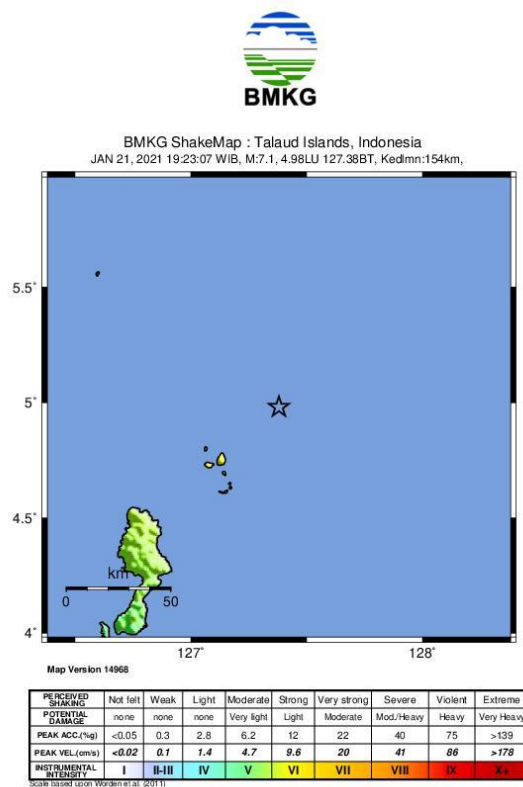
Gambar 45 Peta Guncangan Gempabumi 14 Januari 2021 pukul 00:33:06 WIB



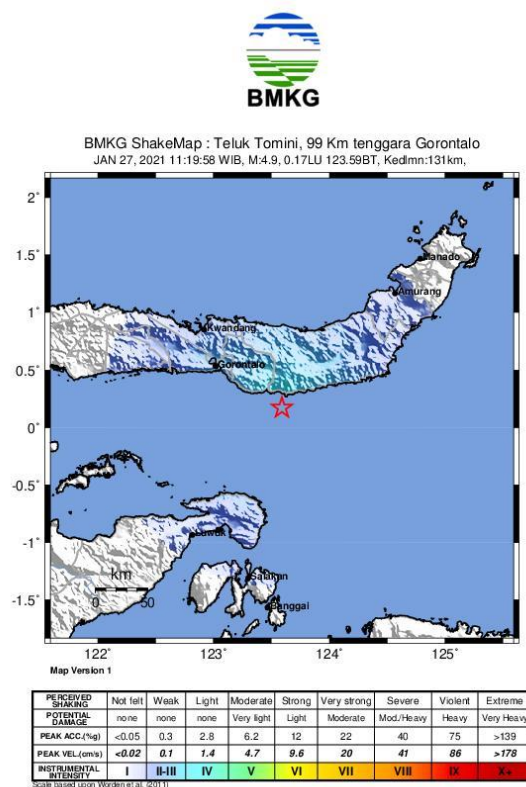
Gambar 46 Peta Guncangan Gempabumi 16 Januari 2021 pukul 06:00:05 WIB



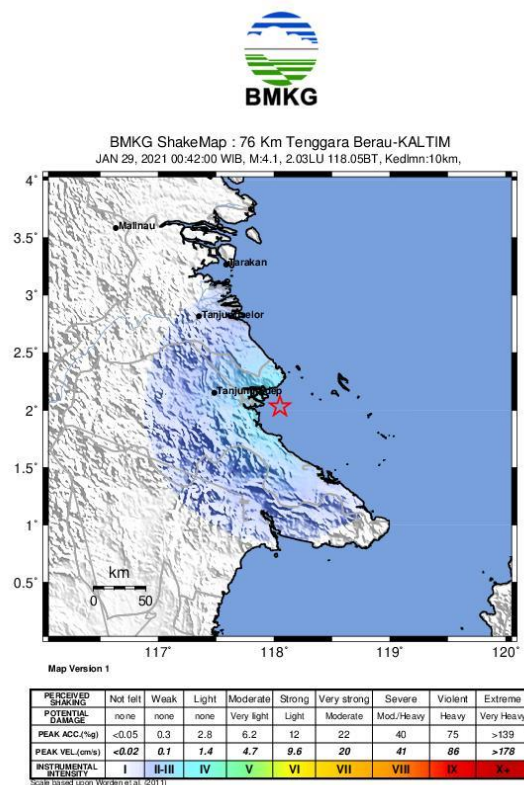
Gambar 47 Peta Guncangan Gempabumi 19 Januari 2021 pukul 07:56:40 WIB



Gambar 48 Peta Guncangan Gempabumi 21 Januari 2021 pukul 19:23:07 WIB

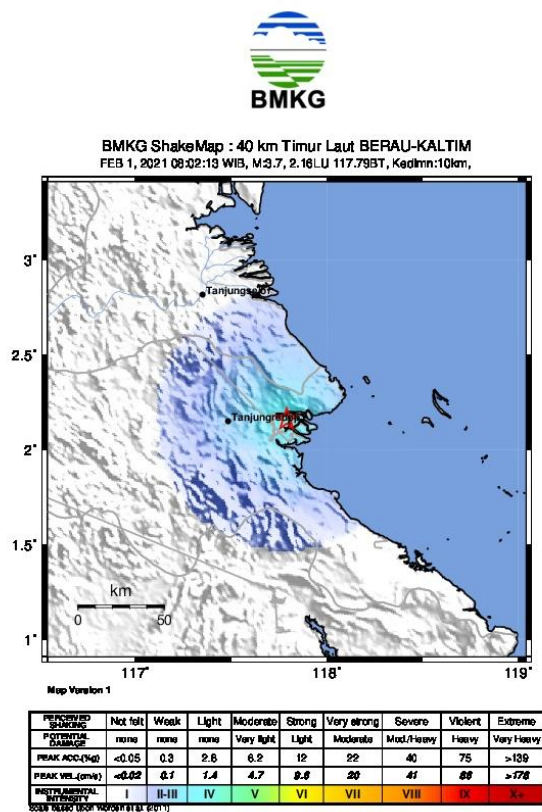


Gambar 49 Peta Guncangan Gempabumi 27 Januari 2021 pukul 11:19:58 WIB

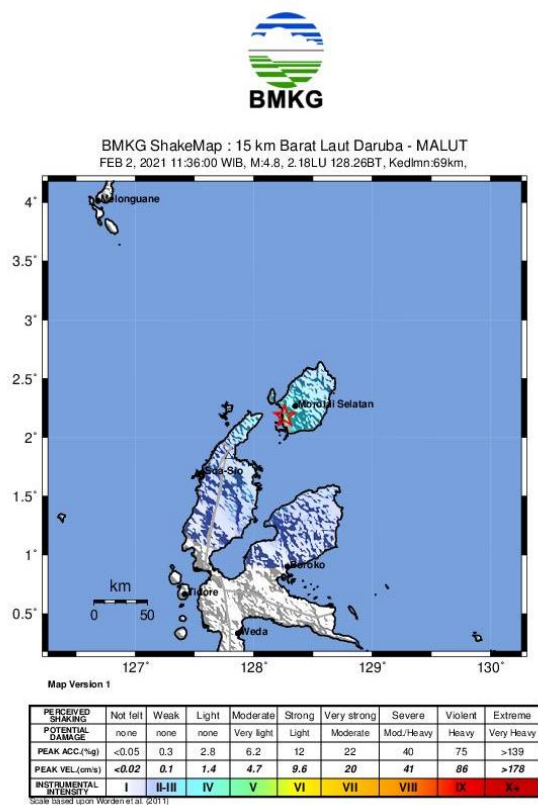


Gambar 50 Peta Guncangan Gempabumi 29 Januari 2021 pukul 00:42:00 WIB

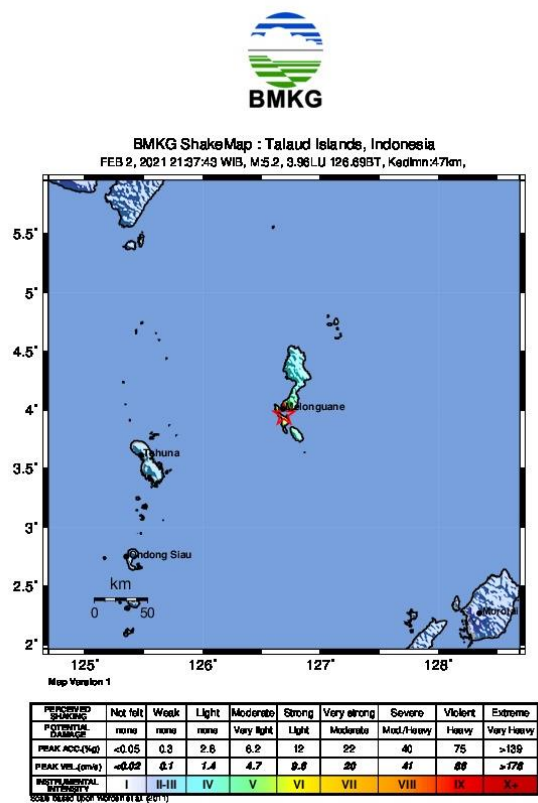
B. Peta Guncangan (*Shakemap*) Gempabumi Bulan Februari 2021



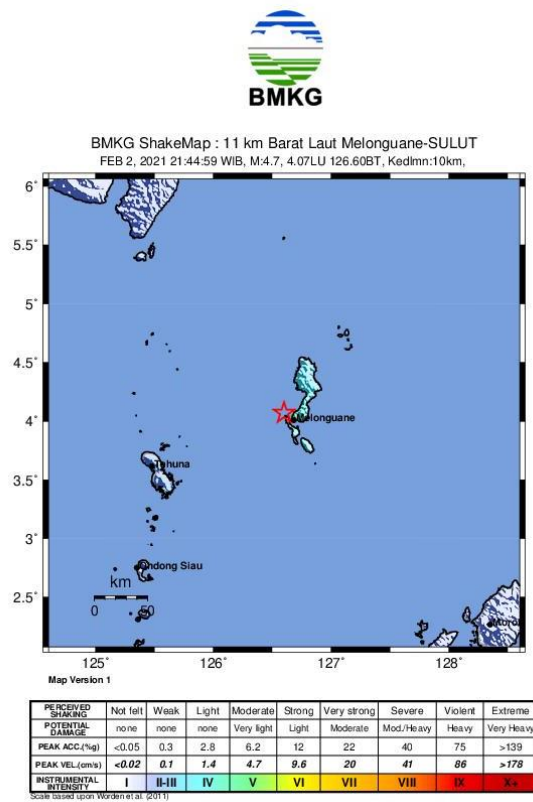
Gambar 51 Peta Guncangan Gempabumi 1 Februari 2021 pukul 08:02:13 WIB



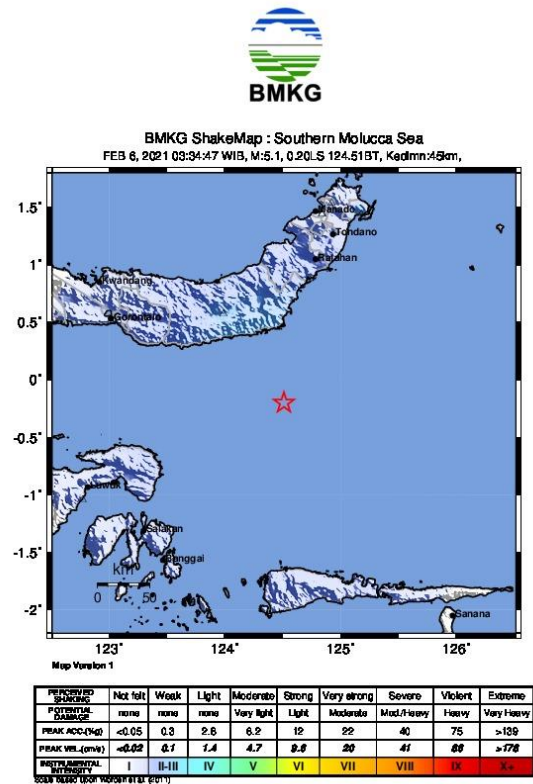
Gambar 52 Peta Guncangan Gempabumi 2 Februari 2021 pukul 11:36:00 WIB



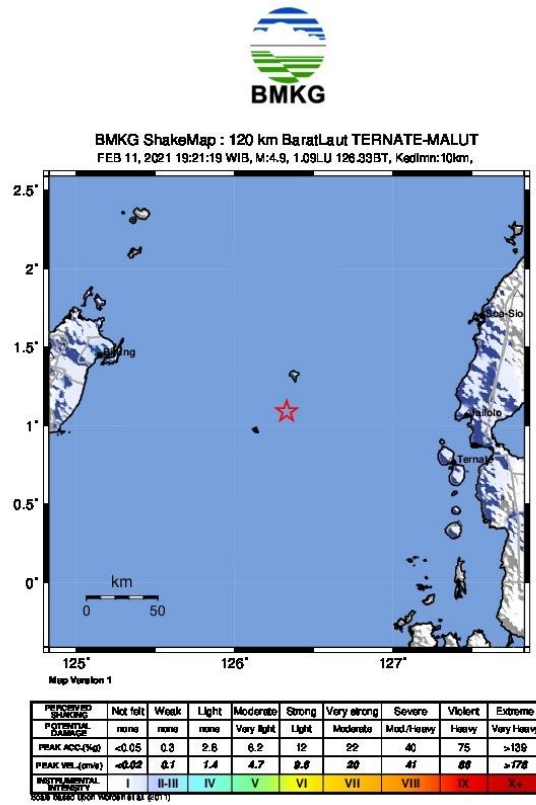
Gambar 53 Peta Guncangan Gempabumi 2 Februari 2021 pukul 21:37:43 WIB



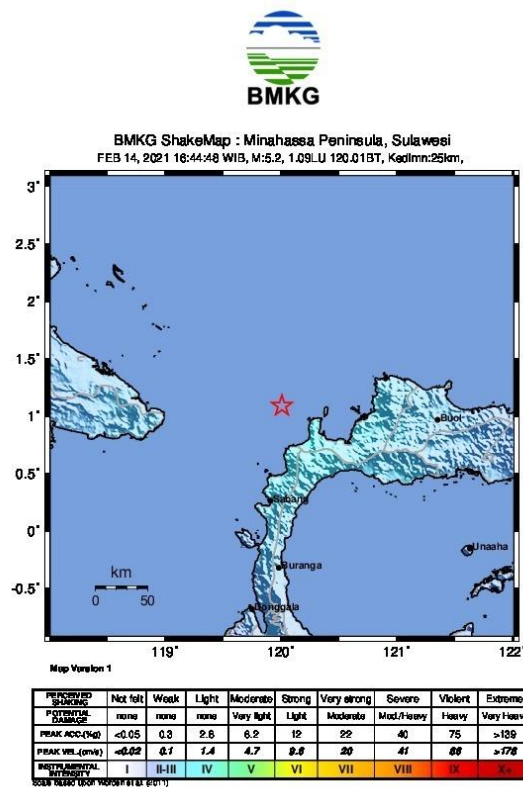
Gambar 54 Peta Guncangan Gempabumi 2 Februari 2021 pukul 21:44:59 WIB



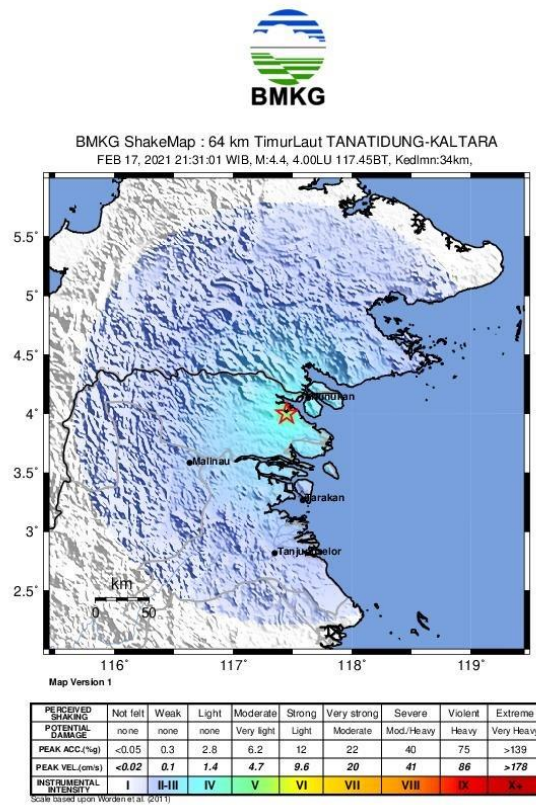
Gambar 55 Peta Guncangan Gempabumi 6 Februari 2021 pukul 03:34:47 WIB



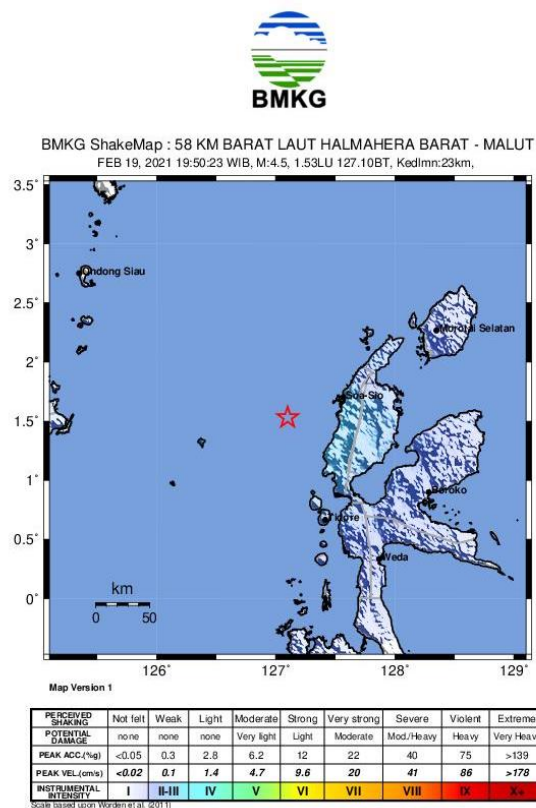
Gambar 56 Peta Guncangan Gempabumi 11 Februari 2021 pukul 19:21:19 WIB



