

BULETIN TAHUNAN GEMPABUMI DAN TSUNAMI TAHUN 2018



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

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KATA PENGANTAR

Puji dan syukur kehadiran Tuhan Yang Maha Esa, Badan Meteorologi, Klimatologi, dan Geofisika (BMKG), Stasiun Geofisika Klas 1 Winangun Mana do yang selanjutnya disebut Stasiun Geofisika Manado pada awal tahun 2019 dapat menerbitkan Buletin Gempabumi dan Tsunami tahun 2018 sebagai salah satu produk informasi.

Buletin Gempabumi dan Tsunami Stasiun Geofisika Klas 1 Manado tahun 2018 ini dibuat berdasarkan hasil analisa gempabumi menggunakan perangkat lunak Sismicomp3. 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 2019
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 : SGSI
 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 : SAMI
Lokasi : Sam Ratulangi, Sulawesi Utara
Digitizer : Titan
Sensor : Titan AG (akselerometer)
9. Kode stasiun : KWSI
Lokasi : Kayuwatu, Sulawesi Utara
Digitizer : Titan
Sensor : Titan AG (akselerometer)
10. 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*

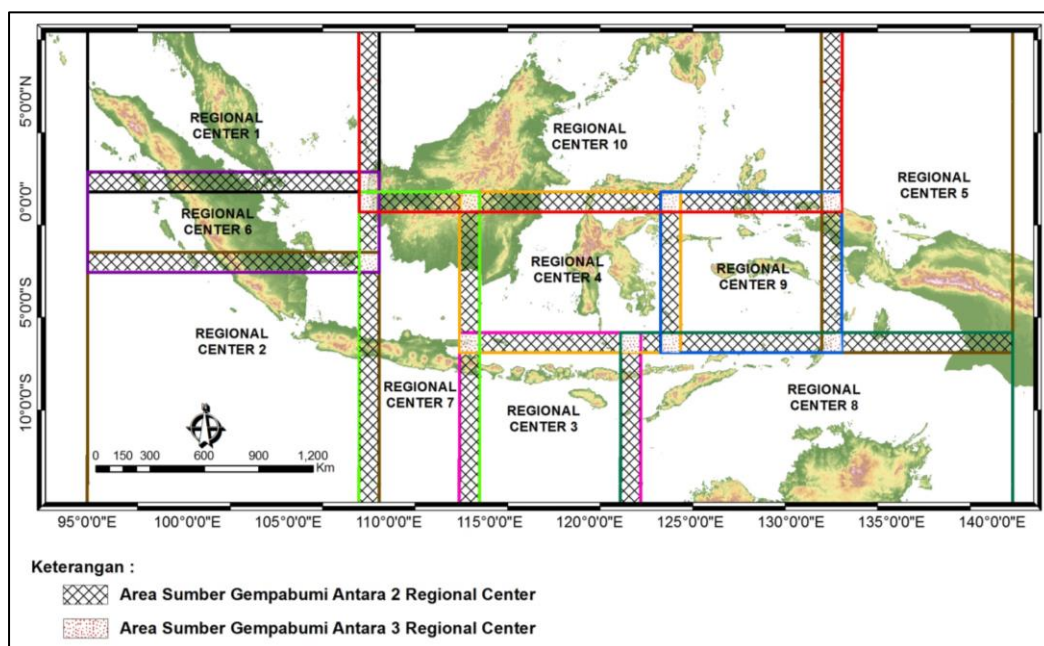
Warning Receiver System, sistem peringatan dini tsunami yang terdiri dari 2 jenis yaitu *WRS2Way* dan *WRS DVB (WRS-Digital Video Broadcast)*.

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 Winangun Manado yang selanjutnya disebut Stasiun Geofisika Manado sebagai Pusat Gempa Regional 10, yang meliputi bagian Utara dari Pulau Kalimantan, sebagian Sulawesi Tengah, Gorontalo, Sulawesi Utara, dan Maluku Utara.

Stasiun Geofisika Manado yang sebagai Pusat Gempabumi Regional (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 $M < 5$, sementara untuk gempabumi dengan kekuatan $M \geq 5$ dikeluarkan oleh Pusat Gempabumi Nasional (PGN) di kantor pusat BMKG di 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 2018

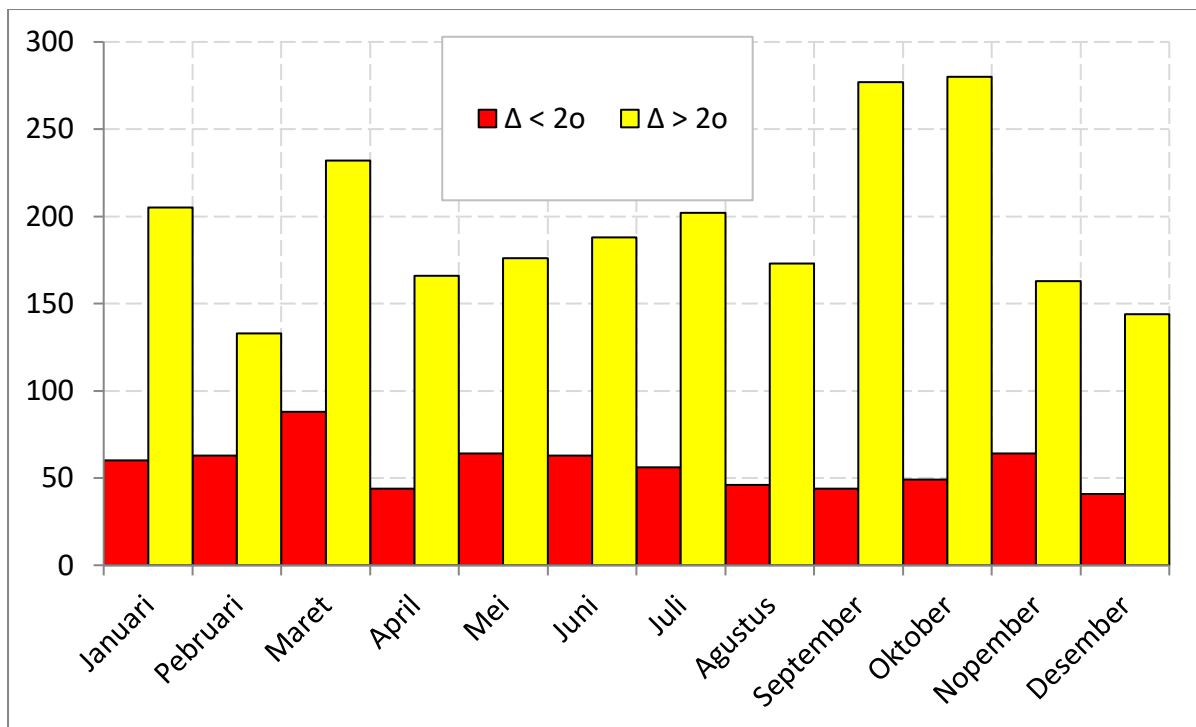
Jumlah gempabumi yang tercatat di Stasiun Geofisika Manado pada tahun 2018 berjumlah total 3021 kejadian. Dengan bulan Oktober menunjukkan jumlah gempabumi terbanyak sebanyak 329 kejadian dan terendah pada bulan Desember sebanyak 185 kejadian.

Berdasarkan jarak pusat gempabumi (*epicenter*) dari Stasiun Geofisika Manado, jumlah kejadian gempabumi dengan jarak $<2^\circ$ terjadi sebanyak 682 kejadian, dengan kejadian terbanyak pada bulan Maret sebanyak 88 kejadian dan paling sedikit pada bulan Desember sebanyak 41 kejadian. Sedangkan kejadian gempabumi berkatogori tele (jarak $>2^\circ$) selama setahun berjumlah 2339 kejadian dengan jumlah terbanyak terjadi pada bulan Oktober sebanyak 280 kejadian dan paling sedikit terjadi pada Februari sebanyak 133 kejadian.

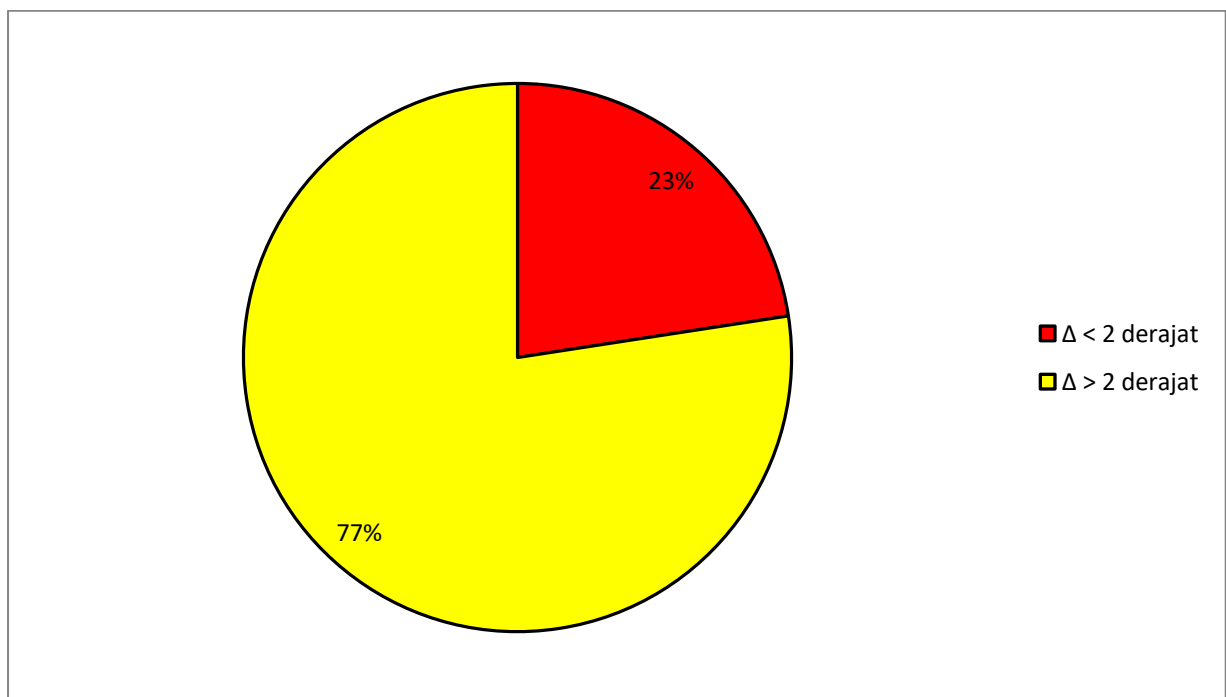
Dari sisi Magnitudo, kejadian gempabumi dengan magnitudo lebih dari sama dengan 3 dan kurang dari 5 terjadi paling sering sebanyak 2042 kejadian. Diikuti oleh gempabumi dengan magnitudo $M < 3$ sebanyak 868 kejadian, dan magnitudo $M \geq 5$ sebanyak 111 kejadian.

Tabel 1 Rekapitulasi kejadian gempabumi tahun 2018

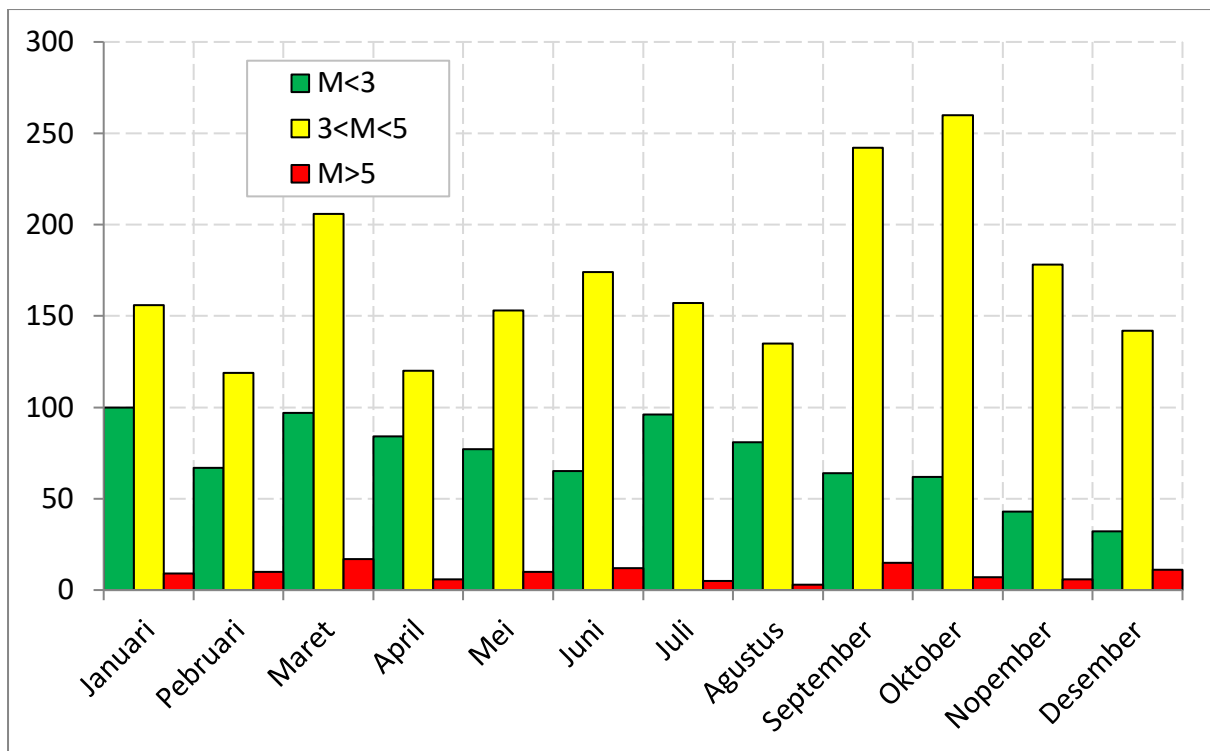
Bulan	Jumlah Gempa	Jumlah Gempa Dirasakan	Menurut jarak		Menurut magnitudo		
			Gempa Lokal (Jarak epic $\leq 2^\circ$ dari Stasiun)	Gempa Tele (Jarak epic $> 2^\circ$ dari Stasiun)	$M < 3$	$3 \leq M < 5$	$M \geq 5$
Januari	265	6	60	205	100	156	9
Februari	196	2	63	133	67	119	10
Maret	320	8	88	232	97	206	17
April	210	4	44	166	84	120	6
Mei	240	5	64	176	77	153	10
Juni	251	3	63	188	65	174	12
Juli	258	6	56	202	96	157	5
Agustus	219	3	46	173	81	135	3
September	321	7	44	277	64	242	15
Oktober	329	15	49	280	62	260	7
Nopember	227	11	64	163	43	178	6
Desember	185	13	41	144	32	142	11
Total	3021	83	682	2339	868	2042	111



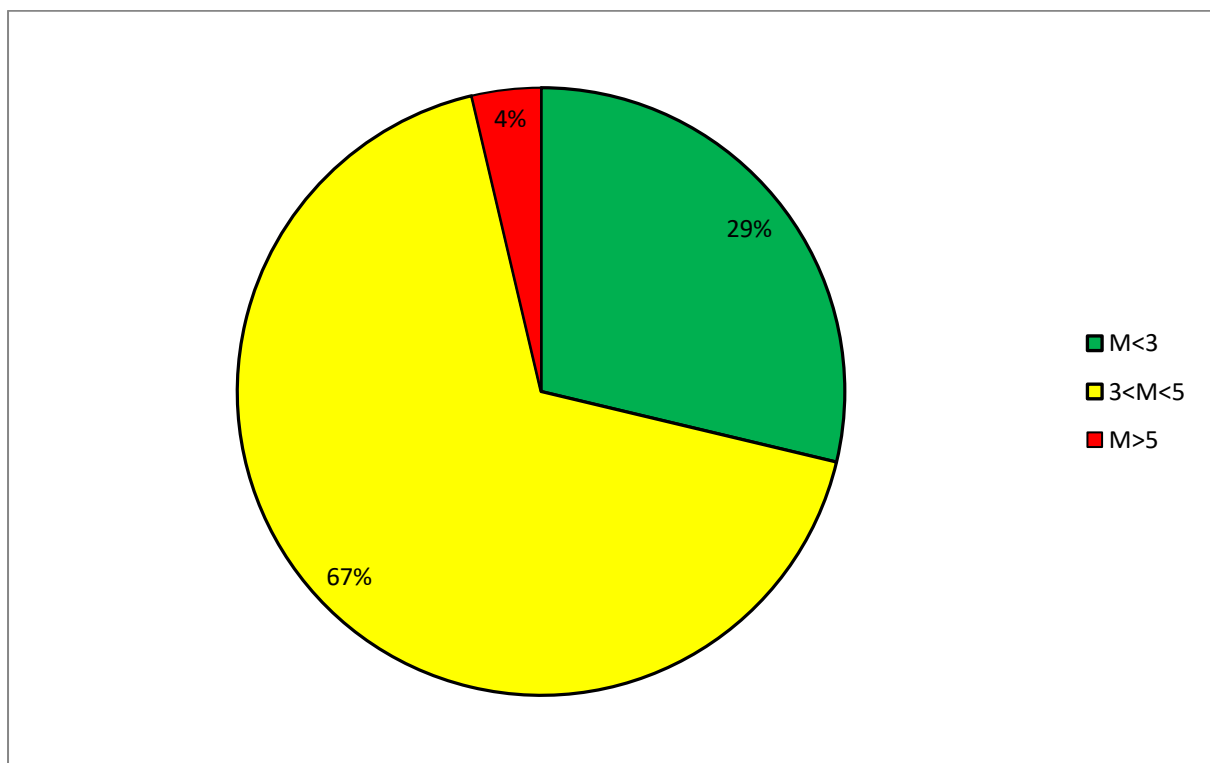
Gambar 2 Kejadian gempabumi menurut jarak dari Stasiun Geofisika Manado



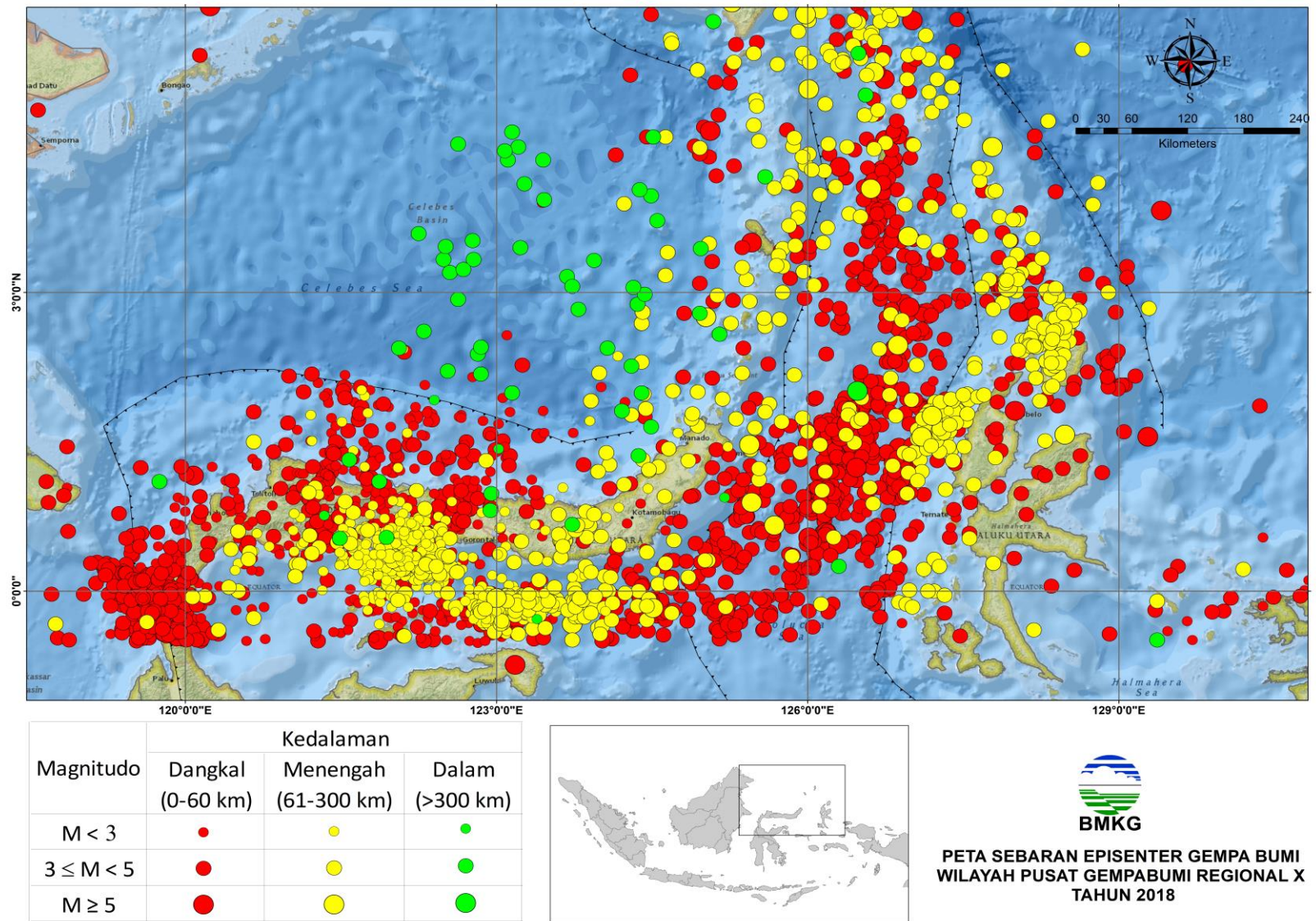
Gambar 3 Prosentase kejadian gempabumi menurut jarak dari Stasiun Geofisika Manado



Gambar 4 Kejadian gempabumi menurut kekuatan Magnitudo



Gambar 5 Prosentase kejadian gempabumi menurut jarak dari Stasiun Geofisika Manado



Gambar 6 Sebaran Episentris Gempabumi Tahun 2018

Tabel 2 Rekapitulasi kejadian gempabumi dirasakan tahun 2018

NO	TANGGAL	WAKTU (WIB)	LINTANG	BUJUR	MAG	KED (Km)	LAPORAN DIRASAKAN (MMI)	KETERANGAN
1	03/01/2018	17:37:12	0.89 LU	127.57 BT	3.2	10	Ternate (2 MMI)	Pusat gempa berada didarat 24 km timurlaut Ternate, Maluku Utara
2	06/01/2018	13:54:46	0.62 LU	127.32 BT	3.2	10	Ternate (2 MMI)	Pusat gempa berada didarat 17 km baratdaya Ternate, Maluku Utara
3	06/01/2018	22:39:45	0.79 LU	125.34 BT	4.9	36	Manado, Bitung, Minahasa Tenggara, & Minahasa Selatan (3 MMI)	Pusat gempa berada dilaut 72 km Tenggara Minahasa Tenggara, SULUT
4	07/01/2018	18:15:51	3.96 LU	125.65 BT	4.3	7	Talaud (2 MMI)	Pusat gempa berada di darat 11 km barat daya Kep.Talaud, Sulawesi Utara
5	15/01/2018	13:31:51	0.51 LU	123.66 BT	5.0	234	Luwuk dan Gorontalo (2 MMI)	Pusat gempa berada di darat 23 km barat lau Bolaang Mongonow Selatan, Sulawesi Utara
6	17/01/2018	11:25:52	0.43 LS	119.88 BT	4.1	10	Donggala (3 MMI)	Pusat gempa berada di darat 31 km TimurLaut Donggala. SULTENG
7	02/02/2018	07:20:40	0.22 LS	125.22BT	5.6	59	Bolaang Mongondow Timur & Kotamobagu (3 MMI)	Pusat gempa berada di laut 133 km Tenggara Bolaang Mongondow Timur, Sulawesi Utara
8	11/02/2018	14:05:24	2.12 LU	128.36 BT	5.0	62	Morotai & Halmahera Utara (3 MMI)	Pusat gempa berada di darat 27 km Baratdaya Pulau Morotai, MALUT
9	01/03/2018	12:14:27	0.25 LS	119.9 BT	4.6	10	Palu (3 MMI)	Pusat gempa berada di darat 11 km arah Tenggara Tompe, Kab.Donggala, Sulawesi Tengah
10	01/03/2018	13:11:10	0.24 LS	119.91 BT	4.3	10	Palu (3 MMI)	Pusat gempa berada di darat 11 km arah Timur Tompe, Kab.Donggala, Sulawesi Tengah
11	14/03/2018	21:26:06	1.29 LU	125.55 BT	4.5	4	Manado & Bitung (2 MMI)	Pusat gempa berada di laut 50 km Tenggara Bitung, Sulawesi Utara
12	15/03/2018	11:28:48	0.84 LU	125.38 BT	5.1	15	Bitung (3 MMI); Manado, Bolaang Mongondow Timur, Kotamobagu, & Gorontalo (2 MMI)	Pusat gempa berada di laut 72 km Tenggara Bitung, Sulawesi Utara
13	18/03/2018	18:35:05	0.59 LU	121.5 BT	5.2	102	Toli-toli (3 MMI)	Pusat gempa berada di darat 27 km Baratdaya Pohuwatu, Gorontalo
14	21/03/2018	10:51:47	3.9 LU	125.53 BT	3.7	12	Sangihe (3 MMI)	Pusat gempa berada di laut 31 km TimurLaut Kep. Sangihe, Sulawesi Utara
15	21/03/2018	22:33:17	1.95 LU	127.79 BT	4.9	83	Halmahera Utara & Ternate (3 MMI)	Pusat gempa berada di laut 50 km Barat Laut Halmahera Uara, Maluku Utara
16	21/03/2018	23:22:26	1.59 LU	127.84 BT	4.5	10	Halmahera Utara (3 MMI)	Pusat gempa berada di laut 11 km Barat Laut Halmahera Uara, Maluku Utara
17	03/04/2018	16:14:05	3.12 LU	127.94 BT	5.6	10	Morotai (3 MMI)	Pusat gempa berada di laut 98 km Barat Laut Pulau Morotai, Maluku Utara
18	16/04/2018	02:30:42	1.41 LU	126.81 BT	6.4	10	Ternate & Halmahera Barat (4 MMI); Bitung (3 MMI)	Pusat gempa berada di laut 87 km Barat Laut Halmahera Barat, Maluku Utara
19	17/04/2018	09:39:12	1.45 LU	127.0 BT	5.0	58	Ternate & Halmahera Barat (3 MMI)	Pusat gempa berada di laut 66 km Barat Laut Jailolo, Maluku Utara
20	23/04/2018	11:05:15	0.51 LU	125.66 BT	5.4	10	Manado, Bitung, Minahasa Tenggara, & Bolaang Mongondow Timur (3 MMI)	Pusat gempa berada di laut 118 km Tenggara Minahasa Tenggara, Sulawesi Utara
21	02/05/2018	04:09:20	1.78 LU	126.5 BT	5.1	10	Bitung (3 MMI)	Pusat gempa berada di laur 130 km Barat Laut Halmahera Barat, Maluku Utara
22	10/05/2018	15:39:51	0.93 LU	126.21 BT	5.2	10	Bitung (4 MMI); Manado (3 MMI)	Pusat gempa berada di laut 130 km Barat Laut Ternate , Maluku Utara
23	19/05/2018	03:25:00	1.26 LU	119.98 BT	5.2	10	Toli-toli, Buol, & Donggala (4 MMI)	Pusat gempa berada di laut 46 km baratlaut Toli-toli, Sulawesi Tengah

24	19/05/2018	03:31:38	1.20 LU	119.99 BT	5.1	10	Toli-toli, Buol, & Donggala (4 MMI)	Pusat gempa berada di laut 32 km barat laut Toli-toli, Sulawesi Tengah
25	21/05/2018	20:33:34	0.84 LU	126.04 BT	4.7	10	Bitung (2 MMI)	Pusat gempa berada di laut 121 km Tenggara Bitung, Sulawesi Utara
26	02/06/2018	23:28:59	4.56 LU	126.83 BT	5.8	17	Sangihe (3 MMI)	Pusat gempa berada di laut 58 km Timur Laut Kep. Talaud, Sulawesi Utara
27	09/06/2018	03:00:03	0.84 LU	125.57 BT	4.2	10	Manado (2 MMI)	Pusat gempa berada di laut 83 km Tenggara Bitung, Sulawesi Utara
28	27/06/2018	11:52:12	3.19 LU	124.9 BT	3.6	74	Siau (2 MMI)	Pusat gempa berada di laut 80 km Barat Daya Kep. Sangihe, Sulawesi Utara
29	09/07/2018	21:24:39	0.64 LU	127.38 BT	2.5	5	Tidore (2 MMI)	Pusat gempa berada di darat 15 km Tenggara Ternate, Maluku Utara
30	10/07/2018	22:33:21	0.24 LU	122.09 BT	5.1	186	Gorontalo (3 MMI)	Pusat gempa berada di laut 54 km Barat Daya Boalemo. Gorontalo
31	18/07/2018	03:16:02	0.95 LU	125.96 BT	4.7	21	Manado (2 MMI)	Pusat gempa berada di laut 107 km Tenggara Bitung, Sulawesi Utara
32	20/07/2018	19:03:17	2.56 LU	128.25 BT	4.5	26	Morotai (2 MMI)	Pusat gempa berada di laut 27 km Barat Laut Morotai, Maluku Utara
33	23/07/2018	15:18:34	0.24 Lu	122.02 BT	4.7	168	Gorontalo (2 MMI)	Pusat gempa berada di laut 26 km Tenggara Marisa, Gorontalo
34	25/07/2018	15:20:01	2.68 LU	128.28 BT	5.0	40	Morotai (3 MMI)	Pusat gempa berada di laut 37 km Barat Laut Pulau Morotai, Maluku Utara
35	08/08/2018	19:33:18	2.48 LU	128.16 BT	4.1	10	Morotai (2 MMI)	Pusat gempa berada di laut 29 km Barat Laut Pulau Morotai, Maluku Utara
36	13/08/2018	00:23:12	2.48 LU	128.06 BT	5.4	10	Ternate & Morotai (2 MMI)	Pusat gempa berada di laut 64 km Barat Laut Pulau Morotai, Maluku Utara
37	29/08/2018	19:02:29	0.91 LU	125.4 BT	4.9	10	Manado, Bitung, Minahasa, Kotamobagu, dan Bolaang Mongondow Selatan (II-III MMI)	Pusat gempa berada di laut 66 km Tenggara Bitung, Sulawesi Utara
38	11/09/2018	13:42:00	0.37 LS	121.92 BT	4.7	10	Poso (3 MMI)	Pusat gempa berada di laut 41 km Timur Laut Ampana, Sulawesi Tengah
39	13/09/2018	01:07:51	0.12 LS	123.72	4.8	128	Bolaang Mongondow Selatan (3 MMI)	Pusat gempa berada di laut 59 km Barat Daya Bolaang Mongondow Selatan, Sulawesi Utara
40	14/09/2018	23:38:25	1.05 LU	123.33 BT	4.3	24	Gorontalo & Bolaang Mongondow Utara (2 MMI)	Pusat gempa berada di laut 17 km Timur Laut Bolaang Mongondow Utara, Sulawesi Utara
41	28/09/2018	13:59:56	0.35 Ls	119.82	5.9	10	Donggala (4 MMI); Palu (3 MMI); Poso (2 MMI)	Pusat gempa berada di darat 61 km arah Utara Palu, Sulawesi Tengah
42	28/09/2018	14:28:37	0.34 LS	119.87 BT	5.0	10	Donggala, Palu (2 MMI)	Pusat gempa berada di darat 10 km Timur Laut Donggala. Sulawesi Tengah
43	28/09/2018	17:02:44	0.18 LS	119.85 BT	7.7	10	Donggala, Palu (8 MMI); Toli-toli (5 MMI); Gorontalo (4 MMI); Luwu Timur (3 MMI); Kendari, Kolaka, Bone, Makassar & Balikpapan (2 MMI)	Pusat gempa berada di darat 26 km Utara Donggala, Sulawesi Tengah
44	28/09/2018	17:14:25	0.09 LU	119.94 BT	6.1	10	Donggala, Palu (4 MMI)	Pusat gempa berada di darat 58 km Timurlaut Donggala, Sulawesi Tengah
45	01/10/2018	12:43:35	0.06 LU	119.55 BT	5.5	10	Palu, Donggala (3 MMI)	Pusat gempa berada di laut 62 km Barat Laut Donggala, Sulawesi Tengah
46	02/10/2018	01:05:54	0.48 LS	120.22 BT	3.8	10	Palu (2 MMI)	Pusat gempa berada di laut 43 km Tenggara Donggala, Sulawesi Tengah
47	02/10/2018	14:56:11	0.5 LS	119.83 BT	4.6	8	Palu (4 MMI)	Pusat gempa berada di darat 6 km Barat Laut Donggala, Sulawesi Tengah
48	04/10/2018	20:57:21	2.08 LU	128.57 BT	4.1	10	Morotai (2 MMI)	Pusat gempa berada di laut 36 km Tenggara Pulau Morotai, Maluku Utara
49	13/10/2018	11:34:16	1.36 LU	125.46 BT	5.2	115	Bitung & Minahasa (3 MMI); Manado & Minahasa Utara (2 MMI)	Pusat gempa berada di laut 38 km Tenggara Bitung, Sulawesi Utara

50	24/10/2018	03:46:14	0.32 LU	123.05 BT	4.1	96	Bone Bolango (3 MMI); Gorontalo (2 MMI)	Pusat gempa berada di Laut 41 km Tenggara Kab. Gorontalo, Gorontalo
51	25/10/2018	14:03:22	0.48 LS	120.03 BT	3.8	19	Parigi Moutong (2 MMI)	Pusat gempa berada di darat 5 Km BaratDaya Ampibabo-Kab.Parigi Moutong, Sulawesi Tengah
52	26/10/2018	06:15:24	1.62 LU	126.31 BT	5.1	10	Manado & Minahasa (2 MMI)	Pusat gempa berada di laut 128 km Tenggara Siautagulandangbiaro, Sulawesi Utara
53	26/10/2018	15:23:09	0.45 LS	123.35 BT	4.5	10	Luwuk (3 MMI)	Pusat gempa berada dilaut 101 km TimurLaut kep. Banggai, Sulawesi tengah
54	28/10/2018	03:18:55	4.06 LU	126.74 BT	4.2	14	Talaud (4 MMI)	Pusat gempa berada di laut 3 km Timur Laut Melonguane, Sulawesi Utara
55	28/10/2018	07:01:52	5.31 LU	126.03 BT	4.3	170	Talaud (2 MMI)	Pusat gempa berada di laut 160 km Barat Daya Melonguane, Sulawesi Utara
56	28/10/2018	08:07:07	4.10 LU	126.63 BT	4.6	21	Talaud (4 MMI)	Pusat gempa berada di laut 11 km Barat Daya Melonguane, Sulawesi Utara
57	28/10/2018	14:53:16	3.93 LU	126.45 BT	4.8	10	Talaud & Sangihe (3 MMI)	Pusat gempa berada di laut 27 km Barat Daya Melonguane, Sulawesi Utara
58	28/10/2018	15:09:59	4 LU	126.6 BT	5.2	10	Talaud (4 MMI)	Pusat gempa berada di laut 13 km Barat Daya Kepulauan Talaud, Sulawesi Utara
59	30/10/2018	16:21:12	1.04 LU	122.68 BT	3.7	45	Boalemo & Gorontalo Utara (2 MMI)	Pusat gempa berada di laut 24 km Timur Laut Gorontalo Utara, Gorontalo
60	06/11/2018	09:09:51	3.45 LU	125.4 Bt	5.3	10	Sangihe (4 MMI); Talaud (3 MMI)	Pusat gempa berada di laut 2 km Barat Daya Kepulauan Sangihe , Sulawesi Utara
61	07/11/2018	21:10:52	0.35 LU	128.01 BT	3.3	3	Halmahera Tengah (3 MMI)	Pusat gempa berada di laut 16 km Timur Weda, Maluku Utara
62	10/11/2018	02:12:37	2.76 LU	128.25 BT	4.9	7	Morotai (2 MMI)	Pusat gempa berada di laut 46 km Barat Laut Pulau Morotai, Maluku Utara
63	11/11/2018	14:13:40	1.45 LU	127.04 BT	5.5	99	Manado, Bitung, & Siau (2 MMI)	Pusat gempa berada di laut 62 km Barat Laut Halmahera Barat, Maluku Utara
64	11/11/2018	15:25:10	0.75 LU	122.7 BT	4.2	28	Bone Bolango (2 MMI)	Pusat gempa berada di darat 30 km Tenggara Kab. Gorontalo Utara, Gorontalo
65	21/11/2018	11:31:25	0.54 LU	125.98 BT	5.3	10	Bitung & Minahasa Utara (3 MMI); Ternate (2 MMI)	Pusat gempa berada di laut 138 km Tenggara Bitung, Sulawesi Utara
66	21/11/2018	13:39:15	0.82 LU	125.37 BT	4.7	30	Minahasa Utara (3 MMI); Manado (2 MMI)	Pusat gempa berada di laut 74 km Tenggara Bitung, Sulawesi Utara
67	23/11/2018	03:23:31	3.09 LU	124.96 BT	3.4	10	Siau (2 MMI)	Pusat gempa berada di laut 82 km Barat Daya Kep.Sangihe , Sulawesi Utara
68	23/11/2018	03:13:58	3.16 LU	124.88 BT	3.2	10	Siau (2 MMI)	Pusat gempa berada di laut 77 km Siautagulandangbiaro, Sulawesi Utara
69	23/11/2018	03:54:45	2.79 LU	125.46 BT	3.2	10	Siau (2 MMI)	Pusat gempa berada di laut 40 km Siautagulandangbiaro, Sulawesi Utara
70	23/11/2018	23:00:09	3.35 LU	124.91 BT	4.6	10	Sangihe (2 MMI)	Pusat gempa berada di laut 70 km Barat Daya Kep.Sangihe , Sulawesi Utara
71	04/12/2018	13:52:57	2.46 LU	126.77 BT	5.5	10	Siau (3 MMI); Manado (2 MMI)	Pusat gempa berada di laut 151 km Timur Laut Siautagulandangbiaro, Sulawesi Utara
72	05/12/2018	15:13:55	4.27 LU	126.28 BT	5.3	67	Sangihe (2 MMI)	Pusat gempa berada di laut 54 km Barat Laut Kep. Talaud, Sulawesi Utara
73	10/12/2018	08:26:11	0.74 LU	125.39 BT	5.0	46	Minahasa (2 MMI)	Pusat gempa berada di laut 80 km Tenggara Minahasa Tenggara, Sulawesi Utara
74	10/12/2018	20:47:17	0.77 LU	125.36 BT	4.6	24	Bitung, Minahasa Selatan, & Manado (3 MMI)	Pusat gempa berada di laut 75 km Tenggara Minahasa Tenggara, Sulawesi Utara
75	11/12/2018	18:23:22	0.19 LS	124.5 BT	5.4	10	Bolaang Mongondow Timur (3 MMI); Manado, Bitung, Minahasa Selatan, Minahasa, & Kotamobagu (2 MMI)	Pusat gempa berada di laut 98 km TenggaraBolaang Mongondow Sealatan, Sulawesi Utara

76	15/12/2018	02:27:28	0.12 LS	122.98 BT	5.2	134	Gorontalo (4 MMI); Gorontalo Utara (3 MMI); Bolaang Mongondow Selatan (2 MMI)	Pusat gempa berada di laut 74 km Barat Daya Gorontalo, Gorontalo
77	19/12/2018	18:25:07	0.17 LS	124.39 BT	5.3	10	Bolaang Mongondow Selatan (3 MMI); Manado, Kotamobagu, & Bolaang Mongondow Timur (2 MMI)	Pusat gempa berada di laut 88 km Tenggara Bolaangmongondow Selatan, Sulawesi Utara
78	21/12/2018	02:26:09	1.87 LU	127.24 BT	5.3	120	Siau (2 MMI)	Pusat gempa berada di Laut 69 km Barat Laut Halmahera Barat, Maluku Utara
79	21/12/2018	09:22:21	0.19 LU	119.99 BT	4.8	10	Parigi (3 MMI); Palu & Sigi (2 MMI)	Pusat gempa berada di darat 14 km timur Donggala, Sulawesi Tengah
80	22/12/2018	23:13:29	0.64 LU	121.76 BT	4.8	63	Pohuwato, Gorontalo, & Gorontalo Utara (2 MMI)	Pusat gempa berada di darat 8 km tenggara Pohuwato, Gorontalo
81	25/12/2018	14:18:21	1.21 LU	126.44 BT	5.4	10	Ternate, Tidore, Sofifi, Halmahera Selatan, & Halmahera Barat (3 MMI)	Pusat gempa berada di laut 113 km BaratLaut Ternate, Maluku Utara
82	29/12/2018	10:39:12	5.85 LU	126.81 BT	7.1	69	Talaud & Sangihe (4 MMI); Sitaro, Morotai, & Halmahera Utara (3 MMI); Manado, Ternate, & Halmahera Barat (2 MMI)	Pusat gempa berada di laut Mindanao - Philipina, Mindanao - Philipina
83	31/12/2018	01:34:55	1.65 LU	126.38 BT	5.1	10	Manado, Bitung, & Minahasa Tenggara (3 MMI)	Pusat gempa berada di laut 132km Tenggara Siautagulandangbiaro, Sulawesi Utara

III. DATA KEJADIAN GEMPABUMI BULANAN TAHUN 2018

A. Data Gempabumi Bulan Januari 2018

Tabel 3 Data kejadian gempabumi bulan Januari 2018

NO	DATE	OT (UTC)	EPICENTER		DEPTH (km)	MAG	PGA (gals) SLMI			REGION
			LAT	LONG			X	Y	Z	
1	01/01/2018	00:52:33	-0.33	123.73	112	5.1	0.11564	0.08846	0.13756	Minahassa
2	01/01/2018	03:07:10	1.42	122.04	17	1.9				Minahassa
3	01/01/2018	04:30:53	-0.24	123.07	63	2.3				Minahassa
4	01/01/2018	05:22:39	0.19	121.95	155	2.4				Minahassa
5	01/01/2018	06:17:46	0.78	126.04	10	3.7				Northern Molucca Sea
6	01/01/2018	07:32:00	-0.23	122.94	12	2.7				Minahassa
7	01/01/2018	07:47:21	1.32	121.58	416	3.1				Minahassa Peninsula, Sulawesi
8	01/01/2018	07:48:02	0.59	122.34	61	1.7				Minahassa
9	01/01/2018	09:04:26	0.39	126.06	22	4.1				Northern Molucca Sea
10	01/01/2018	09:04:34	-0.28	125.35	10	4.0				Southern
11	01/01/2018	12:22:16	0.65	121.83	10	1.9				Minahassa Peninsula, Sulawesi
12	01/01/2018	17:38:34	0.27	121.83	170	2.6				Minahassa
13	01/01/2018	18:00:30	1.93	126.96	26	3.2				Northern Molucca Sea
14	01/01/2018	19:46:07	4.20	126.77	10	4.2				Talaud Islands, Indonesia
15	01/01/2018	21:47:55	4.18	126.73	12	3.8				Talaud Islands, Indonesia
16	01/01/2018	22:28:09	-0.20	125.41	10	3.3				Southern
17	01/01/2018	22:48:13	-0.01	122.55	158	2.4				Minahassa
18	02/01/2018	02:27:03	4.56	124.45	10	3.5				Celebes
19	02/01/2018	06:46:06	0.29	122.48	12	2.8				Minahassa
20	02/01/2018	07:27:25	1.46	126.37	10	3.4				Northern Molucca Sea
21	02/01/2018	09:53:01	3.72	126.58	12	3.7				Talaud
22	02/01/2018	12:04:07	6.16	126.81	97	4.7				Mindanao,
23	02/01/2018	12:55:17	6.44	126.97	97	4.9	0.09277	0.07187	0.08856	Mindanao,
24	02/01/2018	17:47:12	-0.02	123.52	120	4.5				Minahassa
25	02/01/2018	20:30:51	0.74	120.30	12	3.0				Minahassa
26	02/01/2018	20:47:28	-0.15	123.55	12	2.5				Minahassa
27	03/01/2018	00:44:32	2.88	124.36	338	3.6				Celebes

28	03/01/2018	01:00:31	2.44	128.36	227	4.0				Halmahera, Indonesia
29	03/01/2018	01:38:34	2.36	127.24	16	3.8				Northern
30	03/01/2018	03:37:03	0.46	125.08	13	3.5				Northern Molucca Sea
31	03/01/2018	03:37:10	1.45	124.61	29	3.6				Minahassa
32	03/01/2018	03:45:45	0.34	121.88	188	2.5				Minahassa
33	03/01/2018	09:39:20	4.49	127.00	10	4.5				Talaud
34	03/01/2018	10:23:31	1.15	121.77	13	1.9				Minahassa
35	03/01/2018	10:37:12	0.89	127.57	10	3.2	0.11068	0.09636	0.10814	Halmahera, Indonesia
36	03/01/2018	11:44:30	0.26	122.48	10	2.1				Minahassa
37	03/01/2018	13:12:48	3.93	126.64	10	3.9				Talaud
38	03/01/2018	17:03:47	0.79	122.52	23	2.8				Minahassa Peninsula, Sulawesi
39	03/01/2018	18:40:33	0.38	121.74	90	2.4				Minahassa
40	03/01/2018	21:15:13	-0.10	124.58	23	4.1				Southern
41	03/01/2018	22:41:43	3.73	126.70	29	4.3				Talaud
42	04/01/2018	00:15:04	5.44	128.65	122	4.3				East
43	04/01/2018	00:15:32	4.33	126.84	46	4.0				Talaud Islands, Indonesia
44	04/01/2018	00:21:24	1.16	125.47	40	3.6				Northern
45	04/01/2018	00:34:32	2.00	121.14	43	4.8	0.17772	0.21653	0.28266	Celebes
46	04/01/2018	08:29:25	0.97	127.12	45	4.2				Halmahera,
47	04/01/2018	08:29:40	0.75	125.89	10	4.0				Northern Molucca Sea
48	04/01/2018	08:43:16	1.58	122.94	16	3.1				Minahassa
49	04/01/2018	16:45:30	3.70	126.69	15	4.0				Talaud
50	04/01/2018	20:28:24	-0.43	123.09	65	2.4				Minahassa
51	04/01/2018	23:50:08	0.11	122.54	10	2.2				Minahassa
52	05/01/2018	00:37:38	4.24	126.70	39	4.4				Talaud
53	05/01/2018	00:41:46	0.66	120.61	27	2.5				Minahassa
54	05/01/2018	02:58:57	0.17	119.99	10	2.8				Minahassa
55	05/01/2018	04:26:12	0.86	121.49	10	1.7				Minahassa
56	05/01/2018	07:56:04	6.38	126.70	102	5.0	0.16187	0.14957	0.16573	Mindanao,
57	05/01/2018	13:22:15	-0.02	122.93	165	4.1				Minahassa
58	05/01/2018	14:03:49	0.34	123.41	37	2.5				Minahassa
59	05/01/2018	18:20:29	0.50	120.26	10	2.5				Minahassa Peninsula, Sulawesi
60	06/01/2018	06:54:47	0.74	127.43	10	2.9				Halmahera,
61	06/01/2018	10:16:45	0.58	122.10	86	2.1				Minahassa
62	06/01/2018	12:31:57	0.34	122.77	141	2.5				Minahassa
63	06/01/2018	13:52:53	4.14	126.64	17	4.9				Talaud Islands, Indonesia

64	06/01/2018	13:52:55	3.97	126.72	10	5.0				Talaud
65	06/01/2018	14:05:40	1.16	126.43	10	3.2				Northern
66	06/01/2018	14:06:15	3.98	126.58	5	4.1				Talaud Islands, Indonesia
67	06/01/2018	14:07:38	0.82	127.41	10	3.6				Halmahera,
68	06/01/2018	15:39:46	0.77	125.37	53	5.0	2.11086	3.11046	3.71364	Northern
69	06/01/2018	16:04:15	1.21	122.00	13	3.6				Minahassa
70	06/01/2018	17:34:49	4.35	126.82	13	3.9				Talaud
71	06/01/2018	17:38:38	4.02	126.66	16	3.6				Talaud
72	06/01/2018	17:49:23	4.35	126.99	10	4.2				Talaud
73	06/01/2018	17:54:44	4.03	126.86	10	4.0				Talaud
74	06/01/2018	18:01:45	4.24	126.78	10	4.3				Talaud
75	06/01/2018	18:35:12	4.17	126.72	47	5.1				Talaud
76	06/01/2018	20:07:41	4.61	126.90	10	4.5				Talaud
77	07/01/2018	06:51:04	6.77	126.97	10	4.8	0.14624	0.09684	0.18978	Mindanao,
78	07/01/2018	08:32:49	4.11	126.69	14	4.1				Talaud
79	07/01/2018	10:54:10	6.80	127.36	10	4.4				Philippine
80	07/01/2018	11:05:42	0.93	121.83	30	1.8				Minahassa
81	07/01/2018	11:15:47	4.25	126.71	11	4.4				Talaud
82	07/01/2018	11:21:48	0.13	122.35	98	2.2				Minahassa
83	07/01/2018	14:51:05	4.09	126.60	10	4.0				Talaud
84	07/01/2018	18:02:46	0.10	121.94	157	2.8				Minahassa
85	07/01/2018	19:04:40	0.28	124.04	60	2.8				Southern Molucca Sea
86	07/01/2018	20:57:17	1.81	122.34	36	2.8				Minahassa
87	08/01/2018	04:34:46	0.47	121.64	65	2.6				Minahassa
88	08/01/2018	07:15:44	0.33	122.78	10	3.0				Minahassa
89	08/01/2018	08:09:29	0.44	121.29	65	4.4				Minahassa
90	08/01/2018	09:31:46	1.91	123.91	297	4.0				Minahassa
91	08/01/2018	12:13:56	3.24	128.18	128	4.1				North
92	08/01/2018	12:14:01	3.13	127.75	108	3.9				Talaud Islands, Indonesia
93	08/01/2018	13:01:04	0.05	122.23	122	2.4				Minahassa
94	08/01/2018	13:13:36	0.52	121.17	58	2.7				Minahassa
95	08/01/2018	13:25:10	0.86	122.63	23	2.8				Minahassa
96	08/01/2018	14:08:15	0.90	122.71	50	2.4				Minahassa
97	08/01/2018	14:09:47	2.75	126.76	10	4.9	0.09113	0.08904	0.10540	Northern Molucca Sea
98	08/01/2018	14:09:50	2.83	126.81	50	5.0				Northern
99	08/01/2018	18:54:40	1.02	121.05	10	2.4				Minahassa

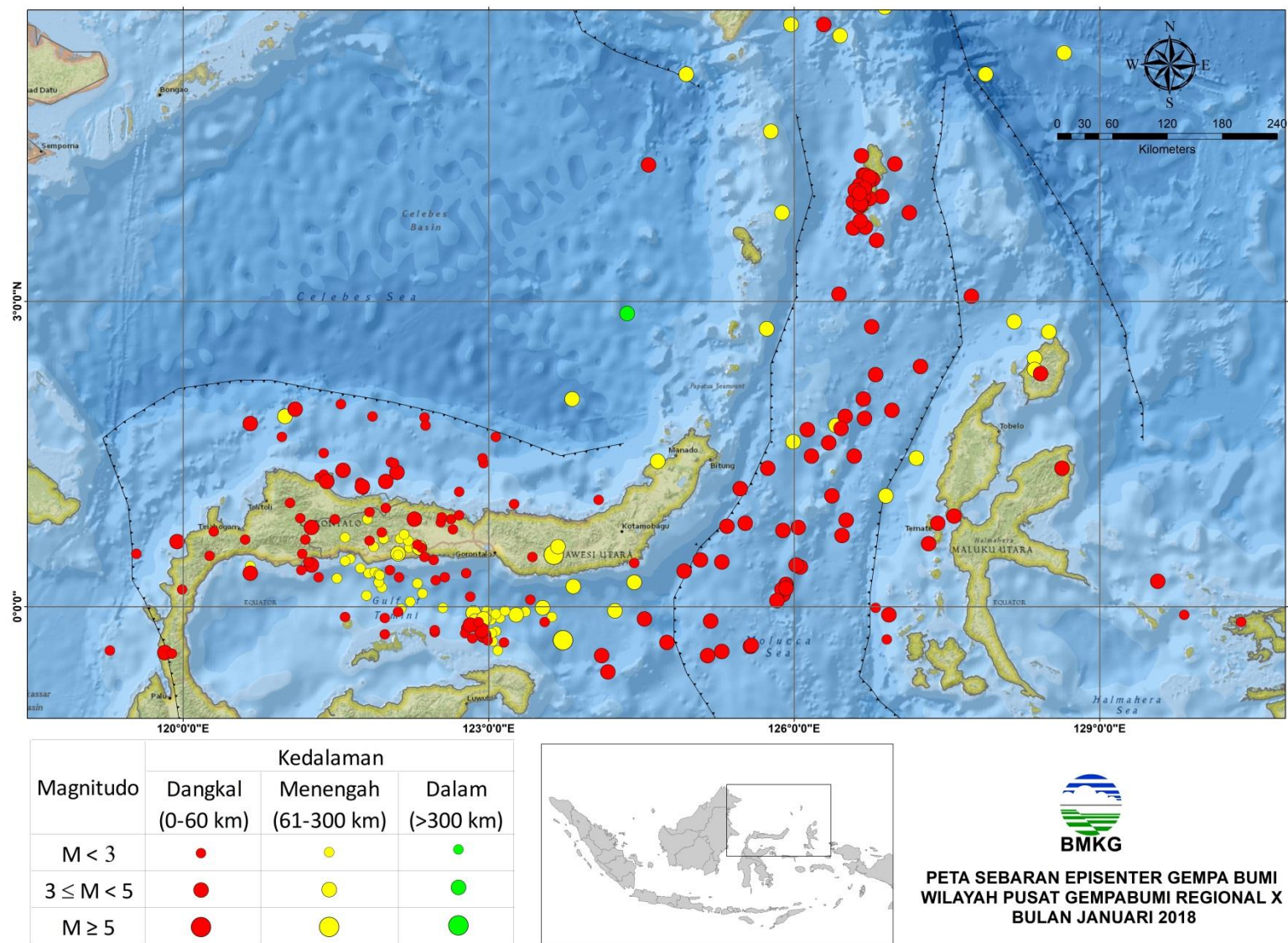
100	08/01/2018	20:37:21	0.61	122.30	52	2.4				Minahassa
101	08/01/2018	21:57:14	0.59	121.87	173	1.9				Minahassa
102	08/01/2018	22:11:13	1.87	121.86	10	2.3				Minahassa
103	08/01/2018	22:29:45	- 0.30	124.84	10	3.5				Southern
104	09/01/2018	03:56:08	1.27	121.34	10	2.3				Minahassa
105	09/01/2018	14:02:41	- 0.39	125.57	4	4.2	0.11405	0.07530	0.14278	Southern Molucca Sea
106	09/01/2018	14:12:27	3.87	127.13	10	4.1				Talaud
107	09/01/2018	15:58:44	0.22	125.92	56	3.9				Northern
108	09/01/2018	17:15:51	0.40	120.66	81	2.3				Minahassa
109	09/01/2018	17:58:31	3.07	126.44	31	3.6				Talaud
110	09/01/2018	19:23:18	0.57	122.04	89	3.6				Minahassa
111	10/01/2018	01:30:25	1.01	123.25	10	3.0				Minahassa
112	10/01/2018	03:38:29	- 0.38	125.58	10	4.0				Southern
113	10/01/2018	04:59:44	1.36	128.63	10	4.1				Halmahera,
114	10/01/2018	05:08:34	0.12	125.89	10	3.4				Northern
115	10/01/2018	09:51:02	- 0.02	122.14	110	2.4				Minahassa
116	10/01/2018	11:40:57	2.30	126.80	49	4.9				Northern
117	10/01/2018	12:28:53	- 0.38	123.18	51	2.9				Minahassa
118	10/01/2018	12:36:00	- 0.01	126.80	29	2.9				Southern
119	10/01/2018	12:38:34	5.23	124.94	61	4.2				Mindanao,
120	10/01/2018	13:04:21	1.78	122.38	28	2.0				Minahassa
121	10/01/2018	14:09:16	1.36	125.74	22	3.1				Northern
122	10/01/2018	16:36:06	0.91	125.47	18	3.2				Northern
123	10/01/2018	17:52:03	- 0.15	130.39	53	1.9				Irian
124	10/01/2018	19:53:43	0.58	122.22	80	1.2				Minahassa
125	10/01/2018	23:31:56	1.30	121.38	10	2.1				Minahassa
126	11/01/2018	06:30:28	1.22	121.74	16	2.0				Minahassa
127	11/01/2018	09:38:25	- 0.47	131.84	10	3.7				Irian
128	11/01/2018	11:36:19	3.92	126.60	29	4.3	0.10645	0.06210	0.07900	Talaud
129	11/01/2018	13:09:07	1.18	121.76	10	3.3				Minahassa
130	11/01/2018	14:23:15	0.93	121.16	32	2.2				Minahassa
131	11/01/2018	18:34:02	0.58	122.32	79	4.0				Minahassa Peninsula, Sulawesi
132	11/01/2018	18:34:03	0.50	122.33	71	4.1				Minahassa
133	11/01/2018	19:08:24	- 0.26	122.78	10	3.2				Minahassa
134	11/01/2018	19:46:16	1.47	122.20	10	3.7				Minahassa
135	11/01/2018	21:10:15	1.70	126.13	10	4.0				Northern

136	11/01/2018	21:12:48	0.60	122.32	58	3.4				Minahassa
137	11/01/2018	22:25:49	0.01	126.98	103	3.6				Northern
138	11/01/2018	22:49:07	- 0.04	122.98	146	2.3				Minahassa
139	12/01/2018	01:49:07	1.84	126.46	10	4.3	0.71122	0.49091	0.33416	Northern
140	12/01/2018	06:40:43	5.89	126.89	102	4.5				Mindanao,
141	12/01/2018	07:09:37	1.05	124.08	10	3.0				Minahassa
142	12/01/2018	07:23:50	- 0.11	123.11	98	2.9				Minahassa
143	12/01/2018	11:00:34	3.87	126.74	10	3.3				Talaud Islands, Indonesia
144	12/01/2018	14:10:56	0.97	121.99	29	2.6				Minahassa
145	12/01/2018	16:24:53	- 0.11	122.84	140	3.3				Minahassa
146	12/01/2018	16:50:47	2.69	128.47	236	4.1				Halmahera,
147	12/01/2018	18:15:29	2.33	128.36	223	4.2				Halmahera, Indonesia
148	13/01/2018	01:43:12	0.78	121.26	10	3.3				Minahassa
149	13/01/2018	03:13:24	- 0.48	124.11	10	3.2				Southern
150	13/01/2018	04:16:14	- 0.48	125.15	10	3.3				Southern
151	13/01/2018	05:52:17	0.07	123.41	13	2.7				Minahassa
152	13/01/2018	05:59:22	- 0.44	125.29	10	3.7				Southern
153	13/01/2018	14:15:57	- 0.28	122.95	20	3.1				Minahassa
154	13/01/2018	19:42:59	3.60	126.81	14	3.9	0.03950	0.03481	0.03618	Talaud
155	13/01/2018	21:59:00	0.09	132.35	10	3.1				Irian
156	13/01/2018	22:24:49	- 0.32	126.91	23	2.7				Southern
157	13/01/2018	23:44:07	1.48	126.17	10	3.5				Northern Molucca Sea
158	14/01/2018	00:49:20	0.36	122.03	24	1.9				Minahassa
159	14/01/2018	00:54:07	- 0.43	119.28	44	2.8				Minahassa
160	14/01/2018	03:41:18	- 0.13	123.02	96	2.1				Minahassa
161	14/01/2018	04:11:47	0.46	122.46	11	2.2				Minahassa
162	14/01/2018	05:03:43	1.80	120.66	22	3.1				Minahassa Peninsula, Sulawesi
163	14/01/2018	06:38:34	- 0.08	123.02	139	2.3				Minahassa
164	14/01/2018	07:47:50	- 0.31	122.84	55	2.4				Minahassa
165	14/01/2018	08:08:49	1.48	126.59	10	3.5				Northern
166	14/01/2018	11:23:28	5.23	127.88	149	4.3				Philippine
167	14/01/2018	11:23:49	3.47	126.76	10	3.6				Talaud Islands, Indonesia
168	14/01/2018	13:20:15	- 0.05	123.36	116	2.3				Minahassa
169	14/01/2018	20:17:10	0.65	122.21	84	1.8				Minahassa
170	14/01/2018	21:44:47	1.60	126.00	82	4.7	0.44346	0.66993	0.89344	Northern
171	14/01/2018	22:23:25	1.34	121.57	10	3.1				Minahassa

172	15/01/2018	00:13:25	2.52	128.07	127	4.4	0.33192	0.21193	0.20298	Halmahera,
173	15/01/2018	06:31:51	0.51	123.64	242	5.1				Minahassa
174	15/01/2018	09:18:02	0.36	121.16	10	2.7				Minahassa
175	15/01/2018	11:36:14	- 0.32	122.95	12	3.1				Minahassa
176	15/01/2018	17:08:35	0.17	125.88	10	3.3				Northern
177	15/01/2018	17:18:02	1.67	120.97	10	2.3				Minahassa
178	15/01/2018	17:29:59	- 0.04	123.25	144	3.4				Minahassa
179	15/01/2018	18:23:29	0.22	125.94	35	3.0				Northern
180	15/01/2018	18:42:34	- 0.35	123.15	10	2.4				Minahassa
181	15/01/2018	18:54:10	5.51	126.45	30	4.8				Mindanao,
182	15/01/2018	19:07:58	0.68	121.59	72	2.5				Minahassa
183	15/01/2018	21:29:19	0.28	121.51	127	2.2				Minahassa
184	15/01/2018	23:31:05	- 0.27	121.98	13	2.1				Minahassa
185	16/01/2018	02:50:42	0.60	122.17	155	2.3				Minahassa Peninsula, Sulawesi
186	16/01/2018	15:40:26	0.25	129.57	10	3.8	0.09554	0.05878	0.11855	Halmahera,
187	16/01/2018	15:40:27	0.16	129.50	10	3.7				Halmahera, Indonesia
188	16/01/2018	20:34:07	0.06	125.85	10	3.6				Northern
189	16/01/2018	21:41:13	1.43	123.02	423	2.7				Minahassa Peninsula, Sulawesi
190	17/01/2018	04:25:51	- 0.45	119.82	10	4.2	0.13626	0.11187	0.22140	Minahassa
191	17/01/2018	08:44:08	1.20	121.41	10	3.6				Minahassa
192	17/01/2018	15:37:59	- 0.13	126.64	10	3.2				Southern Molucca Sea
193	17/01/2018	16:05:08	6.20	124.93	10	4.5				Mindanao,
194	18/01/2018	01:41:04	2.16	121.00	13	4.3				Celebes
195	18/01/2018	08:51:42	- 0.12	122.95	77	3.4				Minahassa
196	18/01/2018	11:19:25	- 0.23	122.47	11	2.5				Minahassa
197	18/01/2018	12:11:10	4.00	126.73	59	4.5	0.09317	0.06696	0.15162	Talud
198	18/01/2018	14:31:56	0.76	126.49	43	4.3				Northern
199	18/01/2018	15:23:08	1.68	123.02	26	2.6				Minahassa
200	18/01/2018	17:26:13	0.43	124.43	10	2.5				Minahassa
201	18/01/2018	23:41:36	0.29	122.12	27	1.8				Minahassa
202	19/01/2018	00:48:21	- 0.10	121.59	18	2.5				Minahassa
203	19/01/2018	01:03:51	1.59	126.32	10	4.6	0.51674	0.50542	0.68110	Northern
204	19/01/2018	03:04:47	0.15	124.04	105	3.4				Minahassa
205	19/01/2018	04:12:29	0.88	122.54	15	2.4				Minahassa
206	19/01/2018	04:35:24	0.86	121.81	160	1.9				Minahassa
207	19/01/2018	06:26:22	8.06	127.68	10	5.0				Philippine

208	19/01/2018	09:36:04	0.11	121.80	133	2.2				Minahassa
209	19/01/2018	17:49:45	0.16	123.81	127	3.5				Minahassa
210	19/01/2018	19:01:41	1.99	121.55	10	2.5				Minahassa
211	19/01/2018	21:14:32	1.97	126.79	93	3.7				Northern
212	19/01/2018	21:17:51	1.78	126.41	77	3.3				Northern
213	20/01/2018	01:23:21	- 0.07	123.07	135	3.0				Minahassa Peninsula, Sulawesi
214	20/01/2018	02:18:33	0.85	126.51	10	3.8				Northern Molucca Sea
215	20/01/2018	02:53:07	1.94	123.06	20	2.1				Minahassa Peninsula, Sulawesi
216	20/01/2018	12:16:07	2.29	128.42	10	4.2	0.12166	0.07356	0.09779	Halmahera, Indonesia
217	20/01/2018	23:02:32	3.84	125.91	136	4.1				Talaud Islands, Indonesia
218	21/01/2018	06:52:04	5.72	126.29	0	4.4	0.12528	0.08724	0.08768	Mindanao, Philippines
219	21/01/2018	09:43:48	0.44	120.59	22	3.9				Minahassa Peninsula, Sulawesi
220	21/01/2018	12:22:33	0.72	122.26	65	3.2				Minahassa
221	22/01/2018	02:53:28	- 0.30	119.59	16	3.9				Minahassa Peninsula, Sulawesi
222	22/01/2018	17:38:29	- 0.23	122.47	10	2.5				Minahassa Peninsula, Sulawesi
223	23/01/2018	05:04:59	5.35	125.97	229	4.4	0.17116	0.12363	0.18624	Mindanao,
224	23/01/2018	09:16:52	0.52	119.54	10	2.4				Minahassa
225	23/01/2018	14:06:11	0.44	121.23	59	2.0				Minahassa
226	23/01/2018	14:14:10	2.73	125.73	152	3.9				Talaud
227	23/01/2018	14:39:57	0.36	122.03	178	3.0				Minahassa
228	23/01/2018	15:20:49	1.85	126.69	10	3.3				Northern
229	23/01/2018	16:40:08	1.43	124.66	212	3.2				Minahassa
230	23/01/2018	21:39:47	- 0.46	119.89	10	2.6				Minahassa
231	24/01/2018	10:55:41	1.61	127.24	125	4.4	0.09581	0.07034	0.00007	Halmahera,
232	25/01/2018	01:49:35	1.77	126.51	12	4.2				Northern
233	25/01/2018	08:03:37	5.73	126.01	103	4.7	0.21432	0.13950	0.25078	Mindanao,
234	25/01/2018	12:17:45	- 0.11	125.26	18	3.5				Southern
235	25/01/2018	13:00:02	1.59	121.41	10	2.4				Minahassa
236	25/01/2018	16:57:30	- 0.42	132.19	24	3.6				Irian
237	25/01/2018	17:47:20	- 0.26	123.03	86	2.8				Minahassa
238	25/01/2018	18:17:04	- 0.20	132.17	88	2.8				Irian
239	25/01/2018	18:31:36	1.46	122.17	10	2.7				Minahassa
240	25/01/2018	20:04:25	7.52	126.64	125	4.5				Mindanao,
241	25/01/2018	20:33:58	0.66	121.20	23	1.9				Minahassa
242	25/01/2018	23:57:54	- 0.04	123.16	135	2.9				Minahassa
243	26/01/2018	00:19:03	- 0.23	122.93	55	3.5				Minahassa

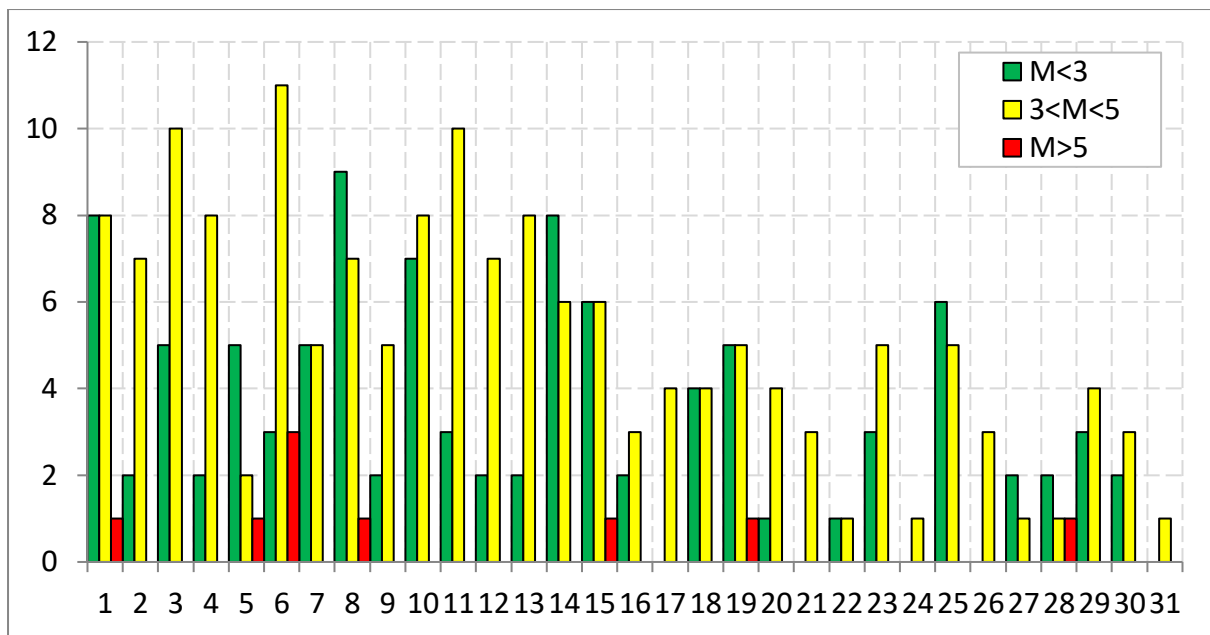
244	26/01/2018	04:47:45	- 0.19	122.93	60	3.3				Minahassa Peninsula, Sulawesi
245	26/01/2018	17:09:08	0.39	124.45	96	3.9				Minahassa
246	27/01/2018	06:33:18	0.64	119.94	10	3.5				Minahassa
247	27/01/2018	17:52:02	0.51	122.11	183	2.5				Minahassa Peninsula, Sulawesi
248	27/01/2018	23:39:49	0.76	122.65	16	2.8				Minahassa
249	28/01/2018	02:18:17	8.65	126.64	15	5.5				Mindanao, Philippines
250	28/01/2018	07:47:40	0.44	122.01	182	2.4				Minahassa
251	28/01/2018	07:56:57	0.59	123.68	234	3.3				Minahassa
252	28/01/2018	22:55:33	0.73	121.95	60	2.0				Minahassa Peninsula, Sulawesi
253	29/01/2018	05:14:29	0.73	121.48	32	2.3				Minahassa
254	29/01/2018	11:07:44	- 0.16	123.23	143	3.1				Minahassa
255	29/01/2018	12:05:28	- 0.13	123.40	126	3.2				Minahassa
256	29/01/2018	14:14:50	0.41	122.09	181	2.4				Minahassa
257	29/01/2018	15:24:40	0.05	131.86	19	3.9				Irian
258	29/01/2018	17:08:46	0.28	121.62	149	2.9				Minahassa
259	29/01/2018	17:13:14	3.09	128.85	13	4.5				North
260	30/01/2018	15:48:46	0.49	123.63	219	3.2				Minahassa
261	30/01/2018	16:41:54	0.40	125.25	10	3.2				Northern
262	30/01/2018	17:44:53	0.61	122.01	71	3.2				Minahassa
263	30/01/2018	23:07:51	- 0.10	123.62	78	2.9				Minahassa Peninsula, Sulawesi
264	30/01/2018	23:15:14	- 0.17	122.86	14	2.6				Minahassa
265	31/01/2018	13:55:14	0.39	125.19	27	3.4				Northern Molucca Sea



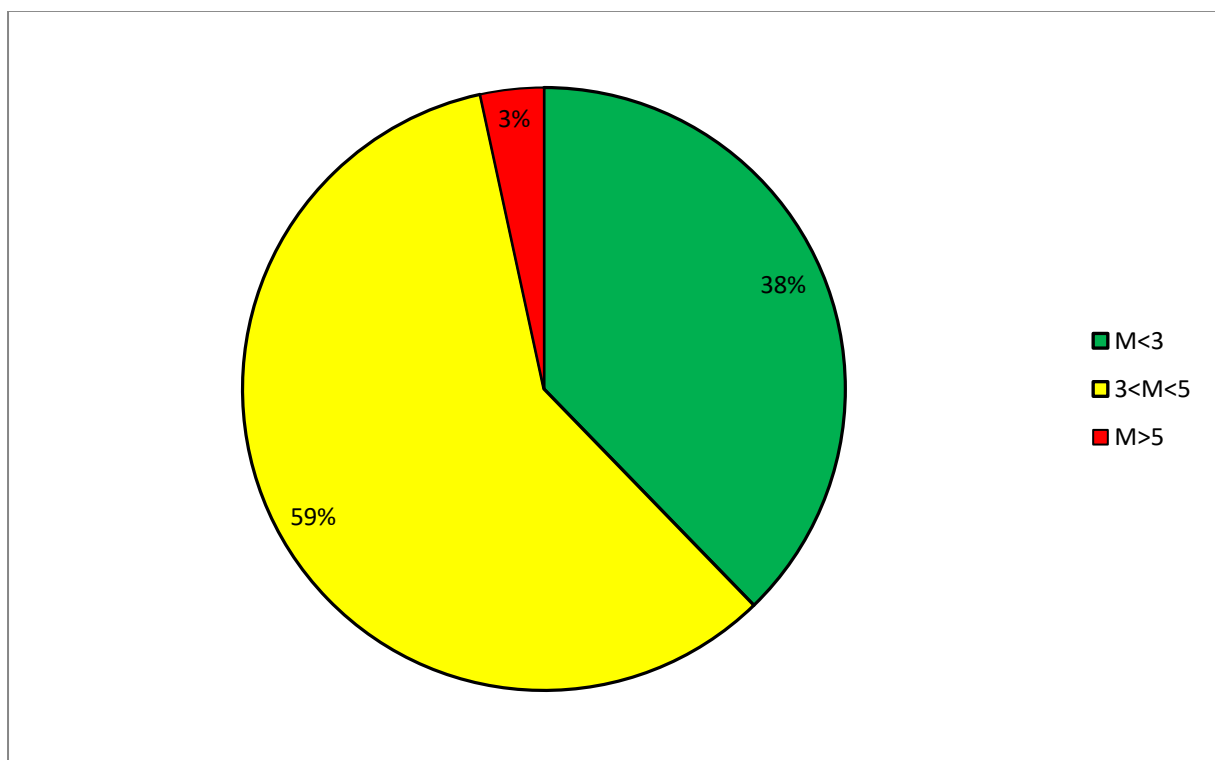
Gambar 7 Sebaran episenter gempabumi bulan Januari 2018

Tabel 4 Rekapitulasi gempabumi dan tsunami berdasarkan magnitudo bulan Januari 2018

Tanggal (UTC)	Magnitudo			Jumlah Total	Jumlah Gempa Signifikan	
	M<3	3≤M<5	M≥5		Dirasakan	Merusak
1	8	8	1	17	0	0
2	2	7	0	9	0	0
3	5	10	0	15	1	0
4	2	8	0	10	0	0
5	5	2	1	8	0	0
6	3	11	3	17	2	0
7	5	5	0	10	1	0
8	9	7	1	17	0	0
9	2	5	0	7	0	0
10	7	8	0	15	0	0
11	3	10	0	13	0	0
12	2	7	0	9	0	0
13	2	8	0	10	0	0
14	8	6	0	14	0	0
15	6	6	1	13	1	0
16	2	3	0	5	0	0
17	0	4	0	4	1	0
18	4	4	0	8	0	0
19	5	5	1	11	0	0
20	1	4	0	5	0	0
21	0	3	0	3	0	0
22	1	1	0	2	0	0
23	3	5	0	8	0	0
24	0	1	0	1	0	0
25	6	5	0	11	0	0
26	0	3	0	3	0	0
27	2	1	0	3	0	0
28	2	1	1	4	0	0
29	3	4	0	7	0	0
30	2	3	0	5	0	0
31	0	1	0	1	0	0
Jumlah gempa	100	156	9	265	6	0
Jumlah gempa seluruhnya						



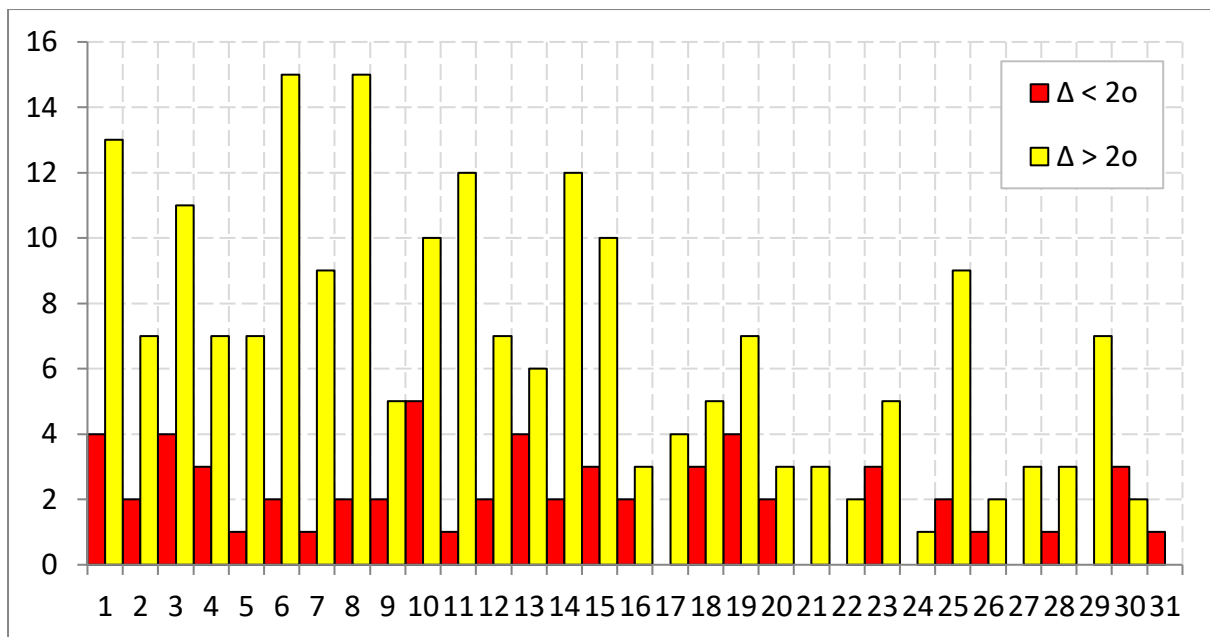
Gambar 8 Grafik gempabumi berdasarkan magnitudo bulan Januari 2018



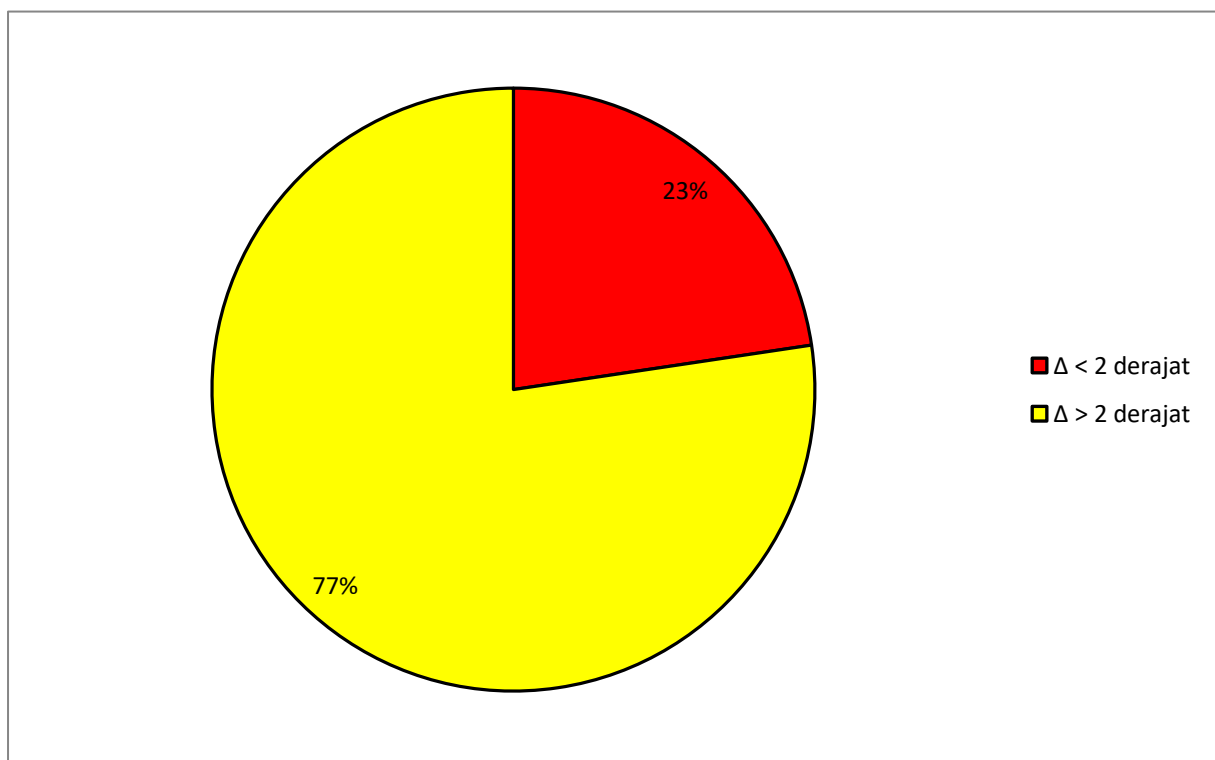
Gambar 9 Grafik persentase gempabumi berdasarkan magnitudo bulan Januari 2018

Tabel 5 Rekapitulasi gempabumi dan tsunami berdasarkan jarak dari stasiun bulan Januari 2018

Tanggal	Jarak		Jumlah	Keterangan
	$\Delta \leq 2^\circ$	$\Delta > 2^\circ$		
01/01/2018	4	13	17	-
02/01/2018	2	7	9	-
03/01/2018	4	11	15	-
04/01/2018	3	7	10	-
05/01/2018	1	7	8	-
06/01/2018	2	15	17	-
07/01/2018	1	9	10	-
08/01/2018	2	15	17	-
09/01/2018	2	5	7	-
10/01/2018	5	10	15	-
11/01/2018	1	12	13	-
12/01/2018	2	7	9	-
13/01/2018	4	6	10	-
14/01/2018	2	12	14	-
15/01/2018	3	10	13	-
16/01/2018	2	3	5	-
17/01/2018	0	4	4	-
18/01/2018	3	5	8	-
19/01/2018	4	7	11	-
20/01/2018	2	3	5	-
21/01/2018	0	3	3	-
22/01/2018	0	2	2	-
23/01/2018	3	5	8	-
24/01/2018	0	1	1	-
25/01/2018	2	9	11	-
26/01/2018	1	2	3	-
27/01/2018	0	3	3	-
28/01/2018	1	3	4	-
29/01/2018	0	7	7	-
30/01/2018	3	2	5	-
31/01/2018	1	0	1	-
Jumlah gempa	60	205	265	-



Gambar 10 Grafik gempabumi berdasarkan jarak bulan Januari 2018



Gambar 11 Grafik persentase gempabumi berdasarkan jarak bulan Januari 2018

B. Data Gempabumi Bulan Februari 2018

Tabel 6 Data kejadian gempabumi bulan Februari 2018

NO	DATE	OT (UTC)	EPICENTER		DEPTH (km)	MAG	PGA (gals) SLMI			REGION
			LAT	LONG			X	Y	Z	
1	01/02/2018	09:38:56	-0.31	125.35	10	4.4				Southern Molucca Sea
2	01/02/2018	19:06:24	3.39	126.01	51	3.7				Talaud Islands Indonesia
3	01/02/2018	20:20:27	-0.22	124.69	68	3.3				Southern Molucca Sea
4	02/02/2018	00:09:32	1.41	121.85	10	2.2				Minahassa Peninsula, Sulawesi
5	02/02/2018	00:20:43	-0.16	125.2	58	5.5	0.21360	0.20870	0.12454	Southern Molucca Sea
6	02/02/2018	00:47:55	-0.24	125.21	26	3.6				Southern Molucca Sea
7	02/02/2018	03:55:37	0.92	126.37	14	3.9				Northern Molucca Sea
8	02/02/2018	08:14:27	0.08	124.4	28	3.3				Minahassa Peninsula Sulawesi
9	02/02/2018	13:59:21	0.99	126.12	12	3.6				Northern Molucca Sea
10	02/02/2018	15:41:52	1.04	118.86	13	3				Borneo
11	02/02/2018	16:57:57	-0.43	122.97	13	2.7				Minahassa Peninsula Sulawesi
12	03/02/2018	03:20:11	0.33	120.65	16	2.2				Minahassa Peninsula Sulawesi
13	03/02/2018	09:36:39	-0.44	124.61	18	3.8				Southern Molucca Sea
14	03/02/2018	10:20:05	1.22	126.13	12	3.6				Northern Molucca Sea
15	03/02/2018	17:55:37	0.58	121.75	76	1.9				Minahassa Peninsula Sulawesi
16	03/02/2018	18:12:12	1.02	126.34	21	3.1				Northern Molucca Sea
17	03/02/2018	18:28:42	8.34	126.92	22	5				Mindanao Philippines
18	04/02/2018	00:46:59	-0.24	122.54	10	2.5				Minahassa Peninsula Sulawesi
19	04/02/2018	05:16:49	1.71	122.37	23	2.8				Minahassa Peninsula Sulawesi
20	04/02/2018	10:44:41	0.82	122.74	14	3.4				Minahassa Peninsula Sulawesi
21	04/02/2018	15:00:19	-0.4	123.01	60	3				Minahassa Peninsula Sulawesi
22	04/02/2018	15:58:01	1.85	121.96	10	2.5				Minahassa Peninsula Sulawesi
23	04/02/2018	17:23:44	1.6	127.27	111	3.5				Halmahera Indonesia
24	04/02/2018	18:03:02	0.84	121.59	36	1.9				Minahassa Peninsula Sulawesi
25	04/02/2018	18:26:08	1.01	120.47	10	2.4				Minahassa Peninsula Sulawesi
26	04/02/2018	20:25:26	-0.14	124.6	10	3.1				Southern Molucca Sea
27	04/02/2018	20:25:35	0.68	124.26	25	2.9				Minahassa Peninsula Sulawesi
28	05/02/2018	03:15:11	1.33	124.92	7	2.8				Minahassa Peninsula, Sulawesi
29	05/02/2018	03:26:45	2.58	125.15	750	3.3				Talaud Islands, Indonesia
30	05/02/2018	11:08:10	1.23	126.5	10	3.6				Northern Molucca Sea
31	05/02/2018	12:28:19	0.62	122.65	13	2.9				Minahassa Peninsula, Sulawesi

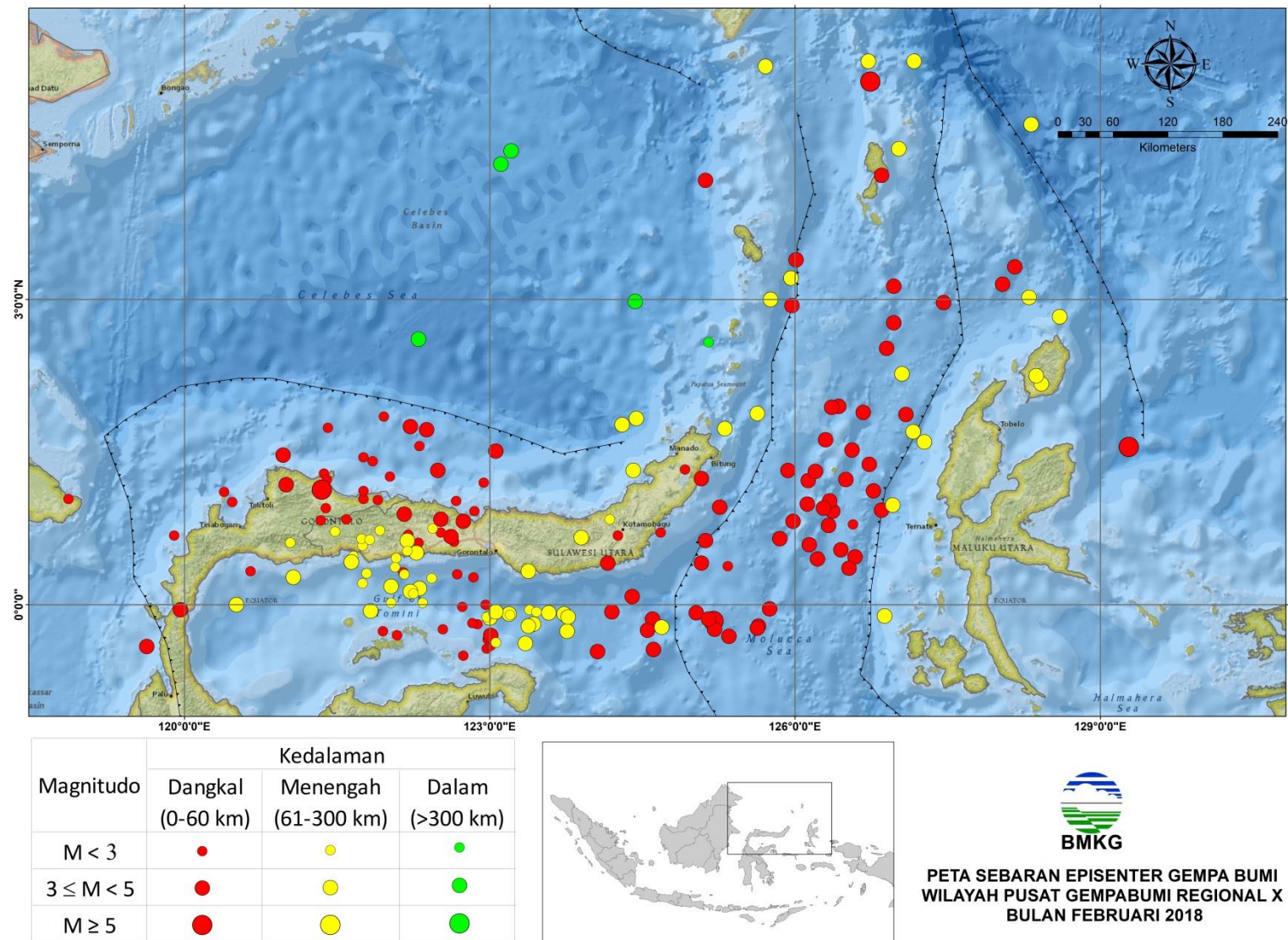
32	05/02/2018	13:25:18	1.29	121.37	13	2.6				Minahassa Peninsula Sulawesi
33	05/02/2018	14:23:11	0.95	121.39	10	2.4				Minahassa Peninsula Sulawesi
34	05/02/2018	19:16:40	0.84	122.52	36	3.3				Minahassa Peninsula Sulawesi
35	06/02/2018	01:03:15	0.16	122.31	176	4				Minahassa Peninsula, Sulawesi
36	06/02/2018	01:03:21	0.13	122.22	125	4				Minahassa Peninsula Sulawesi
37	06/02/2018	01:14:55	2.97	127.46	22	4.4	0.00125	0.00236	0.00178	Northern Molucca Sea
38	06/02/2018	07:16:46	0.59	126.14	10	4.1				Northern Molucca Sea
39	06/02/2018	09:34:27	1.51	123.06	7	3.9				Minahassa Peninsula, Sulawesi
40	06/02/2018	09:47:52	0.18	122.03	159	3.3				Minahassa Peninsula, Sulawesi
41	06/02/2018	10:08:45	1.89	126.67	30	4.2				Northern Molucca Sea
42	06/02/2018	10:46:51	1.03	121.9	10	2.9				Minahassa Peninsula Sulawesi
43	06/02/2018	18:09:17	0.69	122.2	58	2.7				Minahassa Peninsula Sulawesi
44	06/02/2018	18:52:09	0.47	126.59	10	3.1				Northern Molucca Sea
45	06/02/2018	19:08:25	-0.21	125.64	10	3.2				Southern Molucca Sea
46	06/02/2018	19:58:34	-0.23	125.63	10	3.5				Southern Molucca Sea
47	06/02/2018	22:32:53	0.65	121.74	75	1.9				Minahassa Peninsula Sulawesi
48	07/02/2018	15:07:38	0.11	122.25	147	2.6				Minahassa Peninsula, Sulawesi
49	07/02/2018	15:47:31	0.64	121.82	156	1.9				Minahassa Peninsula, Sulawesi
50	07/02/2018	17:57:25	0.41	124.16	28	3.4				Minahassa Peninsula, Sulawesi
51	07/02/2018	20:23:00	0.98	126.96	161	4.5				Northern Molucca Sea
52	08/02/2018	18:28:15	-0.25	124.55	29	3.2				Southern Molucca Sea
53	08/02/2018	20:14:10	0.78	126.33	18	3.8				Northern Molucca Sea
54	09/02/2018	03:34:43	-0.09	123.73	96	3.8				Minahassa Peninsula Sulawesi
55	09/02/2018	06:25:56	-0.26	123.76	112	3.9				Minahassa Peninsula Sulawesi
56	09/02/2018	11:48:08	-0.19	123.43	137	3.8				Minahassa Peninsula Sulawesi
57	09/02/2018	19:39:39	1.24	125.08	41	3.2				Northern Molucca Sea
58	09/02/2018	21:11:30	0.84	124.18	255	3				Minahassa Peninsula Sulawesi
59	09/02/2018	21:22:13	0.82	125.98	14	3.3				Northern Molucca Sea
60	09/02/2018	23:02:07	0.96	125.26	10	3.5				Northern Molucca Sea
61	10/02/2018	14:32:25	0.93	126.85	15	4.1				Northern Molucca Sea
62	10/02/2018	16:03:03	2.77	126.97	10	3.8				Northern Molucca Sea
63	10/02/2018	19:01:22	4.46	123.21	546	4.2				Celebes Sea
64	10/02/2018	19:01:23	4.33	123.11	573	4.6				Celebes Sea
65	10/02/2018	19:53:55	4.17	125.12	10	4.2				Talaud Islands, Indonesia
66	11/02/2018	06:57:41	-0.13	123	146	3.5				Minahassa Peninsula Sulawesi
67	11/02/2018	07:05:24	2.17	128.42	80	5				Halmahera Indonesia

