

SUMMARY OF EARTHQUAKES

reported by tsunami warning centres*

1 JANUARY- 12 DECEMBER 2009

Advisories issued by international tsunami warning centres. The Pacific Tsunami Warning Center (P) issues: Tsunami Information Bulletins (TIB), Fixed and Expanding Regional Warnings (FRW, ERW), and Ocean-wide Watch/Warnings (TWW) for the Pacific; Tsunami Information Bulletins (TIB), Local, Regional, and Ocean-wide Tsunami Watches (LTW, RTW, TW) for the Indian Ocean; Tsunami Information Statements (TIS), Local, Regional, and Ocean-wide Watches (LTW, RTW, TW) for the wider Caribbean. The Japan Meteorological Agency (J), issues: Tsunami Advisories (NWPTA) for the Northwestern Pacific; Tsunami Watch Information (TWI) for the Indian Ocean. The West Coast/Alaska Tsunami Warning Center (A) issues: Tsunami Information Statements (TIS), Tsunami Watch/Warnings (TWW) for Canada, the US (including Puerto Rico, excluding Hawaii and US-affiliated Pacific Island countries), and the US/British Virgin Islands. Depth (from GCMT solution) epicenter and Mw from the USGS (G), and Mw from PTWC (P) and JMA (M_{JMA} for Japan local vicinity) at action time. Wave height and period measurements from sea level gauges reported as amplitude, peak to trough, or greatest value for either inundation or runup as indicated. Other earthquakes with moment magnitude (Mw) greater than or equal to 6.5 and a depth no greater than 100 km, as recorded by USGS, have also been included.

*Compiled by The International Tsunami Information Centre, ITIC

DATE	TIME (UTC)	LOCATION	EPICENTER	DEPTH (km)	M _w	PTWC (P) JMA (J), or WC/ATWC (A) ACTION	ACTION TIME (UTC)	TSUNAMI? DAMAGING?	MAXIMUM MEASUREMENT and LOCATION
03 Jan	19:44	Irian Jaya Region, Indonesia	0.414° S 132.885° E	18	7.6 (GCMT) 7.5 (J, P) 7.4 (G)	TIB (P) TIS (A) NWPTA	19:56 19:56 20:05	YES NO	0.78m (peak-to-trough) Manokwari
03 Jan	22:34	Irian Jaya Region, Indonesia	0.691° S 133.305° E	19	7.5 (J, P) 7.4 (GCMT) 7.2 (G)	TIB (P) TIS (A) NWPTA NWPTA 002 TIB 002 (P)	22:48 22:48 22:51 01:59 (4Jan) 02:11 (4Jan)	NO	
15 Jan	07:27	Southeast of Loyalty Islands	22.352° S 170.635° E	26	6.8 (A, P) 6.6 (GCMT) 6.4 (G)	TIS (A) TIB (P)	07:39 07:40	NO	
15 Jan	17:50	East of the Kuril Islands	46.857° N 155.154° E	45	7.5 (A, J, P) 7.4 (GCMT) 7.3 (G)	TIB (P) TIS (A) NWPTA	18:04 18:04 18:20	YES NO	22.5 cm (peak-to-trough) Severo-Kurilsk tide gauge
19 Jan	03:35	Southeast of Loyalty Islands	22.604° S 170.881° E	15	6.6 (A, P) 6.5 (G, GCMT)	TIB (P) TIS (A)	03:47 03:47	NO	
11 Feb	17:35	Talaud Islands, Indonesia	3.902° N 126.400° E	23	7.4 (A, J, P) 7.2 (G) 7.1 (GCMT)	TIB (P) TIS (A) NWPTA	17:46 17:46 17:50	NO	
18 Feb	21:54	Kermadec Islands	27.424° S 176.330° W	38	7.3 (A, P) 6.9 (G, GCMT)	TIB (P) TIS (A)	22:04 22:03	NO	
06 Mar	10:50	North of Svalbard	80.324° N 1.853° W	12	6.5 (A, P, G, GCMT)	TIS (A) TIS (P)	11:01 11:44	NO	
12 Mar	23:24	South of Panama	5.686° N 82.767° W	19	6.6 (A, P) 6.3 (GCMT) 6.2 (G)	TIB (P) TIS (A)	23:34 23:34	NO	
19 Mar	18:18	Tonga Island Region	23.046° S 174.659° W	50	7.7 (A, P) 7.6 (G, GCMT)	TIS (A) FRW-Initial (P) 002 (P) 003--Cancel (P)	18:30 18:30 19:32 20:08	YES NO	0.270 m (peak-to-peak) Santa Cruz, Galapagos

