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BLUE MOUNTAINS SEISMOLOGICAL OBSERVATORY

Blue Mountains Seismological
Bolt Observatory
Oregon, USA

Seismological Bulletin

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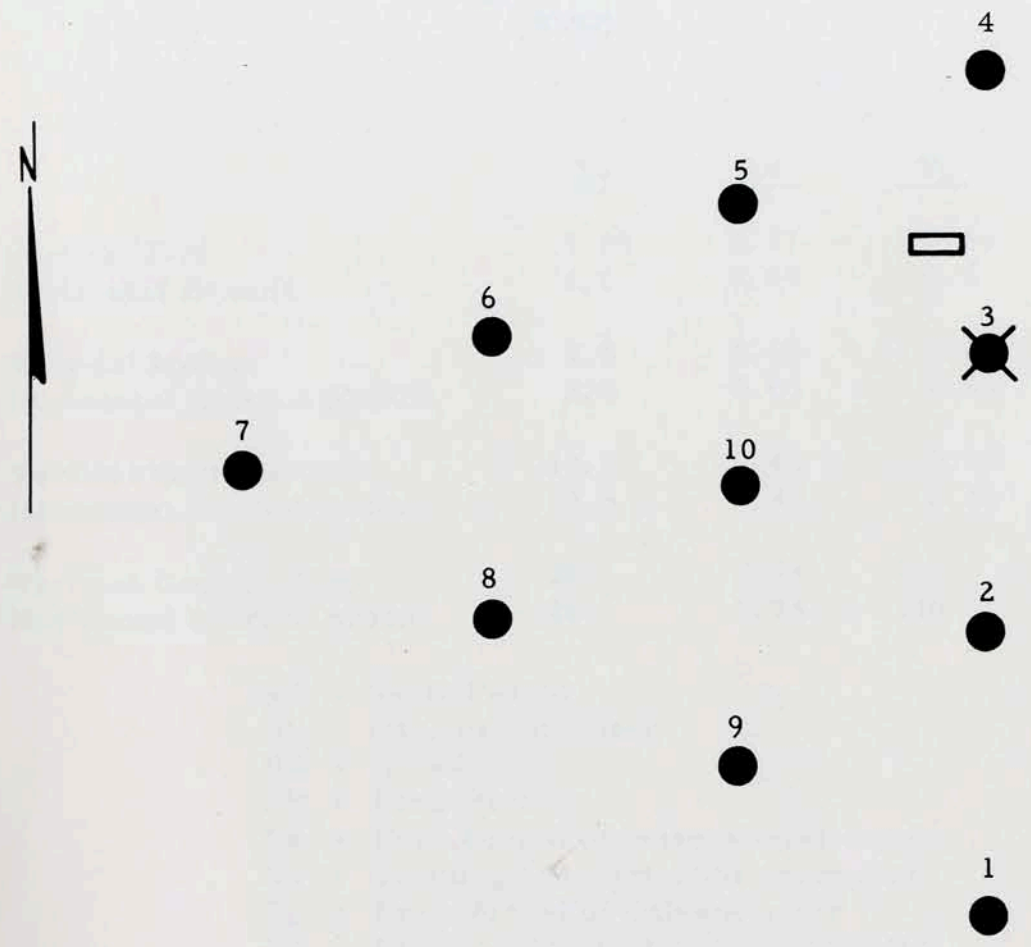
SCIENCE SERVICES DIVISION
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INCORPORATED
1400 EXCHANGE PARK NORTH
P.O. BOX 38094 DALLAS, TEXAS

THE REGISTRATION OF EARTHQUAKES
AT THE
BLUE MOUNTAINS SEISMOLOGICAL OBSERVATORY

Station Abbreviation: BMO
Station Identification on Film Seismograms: BMO
Geographical Location:* 44° 50' 56" N
117° 18' 20" W
Geocentric Location:* 44° 39' 40" N
117° 18' 20" W
Altitude (Meters):* 1189 (3900 feet)
Geology: Granite

Blue Mountains Seismological Observatory is a quiet station with microseisms primarily of 2 and 4-second periods and occasional 3-cps wave trains.

*Refers to Vault #3, which contains horizontal short period seismometers also.



- LEGEND
- VAULTS
 - ⊗ VAULTS - 3 COMPONENT SYSTEMS
 - ▭ CENTRAL RECORDING BUILDING

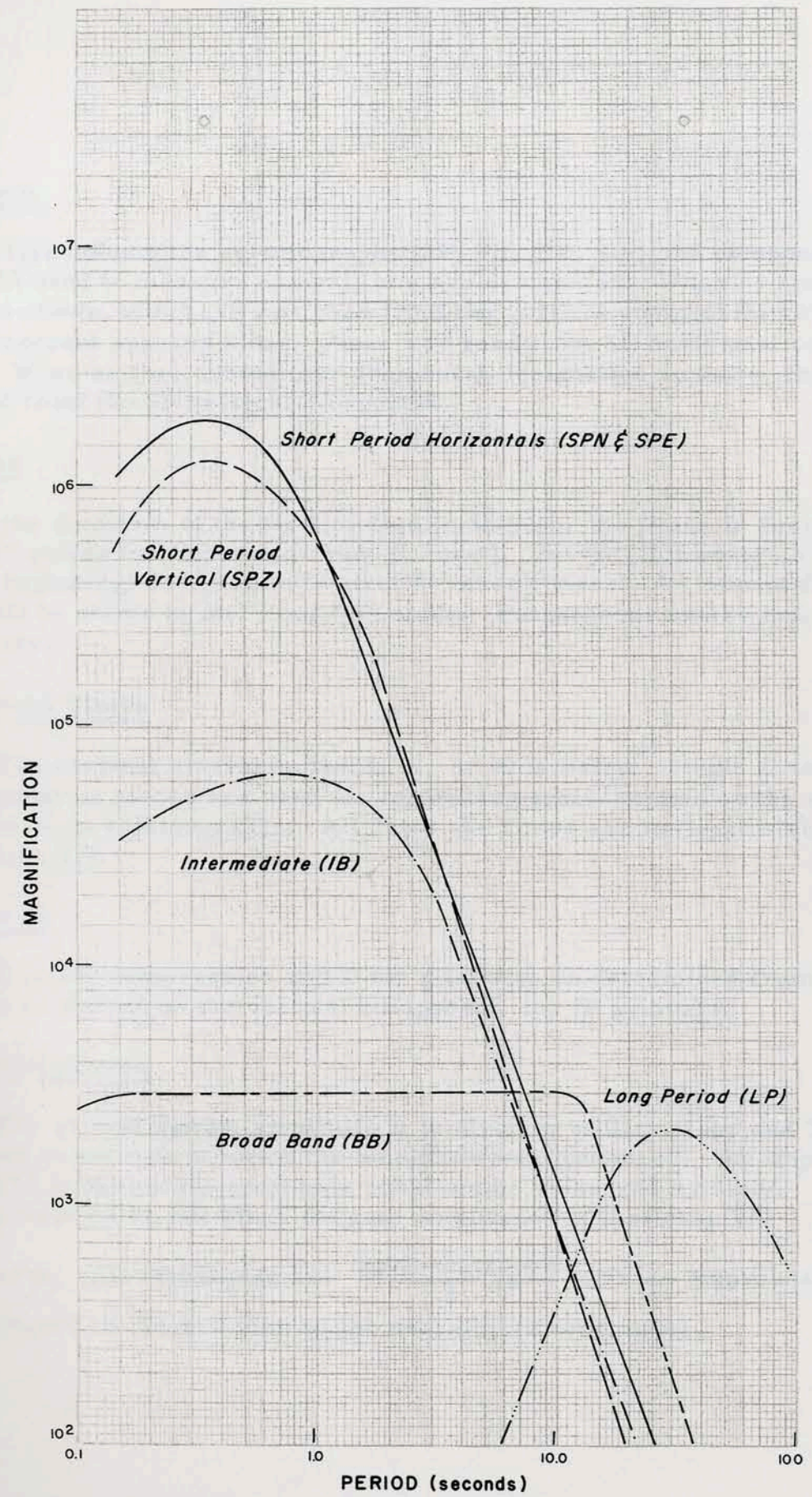
VERTICAL ARRAY
BLUE MOUNTAINS SEISMOLOGICAL OBSERVATORY

SEISMOGRAPHS
 (BMO)

	<u>T_s</u>	<u>λ_s</u>	<u>T_g</u>	<u>λ_g</u>
SP Vertical J-M	1.25	0.51	0.33	0.65
SP Horizontal Benioff	1.0	0.67	0.2	1.0
IB Vertical Melton	2.5	0.65	0.61	1.2
IB Horizontal Geotech 8700B	2.5	0.65	0.64	1.2
BB Vertical Geotech 7505	12.5	0.43	0.64	9.0
BB Horizontal Geotech 8700A	12.5	0.43	0.64	9.0
LP Vertical Geotech 7505	20	0.74	110	1.0
LP Horizontal Geotech 8700A	20	0.74	110	1.0

- SP = Short Period
- IB = Intermediate Band
- BB = Broad Band
- LP = Long Period
- T_s = Free Period of Seismometer in sec.
- λ_s = Damping Constant of Seismometer
- T_g = Free Period of Galvanometer
- λ_g = Damping Constant of Galvanometer

Response curves are given on page iv.



AMPLITUDE RESPONSE OF SEISMOGRAPHS

1. System

In this column the seismographs (SP, IB, BB, LP) and components (Z, N, E) used to measure arrival time are designated. When no component is shown, the phase was read from the vertical component. When N or E component appears alone, phase was read from SP horizontal component. When neither system nor component designation appears, the phase was read from the SP vertical component.

2. Phase

If the direction of the first motion is definite, the phase is designated "i". ("i" stands for impetus or sudden onset). An "E" (for emergence or gradual beginning) designation is given to other phases. An unidentified phase will be shown by an "I" or "E" alone. Parentheses marks indicate uncertainty.

3. Arrival Times

The earliest arrival on the Z, N, or E is listed. Single Z rather than summation traces are used for measuring arrival times on the short period vertical seismographs. All dates and times are in Greenwich Civil Time (G.C.T.).

4. C or D

C is for compression and D for dilatation as determined from the direction of motion on the vertical component, for iP arrivals.

5. Ground Motion

The ground motion amplitude A is given in millimicrons and T is the period in seconds at which the amplitude was measured. An amplitude of 999 indicates the amplitude could not be measured reliably. P-phase amplitudes left blank indicate amplitudes of less than 1/2

millimicron. All amplitudes are $\frac{\text{peak-to-trough}}{2}$. Trace amplitudes are measured on the X10 view to the nearest 1/2 millimeter.

6. Type

Earthquakes are identified by range of epicentral distances as follows:

L (local)	0°	-	1.4°
NR (near-regional)	1.4°	-	6°
R (regional)	6°	-	16°
T (teleaseismic)	16°	-	180°

7. Remarks

The following items are reported here:

- 1) Epicenter locations, origin times, depth of foci, and magnitudes as given in the U. S. Coast and Geodetic Survey's Preliminary Determination of Epicenter cards.
- 2) Epicentral distances and station-to-epicenter azimuths as computed from the station and epicenter coordinates.
- 3) Epicentral distances as determined from S-P intervals and direction of epicenter as found from P waves or Rayleigh waves for teleseisms or as determined from the vertical array for nearby events.
- 4) Operational difficulties which affect the interpretation of data.

Month of September

Blue Mountains Seismological Observatory

Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
1	x	IB	02:18:21.6		7	0.2	L	$\Delta(S-P) = \text{less than } .1^\circ$
		N	02:18:24.5			0.3		
1	y	E	02:31:00.3 02:31:27.8		2	0.5 0.5	NR	$\Delta(S-P) = 2.2^\circ$
1	✓	iP	03:53:49.4	C	197	1.6	T	Rat Is. Aleutian Is. 51.3N., 179.7W. 0 = 03:46:05 h about 25 km $\Delta = 41.1^\circ$ Dir. = 302° P-Phase Dir. = WNW
		IB						
		BB						
		LP						
		e	03:56:23.9			1.5		
		eScP	03:59:33.8			2.1		
		e	03:59:42.9			0.8		
		LPE	04:00:04			19		
		IBE						
		BBE						
		E						
		LPN	eLq	04:03:18		19		
			e	04:04:04.3		1.9		
		LPN	eSur	04:04:19		30		
		LP	eLr	04:06:00		30		
		LP	e	04:09:40		19		
1	x	eP	04:05:41.7		1	0.8	T	
1	x	iP	04:06:05.2	C	19	1.1	T	Rat Is. Aleutian Is. 51.1N., 180.0 0 = 03:58:21.5 h about 33 km $\Delta = 41.3^\circ$ Dir. = 302°
		e	04:08:41.5			1.7		
		e	04:11:17.2			2.0		
1	✓	iP	04:49:24.6	C	40	1.0	T	Rat Is. Aleutian Is. 51.3N., 179.9W. 0 = 04:41:41.5 h about 37 km $\Delta = 41.2^\circ$ Dir. = 302° P-Phase Dir. = NW
		IB						
		BB						
		LP						
		e	04:53:00.0			1.8		
		e	04:53:51.6			1.1		
		eScP	04:55:08.9			1.6		
		E	eS	04:55:36.9		2.0		
		IBE						
		LPE						
		e	04:55:45.0			1.9		

Month of September Blue Mountains Seismological Observatory

Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
		e	04:58:06.4			1.7		
	LP	e	05:02:12			21.0		
1 ✓		eP	04:57:25.5		1	0.7	T	
		e	04:57:40.7			0.9		
1 ✗		eP	05:00:09.2		1	0.5	T	
1 ✗	IB	iP	05:04:49.7	C	96	1.3	T	New Hebrides Is. 15.9S., 168.2E 0 = 04:52:14.5 h about 244 km $\Delta = 90.5^\circ$ Dir. = 248° P-Phase Dir. = SW
		epP	05:05:49.0			1.3		
		e	05:07:17.5			1.0		
		ePP	05:08:25.6			1.7		
		e	05:12:36.1			1.5		
		e	05:14:45.0			1.5		
	LP	e	05:17:48					
		e	05:20:54.5			0.9		
1 ✗		eP	05:22:12.6		13	1.3	T	
		e	05:22:15.6			1.0		
1 ✓		eP	05:22:59.1		10	1.1	T	
		e	05:23:16.3			1.0		
		e	05:23:59.3			1.1		
		e	05:26:44.0			1.2		
1 ✗		eP	05:29:51.2		2	1.2	T	
		e	05:30:11.6			1.8		
		e	05:30:24.3			1.6		
	E	e	05:35:06.8			2.1		
1 ✗		eP	05:35:10.8		5	1.1	T	
		e	05:35:29.5			1.3		
1 ✗		eP	06:05:40.7		1	0.9	T	
1 ✓		eP	06:48:03.4		1	0.6	T	
1 ✓		eP	06:50:09.3		4	1.0	T	
1 ✗		eP	07:49:51.7		10	1.5	T	Rat Islands Aleutian Is.
		eScP	07:55:44.4			0.9		51.2N., 180.0 0 = 07:42:07.4 h about 33 km $\Delta = 41.3^\circ$ Dir. = 302°

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
1 ✓		iP	07:58:50.5	C	62	1.1	T	Rat Is. Aleutian Is. 51.3N., 179.9W 0 = 07:51:08.2 h about 41.2° $\Delta = 41.2^\circ$ Dir. = 302° Mag. 6-1/2 (PAS) 6 (PAL) P-Phase Dir. = NW
	IB							
	BB							
	LP							
		e	07:59:06.8			1.1		
		e	08:00:04.3			1.2		
		e	08:04:30.2			2.9		
		eScP	08:04:34.7			1.4		
	N	eS	08:05:03.6			3.3		
	IBN							
	BBN							
	LPN							
		e	08:06:02.1			1.7		
	LPN	eLq	08:08:12			24		
	E	e	08:08:59.9			1.6		
	LPN	eSur	08:09:19			31		
	LPE	e	08:10:56			32		
1 ✗		eP	08:25:05.2		1	0.9	T	
		e	08:25:15.9			1.2		
1 ✓		eP	08:30:32.6		1	1.0	T	
1 ✓		eP	08:54:50.1		5	1.0	T	Rat Is. Aleutian Is. 51.4N., 179.8W. 0 = 08:47:06.9 h about 29 km $\Delta = 41.1^\circ$ Dir. = 302° P-Phase Dir. = NW
1 ✗	IB	eP	08:59:46.6		2	0.9	T	
		e	08:59:50.9			0.8		
1 ✗		eP	09:03:35.4		1	1.0	T	
1 ✗		eP	09:54:55.2		1	0.5	T	
		e	09:55:57.4			0.8		
1 ✓		eP	10:03:47.2		1	0.7	T	
1 ✗		eP	10:10:40.4		1	0.8	T	
1 ✓	N	eP	10:53:45.0		1	0.3	NR	$\Delta (S-P) = 2.2^\circ$
		eS	10:54:14.0			0.3		

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
1		eP e	11:53:19.0 11:53:26.8		1	0.5 0.8	T	
1		eP	13:06:05.5		1	0.7	T	
1		eP e N eS	14:02:12.0 14:02:20.5 14:03:06.0		1	0.3 0.5 0.3	NR	Δ (S-P) = 4.4°
1		eP e	14:06:54.2 14:11:13.2		1	0.8 1.3	T	
1		eP	14:16:04.5		2	1.1	T	
1		eP	14:53:25.9		1	0.8	T	
1		eP' ePP e	15:19:31.9 15:20:11.7 15:21:25.0		1	0.6 1.3 1.3	T	Near Coast of West Pakistan 25.8N., 65.3E 0 = 15:01:04.6 h about 46 km Δ = 109.7° Dir. = 358°
1		eP	18:18:05.8		4	1.4	T	
1		eP e	18:27:20.4 18:28:24.7		2	0.6 1.0	T	
1	IB LPN LP	iP e e e N ePP LPN LP	19:34:19.4 19:34:42.3 19:37:12.4 19:38:02.5 19:38:24 19:38:27	C	105	2.5	T	Northwest Iran 35.6N., 50.0E. 0 = 19:20:38.8 h about 21 km Δ = 99.1° Dir. = 10° Mag. 7 1/4 PAS 7 3/4 BRK 7 PAL P-Phase Dir., NE Strong surface waves on all systems
	LPN LP	e eSKS ePS	19:41:18.2 19:45:13 19:47:17.4			3.8 16 4.0		

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
		ePKKP	19:51:19.5			1.6		
	LP	e	19:53:10			62		
		e	19:54:43.4			1.8		
		eP'P'	19:58:52.4			2.2		
	LPE	eSur	20:01:48			80		
	E IBE	e	20:04:54.7			1.3		
1		eP	20:14:52.3		2	1.0	T	
1		eP e(P)	20:41:14.9 20:45:03.6		1	0.7 1.1		Northwest Iran 35.3N., 49.6E 0 = 20:27:37.2 h about 33 km Δ = 99.4° Dir. = 10.8°
1		eP	22:16:23.6		4	1.2	T	
1		eP	23:06:17.7			0.6	T	
1		eP	23:15:54.9			1.5	T	
1		eP	23:37:21.8			0.8	T	
1		eP e	23:52:33.4 23:52:42.4		5	0.9 0.8		

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
2		eP e e	01:32:15.0 01:34:12.4 01:39:53.1		2	0.9 1.3 1.0	T	
2		eP	01:56:22.6		1	1.3	T	
2	N	eP eS	02:44:51.1 02:45:44.4		1	0.2 0.3	NR	$\Delta(S-P) = 4.4^\circ$
2	N	eP eS	02:46:10.8 02:47:00.6		1	0.2 0.4	NR	$\Delta(S-P) = 4.1^\circ$
2		iP	03:10:12.9	C	25	1.0	T	Rat Islands Aleutian Islands 51.3N., 179.8W. 0 = 03:02:29.3 h about 26 km $\Delta = 41.1^\circ$ Dir. = 302° P-Phase Dir. = N.W.°
	LPN LP	ePP e eScP e e	03:12:02.2 03:13:26.5 03:15:42.7 03:20:59 03:22:34			2.5 1.3 1.0 30 26		
2		eP e e	03:16:02.6 03:16:07.5 03:16:15.1		1	1.0 0.8 0.6	T	
2		eP	03:20:05.7		1	1.1	T	
2		eP e	04:06:53.0 04:07:13.5		2	1.1 1.0	T	
2		eP	04:37:50.8		1	0.8	T	
2		eP e e e	04:45:07.7 04:45:11.3 04:48:13.6 04:49:36.8		1	1.7 1.5 1.0 1.0	T	
2		eP	05:04:33		2	1.2	T	
2		eP	05:11:50.3		1	1.0	T	
2		eP	05:29:50.8		2	1.2	T	
2		eP	05:40:44.2		2	1.2	T	

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
2	IB	eP e	05:45:46.3 05:46:33.8		14	1.5 2.2	T	Ryukyu Islands 27.5N., 127.0E. 0 = 05:33:05.4 h about 58 km. $\Delta = 87.2^\circ$ Dir. = 307°
2		eP e	06:11:30.8 06:11:50.0		3	1.3 1.5	T	
2		eP e	06:26:05.0 06:26:45.4		2	1.1 1.6	T	
2		eP	06:28:34.8		1	1.1	T	
2		eP	06:45:53.9		4	1.6	T	
2		eP	07:06:01.4		1	1.2	T	
2		eP	07:14:49.8		3	1.5	T	
2		eP e	07:21:12.2 07:21:49.6		2	1.3 1.1	T	
2		ePd e(PP) e	07:29:02.4 07:29:53.9 07:30:41.8		1	1.1 1.0 1.2	T	Northwest Iran 35.6N., 49.2E. 0 = 07:12:02.4 h about 33 km $\Delta = 99.0^\circ$ Dir. = 11°
2		eP	07:37:03.3		1	1.0	T	
2		eP e	07:44:42.4 07:45:18.5		1	1.1 1.1	T	
2		eP e	07:56:48.4 08:01:39.6		6	1.6 1.2	T	
2		eP	08:09:02.6		2	1.2	T	
2		eP	08:32:50.8		1	0.7	T	

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
2	Y	eP	08:35:05.6		1	0.8	T	Near East Coast of Honshu, Japan 34.2N., 139.5E. 0 = 08:23:28.5 h about 33 km $\Delta = 75.0^\circ$ Dir. = 303°
2	Y	eP	09:24:04.0		1	1.2	T	
2	Y	eP	09:30:52.4		1	1.3	T	
2	Y	eP	09:40:53.7		1	0.5	R	$\Delta (S-P) = 9.0$
	N	eS	09:42:37.2			0.8		
	N	eSur	09:42:51.1			0.5		
2	Y	eP	10:37:50.6		1	1.0	T	
2	Y	eP	11:12:21.4		1	0.4	T	
2	Y	eP	11:21:38.6		1	0.7	T	
2	Y	eP	12:02:36.5		1	1.2	T	
2	Y	eP	13:01:55.0		1	0.3	R	$\Delta (S-P) = 6.4^\circ$
		e	13:02:00.8			0.8		
	N	eS	13:03:10.3			0.5		
2	X	eP	14:56:42.6		1	0.7	T	
	LP	e	14:59:24			22.0		
2	Y	eP'	15:40:45.9		2	0.9	T	Soemba Islands Region 10.2S., 120.3E. 0 = 15:21:55.0 h about 33 km $\Delta = 119.9^\circ$ Dir. = 286°
		ePP	15:42:08.5			1.5		
2	X	eP	15:54:41.4		2	1.3	T	
2	X	eP	16:25:14.4		5	1.0	T	Chile-Bolivia Border 22.4S., 68.1W. 0 = 16:13:18.1 h about 170 km $\Delta = 80.6^\circ$ Dir. = 135°
		e	16:25:51.4			1.0		

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
2	Y	eP	17:22:18.2		1	1.0	T	
2	Y	eP	17:45:37.3			1.1	T	
2	Y	eP	20:01:19.8		3	1.0	T	Jan Mayen Is. Region 71.2N., 12.7W. 0 = 19:52:06.7 h about 33 km $\Delta = 52.7^\circ$ Dir. = 23°
2	Y	eP	21:09:15.4		1	0.4	T	Near East Coast of Honshu, Japan 33.9N., 138.7E. 0 = 20:57:33.4 h about 33 km. $\Delta = 75.7^\circ$ Dir. = 304°
		e	21:09:19.1			0.8		
2	Y	eP	21:59:12.8		1	0.8	T	
2	Y	eP	22:59:12.2		1	0.6	T	
2	X	eP	23:23:28.7		1	0.6	T	

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
3	Y	eP'	00:14:39.2		1	0.5	T	Banda Sea 7.0S., 124.8E 0 = 23:56:53.6 h about 470 km $\Delta = 114.5^\circ$ Dir. = 285°
3	Y	eP	00:57:26.8		1	1.0	T	
3	Y	eP e	01:09:52.0 01:10:00.2		1	0.7 1.1	T	
3	Y	eP eS	01:29:20.0 01:30:10.5		1	0.3 0.4	NR	$\Delta(S-P) = 4.1^\circ$
3	Y	eP	02:14:56.6		1	0.8	T	
3	Y	eP eS	02:46:22.5 02:46:31.8		1	0.2 0.2	L	$\Delta(S-P) = 0.6^\circ$
3	Y	eP e eS	02:53:35.5 02:53:42.9 02:54:52.9		1	0.6 0.9 0.5	R	$\Delta(S-P) = 6.8^\circ$
3	Y	eP	04:35:16.5		2	1.2	T	
3	Y	eP e	04:52:11.0 04:54:07.0		1	0.8 0.9	T	
3	Y	eP	05:30:28.2		2	1.2	T	
3	Y	eP	08:08:04.6		4	1.4	T	
3	Y	eP	09:32:46.6		1	1.1	T	
3	Y	eP	11:02:05.9		1	1.0	T	
3	Y	eP eS	12:12:50.2 12:12:55.8		1	0.1 0.3	L	$\Delta(S-P) = 0.3^\circ$
3	Y	eP	13:00:49.3		1	0.6	T	
3	Y	eP	15:29:04.3		1	0.7	T	

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
3	X	eP eS	15:57:18.8 15:57:22.7		1	0.2 0.3	L	$\Delta(S-P) = 0.1^\circ$
3	X	eP	16:52:56.2		1	0.7	T	
3	X	eP e e e	17:02:17.4 17:02:21.0 17:02:29.4 17:02:36.4		3	0.8 0.8 0.9	T	Near East Coast of Honshu, Japan 34.5N., 139.4E. 0 = 16:50:38.2 h about 33 km $\Delta = 74.9^\circ$ Dir. = 304°
3	X	eP eS	19:46:53.2 19:48:08.7		3	0.2 0.4	R	$\Delta(S-P) = 6.5^\circ$
3	X	eP	19:49:47.8		1	0.5	T	
3	X	eP IB N IB	20:37:45.5 20:37:49.2		4	0.2	L	$\Delta(S-P) = 0.1^\circ$ 999
3	X	eP e IBE E	20:48:17.7 20:48:22.9 20:51:46.6		2	0.7 0.7 3.0	T	Near East Coast of Honshu, Japan 34.0N., 139.0E 0 = 20:36:37.6 h about 49 km $\Delta = 75.5^\circ$ Dir. = 304°
3	X	eP	21:22:56.1		2	1.2	T	
3	X	eP' ePP	22:25:02.0 22:27:26.6		1	0.7 1.2	T	Sandwich Islands 56.6S., 27.2W. 0 = 22:06:08.9 h about 33 km $\Delta = 125.9^\circ$ Dir. = 137°
3	X	eP	23:49:13.3		1	1.0	T	

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
6	IB N IBN	iP	01:00:54.3	C	999	999	L	$\Delta(S-P) = 0.8^\circ$ P-Phase Dir. = N.W.
		eS	01:01:05.3			999		
6	E	eP	01:11:44.2		2	0.3	NR	$\Delta(S-P) = 1.5^\circ$
		eS	01:12:02.0			0.3		
6		eP	05:47:08.0		3	1.1	T	
6		eP	06:17:22.4		2	0.8	T	
6		eP	07:00:03.7		3	0.9	T	Near Coast of Central Chile 31.1S., 72.0W. 0 = 06:47:25.3 h about 33 km $\Delta = 86.1$ Dir. = 142.3
6		eP	07:27:53.8		1	0.8	T	
6		eP	08:33:45.3		1	0.5	T	
		e	08:33:48.1			1.0		
6	IB LP LP	iP	11:01:19.7	C	10	1.3	T	Tonga Is. Region 21.2S., 174.5W. 0 = 10:49:00.7 h about 110 km $\Delta = 83.9^\circ$ Dir. = 232° P-Phase Dir. = S.W.
		e(Sur)	11:30:18			20		
		e(Sur)	11:38:35			16		
6	LP	ePd	11:25:33.6		2	1.2	T	Ceram Sea 4.0S., 126.4E. 0 = 11:10:50.3 h about 33 km $\Delta = 111.3^\circ$ Dir. = 286°
		e	11:26:08.9			2.5		
		eP'	11:29:26.2			0.7		
		ePP	11:29:51.1			1.3		
		e	11:30:33.8			2.0		
		e	11:32:37.2			1.1		
		eSKP	11:33:29.9			1.7		
		e	11:33:58.1			1.2		
	e(Sur)	12:05:36			24.0			

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
6		eP	12:05:11.2		1	0.6	T	
6		eP	12:26:22.8		1	0.8	T	
		e	12:26:31.8			1.0		
6	LP BB	eP	13:46:14.5		8	1.2	T	Near Coast of Guatemala 14.3N., 90.7W. 0 = 13:39:11.2 h about 160 km $\Delta = 37.9^\circ$ Dir. = 135° P-Phase Dir. = S.E.
		ePcP	13:48:29.2			0.6		
		eSur	14:05:51			16.0		
6		eP	14:35:08.9		1	0.7	T	
6		eP	15:07:04.2			0.7	T	
6	IB	eP	15:15:59.3		1	0.8	T	Solomon Is. Region 8.4S., 158.8E. 0 = 15:03:01.9 h about 95 km $\Delta = 91.6^\circ$ Dir. = 260°
		e	15:16:25.6			1.2		
6		eP	15:33:59.3		1	0.9	T	
6	E	eP	15:35:20.4		1	0.1	NR	$\Delta(S-P) = 2.4^\circ$
		eS	15:35:51.9			0.4		
6		eP	15:57:22.9		1	0.9	T	
6		eP	16:43:14.5		1	0.7	T	
6	IB N	eP	16:57:23.2		2	0.2	L	$\Delta(S-P) = 0.5^\circ$
		eS	16:57:30.2			0.2		
6	N	eP	17:01:57.5		1	0.5	R	$\Delta(S-P) = 12^\circ$
		e	17:02:22.2			1.1		
		eS	17:04:09.6			0.5		
6	N	eP	17:12:32.9		1	0.9	T	
		e	17:12:34.4			0.8		
		e	17:13:07.2			1.0		

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
6		eP	17:41:57.5		1	0.6	T	
6	IB	eP	17:50:18.2		2	0.6	T	Near East Coast of Honshu, Japan 34.5N., 139.7E 0 = 17:38:41.4 h about 33 km $\Delta = 74.7^\circ$ Dir. = 303°
		e	17:50:22.5			1.2		
6		eP	18:16:06.2		1	0.7	T	
6		eP e	18:19:34.7 18:20:23.4		2	1.1 1.1	T	Kermadec Is. Region 31.8S., 178.0E 0 = 18:06:22.9 h about 81 km $\Delta = 94.6^\circ$ Dir. = 229°
6		eP eS	18:35:30.2 18:35:43.9		1	0.2 0.4	L	$\Delta (S-P) = 1.0^\circ$
6	IBN	eP	19:00:07.8		1	0.4	NR	$\Delta (S-P) = 1.5^\circ$
		eS	19:00:25.6			0.4		
6	N	eP	19:02:58.4		1	0.2	L	$\Delta (S-P) = 0.5^\circ$
		eS	19:03:05.4			0.2		
6		eP eS	20:05:18.8 20:05:22.0		1	0.1 0.2	L	$\Delta (S-P) = \text{less than } 0.1^\circ$
6		eP e	20:23:19.3 20:23:45.6		2	0.9 1.1	T	
6		eP e	20:53:05.8 20:53:57.3		3	1.0 0.6	T	
6	N	eP	21:11:06.1		1	0.2	NR	$\Delta(S-P) = 4.3^\circ$
		eS	21:11:57.1			0.5		
6		eP	21:34:00.6		1	0.8	T	
6		eP	22:42:59.3		1	0.7	T	

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
6	N	eP	22:56:02.9		2	0.2	L	$\Delta (S-P) = 0.5^\circ$
		eS	22:56:09.8			0.2		
6	N	eP	23:10:46.2		1	0.1	L	$\Delta (S-P) = \text{less than } 0.1^\circ$
		eS	23:10:49.4			0.2		
6	N	eP	23:15:21.6		2	0.1	L	$\Delta (S-P) = \text{less than } 0.1^\circ$
		eS	23:15:24.7			0.1		

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
7	N	eP	00:04:45.8	1	0.2	NR	Δ (S-P) = 4.5°	
		eS	00:05:40.7					0.4
7	E	eP	01:10:13.8	1	0.1	L	Δ (S-P) = less than 0.1°	
		eS	01:10:14.0					0.2
7	E	eP	01:35:08.9	1	0.1	L	Δ (S-P) = 0.1°	
		eS	01:35:12.2					0.2
7	E	eP	02:15:24.6	1	0.1	L	Δ (S-P) = less than 0.1°	
		eS	02:15:27.8					0.2
7	N	eP	02:52:12.3	1	0.8	R	Δ (S-P) = 6.0°	
		eS	02:53:21.3					0.5
7	N	eP	02:54:43.1	1	0.4	NR	Δ (S-P) = 2.1°	
		eS	02:55:11.7					0.5
7	E	eP	04:39:33.7	1	0.1	L	Δ (S-P) = less than 0.1°	
		eS	04:39:36.9					0.2
7		eP	05:04:35.1	1	0.7	T		
7	N	ePd	07:56:12.8	2	1.0	T	Banda Sea Region 6.3S., 130.0E. 0 = 07:41:51.0	
		e	07:56:31.4					1.0
		e	07:59:29.2	3	1.0	h about 180 km	Δ = 110.5° Dir. = 282°	
		eP'	08:00:04.3					1.5
		e	08:00:28.0	1.3				
		ePP	08:00:38.5	1.6				
		e	08:02:54.1	1.6				
		e	08:06:16.2	2.6				
7		eP	08:12:07.7	1	1.0	T		
7		eP	08:31:09.3	1	0.5	T		
7	N	eP	08:48:35.4	1	0.6	NR	Δ (S-P) = 5.6°	
		e	08:48:42.9					0.7
		eS	08:49:41.8					0.5

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
7		eP	12:15:11.3	3	0.9	T	Near East Coast of Honshu, Japan 34.0N., 139.3E. 0 = 12:03:31.1 h about 33 km Δ = 75.3° Dir. = 303°	
		e	12:16:06.1					0.8
7	N	eP	12:23:01.3	3	0.7	T	Near Northeast Coast of Shikoku, Japan 34.5N., 134.8E 0 = 12.11:08.4 h about 33 km Δ = 76.9° Dir. = 307°	
		e	12:23:06.7					1.2
		e	12:23:44.3					0.6
7		eP	12:43:40.2	1	0.7	T		
		e	12:43:46.3		0.8			
7		eP	12:52:07.9	1	1.0	T	New Britain Region 6.3S., 151.6E. 0 = 12:38:45.4 h about 36 km Δ = 95.2° Dir. = 266°	
7	E	eP	17:57:49.5	1	0.2	L	Δ (S-P) = less than 0.1°	
		eS	17:57:53.3					0.3
7	N	eP	18:07:41.5	1	0.2	L	(S-P) = 0.4°	
		eS	18:07:48.1					0.2
7	IB E IBE	eP	18:43:58.8	999	999	L	Δ (S-P) = 0.5°	
		eS	18:44:05.8					999
7		eP	22:46:32.2	3	0.8	T		

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
7 X		eP	23:40:09.5		2	0.3	NR	Nevada
	IB	e	23:40:16.4			0.4		41.1N., 116.8W.
	IBE	eS	23:41:02.0			0.3		0 = 23:39:13.7
	E							h about 33 km
	IBE	e	23:41:06.7			999		$\Delta = 3.8^\circ$
								Dir. = 174°
								(S-P) = 4.4°
7 X		eP	23:50:20.6		5	0.8	T	Kermadec Is. Region
								26.3S., 178.0W
								0 = 23:37:27.5
								h about 50 km
								$\Delta = 89.3^\circ$
								Dir. = 232°

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
8 Y		eP	00:05:06.1		7	0.8	T	Solomon Is. Region
								8.4S., 159.0E.
								0 = 23:52:09.1
								h about 95 km
								$\Delta = 91.4$
								Dir. = 260°
8 Y	N	eP eS	03:33:55.4 03:34:02.4		1	0.3 0.4	L	$\Delta(S-P) = 0.4^\circ$
8 Y	IB N IBN	eP eS	04:16:43.8 04:16:47.0			999 0.7	L	$\Delta(S-P) = \text{less than } 0.1^\circ$
8 Y		eP e	04:51:32.1 04:51:44.6		2	0.7 0.9	T	P-Phase Dir. = WSW
8 Y	N	eP eS	05:31:43.5 05:31:46.8		1	0.1 0.2	L	$\Delta(S-P) = \text{less than } 0.1^\circ$
8 Y		eP	06:01:26.3		1	1.0	T	
8 Y	IBN N	eP eS	06:30:32.3 06:31:22.5		1	0.5 0.7	NR	$\Delta(S-P) = 4.1^\circ$
8 X		eP	07:40:11.7		5	1.4	T	Loyalty Is. Region
								22.4S., 171.5E.
								0 = 07:27:06.7
								h about 76 km
								$\Delta = 93.1^\circ$
								Dir. = 241°
8 Y		eP eS	07:49:36.6 07:49:58.6		1	0.4 0.4	NR	$\Delta(S-P) = 1.6^\circ$
8 X		eP	07:57:21.5		1	0.6	T	

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
8		eP eS	10:39:40.3 10:39:57.5		2	0.3 0.3	L	
8		eP e	12:06:41.4 12:05:13.6		1	0.6 0.6	T	
8		eP	12:55:35.2		1	0.6	T	
8		eP	13:13:01.6		3	0.5	T	Leeward Islands Region 16.9N., 60.9W. 0 = 13:03:34.7 h about 33 km $\Delta = 54.6^\circ$ Dir. = 102°
8		eP	13:44:57.0		2	0.9	T	
8		eP	14:30:06.1		1	0.6	T	
8	N	eP eS	14:37:18.5 14:37:25.7		1	0.4 0.3	L	$\Delta (S-P) = 0.4^\circ$
8	N	eP eS	17:05:05.2 17:06:24.5		3	0.8 0.8	R	$\Delta (S-P) = 6.6^\circ$
8		eP	22:08:05.4		1	0.5	T	

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
9		eP	00:10:30.0		1	0.9	T	
9		eP e e ePP	01:48:36.6 01:49:00.9 01:52:29.8 01:52:43.6		3	1.1 1.0 1.4 1.5	T	Near Coast of Panay, Philippine Is. 10.3N., 121.4E. 0 = 01:34:38.5 h about 58 km $\Delta = 103.8^\circ$ Dir. = 300°
9		iP	03:07:30.7	C	6	1.0	T	Fiji Is. Region 17.9S., 178.6W. 0 = 02:56:04.9 h about 625 km $\Delta = 83.6$ Dir. = 237 P-Phase Dir. S.W.
9		eP	03:27:16.6		2	1.0	T	
9		iP epP e	03:33:12.0 03:33:38.7 03:33:47.3	D	21	1.0 1.5 1.3	T	Peru 15.6S., 73.4W. 0 = 03:21:55.5 h about 98 km $\Delta = 72.2^\circ$ Dir. = 135°
9	N	eP e eS	03:35:43.7 03:35:50.0 03:36:11.0		1	0.4 0.4 0.5	NR	$\Delta (S-P) = 2.1^\circ$
9	N	eP eS	04:45:26.0 04:45:30.4		1	0.2 0.3	L	$\Delta (S-P) = 0.1^\circ$
9	IB IBN N	iP eS	06:12:51.4 06:13:03.8	C	28	0.2 0.3	L	$\Delta (S-P) = 1.0^\circ$
9	N	eP eS	06:51:18.4 06:51:37.8		2	0.4 0.3	NR	$\Delta (S-P) = 1.6^\circ$
9		eP	07:57:51.1		1	0.6	T	

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
9		eP	10:20:21.6		1	0.6	T	
9		eP	12:13:26.0		2	0.8	T	P-Phase Dir. = S.W.
9		eP	13:30:38.2		1	0.6	T	
9		eP	14:29:07.3		1	0.6	T	
9		eP	14:30:20.2		1	0.2	L	Δ (S-P) = 0.9°
	N	eS	14:30:32.6			0.4		
9		eP	14:39:29.6		2	0.5	NR	Utah-Idaho Border 41.6N., 111.8W.
	IB	e	14:39:37.3			0.9		0 = 14:38:13.0
	IBN	eS	14:40:43.0			0.9		h about 37 km
	N							Δ = 5.2° Dir. = 127° P-Phase Dir. = S.E.
9		eP	14:53:15.3		2	1.2	T	El Salvador 14.0N., 89.5W. 0 = 14:45:44.5 h about 89 km Δ = 38.8° Dir. = 133°
9		eP	15:18:16.1		2	0.1	L	Δ (S-P) = less than 0.1°
	N	eS	15:18:19.3			0.2		
9		eP	15:27:43.3		2	1.0	T	Mariana Islands Region
		e	15:27:52.1			0.9		10.1N, 147.3E.
		e	15:27:56.9			1.2		0 = 15:15:22.7 h about 217 km Δ = 86.8° Dir. = 280°
9		eP	18:59:57.6		1	0.3	NR	Δ (S-P) = 2.8°
		e	19:00:06.4			0.4		
	N	eS	19:00:33.7			0.6		

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
9		iP	19:18:12.6	C	17	1.2	T	Alaska
		ePP	19:19:47.7			1.3		62.4N., 152.4W
	BBE	e	19:28:24			7.0		0 = 19:12:37.1
	LPE							h about 57 km
	BB	e	19:29:24			9.0		Δ = 26.7°
	LP							Dir. = 323°

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks	
					A	T			
10 ✓	N	eP	01:42:01.9		1	0.4	NR	Δ (S-P) = 4.2° P-Phase Dir. = N.W.	
		eS	01:42:52.7						0.8
10 ✓		eP	02:42:02.8		1	0.8	T		
10 ✓		eP	03:23:41.3		2	1.0	T		
10 ✓		eP	03:29:27.4		1	0.7	T		
10 ✓		eP	08:16:13.6		1	0.7	T		
10 ✓		eP	08:18:25.0		1	0.8	T		
10 ✓		eP	08:20:20.5		2	1.1	T		
10 ✓		eP	09:02:48.2		1	0.6	T		
10 ✓		eP	09:06:54.3		1	1.0	T		
10 ✓	N	eP	09:49:41.2		7	0.8	T	Dodecanese Is. 35.0N., 27.1E. 0 = 09:36:24.3 h about 33 km Δ = 94.2° Dir. = 28°	
		e	09:50:46.6						1.4
		ePP	09:53:21.9						1.4
		e	09:55:28.5						1.5
		e	09:59:07.0						1.4
		e	10:07:14.4						1.5
	LP	eSur	10:24:56					Medium surface waves on BB and LP	
	BB								
10 ✓		eP	11:28:08.8		1	0.2	NR	Δ (S-P) = 4.8°	
		eS	11:29:02.5			0.5			
10 ✓		eP	11:31:58.7		1	0.7	T		
10 ✓	IB	eP	13:58:30.5		1	0.8	T	Rat Is. Aleutian Is. 51.2N., 179.7E. 0 = 13:50:48.7 h about 62 km Δ = 41.5° Dir. = 302°	
10 ✓	N	eP	15:43:07.6		2	0.2	L	Δ (S-P) = 0.4°	
		eS	15:43:14.1			0.2		P-Phase Dir. N.W.	

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks	
					A	T			
10 ✓	IB	iP	15:55:37.7	D	275	1.0	T	Fiji Is. 21.1S., 179.2W. 0 = 15:43:59.4 h about 640 km Mag. 6-1/2 PAS Δ = 86.5° Dir. = 235° P-Phase Dir. = S.W.	
		BB							
		LP							
	BB	eP	15:57:52.3			1.1			
		ePP	15:58:55		10.0				
	LP	e	15:59:09.2			1.3			
		e	16:02:06		8.0				
	BB	eS	16:05:26.2			2.3			
		e							
	LP	eS	16:06:28.2			2.8			
		e	16:09:10		10.0				
	LP	eSS	16:11:16			24.0			
		ePKKP	16:13:30.4		0.7				
	LP	e	16:15:10			24.0			
		eSur	16:18:41		2.0				
	LP	eP'P'	16:21:38.9			1.0			
		eSKPP'	16:23:59.2		1.2				
10 ✓	N	eP	16:00:38.5		3	0.6	T		
		e	16:01:09						1.0
		e	16:02:59.5						1.2
		e	16:06:02.3						0.7
		e	16:08:15.7						0.7
		e	16:08:22.9						0.9
10 ✓		eP	16:10:22.2		2	0.6	T		
		e	16:11:46.3						0.7
		e	16:12:53.5						0.7
10 ✓	N	eP	16:15:59.9		5	1.2	T	Possible aftershock of Fiji event	
		e	16:16:42						1.4
	N	eS	16:25:57.3			1.3			
		e							
10 ✓	IB	eP	16:14:28.8		1	0.2	L	Δ (S-P) = 0.2°	
		eS	16:14:33.3						

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
10	✓	eP e	17:17:56.8 17:18:16.7		4	0.9 0.8	T	Rat Is. Aleutian Is. 51.3N., 179.1E. 0 = 17:10:12.2 h about 60 km $\Delta = 41.8^\circ$ Dir. = 302°
10	✓	eP	17:23:33.8		4	0.8	T	P-Phase Dir. = S.W.
10	✓	N eP eS	17:28:12.3 17:28:15.0		2	0.2 999	L	Δ (S-P) = less than 0.1° P-Phase Dir. = S.W.
10	✗	IB N eP eS	17:54:01.0 17:54:04.0		3	0.3 999	L	Δ (S-P) = less than 0.1°
10	✓	IB eP	18:01:25.3		11	1.2	T	Tonga Is. Region 17.5S., 173.6W. 0 = 17:49:16.1 h about 33 km $\Delta = 80.4^\circ$ Dir. = 233°
10	✗	IB N eP eS	19:24:48.5 19:24:55.6			0.2 999	L	Δ (S-P) = 0.5°
10	✓	eP e e	20:17:50.3 20:17:56.1 20:19:02.3		5	1.1 1.2 2.5	T	Pacific Ocean, 1250 mi. southwest of Galapagos Islands 13.6S., 111.6W. 0 = 20:07:56.5 h about 33 km $\Delta = 58.4^\circ$ Dir. = 173°
10	✓	N eP eS	20:25:28.5 20:25:35.5		2	0.2 999	L	Δ (S-P) = 0.4°
10	✗	IB iP e epP ePcP	21:59:57.4 22:00:11.8 22:00:37.4 22:01:52.8	C	9	1.0 1.3 0.8 1.2	T	Nicaragua 12.3N., 86.7W. 0 = 21:52:26.6 h about 178 km $\Delta = 41.7^\circ$ Dir. = 131° P-Phase Dir. = SE

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		

10	✗	E eP eS	22:48:34.0 22:48:38.5		2	0.3 0.2	L	Δ (S-P) = 0.2°
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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
11	γ	eP	00:30:53.7		1	1.0	T	Eastern Turkey 39.9N., 43.9E. 0 = 00:17:37.2 h about 33 km Δ = 94.0° Dir. = 14°
11	γ	eP	00:46:39.0		1	0.7	T	New Britain Region 6.1S., 149.4E. 0 = 00:33:12.0 h about 62 km Δ = 96.6° Dir. = 268°
11	γ	eP	02:13:36.4		2	0.8	T	
11	γ	eP	02:36:22.8		8	1.1	T	Samoa Islands Region 15.2S., 173.4W. 0 = 02:24:22.9 h about 33 km Δ = 78.5° Dir. = 235° P-Phase Dir. = S.W.
		e	02:36:33.7			1.5		
		e	02:37:26.3			1.6		
11	γ	eP	04:02:06.7		1	0.1	L	Δ(S-P) = 0.2°
	N	eS	04:02:11.2			0.3		
11	γ	eP	04:17:17.9		2	1.0	T	
11	γ	eP	04:28:10.3		2	0.2	L	Δ(S-P) = 0.4°
	N	eS	04:28:17.3					
11	γ	eP	04:48:34.5		2	0.6	NR	Δ(S-P) = 2.8°
	E	eS	04:49:09.2			0.4		
	E	eSur	04:49:23.1			0.4		
	E	eSur	04:50:10.5			0.6		
11	γ	eP	05:01:38.1		2	0.6	T	Andreanof Is. Aleutian Is. 51.5N., 178.0W. 0 = 04:54:05.8 h about 33 km Δ = 40.0° Dir. = 302°

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
11	γ	eP	05:47:24.2		1	0.1	L	Δ(S-P) = less than 0.1°
	E	eS	05:47:27.6			0.2		
11	γ	eP	07:58:55.5		1	0.7	T	
11	γ	eP	13:36:49.0		2	0.3	NR	Δ(S-P) = 1.7°
	E	eS	13:37:12.5					
11	γ	eP	14:16:37.6		1	0.3	NR	Δ(S-P) = 1.6°
	N	eS	14:16:58.6			0.3		
11	γ	iP	15:38:16.9	D	999	0.2	L	Δ(S-P) = 0.1° P-Phase Dir. = S.E.
	IB	eS	15:38:21.5			999		
	N							
11	γ	eP	17:11:47.6		4	0.1	L	Δ(S-P) = less than 0.1°
	E	eS	17:11:50.7					
11	γ	eP	18:03:09.3		30	1.2	T	Bonin Is. Region 26.9N., 142.7E. 0 = 17:51:11.1 h about 33 km Δ = 78.1° Dir. = 296°
	IB	e	18:03:28.8					
11	γ	eP	18:35:07.3		4	0.2	L	Δ(S-P) = 0.3°
	N	eS	18:35:12.8					
11	γ	eP	18:56:33.7		1	0.2	L	Δ(S-P) = 0.5°
	IB	eS	18:56:40.7			999		
11	γ	eP	20:22:29.7		1	0.8	T	
11	γ	eP	21:07:25.6		1	0.1	L	Δ(S-P) = less than 0.1°
	N	eS	21:07:27.4					
11	γ	eP	22:09:34.8		3	1.2	T	Formosa 23.8N., 121.3E. 0 = 21:56:22.4 h about 33 km Δ = 93.3° Dir. = 308°

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
11	NN	eP	22:29:51.3		1	0.1	L	Δ (S-P) = 0.5°
		eS	22:29:58.4			0.2		
11	NN	eP	22:52:42.2		2	0.1	L	Δ (S-P) = less than 0.1°
		eS	22:52:45.4			0.1		
11		eP	23:19:40.9		1	0.6	T	
11		eP	23:59:21.3		3	1.2	T	

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
12	N	eP	00:41:51.1		1	0.2	L	Δ (S-P) = 0.2°
		eS	00:41:55.5			0.3		
12	E	eP	02:12:41.4		6	0.6	NR	Δ (S-P) = 1.9°
		eS	02:13:08.7			0.3		
12		eP	03:37:46.5		1	1.1	T	
12		eP	05:04:21.6		1	1.0	T	Ascension Is. Region 7.0S., 12.4W. 0 = 04:50:14.3 h about 33 km Δ = 105.5° Dir. = 84°
12	E	eP	05:06:58.5		4	0.2	L	Δ (S-P) = 0.4°
		eS	05:07:05.5			0.2		
12	E	eP	10:48:49.2		3	0.1	L	Δ (S-P) = 0.1°
		eS	10:48:53.2			0.2		
12	N	eP	11:17:53.7		3	0.2	L	Δ (S-P) = 0.2°
		eS	11:17:58.2			0.3		
12		eP	11:30:16.7		1	0.6	T	
12		eP	12:00:20.8			0.6	T	
12	IB	eP	12:40:14.8		30	1.1	T	Northern Chile 23.1S., 68.8W. 0 = 12:28:16.3 h about 150 km Δ = 80.8° Dir. = 135°
		e	12:40:42.2			1.0		
12		eP	13:48:46.5		1	0.8	T	
12		eP	14:28:21.1		4	0.9	T	
12		eP	14:30:04.5		12	1.6	T	P-Phase Dir. = S. E.
12		eP	14:38:20.5		1	0.8	T	

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
12 ✓		eP	15:21:54.2		2	1.0	T	P-Phase Dir. = S.E.
12 ✓		eP	15:52:31.4		1	1.0	T	P-Phase Dir. = S.E.
12 ✗		eP	16:06:27.4		1	0.1	L	Δ (S-P) = 0.4°
	E	eS	16:06:33.9			0.2		
12 ✓		eP	18:32:20.3		9	1.3	T	Near north coast of New Guinea 4.4S., 145.4E. 0 = 18:18:42.9 h about 32 km Δ = 98.3° Dir. = 272°
12 ✗		eP	19:08:21.0		1	0.8	T	
12 ✓		eP	21:10:35.7		3	1.0	T	Hindu Kush 36.5N., 69.2E. 0 = 20:57:00.4 h about 50 km Mag. 6-1/2 - 6-3/4 PAS 6 PAL Δ = 99.0° Dir. = 3°
	IB							
	BB	e	21:11:08.4			1.1		
		e	21:12:50.3			1.2		
		e	21:14:31.9			1.3		
	BB	ePP	21:14:42			5.0		
		e	21:16:51.8			1.7		
	E	eSKS	21:21:11.0			1.6		
	IBE							
		e	21:23:30.4			3.4		
	BB							
	LP	ePKKP	21:27:02.2			1.0		
	LPE	eSS	21:29:04.5			13.0		
		e	21:30:39.1			1.9		
	LP	e	21:31:22			15		
	LP	e(Sur)	21:39:46			15		
	LP	e(Sur)	21:47:50			26		
	LP	e(Sur)	21:59:00			26		
	BB							
12 ✗		eP	23:12:45.8		2	0.1	NR	Δ (S-P) = 3.6°
		e	23:12:53.5			0.6		
	N	eS	23:13:27.7			0.4		
	IBN							
	IB	e(Sur)	23:13:48.4			999		

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
12 ✗	IB	e(Sur)	23:40:30			999		Medium surface waves on IB and SP
		e(Sur)	23:47:40			999		

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks	
					A	T			
13 ✓	E	eP	00:54:21.6		1	0.4	NR	$\Delta(S-P) = 1.5^\circ$ P-Phase Dir. = S. W.	
		eS	00:54:39.5						0.2
13 ✓	IB IBN	eP	01:30:30.2		5	0.2	L	$\Delta(S-P) = 0.6^\circ$	
		eS	01:30:38.8						0.2
13 ✓	E	eP	01:50:32.2		1	0.1	L	$\Delta(S-P) = \text{less than } 0.1^\circ$	
		eS	01:50:35.3						0.2
13 ✓	IB N	eP	02:50:15.0		3	0.1	L	$\Delta(S-P) = \text{less than } 0.1^\circ$	
		eS	02:50:18.2						999
13 ✓	IB	eP	03:32:45.2		5	1.2	T		
		e	03:32:54.3						1.2
13 ✓	N	eP	03:51:39.1		1	0.2	L	$\Delta(S-P) = 0.5^\circ$	
		eS	03:51:46.2						0.2
13 ✓	N	eP	04:32:59.7		1	0.3	NR	$\Delta(S-P) = 1.8^\circ$	
		eS	04:33:24.0						0.3
13 ✓	IB	eP	05:14:50.7		2	0.9	T	Tonga Is. 21.3S., 174.7W. 0 = 05:02:22.8 h about 33 km $\Delta = 84.1^\circ$ Dir. = 232° P-Phase Dir. = S. W.	
		e	05:14:54.5						1.2
		e	05:15:09.5						1.5
		e	05:15:56.7						1.5
13 ✓		eP	06:07:19.0		2	0.9	T		
13 ✓		eP	06:09:06.7		1	0.6	T		
13 ✓		eP	07:02:38.0		1	0.7	T		
13 ✓		eP	07:52:43.3		1	0.9	T	P-Phase Dir. = W.	