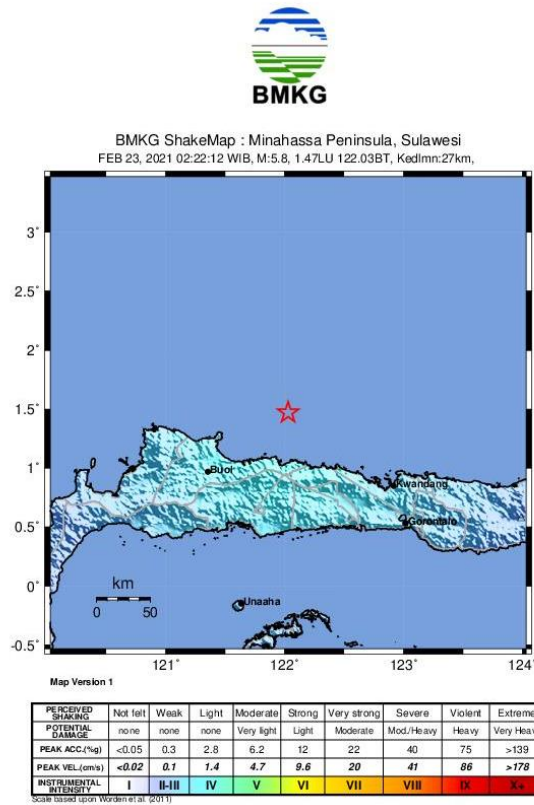
Gambar 57 Peta Guncangan Gempabumi 14 Februari 2021 pukul 16:44:48 WIB



Gambar 58 Peta Guncangan Gempabumi 17 Februari 2021 pukul 21:31:01 WIB

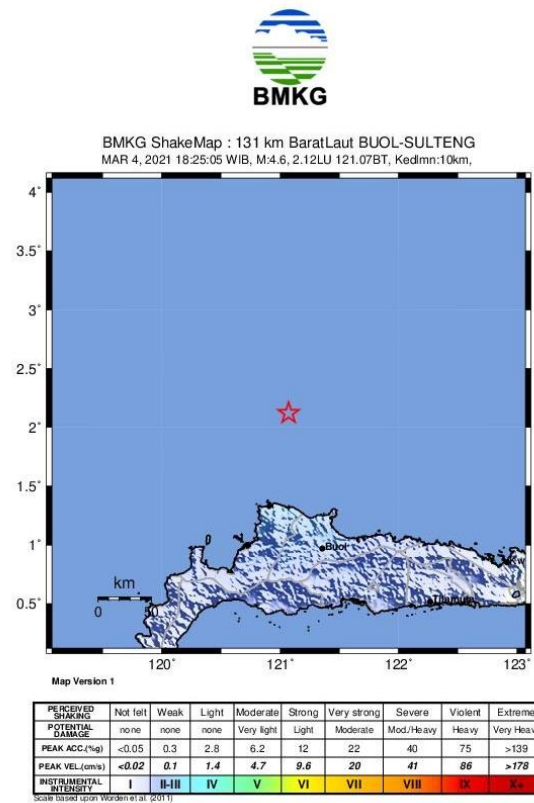


Gambar 59 Peta Guncangan Gempabumi 19 Februari 2021 pukul 19:50:23 WIB

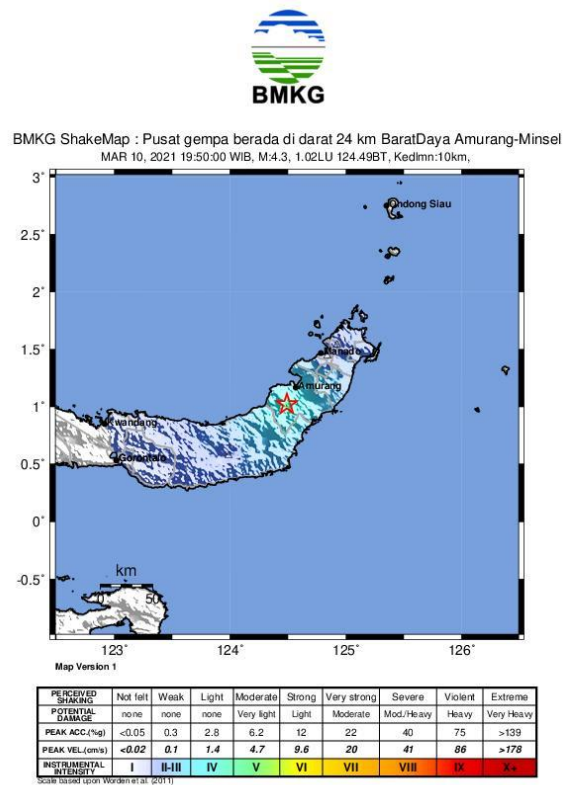


Gambar 60 Peta Guncangan Gempabumi 23 Februari 2021 pukul 02:22:12 WIB

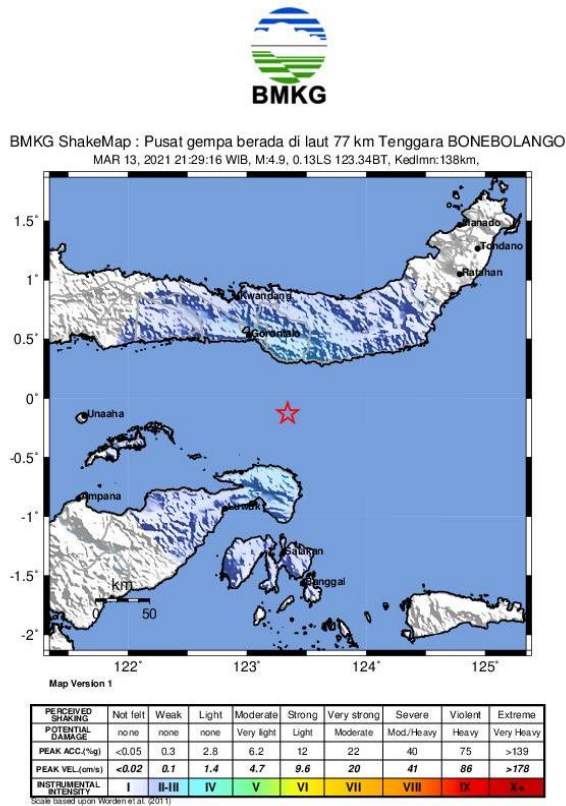
C. Peta Guncangan (*Shakemap*) Gempabumi Bulan Maret 2021



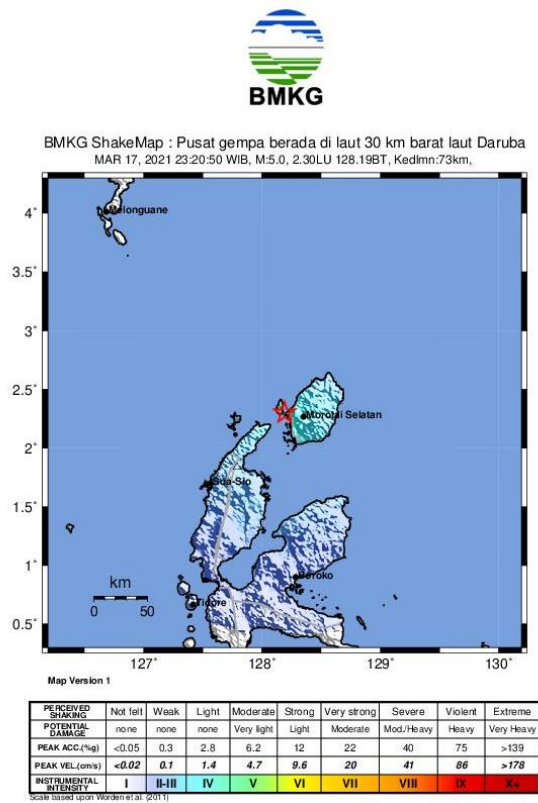
Gambar 61 Peta Guncangan Gempabumi 4 Maret 2021 pukul 18:25:05 WIB



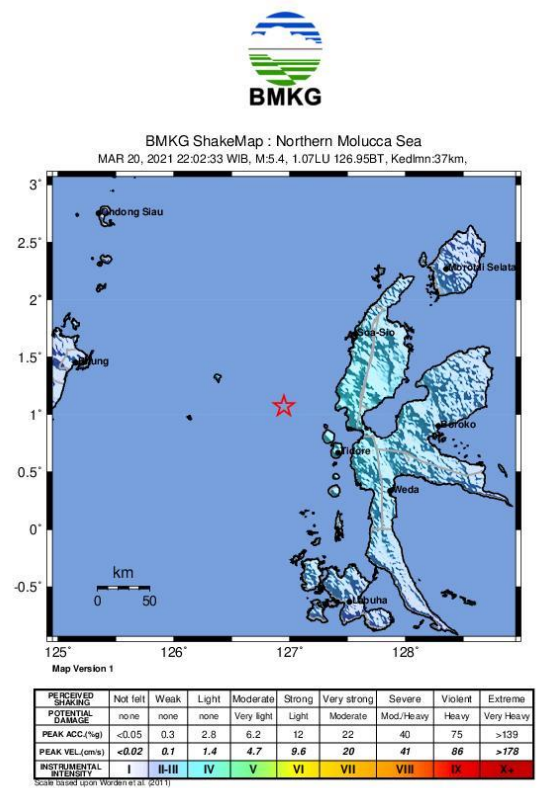
Gambar 62 Peta Guncangan Gempabumi 10 Maret 2021 pukul 19:50:00 WIB



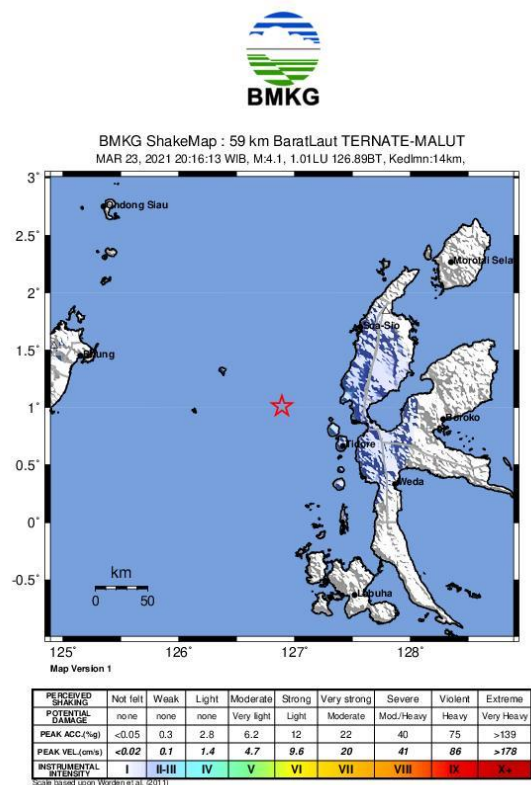
Gambar 63 Peta Guncangan Gempabumi 13 Maret 2021 pukul 21:29:16 WIB



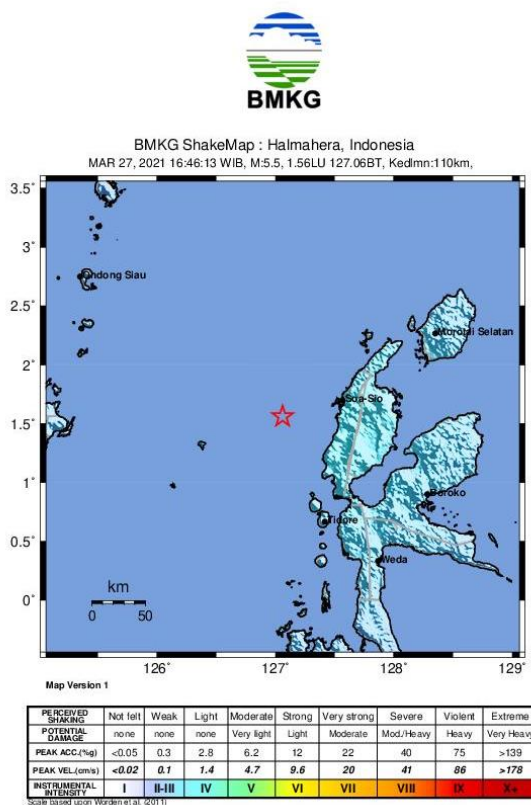
Gambar 64 Peta Guncangan Gempabumi 17 Maret 2021 pukul 23:20:50 WIB



Gambar 65 Peta Guncangan Gempabumi 20 Maret 2021 pukul 22:02:33 WIB

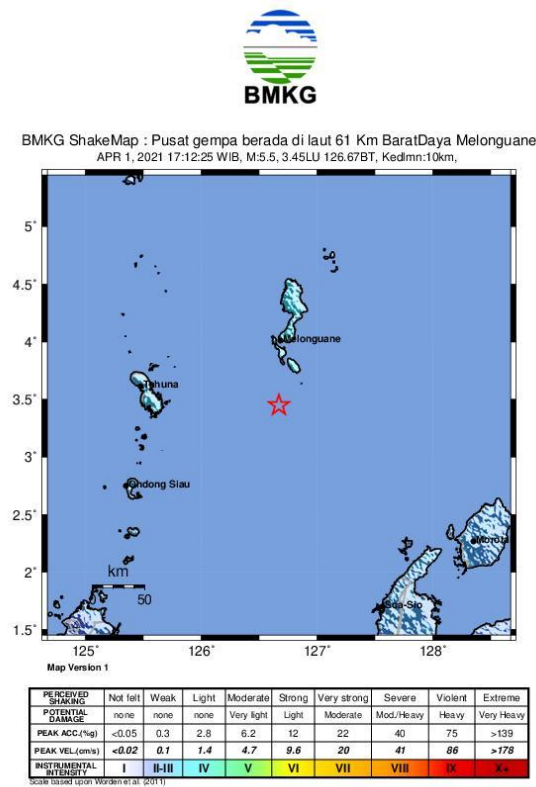


Gambar 66 Peta Guncangan Gempabumi 23 Maret 2021 pukul 20:16:13 WIB

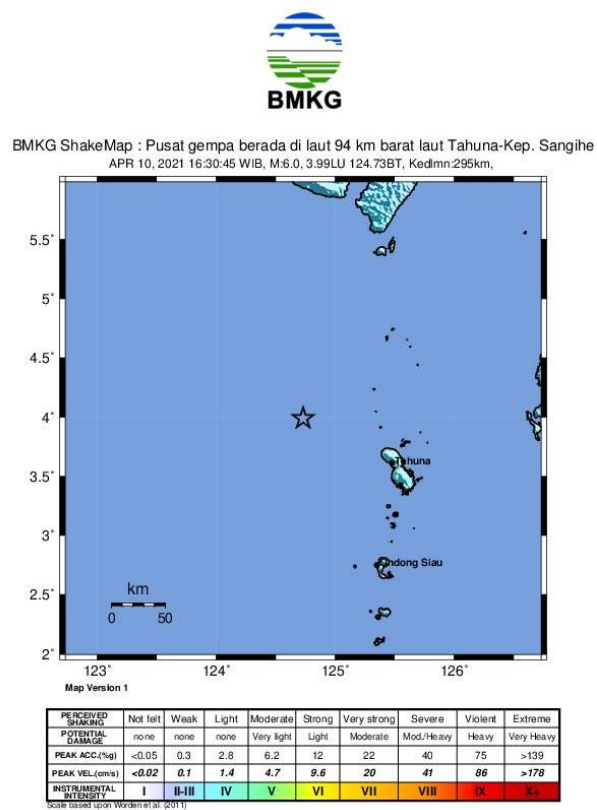


Gambar 67 Peta Guncangan Gempabumi 27 Maret 2021 pukul 16:46:13 WIB

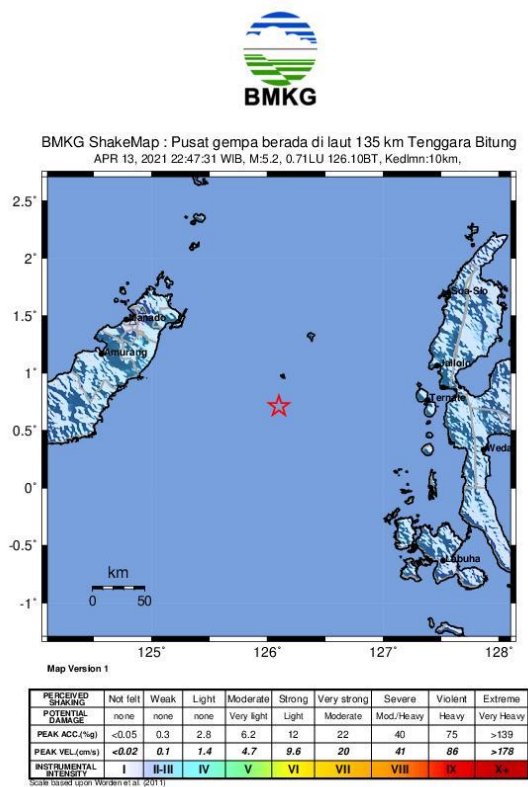
D. Peta Guncangan (*Shakemap*) Gempabumi Bulan April 2021