2009 Earthquake List, *continued*

DATE	TIME (UTC)	LOCATION	EPICENTER	DEPTH (km)	M _w	PTWC (P) JMA (J), or WC/ATWC (A) ACTION	ACTION TIME (UTC)	TSUNAMI? DAMAGING?	MAXIMUM MEASUREMENT and LOCATION
07 Apr	04:24	Kuril Islands	46.049° N 151.548° E	43	6.9 (G, GCMT) 6.8 (A, P) 6.6 (M _{Jma})	TIS (A) TIB (P) NWPTA	04:37 04:36 04:36	NO	
16 Apr	14:57	South Sandwich Islands Region	60.203° S 26.858° W	24	6.7 (A, P, GCMT) 6.6 (G)	TIS (A) TIB (P)	15:15 15:20	NO	
18 Apr	19:17	Kuril Islands	46.015° N 151.427° E	49	6.8 (A, P) 6.6 (GCMT) 6.4 (G)	TIS (A) TIB (P)	19:38 19:37	NO	
28 May	08:25	North of Honduras	16.720° N 86.233° W	14	7.3 (A, GCMT, P) 7.1 (G)	LTW (P) TIS (A) LTW-Cancel	08:33 08:33 09:47	NO	
02 June	02:17	Vanuatu Islands	17.757° S 167.949° E	19	6.5 (A, P) 6.3 (G, GCMT)	TIB (P) TIS (A)	02:28 02:29	NO	
23 June	14:19	New Ireland Region, Papua New Guinea	5.157° S 153.782° E	73	6.8 (A, J, P) 6.7 (G, GCMT)	TIB (P) TIS (A) NWPTA	14:32 14:34 14:39	NO	
15 July	09:23	Off West Coast of South Island of New Zealand	45.762° S 166.562° E	22	7.8 (A, GCMT, P) 7.6 (G)	Fixed Regional Warning(P) FR Warning-Supplement (P) FR Warning-Cancellation (P) TIS 01 (A) TIS 02 (A)	09:42 10:33 10:51 09:44 10:23	YES NO	0.47m (peak-to-trough) Jackson Bay, NZ
03 Aug	18:00	Gulf of California	29.039° N 112.902° W	15	6.9 (A, P, G, GCMT)	TIS (A) TIB (P)	18:15 18:16	NO	
09 Aug	10:56	SE of Honshu Japan (Izu Islands)	33.167° N 137.941° E	304	7.1 (G, GCMT) 6.9 (A, M _{Jma} , P)	NWPTA TIS (A) TIB (P)	11:04 11:05 11:10	NO	
10 Aug	04:07	Santa Cruz Islands	11.612° S 166.090° E	44	6.6 (A, G, P) 6.5 (GCMT)	TIB (P) TIS (A)	04:17 04:18	NO	
10 Aug	19:56	Andaman Islands	14.099° N 92.888° E	22	7.7 (A, J, P) 7.6 (G) 7.5 (GCMT)	(IO) Regional Watch (P) RW 002 (P) RW 003 (P) Cancel. 004 (P) TIS 01 (A) (IO) TWI (J)	20:05 21:05 21:24 22:11 20:11 20:25	YES NO	1.4 cm (peak-to-peak) DART 23401 (600 Nautical miles- NNW of Phuket, Thailand)
10 Aug	20:07	Near South Coast of Honshu, Japan	34.743° N 138.264° E	40 (G)	6.6 (A, P) 6.6 (M _{Jma}) 6.4 (G)	NWPTA 001 NWPTA 002 TIB (P) TIS (A)	20:12 21:07 21:17 21:19	YES NO	.60 cm wave recorded at Yaizu