68	11/02/2018	15:51:15	-0.21	123.38	115	4.5				Minahassa Peninsula Sulawesi
69	11/02/2018	19:20:32	1.52	126.56	10	3.5				Northern Molucca Sea
70	11/02/2018	19:57:55	2.94	125.97	10	4.6	0.00042	0.00021	0.00025	Talaud Islands Indonesia
71	11/02/2018	23:38:04	0.3	122.16	161	2.8				Minahassa Peninsula, Sulawesi
72	12/02/2018	03:29:29	0.02	122.03	218	2.8				Minahassa Peninsula Sulawesi
73	12/02/2018	13:42:52	-0.08	125.03	13	3.6				Southern Molucca Sea
74	12/02/2018	16:31:46	1.23	121.4	10	2.7				Minahassa Peninsula Sulawesi
75	12/02/2018	17:43:27	-0.09	123.19	150	3.3				Minahassa Peninsula Sulawesi
76	12/02/2018	17:57:31	0.63	125.12	54	3.2				Northern Molucca Sea
77	12/02/2018	18:54:44	0.46	122.08	169	2.3				Minahassa Peninsula Sulawesi
78	12/02/2018	19:21:29	0.54	126.45	24	3.3				Northern Molucca Sea
79	12/02/2018	21:54:42	-0.05	123.39	131	2.7				Minahassa Peninsula Sulawesi
80	12/02/2018	23:39:31	-0.12	122.97	137	2.7				Minahassa Peninsula Sulawesi
81	13/02/2018	00:04:15	2.98	124.43	319	4.2				Celebes Sea
82	13/02/2018	02:34:26	3	125.76	177	4.9				Talaud Islands Indonesia
83	13/02/2018	03:55:56	0.45	126.22	10	3.3				Northern Molucca Sea
84	13/02/2018	05:33:22	1.11	120.39	10	2.3				Minahassa Peninsula Sulawesi
85	13/02/2018	05:35:00	1.7	127.16	120	4.9				Halmahera Indonesia
86	13/02/2018	07:10:17	0.66	123.9	256	4.2				Minahassa Peninsula Sulawesi
87	13/02/2018	11:00:33	4.22	126.85	10	4.6				Talaud Islands Indonesia
88	13/02/2018	14:51:07	2.52	126.9	10	4				Northern Molucca Sea
89	14/02/2018	09:28:47	-0.08	123.58	124	3.3				Minahassa Peninsula Sulawesi
90	14/02/2018	15:16:12	0.36	126.53	15	3.8				Northern Molucca Sea
91	14/02/2018	19:55:20	1.83	124.44	297	3.3				Minahassa Peninsula Sulawesi
92	15/02/2018	15:51:53	0.83	121.34	31	2.6				Minahassa Peninsula Sulawesi
93	15/02/2018	16:31:48	0.37	122.07	120	2.2				Minahassa Peninsula Sulawesi
94	15/02/2018	18:35:17	1.72	122.38	22	3.9				Minahassa Peninsula, Sulawesi
95	16/02/2018	13:40:50	0.41	125.08	31	3.6				Northern Molucca Sea
96	16/02/2018	17:53:25	-0.14	125.15	10	3.4				Southern Molucca Sea
97	16/02/2018	19:12:45	0.48	121.66	67	2.8				Minahassa Peninsula Sulawesi
98	16/02/2018	23:14:12	-0.26	121.95	21	2.7				Minahassa Peninsula Sulawesi
99	17/02/2018	03:43:15	0.42	121.64	90	3.5				Minahassa Peninsula Sulawesi
100	17/02/2018	05:31:00	3.13	126.97	10	4.7				Talaud Islands Indonesia
101	17/02/2018	07:36:44	0.61	122.3	59	2.7				Minahassa Peninsula, Sulawesi
102	17/02/2018	10:46:16	1.18	121	12	3.3				Minahassa Peninsula Sulawesi
103	17/02/2018	11:22:33	1.55	129.28	10	5.9				Halmahera Indonesia

104	17/02/2018	11:23:51	-0.38	123.35	94	3.8				Minahassa Peninsula, Sulawesi
105	17/02/2018	18:36:15	0.33	123.38	199	3.1				Minahassa Peninsula Sulawesi
106	18/02/2018	01:43:33	0.95	126.28	10	3.2				Northern Molucca Sea
107	18/02/2018	01:59:16	-0.46	124.06	13	3.6				Southern Molucca Sea
108	18/02/2018	02:57:40	0.63	122.19	82	4.1				Minahassa Peninsula Sulawesi
109	18/02/2018	04:05:58	-0.04	125.75	10	3.7				Southern Molucca Sea
110	18/02/2018	07:58:59	0.51	122.28	100	3.8				Minahassa Peninsula, Sulawesi
111	18/02/2018	16:44:46	-0.07	123.06	78	4.1				Minahassa Peninsula Sulawesi
112	18/02/2018	18:57:26	4.72	128.32	218	4.5				North of Halmahera
113	19/02/2018	08:09:23	0.02	122.34	143	2.2				Minahassa Peninsula Sulawesi
114	19/02/2018	08:56:03	-0.34	122.98	19	2.4				Minahassa Peninsula Sulawesi
115	19/02/2018	12:04:51	3.32	128.16	10	4.6				North of Halmahera
116	19/02/2018	14:21:55	2.25	128.37	228	4.1				Halmahera Indonesia
117	19/02/2018	15:23:30	1.77	124.3	296	3.1				Minahassa Peninsula Sulawesi
118	19/02/2018	15:42:11	5.34	127.17	117	4.4				Philippine Islands Region
119	19/02/2018	15:42:16	4.48	127.02	280	4.2				Talaud Islands Indonesia
120	19/02/2018	20:26:50	-0.12	123.77	115	3.5				Minahassa Peninsula Sulawesi
121	19/02/2018	20:48:18	6.67	126.88	10	5				Mindanao Philippines
122	19/02/2018	20:48:35	5.34	126.72	232	4.7				Mindanao Philippines
123	20/02/2018	09:29:27	1.32	124.41	213	5				Minahassa Peninsula, Sulawesi
124	20/02/2018	16:12:47	1.31	126.2	4	3.2				Northern Molucca Sea
125	20/02/2018	18:06:04	1.95	126.43	10	3.4				Northern Molucca Sea
126	20/02/2018	18:50:24	-0.3	123.01	10	4.1				Minahassa Peninsula, Sulawesi
127	21/02/2018	04:26:50	6.33	116.27	44	4				Borneo
128	21/02/2018	05:33:50	-0.07	124.2	20	3.4				Southern Molucca Sea
129	21/02/2018	05:52:53	1.12	126.77	21	3.6				Northern Molucca Sea
130	21/02/2018	09:40:09	-0.1	123.2	135	2.5				Minahassa Peninsula Sulawesi
131	21/02/2018	17:50:12	0.38	125.34	14	2.9				Northern Molucca Sea
132	21/02/2018	22:36:34	-0.07	123.46	141	2.8				Minahassa Peninsula Sulawesi
133	21/02/2018	22:54:01	2.61	122.3	555	3.8				Celebes Sea
134	21/02/2018	23:11:30	1.04	121.76	31	2.7				Minahassa Peninsula Sulawesi
135	22/02/2018	05:03:22	-0.11	126.88	83	4.6				Southern Molucca Sea
136	22/02/2018	13:12:48	0.67	122.62	32	3.1				Minahassa Peninsula Sulawesi
137	22/02/2018	17:13:49	1.94	126.36	10	3.8				Northern Molucca Sea
138	22/02/2018	17:18:45	0.31	121.79	179	2.5				Minahassa Peninsula Sulawesi
139	22/02/2018	17:41:43	0.73	121.92	77	2.1				Minahassa Peninsula Sulawesi

140	22/02/2018	19:56:52	0.79	126.57	10	2.8				Northern Molucca Sea
141	22/02/2018	23:41:32	0.68	119.9	9	3				Minahassa Peninsula, Sulawesi
142	23/02/2018	08:59:09	-0.19	122.88	13	2.4				Minahassa Peninsula Sulawesi
143	23/02/2018	09:18:49	1.38	126.73	19	3.4				Northern Molucca Sea
144	23/02/2018	14:27:26	0.75	122.44	100	2.1				Minahassa Peninsula, Sulawesi
145	23/02/2018	14:56:06	1.56	122.31	10	2.3				Minahassa Peninsula Sulawesi
146	23/02/2018	22:38:20	0.21	121.75	183	2.5				Minahassa Peninsula Sulawesi
147	23/02/2018	22:50:45	-0.02	122.73	50	2.4				Minahassa Peninsula Sulawesi
148	24/02/2018	02:09:32	0.27	122.84	19	2.8				Minahassa Peninsula Sulawesi
149	24/02/2018	12:25:19	0	120.51	74	3.8				Minahassa Peninsula Sulawesi
150	24/02/2018	13:45:47	0.53	122.19	109	2.9				Minahassa Peninsula Sulawesi
151	24/02/2018	13:53:45	1.26	122.02	32	2.7				Minahassa Peninsula Sulawesi
152	24/02/2018	14:23:27	-0.37	123.06	61	2.9				Minahassa Peninsula Sulawesi
153	24/02/2018	18:13:35	1.2	122.94	20	2.5				Minahassa Peninsula, Sulawesi
154	24/02/2018	21:55:08	0.92	122.85	26	1.8				Minahassa Peninsula, Sulawesi
155	25/02/2018	02:16:31	-0.3	122.09	13	2.4				Minahassa Peninsula Sulawesi
156	25/02/2018	04:10:30	5.29	125.71	101	4.5				Mindanao Philippines
157	25/02/2018	04:42:53	3.15	128.04	24	4.2				North of Halmahera
158	25/02/2018	07:06:22	1.02	122.67	40	2.9				Minahassa Peninsula Sulawesi
159	25/02/2018	11:34:49	0.27	121.07	138	3.1				Minahassa Peninsula Sulawesi
160	25/02/2018	15:33:51	1.32	125.93	10	3.2				Northern Molucca Sea
161	25/02/2018	17:20:18	1.74	121.41	10	2				Minahassa Peninsula, Sulawesi
162	25/02/2018	18:30:48	5.14	126.74	10	5.2				Mindanao Philippines
163	25/02/2018	19:29:27	-0.05	119.96	10	3.4				Minahassa Peninsula Sulawesi
164	25/02/2018	20:12:34	0.3	122.68	34	2.3				Minahassa Peninsula Sulawesi
165	26/02/2018	00:35:37	0.32	122.15	16	2.3				Minahassa Peninsula Sulawesi
166	26/02/2018	04:57:22	-0.06	121.83	174	3.5				Minahassa Peninsula Sulawesi
167	26/02/2018	05:26:01	2.83	128.6	91	4.2				Halmahera Indonesia
168	26/02/2018	10:58:02	0.71	124.68	10	2.8				Minahassa Peninsula Sulawesi
169	26/02/2018	12:27:12	1.13	121.35	10	5.3				Minahassa Peninsula Sulawesi
170	26/02/2018	14:10:40	0.72	121.48	67	2.6				Minahassa Peninsula, Sulawesi
171	26/02/2018	14:35:57	-0.5	122.74	10	2.8				Minahassa Peninsula, Sulawesi
172	26/02/2018	15:01:18	-0.5	122.74	10	2.6				Minahassa Peninsula, Sulawesi
173	26/02/2018	16:03:35	1.62	126.3	10	4.4				Northern Molucca Sea
174	26/02/2018	17:23:37	3.21	125.96	71	3.4				Talaud Islands, Indonesia
175	26/02/2018	18:27:52	-0.18	122.83	10	2.9				Minahassa Peninsula, Sulawesi

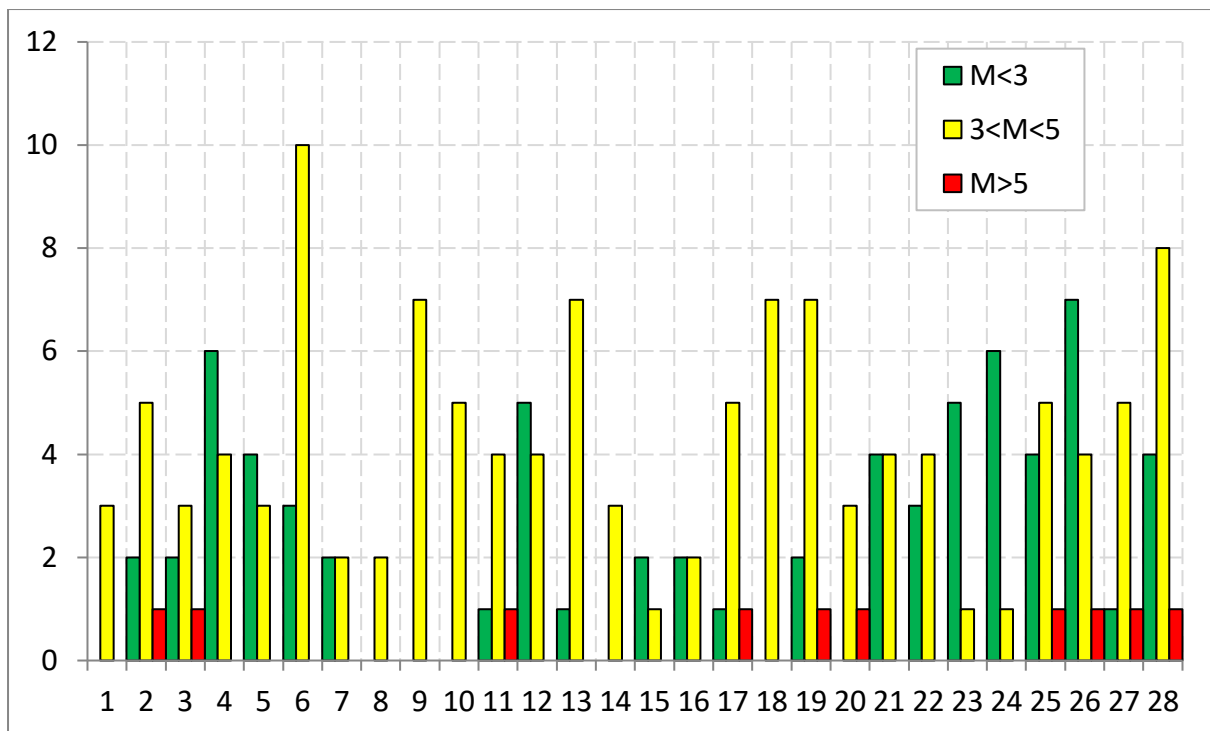
176	26/02/2018	23:22:12	0.61	121.04	89	2.9				Minahassa Peninsula, Sulawesi
177	27/02/2018	00:29:59	4.24	114.54	10	6.4				Borneo
178	27/02/2018	00:42:08	5.95	126.34	10	4.8				Mindanao Philippines
179	27/02/2018	06:57:14	1.88	125.63	100	3.7				Northern Molucca Sea
180	27/02/2018	10:02:05	3.02	128.3	212	4.3				North of Halmahera
181	27/02/2018	10:13:51	1.45	121.76	17	2.8				Minahassa Peninsula Sulawesi
182	27/02/2018	22:27:05	1.73	125.31	158	3.4				Northern Molucca Sea
183	27/02/2018	22:51:43	0.89	122.16	24	4.1				Minahassa Peninsula Sulawesi
184	28/02/2018	06:49:02	2.27	127.05	62	4.5				Northern Molucca Sea
185	28/02/2018	07:27:38	1.87	127.09	11	4.4				Halmahera Indonesia
186	28/02/2018	07:27:57	0.65	125.85	10	3.7				Northern Molucca Sea
187	28/02/2018	08:01:05	1.75	122.22	34	4.1				Minahassa Peninsula, Sulawesi
188	28/02/2018	11:48:42	0.26	122.43	132	2.1				Minahassa Peninsula Sulawesi
189	28/02/2018	13:14:26	1.12	121.76	10	2.9				Minahassa Peninsula Sulawesi
190	28/02/2018	14:51:00	0.71	122.52	10	2.1				Minahassa Peninsula Sulawesi
191	28/02/2018	14:54:20	1.32	122.49	12	3.9				Minahassa Peninsula Sulawesi
192	28/02/2018	16:16:37	0.04	116.19	10	5.2				Borneo
193	28/02/2018	19:44:21	1.47	120.97	19	3.2				Minahassa Peninsula Sulawesi
194	28/02/2018	21:07:11	0	122.96	10	2.6				Minahassa Peninsula Sulawesi
195	28/02/2018	22:33:15	-0.41	119.63	18	3.9	0.00012	0.00010	0.00023	Minahassa Peninsula Sulawesi
196	28/02/2018	23:16:21	-0.29	124.45	79	3.2				Southern Molucca Sea



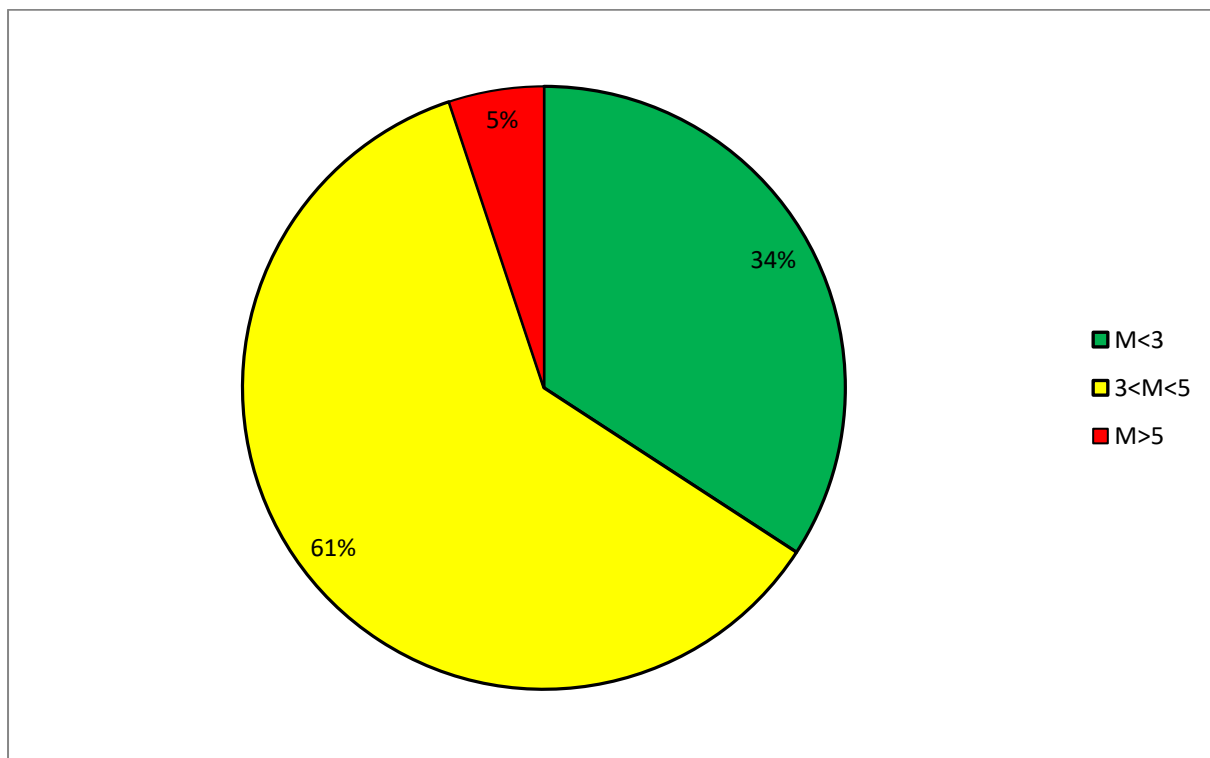
Gambar 12 Sebaran episenter gempabumi bulan Februari 2018

Tabel 7 Rekapitulasi gempabumi dan tsunami berdasarkan magnitudo bulan Februari 2018

Tanggal (UTC)	Magnitudo			Jumlah Total	Jumlah Gempa Signifikan	
	M<3	3<M<5	M>5		Dirasakan	Merusak
1	0	3	0	3	1	0
2	2	5	1	8	0	0
3	2	3	1	6	0	0
4	6	4	0	10	0	0
5	4	3	0	7	0	0
6	3	10	0	13	0	0
7	2	2	0	4	0	0
8	0	2	0	2	0	0
9	0	7	0	7	0	0
10	0	5	0	5	0	0
11	1	4	1	6	1	0
12	5	4	0	9	0	0
13	1	7	0	8	0	0
14	0	3	0	3	0	0
15	2	1	0	3	0	0
16	2	2	0	4	0	0
17	1	5	1	7	0	0
18	0	7	0	7	0	0
19	2	7	1	10	0	0
20	0	3	1	4	0	0
21	4	4	0	8	0	0
22	3	4	0	7	0	0
23	5	1	0	6	0	0
24	6	1	0	7	0	0
25	4	5	1	10	0	0
26	7	4	1	12	0	0
27	1	5	1	7	0	0
28	4	8	1	13	0	0
Jumlah gempa	67	119	10	196	2	0
Jumlah gempa seluruhnya						



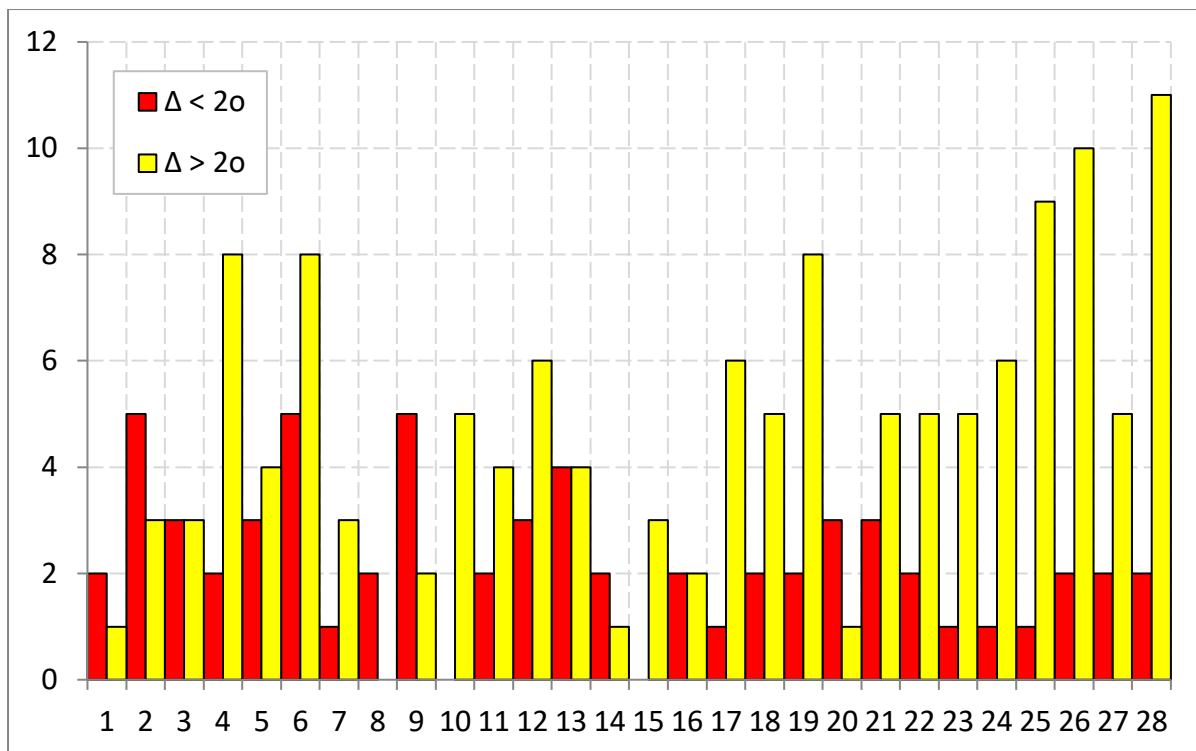
Gambar 13 Grafik gempabumi berdasarkan magnitudo bulan Februari 2018



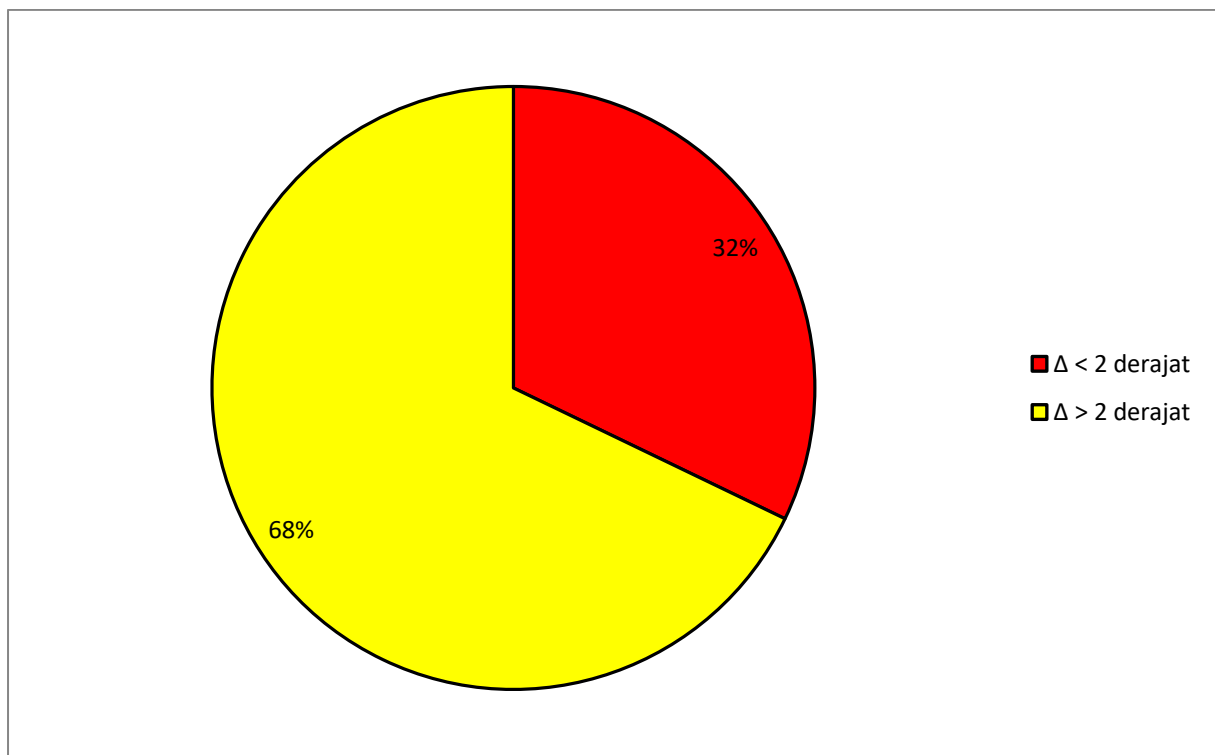
Gambar 14 Grafik persentase gempabumi berdasarkan magnitudo bulan Februari 2018

Tabel 8 Rekapitulasi gempabumi dan tsunami berdasarkan jarak dari stasiun bulan Februari 2018

Tanggal	Jarak		Jumlah	Keterangan
	$\Delta < 2^\circ$	$\Delta > 2^\circ$		
01/02/2018	2	1	3	-
02/02/2018	5	3	8	-
03/02/2018	3	3	6	-
04/02/2018	2	8	10	-
05/02/2018	3	4	7	-
06/02/2018	5	8	13	-
07/02/2018	1	3	4	-
08/02/2018	2	0	2	-
09/02/2018	5	2	7	-
10/02/2018	0	5	5	-
11/02/2018	2	4	6	-
12/02/2018	3	6	9	-
13/02/2018	4	4	8	-
14/02/2018	2	1	3	-
15/02/2018	0	3	3	-
16/02/2018	2	2	4	-
17/02/2018	1	6	7	-
18/02/2018	2	5	7	-
19/02/2018	2	8	10	-
20/02/2018	3	1	4	-
21/02/2018	3	5	8	-
22/02/2018	2	5	7	-
23/02/2018	1	5	6	-
24/02/2018	1	6	7	-
25/02/2018	1	9	10	-
26/02/2018	2	10	12	-
27/02/2018	2	5	7	-
28/02/2018	2	11	13	-
Jumlah gempa	63	133	196	-
Jumlah gempa seluruhnya				



Gambar 15 Grafik gempabumi berdasarkan jarak bulan Februari 2018



Gambar 16 Grafik persentase gempabumi berdasarkan jarak bulan Februari 2018

C. Data Gempabumi Bulan Maret 2018

Tabel 9 Data kejadian gempabumi bulan Maret 2018

NO	DATE	OT (UTC)	EPICENTER		DEPTH (km)	MAG	PGA (gals) SLM I			REGION
			LAT	LONG			X	Y	Z	
1	01/03/2018	00:07:28	8.80	131.54	10	5.9				W. Caroline Island
2	01/03/2018	05:14:30	-0.22	119.95	5	4.9	-0.01110	0.00830	-0.00800	Minahassa
3	01/03/2018	05:23:23	0.40	121.05	84	2.8				Minahassa
4	01/03/2018	05:26:47	-0.27	119.90	10	4.0				Minahassa
5	01/03/2018	05:30:28	-0.26	119.83	15	4.0				Minahassa
6	01/03/2018	05:45:28	-0.34	119.78	10	3.2				Minahassa
7	01/03/2018	05:49:37	2.44	125.38	10	4.3				Talaud
8	01/03/2018	05:54:47	-0.28	119.77	11	4.0				Minahassa
9	01/03/2018	06:02:27	0.14	119.62	24	3.1				Minahassa
10	01/03/2018	06:11:10	-0.18	119.85	18	4.3				Minahassa
11	01/03/2018	06:11:12	-0.04	119.86	10	5.0				Minahassa
12	01/03/2018	06:25:05	-0.30	119.79	10	3.0				Minahassa
13	01/03/2018	06:37:23	-0.25	119.79	12	3.4				Minahassa
14	01/03/2018	06:44:29	-0.28	119.71	10	3.3				Minahassa
15	01/03/2018	12:58:50	1.31	124.85	185	3.7				Minahassa
16	01/03/2018	16:36:33	0.90	121.97	30	1.5				Minahassa
17	01/03/2018	16:37:36	0.45	119.74	10	2.9				Minahassa
18	01/03/2018	17:12:54	0.90	122.07	122	1.6				Minahassa
19	01/03/2018	19:00:28	0.68	121.38	43	2.7				Minahassa
20	01/03/2018	19:37:35	0.22	122.32	153	3.0				Minahassa
21	01/03/2018	23:10:33	0.34	123.62	205	4.3				Minahassa
22	02/03/2018	01:32:34	-0.30	120.08	10	3.7				Minahassa
23	02/03/2018	06:03:41	-0.14	122.87	173	2.7				Minahassa Peninsula, Sulawesi
24	02/03/2018	06:13:31	0.46	122.17	153	2.0				Minahassa
25	02/03/2018	08:11:09	-0.47	119.62	13	3.1				Minahassa
26	02/03/2018	11:40:47	-0.33	122.96	7	3.2				Minahassa Peninsula, Sulawesi
27	02/03/2018	11:41:42	-0.34	122.85	10	3.2				Minahassa
28	02/03/2018	11:48:01	1.39	121.64	11	2.4				Minahassa
29	02/03/2018	16:11:39	1.99	124.40	309	3.2				Minahassa
30	02/03/2018	16:51:49	7.21	127.95	10	4.4				Philippine
31	02/03/2018	16:52:17	5.26	126.98	10	4.1				Mindanao, Philippines

32	02/03/2018	17:25:49	0.27	121.78	168	2.3				Minahassa
33	02/03/2018	17:36:41	0.28	120.51	61	2.0				Minahassa
34	02/03/2018	17:52:49	1.93	126.52	10	3.3				Northern
35	02/03/2018	19:07:03	1.27	124.09	257	3.1				Minahassa
36	02/03/2018	20:16:12	1.12	125.53	115	3.3				Northern Molucca Sea
37	02/03/2018	20:47:45	-0.18	125.23	10	3.7				Southern
38	03/03/2018	05:09:36	0.85	126.11	173	3.2				Northern Molucca Sea
39	03/03/2018	06:34:43	0.95	122.47	23	4.2				Minahassa Peninsula, Sulawesi
40	03/03/2018	13:26:36	0.56	121.21	51	2.7				Minahassa
41	03/03/2018	15:07:40	-0.23	122.55	10	2.3				Minahassa
42	03/03/2018	17:01:13	2.79	127.17	57	3.7				Northern
43	03/03/2018	18:00:56	0.03	123.75	107	3.9				Minahassa
44	03/03/2018	18:00:57	-0.11	123.54	116	4.0				Minahassa
45	03/03/2018	18:08:48	1.82	127.32	93	4.5				Halmahera, Indonesia
46	03/03/2018	18:12:57	0.70	126.16	42	4.6				Northern
47	03/03/2018	22:48:01	-0.27	122.90	68	2.6				Minahassa Peninsula, Sulawesi
48	04/03/2018	01:58:03	-0.06	123.28	152	3.3				Minahassa
49	04/03/2018	03:10:37	-0.74	123.18	52.3	5.8	0.01880	0.03070	0.02930	Minahassa Peninsula, Sulawesi
50	04/03/2018	04:43:17	1.75	124.43	30	3.4				Minahassa
51	04/03/2018	04:44:03	2.90	128.43	225	4.3				Halmahera,
52	04/03/2018	08:45:49	0.20	122.29	100	2.6				Minahassa Peninsula, Sulawesi
53	04/03/2018	09:17:51	6.61	124.46	10	4.7				Mindanao,
54	04/03/2018	10:18:45	-0.40	129.47	10	3.0				Halmahera,
55	04/03/2018	10:39:08	2.55	127.85	145	4.0				Northern
56	04/03/2018	11:41:27	0.10	121.87	16	2.3				Minahassa
57	04/03/2018	12:52:21	-0.25	122.91	137	3.7				Minahassa Peninsula, Sulawesi
58	04/03/2018	14:18:10	-0.43	123.05	10	2.7				Minahassa
59	04/03/2018	14:47:20	0.22	127.12	133	4.1				Halmahera, Indonesia
60	04/03/2018	15:09:55	-0.20	130.01	11	3.4				Irian
61	04/03/2018	15:41:17	4.34	126.84	10	4.4				Talaud
62	04/03/2018	15:41:26	2.78	126.80	282	4.0				Northern Molucca Sea
63	04/03/2018	16:02:50	0.19	121.93	145	3.6				Minahassa
64	04/03/2018	20:59:31	0.92	121.20	13	3.4				Minahassa
65	04/03/2018	21:24:22	3.08	126.61	10	3.8				Talaud Islands, Indonesia
66	05/03/2018	04:32:38	1.25	121.73	84	2.7				Minahassa
67	05/03/2018	06:01:44	5.42	127.40	10	4.6				Philippine

68	05/03/2018	09:28:06	-0.26	132.16	24	2.7				Irian
69	05/03/2018	21:56:39	0.22	122.33	152	2.4				Minahassa Peninsula, Sulawesi
70	05/03/2018	21:58:18	0.74	122.68	11	2.0				Minahassa Peninsula, Sulawesi
71	05/03/2018	22:10:45	-0.09	122.91	32	3.4				Minahassa Peninsula, Sulawesi
72	05/03/2018	23:18:24	-0.07	123.23	131	3.1				Minahassa Peninsula, Sulawesi
73	05/03/2018	23:19:45	2.16	126.51	5	4.4				Northern Molucca Sea
74	06/03/2018	00:26:15	1.04	123.64	118	2.8				Minahassa Peninsula, Sulawesi
75	06/03/2018	01:51:55	0.26	121.92	186	4.2				Minahassa Peninsula, Sulawesi
76	06/03/2018	01:51:55	0.30	121.93	181	4.3				Minahassa Peninsula, Sulawesi
77	06/03/2018	02:45:11	3.00	128.90	226	4.2				Halmahera, Indonesia
78	06/03/2018	13:45:52	0.89	126.24	10	3.5				Northern Molucca Sea
79	06/03/2018	13:45:53	0.82	126.20	18	3.7				Northern Molucca Sea
80	06/03/2018	14:33:57	-0.22	123.01	79	3.2				Minahassa Peninsula, Sulawesi
81	06/03/2018	17:22:06	-0.30	129.66	10	2.9				Halmahera, Indonesia
82	06/03/2018	17:53:37	0.54	127.37	10	3.4				Halmahera, Indonesia
83	06/03/2018	20:31:15	6.21	126.97	133	4.2				Mindanao, Philippines
84	07/03/2018	00:41:18	0.29	122.05	73	3.2				Minahassa Peninsula, Sulawesi
85	07/03/2018	08:37:41	0.61	123.47	79	2.6				Minahassa Peninsula, Sulawesi
86	07/03/2018	13:35:56	-0.31	122.50	10	2.7				Minahassa Peninsula, Sulawesi
87	07/03/2018	15:34:34	3.25	127.45	10	5.0	0.01010	0.01070	0.01550	Talud Islands, Indonesia
88	07/03/2018	16:24:49	-0.32	122.89	77	3.2				Minahassa Peninsula, Sulawesi
89	07/03/2018	16:58:38	-0.22	123.29	114	3.5				Minahassa Peninsula, Sulawesi
90	07/03/2018	17:15:28	7.76	126.98	64	4.7				Mindanao, Philippines
91	07/03/2018	17:56:33	0.62	123.04	16	2.3				Minahassa Peninsula, Sulawesi
92	07/03/2018	19:14:42	0.05	123.16	169	2.7				Minahassa Peninsula, Sulawesi
93	07/03/2018	20:57:51	0.94	119.93	10	2.7				Minahassa Peninsula, Sulawesi
94	07/03/2018	21:30:03	0.15	124.94	18	3.5				Minahassa Peninsula, Sulawesi
95	07/03/2018	21:51:14	1.36	124.37	371	4.7				Minahassa Peninsula, Sulawesi
96	08/03/2018	04:52:20	-0.08	121.63	11	2.3				Minahassa Peninsula, Sulawesi
97	08/03/2018	13:06:16	6.10	116.62	10	5.1				Borneo
98	08/03/2018	13:30:46	1.84	126.54	10	3.5				Northern Molucca Sea
99	08/03/2018	14:18:33	0.24	121.96	142	2.9				Minahassa Peninsula, Sulawesi
100	08/03/2018	16:13:52	0.26	122.31	79	2.5				Minahassa Peninsula, Sulawesi
101	08/03/2018	20:09:54	1.34	123.09	10	2.6				Minahassa Peninsula, Sulawesi
102	08/03/2018	20:23:08	-0.31	123.06	10	2.0				Minahassa Peninsula, Sulawesi
103	08/03/2018	21:21:25	-0.18	122.85	143	2.2				Minahassa Peninsula, Sulawesi

104	08/03/2018	21:54:42	-0.17	123.23	139	4.4				Minahassa Peninsula, Sulawesi
105	09/03/2018	00:13:03	-0.43	123.03	41	2.4				Minahassa Peninsula, Sulawesi
106	09/03/2018	11:30:33	-0.50	121.28	10	4.1				Minahassa Peninsula, Sulawesi
107	09/03/2018	20:14:50	-0.17	123.09	160	3.6				Minahassa Peninsula, Sulawesi
108	09/03/2018	20:45:06	1.39	125.93	110	4.0				Northern Molucca Sea
109	09/03/2018	22:09:27	2.17	125.87	118	3.7				Talaud Islands, Indonesia
110	09/03/2018	23:29:53	0.25	122.62	90	3.0				Minahassa Peninsula, Sulawesi
111	10/03/2018	01:00:15	-0.52	122.82	1.7	3.0	0.02520	0.01350	0.01620	Minahassa Peninsula, Sulawesi
112	10/03/2018	03:37:29	0.13	121.74	178	2.3				Minahassa Peninsula, Sulawesi
113	10/03/2018	06:25:28	3.72	124.55	317	4.2				Celebes Sea
114	10/03/2018	06:31:56	1.41	121.62	83	1.9				Minahassa Peninsula, Sulawesi
115	10/03/2018	08:08:02	2.51	128.36	28	4.4				Halmahera, Indonesia
116	10/03/2018	08:57:47	0.14	123.73	107	2.9				Minahassa Peninsula, Sulawesi
117	10/03/2018	13:57:18	0.87	126.36	16	3.0				Northern Molucca Sea
118	10/03/2018	14:04:24	-0.26	119.80	10	3.0				Minahassa Peninsula, Sulawesi
119	10/03/2018	15:00:32	-0.09	122.99	123	2.8				Minahassa Peninsula, Sulawesi
120	10/03/2018	18:35:40	4.31	126.80	20	4.0				Talaud Islands, Indonesia
121	10/03/2018	19:04:59	0.77	122.32	68	2.0				Minahassa Peninsula, Sulawesi
122	10/03/2018	19:18:03	0.64	122.10	170	1.9				Minahassa Peninsula, Sulawesi
123	10/03/2018	20:03:10	0.51	121.43	56	1.6				Minahassa Peninsula, Sulawesi
124	10/03/2018	22:48:41	1.32	127.08	96	3.5				Halmahera, Indonesia
125	10/03/2018	23:38:52	-0.26	122.03	12	2.5				Minahassa Peninsula, Sulawesi
126	11/03/2018	04:05:42	0.96	118.83	11	3.9				Borneo
127	11/03/2018	06:19:29	-0.10	123.18	107	2.9				Minahassa Peninsula, Sulawesi
128	11/03/2018	10:30:18	5.22	126.35	37	4.2				Mindanao, Philippines
129	11/03/2018	12:41:48	3.01	126.71	19	3.9				Talaud Islands, Indonesia
130	11/03/2018	15:59:51	-0.20	122.63	15	2.9				Minahassa Peninsula, Sulawesi
131	11/03/2018	18:57:26	3.57	127.67	74	4.5				Talaud Islands, Indonesia
132	11/03/2018	20:48:52	0.53	121.25	54	1.9				Minahassa Peninsula, Sulawesi
133	11/03/2018	23:52:56	2.87	128.52	224	4.7				Halmahera, Indonesia
134	12/03/2018	10:52:36	0.67	122.82	14	1.4				Minahassa Peninsula, Sulawesi
135	12/03/2018	14:42:19	0.58	120.69	62	3.0				Minahassa Peninsula, Sulawesi
136	12/03/2018	15:07:50	-0.14	123.00	83	2.6				Minahassa Peninsula, Sulawesi
137	12/03/2018	15:33:59	0.07	121.96	162	3.6				Minahassa Peninsula, Sulawesi
138	12/03/2018	18:12:29	0.57	123.65	249	3.1				Minahassa Peninsula, Sulawesi
139	12/03/2018	19:01:05	1.68	127.04	16	3.8				Halmahera, Indonesia

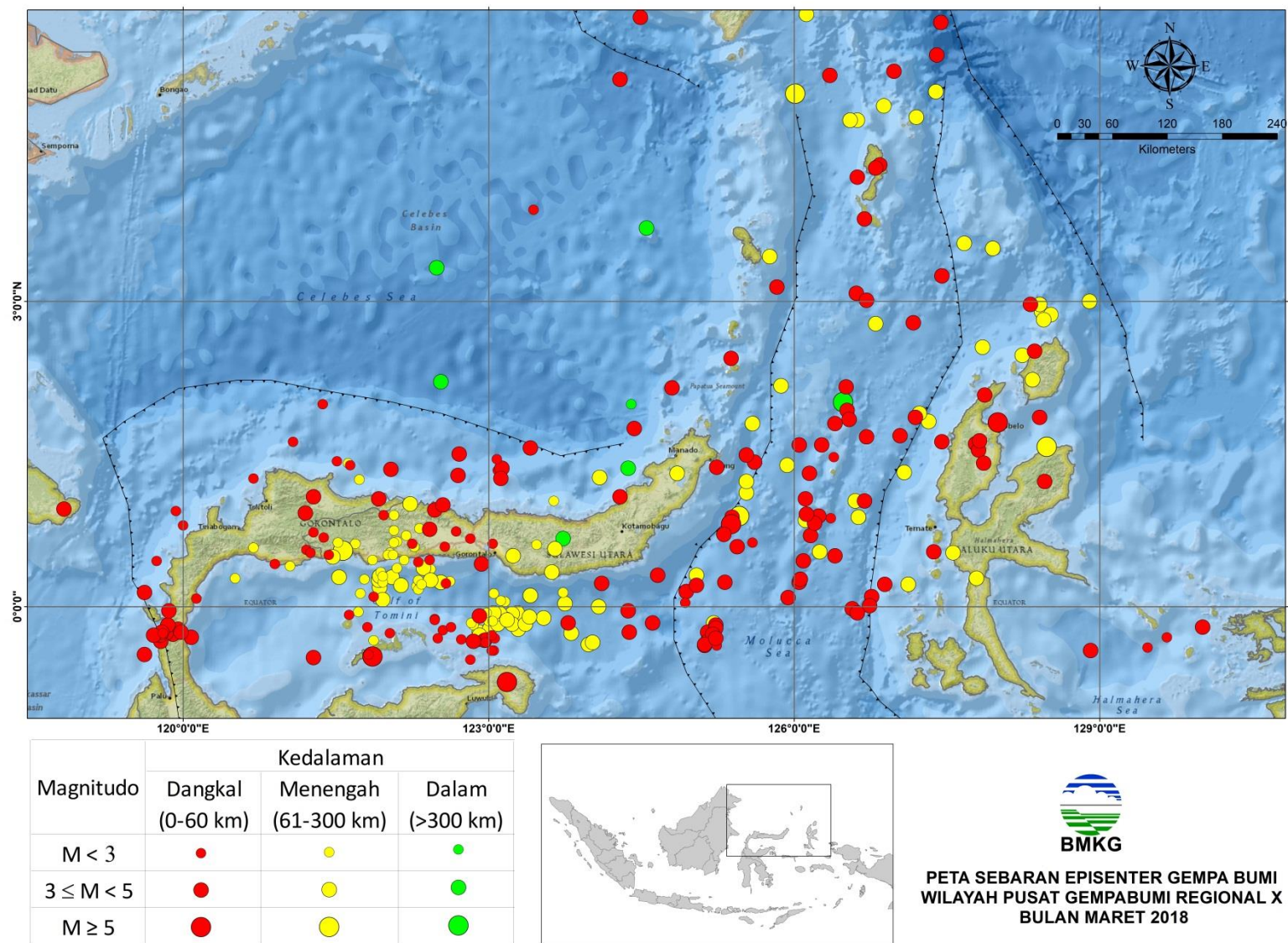
140	12/03/2018	19:40:55	0.88	125.39	51	3.3				Northern Molucca Sea
141	13/03/2018	05:09:07	-0.43	128.91	10	4.2				Halmahera, Indonesia
142	13/03/2018	16:04:35	1.47	126.39	10	3.0				Northern Molucca Sea
143	13/03/2018	16:08:18	5.18	124.29	10	4.6				Mindanao, Philippines
144	13/03/2018	19:55:17	0.22	122.34	148	1.8				Minahassa Peninsula, Sulawesi
145	13/03/2018	19:59:59	-0.30	122.97	13	2.2				Minahassa Peninsula, Sulawesi
146	13/03/2018	20:24:10	0.53	122.03	144	1.6				Minahassa Peninsula, Sulawesi
147	13/03/2018	23:13:12	0.10	126.76	54	4.6				Northern Molucca Sea
148	14/03/2018	03:56:39	5.79	124.49	9	4.5				Mindanao, Philippines
149	14/03/2018	04:09:56	0.21	122.14	136	3.4				Minahassa Peninsula, Sulawesi
150	14/03/2018	10:59:12	0.62	121.69	73	2.4				Minahassa Peninsula, Sulawesi
151	14/03/2018	12:44:10	0.31	125.04	168	3.5				Northern Molucca Sea
152	14/03/2018	13:37:15	5.74	127.44	10	5.0				Philippine Islands Region
153	14/03/2018	13:37:24	5.06	127.39	74	4.7				Philippine Islands Region
154	14/03/2018	13:52:05	2.21	122.53	492	3.3				Celebes Sea
155	14/03/2018	14:26:06	1.42	125.61	10	4.8	0.02130	0.23490	0.31870	Northern Molucca Sea
156	14/03/2018	14:30:15	3.52	127.95	96	4.2				Talaud Islands, Indonesia
157	15/03/2018	02:04:16	1.35	122.04	17	3.6				Minahassa Peninsula, Sulawesi
158	15/03/2018	04:28:49	0.81	125.38	21	5.3				Northern Molucca Sea
159	15/03/2018	04:28:50	0.89	125.46	73	5.1	0.18590	0.18180	0.13640	Northern Molucca Sea
160	15/03/2018	07:20:03	8.02	124.59	10	4.8				Mindanao, Philippines
161	15/03/2018	07:40:45	0.01	126.74	57	3.6				Northern Molucca Sea
162	15/03/2018	09:31:02	0.37	122.43	98	1.6				Minahassa Peninsula, Sulawesi
163	15/03/2018	09:32:44	-0.12	122.47	10	2.5				Minahassa Peninsula, Sulawesi
164	15/03/2018	10:20:53	-0.32	122.73	10	2.1				Minahassa Peninsula, Sulawesi
165	15/03/2018	10:30:29	0.70	122.19	92	1.4				Minahassa Peninsula, Sulawesi
166	15/03/2018	12:31:07	0.73	121.28	20	2.4				Minahassa Peninsula, Sulawesi
167	15/03/2018	13:25:39	-0.28	123.03	50	3.0				Minahassa Peninsula, Sulawesi
168	15/03/2018	13:36:23	1.26	120.69	32	1.9				Minahassa Peninsula, Sulawesi
169	15/03/2018	16:20:57	1.31	126.15	10	3.3				Northern Molucca Sea
170	16/03/2018	00:30:25	4.78	126.62	104	4.5				Talaud Islands, Indonesia
171	16/03/2018	00:30:27	4.78	126.55	68	4.5				Talaud Islands, Indonesia
172	16/03/2018	01:00:04	0.38	122.10	142	1.8				Minahassa Peninsula, Sulawesi
173	16/03/2018	01:30:41	-0.49	121.86	10	5.1				Minahassa Peninsula, Sulawesi
174	16/03/2018	02:01:29	1.86	127.19	26	4.2				Halmahera, Indonesia
175	16/03/2018	10:38:28	1.80	126.40	10	3.8				Northern Molucca Sea

176	16/03/2018	14:21:07	0.59	125.44	14	3.7				Northern Molucca Sea
177	16/03/2018	16:02:45	1.04	126.69	10	3.6				Northern Molucca Sea
178	16/03/2018	16:42:58	-0.16	122.83	103	2.4				Minahassa Peninsula, Sulawesi
179	16/03/2018	18:22:02	-0.07	123.11	152	3.4				Minahassa Peninsula, Sulawesi
180	16/03/2018	18:57:56	0.24	125.32	20	3.1				Northern Molucca Sea
181	16/03/2018	19:58:34	0.44	122.31	37	2.0				Minahassa Peninsula, Sulawesi
182	17/03/2018	00:36:15	-0.06	123.05	174	4.4				Minahassa Peninsula, Sulawesi
183	17/03/2018	02:31:47	2.97	128.41	280	4.6				Halmahera, Indonesia
184	17/03/2018	03:46:44	0.42	120.90	10	2.8				Minahassa Peninsula, Sulawesi
185	17/03/2018	05:23:52	2.97	128.32	10	4.5				Halmahera, Indonesia
186	17/03/2018	12:40:24	1.06	126.11	10	3.4				Northern Molucca Sea
187	17/03/2018	12:48:14	3.33	122.49	543	4.6				Celebes Sea
188	17/03/2018	15:53:50	-0.37	123.98	79	4.3				Minahassa Peninsula, Sulawesi
189	17/03/2018	16:29:34	0.91	126.12	10	3.2				Northern Molucca Sea
190	17/03/2018	20:54:25	3.81	126.69	10	4.4				Talaud Islands, Indonesia
191	17/03/2018	23:24:01	2.15	124.80	10	3.3				Celebes Sea
192	17/03/2018	23:24:25	-0.06	122.98	71	2.5				Minahassa Peninsula, Sulawesi
193	18/03/2018	11:35:07	0.55	121.57	108	5.3				Minahassa Peninsula, Sulawesi
194	18/03/2018	14:44:10	0.88	126.63	62	3.3				Northern Molucca Sea
195	18/03/2018	23:10:42	0.31	124.66	10	4.4				Minahassa Peninsula, Sulawesi
196	19/03/2018	01:20:32	0.17	122.31	143	2.9				Minahassa Peninsula, Sulawesi
197	19/03/2018	03:16:41	-0.33	121.87	153	1.7				Minahassa Peninsula, Sulawesi
198	19/03/2018	07:24:43	-0.13	122.47	10	2.2				Minahassa Peninsula, Sulawesi
199	19/03/2018	08:17:36	-0.25	125.15	11	3.4				Southern Molucca Sea
200	19/03/2018	08:24:30	-0.21	125.23	30	3.4				Southern Molucca Sea
201	19/03/2018	12:34:07	-0.04	124.37	33	3.5				Southern Molucca Sea
202	19/03/2018	13:16:51	0.63	125.59	10	2.9				Northern Molucca Sea
203	19/03/2018	14:20:54	-0.34	125.15	13	3.4				Southern Molucca Sea
204	19/03/2018	18:40:04	0.76	122.42	36	3.5				Minahassa Peninsula, Sulawesi
205	19/03/2018	20:28:43	-0.27	125.20	14	3.3				Southern Molucca Sea
206	19/03/2018	23:04:15	-0.16	124.61	29	3.1				Southern Molucca Sea
207	20/03/2018	01:17:02	1.43	121.51	10	2.2				Minahassa Peninsula, Sulawesi
208	20/03/2018	04:35:40	3.90	123.44	7	2.4				Minahassa Peninsula, Sulawesi
209	20/03/2018	10:54:40	0.42	122.93	13	3.3				Minahassa Peninsula, Sulawesi
210	20/03/2018	11:10:47	0.67	123.73	581	4.4				Mindanao, Philippines
211	20/03/2018	13:44:18	1.59	126.05	12	4.1				Talaud Islands, Indonesia

212	20/03/2018	13:53:51	1.37	125.24	10	3.6				Southern Molucca Sea
213	21/03/2018	03:24:08	0.54	126.25	64	4.2				Northern Molucca Sea
214	21/03/2018	03:40:11	-0.38	125.12	10	3.6				Southern
215	21/03/2018	03:51:47	1.49	125.53	12	3.7				Talaud Islands, Indonesia
216	21/03/2018	04:03:08	1.08	124.29	10	4.1				Minahassa
217	21/03/2018	09:32:36	0.46	122.42	42	2.0				Minahassa
218	21/03/2018	11:40:22	0.63	121.52	84	1.9				Minahassa
219	21/03/2018	13:32:32	0.53	127.56	167	4.4				Halmahera,
220	21/03/2018	14:31:17	0.62	122.25	60	2.1				Minahassa
221	21/03/2018	15:18:55	0.38	122.36	96	3.3				Minahassa
222	21/03/2018	15:27:49	1.60	127.78	10	3.5				Halmahera,
223	21/03/2018	15:33:17	0.28	127.79	83	4.9				Halmahera, Indonesia
224	21/03/2018	15:33:52	1.81	128.00	10	5.1				Halmahera,
225	21/03/2018	16:14:46	1.54	127.81	10	3.8				Halmahera,
226	21/03/2018	16:22:27	1.63	127.82	10	4.5				Halmahera,
227	21/03/2018	19:16:05	1.41	127.86	10	3.7				Halmahera,
228	21/03/2018	19:32:55	0.80	120.00	10	2.6				Minahassa
229	21/03/2018	22:22:38	1.99	121.37	49	2.2				Minahassa
230	22/03/2018	02:46:32	0.45	126.09	37	4.9				Northern
231	22/03/2018	04:05:37	-0.28	122.91	80	3.5				Minahassa
232	22/03/2018	05:14:20	0.08	120.13	10	2.8				Minahassa
233	22/03/2018	05:59:09	-0.28	131.88	11	3.1				Irian
234	22/03/2018	08:43:25	0.71	125.31	13	3.5				Northern
235	22/03/2018	10:05:18	0.23	122.58	10	2.6				Minahassa Peninsula, Sulawesi
236	22/03/2018	11:20:15	0.22	126.89	9	3.7				Northern Molucca Sea
237	22/03/2018	11:20:47	0.46	121.86	96	2.7				Minahassa Peninsula, Sulawesi
238	22/03/2018	12:36:14	0.09	125.94	10	3.2				Northern Molucca Sea
239	22/03/2018	13:21:03	0.24	122.53	112	3.5				Minahassa
240	22/03/2018	14:11:15	1.08	121.28	38	3.2				Minahassa
241	22/03/2018	14:24:11	5.04	126.01	288	5.5				Mindanao,
242	22/03/2018	14:24:34	3.44	125.76	152	4.5				Talaud
243	22/03/2018	17:27:45	-0.35	124.02	72	3.1				Southern
244	22/03/2018	18:11:31	0.24	126.05	10	3.3				Northern
245	22/03/2018	22:42:45	-0.11	123.54	88	3.3				Minahassa
246	22/03/2018	23:18:13	1.62	127.45	10	3.5				Halmahera,
247	22/03/2018	23:36:10	8.42	131.62	10	6.3				W.
248	22/03/2018	23:38:04	0.27	126.06	10	4.1				Northern
249	23/03/2018	10:19:07	4.92	126.88	68	4.9				Talaud

250	23/03/2018	10:32:07	0.23	124.11	10	4.0				Southern Molucca Sea
251	23/03/2018	10:41:36	0.50	126.40	18	4.6				Mindanao, Philippines
252	23/03/2018	15:05:44	0.34	121.94	153	2.0				Minahassa
253	23/03/2018	16:24:33	2.23	128.34	253	3.9				Halmahera,
254	23/03/2018	19:14:35	2.01	126.48	750	5.1				Northern
255	23/03/2018	21:12:06	1.01	122.23	166	3.3	0.00750	0.00580	0.00730	Minahassa Peninsula, Sulawesi
256	24/03/2018	01:50:18	-0.16	125.21	104	3.3				Northern Molucca Sea
257	24/03/2018	04:42:03	0.50	123.24	88	4.1				Minahassa
258	24/03/2018	10:59:36	-0.05	121.72	177	2.0				Minahassa Peninsula, Sulawesi
259	24/03/2018	16:40:18	-0.20	121.81	10	2.2				Minahassa Peninsula, Sulawesi
260	25/03/2018	01:18:27	-0.02	126.57	50	4.3				Southern
261	25/03/2018	06:18:21	2.58	109.75	10	4.9				South
262	25/03/2018	09:05:19	-0.16	123.78	27	3.4				Minahassa Peninsula, Sulawesi
263	25/03/2018	12:18:38	1.29	122.70	6	4.1				Minahassa Peninsula, Sulawesi
264	25/03/2018	18:33:44	-0.38	125.24	10	2.6				Southern
265	25/03/2018	21:35:57	-0.47	121.82	10	2.0				Minahassa
266	26/03/2018	03:31:38	0.26	122.43	151	3.9				Minahassa
267	26/03/2018	06:53:09	-0.17	123.36	169	3.9				Minahassa
268	26/03/2018	12:31:53	-0.06	126.62	10	4.2				Talaud Islands, Indonesia
269	26/03/2018	14:41:24	0.21	125.04	19	3.5				Northern
270	26/03/2018	16:16:28	-0.37	125.12	10	3.4				Southern
271	26/03/2018	16:20:13	0.49	121.47	77	3.9				Minahassa
272	26/03/2018	16:42:46	1.23	125.53	165	3.5				Southern Molucca Sea
273	26/03/2018	18:14:20	-0.10	123.40	114	3.1				Minahassa
274	26/03/2018	18:35:53	2.82	128.45	217	4.3				Halmahera,
275	26/03/2018	20:51:51	-0.35	122.97	11	2.5				Minahassa
276	26/03/2018	21:51:57	0.95	118.13	10	3.9				Borneo
277	26/03/2018	21:59:29	-0.31	125.23	10	3.2				Southern
278	26/03/2018	22:23:59	3.14	125.83	29	4.1				Talaud
279	27/03/2018	04:05:48	-0.14	123.04	133	2.7				Minahassa
280	27/03/2018	05:48:32	0.59	122.27	83	1.7				Minahassa
281	27/03/2018	06:18:10	-0.25	119.98	10	3.8				Minahassa
282	27/03/2018	07:59:34	2.47	128.24	188	4.4				Halmahera,
283	27/03/2018	15:01:26	1.90	127.23	111	3.8				Halmahera,
284	27/03/2018	18:40:59	0.63	122.07	72	2.2				Minahassa
285	27/03/2018	19:48:41	0.30	121.96	160	2.6				Minahassa

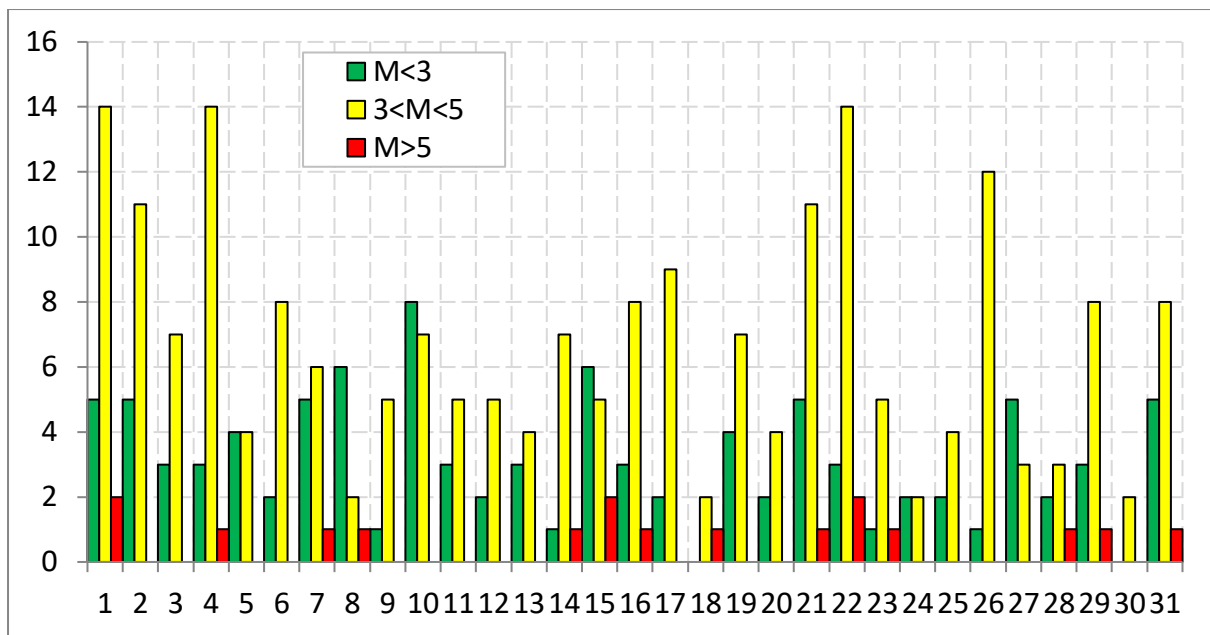
286	27/03/2018	20:15:35	0.51	122.01	170	1.5				Minahassa
287	28/03/2018	05:37:01	0.13	123.05	90	2.6				Minahassa Peninsula, Sulawesi
288	28/03/2018	08:01:02	-0.26	123.81	81	3.3				Minahassa
289	28/03/2018	11:31:06	-0.13	123.18	135	3.5				Minahassa
290	28/03/2018	12:13:58	0.00	124.08	80	3.5				Southern
291	28/03/2018	12:43:38	-0.30	122.98	70	2.9				Minahassa
292	28/03/2018	17:13:09	1.59	126.27	37	5.0	0.05700	0.07500	0.08220	Northern
293	29/03/2018	07:26:38	1.80	125.59	79	4.1				Northern
294	29/03/2018	10:43:35	1.62	121.08	38	2.6				Minahassa
295	29/03/2018	11:04:13	4.22	126.62	11	4.3				Talaud
296	29/03/2018	12:32:14	0.04	124.93	10	2.9				Southern Molucca Sea
297	29/03/2018	14:09:25	0.29	121.53	109	3.3				Minahassa
298	29/03/2018	16:58:26	-0.25	124.38	28	3.7				Southern
299	29/03/2018	18:53:32	1.06	121.92	13	3.7				Minahassa
300	29/03/2018	21:57:15	0.51	122.06	79	2.7				Minahassa
301	29/03/2018	22:20:52	2.08	127.87	10	3.9				Northern Molucca Sea
302	29/03/2018	22:55:24	1.36	123.13	10	4.1				Minahassa
303	29/03/2018	23:00:24	8.83	132.22	10	6.1				W.
304	29/03/2018	23:03:06	1.26	123.12	10	3.9				Minahassa
305	30/03/2018	01:36:33	1.86	128.41	10	3.8				Halmahera, Indonesia
306	30/03/2018	15:29:40	1.67	126.71	7	3.2				Northern Molucca Sea
307	31/03/2018	07:20:47	1.04	126.60	194	3.4				Northern Molucca Sea
308	31/03/2018	08:20:07	0.59	122.57	50	2.0				Minahassa Peninsula, Sulawesi
309	31/03/2018	11:38:17	0.11	123.41	141	3.6				Minahassa Peninsula, Sulawesi
310	31/03/2018	11:48:37	4.81	127.20	122	4.7				Talaud Islands, Indonesia
311	31/03/2018	12:03:50	0.75	122.07	160	1.6				Minahassa Peninsula, Sulawesi
312	31/03/2018	12:28:49	0.06	123.12	142	2.4				Minahassa Peninsula, Sulawesi
313	31/03/2018	15:17:10	1.50	122.71	11	3.5				Minahassa Peninsula, Sulawesi
314	31/03/2018	19:49:48	1.57	128.48	82	5.1				Halmahera, Indonesia
315	31/03/2018	20:10:53	1.23	128.46	16	3.5				Halmahera, Indonesia
316	31/03/2018	20:43:58	5.82	126.12	157	4.6				Mindanao, Philippines
317	31/03/2018	22:32:10	1.45	123.08	26	2.9				Minahassa Peninsula, Sulawesi
318	31/03/2018	22:39:00	1.00	122.55	21	3.5				Minahassa Peninsula, Sulawesi
319	31/03/2018	23:11:04	0.22	122.34	148	2.1				Minahassa Peninsula, Sulawesi
320	31/03/2018	23:29:58	1.56	123.41	10	3.2				Minahassa Peninsula, Sulawesi



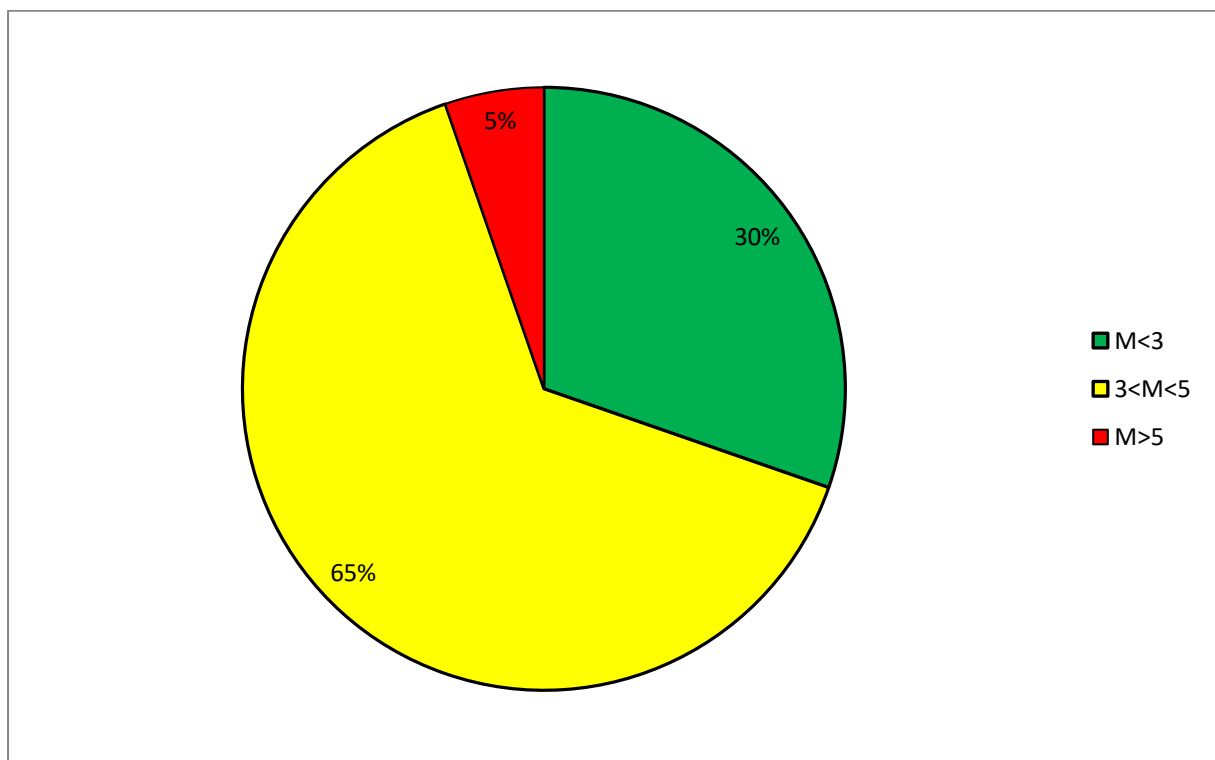
Gambar 17 Sebaran episenter gempabumi bulan Maret 2018

Tabel 10 Rekapitulasi gempabumi dan tsunami berdasarkan magnitudo bulan Maret 2018

Tanggal (UTC)	Magnitudo			Jumlah Total	Jumlah Gempa Signifikan	
	M<3	3≤M<5	M≥5		Dirasakan	Merusak
1	5	14	2	21	2	0
2	5	11	0	16	0	0
3	3	7	0	10	0	0
4	3	14	1	18	0	0
5	4	4	0	8	0	0
6	2	8	0	10	0	0
7	5	6	1	12	0	0
8	6	2	1	9	0	0
9	1	5	0	6	0	0
10	8	7	0	15	0	0
11	3	5	0	8	0	0
12	2	5	0	7	0	0
13	3	4	0	7	0	0
14	1	7	1	9	1	0
15	6	5	2	13	1	0
16	3	8	1	12	0	0
17	2	9	0	11	0	0
18	0	2	1	3	1	0
19	4	7	0	11	0	0
20	2	4	0	6	0	0
21	5	11	1	17	3	0
22	3	14	2	19	0	0
23	1	5	1	7	0	0
24	2	2	0	4	0	0
25	2	4	0	6	0	0
26	1	12	0	13	0	0
27	5	3	0	8	0	0
28	2	3	1	6	0	0
29	3	8	1	12	0	0
30	0	2	0	2	0	0
31	5	8	1	14	0	0
Jumlah gempa	97	206	17	320	8	0



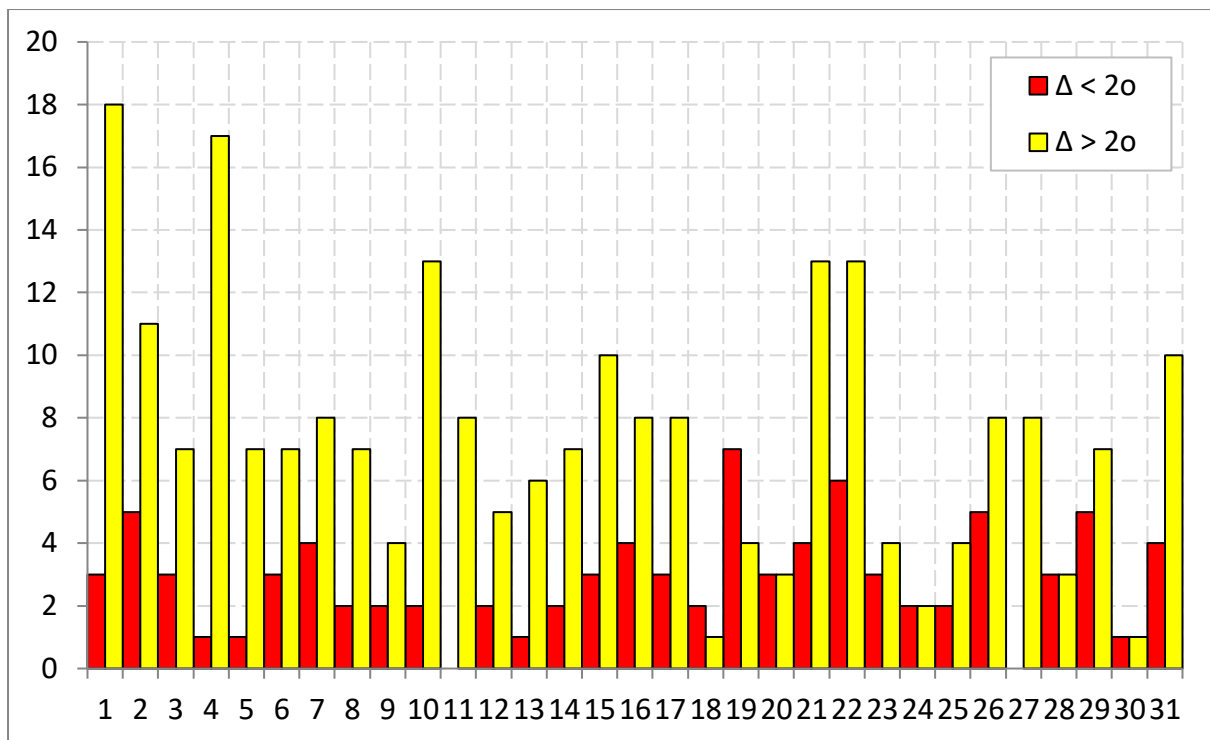
Gambar 18 Grafik gempabumi berdasarkan magnitudo bulan Maret 2018



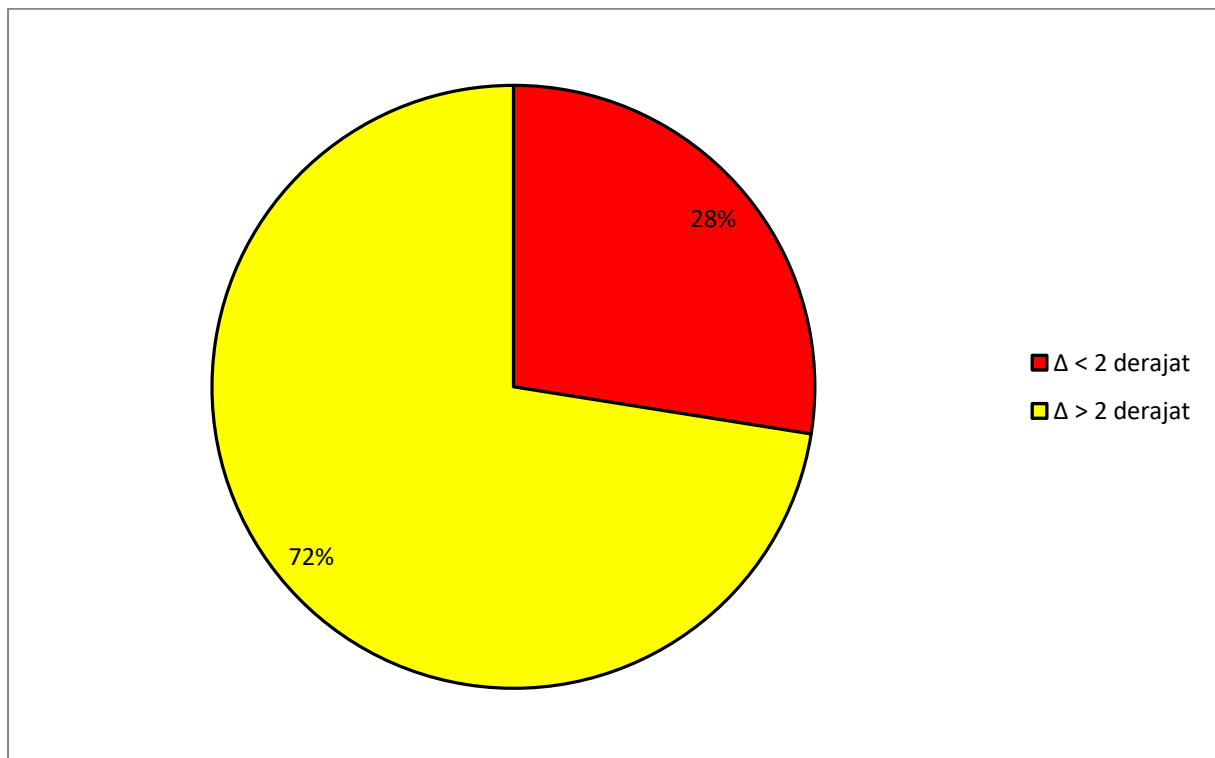
Gambar 19 Grafik persentase gempabumi berdasarkan magnitudo bulan Maret 2018

Tabel 11 Rekapitulasi gempabumi dan tsunami berdasarkan jarak dari stasiun bulan Maret 2018

Tanggal	Jarak		Jumlah	Keterangan
	$\Delta \leq 2^\circ$	$\Delta > 2^\circ$		
01/03/2018	3	18	21	-
02/03/2018	5	11	16	-
03/03/2018	3	7	10	-
04/03/2018	1	17	18	-
05/03/2018	1	7	8	-
06/03/2018	3	7	10	-
07/03/2018	4	8	12	-
08/03/2018	2	7	9	-
09/03/2018	2	4	6	-
10/03/2018	2	13	15	-
11/03/2018	0	8	8	-
12/03/2018	2	5	7	-
13/03/2018	1	6	7	-
14/03/2018	2	7	9	-
15/03/2018	3	10	13	-
16/03/2018	4	8	12	-
17/03/2018	3	8	11	-
18/03/2018	2	1	3	-
19/03/2018	7	4	11	-
20/03/2018	3	3	6	-
21/03/2018	4	13	17	-
22/03/2018	6	13	19	-
23/03/2018	3	4	7	-
24/03/2018	2	2	4	-
25/03/2018	2	4	6	-
26/03/2018	5	8	13	-
27/03/2018	0	8	8	-
28/03/2018	3	3	6	-
29/03/2018	5	7	12	-
30/03/2018	1	1	2	-
31/03/2018	4	10	14	-
Jumlah gempa	88	232	320	-



Gambar 20 Grafik gempabumi berdasarkan jarak bulan Maret 2018



Gambar 21 Grafik persentase gempabumi berdasarkan jarak bulan Maret 2018

D. Data Gempabumi Bulan April 2018

Tabel 12 Data kejadian gempabumi bulan April 2018

NO	DATE	OT (UTC)	EPICENTER		DEPTH (km)	MAG	PGA (gals) SLMI			REGION
			LAT	LONG			X	Y	Z	
1	01/04/2018	02:51:25	-0.21	122.87	90	2.0				Minahassa Peninsula Sulawesi
2	01/04/2018	03:45:41	0.37	122.25	10	1.8				Minahassa Peninsula Sulawesi
3	01/04/2018	04:17:01	0.40	122.24	10	1.5				Minahassa Peninsula Sulawesi
4	01/04/2018	04:22:33	0.42	122.26	10	1.8				Minahassa Peninsula Sulawesi
5	01/04/2018	07:02:20	1.01	121.05	10	2.0				Minahassa Peninsula Sulawesi
6	01/04/2018	07:18:31	0.13	122.01	19	1.9				Minahassa Peninsula Sulawesi
7	01/04/2018	09:15:20	-0.02	122.45	111	2.0				Minahassa Peninsula Sulawesi
8	01/04/2018	10:39:00	0.51	121.47	63	2.1				Minahassa Peninsula Sulawesi
9	01/04/2018	11:43:43	0.48	120.22	23	3.1				Minahassa Peninsula Sulawesi
10	01/04/2018	15:40:03	-0.06	123.35	145	3.7				Minahassa Peninsula Sulawesi
11	02/04/2018	02:41:42	5.54	124.68	86	4.6				Mindanao Philippines
12	02/04/2018	16:52:33	1.21	126.21	10	3.6				Northern Molucca Sea
13	02/04/2018	17:28:05	0.39	122.57	59	2.7				Minahassa Peninsula Sulawesi
14	02/04/2018	19:23:57	1.66	124.94	191	4.5	0.07415	0.09433	0.03693	Minahassa Peninsula Sulawesi
15	03/04/2018	01:35:45	-0.40	124.32	10	3.7				Southern Molucca Sea
16	03/04/2018	06:04:32	1.25	120.26	10	2.4				Minahassa Peninsula Sulawesi
17	03/04/2018	09:08:15	0.77	126.18	10	4.4				Northern Molucca Sea
18	03/04/2018	09:14:07	3.11	127.93	75	5.5	0.35611	0.42562	0.29013	Talaud Islands Indonesia
19	03/04/2018	12:21:04	0.70	122.32	84	2.2				Minahassa Peninsula Sulawesi
20	03/04/2018	14:58:17	0.87	122.65	28	4.2				Minahassa Peninsula Sulawesi
21	03/04/2018	17:03:29	0.47	121.12	63	2.7				Minahassa Peninsula Sulawesi
22	03/04/2018	19:12:07	-0.10	126.59	13	3.4				Southern Molucca Sea
23	03/04/2018	19:38:25	-0.05	124.78	8	3.2				Southern Molucca Sea
24	04/04/2018	05:20:18	3.11	127.78	28	4.5				Talaud Islands Indonesia
25	04/04/2018	05:22:20	-0.49	122.39	10	3.6				Minahassa Peninsula Sulawesi
26	04/04/2018	07:27:06	-0.50	122.30	10	3.9				Minahassa Peninsula Sulawesi
27	04/04/2018	11:38:34	1.43	126.17	10	3.3				Northern Molucca Sea
28	04/04/2018	14:01:10	-0.32	123.03	60	3.2				Minahassa Peninsula Sulawesi
29	04/04/2018	14:15:07	0.76	121.34	485	3.0				Minahassa Peninsula Sulawesi
30	05/04/2018	02:25:09	5.86	126.82	138	4.2				Mindanao Philippines
31	05/04/2018	03:25:02	-0.38	123.01	62	3.2				Minahassa Peninsula Sulawesi

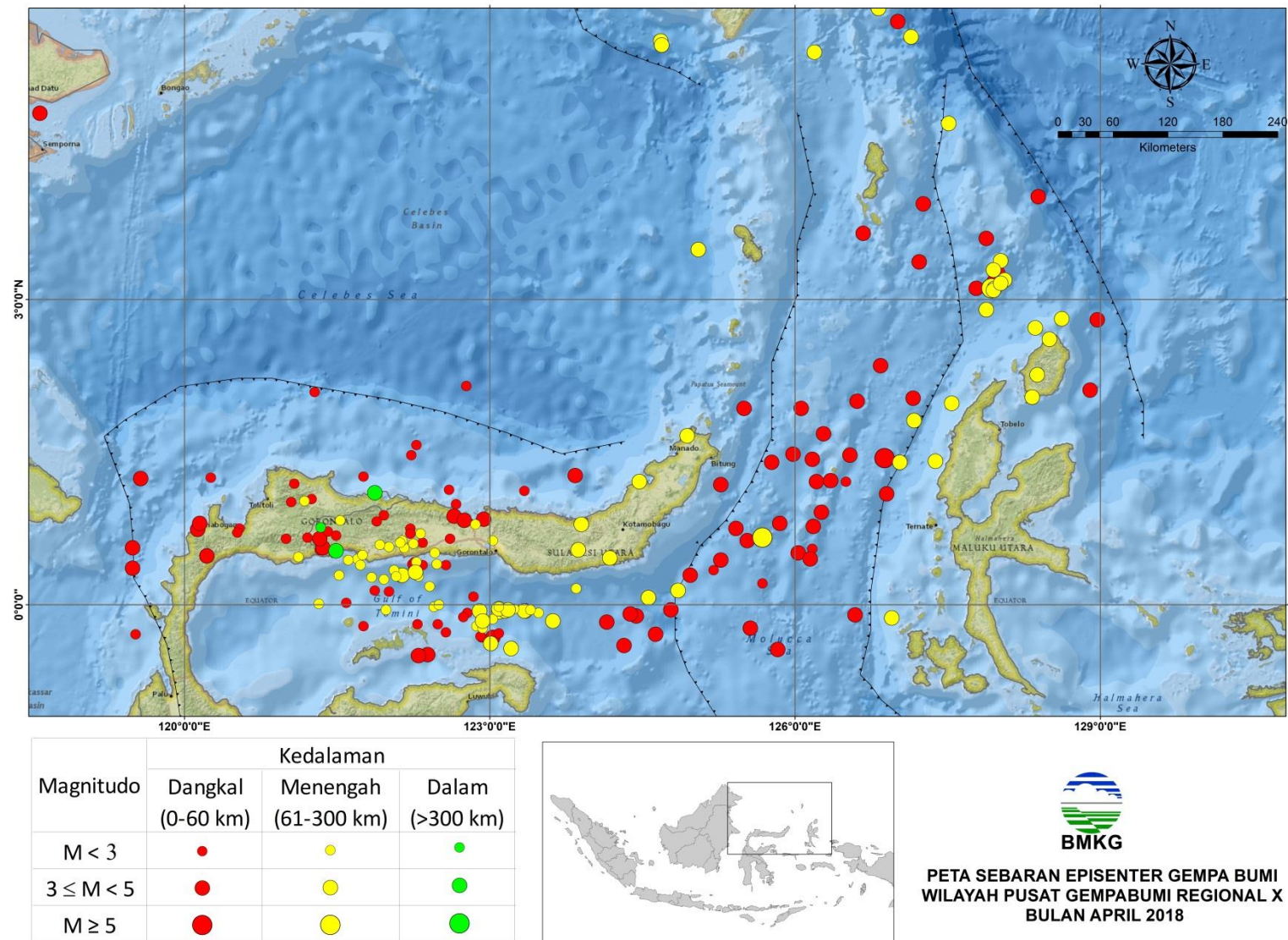
32	05/04/2018	03:53:34	7.28	126.79	161	6.0	0.10209	0.13728	0.15827	Mindanao Philippines
33	05/04/2018	14:58:37	-0.07	123.09	121	3.2				Minahassa Peninsula Sulawesi
34	05/04/2018	15:20:00	-0.11	124.44	23	3.1				Southern Molucca Sea
35	06/04/2018	12:15:36	-0.08	123.48	117	2.8				Minahassa Peninsula Sulawesi
36	06/04/2018	13:05:56	1.12	123.34	20	2.4				Minahassa Peninsula Sulawesi
37	06/04/2018	13:15:03	0.57	122.01	161	2.2				Minahassa Peninsula Sulawesi
38	06/04/2018	14:08:17	0.02	121.59	20	2.3				Minahassa Peninsula Sulawesi
39	06/04/2018	14:23:30	0.54	121.33	28	2.8				Minahassa Peninsula Sulawesi
40	06/04/2018	16:29:54	0.75	122.22	37	2.9				Minahassa Peninsula Sulawesi
41	06/04/2018	17:27:43	4.83	118.58	10	3.6				Borneo
42	06/04/2018	18:24:20	0.88	121.96	25	1.3				Minahassa Peninsula Sulawesi
43	06/04/2018	20:31:22	0.91	126.26	10	3.3				Northern Molucca Sea
44	06/04/2018	23:18:42	3.37	127.22	49	5.0				Talaud Islands Indonesia
45	07/04/2018	00:05:46	-0.28	123.09	16	2.6				Minahassa Peninsula Sulawesi
46	07/04/2018	04:34:53	-0.32	122.92	11	2.1				Minahassa Peninsula Sulawesi
47	07/04/2018	08:05:57	2.81	128.62	241	4.5	0.08934	0.13477	0.16302	Halmahera Indonesia
48	07/04/2018	12:08:27	0.18	122.41	104	1.7				Minahassa Peninsula Sulawesi
49	07/04/2018	13:04:39	0.44	125.27	10	3.2				Northern Molucca Sea
50	07/04/2018	14:10:27	3.94	127.26	10	4.2				Talaud Islands Indonesia
51	07/04/2018	18:13:33	-0.23	122.93	72	3.0				Minahassa Peninsula Sulawesi
52	07/04/2018	18:55:48	0.75	120.54	10	2.0				Minahassa Peninsula Sulawesi
53	07/04/2018	19:02:16	1.04	121.25	10	1.7				Minahassa Peninsula Sulawesi
54	07/04/2018	19:47:47	0.60	122.25	79	1.4				Minahassa Peninsula Sulawesi
55	07/04/2018	23:53:23	2.72	128.36	199	4.7				Halmahera Indonesia
56	08/04/2018	11:06:37	5.43	126.19	149	4.2				Mindanao Philippines
57	08/04/2018	12:16:01	-0.08	122.78	13	2.9				Minahassa Peninsula Sulawesi
58	08/04/2018	13:19:19	-0.14	123.03	130	2.4				Minahassa Peninsula Sulawesi
59	08/04/2018	15:18:52	0.21	125.68	10	3.0				Northern Molucca Sea
60	08/04/2018	21:08:07	3.60	127.88	8	4.1				Talaud Islands Indonesia
61	08/04/2018	21:10:47	0.65	122.61	57	1.7				Minahassa Peninsula Sulawesi
62	08/04/2018	21:55:18	-0.17	124.15	31	4.3				Southern Molucca Sea
63	08/04/2018	22:09:15	-0.06	123.34	144	3.4				Minahassa Peninsula Sulawesi
64	09/04/2018	00:31:33	3.38	128.02	127	4.6				North of Halmahera Indonesia
65	09/04/2018	05:32:26	0.27	121.84	167	2.9				Minahassa Peninsula Sulawesi
66	09/04/2018	08:57:56	1.93	126.06	13	3.4				Northern Molucca Sea
67	09/04/2018	16:01:10	0.45	121.70	220	2.1				Minahassa Peninsula Sulawesi

68	09/04/2018	16:57:17	0.34	125.20	18	3.0				Northern Molucca Sea
69	09/04/2018	19:26:13	2.09	121.28	10	2.8				Celebes Sea
70	10/04/2018	02:23:31	0.14	121.87	28	2.4				Minahassa Peninsula Sulawesi
71	10/04/2018	03:50:20	0.42	122.28	109	2.4				Minahassa Peninsula Sulawesi
72	10/04/2018	05:20:08	0.82	121.89	37	2.3				Minahassa Peninsula Sulawesi
73	10/04/2018	05:58:41	5.58	127.14	89	4.7				Philippine Islands Region
74	10/04/2018	10:20:21	1.98	127.54	174	3.8				Halmahera Indonesia
75	10/04/2018	12:06:29	0.56	121.36	58	3.3				Minahassa Peninsula Sulawesi
76	10/04/2018	13:30:59	0.79	123.90	265	3.2				Minahassa Peninsula Sulawesi
77	10/04/2018	16:11:36	0.49	121.75	70	1.9				Minahassa Peninsula Sulawesi
78	10/04/2018	20:13:26	-0.12	122.74	10	2.4				Minahassa Peninsula Sulawesi
79	11/04/2018	08:05:09	0.53	121.49	324	3.1				Minahassa Peninsula Sulawesi
80	11/04/2018	09:18:32	0.29	122.14	103	3.9				Minahassa Peninsula Sulawesi
81	11/04/2018	11:27:37	3.12	127.92	24	4.1				Talaud Islands Indonesia
82	11/04/2018	12:37:08	1.21	124.47	214	3.4				Minahassa Peninsula Sulawesi
83	11/04/2018	12:41:41	3.49	125.05	290	3.5				Talaud Islands Indonesia
84	11/04/2018	14:28:48	1.10	121.87	429	4.1				Minahassa Peninsula Sulawesi
85	11/04/2018	15:26:20	3.26	127.99	10	4.1				Talaud Islands Indonesia
86	11/04/2018	16:38:34	2.90	127.88	122	3.8				Northern Molucca Sea
87	11/04/2018	18:39:36	0.55	126.17	10	2.9				Northern Molucca Sea
88	11/04/2018	23:54:01	7.33	126.48	151	4.8				Mindanao Philippines
89	12/04/2018	05:19:01	0.66	121.21	5	1.9				Minahassa Peninsula Sulawesi
90	12/04/2018	15:47:23	0.16	123.85	225	2.6				Minahassa Peninsula Sulawesi
91	12/04/2018	17:46:03	3.11	127.96	74	4.5				Talaud Islands Indonesia
92	13/04/2018	01:22:41	1.27	123.84	10	3.2				Minahassa Peninsula Sulawesi
93	13/04/2018	11:14:55	0.56	122.16	113	2.4				Minahassa Peninsula Sulawesi
94	13/04/2018	13:30:05	0.46	124.18	135	3.7				Minahassa Peninsula Sulawesi
95	13/04/2018	16:22:28	3.19	128.06	67	4.6	0.03887	0.05315	0.07525	North of Halmahera Indonesia
96	13/04/2018	17:55:11	0.56	119.49	10	3.1				Minahassa Peninsula Sulawesi
97	13/04/2018	20:25:45	-0.06	123.15	156	3.6				Minahassa Peninsula Sulawesi
98	14/04/2018	09:52:18	-0.06	122.90	146	4.0				Minahassa Peninsula Sulawesi
99	14/04/2018	10:29:26	0.07	124.56	85	3.1				Minahassa Peninsula Sulawesi
100	14/04/2018	12:02:18	-0.43	123.21	71	3.1				Minahassa Peninsula Sulawesi
101	14/04/2018	15:48:53	-0.29	119.52	10	2.8				Minahassa Peninsula Sulawesi
102	14/04/2018	16:54:41	1.24	119.57	10	3.4	0.06381	0.07239	0.08606	Celebes Sea
103	14/04/2018	18:37:58	0.00	122.50	242	2.2				Minahassa Peninsula Sulawesi

104	14/04/2018	22:14:00	0.61	122.34	56	1.8				Minahassa Peninsula Sulawesi
105	15/04/2018	06:33:55	-0.05	123.40	123	2.8				Minahassa Peninsula Sulawesi
106	15/04/2018	08:36:10	1.09	126.90	10	3.4				Northern Molucca Sea
107	15/04/2018	13:12:21	2.04	128.33	255	3.8				Halmahera Indonesia
108	15/04/2018	15:40:47	2.35	126.84	10	3.8				Northern Molucca Sea
109	15/04/2018	19:30:44	1.44	126.88	42	6.0	1.83220	1.91608	1.02126	Northern Molucca Sea
110	16/04/2018	10:14:36	4.01	128.39	12	4.4				North of Halmahera Indonesia
111	16/04/2018	15:37:52	0.80	125.85	10	3.7				Northern Molucca Sea
112	16/04/2018	22:52:10	0.01	121.32	146	2.3				Minahassa Peninsula Sulawesi
113	16/04/2018	23:07:14	0.39	122.34	10	1.8				Minahassa Peninsula Sulawesi
114	16/04/2018	23:13:33	0.65	121.00	10	2.2				Minahassa Peninsula Sulawesi
115	17/04/2018	02:39:13	1.40	127.03	88	4.8	0.41728	0.77426	0.66983	Halmahera Indonesia
116	17/04/2018	09:01:14	0.29	121.52	128	2.9				Minahassa Peninsula Sulawesi
117	17/04/2018	09:21:28	3.18	127.96	31	4.8				Talaud Islands Indonesia
118	17/04/2018	09:21:30	3.09	127.95	63	4.7				Talaud Islands Indonesia
119	17/04/2018	09:56:48	1.13	122.60	16	1.9				Minahassa Peninsula Sulawesi
120	17/04/2018	14:08:32	1.47	126.54	10	3.4				Northern Molucca Sea
121	17/04/2018	16:45:15	1.57	122.28	17	3.0				Minahassa Peninsula Sulawesi
122	17/04/2018	17:36:34	0.70	122.22	43	1.6				Minahassa Peninsula Sulawesi
123	17/04/2018	18:23:57	1.47	122.23	10	1.9				Minahassa Peninsula Sulawesi
124	17/04/2018	20:16:13	0.71	120.52	10	2.3				Minahassa Peninsula Sulawesi
125	17/04/2018	20:41:14	0.51	126.03	10	3.3				Northern Molucca Sea
126	17/04/2018	21:05:40	0.70	122.22	47	2.0				Minahassa Peninsula Sulawesi
127	18/04/2018	15:41:13	0.75	125.42	10	3.3	0.13531	0.13819	0.09897	Northern Molucca Sea
128	18/04/2018	20:01:27	-0.13	126.95	80	3.3				Southern Molucca Sea
129	18/04/2018	23:35:49	0.59	121.92	93	2.5				Minahassa Peninsula Sulawesi
130	19/04/2018	03:50:45	1.18	125.27	25	3.7				Northern Molucca Sea
131	19/04/2018	12:19:47	0.14	124.85	71	4.1				Minahassa Peninsula Sulawesi
132	19/04/2018	15:01:16	6.88	130.44	114	5.1				East of Philippine Islands
133	19/04/2018	15:02:19	3.65	126.67	10	3.9				Talaud Islands Indonesia
134	19/04/2018	22:16:38	0.63	123.03	134	2.1				Minahassa Peninsula Sulawesi
135	20/04/2018	03:54:52	-0.23	125.56	16	3.3				Southern Molucca Sea
136	20/04/2018	04:05:18	5.73	127.01	10	4.5				Philippine Islands Region
137	20/04/2018	15:39:29	1.81	127.17	118	3.6				Halmahera Indonesia
138	20/04/2018	17:00:53	-0.09	124.38	26	4.1				Southern Molucca Sea
139	20/04/2018	17:47:30	0.44	121.61	87	2.7				Minahassa Peninsula Sulawesi