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks	
					A	T			
13 ✓		iP	08:17:29.5	D	12	1.2	T	Kurile Islands 47.7N., 157.0E 0 = 08:07:49.2 h about 31 km. $\Delta = 56.3^\circ$ Dir. = 306° P-Phase Dir. = N. W.	
		e	08:17:38.7						1.2
		ePP	08:19:43.7						1.5
13 ✓		eP	09:14:27.4		2	0.9	T		
13 ✓		eP	12:19:29.8		2	1.0	T	P-Phase Dir. = S. E.	
		e	12:19:58.4			1.1			
13 ✓		eP	12:48:25.8		1	0.8	T		
13 ✓		eP	13:02:11.2		1	0.6	T		
		e	13:02:31.8			0.7			
13 ✓	BBE LPE BB LP	e(P)	14:03:48.8		4	1.1	T	Gulf of California 25.6N., 109.6W. 0 = 13:59:06.2 h about 33 km $\Delta = 20.2^\circ$ Dir. = 156° P-Phase Dir. = S. S. E.	
		e	14:10:14			11.0			
		e	14:11:52			11.0			
13 ✓		eP	14:44:48.1		10	1.2	T	North of Trinidad 11.6N., 61.3W. 0 = 14:35:02.0 h about 73 km $\Delta = 58.0^\circ$ Dir. = 106° P-Phase Dir. = E. S. E.	
		e	14:45:07.6			1.0			
13 ✓	N	eP	16:31:12.8		1	0.1	L	$\Delta(S-P) = 0.4^\circ$	
		eS	16:31:19.3			0.3			
13 ✓		eP	19:14:42.4		2	1.2	T		
13 ✓		eP	19:17:18.7		1	0.4	T		
13 ✓		eP	19:29:06.3		2	0.7	T		

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
13 ✓	LB	eP	20:06:04.6			0.5	L	$\Delta(S-P) = 1.0^\circ$
	IBN	eS	20:06:18.2			0.3		
13 ✓		eP	22:59:07.2		2	0.6	NR	$\Delta(S-P) = 1.8^\circ$
	IB	e	22:59:09.3			999		
	IB	eS	22:59:31.4			0.2		
	E							
	IBE							

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
14 ✓		eP	00:10:55.7		2	0.4	NR	$\Delta(S-P) = 2.5^\circ$ P-Phase Dir. = ESE
	IB	e	00:10:57.3			999		
		e	00:11:00.5			999		
	IBE	eS	00:11:27.9			0.8		
	IBN	e	00:11:31.9			0.6		
14 ✓		eP	00:30:09.2		1	0.2	NR	$\Delta(S-P) = 1.5^\circ$
	IB	e	00:30:10.5			0.2		
	E	eS	00:30:28.5			0.3		
14 ✓		eP	00:46:19.3		1	0.8	T	Western Turkey 39.6N., 28.6E. 0 = 00:33:25.8 h about 69 km $\Delta = 90.5^\circ$ Dir. = 25°
		e	00:46:28.3			0.8		
		e	00:47:03.4			1.0		
14 ✗	E	eP	00:57:28.4		2	0.3	NR	$\Delta(S-P) = 2.0^\circ$
		eS	00:57:54.5			0.6		
14 ✗		eP	02:39:06.0		1	0.2	NR	$\Delta(S-P) = 3.2^\circ$
		e	02:39:14.3			0.6		
	N	eS	02:39:45.6			0.6		
14 ✗		eP	02:58:54.5		1	0.7	T	
		e	02:59:02.7			0.8		
14 ✓		eP	03:58:26.6		1	0.9	T	
14 ✗		eP	04:21:16.2		1	0.7	T	
14 ✓		eP	05:23:22.8		2	0.7	T	
14 ✗		eP	11:35:46.9		1	0.2	R	$\Delta(S-P) = 12.0^\circ$
	N	eS	11:37:59.9			0.4		
14 ✓		eP	13:18:17.9		2	0.7	NR	Utah-Idaho border 41.8N., 111.5W. 0 = 13:17:02.9 h about 33 km $\Delta = 5.2^\circ$ Dir. = 123° $\Delta(S-P) = 6.6^\circ$
	IB	e	13:18:26.6			0.8		
	IB							
	N	eS	13:19:34.3			1.7		
	IBN							
	BBN							
	BB	e	13:20:05			7.0		

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
14 ✓		eP	14:03:53.9		4	1.0	T	
		e	14:04:04.5			1.0		
		e	14:04:09.5			1.1		
14 ✓		eP	14:09:44.2		2	0.9	T	
14 ✓		eP	14:37:36.5		1	0.2	NR	$\Delta(S-P) = 2.7^\circ$
		e	14:37:39.2			0.6		P-Phase Dir. = S.E.
	IBN N	eS	14:38:11.0			0.5		
14 ✓		eP	16:05:21.2		8	1.5	T	
14 ✓		eP	17:11:59.4		2	0.8	R	$\Delta(S-P) = 12^\circ$
		e	17:12:23.8			1.0		P-Phase Dir. = S.S.E.
	IB							
		e	17:13:22.0			1.5		
	IB IBE E	eS	17:14:11.0			1.6		
	BBE IBE BB	e	17:14:40.5			1.9		
	e	17:18:07			6.0			
14 ✓		eP	17:20:11.6		2	1.1	R	$\Delta(S-P) = 10.5^\circ$
		e	17:20:28.9			1.2		
	E IBE	eS	17:22:10.0			1.5		
14 ✓		iP	18:29:48.1	D	50	1.0	T	Fiji Islands
	IB							19.9S., 177.6W.
		epP	18:31:14.1			1.6		0 = 18:17:52.1
	IB							h about 350 km
		ePP	18:33:08.0			1.4		$\Delta = 84.6^\circ$
	e	18:39:17.8			0.7		Dir. = 235°	
	ePKKP	18:47:56.2			0.9		SW from P-Phase	

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
					14 ✓	IB		
	IBN	eS	19:46:43.7		1	0.2		
14 ✓		eP	19:58:36.3		2	1.0	T	
14 ✓		eP	19:59:21.9		3	1.2	T	
14 ✓		eP	21:09:55.0		3	0.2	L	$\Delta(S-P) = 0.3^\circ$
	E	eS	21:10:00.3			0.3		
14 ✓		eP	21:52:05.6		1	0.4	NR	$\Delta(S-P) = 2.0^\circ$
	E	eS	21:52:30.8			0.5		

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks	
					A	T			
15 ✕		eP	01:08:29.1		12	1.3	T	Mariana Islands 13.3N., 141.9E. 0 = 00:55:41.0 h about 45 km $\Delta = 88.2^\circ$ Dir. = 286°	
		e	01:11:23.5						1.8
15 ✕		eP	02:07:59.1		1	0.9	T		
15 ✕	N	eP	02:14:12.0		1	1.0	R	$\Delta (S-P) = 11.9^\circ$ P-Phase Dir. = S.E.	
		e	02:14:30.6						0.8
		e	02:14:41.8						0.8
		eS	02:16:22.0						999
15 ✕		eP	03:18:34.7		2	0.9	T		
15 ✕		eP	03:38:54.3		1	0.6	T		
15 ✕		eP	06:17:25.9		1	0.8	T		
		e	06:18:18.5						0.7
15 ✕		eP	06:36:04.8		1	0.5	T		
		e	06:36:17.2						1.2
15 ✕		eP	07:21:41.0		6	0.7	T	P-Phase Dir. = WNW	
15 ✕		eP	09:12:37.0		1	0.8	T		
15 ✕		eP	11:30:25.4		7	1.0	T	Southern Bolivia 20.4S., 68.1W. 0 = 11:18:23.0 h about 33 km $\Delta = 78.9^\circ$ Dir. = 134° P-Phase Dir. = S.E.	
		e	11:30:51.4						1.0

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks	
					A	T			
15 ✕	E	eP	12:24:31.2		1	0.3	NR	$\Delta (S-P) = 1.5^\circ$	
		eS	12:24:51.7						0.3
15 ✕	IB BB N IB BB	eP	12:27:14.0		999	999	NR	$\Delta (S-P) = 1.6^\circ$ P-Phase Dir. = S.E.	
		eS	12:27:36.4						999
15 ✕	IB IBN N IBN N IB	eP	12:43:56.8		4	0.3	NR	$\Delta (S-P) = 1.7^\circ$	
		eS	12:44:19.6						0.5
		eSur	12:44:20.4						0.7
		eSur	12:44:25.7						0.6
15 ✕	E	eP	12:54:41.7		7	0.1	L	$\Delta (S-P) = \text{less than } 0.1^\circ$ P-Phase Dir. = S.E.	
		eS	12:54:44.9						0.1
15 ✕		eP	16:30:35.9		2	0.8	T		
15 ✕	N	eP	17:24:50.5		1	0.3	NR	$\Delta (S-P) = 2.3^\circ$	
		eS	17:25:20.4						0.4
15 ✕		eP	18:47:07.6		1	0.6	T		
		e	18:47:46.6						0.6
15 ✕		eP	19:16:39.8		1	0.6	T		
		e	19:16:50.8						0.6
15 ✕		eP	20:47:01.1		1	1.0	T		
		e	20:51:07.9						0.6
		e	20:52:04.0						1.0
15 ✓	IB BB LP BB N	eP	23:00:23.2		15	1.2	T	Kurile Islands 48.5N., 156.8E. 0 = 22:50:46.3 h about 33 km $\Delta = 56.0^\circ$ Dir. = 307°	
		e	23:00:40.8						1.6
		e	23:08:22						10.0
		e	23:09:05.1						2.2

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Blue Mountains Seismological Observatory

Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
16 ✓	N	eP	10:09:36.9		1	0.3	NR	
		e	10:09:53.8			0.4		
		eS	10:10:44.6			0.4		
		eSur	10:10:50.0			0.5		
16 ✓		eP	11:39:31.0		4	1.5	T	
16 ✓	IB	eP	11:55:08.0		2	0.3	NR	Δ (S-P) = 3.2° P-Phase Dir. = S.E.
		e	11:55:11.9			0.3		
		eS	11:55:48.9			0.3		
		eSur	11:55:56.8			999		
16 ✓		eP	12:22:24.7		2	1.3	T	
16 ✓	N	eP	12:34:03.9		1	0.1	L	Δ (S-P) = less than 0.1°
		eS	12:34:07.5			0.2		
16 ✓		iP	13:07:15.1	C	7	1.0	T	Rat Is. Aleutian Is. 51.2N., 177.0E. 0 = 12:59:17.7 h about 33 km Δ = 43.1° Dir. = 303° P-Phase Dir. = WNW
		e	13:07:28.8			0.4		
16 ✓	E	eP	13:20:54.4		1	0.1	L	Δ (S-P) = less than 0.1°
		eS	13:20:58.1			0.2		
16 ✓	N	eP	14:21:04.9		1	0.1	L	Δ (S-P) = 0.4°
		eS	14:21:10.8			0.3		
16 ✓		eP	15:01:57.8		10	1.1	T	

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
16 ✓		eP	17:00:25.0		1	1.1	T	
		e	17:03:28.9			1.2		
16 ✓	N	eP	18:15:16.8		2	1.0	T	P-Phase Dir. = NE
		e	18:16:48.4			1.2		
		e	18:17:34.4			1.3		
		e	18:18:10.5			1.2		
16 ✓		ePd	19:24:41.4		1	1.2	T	Near Coast of Burma 16.7N., 94.2E. 0 = 19:06:29.2 h about 33 km Δ = 112.3° Dir. = 327°
		e(PP)	19:25:39.7			2.4		
		e	19:31:09.7			1.4		
16 ✓		eP	21:28:59.1		12	0.7	T	P-Phase Dir. = S
16 ✓	N	eP	21:37:58.0			0.2	NR	Δ (S-P) = 4.3°
		eS	21:38:50.9			0.4		
16 ✓		eP	22:50:18.0		4	1.0	T	
		e	22:50:53.4			1.6		
16 ✓		eP	22:58:22.3		7	0.9	T	Near east coast of Formosa 22.8N., 123.5E. 0 = 22:45:10.8 h about 33 km Δ = 92.8° Dir. = 306° P-Phase Dir. = S.W.
		e	22:58:32.8			1.0		
		e	22:59:58.5			1.0		
		ePP	22:02:00.0			1.8		
16 ✓	N	eP	23:03:00.2		4	0.5	NR	Δ (S-P) = 1.7°
		eS	23:03:23.5			0.5		
16 ✓		eP	23:08:25.2		1	0.9	T	
16 ✓	N	eP	23:48:40.8		1	0.5	NR	Δ (S-P) = 2.8°
		eS	23:49:15.6			0.4		
		eSur	23:49:28.2			0.4		

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
17		eP	00:41:28.5		2	1.2	T	
17	E	eP eS	01:08:30.9 01:08:35.0		1	0.2 999	L	$\Delta (S-P) = 0.1^\circ$
17	LP	eP e e	01:15:49.6 01:16:22.9 01:24:00		3	1.1 1.1 24.0	T	
17		eP	01:41:25.3		5	1.1	T	
17		eP	01:49:06.5		1	1.2	T	
17		eP	03:27:41.2		3	0.5	T	P-Phase Dir. = WSW
17		iP epP	05:11:20.8 05:13:26.6	C	4	0.9 1.3	T	Fiji Islands 17.7S., 178.6W 0 = 04:59:51.5 h about 576 km $\Delta = 83.5^\circ$ Dir. = 237° P-Phase Dir. S.W.
17	N	eP eS	05:36:28.3 05:36:32.8		1	0.2 0.3	L	$\Delta (S-P) = 0.2^\circ$
17	N	eP eS	08:34:35.2 08:34:37.1		1	0.2 0.7	L	$\Delta (S-P) = \text{less than } 0.1^\circ$
17		eP	12:02:32.3		2	0.9	T	
17		eP	12:09:50.7		1	0.6	T	
17		eP	12:37:29.8		1	0.7	T	P-Phase Dir. = WSW
17	E	eP eS	13:11:07.9 13:11:12.7		1	0.2 0.2	L	$\Delta (S-P) = 0.2^\circ$

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
17		eP e	15:52:43.0 15:52:49.4		1	0.6 0.9	T	Alaska 66.1N., 153.9W. 0 = 15:46:45.9 h about 53 km $\Delta = 29.0^\circ$ Dir. = 330°
17		eP	16:33:50.8		2	0.8	T	
17		eP	16:44:37.2		2	0.7	T	Off east coast of Formosa 23.5N., 121.7E. 0 = 16:31:17.9 h about 33 km $\Delta = 93.3^\circ$ Dir. = 308°
17	SE	eP eS	17:20:01.6 17:20:05.2		1	0.1 0.2	L	$\Delta (S-P) = \text{less than } 0.1^\circ$
17	SN	eP eS	17:21:33.8 17:21:38.1		1	0.1 999	L	$(S-P) = 0.2^\circ$
17	SN	eP eS	17:36:26.4 17:36:29.2			999 999	L	$\Delta (S-P) = \text{less than } 0.1^\circ$ P-Phase Dir. = S.E.
17	IZ BZ	iP	18:07:25.8	D	200	1.2	T	Fiji Islands 21.0S., 179.1W. 0 = 17:55:45.4 h about 601 km $\Delta = 86.3^\circ$ Dir. = 235° P-Phase Dir. S.W.
		e	18:09:40.5			1.4		
		e	18:13:41.9			1.1		
		e	18:15:08.1			1.2		
	IE	e	18:15:21.6			2.7		
	IN	eS	18:17:14.4			2.2		
	BN							
	LN							
		ePKKP	18:25:16.2					
		e	18:26:12.0					
		e	18:27:44.6			1.4		
		eP'P'	18:33:14.6			1.2		
		e	18:37:45.5			1.3		

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
17	Y	eP	18:15:39.1		2	1.0	T	Possible phases of Fiji event
		e	18:16:14.4			0.8		
17	Y	eP	18:24:43.7		1	0.7	T	
17	Y	eP	18:52:48.7		5	1.0	T	P-Phase Dir. = S.S.W.
17	Y	eP	19:59:27.9		6	1.1	T	
17	Y	eP	21:17:35.6		1	0.1	L	$\Delta(S-P) = \text{less than } 0.1^\circ$
		E eS	21:17:38.8			0.2		
17	Y	eP	21:17:45.9		1	0.1	L	$\Delta(S-P) = 0.1^\circ$
		E eS	21:17:49.0			0.2		
17	Y	eP	22:10:01.2		2	0.2	L	$\Delta(S-P) = 0.9^\circ$
		E eS	22:10:13.7			0.4		
		eSur	22:10:27.4			0.3		
17	Y	eP	22:24:58.3		2	0.2	L	$\Delta(S-P) = 0.4^\circ$
		E eS	22:25:05.2		2	999		
17	Y	eP	23:15:20.6		1	0.3	L	$\Delta(S-P) = 0.7^\circ$
		N eS	23:15:30.2			0.4		
17	Y	eP	23:37:36.2		1	0.3	NR	$\Delta(S-P) = 2.3^\circ$
		N eS	23:38:05.4			0.5		
17	Y	eP	23:48:29.7		1	0.3	NR	$\Delta(S-P) = 2.1^\circ$
		N eS	23:48:57.6			0.7		

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks		
					A	T				
18	Y	eP	00:33:17.7		1	0.8	T			
18	Y	iP	00:37:41.7	C	700	1.8	T	South of Panama 7.5N., 82.3W. 0 = 00:29:05.2 h about 33 km Mag. 7 (PAS), 7 (BRK) 6-1/2 - 6-3/4 (PAL) $\Delta = 48.0^\circ$ Dir. = 130° P-Phase Dir. = S.E. Large surface waves on all systems		
		IB								
		BB								
		LP								
		e	00:40:09.6						1.7	
		IB								
		BB								
		LP								
		LP	e						00:43:58	21.0
		BB								
LP	eS	00:44:41	22.0							
BB										
LPE	e	00:45:56	43.0							
e		00:47:43.4	5.1							
LP	eSur	00:48:37	24.0							
LP	eSur	00:53:30	999							
LP	eSur	01:08:21	19.6							
LP	eSur	01:20:52	28.0							
BB	eSur	01:52:11	16.0							
18	Y	eP	00:46:23.2		3	1.1	T			
18	Y	eP	01:10:13.2		4	1.0	T			
		e	01:10:43.2			1.2				
18	Y	eP	01:15:24.2		1	0.9	T			
18	Y	eP	02:39:22.3		1	0.7	T			
18	Y	eP	02:48:17.0		1	0.9	T			
18	Y	eP	02:54:47.4		2	1.0	T			
18	Y	eP	02:56:05.3		1	0.9	T			
18	Y	eP	03:25:32.6		3	1.1	T			
		e	03:25:50.6			1.0				
18	Y	eP	03:31:03.2		2	0.9	T	P-Phase Dir. = S.E.		
		e	03:31:18.0			1.2				
		e	03:31:55.1			1.6				

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
18	✓	eP e	05:03:52.6 05:04:36.6		2	1.0 1.5	T	
18	✓	eP e	05:22:13.8 05:22:39.9		60	1.8 1.4	T	South of Panama 7.3N., 82.4W. 0 = 05:13:37.5 h about 41 km $\Delta = 48.1^\circ$ Dir. = 130° P-Phase Dir. = S.E.
18	✓	eP	05:41:14.2		2	1.2	T	
18	✓	eP	06:04:40.6		1	1.1	T	
18	✓	eP	06:07:20.9		2	1.2	T	
18	✓	E eP eS	06:20:21.2 06:21:01.3		1	0.3 0.2	NR	$\Delta(S-P) = 3.3^\circ$
18	✓	eP e e	06:21:17.0 06:21:41.5 06:23:53.5		2	1.2 1.0 0.6	T	
18	✓	ePd e e e e e e e e e e e e e e	06:24:41.4 06:25:12.9 06:27:45.6 06:28:17.1 06:29:32.4 06:34:20.0 06:34:47.7 06:38:22.8 06:40:27.3 06:42:53.0 06:44:13.4		2	1.0 1.5 1.3 1.4 1.7 1.7 0.7 1.3 1.5 1.1 1.3	T	Molucca Passage 2.3N., 126.9E. 0 = 06:10:26.3 h about 33 km $\Delta = 106.3^\circ$ Dir. = 290°
18	✓	E eP eS	06:46:30.9 06:46:34.4		1	0.2 0.2	L	$\Delta(S-P) = \text{less than } 0.1^\circ$
18	✓	E eP eS	07:19:28.4 07:20:08.4		1	0.3 0.3	NR	$\Delta(S-P) = 3.2^\circ$

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
18	✓	eP	08:58:43.2			0.9	T	
18	✓	eP e	20:04:24.0 20:04:58.3		3	0.9 0.8	T	P-Phase Dir. = S.W.
18	✓	eP	20:24:53.1		7	1.0	T	New Hebrides Islands 21.0S., 169.9E. 0 = 20:11:47.5 h about 81 km $\Delta = 93.1^\circ$ Dir. = 243° P-Phase Dir. = S.W.
18	✓	eP e e	20:42:01.2 20:42:39.4 20:42:59.4		3	0.9 0.9 0.8	T	Possible PKKP of New Hebrides Islands event
18	✓	eP e	21:58:49.9 21:58:53.2		4	1.0 1.5	T	
18	✓	eP e e	22:15:20.7 22:15:23.6 22:15:42.2		1	0.4 1.0 1.0	T	Possible PKKP of Fiji Islands event
18	✓	BBE eP eS	23:29:18.6 23:29:23.6		3	0.2 0.3	L	$\Delta(S-P) = 0.2^\circ$

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks	
					A	T			
19 ✓	IB	iP	00:17:45.1	C	55	1.2	T	Sea of Japan 42.0N., 132.9E 0 = 00:06:58.7 h about 436 km $\Delta = 73.2^\circ$ Dir. = 313°	
		e(pP)	00:19:30.1						1.2
19 ✓	E	eP	00:36:31.3		1	0.3	NR	$\Delta (S-P) = 1.4^\circ$	
		eS	00:36:49.0						0.3
19 ✓	IB	eP	01:29:44.6		25	1.0	T	Andreanof Islands, Aleutian Islands 52.3N., 173.4W. 0 = 01:22:35.5 h about 33 km $\Delta = 37.0^\circ$ Dir. = 302° P-Phase Dir. = WNW	
		e	01:29:58.5						0.9
		ePcP	01:32:03.4						0.9
		e	01:32:18.5						1.1
		e	01:35:44.5						1.0
		e	01:36:13.2						1.0
	LP	eSur	01:40:16			30.0			
19 ✓	LPE LP	eP	01:50:52.8		11	1.2	T	South of Panama 7.6N., 81.8W. 0 = 01:42:15.1 h about 33 km $\Delta = 48.2^\circ$ Dir. = 129° P-Phase Dir. = S.E.	
		ePcP	01:52:21.9						1.3
		eLq	02:11:28						22.0
		eLr	02:12:08						20.0
19 ✓	IB E	iP	02:35:55.1	C	999		L	$\Delta(S-P) = 0.8^\circ$ P-Phase Dir. = N.W.	
		eS	02:36:05.8						999
19 ✓	N	ip	03:55:59.7	C	1	0.2	L	$\Delta (S-P) = 0.3^\circ$ P-Phase Dir. = N.E.	
		eS	03:56:04.8						0.3
19 ✓	E	ep	04:23:24.2		1	0.3	NR	$\Delta (S-P) = 4.7^\circ$ P-Phase Dir. = N.E.	
		eS	04:24:21.0						0.3

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks	
					A	T			
19 ✓		iP	05:17:19.2	D	19	1.1	T	Near east coast of Sakhalin Island 48.1N., 145.1E. 0 = 05:07:39.1 h about 466 km $\Delta = 62.7^\circ$ Dir. = 312° P-Phase Dir. = WNW	
		e	05:17:52.2						0.8
		epP	05:18:59.7						1.5
19 ✓	SN	eP	05:53:01.8		1	0.1	L	$\Delta (S-P) = \text{less than } 0.1^\circ$	
		eS	05:53:05.2						0.2
19 ✓		ePd	07:46:21.3		1	0.8	T	Western Iran 29.9N., 50.4E. 0 = 07:28:43.2 h about 66 km $\Delta = 104.8^\circ$ Dir. = 11°	
		e(PP)	07:47:00.2						0.8
19 ✓		eP	08:01:30.2		27	1.2	T	Mariana Islands Reg. 11.5N., 141.0E 0 = 07:48:35.2 h about 61 km $\Delta = 90.1^\circ$ Dir. = 286°	
19 ✓	LP	eSur	08:30:12			2.3		Small surface waves on L.P.	
19 ✓	IZ	iP	11:12:56.2	C	8	0.9	T	P-Phase Dir. = S.E.	
		e	11:13:30.8						1.1
19 ✓	SZ LZ	eP	15:14:38.3		4	1.0	T	P-Phase Dir. = N.E.	
		e	15:14:47.7						1.2
		eSur	15:33:42			20.0			

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
19		eP	19:36:38.3		1	0.8	T	
19	E	eP	19:45:44.3		1	0.3	NR	$\Delta(S-P) = 1.5^\circ$
		eS	19:46:03.6			0.3		
19	E	eP	19:47:01.4		1	0.4	NR	$\Delta(S-P) = 1.9^\circ$
		eS	19:47:27.3			0.4		
19		eP	19:51:37.9		3	0.9	T	
		e	19:52:38.3			1.0		
19	E	eP	20:10:50.7		2	0.4	NR	$\Delta(S-P) = 1.8^\circ$
		eS	20:11:14.6			0.2		
19	E	eP	21:51:57.9		1	0.2	NR	$\Delta(S-P) = 2.8^\circ$
		eS	21:52:34.5			0.2		
19	E	eP	22:17:58.6		1	0.3	NR	$\Delta(S-P) = 3.4^\circ$
		eS	22:18:40.9			0.4		
19	E	eP	22:45:41.6		1	0.2	L	$\Delta(S-P) = 0.3^\circ$
		eS	22:45:46.9			0.3		
19	N	eP	23:05:00.0		1	0.3	NR	$\Delta(S-P) = 1.8^\circ$
		e	23:05:25.3			0.3		
19	N	eP	23:49:33.4		2	0.1	L	$\Delta(S-P) = 0.5^\circ$
		eS	23:49:40.5			0.2		
19	E	eP	23:52:51.5		1	0.1	L	$\Delta(S-P) = \text{less than } 0.1^\circ$
		eS	23:52:55.0			0.2		

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
20	E	eP	01:17:09.6		1	0.2	NR	$\Delta(S-P) = 4.0^\circ$
		e	01:17:17.5			0.3		P-Phase Dir. = WSW
		eS	01:17:59.6			0.8		
20		eP	03:19:51.2		1	1.0	T	
20	E	eP	05:52:58.8		1	0.3	NR	$\Delta(S-P) = 1.6^\circ$
		eS	05:53:20.2			0.3		
20		eP	06:13:24.7		1	0.9	T	Near coast of Northern Peru
		e	06:13:40.6			0.9		4.5S, 80.5W. 0 = 06:03:23.7 h about 17 km $\Delta = 59.1^\circ$ Dir = 136°
20		eP	06:28:46.2		3	0.9	T	Ryukyu Islands
		e	06:28:55.0			1.0		30.3N., 132.3E 0 = 06:16:30.4 h about 59 km $\Delta = 82.0^\circ$ Dir. = 305°
20		eP	06:32:08.8		1	0.8	T	P-Phase Dir. = S.E.
20		eP	08:00:37.3		2	0.8	T	
		e	08:00:50.2			1.0		
20	LP	eP	09:36:43.4		2	0.7	T	Near Coast of Southern Peru
		eSur	10:05:24			20.0		15.5S., 76.1W. 0 = 09:25:26.7 h about 33 km $\Delta = 70.8^\circ$ Dir. = 127°
20	E	eP	10:19:04.4		1	0.2	L	$\Delta(S-P) = 0.2^\circ$
		eS	10:19:08.9			0.4		
20		eP	11:09:31.1		2	1.0	T	P-Phase Dir. = S.E.
		e	11:11:00.5			1.4		

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
20 x	N	eP	11:33:03.0		3	0.2	L	$\Delta(S-P) = \text{less than } 0.1^\circ$
		eS	11:33:06.3			0.2		
20 y	N	eP	11:34:12.5		1	0.2	R	$\Delta(S-P) = 6.0^\circ$
		eS	11:35:23.8			0.5		
20 y	N	eP	11:35:07.0		1	0.1	L	$\Delta(S-P) = \text{less than } 0.1^\circ$
		eS	11:35:10.2			0.2		
20 y		eP	12:09:14.7		1	0.8	T	P-Phase Dir. = S.W.
20 x		eP	14:21:12.3		2	1.0	T	
		e	14:22:42.5			1.1		
20 x		eP	14:28:53.7		2	0.8	T	
		e	14:29:05.2			1.0		
20 x		eP	15:22:14.8		1	0.9	T	
20 x		eP	16:33:39.7		2	0.8	T	
		e	16:34:10.8			0.6		
20 y		e(P)	16:52:25.1		4	1.2	T	West New Guinea 4.7S., 139.4E. 0 = 16:38:24.6 h about 33 km $\Delta = 102.7^\circ$ Dir. = 276°
		e	16:53:06.0			1.1		
20 x	IB	eP	16:58:44.9		3	1.0	T	P-Phase Dir. = S.W.
20 y		eP	17:01:58.4		2	0.8	R	$\Delta(S-P) = 11.0^\circ$ P-Phase Dir. = SSE
		e	17:02:22.3			0.8		
		e	17:03:35.0			0.8		
		eS	17:04:01.3			999		
20 y	N	eP	17:03:21.1		999	999	NR	$\Delta(S-P) = 1.6^\circ$
		eS	17:03:42.5			999		
20 y	E	eP	17:09:44.5		2	0.2	NR	$\Delta(S-P) = 3.7^\circ$
		eS	17:10:31.0			0.3		

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
20 x	N	eP	17:09:54.9		1	0.6	NR	$\Delta(S-P) = 4.2^\circ$ P-Phase Dir. = S.E.
		e	17:10:08.5			1.0		
		eS	17:10:46.2			1.0		
20 x	E	eP	17:14:38.7		1	0.9	R	$\Delta(S-P) = 11.9^\circ$ P-Phase Dir. = SSE
		e	17:14:59.9			1.0		
		eS	17:16:49.5			1.3		
20 y		eP	18:14:56.2		2	0.8	T	P-Phase Dir. = W.
20 y		eP	19:21:45.7		2	0.8	T	P-Phase Dir. = S.E.
20 y	IB	eP	19:22:24.1		1	0.2	L	$\Delta(S-P) = 0.5^\circ$ P-Phase Dir. = N.E.
		eS	19:22:31.3			0.2		
20 y		eP	19:37:18.1		1	0.8	T	
20 y		eP	19:54:08.1		3	1.5	T	
20 y	E	eP	22:02:03.1		1	0.3	NR	$\Delta(S-P) = 2.8^\circ$
		eS	22:02:39.1			0.3		
20 y	IBE	eP	22:31:51.6		3	0.3	NR	$\Delta(S-P) = 3.0^\circ$
		eS	22:32:29.0			0.4		
20 x	N	eP	22:44:35.3		2	0.3	NR	$\Delta(S-P) = 1.4^\circ$
		eS	22:44:51.4			0.3		

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
21	N	eP	00:58:18.4		1	0.2	NR	Δ (S-P) = 3.8°
		eS	00:59:06.5			0.3		
21	E	eP	01:58:47.4		1	0.2	NR	Δ (S-P) = 1.5°
		eS	01:59:06.5			0.3		
21		eP	02:35:11.2		2	0.6	T	Near east coast of Kamchatka 53.7N., 160.3E. 0 = 02:26:18.5 h about 147 km Δ = 51.6° Dir. = 311°
21		eP	02:44:45.1		2	0.8	T	
21		eP	05:12:01.6		3	0.8	T	Andreanof Is. Aleutian Is. 51.4N., 178.0W 0 = 05:04:28.6 h about 33 km Δ = 40.0° Dir. = 301° P-Phase Dir. = WNW
		e	05:12:13.2			1.0		
21	E	eP	05:20:12.2		1	0.1	L	Δ (S-P) = less than 0.1°
		eS	05:20:15.1			0.2		
21		eP	05:50:17.1		1	0.9	T	
		e	05:50:41.8			1.3		
21		eP	06:13:07.7		2	0.9	T	Fiji Islands 17.6S., 178.9W 0 = 06:01:40.4 h about 600 km Δ = 83.6° Dir. = 237°
21	LP	eP	08:11:29.7			1.1	T	
		eSur	08:30:30			22.0		
21		eP	08:14:01.8		3	0.2	NR	Δ (S-P) = 4.3°
		e	08:14:10.9			0.3		

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
	E	eS	08:14:54.6			0.3		
		eSur	08:15:08.3			1.0		
21		iP	08:55:50.0	D	15	1.1	T	Tonga Is. Region 21.2S., 179.0W. 0 = 08:44:11.0 h about 624 km Δ = 86.4° Dir. = 235° P-Phase Dir. = S.W.
	e	08:59:29.1	1.1					
21		iP	09:16:21.0	C	4	1.0	T	Andreanof Is. Aleutian Is. 51.4N., 178.3W. 0 = 09:08:45.7 h about 33 km Δ = 40.2° Dir. = 302° P-Phase Dir. WNW
	e	09:16:43.3	1.2					
21		eP	09:22:20.8		1	0.6	T	Possible ScP of Aleutian Is.
21	N	eP	10:51:45.6			0.2	L	Δ (S-P) = 0.2°
		eS	10:51:49.9			0.3		
21	N	eP	10:53:32.8			0.2	L	Δ (S-P) = 0.2°
		eS	10:53:37.3			0.2		
21	N	eP	13:32:55.4			0.2	NR	Δ (S-P) = 1.7°
		eS	13:33:18.9			0.2		
21		iP	15:06:24.1	C	7	0.9	T	Fiji Islands region 17.7S., 178.7W. 0 = 14:54:51.0 h about 536 km Δ = 83.6° Dir. = 237°
21	E	eP	16:12:04.7			0.1	L	Δ (S-P) = less than 0.1°
		eS	16:12:08.0			0.2		
21	E	eP	17:48:02.9			0.1	L	Δ (S-P) = less than 0.1°
		eS	17:48:06.3			0.2		

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion A T	Type	Remarks
21	✓	eP	20:01:52.5		2	1.4	T
21	✓	eP	20:11:18.0		1	0.2	NR $\Delta(S-P) = 3.9^\circ$
		e	20:11:25.0			0.4	
	N	eS	20:12:06.8			0.4	
21	✓	eP	21:10:22.2		1	0.3	NR $\Delta(S-P) = 1.4^\circ$
		e	21:10:23.7			0.2	
	N	eS	21:10:40.3			0.2	
21	✓	eP	21:20:01.9		2	0.9	T
21	✓	ePd	22:53:46.7		1	1.0	T Drake Passage
		e	22:54:25.0			1.0	57.7S., 64.1W.
		eP'	22:57:38.7			1.3	0 = 22:33:51.7
		ePKKP	23:08:30.6			1.1	h about 51 km
							$\Delta = 111.4^\circ$
							Dir. = 152°
21	✓	eP	23:01:40.2		1	0.3	NR $\Delta(S-P) = 1.9^\circ$
	N	eS	23:02:06.4			0.5	
21	✓	eP	23:29:05.9		2	0.9	T

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion A T	Type	Remarks
22	✓	eP	00:10:23.7		1	0.4	NR $\Delta(S-P) = 2.8^\circ$
	E	eS	00:10:59.6			0.4	
22	✓	eP	00:29:14.4		2	0.2	NR $\Delta(S-P) = 1.4^\circ$
	E	eS	00:29:32.4			0.2	
22	✓	eP	02:46:40.7		1	0.3	NR $\Delta(S-P) = 3.7^\circ$
	E	eS	02:47:25.5			0.3	
22	✓	eP	03:46:23.8		2	1.0	T Rat Is. Aleutian Is. 51.1N., 177.9E. 0 = 03:38:29.9 h about 33 km $\Delta = 42.6^\circ$ Dir. = 303°
22	✓	eP	05:19:25.9		2	0.1	L $\Delta(S-P) = \text{less than } 0.1^\circ$
	N	eS	05:19:29.3			999	
	IBN						
22	✓	eP	06:03:55.0		3	1.1	T
22	✓	eP	06:20:50.5		1	0.1	L $\Delta(S-P) = \text{less than } 0.1^\circ$
	N	eS	06:20:53.9			0.2	
22	✓	eP	06:56:10.9		4	0.8	T Salta Province, Argentina
		e	06:57:00.0			1.4	24.3S., 67.1W.
		e	06:58:13.4			1.5	0 = 06:44:04.9 h about 168 km $\Delta = 82.7^\circ$ Dir. = 135°
22	✓	eP	07:05:26.3		1	1.0	T Northern Burma
		e	07:05:45.0			0.8	26.5N., 97.0E.
		ePP	07:09:41.1			1.2	0 = 06:51:32.3 h about 33 km $\Delta = 102.4^\circ$ Dir. = 329°
	LP	ePKKP	07:21:21.0			1.6	
22	✓	eP	11:12:29.9		2	0.7	T P-Phase Dir. = W.

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
22	Y	eP e	14:34:58.2 14:36:22.8		1	0.9 1.2	T	
22	Y	eP	14:44:25.0		1	0.7	T	
22	Y	eP	15:21:57.2		1	0.8	T	
22	Y	eP e	15:38:05.5 15:38:22.1		3	1.3 1.2	T	
22	Y	eP	16:05:11.4		1	0.7	T	
22	Y	eP	16:56:44.2		2	0.8	T	Southern Peru 15.5S., 73.1W. 0 = 16:45:31.0 h about 137 km $\Delta = 72.2^\circ$ Dir. = 135°
22	Y	eP e	18:11:55.1 18:12:04.4		2	0.7 1.2	T	Off south coast of Hokkaido, Japan 41.1N., 142.8E. 0 = 18:00:57.7 h about 59 km $\Delta = 68.4^\circ$ Dir. = 307°
22	Y	eP	19:46:29.8		1	1.0	T	
22	Y	eP eS	21:05:47.8 21:05:51.9		3	0.2 999	L	Δ (S-P) = less than 0.1°
		E IBE						
22	Y	eP eS	21:43:00.4 21:43:23.5		1	0.2 0.5	NR	Δ (S-P) = 1.7°
22	Y	eP eS	22:58:37.6 22:58:44.8		2	0.2 0.3	L	Δ (S-P) = 0.5°
22	Y	eP eS	23:48:00.8 23:48:04.2		1	0.3 0.4	L	Δ (S-P) = less than 0.1°

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
23	Y	eP	02:43:25.0		2	0.8	T	P-Phase Dir. = S.W.
23	Y	iP	07:11:45.0	C	5	1.3	T	Fiji Is. Region 23.7S., 179.9E. 0 = 06:59:49.9 h about 549 km $\Delta = 89.0^\circ$ Dir. = 235°
23	Y	iP	07:14:57.5	C	18	0.9	T	New Britain 4.9S., 151.9E. 0 = 07:01:45.7 h about 71 km $\Delta = 94.0^\circ$ Dir. = 267°
		IB						
23	Y	eP	08:41:08.5		1	0.8	T	
23	Y	eP	12:00:38.3		2	1.2	T	North Atlantic Ocean 14.7N., 45.1W. 0 = 11:49:53.5 h about 33 km $\Delta = 67.2^\circ$ Dir = 91°
23	Y	eP e e e	12:13:27.1 12:13:50.4 12:13:57.6 12:14:05.2		3	1.2 1.4 1.4 1.1	T	North Atlantic Ocean 14.7N., 45.1W. 0 = 12:02:34.7 h about 32 km $\Delta = 67.2^\circ$ Dir. = 91°
		E LP				34.0		
23	Y	eP	12:34:24					
23	Y	eP	12:36:44.0		1	1.0	T	Off east Coast of Ryukyu Islands 25.9N., 128.6E. 0 = 12:24:13.6 h about 162 km $\Delta = 87.5^\circ$ Dir. = 304°
23	Y	eP eS	15:04:05.5 15:04:09.1		1	0.1 0.2	L	Δ (S-P) = less than 0.1°
		E						

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
23 ✓	IB LP	iP	15:56:06.7	D	26	0.9	T	Kenai Peninsula, Alaska 60.1N., 151.2W, 0 = 15:50:46.4 h about 86 km $\Delta = 25.3^\circ$ Dir. = 319° P-Phase Dir. = N.W.
		e	15:56:09.2		27	1.2		
		eLr	16:03:22					
23 ✗		eP	19:19:31.5		3	1.0	T	
23 ✓		eP	20:54:34.4		1	0.8	T	Off west coast of Crete 35.5N., 23.3E. 0 = 20:41:28.3 h about 33 km $\Delta = 92.4$ Dir. = 31°
23 ✗	E	eP	21:31:52.1		1	0.3	R	$\Delta (S-P) = 8.2$ P-Phase Dir. = S.
		eS	21:33:27.9			0.4		
23 ✗	N	eP	23:00:07.4		1	0.2	L	$\Delta (S-P) = 0.2$
		eS	23:00:11.9			0.3		

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
24 ✓	N	eP	02:09:08.7		1	0.3	NR	$\Delta (S-P) = 4.3^\circ$
		eS	02:10:00.7			0.3		
24 ✓	N	eP	02:28:14.2		1	0.7	NR	$\Delta (S-P) = 2.3^\circ$
		eS	02:28:42.6			0.8		
24 ✓		e(P)	03:39:40.8		2	1.3	T	Kazakh S.S.R. 44.3N., 80.6E. 0 = 03:26:38.8 h about 33 km $\Delta = 89.8^\circ$ Dir. = 347°
24 ✓		e(P)	05:42:28.7		1	0.7	T	Off east coast of Mindanao, P. I. 9.2N., 126.6E. 0 = 05:28:26.5 h about 33 km $\Delta = 101.4^\circ$ Dir. = 295°
		e	05:42:31.1		1	1.0		
24 ✓	E	eP	05:52:31.8		1	0.3	L	$\Delta (S-P) = \text{less than } 0.1^\circ$
		eS	05:52:34.4			0.2		
24 ✓	N	eP	05:53:19.8		1	0.1	L	$\Delta (S-P) = 0.5^\circ$
		eS	05:53:27.2			0.1		
24 ✓		iP	09:34:43.6	D	5	0.8	T	Central Honshu, Japan 35.9N., 139.6E. 0 = 09:23:16.5 h about 83 km $\Delta = 73.8^\circ$ Dir. = 304°
		e	09:35:01.8			0.9		
		e	09:35:15.4			1.0		
24 ✓	N	eP	10:12:10.3		1	0.1	L	$\Delta (S-P) = \text{less than } 0.1^\circ$
		eS	10:12:13.5			0.2		
24 ✓	N	eP	10:19:36.0		3	0.1	L	$\Delta (S-P) = \text{less than } 0.1^\circ$
		eS	10:19:39.7			999		
24 ✓		eP	10:33:40.1		3	1.3	T	
24		eP	13:13:09.8		3	1.2	T	

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
24 ✓		iP epP	14:08:49.6 14:09:22.7	C	8	1.1 1.1	T	Jujuy Province, Argentina 23.5S., 67.1W. 0 = 13:56:45.8 h about 162 km $\Delta = 82.0^\circ$ Dir. = 134°
24 ✗		eP e PcP	14:31:17.0 14:31:53.7 14:32:48.0		5 6	1.4 1.4 1.3	T	South of Panama 7.7N., 83.3W. 0 = 14:22:47.0 h about 79 km $\Delta = 47.3^\circ$ Dir. = 131°
24 ✗		eP	14:41:04.3		4	1.3	T	
24 ✓	IZ LZ LZ	eP e ePP e eLr eP'P'	14:49:06.0 14:49:20.1 14:51:48.6 14:58:00 15:09:20 15:17:43.2		10	1.0 1.0 1.6 26.0 25.0	T	Near east coast of Hokkaido, Japan 42.8N., 145.3E. 0 = 14:38:21.7 h about 33 km $\Delta = 65.9^\circ$ Dir. = 307° P-Phase Dir. = WNW
24 ✗		eP e	14:56:20.8 14:56:34.1		2	0.8 1.5	T	Near coast of eastern Hokkaido, Japan 42.09., 145.3E. 0 = 14:45:37.3 h about 33 km $\Delta = 65.8^\circ$ Dir. = 307°
24 ✗	SE	eP eS	15:30:22.5 15:31:27.6		1	0.2 0.4	NR	$\Delta(S-P) = 5.5^\circ$
24 ✗	IZ IE SE	eP eS	16:09:41.1 16:10:09.1		7	0.6 0.8	NR	$\Delta(S-P) = 2.2^\circ$

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
24 ✓	N	eP eS	16:30:41.2 16:30:48.1		1	0.2 0.2	L	$\Delta(S-P) = 0.4^\circ$
24 ✓	N	eP eS	17:02:49.3 17:03:55.4		1	0.2 0.5	NR	$\Delta(S-P) = 5.4^\circ$
24 ✓	N	eP eS	17:12:31.6 17:12:38.7		1	0.1 0.2	L	$\Delta(S-P) = 0.5^\circ$
24 ✓	N	eP eS	17:24:12.8 17:24:34.9		1	0.3 0.3	NR	$\Delta(S-P) = 1.6^\circ$
24 ✓	IB IBN N	iP eS	18:32:37.2 18:32:44.3	C	999	0.2 0.2	L	$\Delta(S-P) = 0.4^\circ$ P-Phase Dir. = N.E.
24 ✗	N	eP eS	18:50:58.8 18:51:02.0		1	0.1 0.3	L	$\Delta(S-P) = \text{less than } 0.1^\circ$
24 ✓	N	eP eS	20:45:39.4 20:45:46.4		1	0.2 0.3	L	$\Delta(S-P) = 0.4^\circ$
24 ✓		eP e	21:06:31.5 21:06:45.6		4	1.2 1.0	T	
24 ✓	N	eP eS	22:21:14.8 22:21:42.3		1	0.4 0.4	NR	$\Delta(S-P) = 2.1^\circ$
24 ✓	N	eP eS	22:35:23.7 22:35:47.8		1	0.3 0.4	NR	$\Delta(S-P) = 1.8^\circ$
24 ✗	N	eP eS	22:43:46.0 22:43:49.6		1	0.1 0.1	L	$\Delta(S-P) = \text{less than } 0.1^\circ$
24 ✓	N	eP eS	22:44:27.2 22:44:30.4		1	0.1 0.1	L	$\Delta(S-P) = \text{less than } 0.1^\circ$
24 ✓	N	eP eS	23:01:35.3 23:01:58.8		1	0.3 0.4	NR	$\Delta(S-P) = 1.7^\circ$
24 ✓	N	eF eS	23:03:40.5 23:03:46.9		1	0.2 0.2	L	$\Delta(S-P) = 0.4^\circ$
24 ✗		eP	23:43:01.7		2	1.0	T	

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
25 ✓		e(PP)	00:39:12.4		2	1.0	T	South Pacific Ocean 55.6S., 124.3W. 0 = 00:21:14.6 h about 67 km $\Delta = 100.3^\circ$ Dir. = 184°
25 ✓	N	eP eS	01:11:42.6 01:11:47.3		1	0.2 0.3	L	$\Delta(S-P) = 0.2^\circ$
25 ✓	N	eP eS	01:38:13.9 01:38:21.0		3	0.2 0.3	L	$\Delta(S-P) = 0.4^\circ$
25 ✓		eP	02:49:27.6		3	0.8	T	Near south coast of Yamaguchi Prefecture, Japan 34.0N., 131.7E. 0 = 02:37:20.1 h about 33 km $\Delta = 79.7^\circ$ Dir. = 308°
25 ✓	N	eP eS	03:22:45.7 03:22:53.8		1	0.2 0.2	L	$\Delta(S-P) = 0.6^\circ$
25 ✓		eP	03:39:03.7		1	0.5	T	
25 ✓		eP'	05:08:01.0			0.8	T	Central Tanganyika 7.4S., 34.9E. 0 = 04:48:40.9 h about 33 km $\Delta = 135.6^\circ$ Dir. = 41°
25 ✓	E	eP eS	05:21:35.0 05:21:42.2		1	0.2 0.3	L	$\Delta(S-P) = 0.5^\circ$
25 ✓		eP	05:56:28.6		1	0.8	T	
25 ✓		eP	06:07:11.3		1	0.8	T	
25 ✓	N	eP eS	06:10:41.8 06:10:49.5		1	0.2 0.2	L	$\Delta(S-P) = 0.5^\circ$

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
25 ✗		eP	07:42:53.8		2	0.8	T	Tonga Is. Region 24.0S., 176.6W. 0 = 07:30:09.3 h about 33 km. $\Delta = 87.3^\circ$ Dir. = 232°
25 ✗	IBN N	eP eS	07:58:49.6 07:58:53.3		1	0.2 0.2	L	$\Delta(S-P) = \text{less than } 0.1^\circ$
25 ✓		iP	10:34:03.6	C	9	1.0	T	South of Honshu Is., Japan 32.9N., 137.8E. 0 = 10:22:45.1 h about 325 km $\Delta = 76.9^\circ$ Dir. = 303°
25 ✓	N	eP eS	11:38:33.7 11:38:39.6		1	0.2 0.2	L	$\Delta(S-P) = 0.3^\circ$
25 ✓	IB IB	iP e	15:02:53.4 15:03:07.2	C	15	1.2 1.3	T	Mariana Islands 11.7N., 138.6E. 0 = 14:49:46.9 h about 33 km $\Delta = 91.6^\circ$ Dir. = 288°
25 ✓		eP	17:20:35.0		1	0.7	T	P-Phase Dir. = W.
25 ✗	N	eP eS	18:31:09.7 18:31:16.8		1	0.2 0.3	L	$\Delta(S-P) = 0.5^\circ$

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
25		eP	20:05:01.6		1	1.0	T	
25	IB BB IBN N	iP	20:14:43.1	C	999	999	L	$\Delta(S-P) = \text{less than } 0.1^\circ$ P-Phase Dir. = S.W.
		eS	20:14:45.8			999		
25	N	eP	20:23:08.3		1	0.1	L	$\Delta(S-P) = \text{less than } 0.1^\circ$
		eS	20:23:12.0			0.3		
25	N	eP	23:47:34.5		1	0.3	NR	$\Delta(S-P) = 3.5^\circ$
		e	23:47:42.8			0.5		
	N	eS	23:48:28.2			0.4		

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
26	E	eP	00:10:29.0		2	0.3	L	$\Delta(S-P) = 1.4^\circ$
		eS	00:10:46.5			0.3		
26		eP	01:39:34.8		9	1.2	T	Mid-Atlantic Ocean 0.9N., 27.6W. 0 = 01:26:41.2 h about 33 km $\Delta = 89.2^\circ$ Dir. = 90°
26		eP	02:27:21.9		1	0.7	T	Central Alaska 61.8N., 151.6W. 0 = 02:21:52.1 h about 61 km $\Delta = 26.1^\circ$ Dir. = 323°
		e	02:27:39.5			0.7		
26		eP	03:03:29.0		23	1.5	T	Kurile Islands 46.5N., 153.0E. 0 = 02:53:29.9 h about 51 km $\Delta = 59.3^\circ$ Dir. = 307°
		e	03:03:40.3			0.9		
26		eP	04:02:49.3		1	0.5	T	
		e	04:03:12.2			0.7		
26		eP	05:08:04.6		6	0.2	NR	Southwestern Montana 44.9N., 112.6W. 0 = 05:07:15.2 h about 33 km $\Delta = 3.3^\circ$ Dir. = 88°
	IB IBN N	e	05:08:15.2			0.8		
		e	05:08:56.4			0.7		
26	N	eP	05:56:07.9		1	0.2	L	$\Delta(S-P) = 1.2^\circ$
		eS	05:56:23.6			0.3		
26		eP	08:33:28.8		4	1.2	T	
		e	08:34:03.6			1.0		
26		eP	09:17:34.3		2	1.2	T	

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
26		eP e	09:40:55.2 09:42:08.3		1	0.8 0.7	T	
26	IB	eP	11:45:10.7		2	0.3	NR	Δ (S-P) = 3.2° P-Phase Dir. = N/W.
	E	e	11:45:20.7			0.4		
	E	eS	11:45:49.1			0.5		
		eSur	11:46:05.2			0.6		
	IBN	e	11:46:07.5			0.6		
26	IBN	eP	11:53:49.3		4	0.1	L	Δ (S-P) = 0.1°
	N	eS	11:53:53.3			0.2		
26	N	eP	11:55:59.8		1	0.1	L	Δ (S-P) = less than 0.1°
		eS	11:56:02.9			0.2		
26	N	eP	12:10:05.2		1	0.2	L	Δ (S-P) = less than 0.1°
		eS	12:10:08.3			0.2		
26	BB LPE	iP e ePP e e e	12:57:46.0 12:57:58.6 13:01:32.2 13:04:15.0 13:05:00 13:10:04	C	15	1.5 1.6 1.5 1.6 6.0 36.0	T	Kermadec Is. Region 27.5S., 176.4W. 0 = 12:44:48.9 h about 33 km Δ = 89.9° Dir. = 230°
		ePKKP	13:15:18.8			1.0		
26		eP e epP	13:36:29.2 13:36:35.7 13:37:18.0		6	1.0 0.9 1.5	T	Mariana Is. Region 18.7N., 145.4E. 0 = 13:24:30.1 h about 201 km Δ = 82.0° Dir. = 288° P-Phase Dir. = S.W.
26		eP e	14:28:50.0 14:28:59.5		2	1.0 1.1	T	
26	N	eP eS	15:34:26.8 15:34:33.7		1	0.1 0.3	L	Δ (S-P) = 0.4°

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
26		eP e	15:53:46.3 15:59:13.8		5	0.8 0.9	T	Southern Peru 15.2S., 72.4W. 0 = 15:42:49.6 h about 276 km Δ = 72.3° Dir. = 134° P-Phase Dir. = SSE
26	N	iP eS	16:27:36.1 16:27:42.4	C		999 999	L	Δ (S-P) = 0.4° P-Phase Dir. = ENE
26	N	eP eS	16:38:41.2 16:38:46.0		1	0.2 999	L	Δ (S-P) = 0.2° P-Phase Dir. = S.W.
26		eP	17:08:42.3		2	1.0	T	
26	E	eP eS	20:04:36.9 20:04:42.2		2	0.2 999	L	Δ (S-P) = 0.3° P-Phase Dir. = ENE
26		eP	20:18:58.3		2	1.1	T	
26		eP e	20:55:23.7 20:56:06.2		1	0.8 1.2	T	
26	IB N IBN	iP eS	21:28:36.3 21:28:41.3	C		999 999	L	Δ (S-P) = 0.2° P-Phase Dir. = S.W.
26	IBN N	eP e eS	21:33:13.3 21:33:17.4 21:33:54.0		1	0.2 0.4 0.2	NR	Δ (S-P) = 3.6°
26		eP	21:39:52.8		1	0.8	T	
26	IB IBN N	iP eS	21:53:17.0 21:52:22.3	C	999	0.3 0.5	L	Δ (S-P) = 0.3°
26	E	eP eS	22:59:08.5 22:59:30.6		2	0.4 0.4	NR	Δ (S-P) = 1.6°
26	N	eP eS	23:55:03.4 23:55:54.5		1	0.3 0.4	NR	Δ (S-P) = 4.1° P-Phase Dir. = WSW

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
27 x	N	eP	00:13:02.1		1	0.1	L	Δ (S-P) = 0.5°
		eS	00:13:09.3			0.3		
27 y		eP	02:51:58.4		2	1.1	T	
27 y	N	eP	02:53:00.2		1	0.1	L	Δ (S-P) = less than 0.1°
		eS	02:53:03.4			0.2		
27 x	N	eP	04:36:33.2		1	0.1	NR	Δ (S-P) = 1.6°
		e	04:36:35.1			0.3		
		eS	04:36:54.8			0.3		
27 y	N	eP	04:43:42.8		1	0.5	NR	Δ (S-P) = 3.3°
		eS	04:44:23.1			0.4		
27 y	N	eP	05:35:37.2		1	0.3	NR	Δ (S-P) = 3.5°
		eS	05:36:19.9			0.4		
27 y		eP	07:01:28.7		3	0.8	T	San Juan Province, Argentina 31.2S., 67.9W. 0 = 06:48:45.8 h about 71 km Δ = 88.0° Dir. = 139°
27 y	IB	iP	08:02:18.9	D	39	1.0	T	Central Bolivia 17.9S., 64.9W. 0 = 07:50:28.3 h about 120 km Δ = 78.5° Dir. = 130° P-Phase Dir. = S.E.
		epP	08:02:50.3			1.2		
		e	08:03:03.3			1.0		
		e	08:03:57.9			0.7		
		ePP	08:05:12.0			1.2		
27 x	N	eP	08:08:44.7		1	0.4	R	Δ (S-P) = 4.8° P-Phase Dir. = WSW
		eS	08:09:42.9			0.5		

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
27 ✓		eP	09:29:21.0		4	0.9	T	Hokkaido, Japan 42.3N., 142.3E. 0 = 09:18:24.9 h about 47 km Δ = 67.9° Dir. = 308°
		e	09:29:36.3			0.9		
		e	09:30:41.1			1.6		
27 ✓		eP	11:14:49.4		3	0.8	T	P-Phase Dir. = SSE
27 y		eP	11:27:01.3		1	0.6	T	
		e	11:27:13.3			1.0		
27 y		eP	11:39:31.3		4	1.1	T	
27 y		eP	12:42:41.7		10	1.7	T	Peru-Bolivia Border 18.4S., 68.7W. 0 = 12:30:53.0 h about 59 km Δ = 76.9° Dir. = 133°
		e	12:43:11.5			1.1		
		e	12:43:23.4			0.9		
27 y	N	eP	13:09:23.2		1	0.2	L	Δ (S-P) = less than 0.1°
		eS	13:09:26.7			0.2		
27 ✓		eP'	13:15:05.0		11	1.4	T	Southern Sumatra 4.6S., 104.4E. 0 = 12:56:18.6 h about 144 km Δ = 125.8° Dir. = 305°
		ePP	13:17:22.3			1.4		
		e	13:18:11.5			1.1		
		eSKP	13:18:23.0			1.9		
		ePKKP	13:24:40.8			2.0		
27 x		eP	13:28:10.8		7	1.6	T	Near Northern Coast of Luzon, Philippine Is. 18.6N., 121.8E. 0 = 13:07:57.8 h about 30 km Δ = 97.1° Dir. = 305°

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
27 ✓		iP	13:36:40.9	C	23	0.9	T	Fiji Islands 17.6S., 178.9W. 0 = 13:25:05.6 h about 507 km $\Delta = 83.6^\circ$ Dir. = 238° P-Phase Dir. = S.W.
		epP	13:38:25.6			1.5		
		e	13:39:28.7			1.5		
		e	13:53:07.6			1.5		
		ePKKP	13:54:35.8			1.0		
		eP'P'	14:03:03.0			1.0		
	eP'SKP	14:05:38.6	1.1					
27 X	E	eP	15:14:16.4		2	0.2	L	$\Delta (S-P) = 0.4^\circ$
		eS	15:14:23.3			0.3		
27 ✓	E	eP	15:36:52.3		2	0.2	NR	$\Delta (S-P) = 1.8^\circ$
		eS	15:37:16.1			0.6		
27 ✓	E	eP	17:14:22.0		1	0.2	L	$\Delta (S-P) = 0.3^\circ$
		eS	17:14:27.2			0.2		
27 ✓		eP	18:37:39.7		4	0.9	T	
27 ✓		eP	18:40:02.4		6	1.4	T	New Ireland region 4.0S., 151.2E. 0 = 18:26:52.5 h about 51 km $\Delta = 93.9^\circ$ Dir. = 268°
27 ✓	N	eP	18:54:31.8		1	0.2	L	$\Delta (S-P) = 0.6^\circ$
		eS	18:54:40.7			0.2		
27 ✓	iP	20:01:05.6	C	999	L	999	L	$\Delta (S-P) = 0.4^\circ$ P-Phase Dir. = SSE
	IB							
	E							
	eS	20:01:12.1		999				
27 ✓	iP	23:58:48.4	C	999	L	999	L	$\Delta (S-P) = 0.5^\circ$ P-Phase Dir. = N.E.
	IB							
	N							
	eS	23:58:55.4		999				
	IBN							

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
28 ✓		eP	00:56:25.0		3	1.2	T	
28 ✓		eP	01:13:41.5		1	0.3	NR	$\Delta (S-P) = 3.5^\circ$
		eS	01:14:23.7			0.3		
28 ✓		eP	02:28:36.6		1	0.1	T	New Hebrides Is. 16.7S., 167.5E. 0 = 02:15:32.6 h about 50 km $\Delta = 91.5^\circ$ Dir. = 248°
		e	02:32:01.8			0.9		
28 ✓		e	03:46:48.0		1	0.7	T	Fiji Islands Region 17.5S., 178.8W. 0 = 03:35:20.3 h about 584 km $\Delta = 83.5^\circ$ Dir. = 238°
28 ✓	LP	eP	05:26:42.8		2	0.9	T	Kurile Is. Region 44.0N., 149.6E. 0 = 05:16:20.7 h about 33 km $\Delta = 62.7^\circ$ Dir. = 306°
		ePcP	05:27:21.4			0.6		
		eSur	05:48:55			28.0		
28 ✓		eP	05:40:17.7		2	0.7	T	Alaska Peninsula 55.0N., 160.7W. 0 = 05:34:21.1 h about 89 km $\Delta = 29.3^\circ$ Dir. = 306°
		ePcP	05:43:18.3			0.8		
		e	06:06:28.0			0.8		
28 ✓	N	iP	08:26:14.5	D	5	0.2	L	$\Delta (S-P) = \text{less than } 0.1^\circ$ P-Phase Dir. = S.E.
		eS	08:26:17.7			999		
28 ✓		eP	08:57:49.5		1	0.8	T	
28 ✓		eP	14:34:58.3		2	1.0	T	
28 ✓		eP	14:50:30.8		4	1.2	T	

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
28 ✓	E	eP	15:16:12.9		1	0.2	L	$\Delta(S-P) = 1.0^\circ$
		eS	15:16:25.6			0.2		
28 ✓	E	eP	15:19:55.4		1	0.2	L	$\Delta(S-P) = 0.5^\circ$
		eS	15:20:02.5			0.2		
28 ✓		eP	17:02:46.4		3	1.3	T	
28 ✓	N	eP	17:33:23.2		1	0.1	L	$\Delta(S-P) = \text{less than } 0.1^\circ$
		eS	17:33:26.3			0.2		
28 ✓	E	eP	17:36:26.4		1	0.2	L	$\Delta(S-P) = 0.4^\circ$
		eS	17:36:33.2			0.2		
28 ✓	E	eP	17:50:41.8		1	0.2	L	$\Delta(S-P) = 0.2^\circ$
		eS	17:50:46.7			0.3		
28 ✓		eP	17:57:03.8		3	1.2	T	
28 ✓		eP	18:26:33.8		2	1.2	T	
28 ✓	E	eP	19:02:48.9		1	0.1	L	$\Delta(S-P) = \text{less than } 0.1^\circ$
		eS	19:02:52.4			0.2		
28 ✓	IB	iP	19:05:15.6	C	9	1.0	T	Western Colombia 5.2N., 76.2W. 0 = 18:56:08.7 h about 127 km $\Delta = 53.3^\circ$ Dir. = 125° P-Phase Dir. = S.E.
		epP	19:05:39.4					
	IB	e	19:05:53.2			1.0		
		eScP	19:10:12.5			1.2		
	LPN	e	19:13:30			22.0		
		e	19:19:26.8			1.4		
	LP	eSur	19:19:42			30.0		
	LP	eSur	19:23:32			34.0		
28 ✓	N	eP	19:40:05.0		4	0.2	L	$\Delta(S-P) = 0.5^\circ$
		eS	19:40:12.1					
28 ✓	E	eP	20:32:11.3		1	0.3	NR	$\Delta(S-P) = 5.4^\circ$
		eS	20:33:13.0					
28 ✓	E	eP	21:03:22.3		2	0.2	L	$\Delta(S-P) = 0.4^\circ$
		eS	21:03:29.3					

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks	
					A	T			
28 ✓	E	eP	21:15:06.6		1	0.2	L	$\Delta(S-P) = 0.4^\circ$	
		eS	21:15:13.2						0.2
28 ✓	E	eP	22:20:50.5		1	0.3	NR	$\Delta(S-P) = 2.4^\circ$	
		eS	22:21:22.2						0.3
28 ✓		eP	22:25:54.5		3	1.0	T	Near Coast of Central Peru 13.8S., 76.7W. 0 = 22:14:52.7 h about 61 km $\Delta = 69.0^\circ$ Dir. = 137°	
		ePcP	22:26:03.1						1.0
		e	22:29:04.8						1.2
		e	22:30:52.4						1.2
28 ✓	IB	eP	22:32:38.6		3	0.3	NR	$\Delta(S-P) = 1.9^\circ$	
		e	22:32:45.2						0.2
	N	eS	22:33:04.1			999			
28 ✓	N	eP	23:10:03.6		2	0.2	NR	$\Delta(S-P) = 2.9^\circ$	
		eS	23:10:40.3						0.3

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
29		eP	01:33:05.4		4	0.5	T	
29	E	eP eS	01:45:59.6 01:46:21.8		1	0.4 0.4	NR	$\Delta(S-P) = 1.6^\circ$
29	IBE E	iP eS	02:16:03.2 02:16:06.3	D	5	0.2 0.1	L	$\Delta(S-P) = \text{less than } 0.1^\circ$
29		eP e	03:12:03.5 03:13:44.6		2	0.6 1.0	T	P-Phase Dir. = N.W.
29		eP e	05:33:51.5 05:34:20.0		16	1.0 1.0	T	Southern Bolivia 20.0S., 68.0W. 0 = 05:21:49.6 h about 26 km $\Delta = 78.6^\circ$ Dir. = 133° P-Phase Dir. = S.E.
29	N	eP eS	06:13:40.4 06:13:55.4		1	0.2 0.4	L	$\Delta(S-P) = 1.2^\circ$
29	E	eP eS	06:14:46.2 06:14:49.8		1	0.2 0.2	L	$\Delta(S-P) = \text{less than } 0.1^\circ$
29		eP	06:34:06.4		2	0.8	T	Greece-Albania border region 40.1N., 21.0E. 0 = 06:21:20.5 h about 33 km $\Delta = 87.5^\circ$ Dir. = 31°
29		eP	08:36:09.5		3	1.1	T	
29		eP	12:28:33.6		2	1.0	T	
29	IB BB LP IB	iP epP	15:29:32.1 15:31:37.6	D	115	0.4 1.6	T	Santiago Del Estero Province, Argentina 27.0S., 63.6W. 0 = 15:17:47.7 Mag. 6-1/2 (PAS) 6-1/4 (PAL)

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
		BB LP						h about 575 km $\Delta = 86.7^\circ$
		e eSKS	15:34:37.4 15:39:26.5			0.8 3.4		Dir. = 134° P-Phase Dir. = S.E.
		e	15:39:56.5			2.4		
		e	15:41:12.4			3.0		
		e e eP ^P	15:46:41.9 15:47:16.2 15:55:23.1			1.2 1.4 0.8		
29	E	eP e eS	17:01:58.9 17:02:25.0 17:04:11.8		2	0.7 1.3 0.7	R	$\Delta(S-P) = 12.0^\circ$
29		eP	17:17:13.5		1	0.2	T	
29		eP	20:55:12.1		3	1.0	T	New Hebrides Is. 14.2S., 168.2E. 0 = 20:42:24.8 h about 198 km $\Delta = 89.2^\circ$ Dir. = 249°

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
30	N	eP	00:23:24.5		1	0.4	NR	$\Delta(S-P) = 3.5^\circ$
		eS	00:24:08.3			0.4		
30	IB IBE E	eP	02:37:05.2		15	0.4	NR	$\Delta(S-P) = 1.7^\circ$
		eS	02:37:29.0			0.8		
30	N	eP	03:09:16.4		1	0.4	NR	$\Delta(S-P) = 1.6^\circ$
		eS	03:09:37.8			0.4		
30	IBN N	eP	03:12:33.1		1	0.1	L	$\Delta(S-P) = \text{less than } 0.1^\circ$
		eS	03:12:34.1			0.1		
30		eP	06:56:27.2		8	1.4	T	Mariana Islands 13.5N., 146.2E. 0 = 06:44:00.4 h about 94 km $\Delta = 85.1^\circ$ Dir. = 284° P-Phase Dir. = S.W.
30	IBN N	eP	07:09:36.4		1	0.2	L	$\Delta(S-P) = 0.9^\circ$
		e	07:09:28.0			0.2		
		eS	07:09:48.7			0.3		
30	IB	eP	07:10:23.2		1	0.2	NR	$\Delta(S-P) = 0.9^\circ$
		e	07:10:24.4			0.2		
	IBN	eS	07:10:35.4			0.2		
	IBN N	e	07:10:37.3			0.2		
30	E	eP	09:38:44.2		1	0.3	R	$\Delta(S-P) = 6.2^\circ$
		eS	09:39:58.5			0.5		
30	E	eP	10:15:04.8		1	0.4	NR	$\Delta(S-P) = 4.3^\circ$
		eS	10:15:58.2			0.3		

Month of September Blue Mountains Seismological Observatory

Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
30	N	eP	10:26:03.6		1	0.1	L	$\Delta(S-P) = 0.3^\circ$
		eS	10:26:09.0			0.4		
30		eP	10:43:54.1		1	0.6	T	
30		eP	11:01:24.6		22	1.5	T	New Britain region 5.2S., 152.7E. 0 = 10:48:10.3 h about 33 km $\Delta = 93.6^\circ$ Dir. = 266° P-Phase Dir. = S.W.
		e	11:02:10.0			1.5		
30		eP	11:11:22.9		1	0.8	T	
30		eP	11:11:57.4			0.8	T	Near Southern coast of New Britain Is. 5.9S., 151.0E. 0 = 10:58:37.0 h about 50 km $\Delta = 95.3^\circ$ Dir. = 267°
30		eP	12:37:00.8		1	0.7		
		e	12:37:16.0			0.8	T	
30		eP	12:47:18.0		1	0.6	T	
30		eP	14:38:21.2		1	0.8	T	
30	E	eP	14:59:28.2		1	0.2	NR	$\Delta(S-P) = 5.2^\circ$
		eS	15:00:30.8			0.3		
30		eP	15:22:12.6		1	0.4	T	
30		eP	17:04:23.6		1	0.7	T	
30		eP	21:18:34.6		2	0.9	T	

Month of _____ Blue Mountains Seismological Observatory

Day	System	Phase	Arrival Time GCT	C or D	Ground A	Motion T	Type	Remarks
30 ✓		eP	22:10:55.6		7	1.2	T	Near north coast of Luzon, Philippine Is. 18.6N., 120.9E. 0 = 21:57:24.8 h about 51 km $\Delta = 97.6^\circ$ Dir. = 306°

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SEISMOLOGICAL BULLETIN
BLUE MOUNTAINS SEISMOLOGICAL OBSERVATORY

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Contract AF 33(600)-43486

SCIENCE SERVICES DIVISION
QUALITY WORLD-WIDE
EXPLORATION SERVICES



TEXAS INSTRUMENTS
INCORPORATED
100 LECHARD PARK NORTH
P. O. BOX 25084 DALLAS, TEXAS

THE REGISTRATION OF EARTHQUAKES
AT THE
BLUE MOUNTAINS SEISMOLOGICAL OBSERVATORY

Station Abbreviation: BMO

Station Identification on Film Seismograms: BMO

Geographical Location:* $44^{\circ} 50' 56''$ N
 $117^{\circ} 18' 20''$ W

Geocentric Location:* $44^{\circ} 39' 40''$ N
 $117^{\circ} 18' 20''$ W

Altitude (Meters):* 1189 (3900 feet)

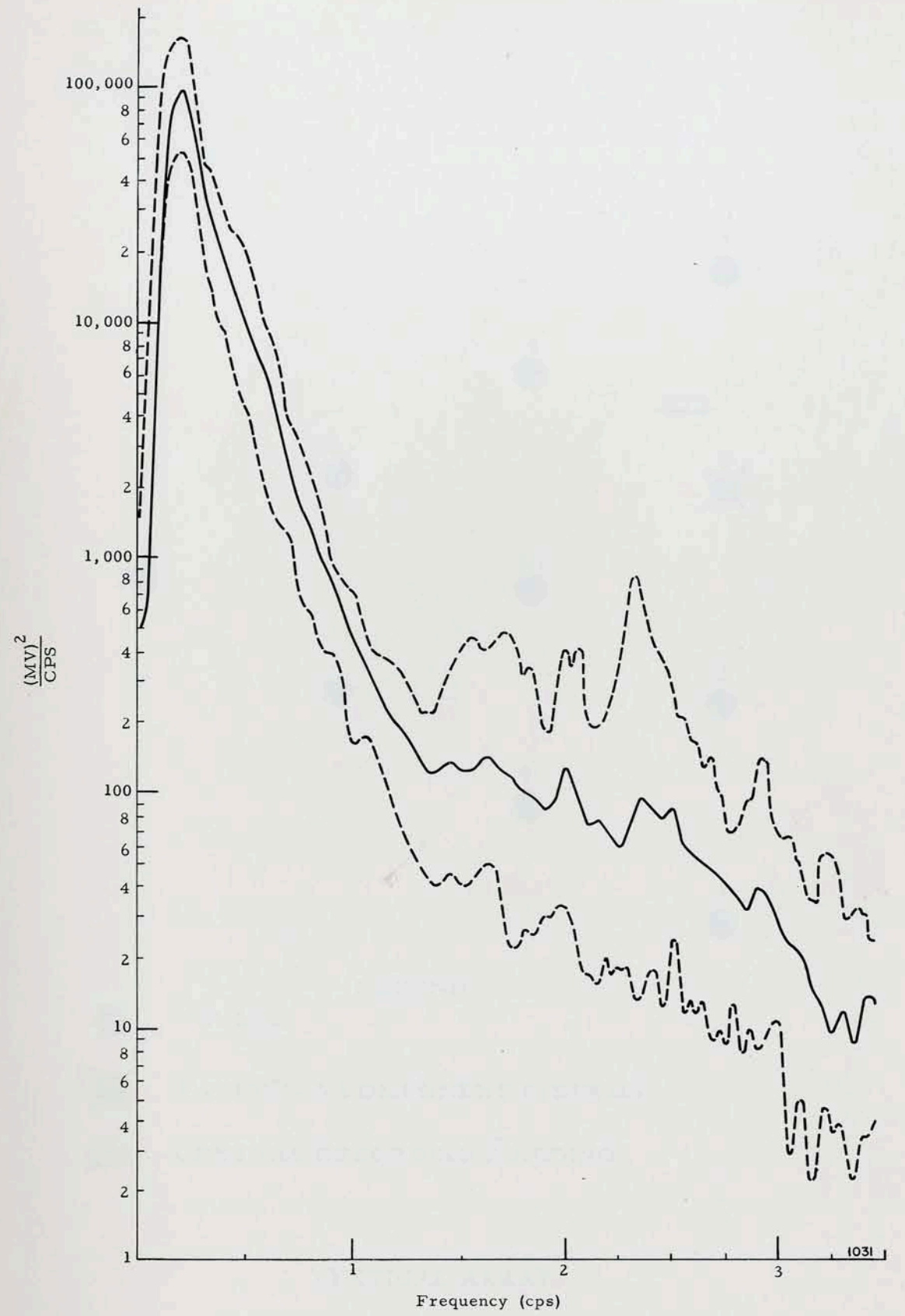
Geology: Granite

Blue Mountains Seismological Observatory is a quiet station with microseisms primarily of 2 and 4-second periods and occasional 3-cps wave trains.