2009 Earthquake List, *continued*

DATE	TIME (UTC)	LOCATION	EPICENTER	DEPTH (km)	M _w	PTWC (P) JMA (J), or WC/ATWC (A) ACTION	ACTION TIME (UTC)	TSUNAMI? DAMAGING?	MAXIMUM MEASUREMENT and LOCATION
12 Aug	22:49	SE of Honshu Japan (Izu Islands)	32.821° N 140.395° E	57	6.6 (G, GCMT) 6.5 (A, MJma, P)	NWPTA TIB (P) TIS (A)	22:56 23:01 23:02	NO	
16 Aug	07:38	Southern Sumatra Indonesia	1.479° S 99.490° E	12	6.9 (A, P) 6.7 (GCMT) 6.5 (G)	(IO) TIB (P) (IO) TWI (J) TIB (P) 002 TWI (J) 002	07:49 08:02 08:47 09:10	YES NO	0.18m (amplitude) Padang
17 Aug	00:06	Southwestern Ryukyu Islands	23.501° N 123.499° E	25	6.8 (A, MJma, P) 6.7 (GCMT) 6.6 (G)	NWPTA TIS (A) TIB (P)	00:11 00:18 00:19	NO	
17 Aug	10:11	Southwestern Ryukyu Islands	23.424° N 123.528° E	12	6.5 (A, MJma, P) 6.2 (G) 6.1 (GCMT)	NWPTA TIB (P) TIB (A)	10:15 10:23 10:25	NO	
28 Aug	01:51	Banda Sea	7.146° S 123.427° E	633	6.9 (G, GCMT) 6.7 (P)	TIB (P)	02:01	NO	
30 Aug	14:52	Samoa Islands Region	15.223° S 172.571° W	14	6.6 (A, G, GCMT, P)	TIB (P) TIS (A)	15:07 15:03	NO	
02 Sept	07:55	Java Indonesia	7.782° S 107.297° E	53	7.1 (P) 7.0 (G, GCMT)	(IO) LTW 001 (P) TIS (A) TIB 002 (P) Cancel	08:06 08:26 08:59	NO	
12 Sep	20:06	Near coast of Venezuela	10.705° N 67.920° W	12	6.4 (A, P) 6.3 (GCMT) 6.2 (G)	TIS (A) TIB (P)	20:15 20:16	NO	
24 Sep	07:16	Off Coast of Jalisco Mexico	18.822° N 107.345° W	14	6.7 (A, P) 6.3 (G,GCMT)	TIB (P) TIS (A)	07:28 07:28	NO	
29 Sep	17:48	Samoa Islands Region	15.489° S 172.095° W	12	8.3 (A, P 002-4) 8.1 (G, GCMT) 7.9 (A, P, initial 001)	Expanding Regional Warning 001(P) TIS 001 (A) ERW 002 (P) TIS 002 (A) ERW 003 (P) ERW 004 -Cancel (P) Advisory 003- (A) Advisory 004 (A) Advisory 005 (A) Advisory 006 (A) Advisory 007 (A) Advisory 008 (A) Advisory 009 -Cancel (A)	18:04 18:02 18:56 18:59 20:22 21:36 22:02 23:14 00:21(30Sep) 02:24(30 Sep) 04:28 (30 Sep) 06:30 (30 Sep) 08:28 (30Sep)	YES YES	4.11 m (peak to peak) Pago Pago