140	20/04/2018	18:02:58	0.28	122.30	123	3.0				Minahassa Peninsula Sulawesi
141	20/04/2018	20:25:07	-0.19	122.49	1	2.1				Minahassa Peninsula Sulawesi
142	20/04/2018	20:27:03	3.29	127.95	78	3.9				Talaud Islands Indonesia
143	20/04/2018	21:52:03	0.36	119.49	10	3.6				Minahassa Peninsula Sulawesi
144	20/04/2018	22:26:12	2.03	127.16	24	3.5				Northern Molucca Sea
145	21/04/2018	00:21:10	1.68	126.28	45	4.1				Northern Molucca Sea
146	21/04/2018	12:56:42	1.19	121.08	10	3.0				Minahassa Peninsula Sulawesi
147	21/04/2018	14:03:53	-0.04	123.24	154	2.7				Minahassa Peninsula Sulawesi
148	21/04/2018	18:01:54	0.65	121.33	31	4.0				Minahassa Peninsula Sulawesi
149	21/04/2018	23:47:18	0.34	122.06	175	2.8				Minahassa Peninsula Sulawesi
150	22/04/2018	02:29:26	4.73	127.51	129	4.8	0.08517	0.12384	0.07898	Talaud Islands Indonesia
151	22/04/2018	05:46:06	-0.44	125.83	38	4.1				Southern Molucca Sea
152	22/04/2018	09:13:55	1.40	125.77	58	4.2				Northern Molucca Sea
153	22/04/2018	13:32:55	0.83	122.75	38	3.9				Minahassa Peninsula Sulawesi
154	22/04/2018	22:38:35	0.72	121.41	44	2.3				Minahassa Peninsula Sulawesi
155	23/04/2018	02:52:02	0.84	122.94	34	4.2				Minahassa Peninsula Sulawesi
156	23/04/2018	04:05:16	0.66	125.68	61	5.1	2.45146	3.20650	1.70277	Northern Molucca Sea
157	23/04/2018	05:16:51	0.83	121.53	69	2.7				Minahassa Peninsula Sulawesi
158	23/04/2018	05:34:08	-0.21	121.76	10	2.4				Minahassa Peninsula Sulawesi
159	23/04/2018	06:23:24	-0.31	122.91	56	2.8				Minahassa Peninsula Sulawesi
160	23/04/2018	06:35:54	2.26	128.38	230	4.6				Halmahera Indonesia
161	23/04/2018	10:18:48	0.45	126.15	20	3.6				Northern Molucca Sea
162	23/04/2018	14:10:32	-0.16	122.93	61	3.8				Minahassa Peninsula Sulawesi
163	23/04/2018	14:37:16	6.70	126.47	155	4.2				Mindanao Philippines
164	23/04/2018	14:47:59	0.27	122.12	10	2.2				Minahassa Peninsula Sulawesi
165	23/04/2018	16:20:43	-0.04	123.09	155	3.6				Minahassa Peninsula Sulawesi
166	23/04/2018	17:33:44	1.21	126.50	10	2.9				Northern Molucca Sea
167	23/04/2018	21:40:05	1.93	125.50	48	4.9				Northern Molucca Sea
168	23/04/2018	22:06:38	0.63	122.14	75	2.0				Minahassa Peninsula Sulawesi
169	24/04/2018	03:33:43	-0.19	122.29	10	2.1				Minahassa Peninsula Sulawesi
170	24/04/2018	07:41:49	-0.29	124.63	12	3.3				Southern Molucca Sea
171	24/04/2018	14:35:28	5.50	124.69	112	4.6				Mindanao Philippines
172	24/04/2018	15:44:56	0.74	120.13	10	4.5				Minahassa Peninsula Sulawesi
173	24/04/2018	15:44:57	0.80	120.15	10	4.5				Minahassa Peninsula Sulawesi
174	25/04/2018	08:48:47	0.63	125.53	15	3.4				Northern Molucca Sea
175	25/04/2018	11:37:46	-0.47	131.91	18	2.6				Irian Jaya Region Indonesia

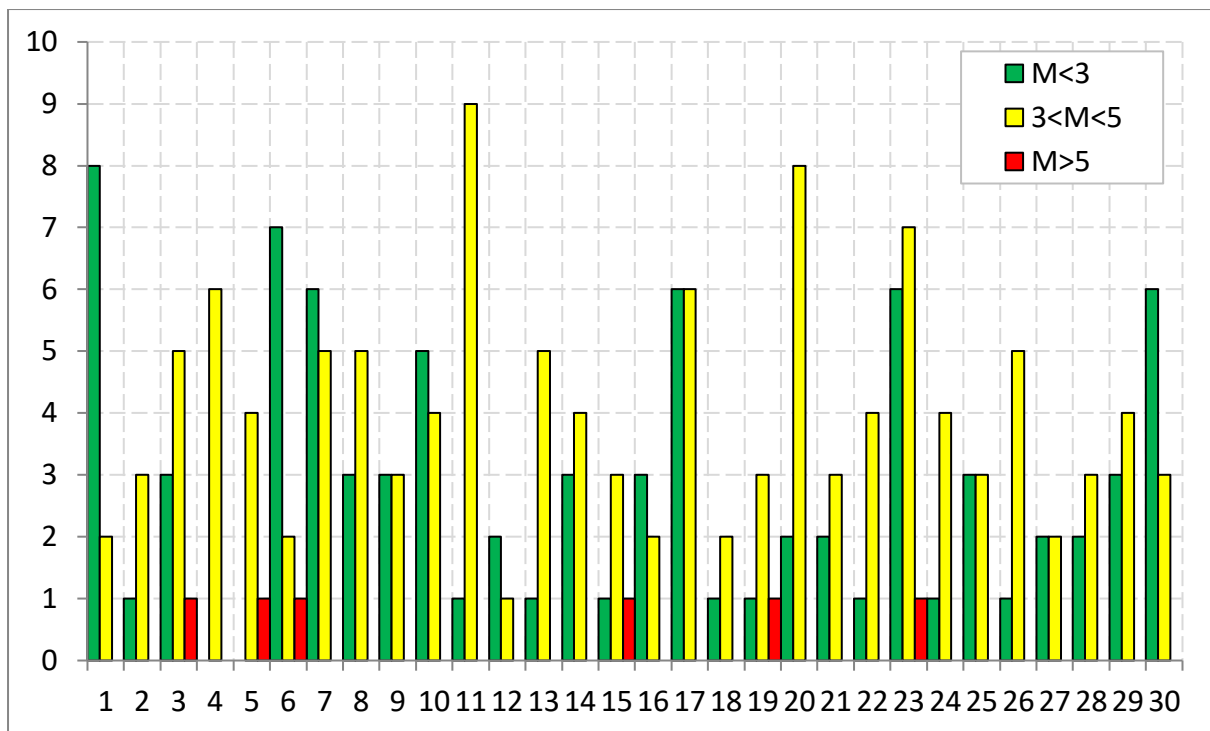
176	25/04/2018	12:33:12	1.48	125.98	24	3.7				Northern Molucca Sea
177	25/04/2018	12:43:35	0.79	122.86	144	1.2				Minahassa Peninsula Sulawesi
178	25/04/2018	14:08:37	-0.44	123.19	49	2.6				Minahassa Peninsula Sulawesi
179	25/04/2018	17:15:15	1.41	127.38	146	4.0	0.05709	0.09968	0.08344	Halmahera Indonesia
180	26/04/2018	05:02:10	3.16	128.02	81	4.7				North of Halmahera Indonesia
181	26/04/2018	17:35:01	5.95	127.05	120	4.2				Philippine Islands Region
182	26/04/2018	18:07:14	5.97	127.38	32	4.7	0.07570	0.11015	0.13146	Philippine Islands Region
183	26/04/2018	19:22:05	0.31	122.26	148	1.5				Minahassa Peninsula Sulawesi
184	26/04/2018	20:45:28	2.00	126.61	10	3.8				Northern Molucca Sea
185	26/04/2018	23:58:19	1.22	126.35	10	3.9				Northern Molucca Sea
186	27/04/2018	10:54:11	0.99	122.67	16	2.0				Minahassa Peninsula Sulawesi
187	27/04/2018	13:44:19	6.24	126.49	10	4.4				Mindanao Philippines
188	27/04/2018	17:58:53	0.28	122.08	124	2.3				Minahassa Peninsula Sulawesi
189	27/04/2018	19:22:38	6.14	126.77	10	4.1				Mindanao Philippines
190	28/04/2018	14:18:37	0.40	122.48	88	2.9				Minahassa Peninsula Sulawesi
191	28/04/2018	14:38:31	-0.05	123.18	150	3.3				Minahassa Peninsula Sulawesi
192	28/04/2018	18:13:43	2.80	128.97	15	4.3				Halmahera Indonesia
193	28/04/2018	21:01:58	2.15	122.77	10	3.0				Celebes Sea
194	28/04/2018	23:16:56	0.39	121.73	114	2.8				Minahassa Peninsula Sulawesi
195	29/04/2018	04:04:42	1.26	121.76	10	3.0				Minahassa Peninsula Sulawesi
196	29/04/2018	08:26:16	-0.16	123.62	121	3.2				Minahassa Peninsula Sulawesi
197	29/04/2018	15:33:19	0.25	121.96	170	2.1				Minahassa Peninsula Sulawesi
198	29/04/2018	15:44:46	-0.05	121.98	155	2.6				Minahassa Peninsula Sulawesi
199	29/04/2018	15:51:36	2.11	128.90	10	4.2				Halmahera Indonesia
200	29/04/2018	21:55:48	-0.27	122.57	10	2.5				Minahassa Peninsula Sulawesi
201	29/04/2018	23:18:57	0.54	123.87	252	3.6				Minahassa Peninsula Sulawesi
202	30/04/2018	14:40:34	0.51	122.46	87	1.7				Minahassa Peninsula Sulawesi
203	30/04/2018	15:09:15	0.68	121.49	52	2.3				Minahassa Peninsula Sulawesi
204	30/04/2018	16:39:15	2.61	128.50	230	4.4	0.06480	0.08401	0.08877	Halmahera Indonesia
205	30/04/2018	19:23:58	0.08	122.84	10	2.1				Minahassa Peninsula Sulawesi
206	30/04/2018	19:28:20	0.32	122.27	122	3.6				Minahassa Peninsula Sulawesi
207	30/04/2018	19:30:36	0.29	124.97	18	3.4				Minahassa Peninsula Sulawesi
208	30/04/2018	20:33:03	-0.02	123.09	149	2.4				Minahassa Peninsula Sulawesi
209	30/04/2018	22:46:31	0.61	122.12	88	2.2				Minahassa Peninsula Sulawesi
210	30/04/2018	23:19:38	1.02	121.18	116	2.2				Minahassa Peninsula Sulawesi



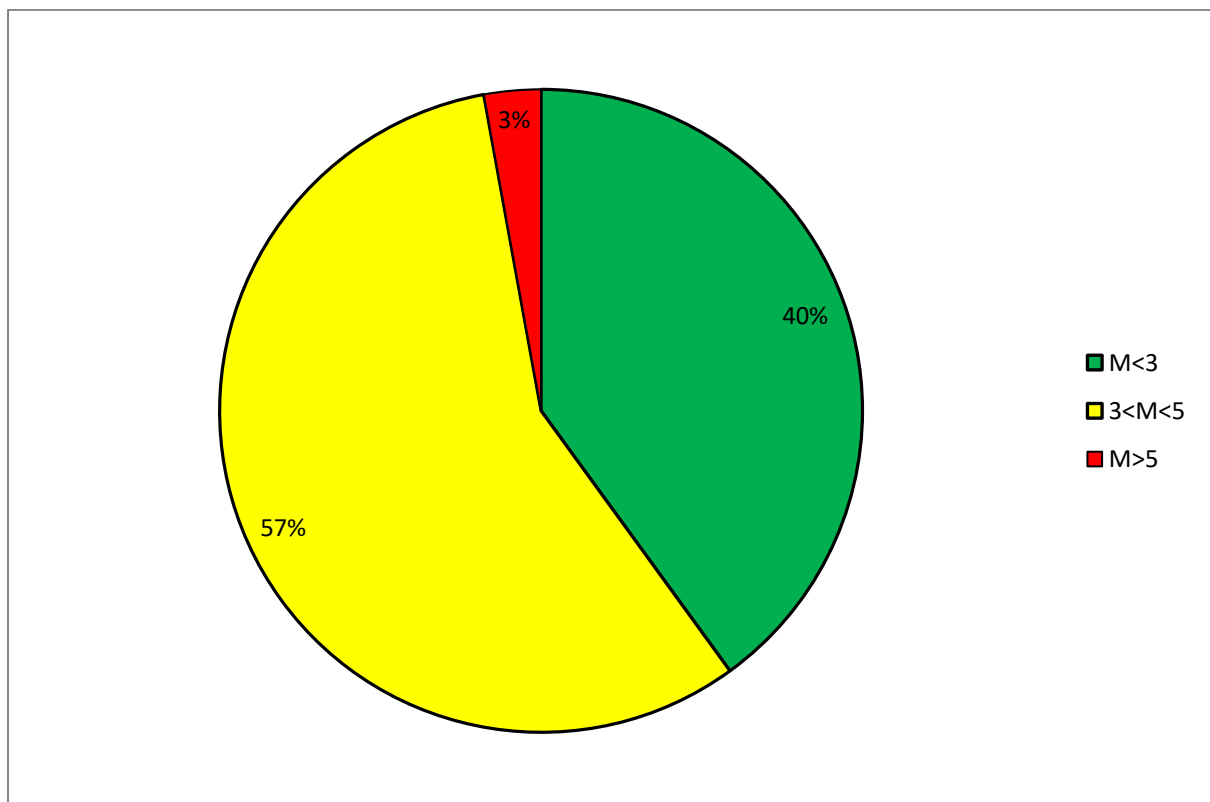
Gambar 22 Sebaran episenter gempabumi bulan April 2018

Tabel 13 Rekapitulasi gempabumi dan tsunami berdasarkan magnitudo bulan April 2018

Tanggal (UTC)	Magnitudo			Jumlah Total	Jumlah Gempa Signifikan	
	M<3	3≤M<5	M≥5		Dirasakan	Merusak
1	8	2	0	10	0	0
2	1	3	0	4	0	0
3	3	5	1	9	1	0
4	0	6	0	6	0	0
5	0	4	1	5	0	0
6	7	2	1	10	0	0
7	6	5	0	11	0	0
8	3	5	0	8	0	0
9	3	3	0	6	0	0
10	5	4	0	9	0	0
11	1	9	0	10	0	0
12	2	1	0	3	0	0
13	1	5	0	6	0	0
14	3	4	0	7	0	0
15	1	3	1	5	1	0
16	3	2	0	5	0	0
17	6	6	0	12	1	0
18	1	2	0	3	0	0
19	1	3	1	5	0	0
20	2	8	0	10	0	0
21	2	3	0	5	0	0
22	1	4	0	5	0	0
23	6	7	1	14	1	0
24	1	4	0	5	0	0
25	3	3	0	6	0	0
26	1	5	0	6	0	0
27	2	2	0	4	0	0
28	2	3	0	5	0	0
29	3	4	0	7	0	0
30	6	3	0	9	0	0
Jumlah gempa	84	120	6	210	4	0
Jumlah gempa seluruhnya						



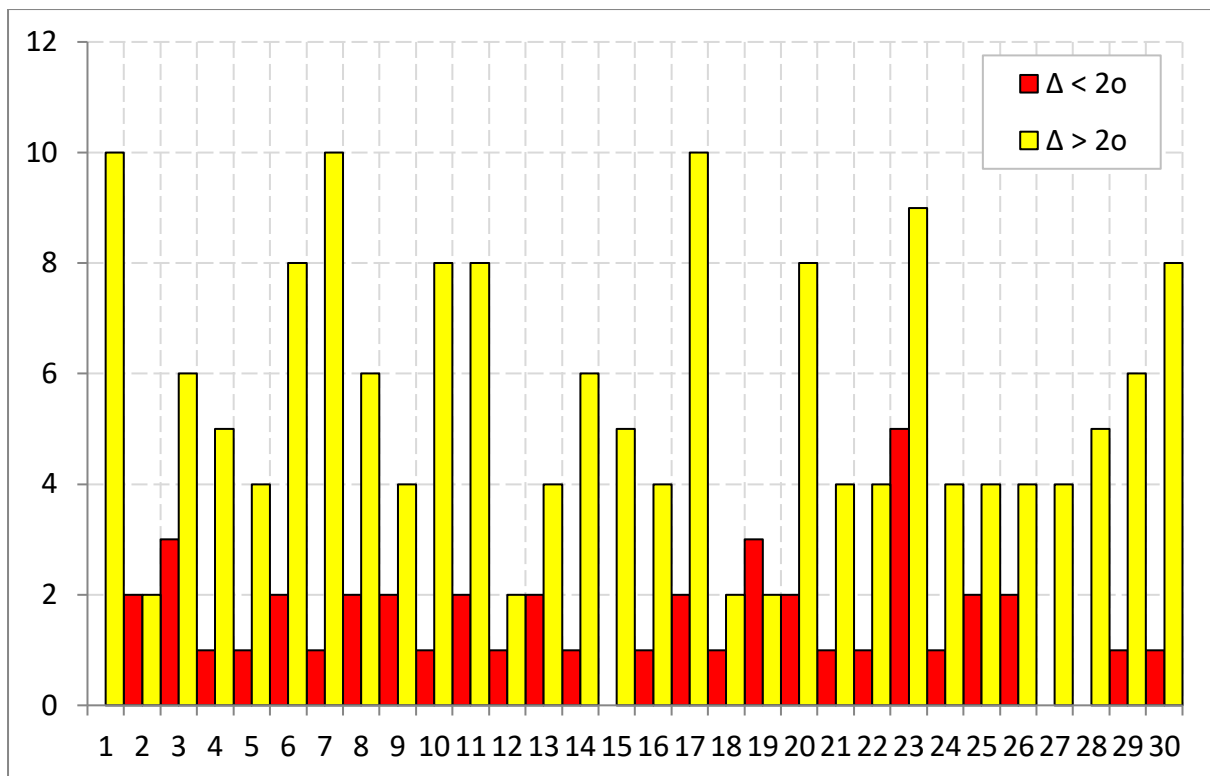
Gambar 23 Grafik gempabumi berdasarkan magnitudo bulan April 2018



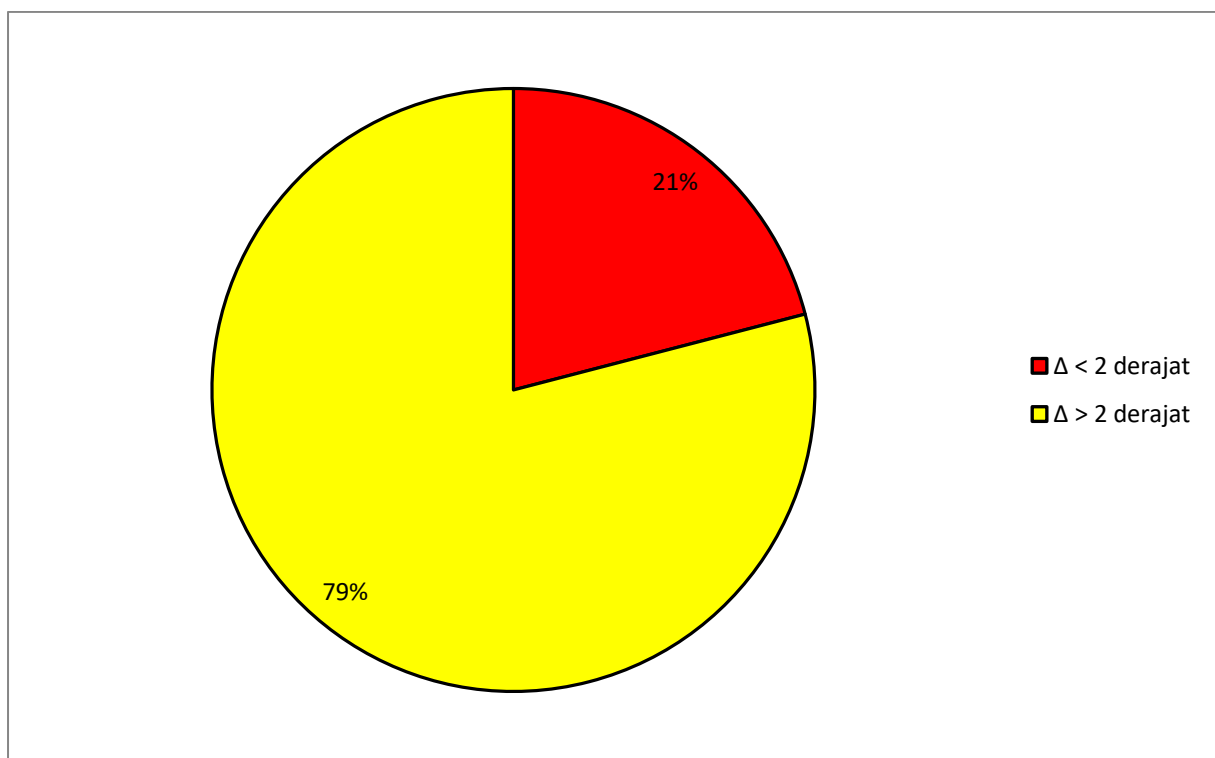
Gambar 24 Grafik persentase gempabumi berdasarkan magnitudo bulan April 2018

Tabel 14 Rekapitulasi gempabumi dan tsunami berdasarkan jarak dari stasiun bulan April 2018

Tanggal	Jarak		Jumlah	Keterangan
	$\Delta \leq 2^\circ$	$\Delta > 2^\circ$		
01/04/2018	0	10	10	-
02/04/2018	2	2	4	-
03/04/2018	3	6	9	-
04/04/2018	1	5	6	-
05/04/2018	1	4	5	-
06/04/2018	2	8	10	-
07/04/2018	1	10	11	-
08/04/2018	2	6	8	-
09/04/2018	2	4	6	-
10/04/2018	1	8	9	-
11/04/2018	2	8	10	-
12/04/2018	1	2	3	-
13/04/2018	2	4	6	-
14/04/2018	1	6	7	-
15/04/2018	0	5	5	-
16/04/2018	1	4	5	-
17/04/2018	2	10	12	-
18/04/2018	1	2	3	-
19/04/2018	3	2	5	-
20/04/2018	2	8	10	-
21/04/2018	1	4	5	-
22/04/2018	1	4	5	-
23/04/2018	5	9	14	-
24/04/2018	1	4	5	-
25/04/2018	2	4	6	-
26/04/2018	2	4	6	-
27/04/2018	0	4	4	-
28/04/2018	0	5	5	-
29/04/2018	1	6	7	-
30/04/2018	1	8	9	-
Jumlah gempa	44	166	210	-
Jumlah gempa seluruhnya				



Gambar 25 Grafik gempabumi berdasarkan jarak bulan April 2018



Gambar 26 Grafik persentase gempabumi berdasarkan jarak bulan April 2018

E. Data Gempabumi Bulan Mei 2018

Tabel 15 Data kejadian gempabumi bulan Mei 2018

NO	DATE	OT (UTC)	EPICENTER		DEPTH (km)	MAG	PGA (gals) SLM I			REGION
			LAT	LONG			X	Y	Z	
1	01/05/2018	07:49:47	0.62	121.23	53	2.0				Minahassa Peninsula, Sulawesi
2	01/05/2018	09:18:57	-0.04	123.18	137	2.4				Minahassa Peninsula, Sulawesi
3	01/05/2018	10:23:49	0.60	122.15	16	1.5				Minahassa Peninsula, Sulawesi
4	01/05/2018	11:06:40	-0.06	123.17	130	2.6				Minahassa Peninsula, Sulawesi
5	01/05/2018	18:01:30	0.14	125.86	10	3.7				Northern Molucca Sea
6	01/05/2018	18:26:32	3.97	124.49	341	4.0				Celebes Sea
7	01/05/2018	19:33:29	2.38	126.92	54	4.8	-0.07707	0.10608	0.11896	Northern Molucca Sea
8	01/05/2018	21:09:22	1.87	126.52	54	5.2	-0.43454	-0.74420	0.77232	Northern Molucca Sea
9	02/05/2018	06:26:51	3.18	127.96	82	4.1				Talaud Islands, Indonesia
10	02/05/2018	08:54:34	1.24	122.05	203	2.8				Minahassa Peninsula, Sulawesi
11	02/05/2018	10:54:29	0.13	126.86	12	3.6				Northern Molucca Sea
12	02/05/2018	13:12:45	2.05	121.53	10	3.1				Celebes Sea
13	02/05/2018	17:50:35	0.27	122.21	157	2.0				Minahassa Peninsula, Sulawesi
14	02/05/2018	18:50:18	0.20	121.33	156	2.0				Minahassa Peninsula, Sulawesi
15	02/05/2018	19:18:02	0.56	121.87	123	2.5				Minahassa Peninsula, Sulawesi
16	02/05/2018	19:18:24	1.30	126.45	10	3.1				Northern Molucca Sea
17	02/05/2018	23:43:43	0.71	122.51	61	1.9				Minahassa Peninsula, Sulawesi
18	03/05/2018	03:35:33	1.56	122.94	10	2.5				Minahassa Peninsula, Sulawesi
19	03/05/2018	04:54:52	1.87	127.32	13	4.3				Halmahera, Indonesia
20	03/05/2018	08:20:05	6.18	123.63	519	4.6				Mindanao, Philippines
21	03/05/2018	09:53:06	2.71	128.55	225	4.9				Halmahera, Indonesia
22	03/05/2018	13:33:34	1.42	122.99	15	4.0				Minahassa Peninsula, Sulawesi
23	03/05/2018	16:00:39	0.61	125.52	22	3.7	-0.04861	-0.11160	0.10147	Northern Molucca Sea
24	03/05/2018	16:11:12	-0.31	123.03	26	3.2				Minahassa Peninsula, Sulawesi
25	03/05/2018	22:17:01	-0.07	123.18	130	3.8				Minahassa Peninsula, Sulawesi
26	04/05/2018	04:19:43	1.47	122.69	24	2.8				Minahassa Peninsula, Sulawesi
27	04/05/2018	05:36:29	3.16	123.68	470	3.6				Celebes Sea
28	04/05/2018	08:37:44	-0.13	120.12	11	3.9				Minahassa Peninsula, Sulawesi
29	04/05/2018	11:18:36	5.14	127.25	147	4.5				Philippine Islands Region
30	04/05/2018	11:32:42	0.04	126.79	33	3.8				Northern Molucca Sea
31	04/05/2018	12:03:20	-0.13	123.91	83	3.7				Minahassa Peninsula, Sulawesi

32	04/05/2018	12:25:20	1.22	121.52	19	2.0				Minahassa Peninsula, Sulawesi
33	04/05/2018	16:39:22	1.61	121.57	10	4.1				Minahassa Peninsula, Sulawesi
34	04/05/2018	18:56:47	3.26	129.08	22	4.3				North of Halmahera, Indonesia
35	04/05/2018	19:01:50	3.15	129.08	27	4.4				North of Halmahera, Indonesia
36	04/05/2018	22:58:57	-0.21	122.99	59	3.5				Minahassa Peninsula, Sulawesi
37	05/05/2018	03:51:47	-0.15	125.79	15	3.9				Southern Molucca Sea
38	05/05/2018	20:04:36	1.76	126.85	102	3.8				Northern Molucca Sea
39	05/05/2018	20:08:26	-0.45	121.96	2	3.0				Minahassa Peninsula, Sulawesi
40	05/05/2018	21:28:01	6.97	123.80	579	4.5				Mindanao, Philippines
41	05/05/2018	22:18:58	0.03	126.68	57	4.0				Northern Molucca Sea
42	05/05/2018	22:41:10	-0.29	122.98	63	3.3				Minahassa Peninsula, Sulawesi
43	06/05/2018	00:51:58	0.29	123.17	259	4.4				Minahassa Peninsula, Sulawesi
44	06/05/2018	01:32:42	0.24	121.84	165	2.8				Minahassa Peninsula, Sulawesi
45	06/05/2018	03:32:19	0.59	119.73	12	3.2				Minahassa Peninsula, Sulawesi
46	06/05/2018	06:30:08	0.58	121.94	158	2.3				Minahassa Peninsula, Sulawesi
47	06/05/2018	09:17:41	0.80	122.64	14	2.6				Minahassa Peninsula, Sulawesi
48	06/05/2018	11:17:20	0.65	127.05	10	3.5				Halmahera, Indonesia
49	06/05/2018	11:20:28	1.83	126.40	65	3.7				Northern Molucca Sea
50	06/05/2018	11:44:04	0.90	126.13	10	3.2				Northern Molucca Sea
51	06/05/2018	12:18:56	0.91	126.02	15	3.1				Northern Molucca Sea
52	06/05/2018	12:34:32	0.53	120.51	16	2.5				Minahassa Peninsula, Sulawesi
53	06/05/2018	15:30:10	2.38	122.82	456	3.9				Celebes Sea
54	06/05/2018	15:51:00	1.71	127.52	117	3.8				Halmahera, Indonesia
55	07/05/2018	08:51:03	-0.06	122.97	60	2.4				Minahassa Peninsula, Sulawesi
56	07/05/2018	12:03:07	0.15	122.12	126	2.5				Minahassa Peninsula, Sulawesi
57	07/05/2018	12:53:43	2.33	126.87	10	3.4				Northern Molucca Sea
58	07/05/2018	14:36:22	1.73	124.88	208	3.4				Minahassa Peninsula, Sulawesi
59	07/05/2018	18:06:52	2.64	126.34	28	3.7				Northern Molucca Sea
60	07/05/2018	19:25:57	1.36	122.96	18	2.6				Minahassa Peninsula, Sulawesi
61	08/05/2018	17:54:47	-0.27	123.00	11	2.4				Minahassa Peninsula, Sulawesi
62	08/05/2018	22:04:39	1.92	122.40	320	2.8				Minahassa Peninsula, Sulawesi
63	08/05/2018	22:13:29	1.45	125.23	192	2.9				Northern Molucca Sea
64	08/05/2018	22:20:24	0.59	121.28	31	2.0				Minahassa Peninsula, Sulawesi
65	09/05/2018	00:59:53	1.68	127.36	104	4.3				Halmahera, Indonesia
66	09/05/2018	01:19:03	0.47	125.66	10	3.1	0.23267	0.16812	0.22967	Northern Molucca Sea
67	09/05/2018	02:33:19	0.05	123.28	10	2.8				Minahassa Peninsula, Sulawesi

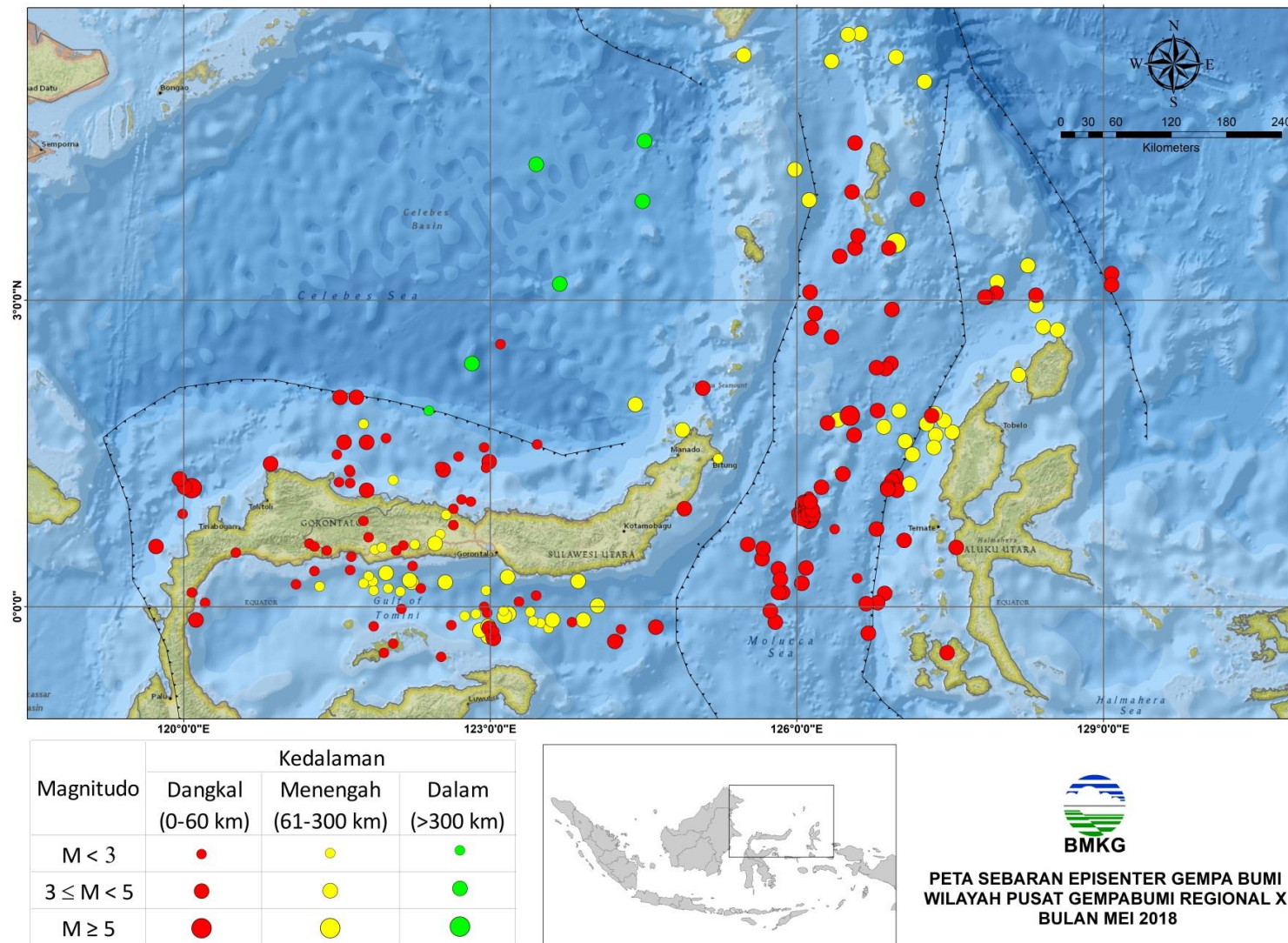
68	09/05/2018	03:36:03	1.40	120.85	9	3.4				Minahassa Peninsula, Sulawesi
69	09/05/2018	06:49:33	0.18	122.32	10	1.8				Minahassa Peninsula, Sulawesi
70	09/05/2018	08:54:48	0.92	126.05	5	3.4				Northern Molucca Sea
71	09/05/2018	15:14:33	3.98	126.12	112	3.6				Talaud Islands, Indonesia
72	09/05/2018	15:21:42	0.88	126.07	10	3.4				Northern Molucca Sea
73	09/05/2018	17:53:18	1.08	126.12	25	2.9				Northern Molucca Sea
74	09/05/2018	18:14:50	1.34	122.54	10	4.0				Minahassa Peninsula, Sulawesi
75	09/05/2018	18:42:03	0.16	121.86	63	2.8				Minahassa Peninsula, Sulawesi
76	09/05/2018	22:38:09	2.95	128.34	209	4.1				Halmahera, Indonesia
77	10/05/2018	07:29:34	0.96	124.90	32	3.2				Minahassa Peninsula, Sulawesi
78	10/05/2018	07:33:58	0.25	121.85	164	2.4				Minahassa Peninsula, Sulawesi
79	10/05/2018	08:37:29	6.07	125.80	145	4.8				Mindanao, Philippines
80	10/05/2018	08:39:49	0.86	126.12	5	5.5	3.59081	6.94483	-8.69690	Northern Molucca Sea
81	10/05/2018	08:39:53	1.00	126.08	59	5.3				Northern Molucca Sea
82	10/05/2018	09:05:32	0.98	126.09	10	3.9	0.13802	0.19836	0.22059	Northern Molucca Sea
83	10/05/2018	09:07:43	2.27	128.17	78	4.1				Halmahera, Indonesia
84	10/05/2018	09:37:52	0.99	126.10	10	3.5				Northern Molucca Sea
85	10/05/2018	09:44:18	0.87	126.03	10	3.3				Northern Molucca Sea
86	10/05/2018	10:01:06	0.89	126.08	10	3.2				Northern Molucca Sea
87	10/05/2018	10:17:12	1.32	121.63	11	2.2				Minahassa Peninsula, Sulawesi
88	10/05/2018	11:08:32	0.90	126.11	10	3.5				Northern Molucca Sea
89	10/05/2018	11:37:13	1.02	126.10	10	4.4	0.55083	0.90023	1.01501	Northern Molucca Sea
90	10/05/2018	11:53:03	0.93	126.12	16	3.3				Northern Molucca Sea
91	10/05/2018	14:24:13	0.30	121.81	196	2.4				Minahassa Peninsula, Sulawesi
92	10/05/2018	15:18:12	0.93	126.05	10	2.9				Northern Molucca Sea
93	10/05/2018	15:55:57	0.96	126.14	10	3.0				Northern Molucca Sea
94	10/05/2018	17:24:39	0.28	126.59	26	2.8				Northern Molucca Sea
95	10/05/2018	18:02:30	6.86	123.85	546	5.8				Mindanao, Philippines
96	10/05/2018	19:11:05	0.88	126.06	10	3.4				Northern Molucca Sea
97	10/05/2018	19:21:58	0.88	126.08	10	3.5				Northern Molucca Sea
98	10/05/2018	19:32:55	1.14	121.79	10	3.5				Minahassa Peninsula, Sulawesi
99	10/05/2018	20:06:25	5.61	126.62	86	4.6				Mindanao, Philippines
100	10/05/2018	20:55:59	0.94	126.11	10	3.5				Northern Molucca Sea
101	10/05/2018	22:52:14	3.56	126.97	61	5.1				Talaud Islands, Indonesia
102	11/05/2018	01:13:18	-0.18	122.62	10	2.7				Minahassa Peninsula, Sulawesi
103	11/05/2018	09:44:43	-0.16	123.49	117	2.9				Minahassa Peninsula, Sulawesi

104	11/05/2018	11:08:59	0.96	122.64	24	2.2				Minahassa Peninsula, Sulawesi
105	11/05/2018	13:42:55	0.49	121.64	16	2.4				Minahassa Peninsula, Sulawesi
106	11/05/2018	14:29:35	3.34	128.26	84	4.8				North of Halmahera, Indonesia
107	11/05/2018	15:52:01	6.44	126.36	79	5.2				Mindanao, Philippines
108	11/05/2018	16:49:35	4.33	123.45	520	3.9				Celebes Sea
109	11/05/2018	19:02:38	0.86	126.06	10	3.1				Northern Molucca Sea
110	11/05/2018	20:56:32	6.15	125.96	115	5.4				Mindanao, Philippines
111	11/05/2018	23:46:29	-0.20	124.62	37	3.3				Southern Molucca Sea
112	12/05/2018	06:19:02	6.29	125.75	10	4.0				Mindanao, Philippines
113	12/05/2018	16:11:03	0.90	126.11	10	3.2				Northern Molucca Sea
114	12/05/2018	18:15:22	1.21	126.96	22	4.7	0.09922	0.10751	-0.11950	Northern Molucca Sea
115	12/05/2018	18:19:47	1.17	126.94	14	4.2				Northern Molucca Sea
116	12/05/2018	19:21:40	1.27	126.97	36	3.6				Northern Molucca Sea
117	12/05/2018	22:07:25	3.51	126.90	42	4.4				Talaud Islands, Indonesia
118	13/05/2018	04:43:44	0.90	122.57	167	1.7				Minahassa Peninsula, Sulawesi
119	13/05/2018	07:53:55	0.90	126.16	10	3.4				Northern Molucca Sea
120	13/05/2018	09:57:27	0.14	125.82	0	3.4				Northern Molucca Sea
121	13/05/2018	10:53:35	1.23	126.93	16	3.2				Northern Molucca Sea
122	13/05/2018	12:32:05	-0.26	126.70	10	3.7				Southern Molucca Sea
123	13/05/2018	14:48:16	1.14	126.98	29	3.8				Northern Molucca Sea
124	13/05/2018	15:33:32	5.40	125.48	175	5.0				Mindanao, Philippines
125	13/05/2018	16:19:01	1.17	126.89	12	4.2	0.10491	0.16186	0.18230	Northern Molucca Sea
126	13/05/2018	16:32:20	0.00	122.94	15	2.7				Minahassa Peninsula, Sulawesi
127	13/05/2018	22:12:49	8.40	122.50	19	4.8				Mindanao, Philippines
128	14/05/2018	05:48:13	1.05	122.72	26	2.5				Minahassa Peninsula, Sulawesi
129	14/05/2018	06:46:43	-0.36	122.05	10	2.6				Minahassa Peninsula, Sulawesi
130	14/05/2018	11:50:30	0.55	121.40	13	1.7				Minahassa Peninsula, Sulawesi
131	14/05/2018	12:44:00	0.22	121.10	14	2.4				Minahassa Peninsula, Sulawesi
132	14/05/2018	14:10:01	0.55	122.08	17	2.5				Minahassa Peninsula, Sulawesi
133	14/05/2018	15:39:01	1.34	121.62	17	1.7				Minahassa Peninsula, Sulawesi
134	14/05/2018	16:56:16	-0.07	122.86	138	2.9				Minahassa Peninsula, Sulawesi
135	14/05/2018	23:26:43	3.43	126.42	52	3.8				Talaud Islands, Indonesia
136	15/05/2018	01:00:08	1.15	126.89	20	3.3				Northern Molucca Sea
137	15/05/2018	03:46:12	0.24	122.23	200	4.0				Minahassa Peninsula, Sulawesi
138	15/05/2018	07:22:18	0.36	121.63	14	1.9				Minahassa Peninsula, Sulawesi
139	15/05/2018	09:59:25	0.23	126.05	10	3.2				Northern Molucca Sea

140	15/05/2018	11:33:32	2.87	126.18	28	4.1				Northern Molucca Sea
141	15/05/2018	12:00:59	6.87	123.77	590	4.9				Mindanao, Philippines
142	15/05/2018	19:10:41	3.07	127.95	45	4.1				Talaud Islands, Indonesia
143	15/05/2018	19:30:27	1.92	127.00	89	4.2				Halmahera, Indonesia
144	15/05/2018	20:55:58	0.14	120.08	10	1.7				Minahassa Peninsula, Sulawesi
145	15/05/2018	22:23:39	0.40	122.24	13	2.4				Minahassa Peninsula, Sulawesi
146	15/05/2018	23:12:41	0.68	121.81	25	2.2				Minahassa Peninsula, Sulawesi
147	16/05/2018	00:13:57	3.51	126.57	45	4.0				Talaud Islands, Indonesia
148	16/05/2018	00:35:34	2.74	128.41	213	4.3				Halmahera, Indonesia
149	16/05/2018	03:06:04	1.37	122.51	10	2.2				Minahassa Peninsula, Sulawesi
150	16/05/2018	03:06:32	1.21	121.63	15	2.4				Minahassa Peninsula, Sulawesi
151	16/05/2018	05:05:07	6.37	123.92	25	4.9				Mindanao, Philippines
152	16/05/2018	05:11:47	1.03	122.81	10	2.8				Minahassa Peninsula, Sulawesi
153	16/05/2018	08:50:01	4.54	126.57	37	4.2				Talaud Islands, Indonesia
154	16/05/2018	12:40:13	0.57	125.67	19	3.7				Northern Molucca Sea
155	16/05/2018	13:00:24	1.17	126.24	12	3.4				Northern Molucca Sea
156	16/05/2018	19:35:31	1.92	126.79	10	3.2				Northern Molucca Sea
157	17/05/2018	11:14:14	3.63	126.60	10	3.7				Talaud Islands, Indonesia
158	17/05/2018	11:41:25	0.24	122.56	137	3.1				Minahassa Peninsula, Sulawesi
159	17/05/2018	13:22:50	1.61	121.79	11	3.2				Minahassa Peninsula, Sulawesi
160	17/05/2018	20:21:55	0.58	127.56	10	3.1				Halmahera, Indonesia
161	17/05/2018	20:32:31	0.76	126.37	31	2.9				Northern Molucca Sea
162	17/05/2018	23:03:34	2.91	126.93	0	3.7				Northern Molucca Sea
163	18/05/2018	01:48:27	0.61	122.26	72	2.5				Minahassa Peninsula, Sulawesi
164	18/05/2018	19:40:01	4.56	124.51	459	3.8				Celebes Sea
165	18/05/2018	19:57:06	5.60	126.50	134	4.0				Mindanao, Philippines
166	18/05/2018	20:24:18	-0.23	122.90	72	4.3				Minahassa Peninsula, Sulawesi
167	18/05/2018	20:26:03	1.16	120.08	44	5.1				Minahassa Peninsula, Sulawesi
168	18/05/2018	20:31:38	1.17	120.01	10	4.8				Minahassa Peninsula, Sulawesi
169	18/05/2018	20:31:39	1.25	119.96	10	5.0				Celebes Sea
170	19/05/2018	00:30:56	-0.24	123.04	10	2.6				Minahassa Peninsula, Sulawesi
171	19/05/2018	22:27:39	0.38	126.09	0	3.3				Northern Molucca Sea
172	20/05/2018	02:21:58	7.22	124.71	0	4.4				Mindanao, Philippines
173	20/05/2018	07:28:47	5.38	126.97	145	4.3				Mindanao, Philippines
174	20/05/2018	08:47:42	0.37	125.82	10	3.3				Northern Molucca Sea
175	20/05/2018	12:36:16	2.73	126.14	46	3.7				Northern Molucca Sea

176	20/05/2018	13:07:18	6.20	126.64	200	3.6				Mindanao, Philippines
177	20/05/2018	19:58:23	1.49	127.13	112	3.6				Halmahera, Indonesia
178	21/05/2018	04:32:41	1.79	127.27	102	4.0				Halmahera, Indonesia
179	21/05/2018	04:47:07	3.03	127.86	36	3.8				Talaud Islands, Indonesia
180	21/05/2018	05:56:16	-0.02	122.13	10	2.7				Minahassa Peninsula, Sulawesi
181	21/05/2018	10:04:34	-0.04	125.74	13	3.4				Southern Molucca Sea
182	21/05/2018	13:30:12	1.59	123.46	10	2.6				Minahassa Peninsula, Sulawesi
183	21/05/2018	13:33:34	0.95	126.15	17	4.6				Northern Molucca Sea
184	21/05/2018	15:55:19	0.26	122.21	150	3.3				Minahassa Peninsula, Sulawesi
185	21/05/2018	15:59:08	6.81	126.65	131	4.1				Mindanao, Philippines
186	21/05/2018	19:20:38	-0.21	123.57	106	2.5				Minahassa Peninsula, Sulawesi
187	21/05/2018	20:54:13	0.23	121.76	178	2.3				Minahassa Peninsula, Sulawesi
188	22/05/2018	04:35:23	0.76	126.78	20	4.1				Northern Molucca Sea
189	22/05/2018	06:14:37	-0.19	121.86	10	2.6				Minahassa Peninsula, Sulawesi
190	22/05/2018	09:21:37	2.05	121.69	49	4.2				Celebes Sea
191	22/05/2018	12:55:38	6.30	126.36	18	4.4				Mindanao, Philippines
192	22/05/2018	14:21:39	-0.09	123.14	152	4.2				Minahassa Peninsula, Sulawesi
193	22/05/2018	14:55:07	1.79	121.76	92	2.0				Minahassa Peninsula, Sulawesi
194	23/05/2018	05:43:33	0.91	119.99	10	2.8				Minahassa Peninsula, Sulawesi
195	23/05/2018	07:07:28	1.49	121.50	56	2.5				Minahassa Peninsula, Sulawesi
196	23/05/2018	09:46:39	0.62	122.46	72	3.8				Minahassa Peninsula, Sulawesi
197	23/05/2018	16:58:45	-0.33	124.25	30	3.0				Southern Molucca Sea
198	24/05/2018	13:57:01	2.14	125.08	10	3.3				Talaud Islands, Indonesia
199	24/05/2018	13:57:20	-0.15	123.80	60	2.7				Minahassa Peninsula, Sulawesi
200	24/05/2018	21:08:38	3.08	126.13	55	3.6				Talaud Islands, Indonesia
201	25/05/2018	01:08:36	5.34	126.34	153	4.0				Mindanao, Philippines
202	25/05/2018	09:26:40	-0.13	123.61	140	3.5				Minahassa Peninsula, Sulawesi
203	25/05/2018	14:00:33	0.25	123.86	208	3.5				Minahassa Peninsula, Sulawesi
204	25/05/2018	16:21:18	-0.45	127.47	9	3.4				Halmahera, Indonesia
205	25/05/2018	16:41:03	-0.04	123.13	139	2.2				Minahassa Peninsula, Sulawesi
206	25/05/2018	19:33:36	1.82	127.44	116	4.2				Halmahera, Indonesia
207	25/05/2018	20:45:24	1.68	126.56	10	3.5				Northern Molucca Sea
208	26/05/2018	02:36:21	1.20	127.10	124	4.0				Halmahera, Indonesia
209	26/05/2018	11:57:23	1.89	127.35	117	3.5				Halmahera, Indonesia
210	26/05/2018	12:27:25	5.99	125.32	10	4.7				Mindanao, Philippines
211	26/05/2018	13:14:27	0.18	122.00	67	2.3				Minahassa Peninsula, Sulawesi

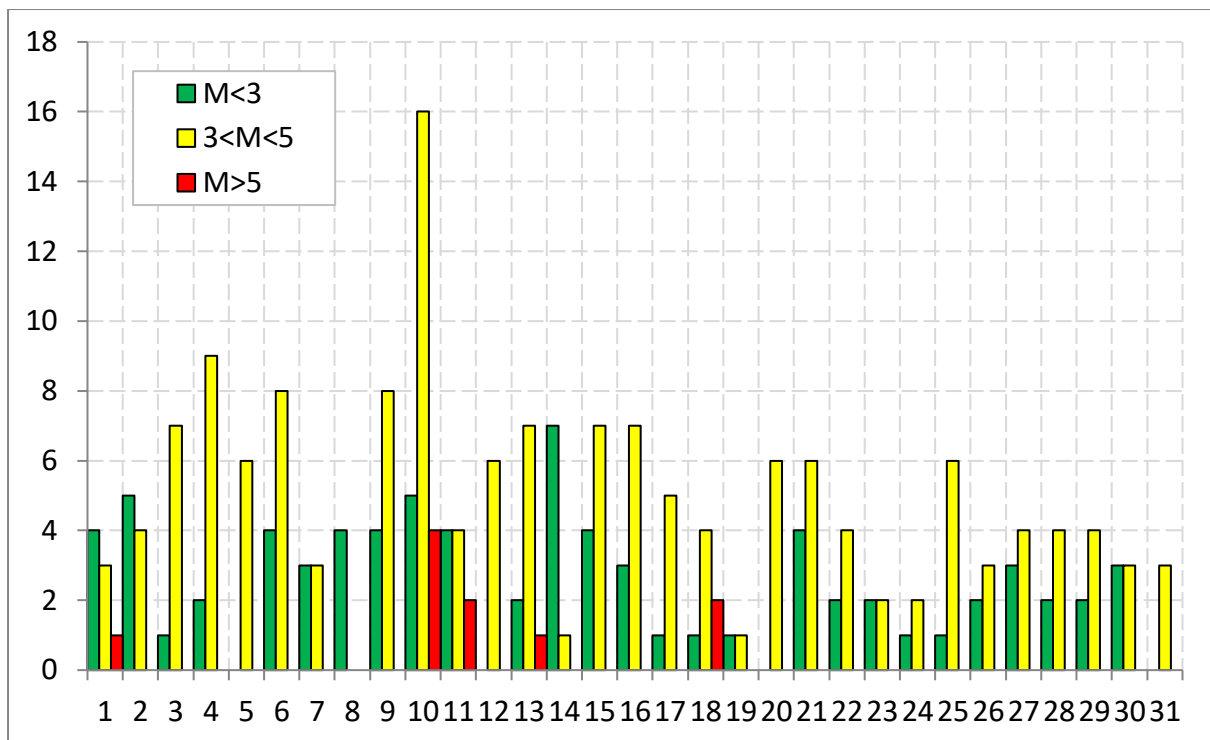
212	26/05/2018	23:01:22	1.65	121.98	10	2.5				Minahassa Peninsula, Sulawesi
213	27/05/2018	07:11:03	0.35	121.28	10	2.9				Minahassa Peninsula, Sulawesi
214	27/05/2018	08:21:26	4.43	118.24	10	4.3				Borneo
215	27/05/2018	10:46:07	-0.19	122.98	64	4.0				Minahassa Peninsula, Sulawesi
216	27/05/2018	15:47:45	2.57	123.10	0	2.8				Celebes Sea
217	27/05/2018	20:55:58	1.03	126.13	11	3.1				Northern Molucca Sea
218	27/05/2018	23:24:20	0.27	125.84	10	4.0				Northern Molucca Sea
219	27/05/2018	23:47:55	-0.49	122.52	21	2.6				Minahassa Peninsula, Sulawesi
220	28/05/2018	05:00:02	1.98	124.42	281	3.9				Minahassa Peninsula, Sulawesi
221	28/05/2018	10:13:34	2.34	126.78	10	3.7				Northern Molucca Sea
222	28/05/2018	20:03:50	-0.34	124.22	11	3.3				Southern Molucca Sea
223	28/05/2018	20:07:56	-0.22	124.28	23	2.9				Southern Molucca Sea
224	28/05/2018	20:38:33	0.04	120.21	50	2.4				Minahassa Peninsula, Sulawesi
225	28/05/2018	20:43:57	-0.05	123.39	99	3.0				Minahassa Peninsula, Sulawesi
226	29/05/2018	03:08:48	4.28	125.98	141	4.1				Talaud Islands, Indonesia
227	29/05/2018	06:24:18	3.05	128.34	27	4.1				North of Halmahera, Indonesia
228	29/05/2018	15:17:43	3.99	127.18	46	3.9				Talaud Islands, Indonesia
229	29/05/2018	16:34:19	-0.14	123.42	135	2.8				Minahassa Peninsula, Sulawesi
230	29/05/2018	17:43:01	0.16	122.96	109	2.9				Minahassa Peninsula, Sulawesi
231	29/05/2018	19:21:55	1.80	126.30	10	3.2				Northern Molucca Sea
232	30/05/2018	05:21:50	-0.09	122.75	155	2.6				Minahassa Peninsula, Sulawesi
233	30/05/2018	07:28:34	0.11	123.45	10	2.5				Minahassa Peninsula, Sulawesi
234	30/05/2018	17:01:31	3.03	127.84	4	3.8				Talaud Islands, Indonesia
235	30/05/2018	17:40:21	1.56	127.34	144	3.6				Halmahera, Indonesia
236	30/05/2018	19:36:14	0.84	121.76	34	2.5				Minahassa Peninsula, Sulawesi
237	30/05/2018	23:17:35	0.01	124.05	62	3.3				Minahassa Peninsula, Sulawesi
238	31/05/2018	15:44:24	4.06	126.54	12	4.4				Talaud Islands, Indonesia
239	31/05/2018	18:26:35	1.62	127.06	105	4.9				Halmahera, Indonesia
240	31/05/2018	18:43:09	0.33	121.98	126	3.1				Minahassa Peninsula, Sulawesi



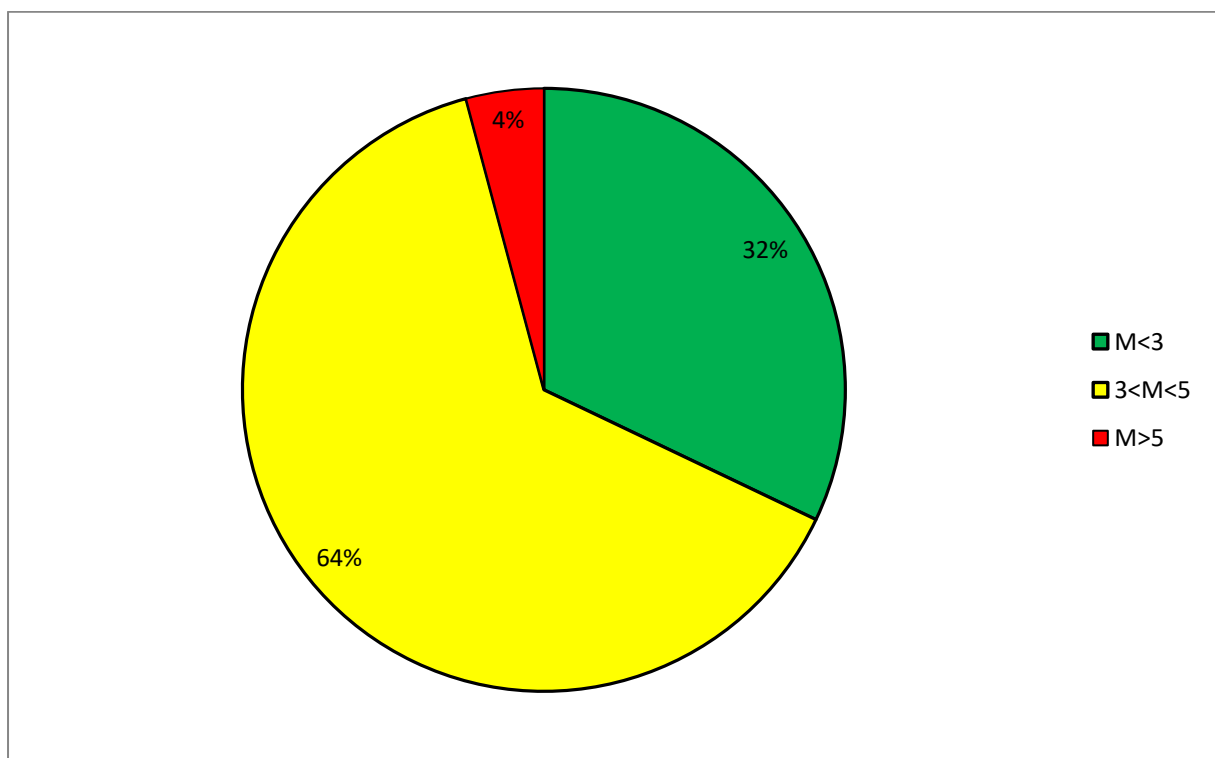
Gambar 27 Sebaran episeniter gempabumi bulan Mei 2018

Tabel 16 Rekapitulasi gempabumi dan tsunami berdasarkan magnitudo bulan Mei 2018

Tanggal (UTC)	Magnitudo			Jumlah Total	Jumlah Gempa Signifikan	
	M<3	3≤M<5	M≥5		Dirasakan	Merusak
1	4	3	1	8	1	0
2	5	4	0	9	0	0
3	1	7	0	8	0	0
4	2	9	0	11	0	0
5	0	6	0	6	0	0
6	4	8	0	12	0	0
7	3	3	0	6	0	0
8	4	0	0	4	0	0
9	4	8	0	12	0	0
10	5	16	4	25	1	0
11	4	4	2	10	0	0
12	0	6	0	6	0	0
13	2	7	1	10	0	0
14	7	1	0	8	0	0
15	4	7	0	11	0	0
16	3	7	0	10	0	0
17	1	5	0	6	0	0
18	1	4	2	7	2	0
19	1	1	0	2	0	0
20	0	6	0	6	0	0
21	4	6	0	10	1	0
22	2	4	0	6	0	0
23	2	2	0	4	0	0
24	1	2	0	3	0	0
25	1	6	0	7	0	0
26	2	3	0	5	0	0
27	3	4	0	7	0	0
28	2	4	0	6	0	0
29	2	4	0	6	0	0
30	3	3	0	6	0	0
31	0	3	0	3	0	0
Jumlah gempa	77	153	10	240	5	0



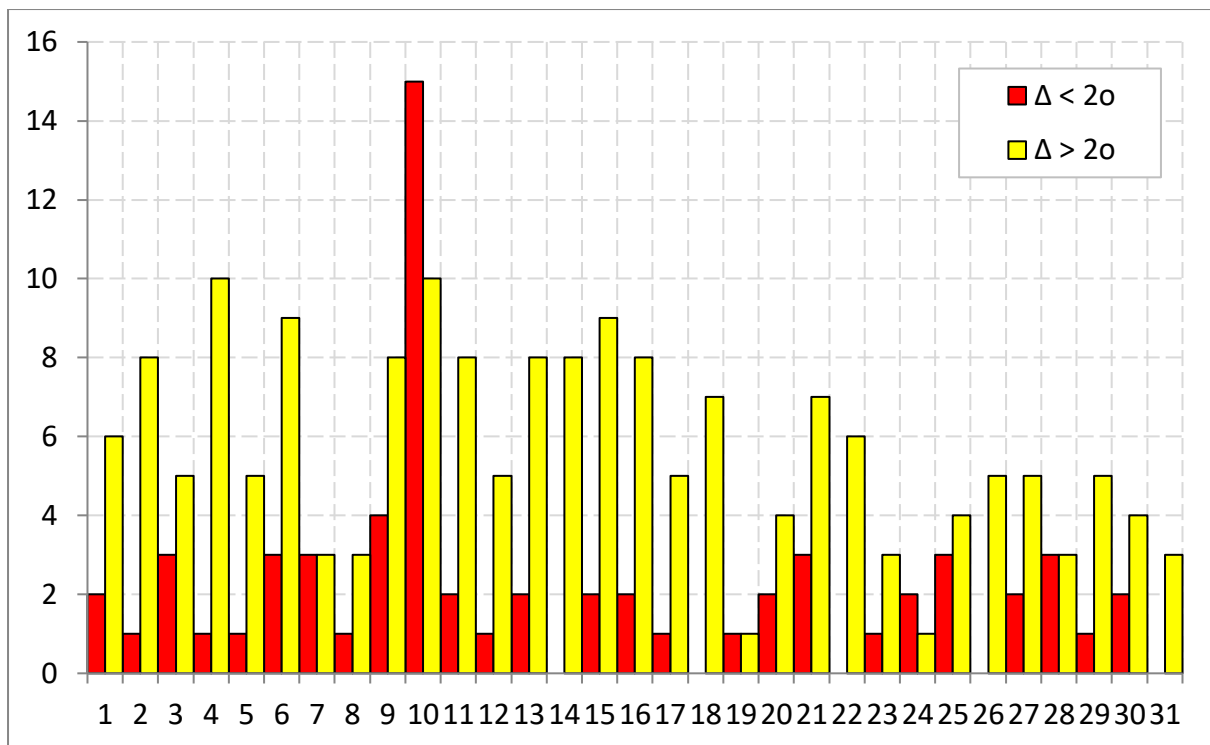
Gambar 28 Grafik gempabumi berdasarkan magnitudo bulan Mei 2018



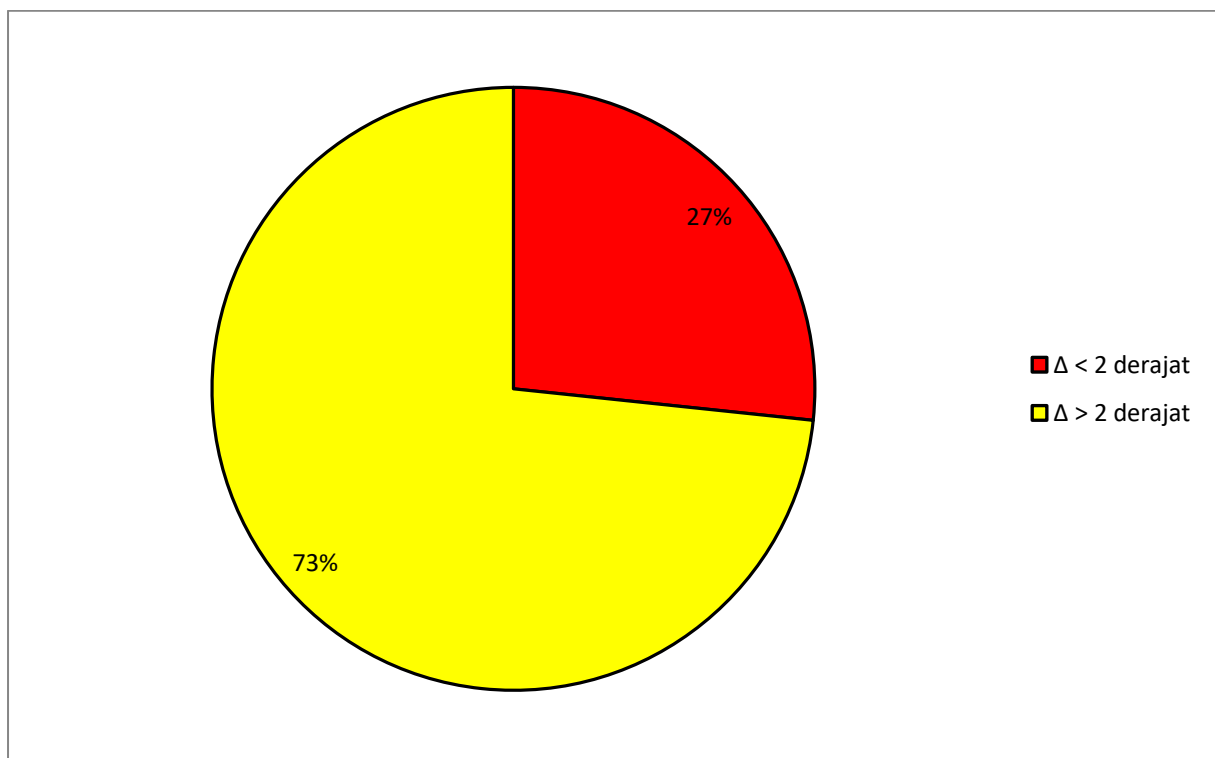
Gambar 29 Grafik persentase gempabumi berdasarkan magnitudo bulan Mei 2018

Tabel 17 Rekapitulasi gempabumi dan tsunami berdasarkan jarak dari stasiun bulan Mei 2018

Tanggal	Jarak		Jumlah	Keterangan
	$\Delta \leq 2^\circ$	$\Delta > 2^\circ$		
01/05/2018	2	6	8	-
02/05/2018	1	8	9	-
03/05/2018	3	5	8	-
04/05/2018	1	10	11	-
05/05/2018	1	5	6	-
06/05/2018	3	9	12	-
07/05/2018	3	3	6	-
08/05/2018	1	3	4	-
09/05/2018	4	8	12	-
10/05/2018	15	10	25	-
11/05/2018	2	8	10	-
12/05/2018	1	5	6	-
13/05/2018	2	8	10	-
14/05/2018	0	8	8	-
15/05/2018	2	9	11	-
16/05/2018	2	8	10	-
17/05/2018	1	5	6	-
18/05/2018	0	7	7	-
19/05/2018	1	1	2	-
20/05/2018	2	4	6	-
21/05/2018	3	7	10	-
22/05/2018	0	6	6	-
23/05/2018	1	3	4	-
24/05/2018	2	1	3	-
25/05/2018	3	4	7	-
26/05/2018	0	5	5	-
27/05/2018	2	5	7	-
28/05/2018	3	3	6	-
29/05/2018	1	5	6	-
30/05/2018	2	4	6	-
31/05/2018	0	3	3	-
Jumlah gempa	64	176	240	-



Gambar 30 Grafik gempabumi berdasarkan jarak bulan Mei 2018



Gambar 31 Grafik persentase gempabumi berdasarkan jarak bulan Mei 2018

F. Data Gempabumi Bulan Juni 2018

Tabel 18 Data kejadian gempabumi bulan Juni 2018

NO	DATE	OT (UTC)	EPICENTER		DEPTH (km)	MAG	PGA (gals) SLMI			REGION
			LAT	LONG			X	Y	Z	
1	01/06/2018	00:25:34	-0.35	123.08	31	3.4				Minahassa Peninsula, Sulawesi
2	01/06/2018	02:19:24	7.45	123.49	30	5.2				Mindanao, Philippines
3	01/06/2018	04:20:37	0.41	125.30	28	3.7				Northern Molucca Sea
4	01/06/2018	07:30:05	1.43	126.46	10	4.0				Northern Molucca Sea
5	01/06/2018	09:47:24	1.93	127.33	60	3.7				Halmahera, Indonesia
6	01/06/2018	10:21:39	7.29	123.77	571	5.1				Mindanao, Philippines
7	01/06/2018	12:19:14	-0.10	124.00	10	3.2				Minahassa Peninsula, Sulawesi
8	01/06/2018	15:39:19	1.45	126.41	11	3.7				Northern Molucca Sea
9	02/06/2018	10:39:48	2.72	126.91	93	3.7				Northern Molucca Sea
10	02/06/2018	11:01:02	2.91	127.32	9	4.1				Northern Molucca Sea
11	02/06/2018	14:49:28	1.32	125.75	52	3.9				Northern Molucca Sea
12	02/06/2018	16:29:02	4.53	126.75	42	5.7	-0.0132	0.0205	-0.0217	Talaud Islands, Indonesia
13	02/06/2018	16:39:28	4.56	126.88	47	4.5				Talaud Islands, Indonesia
14	02/06/2018	17:11:36	4.58	126.82	54	4.8				Talaud Islands, Indonesia
15	02/06/2018	17:42:20	1.39	126.93	73	4.3				Northern Molucca Sea
16	02/06/2018	17:49:47	4.10	126.74	28	3.6				Talaud Islands, Indonesia
17	02/06/2018	18:05:45	3.84	126.63	10	3.8				Talaud Islands, Indonesia
18	02/06/2018	19:06:48	0.86	120.40	10	2.3				Minahassa Peninsula, Sulawesi
19	02/06/2018	20:55:54	4.62	126.83	53	4.8				Talaud Islands, Indonesia
20	02/06/2018	21:26:09	4.72	126.86	42	4.5				Talaud Islands, Indonesia
21	03/06/2018	04:35:53	1.36	122.78	10	3.7				Minahassa Peninsula, Sulawesi
22	03/06/2018	06:26:33	4.50	126.75	62	4.9				Talaud Islands, Indonesia
23	03/06/2018	13:00:34	0.28	122.19	21	2.4				Minahassa Peninsula, Sulawesi
24	03/06/2018	21:50:14	0.17	124.28	10	3.2				Minahassa Peninsula, Sulawesi
25	03/06/2018	22:31:32	4.15	126.78	23	4.2				Talaud Islands, Indonesia
26	04/06/2018	02:18:48	2.31	128.30	212	3.9				Halmahera, Indonesia
27	04/06/2018	05:21:39	-0.14	123.94	18	3.2				Minahassa Peninsula, Sulawesi
28	04/06/2018	12:00:32	0.00	124.37	153	3.5				Minahassa Peninsula, Sulawesi
29	04/06/2018	13:07:36	2.45	122.85	468	3.5				Celebes Sea
30	04/06/2018	15:23:16	4.43	126.45	5	3.4				Talaud Islands, Indonesia
31	04/06/2018	17:16:12	-0.02	122.12	218	3.3				Minahassa Peninsula, Sulawesi

32	05/06/2018	01:22:48	1.34	122.31	10	4.0				Minahassa Peninsula, Sulawesi
33	05/06/2018	03:18:08	1.79	126.94	10	3.5				Northern Molucca Sea
34	05/06/2018	11:55:15	2.59	127.13	27	3.4				Northern Molucca Sea
35	05/06/2018	14:16:40	-0.22	124.54	40	4.6				Southern Molucca Sea
36	05/06/2018	19:04:45	0.95	124.62	131	3.5				Minahassa Peninsula, Sulawesi
37	06/06/2018	03:08:24	1.34	126.85	40	4.0				Northern Molucca Sea
38	06/06/2018	07:32:09	2.77	128.57	231	4.5				Halmahera, Indonesia
39	06/06/2018	13:54:53	0.98	122.40	38	1.5				Minahassa Peninsula, Sulawesi
40	06/06/2018	19:56:28	1.74	125.95	63	3.4				Northern Molucca Sea
41	06/06/2018	21:31:02	1.86	130.36	10	4.5				Irian Jaya Region, Indonesia
42	06/06/2018	22:33:16	-0.06	130.49	22	3.3				Irian Jaya Region, Indonesia
43	06/06/2018	23:17:01	-0.25	122.92	71	2.7				Minahassa Peninsula, Sulawesi
44	06/06/2018	23:52:17	4.94	126.63	10	4.4				Talaud Islands, Indonesia
45	07/06/2018	02:09:04	5.80	125.74	196	4.8				Mindanao, Philippines
46	07/06/2018	18:11:10	1.06	126.20	10	3.5				Northern Molucca Sea
47	07/06/2018	20:27:59	3.93	126.54	10	3.7				Talaud Islands, Indonesia
48	07/06/2018	20:46:08	3.89	124.23	187	3.8				Celebes Sea
49	07/06/2018	21:40:51	1.25	126.94	56	3.4				Northern Molucca Sea
50	08/06/2018	00:02:52	0.44	121.43	10	2.8				Minahassa Peninsula, Sulawesi
51	08/06/2018	00:19:53	3.04	127.90	23	4.1				Talaud Islands, Indonesia
52	08/06/2018	02:52:39	3.76	127.85	149	4.4				Talaud Islands, Indonesia
53	08/06/2018	17:19:35	3.37	126.93	10	3.8				Talaud Islands, Indonesia
54	08/06/2018	18:07:03	0.05	123.56	166	2.5				Minahassa Peninsula, Sulawesi
55	08/06/2018	18:47:25	1.49	127.27	92	3.4				Halmahera, Indonesia
56	08/06/2018	20:00:24	1.00	125.48	25	4.4	0.0907	0.0812	0.1190	Northern Molucca Sea
57	09/06/2018	03:20:10	-0.26	123.12	53	2.7				Minahassa Peninsula, Sulawesi
58	09/06/2018	12:27:17	-0.08	123.34	137	3.0				Minahassa Peninsula, Sulawesi
59	09/06/2018	18:29:54	0.27	122.32	142	2.9				Minahassa Peninsula, Sulawesi
60	10/06/2018	02:46:26	-0.40	123.10	64	2.5				Minahassa Peninsula, Sulawesi
61	10/06/2018	08:21:29	6.47	126.13	15	5.0				Mindanao, Philippines
62	10/06/2018	09:09:14	0.80	123.29	50	3.3				Minahassa Peninsula, Sulawesi
63	10/06/2018	09:28:23	-0.15	123.53	146	3.7				Minahassa Peninsula, Sulawesi
64	10/06/2018	09:54:23	2.52	128.11	150	3.8				Halmahera, Indonesia
65	10/06/2018	13:17:25	-0.05	123.10	141	2.3				Minahassa Peninsula, Sulawesi
66	10/06/2018	14:58:29	0.14	122.04	20	2.5				Minahassa Peninsula, Sulawesi
67	10/06/2018	16:36:39	0.05	122.52	12	2.4				Minahassa Peninsula, Sulawesi

68	10/06/2018	19:20:04	6.44	126.39	88	4.9				Mindanao, Philippines
69	11/06/2018	07:47:04	1.39	126.60	10	3.5				Northern Molucca Sea
70	11/06/2018	08:08:30	2.74	128.37	222	4.7				Halmahera, Indonesia
71	11/06/2018	08:23:14	0.19	123.91	181	4.5				Minahassa Peninsula, Sulawesi
72	11/06/2018	10:23:18	1.37	126.95	10	4.0				Northern Molucca Sea
73	11/06/2018	12:11:20	-0.21	129.90	10	3.4				Halmahera, Indonesia
74	11/06/2018	13:13:12	1.42	125.83	27	3.6				Northern Molucca Sea
75	11/06/2018	14:22:15	0.43	120.86	28	2.0				Minahassa Peninsula, Sulawesi
76	11/06/2018	14:23:50	0.20	120.71	10	2.4				Minahassa Peninsula, Sulawesi
77	11/06/2018	14:24:44	-0.07	130.08	20	4.7				Irian Jaya Region, Indonesia
78	11/06/2018	16:31:57	-0.09	123.12	116	2.4				Minahassa Peninsula, Sulawesi
79	11/06/2018	19:39:23	1.59	126.55	18	3.4				Northern Molucca Sea
80	11/06/2018	23:42:34	3.80	128.05	10	4.4				North of Halmahera, Indonesia
81	11/06/2018	23:54:08	2.75	131.60	348	4.1				Irian Jaya Region, Indonesia
82	12/06/2018	08:49:17	0.94	126.77	31	3.1				Northern Molucca Sea
83	12/06/2018	09:09:04	2.78	128.07	55	3.9				Halmahera, Indonesia
84	12/06/2018	13:24:08	4.56	118.33	10	3.5				Borneo
85	12/06/2018	14:59:45	0.17	122.58	143	2.0				Minahassa Peninsula, Sulawesi
86	12/06/2018	16:20:35	-0.06	123.18	136	2.2				Minahassa Peninsula, Sulawesi
87	12/06/2018	21:55:09	1.64	125.49	89	3.7				Northern Molucca Sea
88	12/06/2018	22:25:14	1.24	126.62	13	3.1				Northern Molucca Sea
89	12/06/2018	23:09:31	2.11	103.10	211	5.6	0.0219	0.0141	0.0204	Southern Molucca Sea
90	12/06/2018	23:48:56	-0.01	111.83	160	4.2				Borneo
91	13/06/2018	06:29:17	1.49	126.45	61	4.0				Northern Molucca Sea
92	13/06/2018	06:39:49	4.25	126.58	24	4.0				Talaud Islands, Indonesia
93	13/06/2018	09:09:31	3.03	127.86	27	3.9				Talaud Islands, Indonesia
94	13/06/2018	10:06:56	7.70	125.95	10	4.4				Mindanao, Philippines
95	13/06/2018	11:51:40	-0.26	123.11	58	2.6				Minahassa Peninsula, Sulawesi
96	13/06/2018	12:35:17	0.21	121.74	184	3.3				Minahassa Peninsula, Sulawesi
97	13/06/2018	14:59:11	6.29	126.27	122	5.3				Mindanao, Philippines
98	13/06/2018	20:21:42	1.72	126.20	10	4.0				Northern Molucca Sea
99	14/06/2018	08:20:39	-0.27	122.98	57	2.8				Minahassa Peninsula, Sulawesi
100	14/06/2018	16:24:57	0.34	122.28	137	2.2				Minahassa Peninsula, Sulawesi
101	14/06/2018	18:22:35	-0.23	122.91	12	3.1				Minahassa Peninsula, Sulawesi
102	14/06/2018	19:46:59	2.82	128.12	48	5.3	-0.0063	0.0073	-0.0094	Halmahera, Indonesia
103	15/06/2018	00:32:55	2.54	128.60	27	4.8				Halmahera, Indonesia

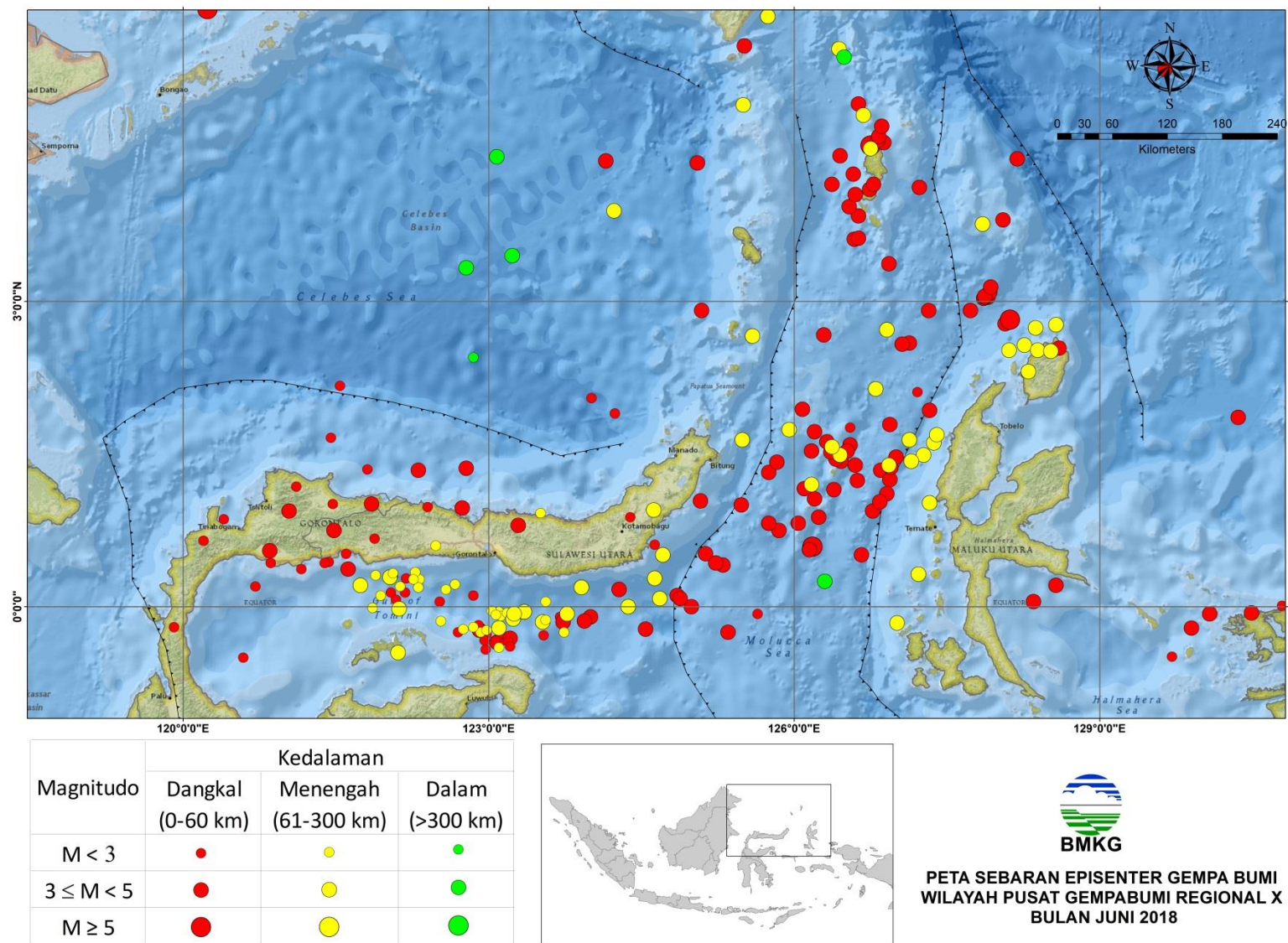
104	15/06/2018	02:10:03	0.52	125.13	44	4.1				Northern Molucca Sea
105	15/06/2018	03:57:35	1.53	126.17	58	3.5				Northern Molucca Sea
106	15/06/2018	04:09:13	0.29	122.03	158	3.7				Minahassa Peninsula, Sulawesi
107	15/06/2018	16:07:44	3.04	127.87	13	4.7				Talaud Islands, Indonesia
108	15/06/2018	23:28:29	0.75	121.48	10	3.3				Minahassa Peninsula, Sulawesi
109	16/06/2018	04:50:39	1.16	126.10	10	3.6				Northern Molucca Sea
110	16/06/2018	07:48:00	1.13	111.45	10	3.8				Borneo
111	16/06/2018	08:02:25	3.06	127.89	26	3.8				Talaud Islands, Indonesia
112	16/06/2018	08:15:23	-0.33	123.07	48	2.6				Minahassa Peninsula, Sulawesi
113	16/06/2018	08:33:23	3.09	127.92	1	3.9				Talaud Islands, Indonesia
114	16/06/2018	11:16:36	-0.23	123.10	67	2.6				Minahassa Peninsula, Sulawesi
115	16/06/2018	20:25:40	1.52	126.36	29	3.5	-0.0066	0.0078	0.0096	Northern Molucca Sea
116	17/06/2018	02:39:38	6.17	125.87	123	5.2				Mindanao, Philippines
117	17/06/2018	07:01:48	4.12	127.23	19	4.0				Talaud Islands, Indonesia
118	17/06/2018	07:21:56	5.99	123.17	161	4.8				Mindanao, Philippines
119	17/06/2018	08:44:23	1.43	127.15	126	4.3				Halmahera, Indonesia
120	17/06/2018	14:30:21	0.32	127.22	137	4.3	0.0154	0.0312	0.0333	Halmahera, Indonesia
121	17/06/2018	17:26:38	6.72	123.91	131	3.8				Mindanao, Philippines
122	17/06/2018	17:56:40	1.53	126.52	10	3.3				Northern Molucca Sea
123	17/06/2018	18:15:17	1.15	126.39	18	3.5				Northern Molucca Sea
124	17/06/2018	20:30:07	-0.20	122.85	129	2.8				Minahassa Peninsula, Sulawesi
125	18/06/2018	06:59:42	3.05	127.87	13	3.7				Talaud Islands, Indonesia
126	18/06/2018	12:45:09	0.25	126.30	457	3.6				Northern Molucca Sea
127	18/06/2018	12:45:44	0.51	124.71	121	3.4				Minahassa Peninsula, Sulawesi
128	18/06/2018	13:04:12	-0.50	120.59	13	2.9				Minahassa Peninsula, Sulawesi
129	18/06/2018	14:15:31	7.03	123.58	750	4.6	0.0193	0.0092	0.0160	Mindanao, Philippines
130	18/06/2018	16:03:59	0.67	121.88	31	2.2				Minahassa Peninsula, Sulawesi
131	18/06/2018	16:18:36	1.20	126.17	76	3.5				Northern Molucca Sea
132	18/06/2018	17:16:39	5.28	129.64	10	4.7				East of Philippine Islands
133	18/06/2018	17:17:02	4.40	128.19	10	4.4				North of Halmahera, Indonesia
134	18/06/2018	18:49:08	-0.42	122.97	15	2.5				Minahassa Peninsula, Sulawesi
135	18/06/2018	19:01:51	0.75	125.85	10	3.6				Northern Molucca Sea
136	18/06/2018	20:24:39	4.83	126.68	101	4.1				Talaud Islands, Indonesia
137	19/06/2018	01:08:33	-0.12	123.24	117	3.4				Minahassa Peninsula, Sulawesi
138	19/06/2018	02:32:48	1.61	127.37	88	3.5				Halmahera, Indonesia
139	19/06/2018	03:02:17	0.43	121.39	20	2.1				Minahassa Peninsula, Sulawesi

140	19/06/2018	04:36:01	3.45	123.23	491	4.4				Celebes Sea
141	19/06/2018	04:36:53	0.37	121.62	10	3.9				Minahassa Peninsula, Sulawesi
142	19/06/2018	05:59:22	-0.25	123.74	114	2.8				Minahassa Peninsula, Sulawesi
143	19/06/2018	07:39:47	4.93	125.50	116	4.2				Talaud Islands, Indonesia
144	19/06/2018	08:29:05	-0.45	122.11	89	3.2				Minahassa Peninsula, Sulawesi
145	19/06/2018	09:53:07	5.87	120.24	10	5.2				Sulu Archipelago, Philippines
146	19/06/2018	10:01:06	1.11	126.91	54	3.7				Northern Molucca Sea
147	19/06/2018	13:22:05	5.40	126.49	393	4.1				Mindanao, Philippines
148	19/06/2018	13:52:31	-0.04	123.03	161	2.9				Minahassa Peninsula, Sulawesi
149	19/06/2018	13:54:48	0.52	121.60	20	2.2				Minahassa Peninsula, Sulawesi
150	19/06/2018	15:16:07	0.31	121.89	147	3.0				Minahassa Peninsula, Sulawesi
151	19/06/2018	23:03:11	-0.31	123.21	48	3.6				Minahassa Peninsula, Sulawesi
152	20/06/2018	00:48:22	4.36	125.05	10	4.0				Talaud Islands, Indonesia
153	20/06/2018	12:00:36	0.65	120.20	49	2.3				Minahassa Peninsula, Sulawesi
154	20/06/2018	15:49:43	-0.07	123.77	103	3.1				Minahassa Peninsula, Sulawesi
155	20/06/2018	16:35:25	1.64	127.13	112	3.5				Halmahera, Indonesia
156	21/06/2018	03:03:46	0.00	124.99	16	3.7				Southern Molucca Sea
157	21/06/2018	03:25:21	7.72	126.26	139	4.7				Mindanao, Philippines
158	21/06/2018	04:12:43	1.47	127.00	46	4.2	0.0121	0.0146	0.0269	Northern Molucca Sea
159	21/06/2018	08:05:40	0.51	126.66	10	3.4				Northern Molucca Sea
160	21/06/2018	12:38:53	-0.08	123.07	149	2.3				Minahassa Peninsula, Sulawesi
161	21/06/2018	17:41:36	0.08	124.68	109	3.3				Minahassa Peninsula, Sulawesi
162	22/06/2018	01:59:47	6.28	126.83	138	4.6				Mindanao, Philippines
163	22/06/2018	06:43:35	1.04	125.08	19	4.0				Northern Molucca Sea
164	22/06/2018	16:44:56	1.76	126.55	22	2.6				Northern Molucca Sea
165	22/06/2018	17:42:26	-0.10	123.70	54	2.9				Minahassa Peninsula, Sulawesi
166	22/06/2018	19:29:27	0.88	126.24	10	3.8				Northern Molucca Sea
167	22/06/2018	23:32:45	4.15	126.37	33	3.7				Talaud Islands, Indonesia
168	23/06/2018	00:32:21	1.57	126.37	90	3.6				Northern Molucca Sea
169	23/06/2018	00:32:22	1.62	126.32	29	3.7				Northern Molucca Sea
170	23/06/2018	05:13:35	-0.15	123.73	15	3.2				Minahassa Peninsula, Sulawesi
171	23/06/2018	07:53:40	1.94	126.08	17	3.5				Northern Molucca Sea
172	23/06/2018	14:39:09	0.61	124.63	59	3.0				Minahassa Peninsula, Sulawesi
173	23/06/2018	17:41:36	3.14	127.93	11	4.0				Talaud Islands, Indonesia
174	23/06/2018	19:14:22	-0.49	129.71	11	2.0				Halmahera, Indonesia
175	23/06/2018	22:17:49	3.61	126.59	10	4.5				Talaud Islands, Indonesia

176	23/06/2018	23:39:03	2.91	127.73	54	3.5				Northern Molucca Sea
177	24/06/2018	02:57:45	-0.22	122.75	83	2.4				Minahassa Peninsula, Sulawesi
178	24/06/2018	05:53:13	2.67	126.29	12	3.3				Northern Molucca Sea
179	24/06/2018	06:24:08	-0.21	123.10	65	3.9				Minahassa Peninsula, Sulawesi
180	24/06/2018	06:49:34	7.14	124.98	10	4.5				Mindanao, Philippines
181	24/06/2018	09:41:54	8.92	125.48	10	5.3				Mindanao, Philippines
182	24/06/2018	15:30:30	5.51	125.51	14	4.7				Mindanao, Philippines
183	24/06/2018	17:05:23	-0.20	119.91	10	3.0				Minahassa Peninsula, Sulawesi
184	24/06/2018	18:16:49	5.48	126.44	79	4.9				Mindanao, Philippines
185	25/06/2018	05:20:19	-0.23	122.98	76	2.7				Minahassa Peninsula, Sulawesi
186	25/06/2018	05:32:32	0.11	121.94	126	2.9				Minahassa Peninsula, Sulawesi
187	25/06/2018	06:07:38	4.05	126.60	29	3.7				Talaud Islands, Indonesia
188	25/06/2018	12:31:53	0.05	128.35	10	3.7				Halmahera, Indonesia
189	25/06/2018	23:32:47	0.11	124.85	19	4.4	-0.0990	0.1559	0.1446	Minahassa Peninsula, Sulawesi
190	26/06/2018	03:17:09	3.62	126.63	10	4.0				Talaud Islands, Indonesia
191	26/06/2018	04:12:39	4.38	124.15	10	4.2				Celebes Sea
192	26/06/2018	07:44:46	-0.28	123.54	10	2.7				Minahassa Peninsula, Sulawesi
193	26/06/2018	10:55:54	0.19	122.31	137	3.0				Minahassa Peninsula, Sulawesi
194	26/06/2018	11:19:35	1.35	121.81	10	2.2				Minahassa Peninsula, Sulawesi
195	26/06/2018	11:28:59	-0.25	122.70	59	2.9				Minahassa Peninsula, Sulawesi
196	26/06/2018	13:57:50	0.01	130.79	14	2.8				Irian Jaya Region, Indonesia
197	26/06/2018	22:37:37	-0.16	127.01	83	3.7				Halmahera, Indonesia
198	26/06/2018	23:01:52	0.97	122.74	47	3.1				Minahassa Peninsula, Sulawesi
199	26/06/2018	23:09:45	0.33	122.06	156	2.6				Minahassa Peninsula, Sulawesi
200	27/06/2018	00:07:34	2.57	128.26	228	3.6				Halmahera, Indonesia
201	27/06/2018	01:06:36	-0.05	123.35	153	3.3				Minahassa Peninsula, Sulawesi
202	27/06/2018	01:06:37	-0.07	123.25	161	3.3				Minahassa Peninsula, Sulawesi
203	27/06/2018	01:49:59	0.11	122.85	10	2.2				Minahassa Peninsula, Sulawesi
204	27/06/2018	02:42:26	2.05	124.01	10	3.0				Celebes Sea
205	27/06/2018	03:31:53	0.37	121.16	10	2.2				Minahassa Peninsula, Sulawesi
206	27/06/2018	03:36:47	1.01	121.47	10	2.2				Minahassa Peninsula, Sulawesi
207	27/06/2018	04:52:10	2.66	125.59	157	3.3				Talaud Islands, Indonesia
208	27/06/2018	05:01:35	2.52	128.39	226	3.7				Halmahera, Indonesia
209	27/06/2018	05:21:48	1.90	124.24	10	3.0				Minahassa Peninsula, Sulawesi
210	27/06/2018	05:56:01	1.66	121.45	14	2.3				Minahassa Peninsula, Sulawesi
211	27/06/2018	06:15:22	0.14	122.18	29	1.8				Minahassa Peninsula, Sulawesi

212	27/06/2018	06:44:26	0.59	126.18	48	5.4	0.1032	0.1608	0.1407	Northern Molucca Sea
213	27/06/2018	06:55:54	0.56	126.15	10	4.3				Northern Molucca Sea
214	27/06/2018	11:13:23	-0.34	123.19	58	2.5				Minahassa Peninsula, Sulawesi
215	27/06/2018	11:32:58	2.91	125.09	13	3.5				Talaud Islands, Indonesia
216	27/06/2018	14:59:11	-0.13	123.56	125	2.1				Minahassa Peninsula, Sulawesi
217	27/06/2018	15:32:15	2.14	126.80	124	4.0				Northern Molucca Sea
218	27/06/2018	16:23:11	2.11	127.21	53	2.7				Northern Molucca Sea
219	27/06/2018	16:30:38	0.55	120.85	46	3.5				Minahassa Peninsula, Sulawesi
220	27/06/2018	20:37:45	1.01	121.85	20	3.1				Minahassa Peninsula, Sulawesi
221	27/06/2018	21:29:42	-0.33	122.96	28	2.3				Minahassa Peninsula, Sulawesi
222	28/06/2018	04:35:22	0.60	122.48	128	2.2				Minahassa Peninsula, Sulawesi
223	28/06/2018	04:35:57	2.58	127.06	11	3.5				Northern Molucca Sea
224	28/06/2018	06:03:13	0.94	121.04	23	3.5				Minahassa Peninsula, Sulawesi
225	28/06/2018	14:13:31	3.33	122.78	471	3.6				Celebes Sea
226	28/06/2018	16:44:41	0.21	128.57	10	3.6				Halmahera, Indonesia
227	28/06/2018	23:35:28	2.51	128.52	223	5.0	0.0393	0.0407	0.0344	Halmahera, Indonesia
228	29/06/2018	05:00:03	0.27	122.26	179	3.0				Minahassa Peninsula, Sulawesi
229	29/06/2018	06:53:05	0.30	122.06	19	2.6				Minahassa Peninsula, Sulawesi
230	29/06/2018	08:55:55	1.69	127.40	108	4.3				Halmahera, Indonesia
231	29/06/2018	11:29:41	4.42	123.08	507	3.8				Celebes Sea
232	29/06/2018	12:12:55	2.17	121.54	12	2.7				Celebes Sea
233	29/06/2018	12:20:36	1.18	121.11	46	2.6				Minahassa Peninsula, Sulawesi
234	29/06/2018	14:07:46	1.02	127.33	157	3.6				Halmahera, Indonesia
235	29/06/2018	15:44:52	0.43	125.23	18	3.6	0.0108	0.0092	0.0072	Northern Molucca Sea
236	29/06/2018	17:28:57	-0.07	125.64	10	3.0				Southern Molucca Sea
237	29/06/2018	17:31:53	-0.25	125.35	10	3.2				Southern Molucca Sea
238	29/06/2018	18:49:33	0.28	124.63	67	3.2				Minahassa Peninsula, Sulawesi
239	29/06/2018	19:19:33	1.03	126.84	18	3.9				Northern Molucca Sea
240	29/06/2018	21:12:01	-0.39	123.21	50	2.4				Minahassa Peninsula, Sulawesi
241	29/06/2018	22:30:34	0.82	125.75	10	3.2				Northern Molucca Sea
242	30/06/2018	01:25:59	-0.14	122.53	102	2.4				Minahassa Peninsula, Sulawesi
243	30/06/2018	03:08:01	0.07	122.09	0	2.2				Minahassa Peninsula, Sulawesi
244	30/06/2018	04:29:32	0.82	126.04	10	3.2				Northern Molucca Sea
245	30/06/2018	09:41:48	-0.18	122.90	19	2.3				Minahassa Peninsula, Sulawesi
246	30/06/2018	12:02:25	0.92	123.51	127	2.2				Minahassa Peninsula, Sulawesi
247	30/06/2018	14:12:59	0.08	124.88	13	3.2				Minahassa Peninsula, Sulawesi