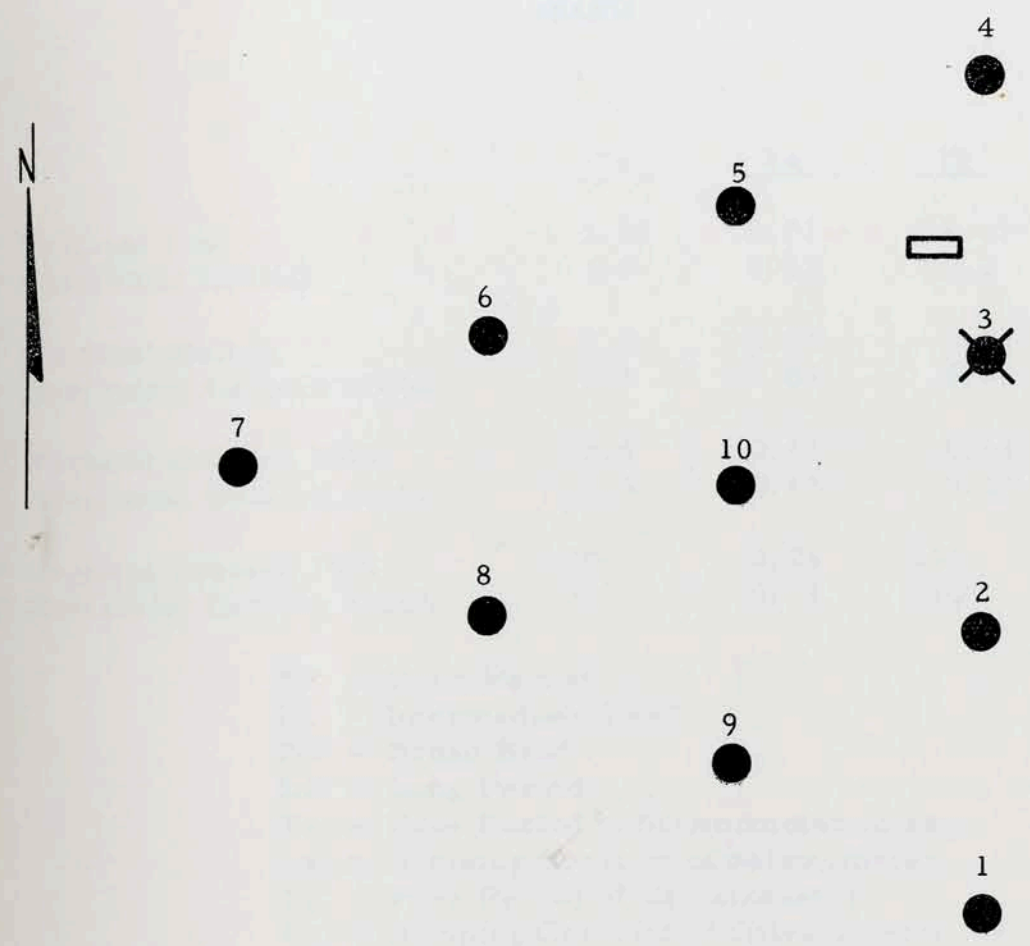
The important conclusions, considering the limited amount of data available for analysis, to be drawn from the noise study of BMO data are:

- 1) The noise is space-stationary up to a frequency of 1.5 cps. It has been shown that the coherence of noise for any seismometer pair with the same vector spacing is equal up to 1.5 cps.
- 2) The noise is nearly isotropic with a velocity of 4.0 to 5.4 km per second.
- 3) The noise is organized, that is, non-random.
- 4) The noise above 1.5 cps may or may not be space-stationary. Additional study is needed to answer this question.

*Refers to Vault #3, which contains horizontal short-period seismometers also.



Minimum - Maximum, Means of Spectra; BMO



- LEGEND
- VAULTS
 - ⊗ VAULTS - 3 COMPONENT SYSTEMS
 - CENTRAL RECORDING BUILDING

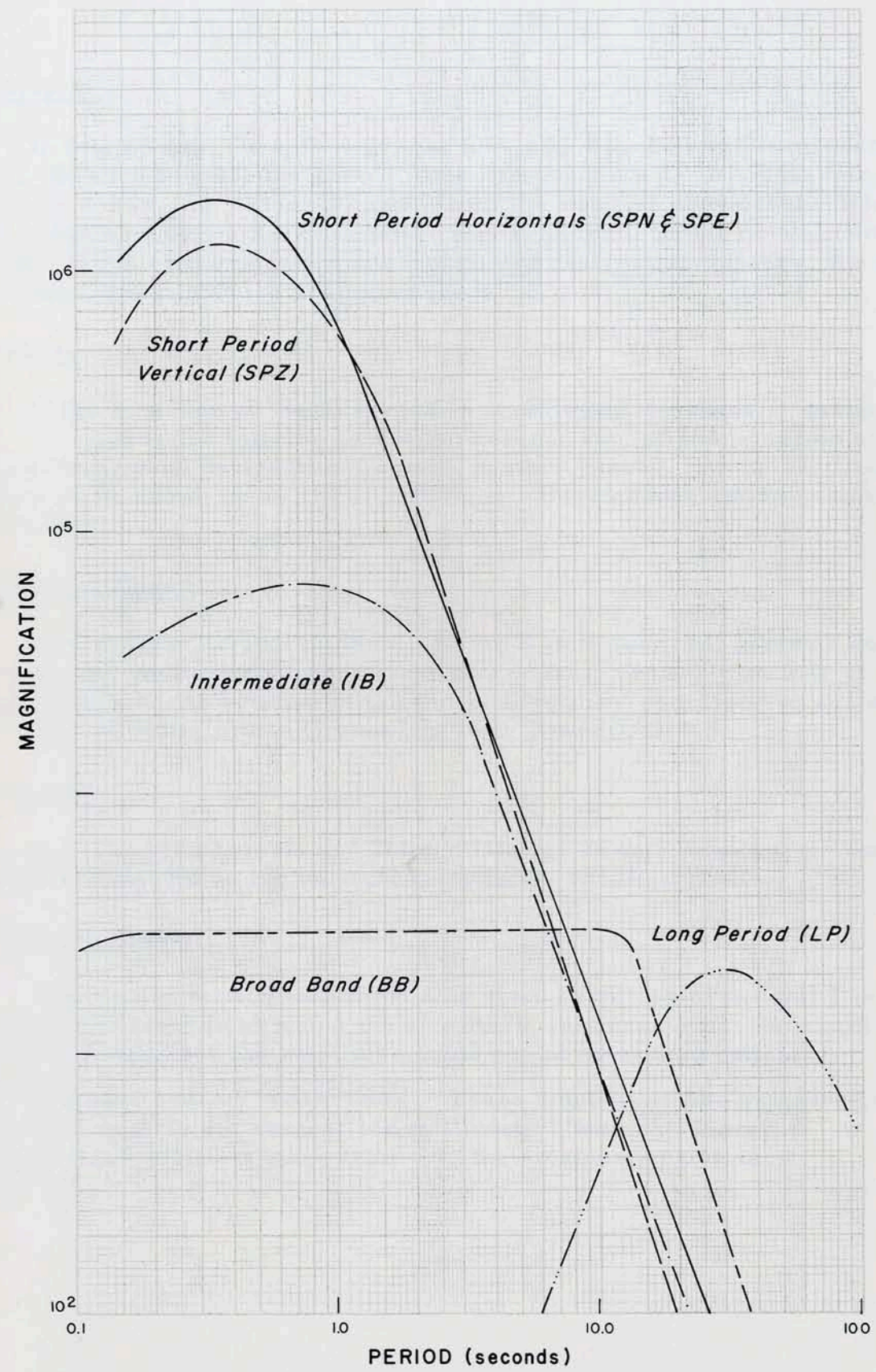
VERTICAL ARRAY
BLUE MOUNTAINS SEISMOLOGICAL OBSERVATORY

SEISMOGRAPHS
(BMO)

	<u>T_s</u>	<u>λ_s</u>	<u>T_g</u>	<u>λ_g</u>
SP Vertical J-M	1.25	0.51	0.33	0.65
SP Horizontal Benioff	1.0	0.67	0.2	1.0
IB Vertical Melton	2.5	0.65	0.61	1.2
IB Horizontal Geotech 8700B	2.5	0.65	0.64	1.2
BB Vertical Geotech 7505	12.5	0.43	0.64	9.0
BB Horizontal Geotech 8700A	12.5	0.43	0.64	9.0
LP Vertical Geotech 7505	20	0.74	110	1.0
LP Horizontal Geotech 8700A	20	0.74	110	1.0

- SP = Short Period
- IB = Intermediate Band
- BB = Broad Band
- LP = Long Period
- T_s = Free Period of Seismometer in sec.
- λ_s = Damping Constant of Seismometer
- T_g = Free Period of Galvanometer
- λ_g = Damping Constant of Galvanometer

Response curves are given on page iv.



AMPLITUDE RESPONSE OF SEISMOGRAPHS

1. System

In this column the seismographs (SP, IB, BB, LP) and components (Z, N, E) used to measure arrival time are designated. When no component is shown, the phase was read from the vertical component. When N or E component appears alone, phase was read from SP horizontal component. When neither system nor component designation appears, the phase was read from the SP vertical component.

2. Phase

If the direction of the first motion is definite, the phase is designated "i". ("i" stands for impetus or sudden onset). An "e" (for emersio or gradual beginning) designation is given to other phases. An unidentified phase will be shown by an "i" or "e" alone. Parentheses marks indicate uncertainty.

3. Arrival Times

The earliest arrival on the Z, N, or E is listed. All arrivals on the short-period vertical components are picked from the seismometer at vault number 3, the location of the three-component short-period system. All dates and times are in Greenwich Civil Time (G. C. T.).

4. C or D

C is for compression and D for dilatation as determined from the direction of motion on the vertical component, for iP arrivals.

5. Ground Motion

The ground motion amplitude A is given in millimicrons and T is the period in seconds at which the amplitude was measured. An amplitude of 999 indicates the amplitude could not be measured reliably.

All amplitudes are $\frac{\text{peak-to-trough}}{2}$. Trace amplitudes are measured on the X10 view to the nearest 1/2 millimeter, with short-period vertical measurements taken from Z3, the seismometer at vault number 3.

6. Type

Earthquakes are identified by range of epicentral distances as follows:

L (local)	0°	-	1.4°
NR (near-regional)	1.4°	-	6°
R (regional)	6°	-	16°
T (teleseismic)	16°	-	180°

7. Remarks

The following items are reported here:

- 1) Epicenter locations, origin times, depth of foci, and magnitudes as given in the U. S. Coast and Geodetic Survey's Preliminary Determination of Epicenter cards.
- 2) Epicentral distances and station-to-epicenter directions (Dir.) as computed from the station and epicenter coordinates.
- 3) Epicentral distances as determined from S-P intervals and direction of epicenter as found from P waves or Rayleigh waves for teleseisms or as determined from the vertical array for nearby events.
- 4) Operational difficulties which affect the interpretation of data.

Month of October

Blue Mountains Seismological Observatory

Day	System	Phase	Arrival Time GCT	C or D	Ground A	Motion T	Type	Remarks
1	r	eP e	00:17:30.7 00:17:31.7		3	0.9 1.0	T	
1	v	eP e e	01:06:47.4 01:06:54.0 01:10:20.2		6	1.0 1.1 1.3	T	
1	y	eP e	01:20:18.6 01:20:23.2		2	0.7 0.5	T	P-Phase Dir = SSW
1	r	eP e	02:32:05.5 02:32:10.4		1	0.7 0.5	T	P-Phase Dir = SSW Possible aftershock previous event
1	y	eP e	02:34:26.2 02:34:31.0		1	0.7 0.5	T	P-Phase Dir = SSW Possible aftershock
1	v	E S	eP 03:07:21.3 S 03:07:43.6		1	0.2 0.3	NR	Δ (S-P) = 1.6° P-Phase Dir = SE
1	x	eP	03:23:54.4		9	1.2	T	
1	IB	iP e(pP) e e E ePS ePKKP eP'P' ePKSP'	04:08:23.9 04:10:17.3 04:10:31.1 04:13:20.5 04:20:27.9 04:26:36.8 04:34:41.1 04:37:13.8	C	24	0.9 1.4 0.9 1.7 1.9 1.0 1.4 1.4	T	Fiji Is. 17.5 S 178.9 W 0 = 03:56:52.0 h about 550 km Δ = 83.5° Dir = 238°
1	v	N S	eP 06:08:52.1 S 06:09:13.6		1	0.4 0.3	NR	Δ (S-P) = 1.6°
1	v	eP e	07:27:07.8 07:27:16.1		2	0.9 1.0	T	
1	v	eP' ePP	08:09:47.4 08:11:15.8		1	0.9 1.0	T	Nicobar Is. Region 6.5 N 95.1 E 0 = 07:50:52.8 h about 33 km Δ = 121.2° Dir = 322°

Month of October Blue Mountains Seismological Observatory

Day	System	Phase	Arrival Time GCT	C or D	Ground A	Motion T	Type	Remarks
1		eP	09:42:53.8		1	0.1	L	Δ (S-P) = 1.0°
	E	eS	09:43:05.9			999		
1	IB	eP	10:03:25.6		25	1.4	T	Kurile Is. 47.3 N 151.5 E 0 = 09:53:32.9 h about 127 km Δ = 59.7° Dir = 308° P-Phase Dir = WNW
		e	10:04:10.4			1.1		
1		eP	10:10:10.8		7	1.0	T	New Hebrides Is. 17.5 S 167.1 E 0 = 09:57:02.2 h about 33 km Δ = 92.4° Dir = 248°
	LP	eSur	10:39:10			1.3		
1		ePd	12:28:04.4		5	1.4	T	Southern Iran 27.9 N 54.9 E 0 = 12:13:57.4 h about 16 km Δ = 107.2° Dir = 7°
		e	12:28:15.5			1.7		
		e	12:28:39.2			2.0		
	LP	ePP	12:32:41.8			1.8		
		e	12:43:06			999		
	LP	ePKKP	12:43:59.2			1.5		
	LP	eSur	13:18:08			22.0		
1		eP	12:59:22.8		13	1.3	T	Off S Coast of Kamchatka 49.0 N 157.5 E 0 = 12:49:55.1 h about 80 km Δ = 55.4° Dir = 307° P-Phase Dir = NW
		epP	12:59:43.8			1.0		
1		eP	13:15:04.1		2	1.0	T	Fox Is., Aleutian Is. 52.8 N 167.2W 0 = 13:08:28.2 h about 33 km Δ = 33.2° Dir = 302° P-Phase Dir = NW
		ePcP	13:17:43.2			1.2		
	LP	eSur	13:23:56			20.0		

Month of October Blue Mountains Seismological Observatory

Day	System	Phase	Arrival Time GCT	C or D	Ground A	Motion T	Type	Remarks
1		eP	15:02:11.2		8	1.2	T	
1		eP	15:06:44.8			0.2	L	Δ (S-P) = 0.2°
	N	eS	15:06:49.4			0.2		P-Phase Dir = SE
1		eP	15:20:39.1		22	1.3	T	New Britain 5.5 S 151.9 E 0 = 15:07:22.1 h about 49 km Δ = 94.4° Dir = 267° P-Phase Dir = SW
	LP	ePKKP	15:37:28.9			0.9		
		eSur	15:53:40			22.0		
1		eP	17:38:03.5		1	0.2	L	Δ (S-P) = 0.7°
	E	eS	17:38:13.5			0.1		
	IBE							
1		eP	18:09:41.6		1	0.3	NR	Δ (S-P) = 5.6°
	N	eS	18:10:48.4			0.3		
1		eP	19:01:19.0		1	0.4	NR	Δ (S-P) = 3.6°
	N	eS	19:02:03.4			0.8		
1		eP	19:32:36.0		1	0.1	L	Δ (S-P) = less than 0.1°
	N	eS	19:32:38.5			0.2		
1	IB	eP	20:54:44.6		84	1.2	T	Fiji Is. Region 19.6 S 174.5 W 0 = 20:42:36.5 h about 143 km Δ = 82.6° Dir = 233° P-Phase Dir = SW
	LP	e(PP)	20:57:51.2			1.6		
		e	21:02:49.8			0.9		
		eLR	21:20:40			26.0		
		e	21:02:49.8					
1		eP	21:28:14.8		1	0.2	L	Δ (S-P) = 0.8°
	N	eS	21:28:25.6			0.2		
1		eP	21:43:09.8		1	0.1	L	Δ (S-P) = 0.5°
	N	eS	21:43:16.8			0.2		
1		eP	22:44:33.9		4	0.8	T	
1		eP	23:27:30.2		1	0.2	NR	Δ (S-P) = 1.6°
	E	eS	23:27:51.8			0.3		

Month of October Blue Mountains Seismological Observatory

Day	System	Phase	Arrival Time GCT	C or D	Ground A	Motion T	Type	Remarks		
2	✓	eP	03:52:38.5	1	1	0.5	NR	Western Nevada 39.2 N 119.6 W 0 = 03:51:09.6 h about 35 km $\Delta = 5.9^\circ$ Dir = 198° P-Phase Dir = S		
		e	03:52:51.0						0.7	
		e	03:52:56.2						0.6	
		E IBE BBE LP	e(Sur)						03:54:10.7	1.8
		e(Sur)	03:54:27.6						999	
2	✓	eP	05:24:26.6	1	0.4	0.4	NR	Δ (S-P) = 1.6° P-Phase Dir - SE		
		e	05:24:28.3						0.4	
		E	eS						05:24:47.1	0.3
		N	e						05:24:49.4	0.3
2	✓	eP	08:21:59.0	2	0.7	T				
2	✓	eP	08:47:14.7	2	0.8	T	Fiji Is. 17.6 S 178.7 W 0 = 08:35:49.1 h about 616 km $\Delta = 83.5^\circ$ Dir = 237° P-Phase Dir = SW			
2	✓	eP	09:22:52.8	6	0.9	0.9	T	P-Phase Dir = SW		
		e	09:22:58.6							
2	✓	eP	11:47:48.8	1	0.9	T				
2	✓	eP	14:21:10.5	1	0.3	0.6	NR	Δ (S-P) = 5.0°		
		IB	e						14:21:18.7	
		N IBN	eS						14:22:11.1	0.7
2	✓	eP	15:21:04.5	1	0.2	0.4	NR	Δ (S-P) = 4.7°		
		N	eS						15:22:02.2	
2	✓	eP	17:21:07.0	1	0.1	0.2	L	Δ (S-P) = 0.5°		
		IB	eS						17:21:14.1	
		N IBN								
2	✓	eP	17:38:43.1	1	0.2	0.3	L	Δ (S-P) = 0.1°		
		N IBN	eS						17:38:47.0	

Month of October Blue Mountains Seismological Observatory

Day	System	Phase	Arrival Time GCT	C or D	Ground A	Motion T	Type	Remarks	
2	✓	eP	17:53:09.4	3	0.2	0.2	L	Δ (S-P) = less than 0.1°	
		IB	eS						17:53:12.9
		N IBN							
2	✓	eP	17:59:47.7	7	0.9	T	P-Phase Dir = W		
2	✓	eP	18:06:33.5	1	0.4	0.5	NR	Δ (S-P) = 2.0°	
		N	eS						18:06:59.9
2	✗	eP	19:44:15.4	1	0.6	T	Leyte, Philippine Is. 10.4 N 126.9 E 0 = 19:30:34.6 h about 125 km $\Delta = 100.2^\circ$ Dir = 296° P-Phase Dir = W		
2	✓	eP	19:52:09.0	1	0.3	0.4	NR	Δ (S-P) = 4.1°	
		N	eS						19:52:59.8
2	✓	eP	21:28:05.6	1	0.3	0.4	NR	Δ (S-P) = 3.3°	
		E	eS						21:28:46.5
2	✓	eP	21:55:22.9	4	1.0	T			
2	✓	eP	22:46:04.8	3	1.0	T			
2	✓	eP	22:49:12.2	1	0.4	0.5	NR	Δ (S-P) = 3.7°	
		N	eS						22:49:57.3
2	✓	eP	22:50:28.1	1	0.3	0.4	NR	Δ (S-P) = 2.9°	
		N	eS						22:51:04.9
2	✓	eP	23:19:10.8	12	1.4	0.6	T		
		e	23:24:03.5						
		e	23:27:53.6						
		e	23:30:02.3						
2	✓	eP	23:35:54.9	12	1.2	T			

Month of October Blue Mountains Seismological Observatory

Day	System	Phase	Arrival Time GCT	C or D	Ground A	Motion T	Type	Remarks
2		eP	23:51:18.2		1	0.2	NR	Δ (S-P) = 1.5°
	N	eS	23:51:36.3			0.3		
2		eP	23:51:55.8		1	0.1	NR	Δ (S-P) = 2.1°
	N	eS	23:52:22.8			0.3		
3		eP	00:10:08.1		8	1.0	T	
3		eP	00:31:32.3			1.2	T	
3		eP	00:39:08.0		4	1.2	T	
		e	00:43:32.5			1.2		
3		eP	00:51:50.1		1	0.4	NR	Δ (S-P) = 1.8°
	N	eS	00:52:14.8			0.5		
3		eP	00:56:14.8		2	0.4	NR	Δ (S-P) = 2.7°
	N	eS	00:56:49.0			0.4		P-Phase Dir = NW
3		eP	01:01:43.3		5	1.1	T	
3		eP	01:27:00.3		4	1.1	T	Azores Region
		e	01:27:06.1			1.1		40.6 N 29.7 W 0 = 01:16:46.7 h about 33 km Δ = 61.4° Dir = 60° P-Phase Dir = NE
3		eP	01:29:35.6		6	1.1	T	Azores Region
		e	01:29:41.6			1.3		40.7 N 29.7 W 0 = 01:19:22.5 h about 33 km Δ = 61.4° Dir = 60° P-Phase Dir = NE
		ePcP	01:30:19.3			1.3		
3		eP	02:48:06.1		13	1.3	T	
		e	02:49:51.0			1.2		
3		eP	03:54:53.8		1	0.7	T	P-Phase Dir = W
3		eP	05:38:50.2		1	0.5	T	
	N	e	05:40:00.0			0.7		

Month of October Blue Mountains Seismological Observatory

Day	System	Phase	Arrival Time GCT	C or D	Ground A	Motion T	Type	Remarks
3		eP	07:45:51.9		7	0.9	T	P-Phase Dir = NW
		e	07:45:55.9			0.9		
3		eP	07:46:38.9		999	999	L	Δ (S-P) = less than 0.1°
	IB							
	N	eS	07:46:42.6			999		
	IBN							
3		eP	07:47:04.1		5	0.2	L	Δ (S-P) = less than 0.1°
	IB							
	N	eS	07:47:07.7			999		
	IBN							
3		eP	08:19:29.9		6	0.8	T	
3		eP	09:04:52.6		1	0.2	L	Δ (S-P) = less than 0.1°
	IB							
	N	eS	09:04:56.3			999		
3		eP	12:10:51.4		6	0.8	T	New Guinea 4.5 S 144.6 E 0 = 11:57:21.8 h about 108 km Δ = 98.9° Dir = 273° P-Phase Dir = SW
3		eP	13:20:20.4		4	1.0	T	
3		eP	14:15:38.7		4	1.1	T	
	LP	eSur	14:35:30			22.0		
3		eP	16:33:11.8		1	0.4	R	Δ (S-P) = 6.4°
		e	16:33:21.4			0.6		
	N	eS	16:34:26.2			0.6		
3		eP	17:26:15.4		1	0.3	NR	Δ (S-P) = 3.3°
	N	eS	17:26:55.8			0.4		
3		eP	17:26:58.7		2	0.8	T	Loyalty Is. 21.0 S 168.4 E 0 = 17:13:41.5 h about 33 km Δ = 94.0° Dir = 244°

Month of October Blue Mountains Seismological Observatory

Day	System	Phase	Arrival Time GCT	C or D	Ground A	Motion T	Type	Remarks
3	✓ E	eP	17:34:48.0		1	0.2	L	Δ (S-P) = 1.1°
		eS	17:35:02.2			0.3		
3	✓ N IBN	eP	17:48:50.5		1	0.1	L	Δ (S-P) = less than 0.1°
		eS	17:48:54.1			0.2		
3	✓ N IBN	eP	18:49:08.0		1	0.2	NR	Δ (S-P) = 1.2°
		eS	18:49:25.9			0.3		
3	✓ IB	eP ¹	19:07:56.8		140	0.9	T	Sandwich Is. 57.5 S 26.7 W 0 = 18:48:52.4 h about 33 km Δ = 126.6° Dir = 138° P-Phase Dir = SE
3	✓ E	eP	19:43:39.5		2	0.2	L	Δ (S-P) = 1.2°
		eS	19:43:54.8			0.3		
3	✓	eP	20:25:52.8		5	0.8	T	P-Phase Dir = W
		e	20:26:37.5			0.7		
3	✓	eP	21:13:01.8		1	0.7	T	Loyalty Is. 21.3 S 168.3 E 0 = 20:59:49.4 h = 41 km Δ = 94.3° Dir = 244°
3	✓ IB N IBN	eP	21:14:42.2		200	0.3	L	Δ (S-P) = 1.3° P-Phase Dir = SSW
		eS	21:14:58.4			0.3		
3	✓ N	eP	21:31:01.2		1	0.5	NR	Δ (S-P) = 4.6°
		eS	21:31:57.0			0.4		

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Day	System	Phase	Arrival Time GCT	C or D	Ground A	Motion T	Type	Remarks
3	✗ N IBN	eP	22:11:55.1		4	0.2	L	Δ (S-P) = 0.5°
		eS	22:12:02.1			0.2		
3	✗ E	eP	22:21:08.2		1	0.2	NR	Δ (S-P) = 2.9°
		eS	22:21:44.4			0.3		
3	✗ N	eP	23:17:28.2		1	0.3	L	Δ (S-P) = 1.0°
		eS	23:17:41.0			0.4		
3	✓ E	eP	23:33:21.3		1	0.2	NR	Δ (S-P) = 1.6°
		eS	23:33:43.8			0.5		
3	✓	eP	23:41:53.5		1	0.3	L	Δ (S-P) = 1.7°
		eS	23:42:16.4			0.5		
4	✓ LP	eP	00:07:32.9		2	1.0	T	
		e	00:08:13.2			1.5		
4	✓ N	eP	00:26:10		7	22.0	L	Δ (S-P) = 0.5°
		eS	01:20:42.8			0.4		
4	✓ N	eP	01:20:35.2		1	0.3	NR	Δ (S-P) = 4.0°
		eS	01:55:41.5			0.6		
4	✓	eP	01:54:52.8		4	1.1	T	
		e	01:55:41.5			1.0		
4	✓ N	eP	02:25:04.8		2	0.4	R	Δ (S-P) = 7.3°
		e	02:31:25			0.5		
4	✓	eP	02:37:29.7		4	0.5	T	
		e	02:37:35.5			0.5		
4	✓ N	eS	02:38:55.2		1	0.7	NR	Δ (S-P) = 5.3°
		eS	02:38:55.2			0.8		
4	✓	eP	04:02:22.2		4	1.0	T	
		eP	04:30:48.2			0.7		
4	✓ N	eS	04:31:50.4		1	0.7	NR	Δ (S-P) = 5.3°
		eS	04:31:50.4			0.8		
4	✗ N	eP	04:47:33.5		1	0.4	R	Δ (S-P) = 6.5°
		e	04:47:48.9			0.7		
4	✗	eS	04:48:50.0		1	0.4	R	Δ (S-P) = 6.5°
		eS	04:48:50.0			0.6		

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Day	System	Phase	Arrival Time GCT	C or D	Ground A	Motion T	Type	Remarks
4	x	eP	04:52:21.8		3	0.8	T	Azores Region
		e	04:52:35.9			0.8		40.4 N 29.5 W
		ePcP	04:53:04.5			0.8		0 = 04:42:05.8
	LP	e(Sur)	05:10:45			47.0		h about 33 km $\Delta = 61.7^\circ$ Dir = 60° P-Phase Dir = ENE
4	y	eP	05:08:00.0		1	0.6	R	$\Delta(S-P) = 6^\circ$
		e	05:08:10.8			0.7		
	N	eS	05:09:11.7			0.6		
4	y	eP	05:23:45.1		1	0.3	NR	$\Delta(S-P) = 4.0^\circ$
	N	eS	05:24:33.9			0.3		
4	y	eP	06:06:08.3		10	1.5	T	
4	y	eP	06:07:52.2		4	0.8	T	
4	y	eP	06:11:32.5		7	1.3	T	
4	y	eP	07:17:33.5		3	1.0	T	
4	y	eP	07:37:42.8		5	0.8	T	Black Sea 42.2 N 36.1 E 0 = 07:24:44.3 h about 33 km $\Delta = 90.1^\circ$ Dir = 19°
4	y	eP	09:14:44.8		1	0.7	T	Solomon Is.
		e(pP)	09:15:26.0			1.2		9.1 S 160.4 E 0 = 09:01:54.4 h about 138 km $\Delta = 90.9^\circ$ Dir = 258°
4	y	eP	09:49:46.7		1	0.8	T	Fiji Is. Region 23.3 S 179.0 E 0 = 09:37:53 h about 611 km $\Delta = 88.1^\circ$ Dir = 234°
4	y	eP	11:12:59.6		1	0.6	T	P-Phase Dir = SW

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Day	System	Phase	Arrival Time GCT	C or D	Ground A	Motion T	Type	Remarks
4		eP	11:16:03.7		999	999	L	$\Delta(S-P) = \text{less than } 0.1^\circ$
	E	eS	11:16:04.7			999		
	IB							
4	x	eP	11:31:09.5		9	1.3	T	
4	y	eP	12:35:31.0		3	0.8	T	
4	y	eP	13:33:47.0		8	1.0	T	Azores Region
		e	13:33:52.8			0.9		40.9 N 29.7 W 0 = 13:23:34.4 h about 33 km $\Delta = 61.3^\circ$ Dir = 60° P-Phase Dir = ENE
4	y	eP	13:58:49.4		1	0.2	L	$\Delta(S-P) = 1.0^\circ$
		e	13:58:50.8			0.3		
	E	eS	13:59:01.7			0.4		
4	y	eP	14:37:55.0		999	999	L	$\Delta(S-P) = \text{less than } 0.1^\circ$
	N	eS	14:37:57.9			999		
4	y	eP	14:46:17.2		8	0.2	L	$\Delta(S-P) = \text{less than } 0.1^\circ$
	N	eS	14:46:21.0			999		
4	y	eP	15:25:39.2		1	0.4	NR	$\Delta(S-P) = 2.1^\circ$
		e	15:25:46.0			0.6		
	N	eS	15:26:06.2			0.5		
4	y	eP	15:58:26.4		7	1.1	T	
4	y	eP	16:27:25.1		2	0.5	NR	$\Delta(S-P) = 1.8^\circ$
		e	16:27:30.7			0.5		
	N	eS	16:27:49.9			0.5		
4	y	eP	16:38:01.2		1	0.5	NR	$\Delta(S-P) = 2.0^\circ$
		e	16:38:06.8			0.5		
	N	eS	16:38:27.7			0.5		
4	x	eP	16:41:53.1		1	0.6	T	
4	y	eP	17:04:30.3		2	0.6	T	

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Day	System	Phase	Arrival Time GCT	C or D	Ground A	Motion T	Type	Remarks
4	x	eP	17:37:07.8		2	0.6	T	
4	y	eP	18:03:33.1		3	0.3	NR	$\Delta(S-P) = 0.4^\circ$
	IB	eS	18:03:39.7			999		
4	y	eP	18:05:26.4		1	0.2	L	$\Delta(S-P) = 0.2^\circ$
	E	eS	18:05:31.0			0.3		
4	y	eP	18:59:20.8		8	1.2	T	
		e	18:59:52.1			1.1		
4	y	eP	19:01:19.4		14	1.2	T	
4	y	eP	19:10:33.1		4	0.8	T	
4	x	eP	19:24:37.3		5	1.2	T	
4	y	eP	19:59:04.7		6	0.9	T	Greece
		e	20:02:10.6			1.0		38.3 N 22.7 E 0 = 19:46:10.1 h about 38 km $\Delta = 89.7^\circ$ Dir = 30°
4	y	eP	20:19:21.5		3	1.3	T	
4	y	eP	20:47:54.8		12	1.3	T	Bismarck Sea 5.1 S 151.9 E 0 = 20:34:38.7 h about 33 km $\Delta = 94.1^\circ$ Dir = 267° P-Phase Dir = SW
4	y	eP	22:48:37.9		5	1.0	T	
4	y	eP	22:56:56.2		1	0.9	T	Central Colombia 4.1 N 76.2 W 0 = 22:47:35.5 h about 67 km $\Delta = 54.2^\circ$ Dir = 126°
4	y	eP	22:59:30.2		10	0.2	L	$\Delta(S-P) = 0.4^\circ$
	N	eS	22:59:36.7			0.3		

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Day	System	Phase	Arrival Time GCT	C or D	Ground A	Motion T	Type	Remarks
4	y	eP	23:20:24.0		11	1.1	T	
		e	23:42:43.5			0.8		
4	y	eP	23:43:46.6		5	0.9	T	
		e	23:44:06.7			0.8		
5	y	eP	02:18:58.7		25	0.2	L	$\Delta(S-P) = 0.8^\circ$
	N	eS	02:19:09.7			0.2		
5	y	eP	02:34:55.2		12	0.1	L	$\Delta(S-P) = \text{less than } 0.1^\circ$
	N	eS	02:34:58.8			0.1		
5	y	eP	04:24:57.0		30	0.9	T	Azores Region 40.2 N 29.5 W 0 = 04:14:39.1 h about 33 km $\Delta = 61.8^\circ$ Dir = 60°
5	x	eP	07:19:31.7		50	0.8	T	
5	y	eP	08:49:47.6		19	0.6	T	Azores Region 40.7 N 29.8 W 0 = 08:39:32.2 h about 33 km $\Delta = 61.3^\circ$ Dir = 60°
		e	08:49:54.7			1.0		
5	x	eP	09:12:02.5		33	1.0	T	
5	y	eP	10:00:40.7		25	0.8	T	
5	x	eP	10:35:30.0		30	0.6	T	Near E Coast Honshu, Japan 39.0 N 140.2 E 0 = 10:24:30.3 h about 200 km $\Delta = 71.3^\circ$ Dir = 307°
		e	10:36:07.1			0.8		
5	y	eP	10:51:42.7		100	0.9	T	Mariana Is. 14.0 N 145 E 0 = 10:39:17.5 h about 131 km $\Delta = 85.5^\circ$ Dir = 285° P-Phase Dir = SW
		e	10:52:11.2			0.7		

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Day	System	Phase	Arrival Time GCT	C or D	Ground A	Motion T	Type	Remarks
5	x	eP	10:58:59.4		22	0.7	T	
5	y	eP	13:16:01.0		1	1.0	T	Solomon Is. 9.2 S 160.7 E 0 = 13:03:19.4 h about 223 km $\Delta = 90.8^\circ$ Dir = 258°
5	x	eP	15:06:06.8		1	0.8	T	
5	y	ep	15:32:56.6		1	0.9	T	
5	x	eP	17:01:57.5		11	0.6	NR	$\Delta(S-P) = 2.7^\circ$
		e	17:01:59.8			0.9		P-Phase Dir = SSE
		e	17:02:24.6			1.0		
	N	e(S)	17:02:31.9			1.1		
5	y	eP	17:29:08.6		2	0.8	T	
5	x	eP	17:56:07.8		3	0.8	T	Near E Coast Honshu, Japan 37.9 N 143.2 E 0 = 17:44:57.0 h about 44 km $\Delta = 70.3^\circ$ Dir = 304°
5	x	eP	18:09:14.0		3	0.8	T	P-Phase Dir = SSE
		e	18:09:37.6			0.9		
		e	18:09:45.6			1.6		
	E	e	18:11:24.9			1.7		
	IBE							
5	x	eP	18:41:56.6		9	0.2	L	$\Delta(S-P) = 0.5^\circ$
	N	eS	18:42:03.7			0.2		
5	✓ f	eP	20:16:20.5		10	1.0	T	
		e	20:19:51.7			1.1		
5	x	eP	21:05:11.2		50	1.4	T	
5	x	eP	23:12:37.8		27	1.1	T	

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Day	System	Phase	Arrival Time GCT	C or D	Ground A	Motion T	Type	Remarks
6	✓	eP	00:56:28.2		2	0.3	NR	$\Delta(S-P) = 3.1^\circ$
		E eS	00:57:07.0			0.4		
6	✓	eP	02:17:16.5		2	0.3	NR	$\Delta(S-P) = 1.5^\circ$
		N	02:17:36.3			0.4		
6	✓	eP	03:27:21.4		38	1.4	T	Azores Region
		e	03:27:35.5			1.0		40.8 N 29.5 W
		ePcP	03:28:06.0			1.9		0 = 03:17:07.2
		e	03:29:07.1			2.1		h about 33 km
		ePP	03:29:39.7			1.7		$\Delta = 61.4^\circ$
		e	03:31:09.0			2.2		Dir = 60°
		e	03:46:37.0			1.4		
6	✓	eP	04:05:13.2		5	1.1	T	Azores Region
		ePcP	04:05:57.0			2.0		40.5 N 29.5 W
								0 = 03:54:58.3
								h about 33 km
								$\Delta = 61.6^\circ$
								Dir = 60°
6	✓	eP	04:36:25.4		72	2.0	T	New Hebrides Is.
	IB	e	04:36:41.5			1.2		17.4 S 167.7 E
		ePP	04:40:20.0			3.0		0 = 04:23:24.1
	IB	e	04:42:39.1			3.5		h about 33 km
		ePKKP	04:53:45.0			1.0		$\Delta = 91.9^\circ$
								Dir = 247°
6	x	eP	04:48:08.0		6	0.9	T	New Hebrides, Is.
		e	04:53:44.9			1.1		17.4 S 167.8 E
		e	05:01:51.4			1.2		0 = 04:35:02.5
								h about 33 km
								$\Delta = 91.8^\circ$
								Dir = 247°
6	✓	IB eP	05:51:19.9		38	1.2	T	Ryukyu Is.
		IB e	05:51:34.8			1.0		26.2 N 126.9 E
		IB e	05:51:40.0			2.0		0 = 05:38:40.3
								h about 122 km
								$\Delta = 88.8^\circ$
								Dir = 307°
6	y	eP	07:15:58.9		6	1.0	T	

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Day	System	Phase	Arrival Time GCT	C or D	Ground A	Motion T	Type	Remarks
6	X	eP	07:30:08.3		4	1.0	T	New Hebrides Is. 17.4 S 167.8 E 0 = 07:17:03.3 h about 33 km $\Delta = 91.8^\circ$ Dir = 247°
6	✓	eP ePP IB	08:09:26.2 08:13:10.0		43	2.0 3.3	T	New Hebrides Is. 17.4 S 167.9 E 0 = 07:56:20.4 h about 33 km $\Delta = 91.8^\circ$ Dir = 247°
6	✓	eP e IB ePP ePKKP	08:16:37.2 08:17:15.0 08:17:59.9 08:20:20.9 08:33:52.0		12	1.4 1.8 2.1 1.8 1.2	T	New Hebrides Is. 17.2 S 168.0 E 0 = 08:03:31.7 h about 33 km $\Delta = 91.6^\circ$ Dir = 247°
6	✓	eP e	08:44:52.2 08:46:27.1		5	1.5 1.3	T	New Hebrides Is. 17.3 S 167.8 E 0 = 08:31:50.1 h about 33 km $\Delta = 91.8^\circ$ Dir = 247°
6	✓	eP	09:05:49.3		6	1.0	T	
6	✓	eP	09:16:26.5		1	0.9	T	
6	✓	eP	09:25:32.8		1	0.8	T	
6	✓	eP IB N IBN	09:29:29.7 09:30:44.5		5	0.6 0.8	NR	Teton County, Wyoming 43.6 N 110.8 W 0 = 09:28:17.4 h about 33 km $\Delta = 4.8^\circ$ Dir = 103°

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Day	System	Phase	Arrival Time GCT	C or D	Ground A	Motion T	Type	Remarks
6	✓	iP e e IB ePKKP eP'P'	11:13:37.0 11:13:44.5 11:14:16.5 11:30:52.0 11:39:00.0	C	70	1.5 1.4 1.5 1.1 1.5	T	New Hebrides Is. 43.3 S 167.3 E 0 = 11:00:52.8 h about 209 km $\Delta = 89.2^\circ$ Dir = 250°
6	✓	eP	12:12:48.5		1	0.9	T	New Hebrides Is. 17.4 S 167.8 E 0 = 11:59:42.3 h about 17 km $\Delta = 91.8^\circ$ Dir = 247°
6	✓	eP e e	13:43:06.4 13:43:21.5 13:50:32.3		10	0.7 0.6 1.5	T	
6	✓	eP	14:15:02.6		8	1.0	T	Ecuador 1.5 S 77.4 W 0 = 14:05:24.0 h about 149 km $\Delta = 58.2^\circ$ Dir = 131°
6	✓	eP	17:45:53.4		1	0.9	T	Kurile Is. 44.4 N 148.2 E 0 = 17:35:25.2 h about 29 km $\Delta = 63.5^\circ$ Dir = 306°
6	✓	eP e e e 3	18:14:12.2 18:14:22.0 18:14:43.2 18:17:18.3 18:17:51.0		11	1.5 1.2 1.3 1.8 2.1	T	New Hebrides Is. 17.6 S 168.0 E 0 = 18:01:05.4 h about 33 km $\Delta = 91.8^\circ$ Dir = 247°
6	✓	E eP eS	20:42:02.2 20:42:31.2		1	0.3 0.2	NR	$\Delta(S-P) = 2.3^\circ$

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Day	System	Phase	Arrival Time GCT	C or D	Ground A	Motion T	Type	Remarks
6	x	eP	21:51:35.4		2	0.9	T	New Guinea 5.3 S 145.0 E 0 = 21:37:57.4 h about 43 km $\Delta = 99.2^\circ$ Dir = 272°
6	y	eP	22:37:47.1		8	1.4	T	
6	v	eP	22:54:08.2		4	1.3	T	
6	y	E eP eS	23:14:27.4 23:15:22.0		1	0.2 0.4	R	$\Delta(S-P) = 4.6^\circ$
6	✓	IB eP epP ePKKP	23:44:31.0 23:44:44.1 00:01:47.4		70	2.1 1.5 1.0	T	New Hebrides Is. 17.5 S 167.6 E 0 = 23:31:27.7 h about 42 km $\Delta = 92.0^\circ$ Dir = 247°
6	x	E eP eS	23:47:44.3 23:47:53.0		999	999 999	L	$\Delta(S-P) = 0.6^\circ$

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Day	System	Phase	Arrival Time GCT	C or D	Ground A	Motion T	Type	Remarks
7	x	eP	00:02:29.2		2	1.2	T	
7	x	eP	00:11:19.5		3	1.0	T	
7	x	eP	01:02:10.4		2	0.8	T	
7	x	E eP eS	01:06:40.8 01:06:55.8		1	0.3 0.4	L	$\Delta(S-P) = 1.2^\circ$
7	x	eP	01:13:41.6		3	1.2	T	
7	x	eP e eS	01:31:08.3 01:31:14.9 01:31:33.8		1	0.4 0.4 0.4	NR	$\Delta(S-P) = 1.9^\circ$
7	x	eP	06:00:43.6		1	0.7	T	New Hebrides Is. 17.5 S 168.0 E 0 = 05:47:33.0 h about 17 km $\Delta = 91.8^\circ$ Dir = 247°
7	x	N eP eS	06:08:12.2 06:08:32.7		3	0.4 0.4	NR	$\Delta(S-P) = 1.6^\circ$
7	x	LP eP eLR	06:55:30.6 07:15:37.0		7	1.1 24.0	T	Azores Region 40.5 N 29.2 W 0 = 06:45:13.8 h about 33 km $\Delta = 61.8^\circ$ Dir = 60°
7	x	eP e eS	07:12:26.2 07:12:27.4 07:12:38.3		1	0.2 0.2 0.3	L	$\Delta(S-P) = 0.9^\circ$
7	x	eP	07:17:58.0		5	1.2	T	
7	x	eP	09:00:47.5		1	0.9	T	
7	y	E eP eS	09:03:54.7 09:03:57.9		1	0.3 0.2	L	$\Delta(S-P) = \text{less than } 0.1^\circ$

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Day	System	Phase	Arrival Time GCT	C or D	Ground A	Motion T	Type	Remarks
7	γ	iP	09:08:04.5		440	0.2	L	Δ(S-P) = less than 0.1° P-Phase Dir = SSE
	IB							
	N	eS	09:08:07.6			999		
	IBN							
7	γ	eP	09:17:00.2		1	0.2	L	Δ(S-P) = less than 0.1°
	E	eS	09:17:03.7			0.3		P-Phase Dir = ESE
7	γ	eP	09:22:47.3		1	0.1	L	Δ(S-P) = less than 0.1°
	E	eS	09:22:50.5			0.3		
7	γ	eP	09:59:44.6		1	0.9	T	Azores Region
		e	09:59:47.0			1.2		40.2 N 29.2 W
	LP	eLR	10:19:53.0			23.0		0 = 09:49:25.9 h about 33 km Δ = 62.0° Dir = 60°
7	γ	eP	11:22:46.0		3	1.0	T	
7	γ	eP	11:26:38.4		4	1.0	T	
7	γ	eP	12:05:08.4		2	1.0	T	
7	γ	eP	12:49:05.8		2	1.0	T	New Guinea 4.9 S 144.3 E 0 = 12:35:30.9 h about 75 km Δ = 99.4° Dir = 272° P-Phase Dir = SW
7	γ	eP	13:33:58.2		1	0.1	L	Δ(S-P) = 0.1°
	E	eS	13:34:02.0			0.3		
7	γ	eP	14:05:02.5		1	1.0	T	New Hebrides Is. 17.3 S 167.8 E 0 = 13:51:54.4 h about 17 km Δ = 91.8° Dir = 247°

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Day	System	Phase	Arrival Time GCT	C or D	Ground A	Motion T	Type	Remarks
7	γ	eP'	16:19:22.1		14	0.8	T	Sandwich Is. 57.8 S 25.5 W 0 = 16:00:20.2 h about 33 km Δ = 127.3° Dir = 138° P-Phase Dir = SSE
	IB							
7	γ	eP	16:47:05.8		1	0.7	T	
7	γ	eP	17:00:32.3		2	0.9	T	New Hebrides Is. 17.7 S 167.5 E 0 = 16:47:22.7 h about 33 km Δ = 92.2° Dir = 247°
7	γ	eP	18:47:23.7		3	0.9	T	
8	γ	eP	00:34:28.2		3	0.2	L	Δ(S-P) = 0.6°
	N	eS	00:34:36.6			0.2		
8	γ	eP	05:24:35.7		10	1.2	T	Azores Region
		ePP	05:26:46.5			1.4		40.5 N 29.5 W 0 = 05:14:20.4 h about 33 km Δ = 61.6° Dir = 60°
8	γ	eP	06:28:03.2		7	1.6	T	
8	γ	eP	08:21:49.6		1	0.1	L	Δ(S-P) = 0.1°
	N	eS	08:21:53.8			0.3		
8	γ	eP	08:56:09.0		1	0.2	NR	Δ(S-P) = 2.5°
	E	eS	08:56:41.9			0.3		
8	γ	eP	09:54:29.1		1	0.3	NR	Δ(S-P) = 5.4°
	N	eS	09:55:31.5			0.4		
8	γ	eP	11:52:20.0		3	2.0	T	
8	γ	eP	12:02:20.0		1	0.5	NR	Δ(S-P) = 4.9°
	N	eS	12:03:18.9			0.6		

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Day	System	Phase	Arrival Time GCT	C or D	Ground A	Motion T	Type	Remarks
8	✓	eP e	14:39:17.3 14:39:21.8		4	0.9 0.9	T	
8	✓	N eP eS	15:07:34.0 15:09:16.5		1	0.3 0.5	R	
8	✓	eP e	15:23:53.8 15:24:18.0		5	0.9 0.7	T	Bulgaria 42.2 N 24.1 E 0 = 15:11:12.8 h about 33 km $\Delta = 86.7^\circ$ Dir = 28°
8	✓	eP	16:25:57.0		2	0.7	T	
8	✓	iP	18:05:29.0	D	16	1.0	T	Fiji Is. 18.7 S 167.6 E 0 = 17:53:28.6 h about 243 km $\Delta = 83.2^\circ$ Dir = 235°
8	✓	eP	19:04:03.5		2	0.6	T	
8	✓	eP	19:07:34.4		4	1.0	T	
8	✓	IB eP e ePP e	22:09:32.1 22:09:34.7 22:13:14.8 22:37:17.0		50	1.1 1.3 1.5 0.7	T	Near E Coast Formosa 24.3 N 121.7 E 0 = 21:56:22.2 h about 29 km $\Delta = 92.7^\circ$ Dir = 308° Mag 6 (Pas) Mag 6 1/4 (Pal)
8	✓	eP	22:45:34.4		1	1.4	T	

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Day	System	Phase	Arrival Time GCT	C or D	Ground A	Motion T	Type	Remarks
9	✓	N eP eS	00:35:56.8 00:36:28.5		1	0.4 0.3	NR	$\Delta(S-P) = 1.6^\circ$
9	✓	N eP eS	01:26:56.5 01:27:24.1		1	0.3 0.3	NR	$\Delta(S-P) = 2.1^\circ$
9	✓	eP	03:26:33.4		4	1.2	T	
9	✓	LP eP eLR	03:26:52.3 03:57:44		1	0.8 15.0	T	New Hebrides Is. 17.4 S 167.6 E 0 = 03:13:44.8 h about 33 km $\Delta = 92.0^\circ$ Dir = 247° P-Phase Dir = SW
9	✓	eP	03:54:07.6		4	0.6	T	
9	✓	eP	04:16:17.5		2	0.7	T	
9	✓	eP	04:18:24.3		2	0.7	T	
9	✓	eP	04:38:47.8		3	0.6	T	Near E Coast Hokkaido, Japan 46.2 N 143.1 E 0 = 04:28:36.1 h about 284 km $\Delta = 65^\circ$ Dir = 311° P-Phase Dir = NW
9	✓	E eP eS	05:09:01.9 05:09:08.9		1	0.2 0.2	L	$\Delta(S-P) = 0.5^\circ$
9	✓	LP eP e	06:10:28.5 06:34:00.0		5	1.0 26.0	T	
9	✓	eP	07:45:33.4		1	0.7	T	
9	✓	eP	07:52:43.8		7	0.7	T	
9	✓	eP e	08:55:38.1 08:58:34.8		12	1.0 1.2	T	

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Day	System	Phase	Arrival Time GCT	C or D	Ground A	Motion T	Type	Remarks
9	x	eP	09:17:13.0		3	0.8	T	
9	y	eP	09:45:45.1		3	0.8	T	
9	x	eP	10:08:45.3		7	0.8	T	
9	y	eP	13:32:01.3		3	0.7	T	
9	x	eP	16:03:55.3		1	0.4	T	
9	✓	eP e	16:12:30.5 16:16:30.9		1	0.5 1.0	T	Hindu Kush 36.4 N 71.3 E 0 = 15:59:17.5 h about 241 km $\Delta = 98.8^\circ$ Dir = 353°
9	x	eP N eS	16:28:41.4 16:29:53.5		1	0.7 0.4	R	$\Delta(S-P) = 6.2^\circ$
9	x	eP N eS	19:30:48.7 19:30:55.8		1	0.1 0.2	L	$\Delta(S-P) = 0.5^\circ$
9	✓	IB e ePP LPN eS ePKKP LP e LP eLQ LP eLR	20:28:03.4 20:29:41.4 20:31:49.8 20:39:20.0 20:45:09.6 20:49:30.0 20:53:52.0 20:57:36.0		31	1.7 2.1 1.6 23.0 1.1 30.0 30.0 32.0	T	Bismark Sea 3.2 S 148.2 E 0 = 20:14:38.3 h about 33 km $\Delta = 95.4^\circ$ Dir = 271° P-Phase Dir = SW Mag 6 1/4 (Pas)
9	x	eP	21:32:26.2		1	0.9	T	New Hebrides Is. 17.6 S 167.6 E 0 = 21:19:19.0 h about 19 km $\Delta = 92.1^\circ$ Dir = 247°
9	y	eP E eS	23:30:14.9 23:30:18.6		1	0.1 0.3	L	$\Delta(S-P) = \text{less than } 0.1^\circ$
9	f	iP E eS	23:45:18.1 23:45:24.9		4	0.2 0.3	L	$\Delta(S-P) = 0.4^\circ$

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Day	System	Phase	Arrival Time GCT	C or D	Ground A	Motion T	Type	Remarks
10	y	eP E eS	01:16:50.7 01:17:43.8		1	0.3 0.3	NR	$\Delta(S-P) = 4.4^\circ$
10	y	eP	02:29:37.4		1	0.7	T	
10	y	eP E eS	03:05:15.4 03:05:19.1		1	0.3 999	L	$\Delta(S-P) = \text{less than } 0.1^\circ$ P-Phase Dir = NE
10	x	eP E eS	04:25:35.6 04:26:05.4		1	0.3 0.4	NR	$\Delta(S-P) = 2.3^\circ$
10	r	ePP e e	05:03:52.9 05:03:56.8 05:04:12.3			1.4 1.3 1.4	T	Indian Ocean 1.6 S 66.8 E 0 = 04:41:46.9 h about 33 km $\Delta = 136.8^\circ$ Dir = 354°
10	x	eP eS	06:03:11.7 06:04:12.0		1	0.2 0.3	NR	$\Delta(S-P) = 5.0^\circ$
10	y	eP	06:27:47.3		1	0.6	T	P-Phase Dir = WSW
10	y	eP e	08:02:35.7 08:02:49.9		6	1.0 0.9	T	Kyushu, Japan 31.2 N 131.5 E 0 = 07:50:18.1 h about 33 km $\Delta = 81.8^\circ$ Dir = 306°
10	y	eP	08:39:17.2		7	1.0	T	
10	y	eP E eS	08:47:45.5 08:47:49.1		1	0.2 0.3	L	$\Delta(S-P) = \text{less than } 0.1^\circ$
10	y	eP	09:32:30.7		6	0.8	T	Fiji Is. 22.2 S 179.6 W 0 = 09:20:40.8 h about 558 km $\Delta = 87.6^\circ$ Dir = 235°
10	x	eP e N eS	09:35:47.8 09:36:02.8 09:36:56.1		1	0.3 0.6 0.5	NR	$\Delta(S-P) = 5.6^\circ$