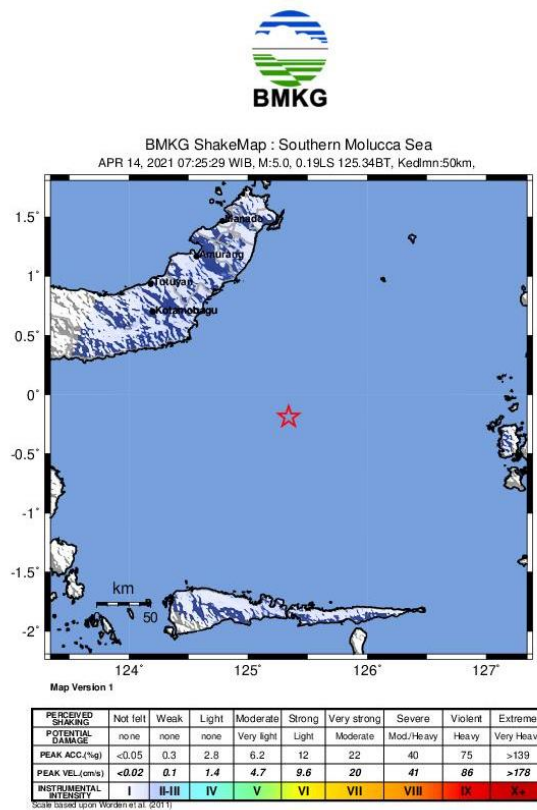
Gambar 68 Peta Guncangan Gempabumi 1 April 2021 pukul 17:12:25 WIB



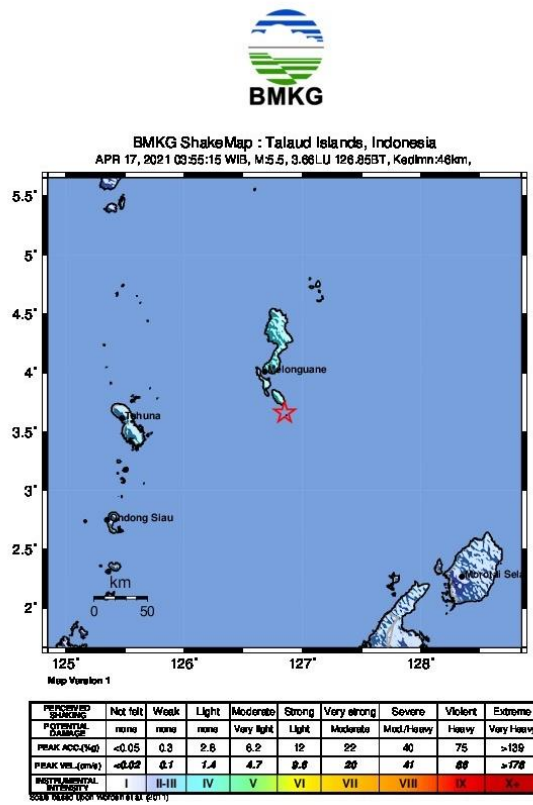
Gambar 69 Peta Guncangan Gempabumi 10 April 2021 pukul 16:30:45 WIB



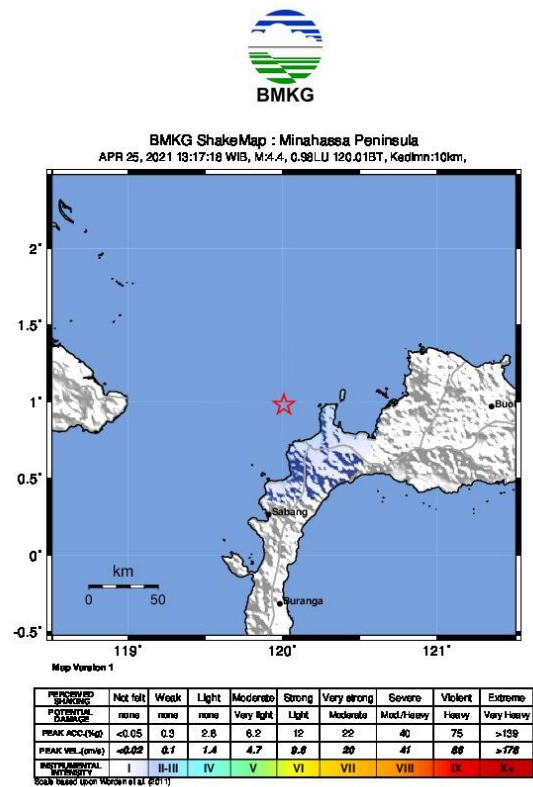
Gambar 70 Peta Guncangan Gempabumi 13 April 2021 pukul 22:47:31 WIB



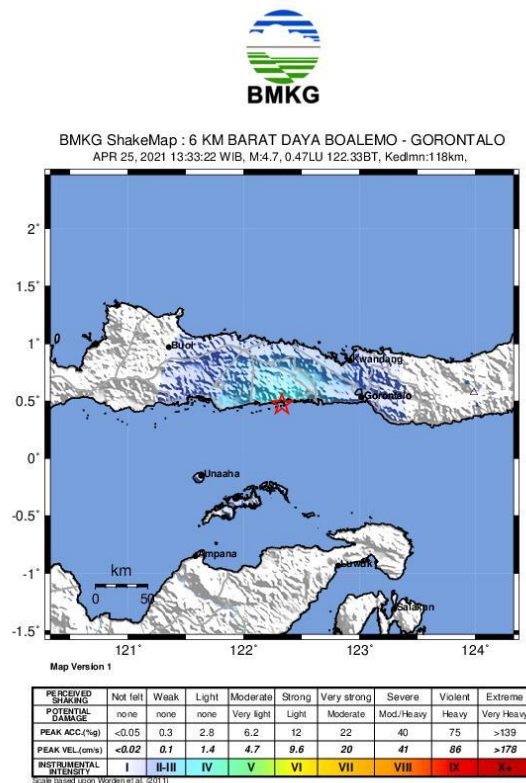
Gambar 71 Peta Guncangan Gempabumi 14 April 2021 pukul 07:25:29 WIB



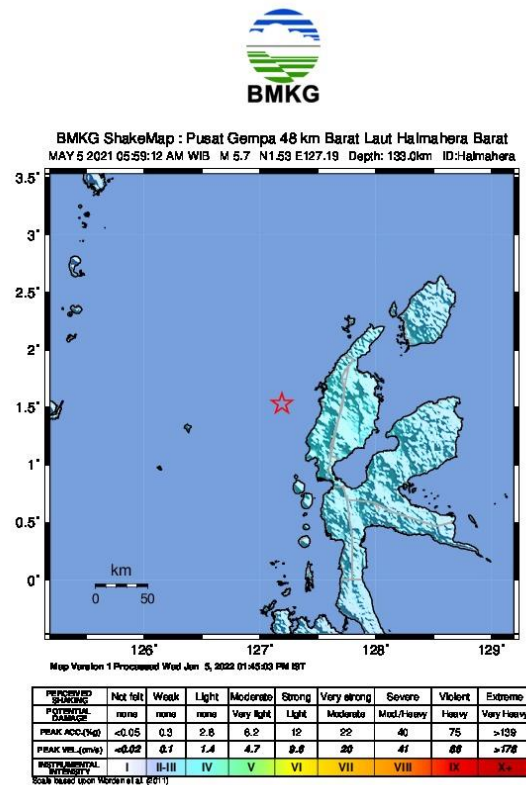
Gambar 72 Peta Guncangan Gempabumi 17 April 2021 pukul 03:55:15 WIB



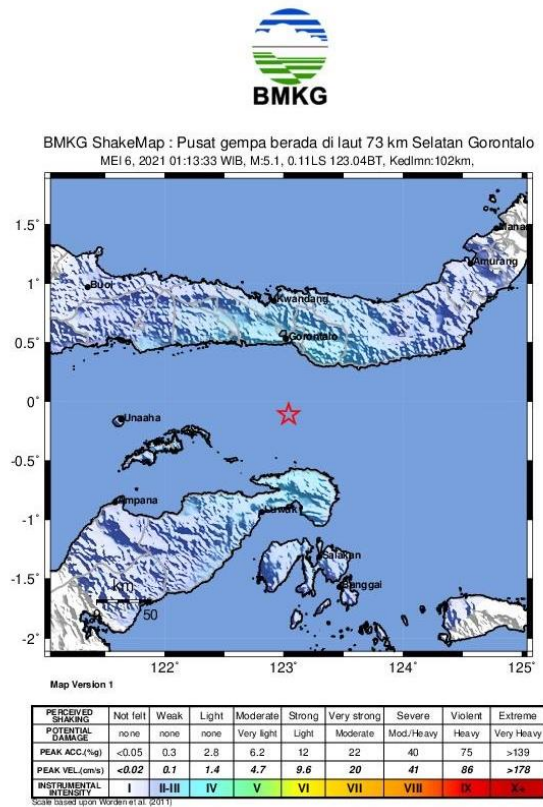
Gambar 73 Peta Guncangan Gempabumi 25 April 2021 pukul 13:17:18 WIB



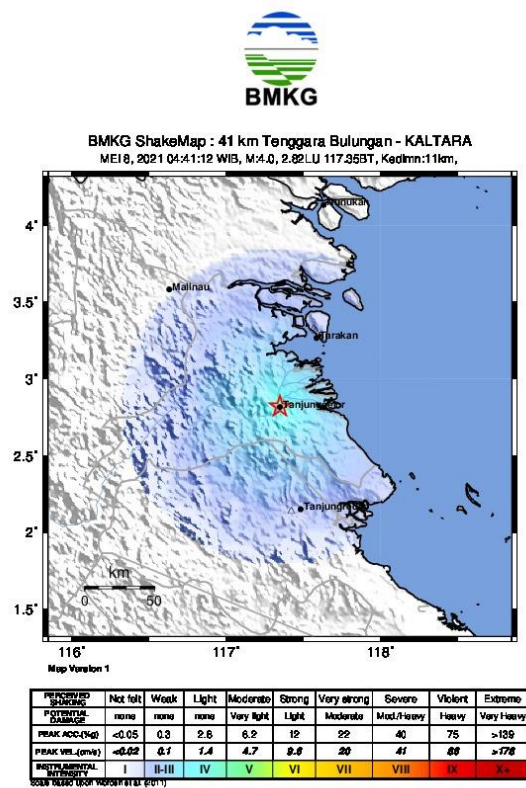
Gambar 74 Peta Guncangan Gempabumi 25 April 2021 pukul 13:33:22 WIB
E. Peta Guncangan (*Shakemap*) Gempabumi Bulan Mei 2021



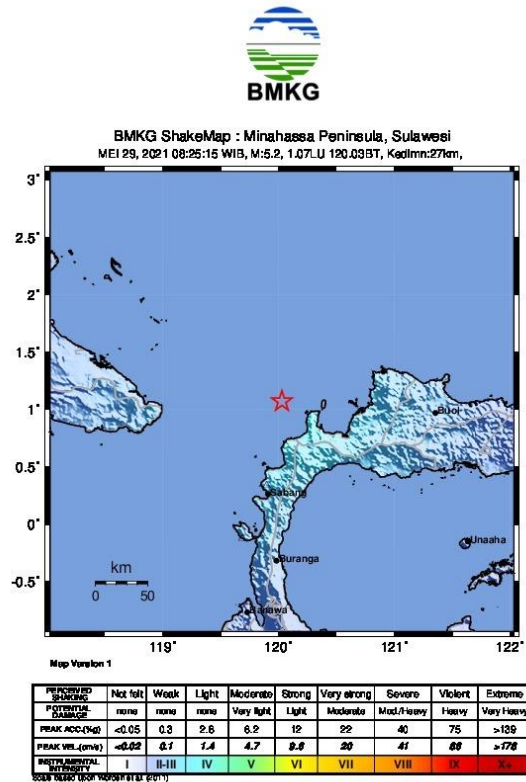
Gambar 75 Peta Guncangan Gempabumi 5 Mei 2021 pukul 05:59:12 WIB



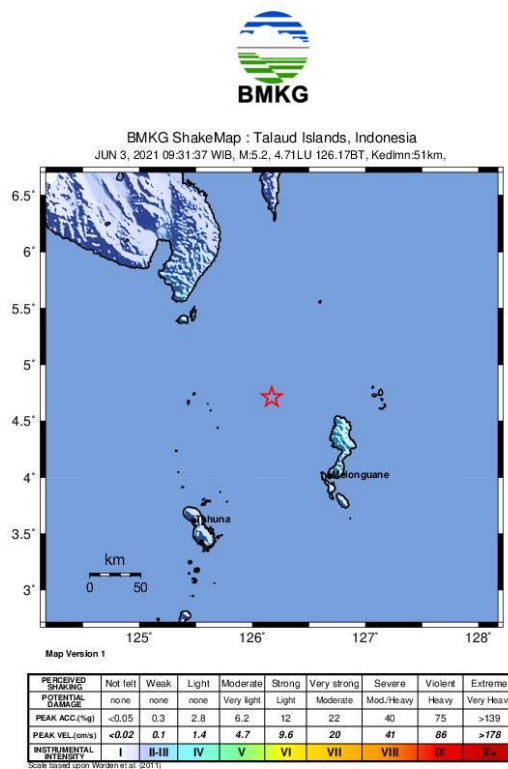
Gambar 76 Peta Guncangan Gempabumi 6 Mei 2021 pukul 01:13:33 WIB



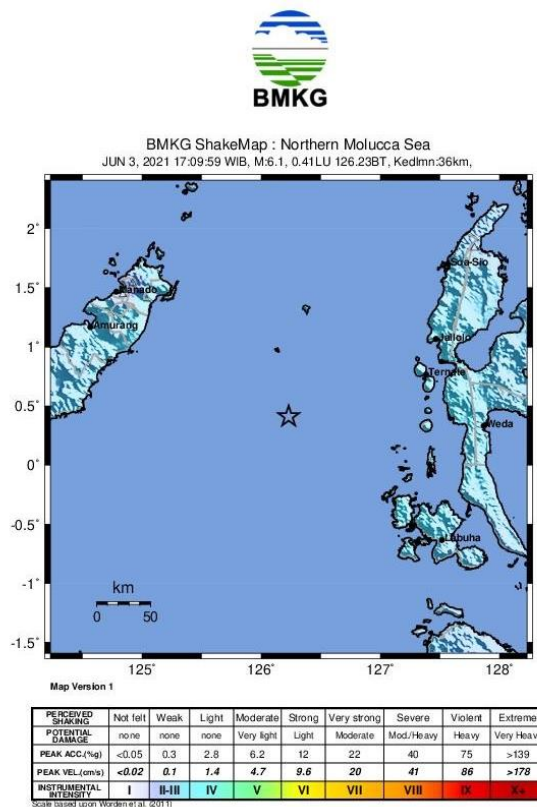
Gambar 77 Peta Guncangan Gempabumi 8 Mei 2021 pukul 04:11:12 WIB



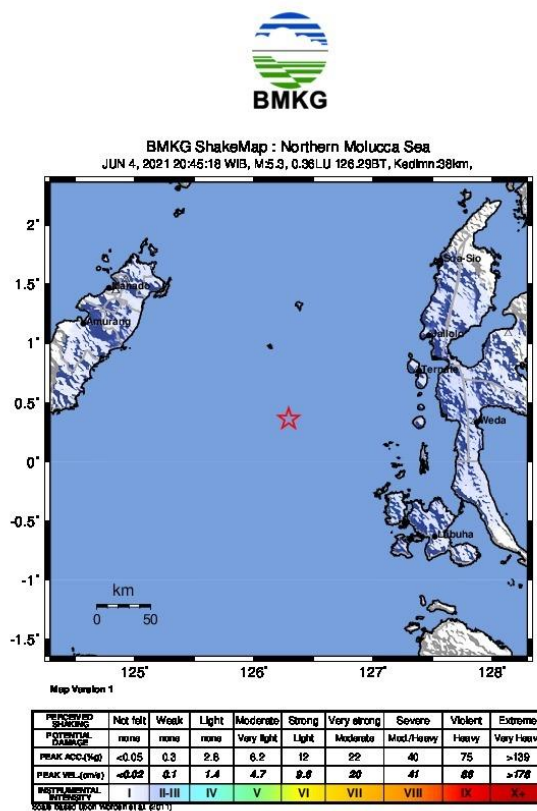
Gambar 78 Peta Guncangan Gempabumi 29 Mei 2021 pukul 08:25:15 WIB
F. Peta Guncangan (*Shakemap*) Gempabumi Bulan Juni 2021



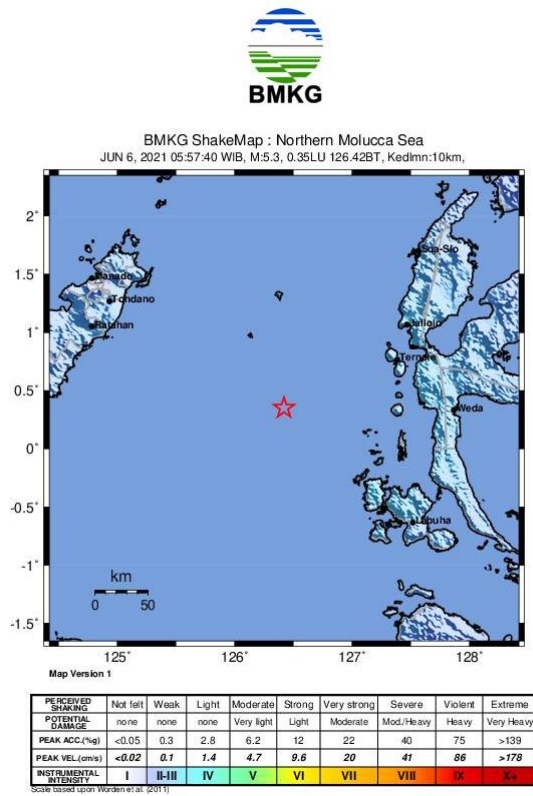
Gambar 79 Peta Guncangan Gempabumi 3 Juni 2021 pukul 09:31:37 WIB