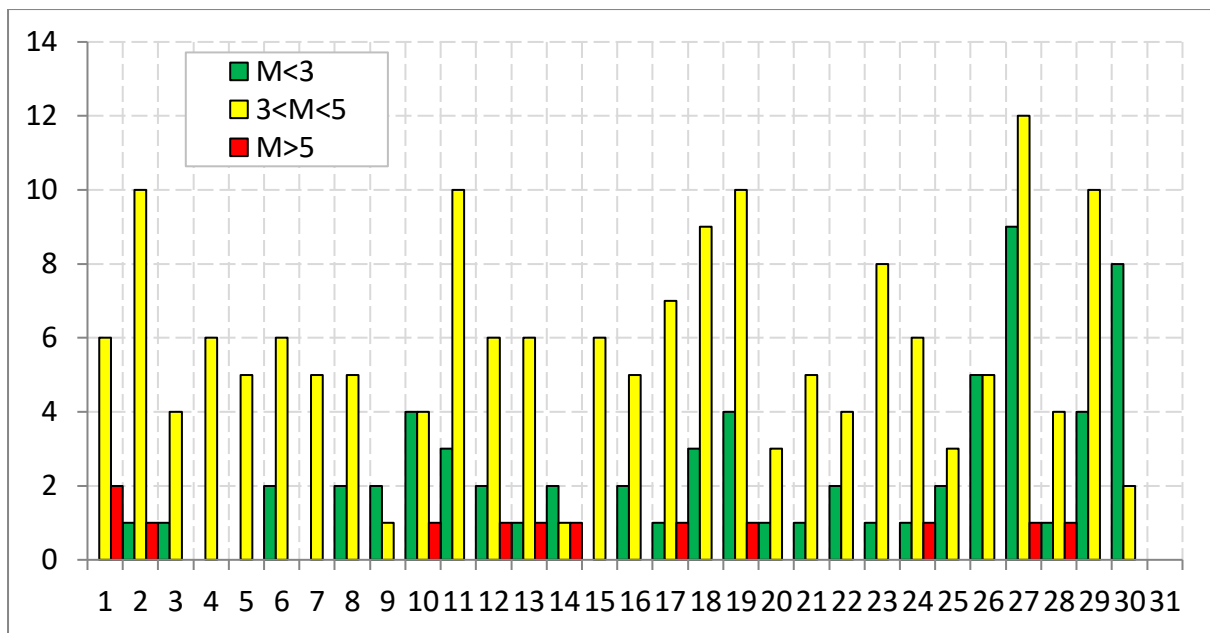
248	30/06/2018	14:13:08	0.88	124.39	10	2.8				Minahassa Peninsula, Sulawesi
249	30/06/2018	20:45:43	0.20	122.13	143	2.0				Minahassa Peninsula, Sulawesi
250	30/06/2018	21:03:12	-0.01	121.86	144	2.0				Minahassa Peninsula, Sulawesi
251	30/06/2018	21:56:46	0.22	122.67	148	1.5				Minahassa Peninsula, Sulawesi



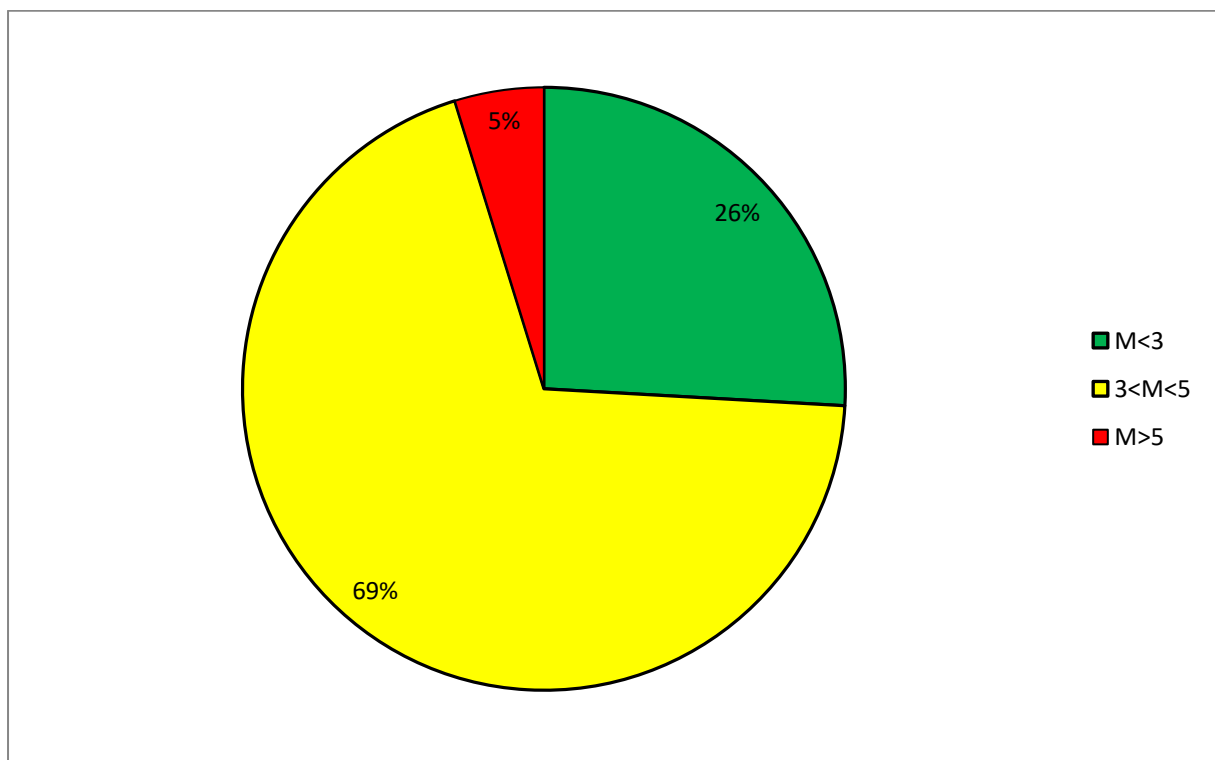
Gambar 32 Sebaran episenter gempabumi bulan Juni 2018

Tabel 19 Rekapitulasi gempabumi dan tsunami berdasarkan magnitudo bulan Juni 2018

Tanggal (UTC)	Magnitudo			Jumlah Total	Jumlah Gempa Signifikan	
	M<3	3≤M<5	M≥5		Dirasakan	Merusak
1	0	6	2	8	0	0
2	1	10	1	12	1	0
3	1	4	0	5	0	0
4	0	6	0	6	0	0
5	0	5	0	5	0	0
6	2	6	0	8	0	0
7	0	5	0	5	0	0
8	2	5	0	7	1	0
9	2	1	0	3	0	0
10	4	4	1	9	0	0
11	3	10	0	13	0	0
12	2	6	1	9	0	0
13	1	6	1	8	0	0
14	2	1	1	4	0	0
15	0	6	0	6	0	0
16	2	5	0	7	0	0
17	1	7	1	9	0	0
18	3	9	0	12	0	0
19	4	10	1	15	0	0
20	1	3	0	4	0	0
21	1	5	0	6	0	0
22	2	4	0	6	0	0
23	1	8	0	9	0	0
24	1	6	1	8	0	0
25	2	3	0	5	0	0
26	5	5	0	10	0	0
27	9	12	1	22	1	0
28	1	4	1	6	0	0
29	4	10	0	14	0	0
30	8	2	0	10	0	0
31	0	0	0	0	0	0
Jumlah gempa	65	174	12	251	3	0
Jumlah gempa seluruhnya						



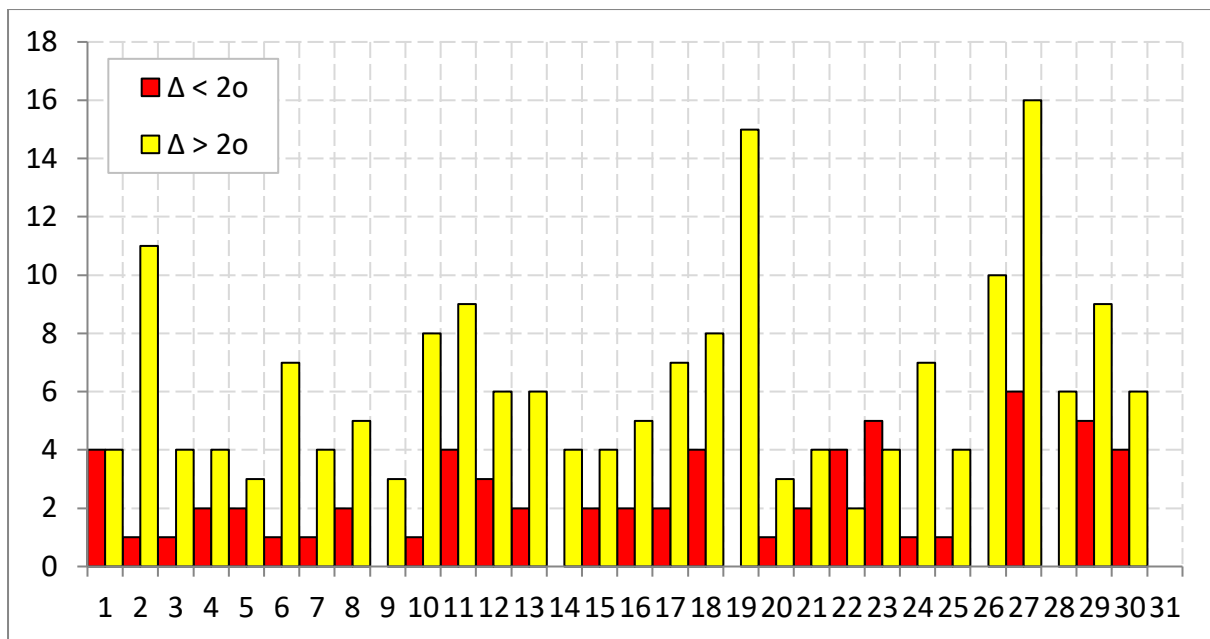
Gambar 33 Grafik gempabumi berdasarkan magnitudo bulan Juni 2018



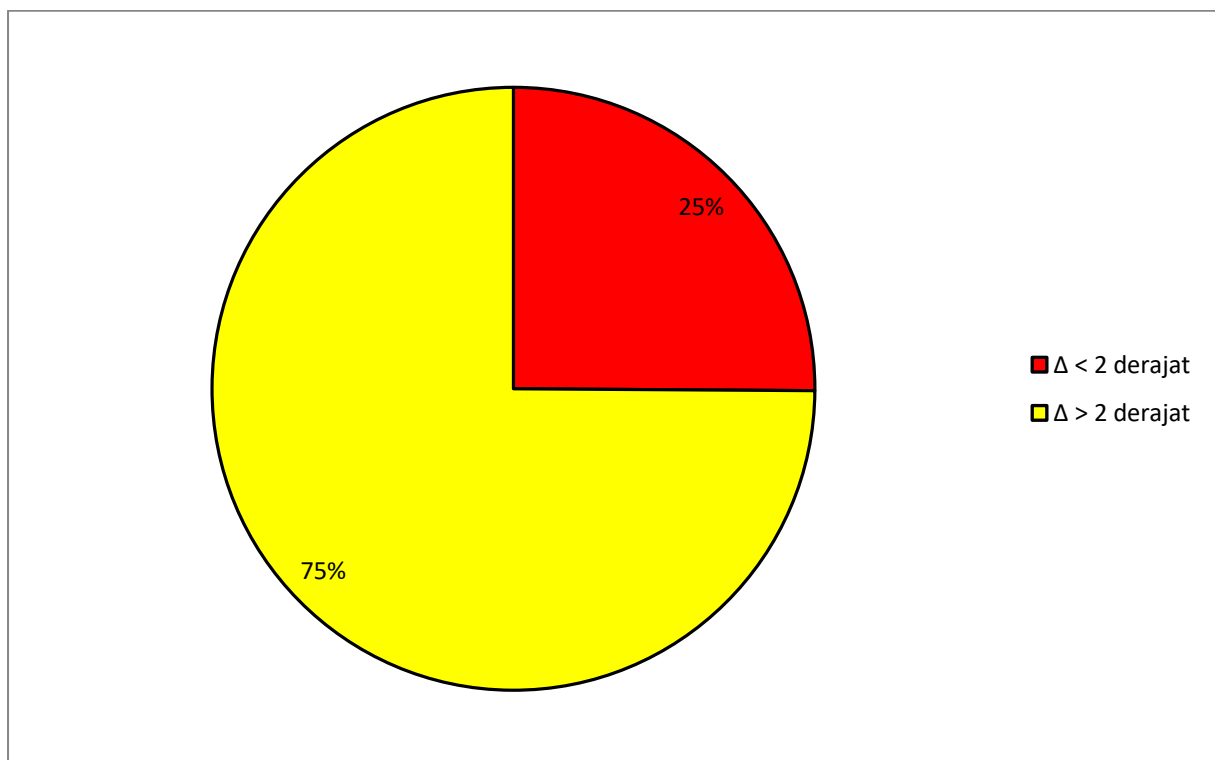
Gambar 34 Grafik persentase gempabumi berdasarkan magnitudo bulan Juni 2018

Tabel 20 Rekapitulasi gempabumi dan tsunami berdasarkan jarak dari stasiun bulan Juni 2018

Tanggal	Jarak		Jumlah	Keterangan
	$\Delta \leq 2^\circ$	$\Delta > 2^\circ$		
01/06/2018	4	4	8	-
02/06/2018	1	11	12	-
03/06/2018	1	4	5	-
04/06/2018	2	4	6	-
05/06/2018	2	3	5	-
06/06/2018	1	7	8	-
07/06/2018	1	4	5	-
08/06/2018	2	5	7	-
09/06/2018	0	3	3	-
10/06/2018	1	8	9	-
11/06/2018	4	9	13	-
12/06/2018	3	6	9	-
13/06/2018	2	6	8	-
14/06/2018	0	4	4	-
15/06/2018	2	4	6	-
16/06/2018	2	5	7	-
17/06/2018	2	7	9	-
18/06/2018	4	8	12	-
19/06/2018	0	15	15	-
20/06/2018	1	3	4	-
21/06/2018	2	4	6	-
22/06/2018	4	2	6	-
23/06/2018	5	4	9	-
24/06/2018	1	7	8	-
25/06/2018	1	4	5	-
26/06/2018	0	10	10	-
27/06/2018	6	16	22	-
28/06/2018	0	6	6	-
29/06/2018	5	9	14	-
30/06/2018	4	6	10	-
31/06/2018	0	0	0	
Jumlah gempa	63	188	251	-
Jumlah gempa seluruhnya				



Gambar 35 Grafik gempabumi berdasarkan jarak bulan Juni 2018



Gambar 36 Grafik persentase gempabumi berdasarkan jarak bulan Juni 2018

G. Data Gempabumi Bulan Juli 2018

Tabel 21 Data kejadian gempabumi bulan Juli 2018

NO	DATE	OT (UTC)	EPICENTER		DEPTH (KM)	MAG	PGA (gals) / SLMI			REGION
			LAT	LON			X	Y	Z	
1	01/07/2018	00:21:41	0.67	123.41	16	2.6				Minahassa Peninsula, Sulawesi
2	01/07/2018	05:44:20	0.00	123.19	159	2.8				Minahassa Peninsula, Sulawesi
3	01/07/2018	06:05:39	1.19	128.84	10	4.1				Halmahera, Indonesia
4	01/07/2018	11:31:10	3.55	126.65	10	2.7				Talaud Islands, Indonesia
5	01/07/2018	12:16:48	-0.02	122.93	135	2.3				Minahassa Peninsula, Sulawesi
6	01/07/2018	12:40:17	0.12	124.31	20	3.1				Minahassa Peninsula, Sulawesi
7	01/07/2018	17:48:40	-0.22	122.19	10	2.2				Minahassa Peninsula, Sulawesi
8	01/07/2018	18:13:22	1.59	123.74	10	2.1				Minahassa Peninsula, Sulawesi
9	01/07/2018	19:21:48	0.27	122.34	151	1.6				Minahassa Peninsula, Sulawesi
10	01/07/2018	23:23:11	4.49	126.20	190	4.2	0.127106	0.071958	0.09623	Talaud Islands, Indonesia
11	02/07/2018	00:15:43	-0.28	122.97	59	2.2				Minahassa Peninsula, Sulawesi
12	02/07/2018	00:31:54	0.56	121.26	10	2.5				Minahassa Peninsula, Sulawesi
13	02/07/2018	05:16:31	0.24	122.10	170	4				Minahassa Peninsula, Sulawesi
14	02/07/2018	08:34:16	-0.16	122.61	94	3.1				Minahassa Peninsula, Sulawesi
15	02/07/2018	08:45:42	0.84	122.31	197	2.8				Minahassa Peninsula, Sulawesi
16	02/07/2018	11:42:09	-0.26	123.23	45	2.7				Minahassa Peninsula, Sulawesi
17	02/07/2018	14:52:47	0.31	122.04	166	4.3	0.136915	0.081673	0.12406	Minahassa Peninsula, Sulawesi
18	02/07/2018	16:23:55	1.89	127.30	92	3.7				Halmahera, Indonesia
19	02/07/2018	23:50:13	-0.07	123.22	133	2.6				Minahassa Peninsula, Sulawesi
20	03/07/2018	03:55:27	-0.34	123.00	66	2.7				Minahassa Peninsula, Sulawesi
21	03/07/2018	04:36:14	-0.30	122.47	43	2.7				Minahassa Peninsula, Sulawesi
22	03/07/2018	05:47:23	0.31	124.71	14	3.5				Minahassa Peninsula, Sulawesi
23	03/07/2018	05:56:36	-0.27	122.87	55	2.5				Minahassa Peninsula, Sulawesi
24	03/07/2018	09:24:09	0.70	124.77	14	3.9				Minahassa Peninsula, Sulawesi
25	03/07/2018	09:59:54	5.91	125.27	100	5.6	0.322098	0.509595	0.34474	Mindanao, Philippines
26	03/07/2018	13:42:14	0.61	123.76	264	3.8				Minahassa Peninsula, Sulawesi
27	03/07/2018	14:10:42	1.04	121.25	95	3.4				Minahassa Peninsula, Sulawesi
28	03/07/2018	14:51:30	3.19	127.13	10	4.1				Talaud Islands, Indonesia
29	03/07/2018	17:30:29	1.80	123.13	10	2.6				Minahassa Peninsula, Sulawesi
30	03/07/2018	18:56:58	3.18	127.03	10	3.9				Talaud Islands, Indonesia
31	03/07/2018	20:58:14	0.21	122.00	164	2.6				Minahassa Peninsula, Sulawesi

32	03/07/2018	21:15:29	0.72	122.64	33	4.2				Minahassa Peninsula, Sulawesi
33	04/07/2018	00:40:31	0.36	122.15	177	2.6				Minahassa Peninsula, Sulawesi
34	04/07/2018	01:23:27	-0.33	122.94	71	3.6				Minahassa Peninsula, Sulawesi
35	04/07/2018	02:53:58	1.64	127.27	112	4.1				Halmahera, Indonesia
36	04/07/2018	05:15:16	0.31	121.52	10	2.2				Minahassa Peninsula, Sulawesi
37	04/07/2018	09:29:13	3.73	128.03	148	4.2	0.084991	0.058968	0.08576	North of Halmahera, Indonesia
38	04/07/2018	09:41:01	0.77	121.78	71	2.4				Minahassa Peninsula, Sulawesi
39	04/07/2018	12:09:31	1.90	121.63	10	2.7				Minahassa Peninsula, Sulawesi
40	04/07/2018	12:14:00	2.05	121.56	5	2.8				Celebes Sea
41	04/07/2018	13:11:17	-0.28	122.89	10	2.5				Minahassa Peninsula, Sulawesi
42	04/07/2018	13:25:08	1.42	125.12	56	3.2				Northern Molucca Sea
43	04/07/2018	15:10:58	1.21	126.14	22	3.7				Northern Molucca Sea
44	04/07/2018	16:11:34	3.04	127.93	19	4				Talaud Islands, Indonesia
45	05/07/2018	01:49:21	1.23	122.43	10	4.1	0.178807	0.132871	0.20968	Minahassa Peninsula, Sulawesi
46	05/07/2018	01:59:29	1.41	122.67	19	3.3				Minahassa Peninsula, Sulawesi
47	05/07/2018	03:54:15	-0.24	123.41	142	3.7				Minahassa Peninsula, Sulawesi
48	05/07/2018	14:28:21	-0.13	123.25	109	3.4				Minahassa Peninsula, Sulawesi
49	06/07/2018	00:24:38	-0.10	125.27	10	3.9				Southern Molucca Sea
50	06/07/2018	00:55:19	3.66	127.59	10	5				Talaud Islands, Indonesia
51	06/07/2018	02:21:43	4.27	125.29	14	4.3				Talaud Islands, Indonesia
52	06/07/2018	09:59:49	-0.20	122.68	10	2.5				Minahassa Peninsula, Sulawesi
53	06/07/2018	10:25:09	4.57	128.19	10	4.5				North of Halmahera, Indonesia
54	06/07/2018	16:44:22	0.86	120.84	16	1.9				Minahassa Peninsula, Sulawesi
55	06/07/2018	19:35:37	4.01	127.78	98	4				Talaud Islands, Indonesia
56	07/07/2018	04:17:23	1.23	122.21	29	2.1				Minahassa Peninsula, Sulawesi
57	07/07/2018	06:30:01	3.53	126.79	10	3.8				Talaud Islands, Indonesia
58	07/07/2018	06:38:32	0.41	119.94	60	3.5				Minahassa Peninsula, Sulawesi
59	07/07/2018	06:50:26	0.29	122.03	118	3.4				Minahassa Peninsula, Sulawesi
60	07/07/2018	08:50:34	-0.02	123.13	82	2				Minahassa Peninsula, Sulawesi
61	07/07/2018	11:10:08	6.54	125.51	10	4				Mindanao, Philippines
62	07/07/2018	11:11:14	-0.01	122.83	157	2.8				Minahassa Peninsula, Sulawesi
63	07/07/2018	11:36:11	1.39	124.06	215	3.7				Minahassa Peninsula, Sulawesi
64	07/07/2018	12:14:11	-0.47	122.27	10	2.6				Minahassa Peninsula, Sulawesi
65	07/07/2018	18:13:55	-0.12	121.67	24	2.5				Minahassa Peninsula, Sulawesi
66	07/07/2018	22:11:36	0.24	126.01	10	3.6				Northern Molucca Sea
67	07/07/2018	22:21:16	0.25	126.04	10	3.7				Northern Molucca Sea

68	07/07/2018	22:37:08	2.28	125.62	13	3.4				Talaud Islands, Indonesia
69	08/07/2018	02:14:47	1.07	121.34	10	3				Minahassa Peninsula, Sulawesi
70	08/07/2018	04:02:45	-0.14	123.87	101	3.4				Minahassa Peninsula, Sulawesi
71	08/07/2018	17:52:14	2.30	126.76	10	3.6				Northern Molucca Sea
72	08/07/2018	18:43:12	0.45	123.09	70	2.2				Minahassa Peninsula, Sulawesi
73	08/07/2018	19:00:01	2.36	124.17	204	2.9				Celebes Sea
74	08/07/2018	19:12:26	0.27	122.10	160	2				Minahassa Peninsula, Sulawesi
75	08/07/2018	21:27:36	1.09	122.72	15	3.9				Minahassa Peninsula, Sulawesi
76	09/07/2018	08:41:14	0.53	121.52	70	3.2				Minahassa Peninsula, Sulawesi
77	09/07/2018	11:21:11	1.23	121.27	10	2.3				Minahassa Peninsula, Sulawesi
78	09/07/2018	12:50:10	0.90	120.52	3	2.6				Minahassa Peninsula, Sulawesi
79	09/07/2018	13:09:50	5.38	120.14	10	4				Sulu Archipelago, Philippines
80	09/07/2018	14:24:39	0.64	127.38	5	2.5	0.133385	0.092841	0.15306	Halmahera, Indonesia
81	09/07/2018	14:37:56	-0.35	122.83	10	2.7				Minahassa Peninsula, Sulawesi
82	09/07/2018	15:27:25	1.93	121.37	22	2.7				Minahassa Peninsula, Sulawesi
83	09/07/2018	22:31:36	1.45	127.36	112	4.8				Halmahera, Indonesia
84	10/07/2018	07:21:11	2.83	123.79	353	4.1				Celebes Sea
85	10/07/2018	13:15:34	0.57	125.13	13	3.4				Northern Molucca Sea
86	10/07/2018	14:46:44	1.47	122.16	10	3.3				Minahassa Peninsula, Sulawesi
87	10/07/2018	15:22:43	6.09	124.62	10	4.6				Mindanao, Philippines
88	10/07/2018	15:33:21	0.24	122.09	186	5.1	0.139328	0.223948	0.36498	Minahassa Peninsula, Sulawesi
89	10/07/2018	16:12:39	-0.06	122.86	163	2.8				Minahassa Peninsula, Sulawesi
90	11/07/2018	03:10:04	0.46	121.00	14	2.6				Minahassa Peninsula, Sulawesi
91	11/07/2018	08:22:54	-0.22	124.60	10	4.9	0.189922	0.139269	0.1885	Southern Molucca Sea
92	11/07/2018	13:26:07	-0.43	124.00	86	4				Minahassa Peninsula, Sulawesi
93	11/07/2018	14:49:29	0.40	121.91	155	2.1				Minahassa Peninsula, Sulawesi
94	11/07/2018	19:38:59	-0.46	123.05	49	2.8				Minahassa Peninsula, Sulawesi
95	11/07/2018	20:29:28	-0.10	123.17	160	3.4				Minahassa Peninsula, Sulawesi
96	11/07/2018	21:37:40	0.26	121.71	205	2.5				Minahassa Peninsula, Sulawesi
97	11/07/2018	23:37:55	0.31	122.28	141	2.9				Minahassa Peninsula, Sulawesi
98	12/07/2018	10:03:50	1.50	121.72	34	2.7				Minahassa Peninsula, Sulawesi
99	12/07/2018	12:36:13	0.79	121.62	75	3.3				Minahassa Peninsula, Sulawesi
100	12/07/2018	20:35:00	3.29	127.24	29	4.7	0.042267	0.03357	0.06363	Talaud Islands, Indonesia
101	12/07/2018	23:28:28	-0.02	123.76	111	3.2				Minahassa Peninsula, Sulawesi
102	13/07/2018	00:02:33	0.25	127.27	113	4.5				Halmahera, Indonesia
103	13/07/2018	02:29:36	1.25	124.56	228	4.1	0.171957	0.109566	0.15837	Minahassa Peninsula, Sulawesi

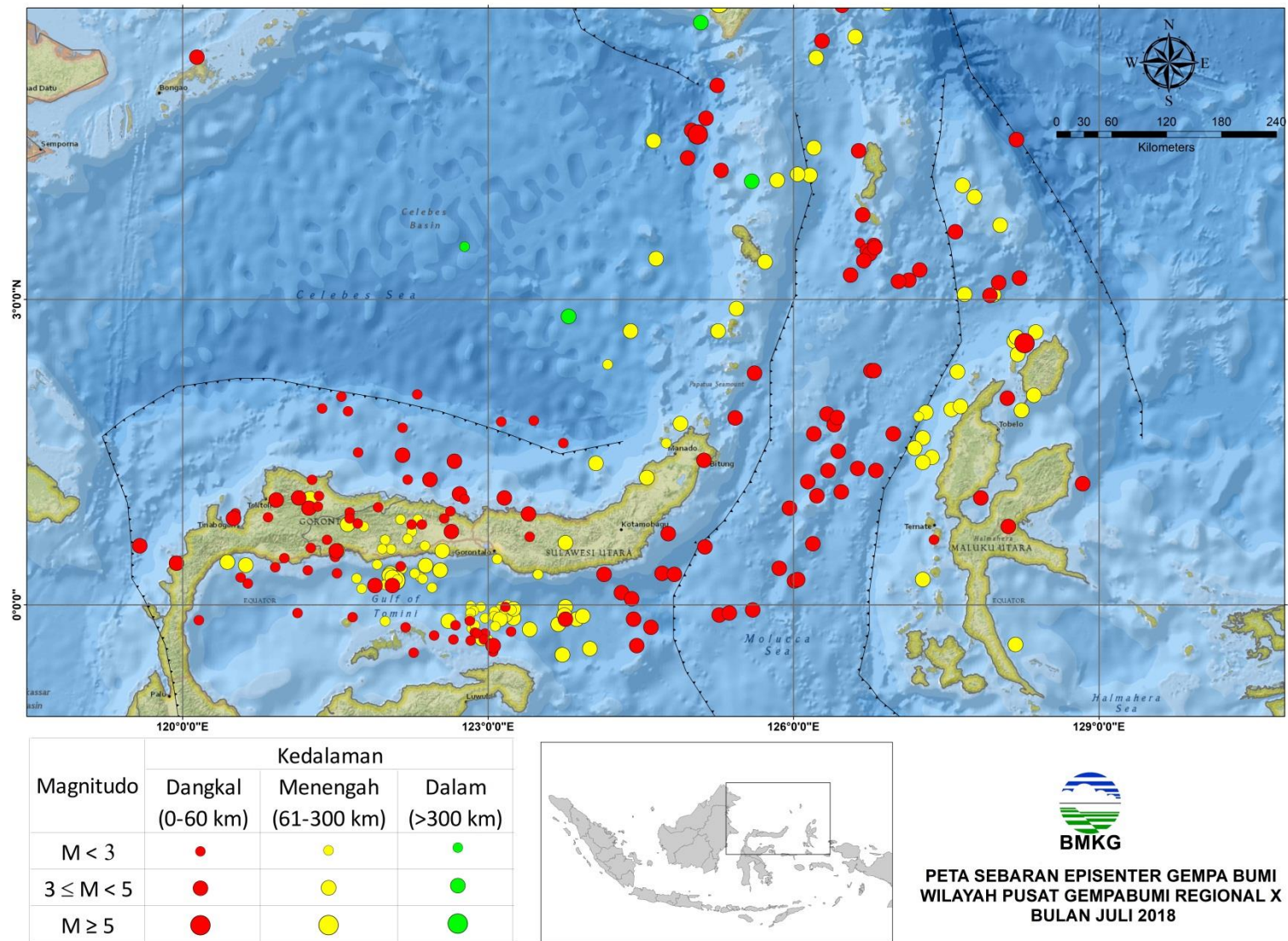
104	13/07/2018	12:17:28	0.92	122.63	35	2.1				Minahassa Peninsula, Sulawesi
105	13/07/2018	13:55:48	-0.07	123.06	144	2.4				Minahassa Peninsula, Sulawesi
106	13/07/2018	22:13:55	0.89	123.40	10	3.1				Minahassa Peninsula, Sulawesi
107	14/07/2018	00:52:39	0.34	122.53	98	3.9				Minahassa Peninsula, Sulawesi
108	14/07/2018	10:40:20	-0.19	123.69	111	3.6				Minahassa Peninsula, Sulawesi
109	14/07/2018	11:20:40	5.58	126.61	106	3.9				Mindanao, Philippines
110	14/07/2018	11:27:24	4.56	124.63	70	4	0.195327	0.093177	0.13357	Celebes Sea
111	14/07/2018	11:53:29	1.84	125.43	19	3.2				Northern Molucca Sea
112	14/07/2018	16:00:33	0.80	121.72	34	2.3				Minahassa Peninsula, Sulawesi
113	14/07/2018	16:04:31	0.77	128.11	16	3.1				Halmahera, Indonesia
114	15/07/2018	01:33:06	2.06	128.36	227	4.3				Halmahera, Indonesia
115	15/07/2018	05:56:12	0.19	121.89	29	3.6				Minahassa Peninsula, Sulawesi
116	15/07/2018	12:02:21	1.40	127.27	139	4.1				Halmahera, Indonesia
117	15/07/2018	14:19:55	2.69	125.26	227	3.4				Talaud Islands, Indonesia
118	15/07/2018	20:29:57	2.59	128.17	189	3.7				Halmahera, Indonesia
119	16/07/2018	07:06:15	0.55	122.05	95	2.3				Minahassa Peninsula, Sulawesi
120	16/07/2018	08:09:28	2.03	128.10	14	4.2				Halmahera, Indonesia
121	16/07/2018	15:51:19	-0.40	124.46	13	4.2	0.124039	0.110760	0.14922 3	Southern Molucca Sea
122	16/07/2018	16:05:13	2.07	122.31	10	2.6				Celebes Sea
123	17/07/2018	00:47:13	3.16	128.02	16	4.1				North of Halmahera, Indonesia
124	17/07/2018	18:53:41	0.38	122.14	14	2.4				Minahassa Peninsula, Sulawesi
125	17/07/2018	20:16:02	0.95	125.96	21	4.7	1.882292	3.962493	4.52595	Northern Molucca Sea
126	18/07/2018	05:59:08	4.17	125.84	77	4.1				Talaud Islands, Indonesia
127	18/07/2018	08:14:15	0.95	121.24	14	3.4				Minahassa Peninsula, Sulawesi
128	18/07/2018	10:36:50	2.46	128.20	201	4.2				Halmahera, Indonesia
129	18/07/2018	11:42:33	3.40	124.65	235	4.6				Celebes Sea
130	18/07/2018	11:43:01	0.91	121.64	50	2.3				Minahassa Peninsula, Sulawesi
131	18/07/2018	16:05:26	0.19	122.08	147	2.2				Minahassa Peninsula, Sulawesi
132	18/07/2018	20:40:37	3.21	128.22	35	4.7	0.195635	0.090674	0.10741	North of Halmahera, Indonesia
133	18/07/2018	21:44:26	3.05	127.68	113	3.7				Talaud Islands, Indonesia
134	18/07/2018	22:59:40	1.05	123.16	16	3.5				Minahassa Peninsula, Sulawesi
135	19/07/2018	04:26:23	5.89	126.48	10	3.9				Mindanao, Philippines
136	19/07/2018	05:20:38	0.85	120.50	10	3.2				Minahassa Peninsula, Sulawesi
137	19/07/2018	09:35:13	1.54	127.19	113	4.5				Halmahera, Indonesia
138	19/07/2018	13:34:35	1.11	126.47	17	3.8				Northern Molucca Sea
139	19/07/2018	16:13:43	-0.23	122.84	122	2.4				Minahassa Peninsula, Sulawesi

140	19/07/2018	16:43:36	0.21	120.64	10	2.3				Minahassa Peninsula, Sulawesi
141	19/07/2018	16:51:50	1.04	122.77	38	1.5				Minahassa Peninsula, Sulawesi
142	19/07/2018	17:12:10	0.39	120.62	73	3.9				Minahassa Peninsula, Sulawesi
143	19/07/2018	17:22:27	0.26	122.36	120	1.7				Minahassa Peninsula, Sulawesi
144	19/07/2018	17:24:32	3.48	126.72	11	3.7				Talaud Islands, Indonesia
145	19/07/2018	18:49:41	3.45	126.75	10	4.6	0.08149	0.059775	0.08439	Talaud Islands, Indonesia
146	19/07/2018	20:15:20	1.32	126.81	11	3.5				Northern Molucca Sea
147	19/07/2018	21:59:09	3.51	126.80	10	4.2				Talaud Islands, Indonesia
148	19/07/2018	22:42:34	-0.04	123.25	138	3.4				Minahassa Peninsula, Sulawesi
149	19/07/2018	22:46:12	-0.08	125.37	14	4.1				Southern Molucca Sea
150	19/07/2018	22:59:31	3.05	127.96	91	4.3				Talaud Islands, Indonesia
151	20/07/2018	02:13:18	-0.16	121.99	76	2.8				Minahassa Peninsula, Sulawesi
152	20/07/2018	04:04:38	1.88	126.33	10	3.9				Northern Molucca Sea
153	20/07/2018	04:04:40	1.77	126.40	10	4				Northern Molucca Sea
154	20/07/2018	04:21:58	0.39	122.39	135	3.3				Minahassa Peninsula, Sulawesi
155	20/07/2018	05:37:44	5.37	126.22	147	3.9				Mindanao, Philippines
156	20/07/2018	06:21:35	0.37	120.91	10	2.3				Minahassa Peninsula, Sulawesi
157	20/07/2018	10:48:31	0.06	124.41	20	3.4				Minahassa Peninsula, Sulawesi
158	20/07/2018	12:03:17	2.56	128.25	26	4.5	-0.119885	0.11152	-0.21846	Halmahera, Indonesia
159	20/07/2018	16:11:26	0.97	121.33	10	2.2				Minahassa Peninsula, Sulawesi
160	20/07/2018	16:47:38	-0.08	122.83	107	2.4				Minahassa Peninsula, Sulawesi
161	20/07/2018	17:27:18	0.30	124.83	10	3.1				Minahassa Peninsula, Sulawesi
162	21/07/2018	00:00:31	5.10	125.25	10	4.8	0.141728	0.092865	0.13264	Mindanao, Philippines
163	21/07/2018	07:55:07	-0.16	122.82	15	2.9				Minahassa Peninsula, Sulawesi
164	21/07/2018	08:50:36	2.69	124.4	285	4.2				Celebes Sea
165	21/07/2018	10:42:46	2.57	128.25	28	4.3				Halmahera, Indonesia
166	21/07/2018	14:53:32	0.2	121.99	168	2.1				Minahassa Peninsula, Sulawesi
167	21/07/2018	18:27:02	0.16	121.76	192	2				Minahassa Peninsula, Sulawesi
168	21/07/2018	18:31:02	1.78	124.89	216	3.2				Minahassa Peninsula, Sulawesi
169	21/07/2018	19:33:58	1.59	124.75	270	2.6				Minahassa Peninsula, Sulawesi
170	22/07/2018	04:00:52	1.34	126.63	10	3.9				Northern Molucca Sea
171	22/07/2018	08:56:29	0.17	122.45	131	2.1				Minahassa Peninsula, Sulawesi
172	22/07/2018	09:28:05	1.05	121.14	27	3.5				Minahassa Peninsula, Sulawesi
173	22/07/2018	11:06:08	0.58	122.38	61	2.8				Minahassa Peninsula, Sulawesi
174	22/07/2018	12:44:38	2.29	127.61	127	3.4				Northern Molucca Sea
175	22/07/2018	16:54:58	4.39	124.96	31	3.7				Celebes Sea

176	22/07/2018	17:01:15	-0.11	123.06	121	2.6				Minahassa Peninsula, Sulawesi
177	22/07/2018	18:19:41	4.66	125	26	4.6				Celebes Sea
178	22/07/2018	18:28:43	4.62	125.06	24	5.2				Talaud Islands, Indonesia
179	22/07/2018	21:43:27	3.38	126.69	49	4.7	-0.105624	-0.16553	0.16745	Talaud Islands, Indonesia
180	22/07/2018	22:28:07	3.24	126.56	10	4				Talaud Islands, Indonesia
181	22/07/2018	23:42:34	1.92	127.55	114	4.5				Halmahera, Indonesia
182	23/07/2018	00:51:50	1.05	127.84	11	3.6				Halmahera, Indonesia
183	23/07/2018	07:57:08	2.63	128.19	164	4.2				Halmahera, Indonesia
184	23/07/2018	08:18:34	0.27	122.06	166	4.9	-0.128654	0.122256	0.1771	Minahassa Peninsula, Sulawesi
185	23/07/2018	10:44:52	-0.14	123.12	140	4.1				Minahassa Peninsula, Sulawesi
186	23/07/2018	11:08:49	-0.11	123.93	264	3.5				Minahassa Peninsula, Sulawesi
187	23/07/2018	11:30:56	0.53	122.55	188	3.7				Minahassa Peninsula, Sulawesi
188	23/07/2018	13:03:49	5.72	125.09	323	4.1				Mindanao, Philippines
189	23/07/2018	16:03:19	0.96	121.92	24	3				Minahassa Peninsula, Sulawesi
190	23/07/2018	19:57:50	-0.2	122.87	100	2.5				Minahassa Peninsula, Sulawesi
191	23/07/2018	22:39:24	1.07	126.23	10	4.4				Northern Molucca Sea
192	24/07/2018	09:03:54	1.74	122.16	56	2.2				Minahassa Peninsula, Sulawesi
193	24/07/2018	13:48:39	4.78	125.14	10	4				Talaud Islands, Indonesia
194	24/07/2018	14:19:21	-0.14	123.76	40	3.4	0.211195	0.116813	-0.17715	Minahassa Peninsula, Sulawesi
195	25/07/2018	00:27:59	0.47	121.5	10	2.4				Minahassa Peninsula, Sulawesi
196	25/07/2018	00:40:34	0.42	120.44	81	3.7				Minahassa Peninsula, Sulawesi
197	25/07/2018	05:18:55	4.46	126.64	51	4.5				Talaud Islands, Indonesia
198	25/07/2018	06:03:22	-0.14	122.82	121	2.8				Minahassa Peninsula, Sulawesi
199	25/07/2018	08:20:04	2.57	128.27	48	5.1	0.314023	0.154603	0.32599	Halmahera, Indonesia
200	25/07/2018	09:05:49	4.22	126.16	107	4.8				Talaud Islands, Indonesia
201	25/07/2018	12:25:55	0.85	122.57	21	1.7				Minahassa Peninsula, Sulawesi
202	25/07/2018	12:35:07	-0.13	122.97	109	2.9				Minahassa Peninsula, Sulawesi
203	25/07/2018	15:13:08	-0.04	123.17	128	2.8				Minahassa Peninsula, Sulawesi
204	25/07/2018	15:56:22	0.58	119.58	10	3.8				Minahassa Peninsula, Sulawesi
205	25/07/2018	18:44:28	1.32	126.34	10	3.8				Northern Molucca Sea
206	25/07/2018	20:17:55	0.53	121.51	51	3.1				Minahassa Peninsula, Sulawesi
207	25/07/2018	21:08:54	1.68	126.2	6	4.1				Northern Molucca Sea
208	25/07/2018	21:56:58	-0.14	124.43	14	3.1				Southern Molucca Sea
209	26/07/2018	00:22:13	1.84	126.43	14	3.5				Northern Molucca Sea
210	26/07/2018	07:37:35	6.17	125.41	23	4.3	0.219000	0.143962	0.26764	Mindanao, Philippines
211	26/07/2018	10:47:04	0.64	121.42	21	2.3				Minahassa Peninsula, Sulawesi

212	26/07/2018	20:47:59	0.27	120.57	10	2.1				Minahassa Peninsula, Sulawesi
213	26/07/2018	22:03:43	-0.08	121.13	10	2.5				Minahassa Peninsula, Sulawesi
214	27/07/2018	06:06:54	1.95	127.64	140	4.2				Halmahera, Indonesia
215	27/07/2018	07:43:23	0.19	122.06	27	3.7				Minahassa Peninsula, Sulawesi
216	27/07/2018	11:31:20	1.51	126.44	10	4.1	0.115034	0.113621	0.11687	Northern Molucca Sea
217	27/07/2018	12:18:34	3.37	125.72	172	4.1				Talaud Islands, Indonesia
218	27/07/2018	23:13:25	0.72	122.25	80	1.5				Minahassa Peninsula, Sulawesi
219	27/07/2018	23:19:42	1.03	120.92	10	3.2				Minahassa Peninsula, Sulawesi
220	28/07/2018	05:16:29	6.01	125.97	154	4.2	0.126303	0.097069	0.17102	Mindanao, Philippines
221	28/07/2018	12:06:24	5.91	126.92	216	4				Mindanao, Philippines
222	28/07/2018	16:19:31	0.84	122.14	72	3				Minahassa Peninsula, Sulawesi
223	28/07/2018	17:00:46	1.68	126.98	16	3.3				Northern Molucca Sea
224	28/07/2018	17:56:26	4.16	125.59	361	4				Talaud Islands, Indonesia
225	28/07/2018	20:16:20	-0.05	123.23	135	2.5				Minahassa Peninsula, Sulawesi
226	28/07/2018	23:52:55	-0.21	123.07	172	2.6				Minahassa Peninsula, Sulawesi
227	29/07/2018	00:59:03	4.23	126.04	125	3.8				Talaud Islands, Indonesia
228	29/07/2018	08:19:18	2.3	126.79	10	4.6	0.198109	0.189581	0.40877	Northern Molucca Sea
229	29/07/2018	13:05:29	3.83	126.68	14	4				Talaud Islands, Indonesia
230	29/07/2018	13:12:31	-0.49	123.73	105	3.3				Minahassa Peninsula, Sulawesi
231	29/07/2018	14:28:31	1.81	123.45	12	2.9				Minahassa Peninsula, Sulawesi
232	29/07/2018	16:00:04	5.54	126.28	17	4.5				Mindanao, Philippines
233	29/07/2018	16:07:51	4.12	127.66	148	3.7				Talaud Islands, Indonesia
234	29/07/2018	17:45:39	-0.02	123.17	13	2.2				Minahassa Peninsula, Sulawesi
235	29/07/2018	17:52:08	1.91	128.24	210	3.7				Halmahera, Indonesia
236	29/07/2018	20:53:02	0.55	121.96	174	2.8				Minahassa Peninsula, Sulawesi
237	29/07/2018	22:09:30	0.3	124.14	48	3.4				Minahassa Peninsula, Sulawesi
238	30/07/2018	01:23:32	2.68	128.38	201	4				Halmahera, Indonesia
239	30/07/2018	08:36:39	-0.34	122.96	14	2.9				Minahassa Peninsula, Sulawesi
240	30/07/2018	09:14:17	-0.39	128.18	168	3.6				Halmahera, Indonesia
241	30/07/2018	10:26:48	0.79	122.35	46	2.5				Minahassa Peninsula, Sulawesi
242	30/07/2018	10:43:19	-0.05	125.6	33	3.4				Southern Molucca Sea
243	30/07/2018	11:19:47	-0.15	120.16	52	2.2				Minahassa Peninsula, Sulawesi
244	30/07/2018	12:23:17	0.25	122.11	165	2.1				Minahassa Peninsula, Sulawesi
245	30/07/2018	12:49:47	0.64	121.99	88	2				Minahassa Peninsula, Sulawesi
246	30/07/2018	15:46:45	0.3	123.49	217	2.6				Minahassa Peninsula, Sulawesi
247	30/07/2018	19:40:55	1.85	127.23	88	2.8				Halmahera, Indonesia

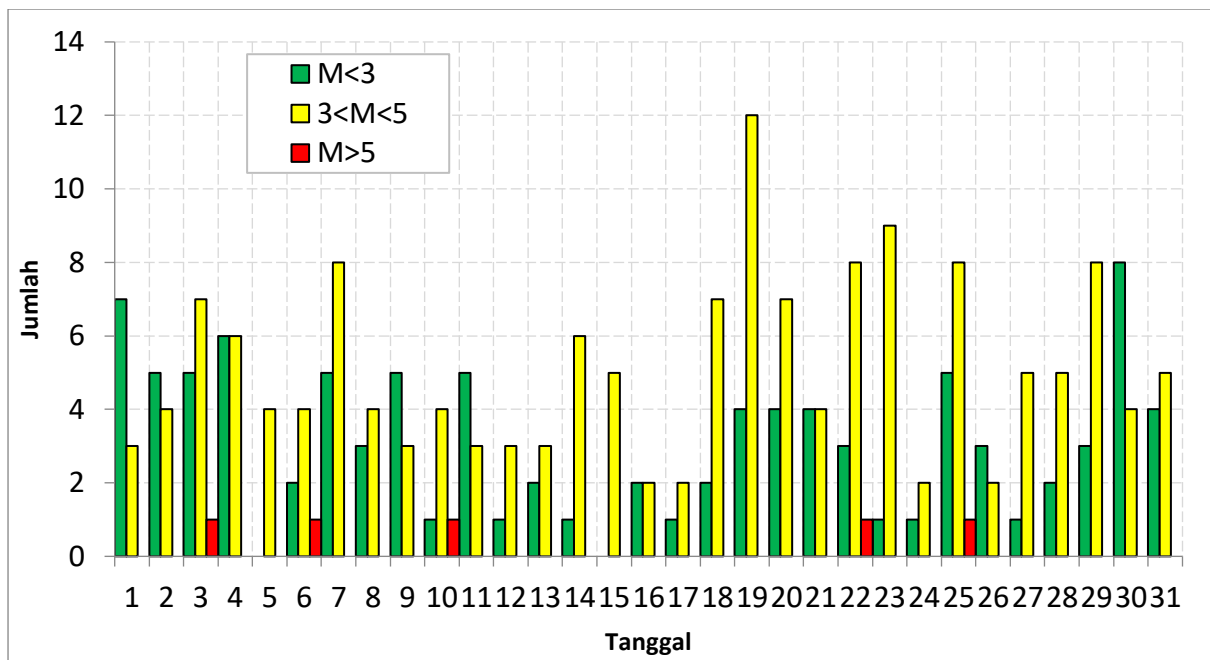
248	30/07/2018	20:27:10	0.85	121.64	38	2.4				Minahassa Peninsula, Sulawesi
249	30/07/2018	21:20:08	-0.1	123.75	145	3.6				Minahassa Peninsula, Sulawesi
250	31/07/2018	01:25:46	2.91	125.44	191	4.6				Talaud Islands, Indonesia
251	31/07/2018	01:34:33	0.6	126.19	10	4				Northern Molucca Sea
252	31/07/2018	04:08:51	0.65	122.21	86	1.8				Minahassa Peninsula, Sulawesi
253	31/07/2018	15:05:19	0.36	125.86	10	3.2				Northern Molucca Sea
254	31/07/2018	18:15:07	0.79	122.25	28	2.2				Minahassa Peninsula, Sulawesi
255	31/07/2018	18:44:11	0.34	121.23	10	2				Minahassa Peninsula, Sulawesi
256	31/07/2018	20:03:46	-0.4	123.05	35	3.7				Minahassa Peninsula, Sulawesi
257	31/07/2018	21:37:49	3.52	122.77	548	3.8				Celebes Sea
258	31/07/2018	22:34:08	-0.34	122.66	10	2.2				Minahassa Peninsula, Sulawesi



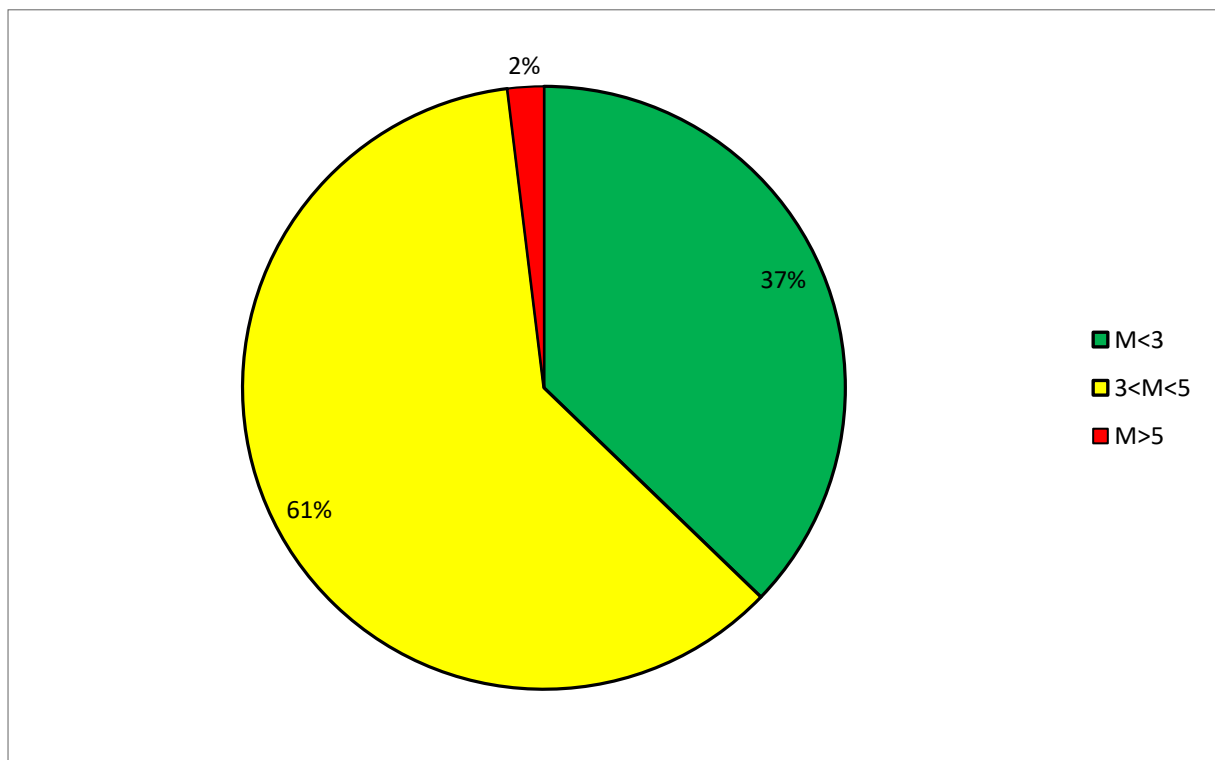
Gambar 37 Sebaran episenter gempabumi bulan Juli 2018

Tabel 22 Rekapitulasi gempabumi dan tsunami berdasarkan magnitudo bulan Juli 2018

Tanggal (UTC)	Magnitudo			Jumlah Total	Jumlah Gempa Signifikan	
	M<3	3≤M<5	M≥5		Dirasakan	Merusak
1	7	3	0	10	0	0
2	5	4	0	9	0	0
3	5	7	1	13	0	0
4	6	6	0	12	0	0
5	0	4	0	4	0	0
6	2	4	1	7	0	0
7	5	8	0	13	0	0
8	3	4	0	7	0	0
9	5	3	0	8	1	0
10	1	4	1	6	1	0
11	5	3	0	8	0	0
12	1	3	0	4	0	0
13	2	3	0	5	0	0
14	1	6	0	7	0	0
15	0	5	0	5	0	0
16	2	2	0	4	0	0
17	1	2	0	3	1	0
18	2	7	0	9	0	0
19	4	12	0	16	0	0
20	4	7	0	11	1	0
21	4	4	0	8	0	0
22	3	8	1	12	0	0
23	1	9	0	10	1	0
24	1	2	0	3	0	0
25	5	8	1	14	1	0
26	3	2	0	5	0	0
27	1	5	0	6	0	0
28	2	5	0	7	0	0
29	3	8	0	11	0	0
30	8	4	0	12	0	0
31	4	5	0	9	0	0
Jumlah gempa	96	157	5	258	6	0
Jumlah gempa seluruhnya						



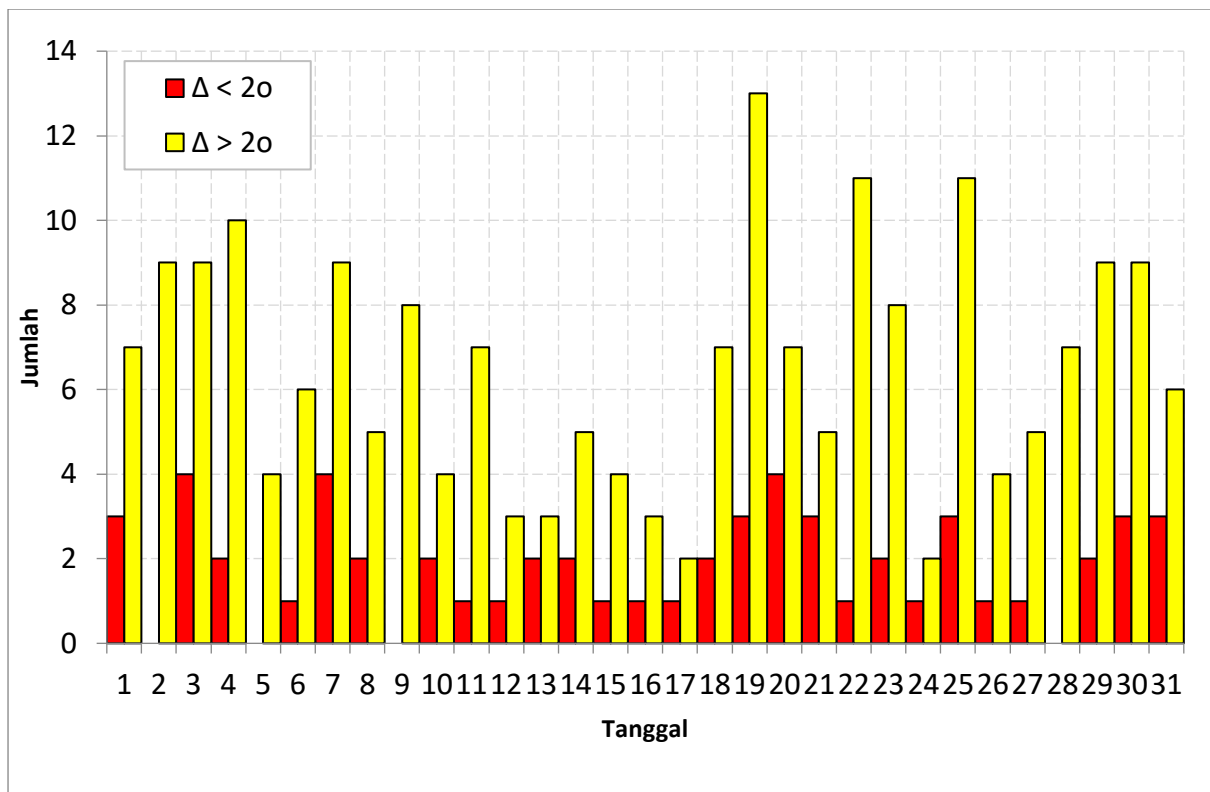
Gambar 38 Grafik gempabumi berdasarkan magnitudo bulan Juli 2018



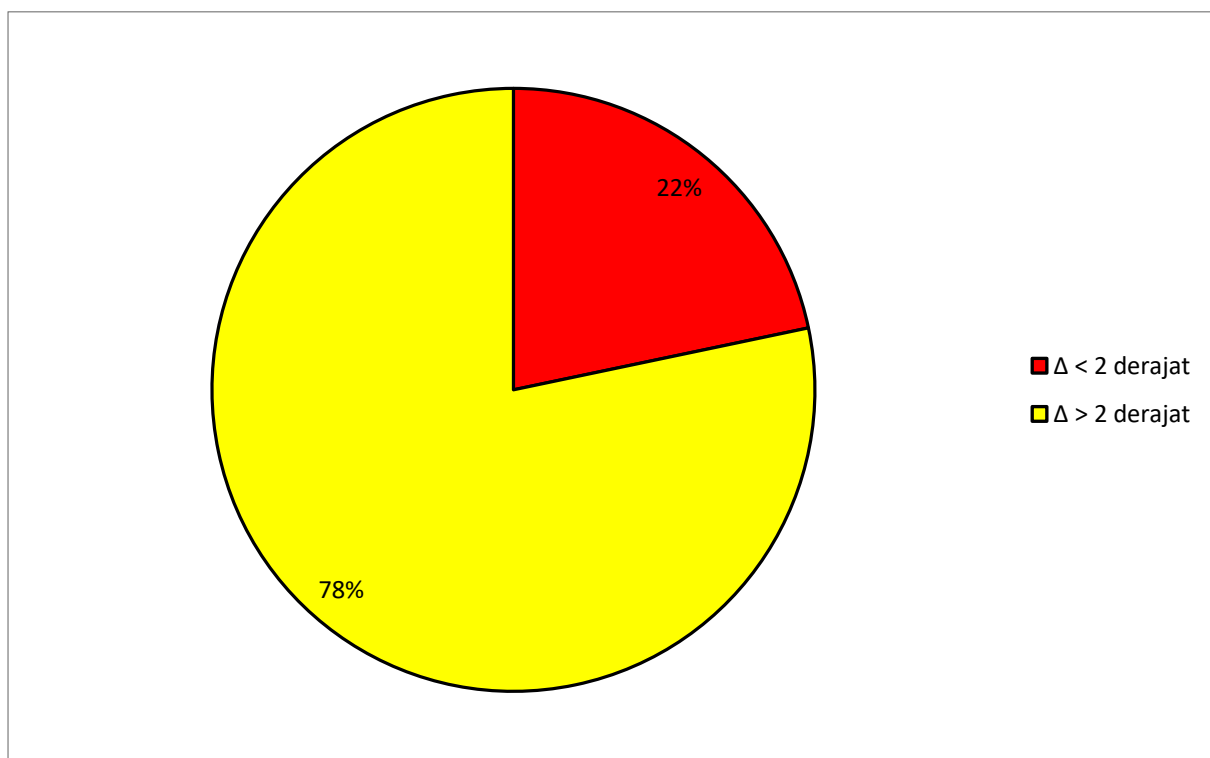
Gambar 39 Grafik persentase gempabumi berdasarkan magnitudo bulan Juli 2018

Tabel 23 Rekapitulasi gempabumi dan tsunami berdasarkan jarak dari stasiun bulan Juli 2018

Tanggal	Jarak		Jumlah	Keterangan
	$\Delta \leq 2^{\circ}$	$\Delta > 2^{\circ}$		
01/07/2018	3	7	10	-
02/07/2018	0	9	9	-
03/07/2018	4	9	13	-
04/07/2018	2	10	12	-
05/07/2018	0	4	4	-
06/07/2018	1	6	7	-
07/07/2018	4	9	13	-
08/07/2018	2	5	7	-
09/07/2018	0	8	8	-
10/07/2018	2	4	6	-
11/07/2018	1	7	8	-
12/07/2018	1	3	4	-
13/07/2018	2	3	5	-
14/07/2018	2	5	7	-
15/07/2018	1	4	5	-
16/07/2018	1	3	4	-
17/07/2018	1	2	3	-
18/07/2018	2	7	9	-
19/07/2018	3	13	16	-
20/07/2018	4	7	11	-
21/07/2018	3	5	8	-
22/07/2018	1	11	12	-
23/07/2018	2	8	10	-
24/07/2018	1	2	3	-
25/07/2018	3	11	14	-
26/07/2018	1	4	5	-
27/07/2018	1	5	6	-
28/07/2018	0	7	7	-
29/07/2018	2	9	11	-
30/07/2018	3	9	12	-
31/07/2018	3	6	9	-
Jumlah gempa	56	202	258	-
Jumlah gempa seluruhnya				



Gambar 40 Grafik gempabumi berdasarkan jarak bulan Juli 2018



Gambar 41 Grafik persentase gempabumi berdasarkan jarak bulan Juli 2018

H. Data Gempabumi Bulan Agustus 2018

Tabel 24 Data kejadian gempabumi bulan Agustus 2018

NO	DATE	OT (UTC)	EPICENTER		DEPTH (km)	MAG	PGA (gals) / SLMI			REGION
			LAT	LON			X	Y	Z	
1	01/08/2018	00:31:43	3.47	125.88	144	4.5				Talaud Islands, Indonesia
2	01/08/2018	04:14:12	0.42	125.01	21	3.5				Northern Molucca Sea
3	01/08/2018	05:59:59	-0.18	123.13	106	3.1				Minahassa Peninsula, Sulawesi
4	01/08/2018	09:02:37	0	127.22	126	4				Halmahera, Indonesia
5	01/08/2018	10:35:17	4.07	125.88	48	4.6				Talaud Islands, Indonesia
6	01/08/2018	12:55:47	0.2	121.88	30	2.1				Minahassa Peninsula, Sulawesi
7	01/08/2018	14:43:46	-0.19	122.88	23	3				Minahassa Peninsula, Sulawesi
8	01/08/2018	17:37:56	-0.09	122.83	149	4.6				Minahassa Peninsula, Sulawesi
9	02/08/2018	04:42:52	0.6	121.93	163	2.6				Minahassa Peninsula, Sulawesi
10	02/08/2018	10:39:17	0.34	122.01	175	2.3				Minahassa Peninsula, Sulawesi
11	02/08/2018	11:26:10	0.99	126.99	10	3.4				Northern Molucca Sea
12	02/08/2018	11:36:49	0.74	125.8	23	3.9				Northern Molucca Sea
13	02/08/2018	13:04:16	-0.09	124.06	30	2.7				Southern Molucca Sea
14	02/08/2018	15:42:36	0.38	119.48	20	4.1				Minahassa Peninsula, Sulawesi
15	02/08/2018	18:59:02	0.97	121.29	91	2.9				Minahassa Peninsula, Sulawesi
16	02/08/2018	19:45:54	0.51	126.61	24	3.9				Northern Molucca Sea
17	02/08/2018	20:31:32	0.45	120.81	94	2				Minahassa Peninsula, Sulawesi
18	03/08/2018	00:22:55	1.64	127.32	89	3.7				Halmahera, Indonesia
19	03/08/2018	03:13:21	1.7	121.51	91	2.2				Minahassa Peninsula, Sulawesi
20	03/08/2018	16:09:36	3.83	126.78	46	3.8				Talaud Islands, Indonesia
21	03/08/2018	18:50:57	0.81	126.19	10	3.2				Northern Molucca Sea
22	03/08/2018	20:42:46	-0.29	123.26	74	2.8				Minahassa Peninsula, Sulawesi
23	04/08/2018	05:07:09	0.05	122.12	10	2.4				Minahassa Peninsula, Sulawesi
24	04/08/2018	05:20:53	2.27	123.25	10	3.2				Celebes Sea
25	04/08/2018	13:23:43	2.09	126.79	33	3.8				Northern Molucca Sea
26	04/08/2018	16:05:01	-0.08	122.12	142	2.2				Minahassa Peninsula, Sulawesi
27	04/08/2018	20:46:20	3.51	127.12	83	3.8				Talaud Islands, Indonesia
28	04/08/2018	20:52:18	3.24	127.02	10	4.7				Talaud Islands, Indonesia
29	04/08/2018	22:30:01	2.84	129.29	294	3.9				Halmahera, Indonesia
30	04/08/2018	23:20:41	3.22	127.07	25	3.8				Talaud Islands, Indonesia
31	05/08/2018	04:22:35	1.51	126.36	7	4.1	0.116048	0.062572	0.099597	Northern Molucca Sea

32	05/08/2018	05:17:44	0.11	121.37	27	3.1				Minahassa Peninsula, Sulawesi
33	05/08/2018	19:32:45	0.7	123.87	252	3.6				Minahassa Peninsula, Sulawesi
34	05/08/2018	19:59:12	4.24	127.72	129	4				Talaud Islands, Indonesia
35	05/08/2018	21:23:02	0.59	122.27	57	1.5				Minahassa Peninsula, Sulawesi
36	06/08/2018	00:15:47	1.69	120.99	57	3.4				Minahassa Peninsula, Sulawesi
37	06/08/2018	05:44:22	1.61	127.26	117	4.4				Halmahera, Indonesia
38	06/08/2018	05:48:25	3.22	126.43	23	4.7				Talaud Islands, Indonesia
39	06/08/2018	06:39:48	-0.14	123.47	128	3.6				Minahassa Peninsula, Sulawesi
40	06/08/2018	09:32:56	0.36	121.52	73	2.1				Minahassa Peninsula, Sulawesi
41	06/08/2018	11:45:53	-0.28	122.88	88	3.5				Minahassa Peninsula, Sulawesi
42	06/08/2018	11:59:50	0.84	119.9	21	2.3				Minahassa Peninsula, Sulawesi
43	06/08/2018	15:19:44	0.47	122.46	82	2.3				Minahassa Peninsula, Sulawesi
44	06/08/2018	18:55:20	2.29	127.97	10	4				Northern Molucca Sea
45	06/08/2018	22:25:47	2.4	122.11	10	3.4				Celebes Sea
46	07/08/2018	05:39:47	0.25	122.3	122	2.1				Minahassa Peninsula, Sulawesi
47	07/08/2018	19:32:59	2.3	124.4	287	3.4				Celebes Sea
48	08/08/2018	04:01:57	1.34	127.81	179	4				Halmahera, Indonesia
49	08/08/2018	04:36:07	5.79	125.98	141	5.3				Mindanao, Philippines
50	08/08/2018	12:33:19	2.48	128.17	10	4				Halmahera, Indonesia
51	08/08/2018	17:56:56	-0.24	122.96	11	2.8				Minahassa Peninsula, Sulawesi
52	08/08/2018	21:45:49	0.8	123.86	255	4.1				Minahassa Peninsula, Sulawesi
53	09/08/2018	06:04:27	1.12	126.41	28	3.9				Northern Molucca Sea
54	09/08/2018	09:57:55	1.51	121.22	107	2.7				Minahassa Peninsula, Sulawesi
55	09/08/2018	10:12:56	2.18	121.22	10	3.2				Celebes Sea
56	09/08/2018	10:52:47	-0.42	122.95	55	4.1				Minahassa Peninsula, Sulawesi
57	09/08/2018	14:31:30	1.77	122.66	24	2.1				Minahassa Peninsula, Sulawesi
58	09/08/2018	14:33:22	0.3	122.07	135	2.5				Minahassa Peninsula, Sulawesi
59	09/08/2018	15:28:51	1.21	121.94	12	2.1				Minahassa Peninsula, Sulawesi
60	09/08/2018	17:06:23	0.18	122.34	134	3.1				Minahassa Peninsula, Sulawesi
61	09/08/2018	18:08:31	0.52	121.25	42	1.9				Minahassa Peninsula, Sulawesi
62	09/08/2018	18:35:18	3.01	128.01	95	3.3				North of Halmahera, Indonesia
63	09/08/2018	19:25:55	1.12	121.78	20	1.8				Minahassa Peninsula, Sulawesi
64	09/08/2018	20:51:05	0.76	126.16	16	3.7				Northern Molucca Sea
65	10/08/2018	00:32:14	1.25	125.75	9	3.7				Northern Molucca Sea
66	10/08/2018	12:06:36	-0.17	119.93	10	3.9				Minahassa Peninsula, Sulawesi
67	10/08/2018	12:27:14	4.02	127.69	10	4.1				Talaud Islands, Indonesia

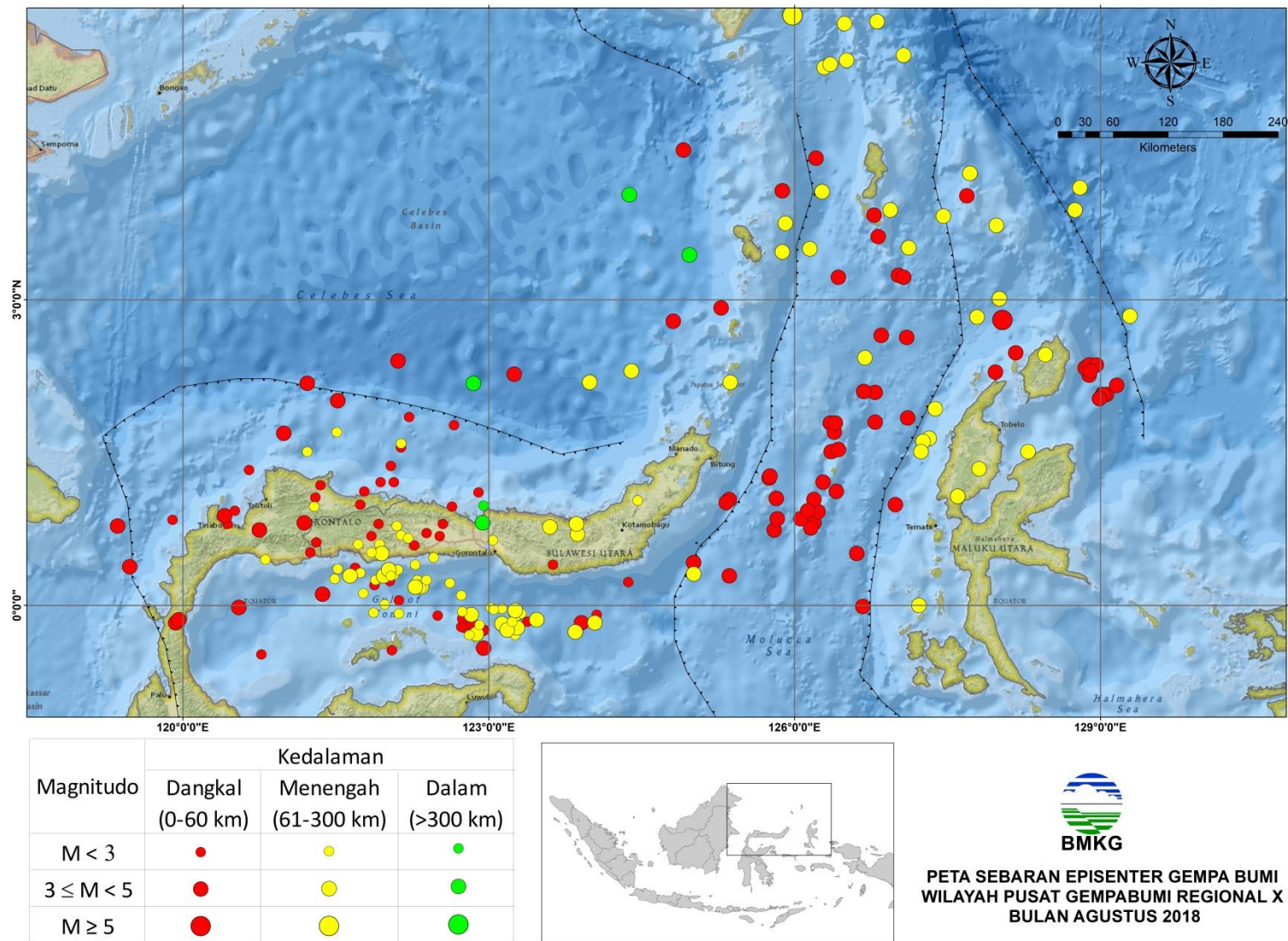
68	10/08/2018	12:48:08	0.81	122.94	337	3.9				Minahassa Peninsula, Sulawesi
69	10/08/2018	15:34:22	0.78	122.1	94	1.5				Minahassa Peninsula, Sulawesi
70	10/08/2018	19:33:59	3.88	126.94	68	4				Talaud Islands, Indonesia
71	10/08/2018	20:15:35	-0.13	122.74	13	2.2				Minahassa Peninsula, Sulawesi
72	11/08/2018	18:12:26	-0.16	123.38	10	2.2				Minahassa Peninsula, Sulawesi
73	11/08/2018	19:45:00	0.35	122.11	170	2.2				Minahassa Peninsula, Sulawesi
74	11/08/2018	21:17:30	4.06	126.27	85	4.5				Talaud Islands, Indonesia
75	11/08/2018	22:18:05	1.18	121.35	10	2.8				Minahassa Peninsula, Sulawesi
76	12/08/2018	04:14:12	2.92	125.28	59	3.9				Talaud Islands, Indonesia
77	12/08/2018	15:53:35	-0.14	119.96	10	3.1				Minahassa Peninsula, Sulawesi
78	12/08/2018	16:05:24	2.26	128.89	10	4				Halmahera, Indonesia
79	12/08/2018	16:22:35	2.33	128.85	10	4				Halmahera, Indonesia
80	12/08/2018	16:26:21	2.36	128.89	10	4.2				Halmahera, Indonesia
81	12/08/2018	16:35:15	4.1	128.8	152	4.2				North of Halmahera, Indonesia
82	12/08/2018	17:23:16	2.8	128.04	50	5.3				Halmahera, Indonesia
83	12/08/2018	21:42:49	2.36	128.96	10	4.4				Halmahera, Indonesia
84	12/08/2018	22:12:40	2.3	128.9	10	4.1				Halmahera, Indonesia
85	13/08/2018	15:38:22	0.24	122.03	10	2.3				Minahassa Peninsula, Sulawesi
86	13/08/2018	18:45:12	-0.02	123.02	141	2.4				Minahassa Peninsula, Sulawesi
87	13/08/2018	21:36:38	-0.22	123.28	127	3.4				Minahassa Peninsula, Sulawesi
88	13/08/2018	21:40:04	-0.24	123.18	131	3.8				Minahassa Peninsula, Sulawesi
89	14/08/2018	13:26:21	0.51	121.95	163	3.3				Minahassa Peninsula, Sulawesi
90	14/08/2018	13:53:24	0.1	122.73	64	2.1				Minahassa Peninsula, Sulawesi
91	14/08/2018	18:09:40	0.25	122.39	91	2.6				Minahassa Peninsula, Sulawesi
92	14/08/2018	18:26:00	5.71	126.49	127	4.2				Mindanao, Philippines
93	14/08/2018	19:39:05	1.84	127.11	23	3.1				Halmahera, Indonesia
94	14/08/2018	20:40:34	0.96	126.15	10	3				Northern Molucca Sea
95	15/08/2018	02:20:32	0.62	121.31	10	2.2				Minahassa Peninsula, Sulawesi
96	15/08/2018	08:45:37	0.68	121.85	10	2.4				Minahassa Peninsula, Sulawesi
97	15/08/2018	15:01:27	0.52	121.85	153	2.2				Minahassa Peninsula, Sulawesi
98	15/08/2018	23:40:54	2.65	126.85	10	4.2				Northern Molucca Sea
99	16/08/2018	04:33:30	-0.25	122.95	10	2.7				Minahassa Peninsula, Sulawesi
100	16/08/2018	09:55:48	3.88	128.75	99	4.3				North of Halmahera, Indonesia
101	16/08/2018	10:56:31	1.59	122.14	135	2.3				Minahassa Peninsula, Sulawesi
102	16/08/2018	11:45:32	0.71	122.39	46	1.8				Minahassa Peninsula, Sulawesi

103	16/08/2018	18:22:18	-0.44	122.05	10	2.8				Minahassa Peninsula, Sulawesi
104	17/08/2018	04:42:45	0.23	124.37	13	3				Minahassa Peninsula, Sulawesi
105	17/08/2018	14:03:53	0.22	122.62	100	2.2				Minahassa Peninsula, Sulawesi
106	17/08/2018	18:52:58	0.32	121.74	190	1.8				Minahassa Peninsula, Sulawesi
107	17/08/2018	19:20:40	0.17	122.34	145	2.7				Minahassa Peninsula, Sulawesi
108	17/08/2018	22:55:32	0.88	120.41	10	3				Minahassa Peninsula, Sulawesi
109	18/08/2018	00:02:46	-0.22	122.76	10	2.3				Minahassa Peninsula, Sulawesi
110	18/08/2018	01:31:40	-0.08	123.27	151	3.7				Minahassa Peninsula, Sulawesi
111	18/08/2018	04:18:09	1.51	128.29	66	3.7				Halmahera, Indonesia
112	18/08/2018	07:50:04	0.85	126.06	10	4.5	0.049251	0.048554	0.056029	Northern Molucca Sea
113	18/08/2018	09:13:09	0.37	121.69	14	2				Minahassa Peninsula, Sulawesi
114	18/08/2018	15:09:20	0.69	122.14	67	1.9				Minahassa Peninsula, Sulawesi
115	18/08/2018	15:28:37	4.03	124.38	356	4.6				Celebes Sea
116	18/08/2018	16:08:01	0.77	123.6	273	3.2				Minahassa Peninsula, Sulawesi
117	18/08/2018	17:31:19	0.74	120.75	35	3.1				Minahassa Peninsula, Sulawesi
118	18/08/2018	17:41:33	1.21	122.07	33	2.4				Minahassa Peninsula, Sulawesi
119	19/08/2018	11:45:12	0.25	121.89	157	2.6				Minahassa Peninsula, Sulawesi
120	19/08/2018	12:27:49	0.18	122.28	172	3.3				Minahassa Peninsula, Sulawesi
121	19/08/2018	18:52:41	2.19	123.99	102	3.1				Celebes Sea
122	19/08/2018	20:22:11	-0.29	122.81	74	2.3				Minahassa Peninsula, Sulawesi
123	20/08/2018	03:51:21	0.4	123.63	5	2.7				Minahassa Peninsula, Sulawesi
124	20/08/2018	04:51:39	1.85	122.22	10	2.9				Minahassa Peninsula, Sulawesi
125	20/08/2018	05:47:53	0.26	121.49	133	2.8				Minahassa Peninsula, Sulawesi
126	20/08/2018	10:55:56	-0.19	122.82	24	2.5				Minahassa Peninsula, Sulawesi
127	20/08/2018	12:15:52	-0.17	123.91	37	3.1				Minahassa Peninsula, Sulawesi
128	20/08/2018	15:28:38	2.19	125.37	201	3.5				Talaud Islands, Indonesia
129	20/08/2018	19:06:53	3.44	124.97	321	3.9				Celebes Sea
130	20/08/2018	21:07:47	0.12	121.77	166	2.2				Minahassa Peninsula, Sulawesi
131	20/08/2018	21:29:51	0.8	121.92	38	1.6				Minahassa Peninsula, Sulawesi
132	21/08/2018	00:14:24	0.29	121.97	122	4				Minahassa Peninsula, Sulawesi
133	21/08/2018	07:09:24	1.79	126.35	15	4.5	0.031346	0.026841	0.03097	Northern Molucca Sea
134	21/08/2018	07:13:08	3.73	127.98	140	4.7				Talaud Islands, Indonesia
135	21/08/2018	08:24:22	3.5	126.15	80	4.7				Talaud Islands, Indonesia
136	21/08/2018	09:29:42	1.24	118.11	10	3				Borneo
137	21/08/2018	09:34:29	0.8	120.44	10	2.6				Minahassa Peninsula, Sulawesi
138	21/08/2018	10:17:12	-0.07	121.87	234	2.5				Minahassa Peninsula, Sulawesi

139	21/08/2018	13:38:12	-0.26	123.85	88	3.7				Minahassa Peninsula, Sulawesi
140	21/08/2018	17:29:47	0.66	122.21	65	2.3				Minahassa Peninsula, Sulawesi
141	21/08/2018	21:49:55	6.08	121.83	585	5.4				Mindanao, Philippines
142	22/08/2018	07:32:59	0.29	125.36	11	3.8				Northern Molucca Sea
143	22/08/2018	09:54:34	0.35	122.02	135	3.5				Minahassa Peninsula, Sulawesi
144	22/08/2018	15:22:59	5.73	126.81	105	4.6				Mindanao, Philippines
145	22/08/2018	16:36:54	0.81	121.19	24	3.2				Minahassa Peninsula, Sulawesi
146	22/08/2018	17:26:01	-0.19	122.91	86	2.9				Minahassa Peninsula, Sulawesi
147	22/08/2018	18:32:26	1.37	122.04	18	2.6				Minahassa Peninsula, Sulawesi
148	22/08/2018	19:58:44	3.62	126.82	18	4.9				Talaud Islands, Indonesia
149	23/08/2018	04:14:15	-0.21	122.73	10	2.4				Minahassa Peninsula, Sulawesi
150	23/08/2018	06:18:03	2.18	122.85	446	3.8				Celebes Sea
151	23/08/2018	09:48:39	3.75	125.91	69	4.4				Talaud Islands, Indonesia
152	23/08/2018	14:46:56	2.83	127.79	80	3.6				Northern Molucca Sea
153	23/08/2018	15:10:47	2.01	121.52	10	3.2				Celebes Sea
154	23/08/2018	18:45:36	-0.03	123.13	142	2.7				Minahassa Peninsula, Sulawesi
155	24/08/2018	06:06:44	0.88	120.41	12	3.1				Minahassa Peninsula, Sulawesi
156	24/08/2018	06:34:16	0.6	121.72	64	2.3				Minahassa Peninsula, Sulawesi
157	24/08/2018	06:53:11	0.8	122.55	19	1.7				Minahassa Peninsula, Sulawesi
158	24/08/2018	07:21:56	0.01	121.98	161	3				Minahassa Peninsula, Sulawesi
159	24/08/2018	12:27:25	2.43	126.69	104	4.6	0.041439	0.053678	0.058685	Northern Molucca Sea
160	24/08/2018	15:40:41	1.53	126.43	10	3.3				Northern Molucca Sea
161	24/08/2018	18:30:05	1.33	120.65	6	2.7				Minahassa Peninsula, Sulawesi
162	24/08/2018	22:44:47	5.35	126.51	143	4.4				Mindanao, Philippines
163	24/08/2018	23:15:48	2.46	128.46	228	4.3				Halmahera, Indonesia
164	25/08/2018	04:28:24	2.1	126.68	26	3.5				Northern Molucca Sea
165	25/08/2018	04:31:39	1.03	124.46	135	2.9				Minahassa Peninsula, Sulawesi
166	25/08/2018	09:45:35	0.93	120.51	13	2.9				Minahassa Peninsula, Sulawesi
167	25/08/2018	11:03:26	-0.48	120.77	10	2.7				Minahassa Peninsula, Sulawesi
168	25/08/2018	11:05:40	1.11	122.9	10	1.8				Minahassa Peninsula, Sulawesi
169	25/08/2018	15:51:49	1.07	127.6	177	3.2				Halmahera, Indonesia
170	25/08/2018	16:58:33	-0.21	122.9	10	2.5				Minahassa Peninsula, Sulawesi
171	25/08/2018	18:42:20	0.29	122.04	160	2.9				Minahassa Peninsula, Sulawesi
172	25/08/2018	19:57:05	-0.02	120.55	16	3.1				Minahassa Peninsula, Sulawesi
173	26/08/2018	01:07:42	-0.08	123.32	157	3				Minahassa Peninsula, Sulawesi
174	26/08/2018	07:57:23	0.98	122.95	375	3.3				Minahassa Peninsula, Sulawesi

175	26/08/2018	12:44:08	1.06	121.3	14	2.5				Minahassa Peninsula, Sulawesi
176	26/08/2018	23:46:11	1.55	122.14	11	2.8				Minahassa Peninsula, Sulawesi
177	27/08/2018	00:37:08	0.78	119.36	48	3.7				Minahassa Peninsula, Sulawesi
178	27/08/2018	04:40:12	1.8	126.79	10	3.3				Northern Molucca Sea
179	27/08/2018	06:50:47	0.85	125.83	11	3.9				Northern Molucca Sea
180	27/08/2018	08:01:45	3.82	127.46	175	3.7				Talaud Islands, Indonesia
181	27/08/2018	09:38:10	4.47	124.91	34	3.9				Celebes Sea
182	27/08/2018	17:20:31	-0.16	123.23	170	2.7				Minahassa Peninsula, Sulawesi
183	27/08/2018	19:41:19	2.63	127.1	15	4.1				Northern Molucca Sea
184	27/08/2018	21:06:06	1.27	125.76	21	3.7				Northern Molucca Sea
185	28/08/2018	10:00:45	0.92	126.23	55	3.6				Northern Molucca Sea
186	28/08/2018	10:04:03	1.21	126.28	55	3.6				Northern Molucca Sea
187	28/08/2018	11:15:36	1.04	126.19	10	3.4				Northern Molucca Sea
188	28/08/2018	14:12:09	5.28	126.29	139	4.6				Mindanao, Philippines
189	28/08/2018	15:10:56	1.51	127.24	118	3.5				Halmahera, Indonesia
190	28/08/2018	16:09:54	-0.1	122.5	10	2.1				Minahassa Peninsula, Sulawesi
191	28/08/2018	17:21:02	2.07	129.02	10	3.7				Halmahera, Indonesia
192	28/08/2018	21:27:41	-0.06	122.74	127	2.3				Minahassa Peninsula, Sulawesi
193	29/08/2018	03:01:40	5.4	127.07	64	4.8				Philippine Islands Region
194	29/08/2018	07:22:11	4.39	126.21	12	4.7				Talaud Islands, Indonesia
195	29/08/2018	09:01:24	0.93	126.13	10	3.5				Northern Molucca Sea
196	29/08/2018	10:52:24	2.07	129.06	10	3.8				Halmahera, Indonesia
197	29/08/2018	11:17:50	1.05	125.82	10	3.7				Northern Molucca Sea
198	29/08/2018	11:20:24	0.64	123.04	138	2.5				Minahassa Peninsula, Sulawesi
199	29/08/2018	12:02:31	1.04	125.36	18	4.9	0.307794	0.044214	0.0436667	Northern Molucca Sea
200	29/08/2018	14:11:04	2.79	124.81	10	3.7				Celebes Sea
201	29/08/2018	16:47:42	0.68	122.52	10	2				Minahassa Peninsula, Sulawesi
202	29/08/2018	18:29:05	1.01	125.33	21	3.8				Northern Molucca Sea
203	29/08/2018	19:21:14	0.97	122.64	53	1.7				Minahassa Peninsula, Sulawesi
204	29/08/2018	19:46:56	-0.26	122.89	10	2.4				Minahassa Peninsula, Sulawesi
205	29/08/2018	20:02:43	1.7	126.39	59	3.3				Northern Molucca Sea
206	29/08/2018	20:07:51	1.79	126.4	44	3.3				Northern Molucca Sea
207	30/08/2018	05:53:29	2.07	129.03	18	4				Halmahera, Indonesia
208	30/08/2018	06:32:23	0.29	121.64	138	3.4				Minahassa Peninsula, Sulawesi
209	30/08/2018	08:04:25	0.99	121.74	20	2.5				Minahassa Peninsula, Sulawesi
210	30/08/2018	10:16:22	2.03	128.99	56	4.1				Halmahera, Indonesia

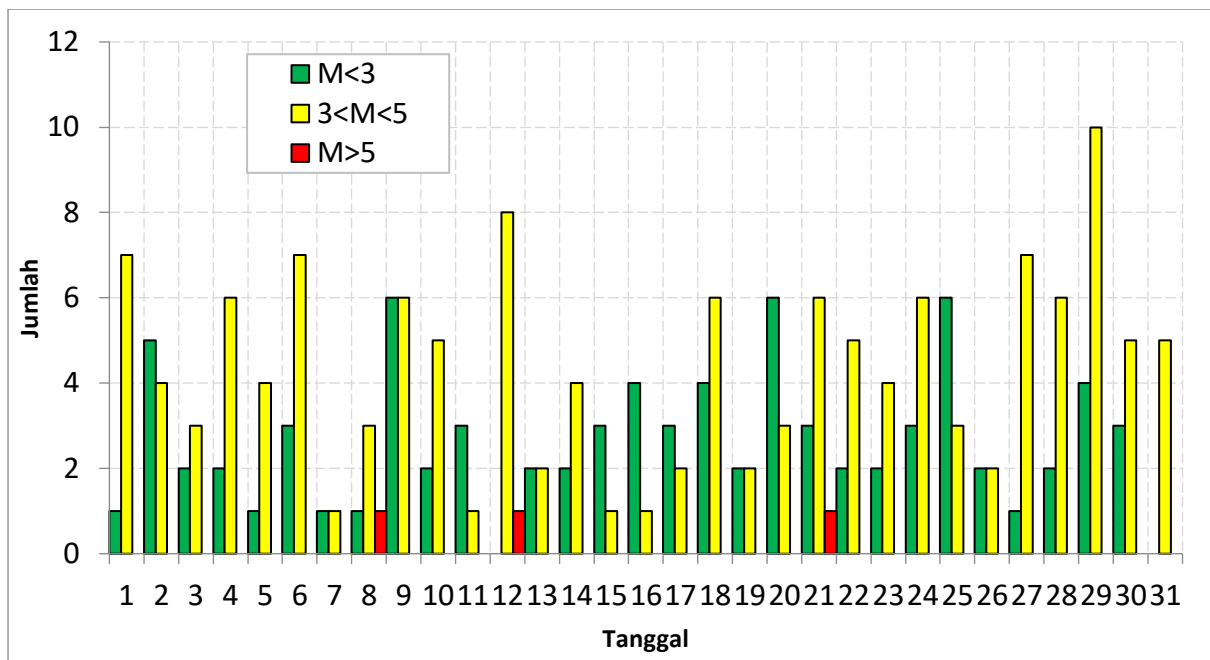
211	30/08/2018	10:36:12	2.16	129.16	11	4.1				Halmahera, Indonesia
212	30/08/2018	13:02:05	0.4	122.28	103	2.3				Minahassa Peninsula, Sulawesi
213	30/08/2018	14:50:47	0.31	125.01	62	3.2				Northern Molucca Sea
214	30/08/2018	23:06:42	-0.04	123.05	147	2.3				Minahassa Peninsula, Sulawesi
215	31/08/2018	04:22:24	-0.01	126.67	9	4.2				Southern Molucca Sea
216	31/08/2018	08:29:06	-0.05	123.26	137	4.5				Minahassa Peninsula, Sulawesi
217	31/08/2018	10:54:46	-0.17	124.04	99	3.8				Southern Molucca Sea
218	31/08/2018	18:29:06	1.93	127.38	91	4.2				Halmahera, Indonesia
219	31/08/2018	22:20:23	5.31	126.35	187	4.3				Mindanao, Philippines



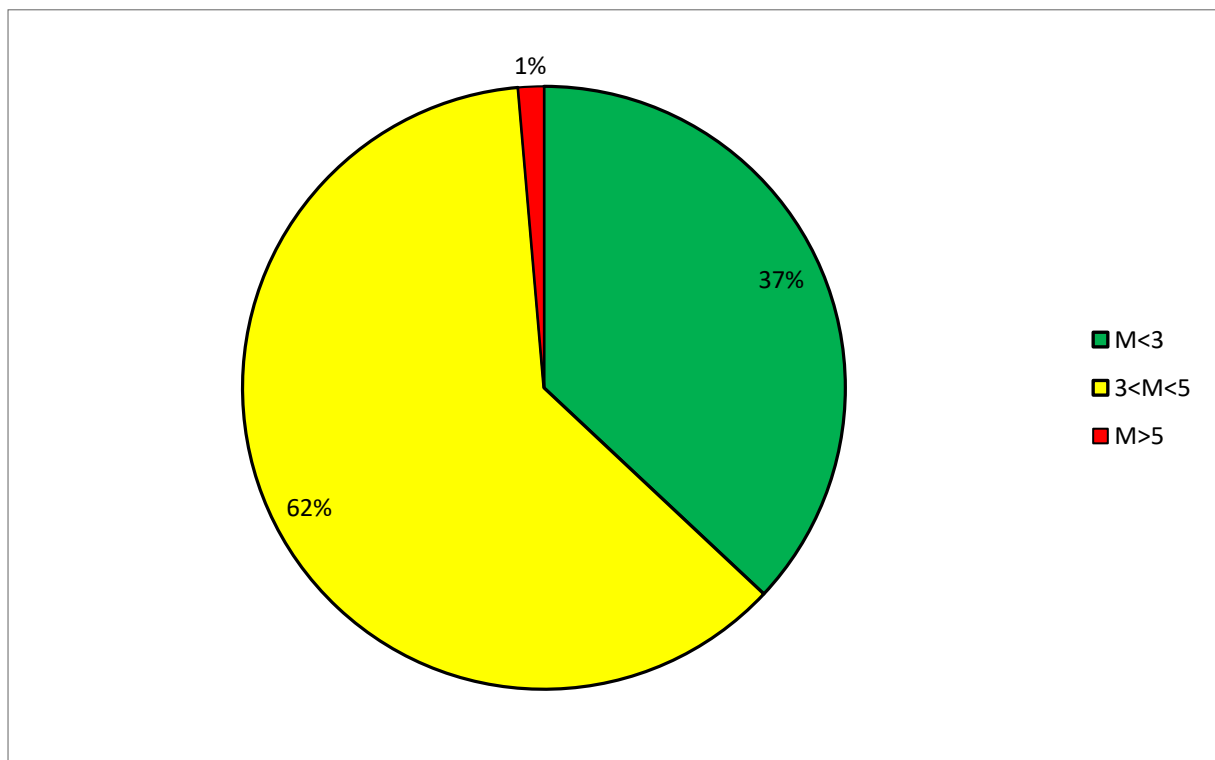
Gambar 42 Sebaran episenter gempabumi bulan Agustus 2018

Tabel 25 Rekapitulasi gempabumi dan tsunami berdasarkan magnitudo bulan Agustus 2018

Tanggal (UTC)	Magnitudo			Jumlah Total	Jumlah Gempa Signifikan	
	M<3	3≤M<5	M≥5		Dirasakan	Merusak
1	1	7	0	8	0	0
2	5	4	0	9	0	0
3	2	3	0	5	0	0
4	2	6	0	8	0	0
5	1	4	0	5	0	0
6	3	7	0	10	0	0
7	1	1	0	2	0	0
8	1	3	1	5	1	0
9	6	6	0	12	0	0
10	2	5	0	7	0	0
11	3	1	0	4	0	0
12	0	8	1	9	1	0
13	2	2	0	4	0	0
14	2	4	0	6	0	0
15	3	1	0	4	0	0
16	4	1	0	5	0	0
17	3	2	0	5	0	0
18	4	6	0	10	0	0
19	2	2	0	4	0	0
20	6	3	0	9	0	0
21	3	6	1	10	0	0
22	2	5	0	7	0	0
23	2	4	0	6	0	0
24	3	6	0	9	0	0
25	6	3	0	9	0	0
26	2	2	0	4	0	0
27	1	7	0	8	0	0
28	2	6	0	8	0	0
29	4	10	0	14	1	0
30	3	5	0	8	0	0
31	0	5	0	5	0	0
Jumlah gempa	81	135	3	219	3	0
Jumlah gempa seluruhnya						