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Day	System	Phase	Arrival Time GCT	C or D	Ground A	Motion T	Type	Remarks
10	x	eP e	09:38:19.6 09:38:51.0		2	0.7 1.1	T	
10	x N	eP eS	11:04:18.6 11:04:41.8		1	0.3 0.3	NR	$\Delta(S-P) = 1.7^\circ$
10	x	eP	11:25:38.3		64	1.9	T	Solomon Is. 10.1 S 161.3 E 0 = 11:12:37.4 h about 34 km $\Delta = 91.0^\circ$ Dir = 257° P-Phase Dir = W
10	x	eP	11:52:32.5		2	1.0	T	Peru Ecuador Border 3.2 S 77.7 W 0 = 11:42:39.8 h about 115 km $\Delta = 59.5^\circ$ Dir = 132°
10	x	eP	12:03:18.1		4	0.9	T	
10	x	eP' e e	13:52:09.6 13:57:23.1 14:05:22.8		3	0.7 0.8 1.2	T	Off S Coast of Java 8.9 S 110.3 E 0 = 13:33:10.3 h about 33 km $\Delta = 125.6^\circ$ Dir = 296° P-Phase Dir = SW
10	x N	eP eS	14:55:16.1 14:56:17.4		1	0.2 0.6	NR	$\Delta(S-P) = 5.1^\circ$
10	x	eP	16:31:40.4		5	1.0	T	
10	x	eP eS	18:11:34.7 18:12:36.0		1	0.4 0.5	NR	$\Delta(S-P) = 5.1^\circ$ P-Phase Dir = NW
10	x N	eP eS	18:16:22.6 18:16:28.9		1	0.3 0.4	L	$\Delta(S-P) = 0.4^\circ$

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Day	System	Phase	Arrival Time GCT	C or D	Ground A	Motion T	Type	Remarks
10	x N IBN	eP eS	19:08:01.2 19:08:03.6		4	0.1 0.1	L	$\Delta(S-P) = \text{less than } 0.1^\circ$
10	x	eP e	19:25:50.7 19:26:05.0		3	1.1 1.1	T	
10	x	eP eS	20:47:06.0 20:48:20.7		1	0.3 0.7	R	$\Delta(S-P) = 6.1^\circ$
10	x IB	eP e	21:06:20.2 21:06:44.2		22	1.2 1.0	T	P-Phase Dir = SE
10	x IB	eP	22:04:36.1		75	1.0	T	Samoa Is. Region 15.1 S 173.3 W 0 = 21:52:36.8 h about 33 km $\Delta = 78.3^\circ$ Dir = 235° P-Phase Dir = SW
10	x	eP e N eS	22:43:22.3 22:43:27.0 22:44:00.4		1	0.3 0.4 0.4	NR	$\Delta(S-P) = 3.0^\circ$
10	x	eP E eS	23:16:17.9 23:17:01.0		1	0.3 0.4	NR	$\Delta(S-P) = 3.5^\circ$
10	x	eP E eS	23:56:07.5 23:56:24.6		1	0.4 0.4	NR	$\Delta(S-P) = 1.4^\circ$
11	x N	eP e eS	00:01:43.2 00:01:44.8 00:02:06.7		1	0.2 0.3 0.3	NR	$\Delta(S-P) = 1.7^\circ$ P-Phase Dir = ESE
11	x N	eP eS	00:07:08.8 00:07:31.4		1	0.2 0.3	NR	$\Delta(S-P) = 1.6^\circ$
11	x E	eP eS	00:08:55.4 00:09:15.7		1	0.3 0.3	NR	$\Delta(S-P) = 1.5^\circ$
11	x E	eP eS	00:39:08.1 00:39:37.9		1	0.3 0.3	NR	$\Delta(S-P) = 2.3^\circ$

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Day	System	Phase	Arrival Time GCT	C or D	Ground A	Motion T	Type	Remarks
11	✓	eP	00:59:14.6		22	1.4	T	Fox Is. Aleutian Is. 52.0 N 170.0 W 0 = 00:52:23.4 h about 33 km $\Delta = 35.0^\circ$ Dir = 301° P-Phase Dir = NW
11	✗	eP	02:59:05.1		6	0.9	T	P-Phase Dir = S
11	✓	eP	03:08:33.3		2	0.9	T	
11	✓	eP ePcP	03:47:03.4 03:49:29.7		8	1.4 1.0	T	Fox Is. Aleutian Is. 52.0 N 171.3 W 0 = 03:40:05.5 h about 33 km $\Delta = 35.8^\circ$ Dir = 301° P-Phase Dir = NW
11	✓	eP	05:27:39.1		5	0.8	T	P-Phase Dir = WSW
11	✓	eP	05:51:24.3		3	1.0	T	Near Coast of Northern Peru 8.5 S 83.7 W 0 = 05:40:59.9 h about 33 km $\Delta = 61.1^\circ$ Dir = 141°
11	✓	E eP eS	05:51:54.8 05:51:58.1		2	0.2 0.2	L	$\Delta(S-P) = \text{less than } 0.1^\circ$
11	✓	eP ePcP	06:32:26.0 06:33:22.2		3	1.0 0.6	T	Near Coast of Central Ecuador 1.4 S 80.6 W 0 = 06:22:45.9 h about 33 km $\Delta = 56.4^\circ$ Dir = 134° P-Phase Dir = SE
11	✗	eP	10:46:31.7		8	1.1	T	P-Phase Dir = SE
11	✓	eP	10:54:07.5		2	0.9	T	

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Day	System	Phase	Arrival Time GCT	C or D	Ground A	Motion T	Type	Remarks
11	✓	eP N eS	11:35:36.2 11:36:24.3		1	0.4 0.3	NR	$\Delta(S-P) = 3.9^\circ$
11	✓	eP N eS	12:16:07.8 12:16:27.9		1	0.3 0.3	NR	$\Delta(S-P) = 1.6^\circ$
11	✓	eP	13:15:15.9		2	0.6	T	
11	✓	eP	16:15:44.3		14	0.7	T	Near E Coast of Formosa 24.3 N 121.6 E 0 = 16:02:33.6 h about 32 km $\Delta = 92.7^\circ$ Dir = 309° P-Phase Dir = SW
11	✓	eP N eS	16:44:23.8 16:45:07.2		1	0.3 0.4	NR	$\Delta(S-P) = 3.5^\circ$
11	✓	eP eS	17:40:59.9 17:41:07.0		1	0.2 0.2	L	$\Delta(S-P) = 0.5^\circ$
11	✓	eP	23:39:40.6		6	1.2	T	
12	✗	eP	00:19:45.5		3	0.9	T	Near Coast of Ecuador 4.1 S 80.3 W 0 = 00:10:04.8 h about 195 km $\Delta = 58.9^\circ$ Dir = 135°
12	✓	eP N eS	01:20:35.1 01:20:54.0		1	0.2 0.2	NR	$\Delta(S-P) = 1.5^\circ$
12	✓	eP N	04:10:46.5 04:10:50.3		1	0.1 0.2	L	$\Delta(S-P) = \text{less than } 0.1^\circ$
12	✓	iP IB ePcP IB epP IB ePP	08:07:56.0 08:08:01.2 08:08:23.6 08:11:10.8	D	46	1.3 1.2 1.0 1.4	T	Northern Chile 20.4 S 68.9 W 0 = 07:56:08.4 h about 139 km $\Delta = 78.5^\circ$ Dir = 134° P-Phase Dir = SE

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Day	System	Phase	Arrival Time GCT	C or D	Ground A	Motion T	Type	Remarks
12	x	eP	09:20:56.0		7	0.9	T	Ryukyu Is. 27.4 N 129.1 E 0 = 09:08:15.9 h about 25 km $\Delta = 86.1^\circ$ Dir = 305°
12	x	eP	11:55:36.7		2	0.9	T	Fiji Is. Region 18.8 S 177.1 W 0 = 11:43:32.3 h about 223 km $\Delta = 83.5^\circ$ Dir = 235°
12	y	eP	12:30:05.3		1	0.2	L	$\Delta(S-P) = \text{less than } 0.1^\circ$
	N IBN	eS	12:30:08.9			0.4		
12	y	eP	15:01:58.3		1	0.4	R	$\Delta(S-P) = 11.4^\circ$ P-Phase Dir = SSE
		e	15:02:24.4			0.5		
		e	15:02:55.2			1.0		
		e	15:02:59.6			1.1		
	E	eS	15:04:06.6			1.1		
12	y	eP	15:28:53.0		999	999	L	$\Delta(S-P) = 0.5^\circ$ P-Phase Dir = NE
	N	eS	15:29:00.1			999		
12	y	eP	17:06:04.4			1.0	T	Near Coast of N Chile 28.0 S 70.6 W 0 = 16:53:33.6 h about 25 km $\Delta = 84.1^\circ$ Dir = 140°
		e	17:06:11.7			1.4		
12	y	eP	17:33:58.8		1	0.3	NR	$\Delta(S-P) = 4.5^\circ$
	E	eS	17:34:53.7			0.3		
12	+	eP	19:10:55.6		2	0.1	L	$\Delta(S-P) = \text{less than } 0.1^\circ$ P-Phase Dir = SE
	E	eS	19:10:59.2			999		
12	+	iP	19:11:58.0	D	999	999	L	$\Delta(S-P) = 0.4^\circ$
	N	eS	19:12:04.4			999		P-Phase Dir = NE

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Day	System	Phase	Arrival Time GCT	C or D	Ground A	Motion T	Type	Remarks
12	x	eP	19:16:45.6		4	0.9	T	Kermadec Is. Region 28.9 S 177.1 W 0 = 19:03:54.4 h about 134 km $\Delta = 91.4^\circ$ Dir = 229° P-Phase Dir = NE
12	y	eP	20:51:43.3		2	0.8	T	Kermadec Is. Region 27.2 S 178.0 W 0 = 20:38:58.0 h about 152 km $\Delta = 90.5^\circ$ Dir = 231°
12	y	eP	21:23:18.0		1	0.3	R	$\Delta(S-P) = 6.6^\circ$
	E	e	21:23:26.4			0.8		
		eS	21:24:37.2			0.5		
12	y	eP	21:51:46.3		3	0.6	T	
12	y	eP	22:52:11.5		1	0.3	NR	$\Delta(S-P) = 4.2^\circ$
	N	eS	22:53:02.0			0.4		
12	y	eP	23:20:17.8		2	0.6	T	
12	y	eP	23:24:50.8		1	0.2	NR	$\Delta(S-P) = 1.8^\circ$
		eS	23:25:14.8			0.4		
12	y	eP	23:26:58.9		4	0.9	T	
13	y	eP	03:07:33.0		7	1.3	T	
13	y	eP	08:04:21.0		3	1.0	T	Data from Helicorder Z 3 trace
		e	08:05:31.5			1.2		
13	✓	eP	10:46:04.0		1	1.0	T	Data from Helicorder Z 3 trace
13	x	eP	12:03:10.7		1	0.2	NR	$\Delta(S-P) = 5.5^\circ$
		e	12:03:22.8			0.3		Data from Helicorder Z 3 trace
		eS	12:04:15.7			0.6		1256 Z to 1659 Z station was not re- cording data.

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Day	System	Phase	Arrival Time GCT	C or D	Ground A	Motion T	Type	Remarks
13	Y E	eP eS	17:52:00.4 17:54:25.5		1	0.5 1.5	R	$\Delta(S-P) = 13.0^\circ$
13	✓ LPN LP	eP e eLQ eLR	19:00:39.8 19:00:53.8 19:26:06.0 19:28:40.0		9	1.0 0.9 20.0 26.0	T	Santa Cruz Is. Region 12.6 S 166.6 E 0 = 18:47:44.5 h about 33 km $\Delta = 89.2^\circ$ Dir = 251° P-Phase Dir = SW
13	✓	eP e	19:18:16.0 19:19:00.3		1	0.9 0.9	T	
13	✓ E	eP eS	21:26:31.7 21:26:34.9		1	0.1 0.3	L	$\Delta(S-P) = \text{less than } 0.1^\circ$
13	✓	eP ePcP	22:00:06.3 22:00:43.4		2	0.9 1.3	T	Near N Coast Hokkaido, Japan 44.0 N 146.4 E 0 = 21:49:38.6 h about 103 km $\Delta = 64.5^\circ$ Dir = 307° P-Phase Dir = NW
13	✓ E	eP eS	22:34:23.0 22:34:27.8		2	0.1 999	L	$\Delta(S-P) = 0.1^\circ$
13	✓	eP	23:19:29.4		1	0.7	T	

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Day	System	Phase	Arrival Time GCT	C or D	Ground A	Motion T	Type	Remarks
14	✓	eP e	00:43:20.3 00:43:26.4		7	1.2 0.8	T	Kermadec Is. Region 33.4 S 179.3 W 0 = 00:29:56.0 h about 33 km $\Delta = 96.1^\circ$ Dir = 228° P-Phase Dir = SSW
14	✓ LP	eP e(Sur)	01:00:09.2 01:14:24.0		5	0.7 27.0	T	P-Phase Dir = SSE
14	✓ E	eP e eS	01:12:06.4 01:12:10.3 01:12:45.5		1	0.1 0.3 0.4	NR	$\Delta(S-P) = 3.1^\circ$
14	✓ E	eP eS	01:39:10.2 01:39:30.6		1	0.3 0.3	NR	$\Delta(S-P) = 1.5^\circ$
14	✓	eP'	01:57:26.4		1	0.5	T	Near W Coast Sumatra 1.5 N 99.0 E 0 = 01:38:38.8 h about 100 km $\Delta = 123.7^\circ$ Dir = 315°
14	✓	eP e	01:58:11.1 01:59:23.8		3	0.8 1.2	T	
14	✓	eP e e(pP)	02:09:52.6 02:09:58.6 02:10:20.5		2	0.8 0.7 0.7	T	Central Kamchatka 54.4 N 159.8 E 0 = 02:00:57.6 h about 120 km $\Delta = 51.6^\circ$ Dir = 312°
14	✓	iP	02:40:04.0	D	5	1.0	T	P-Phase Dir = SSE
14	✓ N	eP e eS	03:39:07.4 03:39:26.2 03:40:16.0		1	0.4 0.7 0.6	R	$\Delta(S-P) = 5.8^\circ$

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Day	System	Phase	Arrival Time GCT	C or D	Ground A	Motion T	Type	Remarks
14	✓	eP	05:16:33.4		3	1.0	T	New Hebrides Is. 17.5 S 167.7 E 0 = 05:03:25.8 h about 33 km $\Delta = 92.0^\circ$ Dir = 247°
14	✓	eP	07:00:03.8		6	1.0	T	
14	✓	eP e	07:36:48.9 07:36:56.0		10	1.1 1.6	T	
14	✓	eP	09:43:01.5		25	1.2	R	Off Coast of N California 38.8 N 123.5 W 0 = 09:41:09.6 h about 33 km $\Delta = 7.6^\circ$ Dir = 220° No S-Phase visible
14	✓	E eP eS	10:02:27.0 10:02:30.9		1	0.2 0.2	L	$\Delta(S-P) = \text{less than } 0.1^\circ$
14	✓	IB BB e LP LPE	10:16:26.2 10:17:09.6 10:18:50.0 10:21:56.0		24	1.2 1.8 27.0 11.0	R	Off Coast of N California 38.7 N 124.0 W 0 = 10:14:32.4 h about 33 km $\Delta = 7.9^\circ$ Dir = 221° P-Phase Dir = SSW No S-Phase visible
14	✓	IB eP	11:12:17.1		6	1.1	T	
14	✓	eP e	15:21:14.8 15:31:31.0		31	1.5 1.0	T	Near S Coast of Kyushu, Japan 31.8 N 131.5 E 0 = 15:08:59.9 h about 33 km $\Delta = 81.4^\circ$ Dir = 307°

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Day	System	Phase	Arrival Time GCT	C or D	Ground A	Motion T	Type	Remarks
14	✓	eP e	19:41:41.0 19:41:47.6		28	1.7 1.5	T	Arctic Ocean 75.5 N 5.8 E 0 = 19:32:17.3 h about 42 km $\Delta = 54.4^\circ$ Dir = 15°
14	✓	eP e N eS	20:34:14.0 20:34:30.5 20:35:32.1		1	0.2 0.6 0.7	R	$\Delta(S-P) = 6.6^\circ$
14	✓	eP	21:24:52.1		14	0.9	T	N Central Honshu, Japan 39.1 N 141.1 E 0 = 21:13:44.2 h about 85 km $\Delta = 70.6^\circ$ Dir = 306° P-Phase Dir = W
15	✓	eP e	00:38:32.8 00:39:11.8		7	1.0 1.3	T	Loyalty Is. Region 22.1 S 172.1 E 0 = 00:25:21.3 h about 40 km $\Delta = 92.5^\circ$ Dir = 241°
15	✓	N eP eS	00:43:37.8 00:44:20.5		1	0.3 0.4	NR	$\Delta(S-P) = 3.4^\circ$
15	✓	eP	00:55:42.8		3	0.9	T	
15	✓	eP	00:58:13.9		9	1.3	T	
15	✓	eP	03:05:36.4		15	1.2	T	Arctic Ocean 74.7 N 2.6 E 0 = 02:56:11.5 h about 26 km $\Delta = 54.3^\circ$ Dir = 16.5°
15	✓	eP e	03:23:38.4 03:25:33.9		11	1.0 0.7	T	P-Phase Dir = SSE

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Day	System	Phase	Arrival Time GCT	C or D	Ground A	Motion T	Type	Remarks
15	x	eP	03:42:45.9		2	0.7	T	
15	y	eP	04:47:15.6		3	0.6	T	
		e	04:48:00.9			1.2		
		e	04:49:06.5			1.3		
15	y	iP	08:14:53.5	D		999	L	$\Delta(S-P) = \text{less than } 0.1^\circ$
	IB							
	N	eS	08:14:54.5			999		
15	v	eP	08:20:39.7		14	1.1	T	Samoa Is. Region
		e	08:20:53.8			1.1		16.3 S 173.5 W
	LP	e	08:38:28.0			10.0		0 = 08:08:38.0
								h about 50 km
								$\Delta = 79.4^\circ$
								Dir = 234°
								P-Phase Dir = SW
15	y	eP	08:44:34.4		3	0.9	T	
15	y	iP	08:54:40.5	D	3	0.2	L	$\Delta(S-P) = \text{less than } 0.1^\circ$
	E	iS	08:54:41.5	D		0.2		P-Phase Dir = SW
15	y	eP	11:22:05.6		1	0.3	NR	$\Delta(S-P) = 5.8^\circ$
		e	11:22:18.0			0.6		
	N	eS	11:23:14.2			0.6		
15	y	eP	15:34:32.2		5	0.8	T	
		e	15:35:12.1			0.8		
15	y	eP	17:43:21.8		8	1.0	T	Kermadec Is. Region
								28.8 S 176.4 W
								0 = 17:30:20.8
								h about 40 km
								$\Delta = 90.3^\circ$
								Dir = 229°
15	x	eP	17:50:42.2		1	0.2	NR	$\Delta(S-P) = 2.2^\circ$
	N	eS	17:51:10.6			0.3		
15	y	eP	19:55:21.4		3	0.3	L	$\Delta(S-P) = \text{less than } 0.1^\circ$
	E	eS	19:55:22.4			0.2		
	IBE							

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Day	System	Phase	Arrival Time GCT	C or D	Ground A	Motion T	Type	Remarks
15	v	eP	20:37:50.8		1	0.3	NR	$\Delta(S-P) = 1.9^\circ$
	E	eS	20:38:16.6			0.3		
15	v	iP	20:53:51.0	D		999	L	$\Delta(S-P) = 0.5^\circ$
	E	eS	20:53:58.2			999		
15	y	eP	21:28:29.6		26	1.7	T	
15	x	eP	22:53:56.6		3	1.2	T	
15	v	eP'	23:55:02.3		3	1.2	T	Near Coast of South Is. New Zealand 43.5 S 169.8 E 0 = 23:36:35.0 h about 33 km $\Delta = 109.3^\circ$ Dir = 227°
16	y	eP	00:06:08.3		8	1.0	T	P-Phase Dir = SE
		e	00:06:21.0			1.5		
		e	00:08:51.0			1.1		
16	y	eP	01:14:14.7		1	0.2	L	$\Delta(S-P) = 0.4^\circ$
	N	eS	01:14:21.4			0.2		P-Phase Dir = NE
16	y	eP	01:50:26.7			0.6	T	
		e	01:51:06.7			0.6		
16	y	eP	02:05:22.9		1	0.3	NR	$\Delta(S-P) = 1.5^\circ$
	E	eS	02:05:42.5			0.3		
16	y	eP	03:02:42.4		11	1.3	T	New Hebrides Is.
		e	03:06:42.7			1.8		17.1 S 167.7 E
								0 = 02:49:37.0
								h about 33 km
								$\Delta = 91.7^\circ$
								Dir = 248°
16	y	eP	03:21:27.9		3	0.7	T	
16	y	eP	05:34:32.9		18	1.4	T	New Hebrides Is.
								17.1 S 167.6 E
								0 = 05:21:26.5
								h about 33 km
								$\Delta = 91.7^\circ$
								Dir = 248°

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Day	System	Phase	Arrival Time GCT	C or D	Ground A	Motion T	Type	Remarks
16	γ	eP	05:54:35.0		3	0.9	T	
16	γ	E eP	06:07:07.8		1	0.3	NR	$\Delta(S-P) = 1.6^\circ$
		eS	00:07:30.2			0.3		
16	γ	eP	06:19:53.4			0.9	T	
16	γ	eP ₁	07:36:23.0		2	0.8	T	South of Mascarine Is. 28.3 S 62.5 E 0 = 07:15:32.7 h about 33 km $\Delta = 163.5^\circ$ Dir = 1°
		eP ₂	07:36:30.8			1.1		
		e	07:40:07.3			1.1		
16	γ	IB eP	09:33:38.0		2	0.2	NR	$\Delta(S-P) = 4.7^\circ$ P-Phase Dir = SSE
	BB	e	09:33:40.0			0.4		
	IB	e	09:33:43.2			0.8		
	IB	E eS	09:34:35.4			0.6		
	IBE	E eSur	09:34:41.6			0.7		
16	γ	E eP	09:54:35.6		1	0.3	NR	$\Delta(S-P) = 4.5^\circ$
		eS	09:55:30.4			0.5		
16	γ	eP	10:32:20.0			0.4	T	P-Phase Dir = NW
16	γ	N eP	11:31:13.5		1	0.2	L	$\Delta(S-P) = 0.1^\circ$
		eS	11:31:17.6			0.3		
16	γ	N eP	12:04:20.6		2	0.1	L	$\Delta(S-P) = \text{less than } 0.1^\circ$ P-Phase Dir = SW
		eS	12:04:24.2			0.2		
16	γ	N eP	12:14:05.0		2	0.6	NR	$\Delta(S-P) = 5.8^\circ$
		eS	12:15:14.0			0.6		
16	γ	N eP	14:06:20.0		2	0.4	NR	$\Delta(S-P) = 1.9^\circ$
		eS	14:06:46.2			0.4		
16	γ	E eP	15:17:32.8		1	0.4	NR	$\Delta(S-P) = 4.5^\circ$
		eS	15:18:28.3			0.4		

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Day	System	Phase	Arrival Time GCT	C or D	Ground A	Motion T	Type	Remarks
16	γ	eP	15:51:20.4			0.8	T	
16	γ	N eP	16:47:16.6		1	0.3	L	$\Delta(S-P) = \text{less than } 0.1^\circ$
		eS	16:47:19.8			0.2		
	IBN							
16	γ	N eP	17:23:20.5		2	0.2	L	$\Delta(S-P) = 0.4^\circ$
		eS	17:23:27.2			0.2		
16	γ	IB, BB eP	18:09:55.6		21	1.3	T	Near Is., Aleutian Is. 51.6 N 175.8 W 0 = 18:02:32.9 h about 27 km $\Delta = 38.6^\circ$ Dir = 302° P-Phase Dir = WNW
		e	18:10:09.3			1.0		
		e(ScP)	18:15:51.2			1.0		
	LPE	eS	18:15:58.0			21.0		
		e	18:16:12.8			1.2		
	LPN	e(SS)	18:18:52.0			19.0		
	N	eScS	18:20:03.8			3.4		
	IBN							
	LP	eLR	18:20:51.0			27.0		
		e	18:32:48.1			1.2		
		e	18:41:49.1			1.0		
16	γ	N eP	19:29:47.5		1	0.1	L	$\Delta(S-P) = \text{less than } 0.1^\circ$
		eS	19:29:50.1			0.2		
16	γ	eP	21:24:32.6		3	1.0	T	
16	γ	eP	21:27:14.1		2	0.7	T	
16	γ	N eP	22:34:03.9		1	0.4	NR	$\Delta(S-P) = 4.4^\circ$
		eS	22:34:57.8			0.4		
16	γ	N eP	23:40:36.0		1	0.4	NR	$\Delta(S-P) = 5.6^\circ$
		eS	23:41:42.9			0.4		
17	γ	N eP	02:14:48.7		1	0.4	NR	$\Delta(S-P) = 1.8^\circ$
		eS	02:15:13.5			0.4		
17	γ	N eP	02:36:59.2			0.3	NR	$\Delta(S-P) = 1.7^\circ$
		eS	02:37:23.0			0.3		

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Day	System	Phase	Arrival Time GCT	C or D	Ground A	Motion T	Type	Remarks	
17	x	IB	iP	03:05:43.2	C	1	0.2	L	$\Delta(S-P) = 0.5^\circ$ P-Phase Dir = NE
		N	eS	03:05:50.3			0.2		
		IBN							
17	y	N	eP	03:17:25.0		1	0.5	NR	$\Delta(S-P) = 5.2^\circ$
		N	eS	03:18:27.5			0.5		
17	y	N	eP	03:26:27.5		1	0.2	NR	$\Delta(S-P) = 2.3^\circ$
		N	eS	03:26:56.5			0.3		
17	x	N	eP	04:26:39.5		1	0.3	NR	$\Delta(S-P) = 5.0^\circ$
		N	eS	04:27:45.7			0.3		
		N	eS	05:50:59.8		1	0.4	NR	$\Delta(S-P) = 5.0^\circ$
		N	eS	05:51:59.6			0.4		
17	y	IB	eP	06:03:50.5		2	0.3	NR	$\Delta(S-P) = 3.0^\circ$
		N	e	06:03:54.6			0.5		P-Phase Dir = WNW
		IBN	eS	06:04:28.5			0.4		
17	x	N	eP	07:29:40.1		1	0.2	L	$\Delta(S-P) = 0.1^\circ$
		N	eS	07:29:44.2			0.2		
17	x	IB	eP	08:35:39.6		3	0.4	NR	$\Delta(S-P) = 5.0^\circ$ P-Phase Dir = W
		N	eS	08:36:39.3			1.0		
		IBN							
17	y		eP	11:57:28.1		2	0.9	T	
17	x	E	eP	11:58:09.6		1	0.3	NR	$\Delta(S-P) = 1.9^\circ$
		E	eS	11:58:35.2			0.3		
17	y	IB	eP	12:50:28.9		10	0.8	T	South of Honshu, Japan 33.3 N 137.7 E 0 = 12:39:12.0 h about 335 km $\Delta = 76.7^\circ$ Dir = 304° P-Phase Dir = W
		IB	epP	12:51:57.4			0.9		

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Day	System	Phase	Arrival Time GCT	C or D	Ground A	Motion T	Type	Remarks	
17	x		eP	16:01:10.4		4	0.9	T	P-Phase Dir = NW
17	y	N	eP	16:14:11.1		1	0.3	NR	$\Delta(S-P) = 1.9^\circ$
		N	eS	16:14:36.5			0.3		
17	y	E	eP	16:16:06.9		1	0.2	NR	$\Delta(S-P) = 1.5^\circ$
		E	eS	16:16:25.9			0.3		
17	x	E	eP	16:16:32.2		1	0.2	NR	$\Delta(S-P) = 1.5^\circ$
		E	eS	16:16:50.7			0.3		
17	x	E	eP	16:38:00.9		1	0.2	NR	$\Delta(S-P) = 6.2^\circ$
		E	e	16:38:19.6			0.4		
		E	eS	16:39:14.8			0.4		
17	x	N	eP	18:47:11.2		1	0.3	NR	$\Delta(S-P) = 1.7^\circ$
		N	eS	18:47:34.1			0.4		
17	x		eP	19:58:57.4		7	1.3	T	
			e	19:59:52.6			1.4		
17	x	N	eP	21:11:26.0		2	0.3	NR	$\Delta(S-P) = 1.9^\circ$
		N	eS	21:11:51.7			0.4		
17	x	N	eP	21:25:07.3		1	0.3	NR	$\Delta(S-P) = 1.6^\circ$
		N	eS	21:25:29.2			0.3		
17	x	N	eP	22:10:23.4		1	0.4	NR	$\Delta(S-P) = 3.5^\circ$
		N	eS	22:11:07.1			0.4		
17	x	N	eP	22:24:54.9		1	0.4	NR	$\Delta(S-P) = 3.5^\circ$
		N	eS	22:25:38.6			0.5		
17	x		eP	23:29:39.5		1	0.7	T	
			e	23:29:52.9			0.8		

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Day	System	Phase	Arrival Time GCT	C or D	Ground A	Motion T	Type	Remarks
18	✓	iP	00:51:26.3	D	3	0.2	L	$\Delta(S-P) = 0.5^\circ$
		N eS	00:51:33.6			0.5		P-Phase Dir = NE
18	✗	eP	01:00:44.4		1	0.4	NW	$\Delta(S-P) = 4.4^\circ$
		e	01:00:52.5			0.6		P-Phase Dir = SW
		N eS	01:01:37.0			0.4		
18	✗	eP	02:03:45.3		3	1.0	T	
18	✓	eP'	04:24:52.4			0.8	T	Sumbawa
		ePKKP	04:35:28.7			1.2		8.9 S 117.0 E 0 = 04:06:00.4 h about 33 km $\Delta = 121.2^\circ$ Dir = 290° P-Phase Dir = SW
18	✗	eP	06:41:56.8		1	0.2	L	$\Delta(S-P) = \text{less than } 0.1^\circ$
		N eS	06:42:00.5			0.2		
18	✗	eP	07:13:02.9		1	0.4	NR	$\Delta(S-P) = 2.7^\circ$
		e	07:13:06.9			0.5		P-Phase Dir = SE
		E eS	07:13:37.7			0.3		
18	✓	eP	07:15:31.0		1	0.4	NR	$\Delta(S-P) = 2.8^\circ$
		e	07:15:36.5			0.4		P-Phase Dir = SE
		N eS	07:16:07.1			0.3		
18	✗	eP	07:39:02.0		5	0.9	T	
18	✗	eP	08:36:03.0		1	0.1	L	$\Delta(S-P) = 0.2^\circ$
		E eS	08:36:07.7			0.3		
18	✗	eP	08:40:43.4		1	0.2	L	$\Delta(S-P) = \text{less than } 0.1^\circ$
		E eS	08:40:46.5			0.3		
18	✓	iP	08:50:57.8	C	8	0.8	T	Kurile Is.
		IB e	08:51:33.4			0.9		46.5 N 149.6 E 0 = 08:40:55.5 h about 140 km $\Delta = 61.2^\circ$ Dir = 308°
		IB e	08:51:52.7			1.4		
		IB e	08:55:24.8			0.7		P-Phase Dir = WNW

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Day	System	Phase	Arrival Time GCT	C or D	Ground A	Motion T	Type	Remarks
18	✗	eP	11:31:48.5		4	0.8	T	P-Phase Dir = SW
18	✓	eP	11:32:44.0		17	0.9	T	Kurile Is.
		IB ePcP	11:33:20.2			1.3		46.5 N 149.5 E
		e	11:33:25.0			0.6		0 = 11:22:40.2 h about 128 km $\Delta = 61.3^\circ$ Dir = 308° P-Phase Dir = WNW
18	✗	eP	11:35:27.4		1	0.2	L	$\Delta(S-P) = \text{less than } 0.1^\circ$
		E eS	11:35:31.0			0.3		
18	✗	eP	13:21:57.2		2	0.4	NR	$\Delta(S-P) = 1.6^\circ$
		N eS	13:22:18.6			0.4		
18	✗	eP	16:24:20.0		1	0.3	NR	$\Delta(S-P) = 3.4^\circ$
		N eS	16:25:02.0			0.4		
18	✗	eP	18:01:14.0		1	0.1	L	$\Delta(S-P) = \text{less than } 0.1^\circ$
		E eS	18:01:17.6			0.2		
18	✗	eP	18:03:45.0		25	0.5	NR	Idaho
		IB N e(S)	18:04:13.1			0.5		44.3 N 115.3 W 0 = 18:03:18.5 h about 33 km $\Delta = 1.5^\circ$ Dir = 110° P-Phase Dir = ESE
		IBN						
18	✗	eP	18:12:22.4		1	0.3	NR	$\Delta(S-P) = 1.9^\circ$
		N eS	18:12:48.0			0.3		P-Phase Dir = SE
18	✗	eP	18:14:29.6		4	0.4	NR	$\Delta(S-P) = 1.9^\circ$
		E eS	18:14:55.9			0.3		P-Phase Dir = SE
18	✗	eP	18:27:30.2		2	0.3	NR	$\Delta(S-P) = 1.9^\circ$
		E eS	18:27:56.8			0.3		P-Phase Dir = SE
18	✗	eP	18:35:24.2		1	0.2	NR	$\Delta(S-P) = 1.9^\circ$
		N eS	18:35:40.7			0.3		

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Day	System	Phase	Arrival Time GCT	C or D	Ground A	Motion T	Type	Remarks
18	γ	eP	18:41:52.2		1	0.3	L	$\Delta(S-P) = 1.3^\circ$
	E	eS	18:42:08.9			0.4		
18	✕	eP	18:56:48.6		2	0.4	L	Idaho
		e	18:57:02.9			0.5		44.6 N 116.0 W
	N	e(S)	18:57:27.8			0.6		0 = 18:56:32.3
	IBN							h about 33 km
	E	e	18:57:52.4			0.7		$\Delta = 1.0^\circ$
	IBE							Dir = 105°
		e(Sur)	18:58:15.8			0.9		P-Phase Dir = ESE
18	✓	eP	19:11:00.4		1	0.4	NR	$\Delta(S-P) = 5.8^\circ$
		e	19:11:13.8			0.6		
	N	eS	19:12:10.2			0.6		
18	✕	eP	19:13:23.6		1	0.4	NR	$\Delta(S-P) = 3.8^\circ$
		e	19:13:32.8			0.3		P-Phase Dir = ESE
	E	eS	19:14:10.6			0.4		
18	✕	eP	19:23:16.8		1	0.3	NR	$\Delta(S-P) = 2.3^\circ$
	E	eS	19:23:46.8			0.3		
18	✕	eP	19:30:24.6		3	0.4	NR	$\Delta(S-P) = 1.1^\circ$
	E	eS	19:30:39.0			0.3		P-Phase Dir = ESE
18	✕	eP	19:35:58.5		1	0.2	NR	$\Delta(S-P) = 3.1^\circ$
	E	eS	19:36:37.3			0.3		
18	✕	eP	19:47:38.2		1	0.2	NR	$\Delta(S-P) = 3.6^\circ$
		e	19:47:58.2			0.2		
	E	eS	19:48:23.0			0.2		
18	✕	eP	19:49:21.2		1	0.4	NR	$\Delta(S-P) = 1.9^\circ$
	E	eS	19:45:47.2			0.2		
18	✕	eP	19:56:35.8		4	1.0	T	Chiapas, Mexico
		epP	19:57:02.4			1.0		16.2 N 93.5 W
		e	19:58:08.8			1.3		0 = 19:49:59.2
								h about 179 km
								$\Delta = 34.9^\circ$
								Dir = 137°
								P-Phase Dir = SSE

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Day	System	Phase	Arrival Time GCT	C or D	Ground A	Motion T	Type	Remarks
18	✕	eP	19:59:07.0		3	0.6	T	P-Phase Dir = SW
		e	19:59:37.9			0.8		
18	✕	eP	20:02:09.4		3	0.3	NR	$\Delta(S-P) = 1.8^\circ$
	N	eS	20:02:34.2			0.5		P-Phase Dir = ESE
	IBN							
18	✕	eP	20:14:34.6		1	0.3	NR	$\Delta(S-P) = 1.7^\circ$
	N	eS	20:14:59.0			0.3		P-Phase Dir = ESE
18	✕	iP	20:31:34.6	D	75	0.6	NR	Idaho
	N	e(S)	20:32:05.0			999		44.3 N 115.2 W
								0 = 20:31:07.1
								h about 33 km
								$\Delta = 1.6^\circ$
								Dir = 109°
								P-Phase Dir = ESE
18	✕	eP	20:34:35.6		14	0.3	NR	$\Delta(S-P) = 2.0^\circ$
	IB							P-Phase Dir = SE
	N	eS	20:35:02.8			0.6		
	IBN							
18	✕	eP	20:40:59.0		1	0.3	NR	$\Delta(S-P) = 1.9^\circ$
	E	eS	20:41:24.0			0.3		P-Phase Dir = ESE
18	✕	eP	20:48:38.4		1	0.3	NR	$\Delta(S-P) = 1.9^\circ$
	E	eS	20:49:04.9			0.3		P-Phase Dir = ESE
18	✕	eP	20:59:52.9		1	0.3	NR	$\Delta(S-P) = 2.7^\circ$
	N	eS	21:00:27.4			0.4		P-Phase Dir = ESE
18	✕	eP	21:03:29.6		1	0.3	NR	$\Delta(S-P) = 2.2^\circ$
	N	eS	21:03:58.0			0.3		
18	✕	eP	21:12:15.0		2	0.3	NR	$\Delta(S-P) = 2.9^\circ$
	N	eS	21:12:50.9			0.4		
18	✕	iP	21:39:49.4	D	22	0.6	NR	$\Delta(S-P) = 1.9^\circ$
	IB							P-Phase Dir = ESE
	N	eS	21:40:15.4			0.5		
	IBN							

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Day	System	Phase	Arrival Time GCT	C or D	Ground A	Motion T	Type	Remarks
18	x	eP	21:41:56.0		1	0.3	NR	$\Delta(S-P) = 1.9^\circ$
	N	eS	21:42:21.8			0.3		
18	y	eP	21:47:47.1		1	0.2	NR	$\Delta(S-P) = 5.9^\circ$
	N	eS	21:48:56.6			0.3		
18	x	eP	22:14:05.5		4	0.4	NR	$\Delta(S-P) = 1.8^\circ$
	N	eS	22:14:30.8			0.5		P-Phase Dir = ESE
18	x	eP	22:32:13.4		1	0.4	NR	$\Delta(S-P) = 3.7^\circ$
	N	eS	22:32:58.6			0.4		
18	y	eP	22:34:59.3		1	0.3	NR	$\Delta(S-P) = 2.0^\circ$
	N	eS	22:35:25.8			0.4		
18	x	eP	22:40:07.6		1	0.4	NR	$\Delta(S-P) = 1.9^\circ$
	N	eS	22:40:32.8			0.4		
18	y	eP	22:45:50.7		1	0.4	NR	$\Delta(S-P) = 3.7^\circ$
	N	eS	22:46:35.8			0.3		
18	y	eP	22:51:28.4		1	0.2	NR	$\Delta(S-P) = 4.9^\circ$
	N	eS	22:52:27.4			0.4		
18	y	eP	23:17:01.2		5	0.4	NR	$\Delta(S-P) = 1.8^\circ$
	IB							
	N	eS	23:17:25.8			0.4		
	IBN							
18	y	eP	23:53:49.8		2	0.2	NR	$\Delta(S-P) = 2.0^\circ$
	N	eS	23:54:16.0			0.5		P-Phase Dir = ESE
18	y	eP	23:59:36.1		1	0.2	NR	$\Delta(S-P) = 25^\circ$
	N	eS	00:00:08.0			0.3		
19	y	iP	00:07:23.7	C	8	0.2	L	$\Delta(S-P) = 0.5^\circ$
	IB							P-Phase Dir = NE
	N	eS	00:07:30.8			0.2		
	IBN							
19	x	eP	00:31:23.4		1	0.4	NR	$\Delta(S-P) = 2.5^\circ$
	N	eS	00:31:53.6			0.4		
19	y	eP	00:45:09.4		1	0.3	NR	$\Delta(S-P) = 3.1^\circ$
	N	eS	00:45:48.6			0.5		

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Day	System	Phase	Arrival Time GCT	C or D	Ground A	Motion T	Type	Remarks
19	x	eP	00:59:54.6		2	0.6	NR	$\Delta(S-P) = 1.8^\circ$
	E	eS	01:00:19.6			0.6		
19	y	eP	02:22:48.4		1	0.2	NR	$\Delta(S-P) = 2.0^\circ$
	E	eS	02:23:14.5			0.2		
19	y	eP	02:44:40.0		2	0.3	NR	$\Delta(S-P) = 2.9^\circ$
	N	eS	02:45:17.1			0.5		
19	y	eP	03:00:41.4		7	0.3	NR	$\Delta(S-P) = 1.8^\circ$
	N	eS	03:01:06.3			0.5		P-Phase Dir = ESE
19	y	eP	03:35:25.6		1	0.3	NR	$\Delta(S-P) = 2.0^\circ$
	N	eS	03:35:52.1			0.3		
19	y	iP	03:46:28.4		10	0.3	NR	$\Delta(S-P) = 1.5^\circ$
	IB							P-Phase Dir = ESE
	E	eS	03:46:47.9			0.6		
	IBE							
19	x	eP	03:50:02.0		8	0.3	NR	$\Delta(S-P) = 2.0^\circ$
	IB							P-Phase Dir = ESE
	N	eS	03:50:28.0			0.6		
	IBN							
19	y	eP	03:52:35.4		3	0.4	NR	$\Delta(S-P) = 1.8^\circ$
	E	eS	03:52:58.9			0.3		P-Phase Dir = ESE
19	y	eP	03:59:10.3		1	0.3	NR	$\Delta(S-P) = 1.8^\circ$
	E	eS	03:59:34.6			0.3		P-Phase Dir = ESE
19	x	eP	04:11:23.9		1	0.3	NR	$\Delta(S-P) = 1.9^\circ$
	E	eS	04:11:49.3			0.3		
19	y	iP	04:25:37.5	D	23	1.0	T	San Juan Province, Argentina
	IB							31.0 S 69.4 W
	epP		04:26:07.8			0.8		0 = 04:13:03.6
								h about 120 km
								$\Delta = 87.2^\circ$
								Dir = 140°
								P-Phase Dir = SE

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Day	System	Phase	Arrival Time GCT	C or D	Ground A	Motion T	Type	Remarks
19		eP	04:46:20.9		2	0.8	T	
19	E	eP eS	05:26:46.5 05:27:12.6		1	0.3 0.3	NR	$\Delta(S-P) = 2.0^\circ$
19	E	eP eS	05:48:16.7 05:48:41.7		1	0.2 0.4	NR	$\Delta(S-P) = 1.9^\circ$ P-Phase Dir = ESE
19	E	eP eS	07:21:21.2 07:21:46.1		3	0.5 0.3	NR	$\Delta(S-P) = 1.9^\circ$ P-Phase Dir = ESE
19	E	eP e eS	08:42:36.2 08:42:43.9 08:44:14.5		1	0.5 0.6 0.7	R	$\Delta(S-P) = 8.5^\circ$
19	IB	eP ¹ e	09:58:35.4 09:59:07.5		11	0.7 1.1	T	Sandwich Islands 56.3 S 26.2 W 0 = 09:39:41.9 h about 86 km $\Delta = 126.2^\circ$ Dir = 136° P-Phase Dir = SSE
19	E	eP eS	10:03:50.5 10:04:15.5		1	0.4 0.3	NR	$\Delta(S-P) = 1.9^\circ$
19	IB N IBN	iP eS	10:43:51.2 10:44:16.2	D	8	0.3 0.7	NR	Idaho 44.6 N 115.6 W 0 = 10:43:25.0 h about 33 km $\Delta = 1.2^\circ$ Dir = 101° P-Phase Dir = ESE
19	E	eP eS	10:50:18.0 10:50:43.7		1	0.3 0.3	NR	$\Delta(S-P) = 2.0^\circ$
19	E	eP eS	10:52:44.5 10:53:08.0		1	0.3 0.3	NR	$\Delta(S-P) = 1.8^\circ$

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Day	System	Phase	Arrival Time GCT	C or D	Ground A	Motion T	Type	Remarks
19		eP	10:58:41.0			1.5	T	Leyte, Philippine Is. 10.6 N 125.2 E 0 = 10:44:51.9 h about 50 km $\Delta = 101.2^\circ$ Dir = 297°
19	LP	eP eSur	11:13:15.9 11:32:16		1	0.7 26.0	T	
19	N	eP eS	11:28:40.4 11:29:06.1		1	0.3 0.5	NR	$\Delta(S-P) = 2.0^\circ$
19	E	eP eS	11:34:07.0 11:34:33.1		1	0.4 0.3	NR	$\Delta(S-P) = 2.0^\circ$ P-Phase Dir = ESE
19	E	eP eS	11:58:29.6 11:58:57.7		1	0.2 0.4	NR	$\Delta(S-P) = 2.2^\circ$
19		eP	12:16:46.1		2	0.7	T	
19		eP	12:46:29.2		3	0.6	T	
19	N	eP eS	14:52:49.2 14:53:00.0		3	0.1 0.3	L	$\Delta(S-P) = 0.8^\circ$ P-Phase Dir = SW
19		eP e	14:56:39.0 14:57:07.9		6	0.9 1.0	T	Bolivia 18.9 S 66.0 W 0 = 14:44:56.2 h about 211 km $\Delta = 78.8^\circ$ Dir = 131° P-Phase Dir = SE
19	N	eP eS	15:29:39.7 15:30:04.2		2	0.3 0.4	NR	$\Delta(S-P) = 1.8^\circ$ P-Phase Dir = ESE
19	E	eP eS	16:20:50.7 16:20:55.9		1	0.2 0.2	L	$\Delta(S-P) = 0.3^\circ$
19	E N	eP eS e(Sur)	17:55:45.2 17:56:43.8 17:57:12.5		1	0.3 0.5 0.6	NR	$\Delta(S-P) = 4.9^\circ$ P-Phase Dir = NE

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Day	System	Phase	Arrival Time GCT	C or D	Ground A	Motion T	Type	Remarks
19	x	eP	18:01:58.8		3	0.8	R	$\Delta(S-P) = 9.1^\circ$ P-Phase Dir = SSE
	IB	e	18:02:21.0			0.8		
	IB	e	18:02:36.6			0.9		
	IB	e	18:02:59.5			1.0		
	IB	eS	18:03:43.4			1.8		
	E	eSur	18:04:11.0			1.8		
	IBE							
	E							
	IBE							
	BBE							
		e(LR)	18:04:45.3			2.0		
	IB							
	BB							
	LP							
19	y	eP	18:07:36.9		4	1.0	R	$\Delta(S-P) = 9.1^\circ$
	E	eS	18:09:21.2			1.6		
19	y	eP	19:02:46.0		2	1.2	T	
		e	19:03:07.9			1.2		
19	y	eP	19:55:23.1		4	0.3	NR	$\Delta(S-P) = 1.6^\circ$
	N	eS	19:55:43.9			999		P-Phase Dir = NW
19	y	eP	21:27:17.6		26	1.6	T	Off Coast of Jalisco, Mexico 19.8 N 108.3 W 0 = 21:21:48.8 h about 53 km $\Delta = 26.1^\circ$ Dir = 160° P-Phase Dir = S
	IB							
	BB							
	LP							
	LP	e	21:32:03			36.0		
	LPN	e(LQ)	21:34:45			42.0		
	LP	e(LR)	21:36:32			20.0		
19	y	eP	22:07:08.0		1	0.6	NR	$\Delta(S-P) = 4.3^\circ$
	N	eS	22:08:00.9			0.3		

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Day	System	Phase	Arrival Time GCT	C or D	Ground A	Motion T	Type	Remarks
19	y	eP	23:56:44.9		3	0.9	T	Banda Sea
		e	23:57:35.2			1.0		5.7 S 130.3 E 0 = 23:42:34.9 h about 177 km $\Delta = 109.8^\circ$ Dir = 282°
20	y	eP	00:00:45.7		2	1.0	T	
		e	00:01:13.5			1.4		
20	y	eP	00:05:15.3		1	0.3	NR	$\Delta(S-P) = 1.7^\circ$
	N	eS	00:05:38.4			0.5		
20	y	eP	00:11:49.5		2	0.6	T	
20	y	eP	00:33:13.4		1	0.3	NR	$\Delta(S-P) = 2.5^\circ$
	E	eS	00:33:46.0			0.4		
20	y	eP	00:40:00.7		1	0.4	NR	$\Delta(S-P) = 4.4^\circ$
		e	00:40:10.0			0.7		
	N	eS	00:40:55.1			0.4		
20	y	eP	01:53:23.5		999	999	L	$\Delta(S-P) = 0.5^\circ$
	E	eS	01:53:30.6			999		P-Phase Dir = NE
20	y	eP	01:55:17.3		1	0.6	T	
20	y	eP	02:01:08.5		1	0.4	NR	$\Delta(S-P) = 1.6^\circ$
	E	eS	02:01:30.7			0.3		
20	x	eP	02:05:04.1		3	0.2	NR	$\Delta(S-P) = 1.8^\circ$
	E	eS	02:05:28.3			0.3		P-Phase Dir = ESE
20	y	eP	02:07:31.8		2	0.9	T	
20	y	eP	02:17:38.6		1	0.3	NR	$\Delta(S-P) = 1.8^\circ$
	E	eS	02:18:03.4			0.3		
20	y	eP	02:22:57.9		999	999	NR	$\Delta(S-P) = 1.8^\circ$
	E	eS	02:23:22.0			999		P-Phase Dir = ESE

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Day	System	Phase	Arrival Time GCT	C or D	Ground A	Motion T	Type	Remarks
20	✓	eP e LPE	02:36:58.8 02:38:14.5 02:48:30		2	1.0 1.2 22.0	T	
20	✓	eP e E	03:45:33.5 03:45:38.1 03:46:30.3		1	0.4 0.4 0.5	NR	$\Delta(S-P) = 4.7^\circ$
20	✓	eP e e	03:47:37.8 03:48:41.1 03:55:17.0		5	0.8 1.2 1.0	T	Fiji Is. Region 21.0 S 178.8 W 0 = 03:35:54.8 h about 580 km $\Delta = 86.2^\circ$ Dir = 235° P-Phase Dir = SSE
20	✓	eP e e	04:05:31.7 04:07:07.5 04:12:23.0		2	0.8 1.0 1.0	T	
20	✓	eP	04:13:33.6		1	0.9	T	
20	✓	eP E eS	04:55:23.5 04:55:47.3		1	0.3 0.3	NR	$\Delta(S-P) = 1.8^\circ$
20	✓	eP E eS	05:32:59.7 05:33:24.6		1	0.3 0.2	NR	$\Delta(S-P) = 1.8^\circ$
20	✓	ePd e LPN	05:45:02.5 05:45:16.7 05:48:08		1	0.8 0.8 20.0	T	Banda Sea 6.7 S 130.1 E 0 = 05:30:42.2 h about 167 km $\Delta = 110.7^\circ$ Dir = 281°
20	✓	eP	05:48:56.1		2	0.6	T	
20	✓	eP e LP	05:59:41.0 05:59:55.0 06:26:00		2	1.0 0.8 20.0	T	
20	✓	eP N eS	06:14:27.4 06:14:51.6		1	0.2 0.3	NR	$\Delta(S-P) = 1.8^\circ$

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Day	System	Phase	Arrival Time GCT	C or D	Ground A	Motion T	Type	Remarks
20	✓	eP e(pP)	06:44:58.3 06:45:41.3		1	0.8 0.9	T	Peru-Bolivia Border 17.2 S 69.7 W 0 = 06:33:29.2 h about 153 km $\Delta = 75.4^\circ$ Dir = 133° P-Phase Dir = SE
20	✓	E eP eS	09:38:39.4 09:39:02.6		1	0.3 0.3	NR	$\Delta(S-P) = 1.7^\circ$
20	✓	eP	10:17:19.4		5	1.0	T	
20	✓	eP e LPZ eSur	11:12:22.4 11:12:39.5 11:45:00		1	0.7 0.9 20.0	T	
20	✓	N eP eS	11:29:46.9 11:30:13.3		1	0.2 0.3	NR	$\Delta(S-P) = 2.0^\circ$
20	✓	eP	17:04:09.8		2	1.0	T	
20	✓	eP	18:57:36.5		1	0.9	T	
20	✓	eP	19:17:09.1		2	0.7	T	
20	✓	eP e E eS	21:55:47.1 21:55:48.5 21:56:00.0		1	0.2 0.2 0.3	L	$\Delta(S-P) = 1.0^\circ$
21	✓	eP e	00:36:22.6 00:37:17.9		7	1.2 1.2	T	
21	✓	IB BB LP iP e(pP)	02:10:40.2 02:10:55.1	C	34	0.6 1.3	T	Vicinity Anchorage, Alaska 61.1 N 149.7 W 0 = 02:05:22.7 h about 80 km $\Delta = 25.0^\circ$ Dir = 322° P-Phase Dir = NW

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Day	System	Phase	Arrival Time GCT	C or D	Ground A	Motion T	Type	Remarks
21	N IBN LPN	eP	03:22:11.1		1	0.5	R	$\Delta(S-P) = 11.8^\circ$
		e	03:22:25.2			0.9		
		e	03:23:22.5			0.9		
		eS	03:24:21.3			2.8		
21		eP	03:46:56.8		3	1.3	T	
21		eP	04:16:42.6		1	0.8	T	
21	N	eP	06:00:04.9		1	0.3	NR	$\Delta(S-P) = 3.8^\circ$
		eS	06:00:51.4			0.5		
21	N	eP	07:00:59.8		1	0.3	NR	$\Delta(S-P) = 2.0^\circ$
		eS	07:01:26.1			0.3		
21		iP	07:39:04.3	C	3	0.8	T	
21	E	eP	10:45:00.7		1	0.3	NR	$\Delta(S-P) = 4.1^\circ$
		eS	10:45:50.6			0.4		
21	N	eP	11:41:21.8		1	0.2	NR	$\Delta(S-P) = 1.7^\circ$
		eS	11:41:45.0			0.4		
21	N	eP	13:07:04.8		1	0.3	L	$\Delta(S-P) = \text{less than } 0.1^\circ$
		eS	13:07:05.3			0.2		
21		eP	13:19:25.5		4	1.1	T	Samoa Is. Region 15.5 S 172.3 W 0 = 13:07:27.9 h about 33 km $\Delta = 78.6^\circ$ Dir = 235°
21	N	eP	15:10:55.9		2	0.7	NR	$\Delta(S-P) = 2.0^\circ$
		eS	15:11:22.3			999		
21	E	eP	15:18:54.6		1	0.4	NR	$\Delta(S-P) = 2.1^\circ$
		eS	15:19:21.7			0.5		
21		eP	16:32:55.6		1	0.8	T	
	e	16:33:00.1	0.7					

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Day	System	Phase	Arrival Time GCT	C or D	Ground A	Motion T	Type	Remarks
21	N	eP	17:04:53.2		2	0.6	NR	$\Delta(S-P) = 1.8^\circ$
		eS	17:05:17.1			0.4		
21	E	eP	17:13:45.9		1	0.2	NR	$\Delta(S-P) = 1.8^\circ$
		eS	17:14:10.6			0.3		
21	E	eP	19:15:06.7		1	0.6	NR	$\Delta(S-P) = 5.2^\circ$
		eS	19:16:07.7			0.6		
21		eP	20:08:50.5		1	0.6	T	
21	E	eP	22:20:16.4		2	0.3	L	$\Delta(S-P) = \text{less than } 0.1^\circ$
		eS	22:20:20.2			999		
21		eP	22:30:18.6		7	1.3	T	
21		eP	22:34:24.0		4	1.0	T	
21		eP	22:40:02.5		7	1.2	T	
21		eP	22:50:51.8		10	1.2	T	
		e	22:51:10.6			1.0		
		e	22:52:58.3			1.1		
21		eP	23:14:15.7		4	1.1	T	
21		eP ^t	23:29:48.3		2	0.7	T	Sandwich Is. Region 55.9 S 27.8 W 0 = 23:10:52.2 h about 33 km $\Delta = 125.3^\circ$ Dir = 136° P-Phase Dir = SW
		e	23:30:20.6			0.8		
		e(SKP)	23:33:10.2			1.2		
22		eP	00:19:00.3		2	0.6	T	
22	E	eP	00:52:16.2		1	0.2	L	$\Delta(S-P) = 1.4^\circ$ P-Phase Dir = SW
		eS	00:52:33.6			0.3		
22		eP	01:21:16.5		2	0.8	T	Fiji Is. Region 18.1 S 177.9 W 0 = 01:09:50.9 h about 612 km $\Delta = 83.4^\circ$ Dir = 237°
		epP	01:23:26.4			1.2		
		ePKKP	01:39:30.8			0.8		

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Day	System	Phase	Arrival Time GCT	C or D	Ground A	Motion T	Type	Remarks
22	x	eP	02:00:59.2		4	1.2	T	
22	y	eP	02:02:02.5		1	0.4	NR	$\Delta(S-P) = 3.0^\circ$
	N	eS	02:02:39.1			0.5		
22	y	eP	02:47:26.6		1	0.8	T	
		e	02:47:40.7			1.3		
22	x	eP	04:16:40.6		1	0.4	NR	$\Delta(S-P) = 4.6^\circ$
	N	eS	04:17:36.2			0.4		
22	x	eP	04:44:54.7		1	0.3	NR	$\Delta(S-P) = 4.2^\circ$
	E	eS	04:45:46.2			0.3		
22	y	iP	04:48:11.7	C	23	1.0	T	Bismarck Sea
		e	04:48:42.3			1.1		3.4 S 145.3 E
	LP	eSP	05:01:06			18.0		0 = 04:34:38.9
	LP	e	05:19:26			34.0		h about 36 km
	LP	eLR	05:21:12			20.0		$\Delta = 97.6^\circ$
								Dir = 273°
22	x	eP	05:04:06.0		1	0.3	NR	Southwestern Montana
		e	05:04:21.5			0.4		45.2 N 111.3 W
	E	eS	05:05:17.3			0.5		0 = 05:03:03.9
	IBE							h about 33 km
								$\Delta = 4.3^\circ$
								Dir = 83°
								P-Phase Dir = E
22	y	eP	06:08:58.4		4	1.1	T	New Britain
								5.1 S 151.7 E
								0 = 05:55:44.0
								h about 59 km
								$\Delta = 94.3^\circ$
								Dir = 267°
22	y	eP	06:29:05.5		7	1.3	T	
	LP	e	06:49:16			20.0		
22	y	eP	07:00:36.2		2	0.2	L	$\Delta(S-P) = 0.7^\circ$
	E	eS	07:00:45.9			0.3		
22	y	eP	13:22:31.8		4	0.6	T	

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Day	System	Phase	Arrival Time GCT	C or D	Ground A	Motion T	Type	Remarks
22	x	eP	14:43:48.9		3	1.0	T	
22	y	iP	15:33:11.5	C	27	1.3	T	Northern Kurile Is.
	IB							49.8 N 155.8 E
	BB							0 = 15:23:32.9
	LP							h about 19 km
		e	15:33:22.4			1.0		$\Delta = 55.9^\circ$
	LP	ePP	15:35:15			15.0		Dir = 309°
	LP	e	15:40:46			20.0		P-Phase Dir = WNW
	LPE	eS	15:41:03			26.0		
	LP	eLR	15:50:44			25.0		
		eP'P'	16:03:19.3			1.6		
22	y	eP	17:13:02.4		2	0.2	L	$\Delta(S-P) = 0.5^\circ$
	E	eS	17:13:09.4			0.2		P-Phase Dir = NE
22	y	eP	17:55:39.2		1	0.3	L	$\Delta(S-P) = 0.7^\circ$
	E	eS	17:55:49.6			0.2		
22	y	eP	18:23:24.8		8	0.2	NR	$\Delta(S-P) = 1.2^\circ$
	IB							P-Phase Dir = NW
	N	eS	18:23:41.4			0.3		
	IBN							
22	y	eP	18:56:39.0		1	0.2	NR	$\Delta(S-P) = 5.0^\circ$
	N	eS	18:57:38.8			0.4		
22	y	eP	19:16:28.4		1	0.4	NR	$\Delta(S-P) = 3.6^\circ$
	E	eS	19:17:13.4			0.4		
22	y	eP	19:22:16.6		1	0.4	NR	$\Delta(S-P) = 3.8^\circ$
	E	eS	19:23:03.4			0.5		
22	y	eP	19:32:48.5		1	0.4	NR	$\Delta(S-P) = 4.8^\circ$
		e	19:33:02.4			0.7		
	N	eS	19:33:46.8		1	0.7		
22	y	eP	20:41:08.4			0.2	L	$\Delta(S-P) = 0.4^\circ$
	E	eS	20:41:14.9			0.3		
22	y	eP	20:49:22.1		1	0.1	L	$\Delta(S-P) = \text{less than } 0.1^\circ$
	E	eS	20:49:24.9			0.3		

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Day	System	Phase	Arrival Time GCT	C or D	Ground A	Motion T	Type	Remarks
22	y	N	iP 21:17:42.7 iS 21:17:49.8	D D	1	0.2 0.2	L	$\Delta(S-P) = 0.5^\circ$ P-Phase Dir = NE
22	y		eP 22:30:06.5		3	1.0	T	From Helicorder Records of Z3. SP Develocorder in op. from 2206 Z to 2257 Z.
22	y	E	eP 22:58:33.4 eS 22:58:53.3		1	0.3 0.3	L	$\Delta(S-P) = 1.5^\circ$
22	y	E	eP 22:58:45.6 eS 22:59:29.5		1	0.4 0.4	NR	$\Delta(S-P) = 3.5^\circ$
22	y	N	eP 23:11:48.1 eS 23:12:34.1		1	0.3 0.4	NR	$\Delta(S-P) = 4.6^\circ$
23	y	N	eP 00:29:51.1 eS 00:30:13.7		1	0.3 0.4	NR	$\Delta(S-P) = 1.6^\circ$
23	y	N	eP 00:31:43.5 eS 00:32:06.0		1	0.3 0.2	NR	$\Delta(S-P) = 1.6^\circ$
23	y		eP 00:37:58.2		19	1.6	T	Samoa Is. Region 15.2 S 173.0 W 0 = 00:26:00.3 h about 33 km $\Delta = 78.2^\circ$ Dir = 235° P-Phase Dir = SW
23	y		eP 00:57:29.6 e 01:05:03.5		11	1.3 1.2	T	Kurile Is. 46.2 N 153.2 E 0 = 00:47:27.2 h about 33 km $\Delta = 59.3^\circ$ Dir = 306°
23	y	N	eP 02:03:28.3 eS 02:04:37.1		1	0.6 0.5	NR	$\Delta(S-P) = 5.9^\circ$
23	y		eP 02:47:41.1			0.8	T	