2009 Earthquake List, *continued*

DATE	TIME (UTC)	LOCATION	EPICENTER	DEPTH (km)	M _w	PTWC (P) JMA (J), or WC/ATWC (A) ACTION	ACTION TIME (UTC)	TSUNAMI? DAMAGING?	MAXIMUM MEASUREMENT and LOCATION
30 Sep	10:16	Southern Sumatra Indonesia	0.720° S 99.867° E	76	7.7 (P) 7.5 (G, GCMT) 7.6 (A, J)	(IO) Regional Watch Bulletin 001 (P) TIS (A) TWI 001 (J) (IO) RWatchB 002 (P)--Cancel TWI 002 (J)--Cancel	10:26 10:30 10:38 11:31 11:55	YES NO	0.27 m (Amp) Padang Tide Gauge
01 Oct	01:53	Southern Sumatra Indonesia	2.515° S 101.501° E	15	6.8 (P, J) 6.7 (G) 6.6 (GCMT)	(IO) TIB (P) TWI (J)	02:00 02:12	NO	
04 Oct	10:58	Mindanao, Philippines	6.740° N 123.378° E	626	6.6 (G, GCMT) 6.5 (A, P, J)	TIB (P) TIS (A) NWPTA	11:12 11:14 11:17	NO	
07 Oct	21:41	Celebes Sea	4.043° N 122.584° E	583	6.8 (A, G, GCMT. P)	TIB (P) TIS (A) NWPTA	21:50 21:50 21:57	NO	
07 Oct	22:03	Vanuatu Islands	13.052° S 166.187° E	46	8.0 (P, changed to 7.8 with ERW 003) 7.7 (G) 7.6 (GCMT)	TIS (A) ERW 001 (P) NWPTA ERW 002 (P) ERW 003 (P)--Cancellation	22:14 22:17 22:24 23:36 00:18 (8 Oct)	YES NO	.0632 m (peak to peak) Vanuatu tide gauge
07 Oct	22:18	Santa Cruz Islands	12.57° S 166.31° E	43	7.8 (G, GCMT)	—	—	NO	
07 Oct	23:13	Vanuatu	13.052° S 166.187° E	12	7.4 (G, GCMT)	—	—	NO	
08 Oct	02:13	Santa Cruz Islands	11.650° S 166.170° E	33 (G)	6.6 (G)	—	—	NO	
08 Oct	08:29	Vanuatu	13.298° S 165.951° E	12	7.0 (P, A, J) 6.8 (G) 6.7 (GCMT)	TIB (P) TIS (A) NWPTA	08:41 08:40 08:49	NO	
13 Oct	05:37	Fox Islands Aluetian Islands Alaska	52.959° N 167.039° W	16	6.5 (G, GCMT) 6.3 (A)	TIS (A)	05:43	NO	
24 Oct	14:41	Banda Sea	6.136° S 130.384° E	156	7.0 (P) 6.9 (G, GCMT)	TIB (P)	14:51	NO	
30 Oct	07:04	Ryukyu Islands	29.192° N 129.877° E	37	6.9 (A) 6.8 (G, GCMT, J, P)	NWPTA TIB (P) TIS (A)	07:08 07:13 07:13	NO	

2009 Earthquake List, *continued*

DATE	TIME (UTC)	LOCATION	EPICENTER	DEPTH (km)	M _w	PTWC (P) JMA (J), or WC/ATWC (A) ACTION	ACTION TIME (UTC)	TSUNAMI? DAMAGING?	MAXIMUM MEASUREMENT and LOCATION
08 Nov	19:42	Sumbawa Region Indonesia	8.270° S 118.633° E	20	6.9 (A,P) 6.6 (G, GCMT)	(IO) TIB (P) TIS (A) TWI (J)	19:53 19:56 20:07	NO	
09 Nov	10:45	Fiji Islands	17.212° S 178.413° E	604	6.8 (P, changed to 7.1) 7.2 (G) 7.3 (GCMT)	TIB (P) TIS (A) TIB 002 --Sup.	10:54 10:56 11:08	NO	
13 Nov	03:06	Near Coast of Northern Chile	19.385° S 70.266° W	37	6.5 (A,P, G, GCMT)	TIB (P) TIS (A)	03:18 03:18	NO	
17 Nov	15:31	Queen Charlotte Islands	52.151° N 131.378° W	16	6.6 (G, GCMT) 6.5 (A, P)	TIS (A) TIB 001 (P) TIB 002-Sup TIB 003 - Sup	15:36 15:43 16:01 16:06	NO	
24 Nov	12:47	Tonga Islands	20.641° S 174.068° W	23	6.8 (A, G, P) 6.7 (GCMT)	TIB (P) TIS (A)	12:57 13:00	NO	
09 Dec	09:46	SE of the Loyalty Islands	22.140° S 170.944° E	57	6.5 (A, P) 6.4 (G, GCMT)	TIB (P) TIS (A)	09:56 09:58	NO	