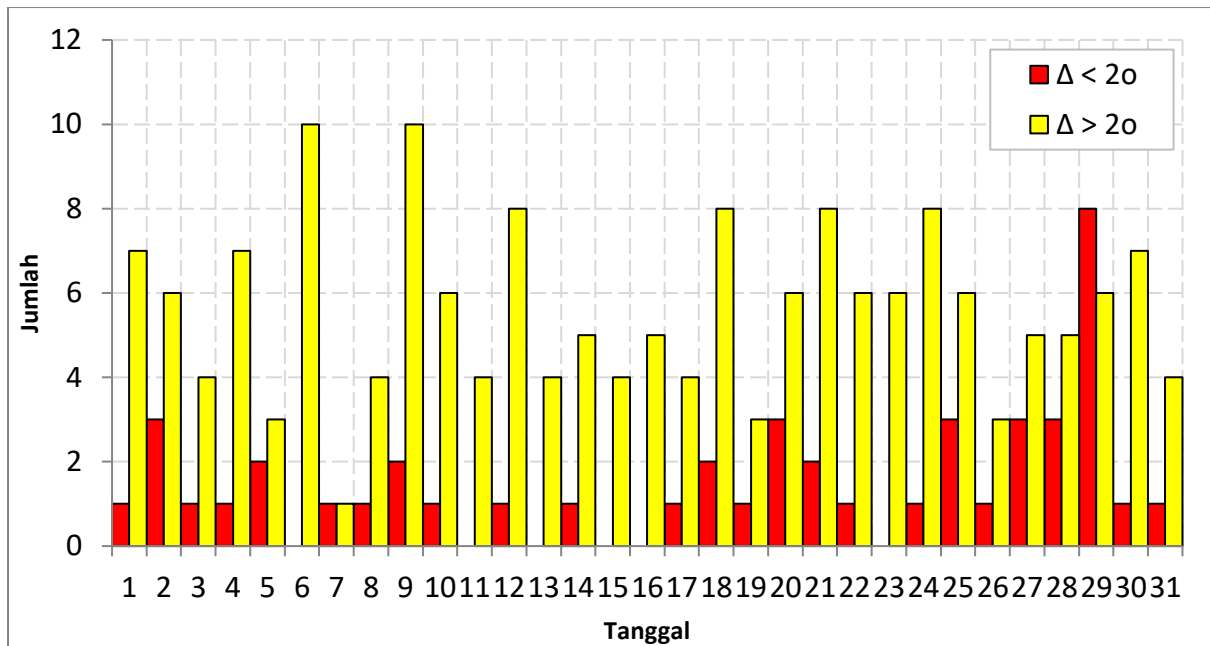
Gambar 43 Grafik gempabumi berdasarkan magnitudo bulan Agustus 2018



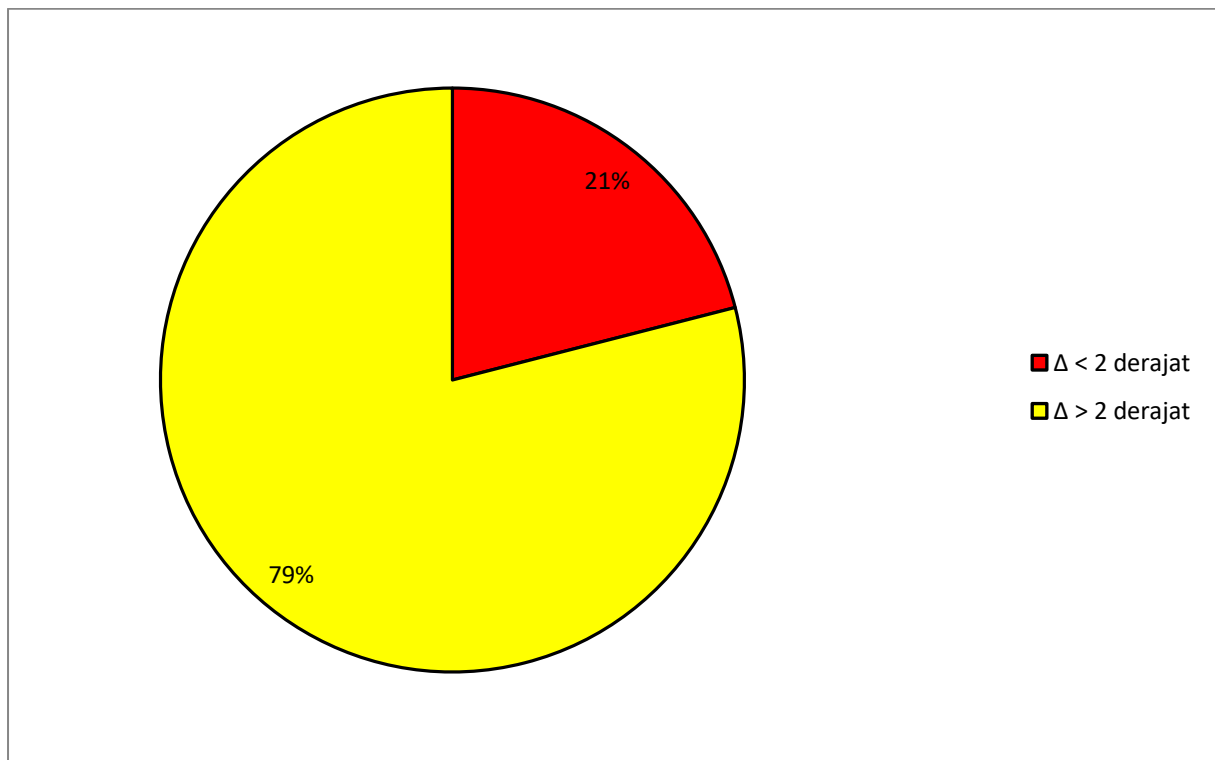
Gambar 44 Grafik persentase gempabumi berdasarkan magnitudo bulan Agustus 2018

Tabel 26 Rekapitulasi gempabumi dan tsunami berdasarkan jarak dari stasiun bulan Agustus 2018

Tanggal	Jarak		Jumlah	Keterangan
	$\Delta \leq 2^{\circ}$	$\Delta > 2^{\circ}$		
01/08/2018	1	7	8	-
02/08/2018	3	6	9	-
03/08/2018	1	4	5	-
04/08/2018	1	7	8	-
05/08/2018	2	3	5	-
06/08/2018	0	10	10	-
07/08/2018	1	1	2	-
08/08/2018	1	4	5	-
09/08/2018	2	10	12	-
10/08/2018	1	6	7	-
11/08/2018	0	4	4	-
12/08/2018	1	8	9	-
13/08/2018	0	4	4	-
14/08/2018	1	5	6	-
15/08/2018	0	4	4	-
16/08/2018	0	5	5	-
17/08/2018	1	4	5	-
18/08/2018	2	8	10	-
19/08/2018	1	3	4	-
20/08/2018	3	6	9	-
21/08/2018	2	8	10	-
22/08/2018	1	6	7	-
23/08/2018	0	6	6	-
24/08/2018	1	8	9	-
25/08/2018	3	6	9	-
26/08/2018	1	3	4	-
27/08/2018	3	5	8	-
28/08/2018	3	5	8	-
29/08/2018	8	6	14	-
30/08/2018	1	7	8	-
31/08/2018	1	4	5	
Jumlah gempa	46	173	219	-
Jumlah gempa seluruhnya				



Gambar 45 Grafik gempabumi berdasarkan jarak bulan Agustus 2018



Gambar 46 Grafik persentase gempabumi berdasarkan jarak bulan Agustus 2018

I. Data Gempabumi Bulan September 2018

Tabel 27 Data kejadian gempabumi bulan September 2018

NO	DATE	OT (UTC)	EPICENTER		DEPTH (KM)	MAG	PGA (gals) / SLMI			REGION
			LAT	LON			X	Y	Z	
1	01/09/2018	00:55:31	-0.41	122.98	70	3.2				Minahassa Peninsula, Sulawesi
2	01/09/2018	14:44:07	0.26	121.49	137	2.2				Minahassa Peninsula, Sulawesi
3	01/09/2018	14:56:14	0.33	122.21	104	3.1				Minahassa Peninsula, Sulawesi
4	01/09/2018	15:28:37	0.38	121.05	20	2.3				Minahassa Peninsula, Sulawesi
5	01/09/2018	15:39:39	3.42	127.26	91	3.9				Talaud Islands, Indonesia
6	02/09/2018	01:19:31	2.63	126.87	10	4.6	0.084527	0.085094	0.107976	Northern Molucca Sea
7	02/09/2018	05:45:01	-0.15	122.79	152	4				Minahassa Peninsula, Sulawesi
8	02/09/2018	08:21:04	-0.11	123.07	138	2.6				Minahassa Peninsula, Sulawesi
9	02/09/2018	09:53:29	0.03	124.69	10	3.4				Minahassa Peninsula, Sulawesi
10	02/09/2018	10:07:50	-0.08	122.89	147	3				Minahassa Peninsula, Sulawesi
11	02/09/2018	12:33:13	-0.41	119.52	10	3.9				Minahassa Peninsula, Sulawesi
12	02/09/2018	19:29:51	3.32	123.94	399	4.4				Celebes Sea
13	02/09/2018	20:55:20	0.81	126.23	10	3.9				Northern Molucca Sea
14	02/09/2018	21:37:42	0.85	122.44	31	3.1				Minahassa Peninsula, Sulawesi
15	02/09/2018	22:59:10	4.52	125.53	165	4.1				Talaud Islands, Indonesia
16	03/09/2018	03:08:20	1.29	120.69	18	3				Minahassa Peninsula, Sulawesi
17	03/09/2018	04:13:09	-0.05	122.01	159	2.2				Minahassa Peninsula, Sulawesi
18	03/09/2018	09:50:36	0.37	122.48	181	3.6				Minahassa Peninsula, Sulawesi
19	03/09/2018	16:35:22	0.89	118.68	12	3.5				Borneo
20	03/09/2018	23:09:07	1.72	121.67	15	3.1				Minahassa Peninsula, Sulawesi
21	04/09/2018	00:18:02	-0.4	125.14	10	4.1				Southern Molucca Sea
22	04/09/2018	00:57:27	-0.21	125.22	10	3.3				Southern Molucca Sea
23	04/09/2018	05:56:46	5.31	127.34	155	4.6				Philippine Islands Region
24	04/09/2018	07:23:16	0.27	125.25	17	3.8				Northern Molucca Sea
25	04/09/2018	11:51:37	-0.37	123.47	101	3.2				Minahassa Peninsula, Sulawesi
26	04/09/2018	12:36:44	0.22	130.2	65	3.5				Irian Jaya Region, Indonesia
27	04/09/2018	17:57:09	0.78	122.71	10	2.9				Minahassa Peninsula, Sulawesi
28	05/09/2018	03:19:25	0.7	122.07	188	2.2				Minahassa Peninsula, Sulawesi
29	05/09/2018	03:35:12	0.31	122.07	24	2.2				Minahassa Peninsula, Sulawesi
30	05/09/2018	04:31:01	-0.22	123.89	37	3				Minahassa Peninsula, Sulawesi
31	05/09/2018	06:14:29	0.53	123.17	10	3				Minahassa Peninsula, Sulawesi

32	05/09/2018	06:18:41	0.93	122.89	16	2.9				Minahassa Peninsula, Sulawesi
33	05/09/2018	08:47:35	1.1	118.66	14	4.4				Borneo
34	05/09/2018	11:40:02	1.83	127.11	26	3.6				Halmahera, Indonesia
35	05/09/2018	19:14:00	1.08	121.74	14	2.1				Minahassa Peninsula, Sulawesi
36	05/09/2018	20:09:02	1.7	122.34	31	2.4				Minahassa Peninsula, Sulawesi
37	05/09/2018	20:20:10	2.68	128.43	223	3.7				Halmahera, Indonesia
38	06/09/2018	04:34:32	2.54	128.15	127	4.4				Halmahera, Indonesia
39	06/09/2018	09:52:10	-0.09	122.05	238	3.5				Minahassa Peninsula, Sulawesi
40	06/09/2018	12:57:51	-0.18	122.76	10	2.4				Minahassa Peninsula, Sulawesi
41	06/09/2018	17:02:47	0.57	126.17	10	3.6				Northern Molucca Sea
42	06/09/2018	22:35:03	4.45	124.96	92	3.9				Celebes Sea
43	06/09/2018	23:43:17	1.12	125.38	10	3.5				Northern Molucca Sea
44	07/09/2018	02:30:14	-0.49	129.37	750	3.7				Halmahera, Indonesia
45	07/09/2018	02:31:17	0.67	123.37	223	2.6				Minahassa Peninsula, Sulawesi
46	07/09/2018	03:56:22	1.41	126.52	10	3.2				Northern Molucca Sea
47	07/09/2018	04:51:57	2.29	128.03	10	4.1				Halmahera, Indonesia
48	07/09/2018	09:01:11	0.3	122.13	157	2.5				Minahassa Peninsula, Sulawesi
49	07/09/2018	09:40:46	1.71	123.9	93	3				Minahassa Peninsula, Sulawesi
50	07/09/2018	10:56:54	2.43	122.1	110	2.9				Celebes Sea
51	07/09/2018	16:45:16	1.75	122.64	29	2.6				Minahassa Peninsula, Sulawesi
52	07/09/2018	18:13:56	1.54	126.44	10	2.7				Northern Molucca Sea
53	07/09/2018	20:44:11	2.75	125.02	202	5.7	0.382697	0.599205	0.4023	Talaud Islands, Indonesia
54	08/09/2018	13:47:13	-0.22	123.3	62	3.4				Minahassa Peninsula, Sulawesi
55	08/09/2018	15:22:40	0.49	122.04	172	1.6				Minahassa Peninsula, Sulawesi
56	08/09/2018	16:59:10	0.21	119.45	10	3.5				Minahassa Peninsula, Sulawesi
57	08/09/2018	17:43:18	-0.27	122.9	12	2.5				Minahassa Peninsula, Sulawesi
58	08/09/2018	19:57:11	1.62	126.38	10	3.8				Northern Molucca Sea
59	08/09/2018	21:01:34	1.93	125.18	130	4.4				Northern Molucca Sea
60	08/09/2018	22:01:11	0.02	122.74	85	2.2				Minahassa Peninsula, Sulawesi
61	08/09/2018	22:24:49	0.47	121.74	156	1.8				Minahassa Peninsula, Sulawesi
62	09/09/2018	01:38:10	0.44	122.38	69	2.6				Minahassa Peninsula, Sulawesi
63	09/09/2018	15:46:26	3.2	122.55	550	3.4				Celebes Sea
64	09/09/2018	18:22:30	0.31	125.1	10	3.2				Northern Molucca Sea
65	10/09/2018	04:59:44	0.98	128.06	11	3.8				Halmahera, Indonesia
66	10/09/2018	23:24:38	2.97	126.83	10	3.8				Northern Molucca Sea
67	11/09/2018	01:30:20	4.44	126.64	193	3.6				Talaud Islands, Indonesia
68	11/09/2018	04:34:55	-0.23	122.82	91	3.7				Minahassa Peninsula, Sulawesi

69	11/09/2018	11:40:29	-0.27	123.34	84	2.9				Minahassa Peninsula, Sulawesi
70	11/09/2018	17:33:20	3.05	127.07	10	3.3				Talaud Islands, Indonesia
71	11/09/2018	19:07:27	1.69	127.34	135	4.6				Halmahera, Indonesia
72	11/09/2018	20:44:42	1.59	127.27	84	3.8				Halmahera, Indonesia
73	11/09/2018	21:45:17	-0.06	123	143	3				Minahassa Peninsula, Sulawesi
74	12/09/2018	02:55:34	0.39	122.14	166	3				Minahassa Peninsula, Sulawesi
75	12/09/2018	07:32:00	1.51	121.21	10	2.8				Minahassa Peninsula, Sulawesi
76	12/09/2018	08:46:28	-0.45	121.25	10	3				Minahassa Peninsula, Sulawesi
77	12/09/2018	10:11:38	0.52	122.31	83	2.1				Minahassa Peninsula, Sulawesi
78	12/09/2018	11:57:35	0.68	122.18	78	2				Minahassa Peninsula, Sulawesi
79	12/09/2018	12:37:17	1.72	127.37	113	3.5				Halmahera, Indonesia
80	12/09/2018	12:52:04	3.04	128.39	224	4.4				North of Halmahera, Indonesia
81	12/09/2018	18:07:52	-0.08	123.78	101	4.3	0.055493	0.051411	0.066245	Minahassa Peninsula, Sulawesi
82	13/09/2018	07:30:42	0.26	122.34	147	2				Minahassa Peninsula, Sulawesi
83	13/09/2018	14:17:32	1.45	118.86	18	3.7				Borneo
84	13/09/2018	16:49:20	3.05	127.93	117	5.1				Talaud Islands, Indonesia
85	13/09/2018	17:49:56	-0.1	121.73	245	2.5				Minahassa Peninsula, Sulawesi
86	13/09/2018	22:33:43	-0.21	124.64	13	4.3				Southern Molucca Sea
87	13/09/2018	23:27:45	0.45	122.35	62	2.3				Minahassa Peninsula, Sulawesi
88	14/09/2018	00:14:28	0.5	122.13	68	2.5				Minahassa Peninsula, Sulawesi
89	14/09/2018	04:07:05	1.81	127.41	97	4				Halmahera, Indonesia
90	14/09/2018	04:22:57	3.13	126.55	43	3.8				Talaud Islands, Indonesia
91	14/09/2018	05:15:11	1.09	122.63	10	2.2				Minahassa Peninsula, Sulawesi
92	14/09/2018	16:38:26	0.99	123.38	27	4.2	0.306374	0.380902	0.510509	Minahassa Peninsula, Sulawesi
93	14/09/2018	20:54:14	5.99	125.85	162	4.5				Mindanao, Philippines
94	15/09/2018	16:28:43	6.04	126.37	434	4.7				Mindanao, Philippines
95	15/09/2018	18:16:21	1.59	127.31	135	3.7				Halmahera, Indonesia
96	16/09/2018	00:03:28	6.15	126.29	137	5				Mindanao, Philippines
97	16/09/2018	03:42:52	0.86	122.59	25	4.4				Minahassa Peninsula, Sulawesi
98	16/09/2018	04:30:38	1.91	127.4	109	3.7				Halmahera, Indonesia
99	16/09/2018	07:28:05	0.39	126.88	30	4.2				Northern Molucca Sea
100	16/09/2018	12:45:10	1.89	121.38	10	2.6				Minahassa Peninsula, Sulawesi
101	16/09/2018	13:57:32	1.99	123.15	414	3.2				Minahassa Peninsula, Sulawesi
102	16/09/2018	14:54:11	-0.15	123.08	146	3.8				Minahassa Peninsula, Sulawesi
103	16/09/2018	16:04:31	5.31	126.34	136	4.7				Mindanao, Philippines
104	16/09/2018	17:48:34	1.18	126.17	10	3.5				Northern Molucca Sea
105	16/09/2018	19:10:47	0.6	125.67	11	3.4				Northern Molucca Sea

106	16/09/2018	20:20:57	6.43	130.16	10	5.1				East of Philippine Islands
107	17/09/2018	10:41:04	0.34	121.24	10	1.9				Minahassa Peninsula, Sulawesi
108	17/09/2018	11:50:24	1.19	128.23	10	3.5				Halmahera, Indonesia
109	17/09/2018	13:55:15	-0.22	122.71	11	2.8				Minahassa Peninsula, Sulawesi
110	17/09/2018	17:15:49	1.82	127.26	77	3.9				Halmahera, Indonesia
111	18/09/2018	03:16:06	1.96	121.73	68	2.7				Minahassa Peninsula, Sulawesi
112	18/09/2018	14:08:44	3.25	126.47	48	3.5				Talaud Islands, Indonesia
113	18/09/2018	14:16:24	2.49	126.87	10	3.4				Northern Molucca Sea
114	18/09/2018	16:19:05	-0.22	123.88	60	2.8				Minahassa Peninsula, Sulawesi
115	18/09/2018	16:28:50	-0.29	122.86	69	2.3				Minahassa Peninsula, Sulawesi
116	18/09/2018	17:00:13	0.36	122.06	167	2.4				Minahassa Peninsula, Sulawesi
117	18/09/2018	19:03:11	-0.3	123.47	15	2.7				Minahassa Peninsula, Sulawesi
118	19/09/2018	10:24:58	0.31	122.14	37	2.8				Minahassa Peninsula, Sulawesi
119	19/09/2018	14:01:28	1.77	121.21	68	3				Minahassa Peninsula, Sulawesi
120	19/09/2018	14:08:49	-0.32	123.06	63	3.2				Minahassa Peninsula, Sulawesi
121	19/09/2018	17:07:20	0.48	125.2	10	3.6				Northern Molucca Sea
122	19/09/2018	19:53:58	1.81	127.29	96	4.8				Halmahera, Indonesia
123	19/09/2018	20:49:07	2.93	126.7	19	3.2				Northern Molucca Sea
124	19/09/2018	23:40:48	5.14	126.96	162	4				Mindanao, Philippines
125	20/09/2018	00:48:51	-0.19	123.14	26	4.7				Minahassa Peninsula, Sulawesi
126	20/09/2018	02:36:42	4.46	127.78	124	5.4				Talaud Islands, Indonesia
127	20/09/2018	03:03:55	3.65	126.19	84	4.4				Talaud Islands, Indonesia
128	20/09/2018	11:12:58	-0.05	122.94	10	2.5				Minahassa Peninsula, Sulawesi
129	20/09/2018	13:25:55	0.11	122.47	138	3.4				Minahassa Peninsula, Sulawesi
130	20/09/2018	18:24:43	1.69	127.43	92	3.6				Halmahera, Indonesia
131	20/09/2018	19:33:11	0.33	121.96	172	2.1				Minahassa Peninsula, Sulawesi
132	20/09/2018	23:17:01	-0.11	122.21	34	2.5				Minahassa Peninsula, Sulawesi
133	21/09/2018	06:34:54	0.44	121.95	169	2.2				Minahassa Peninsula, Sulawesi
134	21/09/2018	10:36:53	1.63	126.37	10	3.6				Northern Molucca Sea
135	21/09/2018	12:50:26	-0.07	123.34	137	2.8				Minahassa Peninsula, Sulawesi
136	21/09/2018	13:17:16	-0.19	123.31	142	3.9				Minahassa Peninsula, Sulawesi
137	21/09/2018	15:30:35	1.85	121.7	10	3.2				Minahassa Peninsula, Sulawesi
138	21/09/2018	15:35:41	2.38	128.44	219	4				Halmahera, Indonesia
139	21/09/2018	16:29:24	1.65	126.39	10	3.4				Northern Molucca Sea
140	21/09/2018	16:44:50	2.02	121.7	61	2.7				Celebes Sea
141	21/09/2018	18:09:08	2.99	128.15	26	4.3				Halmahera, Indonesia
142	21/09/2018	21:28:25	-0.18	122.54	48	3.2				Minahassa Peninsula, Sulawesi

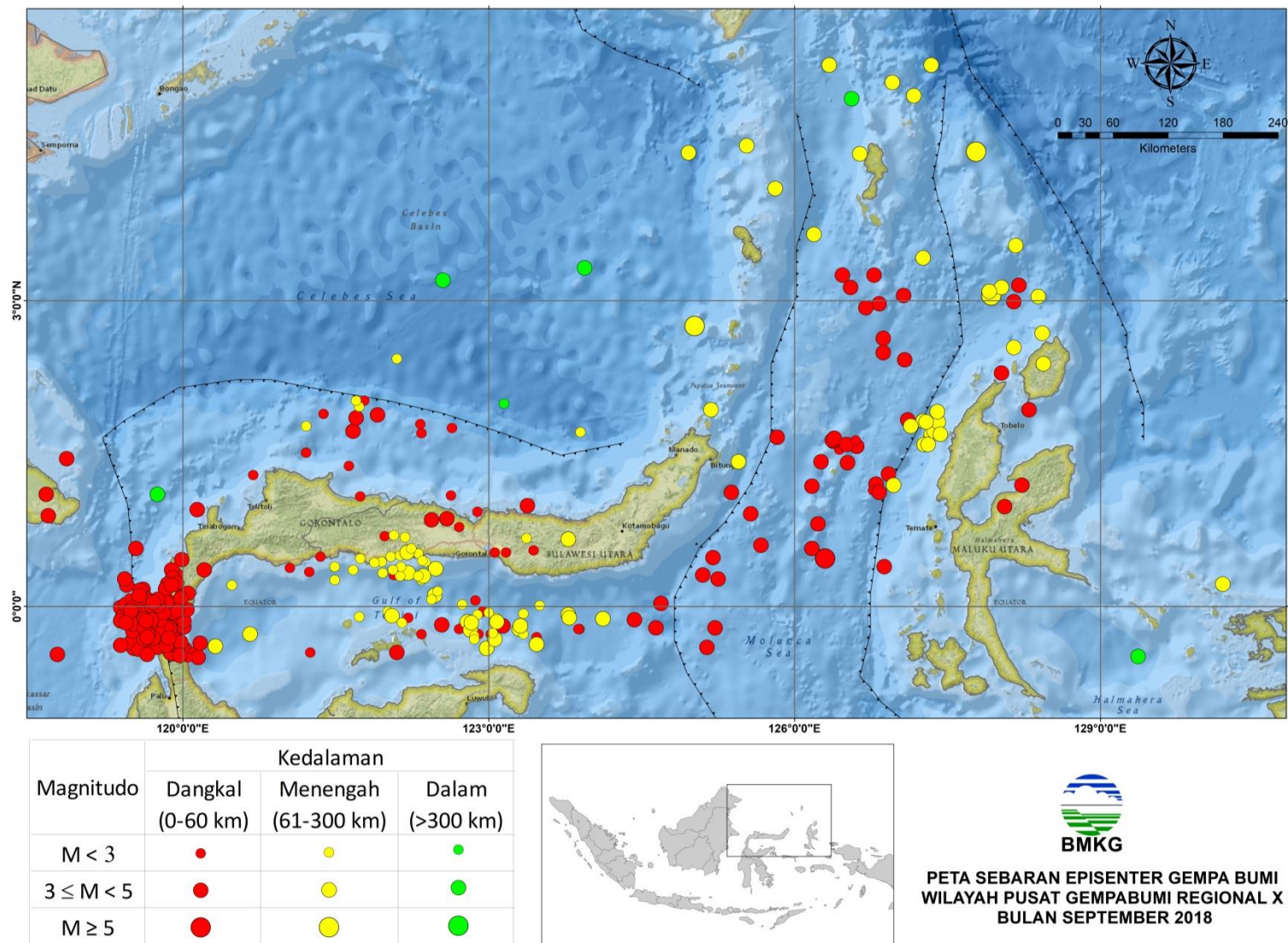
143	22/09/2018	01:27:07	0.53	122.2	78	3.4				Minahassa Peninsula, Sulawesi
144	22/09/2018	15:08:56	-0.16	122.83	139	3.2				Minahassa Peninsula, Sulawesi
145	22/09/2018	20:36:53	0.01	123.5	123	3				Minahassa Peninsula, Sulawesi
146	22/09/2018	22:40:09	1.19	126.97	65	3.4				Northern Molucca Sea
147	23/09/2018	03:09:40	0.47	126.3	46	5.2	0.244934	0.294631	0.291867	Northern Molucca Sea
148	23/09/2018	07:47:12	1.88	121.91	10	3.2				Minahassa Peninsula, Sulawesi
149	23/09/2018	08:06:57	0.3	122.36	141	4.2				Minahassa Peninsula, Sulawesi
150	23/09/2018	13:22:47	-0.27	123.02	10	2.5				Minahassa Peninsula, Sulawesi
151	23/09/2018	15:25:51	0.21	120.48	63	2.2				Minahassa Peninsula, Sulawesi
152	23/09/2018	16:41:17	-0.11	123.79	130	3.9				Minahassa Peninsula, Sulawesi
153	23/09/2018	17:02:08	0.43	121.88	118	1.7				Minahassa Peninsula, Sulawesi
154	24/09/2018	01:19:17	0.39	121.49	144	2.5				Minahassa Peninsula, Sulawesi
155	24/09/2018	09:52:41	-0.45	122.1	60	3.1				Minahassa Peninsula, Sulawesi
156	24/09/2018	14:08:15	0.15	122.5	126	2.2				Minahassa Peninsula, Sulawesi
157	24/09/2018	14:33:24	0.49	121.35	35	2.8				Minahassa Peninsula, Sulawesi
158	24/09/2018	15:20:47	0.06	122.87	24	2.3				Minahassa Peninsula, Sulawesi
159	24/09/2018	15:27:43	3.54	128.17	86	4				North of Halmahera, Indonesia
160	24/09/2018	16:21:50	1.57	126.61	10	3.3				Northern Molucca Sea
161	24/09/2018	17:33:35	1.42	125.45	69	3.6				Northern Molucca Sea
162	24/09/2018	17:51:28	-0.32	122.86	67	2.6				Minahassa Peninsula, Sulawesi
163	24/09/2018	18:53:37	1.59	126.51	27	3.4				Northern Molucca Sea
164	24/09/2018	19:33:38	1.3	126.92	53	3.6				Northern Molucca Sea
165	25/09/2018	02:02:01	4.1	125.81	68	3.8				Talaud Islands, Indonesia
166	25/09/2018	04:23:40	0.36	121.67	103	2.5				Minahassa Peninsula, Sulawesi
167	25/09/2018	14:18:27	1.93	128.3	55	3.6				Halmahera, Indonesia
168	25/09/2018	16:44:46	1.63	126.6	10	3				Northern Molucca Sea
169	25/09/2018	19:36:59	0.3	122.31	143	2.2				Minahassa Peninsula, Sulawesi
170	26/09/2018	08:55:13	2.02	121.78	10	2.7				Celebes Sea
171	26/09/2018	15:03:35	0.57	122.24	108	2.5				Minahassa Peninsula, Sulawesi
172	26/09/2018	18:13:29	0.66	123.78	267	3.7				Minahassa Peninsula, Sulawesi
173	26/09/2018	21:07:30	-0.12	124.12	64	3.4				Southern Molucca Sea
174	26/09/2018	22:40:27	6.34	126.04	84	4.9				Mindanao, Philippines
175	26/09/2018	23:50:44	1.38	121.63	53	3				Minahassa Peninsula, Sulawesi
176	27/09/2018	00:24:20	0.69	121.98	33	2.2				Minahassa Peninsula, Sulawesi
177	27/09/2018	10:10:40	0.55	123.44	28	2.6				Minahassa Peninsula, Sulawesi
178	27/09/2018	12:07:00	3.15	128.2	10	4.2				North of Halmahera, Indonesia

179	27/09/2018	17:41:24	3.13	128.03	141	3.9				North of Halmahera, Indonesia
180	27/09/2018	22:04:31	1.79	122.33	35	3				Minahassa Peninsula, Sulawesi
181	27/09/2018	22:16:28	0.07	122.44	255	2.9				Minahassa Peninsula, Sulawesi
182	28/09/2018	03:31:03	-0.13	124.43	19	3.3				Southern Molucca Sea
183	28/09/2018	06:16:02	4.98	126.56	372	3.5				Talaud Islands, Indonesia
184	28/09/2018	07:00:01	-0.35	119.83	16	6				Minahassa Peninsula, Sulawesi
185	28/09/2018	07:11:18	-0.35	119.96	10	4.4				Minahassa Peninsula, Sulawesi
186	28/09/2018	07:17:14	-0.09	119.86	10	4.6				Minahassa Peninsula, Sulawesi
187	28/09/2018	07:27:00	-0.24	119.78	10	4.7				Minahassa Peninsula, Sulawesi
188	28/09/2018	07:28:38	-0.37	119.88	10	5				Minahassa Peninsula, Sulawesi
189	28/09/2018	07:43:40	-0.25	119.68	10	3.2				Minahassa Peninsula, Sulawesi
190	28/09/2018	07:50:44	-0.19	119.93	10	4.4				Minahassa Peninsula, Sulawesi
191	28/09/2018	07:57:24	-0.21	119.97	10	3.7				Minahassa Peninsula, Sulawesi
192	28/09/2018	07:59:13	-0.33	119.68	10	4.3				Minahassa Peninsula, Sulawesi
193	28/09/2018	08:00:27	-0.32	119.8	10	4.4				Minahassa Peninsula, Sulawesi
194	28/09/2018	08:06:40	-0.37	119.64	10	3.8				Minahassa Peninsula, Sulawesi
195	28/09/2018	08:07:28	-0.26	119.71	10	3.7				Minahassa Peninsula, Sulawesi
196	28/09/2018	08:20:27	-0.02	119.86	10	4.2				Minahassa Peninsula, Sulawesi
197	28/09/2018	08:25:00	-0.34	119.84	17	5				Minahassa Peninsula, Sulawesi
198	28/09/2018	08:38:45	-0.2	120.01	10	3.1				Minahassa Peninsula, Sulawesi
199	28/09/2018	08:42:31	-0.35	119.49	10	3.5				Minahassa Peninsula, Sulawesi
200	28/09/2018	08:47:02	-0.12	119.89	10	3.9				Minahassa Peninsula, Sulawesi
201	28/09/2018	08:52:15	0.31	119.93	15	4				Minahassa Peninsula, Sulawesi
202	28/09/2018	08:53:22	-0.3	119.63	10	4.4				Minahassa Peninsula, Sulawesi
203	28/09/2018	08:58:18	-0.26	119.79	10	4.4				Minahassa Peninsula, Sulawesi
204	28/09/2018	08:58:52	3.09	127.91	162	4.3				Talaud Islands, Indonesia
205	28/09/2018	09:11:14	-0.38	119.86	10	4.2				Minahassa Peninsula, Sulawesi
206	28/09/2018	09:20:34	-0.27	119.89	10	4.4				Minahassa Peninsula, Sulawesi
207	28/09/2018	09:22:50	-0.16	119.72	10	4.7				Minahassa Peninsula, Sulawesi
208	28/09/2018	09:32:20	-0.4	119.75	10	3.8				Minahassa Peninsula, Sulawesi
209	28/09/2018	09:42:49	0.12	120	10	3.5				Minahassa Peninsula, Sulawesi
210	28/09/2018	09:49:08	-0.29	119.83	10	3.1				Minahassa Peninsula, Sulawesi
211	28/09/2018	09:57:40	-0.24	119.83	10	4.7				Minahassa Peninsula, Sulawesi
212	28/09/2018	10:02:44	-0.22	119.85	10	7.5	0.250724	0.424201	0.569242	Minahassa Peninsula, Sulawesi
213	28/09/2018	10:14:21	0.04	119.83	14	5.8				Minahassa Peninsula, Sulawesi
214	28/09/2018	10:34:54	0.04	119.76	10	4.7				Minahassa Peninsula, Sulawesi

215	28/09/2018	10:47:46	-0.44	119.9	12	5.1				Minahassa Peninsula, Sulawesi
216	28/09/2018	11:36:29	-0.42	120.02	10	4.4				Minahassa Peninsula, Sulawesi
217	28/09/2018	11:42:52	-0.1	119.49	10	4.5				Minahassa Peninsula, Sulawesi
218	28/09/2018	11:48:14	0.36	119.89	10	4.3				Minahassa Peninsula, Sulawesi
219	28/09/2018	11:50:40	0.95	120.14	10	3.8				Minahassa Peninsula, Sulawesi
220	28/09/2018	12:01:32	0.57	119.54	10	4.1				Minahassa Peninsula, Sulawesi
221	28/09/2018	12:05:04	-0.25	119.8	10	4.7				Minahassa Peninsula, Sulawesi
222	28/09/2018	12:14:21	-0.14	120.01	33	4.1				Minahassa Peninsula, Sulawesi
223	28/09/2018	12:27:34	-0.39	119.95	14	5				Minahassa Peninsula, Sulawesi
224	28/09/2018	12:36:45	0.28	119.9	12	4.2				Minahassa Peninsula, Sulawesi
225	28/09/2018	12:52:29	-0.05	119.84	10	4				Minahassa Peninsula, Sulawesi
226	28/09/2018	13:01:56	0.23	119.94	10	3.6				Minahassa Peninsula, Sulawesi
227	28/09/2018	13:10:27	-0.04	119.72	10	4.8				Minahassa Peninsula, Sulawesi
228	28/09/2018	13:23:49	-0.27	120.66	239	3.7				Minahassa Peninsula, Sulawesi
229	28/09/2018	13:35:31	0.02	119.67	12	5.6				Minahassa Peninsula, Sulawesi
230	28/09/2018	13:56:50	0.02	119.64	10	4.5				Minahassa Peninsula, Sulawesi
231	28/09/2018	14:06:13	0.07	119.55	10	4.1				Minahassa Peninsula, Sulawesi
232	28/09/2018	14:10:08	-0.04	119.72	10	4.9				Minahassa Peninsula, Sulawesi
233	28/09/2018	14:26:02	0	119.56	16	5.4				Minahassa Peninsula, Sulawesi
234	28/09/2018	14:52:45	-0.09	119.76	10	3.7				Minahassa Peninsula, Sulawesi
235	28/09/2018	14:57:23	0.13	120.05	10	3.3				Minahassa Peninsula, Sulawesi
236	28/09/2018	15:13:31	-0.03	120.04	10	3.8				Minahassa Peninsula, Sulawesi
237	28/09/2018	15:17:44	0.46	119.99	15	3.7				Minahassa Peninsula, Sulawesi
238	28/09/2018	15:20:45	0.17	119.61	10	4.3				Minahassa Peninsula, Sulawesi
239	28/09/2018	15:21:43	0.06	119.81	10	4.2				Minahassa Peninsula, Sulawesi
240	28/09/2018	15:54:03	0.36	120.21	10	4.3				Minahassa Peninsula, Sulawesi
241	28/09/2018	15:58:22	0.04	119.74	10	4.5				Minahassa Peninsula, Sulawesi
242	28/09/2018	16:01:54	0.22	119.85	10	4.1				Minahassa Peninsula, Sulawesi
243	28/09/2018	16:29:24	0.17	119.83	19	3.4				Minahassa Peninsula, Sulawesi
244	28/09/2018	16:40:05	-0.21	119.69	10	4.2				Minahassa Peninsula, Sulawesi
245	28/09/2018	16:43:56	1.2	126.8	25	3.8				Northern Molucca Sea
246	28/09/2018	17:10:51	0.08	119.98	10	3.9				Minahassa Peninsula, Sulawesi
247	28/09/2018	17:16:21	-0.04	119.82	10	4.4				Minahassa Peninsula, Sulawesi
248	28/09/2018	17:17:01	1.14	126.77	33	3				Northern Molucca Sea
249	28/09/2018	17:26:48	-0.37	119.86	10	3.6				Minahassa Peninsula, Sulawesi
250	28/09/2018	17:30:48	-0.42	119.57	10	3.2				Minahassa Peninsula, Sulawesi

251	28/09/2018	17:34:15	0.04	119.59	10	4.1				Minahassa Peninsula, Sulawesi
252	28/09/2018	17:44:20	-0.01	119.39	10	4.4				Minahassa Peninsula, Sulawesi
253	28/09/2018	17:54:45	-0.1	119.41	10	4.1				Minahassa Peninsula, Sulawesi
254	28/09/2018	18:21:43	0.21	119.89	12	4.3				Minahassa Peninsula, Sulawesi
255	28/09/2018	19:04:54	-0.06	119.76	10	4.5				Minahassa Peninsula, Sulawesi
256	28/09/2018	19:12:55	-0.41	119.96	10	4.1				Minahassa Peninsula, Sulawesi
257	28/09/2018	19:28:31	3.25	126.78	10	3.9				Talaud Islands, Indonesia
258	28/09/2018	20:21:13	-0.47	120.12	10	3.6				Minahassa Peninsula, Sulawesi
259	28/09/2018	20:44:10	-0.14	119.73	10	4.5				Minahassa Peninsula, Sulawesi
260	28/09/2018	23:13:24	-0.24	119.51	32	3.7				Minahassa Peninsula, Sulawesi
261	28/09/2018	23:35:20	0.09	119.63	10	4				Minahassa Peninsula, Sulawesi
262	28/09/2018	23:46:20	-0.33	119.94	26	3.8				Minahassa Peninsula, Sulawesi
263	29/09/2018	00:05:18	-0.41	119.97	10	3.8				Minahassa Peninsula, Sulawesi
264	29/09/2018	00:14:03	-0.21	119.84	12	3.9				Minahassa Peninsula, Sulawesi
265	29/09/2018	00:19:06	-0.39	120.32	76	4.1				Minahassa Peninsula, Sulawesi
266	29/09/2018	04:06:58	-0.18	119.67	10	3.8				Minahassa Peninsula, Sulawesi
267	29/09/2018	04:23:31	-0.38	119.39	10	4.5				Minahassa Peninsula, Sulawesi
268	29/09/2018	05:49:00	-0.32	119.62	10	3.6				Minahassa Peninsula, Sulawesi
269	29/09/2018	07:19:43	-0.16	122.15	127	2.1				Minahassa Peninsula, Sulawesi
270	29/09/2018	08:37:06	-0.06	119.91	10	4.3				Minahassa Peninsula, Sulawesi
271	29/09/2018	09:54:25	-0.06	119.73	10	4.4				Minahassa Peninsula, Sulawesi
272	29/09/2018	10:26:20	-0.23	119.75	10	3.5				Minahassa Peninsula, Sulawesi
273	29/09/2018	10:41:33	-0.04	119.94	10	3.8				Minahassa Peninsula, Sulawesi
274	29/09/2018	11:06:26	-0.5	120.15	10	4.3				Minahassa Peninsula, Sulawesi
275	29/09/2018	11:53:27	0.16	119.58	10	3.9				Minahassa Peninsula, Sulawesi
276	29/09/2018	12:11:11	-0.36	120.17	10	4				Minahassa Peninsula, Sulawesi
277	29/09/2018	13:27:23	0.04	119.84	10	3.4				Minahassa Peninsula, Sulawesi
278	29/09/2018	13:41:51	-0.14	119.39	10	3.8				Minahassa Peninsula, Sulawesi
279	29/09/2018	15:40:16	-0.13	119.78	10	3.9				Minahassa Peninsula, Sulawesi
280	29/09/2018	15:49:40	-0.38	119.84	13	3.5				Minahassa Peninsula, Sulawesi
281	29/09/2018	16:36:07	-0.06	119.81	10	3.7				Minahassa Peninsula, Sulawesi
282	29/09/2018	17:53:26	5.01	127.17	99	4.5				Philippine Islands Region
283	29/09/2018	17:57:59	0.02	119.44	10	4.1				Minahassa Peninsula, Sulawesi
284	29/09/2018	18:57:32	-0.31	119.71	10	3.5				Minahassa Peninsula, Sulawesi
285	29/09/2018	19:01:22	-0.17	119.68	10	3.4				Minahassa Peninsula, Sulawesi
286	29/09/2018	21:39:35	-0.17	119.51	10	3.4				Minahassa Peninsula, Sulawesi

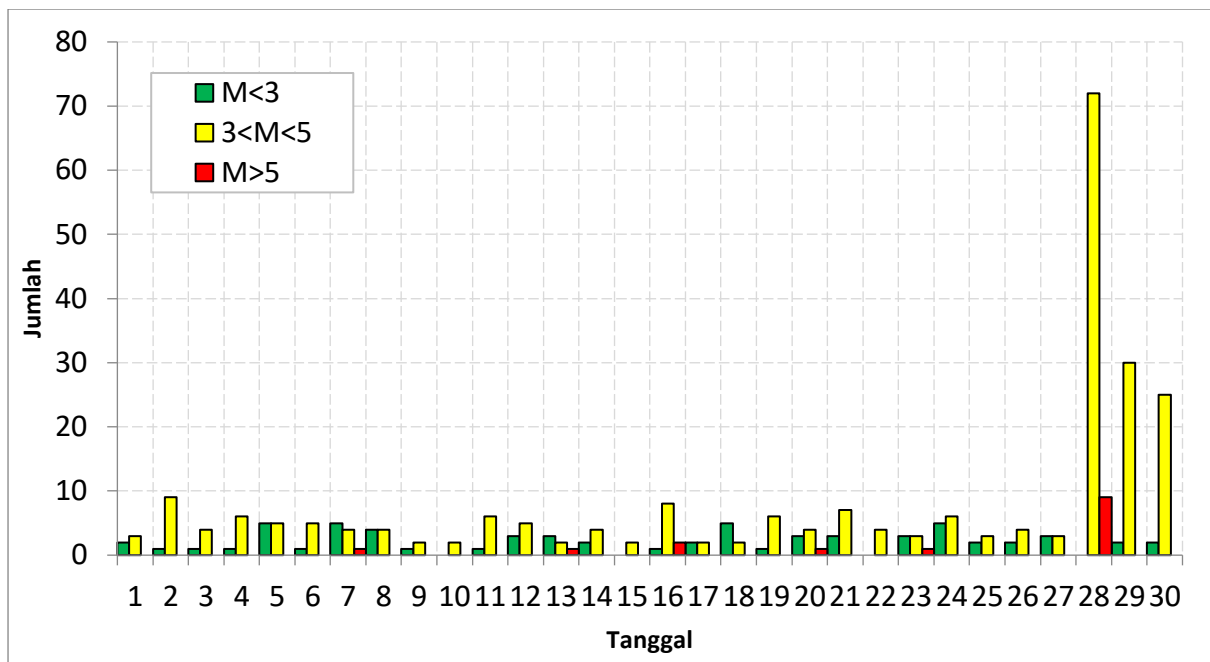
287	29/09/2018	21:42:27	-0.41	119.99	10	4.1				Minahassa Peninsula, Sulawesi
288	29/09/2018	21:42:28	-0.35	119.98	10	4				Minahassa Peninsula, Sulawesi
289	29/09/2018	22:30:09	-0.27	119.66	10	3.1				Minahassa Peninsula, Sulawesi
290	29/09/2018	22:37:13	0.08	119.48	10	2.8				Minahassa Peninsula, Sulawesi
291	29/09/2018	22:46:43	-0.02	119.59	10	3.5				Minahassa Peninsula, Sulawesi
292	29/09/2018	23:22:53	-0.27	122.34	27	3				Minahassa Peninsula, Sulawesi
293	29/09/2018	23:46:23	-0.5	120.05	10	3				Minahassa Peninsula, Sulawesi
294	29/09/2018	23:54:50	0.05	119.67	10	4.1				Minahassa Peninsula, Sulawesi
295	30/09/2018	00:32:03	-0.26	123.04	79	2.7				Minahassa Peninsula, Sulawesi
296	30/09/2018	01:18:24	1.42	126.26	28	3.7				Northern Molucca Sea
297	30/09/2018	01:18:26	-0.21	119.62	10	3.4				Minahassa Peninsula, Sulawesi
298	30/09/2018	03:03:27	1.66	125.83	10	3.6				Northern Molucca Sea
299	30/09/2018	03:10:37	0.27	119.43	10	3.6				Minahassa Peninsula, Sulawesi
300	30/09/2018	03:30:47	-0.01	119.51	10	3.7				Minahassa Peninsula, Sulawesi
301	30/09/2018	03:53:34	0.11	119.57	10	4.3				Minahassa Peninsula, Sulawesi
302	30/09/2018	04:11:22	-0.12	119.62	10	3.2				Minahassa Peninsula, Sulawesi
303	30/09/2018	04:45:22	0	119.7	10	3.1				Minahassa Peninsula, Sulawesi
304	30/09/2018	07:48:52	-0.47	119.65	7	3.2				Minahassa Peninsula, Sulawesi
305	30/09/2018	07:55:03	1.12	126.83	35	3.5				Northern Molucca Sea
306	30/09/2018	08:37:38	-0.3	119.65	10	3.7				Minahassa Peninsula, Sulawesi
307	30/09/2018	09:35:52	2.42	127.08	23	4.3				Northern Molucca Sea
308	30/09/2018	10:13:30	0.01	119.76	10	4.2				Minahassa Peninsula, Sulawesi
309	30/09/2018	10:28:44	-0.31	119.86	10	3.5				Minahassa Peninsula, Sulawesi
310	30/09/2018	13:55:37	0.07	119.75	10	3.5				Minahassa Peninsula, Sulawesi
311	30/09/2018	14:07:14	-0.04	119.49	10	4.1				Minahassa Peninsula, Sulawesi
312	30/09/2018	15:57:30	1.1	119.75	390	3.6				Celebes Sea
313	30/09/2018	16:50:17	-0.13	119.69	10	3.5				Minahassa Peninsula, Sulawesi
314	30/09/2018	17:07:40	-0.14	119.64	10	3.5				Minahassa Peninsula, Sulawesi
315	30/09/2018	17:28:22	-0.16	119.44	10	3.9				Minahassa Peninsula, Sulawesi
316	30/09/2018	17:54:48	-0.48	119.97	10	3.5				Minahassa Peninsula, Sulawesi
317	30/09/2018	18:10:59	0.53	123.06	10	2.6				Minahassa Peninsula, Sulawesi
318	30/09/2018	18:36:09	0.91	125.57	16	3.4				Northern Molucca Sea
319	30/09/2018	19:01:20	-0.47	118.77	10	3.8				Minahassa Peninsula, Sulawesi
320	30/09/2018	21:39:34	1.77	127.14	91	3.7				Halmahera, Indonesia
321	30/09/2018	22:00:11	0.04	119.71	10	3.8				Minahassa Peninsula, Sulawesi



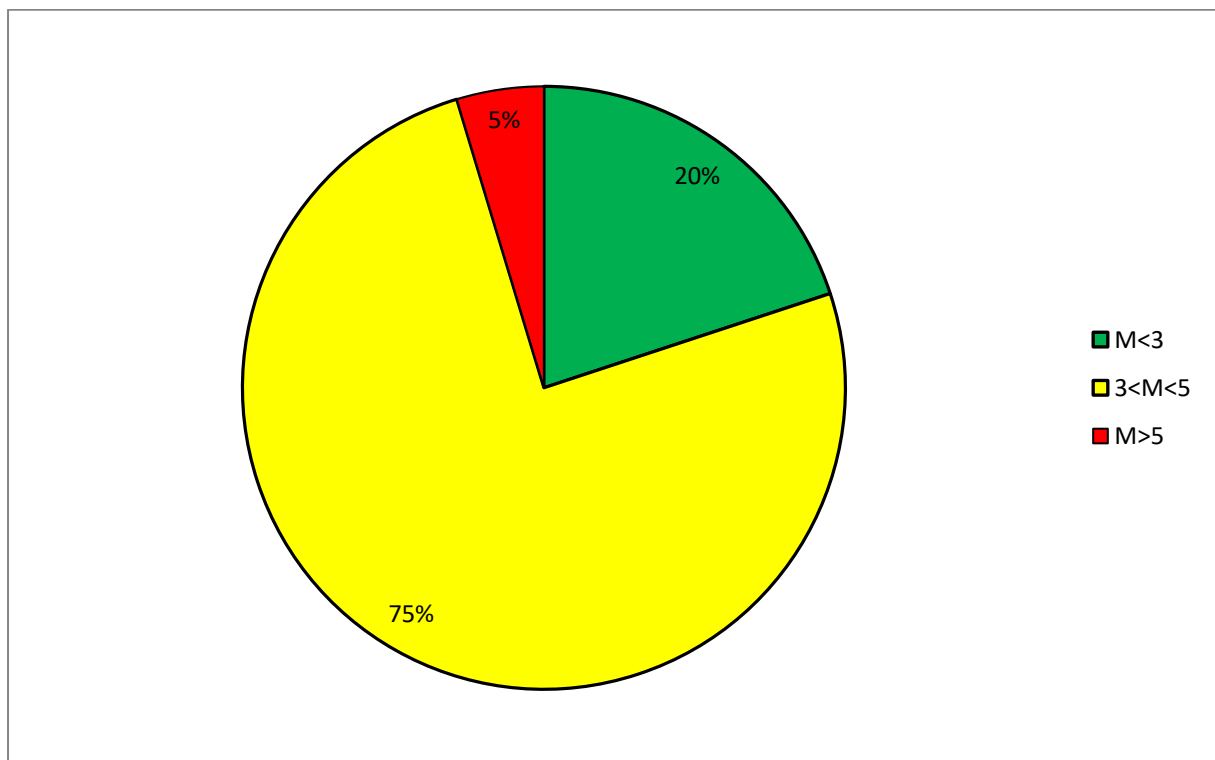
Gambar 47 Sebaran episenter gempabumi bulan September 2018

Tabel 28 Rekapitulasi gempabumi dan tsunami berdasarkan magnitudo bulan September 2018

Tanggal (UTC)	Magnitudo			Jumlah Total	Jumlah Gempa Signifikan	
	M<3	3≤M<5	M≥5		Dirasakan	Merusak
1	2	3	0	5	0	0
2	1	9	0	10	0	0
3	1	4	0	5	0	0
4	1	6	0	7	0	0
5	5	5	0	10	0	0
6	1	5	0	6	0	0
7	5	4	1	10	0	0
8	4	4	0	8	0	0
9	1	2	0	3	0	0
10	0	2	0	2	0	0
11	1	6	0	7	1	0
12	3	5	0	8	1	0
13	3	2	1	6	0	0
14	2	4	0	6	1	0
15	0	2	0	2	0	0
16	1	8	2	11	0	0
17	2	2	0	4	0	0
18	5	2	0	7	0	0
19	1	6	0	7	0	0
20	3	4	1	8	0	0
21	3	7	0	10	0	0
22	0	4	0	4	0	0
23	3	3	1	7	0	0
24	5	6	0	11	0	0
25	2	3	0	5	0	0
26	2	4	0	6	0	0
27	3	3	0	6	0	0
28	0	72	9	81	4	1
29	2	30	0	32	0	0
30	2	25	0	27	0	0
Jumlah gempa	64	242	15	321	7	1
Jumlah gempa seluruhnya						



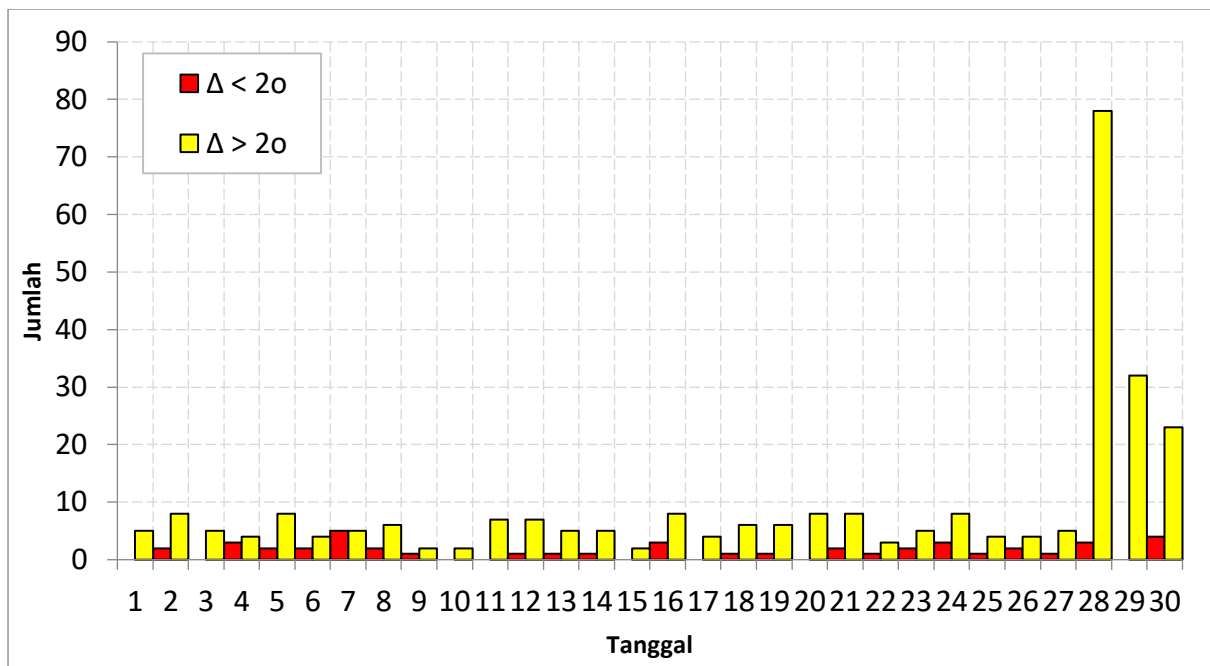
Gambar 48 Grafik gempabumi berdasarkan magnitudo bulan September 2018



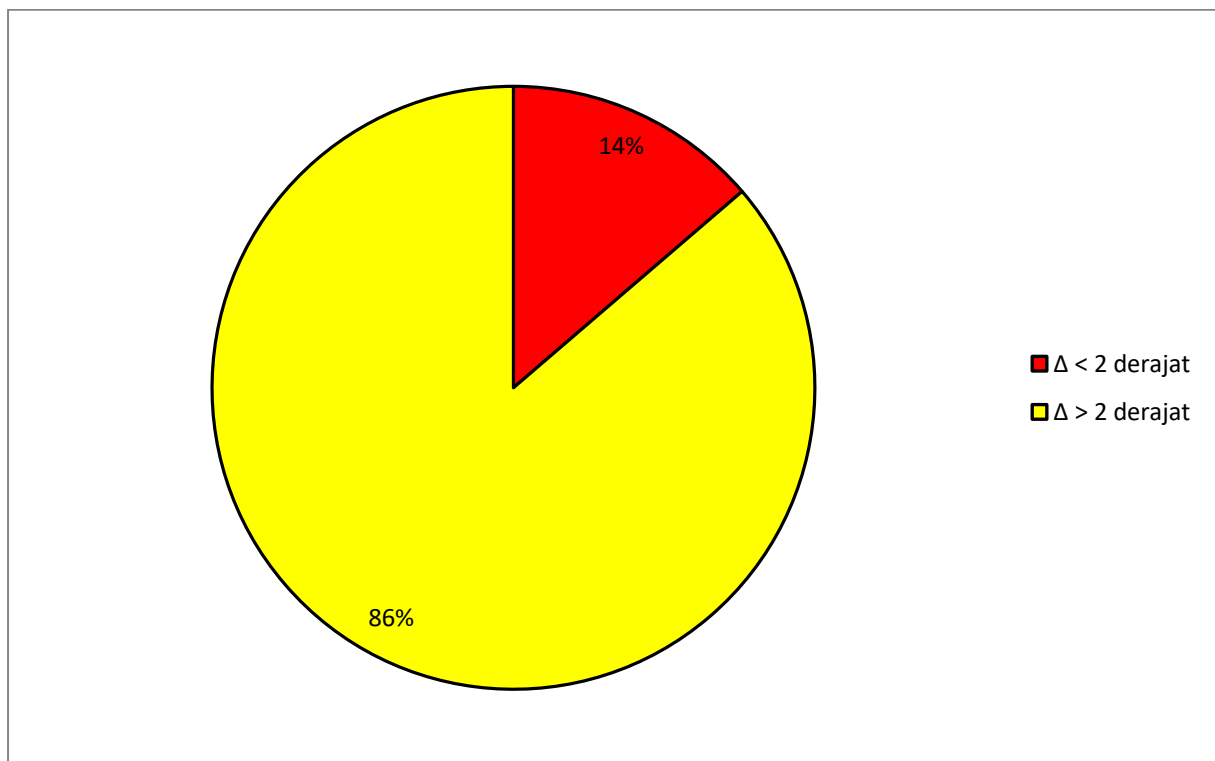
Gambar 49 Grafik persentase gempabumi berdasarkan magnitudo bulan September 2018

Tabel 29 Rekapitulasi gempabumi dan tsunami berdasarkan jarak dari stasiun bulan September 2018

Tanggal	Jarak		Jumlah	Keterangan
	$\Delta \leq 2^\circ$	$\Delta > 2^\circ$		
01/09/2018	0	5	5	-
02/09/2018	2	8	10	-
03/09/2018	0	5	5	-
04/09/2018	3	4	7	-
05/09/2018	2	8	10	-
06/09/2018	2	4	6	-
07/09/2018	5	5	10	-
08/09/2018	2	6	8	-
09/09/2018	1	2	3	-
10/09/2018	0	2	2	-
11/09/2018	0	7	7	-
12/09/2018	1	7	8	-
13/09/2018	1	5	6	-
14/09/2018	1	5	6	-
15/09/2018	0	2	2	-
16/09/2018	3	8	11	-
17/09/2018	0	4	4	-
18/09/2018	1	6	7	-
19/09/2018	1	6	7	-
20/09/2018	0	8	8	-
21/09/2018	2	8	10	-
22/09/2018	1	3	4	-
23/09/2018	2	5	7	-
24/09/2018	3	8	11	-
25/09/2018	1	4	5	-
26/09/2018	2	4	6	-
27/09/2018	1	5	6	-
28/09/2018	3	78	81	-
29/09/2018	0	32	32	-
30/09/2018	4	23	27	-
Jumlah gempa	44	277	321	-
Jumlah gempa seluruhnya				



Gambar 50 Grafik gempabumi berdasarkan jarak bulan September 2018



Gambar 51 Grafik persentase gempabumi berdasarkan jarak bulan September 2018

J. Data Gempabumi Bulan Oktober 2018

Tabel 30 Data kejadian gempabumi bulan Oktober 2018

NO	DATE	OT (UTC)	EPICENTER		DEPTH (km)	MAG	PGA (gals) / SLMI			REGION
			LAT	LONG			X	Y	Z	
1	01/10/2018	01:04:17	0.46	121.29	10	2.4				Minahassa Peninsula, Sulawesi
2	01/10/2018	01:38:18	-0.09	123.13	121	2.6				Minahassa Peninsula, Sulawesi
3	01/10/2018	01:44:19	-0.14	120.11	10	3.6				Minahassa Peninsula, Sulawesi
4	01/10/2018	04:05:30	0.01	119.82	10	3.3				Minahassa Peninsula, Sulawesi
5	01/10/2018	04:21:58	-0.43	120.32	14	3.1				Minahassa Peninsula, Sulawesi
6	01/10/2018	05:04:23	-0.03	119.67	10	2.7				Minahassa Peninsula, Sulawesi
7	01/10/2018	05:12:50	-0.16	119.82	10	2.8				Minahassa Peninsula, Sulawesi
8	01/10/2018	05:43:35	-0.01	119.63	10	5.2				Minahassa Peninsula, Sulawesi
9	01/10/2018	05:54:57	0.15	119.54	10	3.4				Minahassa Peninsula, Sulawesi
10	01/10/2018	06:43:01	-0.28	119.51	10	3.4				Minahassa Peninsula, Sulawesi
11	01/10/2018	07:04:03	-0.25	119.82	10	3.2				Minahassa Peninsula, Sulawesi
12	01/10/2018	07:16:15	-0.39	119.89	10	3.2				Minahassa Peninsula, Sulawesi
13	01/10/2018	07:27:43	0.06	119.72	10	3.1				Minahassa Peninsula, Sulawesi
14	01/10/2018	07:36:36	-0.01	119.68	10	3.8				Minahassa Peninsula, Sulawesi
15	01/10/2018	07:46:28	0.19	119.54	10	3				Minahassa Peninsula, Sulawesi
16	01/10/2018	07:56:50	0.05	119.9	10	2.7				Minahassa Peninsula, Sulawesi
17	01/10/2018	08:05:27	-0.04	119.54	10	3.1				Minahassa Peninsula, Sulawesi
18	01/10/2018	09:08:47	0	119.47	10	3.3				Minahassa Peninsula, Sulawesi
19	01/10/2018	09:21:45	0.43	119.46	10	2.9				Minahassa Peninsula, Sulawesi
20	01/10/2018	09:41:16	-0.11	122.91	135	3.5				Minahassa Peninsula, Sulawesi
21	01/10/2018	09:46:49	-0.16	119.54	10	3				Minahassa Peninsula, Sulawesi
22	01/10/2018	10:01:58	0.15	119.5	10	3				Minahassa Peninsula, Sulawesi
23	01/10/2018	10:28:46	0.2	119.81	10	2.9				Minahassa Peninsula, Sulawesi
24	01/10/2018	10:33:01	3.29	126.78	14	5				Talaud Islands, Indonesia
25	01/10/2018	10:39:38	-0.42	119.39	10	3.1				Minahassa Peninsula, Sulawesi
26	01/10/2018	11:03:22	3.31	126.61	10	4.2				Talaud Islands, Indonesia
27	01/10/2018	11:24:01	-0.32	119.4	10	3.6				Minahassa Peninsula, Sulawesi
28	01/10/2018	12:38:06	0.03	119.52	10	3.3				Minahassa Peninsula, Sulawesi
29	01/10/2018	12:45:02	3.86	127.19	147	3.9				Talaud Islands, Indonesia
30	01/10/2018	13:19:26	1.7	126.59	10	3.5				Northern Molucca Sea
31	01/10/2018	13:51:01	0.08	119.65	10	3.5				Minahassa Peninsula, Sulawesi

32	01/10/2018	14:26:55	-0.2	119.74	10	3.4				Minahassa Peninsula, Sulawesi
33	01/10/2018	15:55:41	1.65	126.63	10	3.4				Northern Molucca Sea
34	01/10/2018	16:15:10	-0.48	120.16	10	3.7				Minahassa Peninsula, Sulawesi
35	01/10/2018	17:39:06	-0.42	120.27	11	4.9				Minahassa Peninsula, Sulawesi
36	01/10/2018	18:53:30	-0.12	119.62	10	3.9				Minahassa Peninsula, Sulawesi
37	01/10/2018	18:54:39	2.94	128.62	10	4.3				Halmahera, Indonesia
38	01/10/2018	19:17:35	-0.23	119.5	10	4				Minahassa Peninsula, Sulawesi
39	01/10/2018	20:35:24	-0.18	120.64	10	2.6				Minahassa Peninsula, Sulawesi
40	01/10/2018	21:04:03	0.24	119.57	10	2.8				Minahassa Peninsula, Sulawesi
41	01/10/2018	22:09:45	-0.06	119.37	10	3.6				Minahassa Peninsula, Sulawesi
42	01/10/2018	22:16:14	0.3	119.96	10	2.7				Minahassa Peninsula, Sulawesi
43	01/10/2018	22:28:22	-0.04	119.86	10	2.8				Minahassa Peninsula, Sulawesi
44	01/10/2018	22:35:20	0.16	119.64	10	3.6				Minahassa Peninsula, Sulawesi
45	01/10/2018	23:10:15	-0.06	124.52	22	3.9				Southern Molucca Sea
46	01/10/2018	23:43:57	0.01	119.94	10	3.5				Minahassa Peninsula, Sulawesi
47	02/10/2018	01:35:37	-0.31	119.75	10	3.3				Minahassa Peninsula, Sulawesi
48	02/10/2018	01:41:11	-0.03	119.26	10	3.2				Minahassa Peninsula, Sulawesi
49	02/10/2018	02:36:22	0.02	119.53	10	4.1				Minahassa Peninsula, Sulawesi
50	02/10/2018	03:40:17	-0.08	119.82	10	3.3				Minahassa Peninsula, Sulawesi
51	02/10/2018	05:15:34	0.36	126.22	46	4.9				Northern Molucca Sea
52	02/10/2018	06:07:27	-0.08	119.83	10	3.9				Minahassa Peninsula, Sulawesi
53	02/10/2018	06:26:28	4.68	125.48	168	4.7				Talaud Islands, Indonesia
54	02/10/2018	07:51:51	-0.46	119.67	10	2.6				Minahassa Peninsula, Sulawesi
55	02/10/2018	08:17:24	2.7	128.2	195	4.1				Halmahera, Indonesia
56	02/10/2018	09:08:13	-0.16	119.7	10	3.1				Minahassa Peninsula, Sulawesi
57	02/10/2018	11:35:16	-0.4	120.07	10	2.9				Minahassa Peninsula, Sulawesi
58	02/10/2018	13:29:46	-0.5	119.59	10	3				Minahassa Peninsula, Sulawesi
59	02/10/2018	13:56:14	-0.43	119.78	10	3.2				Minahassa Peninsula, Sulawesi
60	02/10/2018	14:21:37	0.07	119.65	10	3.4				Minahassa Peninsula, Sulawesi
61	02/10/2018	14:42:47	-0.2	119.78	10	3.3				Minahassa Peninsula, Sulawesi
62	02/10/2018	14:59:38	0.07	119.79	18	2.8				Minahassa Peninsula, Sulawesi
63	02/10/2018	15:08:44	0.2	119.4	10	3.9				Minahassa Peninsula, Sulawesi
64	02/10/2018	16:00:39	-0.42	121.5	10	2.5				Minahassa Peninsula, Sulawesi
65	02/10/2018	17:57:17	-0.07	119.52	21	3.1				Minahassa Peninsula, Sulawesi
66	02/10/2018	19:00:40	-0.04	125.49	10	3				Southern Molucca Sea
67	02/10/2018	19:10:54	-0.21	119.61	10	3.6				Minahassa Peninsula, Sulawesi

68	02/10/2018	21:30:45	-0.03	119.79	10	3.8				Minahassa Peninsula, Sulawesi
69	03/10/2018	00:10:32	-0.22	119.9	10	3.6				Minahassa Peninsula, Sulawesi
70	03/10/2018	00:30:10	0	119.84	10	3.1				Minahassa Peninsula, Sulawesi
71	03/10/2018	00:40:59	-0.11	119.77	10	3.3				Minahassa Peninsula, Sulawesi
72	03/10/2018	00:51:45	1.16	121.38	10	2.9				Minahassa Peninsula, Sulawesi
73	03/10/2018	02:00:43	0.22	119.8	10	3.9				Minahassa Peninsula, Sulawesi
74	03/10/2018	05:35:32	0.28	119.24	10	4.6				Minahassa Peninsula, Sulawesi
75	03/10/2018	07:18:38	-0.5	119.53	10	3.7				Minahassa Peninsula, Sulawesi
76	03/10/2018	11:37:01	1.24	126.93	10	2.8				Northern Molucca Sea
77	03/10/2018	12:20:11	0.26	119.3	10	3.2				Minahassa Peninsula, Sulawesi
78	03/10/2018	12:24:49	-0.05	119.4	10	3.6				Minahassa Peninsula, Sulawesi
79	03/10/2018	13:01:21	0.45	119.56	23	3.3				Minahassa Peninsula, Sulawesi
80	03/10/2018	14:11:02	-0.26	119.61	13	3.5				Minahassa Peninsula, Sulawesi
81	03/10/2018	14:43:08	-0.3	119.78	10	3.3				Minahassa Peninsula, Sulawesi
82	03/10/2018	15:51:04	0.49	120.61	34	3.9				Minahassa Peninsula, Sulawesi
83	03/10/2018	18:10:19	0.02	119.5	10	4.1				Minahassa Peninsula, Sulawesi
84	03/10/2018	18:15:07	-0.09	119.82	12	4.2				Minahassa Peninsula, Sulawesi
85	03/10/2018	18:36:36	-0.21	119.51	10	3.6				Minahassa Peninsula, Sulawesi
86	03/10/2018	21:31:12	-0.32	122.9	73	2.7				Minahassa Peninsula, Sulawesi
87	03/10/2018	21:44:23	6.92	125.66	98	4.6				Mindanao, Philippines
88	03/10/2018	21:54:47	-0.49	118.88	32	3.9				Minahassa Peninsula, Sulawesi
89	03/10/2018	22:01:34	-0.03	118.71	10	4				Minahassa Peninsula, Sulawesi
90	03/10/2018	22:08:37	0.18	119.35	10	3.5				Minahassa Peninsula, Sulawesi
91	03/10/2018	23:11:57	0.18	119.39	15	3.9				Minahassa Peninsula, Sulawesi
92	03/10/2018	23:27:36	-0.46	120.03	10	3				Minahassa Peninsula, Sulawesi
93	04/10/2018	01:39:02	0.22	119.22	10	4.2				Minahassa Peninsula, Sulawesi
94	04/10/2018	10:50:02	-0.13	119.84	10	3.8				Minahassa Peninsula, Sulawesi
95	04/10/2018	13:21:06	1.26	126.82	71	3.6				Northern Molucca Sea
96	04/10/2018	13:31:20	1.59	126.19	10	3.2				Northern Molucca Sea
97	04/10/2018	13:57:22	2.1	128.57	10	4.1				Halmahera, Indonesia
98	04/10/2018	17:07:42	0.15	119.65	20	3.4				Minahassa Peninsula, Sulawesi
99	04/10/2018	17:10:02	-0.1	122.93	70	2.7				Minahassa Peninsula, Sulawesi
100	04/10/2018	22:08:46	-0.4	121.24	39	4.6				Minahassa Peninsula, Sulawesi
101	04/10/2018	23:23:15	1.2	123.98	247	4.5				Minahassa Peninsula, Sulawesi
102	04/10/2018	23:52:16	-0.36	120.04	10	3.6				Minahassa Peninsula, Sulawesi
103	05/10/2018	01:50:27	-0.33	118.75	139	4.3				Minahassa Peninsula, Sulawesi

104	05/10/2018	02:46:13	-0.1	122.7	126	2.4				Minahassa Peninsula, Sulawesi
105	05/10/2018	04:51:15	1.39	126.62	10	3.8				Northern Molucca Sea
106	05/10/2018	04:54:21	0.23	119.23	10	3.5				Minahassa Peninsula, Sulawesi
107	05/10/2018	06:14:41	-0.05	120.19	134	3.5				Minahassa Peninsula, Sulawesi
108	05/10/2018	08:58:09	-0.12	122.86	131	2.3				Minahassa Peninsula, Sulawesi
109	05/10/2018	10:37:34	0.18	119.69	10	4.5				Minahassa Peninsula, Sulawesi
110	05/10/2018	11:26:11	0.8	123.08	136	2.1				Minahassa Peninsula, Sulawesi
111	05/10/2018	13:59:44	-0.3	119.77	10	3.3				Minahassa Peninsula, Sulawesi
112	05/10/2018	19:54:30	3.93	123.46	358	4.4				Celebes Sea
113	05/10/2018	20:34:37	-0.08	125.9	50	3.8				Southern Molucca Sea
114	05/10/2018	22:57:41	0.37	121.82	76	2.6				Minahassa Peninsula, Sulawesi
115	05/10/2018	23:51:44	0.05	122.86	170	2.4				Minahassa Peninsula, Sulawesi
116	06/10/2018	01:11:44	-0.31	119.64	20	4.3				Minahassa Peninsula, Sulawesi
117	06/10/2018	07:06:58	-0.2	126.01	10	3.8				Southern Molucca Sea
118	06/10/2018	09:19:19	0.05	119.47	10	3.5				Minahassa Peninsula, Sulawesi
119	06/10/2018	10:37:14	1.29	126.81	26	4.2				Northern Molucca Sea
120	06/10/2018	11:36:57	-0.08	126.61	9	4.2				Southern Molucca Sea
121	06/10/2018	11:54:29	3.13	125.41	134	4.1				Talaud Islands, Indonesia
122	06/10/2018	12:35:32	0.48	126.59	20	3.2				Northern Molucca Sea
123	06/10/2018	13:17:12	0.27	121.1	149	3.1				Minahassa Peninsula, Sulawesi
124	06/10/2018	18:12:38	0.01	119.71	10	3.7				Minahassa Peninsula, Sulawesi
125	06/10/2018	18:17:54	0.12	119.74	10	3.7				Minahassa Peninsula, Sulawesi
126	06/10/2018	18:34:10	-0.01	119.72	10	3				Minahassa Peninsula, Sulawesi
127	06/10/2018	19:39:56	-0.1	125.58	10	3.5				Southern Molucca Sea
128	06/10/2018	21:14:09	0.29	119.15	10	3.8				Minahassa Peninsula, Sulawesi
129	06/10/2018	22:30:43	-0.06	119.59	10	3.4				Minahassa Peninsula, Sulawesi
130	07/10/2018	02:21:26	-0.19	120.49	10	2.9				Minahassa Peninsula, Sulawesi
131	07/10/2018	02:38:38	-0.28	123.09	10	2.9				Minahassa Peninsula, Sulawesi
132	07/10/2018	03:22:18	0.18	119.42	16	3.1				Minahassa Peninsula, Sulawesi
133	07/10/2018	03:24:49	0.53	119.43	10	3.4				Minahassa Peninsula, Sulawesi
134	07/10/2018	03:38:44	-0.09	119.48	10	3.5				Minahassa Peninsula, Sulawesi
135	07/10/2018	07:29:39	0	119.55	10	4.3				Minahassa Peninsula, Sulawesi
136	07/10/2018	08:18:15	-0.3	119.69	10	3.5				Minahassa Peninsula, Sulawesi
137	07/10/2018	08:31:18	0.04	123.38	19	3.7				Minahassa Peninsula, Sulawesi
138	07/10/2018	09:27:13	-0.15	119.76	3	2.8				Minahassa Peninsula, Sulawesi
139	07/10/2018	10:57:36	-0.05	123.24	137	3				Minahassa Peninsula, Sulawesi

140	07/10/2018	15:04:29	0.46	122.03	20	2.4				Minahassa Peninsula, Sulawesi
141	07/10/2018	16:32:17	0.09	119.6	10	3.5				Minahassa Peninsula, Sulawesi
142	07/10/2018	17:10:56	1.6	129.05	10	3.8				Halmahera, Indonesia
143	07/10/2018	19:37:20	-0.31	125.22	17	4				Southern Molucca Sea
144	07/10/2018	19:51:56	1.71	122.87	18	2.5				Minahassa Peninsula, Sulawesi
145	07/10/2018	20:15:25	-0.46	119.96	10	2.5				Minahassa Peninsula, Sulawesi
146	07/10/2018	21:02:55	-0.17	119.67	10	3.5				Minahassa Peninsula, Sulawesi
147	08/10/2018	02:29:42	-0.38	119.95	10	3.6				Minahassa Peninsula, Sulawesi
148	08/10/2018	05:38:29	-0.2	122.77	60	2.8				Minahassa Peninsula, Sulawesi
149	08/10/2018	07:38:01	0.91	122	61	2.5				Minahassa Peninsula, Sulawesi
150	08/10/2018	07:41:10	3.79	126.4	81	3.7				Talaud Islands, Indonesia
151	08/10/2018	09:19:12	0.08	122.2	10	2.2				Minahassa Peninsula, Sulawesi
152	08/10/2018	14:54:14	6.03	126.15	160	4.6				Mindanao, Philippines
153	08/10/2018	14:59:01	-0.05	119.63	10	3.1				Minahassa Peninsula, Sulawesi
154	08/10/2018	20:47:47	0.18	119.43	10	3.6				Minahassa Peninsula, Sulawesi
155	08/10/2018	23:02:09	-0.37	119.57	10	3.5				Minahassa Peninsula, Sulawesi
156	09/10/2018	04:59:14	-0.41	120.07	10	3.1				Minahassa Peninsula, Sulawesi
157	09/10/2018	05:57:54	2.41	128.07	134	3.8				Halmahera, Indonesia
158	09/10/2018	09:10:25	3.26	125.76	152	4.2				Talaud Islands, Indonesia
159	09/10/2018	11:25:10	0.04	119.84	10	3				Minahassa Peninsula, Sulawesi
160	09/10/2018	13:23:38	1.6	126.53	10	3				Northern Molucca Sea
161	09/10/2018	15:28:02	-0.26	119.81	10	3.4				Minahassa Peninsula, Sulawesi
162	09/10/2018	16:28:28	0.05	120.33	10	2.4				Minahassa Peninsula, Sulawesi
163	09/10/2018	16:44:07	1.42	126.62	10	3.3				Northern Molucca Sea
164	09/10/2018	21:00:12	-0.17	119.75	10	2.9				Minahassa Peninsula, Sulawesi
165	09/10/2018	22:30:14	2.14	128.2	151	4				Halmahera, Indonesia
166	10/10/2018	02:54:52	-0.33	119.95	15	3.6				Minahassa Peninsula, Sulawesi
167	10/10/2018	04:34:43	0.01	119.86	10	3.8				Minahassa Peninsula, Sulawesi
168	10/10/2018	07:25:22	-0.29	120	11	4.4				Minahassa Peninsula, Sulawesi
169	10/10/2018	08:22:03	1.25	122.05	34	2.9				Minahassa Peninsula, Sulawesi
170	10/10/2018	14:31:47	-0.07	125.54	10	3.7				Southern Molucca Sea
171	10/10/2018	16:01:13	5.98	126.59	75	4				Mindanao, Philippines
172	10/10/2018	17:34:25	1.37	121.53	10	4.9				Minahassa Peninsula, Sulawesi
173	10/10/2018	18:20:09	-0.03	119.02	10	3.7				Minahassa Peninsula, Sulawesi
174	10/10/2018	22:19:30	-0.13	123.39	105	3.5				Minahassa Peninsula, Sulawesi
175	11/10/2018	00:29:07	1.94	121.54	10	3.8				Minahassa Peninsula, Sulawesi

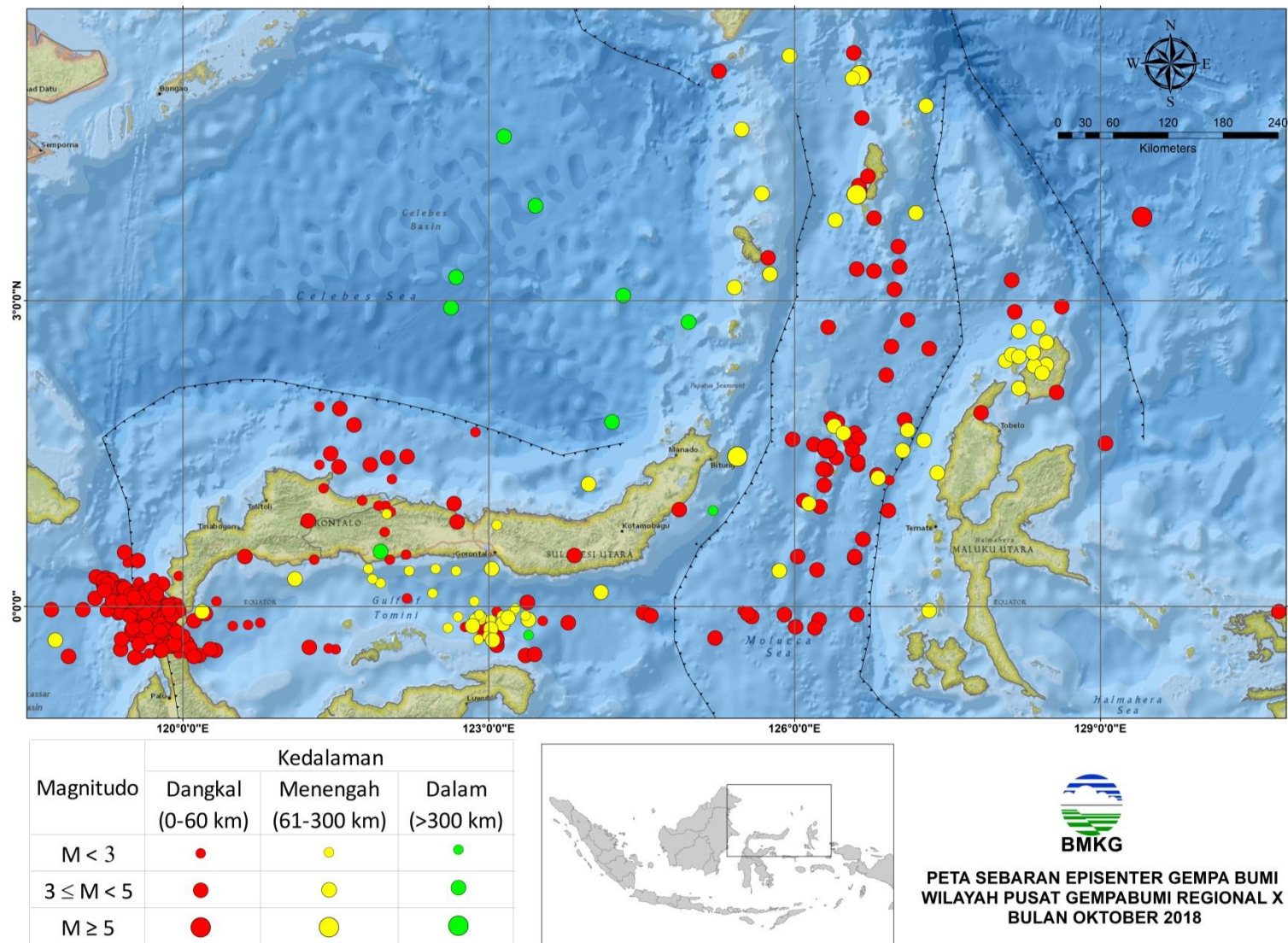
176	11/10/2018	03:43:40	-0.16	123.78	13	3.5				Minahassa Peninsula, Sulawesi
177	11/10/2018	04:00:50	0.99	121.99	26	2.8				Minahassa Peninsula, Sulawesi
178	11/10/2018	09:39:12	-0.49	120.14	10	2.7				Minahassa Peninsula, Sulawesi
179	11/10/2018	13:01:59	2.74	128.39	204	4.3				Halmahera, Indonesia
180	11/10/2018	13:13:23	-0.16	120.76	10	2.6				Minahassa Peninsula, Sulawesi
181	11/10/2018	13:44:49	1.31	127.4	135	3.8				Halmahera, Indonesia
182	12/10/2018	00:10:09	-0.24	119.79	10	3.5				Minahassa Peninsula, Sulawesi
183	12/10/2018	02:24:55	2.79	124.96	750	3.2				Celebes Sea
184	12/10/2018	02:41:21	0.94	125.2	750	2.9				Northern Molucca Sea
185	12/10/2018	10:38:53	-0.2	119.64	10	3.4				Minahassa Peninsula, Sulawesi
186	12/10/2018	11:14:40	-0.05	123.08	10	2.9				Minahassa Peninsula, Sulawesi
187	12/10/2018	12:23:29	-0.17	123.14	151	3.8				Minahassa Peninsula, Sulawesi
188	12/10/2018	14:28:22	3.82	129.41	0	5.6				North of Halmahera, Indonesia
189	12/10/2018	14:31:41	-0.13	126.24	10	3.9				Southern Molucca Sea
190	12/10/2018	17:48:37	-0.04	119.96	10	3.2				Minahassa Peninsula, Sulawesi
191	12/10/2018	21:38:29	2.59	128.47	220	3.8				Halmahera, Indonesia
192	13/10/2018	01:28:11	0.23	121.94	170	2.7				Minahassa Peninsula, Sulawesi
193	13/10/2018	02:55:40	2.37	128.47	219	4.2				Halmahera, Indonesia
194	13/10/2018	03:28:14	0.05	119.31	10	4.1				Minahassa Peninsula, Sulawesi
195	13/10/2018	04:34:16	1.47	125.44	116	5.2				Northern Molucca Sea
196	13/10/2018	06:56:53	4.05	125.68	146	4.5				Talaud Islands, Indonesia
197	13/10/2018	15:30:25	0.49	126.59	20	3.6				Northern Molucca Sea
198	13/10/2018	16:49:30	-0.02	123.26	131	2.6				Minahassa Peninsula, Sulawesi
199	13/10/2018	20:19:20	0.04	119.56	10	3.1				Minahassa Peninsula, Sulawesi
200	13/10/2018	23:33:02	0.73	121.98	54	2.5				Minahassa Peninsula, Sulawesi
201	14/10/2018	12:19:27	-0.17	119.78	10	3.4				Minahassa Peninsula, Sulawesi
202	14/10/2018	15:48:37	-0.21	126.2	10	3.7				Southern Molucca Sea
203	14/10/2018	17:09:21	-0.09	123.36	123	2.8				Minahassa Peninsula, Sulawesi
204	14/10/2018	22:13:41	0.26	119.22	10	3.1				Minahassa Peninsula, Sulawesi
205	14/10/2018	23:03:33	0.94	126.92	27	4.3				Northern Molucca Sea
206	15/10/2018	03:10:05	0.12	119.49	10	3.4				Minahassa Peninsula, Sulawesi
207	15/10/2018	06:33:30	5.25	125.26	34	4.8				Mindanao, Philippines
208	15/10/2018	07:00:17	2.55	126.95	10	3.8				Northern Molucca Sea
209	15/10/2018	08:30:07	1.5	121.45	10	4.1				Minahassa Peninsula, Sulawesi
210	15/10/2018	10:55:46	0.93	122.04	28	2				Minahassa Peninsula, Sulawesi
211	15/10/2018	14:23:25	-0.19	122.84	129	3.2				Minahassa Peninsula, Sulawesi

212	15/10/2018	19:56:36	0.5	123.84	22	3.3				Minahassa Peninsula, Sulawesi
213	16/10/2018	01:44:16	0.13	122.45	106	3				Minahassa Peninsula, Sulawesi
214	16/10/2018	02:40:04	-0.28	123.39	750	2.4				Minahassa Peninsula, Sulawesi
215	16/10/2018	02:56:06	-0.11	123.19	146	3.6				Minahassa Peninsula, Sulawesi
216	16/10/2018	05:50:01	0.05	119.41	10	3.3				Minahassa Peninsula, Sulawesi
217	16/10/2018	07:26:00	0.08	119.14	10	3.3				Minahassa Peninsula, Sulawesi
218	16/10/2018	07:58:18	1.78	121.68	4	3.2				Minahassa Peninsula, Sulawesi
219	16/10/2018	16:22:27	0.14	119.52	10	3				Minahassa Peninsula, Sulawesi
220	17/10/2018	03:23:17	-0.14	123.53	10	2.9				Minahassa Peninsula, Sulawesi
221	17/10/2018	05:54:26	2.36	128.35	215	3.7				Halmahera, Indonesia
222	17/10/2018	08:12:51	-0.39	119.86	10	3.4				Minahassa Peninsula, Sulawesi
223	17/10/2018	09:55:09	0.09	119.52	6	3.1				Minahassa Peninsula, Sulawesi
224	17/10/2018	16:37:33	-0.22	119.82	10	3.4				Minahassa Peninsula, Sulawesi
225	18/10/2018	14:47:03	0.22	119.26	19	3.4				Minahassa Peninsula, Sulawesi
226	18/10/2018	16:06:39	1.54	126.57	10	3.1				Northern Molucca Sea
227	18/10/2018	18:15:59	5.96	126.01	18	4.4				Mindanao, Philippines
228	18/10/2018	20:29:43	1.53	127.06	115	4.6				Halmahera, Indonesia
229	18/10/2018	21:58:33	-0.22	122.93	19	2.8				Minahassa Peninsula, Sulawesi
230	18/10/2018	22:43:13	-0.3	122.92	13	2.7				Minahassa Peninsula, Sulawesi
231	19/10/2018	02:06:16	-0.24	119.78	10	4.1				Minahassa Peninsula, Sulawesi
232	19/10/2018	05:12:18	1.39	121.84	10	3.3				Minahassa Peninsula, Sulawesi
233	19/10/2018	08:41:00	-0.38	123.08	49	3.5				Minahassa Peninsula, Sulawesi
234	19/10/2018	13:47:38	2.27	126.9	31	3.8				Northern Molucca Sea
235	19/10/2018	16:19:46	1.39	121.34	10	2.6				Minahassa Peninsula, Sulawesi
236	19/10/2018	18:03:24	3.23	122.68	533	3.7				Celebes Sea
237	19/10/2018	23:37:32	4.91	127.29	143	4.2				Talaud Islands, Indonesia
238	19/10/2018	23:52:53	1.34	126.31	7	3.3				Northern Molucca Sea
239	20/10/2018	04:15:19	1.81	124.21	337	4.1				Minahassa Peninsula, Sulawesi
240	20/10/2018	04:21:06	3.33	127.03	10	4.6				Talaud Islands, Indonesia
241	20/10/2018	12:44:26	3.42	125.74	17	4				Talaud Islands, Indonesia
242	20/10/2018	18:31:21	5.22	126.68	10	4.5				Mindanao, Philippines
243	20/10/2018	18:52:00	5.21	126.64	99	5.3				Mindanao, Philippines
244	20/10/2018	21:06:29	2.74	126.33	10	3.2				Northern Molucca Sea
245	21/10/2018	04:46:56	-0.41	121.43	22	2.8				Minahassa Peninsula, Sulawesi
246	21/10/2018	06:39:59	0.14	124.1	122	3.3				Minahassa Peninsula, Sulawesi
247	21/10/2018	08:10:54	-0.13	123.02	117	2.7				Minahassa Peninsula, Sulawesi

248	21/10/2018	08:16:29	1.81	126.42	55	3.5				Northern Molucca Sea
249	21/10/2018	09:53:56	1.77	126.39	62	3.9				Northern Molucca Sea
250	21/10/2018	10:53:23	2.29	128.43	215	4.5				Halmahera, Indonesia
251	21/10/2018	15:49:53	1.46	122.01	10	3.1				Minahassa Peninsula, Sulawesi
252	21/10/2018	16:35:20	1.47	122.2	10	3.1				Minahassa Peninsula, Sulawesi
253	21/10/2018	16:38:52	4.61	123.15	582	4.2				Celebes Sea
254	21/10/2018	18:16:58	-0.2	122.96	10	2.3				Minahassa Peninsula, Sulawesi
255	21/10/2018	18:44:56	-0.22	123.02	71	4.3				Minahassa Peninsula, Sulawesi
256	21/10/2018	18:57:24	1.04	126.09	10	3.3				Northern Molucca Sea
257	21/10/2018	19:55:39	0.16	119.23	10	3.3				Minahassa Peninsula, Sulawesi
258	21/10/2018	23:42:19	5.43	126.58	19	4.4				Mindanao, Philippines
259	22/10/2018	02:30:22	1.96	121.34	10	2.7				Minahassa Peninsula, Sulawesi
260	22/10/2018	03:09:08	-0.05	130.75	12	3.6				Irian Jaya Region,
261	22/10/2018	03:25:43	2.47	128.13	157	3.8				Halmahera, Indonesia
262	22/10/2018	05:29:55	3.11	126.98	10	3.7				Talaud Islands, Indonesia
263	22/10/2018	07:52:32	-0.08	122.91	164	3				Minahassa Peninsula, Sulawesi
264	22/10/2018	13:11:44	-0.09	119.89	11	3.3				Minahassa Peninsula, Sulawesi
265	23/10/2018	00:14:51	-0.07	120.22	10	3.1				Minahassa Peninsula, Sulawesi
266	23/10/2018	08:14:10	-0.37	119.92	10	4.4				Minahassa Peninsula, Sulawesi
267	23/10/2018	13:12:29	5.18	126.57	81	4.4				Mindanao, Philippines
268	23/10/2018	13:53:43	-0.29	122.99	63	2.9				Minahassa Peninsula, Sulawesi
269	23/10/2018	15:26:06	1.64	125.98	47	3.9				Northern Molucca Sea
270	23/10/2018	18:13:26	0.35	125.85	188	3.3				Northern Molucca Sea
271	23/10/2018	20:46:15	0.37	123.03	91	4.1				Minahassa Peninsula, Sulawesi
272	24/10/2018	08:32:10	1.35	126.28	10	3.7				Northern Molucca Sea
273	24/10/2018	10:39:20	0.37	122.48	143	2.9				Minahassa Peninsula, Sulawesi
274	24/10/2018	11:30:15	1.19	126.29	27	3.5				Northern Molucca Sea
275	24/10/2018	18:46:47	1.46	126.41	10	3.2				Northern Molucca Sea
276	25/10/2018	03:30:08	-0.25	119.94	12	3.7				Minahassa Peninsula, Sulawesi
277	25/10/2018	04:36:42	0.83	122.69	49	3.1				Minahassa Peninsula, Sulawesi
278	25/10/2018	07:03:23	-0.49	120.11	13	3.9				Minahassa Peninsula, Sulawesi
279	25/10/2018	08:42:59	0.95	124.87	13	3.3				Minahassa Peninsula, Sulawesi
280	25/10/2018	08:52:27	3.81	126.78	37	4.9				Talaud Islands, Indonesia
281	25/10/2018	10:43:22	1.7	126.48	102	3.4				Northern Molucca Sea
282	25/10/2018	11:22:06	3.53	127.02	40	4.7				Talaud Islands, Indonesia
283	25/10/2018	15:39:13	-0.45	131.85	10	3.3				Irian Jaya Region, Indonesia