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Day	System	Phase	Arrival Time GCT	C or D	Ground A	Motion T	Type	Remarks
23	x	N	eP 03:25:21.2 eS 03:25:47.0		1	0.3 0.3	NR	$\Delta(S-P) = 1.9^\circ$
23	y		eP 03:38:41.4		1	0.4	T	
23	y	N	eP 04:17:31.8 eS 04:17:38.8		1	0.3 0.4	L	$\Delta(S-P) = 0.5^\circ$
23	y		eP 06:58:49.0		11	1.3	T	Samoa Is. 15.1 S 173.4 E 0 = 06:46:49.9 h about 33 km $\Delta = 78.4^\circ$ Dir = 235°
23	y	N	eP 07:31:45.6 eS 07:32:09.1		1	0.3 0.3	NR	$\Delta(S-P) = 1.6^\circ$
23	y	N	eP 07:57:14.7 eS 07:57:55.1		1	0.4 0.3	NR	$\Delta(S-P) = 3.2^\circ$
23	y	E	eP 08:46:38.8 eS 08:47:03.9		1	0.2 0.3	NR	$\Delta(S-P) = 1.8^\circ$
23	y	IB	eP 09:11:22.7		19	1.2	T	North Central Venezuela 9.5 N 70.0 W 0 = 09:02:02.2 h about 33 km $\Delta = 53.8^\circ$ Dir = 116°
23	x		eP 09:29:46.7		7	1.1	T	
23	y		iP 10:09:46.6 epP 10:10:23.6 e 10:34:24.5	D	15	1.0 1.2 0.4	T	Northern Mariana Is. 18.4 N 145.6 E 0 = 09:57:41.0 h about 150 km $\Delta = 82.1^\circ$ Dir = 288° P-Phase Dir = W
23	x		eP 10:50:49.1 e 10:53:25.8		1	0.5 0.9	T	

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Day	System	Phase	Arrival Time GCT	C or D	Ground A	Motion T	Type	Remarks
23	✓ LPN LP	eP	12:35:13.8		2	0.9	T	
		eLQ	12:46:46			17.0		
		eLR	12:49:38			15.0		
23	✓ N	eP	12:47:41.4		1	0.4	NR	$\Delta(S-P) = 1.8^\circ$
		eS	12:48:06.4			0.4		
23	✓	eP	16:11:35.4		1	0.6	T	
23	✓	eP	16:46:52.0		2	0.7	T	P-Phase Dir = SW
		e	16:50:16.2			0.8		
23	✓ N	eP	17:03:34.3		1	0.2	L	$\Delta(S-P) = 0.5^\circ$
		eS	17:03:41.3			0.2		
23	✓	eP	17:05:46.4		2	0.6	T	
23	✓ N N	eP	18:02:59.4		1	0.3	NR	$\Delta(S-P) = 3.0^\circ$
		eS	18:03:37.6			0.4		
		e(Sur)	18:03:50.3			0.5		
23	✓ E	iP	18:13:15.0	C	1	0.1	L	$\Delta(S-P) = \text{less than } 0.1^\circ$
		eS	18:13:18.7			0.2		
23	✓ E	eP	18:13:57.3		1	0.1	L	$\Delta(S-P) = \text{less than } 0.1^\circ$
		eS	18:14:00.9			0.2		
23	✓ N	eP	19:42:08.2		1	0.3	NR	$\Delta(S-P) = 4.0^\circ$
		eS	19:42:58.7			0.3		
23	✓	eP	19:55:39.9		4	1.0	T	
23	✓	eP	20:40:01.8		4	1.1	T	
23	✓ IB N IBN	eP	20:43:11.4		11	0.2	L	$\Delta(S-P) = 0.5^\circ$ P-Phase Dir = SE
		eS	20:43:18.5			0.2		
23	✓ N	eP	21:18:14.4		1	0.2	L	$\Delta(S-P) = 0.5^\circ$
		eS	21:18:21.6			0.2		
23	✓ N	eP	21:30:20.4		1	0.4	NR	$\Delta(S-P) = 3.5^\circ$
		eS	21:31:04.3			0.6		

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Day	System	Phase	Arrival Time GCT	C or D	Ground A	Motion T	Type	Remarks
23	✓ N	eP	21:40:53.8		1	0.3	NR	$\Delta(S-P) = 3.5^\circ$
		eS	21:41:37.8			0.4		
23	✓ N	eP	21:48:27.7		1	0.2	R	$\Delta(S-P) = 6.8^\circ$
		eS	21:49:47.5			0.4		
23	✓ N	eP	21:55:24.0		1	0.3	NR	$\Delta(S-P) = 3.5^\circ$
		eS	21:56:07.8			0.5		
23	✓ N	eP	22:15:09.2		1	0.3	NR	$\Delta(S-P) = 3.5^\circ$
		eS	22:15:53.5			0.4		
23	✓	eP	22:39:32.7		2	0.8	T	
23	✓ E	eP	23:32:56.1		1	0.2	NR	$\Delta(S-P) = 1.8^\circ$
		eS	23:33:22.2			0.3		
24	✓	eP	01:19:56.7		2	0.7	T	
24	✓	eP	01:58:49.1		3	0.8	T	Mona Passage 19.4 N 67.0 W 0 = 01:50:06.2 h about 33 km $\Delta = 48.6^\circ$ Dir = 105° P-Phase Dir = ESE
		e	01:59:03.8			0.6		
24	✓ LPZ	eP	05:16:27.1		7	1.2	T	New Hebrides Is. 17.3 S 167.7 E 0 = 05:03:21.4 h about 33 km $\Delta = 92^\circ$ Dir = 247°
		e	05:16:42.8			1.3		
		e	05:39:03			24.0		
24	✓ LP	eP	06:29:50.8		20	1.5	T	Off Coast of Jalisco, Mexico 19.4 N 108.2 W 0 = 06:24:16.3 h about 33 km $\Delta = 26.5^\circ$ Dir = 160° P-Phase Dir = SE
		epP	06:30:00.0			1.7		
		ePcP	06:33:14.9			0.8		
		e(Sur)	06:37:40			15.0		

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Day	System	Phase	Arrival Time GCT	C or D	Ground A	Motion T	Type	Remarks
24	✓	E	eP	08:19:26.3	9	1.1	T	
			e	08:19:36.7		1.3		
			e	08:21:31.5		2.0		
24	✓		eP	10:28:31.8	1	0.6	T	
24	✓	N IBN	eP	13:56:47.0	2	0.3	L	$\Delta(S-P) = \text{less than } 0.1^\circ$
			eS	13:56:50.6		0.2		
24	✓		eP	15:47:31.9	3	0.8	T	P-Phase Dir = WSW
24	✓		eP	16:50:07.4	1	0.6	T	
24	✓		eP	17:43:57.3	2	0.6	T	
24	✓		eP	17:58:24.1	2	1.0	T	
			e	17:58:46.5		1.2		
			e	18:01:57.8		1.2		
24	✓	IB N IBN	eP	21:30:10.6	19	0.3	L	$\Delta(S-P) = 0.8^\circ$
			eS	21:30:21.4		999		
24	✓	N	eP	21:52:35.6	4	0.3	NR	$\Delta(S-P) = 2.7^\circ$
			eS	21:53:09.6		0.3		
24	✓	N	eP	22:10:13.8	3	0.2	L	$\Delta(S-P) = 0.2^\circ$
			eS	22:10:19.2		0.2		
24	✓	N	eP	22:11:34.3	5	0.2	L	$\Delta(S-P) = 0.6^\circ$
			eS	22:11:43.5		999		
24	✓		eP	22:36:02.0	2	0.8	T	
25	✓	E	eP	00:02:59.7	2	0.3	L	$\Delta(S-P) = 0.1^\circ$
			eS	00:03:03.7		0.4		
25	✓	N	eP	00:27:01.1	1	0.2	L	$\Delta(S-P) = 0.8^\circ$
			eS	00:27:12.1		0.4		
25	✓	N	eP	00:33:05.3	1	0.2	L	$\Delta(S-P) = 1.1^\circ$
			eS	00:33:19.7		0.3		

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Day	System	Phase	Arrival Time GCT	C or D	Ground A	Motion T	Type	Remarks
25	✓	N	eP	00:39:14.1	1	0.3	NR	$\Delta(S-P) = 4.4^\circ$
			e	00:39:22.8		0.7		
			eS	00:40:07.6		0.4		
25	✓	N	eP	00:57:41.4	1	0.2	L	$\Delta(S-P) = 1.0^\circ$
			eS	00:57:54.8		0.3		
25	✓	N	eP	01:05:11.8	1	0.1	L	$\Delta(S-P) = 1.0^\circ$
			eS	01:05:24.9		0.4		
25	✓	N	eP	01:08:21.5	1	0.3	NR	$\Delta(S-P) = 1.4^\circ$
			eS	01:08:39.1		0.2		
25	✓	N	eP	01:44:20.0	2	0.1	L	$\Delta(S-P) = 0.5^\circ$
			eS	01:44:27.2		999		
25	✓	N	eP	01:49:50.8	1	0.3	NR	$\Delta(S-P) = 1.6^\circ$
			eS	01:50:12.6		0.3		
25	✓		eP	02:26:56.0	3	0.8	T	
			e	02:27:01.7		0.7		
25	✓		eP	02:53:22.1	3	0.2	L	$\Delta(S-P) = \text{less than } 0.1^\circ$
			eS	02:53:25.6		999		
25	✓	E	eP	03:17:13.1	1	0.3	NR	$\Delta(S-P) = 1.6^\circ$
			eS	03:17:34.5		0.3		
25	✓	E	eP	03:40:43.1	1	0.3	NR	$\Delta(S-P) = 2.3^\circ$
			eS	03:41:12.8		0.4		
25	✓	LP LP	eP	03:51:56.1	5	1.3	T	New Hebrides Is. 17.8 S 167.7 E 0 = 03:38:48.9 h about 33 km $\Delta = 91.9^\circ$ Dir = 247 $^\circ$
			e	03:52:20.8		0.8		
			e	04:03:04		8.0		
			e(Sur)	04:21:53		16.0		
25	✓	N	eP	04:47:20.3	1	0.1	L	$\Delta(S-P) = 0.4^\circ$
			eS	04:47:27.1		0.3		

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Day	System	Phase	Arrival Time GCT	C or D	Ground A	Motion T	Type	Remarks
25 ✓	N	eP eS	06:16:41.2 06:17:10.7		2	0.5 999	NR	$\Delta(S-P) = 2.3^\circ$
25 ✓	N	eP eS	06:20:38.3 06:21:07.4		1	0.3 0.5	NR	$\Delta(S-P) = 2.2^\circ$
25 ✓	IB	iP	07:48:19.2	C	15	1.1	T	P-Phase Dir = SE
	IB	e	07:48:46.8			1.2		
	IB	e	07:48:50.2			1.0		
								$\Delta = 91.9^\circ$ Dir = 247°
25 ✓	IB LP	ePd e ePP	09:48:23.2 09:49:15.7 09:52:46.8		41	2.3 1.0 2.1	T	Molucca Passage 3.0 N 126.7 E 0 = 09:34:14.6 h about 33 km $\Delta = 106.0^\circ$ Dir = 291°
	IB	e	09:53:07.6			1.9		
	LPE LP	eSKS eSP	09:58:55 10:02:00			16.0 20.0		
	IB	ePKKP ₁	10:03:56.6			1.4		
	IB	ePKKP ₂	10:04:12.6			1.2		
	IB	e	10:06:40.7			1.6		
	IB	e	10:08:05.4			1.6		
	LPN LP	eLQ eLR	10:18:03.0 10:22:56.0			51.0 27.0		

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Day	System	Phase	Arrival Time GCT	C or D	Ground A	Motion T	Type	Remarks
25 ✓		iP epP ePP	12:48:32.2 12:50:04.3 12:51:45.1	C	16	1.0 2.4 2.0	T	Fiji Is. 15.4 S 179.0 W 0 = 12:36:54.4 h about 392 km $\Delta = 82.0^\circ$ Dir = 239° P-Phase Dir = SW
25 ✓	N	eP eS	13:06:09.1 13:06:33.4		2	0.3 0.3	NR	$\Delta(S-P) = 1.8^\circ$ P-Phase Dir = ESE
25 ✓	N IBN	eP e eS	14:12:40.3 14:12:20.0 14:13:02.9		1	0.3 0.4 999	NR	$\Delta(S-P) = 1.7^\circ$ P-Phase Dir = ESE
25 ✓	N IBN	eP e eS	15:57:40.2 15:57:11.8 15:58:03.1		2	0.4 0.4 999	NR	$\Delta(S-P) = 1.7^\circ$
25 ✓	IB BB LP LP LPN LPN LP LPN BBN LPN	eP	16:00:54.3		26	1.1	T	Panama-Costa Rica Border 8.4 N 82.6 W 0 = 15:52:29.2 h about 51 km $\Delta = 47.1^\circ$ Dir = 130°
	LP LP	ePP eScP	16:02:54 16:06:28			17.0 19.0		
	LPN LPN LP	eP(S) eScS e	16:08:07 16:10:52 16:11:32			30.0 19.0 25.0		
	LPN BBN LPN	eLQ eLR	16:13:28 16:14:11			34.0 32.0		
25 ✓	LP BB	eP e(Sur)	16:05:30.6 16:23:32		6	1.2 23.0	T	May be phase of previous event
25 ✓	N	eP eS	17:10:27.7 17:11:16.4		1	0.2 0.5	NR	$\Delta(S-P) = 4.0^\circ$
25 ✓	N	eP eS	17:38:50.4 17:39:34.3		1	0.4 0.4	NR	$\Delta(S-P) = 3.6^\circ$

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Day	System	Phase	Arrival Time GCT	C or D	Ground A	Motion T	Type	Remarks
25	✓	eP	18:54:54.4		2	0.7	T	
25	✓	eP	19:05:15.1		1	0.5	NR	$\Delta(S-P) = 3.6^\circ$
	N	eS	19:05:59.1			0.3		
25	✓	eP	19:15:32.2		1	0.4	NR	$\Delta(S-P) = 3.6^\circ$
	E	eS	19:16:16.0			0.4		
25	✗	eP	19:20:59.3		1	0.4	NR	$\Delta(S-P) = 3.6^\circ$
	N	eS	19:21:43.1			0.4		
25	✓	eP'	20:25:09.6		8	1.4	T	Southwest of MacQuarie Is.
	IB	e	20:25:18.9			1.3		61.4 S 154.9 E
	IB	ePP	20:27:21.7			2.0		0 = 20:06:10.0
	IB	eSP	20:37:07.7			1.3		h about 33 km
		e	20:37:55.8			1.0		$\Delta = 127.1^\circ$
	LPN	eSPS	20:44:34			25.0		Dir = 217°
	LPE	eSSS	20:49:23			23.0		
	LP	eSKSP'	20:51:10			27.0		
	LPN	eLQ	20:58:25			46.0		
	LP	eLR	21:04:52			27.0		
	BB							
25	✓	eP	20:46:44.6		2	0.7	R	$\Delta(S-P) = 6.1^\circ$
		e	20:46:57.1			0.4		
		e	20:47:02.6			0.8		
	N	eS	20:47:56.3			0.5		
25	✓	eP	21:31:52.0		3	0.8	T	
25	✗	eP	22:31:47.9		2	0.2	L	$\Delta(S-P) = 0.5^\circ$
	N	eS	22:31:54.9			0.2		
25	✓	eP	22:44:48.2		1	0.4	NR	$\Delta(S-P) = 3.7^\circ$
	N	eS	22:45:33.6			0.6		
26	✓	eP	00:02:16.5		1	0.4	NR	$\Delta(S-P) = 3.5^\circ$
	N	eS	00:03:00.1			0.5		
26	✗	eP	00:31:36.6		1	0.3	NR	$\Delta(S-P) = 2.3^\circ$
	N	eS	00:32:06.7			0.4		

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Day	System	Phase	Arrival Time GCT	C or D	Ground A	Motion T	Type	Remarks
26	✗	eP	01:18:02.2		1	0.4	NR	$\Delta(S-P) = 2.5^\circ$
	N	eS	01:18:34.8			0.5		
	N	e(Sur)	01:18:47.5			0.5		
26	✓	eP	01:25:21.9		1	0.4	NR	$\Delta(S-P) = 3.6^\circ$
	E	eS	01:26:06.0			0.4		
26	✗	eP	01:35:28.1		1	0.4	NR	$\Delta(S-P) = 3.6^\circ$
	N	eS	01:36:12.3			0.4		
26	✓	iP	01:54:23.4	D	6	0.2	L	$\Delta(S-P) = \text{less than } 0.1^\circ$
	N	eS	01:54:27.0			999		P-Phase Dir = SE
26	✓	eP	01:59:46.9		1	0.7	T	
26	✓	eP	02:25:12.8		1	0.3	NR	$\Delta(S-P) = 2.2^\circ$
	E	eS	02:25:41.5			0.3		
26	✗	eP	05:57:54.8		26	0.8	T	P-Phase Dir = SW
26	✗	eP	06:24:32.6		1	0.6	T	
	LP	e	06:43:42			14.0		
26	✗	eP	06:40:51.6		1	0.2	L	$\Delta(S-P) = \text{less than } 0.1^\circ$
	E	eS	06:40:55.1			0.2		
26	✓	eP	07:33:33.2		7	1.4	T	New Hebrides Is.
	LP	e(PP)	07:36:50			9.0		17.7 S 167.5 E
	LP	ePPP	07:39:16			9.0		0 = 07:20:25.8
	LPN	eS	07:44:42			24.0		h about 33 km
	LP	eSP	07:45:57			20.0		$\Delta = 92.2^\circ$
	LP	ePSP	07:46:26			20.0		Dir = 247°
		e	07:47:53.2			1.3		P-Phase Dir = SW
	LPN	eSS	07:50:52			20.0		
		e	07:51:13.3			1.4		
	LPE	e	07:54:56			20.0		
	LPN	eSKKS	07:58:08			34.0		
	LPN	eLQ	07:59:50			20.0		
	LPN	eLR	08:03:08			30.0		
26	✗	eP	09:48:46.4		1	0.3	R	$\Delta(S-P) = 6.5^\circ$
	E	eS	09:50:02.3			0.6		

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Day	System	Phase	Arrival Time GCT	C or D	Ground A	Motion T	Type	Remarks
26	x	eP	09:58:52.7			1.3	T	
26	x	eP	10:38:56.5		2	0.8	T	
		e	10:42:32.5			1.3		
26	✓	eP	11:39:36.1		2	0.7	T	Eastern Mediterranean
	LP	eSP	11:52:12			20.0		Sea
	LP	eLR	12:12:00			40.0		33.7 N 27.9 E 0 = 11:26:12.4 h about 33 km $\Delta = 95.7^\circ$ Dir = 29°
26	x	eP'	16:17:33.8		3	1.2	T	Sandwich Is.
	LP	ePP	16:19:28			22.0		55.0 S 26.5 W
	LP	ePSP	16:31:20			16.0		0 = 15:58:34.8
	LPE	eSPS	16:36:36			20.0		h about 33 km
	LP	e(Sur)	16:59:22			40.0		$\Delta = 125.7^\circ$ Dir = 136°
	LP	eLR	17:03:10			30.0		P-Phase Dir = SE
26	y	eP	18:04:04.9		1	0.2	NR	$\Delta(S-P) = 2.5^\circ$
		e	18:04:07.5			0.4		P-Phase Dir = NNW
	E	eS	18:04:37.5			0.3		
26	x	eP	19:30:05.8		1	0.4	NR	$\Delta(S-P) = 1.9^\circ$
	E	eS	19:30:30.8			0.4		
26	y	iP	19:33:35.7	C	12	0.3	L	$\Delta(S-P) = 0.5^\circ$
	N	eS	19:33:42.8			0.3		P-Phase Dir = NE
	IBN							
26	x	eP	21:40:54.5		1	0.4	NR	$\Delta(S-P) = 3.6^\circ$
	E	eS	21:41:39.2			0.4		
26	y	eP'	22:28:03.0		2	0.8	T	Sandwich Is.
		e	22:28:29.7			1.2		55.7 S 26.5 W
		eSKP	22:31:26.3			1.2		0 = 22:09:05.0 h about 33 km $\Delta = 125.8^\circ$ Dir = 136°
26	x	eP	22:54:11.6		1	0.3	NR	$\Delta(S-P) = 1.5^\circ$
	N	eS	22:54:31.1			0.4		

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Day	System	Phase	Arrival Time GCT	C or D	Ground A	Motion T	Type	Remarks
26	y	eP	22:59:23.6		1	0.4	NR	$\Delta(S-P) = 4.9^\circ$
	E	eS	23:00:22.0			0.4		
26	x	eP	23:18:16.4		1	0.2	L	$\Delta(S-P) = 0.4^\circ$
	N	eS	23:18:23.3			0.3		
27	y	eP	00:09:05.2		1	0.3	L	$\Delta(S-P) = 0.3^\circ$
	E	eS	00:09:10.5			0.3		
27	y	eP	00:31:28.7		1	0.3	NR	$\Delta(S-P) = 2.4^\circ$
	N	eS	00:31:59.9			0.4		
27	y	iP	01:16:34.2	C	14	0.2	L	$\Delta(S-P) = 0.5^\circ$
	IB							
	N	iS	01:16:41.4			999		
	IBN							
27	y	eP	01:22:31.0		2	0.7	T	P-Phase Dir = W
27	y	eP	01:45:38.3		7	1.3	T	
27	x	eP	01:52:04.6		1	0.3	NR	$\Delta(S-P) = 3.3^\circ$
	N	eS	01:52:46.4			0.4		
27	y	iP	01:57:34.5		1	0.2	L	$\Delta(S-P) = \text{less than } 0.1^\circ$
	N	iS	01:57:36.1			0.2		P-Phase Dir = SSE
27	y	eP	02:12:14.9		2	0.9	T	
	IB	e	02:12:47.1			0.9		
27	y	eP	02:26:40.9		1	0.2	NR	$\Delta(S-P) = 1.6^\circ$
	E	eS	02:27:03.1			0.3		
27	x	eP	02:31:21.3		1	0.3	NR	$\Delta(S-P) = 1.9^\circ$
	E	eS	02:31:46.5			0.2		
27	y	eP	05:20:23.3		1	0.2	NR	$\Delta(S-P) = 2.5^\circ$
	E	eS	05:20:55.4			0.2		
27	y	eP	05:39:22.4		1	0.3	NR	$\Delta(S-P) = 1.8^\circ$
	E	eS	05:39:46.7			0.3		P-Phase Dir = SSE

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Day	System	Phase	Arrival Time GCT	C or D	Ground A	Motion T	Type	Remarks
27	✓ LP	e(Sur)	06:48:16			29.0		No Primary Phases Visible
27	✗ LP	e(Sur)	08:08:10			25.0		No Primary Phases Visible
27	✓ IB	eP	08:17:35.8		22	0.9	T	Border Guatemala - El Salvador 14.0 N 90.4 W 0 = 08:10:24.5 h about 107 km $\Delta = 38.3^\circ$ Dir = 135° P-Phase Dir = SE
	IB	e(pP)	08:17:50.4			1.3		
	IB	ePcP	08:19:48.8			1.1		
	IB	e	08:20:05.2			1.5		
	E	eScS	08:23:45.0			1.6		
	LP	eSSS	08:26:52			23.0		
	LPN	e(LO)	08:28:41			26.0		
	LP	e(LR)	08:29:40			22.0		
27	✗	eP	08:59:13.0		1	0.6	T	
		e	08:59:17.5			1.0		
27	✓	eP	10:02:19.2		4	0.8	T	
		e	10:04:22.2			0.6		
27	✗	eP	10:27:19.4		7	1.5	T	
		e	10:27:24.4			0.6		

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Day	System	Phase	Arrival Time GCT	C or D	Ground A	Motion T	Type	Remarks
27	✓	eP	14:00:38.4		15	0.9	T	Near West Coast of Nicaragua 11.5 N 86.4 W 0 = 13:52:51.2 h about 80 km $\Delta = 42.5^\circ$ Dir = 132° P-Phase Dir = SSE
	IB	e	14:00:45.7			0.9		
	IB	e	14:00:50.7			0.8		
	IB	e(PCP)	14:02:32.3			1.3		
	IB	eLR	14:14:07			21.5		
	LP	eLR	14:14:07			21.5		
27	✗	eP	14:28:55.4		1	0.6	T	
		e	14:31:44.6			0.7		
27	✓	eP	15:01:57.9		2	0.5	R	$\Delta(S-P) = 2.0^\circ$ P-Phase Dir = S
		e	15:02:24.1			0.8		
	IB	eS	15:04:01.8			0.5		
	E	e(Sur)	15:04:26.8			1.5		
27	✓	eP	15:37:01.7		8	1.4	R	$\Delta(S-P) = 8.5^\circ$
	E	eS	15:38:40.7			1.4		
27	✓	LP	e(Sur)			20.0		No Primary Phases Visible
27	✓	eP	16:22:08.5		1	0.4	NR	$\Delta(S-P) = 1.4^\circ$ P-Phase Dir = SE
	E	eS	16:22:26.2			0.4		
27	✓	eP	16:26:43.8		8	1.2	T	Rat Is. Aleutian Is. 52.1 N 171.1 E 0 = 16:19:30.7 h about 60 km $\Delta = 35.7^\circ$ Dir = 301°
	LP	e	16:35:33			28.0		
27	✓	eP	16:32:34.4		1	0.9	T	May be phase of previous event.
27	✗	eP	19:21:42.2		1	0.4	NR	$\Delta(S-P) = 2.5^\circ$ P-Phase Dir = ENE
	N	eS	19:22:14.2			0.6		
	N	e(Sur)	19:22:26.4			0.6		

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Day	System	Phase	Arrival Time GCT	C or D	Ground A	Motion T	Type	Remarks
27	N	eP	19:27:01.3	1		0.4	NR	$\Delta(S-P) = 2.5^{\circ}$
		eS	19:27:33.7			0.5		
		e(Sur)	19:27:45.6			0.6		
27	N	eP	19:31:24.2	1		0.4	NR	$\Delta(S-P) = 2.5^{\circ}$
		eS	19:31:56.6			0.6		
		e(Sur)	19:32:08.5			0.6		
27	N	eP	19:36:34.4	1		0.4	NR	$\Delta(S-P) = 2.5^{\circ}$
		eS	19:37:07.1			0.5		
		e(Sur)	19:37:18.6			0.6		
27	E	eP	20:17:56.6			0.3	NR	$\Delta(S-P) = 1.9^{\circ}$ P-Phase A & T hidden by power spike on traces
		eS	20:18:22.1					
27	E	eP	20:22:44.9		1	0.9	R	$\Delta(S-P) = 7.0^{\circ}$
		e(S)	20:24:07.8					
27	IB N IBN	iP	22:07:21.6	C	999	999	L	$\Delta(S-P) = 0.7^{\circ}$ P-Phase Dir = SE
		eS	22:07:32.4					
27	LP	eP	22:23:02.6	7		1.2	T	
		e(Sur)	22:38:00			20.0		
		e(Sur)	22:48:45			20.0		
28	LP	eP	01:04:11.3	2		0.8	T	P-Phase Dir = NW
		e(Sur)	01:32:18					
28		eP	01:15:00.6	7		1.0	T	P-Phase Dir = W
		e	01:15:07.5			1.1		
		e	01:15:16.6			1.0		
		e	01:15:24.1			1.3		
		e	01:15:33.1			0.8		
28	N	eP	02:11:12.4	1		0.2	NR	$\Delta(S-P) = 2.7^{\circ}$
		eS	02:11:46.7			0.2		
28	E	eP	04:13:53.0	1		0.4	NR	$\Delta(S-P) = 4.7^{\circ}$
		eS	04:14:50.4			0.5		
28		eP	05:33:32.2		2	0.8	T	

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Day	System	Phase	Arrival Time GCT	C or D	Ground A	Motion T	Type	Remarks
28	E	eP	07:04:42.6		1	0.4	NR	$\Delta(S-P) = 4.1^{\circ}$
		eS	07:05:33.3			0.6		
28	N	eP	08:37:58.4		1	0.2	NR	$\Delta(S-P) = 4.3^{\circ}$
		eS	08:38:51.1			0.4		
28		eP	08:40:39.7		4	1.2	T	
28		eP	10:28:09.8		2	0.9	T	
28		eP	12:08:03.8		1	1.0	T	
28	N	eP	12:42:22.0		2	0.4	NR	$\Delta(S-P) = 4.3^{\circ}$
		eS	12:43:15.0			0.4		
28	N	eP	13:03:55.7		2	0.4	R	$\Delta(S-P) = 10.0^{\circ}$
		e	13:04:09.8			0.7		
		e(S)	13:05:50.4			0.6		
28	LP	eP	13:13:53.5		5	1.0	T	P-Phase Dir = SE
		e	13:14:02.8			1.0		
		e	13:14:06.3			1.0		
		e	13:14:14.0			1.3		
		e	13:43:44			22.0		
28	IB N IBN	iP	14:23:55.1	D	6	0.2	L	$\Delta(S-P) = \text{less than } 0.1^{\circ}$ P-Phase Dir = SE
		eS	14:23:58.6			999		
28		eP'	15:18:43.3		4	1.1	T	Northern Celebes 0.1 N 123.6 E 0 = 15:00:17.0 h about 61 km $\Delta = 110.2^{\circ}$ Dir = 291° P-Phase Dir = SW
28	IB N IBN	iP	17:33:47.7	C	2	0.2	L	$\Delta(S-P) = 0.2^{\circ}$ P-Phase Dir = SW
		iS	17:33:52.3			999		

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Day	System	Phase	Arrival Time GCT	C or D	Ground A	Motion T	Type	Remarks
28		eP e	18:00:49.6 18:01:00.1		6	1.0 1.3	T	Near East Coast Honshu, Japan 37.2 N 141.8 E 0 = 17:49:32.0 h about 48 km $\Delta = 71.6^\circ$ Dir = 304° P-Phase Dir = W
28	E	eP eS	20:22:46.7 20:23:27.9		1	0.5 0.5	NR	$\Delta(S-P) = 3.3^\circ$
28	IB	iP	22:59:45.0	C	29	1.8	T	Chiapas, Mexico 16.0 N 93.6 W 0 = 22:53:01.3 h about 110 km $\Delta = 35.0^\circ$ Dir = 138° P-Phase Dir = SE
	IB	e	22:59:47.5			1.1		
	IB	e	22:59:59.7			1.6		
	IB	ePP	23:01:08.3			1.7		
	IB	e	23:01:34.4			1.5		
	IB	e	23:05:36			26.0		
	LPN	eSSS	23:08:03			19.0		
	LP	e	23:08:13			28.0		
	LP	eLR	23:10:37			41.0		
28		eP	23:10:25.6		3	0.9	T	P-Phase Dir = SW Possible phase of previous event
28	E	eP e(S)	23:48:01.4 23:49:30.3		1	0.3 0.7	R	$\Delta(S-P) = 7.7^\circ$
29		eP	00:18:14.7		4	0.9	T	P-Phase Dir = SW
29	IB	eP	00:28:19.9		88	1.1	T	Off South Coast of Panama 7.1 N 82.6 W 0 = 00:19:39.7 h about 21 km $\Delta = 48.2^\circ$ Dir = 131° P-Phase Dir = SE
	LPE	e(Sur)	00:43:08			14.0		
	LP	e(Sur)	00:48:14			16.0		

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Day	System	Phase	Arrival Time GCT	C or D	Ground A	Motion T	Type	Remarks
29		eP	01:15:19.1		1	0.7	T	
29		eP e	02:34:35.1 02:34:50.7		1	0.6 1.2	T	
29		eP	02:42:11.6		1	0.7	T	
29		eP e	02:45:30.1 02:45:32.1		5	1.1 1.5	R	San Bernardino County, California 34.3 N 117.0 W 0 = 02:42:56.1 h about 33 km $\Delta = 10.5^\circ$ Dir = 179°
	IB	e	02:46:08.6			1.3		
	IB	e	02:48:30.3			3.5		
	IB	eLR	02:49:39			18.0		
	IB							
	BB							
	LP							
29		eP	03:06:30.9		1	0.7	T	
29	N	eP eS	04:35:12.4 04:35:37.0		1	0.3 0.3	NR	$\Delta(S-P) = 1.8^\circ$
29		eP e	04:39:35.6 04:39:48.3		1	0.3 0.3	NR	$\Delta(S-P) = 4.5^\circ$
	E	eS	04:40:30.4			0.5		
	E	e(Sur)	04:40:45.7			0.4		
29	LP	eP e	07:36:50.5 08:03:00		1	0.6 18.0	T	
29	N	eP eS	08:23:34.4 08:23:37.6		1	0.1 0.2	L	$\Delta(S-P) = \text{less than } 0.1^\circ$
29	N	eP eS	08:44:05.2 08:45:13.5		1	0.3 0.4	NR	$\Delta(S-P) = 5.8^\circ$

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Day	System	Phase	Arrival Time GCT	C or D	Ground A	Motion T	Type	Remarks
29	✓		eP 09:43:41.1		2	0.9	T	Central Chile 33.9 S 70.7 W 0 = 09:30:48.2 h about 33 km $\Delta = 89.1^\circ$ Dir = 143°
29	✓	N	eP 10:04:14.2 eS 10:04:17.9		1	0.3 0.2	L	$\Delta(S-P) = \text{less than } 0.1^\circ$
29	✓		eP 10:34:56.1			1.6	T	
29	✓		eP 10:48:13.4 e 10:48:35.3		2	0.9 1.0	T	
29	✓	LP	iP 11:01:03.0 e 11:01:16.9 eLR 11:14:30	D	4	0.8 0.8 22.0	T	Near Coast of El Salvador 13.0 N 88.4 W 0 = 10:53:29.9 h about 43 km $\Delta = 40.2^\circ$ Dir = 133° P-Phase Dir = SE
29	✓		eP 11:03:08.3 e 11:03:22.0		2	0.6 0.6	T	
29	✓	N	eP 12:25:32.8 eS 12:25:40.3		1	0.2 0.2	L	$\Delta(S-P) = 0.5^\circ$
29	✓		eP 12:50:17.2 e 12:52:53.4		14	0.8 0.8	T	P-Phase Dir = SW
29	✓		eP 13:18:31.1		5	1.4	T	
29	✓	N	eP 14:43:40.6 eS 14:43:44.1		1	0.1 0.3	L	$\Delta(S-P) = \text{less than } 0.1^\circ$

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Day	System	Phase	Arrival Time GCT	C or D	Ground A	Motion T	Type	Remarks
29	✓	E	eP 14:50:29.0 eS 14:50:34.4		1	0.1 0.2	L	$\Delta(S-P) = 0.3^\circ$
29	✓	N	eP 15:22:21.4 eS 15:22:42.8		1	0.3 0.3	NR	$\Delta(S-P) = 1.6^\circ$
29	✓	N	eP 15:25:42.1 eS 15:26:04.9		1	0.2 0.3	NR	$\Delta(S-P) = 1.7^\circ$
29	✓	LP	eP 16:17:49.3 e 16:40:35		66	1.6 27.0	T	P-Phase Dir = SSW
29	✓	E	eP 17:40:07.8 eS 17:40:14.7		1	0.2 0.2	L	$\Delta(S-P) = 0.4^\circ$
29	✓	N	eP 19:08:16.8 eS 19:08:52.3 e(Sur) 19:09:03.2		1	0.4 0.5 0.5	NR	$\Delta(S-P) = 2.8^\circ$
29	✓	N	eP 19:18:03.2 eS 19:18:35.4 e(Sur) 19:18:47.8		1	0.4 0.5 0.6	NR	$\Delta(S-P) = 2.5^\circ$
29	✓	N	eP 19:24:26.5 eS 19:24:51.6 e(Sur) 19:25:02.6		1	0.4 0.4 0.7	NR	$\Delta(S-P) = 1.9^\circ$
29	✓	E	eP 19:26:53.4 eS 19:27:14.3		1	0.3 0.3	NR	$\Delta(S-P) = 1.5^\circ$
29	✓	N	eP 19:35:51.2 eS 19:36:23.4 e(Sur) 19:36:34.9		1	0.4 0.4 0.5	NR	$\Delta(S-P) = 2.5^\circ$
29	✓	IB	eP 20:40:29.0 e 20:41:17.0		9	1.4 1.6	T	P-Phase Dir = SSE
29	✓	IB	eP 21:12:24.9		71	1.5	T	P-Phase Dir = SE
		LP	e 21:21:39			12.0		
		LPN	e 21:21:44			24.0		
		LPE	e(LQ) 21:31:47			31.0		
		LP	e(LR) 21:35:00			29.0		

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Day	System	Phase	Arrival Time GCT	C or D	Ground A	Motion T	Type	Remarks
29	x	E	eP 22:23:00.9 eS 22:23:26.4		2	0.5 0.6	NR	$\Delta(S-P) = 1.9^\circ$
30	x		eP 00:06:14.3 e 00:08:36.2		4	0.8 1.0	T	P-Phase Dir = WSW
30	x	E	eP 01:06:33.5 eS 01:07:27.0		1	0.3 0.4	NR	$\Delta(S-P) = 4.4^\circ$
30	✓		eP' 02:06:06.2 e 02:06:14.0 e 02:07:24.2 e(PP) 02:09:23.2 LP e 02:23:40 LP e 02:28:09 LPE eSSS 02:33:52 LPE e 02:43:10 LPN e 02:46:48 LPN eLQ 02:49:52 LP e(Sur) 03:02:09 LP e(Sur) 03:04:42		13	1.0 1.0 1.6 2.0 14.0 23.0 24.0 32.0 46.0 50.0 23.0 23.0	T	Bouvet Is. 54.2 S 9.1 E 0 = 01:46:32.7 h about 33 km $\Delta = 144.8^\circ$ Dir = 125°
30	✓		eP 08:39:25.8 e(PP) 08:40:58.9 e 08:41:58.0 e(ScP) 08:45:12.0 LP e 08:46:06 LP e 08:49:14 LP e(Sur) 08:53:25		13	1.0 1.5 2.3 1.0 30.0 40.0 36.0	T	Off West Coast of Nicaragua 12.5 N 88.0 W 0 = 08:31:51.8 h about 80 km $\Delta = 40.8^\circ$ Dir = 133°
30	x	E	eP 08:46:11.0 eS 08:46:12.7			999 999	L	$\Delta(S-P) = \text{less than } 0.1^\circ$
30	x	LP	e(Sur) 13:30:24			23.0		No primary phases visible
30	x	LP	eP 15:32:55 e 15:43:48 LP e(Sur) 16:23:17		2	1.0 21.0 30.0	T	eP very indefinite LP phases may be associated with other events
30	x	E	eP 18:24:45.3 e 18:24:52.2 eS 18:25:35.8		1	0.2 0.4 0.4	NR	$\Delta(S-P) = 4.1^\circ$ P-Phase Dir = NE

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Day	System	Phase	Arrival Time GCT	C or D	Ground A	Motion T	Type	Remarks
30	x	E	iP 18:57:07.1 eS 18:57:14.0	D	2	0.2 0.3	L	$\Delta(S-P) = 0.4^\circ$ P-Phase Dir = ENE
30	✓		eP 19:34:40.6		3	0.8	T	
30	✓	LP	iP 21:07:30.8 e 21:34:34	D	13	0.9 70.0	T	P-Phase Dir = SW
30	✓	N	iP 21:53:07.7 iS 21:53:14.8	C	2	0.2 999	L	$\Delta(S-P) = 0.5^\circ$
30	x	E	eP 22:05:30.6 eS 22:05:54.2		1	0.2 0.3	NR	$\Delta(S-P) = 1.7^\circ$
30	✓	E	eP 22:41:43.8 eS 22:42:28.3		1	0.2 0.4	NR	$\Delta(S-P) = 3.6^\circ$
30	x	IBE	iP 22:49:46.1 iS 22:49:47.0	D	2	0.2 999	L	$\Delta(S-P) = \text{less than } 0.1^\circ$ P-Phase Dir = W
30	x	N	eP 22:53:21.2 eS 22:53:55.5		4	0.3 0.4	NR	$\Delta(S-P) = 2.7^\circ$
30	x	E	eP 23:02:14.8 eS 23:02:58.3		1	0.4 0.4	NR	$\Delta(S-P) = 3.5^\circ$
30	x	E	eP 23:35:11.0 eS 23:35:44.6		1	0.3 0.3	NR	$\Delta(S-P) = 2.6^\circ$
30	x	E	eP 23:50:59.0 eS 23:51:24.3		1	0.5 0.3	NR	$\Delta(S-P) = 1.9^\circ$
31	x	N	eP 00:00:31.2 eS 00:00:43.6		1	0.1 0.3	L	$\Delta(S-P) = 0.9^\circ$
31	✓	N	eP 00:06:57.0 eS 00:07:12.0		1	0.1 0.2	L	$\Delta(S-P) = 1.2^\circ$
31	✓	IB	eP 00:49:33.8 e 00:50:04.0		6	0.4 0.6	T	P-Phase Dir = SW

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Day	System	Phase	Arrival Time GCT	C or D	Ground A	Motion T	Type	Remarks
31	X	eP	00:51:22.9		1	0.4	NR	$\Delta(S-P) = 3.1^\circ$
	E	eS	00:52:01.5			0.4		
31	X	eP	01:10:13.1		6	0.6	T	P-Phase Dir = SW
	IB							
31	X	eP	01:51:38.4		1	0.2	L	$\Delta(S-P) = 0.5^\circ$
	N	eS	01:51:45.7			0.2		
31	J	iP	11:41:16.7	C	30	1.0	T	South of Panama 5.6 N 82.6 W 0 = 11:32:29.0 h about 33 km $\Delta = 49.4^\circ$ Dir = 131.8° S.P. data from Helicorder
	IB							
	LP	ePP	11:43:16			18.0		
	IB							
	BB							
	LP							
	LPE	eS	11:48:34			32.0		
		eScS	11:51:15.9			1.7		
	LPN	e	11:52:36			25.0		
	LPN	e(LQ)	11:54:50			50.0		
	LP	e(LR)	11:57:16			24.0		
	BB							
31	X	eP	13:35:13.9		2	1.3	T	Rat Is., Aleutian Is. 51.6 N 177.3 E 0 = 13:27:25.0 h about 83 km $\Delta = 42.8^\circ$ Dir = 303° S.P. data from Helicorder
	LP	e(Sur)	13:48:02			30.0		
31	X	eP	13:48:12.0		4	0.9	T	S.P. data from Helicorder
	LP	e(Sur)	14:13:50			22.0		
31	Y	eP	17:16:33.3		1	0.4	R	$\Delta(S-P) = 6.8^\circ$
		e	17:16:45.4			0.6		
	N	eS	17:17:49.9			0.6		
31	Y	eP	17:25:32.6		1	0.4	NR	$\Delta(S-P) = 3.7^\circ$
	E	eS	17:26:17.5			0.5		
31	X	eP	18:04:50.4		2	0.3	L	$\Delta(S-P) = 0.5^\circ$
	N	eS	18:04:57.6			999		P-Phase Dir = NE

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Day	System	Phase	Arrival Time GCT	C or D	Ground A	Motion T	Type	Remarks
31	V	eP	19:36:56.9		2	1.2	T	
31	X	eP	19:58:59.6		999	999	L	$\Delta(S-P) = 0.5^\circ$
	E	eS	19:59:06.7			0.2		
31	X	eP	21:50:30.6		1	0.3	NR	$\Delta(S-P) = 1.7^\circ$
	E	eS	21:50:54.0			0.3		
31	X	eP	21:52:58.9		1	0.4	NR	$\Delta(S-P) = 4.0^\circ$
	N	eS	21:53:47.3			0.4		
31	X	eP	22:12:21.9		2	0.3	NR	$\Delta(S-P) = 1.5^\circ$
	N	eS	22:12:42.6			0.3		
31	X	eP	22:22:33.5		1	0.5	T	
31	Y	iP	23:18:19.2	C	18	1.3	T	P-Phase Dir = SW
		e	23:18:31.2			1.0		
31	X	eP	23:46:57.8		1	0.3	NR	$\Delta(S-P) = 2.7^\circ$
	E	eS	23:47:32.1			0.3		

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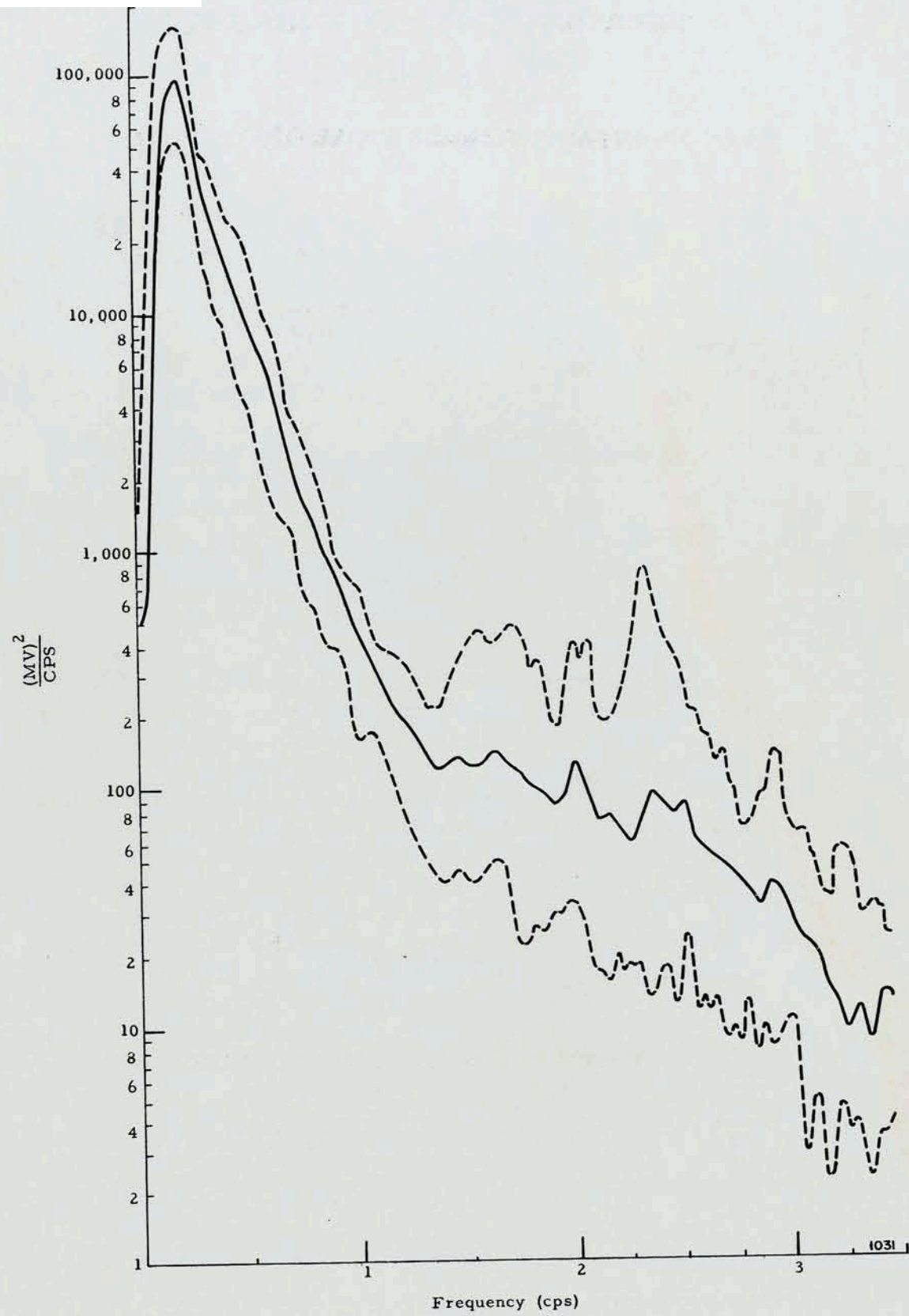
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ARPA Order No. 104-60
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Contract AF 33(600)-43486

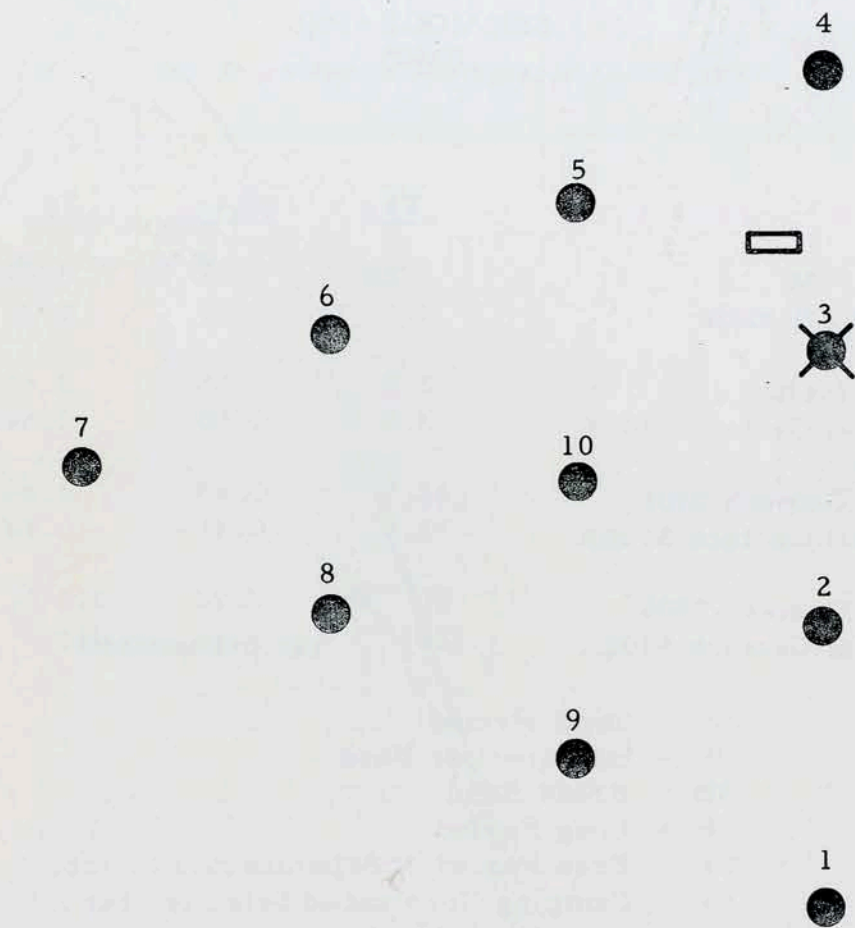
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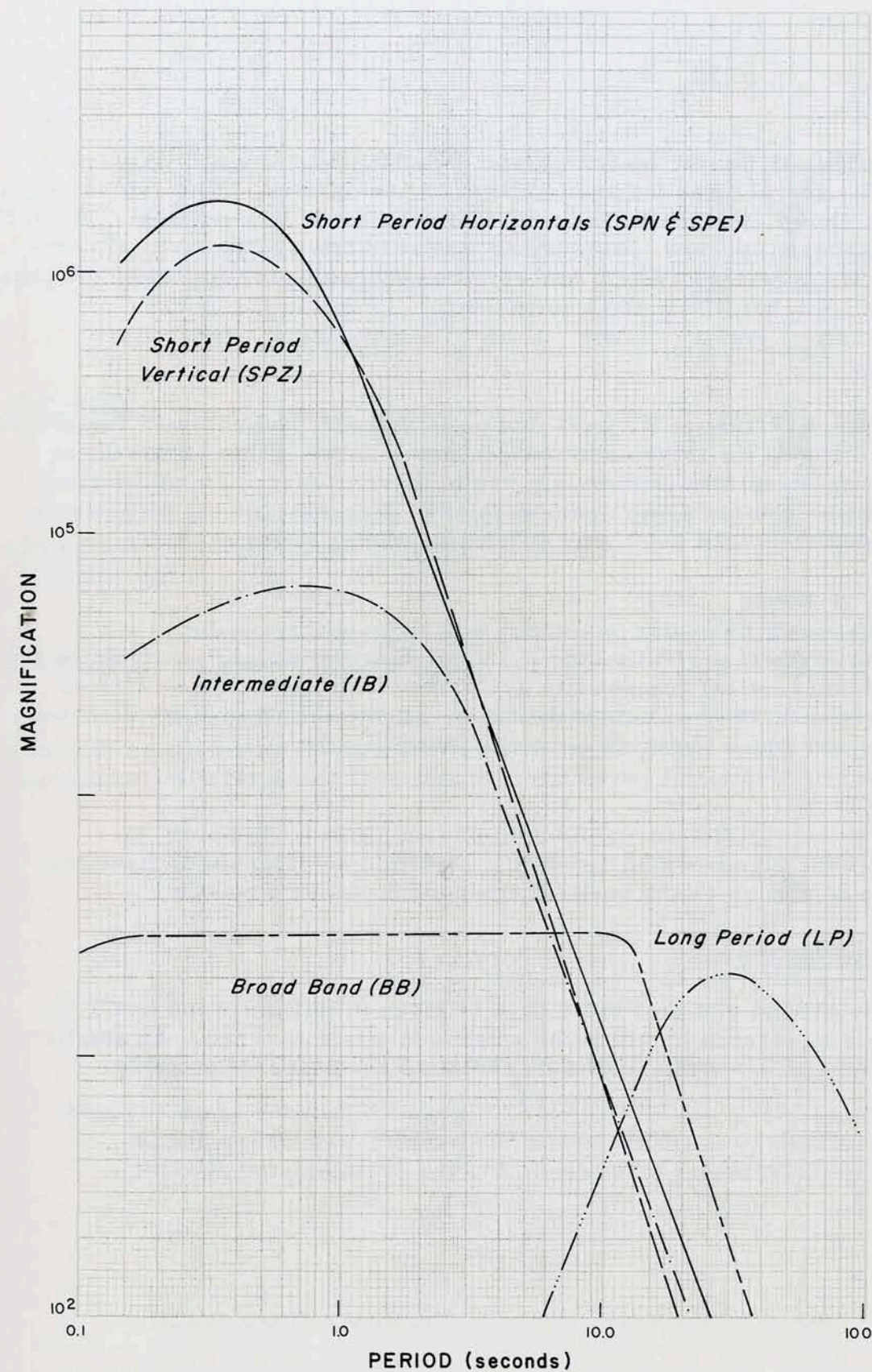
BLUE MOUNTAINS SEISMOLOGICAL OBSERVATORY

SEISMOGRAPHS
 (BMO)

	T_s	λ_s	T_g	λ_g
SP Vertical J-M	1.25	0.51	0.33	0.65
SP Horizontal Benioff	1.0	0.67	0.2	1.0
IB Vertical Melton	2.5	0.65	0.61	1.2
IB Horizontal Geotech 8700B	2.5	0.65	0.64	1.2
BB Vertical Geotech 7505	12.5	0.43	0.64	9.0
BB Horizontal Geotech 8700A	12.5	0.43	0.64	9.0
LP Vertical Geotech 7505	20	0.74	110	1.0
LP Horizontal Geotech 8700A	20	0.74	110	1.0

SP = Short Period
 IB = Intermediate Band
 BB = Broad Band
 LP = Long Period
 T_s = Free Period of Seismometer in sec.
 λ_s = Damping Constant of Seismometer
 T_g = Free Period of Galvanometer
 λ_g = Damping Constant of Galvanometer

Response curves are given on page iv.



AMPLITUDE RESPONSE OF SEISMOGRAPHS

1. System

In this column the seismographs (SP, IB, BB, LP) and components (Z, N, E) used to measure arrival time are designated. When no component is shown, the phase was read from the vertical component. When N or E component appears alone, phase was read from SP horizontal component. When neither system nor component designation appears, the phase was read from the SP vertical component.

2. Phase

If the direction of the first motion is definite, the phase is designated "i". ("i" stands for impetus or sudden onset). An "e" (for emersio or gradual beginning) designation is given to other phases. An unidentified phase will be shown by an "i" or "e" alone. Parentheses marks indicate uncertainty.

3. Arrival Times

The earliest arrival on the Z, N, or E is listed. All arrivals on the short-period vertical components are picked from the seismometer at vault number 3, the location of the three-component short-period system. All dates and times are in Greenwich Civil Time (G. C. T.).

4. C or D

C is for compression and D for dilatation as determined from the direction of motion on the vertical component, for iP arrivals.

5. Ground Motion

The ground motion amplitude A is given in millimicrons and T is the period in seconds at which the amplitude was measured. An amplitude of 999 indicates the amplitude could not be measured reliably.

All amplitudes are $\frac{\text{peak-to-trough}}{2}$. Trace amplitudes are measured on the X10 view to the nearest 1/2 millimeter, with short-period vertical measurements taken from Z3, the seismometer at vault number 3.

6. Type

Earthquakes are identified by range of epicentral distances as follows:

L (local)	0°	-	1.4°
NR (near-regional)	1.4°	-	6°
R (regional)	6°	-	16°
T (teleaseismic)	16°	-	180°

7. Remarks

The following items are reported here:

- 1) Epicenter locations, origin times, depth of foci, and magnitudes as given in the U. S. Coast and Geodetic Survey's Preliminary Determination of Epicenter cards.
- 2) Epicentral distances and station-to-epicenter directions (Dir.) as computed from the station and epicenter coordinates.
- 3) Epicentral distances as determined from S-P intervals and direction of epicenter as found from P waves or Rayleigh waves for teleseisms or as determined from the vertical array for nearby events.
- 4) Operational difficulties which affect the interpretation of data.