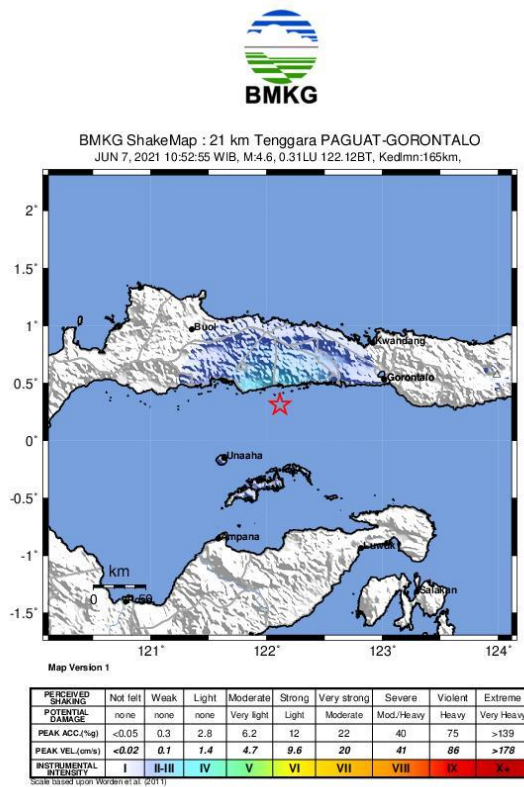
Gambar 80 Peta Guncangan Gempabumi 3 Juni 2021 pukul 17:09:59 WIB



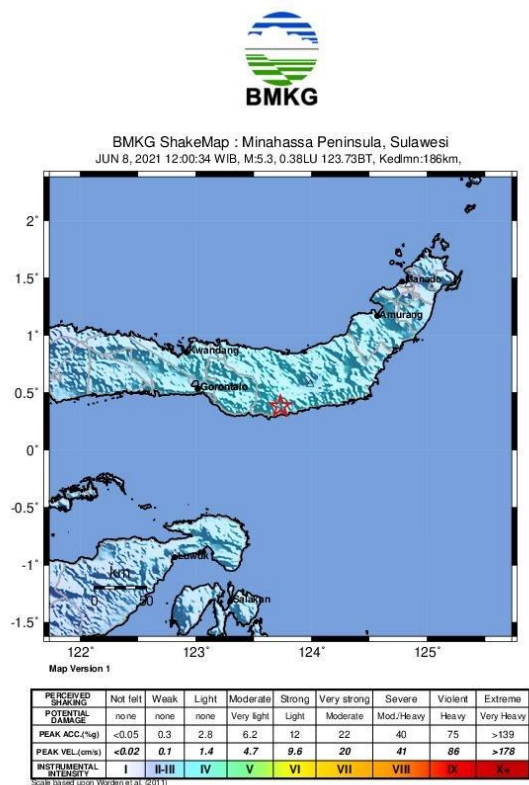
Gambar 81 Peta Guncangan Gempabumi 4 Juni 2021 pukul 20:45:16 WIB



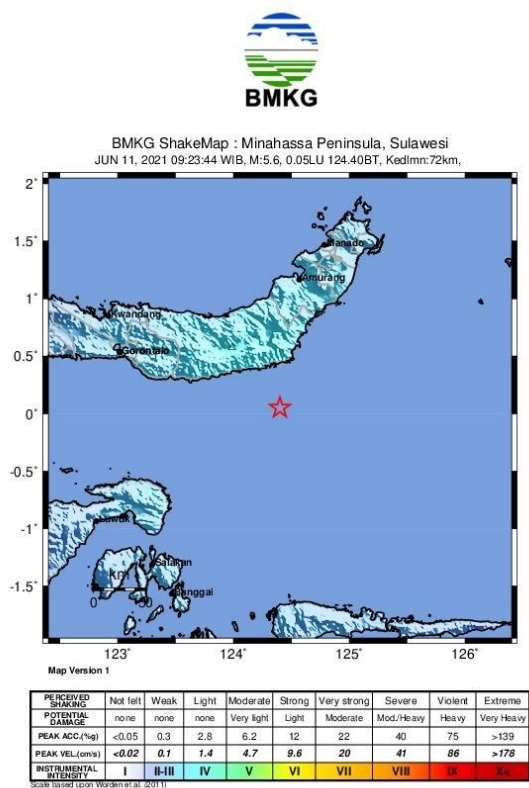
Gambar 82 Peta Guncangan Gempabumi 6 Juni 2021 pukul 05:57:40 WIB



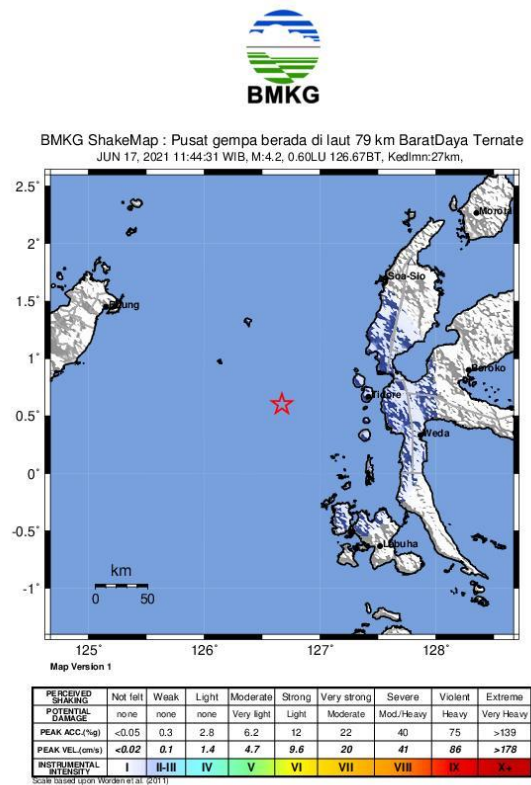
Gambar 83 Peta Guncangan Gempabumi 7 Juni 2021 pukul 10:52:56 WIB



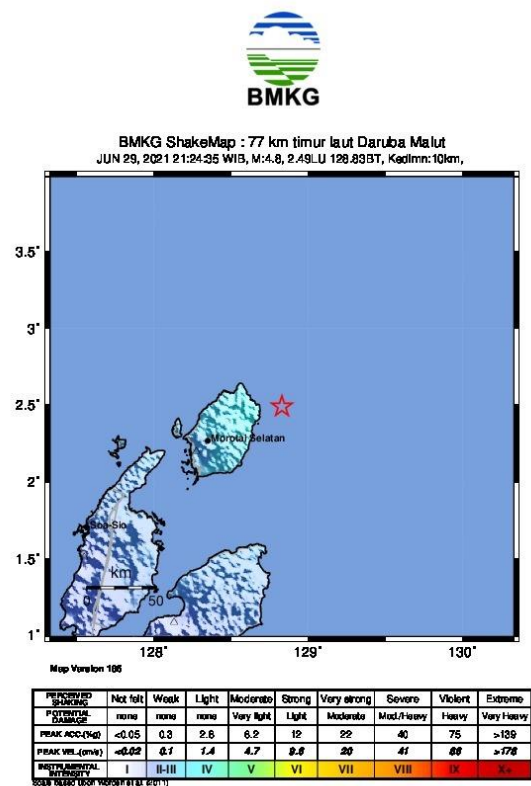
Gambar 84 Peta Guncangan Gempabumi 8 Juni 2021 pukul 12:00:34 WIB



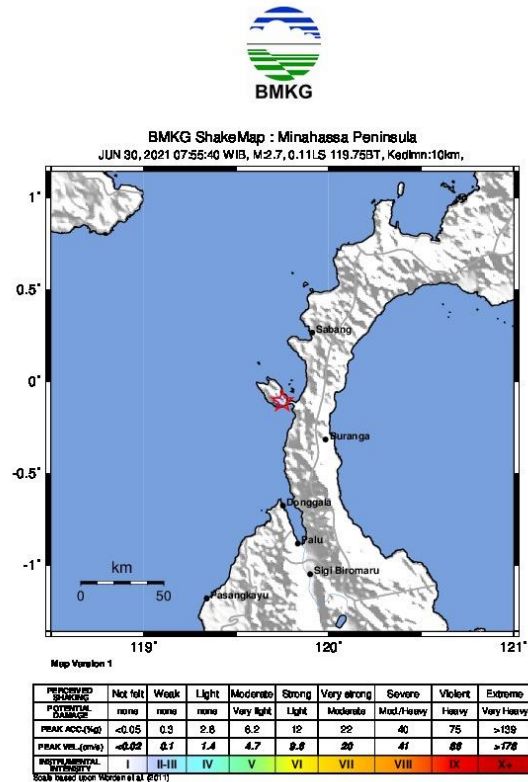
Gambar 85 Peta Guncangan Gempabumi 11 Juni 2021 pukul 09:23:44 WIB



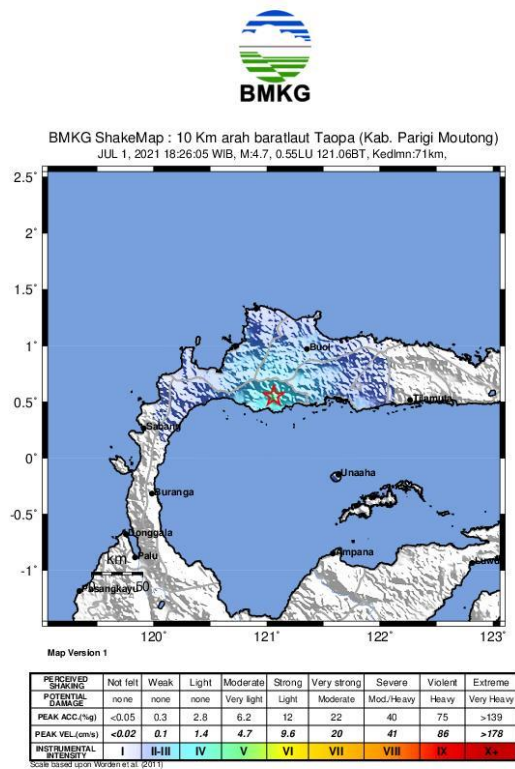
Gambar 86 Peta Guncangan Gempabumi 17 Juni 2021 pukul 11:44:31 WIB



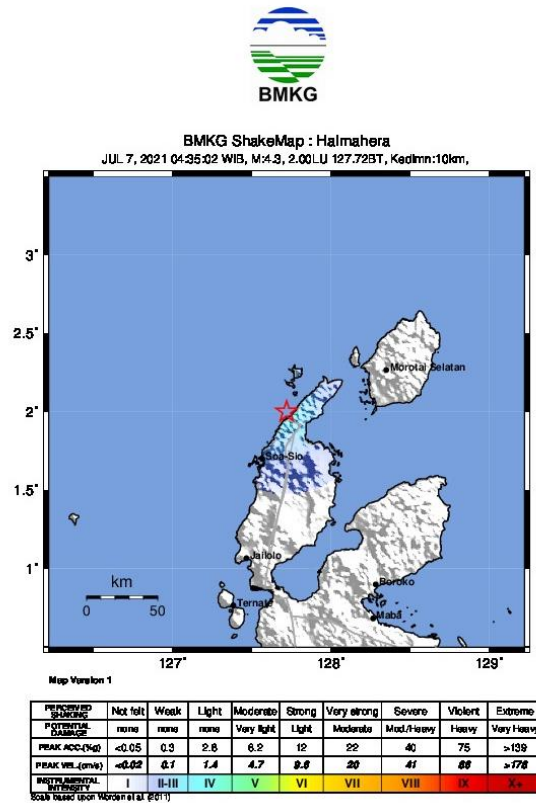
Gambar 87 Peta Guncangan Gempabumi 25 Juni 2021 pukul 21:24:35 WIB



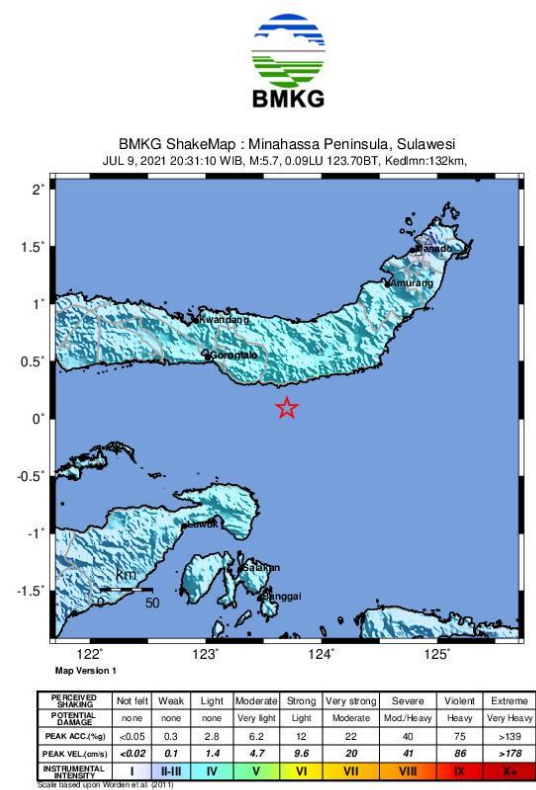
Gambar 88 Peta Guncangan Gempabumi 30 Juni 2021 pukul 07:55:40 WIB
G. Peta Guncangan (*Shakemap*) Gempabumi Bulan Juli 2021



Gambar 89 Peta Guncangan Gempabumi 1 Juli 2021 pukul 19:26:05 WIB



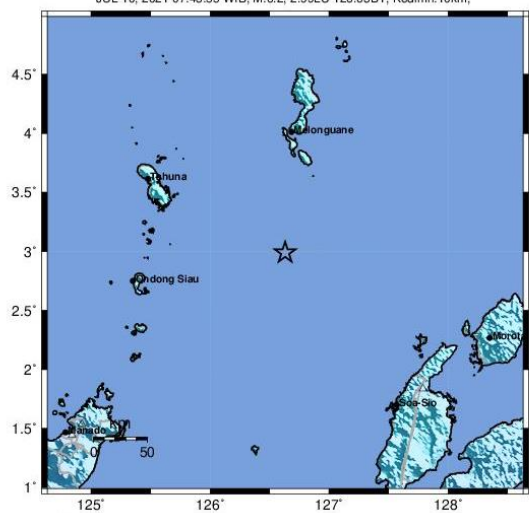
Gambar 90 Peta Guncangan Gempabumi 7 Juli 2021 pukul 04:35:02 WIB



Gambar 91 Peta Guncangan Gempabumi 9 Juli 2021 pukul 20:31:00 WIB



BMKG ShakeMap : Pusat gempa berada di laut 112 km Barat Daya Melonguane
JUL 10, 2021 07:43:55 WIB, M:6.2, 2.99LU 126.63BT, Kedlmn:10km,



Map Version 1

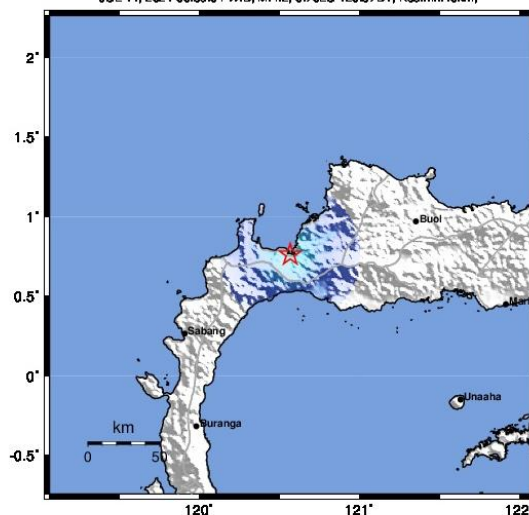
PERCEIVED SHAKING	Not felt	Weak	Light	Moderate	Strong	Very strong	Severe	Violent	Extreme
POTENTIAL DAMAGE	none	none	none	Very light	Light	Moderate	Mod./Heavy	Heavy	Very Heavy
PEAK ACC.(%)	<0.05	0.3	2.8	6.2	12	22	40	75	>139
PEAK VEL.(cm/s)	<0.02	0.1	1.4	4.7	9.6	29	41	86	>178
INSTRUMENTAL INTENSITY	I	II-III	IV	V	VI	VII	VIII	IX	X+

Scale based upon Walden et al. (2011)

Gambar 92 Peta Guncangan Gempabumi 10 Juli 2021 pukul 07:43:55 WIB



BMKG ShakeMap : Minahasa Peninsula
JUL 11, 2021 00:59:04 WIB, M:4.2, 0.76LU 120.57BT, Kedlmn:10km,

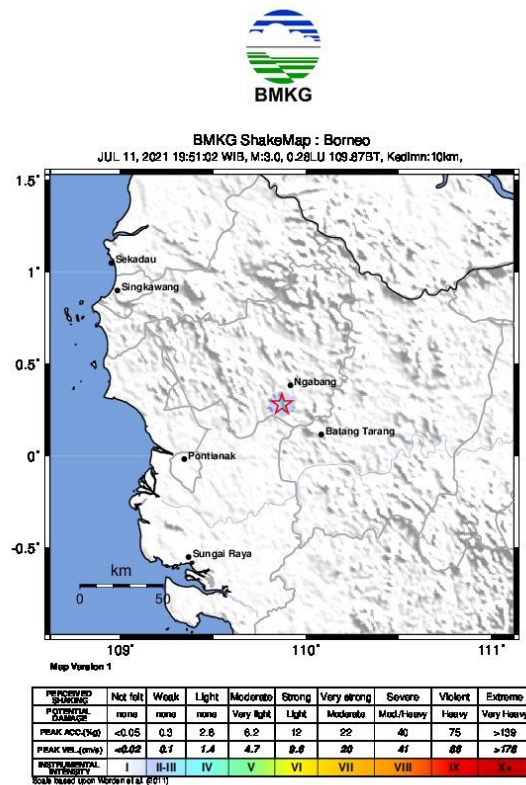


Map Version 1

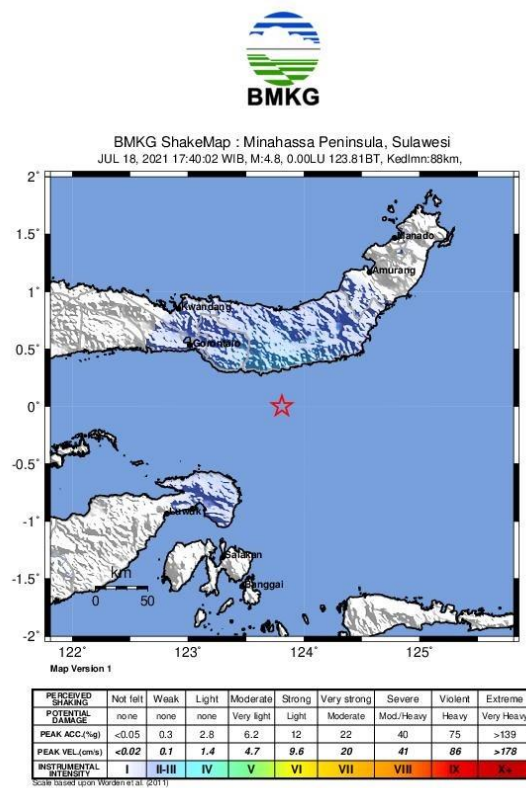
PERCEIVED SHAKING	Not felt	Weak	Light	Moderate	Strong	Very strong	Severe	Violent	Extreme
POTENTIAL DAMAGE	none	none	none	Very light	Light	Moderate	Mod./Heavy	Heavy	Very Heavy
PEAK ACC.(%)	<0.05	0.3	2.8	6.2	12	22	40	75	>139
PEAK VEL.(cm/s)	<0.02	0.1	1.4	4.7	9.6	29	41	86	>178
INSTRUMENTAL INTENSITY	I	II-III	IV	V	VI	VII	VIII	IX	X+