284	25/10/2018	15:43:11	-0.49	131.82	10	3.1				Irian Jaya Region, Indonesia
285	25/10/2018	16:39:52	1.84	126.36	10	3.7				Northern Molucca Sea
286	25/10/2018	21:03:14	1.04	121.76	10	3				Minahassa Peninsula, Sulawesi
287	25/10/2018	23:15:27	1.55	126.32	48	5.3				Northern Molucca Sea
288	25/10/2018	23:51:53	1.73	127.11	88	3.7				Halmahera, Indonesia
289	26/10/2018	05:37:33	3.2	128.13	10	4				North of Halmahera, Indonesia
290	26/10/2018	07:55:57	-0.48	123.36	10	3.5				Minahassa Peninsula, Sulawesi
291	26/10/2018	08:23:09	-0.47	123.45	25	4.4				Minahassa Peninsula, Sulawesi
292	26/10/2018	11:46:44	-0.09	124.59	12	4.5				Southern Molucca Sea
293	26/10/2018	13:25:39	1.63	127.27	114	3.4				Halmahera, Indonesia
294	26/10/2018	14:19:49	0.28	119.72	10	3				Minahassa Peninsula, Sulawesi
295	26/10/2018	19:30:44	-0.03	119.86	10	3.3				Minahassa Peninsula, Sulawesi
296	27/10/2018	14:08:32	2.45	128.2	205	3.7				Halmahera, Indonesia
297	27/10/2018	14:36:28	1.9	127.83	53	3.7				Halmahera, Indonesia
298	27/10/2018	18:54:23	2.93	122.63	548	3.7				Celebes Sea
299	27/10/2018	20:18:55	4.08	126.64	21	4.2				Talaud Islands, Indonesia
300	27/10/2018	21:56:03	-0.21	122.6	74	2.6				Minahassa Peninsula, Sulawesi
301	28/10/2018	00:01:52	5.4	125.95	149	4.4				Mindanao, Philippines
302	28/10/2018	01:07:08	4.13	126.63	18	4.6				Talaud Islands, Indonesia
303	28/10/2018	04:48:02	0.98	126.25	18	4.1				Northern Molucca Sea
304	28/10/2018	05:36:07	0.54	121.94	330	3.9				Minahassa Peninsula, Sulawesi
305	28/10/2018	07:53:15	4.22	126.72	17	4.9				Talaud Islands, Indonesia
306	28/10/2018	08:10:02	4.04	126.61	61	5.4				Talaud Islands, Indonesia
307	28/10/2018	12:38:16	0.51	122.19	53	3				Minahassa Peninsula, Sulawesi
308	28/10/2018	18:16:09	0.35	122.68	139	2.6				Minahassa Peninsula, Sulawesi
309	29/10/2018	03:16:09	-0.04	127.32	134	3.4				Halmahera, Indonesia
310	29/10/2018	09:18:45	2.49	128.34	219	4.6				Halmahera, Indonesia
311	29/10/2018	14:26:53	3.05	124.32	329	4				Celebes Sea
312	29/10/2018	20:54:03	4.79	126.66	10	4.3				Talaud Islands, Indonesia
313	30/10/2018	04:24:07	2.81	127.11	10	4.8				Northern Molucca Sea
314	30/10/2018	06:41:31	-0.32	123.08	11	3.2				Minahassa Peninsula, Sulawesi
315	30/10/2018	09:21:12	1.01	122.66	44	3.8				Minahassa Peninsula, Sulawesi
316	30/10/2018	10:15:03	2.89	128.16	23	4.5				Halmahera, Indonesia
317	30/10/2018	10:58:37	1.83	127.08	21	4.2				Halmahera, Indonesia
318	30/10/2018	13:26:52	2.53	127.32	10	4.3				Northern Molucca Sea
319	30/10/2018	16:51:51	1.01	126.14	64	3.4				Northern Molucca Sea

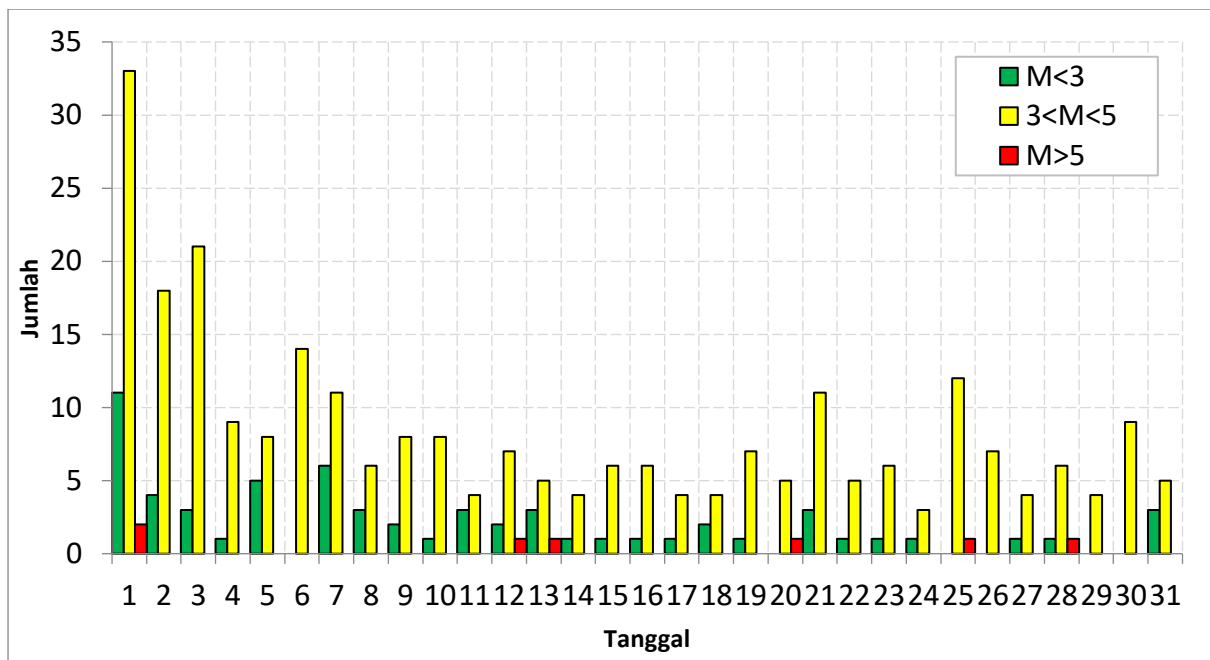
320	30/10/2018	20:26:49	-0.33	123.04	64	4				Minahassa Peninsula, Sulawesi
321	30/10/2018	23:27:25	6.23	124.67	10	4.4				Mindanao, Philippines
322	31/10/2018	06:35:50	-0.43	119.79	10	3.5				Minahassa Peninsula, Sulawesi
323	31/10/2018	07:44:56	6.24	126.72	196	4.3				Mindanao, Philippines
324	31/10/2018	11:34:34	0.66	126.67	33	3.4				Northern Molucca Sea
325	31/10/2018	12:17:33	0.49	126.03	10	3.4				Northern Molucca Sea
326	31/10/2018	14:17:04	0.99	121.92	42	2.1				Minahassa Peninsula, Sulawesi
327	31/10/2018	14:29:52	0.84	121.23	17	3.2				Minahassa Peninsula, Sulawesi
328	31/10/2018	16:05:22	0.35	122.22	100	2.4				Minahassa Peninsula, Sulawesi
329	31/10/2018	16:41:17	0.27	121.86	170	2.9				Minahassa Peninsula, Sulawesi



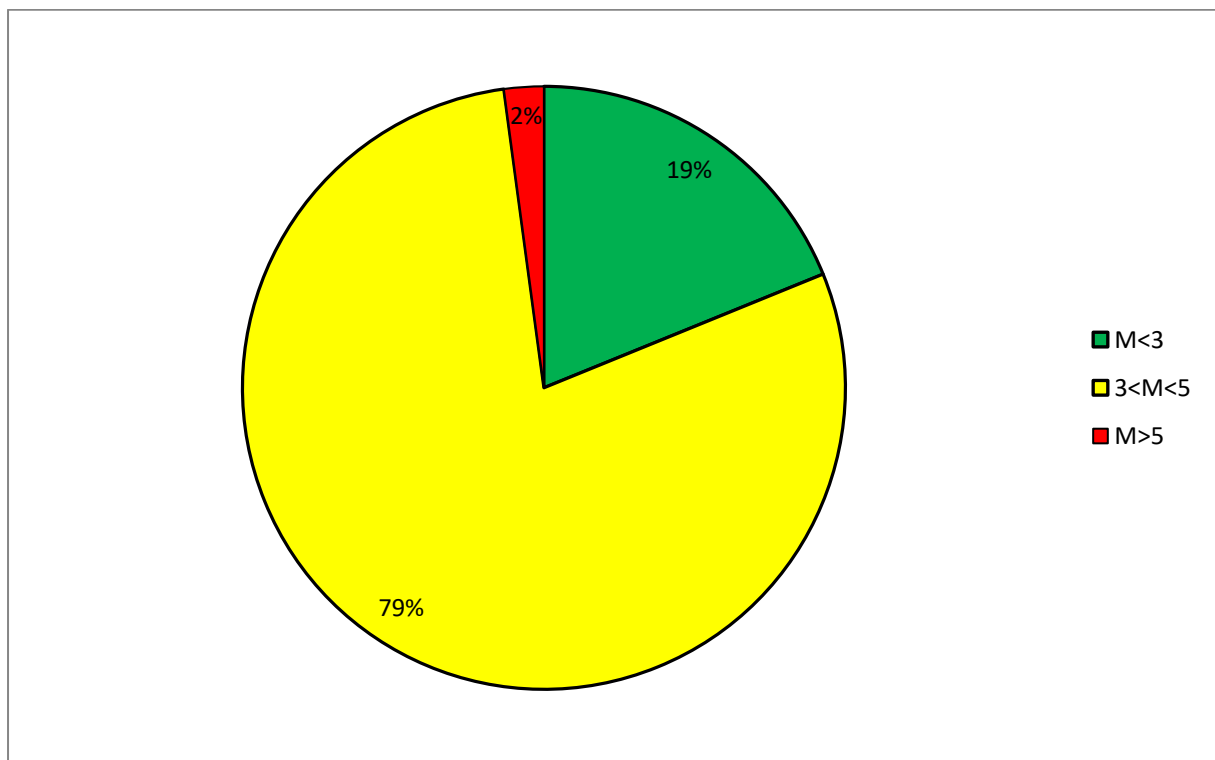
Gambar 52 Sebaran episenter gempabumi bulan Oktober 2018

Tabel 31 Rekapitulasi gempabumi dan tsunami berdasarkan magnitudo bulan Oktober 2018

Tanggal (UTC)	Magnitudo			Jumlah Total	Jumlah Gempa Signifikan	
	M<3	3≤M<5	M≥5		Dirasakan	Merusak
1	11	33	2	46	2	0
2	4	18	0	22	1	0
3	3	21	0	24	0	0
4	1	9	0	10	1	0
5	5	8	0	13	0	0
6	0	14	0	14	0	0
7	6	11	0	17	0	0
8	3	6	0	9	0	0
9	2	8	0	10	0	0
10	1	8	0	9	0	0
11	3	4	0	7	0	0
12	2	7	1	10	0	0
13	3	5	1	9	1	0
14	1	4	0	5	0	0
15	1	6	0	7	0	0
16	1	6	0	7	0	0
17	1	4	0	5	0	0
18	2	4	0	6	0	0
19	1	7	0	8	0	0
20	0	5	1	6	0	0
21	3	11	0	14	0	0
22	1	5	0	6	0	0
23	1	6	0	7	1	0
24	1	3	0	4	0	0
25	0	12	1	13	2	0
26	0	7	0	7	1	0
27	1	4	0	5	1	0
28	1	6	1	8	4	0
29	0	4	0	4	0	0
30	0	9	0	9	1	0
31	3	5	0	8	0	0
Jumlah gempa	62	260	7	329	15	0
Jumlah gempa seluruhnya						



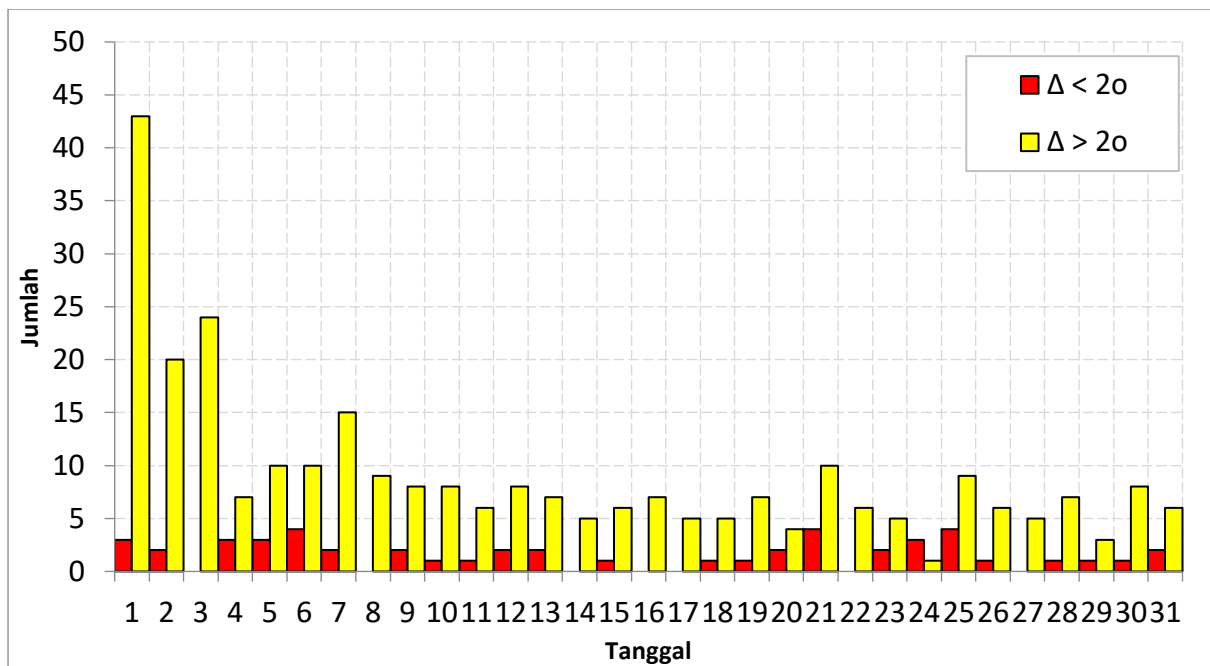
Gambar 53 Grafik gempabumi berdasarkan magnitudo bulan Oktober 2018



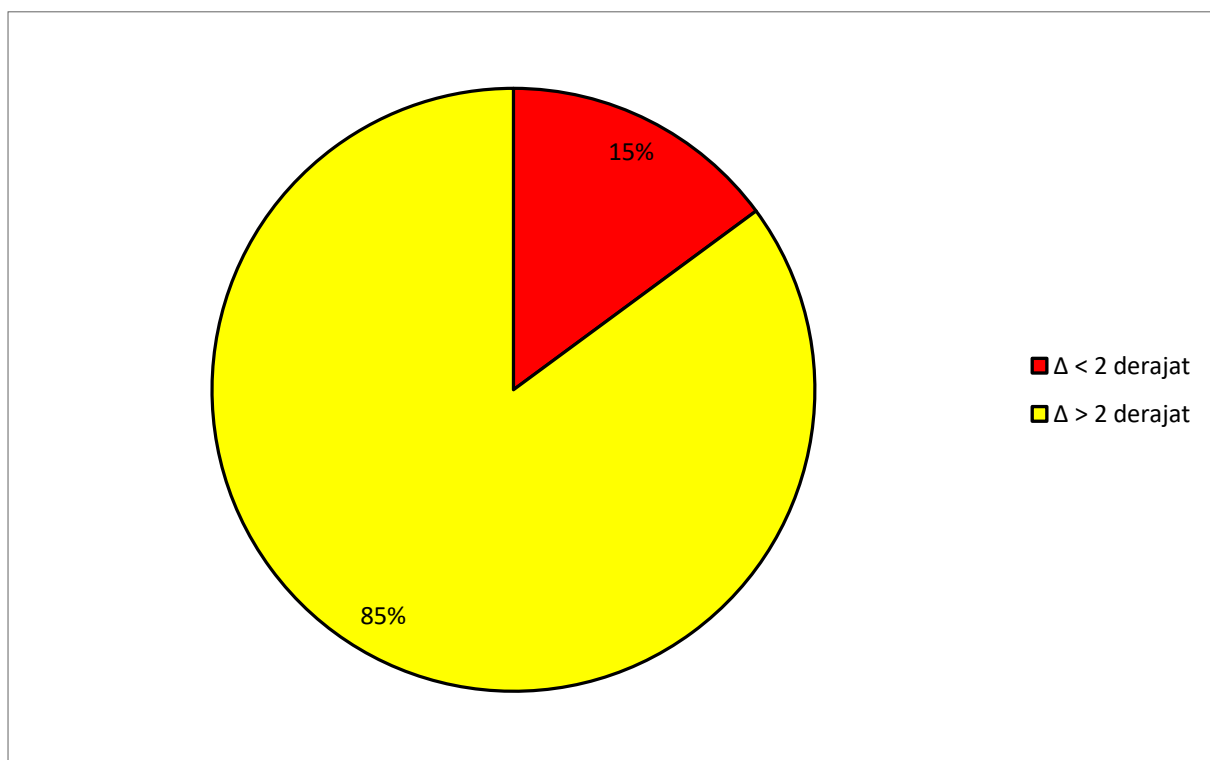
Gambar 54 Grafik persentase gempabumi berdasarkan magnitudo bulan Oktober 2018

Tabel 32 Rekapitulasi gempabumi dan tsunami berdasarkan jarak dari stasiun bulan Oktober 2018

Tanggal	Jarak		Jumlah	Keterangan
	$\Delta \leq 2^{\circ}$	$\Delta > 2^{\circ}$		
01/10/2018	3	43	46	-
02/10/2018	2	20	22	-
03/10/2018	0	24	24	-
04/10/2018	3	7	10	-
05/10/2018	3	10	13	-
06/10/2018	4	10	14	-
07/10/2018	2	15	17	-
08/10/2018	0	9	9	-
09/10/2018	2	8	10	-
10/10/2018	1	8	9	-
11/10/2018	1	6	7	-
12/10/2018	2	8	10	-
13/10/2018	2	7	9	-
14/10/2018	0	5	5	-
15/10/2018	1	6	7	-
16/10/2018	0	7	7	-
17/10/2018	0	5	5	-
18/10/2018	1	5	6	-
19/10/2018	1	7	8	-
20/10/2018	2	4	6	-
21/10/2018	4	10	14	-
22/10/2018	0	6	6	-
23/10/2018	2	5	7	-
24/10/2018	3	1	4	-
25/10/2018	4	9	13	-
26/10/2018	1	6	7	-
27/10/2018	0	5	5	-
28/10/2018	1	7	8	-
29/10/2018	1	3	4	-
30/10/2018	1	8	9	-
31/10/2018	2	6	8	-
Jumlah gempa	49	280	329	-
Jumlah gempa seluruhnya				



Gambar 55 Grafik gempabumi berdasarkan jarak bulan Oktober 2018



Gambar 56 Grafik persentase gempabumi berdasarkan jarak bulan Oktober 2018

K. Data Gempabumi Bulan November 2018

Tabel 33 Data kejadian gempabumi bulan November 2018

NO	DATE	OT (UTC)	EPICENTER		DEPTH (km)	MAG	PGA (gals) / SLMI			REGION
			LAT	LONG			X	Y	Z	
1	01/11/2018	01:56:39	6.5	126.49	111	4.4				Mindanao, Philippines
2	01/11/2018	06:07:36	0.48	124.92	14	4.1				Minahassa Peninsula, Sulawesi
3	01/11/2018	06:08:23	2.44	122.06	552	4.5				Celebes Sea
4	01/11/2018	08:03:05	-0.1	123.2	139	3.8				Minahassa Peninsula, Sulawesi
5	01/11/2018	08:14:25	-0.2	119.86	10	3.7				Minahassa Peninsula, Sulawesi
6	01/11/2018	15:00:20	1.43	126.53	12	3.6				Northern Molucca Sea
7	01/11/2018	18:25:49	-0.48	119.92	22	3.4				Minahassa Peninsula, Sulawesi
8	01/11/2018	18:40:19	0.05	124.4	28	3.6				Minahassa Peninsula, Sulawesi
9	01/11/2018	23:44:08	1.9	126.58	12	3.3				Northern Molucca Sea
10	02/11/2018	08:12:07	-0.07	119.59	10	3.1				Minahassa Peninsula, Sulawesi
11	02/11/2018	12:24:50	1.2	126.23	2	3.4				Northern Molucca Sea
12	02/11/2018	15:28:42	-0.41	119.63	31	3.1				Minahassa Peninsula, Sulawesi
13	02/11/2018	17:03:30	1.9	127.28	103	4.1				Halmahera, Indonesia
14	02/11/2018	19:36:19	1.72	122.17	10	2.7				Minahassa Peninsula, Sulawesi
15	02/11/2018	22:18:26	5.73	126.45	148	4.3				Mindanao, Philippines
16	03/11/2018	00:36:03	-0.47	119.55	10	3.2				Minahassa Peninsula, Sulawesi
17	03/11/2018	03:48:08	0.25	122.36	111	3.1				Minahassa Peninsula, Sulawesi
18	03/11/2018	04:08:07	-0.28	122.78	100	2.9				Minahassa Peninsula, Sulawesi
19	03/11/2018	09:08:06	-0.16	123.76	77	4				Minahassa Peninsula, Sulawesi
20	03/11/2018	09:25:47	3.6	125.89	10	3.6				Talaud Islands, Indonesia
21	03/11/2018	12:03:23	-0.24	123	77	3.8				Minahassa Peninsula, Sulawesi
22	03/11/2018	12:26:35	0.59	125.56	10	3.8				Northern Molucca Sea
23	03/11/2018	13:18:40	-0.42	119.94	10	3.9				Minahassa Peninsula, Sulawesi
24	03/11/2018	13:53:09	-0.25	125.64	27	4.3				Southern Molucca Sea
25	04/11/2018	01:51:10	0.01	122.83	189	2.8				Minahassa Peninsula, Sulawesi
26	04/11/2018	08:48:16	0.48	121.63	79	2.5				Minahassa Peninsula, Sulawesi
27	04/11/2018	09:40:59	1.05	126.88	46	4				Northern Molucca Sea
28	04/11/2018	11:01:16	1.68	126.3	21	3.8				Northern Molucca Sea
29	04/11/2018	13:11:51	-0.24	122.45	27	2.4				Minahassa Peninsula, Sulawesi
30	04/11/2018	13:16:23	0.28	119.09	10	3.7				Minahassa Peninsula, Sulawesi
31	04/11/2018	13:43:59	-0.36	122.97	60	3.1				Minahassa Peninsula, Sulawesi

32	04/11/2018	15:28:19	-0.49	120.01	10	4				Minahassa Peninsula, Sulawesi
33	04/11/2018	16:26:41	-0.41	123.09	54	3				Minahassa Peninsula, Sulawesi
34	04/11/2018	18:51:45	0.81	122.21	29	2.6				Minahassa Peninsula, Sulawesi
35	04/11/2018	22:23:50	0.49	121.14	68	3				Minahassa Peninsula, Sulawesi
36	04/11/2018	23:37:52	0.21	125.99	10	3				Northern Molucca Sea
37	05/11/2018	06:07:27	4.39	126.01	155	4				Talaud Islands, Indonesia
38	05/11/2018	08:49:41	3.18	128.69	11	3.9				North of Halmahera,
39	05/11/2018	10:25:08	-0.19	119.76	10	3				Minahassa Peninsula, Sulawesi
40	05/11/2018	11:45:16	0.62	121.96	176	2.8				Minahassa Peninsula, Sulawesi
41	05/11/2018	15:21:25	0.42	125.46	51	4.8	0.464	-0.3799	-0.5143	Northern Molucca Sea
42	05/11/2018	15:59:17	2.65	128.48	223	3.7				Halmahera, Indonesia
43	05/11/2018	21:02:56	-0.07	119.59	10	2.6				Minahassa Peninsula, Sulawesi
44	05/11/2018	22:44:59	0.74	121.11	62	2.7				Minahassa Peninsula, Sulawesi
45	06/11/2018	02:09:53	3.5	125.46	36	5.2	-0.13344	0.204897	0.18475	Talaud Islands, Indonesia
46	06/11/2018	10:51:22	-0.36	119.68	10	3.2				Minahassa Peninsula, Sulawesi
47	06/11/2018	11:09:22	-0.2	123.18	102	3.5				Minahassa Peninsula, Sulawesi
48	06/11/2018	13:01:18	0.57	122.35	87	2.6				Minahassa Peninsula, Sulawesi
49	06/11/2018	13:23:26	-0.38	119.61	10	3				Minahassa Peninsula, Sulawesi
50	06/11/2018	16:00:11	-0.38	119.9	10	3				Minahassa Peninsula, Sulawesi
51	06/11/2018	18:41:50	0.77	123.94	256	3.2				Minahassa Peninsula, Sulawesi
52	06/11/2018	23:17:35	-0.28	122.93	61	2.8				Minahassa Peninsula, Sulawesi
53	07/11/2018	06:10:24	2.57	128.22	20	4				Halmahera, Indonesia
54	07/11/2018	11:41:05	0.56	122.11	73	2.2				Minahassa Peninsula, Sulawesi
55	07/11/2018	12:10:59	1.31	127.25	41	3.9				Halmahera, Indonesia
56	07/11/2018	14:10:53	0.33	127.99	13	3.4				Halmahera, Indonesia
57	07/11/2018	14:57:06	5.34	127.04	56	4.7				Philippine Islands Region
58	07/11/2018	16:30:13	0	127.16	118	3.4				Halmahera, Indonesia
59	07/11/2018	17:55:01	3.45	125.37	10	3.9				Talaud Islands, Indonesia
60	07/11/2018	18:18:02	0.18	119.77	12	3.3				Minahassa Peninsula, Sulawesi
61	07/11/2018	21:26:49	0.52	121.48	70	2.1				Minahassa Peninsula, Sulawesi
62	07/11/2018	23:24:24	0.48	122.03	171	2				Minahassa Peninsula, Sulawesi
63	08/11/2018	00:11:47	-0.05	123.95	19	2.8				Minahassa Peninsula, Sulawesi
64	08/11/2018	08:27:00	1.15	121.69	10	2.9				Minahassa Peninsula, Sulawesi
65	08/11/2018	08:30:18	2.29	127.27	44	4.3				Northern Molucca Sea
66	08/11/2018	13:18:56	-0.18	124.85	10	3.1				Southern Molucca Sea
67	08/11/2018	17:46:48	-0.18	123.03	91	2.8				Minahassa Peninsula, Sulawesi

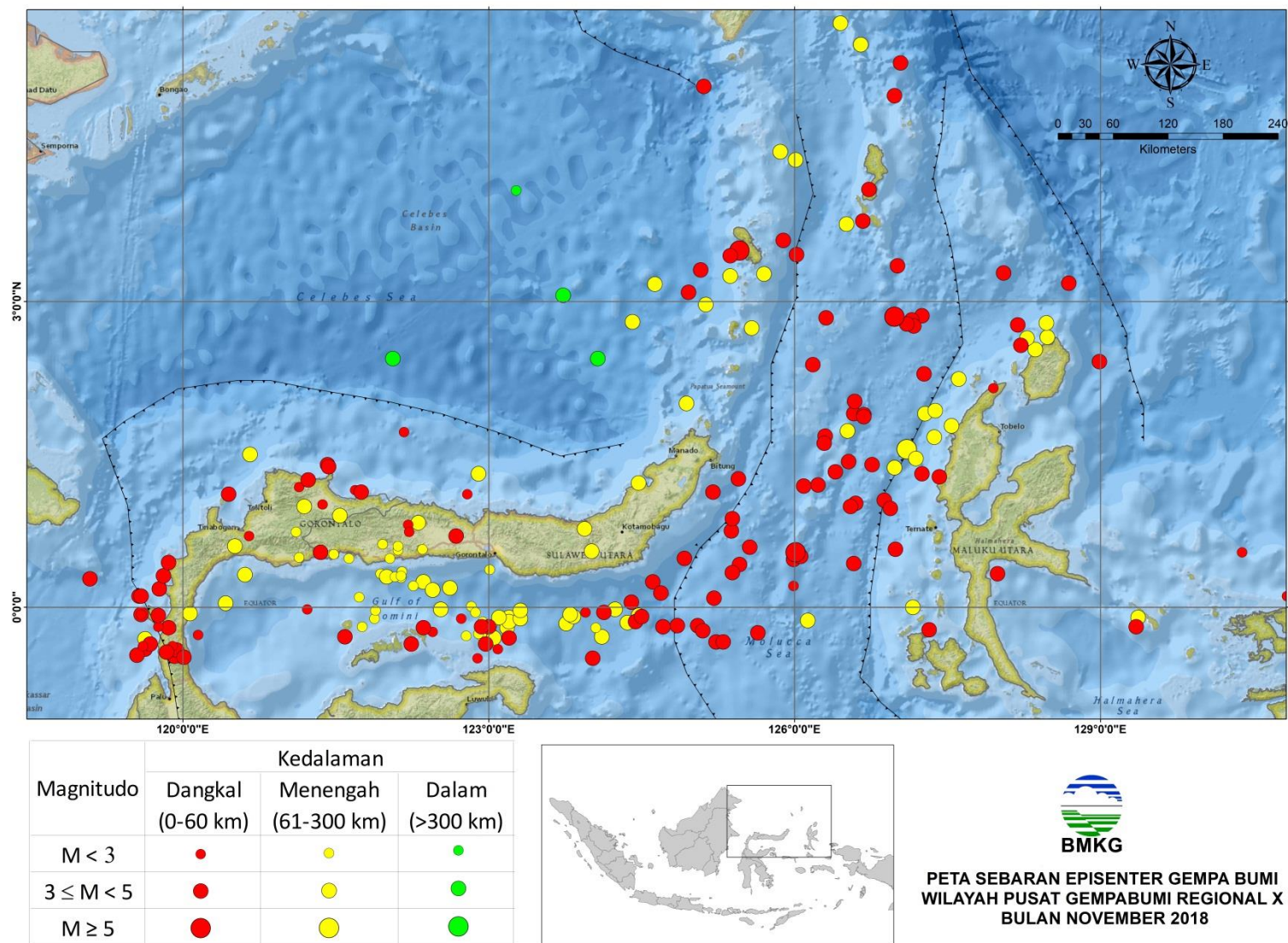
68	08/11/2018	20:20:06	1.4	126.76	10	3.2				Northern Molucca Sea
69	08/11/2018	21:02:51	1.11	120.45	27	3.2				Minahassa Peninsula, Sulawesi
70	09/11/2018	05:01:14	-0.02	122.53	172	3.3				Minahassa Peninsula, Sulawesi
71	09/11/2018	05:57:12	0.31	119.81	10	3.1				Minahassa Peninsula, Sulawesi
72	09/11/2018	10:13:03	1.73	126.52	64	4.5	-0.51530	-0.64901	0.623691	Northern Molucca Sea
73	09/11/2018	10:32:03	-0.13	126.13	213	3.7				Southern Molucca Sea
74	09/11/2018	11:38:57	-0.44	119.84	10	3.3				Minahassa Peninsula, Sulawesi
75	09/11/2018	15:33:45	-0.3	123.05	70	3.3				Minahassa Peninsula, Sulawesi
76	09/11/2018	17:02:34	1.4	121.42	10	3.8				Minahassa Peninsula, Sulawesi
77	09/11/2018	19:12:39	2.77	128.19	13	4.6				Halmahera, Indonesia
78	10/11/2018	01:02:22	-0.09	123.83	115	3.2				Minahassa Peninsula, Sulawesi
79	10/11/2018	07:28:02	-0.3	123.2	29	3.4				Minahassa Peninsula, Sulawesi
80	10/11/2018	07:33:13	-0.07	123.8	117	4.1				Minahassa Peninsula, Sulawesi
81	10/11/2018	13:20:25	0.57	126.99	18	3.5				Northern Molucca Sea
82	10/11/2018	13:58:23	0.33	121.94	159	2.4				Minahassa Peninsula, Sulawesi
83	10/11/2018	14:19:25	-0.29	121.59	11	3.5				Minahassa Peninsula, Sulawesi
84	10/11/2018	18:37:13	-0.05	122.87	188	3				Minahassa Peninsula, Sulawesi
85	11/11/2018	00:21:40	-0.02	124.24	61	3.2				Southern Molucca Sea
86	11/11/2018	02:28:06	-0.29	124.11	70	3.4				Southern Molucca Sea
87	11/11/2018	05:04:49	-0.05	124.13	16	3.3				Southern Molucca Sea
88	11/11/2018	07:13:39	1.55	127.1	110	5.2	1.619223	3.219746	3.859929	Halmahera, Indonesia
89	11/11/2018	08:25:10	0.7	122.68	29	4.1	0.151652	0.101047	0.17159	Minahassa Peninsula, Sulawesi
90	11/11/2018	10:23:03	-0.31	119.63	71	3.1				Minahassa Peninsula, Sulawesi
91	11/11/2018	10:40:42	-0.11	121.88	249	2.3				Minahassa Peninsula, Sulawesi
92	11/11/2018	11:57:07	0.29	122.14	160	2.5				Minahassa Peninsula, Sulawesi
93	11/11/2018	12:42:38	-0.09	123.11	133	2.7				Minahassa Peninsula, Sulawesi
94	11/11/2018	16:22:02	3.46	126.02	52	3.7				Talau Islands, Indonesia
95	11/11/2018	18:01:51	2	124.94	225	3.9				Minahassa Peninsula, Sulawesi
96	12/11/2018	06:05:48	0.54	121.35	48	3.4				Minahassa Peninsula, Sulawesi
97	12/11/2018	07:43:19	-0.19	123	10	3.2				Minahassa Peninsula, Sulawesi
98	12/11/2018	14:49:13	6.27	123.75	17	4.8				Mindanao, Philippines
99	12/11/2018	14:55:00	6.24	123.83	15	4.7				Mindanao, Philippines
100	12/11/2018	16:44:19	0.35	122.15	160	2.7				Minahassa Peninsula, Sulawesi
101	12/11/2018	17:50:24	1.11	122.79	10	2.7				Minahassa Peninsula, Sulawesi
102	12/11/2018	18:37:12	-0.36	122.24	12	3.4				Minahassa Peninsula, Sulawesi
103	12/11/2018	18:57:13	-0.5	124.02	14	3.4				Southern Molucca Sea

104	12/11/2018	19:13:23	0.74	122.22	55	2.6				Minahassa Peninsula, Sulawesi
105	12/11/2018	23:30:59	0.44	119.86	51	3.5				Minahassa Peninsula, Sulawesi
106	13/11/2018	00:33:28	1.28	127.42	10	3.6				Halmahera, Indonesia
107	13/11/2018	01:50:25	-0.19	122.93	10	3.4				Minahassa Peninsula, Sulawesi
108	13/11/2018	06:33:15	2.84	126.31	27	3.7				Northern Molucca Sea
109	13/11/2018	07:52:09	1.33	126.4	15	3.4				Northern Molucca Sea
110	13/11/2018	07:56:44	0.47	125.99	13	3.4				Northern Molucca Sea
111	13/11/2018	09:53:56	1.67	127.37	98	3.5				Halmahera, Indonesia
112	13/11/2018	16:26:41	-0.14	123.2	117	3.9				Minahassa Peninsula, Sulawesi
113	13/11/2018	17:48:44	-0.08	119.76	10	3.3				Minahassa Peninsula, Sulawesi
114	13/11/2018	20:01:40	0.11	119.57	10	3.2				Minahassa Peninsula, Sulawesi
115	13/11/2018	22:41:27	-0.34	125.23	15	4.3				Southern Molucca Sea
116	14/11/2018	02:10:00	2.24	127.61	74	3.4				Northern Molucca Sea
117	14/11/2018	05:33:40	-0.22	127.32	10	3.3				Halmahera, Indonesia
118	14/11/2018	07:58:20	1.19	126.09	20	4				Northern Molucca Sea
119	14/11/2018	11:52:43	0.17	122.45	139	3.4				Minahassa Peninsula, Sulawesi
120	14/11/2018	12:00:15	1.38	121.43	12	3.3				Minahassa Peninsula, Sulawesi
121	14/11/2018	12:02:31	-0.19	124.71	10	4.1				Southern Molucca Sea
122	14/11/2018	15:10:11	1.13	121.75	4	3.3				Minahassa Peninsula, Sulawesi
123	14/11/2018	19:25:30	2.74	125.58	154	3.6				Talaud Islands, Indonesia
124	14/11/2018	22:05:46	-0.14	124.44	35	3.5				Southern Molucca Sea
125	14/11/2018	22:47:47	0.37	123.01	125	2.3				Minahassa Peninsula, Sulawesi
126	14/11/2018	22:54:18	1.01	121.37	10	2.1				Minahassa Peninsula, Sulawesi
127	15/11/2018	04:47:12	1.89	126.68	22	3.5				Northern Molucca Sea
128	15/11/2018	14:03:10	0.5	126.06	10	3.5				Northern Molucca Sea
129	15/11/2018	15:10:13	1.93	127.38	113	3.9				Halmahera, Indonesia
130	15/11/2018	17:38:46	1.02	126.6	46	3.1				Northern Molucca Sea
131	15/11/2018	17:54:12	0.9	121.54	78	3.6				Minahassa Peninsula, Sulawesi
132	15/11/2018	21:06:38	1.13	125.2	26	3.5				Northern Molucca Sea
133	15/11/2018	23:03:58	-0.11	122.73	24	2.9				Minahassa Peninsula, Sulawesi
134	15/11/2018	23:48:18	0.25	124.61	33	3.9				Minahassa Peninsula, Sulawesi
135	16/11/2018	01:31:54	1.37	126.98	126	5	0.268648	0.348173	0.471197	Northern Molucca Sea
136	16/11/2018	01:39:13	2.86	127.25	10	3.6				Northern Molucca Sea
137	16/11/2018	01:45:27	2.82	127.15	10	3.6				Northern Molucca Sea
138	16/11/2018	02:09:58	2.76	127.17	5	3.6				Northern Molucca Sea
139	16/11/2018	06:50:32	-0.2	122.36	10	3.6				Minahassa Peninsula, Sulawesi

140	16/11/2018	07:15:08	1.61	126.29	10	4.1	-0.12844	-0.15355	-0.14561	Northern Molucca Sea
141	16/11/2018	09:11:49	0.6	122.11	122	2.7				Minahassa Peninsula, Sulawesi
142	16/11/2018	09:28:42	2.38	126.18	29	4.5	-0.17093	-0.25767	-0.25819	Northern Molucca Sea
143	16/11/2018	15:09:01	-0.27	120.15	10	3				Minahassa Peninsula, Sulawesi
144	16/11/2018	15:50:13	-0.03	121.89	238	2.6				Minahassa Peninsula, Sulawesi
145	16/11/2018	21:51:30	2.41	128.99	10	3.1				Halmahera, Indonesia
146	17/11/2018	00:35:06	0.99	126.55	59	3.3				Northern Molucca Sea
147	17/11/2018	03:15:06	5.52	126.65	105	4.5				Mindanao, Philippines
148	17/11/2018	16:58:12	-0.14	122.94	135	2.7				Minahassa Peninsula, Sulawesi
149	17/11/2018	19:05:07	2.78	127.1	10	3.6				Northern Molucca Sea
150	17/11/2018	19:32:12	1.5	120.66	130	4.6				Minahassa Peninsula, Sulawesi
151	17/11/2018	20:46:19	-0.06	120.07	100	4.1				Minahassa Peninsula, Sulawesi
152	18/11/2018	03:41:49	-0.11	123.31	154	3.3				Minahassa Peninsula, Sulawesi
153	18/11/2018	04:27:17	0.14	124.69	21	3.4				Minahassa Peninsula, Sulawesi
154	18/11/2018	21:12:46	2.8	124.41	273	3.9				Celebes Sea
155	19/11/2018	04:10:03	1.31	122.9	166	3.9				Minahassa Peninsula, Sulawesi
156	19/11/2018	10:10:01	-0.2	123	93	2.9				Minahassa Peninsula, Sulawesi
157	19/11/2018	16:25:25	0.04	120.42	110	3.7				Minahassa Peninsula, Sulawesi
158	19/11/2018	17:32:58	0.1	121.73	170	1.8				Minahassa Peninsula, Sulawesi
159	19/11/2018	19:06:44	0.55	124.01	194	4				Minahassa Peninsula, Sulawesi
160	19/11/2018	19:42:29	2.53	128.36	224	3.6				Halmahera, Indonesia
161	20/11/2018	02:29:03	2.85	126.98	42	5.2	0.153158	0.257719	0.215171	Northern Molucca Sea
162	20/11/2018	08:34:50	5.11	125.11	10	4.4				Mindanao, Philippines
163	20/11/2018	09:24:42	-0.1	129.37	109	3.9				Halmahera, Indonesia
164	20/11/2018	09:29:18	-0.19	129.35	55	3.5				Halmahera, Indonesia
165	20/11/2018	17:38:16	3.79	126.67	23	4.3				Talaud Islands, Indonesia
166	20/11/2018	19:19:46	3.28	128.05	10	4.6				North of Halmahera,
167	21/11/2018	04:31:25	0.54	126.01	10	5.2	0.737937	1.223403	1.286374	Northern Molucca Sea
168	21/11/2018	06:39:15	0.75	125.38	35	4.7	0.951581	1.641721	1.614124	Northern Molucca Sea
169	21/11/2018	07:58:04	0.99	121.19	96	3.8				Minahassa Peninsula, Sulawesi
170	21/11/2018	10:08:47	-0.09	124.5	19	3.6				Southern Molucca Sea
171	21/11/2018	10:32:05	-0.03	123.31	121	3.3				Minahassa Peninsula, Sulawesi
172	21/11/2018	20:42:07	1.22	124.47	219	3.4				Minahassa Peninsula, Sulawesi
173	21/11/2018	21:17:02	0.83	122.31	61	3.2				Minahassa Peninsula, Sulawesi
174	21/11/2018	21:37:48	1.18	121.14	4	2.5				Minahassa Peninsula, Sulawesi
175	22/11/2018	04:17:28	0.34	125.39	46	4				Northern Molucca Sea

176	22/11/2018	12:31:14	-0.18	125.05	20	4.2				Southern Molucca Sea
177	22/11/2018	14:22:10	0.97	126.94	15	3.6				Northern Molucca Sea
178	22/11/2018	17:52:28	0.3	122	170	3.3				Minahassa Peninsula, Sulawesi
179	22/11/2018	18:28:29	0.43	126.58	29	3.6				Northern Molucca Sea
180	22/11/2018	18:41:11	-0.1	123.1	163	3.2				Minahassa Peninsula, Sulawesi
181	22/11/2018	20:23:31	3.09	124.96	10	3.4				Celebes Sea
182	22/11/2018	20:54:41	2.02	126.59	18	3.3				Northern Molucca Sea
183	22/11/2018	20:57:44	2.97	125.13	151	3.2				Talaud Islands, Indonesia
184	22/11/2018	22:50:03	3.17	124.63	294	4.3				Celebes Sea
185	23/11/2018	16:00:13	3.31	125.08	21	4.7				Talaud Islands, Indonesia
186	24/11/2018	04:27:27	-0.38	131.54	12	4.6				Irian Jaya Region,
187	24/11/2018	04:49:08	6.01	126.16	108	4.8				Mindanao, Philippines
188	24/11/2018	09:41:54	1.78	127.54	156	4.5				Halmahera, Indonesia
189	24/11/2018	13:17:10	3.06	123.73	425	4.2				Celebes Sea
190	24/11/2018	18:36:30	3.25	125.37	164	4.2				Talaud Islands, Indonesia
191	25/11/2018	09:24:03	-0.19	121.76	173	2.8				Minahassa Peninsula, Sulawesi
192	25/11/2018	12:01:31	0.32	120.61	91	3.8				Minahassa Peninsula, Sulawesi
193	25/11/2018	15:50:22	1.25	121.23	16	3.1				Minahassa Peninsula, Sulawesi
194	25/11/2018	18:51:03	1.46	127.19	81	3.2				Halmahera, Indonesia
195	25/11/2018	19:15:29	3.76	126.51	94	3.7				Talaud Islands, Indonesia
196	25/11/2018	21:49:07	-0.02	121.22	10	2.7				Minahassa Peninsula, Sulawesi
197	25/11/2018	22:04:59	1.26	125.45	25	3.3				Northern Molucca Sea
198	26/11/2018	00:12:26	-0.5	122.89	49	3				Minahassa Peninsula, Sulawesi
199	26/11/2018	03:13:35	1.87	126.68	10	3.6				Northern Molucca Sea
200	26/11/2018	16:39:11	-0.15	124.36	70	4.1				Southern Molucca Sea
201	26/11/2018	18:00:27	2.79	128.47	213	4.9				Halmahera, Indonesia
202	26/11/2018	21:07:55	0.7	120.65	10	2.4				Minahassa Peninsula, Sulawesi
203	26/11/2018	21:36:35	4.47	125.86	69	3.8				Talaud Islands, Indonesia
204	27/11/2018	02:14:15	0.3	122.08	158	2.5				Minahassa Peninsula, Sulawesi
205	27/11/2018	13:14:51	0.11	119.59	10	3.9				Minahassa Peninsula, Sulawesi
206	27/11/2018	19:10:42	-0.2	124.05	85	2.9				Southern Molucca Sea
207	27/11/2018	19:32:03	0.19	122.62	233	3.2				Minahassa Peninsula, Sulawesi
208	27/11/2018	20:51:39	0.21	122.26	156	2.2				Minahassa Peninsula, Sulawesi
209	27/11/2018	21:12:22	0.31	122.14	165	2.6				Minahassa Peninsula, Sulawesi
210	28/11/2018	10:28:23	-0.23	125.1	31	4.2				Southern Molucca Sea
211	28/11/2018	11:38:13	2.15	127.95	10	2.9				Northern Molucca Sea

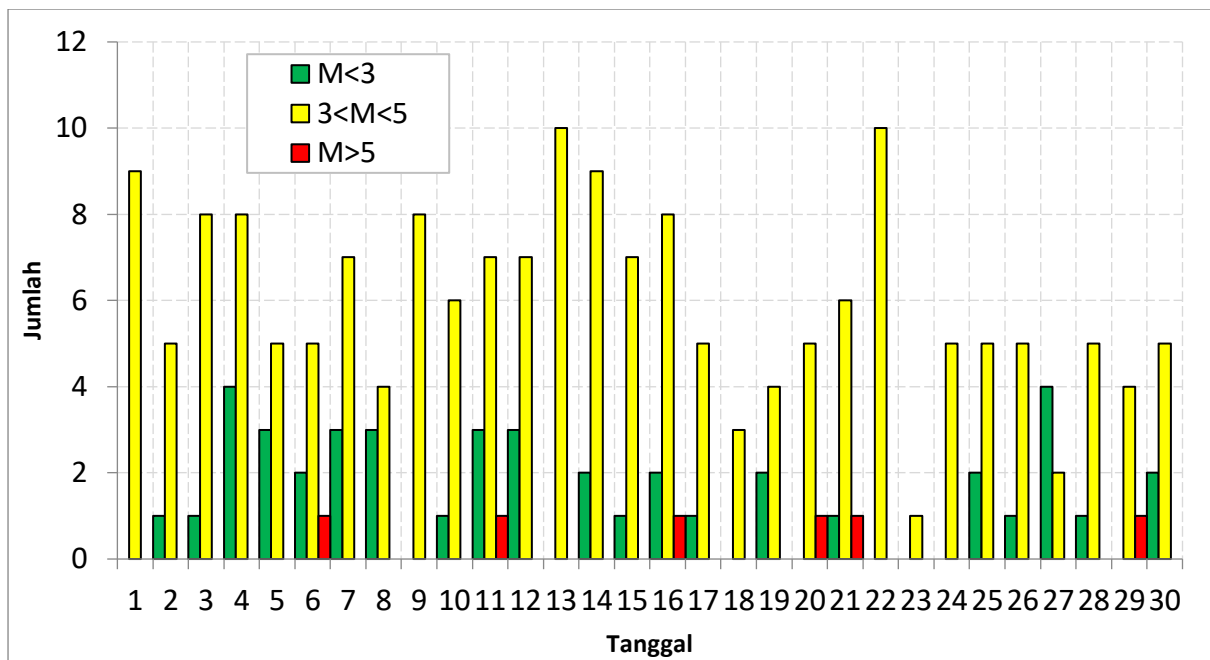
212	28/11/2018	13:24:55	-0.08	124.47	273	3.4				Southern Molucca Sea
213	28/11/2018	16:08:39	6.27	126.33	109	4				Mindanao, Philippines
214	28/11/2018	20:15:41	0.87	125.39	31	4.4				Northern Molucca Sea
215	28/11/2018	20:30:55	5.02	126.98	13	4.5				Mindanao, Philippines
216	29/11/2018	02:55:02	0.6	120.51	75	3.3				Minahassa Peninsula, Sulawesi
217	29/11/2018	07:07:39	0.09	125.21	58	5				Northern Molucca Sea
218	29/11/2018	08:06:26	3.27	125.7	180	4.5				Talaud Islands, Indonesia
219	29/11/2018	17:05:41	4.1	126.73	25	4				Talaud Islands, Indonesia
220	29/11/2018	19:53:39	-0.34	125.3	25	3.3				Southern Molucca Sea
221	30/11/2018	03:08:13	3.35	127.01	10	3.6				Talaud Islands, Indonesia
222	30/11/2018	06:29:50	0.11	130.83	10	2.9				Irian Jaya Region,
223	30/11/2018	09:35:34	2.64	128.28	191	4.2				Halmahera, Indonesia
224	30/11/2018	10:12:55	-0.26	122.9	63	3				Minahassa Peninsula, Sulawesi
225	30/11/2018	10:38:37	0.54	130.39	10	2.8				Irian Jaya Region,
226	30/11/2018	16:02:23	4.09	123.27	516	4.1				Celebes Sea
227	30/11/2018	20:07:52	2.44	124.07	319	4.8				Celebes Sea



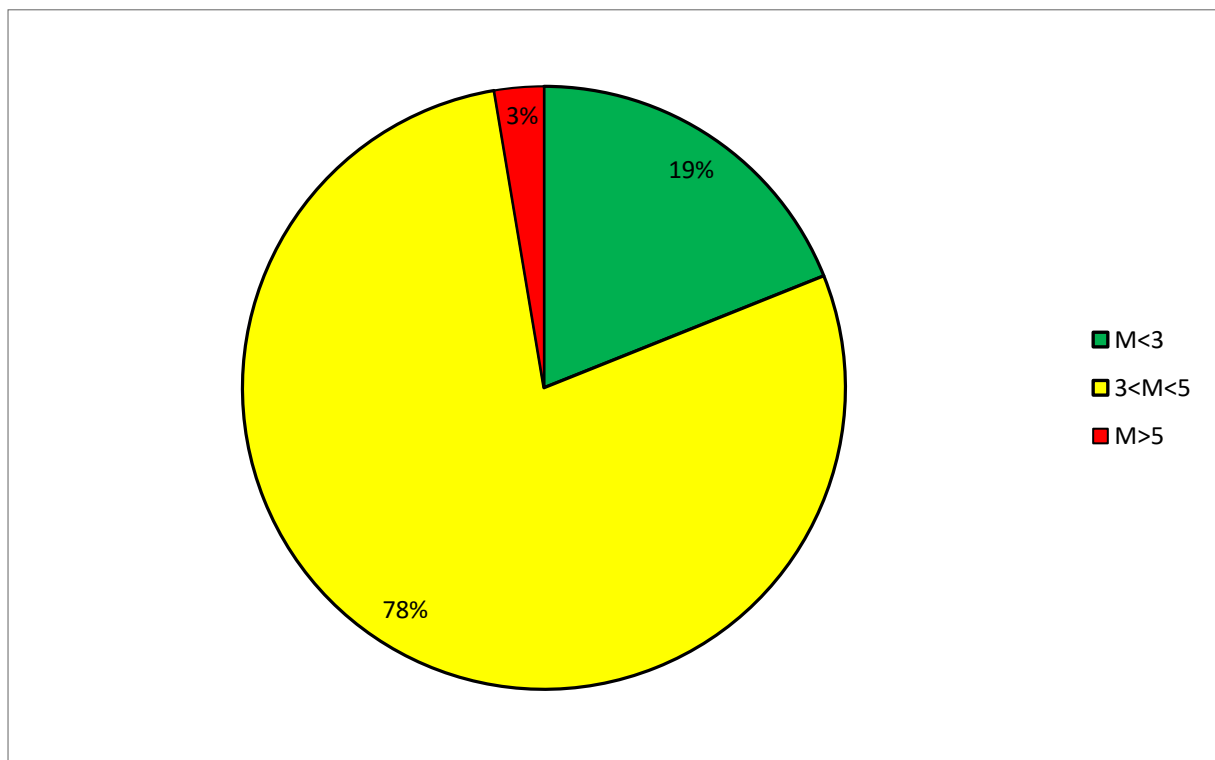
Gambar 57 Sebaran episenter gempabumi bulan November 2018

Tabel 34 Rekapitulasi gempabumi dan tsunami berdasarkan magnitudo bulan November 2018

Tanggal (UTC)	Magnitudo			Jumlah Total	Jumlah Gempa Signifikan	
	M<3	3≤M<5	M≥5		Dirasakan	Merusak
1	0	9	0	9	0	0
2	1	5	0	6	0	0
3	1	8	0	9	0	0
4	4	8	0	12	0	0
5	3	5	0	8	0	0
6	2	5	1	8	1	0
7	3	7	0	10	1	0
8	3	4	0	7	0	0
9	0	8	0	8	1	0
10	1	6	0	7	0	0
11	3	7	1	11	2	0
12	3	7	0	10	0	0
13	0	10	0	10	0	0
14	2	9	0	11	0	0
15	1	7	0	8	0	0
16	2	8	1	11	0	0
17	1	5	0	6	0	0
18	0	3	0	3	0	0
19	2	4	0	6	0	0
20	0	5	1	6	0	0
21	1	6	1	8	2	0
22	0	10	0	10	3	0
23	0	1	0	1	1	0
24	0	5	0	5	0	0
25	2	5	0	7	0	0
26	1	5	0	6	0	0
27	4	2	0	6	0	0
28	1	5	0	6	0	0
29	0	4	1	5	0	0
30	2	5	0	7	0	0
Jumlah gempa	43	178	6	227	11	0
Jumlah gempa seluruhnya						



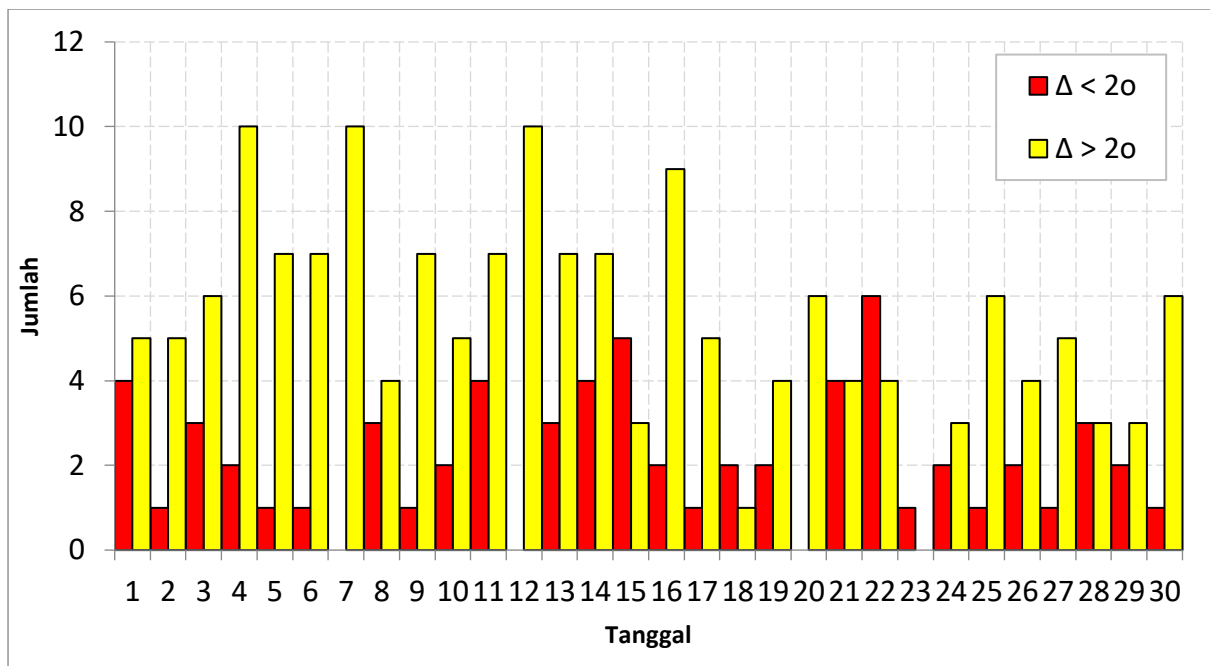
Gambar 58 Grafik gempabumi berdasarkan magnitudo bulan November 2018



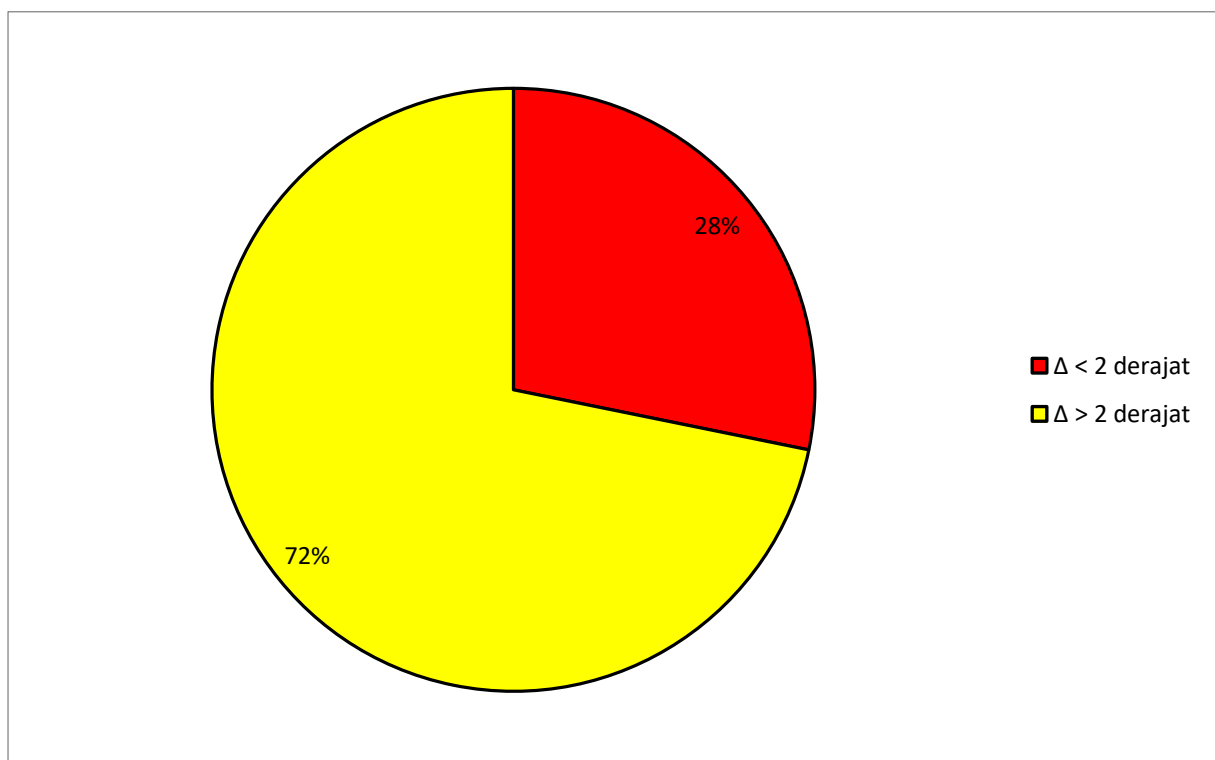
Gambar 59 Grafik persentase gempabumi berdasarkan magnitudo bulan November 2018

Tabel 35 Rekapitulasi gempabumi dan tsunami berdasarkan jarak dari stasiun bulan November 2018

Tanggal	Jarak		Jumlah	Keterangan
	$\Delta \leq 2^{\circ}$	$\Delta > 2^{\circ}$		
01/11/2018	4	5	9	-
02/11/2018	1	5	6	-
03/11/2018	3	6	9	-
04/11/2018	2	10	12	-
05/11/2018	1	7	8	-
06/11/2018	1	7	8	-
07/11/2018	0	10	10	-
08/11/2018	3	4	7	-
09/11/2018	1	7	8	-
10/11/2018	2	5	7	-
11/11/2018	4	7	11	-
12/11/2018	0	10	10	-
13/11/2018	3	7	10	-
14/11/2018	4	7	11	-
15/11/2018	5	3	8	-
16/11/2018	2	9	11	-
17/11/2018	1	5	6	-
18/11/2018	2	1	3	-
19/11/2018	2	4	6	-
20/11/2018	0	6	6	-
21/11/2018	4	4	8	-
22/11/2018	6	4	10	-
23/11/2018	1	0	1	-
24/11/2018	2	3	5	-
25/11/2018	1	6	7	-
26/11/2018	2	4	6	-
27/11/2018	1	5	6	-
28/11/2018	3	3	6	-
29/11/2018	2	3	5	-
30/11/2018	1	6	7	-
Jumlah gempa	64	163	227	-
Jumlah gempa seluruhnya				



Gambar 60 Grafik gempabumi berdasarkan jarak bulan November 2018



Gambar 61 Grafik persentase gempabumi berdasarkan jarak bulan November 2018

L. Data Gempabumi Bulan Desember 2018

Tabel 36 Data kejadian gempabumi bulan Desember 2018

NO	DATE	OT (UTC)	EPICENTER		DEPTH (km)	MAG	PGA (gals) SLMI			REGION
			LAT	LONG			X	Y	Z	
1	01/12/2018	01:23:30	4.36	125.95	146	4.1				Talaud Islands, Indonesia
2	01/12/2018	05:10:34	0.74	125.36	28	3.8				Northern Molucca Sea
3	01/12/2018	09:59:54	0.84	125.99	10	3.7				Northern Molucca Sea
4	01/12/2018	14:14:41	1.65	124.49	315	3.2				Minahassa Peninsula, Sulawesi
5	01/12/2018	16:29:20	6.98	127.49	319	4.6				Philippine Islands Region
6	01/12/2018	16:30:24	2.03	128.56	16	3.6				Halmahera, Indonesia
7	01/12/2018	20:13:43	4.43	126.81	10	3.4				Talaud Islands, Indonesia
8	02/12/2018	02:50:13	-0.10	123.50	108	4.6				Minahassa Peninsula, Sulawesi
9	02/12/2018	03:50:46	0.21	130.62	12	4.4				Irian Jaya Region, Indonesia
10	02/12/2018	19:55:14	1.81	127.36	106	2.7				Halmahera, Indonesia
11	02/12/2018	20:04:04	-0.15	119.28	10	3.3				Minahassa Peninsula, Sulawesi
12	03/12/2018	01:34:28	0.38	121.22	86	4.0				Minahassa Peninsula, Sulawesi
13	03/12/2018	04:04:17	5.31	125.29	66	4.0				Mindanao, Philippines
14	03/12/2018	10:31:17	1.28	121.81	10	3.2				Minahassa Peninsula, Sulawesi
15	03/12/2018	13:57:56	1.85	127.03	21	2.9				Halmahera, Indonesia
16	03/12/2018	22:27:49	2.11	126.61	10	4.6				Northern Molucca Sea
17	03/12/2018	23:17:32	2.01	124.70	161	3.9				Celebes Sea
18	03/12/2018	23:50:14	0.34	126.84	109	3.8				Northern Molucca Sea
19	04/12/2018	05:15:37	-0.14	122.79	10	2.9				Minahassa Peninsula, Sulawesi
20	04/12/2018	06:53:00	2.47	126.87	61	5.6	0.18648	0.15465	0.21352	Northern Molucca Sea
21	04/12/2018	07:10:52	2.45	126.82	10	3.9				Northern Molucca Sea
22	04/12/2018	08:39:54	2.41	126.85	27	4.0				Northern Molucca Sea
23	04/12/2018	11:19:47	2.42	126.81	10	4.1				Northern Molucca Sea
24	04/12/2018	16:02:46	-0.20	119.70	14	3.2				Minahassa Peninsula, Sulawesi
25	04/12/2018	18:49:50	0.87	121.88	27	1.9				Minahassa Peninsula, Sulawesi
26	05/12/2018	01:42:46	1.99	126.68	10	3.1				Northern Molucca Sea
27	05/12/2018	01:53:58	3.12	127.92	126	4.0				Talaud Islands, Indonesia
28	05/12/2018	03:17:30	-0.36	124.22	11	3.3				Southern Molucca Sea
29	05/12/2018	04:03:37	0.78	122.32	59	4.0				Minahassa Peninsula, Sulawesi
30	05/12/2018	08:13:55	4.26	126.31	55	5.3	0.15960	0.14743	0.18183	Talaud Islands, Indonesia
31	05/12/2018	11:26:21	1.03	124.09	10	3.9				Minahassa Peninsula, Sulawesi

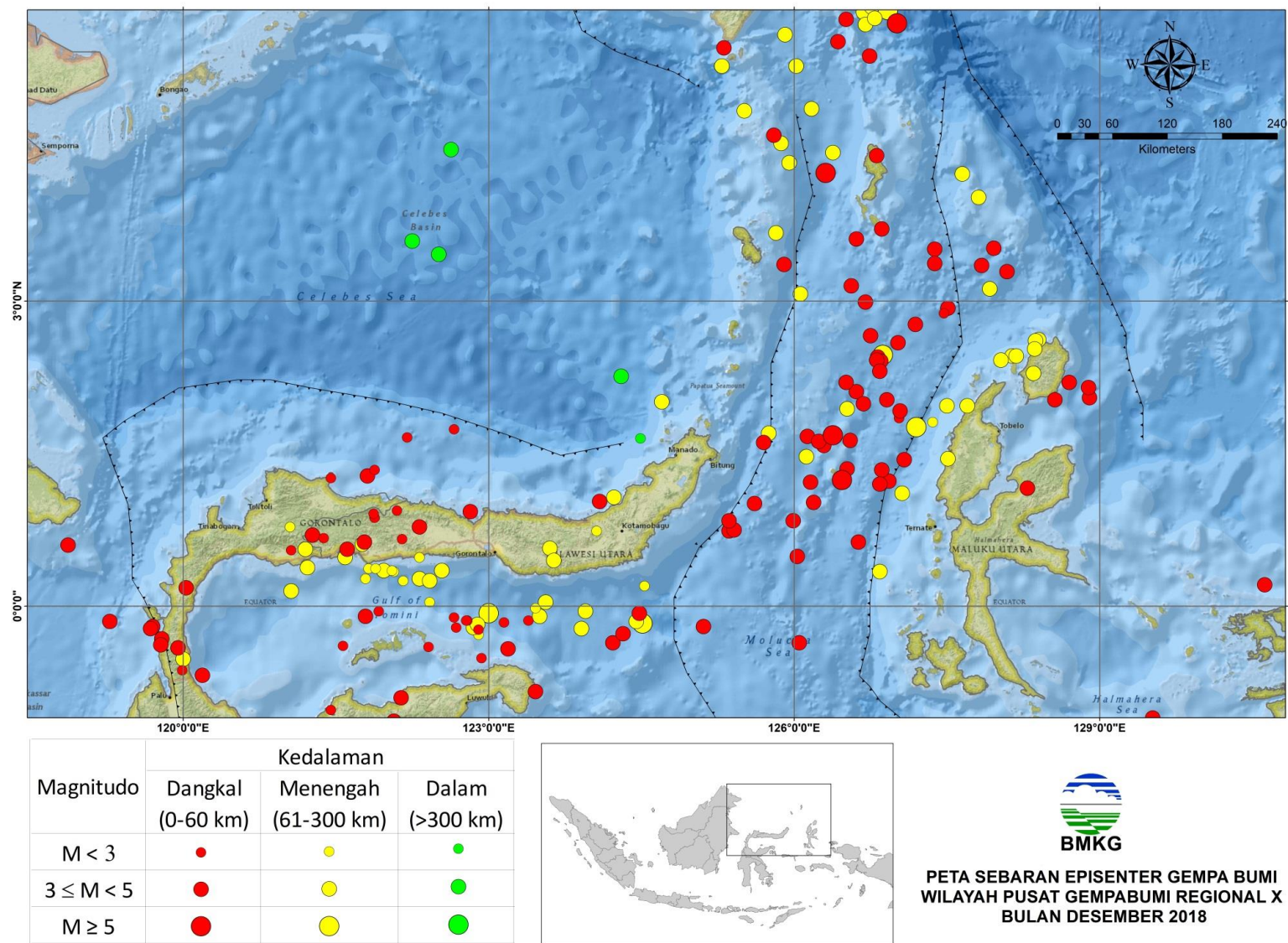
32	05/12/2018	15:09:31	1.66	122.20	10	2.2				Minahassa Peninsula, Sulawesi
33	05/12/2018	15:40:31	6.51	125.72	150	4.1				Mindanao, Philippines
34	05/12/2018	16:52:30	3.52	127.96	32	3.9				Talaud Islands, Indonesia
35	05/12/2018	19:47:33	1.67	126.13	48	3.4				Northern Molucca Sea
36	05/12/2018	20:32:35	3.51	127.38	13	3.9				Talaud Islands, Indonesia
37	06/12/2018	01:22:21	1.23	126.93	53	3.9				Northern Molucca Sea
38	06/12/2018	03:17:15	2.46	128.14	116	4.7				Halmahera, Indonesia
39	06/12/2018	05:38:38	-0.14	123.39	28	2.9				Minahassa Peninsula, Sulawesi
40	06/12/2018	05:50:41	4.46	126.38	84	4.6				Talaud Islands, Indonesia
41	06/12/2018	09:55:56	2.26	124.30	304	4.1				Celebes Sea
42	06/12/2018	12:46:02	1.22	126.16	11	3.6				Northern Molucca Sea
43	06/12/2018	14:13:43	6.73	125.76	179	5.3				Mindanao, Philippines
44	06/12/2018	14:43:41	1.01	125.61	11	3.5				Northern Molucca Sea
45	06/12/2018	16:39:16	1.58	126.29	10	3.2				Northern Molucca Sea
46	06/12/2018	17:00:31	-0.40	122.41	10	2.4				Minahassa Peninsula, Sulawesi
47	06/12/2018	20:22:39	0.70	121.27	13	3.3				Minahassa Peninsula, Sulawesi
48	06/12/2018	21:47:14	-0.11	122.66	31	2.9				Minahassa Peninsula, Sulawesi
49	07/12/2018	12:43:45	1.11	127.06	113	3.8				Halmahera, Indonesia
50	07/12/2018	13:00:14	5.49	125.31	34	4.6				Mindanao, Philippines
51	07/12/2018	16:25:49	1.16	128.29	21	3.3				Halmahera, Indonesia
52	08/12/2018	02:52:15	0.15	121.06	133	4.4				Minahassa Peninsula, Sulawesi
53	08/12/2018	13:09:39	-0.07	124.48	37	4.1				Southern Molucca Sea
54	08/12/2018	23:59:02	-0.16	123.15	25	2.8				Minahassa Peninsula, Sulawesi
55	09/12/2018	00:33:33	0.27	121.79	176	2.8				Minahassa Peninsula, Sulawesi
56	09/12/2018	17:03:33	0.94	122.10	12	2.7				Minahassa Peninsula, Sulawesi
57	09/12/2018	17:14:26	1.34	126.86	28	3.9				Northern Molucca Sea
58	10/12/2018	00:10:32	1.62	126.24	24	4.4				Northern Molucca Sea
59	10/12/2018	01:26:13	0.75	125.41	58	4.6	0.77619	1.18870	1.25564	Northern Molucca Sea
60	10/12/2018	03:00:31	3.59	122.25	597	4.6				Celebes Sea
61	10/12/2018	04:20:02	-0.14	122.78	10	2.5				Minahassa Peninsula, Sulawesi
62	10/12/2018	13:47:18	0.84	125.36	35	4.7	0.66804	0.96025	1.04139	Northern Molucca Sea
63	10/12/2018	17:03:59	0.74	124.06	264	2.9				Minahassa Peninsula, Sulawesi
64	10/12/2018	21:14:16	1.94	126.52	82	4.6				Northern Molucca Sea
65	11/12/2018	07:07:39	4.89	126.17	139	4.4				Talaud Islands, Indonesia
66	11/12/2018	11:23:26	-0.17	124.51	62	5.1	0.66804	0.96025	1.04139	Southern Molucca Sea
67	11/12/2018	21:53:50	0.27	122.32	142	3.1				Minahassa Peninsula, Sulawesi

68	11/12/2018	23:35:02	2.31	126.84	19	4.5				Northern Molucca Sea
69	12/12/2018	22:19:02	4.87	125.51	190	4.5				Talaud Islands, Indonesia
70	12/12/2018	22:35:48	3.37	127.38	10	4.3				Talaud Islands, Indonesia
71	13/12/2018	01:26:54	5.41	126.74	12	4.7				Mindanao, Philippines
72	13/12/2018	02:14:36	3.29	128.09	22	4.0				North of Halmahera, Indonesia
73	13/12/2018	04:08:21	-0.05	123.95	107	3.4				Minahassa Peninsula, Sulawesi
74	13/12/2018	23:21:24	1.20	126.84	41	3.7				Northern Molucca Sea
75	14/12/2018	02:00:53	0.37	121.97	177	2.6				Minahassa Peninsula, Sulawesi
76	14/12/2018	03:02:45	0.78	121.05	91	1.8				Minahassa Peninsula, Sulawesi
77	14/12/2018	03:22:13	1.70	125.75	78	3.9				Northern Molucca Sea
78	14/12/2018	15:48:02	0.63	121.78	59	3.4				Minahassa Peninsula, Sulawesi
79	14/12/2018	18:23:27	2.03	126.91	3	3.7				Northern Molucca Sea
80	14/12/2018	19:27:28	-0.07	123.00	152	5.2	0.14341	0.23279	-0.22539	Minahassa Peninsula, Sulawesi
81	15/12/2018	05:28:56	0.93	122.82	23	3.8				Minahassa Peninsula, Sulawesi
82	15/12/2018	05:51:23	2.99	126.70	30	4.6				Northern Molucca Sea
83	15/12/2018	08:27:24	3.67	125.82	152	4.3				Talaud Islands, Indonesia
84	15/12/2018	09:46:49	4.02	127.81	164	4.2				Talaud Islands, Indonesia
85	15/12/2018	10:29:30	1.47	126.12	70	3.4				Northern Molucca Sea
86	15/12/2018	13:00:36	3.35	127.84	35	3.9				Talaud Islands, Indonesia
87	15/12/2018	18:51:55	2.93	127.51	10	4.4				Northern Molucca Sea
88	15/12/2018	20:24:56	-0.22	119.68	10	3.1				Minahassa Peninsula, Sulawesi
89	16/12/2018	12:30:08	1.26	121.45	14	3.0				Minahassa Peninsula, Sulawesi
90	16/12/2018	13:22:28	2.42	128.03	150	3.6				Halmahera, Indonesia
91	16/12/2018	15:52:38	2.05	128.90	10	4.1				Halmahera, Indonesia
92	17/12/2018	02:54:42	0.57	123.60	218	3.4				Minahassa Peninsula, Sulawesi
93	17/12/2018	06:17:21	2.46	128.18	108	4.1				Halmahera, Indonesia
94	17/12/2018	08:16:36	-0.32	119.79	10	3.3				Minahassa Peninsula, Sulawesi
95	17/12/2018	11:02:12	2.15	128.89	10	4.4				Halmahera, Indonesia
96	17/12/2018	11:38:44	2.59	127.02	29	4.0				Northern Molucca Sea
97	17/12/2018	17:07:15	-0.28	122.90	80	2.9				Minahassa Peninsula, Sulawesi
98	17/12/2018	20:39:57	6.35	126.38	105	4.4				Mindanao, Philippines
99	17/12/2018	21:42:32	2.88	127.47	19	2.9				Northern Molucca Sea
100	17/12/2018	23:00:15	-0.36	126.05	53	4.1				Southern Molucca Sea
101	18/12/2018	03:55:04	1.97	127.70	204	3.6				Halmahera, Indonesia
102	18/12/2018	09:51:38	2.20	128.70	10	3.9				Halmahera, Indonesia
103	18/12/2018	13:37:35	2.61	128.38	205	4.2				Halmahera, Indonesia

104	18/12/2018	16:32:05	1.07	124.23	260	3.9				Minahassa Peninsula,Sulawesi
105	18/12/2018	17:12:11	4.49	122.63	606	4.3				Celebes Sea
106	18/12/2018	21:38:21	2.62	128.40	178	4.5				Halmahera, Indonesia
107	19/12/2018	11:25:10	-0.15	124.45	63	4.8	0.19564	0.42214	0.32273	Southern Molucca Sea
108	19/12/2018	18:55:11	0.67	121.38	34	1.8				Minahassa Peninsula,Sulawesi
109	19/12/2018	20:15:17	1.74	122.66	15	3.0				Minahassa Peninsula,Sulawesi
110	19/12/2018	22:38:00	6.52	126.30	10	5.0				Mindanao, Philippines
111	20/12/2018	00:28:08	-0.39	121.57	10	2.8				Minahassa Peninsula, Sulawesi
112	20/12/2018	01:52:18	1.97	127.50	104	4.1				Halmahera, Indonesia
113	20/12/2018	11:53:36	-0.22	123.91	105	4.1				Minahassa Peninsula, Sulawesi
114	20/12/2018	15:02:25	5.62	125.91	106	4.6				Mindanao, Philippines
115	20/12/2018	19:26:10	1.76	127.20	108	5.3	0.27556	0.35172	0.40278	Halmahera, Indonesia
116	21/12/2018	02:22:22	0.18	120.03	15	4.6	0.15220	-0.09435	0.10195	Minahassa Peninsula,Sulawesi
117	21/12/2018	21:23:21	-0.38	119.78	10	3.8				Minahassa Peninsula,Sulawesi
118	22/12/2018	04:20:19	-0.21	122.68	21	3.0				Minahassa Peninsula,Sulawesi
119	22/12/2018	06:07:45	3.07	126.06	68	4.6				Talaud Islands, Indonesia
120	22/12/2018	16:13:29	0.61	121.76	77	4.8	0.14864	0.20458	0.19296	Minahassa Peninsula,Sulawesi
121	22/12/2018	18:04:34	0.55	121.06	56	2.4				Minahassa Peninsula,Sulawesi
122	23/12/2018	07:36:44	2.20	126.51	18	3.5				Northern Molucca Sea
123	23/12/2018	11:22:49	1.61	125.70	13	3.9				Northern Molucca Sea
124	23/12/2018	14:48:38	0.49	126.03	15	3.4				Northern Molucca Sea
125	23/12/2018	16:22:33	0.45	123.64	233	3.8				Minahassa Peninsula,Sulawesi
126	23/12/2018	17:32:29	2.66	126.75	10	3.3				Northern Molucca Sea
127	23/12/2018	21:28:10	3.46	122.51	573	4.5				Celebes Sea
128	24/12/2018	04:59:25	0.34	122.07	177	2.8				Minahassa Peninsula,Sulawesi
129	24/12/2018	18:22:29	1.35	126.52	10	3.7				Northern Molucca Sea
130	24/12/2018	21:50:22	1.63	126.55	50	4.6				Northern Molucca Sea
131	24/12/2018	23:09:18	2.77	127.19	4	3.5				Northern Molucca Sea
132	25/12/2018	05:22:11	3.71	126.86	39	4.0				Talaud Islands, Indonesia
133	25/12/2018	06:06:54	3.61	126.61	10	3.4				Talaud Islands, Indonesia
134	25/12/2018	06:17:39	-0.27	124.32	20	3.9				Southern Molucca Sea
135	25/12/2018	07:18:25	1.24	126.47	50	5.3	1.00378	1.11645	1.31036	Northern Molucca Sea
136	25/12/2018	08:46:25	-0.21	122.85	80	3.5				Minahassa Peninsula,Sulawesi
137	25/12/2018	09:28:20	0.66	122.15	51	2.3				Minahassa Peninsula, Sulawesi
138	25/12/2018	18:52:36	-0.05	121.92	13	2.3				Minahassa Peninsula, Sulawesi
139	25/12/2018	23:31:19	4.55	125.87	163	4.4				Talaud Islands, Indonesia

140	26/12/2018	03:26:45	0.48	121.59	134	4.0				Minahassa Peninsula, Sulawesi
141	26/12/2018	03:39:02	0.37	121.82	158	2.5				Minahassa Peninsula, Sulawesi
142	26/12/2018	04:03:42	0.25	122.42	129	3.8				Minahassa Peninsula, Sulawesi
143	26/12/2018	04:23:16	4.25	127.65	130	4.2				Talaud Islands, Indonesia
144	26/12/2018	13:34:37	5.55	126.43	13	4.7				Mindanao, Philippines
145	27/12/2018	02:31:18	5.31	126.02	114	4.5				Mindanao, Philippines
146	27/12/2018	10:35:07	2.29	128.35	220	4.1				Halmahera, Indonesia
147	27/12/2018	16:48:21	2.61	128.37	223	4.4				Halmahera, Indonesia
148	27/12/2018	17:12:27	0.35	122.54	103	4.2				Minahassa Peninsula, Sulawesi
149	28/12/2018	06:36:24	3.36	125.90	53	3.8				Talaud Islands, Indonesia
150	28/12/2018	10:26:22	0.56	121.20	72	3.2				Minahassa Peninsula, Sulawesi
151	28/12/2018	10:40:44	1.44	127.08	10	3.8				Halmahera, Indonesia
152	28/12/2018	12:39:12	-0.18	122.89	123	3.5				Minahassa Peninsula, Sulawesi
153	28/12/2018	18:35:39	0.04	123.56	111	3.4				Minahassa Peninsula, Sulawesi
154	29/12/2018	03:39:11	5.86	126.92	102	7.0	-0.50680	0.96719	0.96660	Mindanao, Philippines
155	29/12/2018	04:29:03	5.77	126.51	9	4.5				Mindanao, Philippines
156	29/12/2018	04:47:59	5.84	126.68	118	4.4				Mindanao, Philippines
157	29/12/2018	07:45:51	0.35	121.97	185	3.7				Minahassa Peninsula, Sulawesi
158	29/12/2018	09:13:01	5.73	127.01	25	5.6				Philippine Islands Region
159	29/12/2018	11:09:30	5.89	126.76	107	4.3				Mindanao, Philippines
160	29/12/2018	12:00:46	1.34	121.88	10	2.7				Minahassa Peninsula, Sulawesi
161	29/12/2018	14:41:21	5.72	126.70	140	4.2				Mindanao, Philippines
162	29/12/2018	16:37:11	0.37	121.89	165	2.2				Minahassa Peninsula, Sulawesi
163	29/12/2018	18:40:34	5.78	126.79	118	4.1				Mindanao, Philippines
164	30/12/2018	13:10:08	4.63	125.80	27	4.2				Talaud Islands, Indonesia
165	30/12/2018	13:35:35	0.20	124.53	66	3.0				Minahassa Peninsula, Sulawesi
166	30/12/2018	14:25:16	0.04	122.42	243	2.4				Minahassa Peninsula, Sulawesi
167	30/12/2018	15:21:45	0.63	126.63	29	3.6				Northern Molucca Sea
168	30/12/2018	16:00:04	-0.02	123.46	110	2.9				Minahassa Peninsula, Sulawesi
169	30/12/2018	18:34:55	1.68	126.38	10	5.2	1.38622	2.49478	2.03242	Northern Molucca Sea
170	30/12/2018	19:39:53	-0.10	121.79	6	3.4				Minahassa Peninsula, Sulawesi
171	30/12/2018	21:42:39	0.35	122.05	179	2.6				Minahassa Peninsula, Sulawesi
172	30/12/2018	21:51:20	1.02	126.19	10	4.1				Northern Molucca Sea
173	31/12/2018	01:04:38	-0.41	119.95	1	3.5				Minahassa Peninsula, Sulawesi
174	31/12/2018	06:20:59	1.92	127.04	24	4.2				Halmahera, Indonesia
175	31/12/2018	10:00:33	-0.42	123.19	12	3.5				Minahassa Peninsula, Sulawesi

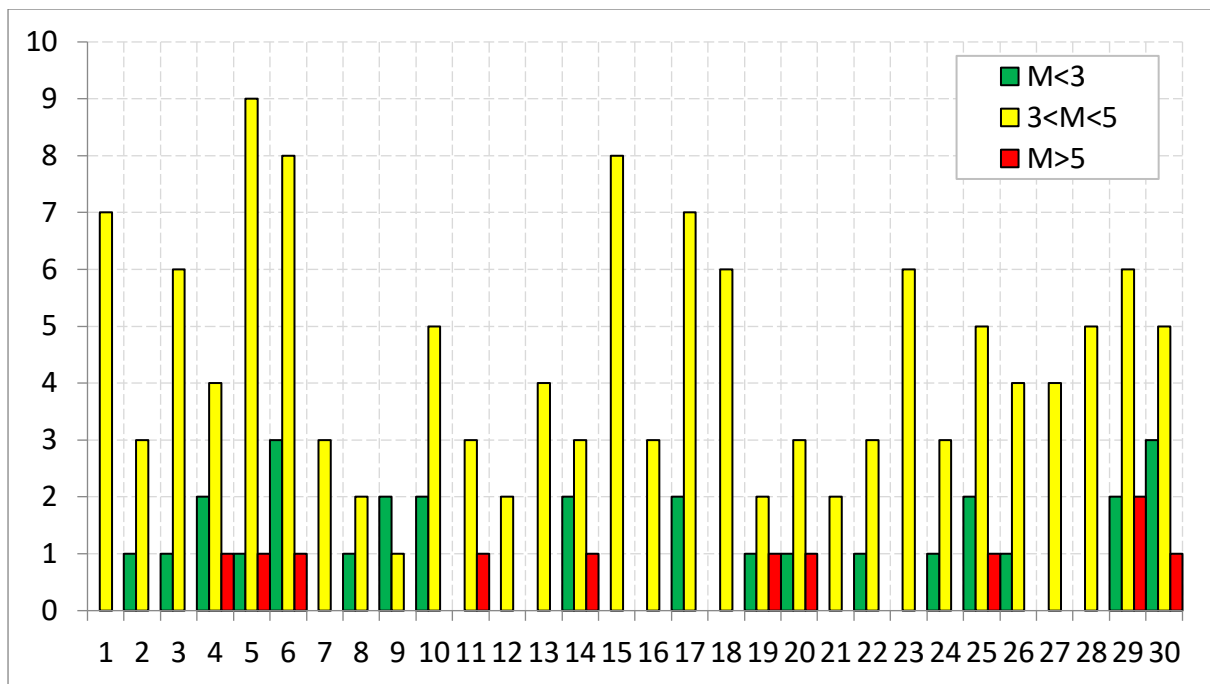
176	31/12/2018	12:48:06	0.48	122.32	94	2.6				Minahassa Peninsula, Sulawesi
177	31/12/2018	13:06:02	0.91	121.87	20	2.2				Minahassa Peninsula, Sulawesi
178	31/12/2018	14:05:24	2.53	128.36	208	4.3				Halmahera, Indonesia
179	31/12/2018	15:38:23	0.60	118.87	28	3.3				Borneo
180	31/12/2018	16:20:25	-0.20	125.11	16	3.7				Southern Molucca Sea
181	31/12/2018	16:27:56	0.25	122.16	163	3.0				Minahassa Peninsula, Sulawesi
182	31/12/2018	19:44:41	0.56	121.61	54	3.7				Minahassa Peninsula, Sulawesi
183	31/12/2018	21:39:29	-0.23	122.90	10	2.8				Minahassa Peninsula, Sulawesi
184	31/12/2018	22:02:14	1.45	127.51	192	4.1				Halmahera, Indonesia
185	31/12/2018	23:09:28	3.15	126.56	46	4.9				Talaud Islands, Indonesia



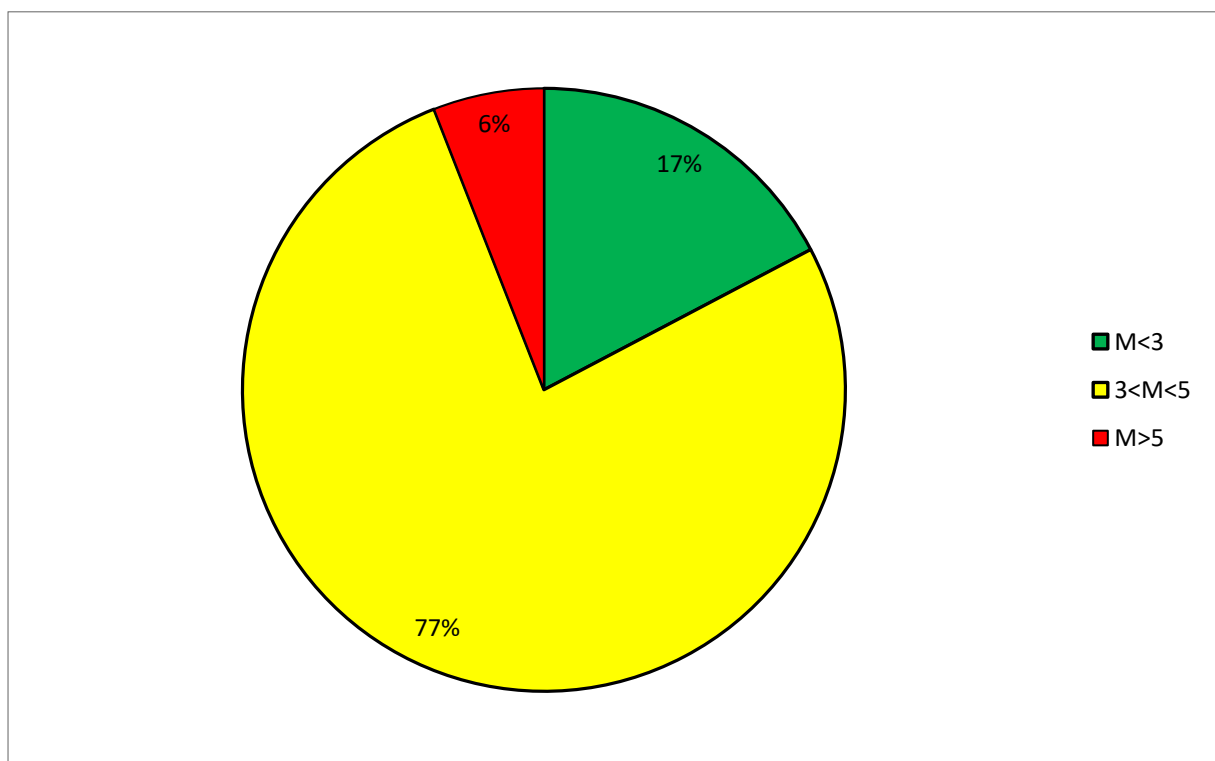
Gambar 62 Sebaran episenter gempabumi bulan Desember 2018

Tabel 37 Rekapitulasi gempabumi dan tsunami berdasarkan magnitudo bulan Desember 2018

Tanggal (UTC)	Magnitudo			Jumlah Total	Jumlah Gempa Signifikan	
	M<3	3≤M<5	M≥5		Dirasakan	Merusak
1	0	7	0	7	0	0
2	1	3	0	4	0	0
3	1	6	0	7	0	0
4	2	4	1	7	1	0
5	1	9	1	11	1	0
6	3	8	1	12	0	0
7	0	3	0	3	0	0
8	1	2	0	3	0	0
9	2	1	0	3	0	0
10	2	5	0	7	2	0
11	0	3	1	4	1	0
12	0	2	0	2	0	0
13	0	4	0	4	0	0
14	2	3	1	6	0	0
15	0	8	0	8	1	0
16	0	3	0	3	0	0
17	2	7	0	9	0	0
18	0	6	0	6	0	0
19	1	2	1	4	1	0
20	1	3	1	5	0	0
21	0	2	0	2	2	0
22	1	3	0	4	1	0
23	0	6	0	6	0	0
24	1	3	0	4	0	0
25	2	5	1	8	1	0
26	1	4	0	5	0	0
27	0	4	0	4	0	0
28	0	5	0	5	0	0
29	2	6	2	10	1	0
30	3	5	1	9	0	0
31	3	10	0	13	1	
Jumlah gempa	32	142	11	185	13	0



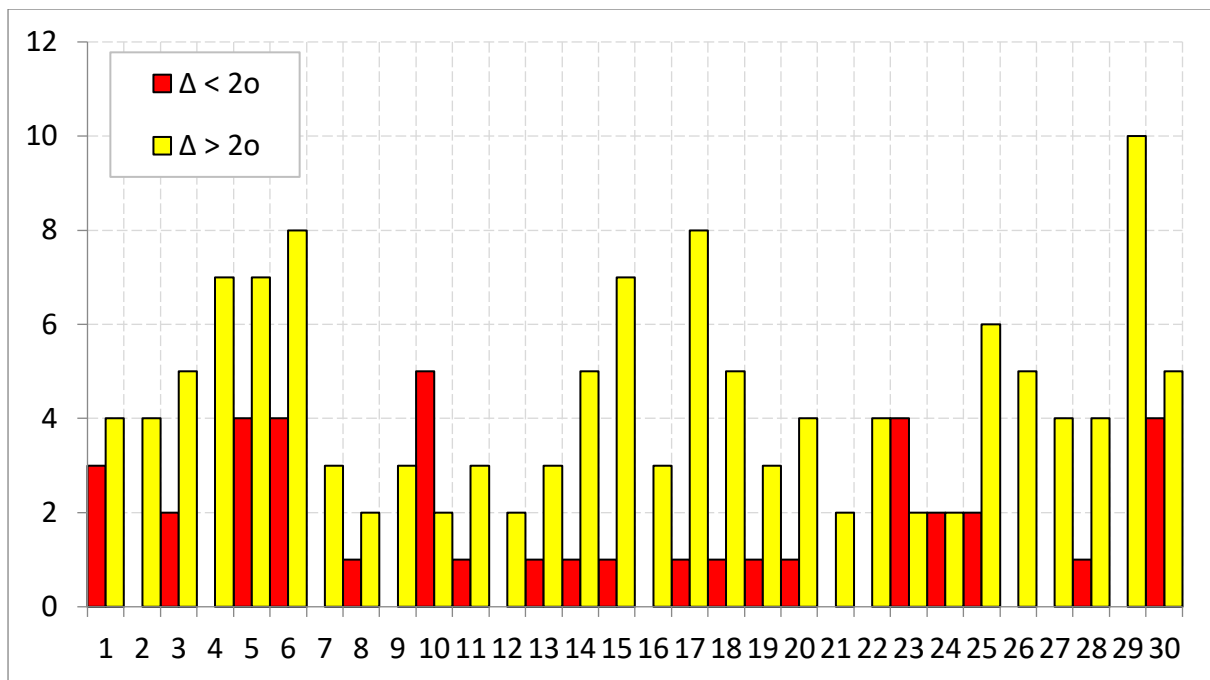
Gambar 63 Grafik gempabumi berdasarkan magnitudo bulan Desember 2018



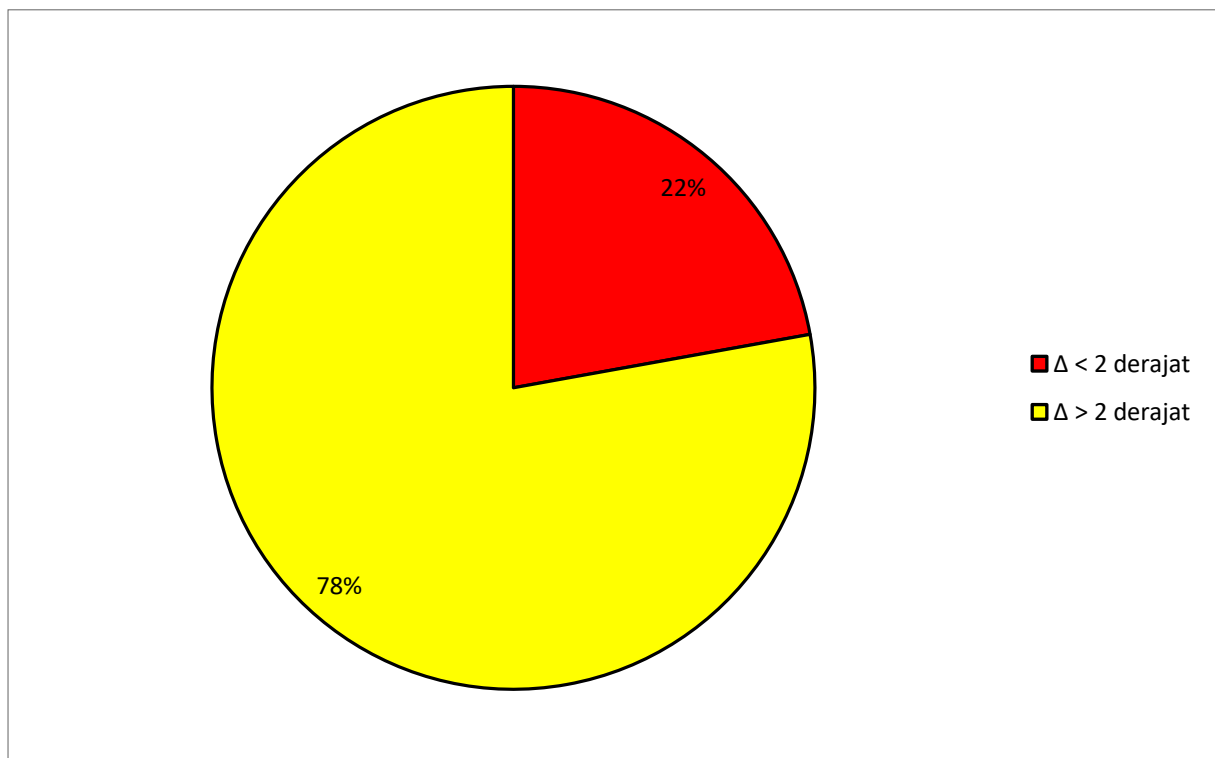
Gambar 64 Grafik persentase gempabumi berdasarkan magnitudo bulan Desember 2018

Tabel 38 Rekapitulasi gempabumi dan tsunami berdasarkan jarak dari stasiun bulan Desember 2018

Tanggal	Jarak		Jumlah	Keterangan
	$\Delta \leq 2^\circ$	$\Delta > 2^\circ$		
01/12/2018	3	4	7	-
02/12/2018	0	4	4	-
03/12/2018	2	5	7	-
04/12/2018	0	7	7	-
05/12/2018	4	7	11	-
06/12/2018	4	8	12	-
07/12/2018	0	3	3	-
08/12/2018	1	2	3	-
09/12/2018	0	3	3	-
10/12/2018	5	2	7	-
11/12/2018	1	3	4	-
12/12/2018	0	2	2	-
13/12/2018	1	3	4	-
14/12/2018	1	5	6	-
15/12/2018	1	7	8	-
16/12/2018	0	3	3	-
17/12/2018	1	8	9	-
18/12/2018	1	5	6	-
19/12/2018	1	3	4	-
20/12/2018	1	4	5	-
21/12/2018	0	2	2	-
22/12/2018	0	4	4	-
23/12/2018	4	2	6	-
24/12/2018	2	2	4	-
25/12/2018	2	6	8	-
26/12/2018	0	5	5	-
27/12/2018	0	4	4	-
28/12/2018	1	4	5	-
29/12/2018	0	10	10	-
30/12/2018	4	5	9	-
31/12/2018	1	12	13	-
Jumlah gempa	41	144	185	-



Gambar 65 Grafik gempabumi berdasarkan jarak bulan Desember 2018



Gambar 66 Grafik persentase gempabumi berdasarkan jarak bulan Desember 2018

IV. PETA GONCANGAN GEMPABUMI TERASA DI WILAYAH REGIONAL X TAHUN 2018

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.