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
1	✓	E	eP 00:27:13.4 eS 00:27:35.8		1	0.3	NR	$\Delta(S-P) = 1.6^\circ$
1	✓	E	eP 00:29:33.5 eS 00:29:45.0		1	0.6 0.5	L	$\Delta(S-P) = 0.9^\circ$
1	✓	N	eP 00:37:34.4 eS 00:38:26.4		1	0.5 0.4	NR	$\Delta(S-P) = 4.2^\circ$ P-Phase Dir = SW
1	✓	LP	eP 04:10:33.1 e 04:21:09		1	0.8 18.0	T	South of Hokkaido, Japan 41.8 N 144.8 E 0 = 03:59:49.9 h about 91 km $\Delta = 66.8^\circ$ Dir = 306°
1	✓		eP 04:55:06.2		1	0.8	T	
1	✓	N	eP 05:11:03.1 eS 05:11:10.1		3	0.2 0.2	L	$\Delta(S-P) = 0.5^\circ$ P-Phase Dir = NE
1	✓	N	iP 05:15:30.0 eS 05:15:33.8	C	999	999 999	L	$\Delta(S-P) = \text{less than } 0.1^\circ$
1	✓	N	eP 05:19:50.9 eS 05:20:47.9		2	0.7 0.6	NR	$\Delta(S-P) = 4.7^\circ$
1	✓	E	eP 05:39:07.6 eS 05:39:30.8		1	0.2 0.4	NR	$\Delta(S-P) = 1.7^\circ$
1	✓	N	iP 05:53:02.2 iS 05:53:05.9	C	3	0.2 999	NR	$\Delta(S-P) = \text{less than } 0.1^\circ$ P-Phase Dir = SW
1	✓	IB N IBN	eP 06:13:05.5 eS 06:13:43.2			999	NR	$\Delta(S-P) = 3.0^\circ$
1	✓	LP	e 07:03:30			23.0		No primary phases visible

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
1 ✓		eP e	07:09:45.5 07:10:03.4		2	0.9 0.8	T	
1 ✓		eP	08:20:05.9		1	0.7	T	
1 ✓		eP epP	09:29:04.7 09:29:42.6		2	1.0 1.4	T	Ryukyu Is. 29.0 N 128.7 E 0 = 09:16:44.7 h about 164 km $\Delta = 85.1^\circ$ Dir = 307°
1 ✓		eP	09:59:15.4		7	1.3	T	Fiji Is. Region 23.7 S 179.6 W 0 = 09:47:15.6 h about 525 km $\Delta = 88.7^\circ$ Dir = 234°
1 ✓	E	eP eS	10:34:56.7 10:35:55.7		1	0.5 0.7	NR	$\Delta(S-P) = 4.9^\circ$
1 ✓		eP	11:02:54.1		1	0.6	T	
1 ✓	N	eP eS	11:09:42.7 11:10:20.2		2	0.4 999	NR	$\Delta(S-P) = 3.0^\circ$
1 ✓		eP epP	11:41:23.6 11:42:04.5		2	1.0 0.9	T	Ecuador 1.5 S 77.8 W 0 = 11:31:48.7 h about 181 km $\Delta = 58.0^\circ$ Dir = 131° P-Phase Dir = S
1 ✓		eP e(PP)	14:00:09.9 14:03:59.6		1	0.6 1.0	T	Hindu Kush Region 37.2 N 70.0 E 0 = 13:46:43.4 h about 132 km $\Delta = 98.1^\circ$ Dir = 354°

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
1 ✓	LP	eP e eLR	14:04:44.3 14:06:24.0 14:33:48		4	1.0 0.2 30.0	T	New Hebrides Is. 17.6 S 168.5 E 0 = 13:51:37.0 h about 21 km $\Delta = 91.5^\circ$ Dir = 247°
1 ✓		eP	14:19:18.4		1	0.8	T	New Hebrides Is. 14.5 S 167.6 E 0 = 14:06:40.5 h about 204 km $\Delta = 89.9^\circ$ Dir = 249°
1 ✓		eP	15:28:26.5		2	1.1	T	P-Phase Dir = W
1 ✓	N	eP eS	15:33:18.8 15:34:07.7		1	0.4 0.5	NR	$\Delta(S-P) = 4.0^\circ$
1 ✓	N	eP eS	15:41:29.7 15:42:30.4		1	0.5 0.7	NR	$\Delta(S-P) = 5.1^\circ$
1 ✓	IB LPN LPN LP	eP ePP e ePKKP eLQ eLR	15:47:15.2 15:51:32.4 16:02:40 16:03:14.4 16:15:50 16:20:36		27	2.0 1.8 19.0 0.9 40.0 32.0	T	Off Coast of Western New Guinea 1.9 N 133.0 E 0 = 15:33:22.6 h about 56 km $\Delta = 102.5^\circ$ Dir = 285°
1 ✓	N IBN	eP eS	16:24:23.5 16:24:50.4		2	0.6 0.7	NR	$\Delta(S-P) = 2.0^\circ$
1 ✓	IB	eP	17:26:01.6		6	1.0	T	P-Phase Dir = SSW
1 ✓	IB N IBN	eP eS	18:01:17.0 18:01:24.1		999	999 999	L	$\Delta(S-P) = 0.5^\circ$ P-Phase Dir = NE

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
1	✓ IB	eP	18:06:15.9		30	2.0	T	North of Western New Guinea 1.9 N 132.8 E 0 = 17:52:20.2 h about 36 km $\Delta = 102.6^\circ$ Dir = 286°
		e	18:06:43.3			1.2		
		ePP	18:10:29.4			2.5		
	IB							
	LPE	ePS	18:19:38			27.0		
		ePKKP	18:22:14.5			0.6		
	LPE	eSSS	18:29:05			27.0		
	LPN	eLO	18:34:55			36.0		
	LP	eLR	18:39:36			32.0		
1	✓ E	eP	19:07:31.6		1	0.4	NR	$\Delta(S-P) = 3.7^\circ$
		eS	19:08:17.4			0.5		
1	✓ E	eP	19:13:06.0		1	0.4	NR	$\Delta(S-P) = 3.7^\circ$
		eS	19:13:51.5			0.4		
1	✓	eP	19:55:48.6		4	1.1	T	
1	✓ N	eP	20:09:39.3		1	0.2	L	$\Delta(S-P) = 0.5^\circ$
		eS	20:09:46.9			0.3		
1	✓	eP	20:21:00.6		1	0.8	T	
1	✓ E	eP	20:46:11.0		1	0.3	NR	$\Delta(S-P) = 1.6^\circ$
		eS	20:46:33.6			0.3		
1	✓ E	eP	21:22:24.8		1	0.3	L	$\Delta(S-P) = 0.9^\circ$
		eS	21:22:37.4			0.4		
1	✓ E	eP	21:24:14.6		1	0.4	NR	$\Delta(S-P) = 2.0^\circ$
		eS	21:24:41.2			0.5		
1	✓ E	eP	21:25:52.6		1	0.3	NR	$\Delta(S-P) = 2.8^\circ$
		eS	21:26:38.0			0.4		
1	✓ E	eP	21:30:49.0		1	0.4	NR	$\Delta(S-P) = 5.5^\circ$
		eS	21:31:54.0			0.4		
1	✓ N	eP	22:32:39.2		1	0.4	NR	$\Delta(S-P) = 2.9^\circ$
		eS	22:33:15.0			999		

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
1	✓ IB	iP	22:52:48.6	C	9	0.7	T	P-Phase Dir = SW
		e	22:52:56.6			0.7		
1	✓ IB	iP	23:31:28.9	C	13	0.9	T	Kurile Is. 43.9 N 145.2 E 0 = 23:20:59.6 h about 131 km $\Delta = 65.3^\circ$ Dir = 308° P-Phase Dir = W
		epP	23:32:00.1			0.6		
1	✓ N	eP	23:34:55.0		2	0.3	L	$\Delta(S-P) = 1.1^\circ$
		eS	23:35:09.0			0.3		
2	✓ E	eP	00:03:28.1		1	0.3	NR	$\Delta(S-P) = 3.0^\circ$
		eS	00:04:05.1			0.4		
2	✓	eP	02:51:42			0.5	T	
2	✓	eP	04:00:25.4		2	0.9	T	P-Phase Dir = SSE
2	✓ N	eP	05:31:22.1		1	0.3	NR	$\Delta(S-P) = 5.0^\circ$
		eS	05:32:21.4			0.5		
2	✓ LP	eP	07:07:28.2		5	1.4	T	New Hebrides Is. 17.7 S 167.5 E 0 = 06:54:19.9 h about 32 km $\Delta = 92.2^\circ$ Dir = 247°
		ePP	07:11:09.8			1.8		
	LP	ePSP	07:19:36			22.0		
	LP	eLR	07:37:12			30.0		
2	✓ LP	eP	09:11:33.7		1	0.7	T	
		e	09:19:50			18.0		
2	✓ E	eP	13:04:08.5		1	0.2	L	$\Delta(S-P) = \text{less than } 0.1^\circ$
		eS	13:04:11.9			0.2		

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
2 ✓	E	eP	13:34:56.9		1	0.3	NR	$\Delta(S-P) = 1.9^\circ$
		eS	13:35:22.0			0.3		
	IB	eP ¹	15:05:31.6	3	0.7	T	1.5	South of Sumbawa 10.0 S 117.8 E 0 = 14:46:39.2 h about 33 km $\Delta = 121.5^\circ$ Dir = 289 ^o
		e	15:06:42.8					
	IB LP	e(PP)	15:07:23.8				2.0	
		e	15:08:39.6				0.9	
	LPE LP LPE LP	ePS	15:16:50				23.0	
		e(PSP)	15:18:06				21.0	
		eSPS	15:24:35				26.0	
		e(Sur)	15:33:35				25.0	
2 ✓	IB	iP	15:11:44.5	D	19	0.9	T	Near East Coast of Honshu, Japan 36.7 N 141.1 E 0 = 15:00:25.4 h about 75 km $\Delta = 72.3^\circ$ Dir = 304 ^o P-Phase Dir = WNW
		e(PcP)	15:11:57.8			1.1		
		e	15:18:52.1			1.3		
LP	e(Sur)	15:45:22				25.0		
2 ✓		eP ¹	15:31:31.3		2	0.7	T	South of Sumbawa 10.2 S 117.6 E 0 = 15:12:37.2 h about 33 km $\Delta = 121.8^\circ$ Dir = 289 ^o
2 ✓	E	eP	18:48:27.4		1	0.6	NR	$\Delta(S-P) = 4.6^\circ$
		eS	18:49:23.1			0.5		
2 ✓	E	eP	19:11:17.7		1	0.4	NR	$\Delta(S-P) = 3.5^\circ$
		eS	19:12:01.2			0.4		
2 ✓	IB LP	eP	19:13:43.2		31	1.7	T	Fox Is. Aleutian Is. 52.5 N 170.7 W 0 = 19:06:54.3 h about 84 km $\Delta = 35.4^\circ$ Dir = 302 ^o
		eLR	19:23:43			27.0		

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
2 ✓		eP	19:16:11.5		1	0.6	T	
		e	19:19:52.8			1.0		
2 ✓	E	eP	19:19:20.5		1	0.5	NR	$\Delta(S-P) = 3.5^\circ$
		eS	19:20:04.1			0.4		
2 ✓	N	eP	20:11:18.7		2	0.5	NR	$\Delta(S-P) = 1.0^\circ$
		eS	20:11:32.1			0.4		
2 ✓	E	eP	20:52:53.8		1	0.3	NR	$\Delta(S-P) = 1.8^\circ$
		eS	20:53:17.8			0.3		
2 ✓	N	eP	21:13:02.9		1	0.4	NR	$\Delta(S-P) = 3.6^\circ$
		eS	21:13:47.6			0.3		
2 ✓	N	eP	21:16:53.9		3	0.4	NR	$\Delta(S-P) = 2.4^\circ$
		eS	21:17:25.2			0.5		
2 ✓	N	eP	21:22:27.0		1	0.4	NR	$\Delta(S-P) = 3.5^\circ$
		eS	21:23:10.6			0.4		
2 ✓	E	eP	21:30:06.0		1	0.5	NR	$\Delta(S-P) = 3.8^\circ$
		eS	21:30:52.2			0.4		
2 ✓	E	eP	21:39:55.1		1	0.2	L	$\Delta(S-P) = 0.5^\circ$
		eS	21:40:02.1			0.3		
2 ✓	E	eP	23:13:53.4		1	0.3	NR	$\Delta(S-P) = 2.4^\circ$
		eS	23:14:24.1			0.3		
2 ✓	N	eP	23:33:35.8		1	0.4	NR	$\Delta(S-P) = 2.8^\circ$
		eS	23:34:10.9			0.4		
2 ✓	N	eP	23:41:21.9		1	0.5	NR	$\Delta(S-P) = 2.7^\circ$
		eS	23:41:56.1			0.6		
3 ✓	N	eP	00:24:17.1		1	0.4	NR	$\Delta(S-P) = 2.7^\circ$
		eS	00:24:51.6			0.3		
3 ✓	N	eP	00:42:09.1		1	0.4	NR	$\Delta(S-P) = 3.7^\circ$
		eS	00:42:54.2			0.4		

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
3	✓	IB	iP 01:13:26.5	C	8	1.2	T	Solomon Is. 7.9 S 158.3 E 0 = 01:00:24.9 h about 86 km $\Delta = 91.6^\circ$ Dir = 260.5° P-Phase Dir = SW
			e 01:14:26.4			1.2		
			e 01:16:25.4			1.5		
		LPN	e 01:24:26			15.0		
		LPN	e(PS) 01:25:47			17.0		
		LPN	eSSS 01:34:06			26.0		
		LP	e(Sur) 01:43:07			21.0		
3	✓	N	eP 01:32:01.3		1	0.1	L	$\Delta(S-P) = 0.5^\circ$
			eS 01:32:08.4			0.2		
3	✗	E	eP 01:38:34.2		1	0.2	NR	$\Delta(S-P) = 1.7^\circ$
		IBE	eS 01:38:57.2			999		
3	✓	E	eP 01:38:36.6		1	0.2	L	$\Delta(S-P) = \text{less than } 0.1^\circ$
		IBE	eS 01:38:40.4			999		
3	✓		eP 01:44:21.4		3	1.0	T	1500 km Southwest of Galapagos Is. 6.7 S 104.7 W 0 = 01:35:10.6 h about 33 km $\Delta = 52.6^\circ$ Dir = 164°
			ePcP 01:45:32.0			0.9		
3	✓	LP	e(Sur) 03:17:52			23.0		No primary phases visible
3	✗		eP ⁱ 03:31:30.6		1	0.5	T	South of Sumbawa 10.3 S 117.8 E 0 = 03:12:37.8 h about 33 km $\Delta = 121.7^\circ$ Dir = 288°
			e 03:31:41.8			0.7		
3	✓		eP 03:37:09.1		3	1.2	T	
			e 03:37:17.7			1.0		
			03:37:38.0			1.0		

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
3	✓		eP 04:47:37.8		1	0.8	T	Admiralty Is. 2.7 S 147.4 E 0 = 04:34:09.6 h about 33 km $\Delta = 95.7^\circ$ Dir = 272°
			e 04:48:38.7			0.9		
			e 04:48:57.6			0.7		
3	✓	E	iP 05:01:49.1	D	1	0.2	L	$\Delta(S-P) = 0.5^\circ$
			eS 05:01:56.1			0.3		
3	✗		eP ⁱ 05:19:23.1		1	0.6	T	South of Sumbawa 10.3 S 117.8 E 0 = 05:00:29.7 h about 33 km $\Delta = 121.7^\circ$ Dir = 288°
			e 05:19:34.8			0.6		
3	✓	N	eP 05:58:27.0		1	0.4	NR	$\Delta(S-P) = 2.5^\circ$
			eS 05:58:58.7			0.3		
3	✓	N	eP 06:36:22.9		1	0.6	R	$\Delta(S-P) = 7.3^\circ$
			eS 06:37:48.4			0.6		
3	✓		eP 06:52:57.0		5	1.2	T	
			e 06:57:19.0			1.3		
		LPE	e 06:59:46.0			17.0		
		LPE	e 07:02:08.0			12.0		
3	✓		eP 07:08:57.6		1	0.5	T	
3	✓		eP 07:48:46.5		2	0.8	T	P-Phase Dir = NW
			e 07:49:12.2			1.1		
			e 07:49:26.5			1.0		
3	✓	LP	eP 08:40:43.6		5	1.3	T	
			e(Sur) 09:00:20			22.0		
3	✓	IB	iP 11:59:55.6	C	4	1.0	T	P-Phase Dir = ESE
3	✗	N	eP 12:08:56.6		1	0.1	L	$\Delta(S-P) = \text{less than } 0.1^\circ$
			eS 12:09:00.3			0.2		

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
3	✓	N IBN	iP 12:23:22.9 iS 12:23:26.4		1	0.1 999	L	$\Delta(S-P) = \text{less than } 0.1^\circ$ P-Phase Dir = NE
3	✓	N	eP 12:53:37.8 eS 12:53:40.0		1	0.2 0.2	L	$\Delta(S-P) = \text{less than } 0.1^\circ$
3	✓	IB LP LP	eP 14:31:47.9 e 14:31:59.8 e 14:32:15.7 e(PP) 14:34:16 e(Sur) 14:49:00		6	1.0 0.9 1.5 17.0 18.0	T	Arctic Ocean 72.1 N 2.5 E 0 = 14:22:14.7 h about 45 km $\Delta = 56.0^\circ$ Dir = 19° P-Phase Dir = ENE
3	✓	IB	eP 14:41:03.3 e 14:41:13.9 epP 14:41:32.9 ePKKP 14:58:25.7		1	0.5 0.7 1.3 0.8	T	New Hebrides 15.0 S 167.4 E 0 = 14:28:15.2 h about 134 km $\Delta = 90.4^\circ$ Dir = 249°
3	✗		eP 15:14:51.2		3	0.9	T	Tsinghai Province China 37.1 N 95.5 E 0 = 15:01:39.6 h about 33 km $\Delta = 93.2^\circ$ Dir = 334°
3	✓		eP 15:46:47.7		7	1.1	T	P-Phase Dir = NE
3	✓	E	eP 17:01:26.7 eS 17:02:11.0		1	0.4 0.3	NR	$\Delta(S-P) = 3.7^\circ$
3	✓	IB N IBN E IBE	eP 17:53:39.0 e 17:53:48.2 eS 17:54:21.9 e(Sur) 17:54:33.6		1	0.3 0.5 0.5 0.4	NR	$\Delta(S-P) = 3.5^\circ$
3	✓	LP	e(Sur) 18:55:27			20.0		No primary phases visible

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
3	✗		eP 19:17:02.3 e 19:17:11.3		2	0.9 0.9	T	
3	✗		eP ¹ 19:23:16.4		1	0.5	T	Southern Sumatra 4.5 S 103.4 E 0 = 19:04:20.8 h about 33 km $\Delta = 126.3^\circ$ Dir = 306°
3	✗	N	eP 22:14:55.6 eS 22:15:42.4		1	0.5 0.3	NR	$\Delta(S-P) = 4.7^\circ$
3	✓	N	eP 22:42:15.6 eS 22:42:47.7		1	0.3 0.3	NR	$\Delta(S-P) = 2.5^\circ$
3	✗	E	eP 22:57:37.2 eS 22:58:20.9		1	0.5 0.4	NR	$\Delta(S-P) = 3.5^\circ$
3	✓	N	eP 23:12:01.1 eS 23:12:44.8		1	0.4 0.5	NR	$\Delta(S-P) = 3.5^\circ$
3	✗	IB N IBN	iP 23:27:44.2 eS 23:28:06.0	C	2	0.2 999	NR	$\Delta(S-P) = 1.6^\circ$ P-Phase Dir = N
4	✓		eP 01:03:53.8 eS 01:04:34.8		1	0.4 0.6	NR	$\Delta(S-P) = 3.3^\circ$
4	✓		eP 01:55:01.5		1	0.6	T	
4	✗	LP	eP 02:45:23.1 e 02:49:10.8 e 03:14:10.8 e(Sur) 03:18:04		4	0.9 1.0 1.3 17.0	T	
4	✓		eP 04:37:14.3		1	0.6	T	
4	✓	LP LP	eP 04:59:28.0 e(Sur) 05:08:55 e(Sur) 05:37:17		1	0.9 17.0	T	
4	✓	N IBN	eP 06:14:03.0 eS 06:15:18.8		4	0.7 0.8	R	$\Delta(S-P) = 6.4^\circ$

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
4	IB	eP	06:19:46.9		2	0.9	R	Yellowstone National Park, Wyoming 44.2 N 110.2 W 0 = 06:18:31.3 h about 33 km $\Delta = 5.1^\circ$ Dir = 95°
	N	e(S)	06:21:02.4			999		
	IBN							
4		eP	07:39:36.0		1	0.6	T	
4	LP	e(Sur)	08:07:52			15.0		No primary phases visible
4	N	eP	08:39:15.3		1	0.3	L	$\Delta(S-P) = \text{less than } 0.1^\circ$ P-Phase Dir = SE
		eS	08:39:19.0			999		
4	N	eP	08:49:22.0		1	0.1	L	$\Delta(S-P) = \text{less than } 0.1^\circ$ P-Phase Dir = SE
		eS	08:49:23.8			0.1		
4	IB	eP	09:16:16.0		17	1.8	T	
4	N	eP	10:29:37.5		1	0.1	L	$\Delta(S-P) = \text{less than } 0.1^\circ$ P-Phase Dir = SE
		eS	10:29:41.2			0.1		
4	N	eP	11:23:43.0		1	0.5	NR	$\Delta(S-P) = 5.0^\circ$
		eS	11:24:43.0			0.5		
4	LP	eP	12:03:05.6		3	0.9	T	P-Phase Dir = SW
		e(Sur)	12:21:34.0			18.0		
4		eP	13:43:23.2		1	0.5	R	$\Delta(S-P) = 6.4^\circ$
		e	13:43:41.0			1.0		
	N	eS	13:44:38.0			0.6		
4		eP	14:44:50.1			0.6	T	
4	LP	e(Sur)	15:30:00			16.0		No primary phases visible
4	E	eP	15:43:50.9		3	0.2	NR	$\Delta(S-P) = 1.4^\circ$
		eS	15:44:08.2			0.4		

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
4		eP	15:48:59.5		1	0.4	NR	$\Delta(S-P) = 3.1^\circ$
		e	15:49:05.9			0.4		
	E	eS	15:49:37.0			0.4		
4		eP	17:29:47.5		1	0.5	T	
4	E	eP	18:03:43.0		1	0.3	L	$\Delta(S-P) = 0.2^\circ$
		iS	18:03:47.3			0.2		
4		eP	18:15:13.3		1	0.9	T	
4	N	eP	19:05:54.2		1	0.3	NR	$\Delta(S-P) = 1.5^\circ$ P-Phase Dir = NNE
		eS	19:06:12.8			0.4		
4	E	eP	19:11:57.3			0.2	L	$\Delta(S-P) = 1.2^\circ$
		eS	19:12:12.5			0.3		
4		eP	19:33:34		1	0.5	T	
4		eP	19:42:41.7		6	1.2	T	
4	N	eP	20:36:07.0		1	0.2	L	$\Delta(S-P) = 1.2^\circ$
		eS	20:36:22.5			0.3		
4	IB	eP	23:06:55.4		21	1.6	T	Off Coast of Southern Chile 43.2 S 75.6 W 0 = 22:53:34.2 h about 33 km $\Delta = 95.3^\circ$ Dir = 152° Mag 5 3/4-6 (Pas) 5 1/2 (Pal)
	LP	ePP	23:10:54.7			1.8		
	IB							
	LP	e	23:11:54.5			1.1		
	N	e(SKS)	23:17:37.0			1.6		
	LPN							
	LPN	ePS	23:19:38			24.0		
		e(PKKP)	23:24:26.9			1.4		
	LPN	e	23:25:04.0			25.0		
	LPN	e	23:28:03			32.0		
	LPE	e	23:34:01			32.0		
	LPN	eP'SKS	23:39:02			35.0		
	LP	e	23:43:00			24.0		
4	E	eP	23:29:49.0		1	0.4	NR	$\Delta(S-P) = 4.5^\circ$
		eS	23:30:43.0			0.2		

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
5	✓	eP e e	00:46:33.6 00:46:37.0 00:47:01.6		2	0.6 0.8 1.0	T	
5	✓	E eP eS	01:09:18.5 01:09:38.1		3	0.3 0.3	NR	$\Delta(S-P) = 1.5^\circ$
5	✓	eP	05:24:46.4		3	1.0	T	P-Phase Dir = WNW
5	✗	E eP eS	05:34:47.8 05:35:07.5		1	0.1 0.5	NR	$\Delta(S-P) = 1.5^\circ$
5	✓	eP	06:33:28.9		2	0.9	T	
5	✓	N eP iS	10:22:50.0 10:22:53.4		999	999 999	L	$\Delta(S-P) = \text{less than } 0.1^\circ$
5	✓	eP e	10:27:17.4 10:27:23.8		3	0.8 0.8	T	
5	✗	IB eP e ePcP	11:56:26.5 11:56:33.9 11:57:07.3		3	0.9 1.2 1.1	T	Off Coast of Norway 66.4 N 6.8 E 0 = 11:46:12.1 h about 33 km $\Delta = 61.1^\circ$ Dir = 22°
5	✓	N IBN eP iS	13:59:18.4 13:59:21.9		1	0.1 999	L	$\Delta(S-P) = \text{less than } 0.1^\circ$
5	✓	E eP eS	17:16:11.3 17:16:55.6		1	0.3 0.3	NR	$\Delta(S-P) = 3.5^\circ$
5	✓	eP	21:08:00.0		2	1.4	T	South Pacific Ocean 49.8 S 114.9 W 0 = 20:54:41.1 h about 33 km $\Delta = 94.3^\circ$ Dir = 178°
5	✓	N eP eS	21:33:30.4 21:33:31.8		1	0.1 999	L	$\Delta(S-P) = \text{less than } 0.1^\circ$

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
5	✓	LP e(Sur)	21:39:36			32.0		No primary phases visible
5	✓	N eP eS	22:31:12.7 22:31:57.4		1	0.4 0.3	NR	$\Delta(S-P) = 3.7^\circ$
5	✓	E eP eS	22:38:33.6 22:39:09.8		3	0.2 0.3	NR	$\Delta(S-P) = 2.8^\circ$
5	✓	eP e	23:22:26.5 23:22:35.9		4	1.1 1.3	T	
5	✓	N eP eS	23:30:09.4 23:30:39.3		1	0.4 0.4	NR	$\Delta(S-P) = 2.3^\circ$
5	✗	eP	23:52:59.2		7	1.1	T	
6	✓	IB ePd e e e e ePP IB IB e IB e LP LP LP LP LP	00:24:31.0 00:27:36.7 00:28:02.9 00:28:24.5 00:28:30.6 00:28:35.3 00:29:14.5 00:30:01.5 00:48:34 00:52:51 00:54:10 00:59:33 01:00:57		1	0.7 1.0 1.0 1.3 1.4 1.3 1.5 1.6 38.0 27.0 23.0 23.0 32.0	T	Southern Iran 28.0 N 55.6 E 0 = 00:09:47.2 h about 33 km $\Delta = 107.2^\circ$ Dir = 7°
6	✗	IB eP e IB e IB N IBN eS	00:35:13.2 00:35:25.5 00:35:58.7 00:36:13.2		2	0.3 0.4 0.3 999	NR	$\Delta(S-P) = 5.0^\circ$

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks		
					A	T				
6 x		eP	00:42:09.1	1	1	0.2	NR	$\Delta(S-P) = 4.5^\circ$		
		e	00:42:27.4			0.4				
	IB N	eS	00:43:03.7			0.3				
6 x	IB	iP	01:43:17.3	C	6	0.2	L	$\Delta(S-P) = 0.8^\circ$ P-Phase Dir = NNW		
		E	iS						01:43:27.8	999
6 ✓	IB BB LP	iP	03:37:42.4	C	999	999	NR	Washington-Oregon Border 45.8 N 122.5 W 0 = 03:36:46.9 h about 44 km $\Delta = 3.8^\circ$ Dir = 286° P-Phase Dir = W		
			e						03:37:52.0	999
			e(S)						03:38:42.0	999
			e(Sur)						03:39:13.0	999
6 x	IB	iP	04:16:47.1	C	2	0.2	NR	$\Delta(S-P) = 5.0^\circ$ P-Phase Dir = W		
			e						04:16:53.7	0.4
		N	eS						04:17:47.1	999
6 y	IB	eP	06:35:40.5		5	1.2	T			
			e						06:36:00.5	1.2
6 ✓		eP	07:57:53.6		2	1.0	T			

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks		
					A	T				
6 y	N	eP	08:53:59.8				NR	$\Delta(S-P) = 4.8^\circ$		
			eS						08:54:58.0	0.6
			e(Sur)						08:55:26.0	0.6
6 y		eP	09:33:03.3		1	0.7	T			
			e						09:33:12.3	0.9
6 x		eP	10:02:44.1		1	0.8	T			
6 ✓	IB E IBE E IBE	eP	11:59:08.1		1	0.5	R	Nevada-California Border Region 37.5 N 119.0 W 0 = 11:57:17.0 h about 33 km $\Delta = 7.5^\circ$ Dir = 178°		
			e						11:59:13.4	1.1
			e						11:59:29.6	0.8
			e(Sur)						12:01:04.2	0.7
			e(Sur)						12:01:18.0	1.1
6 y		eP	12:33:14.0		3	1.3	T	Near Coast of Ecuador 4.0 S 79.8 W 0 = 12:23:24.6 h about 101 km $\Delta = 59.1^\circ$ Dir = 135°		
			epP						12:33:36.8	1.2
			e(PcP)						12:34:23.9	0.9
6 y		eP	13:22:58.9		1	0.3	NR	$\Delta(S-P) = 3.4^\circ$		
			e						13:23:07.7	0.3
		E N	eS e(Sur)						13:23:41.2 13:23:58.8	0.4 0.6
6 x		eP	15:16:51.6		2	1.0	T	Mona Passage 17.3 N 68.3 W 0 = 15:08:05.1 h about 33 km $\Delta = 49.4^\circ$ Dir = 107°		
			e						15:17:02.4	1.2
			e						15:17:15.8	0.8
6 x		eP	16:33:41.0		1	0.4	NR	$\Delta(S-P) = 3.5^\circ$		
			e						16:34:11.9	0.4
			e(Sur)						16:34:24.1	0.4

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
6	N	eP	17:32:09.6	C	1	0.3	NR	$\Delta(S-P) = 4.0^\circ$
		e	17:32:18.3			0.3		
		eS	17:32:49.0			0.3		
		e(Sur)	17:32:59.0			0.4		
6	E	iP	18:34:47.8	C	2	0.2	L	$\Delta(S-P) = 0.5^\circ$ P - Phase Dir = SW
		iS	18:34:55.0			0.2		
6		eP	19:46:51.1		3	1.0	T	
6	E	eP	21:13:50.0		1	0.4	NR	$\Delta(S-P) = 3.5^\circ$
		eS	21:14:34.0			0.4		
6	IB	iP	21:39:58.5	D	22	1.2	T	Near Coast of New Ireland 4.9 S 152.7 E 0 = 21:26:47.8 h about 68 km $\Delta = 93.4^\circ$ Dir = 267°
		e	21:42:36.7			1.1		
		e PP	21:43:48.7			1.0		
6	N	iP	22:02:10.9	D	1	0.2	L	$\Delta(S-P) = 0.5^\circ$ P - Phase Dir = SSW
		eS	22:02:18.0			0.3		
6	E	eP	22:42:53.6		1	0.4	NR	$\Delta(S-P) = 3.5^\circ$
		eS	22:43:37.6			0.3		
6	N	eP	23:02:28.8		1	0.3	NR	$\Delta(S-P) = 3.7^\circ$
		eS	23:03:14.3			0.3		
6	E	eP	23:09:05.7		1	0.5	NR	$\Delta(S-P) = 3.5^\circ$
		eS	23:09:49.0			0.3		
6	E	eP	23:19:46.4		1	0.3	NR	$\Delta(S-P) = 1.8^\circ$
		eS	23:20:11.8			0.3		
6		eP	23:42:21.7		2	1.0	T	
7		eP	00:35:51.8		3	0.8	T	
7		eP	01:06:12.4		1	0.6	T	

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
7	E	eP	02:30:24.1		2	0.3	NR	$\Delta(S-P) = 2.1^\circ$
		eS	02:30:51.2			0.8		
7	IB	eP	04:09:08.2		4	0.8	T	Mariana Islands 13.3 N 144.8 E 0 = 03:56:38.5 h about 121 km $\Delta = 86.2^\circ$ Dir = 285° P-Phase Dir = SW
		epP	04:09:35.5			0.7		
7	N	eP	05:14:47.8		1	0.2	L	$\Delta(S-P) = 0.5^\circ$
		eS	05:14:55.0			0.2		
7		eP	05:23:52.7		3	1.0	T	Fiji Islands Region 19.9 S 178.5 W 0 = 05:12:17.3 h about 600 km $\Delta = 85.1^\circ$ Dir = 236° P-Phase Dir = SW
7	N	eP	05:46:49.5		3	0.2	L	$\Delta(S-P) = 0.5^\circ$
		eS	05:46:56.8			0.2		
7	N	eP	06:17:04.1		1	0.3	NR	$\Delta(S-P) = 5.6^\circ$
		e	06:17:11.6			0.8		
		eS	06:18:10.8			0.7		
7		eP	06:34:12.4		3	1.0	T	Fiji Islands Region 23.2 S 179.9 W 0 = 06:22:16.0 h about 534 km $\Delta = 88.5^\circ$ Dir = 235° P-Phase Dir = SW

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
7 ✓	IB	iP	13:08:02.0	C	17	1.3	T	Azores 40.5 N 29.4 W
		e	13:08:05.8			1.3		0 = 12:57:45.7
	IB	e	13:08:25.5			1.4		h about 33 km $\Delta = 61.7^\circ$
	IB	e	13:16:33.0			20.0		Dir = 60°
	LP	e	13:16:33.0			20.0		P-Phase Dir = E
	LP	e(Sur)	13:26:36.0			25.0		
7 ✓	N	eP	16:15:28.7		1	0.3	NR	$\Delta(S-P) = 2.9^\circ$
		eS	16:16:05.5			0.3		
7 ✓	IB	eP'	16:21:34.0			0.9	T	Flores Sea 7.8 S 119.8 E
		ePP	16:22:53.5			1.7		0 = 16:03:04.1
	IB	e(SP)	16:32:19.0			22.0		h about 156 km $\Delta = 118.5^\circ$
	LP	e(PKKP)	16:32:40.7			0.9		Dir = 289°
		e	16:35:15.0			0.9		P-Phase Dir = SW
7 ✓	E	eP	16:36:56.5		1	0.3	NR	$\Delta(S-P) = 1.7^\circ$
		eS	16:37:19.8			0.3		
7 ✓	E	eP	16:44:55.1		3	0.4	NR	$\Delta(S-P) = 1.6^\circ$
	IBE	eS	16:45:17.3			999		
7 ✓	E	eP	17:03:44.8		1	0.3	NR	$\Delta(S-P) = 1.8^\circ$
		eS	17:04:09.6			0.5		
7 ✓	N	eP	17:42:42.9			0.1	L	$\Delta(S-P) = 0.2^\circ$
		eS	17:42:47.4			0.1		
		e	17:43:06.0			0.7		
7 ✓	E	eP	19:31:56.0		2	0.2	L	$\Delta(S-P) = 0.5^\circ$
		eS	19:32:03.0			0.3		P-Phase Dir = NW
7 ✓		eP	20:15:31.8		2	1.0	T	Bataan Islands, Philippine Islands Reg 20.4 N 122.1 E
								0 = 20:02:12.8
								h about 57 km $\Delta = 95.5^\circ$
								Dir = 306°

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
7 ✓	E	eP	20:34:22.9		2	0.3	NR	$\Delta(S-P) = 2.8^\circ$
		eS	20:34:57.9			0.3		
7 ✓	E	eP	21:32:58.2		1	0.1	L	$\Delta(S-P) = \text{less than } 0.1^\circ$
		eS	21:33:01.4			0.4		
	N	e(Sur)	21:33:37.5			999		
7 ✓	IB	iP	21:39:23.0	C	999	999	L	$\Delta(S-P) = 0.1^\circ$ P-Phase Dir = SW
	E	iS	21:39:27.1			999		
	IBE							
7 ✓	N	eP	21:54:45.3		3	0.3	NR	$\Delta(S-P) = 1.6^\circ$
	IBN	eS	21:55:06.6			0.4		
7 ✓	E	eP	22:22:24.0		1	0.4	NR	$\Delta(S-P) = 4.3^\circ$
		eS	22:23:17.5			0.4		
7 ✓		eP	22:34:35.2		4	1.0	T	Rat Islands, Aleutian Is. 51.5 N 176.1 E
		e	22:36:34.1			1.8		0 = 22:26:33.8
								h about 43 km $\Delta = 43.5^\circ$
								Dir = 304° P-Phase Dir = WNW
7 ✓	N	eP	23:14:47.6		1	0.6	NR	$\Delta(S-P) = 3.8^\circ$
		eS	23:15:34.7			0.9		
7 ✓	N	eP	23:33:44.0		1	0.4	NR	$\Delta(S-P) = 2.2^\circ$
		eS	23:34:13.6			0.4		
7 ✓	E	eP	23:40:14.0		1	0.3	NR	$\Delta(S-P) = 2.6^\circ$
		eS	23:40:47.0			0.5		
7 ✓	E	eP	23:42:42.1		2	0.6	NR	$\Delta(S-P) = 1.7^\circ$
		eS	23:43:06.8			0.5		P-Phase Dir = N
7 ✓	N	eP	23:48:07.2		3	0.2	L	$\Delta(S-P) = 0.3^\circ$
		eS	23:48:12.1			0.3		

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
8	N	eP	00:04:56.9	C	999	999	L	$\Delta(S-P) = 0.3^\circ$
		eS	00:05:01.9			999		
8		eP	00:13:23.9			0.8	T	Near Coast of Southern Peru 15.1 S 75.6 W 0 = 00:02:08.6 h about 33 km $\Delta = 70.7^\circ$ Dir = 137°
8	E	eP	00:29:45.1		1	0.4	NR	$\Delta(S-P) = 2.5^\circ$
		eS	00:30:18.0			0.5		
8	N	eP	00:41:11.0		1	0.3	NR	$\Delta(S-P) = 4.3^\circ$
		eS	00:42:04.1			0.7		
8	LPN LPE LPN LP	eP	00:42:07.4		4	1.1	T	1700 km Southwest of of the Galapagos Islands 4.4 S 105.5 W 0 = 00:33:13.8 h about 33 km $\Delta = 50.2^\circ$ Dir = 165°
		ePS	00:49:32			30.0		
		e	00:52:15			21.0		
		e(LQ)	00:54:58			44.0		
		e(LR)	00:57:54			20.0		
8		eP	01:16:45.7		2	0.8	T	
8	E	eP	01:49:55.4		2	0.4	L	$\Delta(S-P) = 1.2^\circ$ P-Phase Dir = NW
		eS	01:50:10.0			0.4		
8	LPN	eP	02:41:03.6		2	0.7	T	
		e	02:55:57			22.0		
8	N	eP	03:19:17.4		1	0.3	NR	$\Delta(S-P) = 3.8^\circ$
		eS	03:20:03.0			0.3		
8	N	eP	05:16:04.7		1	0.2	L	$\Delta(S-P) = \text{less than } 0.1^\circ$
		eS	05:16:08.3			999		
8	N	eP	06:09:34.1		2	0.2	L	$\Delta(S-P) = 0.5^\circ$
		eS	06:09:41.3			0.2		

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
8		eP	06:31:11.1		1	0.7	T	
8	N	eP	06:41:49.6		1	0.3	L	$\Delta(S-P) = \text{less than } 0.1^\circ$
		eS	06:41:53.2			999		
8		eP	10:07:09.8		3	0.9	T	
		e	10:07:34.5			1.3		
8		eP	10:16:16.5		4	0.9	T	New Hebrides Is. 14.7 S 167.1 E 0 = 10:03:22.8 h about 86 km $\Delta = 90.3^\circ$ Dir = 250° P-Phase Dir = SW
8		eP	13:14:54.2		1	0.7	T	
8	E	eP	13:23:37.6		1	0.3	NR	$\Delta(S-P) = 4.1^\circ$
		eS	13:24:28.4			0.5		
8	E	eP	13:27:27.4		1	0.1	L	$\Delta(S-P) = 0.2^\circ$
		eS	13:27:31.8			0.3		
8	E	eP	15:24:36.9		1	0.2	L	$\Delta(S-P) = 0.2^\circ$
		eS	15:24:41.3			0.2		
8		eP	15:26:10.3		6	1.0	T	Santa Cruz Islands 12.0 S 166.8 E 0 = 15:13:42.7 h about 234 km $\Delta = 88.6^\circ$ Dir = 252° P-Phase Dir = SSW
8	E	eP	15:26:16.8		999	999	L	$\Delta(S-P) = 0.2^\circ$
		eS	15:26:20.2			999		
8		eP	15:47:37.5		1	0.2	L	$\Delta(S-P) = 0.2^\circ$
		eS	15:47:42.0			0.1		
8	N	eP	16:03:10.0		2	0.1	L	$\Delta(S-P) = 0.5^\circ$
		eS	16:03:17.1			999		

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
8	✓	N	eP 16:14:18.4 eS 16:14:23.4		1	0.2 0.2	L	$\Delta(S-P) = 0.3^\circ$
8	✓	IB N IBN	eP 16:28:21.4 eS 16:28:25.0	D	999	999	L	$\Delta(S-P) = \text{less than } 0.1^\circ$
8	✓		eP 16:41:08.6		3	1.0	T	Fiji Islands Region 15.0 S 179.2 W 0 = 16:29:32.5 h about 408 km $\Delta = 81.8^\circ$ Dir = 239°
8	✓	N	eP 16:59:06.8 eS 16:59:53.4		2	0.6 0.4	NR	$\Delta(S-P) = 3.8^\circ$
8	✓	N	eP 17:20:35.2 eS 17:21:36.0		1	0.4 0.4	NR	$\Delta(S-P) = 5.1^\circ$
8	✓		eP 18:58:21.8			0.7	T	Kurile Islands Region 45.2 N 147.2 E 0 = 18:48:06.3 h about 148 km $\Delta = 63.3^\circ$ Dir = 308°
8	✓	E	eP 19:06:05.2 eS 19:06:49.8		1	0.4 0.4	NR	$\Delta(S-P) = 3.6^\circ$
8	✓	E	eP 19:10:43.9 eS 19:11:30.5		1	0.4 0.4	NR	$\Delta(S-P) = 3.8^\circ$
8	✓	E	eP 19:16:04.4 eS 19:16:48.0		1	0.3 0.4	NR	$\Delta(S-P) = 3.6^\circ$
8	✓	N	eP 19:25:28.2 eS 19:26:12.2		1	0.4 0.3	NR	$\Delta(S-P) = 3.6^\circ$
8	✓	N	eP 19:51:43.8 eS 19:51:47.4		1	0.1 999	L	$\Delta(S-P) = \text{less than } 0.1^\circ$
8	✓		eP 20:42:54.2 e 20:42:59.2		5	1.4 0.6	T	

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
8	✓	N	eP 21:09:49.8 eS 21:09:52.9		1	0.1 999	L	$\Delta(S-P) = \text{less than } 0.1^\circ$
3	✓		eP 21:24:01.2 e 21:24:52.0 e(PcP) 21:25:24.4 eScP 21:29:35.4 e 21:36:41.8		9	1.7 0.9 1.5 1.8 1.6	T	Near Islands, Aleutian Islands 52.0 N 174.9 E 0 = 21:15:56.0 h about 33 km $\Delta = 44.1^\circ$ Dir = 304°
8	✓	N	eP 21:56:16.5 eS 21:56:21.5		3	0.2 0.3	L	$\Delta(S-P) = 0.3^\circ$
8	✓	E	eP 22:37:21.4 eS 22:37:55.7		1	0.3 0.2	NR	$\Delta(S-P) = 2.7^\circ$
8	✓	E	eP 23:10:28.4 eS 23:11:01.1		1	0.3 0.3	NR	$\Delta(S-P) = 2.5^\circ$
8	✓	E	eP 23:30:10.0 eS 23:30:33.4		1	0.3 0.3	NR	$\Delta(S-P) = 1.7^\circ$
9	✓		eP 00:10:22.0 e 00:10:31.0		2	1.0 0.9	T	Data from Helicorder records of Z3
9	✓	LPE LP	e 01:28:12.0 e(PP) 01:28:50 eLQ 01:56:40 eLR 02:00:40		1	0.9 1.5 34.0 28.0	T	Iraq-Iran Border Region 33.4 N, 47.2 E 0 = 01:11:02.1 h about 33 km $\Delta = 100.9^\circ$ Dir = 13° No P phase visible
9	✓	E	iP 01:42:31.5 eS 01:42:45.5	C	1	0.2 0.3	L	$\Delta(S-P) = 1.1^\circ$ P - Phase Dir. = SE

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks	
					A	T			
9	IB	iP	02:27:05.6	C	22	0.8	T	Central Romania 45.8 N , 26.7 E 0 = 02:14:47.6 h about 130 km $\Delta = 84.3^\circ$ Dir. = 24° P - Phase Dir. = NE	
		epP	02:27:39.9						0.8
								Data from Helicorder Records of Z3. From 0257Z to 1709Z. BB and LP are from Develocorder.	
9		eP	08:37:54.6		2	0.9	T	Fiji Islands 20.5 S , 178.31 W 0 = 08:26:10.0 h about 522 km $\Delta = 85.5^\circ$ Dir. = 235°	
9	BB LP LP	eP	09:33:01.7		11	1.1	T	Near East Coast of Honshu, Japan 35.8 N , 140.3 E 0 = 09:21:30.8 h about 33 km $\Delta = 73.4^\circ$ Dir. = 304°	
		e(Sur)	09:50:21						6.0
		e(Sur)	09:55:48						28.0
9		eP	13:53:10.4		6	0.5	NR	$\Delta(S-P) = 4.7^\circ$	
		eS	13:54:07.5			0.6			
9	LP	iP	14:02:57.9	D		1.2	T	Bonin Islands Region 27.5 N 140.1 E 0 = 13:51:38.5 h about 452 km $\Delta = 79.3^\circ$ Dir. = 298°	
		epP	14:04:40.8						0.8
		eSP	14:13:07						18.0
9		eP	14:12:37.5		1	0.3	NR	$\Delta(S-P) = 4.5^\circ$	
		eS	14:13:21.8			0.7			

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks	
					A	T			
9		e(Sur)	17:01:06			17.0		No Primary Phases Visible.	
9	N	eP	17:34:42.1		1	0.4	NR	$\Delta(S-P) = 3.6^\circ$	
		eS	17:35:26.8						0.4
9		eP	17:54:43.1			0.8	T		
9	E	eP	18:01:59.2		1	0.3	R	$\Delta(S-P) = 11.0^\circ$	
		e	18:02:26.2						0.6
		eS	18:04:06.2						0.7
9	LP	eP	18:19:05.6		6	1.1	T	Azores 40.3 N , 29.3 W 0 = 18:08:47.9 h about 33 km $\Delta = 61.9^\circ$ Dir. = 60° P-Phase Dir. = SE	
		ePcP	18:19:46.5						1.0
		eLR	18:38:13						31.0
9		eP	18:35:13.6		2	1.2	T		
9	N	eP	18:37:55.1		1	0.4	R	$\Delta(S-P) = 6.5^\circ$	
		eS	18:39:12.0						0.5
9	IB N IBN	iP	19:39:16.3	C	999	999	L	$\Delta(S-P) = 0.5^\circ$ P-Phase Dir. = NE	
		eS	19:39:23.4						999
9	N	eP	19:54:55.4		1	0.6	NR	$\Delta(S-P) = 3.7^\circ$	
		eS	19:55:41.3						0.6
9		eP	20:50:23.4		1	0.6	T		
9	N	eP	20:56:48.2		1	0.3	NR	$\Delta(S-P) = 3.6^\circ$	
		eS	20:57:32.3						0.4
9	N	eP	21:06:39.5		1	0.5	NR	$\Delta(S-P) = 2.8^\circ$	
		eS	21:07:14.7						0.8

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks	
					A	T			
9	LPN LP	eP	21:20:11.9		2	1.0	T	Gulf of California 24.8 N , 109.2 W 0 = 21:15:21.7 h about 33 km $\Delta = 21.1^\circ$ Dir. = 159°	
		e(Sur)	21:26:26						15.0
		e	21:27:52						
9	E	eP	22:17:59.3		1	0.4	NR	$\Delta(S-P) = 4.5^\circ$	
		eS	22:18:54.8						0.7
9	N	eP	22:21:25.4		1	0.4	NR	$\Delta(S-P) = 4.0^\circ$	
		eS	22:22:14.6						0.6
9	LP	iP	22:21:44.6		3	0.9	T	P-Phase Dir. = SE	
		e	22:46:30						18.0
9	E	eP	22:23:56.8		1	0.2	NR	$\Delta(S-P) = 3.2^\circ$	
		eS	22:24:36.5						0.6
9	N	eP	22:29:42.8		1	0.2	NR	$\Delta(S-P) = 2.8^\circ$	
		eS	22:30:18.7						0.4
9	N	eP	22:48:05.6		1	0.4	NR	$\Delta(S-P) = 4.6^\circ$	
		eS	22:49:00.9						0.5
9		eP	22:52:22.2		1	0.5	T		
9	E	eP	22:54:33.3		1	0.3	NR	$\Delta(S-P) = 1.9^\circ$	
		eS	22:54:58.2						0.3
9	E	eP	23:00:58.2		1	0.4	NR	$\Delta(S-P) = 3.6^\circ$	
		eS	23:01:42.2						0.4
9	N	eP	23:07:21.6		1	0.3	NR	$\Delta(S-P) = 2.6^\circ$	
		eS	23:07:55.0						0.3
9	E	eP	23:58:41.1		1	0.3	NR	$\Delta(S-P) = 3.1^\circ$	
		eS	00:00:20.5						0.6
10		iP	00:11:16.7	C	7	0.7	T	P-Phase Dir. = SW	

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks							
					A	T									
10	IB BB LP E IBE BBE LPE LPN LPN LPN LP	iP	01:43:49.1		250	1.7	T	Kurile Islands 43.8 N , 147.2 E 0 = 01:33:19.0 h about 60 km $\Delta = 64.2^\circ$ Dir. = 307° P-Phase Dir. = NW							
		eS	01:52:23.0						2.5						
		eSS	01:56:34						30.0						
		e(SSS)	01:59:55						32.0						
		eLO	02:01:10						43.0						
		eLR	02:03:40						36.0						
		e(PKKP)	02:04:42.1						1.3						
		eP'P'	02:12:29.8						1.8						
		10	N						eP	02:20:07.1		1	0.1	L	$\Delta(S-P) = 0.5^\circ$
									eS	02:20:14.2					
10		eP	02:39:03.9		2	0.9	T	Mariana Islands Region 12.8 N , 143.6 E 0 = 02:26:19.1 h about 37 km. $\Delta = 87.4^\circ$ Dir. = 285° P-Phase Dir. = NW							
10	N	eP	03:33:39.8		1	0.3	NR	$\Delta(S-P) = 1.9^\circ$							
		eS	03:34:05.2						0.3						
10	N	eP	05:12:47.1		1	0.2	L	$\Delta(S-P) = 0.5^\circ$							
		eS	05:12:54.2						0.2						
10		eP	05:20:52.2		1	0.7	T								
		e	05:21:04.9						0.5						
10		eP	05:50:50.5		1	0.7	T								
10		eP	05:57:13.9		1	0.6	T								
10		eP	06:00:08.3		2	0.9	T								
10	E	eP	07:19:33.1		1	0.3	NR	$\Delta(S-P) = 1.7^\circ$							
		eS	07:19:56.2						0.3						

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
10	Y	eP	09:31:12.1	4	1.2	T		
		e	09:31:55.9		1.3			
		LP	09:42:10		16.0			
		LPE	09:48:40		30.0			
		LPN	09:59:14		35.0			
	LP	e(LR)	10:02:14	34.0				
10	Y	eP	10:18:46.5	1	0.8	T		
10	Y	eP	10:38:42.9	1	0.2	NR	$\Delta(S-P) = 1.8^\circ$	
		E	eS		10:39:07.4			
10	Y	eP	10:43:06.2	2	1.1	T		
10	Y	eP	10:49:06.1	2	0.9	T		
10	Y	eP	10:57:13.6	3	1.0	T		
10	Y	eP	11:17:06.8	6	1.2	T	Near Northern Coast of Luzon 19.3 N , 121.1 E 0 = 11:03:36.8 h about 32 km $\Delta = 97.0^\circ$ Dir. = 306°	
10	Y	eP	19:16:29.5	1	0.4	T		
10	Y	eP	19:43:12.7	1	0.9	T	Near East Coast of Honshu, Japan 38.3 N , 141.8 E 0 = 19:32:05.4 h about 100 km. $\Delta = 70.9^\circ$ Dir. = 305°	
		e	19:43:23.4		0.7			
10	Y	eP	21:08:12.1	1	0.8	T		
10	Y	eP	21:37:39.8	2	1.0	T		

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
10	X	eP	22:26:40.6	1	0.5	T	Kermadec Islands Region 30.1 S , 179.1 W 0 = 22:13:48.9 h about 215 km. $\Delta = 93.4^\circ$ Dir. = 230°	
11		eP	00:35:35.2	1	0.8	T		
11	Y	eP	01:50:28.8	1	0.2	NR	$\Delta(S-P) = 2.2^\circ$	
		N	eS		01:50:57.6			0.2
11	X	eP	04:02:07.1	2	1.0	T	Ecuador 1.2 S , 78.8 W 0 = 03:52:19.4 h about 59 km $\Delta = 57.2^\circ$ Dir. = 132°	
11	Y	eP	05:44:40.5	1	0.8	T		
11	Y	eP	06:36:52.7	1	0.7	T	Mariana Islands 18.4 N , 145.6 E 0 = 06:24:51.7 h about 135 km. $\Delta = 82.1^\circ$ Dir. = 289°	
		epP	06:37:34.8		0.9			
11	Y	eP	06:52:10.4	1	0.5	T		
11	Y	eP	06:54:13.4	1	0.2	L	$\Delta(S-P) = \text{less than } 0.1^\circ$	
		N	eS		06:54:17.0			999
11	f	LP	e(Sur)	07:59:00	28.0		No Primary Phases Visible	
11	Y	eP' ₂	07:59:44.3	7	1.5	T	Mascarene Islands Region 23.9 S , 69.5 E 0 = 07:39:15.4 h about 33 km. $\Delta = 158.4^\circ$ Dir. = 343°	
		e(PP)	08:03:50.0		2.2			

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks	
					A	T			
11	N	eP	08:11:07.6		2	0.2	NR	$\Delta(S-P) = 2.0^\circ$	
		eS	08:11:34.2			0.2			
11		eP	09:46:16.0		1	0.5	T		
11		eP ₂	10:52:12.9		1	0.9	T	Mascarene Islands Reg. 23.8 S , 69.4 E 0 = 10:31:48.3 h about 33 km. $\Delta = 158.3^\circ$ Dir. = 343.2 ^o	
		e(PP)	10:56:10.6			0.9			
11		eP	11:33:06.9		1	0.8	T		
11		eP	11:42:17.7		1	0.8	T		
11	IB LPN LP	eP	11:43:00.7		35	1.2	T	Lake Baikal Region, USSR 55.8 N , 113.1 E 0 = 11:31:44.5 h about 33 km $\Delta = 71.1^\circ$ Dir. = 333 ^o P-Phase Dir. = NW Mag 6 1/4 (Pas)	
		e	11:43:08.8						1.2
		eS	11:52:28						26.0
		e(Sur)	12:07:00						29.0
11	IB	iP	12:09:22.3	D	9	0.9	T	Fiji Islands 19.3 S , 177.6 W 0 = 11:57:47.9 h about 547 km. $\Delta = 84.1^\circ$ Dir. = 236 ^o P-Phase Dir. = SW	
		ePKKP	12:27:30.6						0.6
11		eP	13:47:30.7		1	0.6	T		
11	LP	eP'	15:34:12.6		1	0.6	T	Red Sea 17.2 N , 40.7 E 0 = 15:15:33.6 h about 34 km. $\Delta = 115.1^\circ$ Dir. = 23 ^o	
		ePP	15:35:18.5						1.8
		e(Sur)	16:10:46						30.0

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks	
					A	T			
11	IB BB LP	eP	16:22:47.4		55	1.2	T	Santa Cruz Islands 12.9 S , 166.5 E 0 = 16:09:57.6 h about 77 km $\Delta = 89.4^\circ$ Dir. = 251 ^o P-Phase Dir. = SW	
		e(pP)	16:23:11.8						1.3
		eS	16:33:26						32.0
	LPE	e	16:34:06.3			0.7			
		ePPS	16:35:06	22.0					
	LPN	e(PKKP)	16:40:02.2			0.7			
		e	16:45:01.4	1.3					
		eSKKS	16:47:22	30.0					
	LP	eP'P'	16:48:23.0			1.4			
		eSur	16:50:34	22.0					
11	E	eP	16:40:08.0		1	0.5	T		
		e	16:40:16.0						1.1
		e	16:40:23.4						1.0
		e	16:41:07.7						1.2
11	E	eP	16:44:38.3		1	0.1	L	$\Delta(S-P) = 0.1^\circ$	
		eS	16:44:42.2						0.1
11	E	eP	16:48:17.7		1	0.1	L	$\Delta(S-P) = 0.1^\circ$	
		eS	16:48:21.6						0.1
11	LP	e(Sur)	18:17:13			30.0		No Primary Phases Visible	
11	E	eP	18:45:36.6		1	0.4	NR	$\Delta(S-P) = 3.7^\circ$	
		eS	18:46:21.8						0.4
11		eP	21:15:38.7		1	0.8	T		
11	N	eP	21:18:21.8		1	0.3	NR	$\Delta(S-P) = 4.6^\circ$	
		e	21:18:33.4						0.4
		eS	21:19:27.0						999

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks	
					A	T			
11		eP	21:47:28.4		15	0.8	R	Vancouver Island Region 48.9 N , 128.8 W 0 = 21:45:20.5 h about 33 km. $\Delta = 8.9^\circ$ Dir. = 301°	
		e	21:49:07.1						1.2
		e	21:49:11						28.0
		e	22:07:49.2						0.8
11	N	eP	22:11:19.9		3	0.4	NR	$\Delta (S-P) = 2.2^\circ$	
		eS	22:11:48.7						999
11	N	eP	22:27:36.7		1	0.3	NR	$\Delta (S-P) = 0.1^\circ$	
		eS	22:28:40.4						0.6
11	IB BB LP LP LP LPN e LPN LPN LPN LP	eP	22:27:41.5		35	1.5	T	Off Coast of Southern Chile 43.2 S , 76.0 W 0 = 22:14:18.7 h about 33 km. $\Delta = 95.1^\circ$ Dir. = 151°	
		ePP	22:31:37						20.0
		eSKS	22:38:21						29.0
		ePS	22:40:16						20.0
		e	22:41:24.1						1.2
		e(SS)	22:45:04						40.0
		e(SSS)	22:49:28						34.0
		eLQ	22:54:56						46.0
		eLR	23:01:04						35.0
		11	N						eP
eS	22:38:16.3			999					
11		eP	22:45:05.7		8	1.4	T		
11	N	eP	23:45:38.6		1	0.1	L	$\Delta (S-P) = \text{less than } 0.1^\circ$	
		eS	23:45:42.0						0.2
12	E	eP	01:35:20.3		1	0.3	NR	$\Delta (S-P) = 4.8^\circ$	
		eS	01:36:18.3						0.7
12	N	eP	01:53:45.6		1	0.3	L	$\Delta (S-P) = 0.3^\circ$	
		eS	01:53:51.2						999
12	E	eP	02:01:07.6		1	0.3	NR	$\Delta (S-P) = 2.2^\circ$	
		eS	02:01:35.6						0.3
12		eP	04:26:50.7		1	0.5	T		
		e	04:27:23.4						1.3

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks	
					A	T			
12		eP	07:47:32.6		2	0.8	T		
		e	07:48:14.3						1.2
12		eP	08:37:32.8		2	0.8	T		
12	LPE LPN LP	eP	13:01:56.3		10	1.2	T	Ryukyu Island 26.0 N , 128.4 E 0 = 12:49:10.8 h about 40 km $\Delta = 87.5^\circ$ Dir. = 305° P-Phase Dir = SW	
		e(S)	13:12:40						20.0
		e	13:25:28						20.0
		e	13:29:00						18.0
12	N	eP	13:28:34.8		1	0.7	NR	$\Delta (S-P) = 5.0^\circ$	
		eS	13:29:35.0						0.7
12		eP	14:52:23.4		2	0.6	T	P-Phase Dir. = SW	
12	E	eP	15:55:14.5		1	0.3	L	$\Delta (S-P) = 0.1^\circ$	
		eS	15:55:18.1						0.3
12	N	eP	16:27:42.3		1	0.4	NR	$\Delta (S-P) = 3.5^\circ$	
		eS	16:28:25.1						0.4
12		eP	16:28:43.4		2	0.9	T	Southern Honshu, Japan 35.5 N , 135.8 E 0 = 16:16:56.1 h about 33 km $\Delta = 76.3^\circ$ Dir. = 307°	
		e	16:28:55.8						0.8
12	E	eP	17:22:32.0		1	0.2	L	$\Delta (S-P) = \text{less than } 0.1^\circ$	
		eS	17:22:35.5						999
12	N	eP	19:29:53.2		1	0.4	NR	$\Delta (S-P) = 3.6^\circ$	
		eS	19:30:37.5						0.4
12	N	eP	19:36:19.6		1	0.4	NR	$\Delta (S-P) = 3.7^\circ$	
		eS	19:37:05.5						0.4
12		eP	19:40:11.3		9	0.9	T	Andreanoff Islands, Aleutian Island 51.5 N , 178.4 W 0 = 19:32:38.0 h about 57 km. $\Delta = 40.2^\circ$ Dir. = 302°	

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
12 ✓		eP	19:46:01.1		1	0.6	T	
12 ✓		eP e	19:57:41.1 19:57:46.7		3	1.0 0.7	T	
12 ✓	N	eP eS	22:55:50.5 22:56:35.8		1	0.3 0.4	NR	$\Delta(S-P) = 3.7^\circ$
13 ✓	E	eP eS	00:54:54.5 00:55:15.8		1	0.4 0.4	NR	$\Delta(s-P) = 1.6^\circ$ P-Phase Dir. = N
13 ✓	N	eP eS	01:08:57.9 01:09:01.5		1	0.2 999	L	$\Delta(S-P) = \text{less than } 0.1^\circ$ P-Phase Dir. = SE
13 ✓	E	eP eS	06:37:36.3 06:39:03.8		1	0.6 0.5	R	$\Delta(S-P) = 7.5^\circ$
13 ✓	E	eP eS	08:00:53.6 08:01:44.6		1	0.5 0.4	NR	$\Delta(S-P) = 4.2^\circ$
13 ✓	E	eP eS	08:17:06.0 08:17:35.4		1	0.3 0.5	NR	$\Delta(S-P) = 2.3^\circ$
13 ✓	LP	eP epP eSur	09:05:35.4 09:05:54.9 09:27:26		4	0.9 1.1 34.0	T	Off Coast of Hokkaido, Japan 42.0 N , 141.9 E 0 = 08:54:39.1 h about 61 km $\Delta = 68.3^\circ$ Dir. = 308° P-Phase Dir. = W
13 ✓	E	eP eS	09:54:16.9 09:54:36.4		1	0.2 0.4	NR	$\Delta(S-P) = 1.5$
13 ✓	LP	eP ePcP e(Sur)	10:04:42.7 10:07:25.9 10:14:28		2	1.0 0.6 23.0	T	Fox Islands, Aleutian Island 52.9 N , 166.7 W 0 = 09:58:13.4 h about 69 km. $\Delta = 32.9^\circ$ Dir. = 302°
13 ✓	E	eP eS	10:05:04.4 10:05:39.2		1	0.7 0.5	NR	$\Delta(S-P) = 2.7^\circ$

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
13 ✗		eP eS	12:09:26.2 12:09:29.7		999	999 999	L	$\Delta(S-P) = \text{less than } 0.1^\circ$ P-Phase Dir. = SE
13 ✓	E	eP eS	13:47:53.3 13:48:21.5		2	0.2 0.6	NR	$\Delta(S-P) = 2.2^\circ$
13 ✗	E	eP eS	16:55:15.9 16:55:59.6		1	0.4 0.5	NR	$\Delta(S-P) = 3.5^\circ$
13 ✗	N	eP eS	17:25:38.6 17:26:22.2		1	0.4 0.4	NR	$\Delta(S-P) = 3.6^\circ$
13 ✓	N	eP eS	18:34:37.8 18:35:02.8		1	0.2 0.3	NR	$\Delta(S-P) = 1.9^\circ$
13 ✗	E	eP eS	19:05:30.4 19:06:14.2		1	0.4 0.4	NR	$\Delta(S-P) = 3.6^\circ$
13 ✗	E	eP eS	19:12:46.2 19:13:31.7		1	0.2 0.3	NR	$\Delta(S-P) = 3.7^\circ$
13 ✗	E	eP eS	19:24:57.5 19:25:26.5		1	0.2 0.2	NR	$\Delta(S-P) = 2.2^\circ$
13 ✗	E	eP eS	20:39:11.0 20:39:18.4		1	0.2 0.3	L	$\Delta(S-P) = 0.5^\circ$
13 ✓	E	eP eS	21:32:14.4 21:32:39.7		1	0.4 0.6	NR	$\Delta(S-P) = 1.9^\circ$
13 ✓		eP' e	22:06:44.4 22:10:09.6		8	0.7 1.6	T	Sandwich Islands 56.9 S , 29.0 W 0 = 21:47:50.3 h about 33 km $\Delta = 128.8^\circ$ Dir. = 135° P-Phase Dir. = S
13 ✓	E	eP eS	22:24:19.3 22:24:45.2		1	0.5 0.5	NR	$\Delta(S-P) = 1.9^\circ$