Scale based upon Walden et al. (2011)

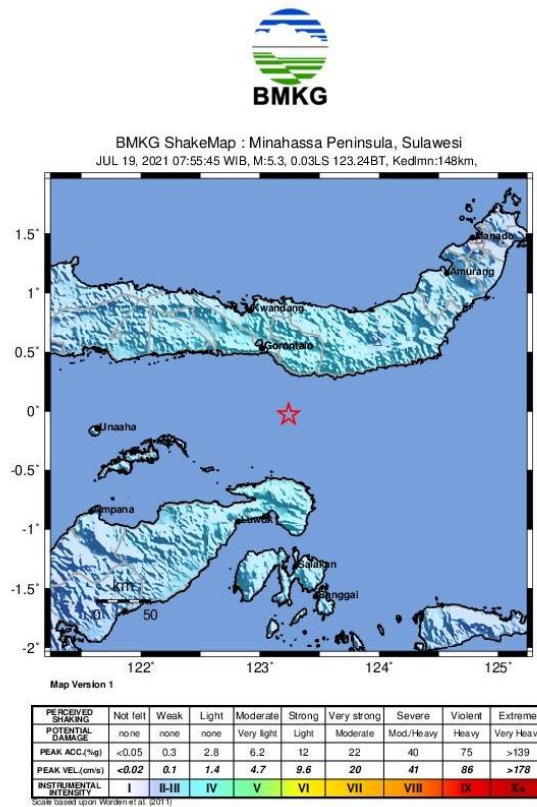
Gambar 93 Peta Guncangan Gempabumi 11 Juli 2021 pukul 00:59:04 WIB



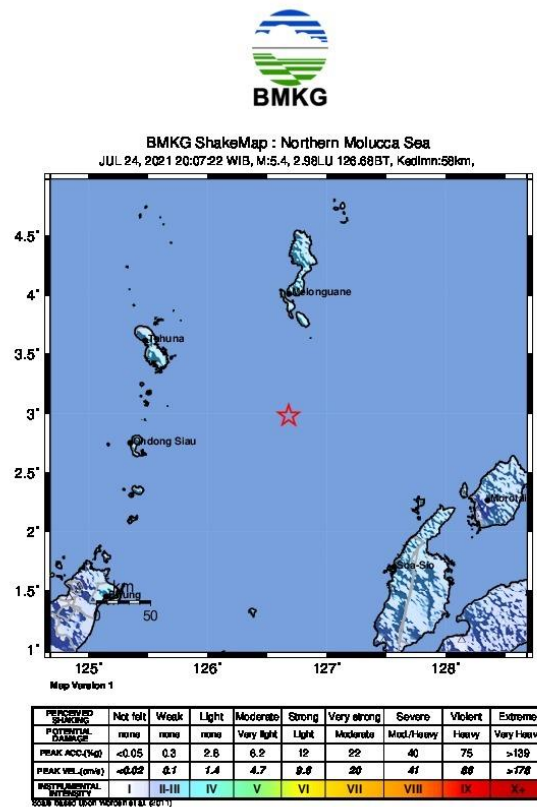
Gambar 94 Peta Guncangan Gempabumi 1Juli 2021 pukul 19:51:02 WIB



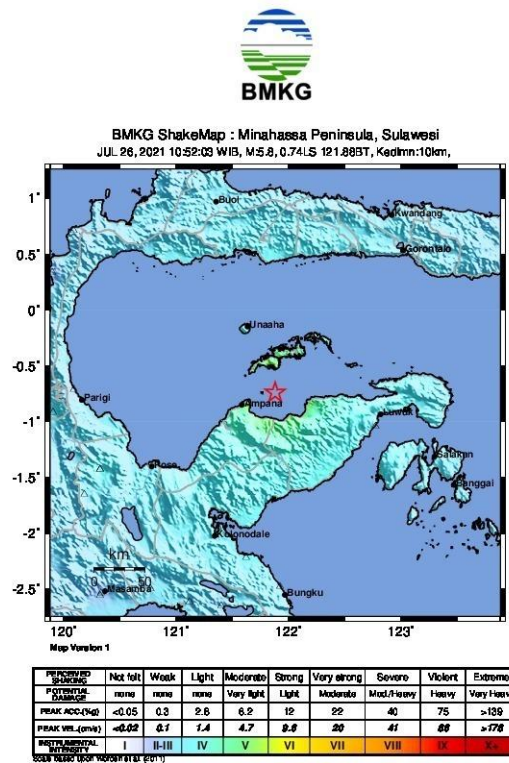
Gambar 95 Peta Guncangan Gempabumi 18 Juli 2021 pukul 17:47:02 WIB



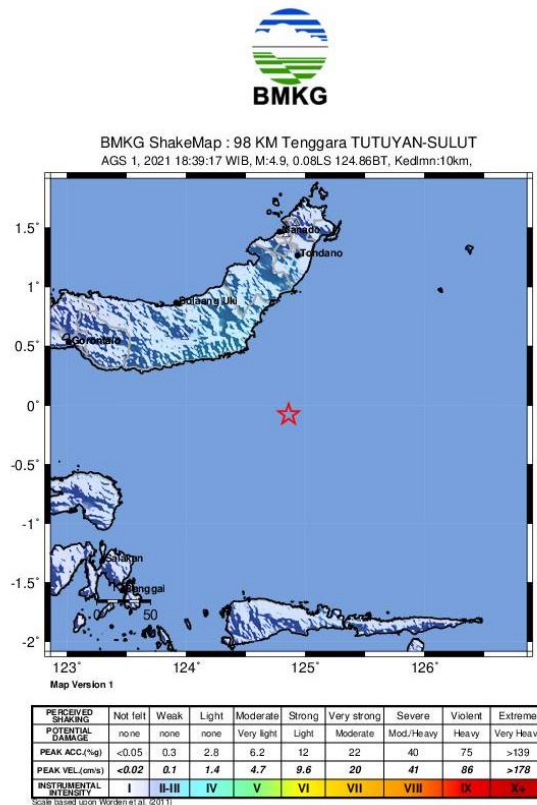
Gambar 96 Peta Guncangan Gempabumi 19 Juli 2021 pukul 07:55:45 WIB



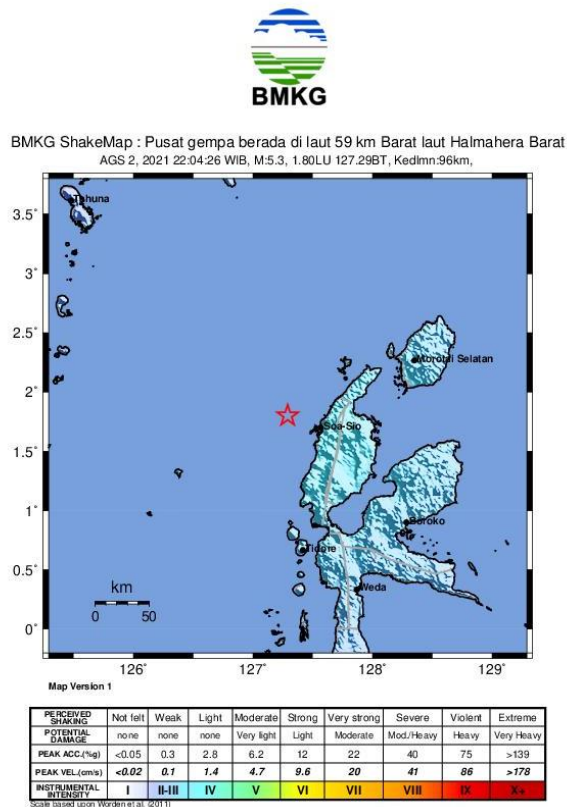
Gambar 97 Peta Guncangan Gempabumi 24 Juli 2021 pukul 20:07:22 WIB



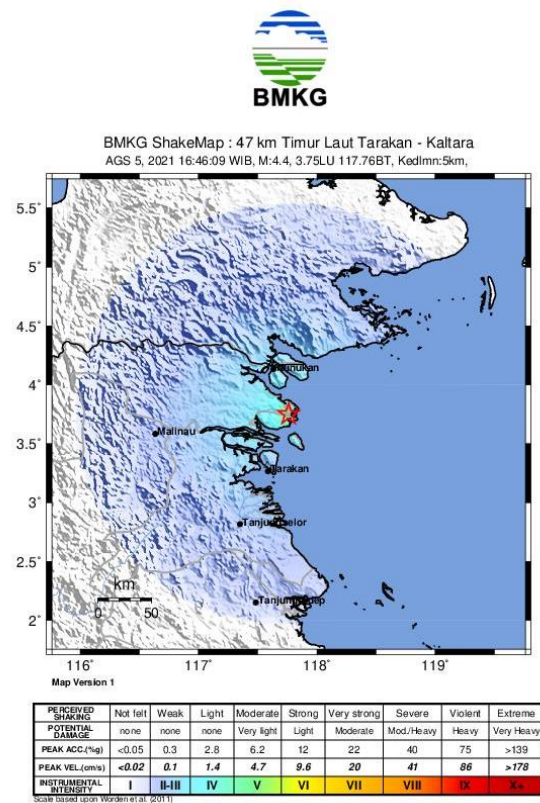
Gambar 98 Peta Guncangan Gempabumi 26 Juli 2021 pukul 10:52:03 WIB
H. Peta Guncangan (*Shakemap*) Gempabumi Bulan Agustus 2021



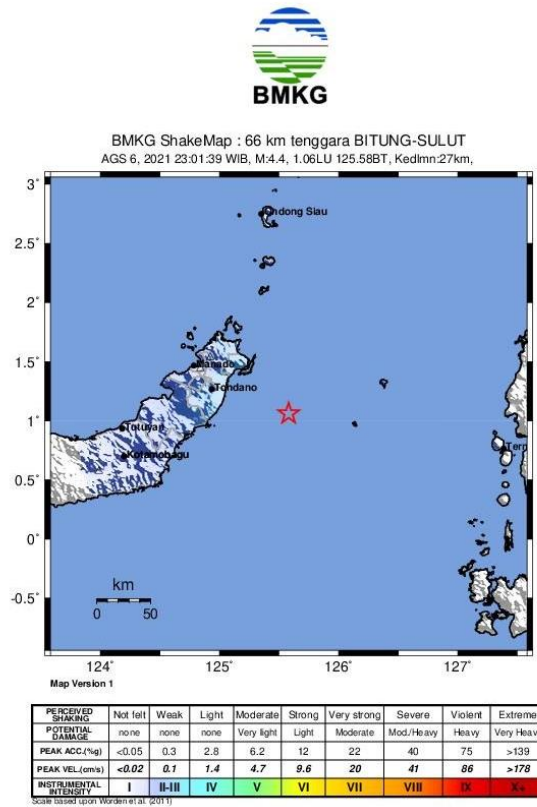
Gambar 99 Peta Guncangan Gempabumi 1 Agustus 2021 pukul 18:39:17 WIB



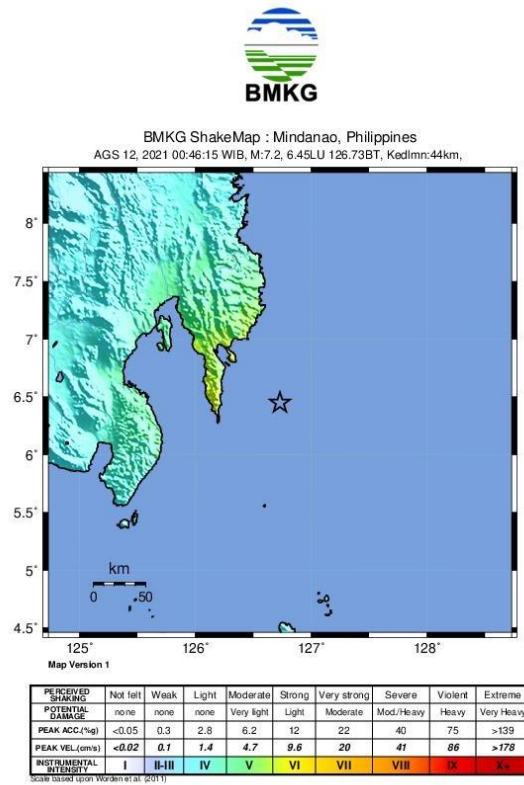
Gambar 100 Peta Guncangan Gempabumi 2 Agustus 2021 pukul 22:04:26 WIB



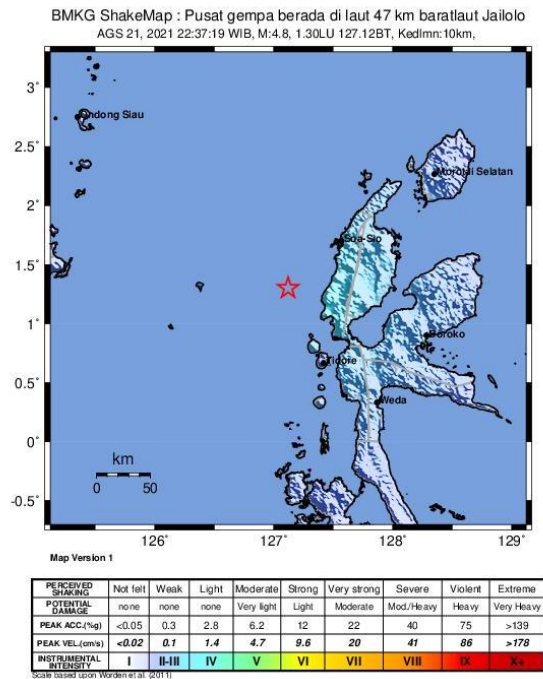
Gambar 101 Peta Guncangan Gempabumi 5 Agustus 2021 pukul 16:46:09 WIB



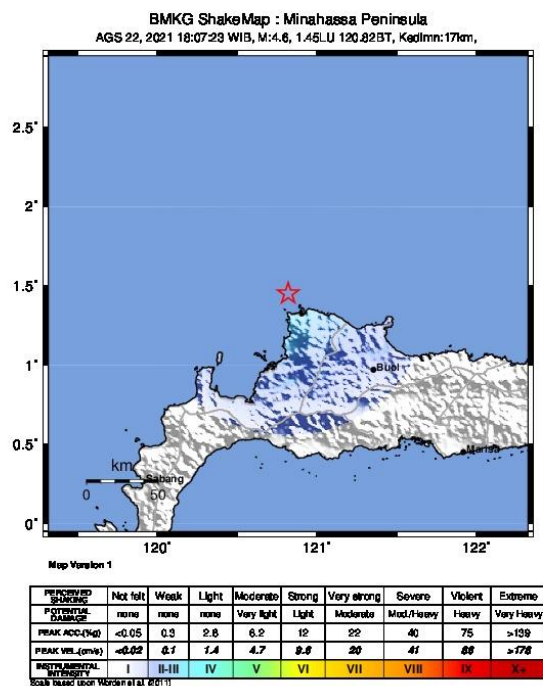
Gambar 102 Peta Guncangan Gempabumi 6 Agustus 2021 pukul 23:01:39 WIB



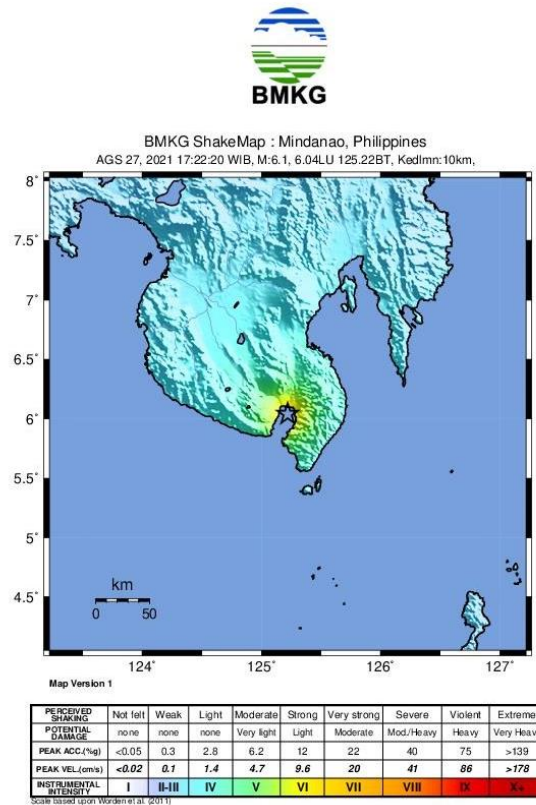
Gambar 103 Peta Guncangan Gempabumi 12 Agustus 2021 pukul 00:46:15 WIB