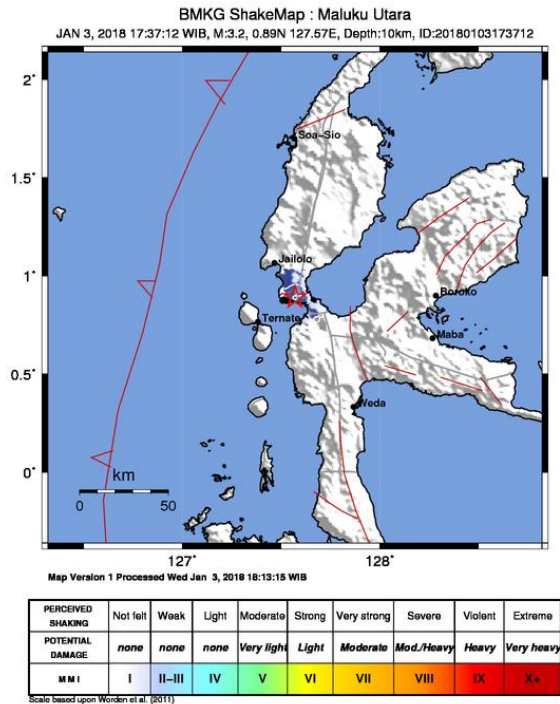
Peta guncangan yang dikeluarkan BMKG memiliki 2 jenis satuan, yaitu MMI (Modified Mercalli Intensity) dan SIG BMKG (Skala Intensitas Gempabumi BMKG). Di dalam Buletin Gempabumi Stasiun Geofisika Klas I Manado ini, Peta Guncangan (Shakemap) disajikan dengan menggunakan skala MMI. Skala MMI adalah satuan 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+

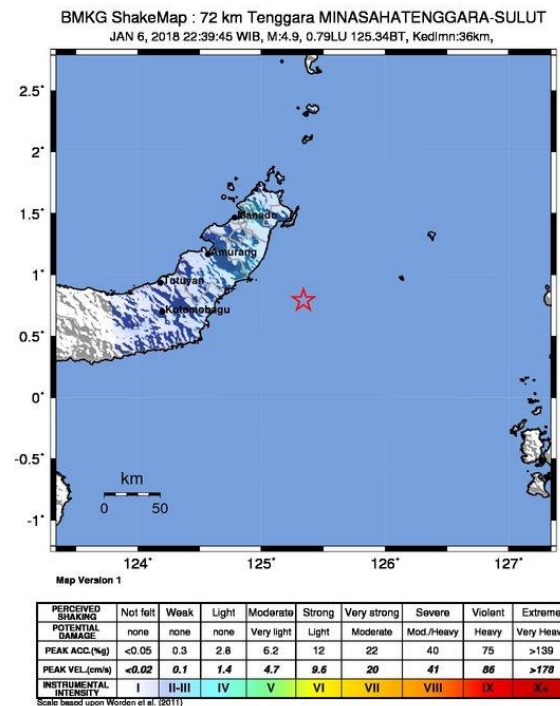
Scale based upon Worden et al. (2012)

Gambar 67 Perbandingan antara skala MMI dengan percepatan tanah maksimum

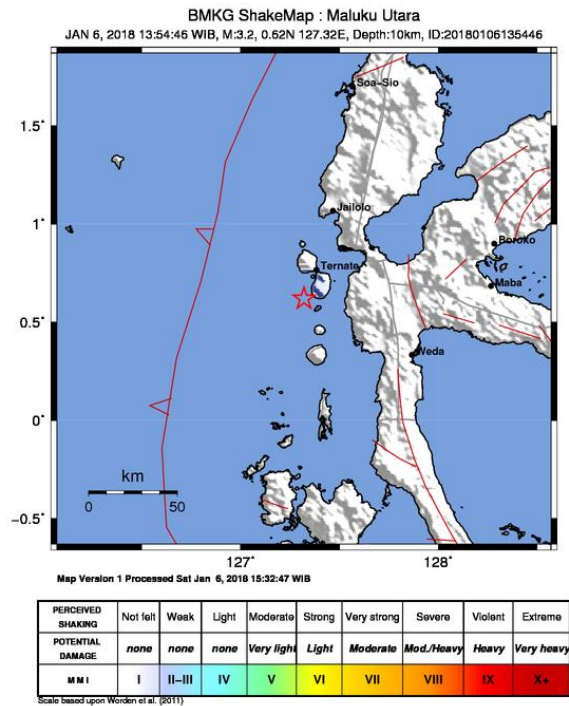
A. Peta Guncangan (*Shakemap*) Gempabumi Bulan Januari 2018



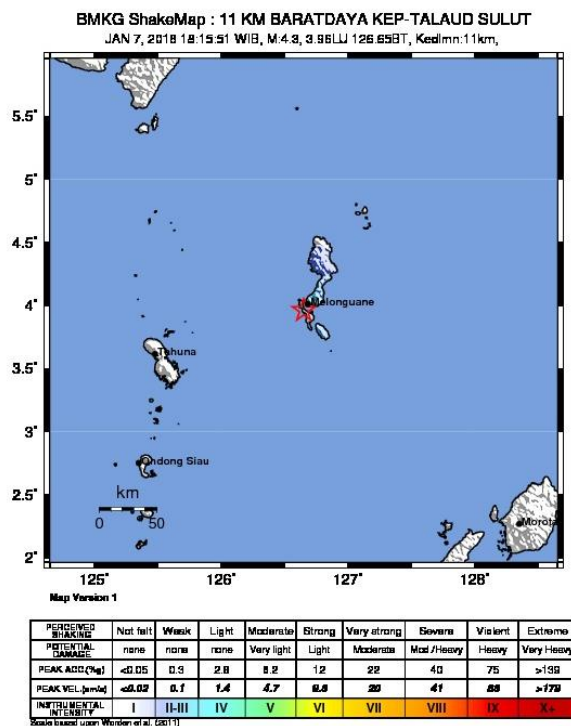
Gambar 68 Peta Guncangan Gempabumi 3 Januari 2018 pukul 17:37:12 WIB



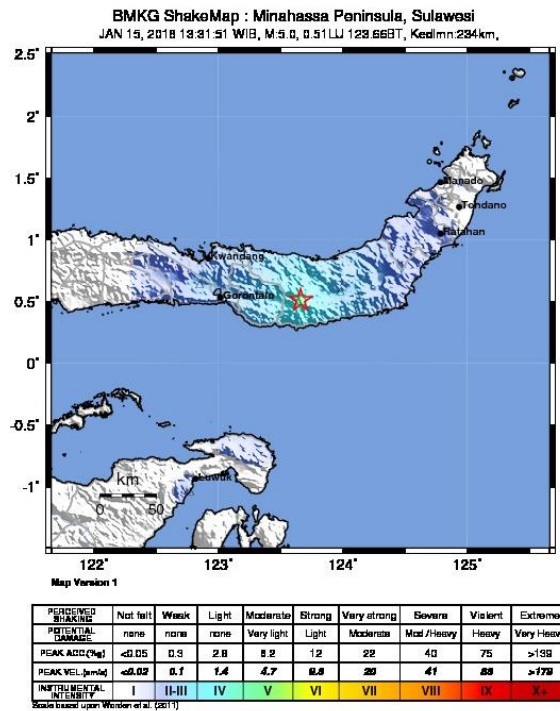
Gambar 69 Peta Guncangan Gempabumi 6 Januari 2018 pukul 13:54:46 WIB



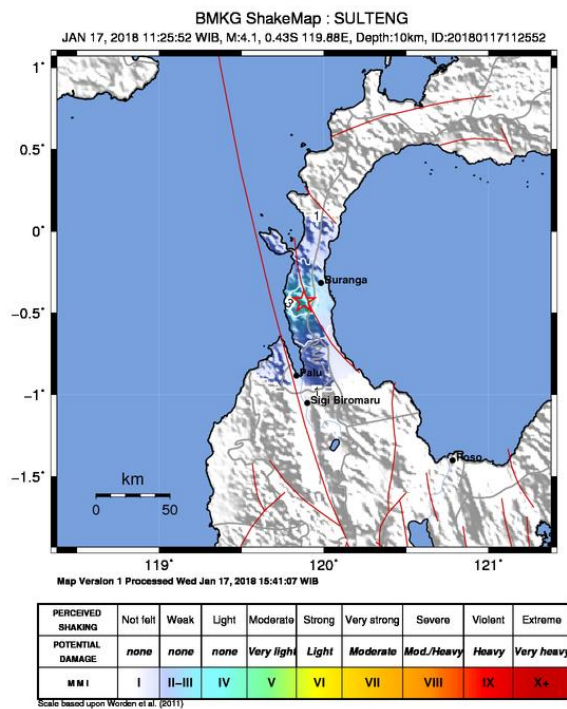
Gambar 70 Peta Guncangan Gempabumi 6 Januari 2018 pukul 22:39:45 WIB



Gambar 71 Peta Guncangan Gempabumi 7 Januari 2018 pukul 18:15:51 WIB

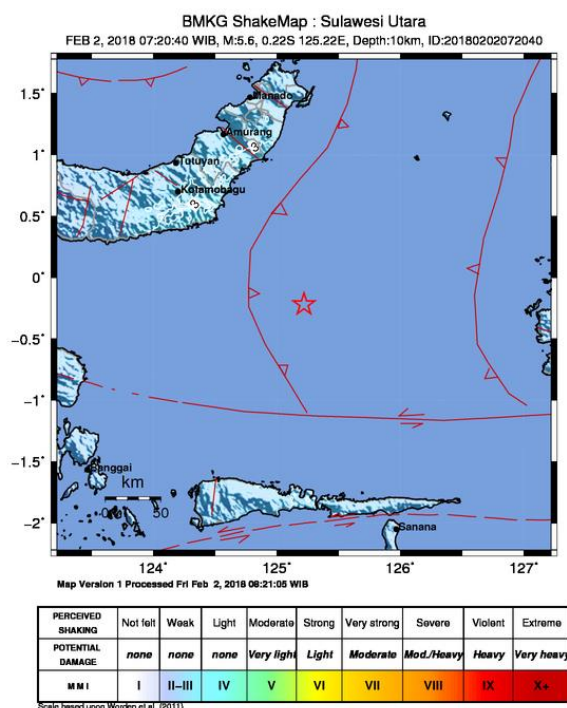


Gambar 72 Peta Guncangan Gempabumi 15 Januari 2018 pukul 13:31:51 WIB

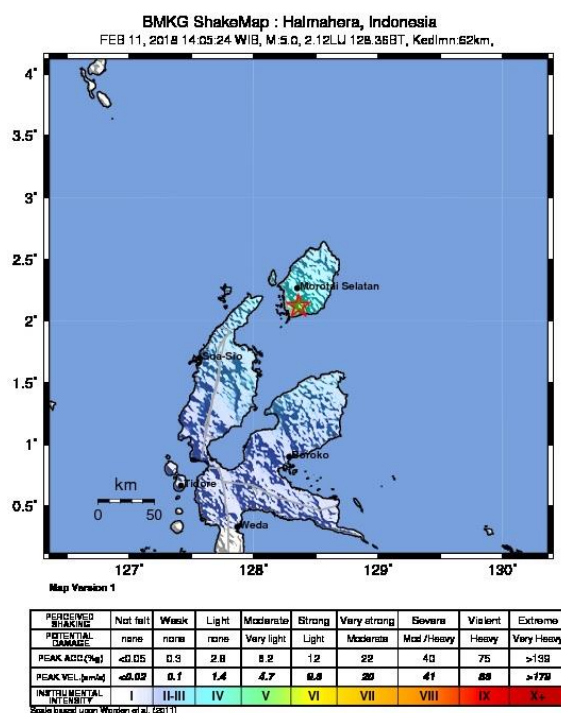


Gambar 73 Peta Guncangan Gempabumi 17 Januari 2018 pukul 11:25:52 WIB

B. Peta Guncangan (*Shakemap*) Gempabumi Bulan Februari 2018



Gambar 74 Peta Guncangan Gempabumi 2 Februari 2018 pukul 07:20:40 WIB



Gambar 75 Peta Guncangan Gempabumi 11 Februari 2018 pukul 14:05:24 WIB

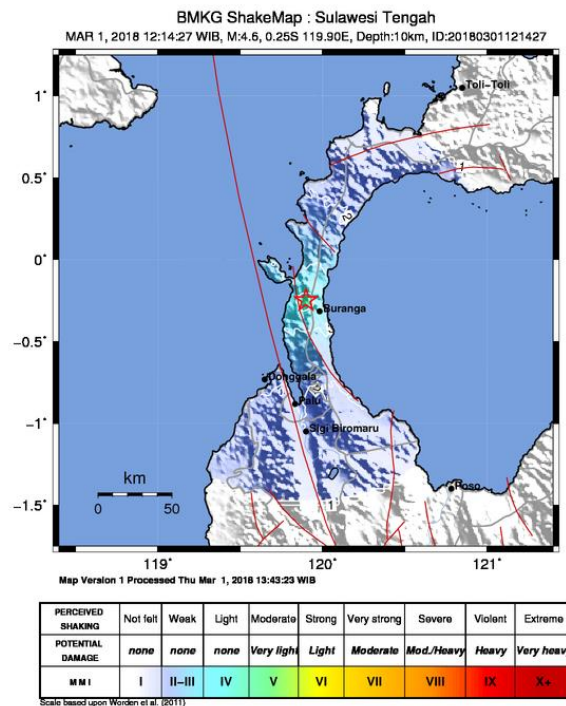
Tabel 39 Tabel Nilai Percepatan Tanah Gempabumi 11 Februari 2018

Badan Meteorologi Klimatologi dan Geofisika											
Laporan Kejadian Gempa Bidang Seismologi Teknik											
=====											
Gempabumi 11 Februari 2018, jam 14:05:24 WIB, Mag:5.0, Lat:2.12°LU, Long:128.36°BT, Kedalaman:62 Km, Halmahera, Indonesia											

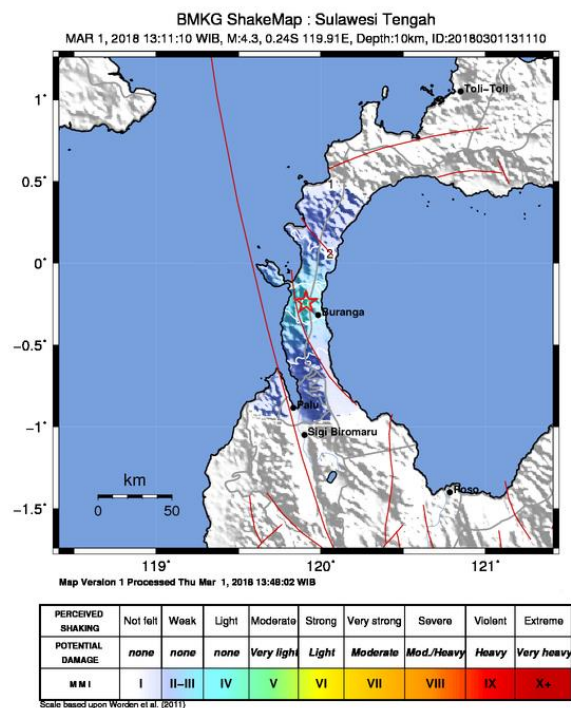
No	IdSta	Stasiun	Latitude	Longitude	Jarak	MMI	SIG	PGA-EW(gal)	PGA-NS(gal)	PGA-UD(gal)	Site Class

1	TNTI	TERNATE	0.77	127.37	185.40	I	I	0.1637	NaN	0.1058	
2	LBMI	LABUHA	-0.64	127.50	320.44	I	I	0.0363	0.0392	0.0245	
3	RAPI	RAJA AMPAT	-0.41	130.82	391.69	I	I	0.0157	0.0108	0.0186	
4	SWI	SORONG	-0.86	131.26	461.73	I	I	0.0049	0.0069	0.0147	
5	SANI	SANANA	-2.05	125.99	532.47	I	I	0.0029	0.0069	0.0059	
6	FAKI	FAK-FAK	-2.92	132.26	708.05	I	I	0.0363	NaN	0.0059	

C. Peta Guncangan (*Shakemap*) Gempabumi Bulan Maret 2018



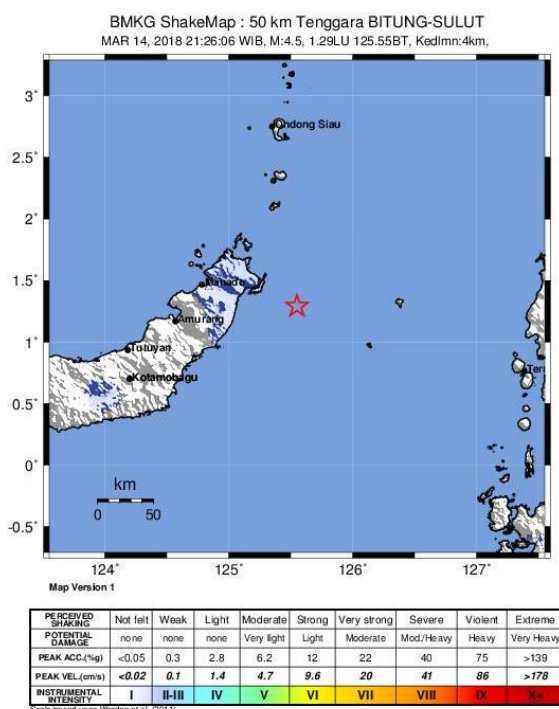
Gambar 76 Peta Guncangan Gempabumi 1 Maret 2018 pukul 12:14:27 WIB



Gambar 77 Peta Guncangan Gempabumi 1 Maret 2018 pukul 13:11:10 WIB

Tabel 40 Tabel Nilai Percepatan Tanah Gempabumi 14 Maret 2018

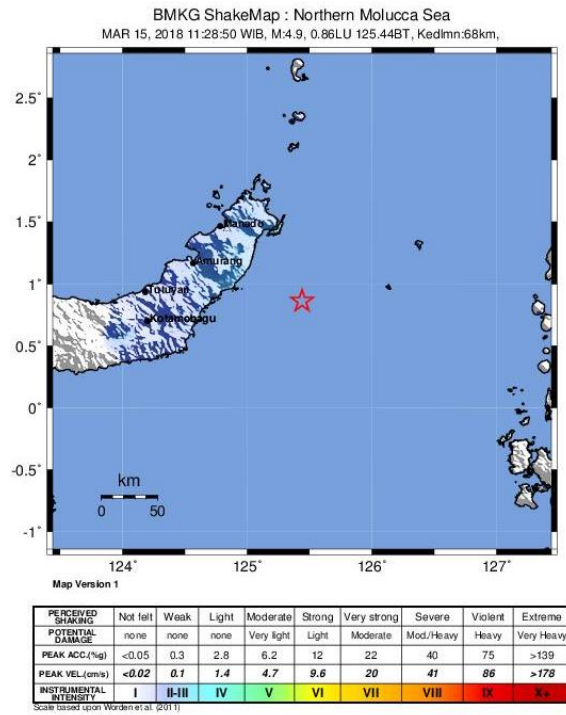
Badan Meteorologi Klimatologi dan Geofisika Laporan Kejadian Gempa Bidang Seismologi Teknik											
Gempabumi 14 Maret 2018, jam 21:26:06 WIB, Mag:4.5, Lat:1.29°LU, Long:125.55°BT, Kedalaman:4 Km, 50 km Tenggara											
[No]	[IdSta]	Stasiun	Latitude	Longitude	Jarak	MMI	SIG	PGA-EW(gal)	PGA-NS(gal)	PGA-UD(gal)	Site Class
1	SAMI	STA MET SAMRATULANGI MANADO	1.54	124.92	75.02	II	I	2.0903	1.7307	1.0653	
2	SLMI	STA GEOF MANADO	1.44	124.84	80.85	II	I	1.2142	0.929	0.834	
3	KMSI	KOTA MUBAGO	0.57	123.98	191.73	II	I	0.344	0.492	0.2499	
4	TNTI	TERNATE	0.77	127.37	210.06	I	I	0.0225	NaN	0.0274	
5	TMUN		0.66	127.45	221.97	I	I	0.0137	0.0039	0.0157	
6	LBMI	LABUHA	-0.64	127.50	304.98	I	I	0.0206	0.0235	0.0157	
7	SANI	SANANA	-2.05	125.99	374.34	I	I	0.0118	NaN	0.834	
8	LUWI	LUWUK	-1.04	122.77	403.28	I	I	0.0382	1.7307	0.0382	
9	KRAI	KAIRATU	-3.32	128.40	602.14	I	I	0.0196	0.0137	0.0098	E
10	SWI	SORONG	-0.86	131.26	678.41	I	I	0.0078	0.0098	0.0059	
11	SUHA	STA MET HASANUDIN MAKASAR	5.00	119.57	781.23	I	I	0.1009	0.0363	0.1254	C
12	KMRS	STA KLIM MAROS	-5.00	119.57	964.43	I	I	0.0882	0.0706	0.1039	E



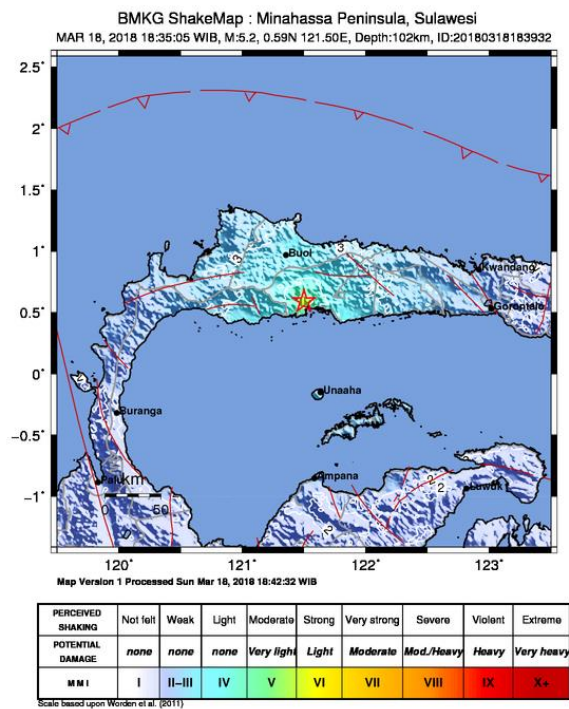
Gambar 78 Peta Guncangan Gempabumi 14 Maret 2018 pukul 21:26:06 WIB

Tabel 41 Tabel Nilai Percepatan Tanah Gempabumi 15 Maret 2018

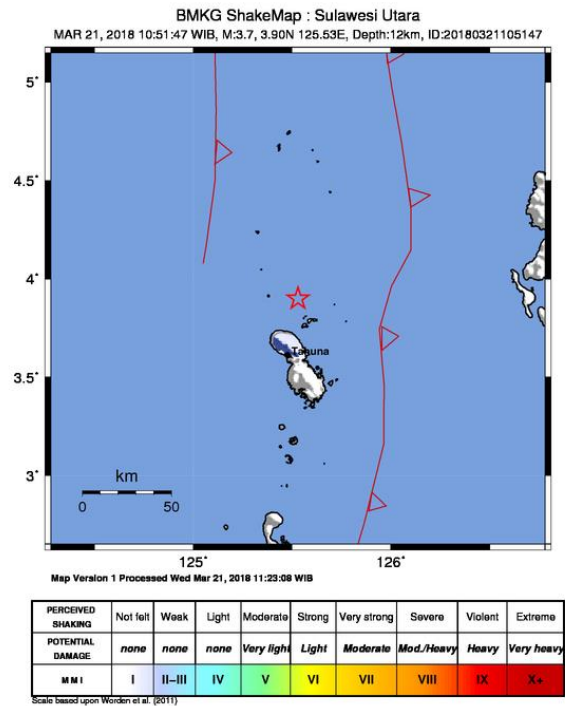
Badan Meteorologi Klimatologi dan Geofisika Laporan Kejadian Gempa Bidang Seismologi Teknik											
Gempabumi 15 Maret 2018, jam 11:28:48 WIB, Mag:5.1, Lat:0.84°LU, Long:125.38°BT, Kedalaman:15 Km, Northern Molucca Sea											
[No]	[IdSta]	Stasiun	Latitude	Longitude	Jarak	MMI	SIG	PGA-EW(gal)	PGA-NS(gal)	PGA-UD(gal)	Site Class
1	SLMI	STA GEOF MANADO	1.44	124.84	89.22	II	I	1.8591	1.8179	1.3642	
2	KMSI	KOTA MUBAGO	0.57	123.98	157.47	III	II	3.138	4.6011	1.9433	
3	TNTI	TERNATE	0.77	127.37	220.19	I	I	0.1245	NaN	0.0069	
4	TMUN		0.66	127.45	229.68	I	I	0.0255	0.0284	0.0245	
5	LBMI	LABUHA	-0.64	127.50	286.59	I	I	0.0617	0.0715	0.0353	
6	SANI	SANANA	-2.05	125.99	327.30	I	I	0.0539	NaN	1.3642	
7	LUWI	LUWUK	-1.04	122.77	356.73	I-II	I	0.0774	NaN	0.2107	
8	MRSI	MARISA GORONTALO	0.48	121.94	383.64	I	I	0.0774	0.0706	0.0392	
9	NLAI	NAMLEA MALUKU	-3.24	127.10	491.34	I	I	0.1284	0.0813	0.0725	
10	KRAI	KAIRATU	-3.32	128.40	570.19	I	I	0.0843	0.0657	0.0911	E
11	TTSI	TANATORAJA	-3.05	119.82	753.26	I	I	0.0333	0.0412	0.0069	D



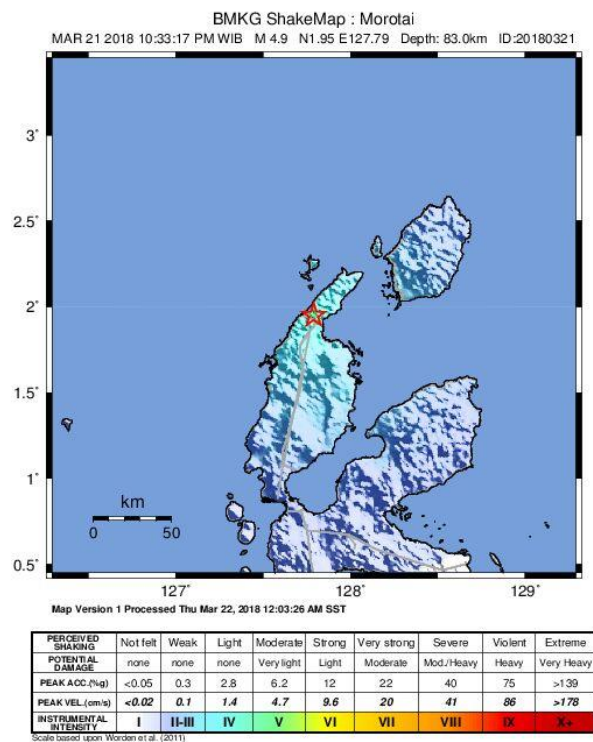
Gambar 79 Peta Guncangan Gempabumi 15 Maret 2018 pukul 11:28:48 WIB



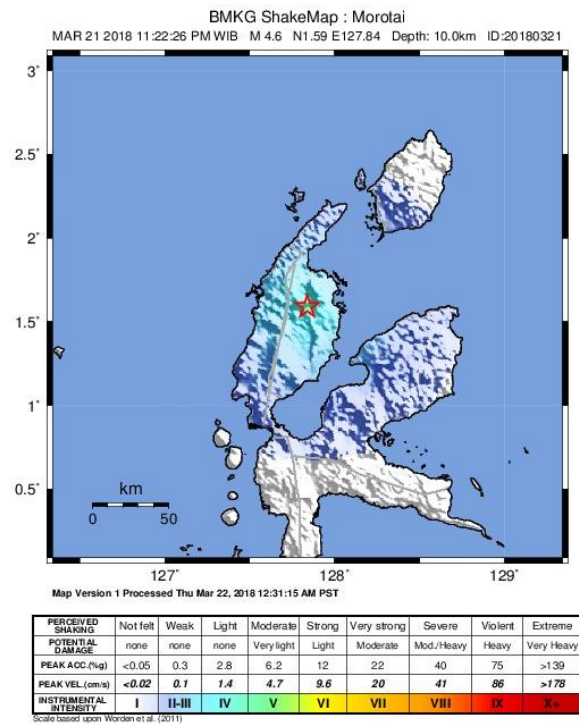
Gambar 80 Peta Guncangan Gempabumi 18 Maret 2018 pukul 18:35:05 WIB



Gambar 81 Peta Guncangan Gempabumi 21 Maret 2018 pukul 10:51:47 WIB



Gambar 82 Peta Guncangan Gempabumi 21 Maret 2018 pukul 22:33:17 WIB

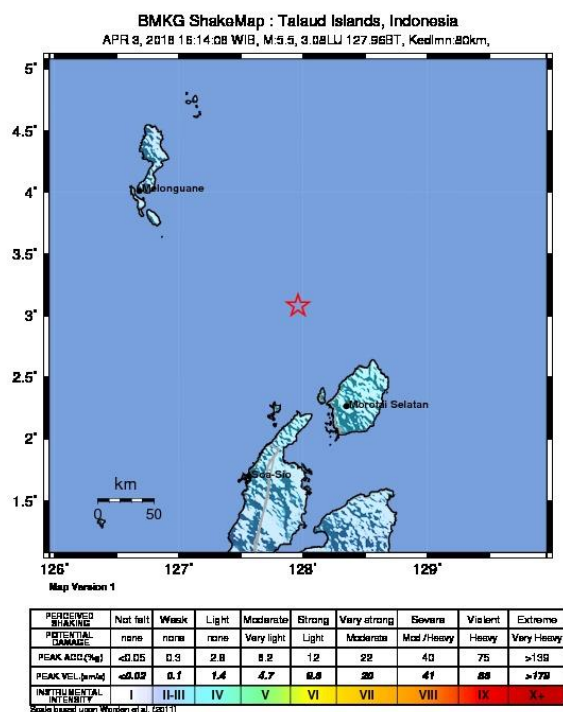


Gambar 83 Peta Guncangan Gempabumi 21 Maret 2018 pukul 23:22:26 WIB

D. Peta Guncangan (*Shakemap*) Gempabumi Bulan April 2018

Tabel 42 Tabel Nilai Percepatan Tanah Gempabumi 3 April 2018

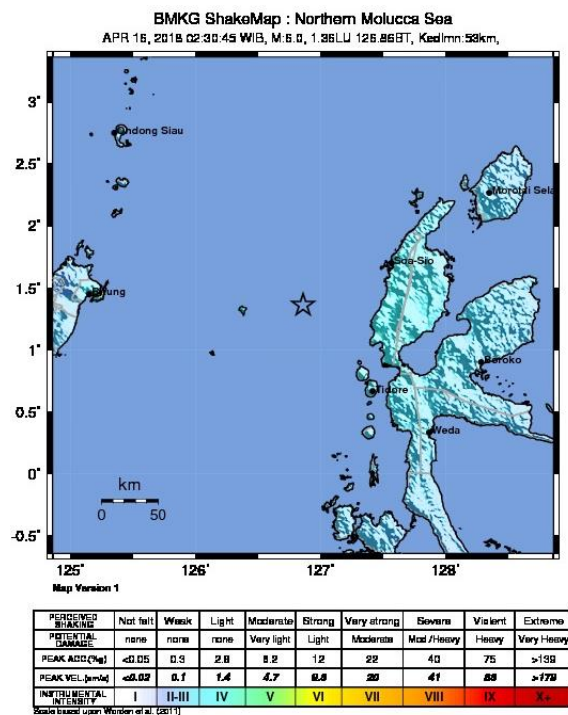
Badan Meteorologi Klimatologi dan Geofisika											
Laporan Kejadian Gempa Bidang Seismologi Teknik											
=====											
Gempabumi 03 April 2018, jam 16:14:08 WIB, Mag:5.5, Lat:3.08°LU, Long:127.96°BT, Kedalaman:80 Km, Talaud Islands, Indonesia											
[No]	IdSta	Stasiun	Latitude	Longitude	Jarak	MMI	SIG	PGA-EW(gal)	PGA-NS(gal)	PGA-UD(gal)	Site Class
1	TNTI	TERNATE	0.77	127.37	275.37	II	I	0.538	NaN	0.4214	
2	TMUN		0.66	127.45	284.61	I	I	0.1107	0.1068	0.0951	
3	BTSI	STA MAR BITUNG	1.44	125.18	366.04	III	II	5.9212	5.2802	4.9431	
4	SAMI	STA MET SAMRATULANGI MANADO	1.54	124.92	385.60	I-II	I	0.4077	0.3107	0.1568	
5	LBMI	LABUHA	-0.64	127.50	422.78	I	I	0.149	0.1588	0.1039	
6	RAPI	RAJA AMPAT	-0.41	130.82	506.70	I	I	0.0823	0.0774	0.0617	
7	KMSI	KOTA MUBAGO	0.57	123.98	527.35	II	I	0.4302	0.2979	0.1901	
8	SWI	SORONG	-0.86	131.26	575.77	I	I	0.1568	0.1107	0.047	
9	SANI	SANANA	-2.05	125.99	614.74	I	I	0.0598	NaN	0.047	
10	NLAI	NAMLEA MALUKU	-3.24	127.10	712.26	I	I	0.0764	0.0637	0.0441	
11	MRSI	MARISA GORONTALO	0.48	121.94	731.87	I	I	0.0216	0.0206	0.0353	
12	LUWI	LUWUK	-1.04	122.77	739.60	I	I	0.1058	NaN	0.0353	
13	FAKI	FAK-FAK	-2.92	132.26	823.49	I	I	0.0098	NaN	0.1901	



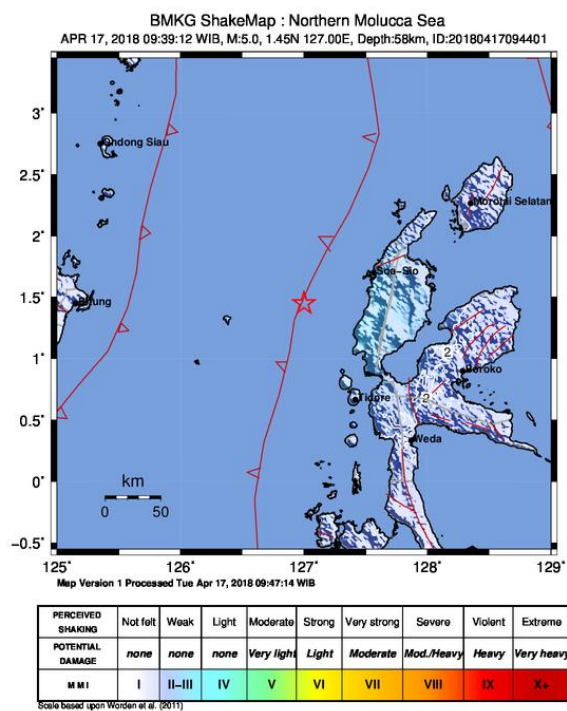
Gambar 84 Peta Guncangan Gempabumi 3 April 2018 pukul 16:14:05 WIB

Tabel 43 Tabel Nilai Percepatan Tanah Gempabumi 16 April 2018

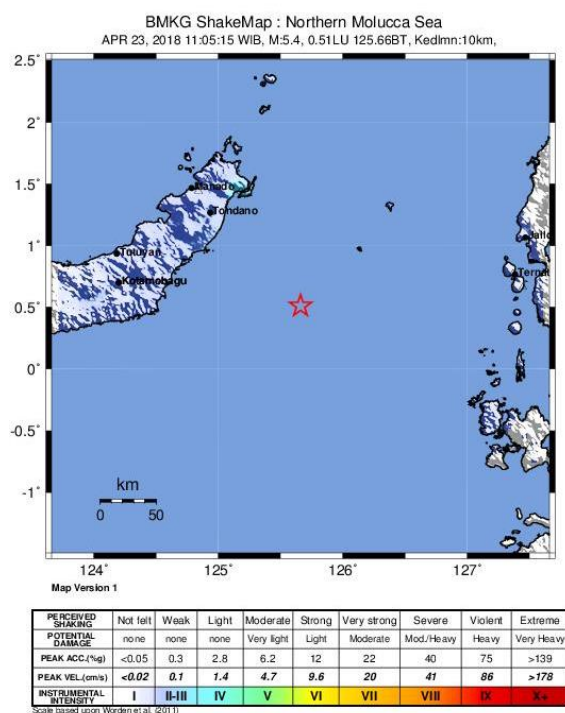
Badan Meteorologi Klimatologi dan Geofisika											
Laporan Kejadian Gempa Bidang Seismologi Teknik											
=====											
Gempabumi 16 April 2018, jam 02:30:45 WIB, Mag:6.0, Lat:1.36°LU, Long:126.86°BT, Kedalaman:53 Km, Northern Molucca Sea											
[No]	[IdSta]	Stasiun	Latitude	Longitude	Jarak	MMI	SIG	[PGA-EW(gal)]	[PGA-NS(gal)]	[PGA-UD(gal)]	[Site Class]
1	TNTI	TERNATE	0.77	127.37	98.26	III-IV	II	12.3157	NaN	0.0225	
2	BTSI	STA MAR BITUNG	1.44	125.18	191.46	IV-V	II	23.9453	25.7466	16.4317	
3	SAMI	STA MET SAMRATULANGI MANADO	1.54	124.92	219.75	II	I	0.7458	0.587	0.3548	
4	SLMI	STA GEOP MANADO	1.44	124.84	228.04	II	I	0.7644	0.7389	0.4047	
5	LBMI	LABUHA	-0.64	127.50	236.29	III	II	2.7871	3.0125	1.6356	
6	KMSI	KOTA MUBAGO	0.57	123.98	333.07	III-IV	II	2.7489	2.6372	1.2828	
7	SANI	SANANA	-2.05	125.99	391.82	I	I	0.7644	NaN	0.247	
8	RAPI	RAJA AMPAT	-0.41	130.82	482.44	I	I	0.0363	0.0314	0.05	
9	SMSI	SUMALATA	0.99	122.36	501.36	I	I	0.049	0.0637	0.0647	
10	NLAI	NAMLEA MALUKU	-3.24	127.10	511.96	II	I	0.8879	0.6282	0.5165	
11	LUWI	LUWUK	-1.04	122.77	526.99	I-II	I	321.54	NaN	0.198	
12	SWI	SORONG	-0.86	131.26	547.73	I	I	0.0245	0.0235	0.0176	
13	MRSI	MARISA GORONTALO	0.48	121.94	555.31	I	I	0.0451	0.0461	0.0353	
14	KDRI	STA MET KENDARI	-3.97	122.59	758.28	I	I	0.1058	0.0608	0.0225	
15	FAKI	FAK-FAK	-2.92	132.26	765.45	I	I	0.0088	NaN	0.0225	
16	MAPI	STA MET MANOKWARI	-0.89	134.05	836.67	IX	V	321.54	0.0088	0.0069	
17	TTSI	TANATORAJA	-3.05	119.82	922.05	I	I	0.0353	0.0323	0.0225	D
18	SPSI	SIDRAP	-3.96	119.77	984.31	I	I	0.0196	0.0167	0.0186	



Gambar 85 Peta Guncangan Gempabumi 16 April 2018 pukul 02:30:42 WIB



Gambar 86 Peta Guncangan Gempabumi 17 April 2018 pukul 09:39:12 WIB



Gambar 87 Peta Guncangan Gempabumi 23 April 2018 pukul 11:05:15 WIB

Tabel 44 Tabel Nilai Percepatan Tanah Gempabumi 23 April 2018

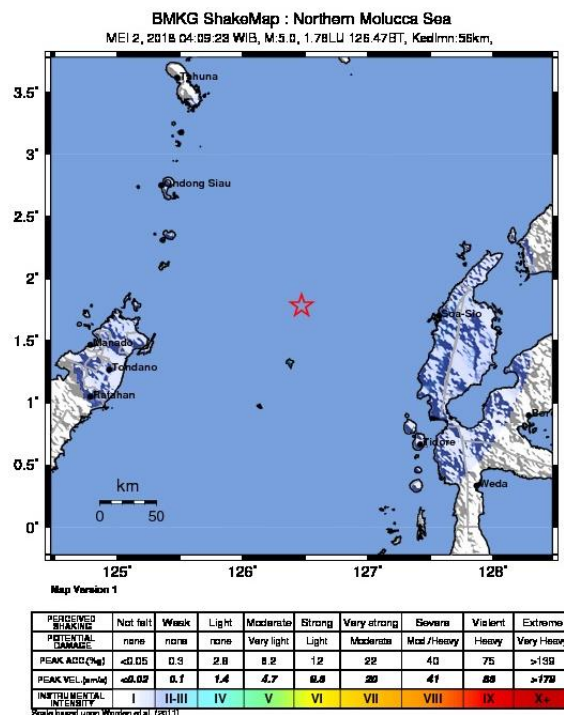
Badan Meteorologi Klimatologi dan Geofisika											
Laporan Kejadian Gempa Bidang Seismologi Teknik											
=====											
Gempabumi 23 April 2018, jam 11:05:15 WIB, Mag:5.4, Lat:0.51°LU, Long:125.66°BT, Kedalaman:10 Km, Northern Molucca Sea											

No	IdSta	Stasiun	Latitude	Longitude	Jarak	MMI	SIG	PGA-EW(gal)	PGA-NS(gal)	PGA-UD(gal)	Site Class
1	BTST	STA MAR BITUNG	1.44	125.18	115.94	IV	II	34.788	33.7914	22.1892	
2	SLMI	STA GEOP MANADO	1.44	124.84	137.33	II	I	1.4749	0.9408	0.6644	
3	SAMI	STA MET SAMRATULANGI MANADO	1.54	124.92	139.76	II	I	1.6582	1.2642	0.6674	
4	KMSI	KOTA MUBAGO	0.57	123.98	185.88	III	II	2.3491	2.6529	1.3161	
5	TNTI	TERNATE	0.77	127.37	191.07	I	I	0.4792	NaN	0.3018	
6	TMUN		0.66	127.45	198.36	I	I	0.1294	0.1686	0.1313	
7	LBMI	LABUHA	-0.64	127.50	240.24	I	I	0.3263	0.4763	0.2754	
8	SANI	SANANA	-2.05	125.99	285.72	I	I	0.1127	0.9408	0.1166	
9	GMCI	STA MET GORONTALO	0.63	122.85	311.69	II-III	I	1.7081	0.882	0.5802	D
10	SMSI	SUMALATA	0.99	122.36	369.14	I	I	0.0647	0.0715	0.0519	
11	MRSI	MARISA GORONTALO	0.48	121.94	412.47	I	I	0.047	0.0578	0.0323	
12	NLAI	NAMLEA MALUKU	-3.24	127.10	445.46	I	I	0.5106	0.4194	0.2695	
13	KRAI	KAIRATU	-3.32	128.40	522.00	I	I	0.1911	0.2185	0.0921	E
14	RAPI	RAJA AMPAT	-0.41	130.82	581.83	I	I	0.0049	0.0039	0.0108	

E. Peta Guncangan (*Shakemap*) Gempabumi Bulan Mei 2018

Tabel 45 Tabel Nilai Percepatan Tanah Gempabumi 2 Mei 2018

Badan Meteorologi Klimatologi dan Geofisika Laporan Kejadian Gempa Bidang Seismologi Teknik											
=====											
Gempabumi 02 Mei 2018, jam 04:09:23 WIB, Mag:5.0, Lat:1.78°LU, Long:126.47°BT, Kedalaman:56 Km, Northern Molucca Sea											
No	IdSta	Stasiun	Latitude	Longitude	Jarak	MMI	SIG	PGA-EW(gal)	PGA-NS(gal)	PGA-UD(gal)	Site Class
1	TNTI	TERNATE	0.77	127.37	149.27	I	I	0.3636	NaN	0.4136	
2	TMUN		0.66	127.45	164.04	I	I	0.0412	0.0451	0.049	
3	SLMI	STA GEOF MANADO	1.44	124.84	184.37	I-II	I	0.3067	0.2969	0.1705	
4	LBMI	LABUHA	-0.64	127.50	291.53	I	I	0.0608	0.0931	0.049	
5	KMSI	ROTA MUBAGO	0.57	123.98	306.71	II	I	0.2293	0.2244	0.1343	
6	SANI	SANANA	-2.05	125.99	428.25	I	I	0.3067	NaN	0.0127	
7	SMSI	SUMALATA	0.99	122.36	463.98	I	I	0.0059	0.0069	0.0059	
8	LUWI	LUWUK	-1.04	122.77	516.45	I	I	0.0304	0.0118	0.0265	
9	MRSI	MARISA GORONTALO	0.48	121.94	523.17	I	I	0.0118	0.0118	0.0118	
10	NLAI	NAMLEA MALUKU	-3.24	127.10	561.71	I	I	0.0265	0.0216	0.0235	

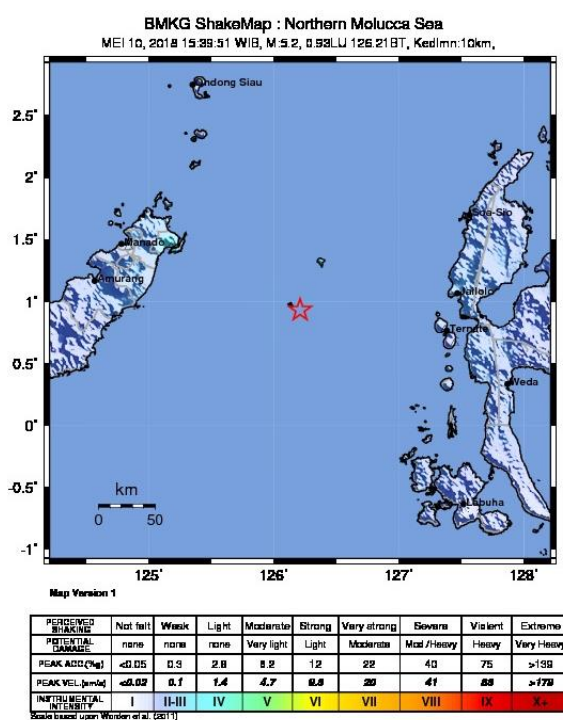


Gambar 88 Peta Guncangan Gempabumi 2 Mei 2018 pukul 04:09:20 WIB

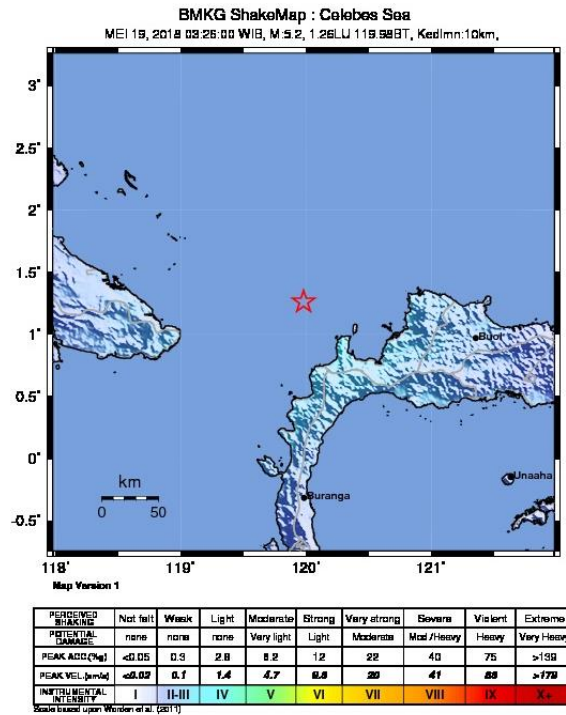
Tabel 46 Tabel Nilai Percepatan Tanah Gempabumi 10 Mei 2018

Badan Meteorologi Klimatologi dan Geofisika											
Laporan Kejadian Gempa Bidang Seismologi Teknik											
=====											
Gempabumi 10 Mei 2018, jam 15:39:51 WIB, Mag:5.2, Lat:0.93°LU, Long:126.21°BT, Kedalaman:10 Km, Northern Molucca Sea											
[No]	IdSta	Stasiun	Latitude	Longitude	Jarak	MMI	SIG	PGA-EW(gal)	PGA-NS(gal)	PGA-UD(gal)	Site Class

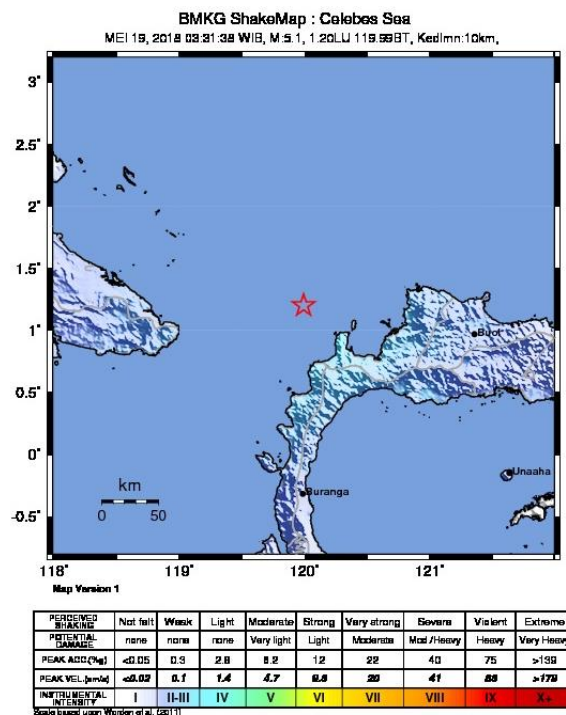
1	BTSI	STA MAR BITUNG	1.44	125.18	127.04	V	II	59.1822	56.4098	60.2514	
2	TNTI	TERNATE	0.77	127.37	128.84	II	I	0.5419	NaN	0.3489	
3	TMUN		0.66	127.45	139.57	I	I	0.1049	0.1049	0.0265	
4	SLMI	STA GEOF MANADO	1.44	124.84	161.75	II-III	I	3.3967	2.6705	1.4494	
5	LBMI	LABUHA	-0.64	127.50	224.84	I	I	0.1627	0.1352	0.1205	
6	KMSI	KOTA MUBAGO	0.57	123.98	249.97	III	II	1.4249	2.1834	0.9771	
7	SANI	SANANA	-2.05	125.99	331.05	I	I	3.3967	NaN	0.0304	
8	SMSI	SUMALATA	0.99	122.36	426.54	I	I	0.0363	0.0314	0.0333	
9	LWUI	LUWUK	-1.04	122.77	439.69	I	I	0.0637	NaN	0.1019	
10	NLAI	NAMLEA MALUKU	-3.24	127.10	473.02	I	I	0.0637	0.0608	0.0559	



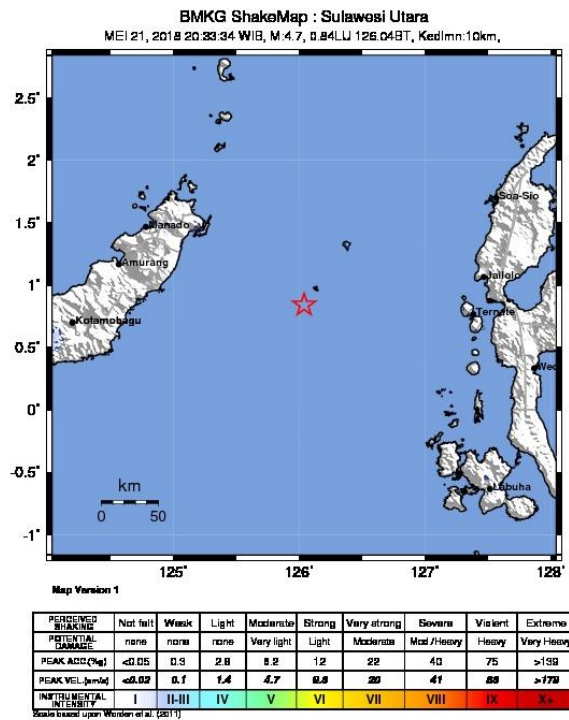
Gambar 89 Peta Guncangan Gempabumi 10 Mei 2018 pukul 15:39:51 WIB



Gambar 90 Peta Guncangan Gempabumi 19 Mei 2018 pukul 03:25:00 WIB

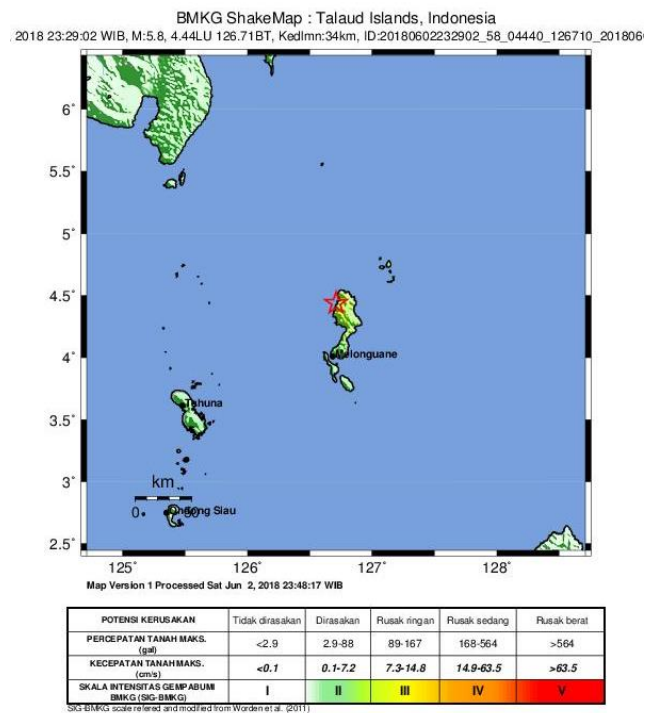


Gambar 91 Peta Guncangan Gempabumi 19 Mei 2018 pukul 03:31:38 WIB

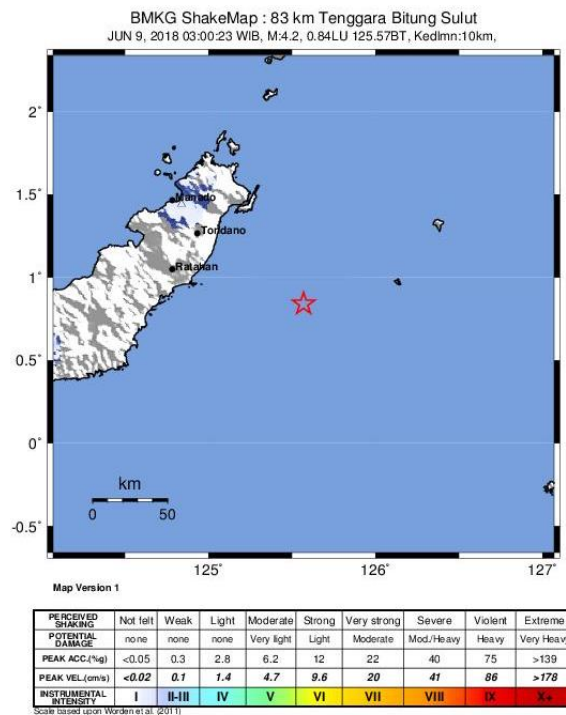


Gambar 92 Peta Guncangan Gempabumi 21 Mei 2018 pukul 20:33:34 WIB

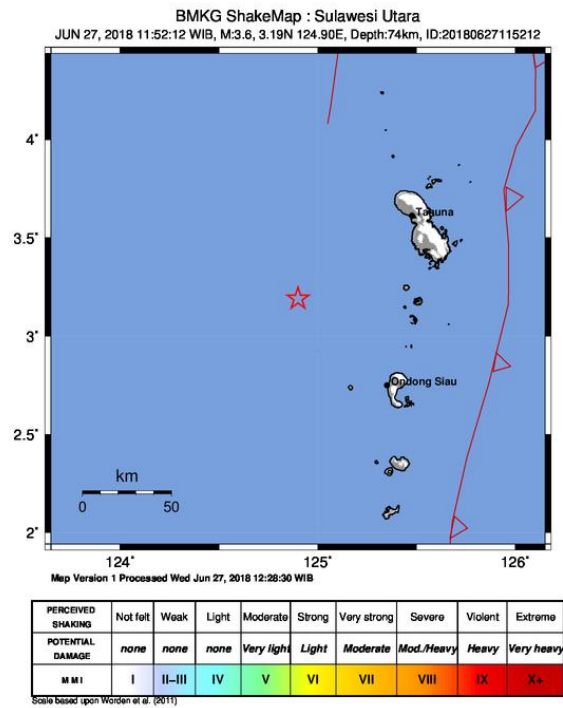
F. Peta Guncangan (*Shakemap*) Gempabumi Bulan Juni 2018



Gambar 93 Peta Guncangan Gempabumi tanggal 2 Juni 2018 pukul 23:28:59 WIB

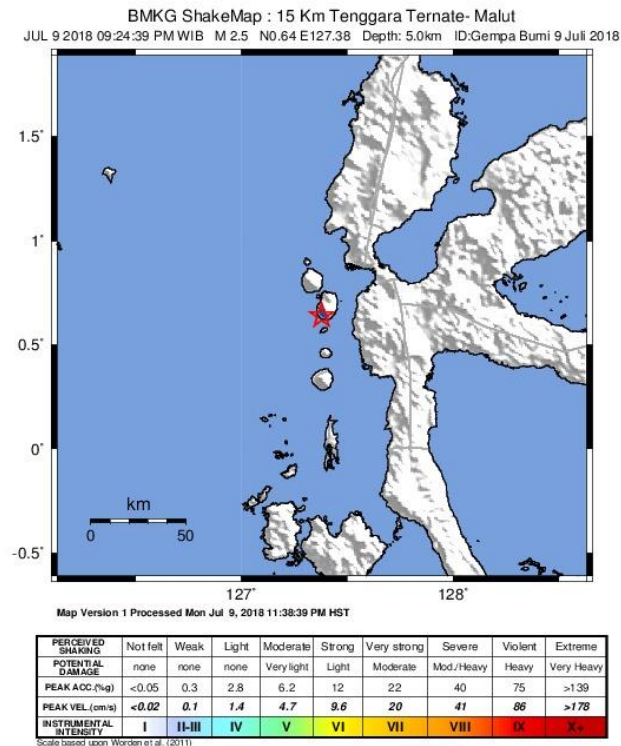


Gambar 94 Peta Guncangan Gempabumi 9 Juni 2018 pukul 03:00:03 WIB

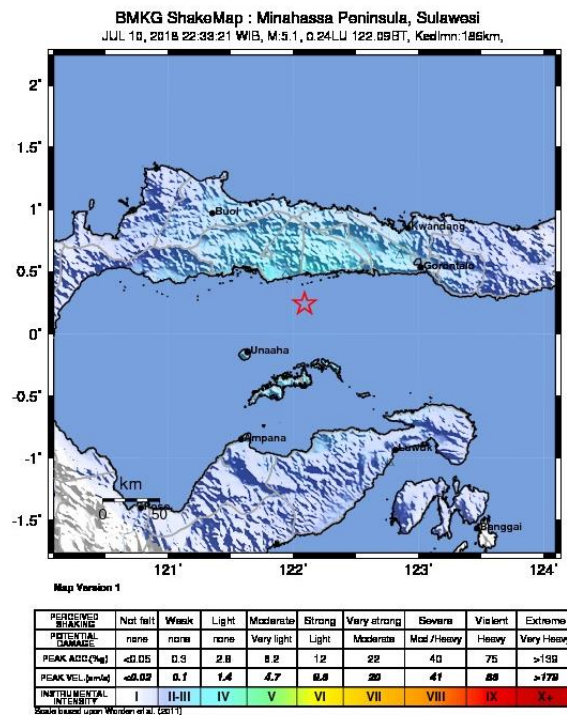


Gambar 95 Peta Guncangan Gempabumi 27 Juni 2018 pukul 11:52:12 WIB

G. Peta Guncangan (*Shakemap*) Gempabumi Bulan Juli 2018



Gambar 96 Peta Guncangan Gempabumi 9 Juli 2018 pukul 24:24:39 WIB



Gambar 97 Peta Guncangan Gempabumi 10 Juli 2018

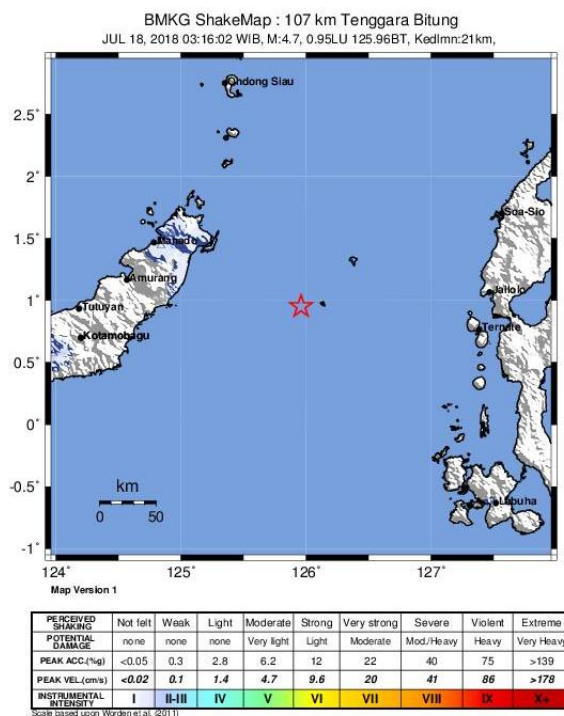
Tabel 47 Tabel Nilai Percepatan Tanah Gempabumi 10 Juli 2018

Badan Meteorologi Klimatologi dan Geofisika												
Laporan Kejadian Gempa Bidang Seismologi Teknik												
=====												
Gempabumi 10 Juli 2018, jam 22:33:21 WIB, Mag:5.1, Lat:0.24°LU, Long:122.09°BT, Kedalaman:186 Km, Minahassa Peninsula, Sulawesi												

No	IdSta	Stasiun	Latitude	Longitude	Jarak	MMI	SIG	PGA-EW(gal)	PGA-NS(gal)	PGA-UD(gal)	Site Class	
1	MRSI	MARISA GORONTALO	0.48	121.94	30.29	II-III	I	3.6387	3.626	2.2275		
2	SMSI	SUMALATA	0.99	122.36	87.81	II-III	I	5.1381	6.9413	2.743		
3	GMCI	STA MET GORONTALO	0.63	122.85	94.13	III-IV	II	7.2157	7.6411	2.1393	D	

Tabel 48 Tabel Nilai Percepatan Tanah Gempabumi 18 Juli 2018

Badan Meteorologi Klimatologi dan Geofisika											
Laporan Kejadian Gempa Bidang Seismologi Teknik											
=====											
Gempabumi 18 Juli 2018, jam 03:16:02 WIB, Mag:4.7, Lat:0.95°LU, Long:125.96°BT, Kedalaman:21 Km, 107 km Tenggara											
=====											
No	IdSta	Stasiun	Latitude	Longitude	Jarak	MMI	SIG	PGA-EW(gal)	PGA-NS(gal)	PGA-UD(gal)	Site Class
1	SAMI	STA MET SAMRATULANGI MANADO	1.54	124.92	132.57	II	I	1.4259	1.4994	0.5018	
2	SLMI	STA GEOF MANADO	1.44	124.84	136.15	II	I	1.7728	1.5533	0.7409	
3	TNTI	TERNATE	0.77	127.37	157.68	I	I	0.1147	NaN	0.0804	
4	TMUN		0.66	127.45	168.24	I	I	0.0255	0.0284	0.0588	
5	KMSI	KOTA MUBAGO	0.57	123.98	223.96	I-II	I	0.5772	0.8222	0.3312	
6	LBMI	LABUHA	-0.64	127.50	246.04	I	I	0.1597	0.2205	0.0794	
7	SANI	SANANA	-2.05	125.99	333.37	I	I	0.096	1.5533	0.1568	
8	SMSI	SUMALATA	0.99	122.36	399.71	I	I	0.0147	0.0167	0.0157	
9	LUWI	LUWUK	-1.04	122.77	417.98	I	I	0.051	0.0059	0.0353	
10	MRSI	MARISA GORONTALO	0.48	121.94	449.94	I	I	0.0157	0.0137	0.0088	
11	NLAI	NAMLEA MALUKU	-3.24	127.10	482.72	I	I	0.1754	0.1872	0.1529	
12	KRAI	KAIRATU	-3.32	128.40	546.36	I	I	0.0911	0.0617	0.0333	E
13	KDRI	STA MET KENDARI	-3.97	122.59	662.97	I	I	0.0696	0.1245	0.2509	
14	MPSI	MAPAGA SABANG PALU	0.34	119.90	677.45	I	I	0.0088	0.0059	0.0039	C



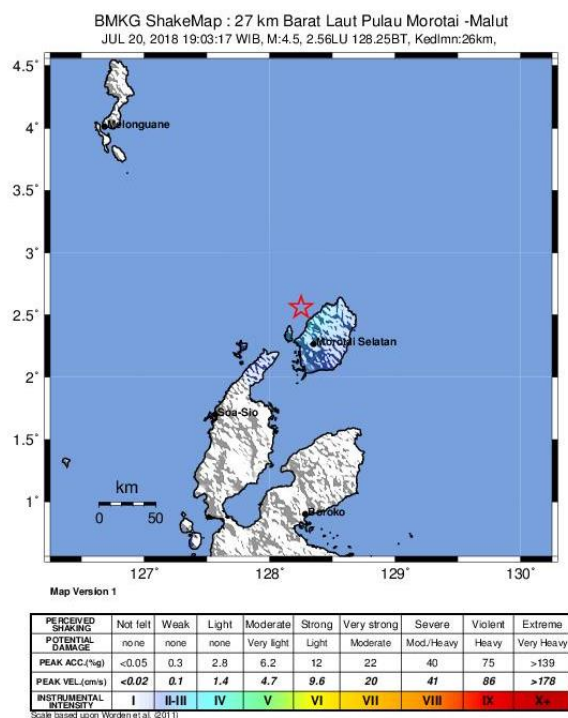
Gambar 98 Peta Guncangan Gempabumi 18 Juli 2018 pukul 03:16:02 WIB

Tabel 49 Tabel Nilai Percepatan Tanah Gempabumi 20 Juli 2018

Badan Meteorologi Klimatologi dan Geofisika
Laporan Kejadian Gempa Bidang Seismologi Teknik
=====

Gempabumi 19 Juli 2018, jam 19:23:36 WIB, Mag:5.5, Lat:9.8°LS, Long:112.72°BT, Kedalaman:46 Km, South of Java,

No	IdSta	Stasiun	Latitude	Longitude	Jarak	MMI	SIG	PGA-EW(gal)	PGA-NS(gal)	PGA-UD(gal)	Site Class
1	KRK	KARANGKATES	-8.15	112.45	189.81	III	II	4.3806	4.5844	3.9514	D
2	TAJN		-8.08	111.91	214.83	II	I	0.6635	0.587	0.2019	
3	MAKO	STA KLIM KARANG PLOSO MALANG	-7.90	112.60	215.12	I-II	I	0.6429	0.9731	0.3175	D
4	JAGI	JAJAG BANYUWANGI	-8.47	114.15	219.25	II	I	1.5347	NaN	3.9514	
5	TRES	STA GEOF TRETES	-7.71	112.63	236.23	I	I	0.2587	0.2852	0.1568	C
6	SWJI	SAWAHAN	-7.73	111.77	255.13	II-III	I	2.8596	2.1256	0.9045	D
7	NEKI	STA KLIM NEGARA BALI	-8.34	114.62	266.68	I	I	0.3508	0.2421	0.2421	D
8	DNP	DENPASAR	-8.68	115.21	302.54	II-III	I	1.7552	2.0198	1.0613	D
9	NGJI	NGAWI JATIM	-7.37	111.46	305.90	I-II	I	0.2901	0.2127	0.1901	E
10	UGM	WANAGAMA	-7.91	110.52	321.84	I-II	I	0.4038	NaN	0.2538	
11	GRJI	GRESIK	-6.91	112.48	323.82	I	I	0.1666	0.1539	0.1078	
12	SRBI	SINGARAJA BALI	-8.08	115.21	335.46	I	I	0.1186	0.1509	0.1362	C
13	MASE	STA MET SELAPARANG MATARAM	-8.56	116.17	403.87	I	I	0.1372	0.1284	0.0696	D
14	TWSI	TALIWANG	-8.74	116.88	472.62	I	I	0.1499	0.1313	0.0696	
15	CMJI	CIMERAK CIAMIS	-7.78	108.45	520.76	I	I	0.0725	0.0706	0.0598	C
16	DBNI	BIMA	-8.50	118.31	630.93	I	I	0.0539	0.0578	0.0402	
17	CNJI	CIANJUR	-7.31	107.13	674.36	I	I	0.0147	0.0157	0.0078	
18	MKS	GOWA	-5.22	119.47	901.43	I	I	0.0108	0.0108	0.0245	
19	EDFI	ENDE	-8.75	121.69	990.99	I	I	0.0098	0.0078	0.0078	



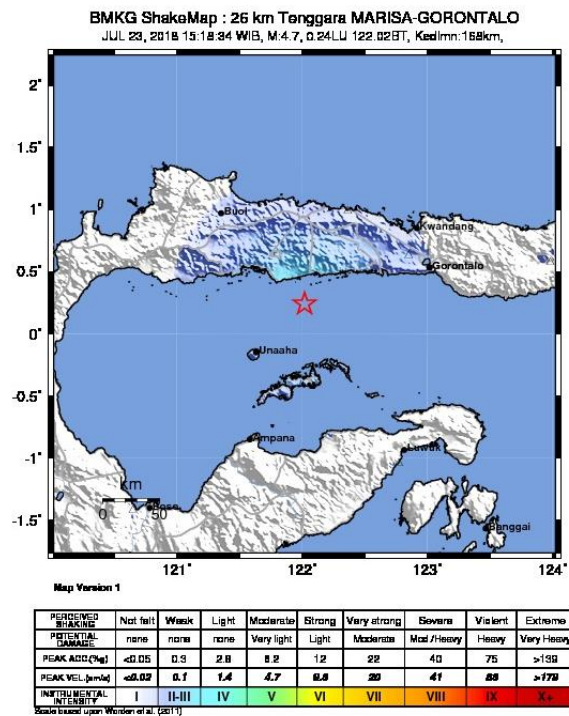
Gambar 99 Peta Guncangan Gempabumi 20 Juli 2018 pukul 19:03:17 WIB

Tabel 50 Tabel Nilai Percepatan Tanah Gempabumi 23 Juli 2018

Badan Meteorologi Klimatologi dan Geofisika
Laporan Kejadian Gempa Bidang Seismologi Teknik
=====

Gempabumi 23 Juli 2018, jam 15:18:34 WIB, Mag:4.7, Lat:0.24°LU, Long:122.02°BT, Kedalaman:168 Km, 26 km Tenggara

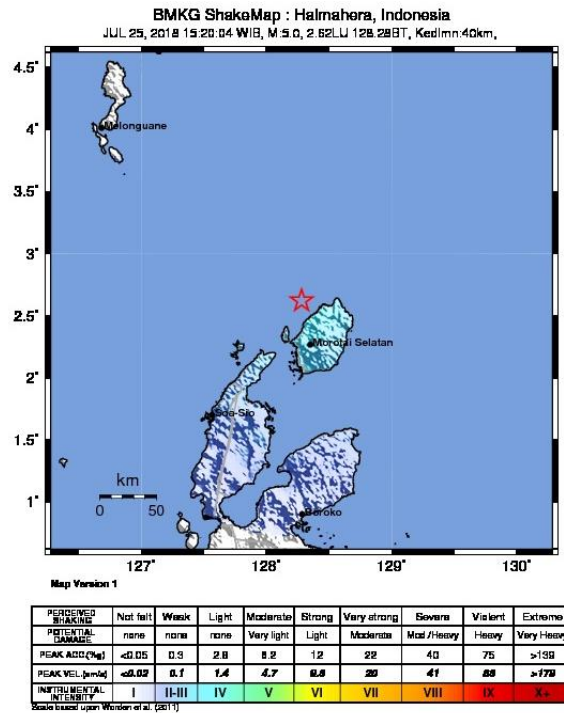
No	IdSta	Stasiun	Latitude	Longitude	Jarak	MMI	SIG	PGA-EW(gal)	PGA-NS(gal)	PGA-UD(gal)	Site Class
1	SMSI	SUMALATA	0.99	122.36	91.64	I	I	1.4984	1.8159	0.7507	D
2	GMCI	STA MET GORONTALO	0.63	122.85	101.97	II-III	I	1.8796	2.0443	0.9878	
3	LWUI	Luwuk	-1.04	122.77	165.25	I	I	0.3107	NaN	0.1686	
4	KMSI	ROTA MUBAGO	0.57	123.98	221.20	I	I	0.2871	0.3675	0.2058	C
5	MPSI	MAPAGA SABANG PALU	0.34	119.90	236.20	I	I	0.3107	0.3479	0.1793	
6	PMCI	STA MET POSO	-1.42	120.65	239.32	I	I	0.1754	0.1774	0.1774	
7	SANI	SANANA	-2.05	125.99	509.24	I	I	1.4984	NaN	0.0108	
8	BASO	BARU SULAWESI	-4.53	119.62	593.63	I	I	0.0137	0.0147	0.0137	
9	TKUN		3.31	117.58	600.11	I	I	0.1568	0.2773	0.3342	
10	BNDI	BANDANEIRA	-4.31	129.54	977.18	I	I	0.1441	2.0443	0.1774	



Gambar 100 Peta Guncangan Gempabumi 23 Juli 2018 pukul 15:18:34 WIB

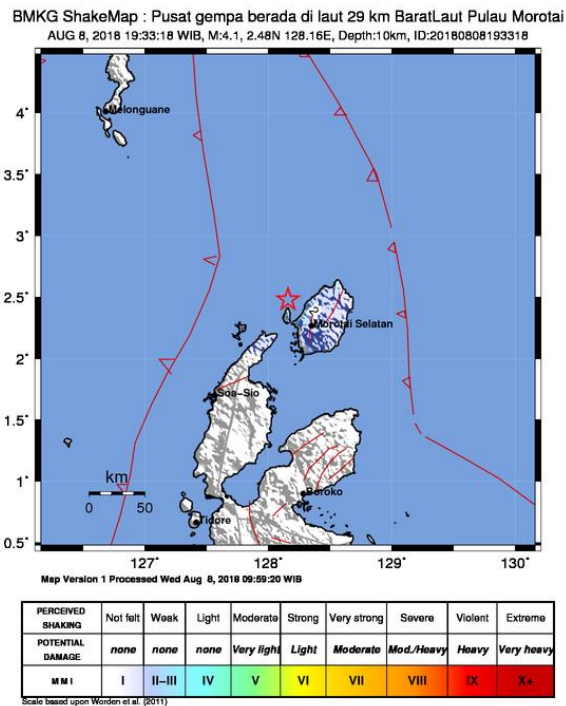
Tabel 51 Tabel Nilai Percepatan Tanah Gempabumi 25 Juli 2018

Badan Meteorologi Klimatologi dan Geofisika Laporan Kejadian Gempa Bidang Seismologi Teknik											
Gempabumi 25 Juli 2018, jam 15:20:04 WIB, Mag:5.0, Lat:2.62°LU, Long:128.28°BT, Kedalaman:40 Km, Halmahera, Indonesia											
No	IdSta	Stasiun	Latitude	Longitude	Jarak	MMI	SIG	PGA-EW(gal)	PGA-NS(gal)	PGA-UD(gal)	Site Class
1	TNTI	TERNATE	0.77	127.37	228.42	I	I	0.0862	NaN	0.0715	
2	SAMI	STA MET SAMRATULANGI MANADO	1.54	124.92	391.34	I	I	0.0755	0.0706	0.0911	
3	RAPI	RAJA AMPAT	-0.41	130.82	438.93	I	I	0.0137	0.0098	0.0167	
4	SWI	SORONG	-0.86	131.26	508.80	I	I	0.0412	0.0196	0.0127	
5	KMSI	KOTA MUBAGO	0.57	123.98	528.44	I	I	0.0412	0.0637	0.0794	
6	SANI	SANANA	-2.05	125.99	577.46	I	I	0.0049	NaN	0.0059	
7	SMSI	SUMALATA	0.99	122.36	681.19	I	I	0.0196	0.0118	0.0059	

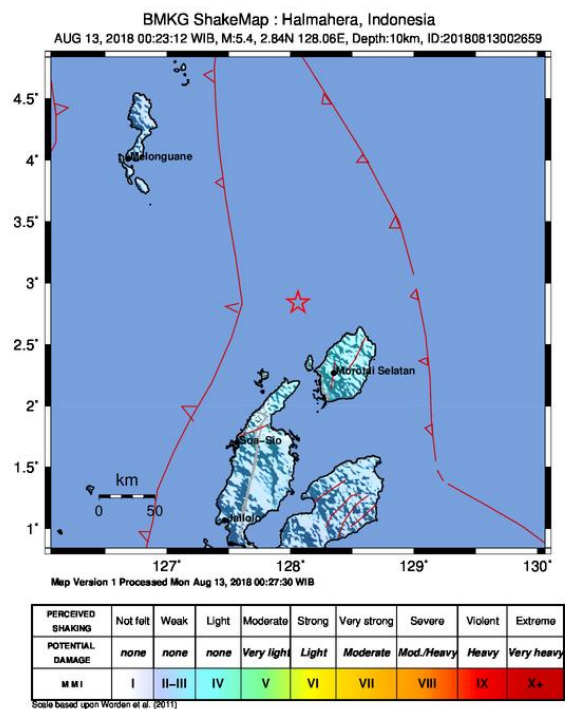


Gambar 101 Peta Guncangan Gempabumi 25 Juli 2018 pukul 15:20:01 WIB

H. Peta Guncangan (*Shakemap*) Gempabumi Bulan Agustus 2018



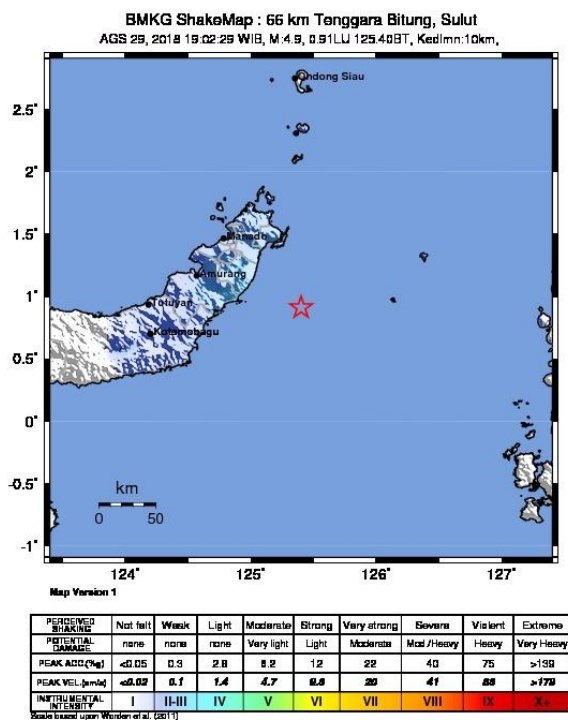
Gambar 102 Peta Guncangan Gempabumi 8 Agustus 2018 pukul 19:33:18 WIB



Gambar 103 Peta Guncangan Gempabumi 13 Agustus 2018 pukul 00:23:12 WIB

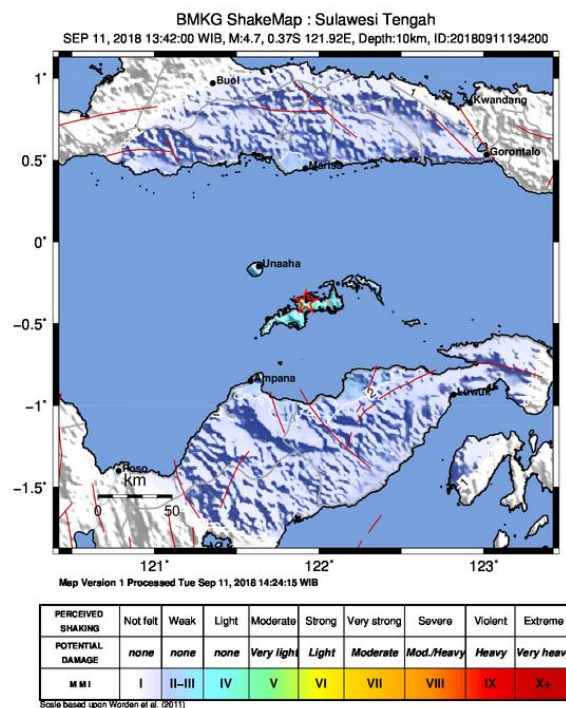
Tabel 52 Tabel Nilai Percepatan Tanah Gempabumi 29 Agustus 2018

Badan Meteorologi Klimatologi dan Geofisika Laporan Kejadian Gempa Bidang Seismologi Teknik											
Gempabumi 29 Agustus 2018, jam 19:02:29 WIB, Mag:4.9, Lat:0.91°LU, Long:125.40°BT, Kedalaman:10 Km, 66 km Tenggara											
No	IdSta	Stasiun	Latitude	Longitude	Jarak	MMI	SIG	PGA-EW(gal)	PGA-NS(gal)	PGA-UD(gal)	Site Class
1	SLMI	STA GEOF MANADO	1.44	124.84	86.04	II	I	1.6925	1.7581	1.2054	
2	SAMI	STA MET SAMRATULANGI MANADO	1.54	124.92	87.66	II	I	2.5725	2.3618	1.1221	
3	KMSI	KOTA MUBAGO	0.57	123.98	162.12	II-III	I	2.6078	2.1403	1.2005	
4	TNTI	TERNATE	0.77	127.37	219.23	I	I	0.0519	NaN	0.0392	
5	SANI	SANANA	-2.05	125.99	335.34	I	I	0.0363	1.7581	0.0343	
6	MJNE	STA MET MAJENE	-3.55	118.98	868.93	I	I	0.1284	0.2783	0.1294	C

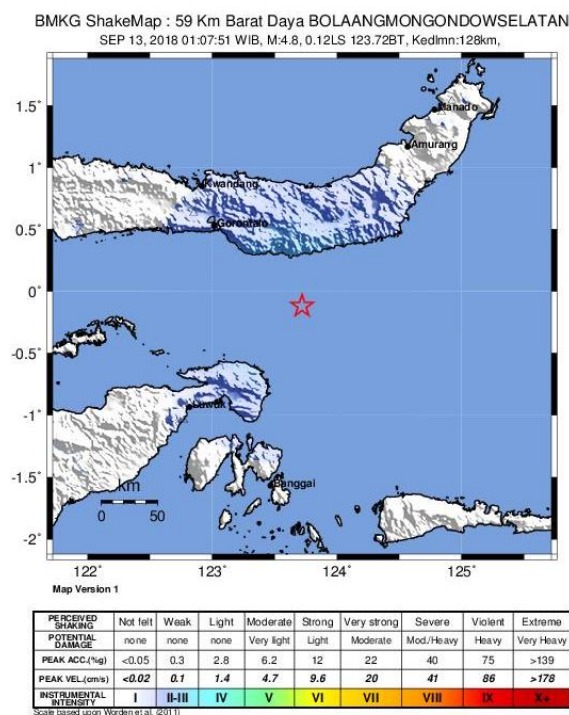


Gambar 104 Peta Guncangan Gempabumi 29 Agustus 2018 pukul 19:02:29 WIB

I. Peta Guncangan (*Shakemap*) Gempabumi Bulan September 2018



Gambar 105 Peta Guncangan Gempabumi 11 September 2018 pukul 13:42:00 WIB



Gambar 106 Peta Guncangan Gempabumi 13 September 2018 pukul 01:07:51 WIB

Tabel 53 Tabel Nilai Percepatan Tanah Gempabumi tanggal 13 September 2018

Badan Meteorologi Klimatologi dan Geofisika
Laporan Kejadian Gempa Bidang Seismologi Teknik
=====

Gempabumi 13 September 2018, jam 01:07:51 WIB, Mag:4.8, Lat:0.12°LS, Long:123.72°BT, Kedalaman:128 Km, 59 Km Barat

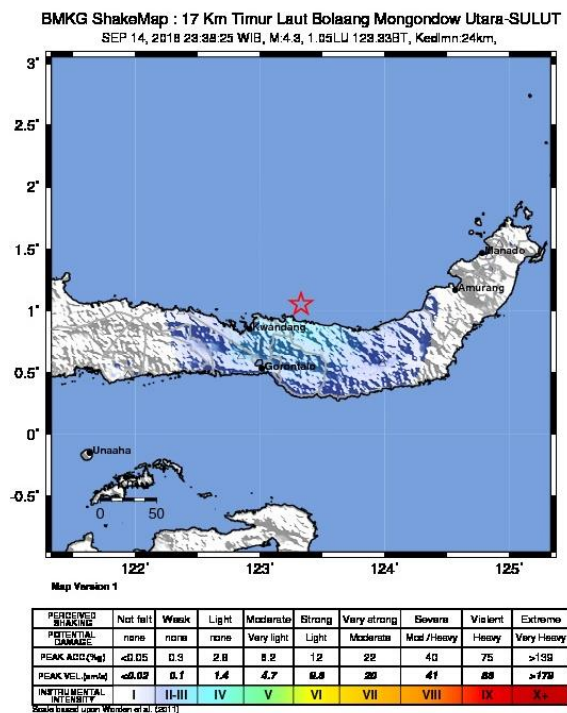
No	IdSta	Stasiun	Latitude	Longitude	Jarak	MMI	SIG	PGA-EW(gal)	PGA-NS(gal)	PGA-UD(gal)	Site Class
1	KMSI	KOTA MUBAGO	0.57	123.98	82.50	II	I	0.6507	0.98	0.5782	
2	GMCI	STA MET GORONTALO	0.63	122.85	127.72	II	I	1.2524	1.0251	0.3244	D
3	LUWI	LUWUK	-1.04	122.77	147.03	I-II	I	2.0531	NaN	0.0088	
4	SMSI	SUMALATA	0.99	122.36	194.66	I	I	0.0813	0.0882	0.0774	
5	MRSI	MARISA GORONTALO	0.48	121.94	208.66	I	I	0.0706	0.0696	0.0627	
6	SLMI	STA GEOF MANADO	1.44	124.84	213.74	I	I	0.0265	0.0206	0.0216	
7	SAMI	STA MET SAMRATULANGI MANADO	1.54	124.92	227.61	I	I	0.0255	0.0372	0.05	
8	SANI	SANANA	-2.05	125.99	330.95	I	I	0.2087	NaN	0.0216	
9	TNTI	TERNATE	0.77	127.37	417.47	I	I	0.0608	NaN	0.0118	
10	TMUN		0.66	127.45	423.39	I	I	0.0176	0.0255	0.0176	
11	LBMI	LABUHA	-0.64	127.50	424.34	I	I	0.2205	0.2646	0.0588	
12	MPSI	MAPAGA SABANG PALU	0.34	119.90	428.02	I	I	0.0284	0.0137	0.0088	C
13	MSBA	STA MET MASAMBA	-2.56	120.32	464.55	I	I	0.0372	0.0529	0.0372	D
14	NLAI	NAMLEA MALUKU	-3.24	127.10	511.25	I	I	0.0588	0.0549	0.1205	
15	TTSI	TANATORAJA	-3.05	119.82	542.00	I	I	0.0314	0.0255	0.0118	D
16	KRAI	KAIRATU	-3.32	128.40	629.60	I	I	0.0284	0.0176	0.0108	E

Tabel 54 Tabel Nilai Percepatan Tanah Gempabumi tanggal 14 September 2018

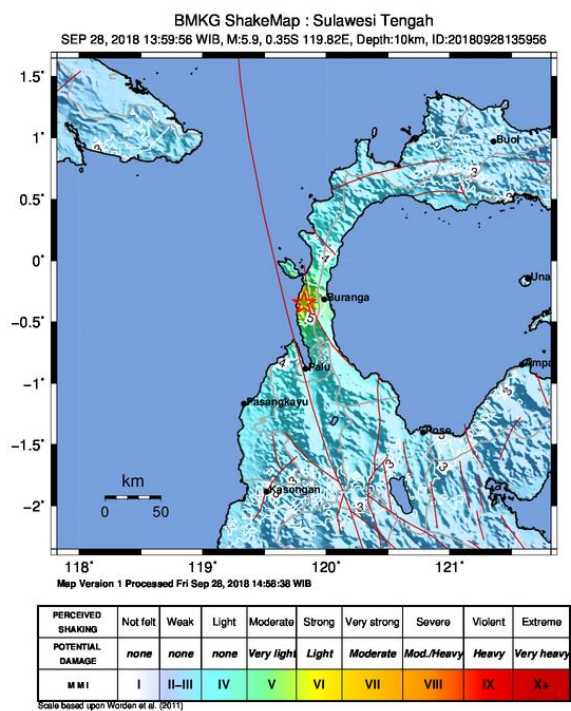
Badan Meteorologi Klimatologi dan Geofisika
Laporan Kejadian Gempa Bidang Seismologi Teknik
=====

Gempabumi 14 September 2018, jam 23:38:25 WIB, Mag:4.3, Lat:1.05°LU, Long:123.33°BT, Kedalaman:24 Km, 17 Km Timur

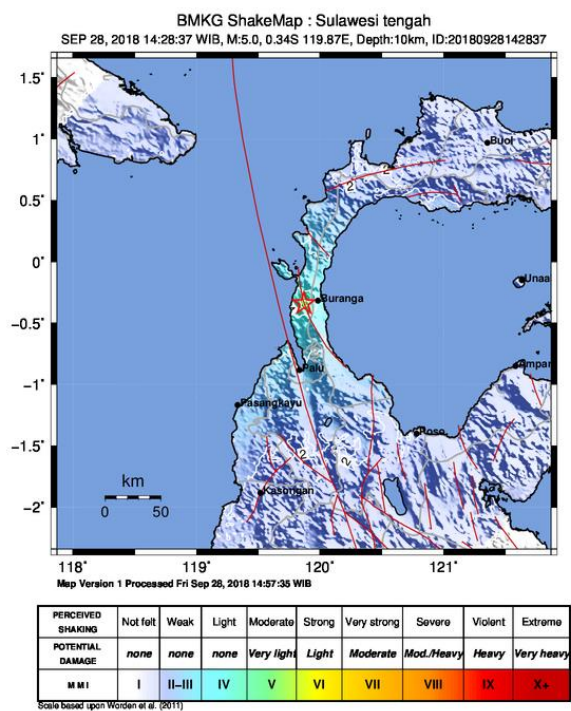
No	IdSta	Stasiun	Latitude	Longitude	Jarak	MMI	SIG	PGA-EW(gal)	PGA-NS(gal)	PGA-UD(gal)	Site Class
1	GMCI	STA MET GORONTALO	0.63	122.85	70.92	III	II	5.7438	7.3167	2.1883	D
2	KMSI	KOTA MUBAGO	0.57	123.98	89.64	I-II	I	0.9751	1.5396	0.3685	
3	SMSI	SUMALATA	0.99	122.36	107.50	I	I	0.5674	0.8859	0.2901	
4	MRSI	MARISA GORONTALO	0.48	121.94	167.06	I	I	0.0735	0.0764	0.1117	
5	SAMI	STA MET SAMRATULANGI MANADO	1.54	124.92	185.08	I	I	0.1588	0.098	0.0735	
6	LUWI	LUWUK	-1.04	122.77	240.73	I	I	0.0892	NaN	0.0137	
7	MPSI	MAPAGA SABANG PALU	0.34	119.90	389.73	I	I	0.0255	0.0137	0.0137	C



Gambar 107 Peta Guncangan Gempabumi 14 September 2018 pukul 23:38:25 WIB



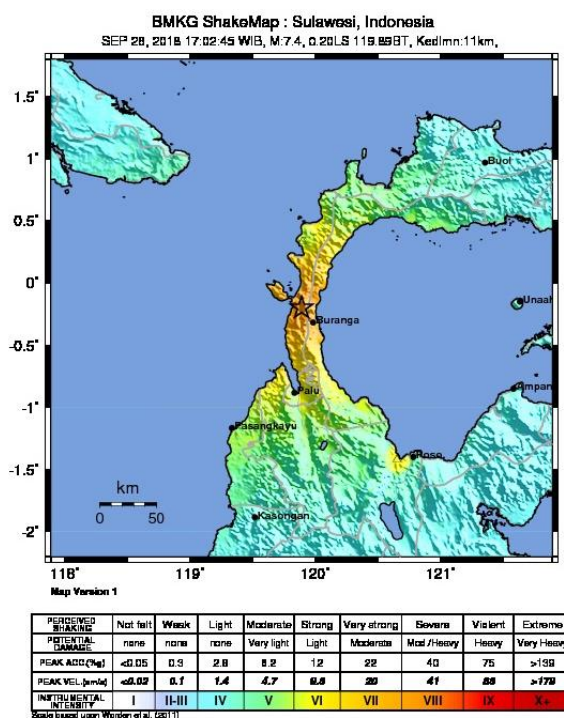
Gambar 108 Peta Guncangan Gempabumi 28 September 2018 pukul 13:59:56 WIB