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
13		eP	22:28:47.3		1	0.2	NR	$\Delta(S-P) = 4.6^\circ$
		e	22:28:54.0			0.7		
	N	eS	22:29:42.9			999		
13		eP	22:32:44.7		2	0.5	NR	$\Delta(S-P) = 2.4^\circ$
	N	eS	22:33:14.8			0.4		
13		eP	22:35:16.6		1	0.4	NR	$\Delta(S-P) = 5.3^\circ$
	E	eS	22:36:20.0			0.5		
13		eP	22:38:55.6		1	0.4	NR	$\Delta(S-P) = 3.5^\circ$
	E	eS	22:39:39.0			0.4		
13		eP	23:21:34.4		2	0.3	NR	$\Delta(S-P) = 2.4^\circ$
	E	eS	23:22:04.8			999		
13		eP	23:50:26.5		1	0.3	NR	$\Delta(S-P) = 2.6^\circ$
		e	23:50:30.4			0.5		
	N	eS	23:50:59.8			999		
14		eP	00:01:27.1		1	0.7	T	
14		eP	00:28:49.3		1	0.7	T	
		e	00:29:00.7			0.9		
14		eP	01:07:17.0		1	0.7	T	
14		eP	01:45:40.6		5	1.2	T	
		e	01:46:01.5			1.2		
	LP	e	01:57:37			40.0		
	LP	e	02:02:34			20.0		
14		eP	02:20:52.5		1	0.2	L	$\Delta(S-P) = \text{less than } 0.1^\circ$
	N	eS	02:20:56.1			999		P-Phase Dir. = S. E.
14		eP	02:22:33.0		1	0.3	L	$\Delta(S-P) = \text{less than } 0.1^\circ$
	N	eS	02:22:36.6			999		P-Phase Dir. = SE
14		eP	05:12:28.0		1	0.3	NR	$\Delta(S-P) = 2.5^\circ$
	N	eS	05:13:00.2			0.4		P-Phase Dir. = SE

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
14		eP	05:28:40.5		6	1.2	T	New Hebrides Islands
		e	05:28:50.0			1.7		15.4 S , 168.0 E
								O = 05:15:43.7
								h about 66 km.
								$\Delta = 90.2^\circ$
								Dir. = 248
14		eP	06:27:46.2		3	0.2	L	$\Delta(S-P) = 0.5^\circ$
	E	eS	06:27:53.4			999		P-Phase Dir. = ENE
14		eP	07:36:44.5		6	1.4	T	Kermadec Islands
								26.5 S , 176.2 W
								O = 07:23:50.3
								h about 33 km.
								$\Delta = 89.0^\circ$
								Dir. = 230
14		iP	07:59:31.4	D	40	1.4	T	Central Honshu, Japan
	LP	e	07:59:33.0			1.4		35.7 N , 140.8 E
	LP	e	08:08:56			30.0		O = 07:48:05.5
	LP	e	08:10:30			26.0		h about 61 km
	LP	e	08:12:06			20.0		$\Delta = 73.2^\circ$
	LP	e	08:17:38			26.0		Dir. = 304
	LPE	e(LQ)	08:18:21			44.0		P-Phase Dir. = WNW
	LP	e(LR)	08:21:12			24.0		
14		eP	08:07:56.1		3	0.8	T	
		e	08:08:16.0			0.8		
14		iP	11:12:44.2	C	999	999	L	$\Delta(S-P) = 1.3^\circ$
	IB							P-Phase Dir. = SE
	BB							
	N	eS	11:13:00.0			999		
	IBN							
14		eP	11:17:16.8		1	0.2	L	$\Delta(S-P) = \text{less than } 0.1^\circ$
	N	eS	11:17:20.4			0.3		P-Phase Dir. = SE

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks	
					A	T			
14	N	eP	11:18:38.6	1	0.1	0.2	L	$\Delta(S-P) = \text{less than } 0.1^\circ$	
		eS	11:18:42.2						
14	E	eP	12:02:27.5	1	0.2	0.3	L	$\Delta(S-P) = \text{less than } 0.1^\circ$ P-Phase Dir. = SE	
		eS	12:02:31.1						
14	N	eP	12:25:36.3	1	0.2	999	L	$\Delta(S-P) = \text{less than } 0.1^\circ$ P-Phase Dir. = SE	
		eS	12:25:39.9						
14		eP	13:08:36.6	1	0.7		T		
14		eP	13:24:47.0	1	0.6		T		
14		eP	14:15:56.0	1	0.8		T		
14	LP	eP	14:29:44.3	1	0.7	0.6	T	P-Phase Dir. = E	
		e	14:29:50.6						
		e	14:30:26.0						
		e	14:35:11.9						
		e(Sur)	14:51:30						20.0
14	N	eP	15:35:19.6	1	0.2	0.3	L	$\Delta(S-P) = \text{less than } 0.1^\circ$	
		eS	15:35:23.1						
14	E	eP	15:37:51.5	1	0.2	0.3	L	$\Delta(S-P) = \text{less than } 0.1^\circ$	
		eS	15:37:55.1						
14	LP LPE	eP	16:21:39.9	2	1.1	1.1	T	North Atlantic Ocean 20.3 N , 45.9 W 0 = 16:11:08.4 h about 33 km $\Delta = 62.9^\circ$ Dir. = 87.7°	
		ePcP	16:22:16.8						
		ePSP	16:30:32						22.0
		e(Sur)	16:40:00						20.0
14	N	eP	16:41:42.1	1	0.4	0.4	NR	$\Delta(S-P) = 3.5^\circ$	
		eS	16:42:25.4						
14	N	eP	17:51:22.4	1	0.4	0.4	NR	$\Delta(S-P) = 3.6^\circ$	
		eS	17:52:06.7						
14	N	eP	18:24:19.8	1	0.2	0.4	NR	$\Delta(S-P) = 2.4^\circ$	
		eS	18:24:49.9						

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks	
					A	T			
14	N	eP	18:58:05.0	1	0.4	0.4	NR	$\Delta(S-P) = 3.6^\circ$	
		eS	18:58:49.4						
14		eP	19:07:11.7	1	0.6		T		
14	N	eP	19:22:19.2	1	0.4	0.6	NR	$\Delta(S-P) = 3.4^\circ$	
		eS	19:23:01.2						
14	N	eP	19:26:59.4	6	0.2	999	NR	$\Delta(S-P) = 2.0^\circ$	
		eS	19:27:26.2						
14		eP	19:46:46.4	3	1.0	1.1	T		
		e	19:47:53.5						
14	N	eP	19:59:14.5	1	0.1	0.1	L	$\Delta(S-P) = \text{less than } 0.1^\circ$	
		eS	19:59:16.5						
14	N	eP	20:40:02.7	1	0.3	0.5	NR	$\Delta(S-P) = 3.2^\circ$	
		eS	20:40:42.0						
14	N	iP	21:09:32.8	C	28	0.2	L	$\Delta(S-P) = 0.5^\circ$ P-Phase Dir. = NE	
		eS	21:09:40.3						999
14		eP	21:53:24.4	7	0.9		T	P-Phase Dir. = SW	
14	N	eP	22:01:08.9	1	0.3	0.4	NR	$\Delta(S-P) = 3.9^\circ$	
		eS	22:01:56.5						
14		ePd	22:14:23.8	4	1.1	1.0	T	Northern Celebes 0.3 S , 123.0 E 0 = 21:59:16.1 h about 92 km $\Delta = 110.9^\circ$ Dir. = 292°	
		eP'	22:17:41.8						
		e(PP)	22:18:45.2						1.2
		e PKKP	22:28:51.1						0.9
14		eP	22:55:10.6	3	0.8	1.0	T		
		e	22:55:50.1						
14	N	eP	23:10:28.9	1	0.3	0.4	NR	$\Delta(S-P) = 2.6^\circ$	
		eS	23:11:01.6						
14	N	eP	23:53:37.9	1	0.3	0.5	NR	$\Delta(S-P) = 3.8^\circ$	
		eS	23:54:24.2						

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
15	N	eP	00:15:43.0		1	0.1	L	$\Delta(S-P) = \text{less than } 0.1^\circ$
		eS	00:15:44.0			999		
15	N	eP	00:17:50.6		1	0.6	NR	$\Delta(S-P) = 1.8^\circ$
		eS	00:18:15.0			0.6		
15	N	eP	00:24:42.4		1	0.3	NR	$\Delta(S-P) = 3.1^\circ$
		e	00:24:47.3			0.3		
		eS	00:25:20.9			0.4		
15	N	eP	00:27:40.6		1	0.5	NR	$\Delta(S-P) = 3.6^\circ$
		eS	00:28:24.8			0.4		
15	N	eP	00:42:00.7		1	0.2	NR	$\Delta(S-P) = 4.5^\circ$
		eS	00:42:55.0			0.4		
15	N	eP	00:44:27.7		1	0.2	L	$\Delta(S-P) = \text{less than } 0.1^\circ$ P-Phase Dir. = SE
		eS	00:44:31.3			0.2		
15	N	eP	01:40:17.8		1	0.2	NR	$\Delta(S-P) = 5.1^\circ$
		eS	01:41:18.5			0.4		
15	LP	eP	01:57:39.4		3	1.1	T	
		e	02:23:53			28.0		
15	LP	eP	03:00:57.3		2	1.0	T	
		e	03:27:08			27.0		
15	N	eP	03:57:42.2		1	0.2	NR	$\Delta(S-P) = 4.0^\circ$
		eS	03:58:30.9			0.4		
15	E	eP	04:04:17.5		1	0.2	L	$\Delta(S-P) = \text{less than } 0.1^\circ$
		eS	04:04:21.1			0.2		
15	N	eP	04:15:31.1		1	0.2	NR	$\Delta(S-P) = 3.3^\circ$
		eS	04:16:12.3			0.6		
15	N	eP	05:03:01.7		1	0.2	NR	$\Delta(S-P) = 4.6^\circ$
		eS	05:03:57.8			0.2		
15	LP	eP	05:35:49.5		1	0.6	T	
		e	05:38:40.2			1.0		
		e	05:40:14			20.0		

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
15	N	eP	07:02:33.4		1	0.2	L	$\Delta(S-P) = \text{less than } 0.1^\circ$
		eS	07:02:36.9			0.3		
15	N	eP	08:43:50.6		1	0.2	L	$\Delta(S-P) = \text{less than } 0.1^\circ$
		eS	08:43:54.4			0.2		
15	N	eP	09:10:56.5		1	0.2	L	$\Delta(S-P) = \text{less than } 0.1^\circ$ P-Phase Dir. = W
		eS	09:11:00.0			0.2		
15		eP	09:28:59.6		1	0.6	T	
15		eP	11:24:07.2		2	0.9	T	
		e	11:24:31.5			0.9		
15		eP	11:32:00.2		6	0.9	T	P-Phase Dir. = SW
		e	11:32:02.5			0.8		
15		eP	11:42:21.4		4	0.8	T	Tonga Islands 21.0 S , 178.4 W 0 = 11:30:38.6 h about 590 km $\Delta = 85.9^\circ$ Dir. = 235° P-Phase Dir. = SW
		ePKKP	12:00:17.5			0.5		
15		eP	12:26:37.9		2	0.8	T	
15		eP	14:00:03.4		3	0.9	T	Central Honshu, Japan 36.0 N , 140.3 E 0 = 13:48:40.1 h about 90 km $\Delta = 73.3^\circ$ Dir. = 304°
15		eP	16:05:03.2		3	0.9	T	Central Chile 38.3 S , 73.2 W 0 = 15:51:57.6 h about 33 km $\Delta = 91.8^\circ$ Dir = 147°
		e	16:05:09.2			1.0		
		LPN eSKS	16:15:39			18.0		
		LPN ePS	16:17:12			23.0		
		LPN eSS	16:22:33			27.0		
LP e(Sur)	16:37:30	34.0						

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
15	LPN	eP	16:22:31.9		2	1.0	T	Central Chile 38.4 S , 73.6 W 0 = 16:09:26.9 h about 33 km $\Delta = 91.8^\circ$ Dir. = 147°
		e	16:22:38.8			1.1		
		e	16:33:30			27.0		
15	N	eP	16:32:00.8		1	0.4	R	$\Delta(S-P) = 11.4^\circ$
		e	16:32:24.4			0.5		
		eS	16:34:09.7			0.6		
15		eP	16:38:48.3		7	1.1	T	New Guinea 6.9 S , 146.7 E 0 = 16:25:09.4 h about 40 km $\Delta = 99.1^\circ$ Dir. = 269°
15	N	eP	17:06:23.4		1	0.3	L	$\Delta(S-P) = \text{less than } 0.1^\circ$
		eS	17:06:26.9			0.3		
15	N	eP	17:31:07.6		1	0.3	NR	$\Delta(S-P) = 3.5^\circ$
		eS	17:31:51.0			0.4		
15	N	eP	18:01:26.7		1	0.4	NR	$\Delta(S-P) = 3.5^\circ$
		eS	18:02:09.6			0.4		
15	N	eP	18:32:34.0		3	0.2	L	$\Delta(S-P) = 0.5^\circ$ P-Phase Dir. = NE
		eS	18:32:41.2			999		
15	N	eP	19:17:31.2		1	0.3	NR	$\Delta(S-P) = 2.8^\circ$
		e	19:17:38.4			0.4		
		eS	19:18:06.1			0.4		
15	N	eP	19:24:36.3		1	0.4	NR	$\Delta(S-P) = 3.5^\circ$
		eS	19:25:19.5			999		
15		eP	20:19:20.6		2	0.6	T	
15	N	eP	20:27:00.8		3	0.1	L	$\Delta(S-P) = 0.5^\circ$ P-Phase Dir. = NE
		eS	20:27:08.0			0.4		

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
15	N	eP	20:37:18.7		999	999	L	$\Delta(S-P) = 0.1^\circ$ P-Phase Dir. = NE
		eS	20:37:22.7			999		
15	N	eP	21:07:36.3		1	0.4	NR	$\Delta(S-P) = 3.8^\circ$
		eS	21:08:22.6			0.4		
15	N	eP	21:16:33.0		1	0.4	NR	$\Delta(S-P) = 3.4^\circ$
		eS	21:17:15.1			0.5		
15	E	eP	21:27:08.4		1	0.2	R	$\Delta(S-P) = 7.9^\circ$
		eS	21:28:41.3			0.6		
15		eP	21:36:36.6		1	0.6	T	
15	N	eP	21:47:20.8		1	0.2	L	$\Delta(S-P) = 0.5^\circ$
		eS	21:42:27.8			0.2		
15	N	eP	21:52:33.4		1	0.3	NR	$\Delta(S-P) = 3.9^\circ$
		eS	21:53:21.2			0.3		
15	N	eP	21:54:00.8		6	0.2	L	$\Delta(S-P) = 0.1^\circ$
		eS	21:54:04.6			999		
15	N	eP	22:09:33.5		1	0.4	NR	$\Delta(S-P) = 3.9^\circ$
		eS	22:10:21.2			0.4		
15	N	eP	22:45:18.4		1	0.4	NR	$\Delta(S-P) = 3.4^\circ$
		eS	22:46:00.6			0.4		
15	N	eP	22:50:41.8		1	0.2	NR	$\Delta(S-P) = 1.5^\circ$
		eS	22:51:02.2			0.4		
15	E	eP	22:54:58.6		1	0.2	NR	$\Delta(S-P) = 3.8^\circ$
		eS	22:55:44.6			0.4		
15	N	eP	23:02:45.0		1	0.4	NR	$\Delta(S-P) = 4.2^\circ$
		e	23:02:50.4			0.5		
		eS	23:03:35.6			999		
15	N	eP	23:26:58.5		1	0.2	NR	$\Delta(S-P) = 5.0^\circ$
		e	23:27:12.1			0.6		
		eS	23:27:58.6			999		

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
15 ✓		eP epP e	23:35:39.6 23:35:51.3 23:35:58.9		40	2.0 2.0 1.5	T	Near Coast of Northern Peru 8.7 S , 79.8 W 0 = 23:25:15.7 h about 45 km $\Delta = 63.1^\circ$ Dir. = 138° P-Phase Dir. = SE
15 f	N	eP eS	23:51:29.3 23:52:05.5		1	0.4 0.5	NR	$\Delta(S-P) = 2.9^\circ$
16 x	E	eP eS	00:21:51.9 00:22:37.7		1	0.4 0.4	NR	$\Delta(S-P) = 3.7^\circ$
16 y		eP e	00:44:00.6 00:44:07.0		2	0.8 0.9	T	
16 x	N	eP eS	01:06:16.0 01:07:19.4		2	0.8 0.6	NR	$\Delta(S-P) = 5.4^\circ$
16 y		eP	01:23:00.5		9	1.5	T	
16 x		eP	02:15:10.0		2	0.9	T	
16 y		eP	02:31:15.6		5	0.9	T	Fiji Islands 18.0 S , 178.4 W 0 = 02:19:48.7 h about 612 km $\Delta = 83.6^\circ$ Dir. = 237°
16 y		eP e	03:02:32.1 03:02:42.5		1	0.7 0.7	T	
16 f	N	eP eS	03:46:03.4 03:46:16.7		1	0.4 0.3	L	$\Delta(S-P) = 1.0^\circ$
16 y		eP	05:05:10.3		2	1.0	T	
16 y		eP	05:49:47.3		8	1.1	T	

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
16 x		eP	06:48:53.2		7	1.0	T	Ecuador 1.0 S , 78.6 W 0 = 06:39:08.2 h about 33 km $\Delta = 57.1^\circ$ Dir. = 132° P-Phase Dir. = SE
16 ✓		iP	07:30:27.1	C	39	0.8	T	Easter Island Region 32.3 S , 111.1 W 0 = 07:18:37.3 h about 43 km $\Delta = 77.0^\circ$ Dir. = 175° P-Phase Dir. = SSE Mag. 6 1/2 - 6 3/4 (Pas) 6 (Pal)
16 x	N	eP eS	08:54:44.4 08:55:10.9		1	0.3 0.2	NR	$\Delta(S-P) = 2.0^\circ$
16 y	E	eP eS	09:27:55.0 09:27:58.6		1	0.2 0.2	L	$\Delta(S-P) = \text{less than } 0.1^\circ$
16 x		iP	10:04:22.9	C	21	1.0	T	Mariana Islands 19.0 N , 145.3 E 0 = 09:52:25.1 h about 207 km $\Delta = 81.9^\circ$ Dir. = 289° P-Phase Dir. = WSW
16 y	E	eP eS	10:14:39.9 10:15:09.6		1	0.3 0.3	NR	$\Delta(S-P) = 2.4^\circ$
16 y		eP	10:31:53.5		2	0.8	T	P-Phase Dir. = SW
16 x		eP	12:09:43.1		1	0.8	T	
16 y		eP	12:48:52.0		1	0.7	T	
16 x		eP	14:11:12.4		1	0.5	T	
16 x		eP	15:50:35.8		1	1.0	T	

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
16	N	eP	16:07:50.6	1	0.2	NR	$\Delta(S-P) = 0.7^\circ$	
		e	16:07:59.5		0.3			
		eS	16:08:45.0		0.3			
16	N	eP	16:20:45.0	1	0.3	NR	$\Delta(S-P) = 2.4^\circ$	
		eS	16:21:14.8		0.5			
16	N	eP	16:46:41.6	1	0.1	L	$\Delta(S-P) = 0.6^\circ$	
		eS	16:46:48.8		0.1			
16	N	eP	17:48:06.4	1	0.3	NR	$\Delta(S-P) = 3.6^\circ$	
		eS	17:48:50.3		0.5			
16	N	eP	17:59:40.5	1	0.2	NR	$\Delta(S-P) = 5.3^\circ$	
		eS	18:00:43.0		0.5			
16		eP	18:16:25.2	3	1.1	T		
16	N	eP	18:18:43.6	1	0.2	NR	$\Delta(S-P) = 4.8^\circ$	
		eS	18:19:41.2		0.5			
16	N	eP	18:31:23.4	1	0.6	NR	$\Delta(S-P) = 5.4^\circ$	
		eS	18:32:27.6		0.5			
16	N	eP	18:50:50.3	1	0.4	NR	$\Delta(S-P) = 3.6^\circ$	
		eS	18:51:33.6		0.6			
16		eP	19:11:38.2	1	0.5	T		
16	N	eP	19:59:28.2	1	0.1	L	$\Delta(S-P) = 0.5^\circ$	
		eS	19:59:35.3		0.2			
16		eP	20:18:16.1	2	0.9	T		
16	E	eP	20:32:15.8	1	0.1	NR	$\Delta(S-P) = 1.9^\circ$	
		eS	20:32:40.5		0.4			
16		ePd	21:25:09.4	1	1.3	T	Andaman Islands 13.5 N , 93.2 E 0 = 21:10:01.8 h about 33 km. $\Delta = 115.7^\circ$ Dir. = 327 $^\circ$	
		e	21:25:41.8		1.6			
		eP'	21:28:43.2		1.1			
		e(PP)	21:29:37.3		1.6			
		ePKKP	21:39:18.0		0.9			

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
16	E	eP	21:53:44.6	1	0.4	NR	$\Delta(S-P) = 3.5^\circ$	
		eS	21:54:28.4		0.4			
16	N	eP	22:23:51.7	1	0.4	NR	$\Delta(S-P) = 2.5^\circ$	
		eS	22:24:23.5		0.5			
		e(Sur)	22:24:37.6		0.4			
16	N	eP	22:56:51.2	1	0.4	NR	$\Delta(S-P) = 3.6^\circ$	
		eS	22:57:35.2		0.6			
16	E	eP	23:20:14.6	1	0.3	L	$\Delta(S-P) = \text{less than } 0.1^\circ$	
		eS	23:20:17.8		999			
16	N	eP	23:29:28.2	1	0.4	NR	$\Delta(S-P) = 4.9^\circ$	
		eS	23:30:27.2		0.6			
16	N	eP	23:46:39.8	999	999	NR	$\Delta(S-P) = 2.7^\circ$	
		eS	23:47:13.4		999			
17		eP	00:11:58.2	9	1.0	T	Bolivia 19.6 S , 68.8 W 0 = 00:00:21.5 h about 209 km $\Delta = 77.9^\circ$ Dir. = 134 $^\circ$ P-Phase Dir. = SSE	
		e	00:12:35.0		0.9			
17		eP	00:17:08.4	1	0.9	T		
17	N	eP	00:25:36.5	1	0.3	NR	$\Delta(S-P) = 3.5^\circ$	
		eS	00:26:19.3		0.4			
17	N	eP	00:47:10.5	1	0.3	NR	$\Delta(S-P) = 2.6^\circ$	
		e	00:47:15.3		0.3			
		eS	00:47:43.1		0.3			
17		eP	01:34:53.9	2	0.8	T		
17		eP	05:03:51.2	1	0.5	T		
		e	05:04:05.2		1.0			
17	N	eP	05:54:47.5	2	0.2	L	$\Delta(S-P) = 0.5^\circ$ P-Phase Dir. = NE	
		eS	05:55:54.8		0.2			

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
17 ✓	IB LP	iP	11:13:49.7	C	30	1.0	T	Oaxaca, Mexico 16.3 N , 98.2 W 0 = 11:07:15.4 h about 12 km $\Delta = 32.7^\circ$ Dir. = 144° P-Phase Dir. = SE
		e(PP)	11:15:10.8			1.2		
		ePcP	11:16:34.9			1.4		
	LPE	eS	11:19:12			18.0		
	LP	e	11:19:58			26.0		
	LP	e(ScP)	11:20:04			25.0		
	LPE	eLQ	11:22:47			48.0		
	LP	e(Sur)	11:24:30			19.0		
		e(Sur)	11:24:37.7			3.0		
	LP	e(Sur)	11:27:59			13.0		
		e(Sur)	11:28:01.0			8.5		
		eP	11:46:49.1		1	1.2	T	
17 ✗		eP	13:25:10.0		1	0.7	T	
17 ✓		ePd	14:34:56.4		2	0.8	T	Celebes Sea 2.8 N , 121.7 E 0 = 14:21:30.6 h about 609 km $\Delta = 109.4^\circ$ Dir. = 295°
		e	14:35:33.0			0.9		
		eP'	14:38:52.3			0.8		
		e(SKp)	14:41:55.7			1.7		
17 ✓		eP	14:47:00.3		1	0.9	T	
		e	14:47:08.8			1.0		
17 ✓		eP	14:50:02.2		1	0.6	T	
		e	14:50:15.5			1.1		
17 ✓	LP	eP	19:52:48.4		1	0.6	T	
		e	20:06:07			24.0		
17 ✗		eP	20:03:03.6		2	0.7	T	Possible phase of above Dir. = SW
17 ✗	N	eP	20:32:27.5		1	0.4	NR	$\Delta(S-P) = 3.8^\circ$
		eS	20:33:13.6			0.4		
17 ✓	N	eP	20:41:32.9		1	0.3	NR	$\Delta(S-P) = 3.7^\circ$
		eS	20:42:18.3			0.4		

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
17 ✓	N	eP	20:50:21.3		1	0.4	NR	$\Delta(S-P) = 3.6^\circ$
		eS	20:51:05.4			0.4		
17 ✓		eP	20:58:52.4		4	0.9	T	P-Phase Dir. = SE
		e	20:00:49.7			0.9		
17 ✓	E	eP	21:10:40.8		1	0.3	NR	$\Delta(S-P) = 3.6^\circ$
		eS	21:11:24.2			0.5		
17 ✓	N	eP	21:21:44.9		1	0.4	NR	$\Delta(S-P) = 3.6^\circ$
		eS	21:22:29.2			0.4		P-Phase Dir. = ENE
17 ✓	N	eP	21:32:05.1		1	0.2	L	$\Delta(S-P) = 1.5^\circ$
		eS	21:32:23.0			0.4		
17 ✓	N	eP	22:05:31.8		1	0.2	L	$\Delta(S-P) = \text{less than } 0.1^\circ$
		eS	22:05:35.5			0.2		
17 ✓	N	eP	22:22:36.1		1	0.3	R	$\Delta(S-P) = 7.4^\circ$
		e(S)	22:24:03.5			0.4		
17 ✗		eP	22:33:53.5		2	0.7	T	Central Alaska 63.3 N , 150.0 W 0 = 22:28:29.3 h about 125 km $\Delta = 26.2^\circ$ Dir. = 326.4° P-Phase Dir. = NW
		epP	22:34:21.8			0.9		
		ePP	22:34:41.0			1.0		
		e(PcP)	22:37:15.0			0.5		
17 ✗	E	eP	22:52:40.2		1	0.4	NR	$\Delta(S-P) = 2.3^\circ$
		eS	22:53:07.1			0.5		
18 ✓	N	eP	01:05:26.7		1	0.3	NR	$\Delta(S-P) = 3.2^\circ$
		eS	01:06:06.0			0.3		
18 ✓	E	eP	01:07:26.0		1	0.3	NR	$\Delta(S-P) = 2.2^\circ$
		eS	01:07:54.2			0.3		
18 ✗	N	eP	01:40:55.9		1	0.4	NR	$\Delta(S-P) = 1.9^\circ$
		eS	01:41:21.0			0.4		
18 ✗		eP	02:27:17.5		2	1.1	T	
		e	02:28:02.4			1.0		

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
18	✓	eP	04:08:00.0		1	0.6	T	
18	✗	E eP eS	06:41:58.9 06:42:03.2		1	0.3 0.3	L	$\Delta(S-P) = 0.2^\circ$ P-Phase Dir. = SE
18	✓	ePd e eP' e(PPP) e ePKKP eSur	06:57:41.9 06:58:17.4 07:01:34.4 07:04:03.4 07:08:32.3 07:12:53.3 07:34:37		1	0.5 1.0 0.8 1.0 1.1 1.1 20.0	T	Molucca Sea 0.2 S , 125.1 E 0 = 06:43:08.3 h about 56 km $\Delta = 109.4^\circ$ Dir. = 290°
18	✗	E eP eS	07:18:34.7 07:19:44.9		1	0.3 0.6	R	$\Delta(S-P) = 6.0^\circ$
18	✗	LP eP e e(Sur)	07:49:07.4 07:49:41.1 08:09:32		5	1.0 1.3 50.0	T	P-Phase Dir. = ESE
18	✓	N eP eS	08:52:50.0 08:53:42.1		1	0.3 0.4	NR	$\Delta(S-P) = 4.3^\circ$
18	✓	iP epP	12:12:22.2 12:12:59.4	D	7	0.9 1.1	T	Tonga Islands Region 16.4 S , 174.1 W 0 = 12:00:26.7 h about 129 km $\Delta = 79.8^\circ$ Dir. = 235° P-Phase Dir. = SSW
18	✓	eP	13:05:15.6		4	1.3	T	
18	✗	N eP eS	18:55:41.8 18:56:37.4		1	0.4 0.5	NR	$\Delta(S-P) = 4.6^\circ$
18	✗	eP	22:29:04.4		1	0.7	T	
19	✗	E eP eS	00:40:00.7 00:40:24.3		1	0.4 0.3	NR	$\Delta(S-P) = 1.8^\circ$

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
19	✗	N eP eS	02:45:05.2 02:45:08.7		1	0.2 999	L	$\Delta(S-P) = \text{less than } 0.1^\circ$
19	✗	eP	03:44:08.6		1	0.7	T	
19	✓	eP	04:09:28.5		1	0.7	T	
19	✗	eP epP	04:28:41.5 04:28:57.7		6	1.0 1.1	T	Ryukyu Islands 24.3 N , 122.6 E 0 = 04:15:36.1 h about 53 km $\Delta = 92.2^\circ$ Dir. = 308°
19	✗	eP e	07:38:05.5 07:38:23.1		1	0.7 1.0	T	
19	✓	eP	09:17:53.6		1	0.7	T	
19	✗	LPE LPN LPE LPE LP	10:27:42.0 10:45:34 10:49:32 10:53:16 10:55:56 10:58:56		1	0.7 22.0 24.0 28.0 43.0 30.0	T	South Pacific Ocean 50.0 S , 114.3 W 0 = 10:14:29.4 h about 33 km. $\Delta = 94.5^\circ$ Dir. = 178°
19	✗	eP	10:42:25.0		2	1.0	T	
19	✓	LP e(Sur)	12:36:24			25.0		No Primary Phase Visible
19	✓	LP eP eScP e(Sur)	14:39:40.3 14:44:32.2 15:01:26		2	0.5 0.5 18.0	T	Colombia 6.7 N , 73.0 W 0 = 14:30:29.1 h about 135 km. $\Delta = 54.0^\circ$ Dir. = 121°
19	✗	eP	17:02:40.6		5	0.9	T	New Britain Region 5.2 S , 152.6 E 0 = 16:49:29.3 h about 62 km. $\Delta = 93.7^\circ$ Dir. = 266°

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
19	x	N	eP 18:25:26.5 eS 18:25:33.6		3	0.2 999	L	$\Delta(S-P) = 0.5^\circ$
19	x		eP 19:04:24.2		1	0.4	T	
19	x	N	eP 19:38:29.2 eS 19:39:13.8		1	0.4 0.4	NR	$\Delta(S-P) = 3.7^\circ$
19	x	LP	eP 21:51:06.3 e 21:51:40.4 eLR 21:59:48		2	0.9 1.3 26.0	T	Unimak Island Region 53.8 N , 163.6 W 0 = 21:44:50.2 h about 33 km $\Delta = 31.0^\circ$ Dir. = 304 $^\circ$
19	x	E	eP 22:14:19.0 eS 22:15:04.1		1	0.4 0.5	NR	$\Delta(S-P) = 3.7^\circ$
19	x	E	eP 23:47:59.8 eS 23:48:32.5		1	0.2 0.4	NR	$\Delta(S-P) = 2.6^\circ$
20	x		eP 02:51:03.1 e 02:51:09		2	0.4 0.6	T	
20	x	E	eP 06:34:00.6 eS 06:34:28.7		1	0.3 0.3	NR	$\Delta(S-P) = 2.2^\circ$
20	x		eP 06:35:43.5		4	0.7	T	
20	x		eP 07:03:08.6		18	1.0	T	Kamchatka 55.6 N , 158.8 E 0 = 06:54:04.1 h about 33 km. $\Delta = 51.6^\circ$ Dir. = 314 $^\circ$
20	✓	LPN LP	eP 07:41:43.8 e(pP) 07:42:09.2 eLQ 07:55:16 e(Sur) 07:59:45		20	1.2 1.2 26.0 20.0	T	Kamchatka 56.2 N , 159.3 E 0 = 07:32:42.9 h about 33 km $\Delta = 51.1^\circ$ Dir. = 314 $^\circ$

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
20	x		eP 10:24:18.7		1	0.8	T	Solomon Islands 6.1 S , 154.5 E 0 = 10:11:11.2 h about 69 km. $\Delta = 93.0^\circ$ Dir. = 264 $^\circ$
20	✓	E	eP 10:51:28.7 eS 10:51:51.9		1	0.3 0.4	NR	$\Delta(S-P) = 1.8^\circ$
20	y	N	eP 11:30:37.8 eS 11:30:41.4		1	0.2 0.2	L	$\Delta(S-P) = \text{less than } 0.1^\circ$
20	y	N	eP 11:37:25.4 e 11:37:27.3 eS 11:38:11.4		1	0.2 0.5 0.7	NR	$\Delta(S-P) = 3.8^\circ$
20	x		eP 14:24:02.1		2	0.9	T	
20	x	E	eP 14:45:08.6 eS 14:45:16.1		1	0.4 0.3	L	$\Delta(S-P) = 0.6^\circ$
20	x		eP 16:13:05.3 e(pP) 16:13:19.8		5	0.8 0.9	T	Hokkaido, Japan 42.6 N , 143.4 E 0 = 16:02:14.5 h about 40 km $\Delta = 67.1^\circ$ Dir. = 308 $^\circ$ P-Phase Dir. W
20	x	N	eP 19:01:53.3 eS 19:02:38.2		1	0.4 0.4	NR	$\Delta(S-P) = 3.7^\circ$
20	y	E	eP 19:05:04.6 eS 19:05:40.0		1	0.4 0.4	NR	$\Delta(S-P) = 2.8^\circ$
20	y	N	eP 19:20:30.0 eS 19:21:16.4		1	0.4 0.6	NR	$\Delta(S-P) = 3.8^\circ$
20	x	N	eP 19:21:35.8 eS 19:21:38.8		1	0.3 0.3	L	$\Delta(S-P) = \text{less than } 0.1^\circ$

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
20	x	N	eP 20:45:08.6 eS 20:45:15.8		5	0.4 999	L	$\Delta(S-P) = 0.5^\circ$ P-Phase Dir. = NE
20	y	N	eP 21:23:58.2 eS 21:24:29.8		1	0.4 0.6	NR	$\Delta(S-P) = 2.5^\circ$
20	y	N	eP 21:45:29.1 eS 21:45:32.8		1	0.2 999	L	$\Delta(S-P) = \text{less than } 0.1^\circ$
20	y	E	eP 22:35:34.8 eS 22:36:20.6		1	0.2 0.4	NR	$\Delta(S-P) = 3.7^\circ$
20	y	E	eP 22:44:58.2 eS 22:45:42.2		1	0.3 0.4	NR	$\Delta(S-P) = 3.6^\circ$
20	y	E	eP 23:08:05.6 eS 23:08:09.7		8	0.2 999	L	$\Delta(S-P) = 0.1^\circ$
20	y	N	eP 23:33:28.2 eS 23:34:04.3		4	0.3 0.4	NR	$\Delta(S-P) = 2.8^\circ$
20	y	N	eP 23:46:20.4 eS 23:46:44.3		2	0.4 0.4	NR	$\Delta(S-P) = 1.8^\circ$
20	y	E	eP 23:59:09.8 eS 23:59:15.0		2	0.2 0.6	L	$\Delta(S-P) = 0.3^\circ$
21	x	N	eP 00:40:55.6 eS 00:41:34.4		1	0.1 0.3	NR	$\Delta(S-P) = 3.2^\circ$
21	y	LP	e(Sur) 07:52:20			35.0		No Primary Phases Visible
21	y		eP 10:05:44.1 e 10:05:51.8 e 10:07:23.9 e 10:22:40.7		4	0.7 0.7 1.3 1.2	T	P-Phase Dir. = WSW
21	y	N	eP 13:57:53.8 eS 13:57:57.2		1	0.2 999	L	$\Delta(S-P) = \text{less than } 0.1^\circ$
21	f		eP 14:18:26.0		1	0.6	T	

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
21	y		eP 15:17:01.5		2	1.0	T	Ryukyu Islands 26.0 N , 128.2 E 0 = 15:04:15.4 h about 33 km. $\Delta = 87.6^\circ$ Dir. = 305°
21	y		eP 19:36:35.0 e 19:38:28.2		3	0.8 0.7	T	P-Phase Dir. = SE
21	x	N	eP 19:41:24.2 eS 19:42:07.8		1	0.4 0.6	NR	$\Delta(S-P) = 3.6^\circ$
21	f		e(P) 19:52:06.2 epP 19:54:18.3 ePKKP 20:09:58.2 eP'P' 20:18:06.7		3	1.0 1.0 0.7 1.0	T	Fiji Islands 21.1 S , 179.2 W 0 = 19:40:15.7 h about 626 km. $\Delta = 86.5^\circ$ Dir. = 236°
21	x	N	eP 20:38:23.6 eS 20:38:48.0		1	0.4 0.4	NR	$\Delta(S-P) = 1.8^\circ$ P-Phase Dir. = NE
21	y	E	eP 21:27:08.4 eS 21:27:33.0		1	0.4 0.5	NR	$\Delta(S-P) = 1.9^\circ$
21	x	E	eP 21:59:26.2 eS 21:59:52.3		1	0.5 0.7	NR	$\Delta(S-P) = 2.0^\circ$
21	x		eP 22:15:32.4 e 22:15:44.9 eS 22:16:34.2		1	0.3 0.4 0.6	NR	$\Delta(S-P) = 1.0^\circ$
21	x	N	eP 23:00:08.0 eS 23:00:51.8		1	0.4 0.4	NR	$\Delta(S-P) = 3.6^\circ$
21	y		eP 23:03:13.3		1	0.8	T	
21	f	N	eP 23:47:06.7 eS 23:47:34.8		1	0.4 0.4	NR	$\Delta(S-P) = 2.2^\circ$

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
22	N	eP	00:12:16.9		1	0.2	NR	$\Delta(S-P) = 2.0^\circ$
		eS	00:12:43.3			0.5		
22	LPE LP	eP	01:26:34.3		1	0.7	T	
		e(LQ)	01:49:48			25.0		
		e(LR)	01:53:17			16.0		
22		eP	01:37:09.6		3	0.9	T	Near Coast of Southern Chiapas, Mexico 14.3 N , 92.7 W 0 = 01:30:02.5 h about 33 km $\Delta = 36.9^\circ$ Dir. = 138° P-Phase Dir. = S
		ePP	01:38:41.2			1.0		
22		eP	01:54:08.8		8	1.7	T	
22		eP	02:02:03.0		3	1.1	T	
		e	02:19:11.6			1.4		
22		eP	03:20:38.9		2	0.9	T	Near East Coast of Hokkaido, Japan 42.8 N , 143.0 E 0 = 03:09:46.6 h about 33 km $\Delta = 67.2^\circ$ Dir. = 308°
		e(PcP)	03:21:16.7			1.0		
22	N	eP	04:28:05.6		1	0.2	NR	$\Delta(S-P) = 5.1^\circ$
		eS	04:29:05.9			999		
22	E	eP	05:58:56.7		1	0.3	NR	$\Delta(S-P) = 2.6^\circ$
		eS	05:59:29.4			0.4		
22	LP	eP	06:53:00.0		1	0.7	T	
		e	07:18:00			17.0		
22		eP	07:03:16.4		5	0.9	T	Peru-Ecuador Border 01.6 S , 77.1 W 0 = 06:53:34.5 h about 147 km $\Delta = 58.4^\circ$ Dir. = 131° P-Phase Dir. = SE

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
22	LP	eP	07:50:35.4		8	1.4	T	New Hebrides Islands 18.2 S , 167.6 E 0 = 07:37:25.8 h about 33 km $\Delta = 92.5^\circ$ Dir. = 247°
		e(Sur)	08:22:08			20.0		
22		eP	08:48:50.7		3	0.8	T	Fiji Islands Region 20.6 S , 178.5 W 0 = 08:37:12.6 h about 605 km. $\Delta = 85.7^\circ$ Dir. = 235° P-Phase Dir. = SSW
22	N	eP	10:02:35.5		1	0.5	NR	$\Delta(S-P) = 4.5^\circ$
		e	10:02:44.0			0.5		
		eS	10:03:29.5			0.4		
22	LP	eP	10:46:17.5		1	0.9	T	
		e(Sur)	11:18:04			29.0		
22		eP	11:17:48.6		1	0.1	L	$\Delta(S-P) = \text{less than } 0.1^\circ$
		eS	11:17:51.7			0.2		
22	LPN LP	eP	13:55:31.9		1	0.5	R	Vancouver Island, British Columbia 50.7 N , 129.1 W 0 = 13:53:08.5 h about 33 km $\Delta = 9.9^\circ$ Dir. = 311° P-Phase Dir. = NW
		e(Sur)	13:58:52			16.0		
		e(Sur)	13:59:00			22.0		
22		eP	14:30:30.6			1.1	T	Kurile Islands 44.8 N , 149.9 E 0 = 14:20:10.0 h about 33 km $\Delta = 62.0^\circ$ Dir. = 306°
22	LP	eP	15:26:02.3		4	1.2	T	
		e(Sur)	15:37:48			20.0		

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
22	✓ N	eP	16:49:18.3		1	0.4	NR	$\Delta(S-P) = 1.7^\circ$
		eS	16:49:40.3			0.3		
22	✓	iP	20:13:42.1	D	2	0.6	T	
22	✓	eP	20:25:52.4		3	0.9	T	
22	✓ N	eP	22:22:55.8		1	0.2	L	$\Delta(S-P) = 0.3^\circ$
		eS	22:23:00.8			999		
22	✓	eP	22:29:48.8		2	1.0	T	
		e	22:29:53.2			0.9		
22	✓	eP	23:13:00.1		1	0.5	T	
23	✓	eP	00:07:22.2		6	1.4	T	Tonga Islands Region 24.1 S , 176.8 W 0 = 23:55:28.3 h about 391 km $\Delta = 87.4^\circ$ Dir. = 232 $^\circ$
		e	00:07:59.0			2.0		
23	✓ IB LP LPE LP LPN LPN LP	iP	00:41:19.9	C	16	1.2	T	Near South Coast of Per 15.1 S 75.3 W 0 = 00:30:04.5 h about 33 km $\Delta = 70.8^\circ$ Dir = 137 $^\circ$ P-Phase Dir = SE
		ipP	00:41:27.3			1.5		
		eS	00:50:38			26.0		
		ePSP	00:51:17			24.0		
		e(SS)	00:55:18			29.0		
		e(LO)	01:03:42			34.0		
		eLR	01:06:34			30.0		
23	✓	eP	00:56:04.1		11	1.2	T	Near South Coast of Per 15.0 S , 75.7 W 0 = 00:44:51.2 h about 40 km. $\Delta = 70.5^\circ$ Dir. = 137 $^\circ$ P-Phase Dir. = SE
		e	00:58:10.8			1.5		
23	✓ N	eP	01:13:26.5		1	0.3	L	$\Delta(S-P) = \text{less than } 0.1^\circ$
		eS	01:13:30.0			999		
23	✓	eP	03:17:15.6		2	0.8	T	

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
23	✓	eP	04:44:53.3		1	0.7	T	
		e	04:45:24.1			1.3		
23	✓	eP	05:58:04.1		1	0.6	T	
23	✓	eP	06:22:09.9		1	0.9	T	
23	✓	eP	06:36:09.6		6	1.4	T	
23	✓ E	eP	07:05:03.2		1	0.3	NR	$\Delta(S-P) = 5.7^\circ$
		eS	07:06:11.4			0.6		
23	✓	eP	07:35:51.3		1	0.5	T	
23	✓ N	eP	07:55:11.5		1	0.3	L	$\Delta(S-P) = \text{less than } 0.1^\circ$
		eS	07:55:15.2			0.2		
23	✓ N	eP	07:55:27.9		1	0.4	NR	$\Delta(S-P) = 2.3^\circ$
		eS	07:55:57.5			0.5		
23	✓ N	eP	09:24:31.3		1	0.3	NR	$\Delta(S-P) = 2.3^\circ$
		eS	09:25:01.0			0.2		
23	✓ N	eP	09:50:21.9		1	0.2	NR	$\Delta(S-P) = 2.1^\circ$
		eS	09:50:49.7			0.3		
23	✓ E	eP	10:21:16.4		1	0.3	L	$\Delta(S-P) = \text{less than } 0.1^\circ$
		eS	10:21:19.8			999		
23	✓	eP	10:55:34.6		1	0.7	T	Bismarck Sea 4.0 S , 142.3 E 0 = 10:41:57.6 h about 100 km $\Delta = 100.2^\circ$ Dir. = 274 $^\circ$
23	✓ E	eP	11:15:06.6		1	0.1	L	$\Delta(S-P) = \text{less than } 0.1^\circ$
		eS	11:15:10.3			0.2		
23	✓	eP	12:02:36.3		1	1.0	T	
23	✓	eP	13:46:52.1		1	0.8	T	

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
23		eP	14:49:32.0			0.7	T	P-Phase Dir. = S
23	N	eP eS	20:56:04.2 20:56:11.2		5	0.2 999	L	$\Delta(S-P) = 0.5^\circ$ P-Phase Dir. = NE
23	N	eP eS	21:44:17.4 21:44:24.6		1	0.2 0.2	L	$\Delta(S-P) = 0.5^\circ$
23	N	eP eS	21:46:34.3 21:46:38.1		2	0.2 0.2	L	$\Delta(S-P) = \text{less than } 0.1^\circ$
23	N	eP eS	23:04:54.4 23:05:46.7		1	0.4 0.3	NR	$\Delta(S-P) = 4.3^\circ$
23		iP epP ePP e(P'P')	23:17:30.0 23:19:48.0 23:21:08.8 23:44:00.5	D	46	1.0 1.1 1.0 1.6	T	Fiji Islands 21.5 S , 179.3 W 0 = 23:05:47.4 h about 609 km $\Delta = 86.8^\circ$ Dir. = 235 P-Phase Dir. = SW
23	E	eP eS	23:27:40.3 23:28:14.8		1	0.3 0.3	NR	$\Delta(S-P) = 2.7^\circ$
24	N	eP eS	00:44:08.1 00:44:44.5		1	0.4 0.4	NR	$\Delta(S-P) = 2.9^\circ$
24		eP	01:23:34.7			0.5	T	P-Phase Dir. = SW
24		eP	01:29:28.5		1	0.8	T	P-Phase Dir. = SW (Pass phase of previous event)
24	E	eP eS	01:30:28.6 01:30:41.2		1	0.4 999	L	$\Delta(S-P) = 1.0^\circ$
24		eP	01:46:09.3		1	0.8	T	
24	E	eP eS	04:07:40.7 04:07:51.4		1	0.4 0.5	L	$\Delta(S-P) = 0.8^\circ$

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
24	E	eP eS	05:15:09.1 05:15:12.7		1	0.2 0.3	L	$\Delta(S-P) = \text{less than } 0.1^\circ$ P-Phase Dir. = SE
24		eP e	06:52:55.0 06:55:13.6		5	1.2 0.9	T	
24		eP	07:29:31.3		2	0.6	T	
24	N	eP eS	07:38:48.2 07:39:40.4		1	0.5 0.5	NR	$\Delta(S-P) = 4.3^\circ$
24	LP	eP e eSur	07:41:36.9 07:47:35.8 07:59:48		6	1.1 0.7 27.0	T	Near North Coast of Venezuela 11.0 N , 62.6 W 0 = 07:31:46.5 h about 19 km $\Delta = 57.5^\circ$ Dir. = 108 P-Phase Dir. = SE
24	LP	eP eSur	08:22:29.9 08:47:16		7	1.1 30.0	T	Tonga Islands 18.5 S , 175.4 W 0 = 08:10:10.3 h about 33 km $\Delta = 82.2^\circ$ Dir. = 234
24		eP	10:46:13.8		9	1.2	T	Fiji Islands Region 24.8 S , 180.0 0 = 10:34:07.7 h about 500 km $\Delta = 89.8^\circ$ Dir. = 234
24	N	eP eS	12:55:25.0 12:56:33.5		1	0.4 0.6	NR	$\Delta(S-P) = 5.8^\circ$
24	N	eP e eS	13:14:59.9 13:15:08.1 13:16:06.2		2	0.4 0.8 0.6	NR	$\Delta(S-P) = 5.7^\circ$ P-Phase Dir. = SE

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
24	LP	iP	14:30:35.9	C	8	0.8	T	Near East Coast of Kamchatka 54.8 N , 161.6 E 0 = 14:21:39.7 h about 33 km $\Delta = 50.4^\circ$ Dir. = 312° P-Phase Dir. = WNW
		e	14:34:55			18.0		
		e(Sur)	14:47:52			26.0		
24	LP	iP	16:01:53.1	C	17	1.2	T	Kurile Islands 49.5 N , 155.8 E 0 = 15:52:20.1 h about 85 km $\Delta = 56.1^\circ$ Dir. = 308° P-Phase Dir. = WNW
		e(pP)	16:02:06.8			1.3		
		e(Sur)	16:19:20			32.0		
24	LP	eP	16:31:16.3	21	21	1.3	T	Mid-Atlantic Ocean 9.8 N , 40.7 W 0 = 16:19:44.9 h about 33 km $\Delta = 73.7^\circ$ Dir. = 92° P-Phase Dir. = ESE
		e	16:31:24.0			1.4		
		e	16:40:58			25.0		
		e(LQ)	16:49:30			52.0		
	LP	eLR	16:52:06			25.0		
24	N	eP	17:22:33.0	1	1	0.2	L	$\Delta (S-P) = \text{less than } 0.1^\circ$
		eS	17:22:36.7			999		
24		eP	17:36:19.8	14	14	1.5	T	Bismarck Sea 2.5 S , 148.9 E 0 = 17:22:59.5 h about 32 km $\Delta = 94.4^\circ$ Dir. = 271°
24	E	eP	20:15:14.4	1	1	0.2	L	$\Delta (S-P) = 0.1^\circ$
		eS	20:15:18.4			0.3		
24	E	eP	20:26:25.6	1	1	0.3	L	$\Delta (S-P) = 0.2^\circ$
		eS	20:26:30.0			0.3		

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
24	N	eP	21:45:03.1	1	1	0.4	NR	$\Delta (S-P) = 2.2^\circ$
		eS	21:45:30.6			0.6		
24	E	eP	20:26:25.6	1	1	0.3	L	$\Delta (S-P) = 0.2^\circ$
		eS	20:26:30.0			0.3		
24	N	eP	21:45:03.1	1	1	0.4	NR	$\Delta (S-P) = 2.2^\circ$
		eS	21:45:30.6			0.6		
24	E	eP	23:11:46.5	1	1	0.4	NR	$\Delta (S-P) = 3.7^\circ$
		eS	23:12:32.0			0.6		
24	N	eP	23:18:31.0	1	1	0.3	NR	$\Delta (S-P) = 1.7^\circ$
		eS	23:18:52.6			0.4		
25		eP	02:35:10.6	3	3	0.4	NR	$\Delta (S-P) = 2.0^\circ$
		iS	02:35:37.1			999		
25	E	eP	04:33:37.6	4	4	0.2	L	$\Delta (S-P) = 0.7^\circ$ P-Phase Dir. = SE
		eS	04:33:47.4			999		
25	N	eP	05:37:51.4	1	1	0.3	NR	$\Delta (S-P) = 4.6^\circ$
		eS	05:38:47.4			0.6		
25	N	eP	06:03:07.3	2	2	0.4	NR	$\Delta (S-P) = 1.8^\circ$ P-Phase Dir. = SE
		e	06:03:09.0			999		
		eS	06:03:31.2			999		
25	LP	e(Sur)	10:38:26			25.0		No Primary Phases Visible
25		eP	12:06:33.3	3	3	1.0	T	
		e	12:08:41.4			0.9		
25	IB	eP	12:59:36.1	2	2	0.5	T	Near Coast of Central Peru 11.9 S , 77.3 W 0 = 12:48:44.3 h about 33 km $\Delta = 67.1^\circ$ Dir. = 137° P-Phase Dir. = SSE
25		eP	14:57:02.6	1	1	0.7	T	

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
25 ✓		eP e	15:37:19.1 15:52:07.9		9	1.2 1.2	T	
25 ✓	N	eP eS	15:53:14.0 15:54:20.3		1	0.3 0.5	NR	$\Delta(S-P) = 5.5^\circ$
25 ✓		eP epP e	17:41:23.3 17:41:43.8 17:44:22.1		12	1.3 1.4 1.2	T	Near Coast of Chiapas, Mexico 16.3 N , 94.2 W 0 = 17:34:43.4 h about 100 km $\Delta = 34.5^\circ$ Dir. = 138° P-Phase Dir. = SE
25 ✓		eP	20:56:58.3		3	0.8	T	
25 ✓	E	eP eS	22:56:13.5 22:57:28.8		1	0.4 0.5	R	$\Delta(S-P) = 6.2^\circ$
25 ✓		eP e e	23:07:49.3 23:07:57.9 23:19:43.8		4	1.0 1.1 1.4	T	Svalbard 74.8 N , 14.6 E 0 = 22:58:10.3 h about 33 km $\Delta = 56.5^\circ$ Dir. = 14°
26 ✓	LPE LP	eP ePP e e e e(Sur) e(Sur)	05:42:55.4 05:46:40.3 05:48:52.5 05:51:35.9 05:58:27.4 06:18:18 06:22:33		5	1.2 1.3 1.0 1.1 1.2 54.0 25.0	T	Sinkiang Province, China 39.8 N , 77.2 E 0 = 05:29:30.2 h about 14 km $\Delta = 94.7^\circ$ Dir. = 349°
26 ✓		eP	13:39:23.2		4	0.8	T	Off Coast of Hokkaido, Japan 42.2 N , 144.4 E 0 = 13:28:33.7 h about 33 km $\Delta = 66.8^\circ$ Dir. = 307° P-Phase Dir. = W

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
26 ✓	LPE LP	iP e ePP eLQ eP'P' e(Sur)	16:11:29.9 16:11:37.6 16:14:51.3 16:34:51 16:37:39.0 16:38:51		77	1.8 2.0 1.5 30.0 1.7 34.0	T	Tonga Islands 23.8 S , 175.8 W 0 = 15:58:46.2 h about 19 km $\Delta = 86.6^\circ$ Dir. = 231° P-Phase Dir. = SSW
26 ✓	N	iP eS	17:13:41.2 17:13:48.4		2	0.2 0.2	L	$\Delta(S-P) = 0.5^\circ$
26 ✓	N	iP iS	21:16:21.5 21:16:25.1		2	0.2 999	L	$\Delta(S-P) = \text{less than } 0.1^\circ$
26 ✓	E	eP eS	22:11:56.0 22:12:41.1		1	0.4 0.4	NR	$\Delta(S-P) = 3.7^\circ$
26 ✓	N	eP eS	22:18:31.5 22:18:38.7		2	0.1 0.2	L	$\Delta(S-P) = 0.5^\circ$
26 ✓	N	eP eS	22:22:48.2 22:23:32.8		1	0.4 0.4	NR	$\Delta(S-P) = 3.7^\circ$
26 ✓	N	eP eS	22:30:36.4 22:30:40.0		1	0.4 999	L	$\Delta(S-P) = \text{less than } 0.1^\circ$
26 ✓	E	eP eS	23:00:50.6 23:01:37.4		1	0.3 0.4	NR	$\Delta(S-P) = 3.8^\circ$
26 ✓	N	eP eS	23:07:53.7 23:08:37.8		1	0.4 0.5	NR	$\Delta(S-P) = 3.6^\circ$
26 ✓	N	eP eS	23:16:09.2 23:16:53.4		1	0.4 0.4	NR	$\Delta(S-P) = 3.6^\circ$
26 ✓	E	eP eS	23:23:55.4 23:23:40.3		1	0.4 0.4	NR	$\Delta(S-P) = 3.7^\circ$
26 ✓	N	eP eS	23:25:14.2 23:25:47.4		1	0.4 0.4	NR	$\Delta(S-P) = 2.6^\circ$
26 ✓	E	eP eS	23:42:50.2 23:43:30.2		1	0.3 0.4	NR	$\Delta(S-P) = 3.3^\circ$

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
27 ✓		iP	04:14:48.4	C	3	0.8	T	Andreanof Islands 51.6 N , 177.6 W 0 = 04:07:17.5 h about 33 km $\Delta = 39.7^\circ$ Dir. = 302° P-Phase Dir. = NW
27 ✓		iP	07:05:49.2	C	170	1.1	T	Ryukyu Islands
		e	07:06:34.8			0.8		25.1 N , 122.9 E
		e	07:12:46.5			1.0		0 = 06:52:57.8
	LPN	eSKS	07:16:07			13.0		h about 148 km.
	LPE	eS	07:16:36			15.0		$\Delta = 91.4^\circ$
	LPE	e	07:17:30			16.0		Dir. = 308°
	LPN	ePS	07:17:58			21.0		P-Phase Dir. = SW
	LPE	e	07:18:24			45.0		
		ePKKP	07:23:08.3			1.2		
		e	07:23:52.0			1.5		
	LPN	eLQ	07:29:46			38.0		
27 ✗		eP	08:15:12.0		2	0.2	L	$\Delta(S-P) = 0.6^\circ$
	E	eS	08:15:21.0			0.3		
27 ✗		eP	08:31:18.5		1	0.6	T	
27 ✓		eP	09:46:09.7		1	0.4	T	
27 ✓		eP	12:21:01.7		1	0.7	T	Near West Coast of Luzon P.I. 14.9 N , 119.9 E 0 = 12:07:12.7 h about 35 km $\Delta = 101.1^\circ$ Dir. = 304°
27 ✓		iP	17:03:15.1		54	1.2	T	Mariana Islands
		e	17:03:33.3			1.1		12.2 N , 143.8 E
		e	17:16:19.9			1.5		0 = 16:50:27.7
	LPE	e(LQ)	17:26:22			26.0		h about 33 km
	LPN	eLQ	17:27:30			30.0		$\Delta = 87.7^\circ$
	LP	eLR	17:30:44			40.0		P-Phase Dir. = SW

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
27 ✓	IB	eP	18:01:58.2		3	1.0	R	$\Delta(S-P) = 11^\circ$ P-Phase Dir. = SE
		e	18:02:09.8			1.1		
		e	18:02:24.9			1.2		
	N	eS	18:04:08.7			1.1		
27 ✓		eP	18:25:02.8		1	0.8	R	$\Delta(S-P) = 14^\circ$
		e	18:25:51.1			0.8		
		e	18:26:02.9			1.0		
	N	eS	18:27:48.5			0.8		
27 ✓		eP	19:20:58.2		1	0.4	NR	$\Delta(S-P) = 3.5^\circ$
	N	eS	19:21:41.4			0.5		
27 ✓		eP	19:48:11.9		2	0.7	T	
27 ✓		iP	21:39:28.6	C	10	0.2	L	$\Delta(S-P) = 0.5^\circ$
	N	eS	21:39:35.8			999		
27 ✓		iP	21:39:57.2	C	27	0.2	L	$\Delta(S-P) = 0.5^\circ$
	N	eS	21:40:04.4			999		
27 ✓		eP	22:12:32.6		1	0.5	NR	$\Delta(S-P) = 3.5^\circ$
	E	eS	22:13:16.4			0.4		
27 ✓		eP	22:22:32.8		1	0.5	NR	$\Delta(S-P) = 3.5^\circ$
	E	eS	22:23:15.7			0.4		
28 ✓		eP	00:40:00.4		1	0.2		$\Delta(S-P) = 4.4^\circ$
		e	00:40:48			0.5		
	N	eS	00:40:53.6			0.4		
28 ✓		eP	00:41:16.9		1	0.2		$\Delta(S-P) = 2.2^\circ$
	N	eS	00:41:44.5			0.5		
28 ✓		eP	00:47:07.9		1	0.5	T	
		e	00:47:16.1			0.4		
28 ✓		eP	02:37:40.4		3	0.4	NR	$\Delta(S-P) = 1.8^\circ$
	N	iS	02:38:04.4			999		P-Phase Dir. = SE

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
28 ✓		iP	02:48:36.3		76	1.0	T	Mariana Islands 12.1 N , 143.7 E 0 = 02:35:48.8 h about 33 km $\Delta = 87.8^\circ$ Dir. = 285° P-Phase Dir. SW
	IB							
	BB							
	LPE	eS	02:59:21			22.0		
	LPE	ePS	03:00:27			20.0		
	LPE	eSS	03:05:12			27.0		
		e(PKKP)	03:05:57.9			1.3		
	LPE	e	03:09:00			28.0		
	LPN	eLQ	03:12:42			26.0		
	LP	eLR	03:15:55			36.0		
28 ✓	E	eP	03:25:15.9		1	0.5	R	$\Delta(S-P) = 13.0^\circ$
		eS	03:27:39.5			0.8		
28 ✓	N	eP	03:43:25.2		1	0.3	NR	$\Delta(S-P) = 5.9^\circ$
		eS	03:44:35.9			0.6		
28 ✓	LP	eP'	05:21:18.9		4	1.2	T	South Atlantic Ocean 22.4 S , 10.5 W 0 = 05:02:36.1 h about 33 km $\Delta = 117.2^\circ$ Dir. = 95°
		eSur	05:58:58			28.0		
28 ✓		eP'	05:27:57.0		5	1.4	T	South Atlantic Ocean 22.5 S , 10.7 W 0 = 05:09:15.0 h about 33 km $\Delta = 117.1^\circ$ Dir. = 95°
		e	05:28:32.3			1.1		
28 ✓		iP	06:05:19.1	C	33	0.9	T	Volcano Islands 24.3 N , 141.3 E 0 = 05:53:13.0 h about 82 km $\Delta = 80.8^\circ$ Dir. = 295° P-Phase Dir. = SW
		i	06:05:51.2			1.1		
		e	06:24:31.0			1.0		
28 ✓	N	eP	07:20:26.4		1	0.3	NR	$\Delta(S-P) = 1.9^\circ$
		eS	07:20:51.8			999		