Gambar 104 Peta Guncangan Gempabumi 21 Agustus 2021 pukul 22:37:19 WIB

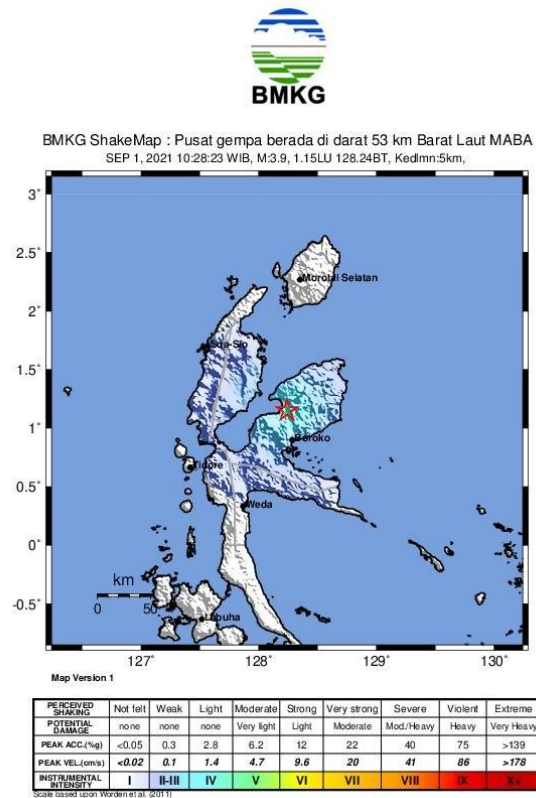


Gambar 105 Peta Guncangan Gempabumi 22 Agustus 2021 pukul 18:07:23 WIB

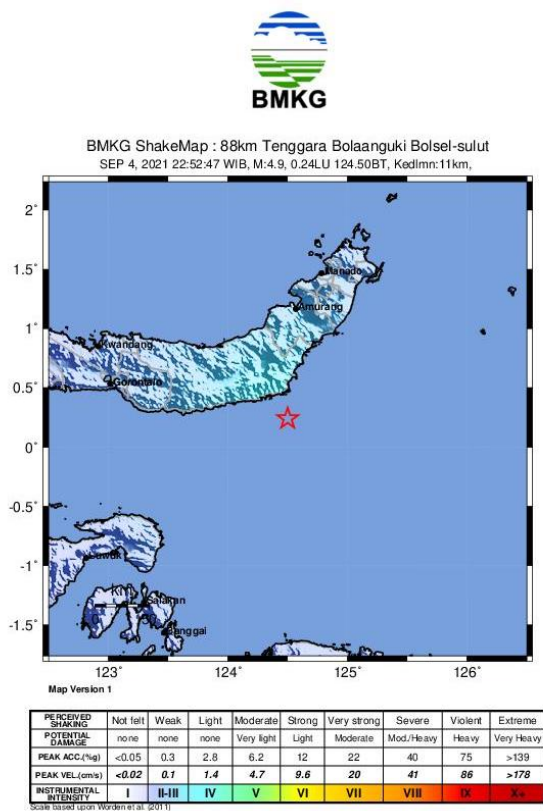


Gambar 106 Peta Guncangan Gempabumi 27 Agustus 2021 pukul 17:22:20 WIB

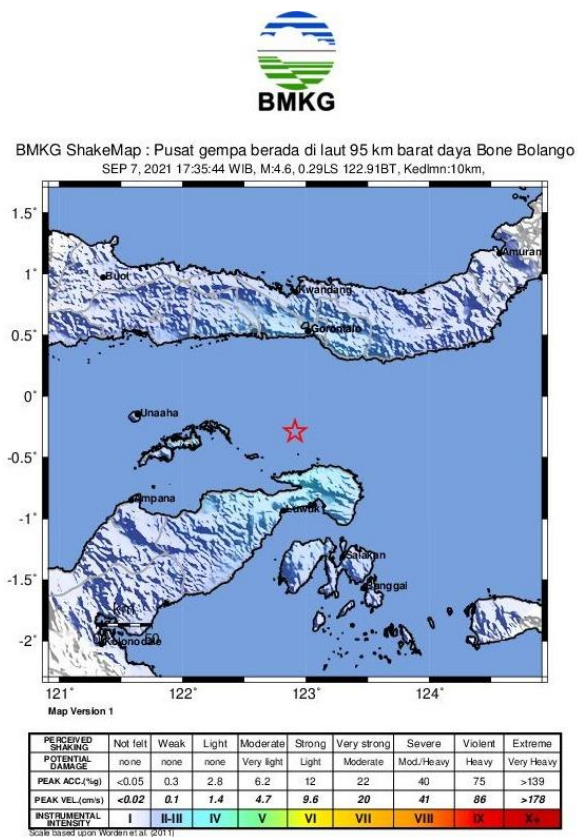
I. Peta Guncangan (*Shakemap*) Gempabumi Bulan September 2021



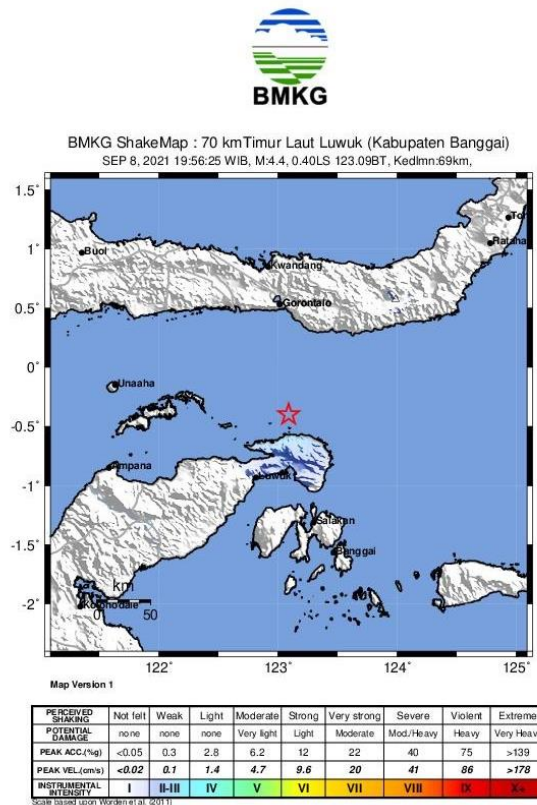
Gambar 107 Peta Guncangan Gempabumi 1 September 2021 pukul 10:28:23 WIB



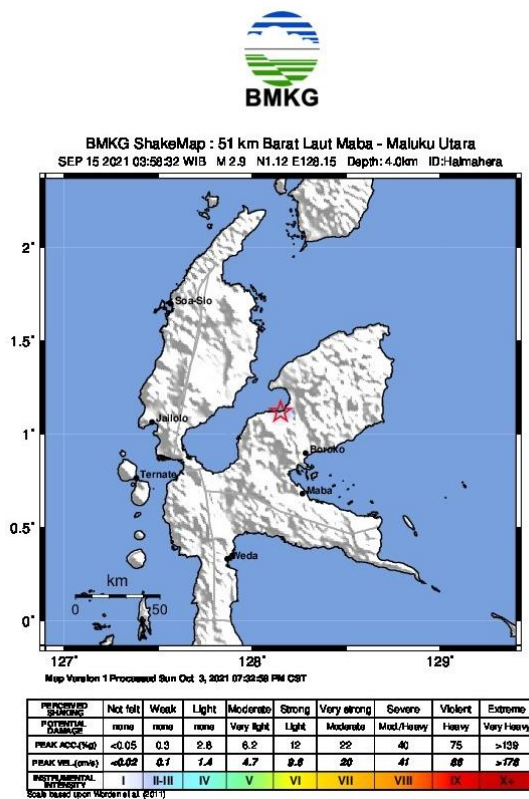
Gambar 108 Peta Guncangan Gempabumi 4 September 2021 pukul 22:52:47 WIB



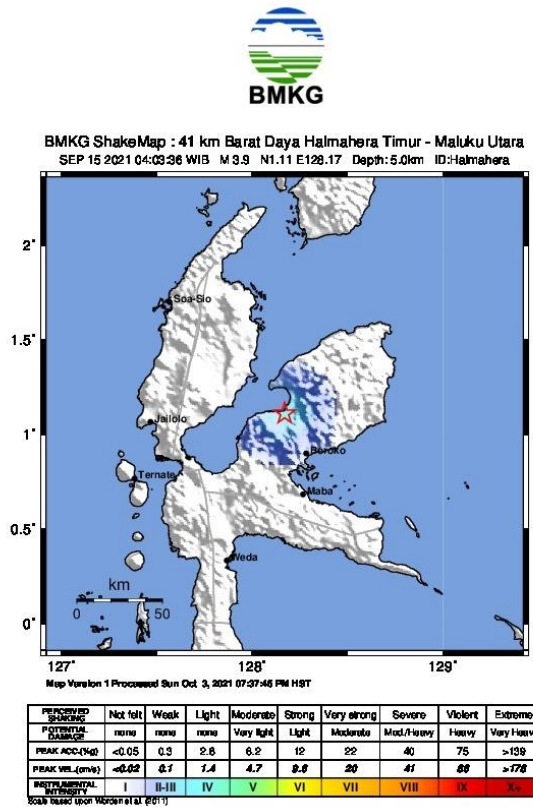
Gambar 109 Peta Guncangan Gempabumi 7 September 2021 pukul 17:35:44 WIB



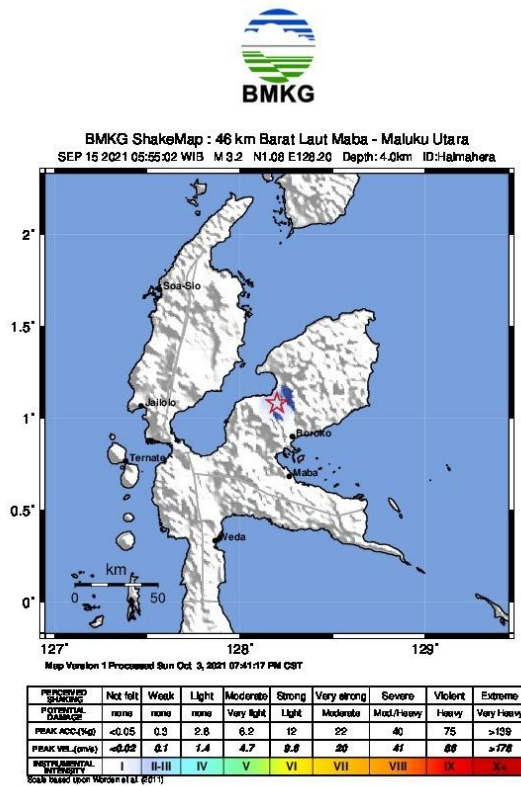
Gambar 110 Peta Guncangan Gempabumi 8 September 2021 pukul 19:56:25 WIB



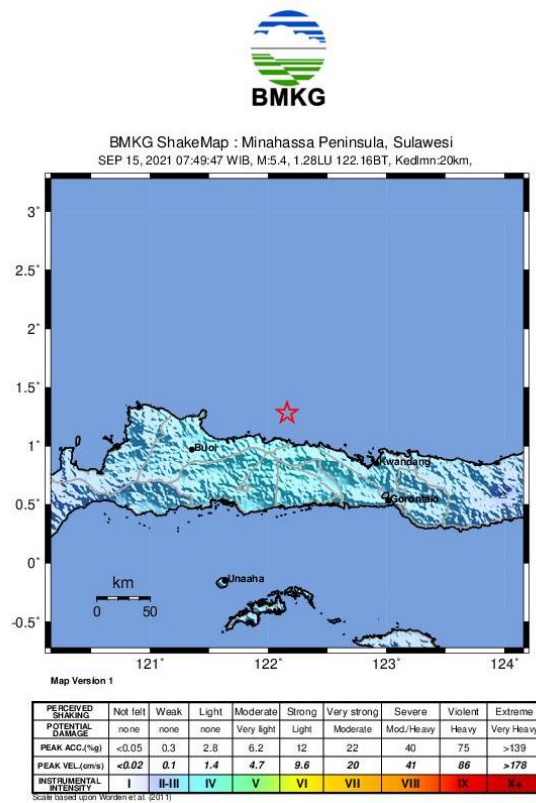
Gambar 111 Peta Guncangan Gempabumi 15 September 2021 pukul 03:58:32 WIB



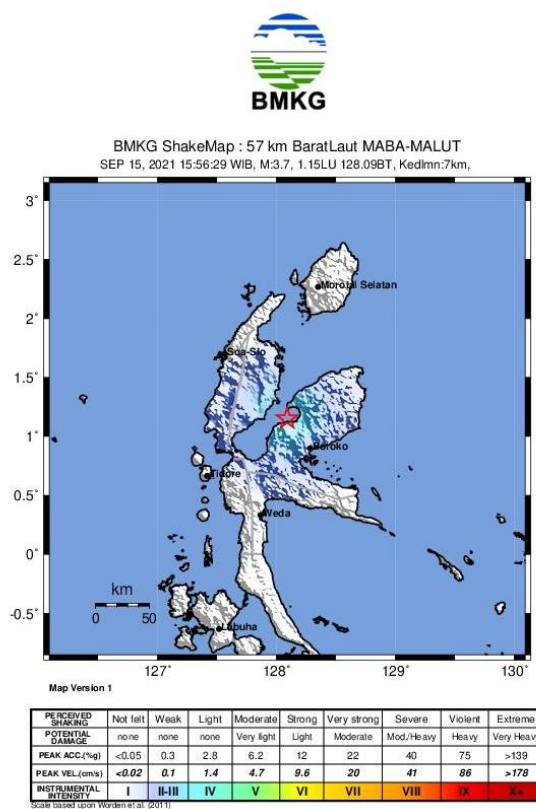
Gambar 112 Peta Guncangan Gempabumi 15 September 2021 pukul 04:03:36 WIB



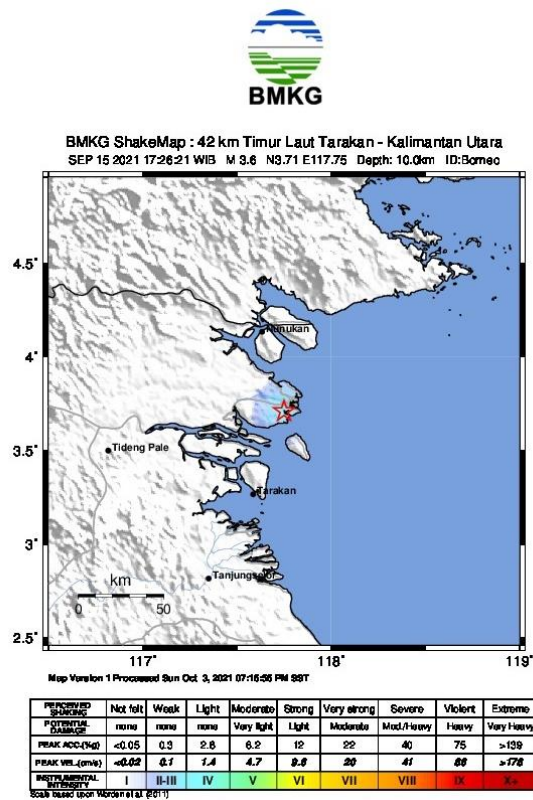
Gambar 113 Peta Guncangan Gempabumi 15 September 2021 pukul 05:55:02 WIB



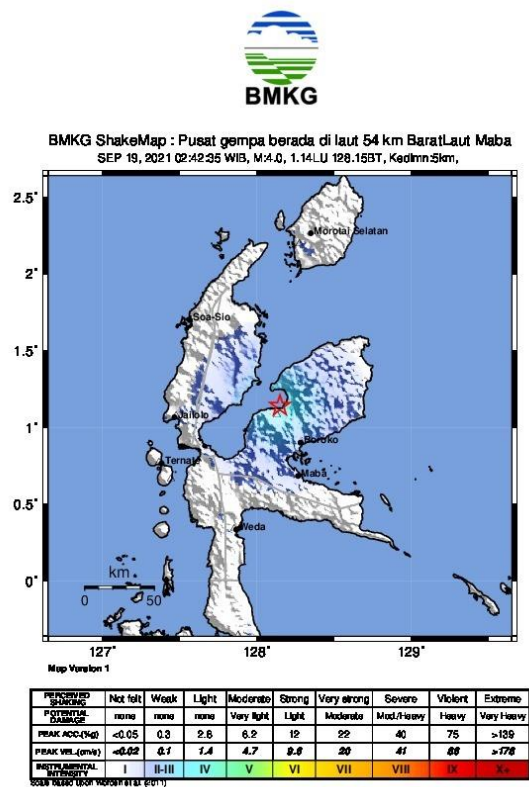
Gambar 114 Peta Guncangan Gempabumi 15 September 2021 pukul 07:49:47 WIB



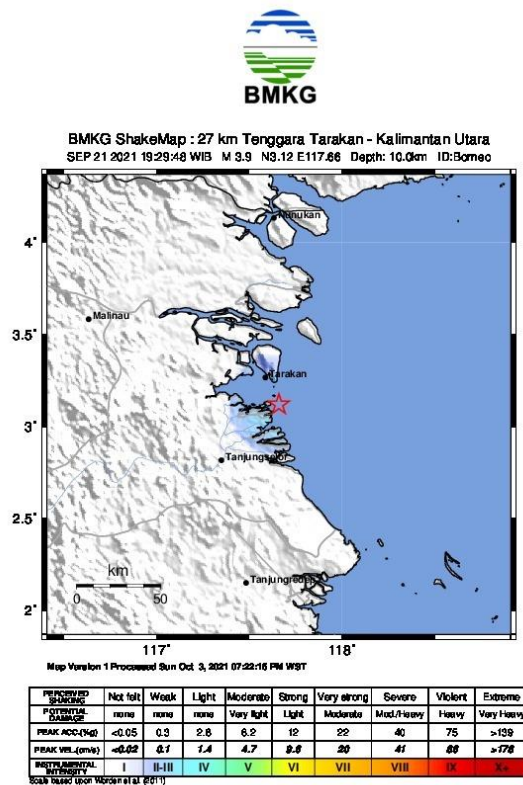
Gambar 115 Peta Guncangan Gempabumi 15 September 2021 pukul 15:56:29 WIB