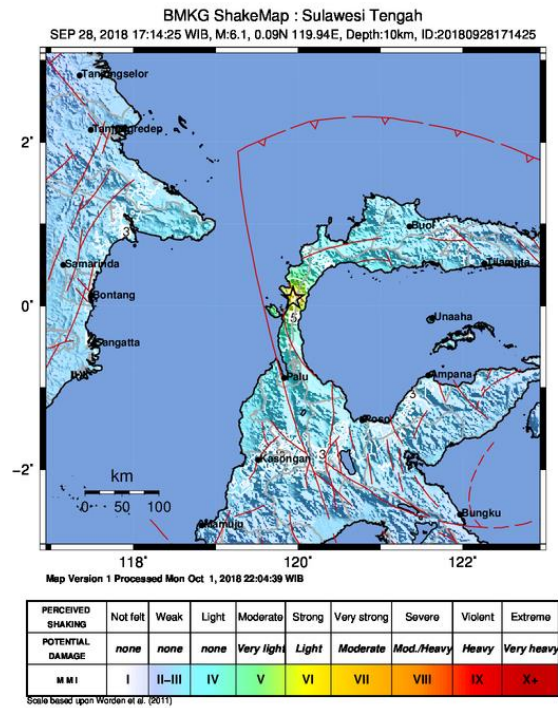
Gambar 109 Peta Guncangan Gempabumi 28 September 2018 pukul 14:28:37 WIB

Tabel 55 Tabel Nilai Percepatan Tanah Gempabumi 28 September 2018

Badan Meteorologi Klimatologi dan Geofisika Laporan Kejadian Gempa Bidang Seismologi Teknik											
Gempabumi 28 September 2018, jam 17:02:45 WIB, Mag:7.4, Lat:0.2°LS, Long:119.89°BT, Kedalaman:11 Km, Sulawesi, Indonesia											
No	IdSta	Stasiun	Latitude	Longitude	Jarak	MMI	SIG	PGA-EW(gal)	PGA-NS(gal)	PGA-UD(gal)	Site Class
1	MPSI	MAPAGA SABANG PALU	0.34	119.90	43.85	V	II	93.1559	136.0936	82.6895	C
2	PMCI	STA MET POSO	-1.42	120.65	138.29	VII-VIII	IV	122.4579	113.6633	40.1447	
3	MRSI	MARISA GORONTALO	0.48	121.94	218.16	III-IV	II	4.8637	3.92	2.4735	
4	MSBA	STA MET MASAMBA	-2.56	120.32	244.24	V	II	25.2811	15.4928	5.4508	D
5	SMSI	SUMALATA	0.99	122.36	283.27	III	II	2.4539	2.3304	1.6425	
6	TTSI	TANATORAJA	-3.05	119.82	294.46	VI	III	18.6474	18.7837	13.524	D
7	LUWI	LUWUK	-1.04	122.77	311.85	III-IV	II	7.9194	NaN	14.1022	
8	BKB	BALIKPAPAN	-1.11	116.91	324.92	III-IV	II	1.6836	NaN	1.0525	
9	MJNE	STA MET MAJENE	-3.55	118.98	364.08	VII	IV	32.1675	36.2296	14.1022	C
10	BNSI	BONE	-4.40	120.11	445.95	V-VI	II	9.1032	8.7798	5.9721	
11	BASO	BARU SULAWESI	-4.53	119.62	460.68	V	II	4.2111	4.4512	3.726	
12	MKS	GOWA	-5.22	119.47	538.32	V-VI	II	8.6554	6.2779	5.5174	
13	BKSI	BULUKUMBA	-5.32	120.12	548.54	IV	II	1.6836	1.2083	0.8957	A
14	SUHA	STA MET HASANUDIN MAKASAR	5.00	119.57	557.46	III-IV	II	0.783	0.8075	0.439	C
15	SUPA	STA MARITIM MAKASAR	5.00	119.57	557.46	III-IV	II	1.3514	1.325	0.4204	
16	BSSI	BENTENG SELAYAR	-6.14	120.49	642.75	IV	II	1.5102	1.1711	0.7752	
17	SANI	SANANA	-2.05	125.99	687.03	II-III	I	0.3028	2.3304	0.194	
18	NLAI	NAMLEA MALUKU	-3.24	127.10	848.50	III	I	0.4733	0.4537	0.4528	
19	DBNI	BIMA	-8.50	118.31	918.52	IV	II	1.3132	0.8222	0.5674	
20	EDFI	ENDE	-8.75	121.69	950.39	II-III	I	0.1323	0.1254	0.1156	

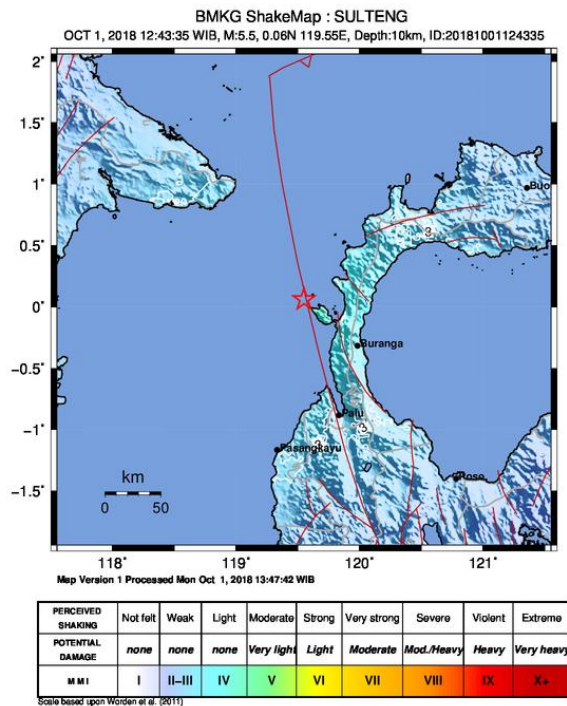


Gambar 110 Peta Guncangan Gempabumi 28 September 2018 pukul 17:02:44 WIB

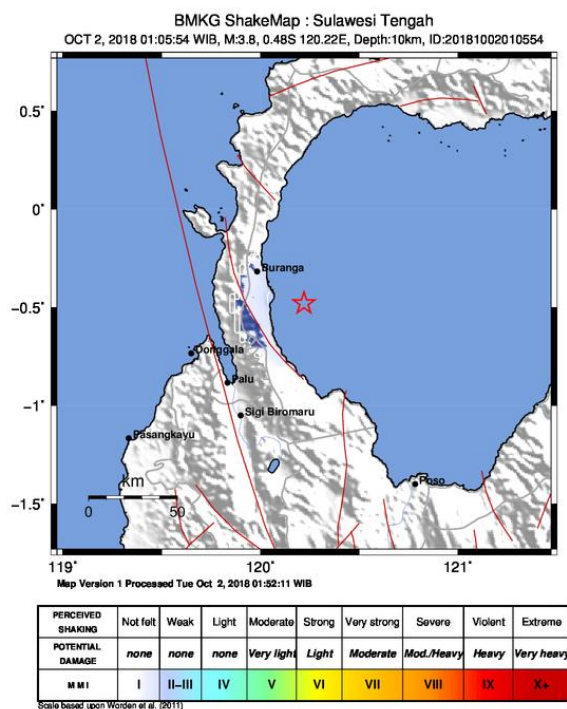


Gambar 111 Peta Guncangan Gempabumi 28 September 2018 pukul 17:14:25 WIB

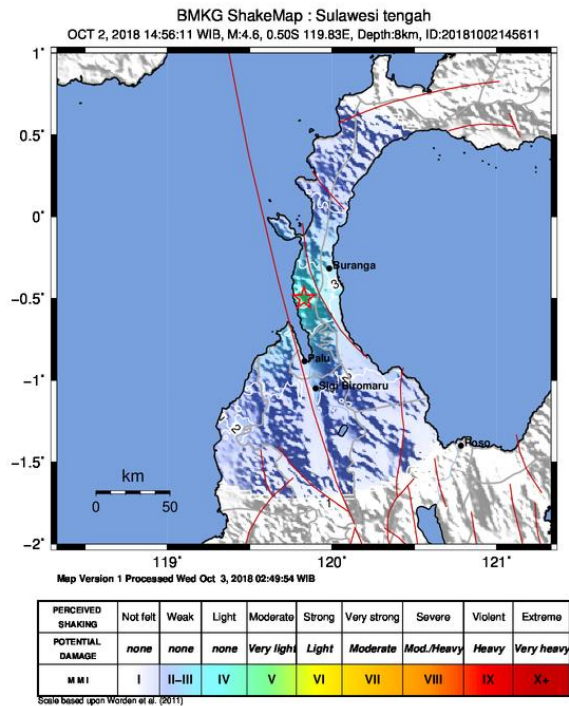
J. Peta Guncangan (*Shakemap*) Gempabumi Bulan Oktober 2018



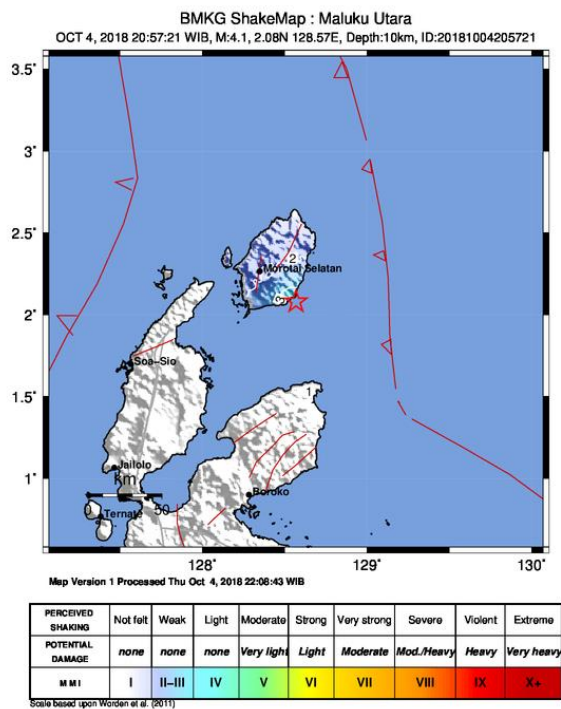
Gambar 112 Peta Guncangan Gempabumi 1 Oktober 2018 pukul 12:43:35 WIB



Gambar 113 Peta Guncangan Gempabumi 2 Oktober 2018 pukul 01:05:54 WIB



Gambar 114 Peta Guncangan Gempabumi 2 Oktober 2018 pukul 14:56:11 WIB



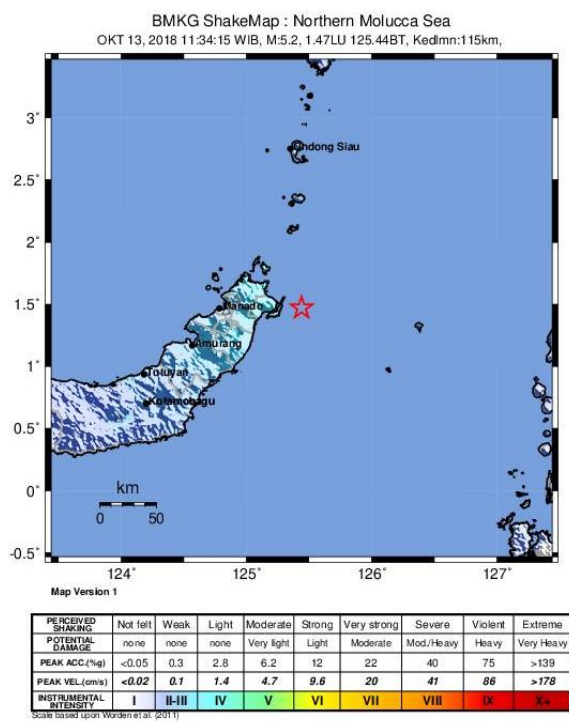
Gambar 115 Peta Guncangan Gempabumi 4 Oktober 2018 pukul 20:57:21 WIB

Tabel 56 Tabel Nilai Percepatan Tanah Gempabumi 4 Oktober 2018

Badan Meteorologi Klimatologi dan Geofisika Laporan Kejadian Gempa Bidang Seismologi Teknik											
Gempabumi 04 Oktober 2018, jam 20:57:21 WIB, Mag:4.1, Lat:2.08°LU, Long:128.57°BT, Kedalaman:10 Km, 36 Km Tenggara											
No	IdSta	Stasiun	Latitude	Longitude	Jarak	MMI	SIG	PGA-EW(gal)	PGA-NS(gal)	PGA-UD(gal)	Site Class
1	TNTI	TERNATE	0.77	127.37	197.57	I	I	0.0402	NaN	0.0402	
2	TMUN		0.66	127.45	200.95	I	I	0.0088	0.0069	0.0088	
3	SWI	SORONG	-0.86	131.26	443.23	I	I	0.0088	0.0088	0.0049	

Tabel 57 Tabel Nilai Percepatan Tanah Gempabumi 13 Oktober 2018

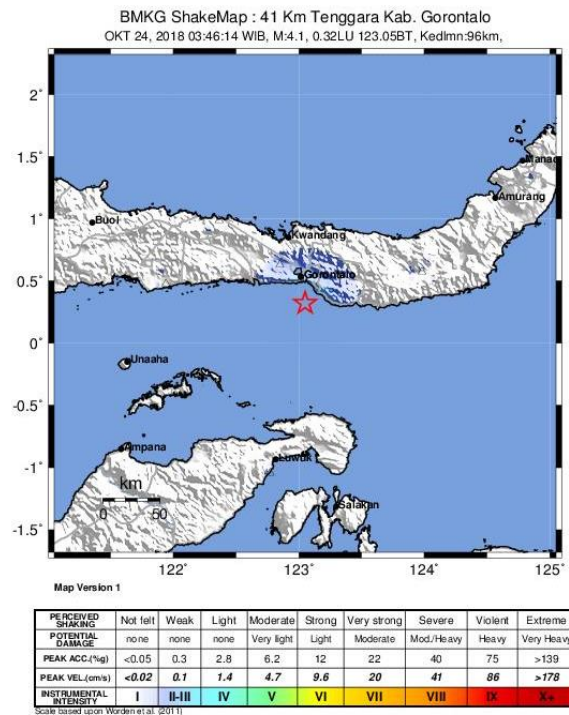
Badan Meteorologi Klimatologi dan Geofisika Laporan Kejadian Gempa Bidang Seismologi Teknik											
Gempabumi 13 Oktober 2018, jam 11:34:16 WIB, Mag:5.9, Lat:1.43°LU, Long:125.47°BT, Kedalaman:99 Km, 38 KM Tenggara Bitung -											
No	IdSta	Stasiun	Latitude	Longitude	Jarak	MMI	SIG	PGA-EW(gal)	PGA-NS(gal)	PGA-UD(gal)	Site Class
1	BTSI	STA MAR BITUNG	1.50	124.92	114.13	VI	III	3.1144	3.0919	1.3073	
2	KMSI	KOTA MUBAGO	0.57	123.98	212.50	II-III	I	0.0538	0.0919	0.0501	
3	TNTI	TERNATE	0.77	127.37	241.25	I	I	0.3959	0.4067	0.3587	
4	SMSI	SUMALATA	0.99	122.36	359.93	I	I	0.3959	0.049	0.3587	



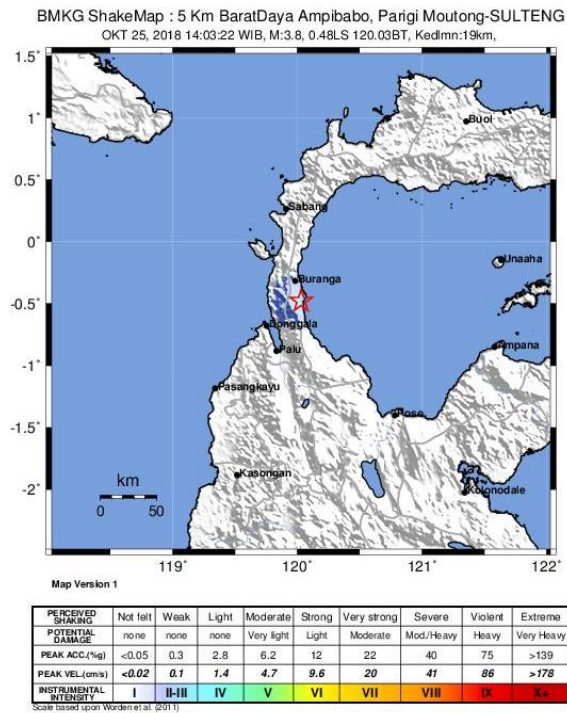
Gambar 116 Peta Guncangan Gempabumi 13 Oktober 2018 pukul 11:34:16 WIB

Tabel 58 Tabel Nilai Percepatan Tanah Gempabumi 24 Oktober 2018

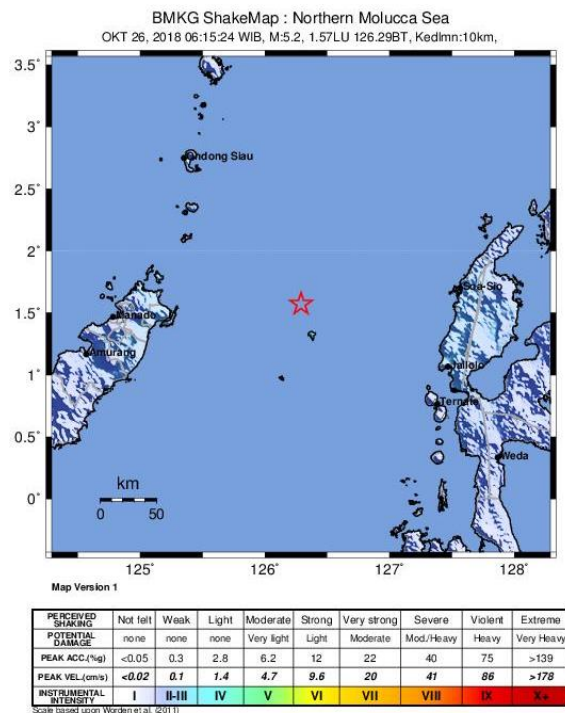
Badan Meteorologi Klimatologi dan Geofisika Laporan Kejadian Gempa Bidang Seismologi Teknik											
Gempabumi 24 Oktober 2018, jam 03:46:14 WIB, Mag:4.1, Lat:0.32°LU, Long:123.05°BT, Kedalaman:96 Km, 41 Km Tenggara											
No	IdSta	Stasiun	Latitude	Longitude	Jarak	MMI	SIG	PGA-EW(gal)	PGA-NS(gal)	PGA-UD(gal)	Site Class
1	GMCI	STA MET GORONTALO	0.63	122.85	41.02	II-III	I	2.0609	2.0021	0.833	D
2	SMSI	SUMALATA	0.99	122.36	106.43	I	I	0.491	0.4312	0.2969	
3	KMSI	ROTA MUBAGO	0.57	123.98	107.32	I	I	0.3969	0.44	0.1891	
4	MRSI	MARISA GORONTALO	0.48	121.94	124.54	I	I	0.1548	0.1695	0.1568	
5	LUWI	Luwuk	-1.04	122.77	154.55	I	I	0.1715	0.0137	0.1254	
6	SLMI	STA GEO MANADO	1.44	124.84	234.85	I	I	0.1039	0.1029	0.0764	
7	MPSI	MAPAGA SABANG PALU	0.34	119.90	350.49	I	I	0.0167	0.0137	0.0088	C
8	SANI	SANANA	-2.05	125.99	419.54	I	I	0.0049	NaN	0.0764	
9	BNSI	BONE	-4.40	120.11	618.46	I	I	0.0029	0.0029	0.0049	
10	MSAI	MASOHI	-3.35	128.93	770.12	I	I	0.1147	0.1019	0.1215	
11	BNDI	BANDANEIRA	-4.31	129.54	886.45	I	I	0.0549	NaN	0.0049	



Gambar 117 Peta Guncangan Gempabumi 24 Oktober 2018 pukul 03:46:14 WIB



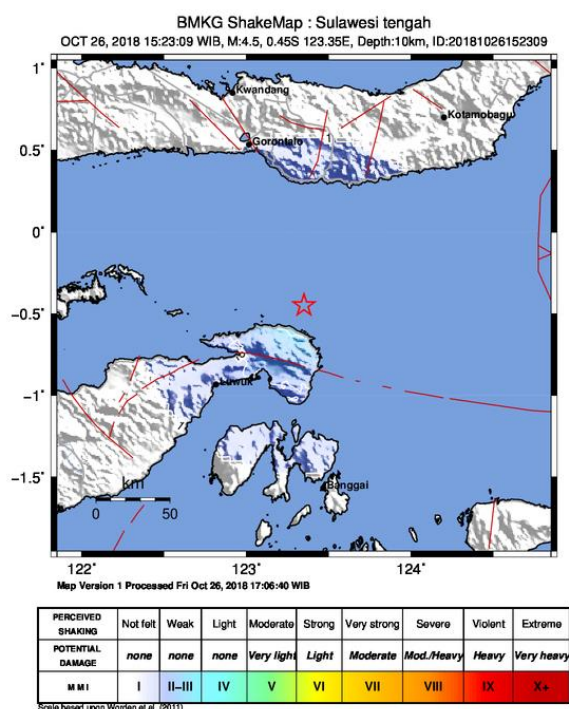
Gambar 118 Peta Guncangan Gempabumi 25 Oktober 2018 pukul 14:03:22 WIB



Gambar 119 Peta Guncangan Gempabumi 26 Oktober 2018 pukul 06:15:24 WIB

Tabel 59 Tabel Nilai Percepatan Tanah Gempabumi 26 Oktober 2018

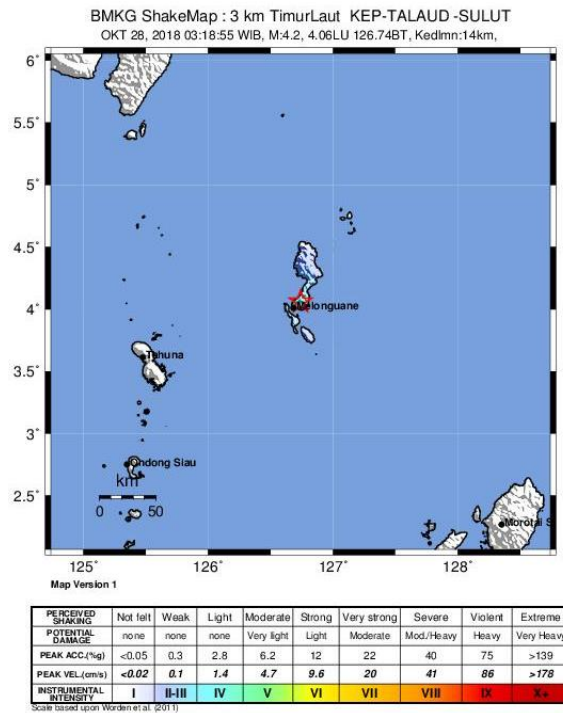
Badan Meteorologi Klimatologi dan Geofisika Laporan Kejadian Gempa Bidang Seismologi Teknik											
Gempabumi 26 Oktober 2018, jam 06:15:24 WIB, Mag:5.2, Lat:1.57°LU, Long:126.29°BT, Kedalaman:10 Km, Northern Molucca Sea											
No	IdSta	Stasiun	Latitude	Longitude	Jarak	MMI	SIG	PGA-EW(gal)	PGA-NS(gal)	PGA-UD(gal)	Site Class
1	TNTI	TERNATE	0.77	127.37	148.04	I	I	0.2225	NaN	0.1558	
2	SAMI	STA MET SAMRATULANGI MANADO	1.54	124.92	151.11	II	I	0.9261	1.0133	0.5057	
3	SLMI	STA GEOF MANADO	1.44	124.84	160.92	II	I	0.931	0.832	0.3979	
4	TMUN		0.66	127.45	162.27	I	I	0.0333	0.0402	0.0402	
5	KMSI	KOTA MUBAGO	0.57	123.98	278.56	II	I	0.5018	0.4616	0.2764	
6	LBMI	LABUHA	-0.64	127.50	279.01	I	I	0.0853	0.0764	0.0402	
7	SANI	SANANA	-2.05	125.99	402.70	I	I	0.0206	NaN	0.3979	
8	NLAI	NAMLEA MALUKU	-3.24	127.10	541.27	I	I	0.0323	0.0363	0.0304	



Gambar 120 Peta Guncangan Gempabumi 26 Oktober 2018 pukul 15:21:09 WIB

Tabel 60 Tabel Nilai Percepatan Tanah Gempabumi 28 Oktober 2018

Badan Meteorologi Klimatologi dan Geofisika Laporan Kejadian Gempa Bidang Seismologi Teknik											
Gempabumi 28 Oktober 2018, jam 03:18:55 WIB, Mag:4.2, Lat:4.06°LU, Long:126.74°BT, Kedalaman:14 Km, 3 km TimurLaut											
No	IdSta	Stasiun	Latitude	Longitude	Jarak	MMI	SIG	PGA-EW(gal)	PGA-NS(gal)	PGA-UD(gal)	Site Class
1	SAMI	STA MET SAMRATULANGI MANADO	1.54	124.92	345.64	I	I	0.0647	0.0519	0.0755	



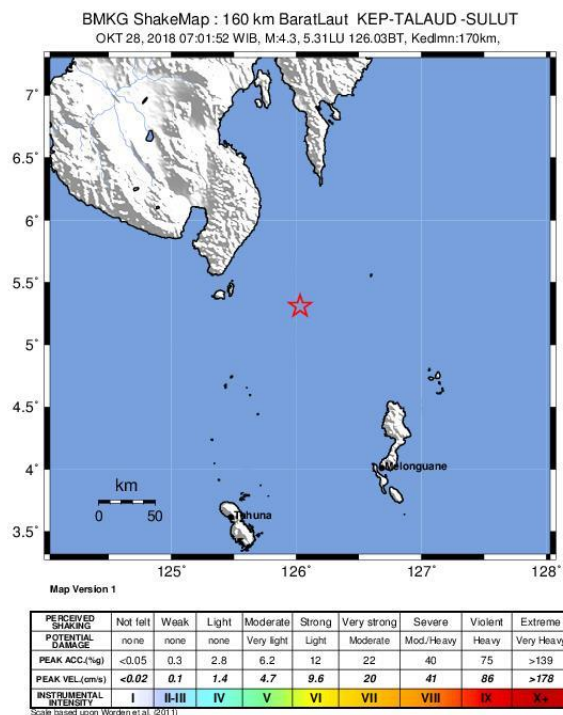
Gambar 121 Peta Guncangan Gempabumi 28 Oktober 2018 pukul 03:18:55 WIB

Tabel 61 Tabel Nilai Percepatan Tanah Gempabumi 28 Oktober 2018

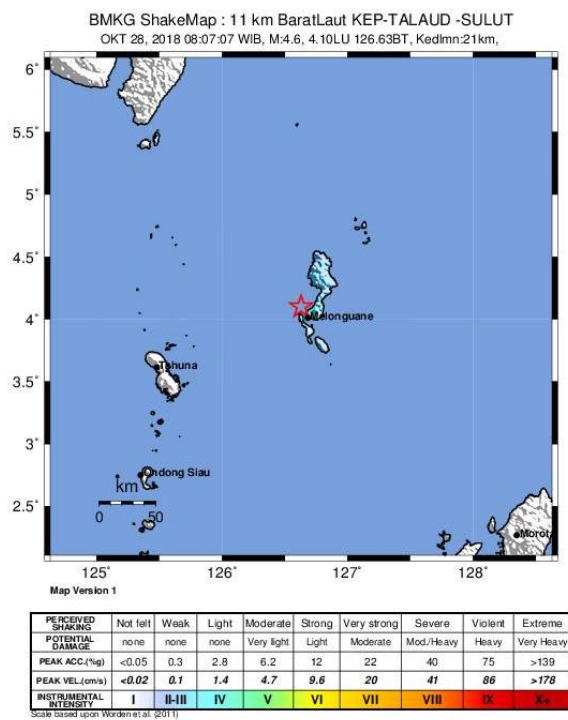
Badan Meteorologi Klimatologi dan Geofisika
Laporan Kejadian Gempa Bidang Seismologi Teknik

Gempabumi 28 Oktober 2018, jam 07:01:52 WIB, Mag:4.3, Lat:5.31°LU, Long:126.03°BT, Kedalaman:170 Km, 160 km BaratLaut

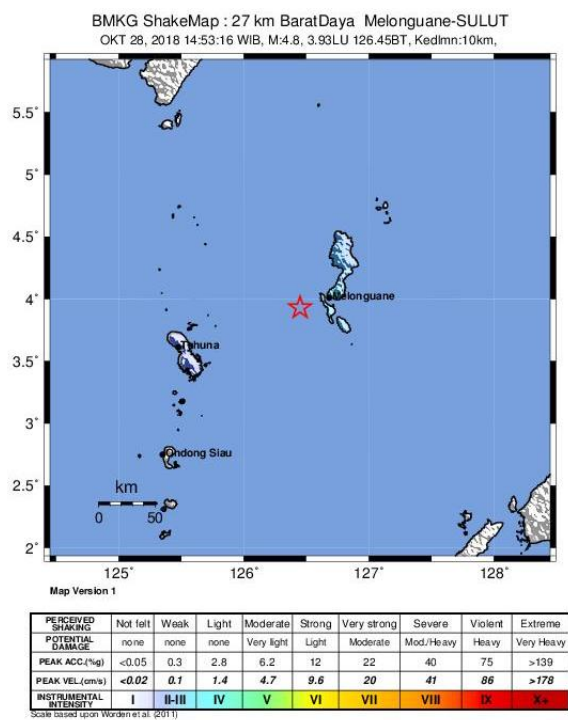
No	IdSta	Stasiun	Latitude	Longitude	Jarak	MMI	SIG	PGA-EW(gal)	PGA-NS(gal)	PGA-UD(gal)	Site Class
1	SANI	SANANA	-2.05	125.99	818.18	I	I	0.0078	NaN	0.0108	



Gambar 122 Peta Guncangan Gempabumi 28 Oktober 2018 pukul 07:01:52 WIB



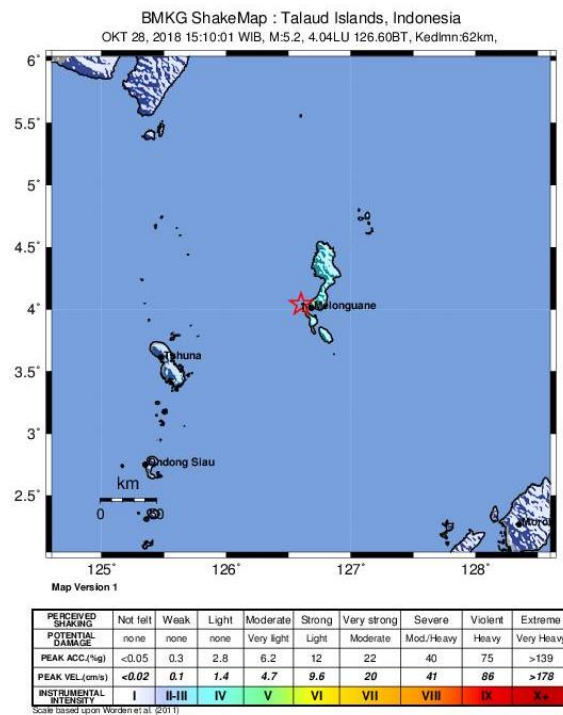
Gambar 123 Peta Guncangan Gempabumi 28 Oktober 2018 pukul 08:07:07 WIB



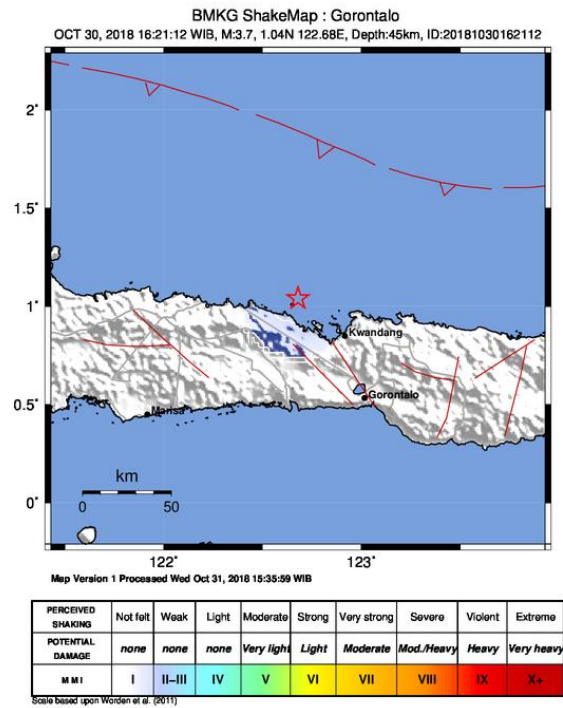
Gambar 124 Peta Guncangan Gempabumi 28 Oktober 2018 pukul 14:53:16 WIB

Tabel 62 Tabel Nilai Percepatan Tanah Gempabumi 28 Oktober 2018

Badan Meteorologi Klimatologi dan Geofisika Laporan Kejadian Gempa Bidang Seismologi Teknik											
Gempabumi 28 Oktober 2018, jam 15:10:01 WIB, Mag:5.2, Lat:4.04°LU, Long:126.60°BT, Kedalaman:62 Km, Talaud Islands, Indonesia											
No	IdSta	Stasiun	Latitude	Longitude	Jarak	MMI	SIG	PGA-EW(gal)	PGA-NS(gal)	PGA-UD(gal)	Site Class
1	TNTI	TERNATE	0.77	127.37	372.24	I	I	0.0627	NaN	0.047	
2	SMSI	SUMALATA	0.99	122.36	579.01	I	I	0.0588	0.0265	0.0441	
3	MRSI	MARISA GORONTALO	0.48	121.94	650.80	I	I	0.0206	0.0265	0.0147	
4	SANI	SANANA	-2.05	125.99	679.36	I	I	0.0147	0.0265	0.0127	
5	NLAI	NAMLEA MALUKU	-3.24	127.10	810.30	I	I	0.0274	0.0255	0.049	



Gambar 125 Peta Guncangan Gempabumi 28 Oktober 2018 pukul 15:09:59 WIB

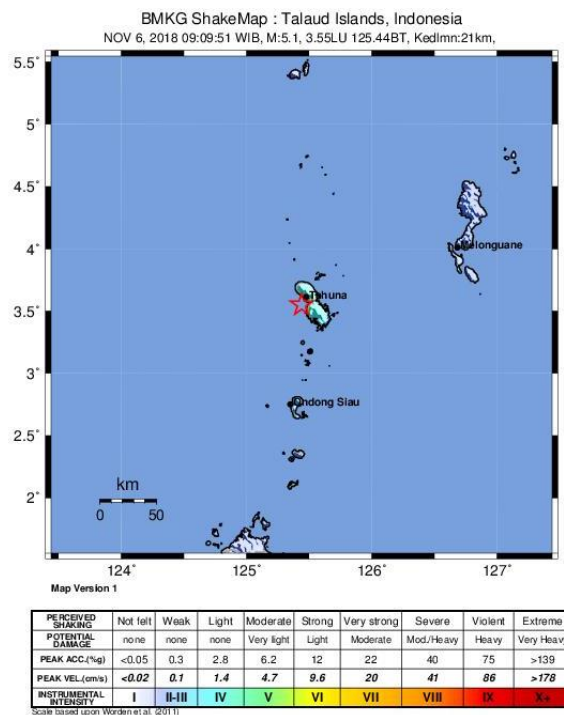


Gambar 126 Peta Guncangan Gempabumi 30 Oktober 2018 pukul 16:21:12 WIB

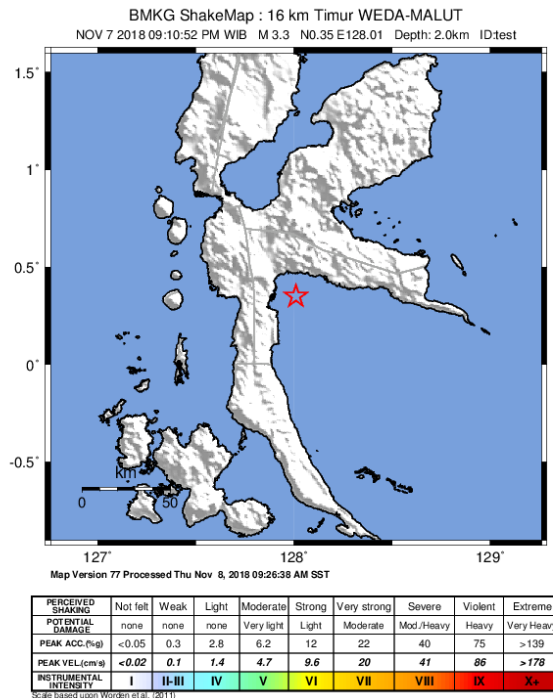
K. Peta Guncangan (*Shakemap*) Gempabumi Bulan November 2018

Tabel 63 Tabel Nilai Percepatan Tanah Gempabumi 6 November 2018

Badan Meteorologi Klimatologi dan Geofisika Laporan Kejadian Gempa Bidang Seismologi Teknik											
Gempabumi 06 Novemver 2018, jam 09:09:51 WIB, Mag:5.1, Lat:3.55°LU, Long:125.44°BT, Kedalaman:21 Km, Talaud Islands, Indonesia											
No	IdSta	Stasiun	Latitude	Longitude	Jarak	MMI	SIG	PGA-EW (gal)	PGA-NS (gal)	PGA-UD (gal)	Site Class
1	SMSI	SUMALATA	0.99	122.36	443.92	I	I	0.0196	0.0225	0.0255	
2	LBMI	LABUHA	-0.64	127.50	518.09	I	I	0.0245	0.0274	0.0167	
3	SANI	SANANA	-2.05	125.99	624.57	I	I	0.0069	0.0225	0.0098	



Gambar 127 Peta Guncangan Gempabumi 6 November 2018 pukul 09:09:51 WIB



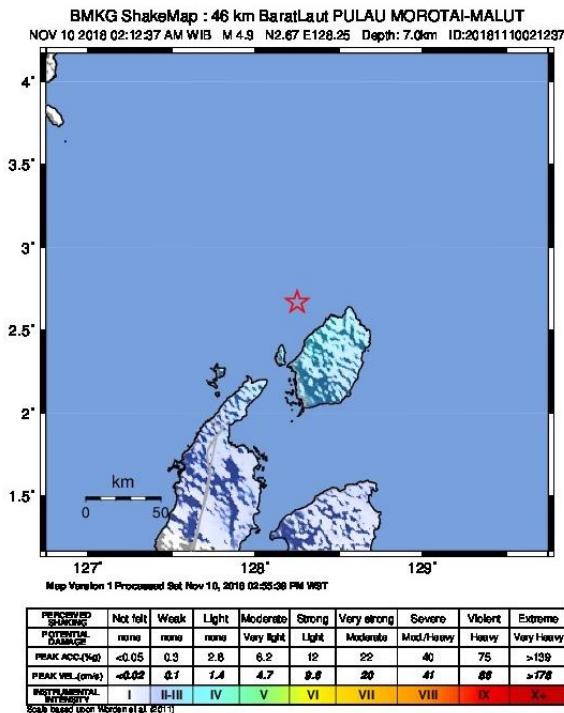
Gambar 128 Peta Guncangan Gempabumi 7 November 2018 pukul 21:10:52 WIB

Tabel 64 Tabel Nilai Percepatan Tanah Gempabumi tanggal 10 November 2018

Badan Meteorologi Klimatologi dan Geofisika
Laporan Kejadian Gempa Bidang Seismologi Teknik

Gempabumi 10 Novemver 2018, jam 02:12:37 WIB, Mag:4.9, Lat:2.67°LU, Long:128.25°BT, Kedalaman:7 Km, 46 km BaratLaut PULAU MOROTAI-MALUT

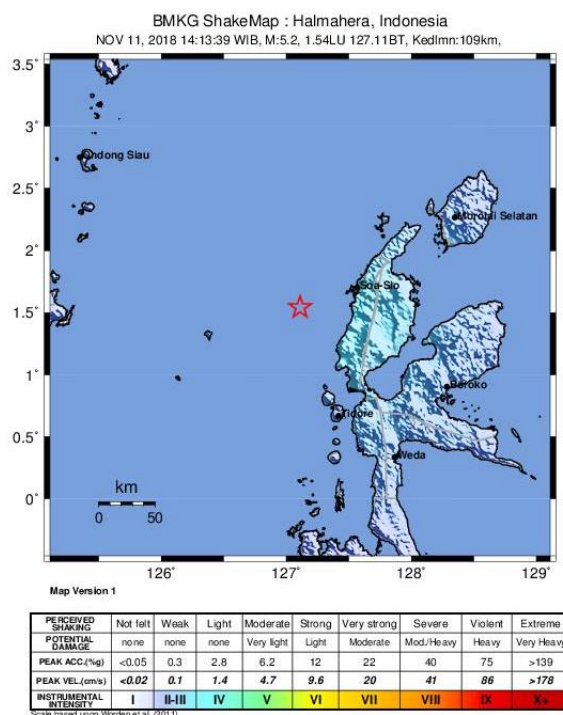
No	IdSta	Stasiun	Latitude	Longitude	Jarak	MMI	SIG	PGA-EW(gal)	PGA-NS(gal)	PGA-UD(gal)	Site Class
1	TNTI	TERNATE	0.77	127.37	232.77	I	I	0.0853	0.0608	0.0412	
2	RMSI	ROTA MUBAGO	0.57	123.98	528.60	I	I	0.0382	0.0539	0.0284	
3	SMGI	SUMALATA	0.99	122.36	680.23	I	I	0.0039	0.0029	0.0039	



Gambar 129 Peta Guncangan Gempabumi 10 November 2018 pukul 02:12:37 WIB

Tabel 65 Tabel Nilai Percepatan Tanah Gempabumi 11 November 2018

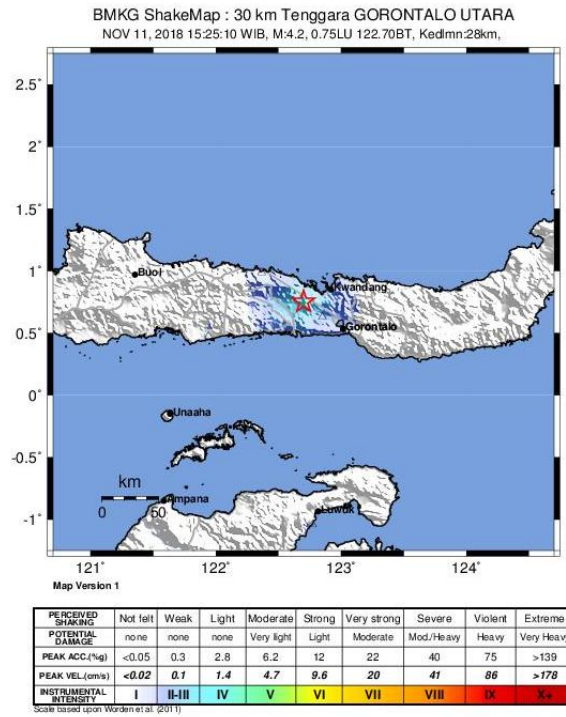
Badan Meteorologi Klimatologi dan Geofisika Laporan Kejadian Gempa Bidang Seismologi Teknik											
Gempabumi 11 Novemver 2018, jam 14:13:39 WIB, Mag:5.2, Lat:1.54°LU, Long:127.11°BT, Kedalaman:109 Km, Halmahera, Indonesia											
No	IdSta	Stasiun	Latitude	Longitude	Jarak	MMI	SIG	PGA-EW(gal)	PGA-NS(gal)	PGA-UD(gal)	Site Class
1	TNTI	TERNATE	0.77	127.37	89.06	I-II	I	0.5615	NaN	0.0304	
2	TMUN		0.66	127.45	103.28	I	I	0.1019	0.1578	0.194	
3	SAMI	STA MET SAMRATULANGI MANADO	1.54	124.92	242.22	II	I	0.9398	1.0829	0.4263	
4	LBMI	LABUHA	-0.64	127.50	245.05	I	I	0.4577	0.4381	0.2283	
5	SLMI	STA GEOF MANADO	1.44	124.84	251.68	II	I	1.521	1.2573	0.6409	
6	KMSI	KOTA MUBAGO	0.57	123.98	363.06	II-III	I	1.6199	1.3514	0.4635	
7	SANI	SANANA	-2.05	125.99	417.01	I	I	1.521	NaN	0.9271	
8	SMSI	SUMALATA	0.99	122.36	530.05	I	I	0.0147	0.0186	0.0147	
9	NLAI	NAMLEA MALUKU	-3.24	127.10	530.41	I-II	I	0.9555	1.1299	1.0163	
10	KRAI	KAIRATU	-3.32	128.40	557.80	I	I	0.1313	0.145	0.1323	E
11	LUWI	LUWUK	-1.04	122.77	560.30	I	I	0.0127	NaN	0.1568	
12	FAKI	FAK-FAK	-2.92	132.26	756.78	I	I	0.0049	NaN	0.4635	
13	MPSI	MAPAGA SABANG PALU	0.34	119.90	811.89	I	I	0.0127	0.0118	0.0098	
14	TTSI	TANATORAJA	-3.05	119.82	956.47	I	I	0.0421	0.0372	0.0304	D



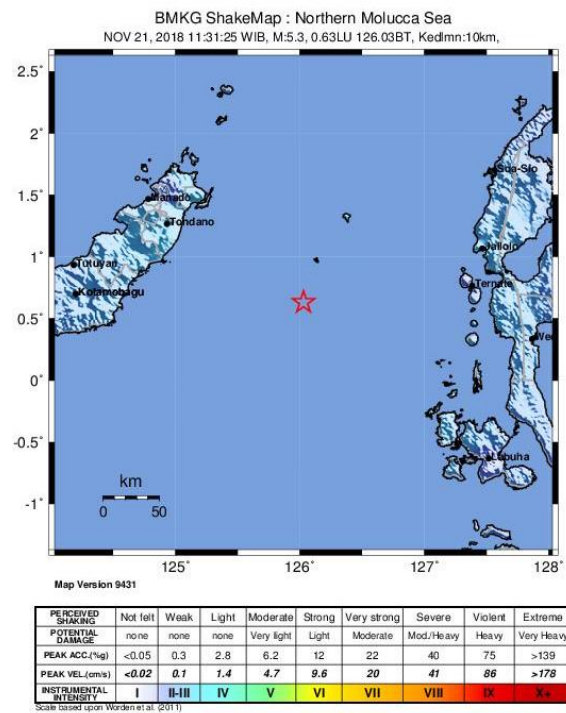
Gambar 130 Peta Guncangan Gempabumi 11 November 2018 pukul 14:13:40 WIB

Tabel 66 Tabel Nilai Percepatan Tanah Gempabumi 11 November 2018

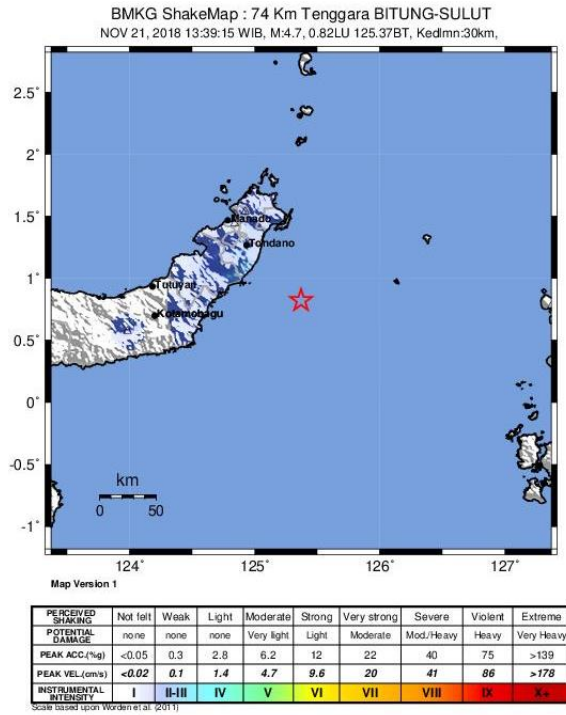
Badan Meteorologi Klimatologi dan Geofisika Laporan Kejadian Gempa Bidang Seismologi Teknik											
Gempabumi 11 Novemver 2018, jam 15:25:10 WIB, Mag:4.2, Lat:0.75°LU, Long:122.70°BT, Kedalaman:28 Km, 30 km Tenggara											
No	IdSta	Stasiun	Latitude	Longitude	Jarak	MMI	SIG	PGA-EW(gal)	PGA-NS(gal)	PGA-UD(gal)	Site Class
1	GMCI	STA MET GORONTALO	0.63	122.85	21.36	II-III	I	1.9169	2.5019	0.7948	D
2	SMSI	SUMALATA	0.99	122.36	45.72	I	I	0.8918	0.8036	0.394	
3	MRSI	MARISA GORONTALO	0.48	121.94	89.68	I	I	0.1372	0.2176	0.1107	
4	LUWI	LUWUK	-1.04	122.77	199.40	I	I	0.1264	NaN	0.0098	
5	MPSI	MAPAGA SABANG PALU	0.34	119.90	314.91	I	I	0.0294	0.0314	0.0098	



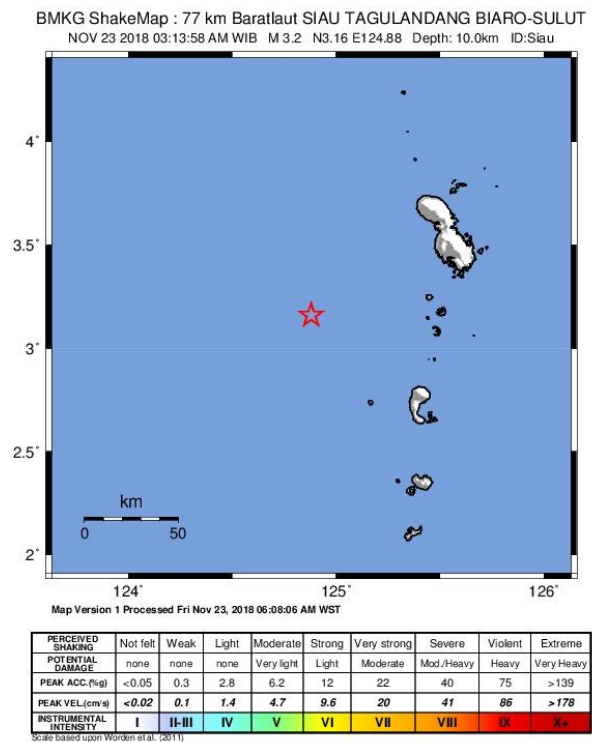
Gambar 131 Peta Guncangan Gempabumi 11 November 2018 pukul 15:25:10 WIB



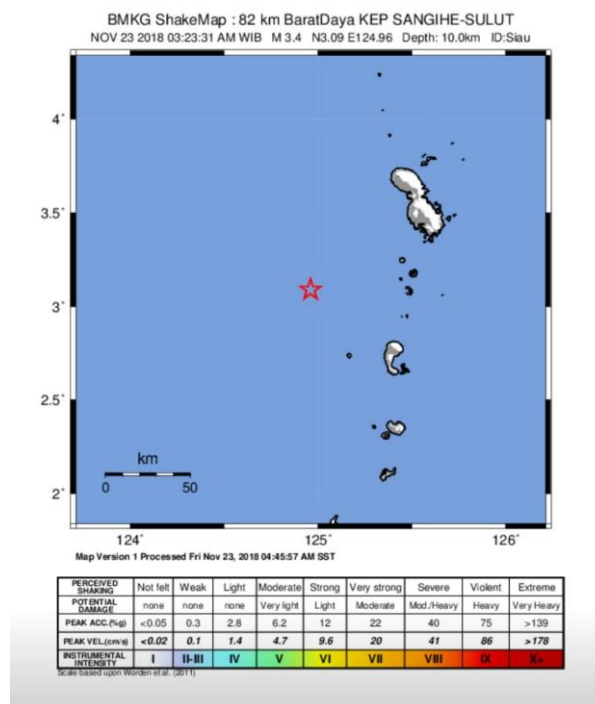
Gambar 132 Peta Guncangan Gempabumi 21 November 2018 pukul 11:31:25 WIB



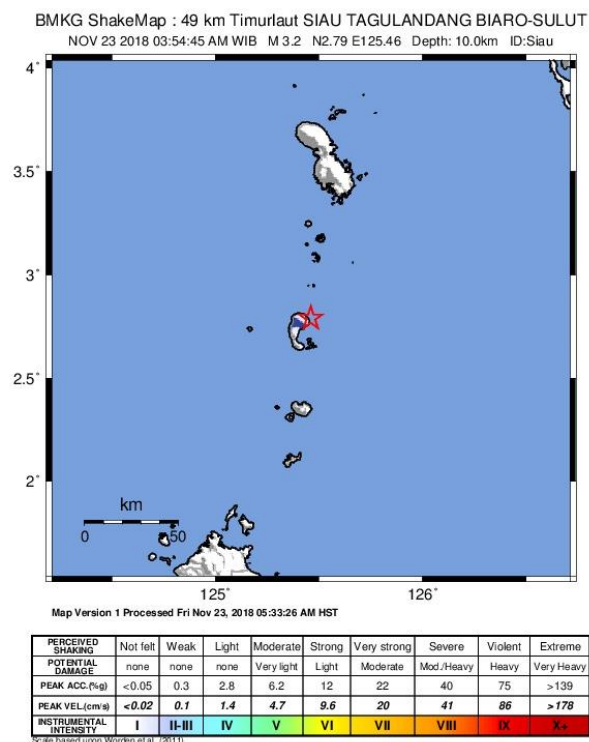
Gambar 133 Peta Guncangan Gempabumi 21 November 2018 pukul 13:39:15 WIB



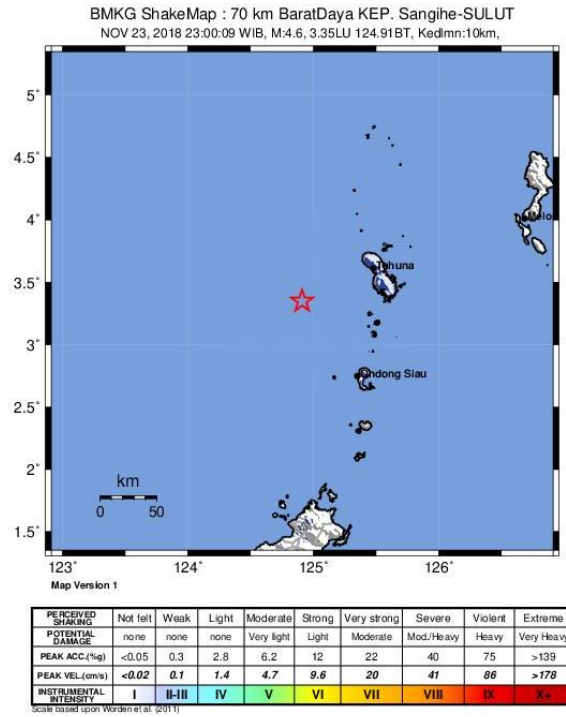
Gambar 134 Peta Guncangan Gempabumi 23 November 2018 pukul 03:23:31 WIB



Gambar 135 Peta Guncangan Gempabumi 23 November 2018 pukul 03:13:58 WIB



Gambar 136 Peta Guncangan Gempabumi 23 November 2018 pukul 03:54:45 WIB

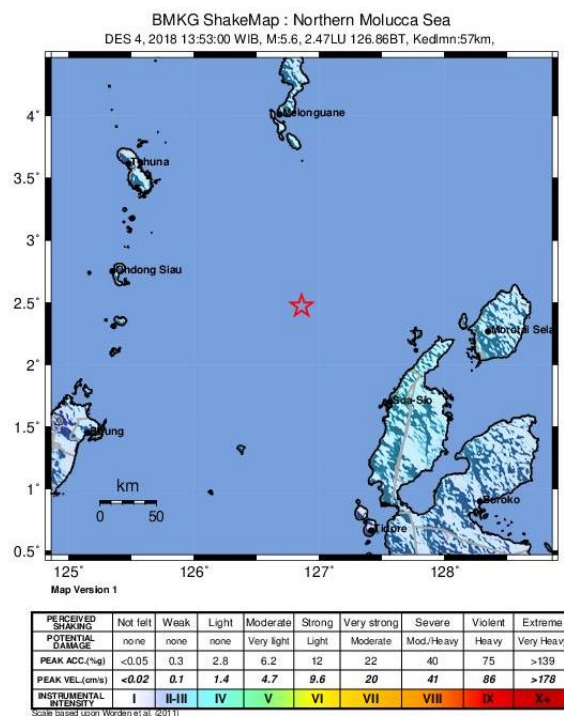


Gambar 137 Peta Guncangan Gempabumi 23 November 2018 pukul 23:00:09 WIB

L. Peta Guncangan (*Shakemap*) Gempabumi Bulan Desember 2018

Tabel 67 Tabel Nilai Percepatan Tanah Gempabumi 4 Desember 2018

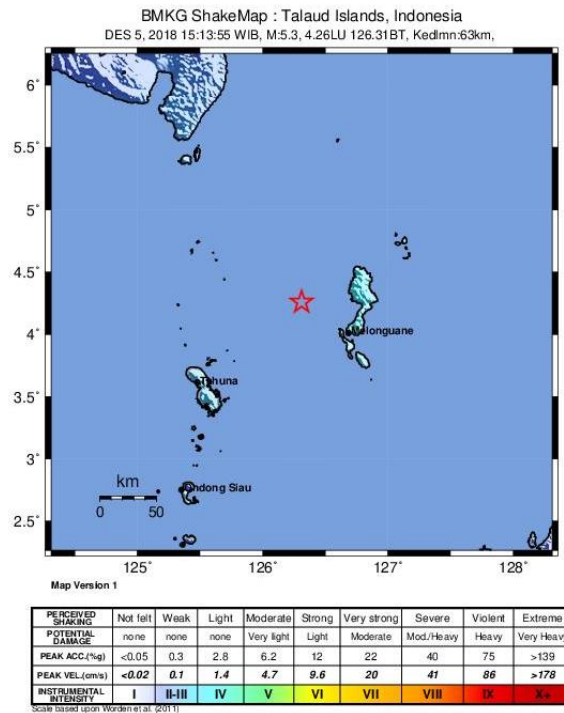
Badan Meteorologi Klimatologi dan Geofisika Laporan Kejadian Gempa Bidang Seismologi Teknik											
Gempabumi 04 Desember 2018, jam 13:53:00 WIB, Mag:5.6, Lat:2.47°LU, Long:126.86°BT, Kedalaman:57 Km, Northern Molucca Sea											
No	IdSta	Stasiun	Latitude	Longitude	Jarak	MMI	SIG	PGA-EW(gal)	PGA-NS(gal)	PGA-UD(gal)	Site Class
1	TNTI	TERNATE	0.77	127.37	203.47	I	I	0.1744	NaN	0.1989	
2	TMUN		0.66	127.45	216.98	I	I	0.0451	0.0323	0.0461	
3	SAMI	STA MET SAMRATULANGI MANADO	1.54	124.92	244.11	I-II	I	0.4939	0.5076	0.3146	
4	SLMI	STA GEOF MANADO	1.44	124.84	256.69	I	I	0.2852	0.2185	0.1548	
5	LBMI	LABUHA	-0.64	127.50	355.81	I	I	0.098	0.0725	0.05	
6	SANI	SANANA	-2.05	125.99	513.21	I	I	0.2852	NaN	0.0225	
7	RAPI	RAJA AMPAT	-0.41	130.82	545.87	I	I	0.0078	0.0078	0.0137	
8	MRSI	MARISA GORONTALO	0.48	121.94	591.13	I	I	0.0147	0.0157	0.0255	



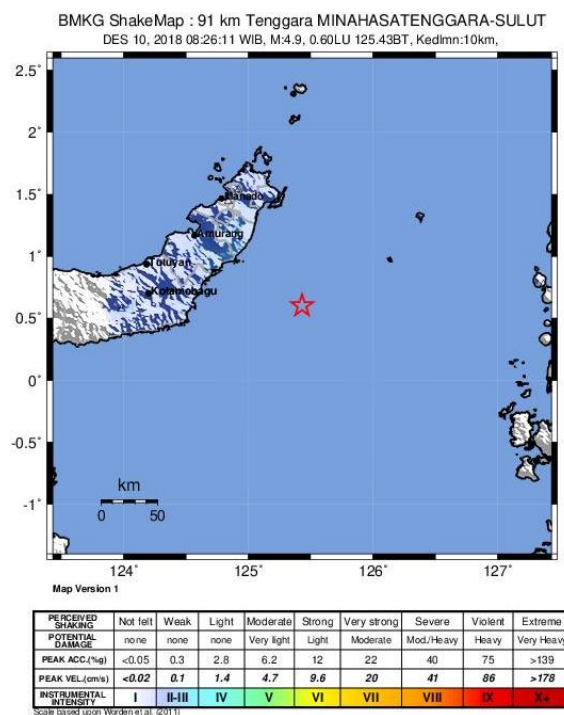
Gambar 138 Peta Guncangan Gempabumi 4 Desember 2018 pukul 13:52:57 WIB

Tabel 68 Tabel Nilai Percepatan Tanah Gempabumi 5 Desember 2018

Badan Meteorologi Klimatologi dan Geofisika Laporan Kejadian Gempa Bidang Seismologi Teknik											
Gempabumi 05 Desember 2018, jam 15:13:55 WIB, Mag:5.3, Lat:4.26°LU, Long:126.31°BT, Kedalaman:63 Km, Talaud Islands, Indonesia											
No	IdSta	Stasiun	Latitude	Longitude	Jarak	MMI	SIG	PGA-EW(gal)	PGA-NS(gal)	PGA-UD(gal)	Site Class
1	SAMI	STA MET SAMRATULANGI MANADO	1.54	124.92	344.52	I	I	0.0627	0.0647	0.0402	
2	LBMI	LABUHA	-0.64	127.50	562.98	I	I	0.0216	0.0216	0.0186	
3	SMSI	SUMALATA	0.99	122.36	571.94	I	I	0.0265	0.0343	0.0363	
4	MRSI	MARISA GORONTALO	0.48	121.94	644.31	I	I	0.0764	0.0892	0.0921	
5	SANI	SANANA	-2.05	125.99	704.14	I	I	0.0216	NaN	0.0363	
6	LWMI	LUNUK	-1.04	122.77	710.37	I	I	0.0186	NaN	0.0921	
7	NLAI	NAMLEA MALUKU	-3.24	127.10	839.83	I	I	0.1127	0.1862	0.0951	



Gambar 139 Peta Guncangan Gempabumi 5 Desember 2018 pukul 15:13 :55 WIB



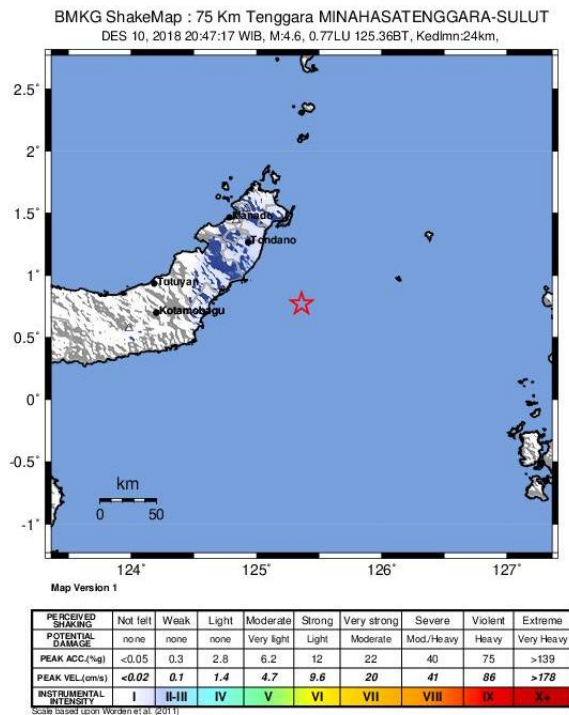
Gambar 140 Peta Guncangan Gempabumi 10 Desember 2018 pukul 08:26:11 WIB

Tabel 69 Tabel Nilai Percepatan Tanah Gempabumi 10 Desember 2018

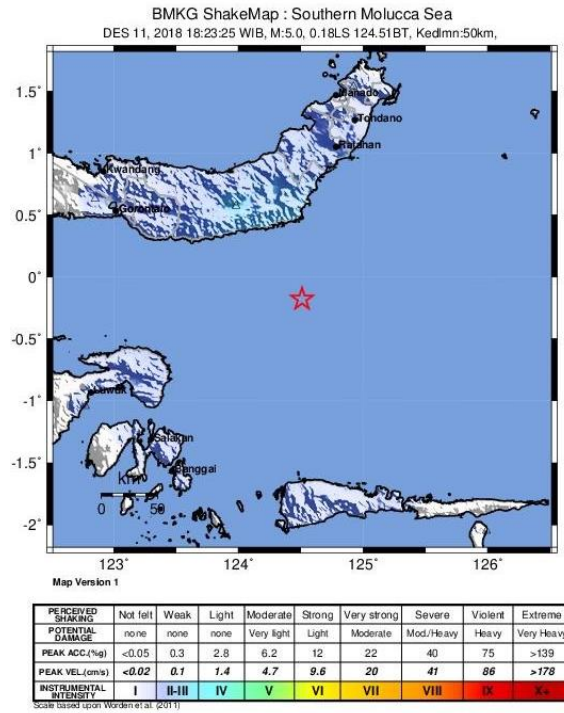
Badan Meteorologi Klimatologi dan Geofisika Laporan Kejadian Gempa Bidang Seismologi Teknik											
=====											
Gempabumi 10 Desember 2018, jam 08:26:11 WIB, Mag:4.9, Lat:0.6°LU, Long:125.43°BT, Kedalaman:10 Km, 91 km Tenggara											
No	IdSta	Stasiun	Latitude	Longitude	Jarak	MMI	SIG	PGA-EW(gal)	PGA-NS(gal)	PGA-UD(gal)	Site Class
1	SLMI	STA GEOF MANADO	1.44	124.84	114.47	I	I	0.489	0.4635	0.3136	
2	SAMI	STA MET SAMRATULANGI MANADO	1.54	124.92	118.51	II	I	1.2946	0.8771	0.5772	
3	KMSI	KOTA MUBAGO	0.57	123.98	161.14	II-III	I	1.3161	1.6542	0.7752	
4	TNTI	TERNATE	0.77	127.37	216.22	I	I	0.0559	NaN	0.051	
5	TMUN		0.66	127.45	224.27	I	I	0.0157	0.0167	0.0255	
6	SANI	SANANA	-2.05	125.99	300.90	I	I	0.0568	NaN	0.3136	
7	SMSI	SUMALATA	0.99	122.36	343.51	I	I	0.0235	0.0304	0.0196	
8	NLAI	NAMLEA MALUKU	-3.24	127.10	465.49	I	I	0.0745	0.097	0.0696	
9	PAMI	STA MET PATTIMURA AMBON	-3.71	128.10	563.53	I	I	0.2705	0.3587	0.8565	E
10	KDRI	STA MET KENDARI	-3.97	122.59	598.18	I	I	0.0696	0.0637	0.3175	

Tabel 70 Tabel Nilai Percepatan Tanah Gempabumi 10 Desember(2) 2018

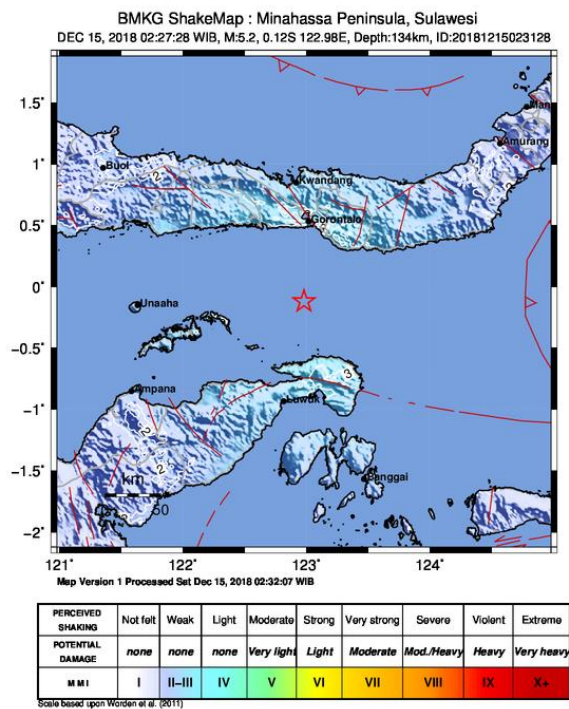
Badan Meteorologi Klimatologi dan Geofisika Laporan Kejadian Gempa Bidang Seismologi Teknik											
=====											
Gempabumi 10 Desember 2018, jam 20:47:17 WIB, Mag:4.6, Lat:0.77°LU, Long:125.36°BT, Kedalaman:24 Km, 75 Km Tenggara											
No	IdSta	Stasiun	Latitude	Longitude	Jarak	MMI	SIG	PGA-EW(gal)	PGA-NS(gal)	PGA-UD(gal)	Site Class
1	SLMI	STA GEOF MANADO	1.44	124.84	94.63	I	I	0.4234	0.3744	0.2656	
2	SAMI	STA MET SAMRATULANGI MANADO	1.54	124.92	98.21	I-II	I	0.4959	0.4067	0.3979	
3	KMSI	KOTA MUBAGO	0.57	123.98	154.86	I-II	I	1.1348	0.8418	0.3195	
4	TNTI	TERNATE	0.77	127.37	223.15	I	I	0.0323	NaN	0.0333	
5	TMUN		0.66	127.45	232.23	I	I	0.0078	0.0078	0.0108	
6	LBMI	LABUHA	-0.64	127.50	284.92	I	I	0.0382	0.047	0.0265	
7	SANI	SANANA	-2.05	125.99	321.02	I	I	0.4234	NaN	0.0274	
8	LUWI	LUWUK	-1.04	122.77	351.27	I	I	0.049	NaN	0.0519	
9	NLAI	NAMLEA MALUKU	-3.24	127.10	485.92	I	I	0.0696	0.0627	0.0519	
10	KRAI	KAIRATU	-3.32	128.40	566.09	I	I	0.0245	0.0304	0.0196	E



Gambar 141 Peta Guncangan Gempabumi 10 Desember 2018 pukul 20:47:17 WIB



Gambar 142 Peta Guncangan Gempabumi 11 Desember 2018 pukul 18:23:22 WIB



Gambar 143 Peta Guncangan Gempabumi 15 Desember 2018 pukul 02:27:28 WIB

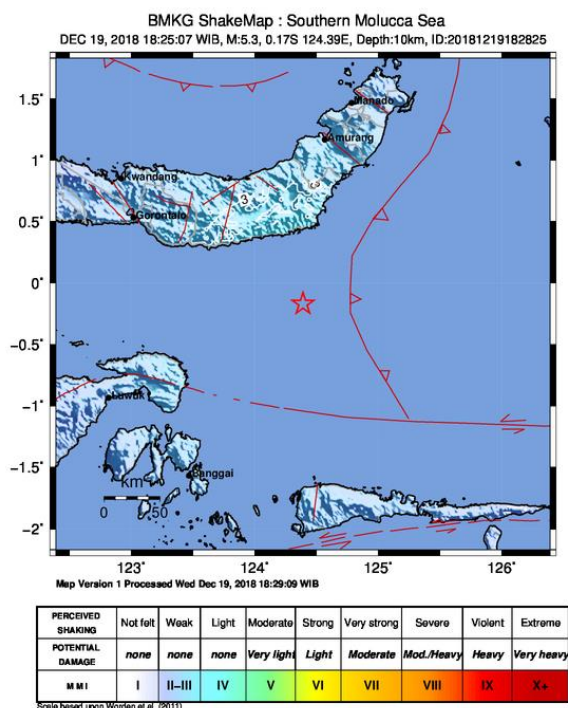
Tabel 71 Tabel Nilai Percepatan Tanah Gempabumi 15 Desember 2018

Badan Meteorologi Klimatologi dan Geofisika
Laporan Kejadian Gempa Bidang Seismologi Teknik

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Gempabumi 15 Desember 2018, jam 02:27:28 WIB, Mag:5.2, Lat:0.1°LS, Long:122.98°BT, Kedalaman:152 Km, Minahasa Peninsula, Sulawesi

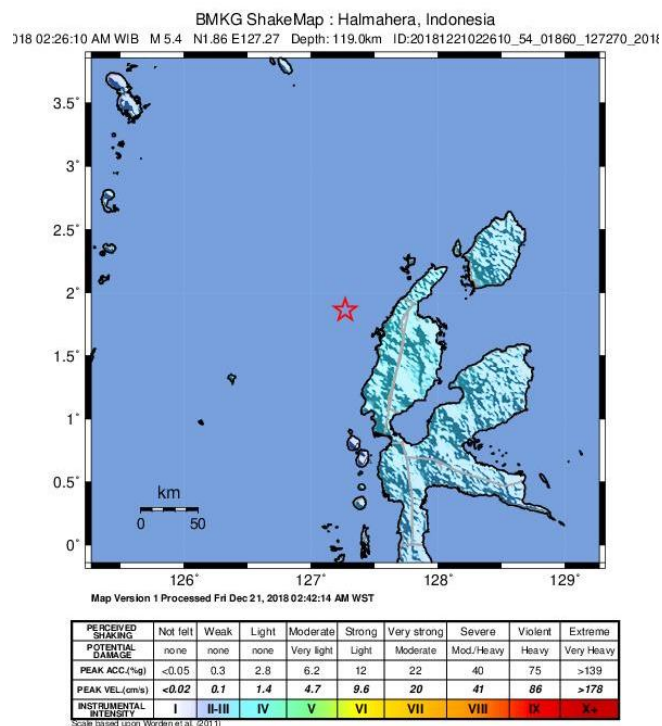
No	IdSta	Stasiun	Latitude	Longitude	Jarak	MMI	SIG	PGA-EW(gal)	PGA-NS(gal)	PGA-UD(gal)	Site Class
1	GMCI	STA MET GORONTALO	0.63	122.85	81.46	III-IV	II	12.6489	8.6906	3.1203	D
2	LUWI	LUWUK	-1.04	122.77	106.26	III	II	0.0225	NaN	3.4045	
3	MRSI	MARISA GORONTALO	0.48	121.94	131.17	II	I	1.178	1.3073	1.0153	
4	KMSI	KOTA MUBAGO	0.57	123.98	133.23	III	II	1.7219	2.7205	1.3348	
5	SMSI	SUMALATA	0.99	122.36	138.03	II	I	1.0839	1.2544	0.8065	
6	SLMI	STA GEOF MANADO	1.44	124.84	267.63	I	I	0.0853	0.0902	0.0539	
7	PMCI	STA MET POSO	-1.42	120.65	296.76	II	I	0.7164	0.8301	0.3254	
8	SANI	SANANA	-2.05	125.99	397.43	I	I	0.0853	NaN	0.5772	
9	KDRI	STA MET KENDARI	-3.97	122.59	431.51	I	I	0.051	0.0451	0.0196	
10	KKSI	KOLAKA	-4.17	121.65	475.24	I	I	0.0441	0.0431	0.0382	
11	TTSI	TANATORAJA	-3.05	119.82	479.28	I	I	0.0823	0.0706	0.0314	D
12	TNTI	TERNATE	0.77	127.37	496.35	I	I	0.099	NaN	0.0314	
13	TMUN		0.66	127.45	502.82	I	I	0.0372	0.0294	0.0206	
14	LBMI	LABUHA	-0.64	127.50	505.25	I	I	0.3871	0.5233	0.1646	
15	SPSI	SIDRAP	-3.96	119.77	557.52	I	I	0.0176	0.0225	0.0176	
16	NLAI	NAMLEA MALUKU	-3.24	127.10	574.75	I-II	I	0.6096	0.4087	0.5351	
17	BKSI	BULUKUMBA	-5.32	120.12	660.71	I	I	0.0049	0.0078	0.0049	A
18	MKS	GOWA	-5.22	119.47	688.81	I	I	0.0225	0.0225	0.0314	
19	PAMI	STA MET PATTIMURA AMBON	-3.71	128.10	694.98	II-III	I	0.7105	1.2044	0.5243	E
20	KRAI	KAIRATU	-3.32	128.40	699.15	I	I	0.0941	0.0774	0.0441	E
21	MSAI	MASOHI	-3.35	128.93	752.23	I	I	0.2293	0.1529	0.0833	



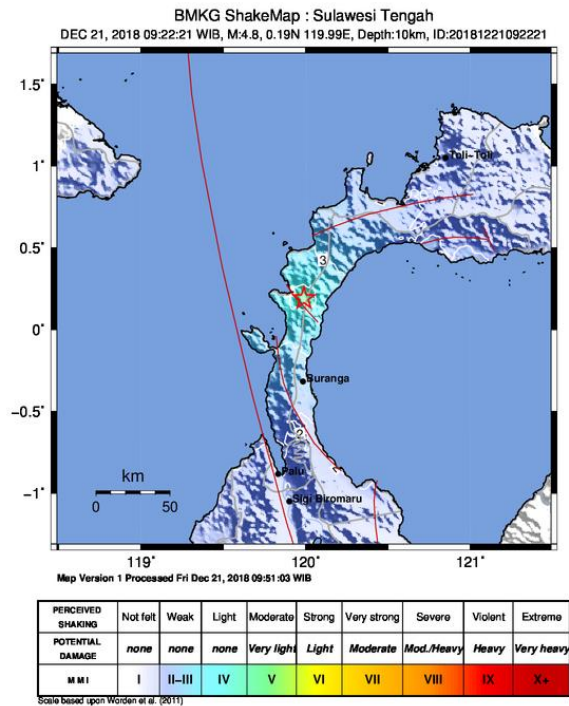
Gambar 144 Peta Guncangan Gempabumi 19 Desember 2018 pukul 18:25:07 WIB

Tabel 72 Tabel Nilai Percepatan Tanah Gempabumi 21 Desember 2018

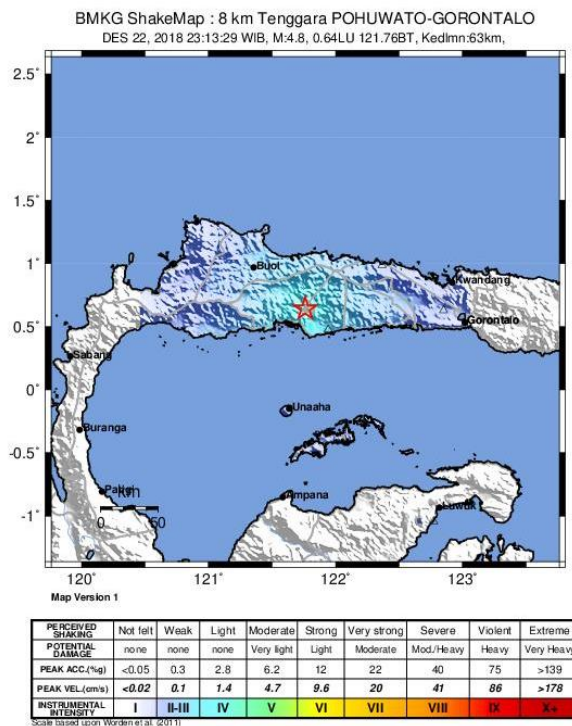
Badan Meteorologi Klimatologi dan Geofisika Laporan Kejadian Gempa Bidang Seismologi Teknik											
Gempabumi 21 Desember 2018, jam 02:26:10 WIB, Mag:5.4, Lat:1.86°LU, Long:127.27°BT, Kedalaman:119 Km, Halmahera, Indonesia											
No	IdSta	Stasiun	Latitude	Longitude	Jarak	MMI	SIG	PGA-EW (gal)	PGA-NS (gal)	PGA-UD (gal)	Site Class
1	TNTI	TERNATE	0.77	127.37	168.82	I	I	0.2577	NaN	0.0049	
2	TMUN		0.66	127.45	178.27	I	I	0.0284	0.0245	0.0431	
3	SAMI	STA MET SAMRATULANGI MANADO	1.54	124.92	287.86	I	I	0.2352	0.2205	0.1901	
4	SLMI	STA GEOF MANADO	1.44	124.84	297.66	I	I	0.1597	0.1401	0.1068	
5	LBMI	LABUHA	-0.64	127.50	302.06	I	I	0.0813	0.0853	0.0637	
6	KMSI	KOTA MUBAGO	0.57	123.98	409.03	I	I	0.3293	0.344	0.1676	
7	SANI	SANANA	-2.05	125.99	471.36	I	I	0.1901	NaN	0.1068	
8	SWI	SORONG	-0.86	131.26	548.84	I	I	0.0039	0.0039	0.0029	
9	SMSI	SUMALATA	0.99	122.36	565.25	I	I	0.0118	0.0118	0.0098	
10	NLAI	NAMLEA MALUKU	-3.24	127.10	578.47	I	I	0.3097	0.2832	0.5684	
11	KRAI	KAIRATU	-3.32	128.40	599.96	I	I	0.0715	0.0715	0.047	E
12	LUWI	LUWUK	-1.04	122.77	605.76	I	I	0.0127	NaN	0.0735	
13	MSAI	MASOHI	-3.35	128.93	617.92	I	I	0.0902	0.0892	0.0343	
14	MRSI	MARISA GORONTALO	0.48	121.94	622.34	I	I	0.0127	0.0147	0.0127	
15	PAMI	STA MET PATTIMURA AMBON	-3.71	128.10	636.27	I	I	0.4704	0.4851	0.4106	E
16	KDRI	STA MET KENDARI	-3.97	122.59	838.43	I	I	0.0157	0.0245	0.0431	
17	TTSI	TANATORAJA	-3.05	119.82	997.65	I	I	0.0088	0.0118	0.0049	D



Gambar 145 Peta Guncangan Gempabumi 21 Desember 2018 pukul 02:26:09 WIB



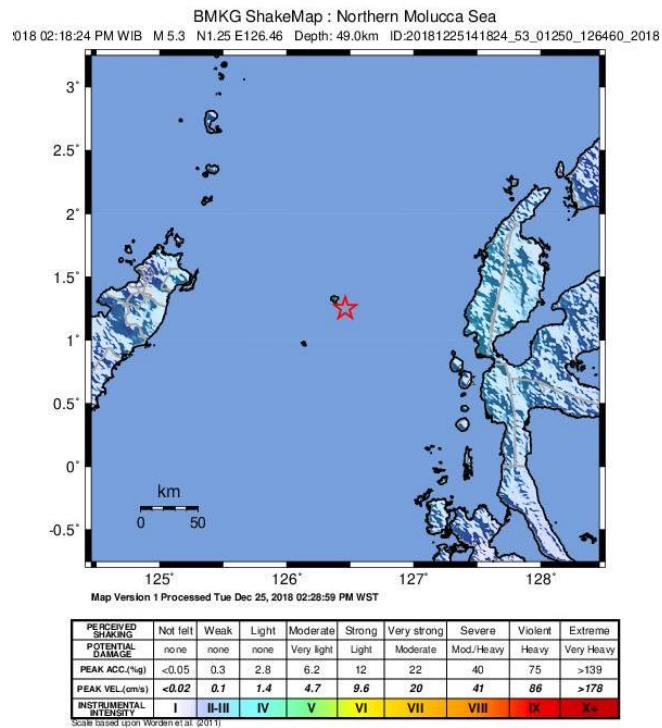
Gambar 146 Peta Guncangan Gempabumi 21 Desember 2018 pukul 09:22:21 WIB



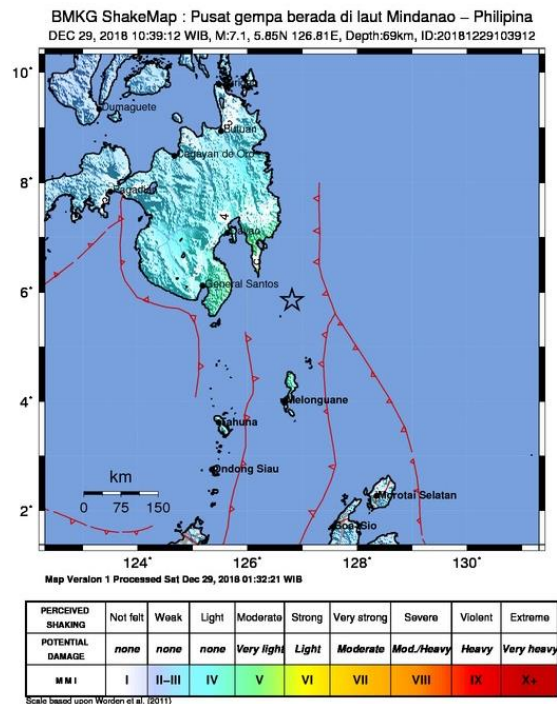
Gambar 147 Peta Guncangan Gempabumi 22 Desember 2018 pukul 23:13:29 WIB

Tabel 73 Tabel Nilai Percepatan Tanah Gempabumi 22 Desember 2018

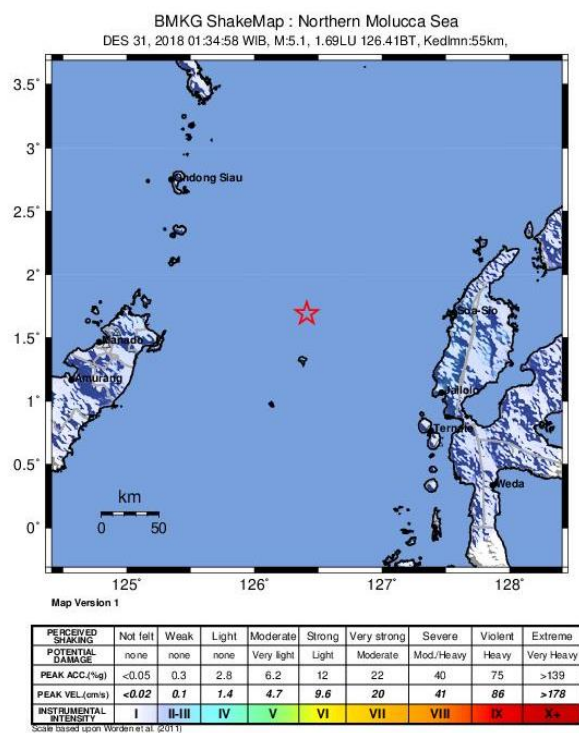
Badan Meteorologi Klimatologi dan Geofisika Laporan Kejadian Gempa Bidang Seismologi Teknik											
Gempabumi 22 Desember 2018, jam 23:13:29 WIB, Mag:4.8, Lat:0.64°LU, Long:121.76°BT, Kedalaman:63 Km, 8 km Tenggara											
No	IdSta	Stasiun	Latitude	Longitude	Jarak	MMI	SIG	PGA-EW (gal)	PGA-NS (gal)	PGA-UD (gal)	Site Class
1	MRSI	MARISA GORONTALO	0.48	121.94	27.08	III	II	3.5633	4.5051	1.9169	
2	SMSI	SUMALATA	0.99	122.36	77.63	II	I	3.7671	2.7852	1.3818	
3	GMCI	STA MET GORONTALO	0.63	122.85	121.20	II-III	I	2.2501	2.5549	0.8575	D
4	LWUI	Luwuk	-1.04	122.77	218.25	I	I	0.1833	NaN	1.9169	
5	PMCI	STA MET POSO	-1.42	120.65	260.19	I	I	0.0813	0.1284	0.1049	
6	TTSI	TANATORAJA	-3.05	119.82	463.09	I	I	0.0176	0.0127	0.0098	D
7	SANI	SANANA	-2.05	125.99	557.03	I	I	0.0118	NaN	1.3818	
8	BKB	BALIKPAPAN	-1.11	116.91	573.73	I	I	0.0098	NaN	0.8575	



Gambar 148 Peta Guncangan Gempabumi 25 Desember 2018 pukul 14:18:21 WIB



Gambar 149 Peta Guncangan Gempabumi 29 Desember 2018 pukul 10:39:12 WIB



Gambar 150 Peta Guncangan Gempabumi 31 Desember 2018 pukul 01:34:55 WIB

Tabel 74 Tabel Nilai Percepatan Tanah Gempabumi 31 Desember 2018

Badan Meteorologi Klimatologi dan Geofisika Laporan Kejadian Gempa Bidang Seismologi Teknik ===== Gempabumi 31 Desember 2018, jam 01:34:58 WIB, Mag:5.1, Lat:1.69°LU, Long:126.41°BT, Kedalaman:55 Km, Northern Molucca Sea =====											
No	IdSta	Stasiun	Latitude	Longitude	Jarak	MMI	SIG	PGA-EW(gal)	PGA-NS(gal)	PGA-UD(gal)	Site Class
1	TNTI	TERNATE	0.77	127.37	146.58	I	I	0.3508	NaN	0.0078	
2	TMUN		0.66	127.45	161.21	I	I	0.0519	0.0588	0.0529	
3	SAMI	STA MET SAMRATULANGI MANADO	1.54	124.92	165.41	II	I	1.4181	1.1446	0.5606	
4	SLMI	STA GEOF MANADO	1.44	124.84	175.91	II	I	0.8036	0.9878	0.5429	
5	LBMI	LABUHA	-0.64	127.50	285.00	I	I	0.0813	0.0882	0.0715	
6	KMSI	KOTA MUBAGO	0.57	123.98	296.30	II	I	0.3989	0.4449	0.2479	
7	GMCI	STA MET GORONTALO	0.63	122.85	412.08	I	I	0.1725	0.1607	0.2832	D
8	SANI	SANANA	-2.05	125.99	417.41	I	I	0.8036	NaN	0.0225	
9	SMSI	SUMALATA	0.99	122.36	455.51	I	I	0.0118	0.0108	0.0098	
10	LUWI	LUWUK	-1.04	122.77	504.98	I	I	0.0529	0.0157	0.0372	
11	MRSI	MARISA GORONTALO	0.48	121.94	513.95	I	I	0.0118	0.0157	0.0108	
12	NLAI	NAMLEA MALUKU	-3.24	127.10	552.56	I	I	0.0598	0.049	0.0598	
13	KRAI	KAIRATU	-3.32	128.40	598.16	I	I	0.0225	0.0265	0.0147	E
14	TTSI	TANATORAJA	-3.05	119.82	901.33	I	I	0.0069	0.0059	0.0078	D

V. DATA DAN INFORMASI TSUNAMI

5.1. Informasi Gempabumi Berpotensi Tsunami

Gempabumi tektonik telah terjadi di Kabupaten Donggala, Sulawesi Tengah dengan parameter sebagai berikut :

Hari, Tanggal : Jum'at, 28 September 2018

OT : 17:02:44 WIB

Lokasi : 0.18 LS dan 119.85 BT (26 km Utara Donggala, Sulawesi Tengah)

Kedalaman : 10 km

Magnitudo : 7.4

Berdasarkan hasil pemodelan, gempabumi ini diperkirakan menyebabkan tsunami dengan level tertinggi siaga (0.5m-3m) di Palu dan estimasi waktu tiba pukul 17.22 WIB, sehingga BMKG mengeluarkan peringatan dini tsunami. Setelah dilakukan pengecekan terhadap hasil observasi tide gauge di Mamuju (Sulawesi Barat) yang berjarak sekitar 237 km dari Palu, tercatat adanya perubahan kenaikan muka air laut setinggi 6 cm pukul 17.27 WIB. Berdasarkan hasil update mekanisme sumber gempa yang bertipe mendatar (strike slip) dan hasil observasi ketinggian gelombang tsunami, serta telah terlewatnya perkiraan waktu kedatangan tsunami maka Peringatan Dini Tsunami (PDT) ini diakhiri pada pukul 17.36.12 WIB.

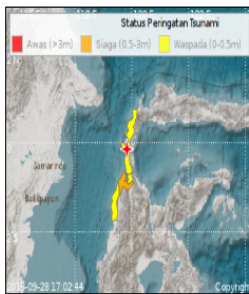
5.2. Diseminasi Informasi Peringatan Dini

5.2.1. Peringatan Dini lewat WRS DVB:

Berita 1:
Waktu kirim: 28 September 2018,17:07 WIB

**PERINGATAN DINI TSUNAMI**
BADAN METEOROLOGI KLIMATOLOGI DAN GEOFISIKA





Status Peringatan Tsunami
■ Rawas (>3m) ■ Siaga (0.5-3m) ■ Waspada (0-0.5m)

Magnitude **7.7**
Skala Richter

Waktu : 28-Sep-18 17:02:44 WIB
Lokasi : 0.18 LS - 119.85 BT
Kedalaman: 10 Km

Keterangan lokasi gempabumi :

27 km TimurLaut DONGGALA-SULTENG
80 km BaratLaut PALU-SULTENG
123 km TimurLaut MAMUJUUTARA-SULBAR
134 km BaratLaut SIGI-SULTENG
1593 km TimurLaut JAKARTA-INDONESIA

**Berpotensi TSUNAMI untuk diteruskan
pada Masyarakat**

Perkiraan wilayah terpapar, tingkat ancaman tsunami, dan perkiraan waktu tiba gelombang tsunami.

BERPOTENSI TERJADI TSUNAMI DI WILAYAH		
Propinsi	Lokasi	Status
SULTENG	DONGGALA BAGIAN BARAT	SIAGA
SULTENG	DONGGALA BAGIAN UTARA	WASPADA
SULBAR	MANUJU BAGIAN UTARA	WASPADA
SULTENG	KOTA-PALU BAGIAN BARAT	WASPADA

Keterangan Warna :

Awas Tsunami ($h \geq 3m$)
Siaga Tsunami ($0.5m \leq h < 3m$)
Waspada Tsunami ($h < 0.5m$)

Berita 4 : (Pengakhiran)
Waktu kirim: 28 September 2018,17:36:12 WIB




PERINGATAN DINI TSUNAMI
BADAN METEOROLOGI KLIMATOLOGI DAN GEOFISIKA



Peringatan dini TSUNAMI yang disebabkan gempa kekuatan : 7.7 SR
tanggal : 28-Sep-18 17:02:45 WIB
dinyatakan TELAH BERAKHIR berdasarkan pertimbangan data observasi muka air laut

5.2.2. Peringatan Dini lewat SMS:

Berita 1

Info Gempa Mag:7.7 SR,28-Sept-18 17:02:45 WIB,Lok:0.18 LS,119.85 BT (27 km TimurLaut DONGGALA - SULTENG),Kedlmn:10 Km,Potensi TSUNAMI utk dtrskn pd msyrkt::BMKG

Berita 4

Peringatan dini TSUNAMI yang disebabkan oleh gempa mag:7.7 SR, tanggal: 28-Sep-18 17:02:45 WIB, dinyatakan telah berakhir::BMKG

5.2.3. Peringatan Dini lewat Surat Elektronik (e-mail):

Sistem Peringatan Dini Tsunami Indonesia (InaTEWS)

BADAN METEOROLOGI KLIMATOLOGI DAN GEOFISIKA

Alamat: Jl. Angkasa I no.2 Kemayoran, Jakarta, Indonesia, 10720

Telp.: (+62-21) 4246321/6546316, Fax: (+62-21) 6546316/4246703

P.O. Box 3540 Jkt, Website : <http://www.bmkg.go.id>

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Tanggal dikeluarkan: 28-Sept-18 17:02:45 WIB

Informasi gempabumi

No.:1736-28/warning/InaTEWS/09/2018

Telah terjadi gempabumi dengan parameter sementara sbb:

Kekuatan : 7.7 SR

Tanggal : 28-Sept-18

Waktu Gempa : 17:02:45 WIB

Lintang : 0.18 LS

Bujur : 119.85 BT

Kedalaman : 10 Km

Lokasi : Donggala, Palu

Keterangan : 27 km TimurLaut DONGGALA -SULTENG

80 km BaratLaut PALU – SULTENG

123 km TimurLaut MAMUJU UTARA – SULBAR

134 km BaratLaut SIGI – SULTENG

1593 km TimurLaut JAKARTA - INDONESIA

Informasi Tsunami :

Kemungkinan terjadi TSUNAMI lokal yang merusak, untuk radius < 100 km dari episenter

Informasi ini telah diperiksa oleh Seismologist

Harap jangan me-reply kealamat email ini, tetapi kealamat : info_inatews@bmkg.go.id

LAMPIRAN

1. Skala Modified Mercally Intensity (MMI)



BADAN METEOROLOGI KLIMATOLOGI DAN GEOFISIKA
Jalan Angkasa I 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

3. Stasiun seismik yang digunakan Stasiun Geofisika Manado untuk analisa parameter gempa bumi.