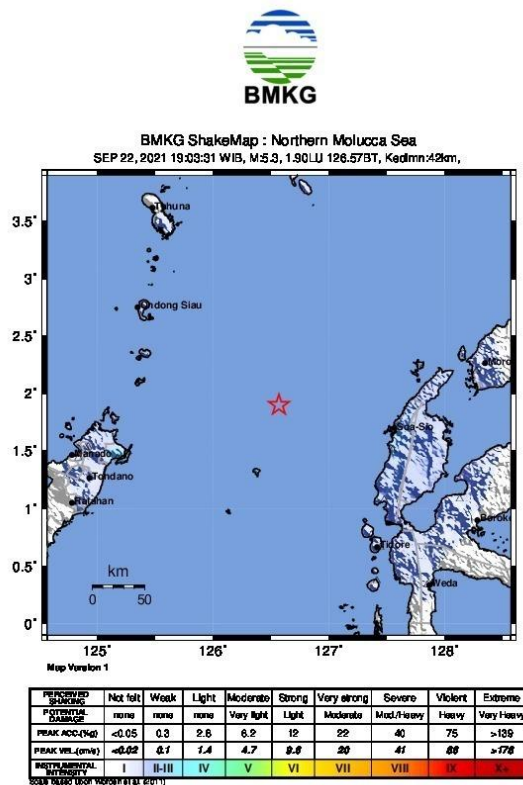
Gambar 116 Peta Guncangan Gempabumi 15 September 2021 pukul 17:26:21 WIB



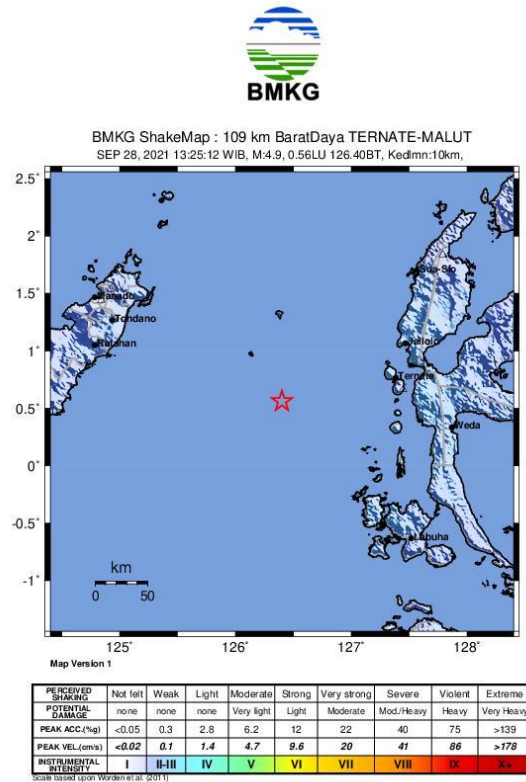
Gambar 117 Peta Guncangan Gempabumi 19 September 2021 pukul 02:42:35 WIB



Gambar 118 Peta Guncangan Gempabumi 21 September 2021 pukul 19:29:48 WIB

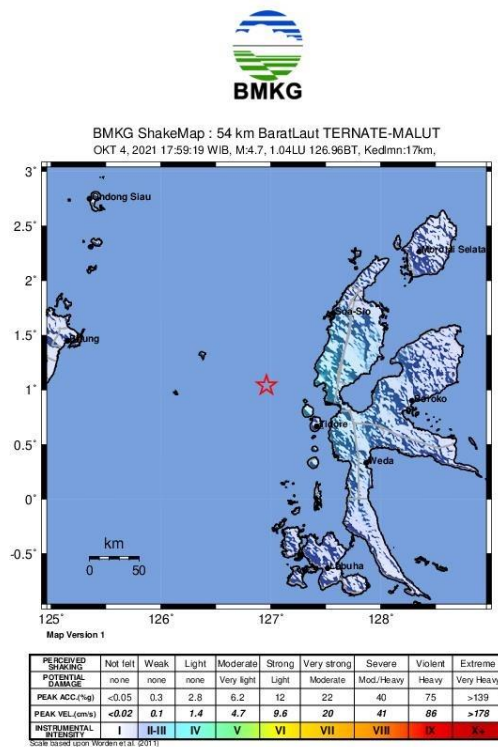


Gambar 119 Peta Guncangan Gempabumi 22 September 2021 pukul 19:03:31 WIB

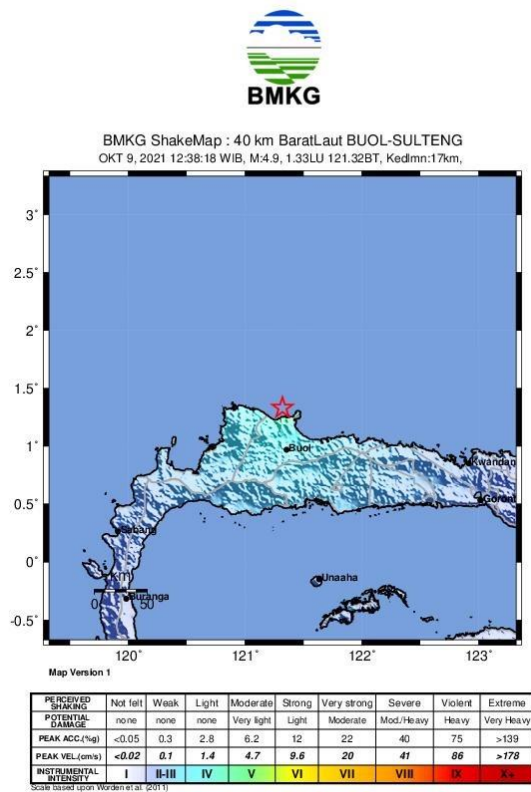


Gambar 120 Peta Guncangan Gempabumi 25 September 2021 pukul 13:29:12 WIB

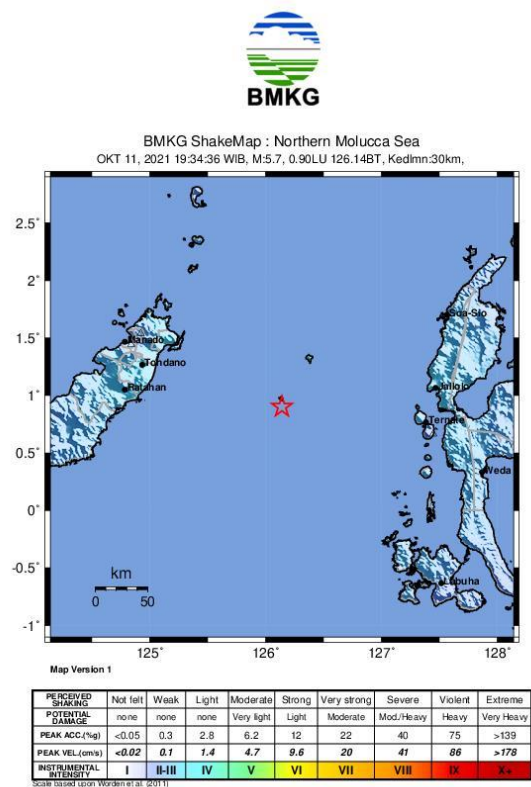
J. Peta Guncangan (*Shakemap*) Gempabumi Bulan Oktober 2021



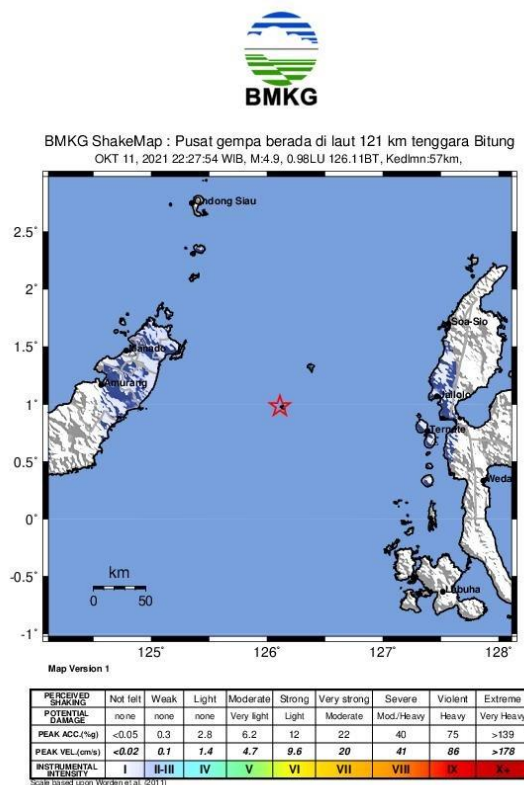
Gambar 121 Peta Guncangan Gempabumi 4 Oktober 2021 pukul 17:59:19 WIB



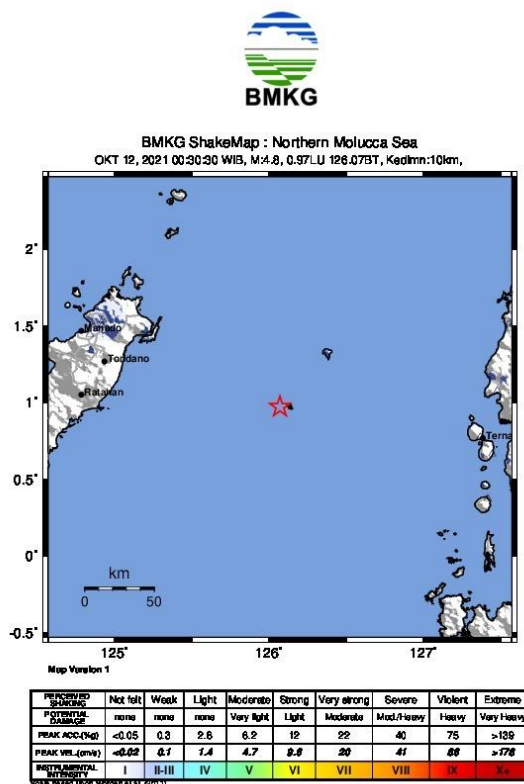
Gambar 122 Peta Guncangan Gempabumi 9 Oktober 2021 pukul 12:38:18 WIB



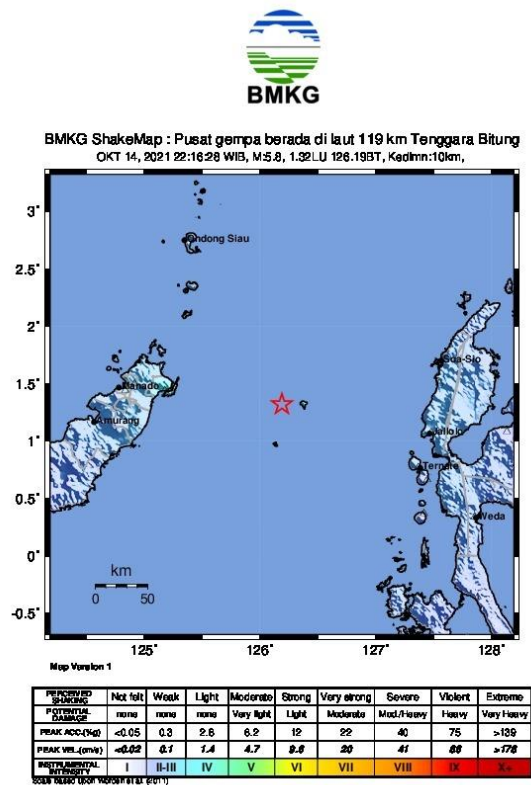
Gambar 123 Peta Guncangan Gempabumi 11 Oktober 2021 pukul 19:34:36 WIB



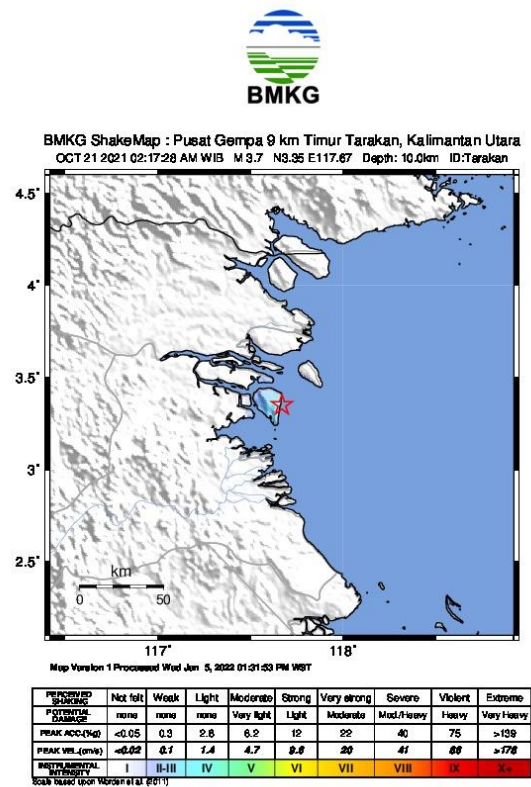
Gambar 124 Peta Guncangan Gempabumi 11 Oktober 2021 pukul 22:27:54 WIB



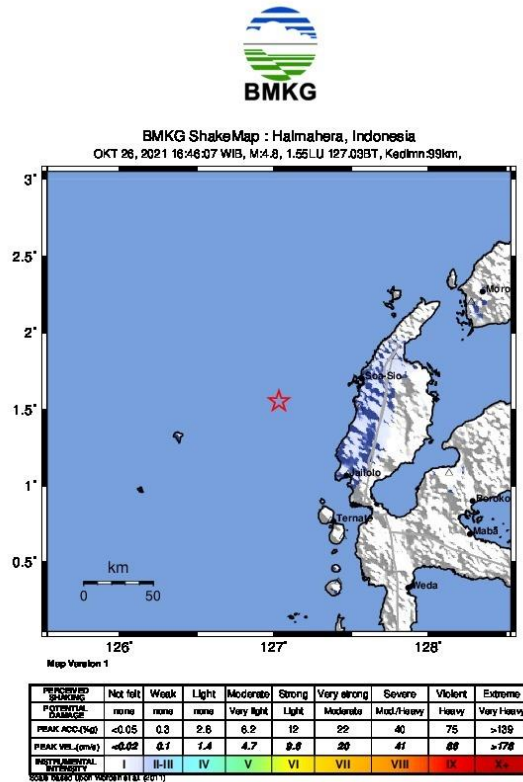
Gambar 125 Peta Guncangan Gempabumi 12 Oktober 2021 pukul 00:30:30 WIB



Gambar 126 Peta Guncangan Gempabumi 14 Oktober 2021 pukul 22:16:28 WIB

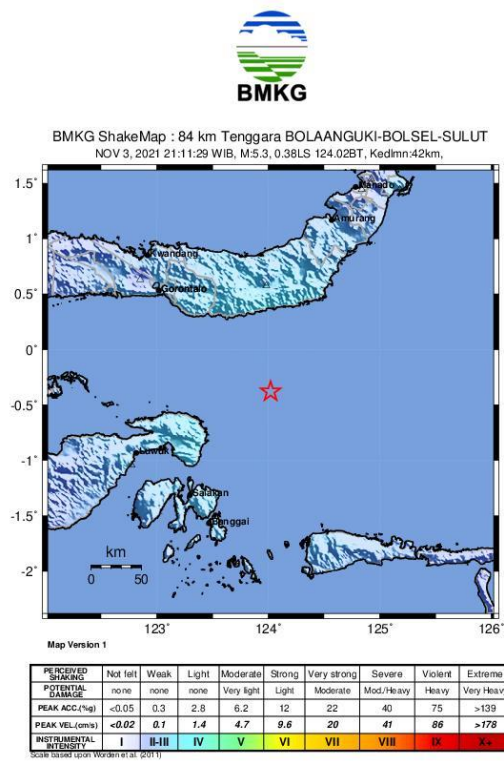


Gambar 127 Peta Guncangan Gempabumi 21 Oktober 2021 pukul 02:17:28 WIB

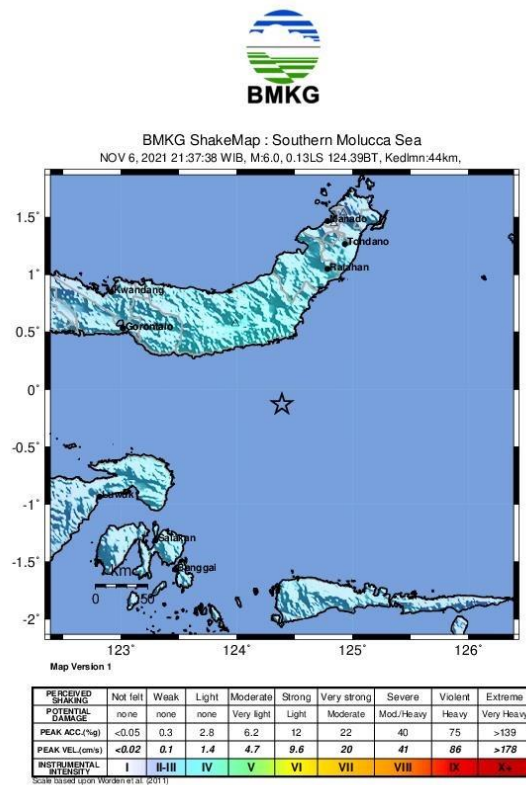


Gambar 128 Peta Guncangan Gempabumi 26 Oktober 2021 pukul 16:08:07 WIB

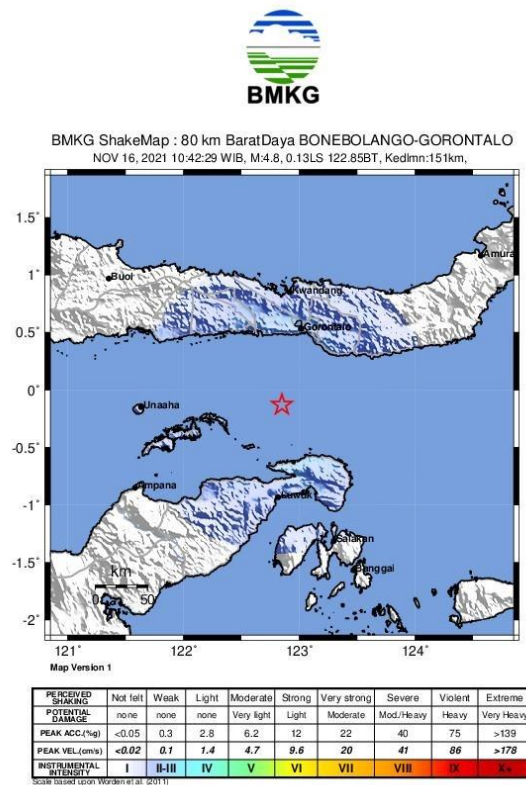
K. Peta Guncangan (*Shakemap*) Gempabumi Bulan November 2021



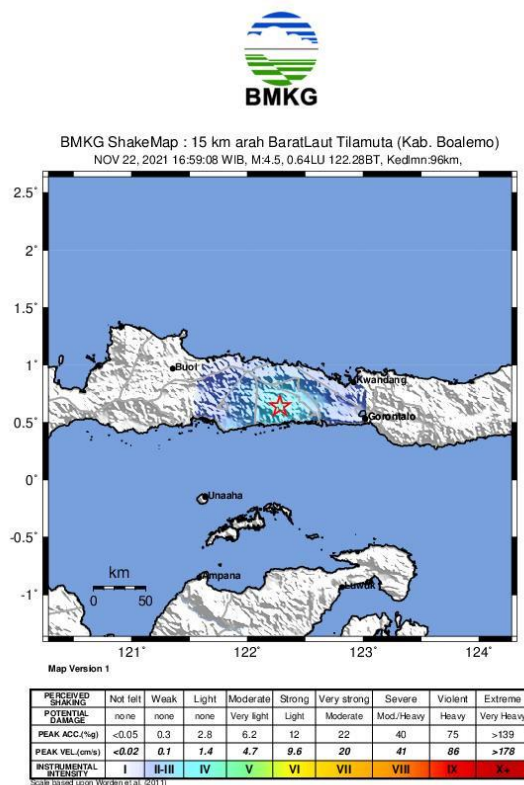
Gambar 129 Peta Guncangan Gempabumi 3 November 2021 pukul 21:11:29 WIB



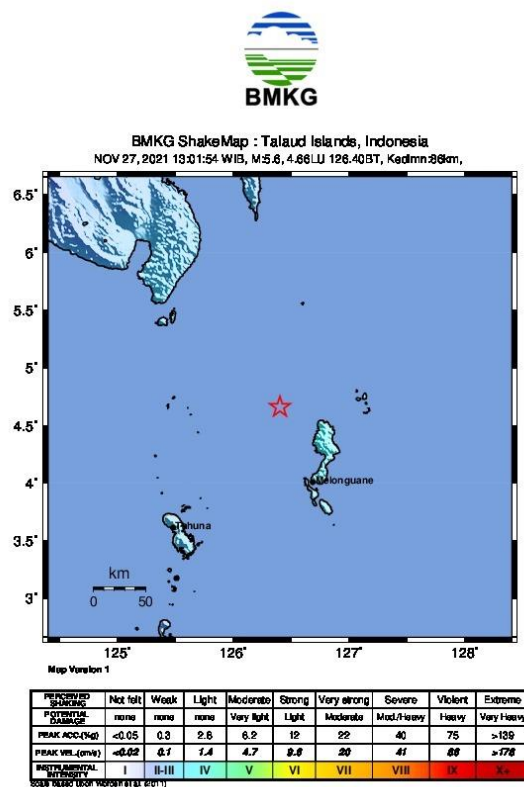
Gambar 130 Peta Guncangan Gempabumi 6 November 2021 pukul 21:37:38 WIB



Gambar 131 Peta Guncangan Gempabumi 16 November 2021 pukul 10:42:29 WIB

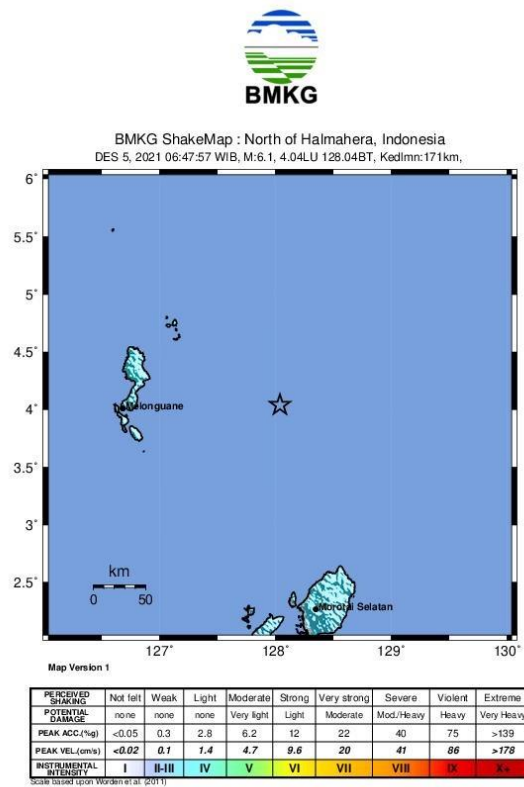


Gambar 132 Peta Guncangan Gempabumi 22 November 2021 pukul 16:59:08 WIB

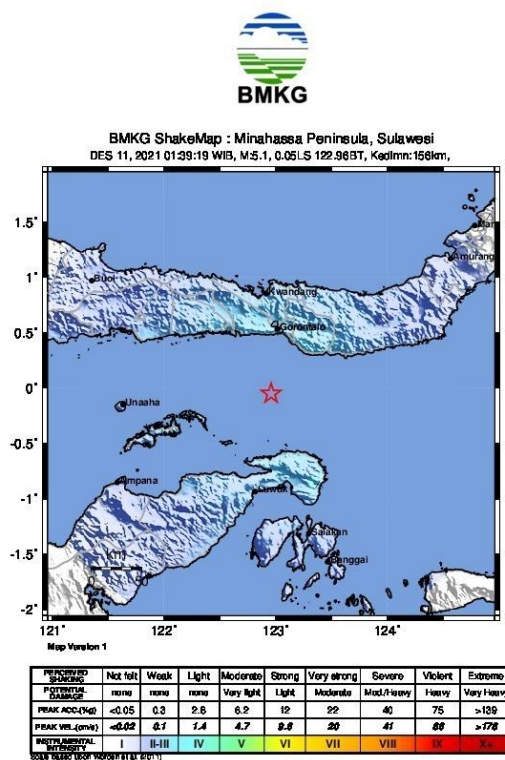


Gambar 133 Peta Guncangan Gempabumi 27 November 2021 pukul 13:01:54 WIB

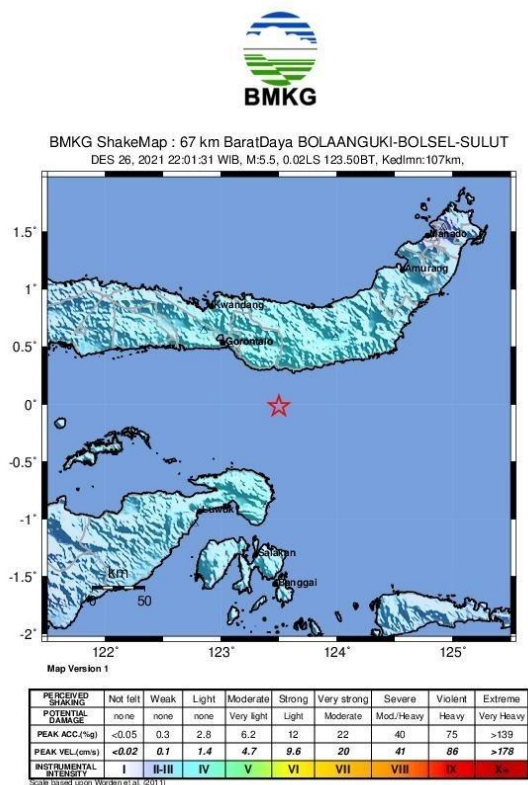
L. Peta Guncangan (*Shakemap*) Gempabumi Bulan Desember 2021



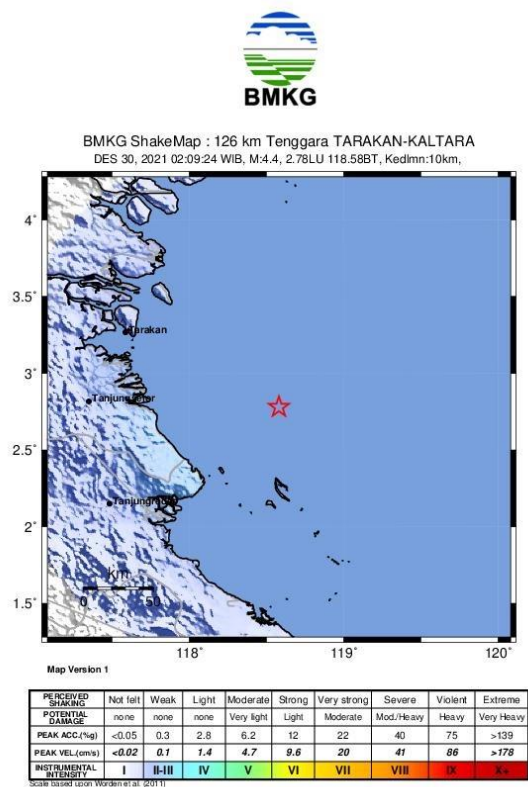
Gambar 134 Peta Guncangan Gempabumi 5 Desember 2021 pukul 06:47:57 WIB



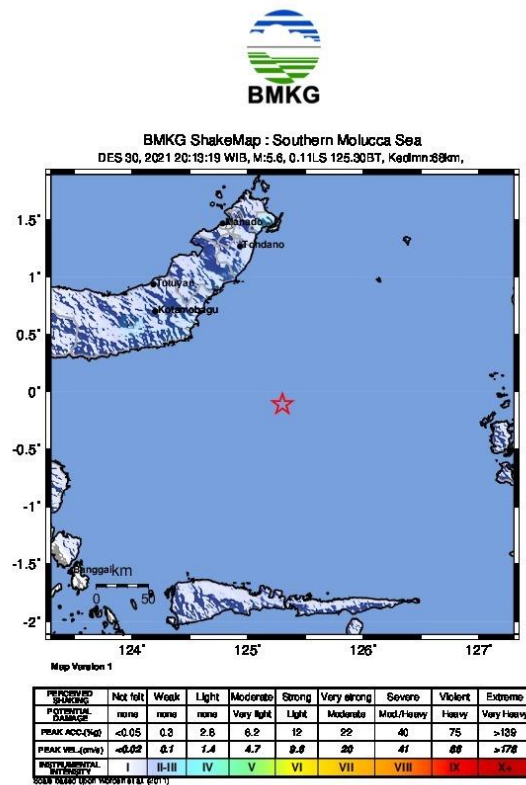
Gambar 135 Peta Guncangan Gempabumi 11 Desember 2021 pukul 01:39:19 WIB



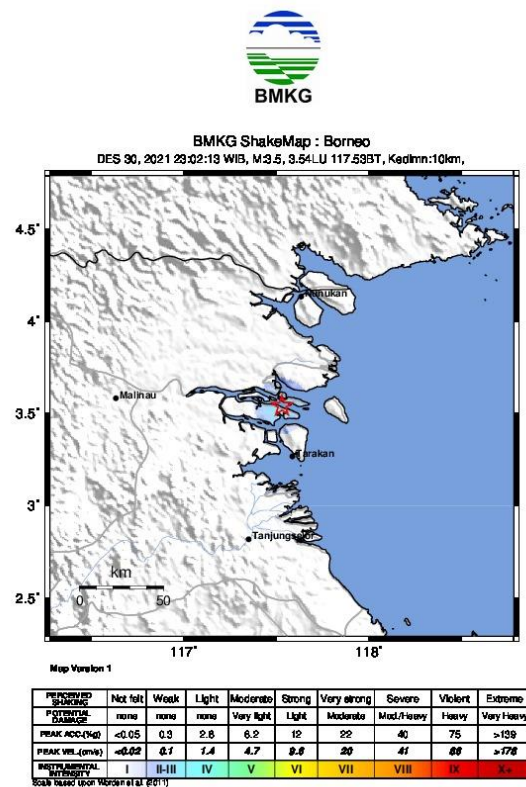
Gambar 136 Peta Guncangan Gempabumi 26 Desember 2021 pukul 22:01:31 WIB



Gambar 137 Peta Guncangan Gempabumi 30 Desember 2021 pukul 02:09:24 WIB



Gambar 138 Peta Guncangan Gempabumi 30 Desember 2021 pukul 20:13:19 WIB



Gambar 139 Peta Guncangan Gempabumi 30 Desember 2021 pukul 23:02:13 WIB

V. DATA DAN INFORMASI TSUNAMI

Tidak ada kejadian maupun peringatan dini tsunami tahun 2021 di wilayah PGR X

LAMPIRAN

1. Skala Modified Mercally Intensity (MMI)



BADAN METEOROLOGI KLIMATOLOGI DAN GEOFISIKA
Jalan Angkasa 1 No. 2, Kemayoran, Jakarta 10720 Telp. : (021) 4246321 Fax. : (021) 4246703
 website : <http://www.bmkg.go.id>

MODIFIED MERCALLY INTENSITY

(MMI)



1 MMI

Getaran tidak dirasakan kecuali dalam keadaan luar biasa oleh beberapa orang



2 MMI

Getaran dirasakan oleh beberapa orang, benda-benda ringan yang digantung bergoyang



3 MMI

Getaran dirasakan nyata dalam rumah. Terasa getaran seakan-akan ada truk berlalu.



4 MMI

Pada siang hari dirasakan oleh orang banyak dalam rumah, di luar oleh beberapa orang, gerabah pecah, jendela/pintu gemerincing dan dinding berbunyi



5 MMI

Getaran dirasakan oleh hampir semua penduduk, orang banyak terbangun, gerabah pecah, jendela dan sebagainya pecah, barang-barang terpelanting, tiang-tiang dan barang besar tampak bergoyang, bandul lonceng dapat berhenti.



6 MMI

Getaran dirasakan oleh semua penduduk. Kebanyakan semua terkejut dan lari keluar, plester dinding jatuh dan cerobong asap pada pabrik rusak, kerusakan ringan



7 MMI

Tiap-tiap orang keluar rumah. Kerusakan ringan pada rumah-rumah dengan bangunan dan konstruksi yang baik. Sedangkan pada bangunan dengan konstruksi kurang baik terjadi retak-retak bahkan hancur, cerobong asap pecah. Terasa oleh orang yang naik kendaraan.



8 MMI

Kerusakan ringan pada bangunan dengan konstruksi yang kuat. Retak-retak pada bangunan dengan konstruksi kurang baik, dinding dapat lepas dari rangka rumah, cerobong asap pabrik dan monumen-monumen roboh, air menjadi keruh



9 MMI

Kerusakan pada bangunan yang kuat, rangka-rangka rumah menjadi tidak lurus, banyak retak-retak. Rumah tampak agak berpindah dari pondamennya. Pipa-pipa dalam rumah putus.



10 MMI

Bangunan dari kayu yang kuat rusak, rangka rumah lepas dari pondamennya, tanah terbelah, rel melengkung, tanah longsor di tiap-tiap sungai dan di tanah-tanah yang curam.



11 MMI

Bangunan-bangunan hanya sedikit yang tetap berdiri. Jembatan rusak, terjadi lembah. Pipa dalam tanah tidak dapat dipakai sama sekali, tanah terbelah, rel melengkung sekali.



12 MMI

Hancur sama sekali. Gelombang tampak pada permukaan tanah. Pemandangan menjadi gelap. Benda-benda terlempar ke udara.

2. Skala Intensitas Gempabumi BMKG (SIG-BMKG)

Skala SIG BMKG	Warna	Deskripsi Sederhana	Deskripsi Rinci	Skala MMI	PGA (gal)
I	Putih	TIDAK DIRASAKAN (Not Felt)	Tidak dirasakan atau dirasakan hanya oleh beberapa orang tetapi terekam oleh alat.	I-II	< 2.9
II	Hijau	DIRASAKAN (Felt)	Dirasakan oleh orang banyak tetapi tidak menimbulkan kerusakan. Benda-benda ringan yang digantung bergoyang dan jendela kaca bergetar.	III-V	2.9-88
III	Kuning	KERUSAKAN RINGAN (Slight Damage)	Bagian non struktur bangunan mengalami kerusakan ringan, seperti retak rambut pada dinding, genteng bergeser ke bawah dan sebagian berjatuhan.	VI	89-167
IV	Jingga	KERUSAKAN SEDANG (Moderate Damage)	Banyak Retakan terjadi pada dinding bangunan sederhana, sebagian roboh, kaca pecah. Sebagian plester dinding lepas. Hampir sebagian besar genteng bergeser ke bawah atau jatuh. Struktur bangunan mengalami kerusakan ringan sampai sedang.	VII-VIII	168-564
V	Merah	KERUSAKAN BERAT (Heavy Damage)	Sebagian besar dinding bangunan permanen roboh. Struktur bangunan mengalami kerusakan berat. Rel kereta api melengkung.	IX-XII	> 564