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
28 ✓	LP	e(Sur)	09:54:50			20.0		No Primary Phases Visible
28 ✓	N	eP	10:18:24.7		1	0.2	NR	$\Delta(S-P) = 2.2^\circ$
		eS	10:18:53.6			0.4		
28 ✓	N	eP	12:54:47.7		1	0.2	NR	$\Delta(S-P) = 2.2^\circ$
		eS	12:55:16.9			0.5		
28 ✓		eP	14:07:16.5		1	0.3	NR	$\Delta(S-P) = 3.9^\circ$
		e	14:07:28.3			0.4		
	N	eS	14:08:03.8			0.4		
	N	eSur	14:08:20.4					
28 ✓	N	eP	15:23:00.2		1	0.3	NR	$\Delta(S-P) = 2.9^\circ$
		eS	15:23:36.6			0.5		
28 ✓	N	eP	15:29:11.8		1	0.2	L	$\Delta(S-P) = \text{less than } 0.1^\circ$
		eS	15:29:15.0			999		
28 ✓		eP'	15:44:41.5		1	0.6	T	Andaman Islands 9.9 N , 93.4 E 0 = 15:25:58.7 h about 53 km $\Delta = 118.9^\circ$ Dir. = 325°
		e	15:47:23.9			0.9		
		ePKKP	15:54:59.5			1.3		
28 ✓		eP	16:27:32.0		1	0.4	T	P-Phase Dir. = SW
		e	16:27:38.5			0.5		
28 ✓	E	eP	17:15:44.0		1	0.4	NR	$\Delta(S-P) = 2.2^\circ$
		eS	17:16:13.3			0.3		
28 ✓	E	eP	18:08:02.5		1	0.6	NR	$\Delta(S-P) = 2.7^\circ$
		eS	18:08:37.2			0.6		
28 ✓	N	eP	18:12:59.4		1	0.2	L	$\Delta(S-P) = 0.5^\circ$
		eS	18:13:06.5			0.2		
28 ✓	E	eP	19:02:55.2		1	0.4	NR	$\Delta(S-P) = 3.5^\circ$
		eS	19:03:38.5			0.4		

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
28	✓ LP	e(Sur)	19:14:58			20.0		No Primary Phases Visible
28	✓ E	eP eS	19:17:35.2 19:18:19.4		1	0.4 0.4	NR	$\Delta(S-P) = 3.6^\circ$
28	✓ N	eP eS	19:24:23.2 19:25:07.4		1	0.5 0.4	NR	$\Delta(S-P) = 3.6^\circ$
28	✓ N	eP eS	19:32:52.0 19:33:35.2		1	0.5 0.5	NR	$\Delta(S-P) = 3.5^\circ$
28	✓	eP e	20:07:42.8 20:08:55.6		1	0.9 0.9	T	
28	✓	eP	21:06:59.2		3	1.0	T	
28	✓	eP e	21:17:47.2 21:22:15.0		11	1.7 0.8	T	
28	✓ N	eP eS	22:07:36.4 22:08:21.8		1	0.4 0.8	NR	$\Delta(S-P) = 3.7^\circ$
28	✓ N	iP eS	22:35:54.7 22:36:01.5		999	999 999	L	$\Delta(S-P) = 0.5^\circ$
28	✓ N	eP eS	22:49:03.0 22:49:27.4		1	0.3 0.6	NR	$\Delta(S-P) = 1.8^\circ$
28	✓ N	eP eS	23:08:56.6 23:09:39.9		1	0.4 0.4	NR	$\Delta(S-P) = 3.5^\circ$
28	✓ N	eP eS	23:25:31.5 23:26:17.0		1	0.4 0.4	NR	$\Delta(S-P) = 3.7^\circ$
28	✓ N	eP eS	23:26:05.7 23:26:56.8		1	0.3 0.3	NR	$\Delta(S-P) = 4.2^\circ$
28	✓ N	eP eS	23:57:06.5 23:57:24.1		1	0.2 999	NR	$\Delta(S-P) = 1.5^\circ$
29	✓	eP	00:05:31.1		2	0.7	T	

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
29	✓ N	iP iS	00:27:06.6 00:27:13.9		4	0.3 999	L	$\Delta(S-P) = 0.5^\circ$
29	✓ LP	iP e	01:45:18.3 01:47:43	C	14	0.7 22.0	T	P-Phase Dir. = W
29	✓	eP epP	04:11:27.2 04:12:03.6		3	0.7 0.8	T	Kermadec Islands 29.4 S , 177.9 W 0 = 03:58:32.1 h about 140 km $\Delta = 92.2^\circ$ Dir. = 330° P-Phase Dir. = SW
29	✓ N	eP eS	04:18:39.9 04:18:42.8		1	0.3 0.3	L	$\Delta(S-P) = \text{less than } 0.1^\circ$
29	✓ N	eP eS	04:54:38.8 04:55:44.9		1	0.3 0.5	NR	$\Delta(S-P) = 5.5^\circ$
29	✓ N	eP eS	05:00:45.6 05:01:20.6		1	0.3 0.6	NR	$\Delta(S-P) = 2.7^\circ$
29	✓ N	eP e eS	05:08:25.5 05:08:29.6 05:09:04.6		1	0.1 0.4 999	NR	$\Delta(S-P) = 3.1^\circ$ P-Phase Dir. = SW
29	✓ N	iP eS	05:14:55.6 05:15:02.8	D	1	0.2 0.3	L	$\Delta(S-P) = 0.5^\circ$ P-Phase Dir. = SW
29	✓ N	eP eS	06:21:51.2 06:22:51.9		1	0.3 0.5	NR	$\Delta(S-P) = 5.0^\circ$
29	✓ N	eP eS	06:26:47.9 06:27:22.4		1	0.2 0.4	NR	$\Delta(S-P) = 2.7^\circ$
29	✓	eP	06:32:54.2		1	1.0	T	
29	✓ LP	eP e e(Sur)	07:43:35.2 07:43:53.2 08:12:50		7	1.4 1.0 18.0	T	

Month of November Blue Mountains Seismological Observatory

Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
29 ✓	E	eP	07:51:53.9		1	0.3	L	$\Delta(S-P) = \text{less than } 0.1^\circ$ P-Phase Dir. = SW
		iS	07:51:56.4					
29 ✓	N	eP	08:08:28.0		1	0.4	NR	$\Delta(S-P) = 2.9^\circ$
		eS	08:09:04.0					
29 ✓	N	eP	09:10:50.3	4	0.4	NR	$\Delta(S-P) = 4.6^\circ$	
		e	09:10:53.9					0.7
		eS	09:11:46.3					999
29 ✓	LPN LP	eP	09:16:26.2	47	1.6	T	Tonga Islands 22.3 S, 175.9 W 0 = 09:03:51.1 h about 33 km $\Delta = 85.5^\circ$ Dir. = 232° P-Phase Dir. = SW	
		e	09:27:14					14.0
		e	09:27:54					28.0
		e	09:34:46.0					1.2
		e(Sur)	09:39:27					33.0
		e	09:42:53.0					1.4
29 ✓	N	eP	10:41:47.0		1	0.4	NR	$\Delta(S-P) = 2.4^\circ$
		eS	10:42:17.9					
29 ✓	E	eP	10:54:00.9		1	0.1	L	$\Delta(S-P) = 0.1^\circ$
		eS	10:54:04.8					
29 ✓	E	eP	11:35:26.5		1	0.4	NR	$\Delta(S-P) = 5.9^\circ$
		eS	11:36:37.7					
29 ✓	E	eP	12:57:00.2	3	0.9	T	Mariana Islands 13.9 N, 145.4 E 0 = 12:44:32.8 h about 100 km $\Delta = 85.4^\circ$ Dir. = 285° P-Phase Dir. = W	
		epP	12:57:28.0					1.0
29 ✓	E	eP	13:31:27.2		1	0.4	NR	$\Delta(S-P) = 5.9^\circ$
		eS	13:32:37.4					
29 ✓	E	eP	13:44:16.1		1	0.4	NR	$\Delta(S-P) = 5.0^\circ$
		eS	13:45:16.4					

Month of November Blue Mountains Seismological Observatory

Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks	
					A	T			
29 ✓	LP	eP	14:18:08.7		5	1.2	T	May be separate	
		e(Sur)	14:34:32						26.0
29 ✓	E	eP	15:46:25.9		1	0.2	L	$\Delta(S-P) = \text{less than } 0.1^\circ$	
		eS	15:46:29.6						999
29 ✓	N	eP	15:47:46.1		1	0.1	L	$\Delta(S-P) = 0.1^\circ$	
		eS	15:47:50.2						999
29 ✓		eP	15:52:51.7		1	0.6	T	P-Phase Dir. = NE	
29 ✓		eP	16:14:39.2		2	1.0	T		
29 ✓	N	eP	17:45:38.6		1	0.2	L	$\Delta(S-P) = 0.9^\circ$	
		eS	17:45:50.6						0.3
29 ✓	N	eP	17:53:14.0		1	0.2	NR	$\Delta(S-P) = 2.9^\circ$	
		eS	17:53:50.8						0.4
29 ✓	N	eP	18:31:49.4		3	0.4	NR	$\Delta(S-P) = 4.7^\circ$ P-Phase Dir. = NE	
		e	18:31:53.2						0.5
		eS	18:32:45.4						999
29 ✓	N	iP	18:36:37.2	D	2	0.2	L	$\Delta(S-P) = 0.5^\circ$ P-Phase Dir. = SE	
		eS	18:36:44.6						999
29 ✓	E	eP	19:10:19.9		1	0.3	NR	$\Delta(S-P) = 3.7^\circ$	
		eS	19:11:05.8						0.5
29 ✓	E	eP	19:17:59.2		1	0.4	NR	$\Delta(S-P) = 4.0^\circ$	
		eS	19:18:43.0						0.4
29 ✓	BB	eP	19:19:40.8	29	1.5	1.5	T	New Hebrides Islands 17.3 S, 168.5 E 0 = 19:06:37.6 h about 33 km $\Delta = 91.3^\circ$ Dir. = 247° P-Phase Dir. = SW	
		e	19:19:45.6						1.6
		e	19:21:22.9						1.5
		e	19:26:31.8						2.0
		e	19:43:59.6						16.0
		e(Sur)	19:49:00						
29 ✓	N	eP	19:21:24.6		1	0.5	NR	$\Delta(S-P) = 3.5^\circ$	
		eS	19:22:07.0						0.4

Month of November Blue Mountains Seismological Observatory

Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
29 ✓	N	eP	19:24:25.8	1	0.4	NR	$\Delta(S-P) = 3.6^\circ$	
		eS	19:25:10.0		0.4			
29 ✓	N	eP	19:28:51.0	1	0.2	NR	$\Delta(S-P) = 2.5^\circ$	
		eS	19:29:23.1		0.4			
29 ✓	N	eP	19:36:42.1	2	0.5	NR	$\Delta(S-P) = 2.5^\circ$	
		eS	19:37:14.0		0.5			
29 ✓	N	eP	20:21:18.0	1	0.2	NR	$\Delta(S-P) = 2.4^\circ$	
		eS	20:21:47.9		0.3			
29 ✓	E	eP	21:27:40.2	1	0.2	L	$\Delta(S-P) = 0.5^\circ$ P-Phase Dir. = NE	
		eS	21:27:47.3		0.3			
29 ✓	N	iP	21:47:46.4	999	999	L	$\Delta(S-P) = 0.3^\circ$ P-Phase Dir. = S	
		iS	21:47:51.1		999			
29 ✓	E	iP	22:11:51.6	1	0.3	NR	$\Delta(S-P) = 1.5^\circ$	
		iS	22:12:09.9		0.5			
29 ✓	E	eP	22:21:07.8	1	0.3	NR	$\Delta(S-P) = 2.3^\circ$	
		eS	22:21:36.9		0.4			
29 ✓	N	eP	22:43:06.1	1	0.2	NR	$\Delta(S-P) = 1.6^\circ$	
		eS	22:43:27.7		0.4			
29 ✓	N	eP	22:47:00.6	999	999	NR	$\Delta(S-P) = 2.3^\circ$	
		eS	22:47:30.0		999			
29 ✓	N	eP	22:55:29.0	1	0.4	NR	$\Delta(S-P) = 5.0^\circ$	
		eS	22:56:28.8		0.6			
29 ✓	N	eP	23:07:04.0	1	0.4	NR	$\Delta(S-P) = 3.4^\circ$	
		eS	23:07:45.6		0.5			
29 ✓	E	eP	23:29:48.8	2	0.4		$\Delta(S-P) = 2.0^\circ$	
		eS	23:30:14.5		0.5			
30 ✓	N	eP	00:08:25.4	1	0.4	NR	$\Delta(S-P) = 3.5^\circ$	
		eS	00:09:07.8		0.4			

Month of November Blue Mountains Seismological Observatory

Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
30 ✓	N	eP	00:42:07.1	1	0.4	NR	$\Delta(S-P) = 2.9^\circ$	
		eS	00:42:43.6		0.4			
30 ✓		eP	01:34:21.3	2	0.7	T		
30 ✓	E	eP	06:30:14.3	3	0.2	L	$\Delta(S-P) = 0.6^\circ$ P-Phase Dir. = NW	
		eS	06:30:21.9		0.3			
30 ✓	E	eP	06:50:14.9	1	0.4	NR	$\Delta(S-P) = 3.6^\circ$	
		eS	06:50:59.3		0.4			
30 ✓	LP	eP	17:07:37.3	8	1.4	T	Molucca Passage 3.2 N 127.1 E 0 = 16:53:24.6 h about 58 km $\Delta = 105.5^\circ$ Dir. = 291°	
		e	17:11:16.6		1			0.8
		e(Sur)	17:43:39		24.0			
30 ✓	N	eP	19:01:06.0	1	0.4	NR	$\Delta(S-P) = 3.3^\circ$	
		eS	19:01:46.3		0.4			
30 ✓	N	eP	19:09:37.5	1	0.5	NR	$\Delta(S-P) = 3.5^\circ$	
		eS	19:10:20.6		0.4			
30 ✓	E	eP	19:18:58.2	1	0.4	NR	$\Delta(S-P) = 3.7^\circ$	
		eS	19:19:43.6		0.4			
30 ✓	E	eP	19:55:37.8	1	0.3	NR	$\Delta(S-P) = 1.8^\circ$	
		eS	19:56:01.4		0.2			
30 ✓	N	eP	21:37:32.9	4	0.2	L	$\Delta(S-P) = 0.5^\circ$	
		eS	21:37:40.0		999			
30 ✓	IB BB LP	iP	21:57:37.6	D 28	1.0	T	Guerrero, Mexico 17.4 N 99.6 W 0 = 21:51:22.9 h about 51 km. $\Delta = 31.1^\circ$ Dir. = 146° P-Phase Dir. = SSE	
		e	21:57:47.4		1.1			
		e(PP)	21:58:59.7		1.3			
	IB LP	ePcP	22:00:32.8		0.9			
		e(S)	22:02:52	24.0				
	LPN	eLQ	22:04:32	23.0				
	LP	eLR	22:06:00	30.0				
		e(Sur)	22:07:58.8	5.3				

Month of November

Blue Mountains Seismological Observatory

Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
30	N	eP	23:08:44.3	1	0.6	999	NR	$\Delta(S-P) = 1.9^\circ$
		eS	23:09:08.8					
30	N	eP	23:18:48.7	1	0.4	999	R	$\Delta(S-P) = 6.0^\circ$
		e	23:19:04.0		0.6			
		eS	23:19:59.1					
30		eP	23:53:43.4	7	1.2		R	San Bernardino County, California 34.4 N, 116.8 W 0 = 23:51:05.7 h about 33 km $\Delta = 10.4^\circ$ Dir. = 178 $^\circ$

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SEISMOLOGICAL BULLETIN
BLUE MOUNTAINS SEISMOLOGICAL OBSERVATORY

AFTAC Project No. VT/1124
ARPA Order No. 104-60
ARPA Project Code No. 8100
Contract AF 33(600)-43486

SCIENCE SERVICES DIVISION
COMPLETES WORLD WIDE
APPLICATIONS RESEARCH



TEXAS INSTRUMENTS
INCORPORATED
100 EXCHANGE PARK NORTH
P.O. BOX 148388 - DALLAS, TEXAS

THE REGISTRATION OF EARTHQUAKES
AT THE
BLUE MOUNTAINS SEISMOLOGICAL OBSERVATORY

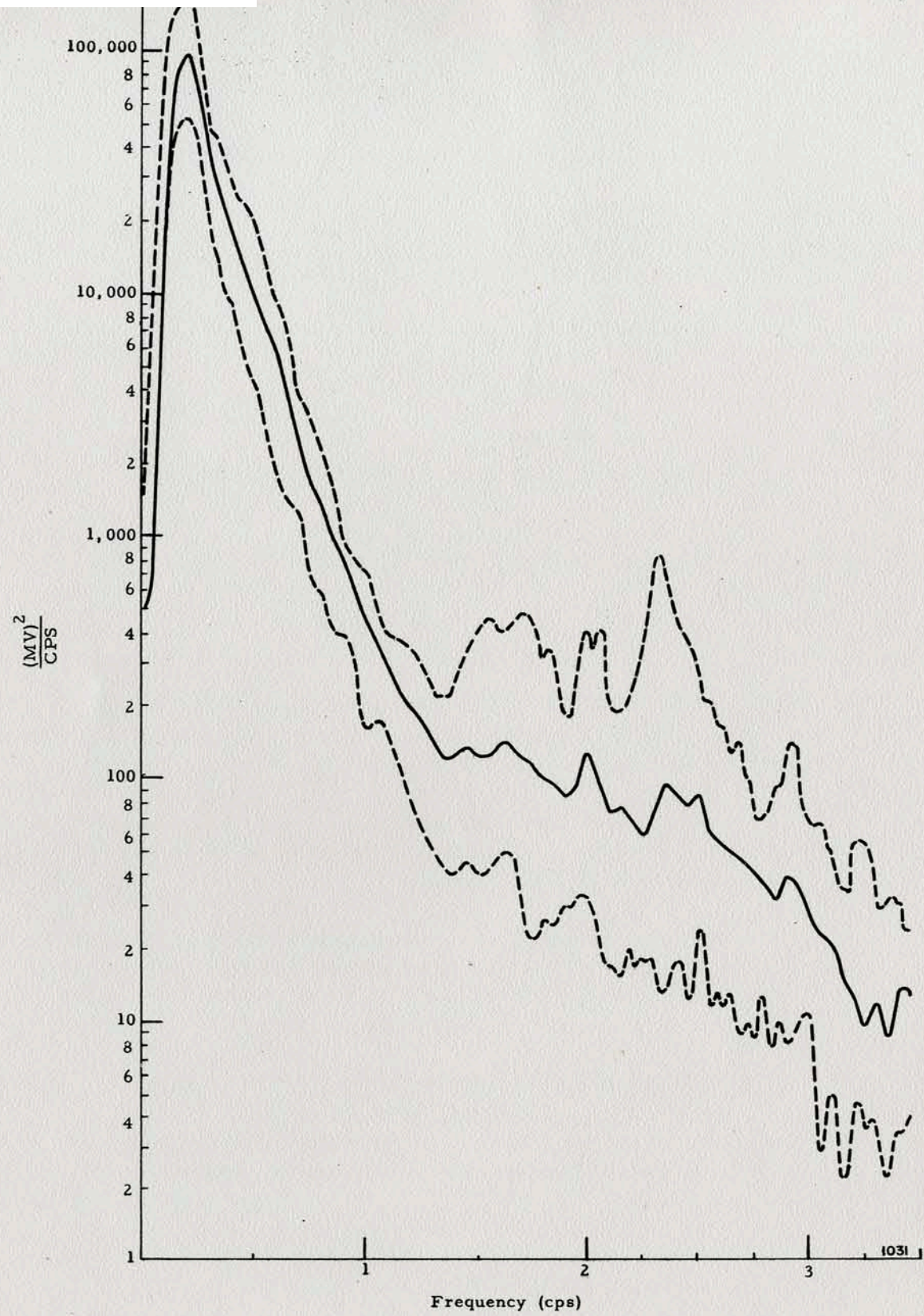
Station Abbreviation: BMO
Station Identification on Film Seismograms: BMO
Geographical Location:* 44° 50' 56" N
117° 18' 20" W
Geocentric Location:* 44° 39' 40" N
117° 18' 20" W
Altitude (Meters):* 1189 (3900 feet)
Geology: Granite

Blue Mountains Seismological Observatory is a quiet station with microseisms primarily of 2 and 4-second periods and occasional 3-cps wave trains.

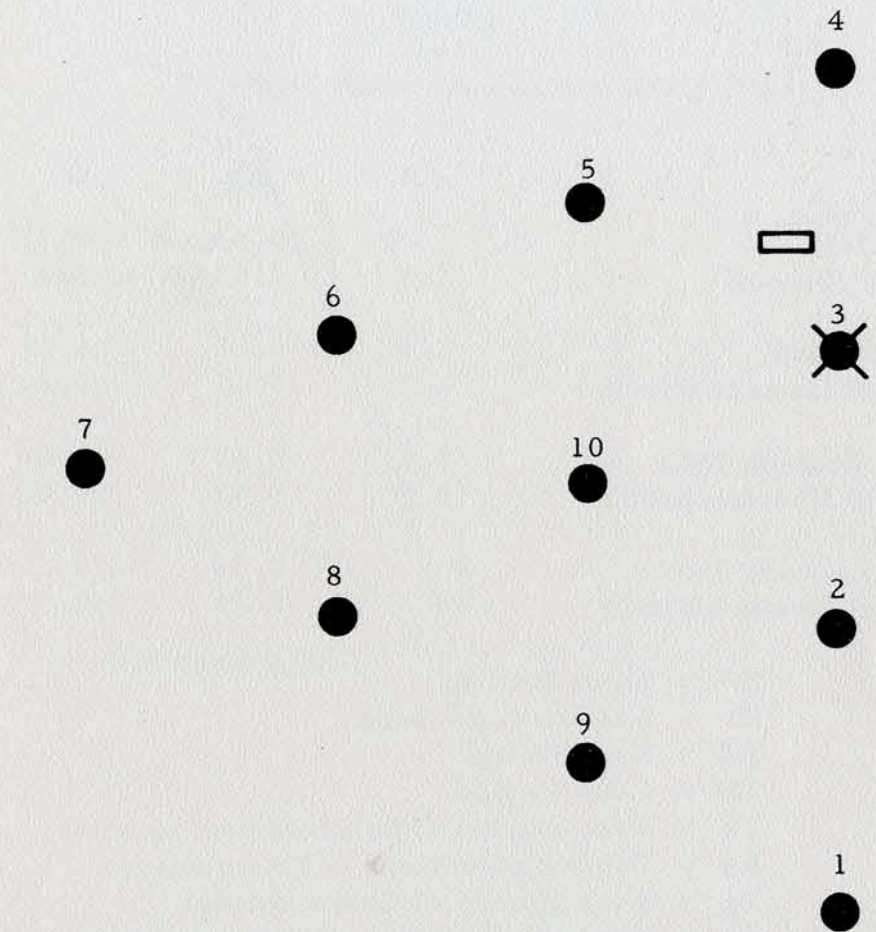
The important conclusions, considering the limited amount of data available for analysis, to be drawn from the noise study of BMO data are:

- 1) The noise is space-stationary up to a frequency of 1.5 cps. It has been shown that the coherence of noise for any seismometer pair with the same vector spacing is equal up to 1.5 cps.
- 2) The noise is nearly isotropic with a velocity of 4.0 to 5.4 km per second.
- 3) The noise is organized, that is, non-random.
- 4) The noise above 1.5 cps may or may not be space-stationary. Additional study is needed to answer this question.

*Refers to Vault #3, which contains horizontal short-period seismometers also.



Minimum - Maximum, Means of Spectra; BMO



- LEGEND
- VAULTS
 - ⊗ VAULTS - 3 COMPONENT SYSTEMS
 - CENTRAL RECORDING BUILDING

VERTICAL ARRAY

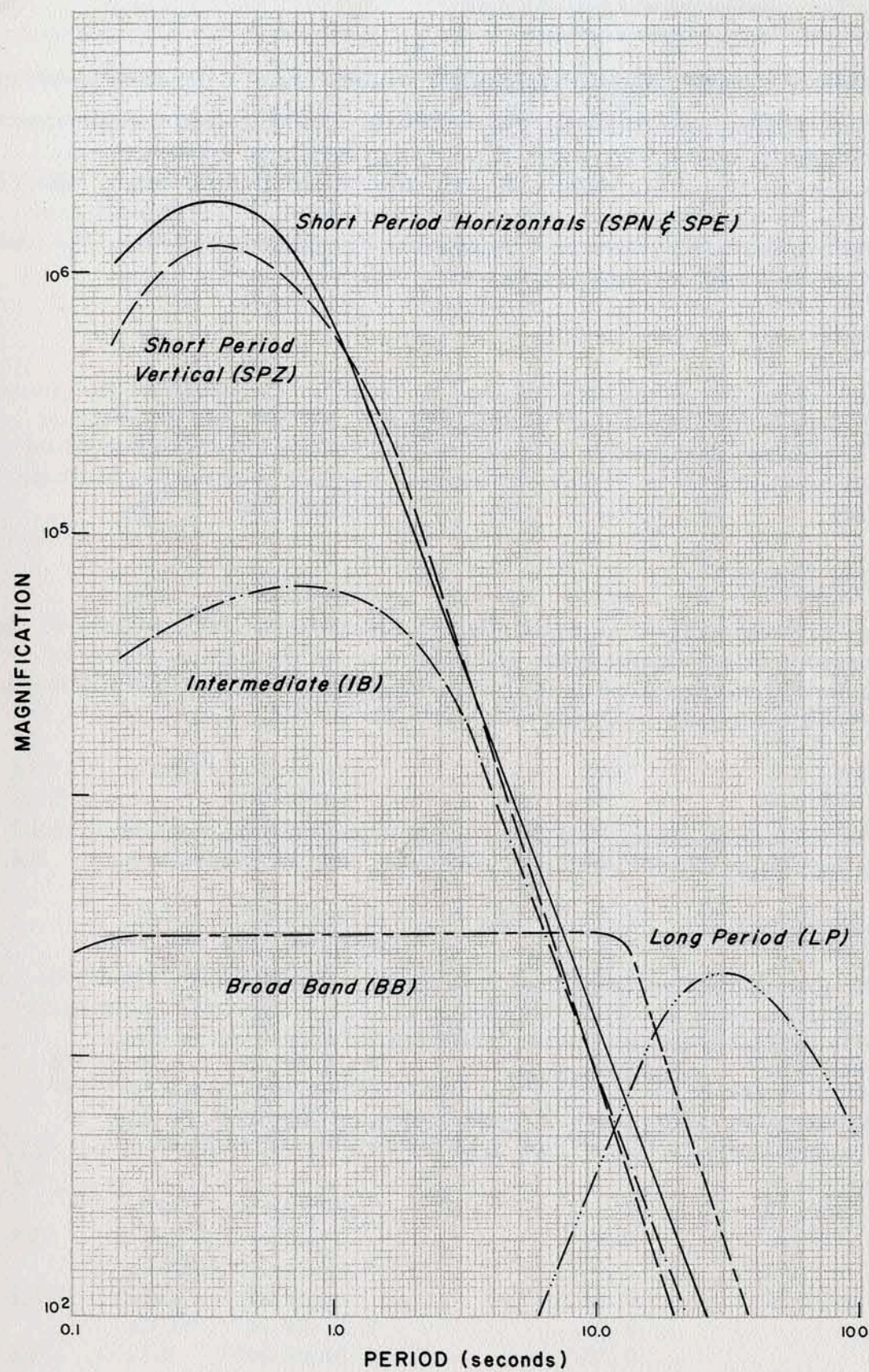
BLUE MOUNTAINS SEISMOLOGICAL OBSERVATORY

SEISMOGRAPHS
(BMO)

	T_s	λ_s	T_g	λ_g
SP Vertical J-M	1.25	0.51	0.33	0.65
SP Horizontal Benioff	1.0	0.67	0.2	1.0
IB Vertical Melton	2.5	0.65	0.61	1.2
IB Horizontal Geotech 8700B	2.5	0.65	0.64	1.2
BB Vertical Geotech 7505	12.5	0.43	0.64	9.0
BB Horizontal Geotech 8700A	12.5	0.43	0.64	9.0
LP Vertical Geotech 7505	20	0.74	110	1.0
LP Horizontal Geotech 8700A	20	0.74	110	1.0

SP = Short Period
 IB = Intermediate Band
 BB = Broad Band
 LP = Long Period
 T_s = Free Period of Seismometer in sec.
 λ_s = Damping Constant of Seismometer
 T_g = Free Period of Galvanometer
 λ_g = Damping Constant of Galvanometer

Response curves are given on page v.



AMPLITUDE RESPONSE OF SEISMOGRAPHS

1. System

In this column the seismographs (SP, IB, BB, LP) and components (Z, N, E) used to measure arrival time are designated. When no component is shown, the phase was read from the vertical component. When N or E component appears alone, phase was read from SP horizontal component. When neither system nor component designation appears, the phase was read from the SP vertical component.

2. Phase

If the direction of the first motion is definite, the phase is designated "i". ("i" stands for impetus or sudden onset). An "e" (for emersio or gradual beginning) designation is given to other phases. An unidentified phase will be shown by an "i" or "e" alone. Parentheses marks indicate uncertainty.

3. Arrival Times

The earliest arrival on the Z, N, or E is listed. All arrivals on the short-period vertical components are picked from the seismometer at vault number 3, the location of the three-component short-period system. All dates and times are in Greenwich Civil Time (G. C. T.).

4. C or D

C is for compression and D for dilatation as determined from the direction of motion on the vertical component, for iP arrivals.

5. Ground Motion

The ground motion amplitude A is given in millimicrons and T is the period in seconds at which the amplitude was measured. An amplitude of 999 indicates the amplitude could not be measured reliably.

All amplitudes are peak-to-trough. Trace amplitudes are measured on the X10 view to the nearest $\frac{1}{2}$ millimeter, with short-period vertical measurements taken from Z3, the seismometer at vault number 3.

Month of December Blue Mountains Seismological Observatory

Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
1	N	eP	00:36:00.8		1	0.2	L	$\Delta(S-P) = 0.2^\circ$
		eS	00:36:05.3		999			
1	E	eP	00:38:20.6		4	1.2	R	San Bernardino County, California
		e	00:39:04.3			1.3		34.3 N 116.9 W
		e	00:41:23.1			1.4		0 = 00:35:50.1 h about 33 km $\Delta = 10.5^\circ$ Dir. = 178° P-Phase Dir. = S
1		eP	00:49:39.9		2	1.1	T	
1	E	eP	01:29:30.0		1	0.1	L	$\Delta(S-P) = \text{less than } 0.1^\circ$
		eS	01:29:33.6			0.3		
1	IB LP LP LPE LP LP	iP	01:57:11.4	C	1	1.2	T	Fox Islands, Aleutian Islands
		e(PPP)	01:58:43			20.0		52.4 N 170.1 W
		e	02:02:45			30.0		0 = 01:50:20.4
		e	02:05:08			20.0		h about 38 km
		e	02:06:12			28.0		$\Delta = 35.0^\circ$
								Dir. = 302°
1	N	eP	02:18:45.8		1	0.3	L	$\Delta(S-P) = 1.2^\circ$
		e	02:18:47.5			0.3		P-Phase Dir. = NNE
		eS	02:19:01.7			0.4		
1	E	eP	04:11:48.2		4	0.2		$\Delta(S-P) = 0.5^\circ$
		eS	04:11:55.5			0.3		P-Phase Dir. = ENE
1	IB LP LP LPE LP	iP	04:30:05.2		31	1.3	T	Kermadec Islands
		ePP	04:33:45.1			1.5		29.7 S 177.7 W
		e(PPP)	04:35:10			15.0		0 = 04:16:59.6
		ePKKP	04:47:20.8			0.8		h about 52 km
		eLQ	04:55:22			33.0		$\Delta = 92.3^\circ$
		eP'P'	04:55:33.7			0.9		Dir. = 229°
		eLR	04:59:44.0			27.0		P-Phase Dir. = SW

Month of December Blue Mountains Seismological Observatory

Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
1	E	eP	06:34:10.4	1	0.3	L	$\Delta(S-P) = \text{less than } 0.999$	
		eS	06:34:13.7					
1	N	eP	07:02:58.8	1	0.6	NR	$\Delta(S-P) = 2.8^\circ$ P-Phase Dir. = ENE	
		eS	07:03:34.2					
1	N	eP	07:04:31.0	1	0.2	L	$\Delta(S-P) = \text{less than } 0.999$ P-Phase Dir. = SE	
		eS	07:04:34.5					
1	LPE LP	eP	10:07:19.7	3	1.2	T		
		e	10:24:53.0					
		e	10:26:47.0					
1		eP	13:44:59.7	8	1.2	T	Central Chile 30.8 S 71.3 W 0 = 13:32:24.8 h about 68 km $\Delta = 86.2^\circ$ Dir. = 142°	
		e	13:45:13.3					
1		eP	14:07:47.2	2	1.0	T		
		e	14:08:17.3					
1	LP	e	14:49:13		15.0		No Primary Phases Visible	
1	E	eP	16:57:34.7	1	0.4	NR	$\Delta(S-P) = 1.6^\circ$ P-Phase Dir. = SE	
		eS	16:57:57.1					
1	N	eP	17:11:48.7	1	0.3	NR	$\Delta(S-P) = 2.9^\circ$	
		eS	17:12:24.7					
1		eP	17:23:22.0		0.8	T		
1	E	eP	18:27:49.3	1	0.3	NR	$\Delta(S-P) = 2.9^\circ$	
		eS	18:28:25.7					
1	N	eP	19:01:50.4	1	0.4	NR	$\Delta(S-P) = 3.4^\circ$	
		eS	19:02:32.6					
1	N	eP	19:30:13.8	1	0.4	NR	$\Delta(S-P) = 3.6^\circ$	
		eS	19:30:57.6					

Month of December Blue Mountains Seismological Observatory

Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
1	N	eP	19:42:59.1	1	0.4	NR	$\Delta(S-P) = 3.7^\circ$	
		eS	19:43:44.4					
1		iP	21:14:17.7	28	0.9	T	Fiji Islands Region 17.7 S 178.7 W 0 = 21:02:51.8 h about 620 km $\Delta = 83.6^\circ$ Dir. = 237° P-Phase Dir. = SW	
		ePKKP	21:32:28.1					
1	E	eP	22:04:19.7	1	0.2	NR	$\Delta(S-P) = 3.5^\circ$	
		eS	22:05:03.2					
1	N	eP	22:08:57.0	1	0.3	NR	$\Delta(S-P) = 1.4^\circ$	
		eS	22:09:14.1					
1	N	eP	22:22:09.0	1	0.5	NR	$\Delta(S-P) = 2.3^\circ$	
		eS	22:22:39.0					
1	E	eP	23:47:51.8	1	0.3	L	$\Delta(S-P) = 1.1^\circ$	
		eS	23:48:06.3					
2		iP	00:12:56.4	C	2	0.5	T	P-Phase Dir. = W
		e	00:14:47.8					
2	IB N	eP	00:44:17.1	5	1.0	R	San Bernardino County, California 34.3 N 117.0 W 0 = 00:41:39.7 h about 33 km $\Delta = 10.5^\circ$ Dir. = 179° P-Phase Dir. = S	
		ePP	00:44:19.0					
	IB E	e	00:44:26.3		0.9			
		e	00:44:48.5					
	IBE	Lg1	00:47:15.0		1.3			
	LP							
	LP	e(Rg)	00:48:23		15.0			
2		eP	00:55:22.2	2	0.8	T		
2	E	eP	02:14:25.6	1	0.2	L	$\Delta(S-P) = \text{less than } 0.1^\circ$	
		iS	02:14:28.6					

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
2		iP e	03:36:57.5 03:37:34.5	C	5	0.8 1.0	T	P-Phase Dir. = SSE
2	LP	eP e eLR	05:44:00.2 05:44:06.5 06:13:23		6	1.3 0.7 23.0	T	Solomon Islands 9.9 S 159.9 E 0 = 05:30:53.8 h about 34 km $\Delta = 91.8^\circ$ Dir. = 258° P-Phase Dir. = SW
2	N	eP iS	08:16:41.4 08:16:44.6		1	0.2 0.2	L	$\Delta(S-P) = \text{less than } 0$
2	N	eP e eS	09:28:39.4 09:28:42.5 09:29:39.5		1	0.3 0.5 0.6	NR	$\Delta(S-P) = 5.0^\circ$
2	IB	eP	10:02:19.1		10	1.2	T	Mariana Islands 13.5 N 146.0 E 0 = 09:49:48.4 h about 67 km $\Delta = 85.3^\circ$ Dir. = 284°
2		eP	12:25:18.6		3	1.0	T	
2		eP	14:44:32.5		4	1.5	T	
2		eP	16:26:04.1		8	1.3	T	New Hebrides Islands 18.9 S 168.5 E 0 = 16:12:53.4 h about 33 km $\Delta = 92.5^\circ$ Dir. = 246°
2		eP	22:56:06.5		1	0.7	T	
3		eP	00:29:49.3		3	1.1	T	
3		iP e	03:50:31.1 03:52:27.1	C	3	0.6 1.1	T	
3		eP	05:25:53.3		1	0.6	T	

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
3		eP	06:51:41.7		2	0.9	T	
3		eP	07:33:32.1		1	0.7	T	
3		iP e e	10:47:54.3 10:50:06.3 11:06:30.7	C	11	0.8 0.9 1.0	T	P-Phase Dir. = W
3		eP e e e	11:39:41.6 11:39:43.8 11:39:54.3 11:54:08.0		3	0.9 1.0 1.2 14.0	T	
3	LP	eP eS	12:54:45.1 12:55:25.0		1	0.9 0.4	NR	$\Delta(S-P) = 3.2^\circ$
3	N	iP	13:02:21.2	D	16	1.0	T	Santa Cruz Islands Region 12.9 S 169.2 E 0 = 12:50:36.9 h about 632 km $\Delta = 87.6^\circ$ Dir. = 249° P-Phase Dir. = SW
3		eP e	17:09:39.5 17:22:02.0		2	0.8 15.0	T	
3	LP	eP e	17:14:20.4		2	0.8	T	
3		eP eS	17:49:02.3 17:49:50.7		1	0.2 0.3	NR	$\Delta(S-P) = 4.0^\circ$
3	N	eP e	18:06:24.8 18:07:38.9		1	0.7 0.6	T	
3		eP	18:25:18.8		1	0.7	T	
3		eP	18:58:51.2		1	0.5	T	
3		eP eS eSur	19:20:08.2 19:20:40.7 19:20:51.4		1	0.3 0.3 0.3	NR	$\Delta(S-P) = 2.6^\circ$

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
3	E	eP	19:34:34.3		1	0.3	NR	$\Delta(S-P) = 3.5^\circ$
		eS	19:35:17.5			0.5		
3	N	eP	20:00:50.3		1	0.3	NR	$\Delta(S-P) = 3.7^\circ$
		e	20:01:22.5			0.5		
		eS	20:01:35.1			0.5		
3		eP	20:05:05.9		2	1.0	T	
3	N	eP	21:34:25.4		1	0.4	NR	$\Delta(S-P) = 3.7^\circ$
		e	21:34:57.6			0.4		
		eS	21:35:10.4			0.5		
3		iP	21:42:27.2	C	2	0.1	L	$\Delta(S-P) = 0.5^\circ$
		eS	21:42:34.5			0.4		P-Phase Dir. = NE
3	N	eP	22:25:51.0		1	0.4	NR	$\Delta(S-P) = 3.7^\circ$
		eS	22:26:35.8			0.4		
3		eP	22:36:21.3		1	0.6	T	
3	N	eP	22:44:28.0		1	0.5	NR	$\Delta(S-P) = 2.6^\circ$
		eS	22:45:01.2			0.4		
3	N	eP	23:51:42.2			0.3	NR	$\Delta(S-P) = \text{less than } 0.1^\circ$
		eS	23:51:44.7			0.5		
		eSur	23:52:18.0			0.4		
4	N	eP	00:41:20.6		1	0.3	NR	$\Delta(S-P) = 3.2^\circ$
		eS	00:41:59.7			0.5		
4		eP	00:45:47.3		2	0.4	T	
4		eP	01:45:16.9		1	0.7	T	New Guinea 8.0 S 147.7 E 0 = 01:31:43.9 h about 91 km. $\Delta = 99.1^\circ$ Dir. = 268°
4		eP	01:53:35.9		1	0.7	T	

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
4		eP	02:15:58.5		3	0.9	T	
4	E	eP	02:33:28.3		3	0.2	L	$\Delta(S-P) = 0.5^\circ$ P-Phase Dir. = NE
		eS	02:33:35.6			0.3		
4	LPE LPN LPN LP	eP	03:36:44.3		9	1.3	T	Off Coast of Guerrero Mexico 10.1 N 103.6 W 0 = 03:29:40.8 h about 33 km. $\Delta = 36.6^\circ$ Dir. = 157°
		e(S)	03:42:38			25.0		
		e(SS)	03:45:14			28.0		
		e	03:48:11			18.0		
		e	03:48:52			17.0		
4		eP	04:30:22.0		1	0.6	T	
4	N	eP	04:57:16.5		1	0.5	NR	$\Delta(S-P) = 4.7^\circ$
		eS	04:58:13.7			0.4		
4		eP	06:26:54.5		3	0.8	T	Off East Coast of Honshu, Japan 36.9 N 141.0 E 0 = 06:15:35.6 h about 77 km $\Delta = 72.3^\circ$ Dir. = 305°
		e	06:27:05.0			0.9		
4		eP	06:41:02.9		1	0.6	T	
4	LPE LPE	iP	07:34:49.0	D	12	1.2	T	Southern Bolivia 21.8 S 65.6 W 0 = 07:23:04.2 h about 300 km $\Delta = 81.4^\circ$ Dir. = 132° P-Phase Dir. = SE
		e(pP)	07:36:03.3			1.5		
		eS	07:44:40			14.0		
		ePPS	07:46:44			24.0		
		e(PKKP)	07:52:33.2			1.3		
	e	08:05:46.6			1.1			
4	N	eP	07:55:26.0		3	0.2	L	$\Delta(S-P) = \text{less than } 0.1^\circ$ P-Phase Dir. = SE
		eS	07:55:29.2			999		

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
4		eP	08:28:38.7		3	0.7	T	Yellow Sea 36.1 N 123.5 E 0 = 08:16:18.8 h about 33 km $\Delta = 82.4^\circ$ Dir. = 314°
4	N	eP eS	08:39:38.3 08:40:41.8		1	0.4 0.6	NR	$\Delta(S-P) = 5.3^\circ$
4		eP	08:45:12.2		2	0.9	T	
4		iP eS	09:26:59.8 09:27:00.4	D	40	0.3 0.3	L	$\Delta(S-P) = \text{less than } 0$ P-Phase Dir. = SE
4	E	eP eS	09:54:12.0 09:55:07.8		1	0.4 0.6	NR	$\Delta(S-P) = 4.6^\circ$
4		eP ePKKP	10:47:35.0 11:04:37.5		11	1.7 0.7	T	New Britain Island 6.1 S 149.9 E 0 = 10:34:27.8 h about 83 km. $\Delta = 96.2^\circ$ Dir. = 268°
4	N	eP eS	11:30:00.3 11:30:34.1		7	0.7 999	NR	$\Delta(S-P) = 2.7^\circ$
4	N	eP eS	12:03:40.9 12:04:49.1		2	0.5 0.5	NR	$\Delta(S-P) = 5.8^\circ$
4	N	eP eS	12:10:07.1 12:11:05.2		1	0.6 0.7	NR	$\Delta(S-P) = 4.8^\circ$
4	E	eP eS	16:01:57.5 16:04:02.3		5	1.0 0.8	R	$\Delta(S-P) = 11.2^\circ$
4	IB	eP	16:52:07.9		15	1.2	T	Samoa Islands 16.5 S 172.8 W 0 = 16:40:06.0 h about 33 km $\Delta = 79.2^\circ$ Dir. = 234° P-Phase Dir. = SW
	LPN	e	16:52:27.9			1.2		
	LPN	eS	17:02:11			20.0		
	LPN	eSS	17:07:22			18.0		
	LPE	eLO	17:13:52			26.0		
	LP	eLR	17:18:04			18.0		

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
4		eP	17:18:56.5		2	0.9	T	
4	E	eP eS	17:35:16.6 17:36:13.8		3	0.8 0.5	NR	$\Delta(S-P) = 4.7^\circ$
4		eP	17:52:31.7		13	0.9	R	Colorado 39.8 N 104.7 W 0 = 17:49:59.4 h about 33 km $\Delta = 10.6^\circ$ Dir. = 114°
4		eP	18:56:13.8		2	0.9	T	Kurile Islands 44.6 N 147.9 E 0 = 18:46:01.6 h about 171 km $\Delta = 63.3^\circ$ Dir. = 307°
4	N	eP eS	19:08:40.3 19:09:23.7		1	0.3 0.6	NR	$\Delta(S-P) = 3.5^\circ$
4	N	eP eS	19:28:46.4 19:29:30.5		1	0.4 0.5	NR	$\Delta(S-P) = 3.6^\circ$
4	N	eP eS	19:42:24.6 19:43:10.0			0.4 999	NR	$\Delta(S-P) = 3.7^\circ$
4	N	eP eS	20:35:14.6 20:35:37.0		1	0.4 0.5	NR	$\Delta(S-P) = 1.6^\circ$
4	LP	eP e	20:44:04.2 21:38:52		3	1.0 26.0	T	
4	N	iP eS	20:56:09.7 20:56:17.0	C	999	0.3 999	L	$\Delta(S-P) = 0.5^\circ$
4	N	eP eS	21:12:28.7 21:12:35.8		1	0.2 0.3	L	$\Delta(S-P) = 0.5^\circ$
4	N	eP eS	22:04:08.6 22:04:15.7		2	0.2 0.2	L	$\Delta(S-P) = 0.5^\circ$

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
4	N	eP	22:52:22.0	1	0.4	NR	$\Delta(S-P) = 1.9^\circ$	
		eS	22:52:47.0					0.4
4	N	eP	22:55:30.4	1	0.4	NR	$\Delta(S-P) = 3.8^\circ$	
		eS	22:56:17.0					0.3
4	N	eP	23:00:30.0	1	0.4	NR	$\Delta(S-P) = 3.7^\circ$	
		eS	23:01:15.0					0.4
5	N	eP	00:12:47.8	1	0.5	NR	$\Delta(S-P) = 2.4^\circ$	
		eS	00:13:18.2					0.6
5	LPN	e	01:06:54		20.0	T	No Primary Phases Visible	
5	LPN LPN LP	eP	01:29:09.9	6	1.2	T	Solomon Islands 10.9 S 161.6 E 0 = 01:16:06.3 h about 33 km $\Delta = 91.4^\circ$ Dir. = 256°	
		ePS	01:41:15					20.0
		e	01:46:46					22.0
		eLR	01:57:26					32.0
5		iP	05:22:41.3	C	3	T	Fiji Islands Region 17.7 S 178.6 W 0 = 05:11:11.2 h about 565 km $\Delta = 83.5^\circ$ Dir. = 237°	
5	IB N IBN	iP	06:04:19.4	D	999	999	L	$\Delta(S-P) = \text{less than } 0.1^\circ$
		eS	06:04:22.7					
5	IB N IBN	eP	09:30:18.3	5	0.3	NR	$\Delta(S-P) = 4.0^\circ$	
		eS	09:31:06.5					0.5

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks	
					A	T			
5	IB LP	eP	11:49:00.0	3	1.1	T	Peru 10.3 S 77.9 W 0 = 11:38:10.6 h about 50 km $\Delta = 65.4^\circ$ Dir. = 137°		
		eSur	12:11:18					19.5	
5	IB LPN IBN LP	iP	13:50:32.1	D	999	999	R	Colorado 39.9 N 104.6 W 0 = 13:48:00.4 h about 33 km $\Delta = 10.6^\circ$ Dir. = 113°	
		e	13:53:46.5						1.8
		eLg2	13:53:56						16.0
		eRg	13:54:41						14.0
5	N	eP	18:39:55.0	1	0.3	NR	$\Delta(S-P) = 1.8^\circ$		
		eS	18:40:18.8					0.4	
5	E	eP	19:22:20.7	1	0.4	NR	$\Delta(S-P) = 3.8^\circ$		
		eS	19:23:07.0					0.2	
5	N	eP	19:53:04.4	1	0.4	NR	$\Delta(S-P) = 3.6^\circ$		
		eS	19:53:48.0					0.4	
5	E	eP	19:58:23.0	1	0.3	NR	$\Delta(S-P) = 2.0^\circ$		
		eS	19:58:49.7					0.4	
5	N	iP	20:22:17.3	C	4	L	$\Delta(S-P) = 0.5^\circ$ P-Phase Dir. = NE		
		eS	20:22:25.0					0.4	
5	E	eP	21:08:04.7	1	0.1	L	$\Delta(S-P) = 0.5^\circ$ P-Phase Dir. = NE		
		eS	21:08:12.3					0.2	
5	N	eP	21:31:45.2	1	0.4	NR	$\Delta(S-P) = 2.0^\circ$		
		eS	21:32:11.2					0.6	
5	N	eP	21:37:17.8	1	0.4	NR	$\Delta(S-P) = 4.4^\circ$		
		eS	21:38:11.1					0.4	
5	E	eP	21:59:01.6	1	0.5	NR	$\Delta(S-P) = 1.8^\circ$ P-Phase Dir. = N		
		eS	21:59:26.3					0.4	

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
5	N	eP	23:07:54.5		1	0.4	NR	$\Delta(S-P) = 2.4^\circ$
		eS	23:08:25.2			0.4		
5		iP	23:38:40.5		999	999	L	(Horiz. Instr. not recording at this time)
6		eP	00:09:07.9		3	1.0	T	P-Phase Dir. = W
6	N	eP	00:15:03.7		1	0.5	NR	$\Delta(S-P) = 1.9^\circ$
		e	00:15:04.5		999			
		eS	00:15:28.7		999			
6		eP	00:18:05.1		1	0.8	T	
6	N	eP	00:34:30.3		1	0.4	L	$\Delta(S-P) = 0.9^\circ$
		eS	00:34:42.0			0.4		
6	N	eP	00:43:50.4		1	0.3	NR	$\Delta(S-P) = 2.4^\circ$
		S	00:44:21.7			0.7		
6	E	eP	01:07:08.8			0.2	NR	$\Delta(S-P) = 1.4^\circ$ P-Phase Dir. = NE
		eS	01:07:26.4			0.4		
6	N	eP	01:19:22.5		1	0.2	L	$\Delta(S-P) = \text{less than } 0.1^\circ$ P-Phase Dir. = SW
		eS	01:19:26.1			0.3		
6	LP	eP	02:25:10.0		5	1.1	T	South of Honshu, Japan 30.7 N 142.0 E 0 = 02:13:25.1 0 = 02:13:25.1 h about 33 km $\Delta = 75.9^\circ$ Dir = 299 $^\circ$
		e	02:25:17.3			1.2		
		e	02:25:31.5			1.3		
		eLR	02:48:42.0			20.0		
6		eP	02:38:37.2		2	0.7	T	
6		eP	03:57:25.0		26	1.0	T	Near Coast of Northern Chile 20.7 S 71.9 W 0 = 03:45:37.4 h about 60 km $\Delta = 77.3^\circ$ Dir. = 137 $^\circ$ P-Phase Dir. = S
	e	03:57:55.2			1.0			
	e	03:58:06.8			1.1			

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
6	LP	iP	04:13:49.2	C	12	0.8	T	Kurile Islands 49.0 N 154.3 E 0 = 04:04:09.8 h about 85 km $\Delta = 57.2^\circ$ Dir. = 308 $^\circ$
		epP	04:14:09.4			1.1		
		eLR	04:31:20			29.0		
6	E	eP	05:20:53.2		1	0.2	L	$\Delta(S-P) = 0.5^\circ$ P-Phase Dir. = NE
		eS	05:21:00.9			0.3		
6		eP	06:57:50.5		2	1.0	T	Near Coast of Southern Chile 45.6 S 73.4 W 0 = 06:44:17.0 h about 33 km. $\Delta = 98.1^\circ$ Dir. = 151 $^\circ$
6	LP	eP	07:19:46.4		13	1.0	T	
		e	07:34:18.0			18.0		
6		eP	08:28:16.0		2	1.1	T	
6		eP	09:01:35.3		1	0.5	T	Sea of Okhotsk 53.5 N 153.5 E 0 = 08:52:46.8 h about 480 km. $\Delta = 55.3^\circ$ Dir. = 313 $^\circ$
	e	09:01:38.8			0.5			
	ePcP	09:02:28.1			0.6			
	e	09:03:10.9			1.2			
6		eP	09:56:18.0		1	0.6	T	
6		eP	10:14:53.5		1	0.6	T	Fox Islands, Aleutian Islands 53.1 N 169.3 W 0 = 10:08:08.0 h about 33 km $\Delta = 34.4^\circ$ Dir. = 303 $^\circ$

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
6	LP	eP	11:39:00.9		40	1.9	T	Easter Island Region 22.0 S 113.7 W 0 = 11:28:11.9 h about 33 km $\Delta = 66.6^\circ$ Dir. = 176°
		e(LR)	12:01:26			23.0		
6		eP	12:38:25.0		1	0.8	T	
6		eP	16:07:20.3		1	0.7	T	
6		eP	16:29:18.8		1	0.8	T	
6	N	eP	17:25:03.8		2	0.9	T	Near East Coast of Kamchatka 55.0 N 161.7 E 0 = 17:16:08.5 h about 33 km. $\Delta = 50.3^\circ$ Dir. = 312°
		e	17:45:19.0			0.6		
		e	17:55:30.3			1.1		
6	N	eP	19:15:34.9		1	0.3	NR	$\Delta(S-P) = 2.8^\circ$
		eS	19:16:10.0			0.4		
6		eP	19:23:01.7		1	0.8	T	
		e	19:31:22.6			1.0		
6	N	eP	20:11:25.0		1	0.3	R	$\Delta(S-P) = 5.9^\circ$
		eS	20:12:35			0.4		
6	N	iP	20:26:22.7	C	4	0.2	L	$\Delta(S-P) = 0.5^\circ$ P-Phase Dir = NE
		iS	20:26:29.8			999		
6	N	eP	21:53:52.0		1	0.4	NR	$\Delta(S-P) = 3.1^\circ$
		eS	21:54:30.9			0.4		
6		eP	22:49:28.6		2	0.9	T	Near Coast of Central Chile 34.0 S 71.7 W 0 = 22:36:45.8 h about 88 km. $\Delta = 89.0^\circ$ Dir. = 143°

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
6	E	eP	23:30:41.6		1	0.3	NR	$\Delta(S-P) = 2.5^\circ$
		eS	23:31:13.7			0.3		
6	E	eP	23:42:34.0		1	0.3	NR	$\Delta(S-P) = 2.4^\circ$ P-Phase Dir. = WNW
		eS	23:43:05.4			0.4		
6	E	eP	23:58:12.7		1	0.4	NR	$\Delta(S-P) = 3.2^\circ$ P-Phase Dir. = WNW
		e	23:58:17.0			0.3		
		eS	23:58:51.8			0.6		
7		iP	00:19:12.4	C	1	0.6	T	Solomon Islands 10.8 S 164.0 E 0 = 00:06:23.9 h about 100 km $\Delta = 89.6^\circ$ Dir. = 254°
7	N	iP	00:31:24.9	D	3	0.2	L	$\Delta(S-P) = \text{less than } 0.1^\circ$ P-Phase Dir. = SE
		eS	00:31:28.1			0.3		
7		eP	03:01:31.0		1	0.6	T	
		e	03:01:47.1			0.7		
7		eP	07:37:05.5		1	0.5	T	Leeward Islands 15.3 N 61.2 W 0 = 07:27:45.4 h about 149 km $\Delta = 55.5^\circ$ Dir. = 103° P-Phase Dir. = SE
		epP	07:37:40.7			0.6		
7	IB	eP	09:48:53.7		9	1.0	T	Central China 38.0 N 106.3 E 0=09:36:01.5 h about 33 km $\Delta = 88.6^\circ$ Dir. = 327°
		ePP	09:52:23.4			1.3		
	LPN	eLQ	10:13:23		55.0			
		LPE	10:13:34			33.0		
7	N	eP	11:29:34.3		1	0.5	NR	$\Delta(S-P) = 4.3^\circ$
		eS	11:30:27.1			0.4		

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
7		eP	13:08:13.0		2	0.8	T	Kermadec Islands 30.7 S 179.3 W 0 = 12:55:34.6 h about 368 km. $\Delta = 94.0^\circ$ Dir. = 230°
7	IB BB LP	iP	14:14:56.1	C	17	0.7	T	Bonin Islands Region 29.2 N 139.2 E 0 = 14:03:37.0 h about 411 km $\Delta = 78.7^\circ$ Dir. = 300° Mag. 6 3/4 - 7 (Brk).
		ePcP	14:14:58.1			999		
		e(pP)	14:16:27.0			1.4		
	IB BB LP	e(sP)	14:17:11.0			1.2		
	IB BB LP	ePP	14:18:04.0			2.0		
	IB BB LP	e	14:19:23.3			2.5		
	IB BB LP	ePPP	14:19:54.0			3.0		
	IB LP	e	14:23:11.1			1.7		
	N IBN BBN LPN	iS	14:24:16.9			999		
	IB BB LP	eSP	14:25:09.0			3.2		

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
	IBE BBE LPE	e(PPS)	14:26:06.0			999		
		ePKKP	14:32:57.3			1.3		
		e	14:33:47.2			0.8		
	LPN	e	14:35:33			28.0		
	LPN	e	14:37:17			25.0		
		e(P'P')	14:41:12.5			1.2		
		e(SKKP)	14:44:25.6			1.3		
7		eP	14:39:27.9		6	1.4	T	May be phases of previous event.
		e	14:40:44.2			1.1		
7	E	eP	18:39:00.1		1	0.2	L	$\Delta(S-P) = 0.5^\circ$
		eS	18:39:07.8			0.3		
7		eP	19:01:58.6		1	0.8	R	$\Delta(S-P) = 11.3^\circ$
		e	19:02:23.5			1.0		
	IB E IBE	eS	19:04:07.4			0.7		
7		eP	19:18:54.9		1	0.3	NR	$\Delta(S-P) = 3.6^\circ$
	N	eS	19:19:38.7			0.5		
7		eP	19:28:03.8		12	1.5	R	$\Delta(S-P) = 3.9^\circ$
	E	eS	19:29:51.2			1.1		
7		eP	19:44:29.2		1	0.3	L	$\Delta(S-P) = 1.1^\circ$
	N	eS	19:44:43.3			0.3		
7		eP	20:07:12.6			0.4	NR	$\Delta(S-P) = 2.0^\circ$
	E	eS	20:07:38.7			0.4		
7		iP	20:47:38.5	C	8	0.3	L	$\Delta(S-P) = 0.2^\circ$
	N	eS	20:47:43.0			999		P-Phase Dir = WSW
		e	20:49:56.9			999		
7		eP	20:48:35.8		1	0.3	NR	$\Delta(S-P) = 1.8^\circ$
	N	eS	20:49:00.0			0.5		
7		eP	22:01:13.8		2	1.0	T	

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
7	E	eP	22:01:21.1	1	0.5	NR	$\Delta(S-P) = 4.4^\circ$	
		eS	22:02:13.9		0.4			
7	E	eP	22:03:30.5	1	0.4	NR	$\Delta(S-P) = 3.8^\circ$	
		eS	22:04:16.5		0.4			
7	N	eP	22:16:35.0	1	0.4	NR	$\Delta(S-P) = 3.6^\circ$	
		eS	22:17:19.7		0.4			
7	N	eP	22:33:37.3	1	0.4	NR	$\Delta(S-P) = 2.9^\circ$	
		eS	22:34:13.9		0.3			
7	N	eP	22:35:36.3	1	0.4	NR	$\Delta(S-P) = 3.7^\circ$	
		eS	22:36:22.0		0.4			
7		eP	23:06:31.7	1	0.8	T		
7	E	eP	23:13:56.8	1	0.5	NR	$\Delta(S-P) = 1.9^\circ$	
		eS	23:14:22.2		0.5			
7		eP	23:42:15.6	2	1.0	T		
7	E	eP	23:44:24.8	1	0.5	NR	$\Delta(S-P) = 2.1^\circ$	
		eS	23:44:52.8		0.5			
8		eP	00:21:07.8	3	1.4	T		
8	N	eP	00:46:29.0	1	0.4	NR	$\Delta(S-P) = 4.4^\circ$	
		e	00:46:37.1		0.5			
		eS	00:47:22.4		0.4			
8		eP	01:49:19.9	2	0.7	T	Central Alaska 62.6 N 151.6 W 0 = 01:43:43.8 h about 33 km $\Delta = 26.5^\circ$ Dir = 324° P-Phase Dir = NW	
		e	01:49:24.5		0.8			
		e	01:49:42.6		0.9			
8		eP	03:15:26.9	1	1.0	T		
		e	03:17:42.2		1.0			
8	E	eP	04:27:58.3	1	0.1	L	$\Delta(S-P) = 0.5^\circ$ P-Phase Dir = NNE	
		eS	04:28:05.8		0.2			

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
8		eP	05:24:21.8	1	0.7	T		
8	LP	e	09:55:35		28.0	T	No primary phases visible	
8	E	eP	10:32:51.4	1	0.3	NR	$\Delta(S-P) = 0.6^\circ$ P-Phase Dir = SW	
		eS	10:33:00.1		0.4			
		eSur	10:33:45.1		0.7			
8	N	eP	10:32:51.6	1	0.3	L	$\Delta(S-P) = 0.7^\circ$	
		eS	10:33:01.7		0.3			
8		eP	11:02:16.8	1	0.8	T		
		e	11:02:28.9		0.8			
8		eP	11:18:54.3	2	1.0	T		
8		eP	11:41:50.6	2	1.2	T		
8		eP	11:48:58.3	4	1.3	T		
8		eP	11:51:29.2	1	0.6	T		
		e	12:14:25.0		1.0			
8		e(P)	14:32:13.4	2	1.0	T	Tsinghai Province China 37.1 N 95.5 E 0 = 14:19:00.1 h about 33 km $\Delta = 93.2^\circ$ Dir = 334°	
		e	14:32:17.3		0.9			
8	N	eP	15:56:46.5	1	0.3	NR	$\Delta(S-P) = 2.2^\circ$	
		eS	15:57:15.8		0.5			
8		eP	16:46:19.3	1	0.9	T		
8	N	iP	17:59:06.2	C	0.3	L	$\Delta(S-P) = 1.0^\circ$ P-Phase Dir = NW	
		eS	17:59:19.3		999			

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
8	IB BB	eP	18:12:46.1		27	1.2	T	Near Coast of Northern Chile 23.6 S 69.4 W 0 = 18:00:41.1 h about 100 km $\Delta = 80.9^\circ$ Dir = 136° P-Phase Dir = SE
8	IB BB LP	epP	18:13:09.8			1.2	T	
8	IB BB LP	iP	18:30:28.7	D	725	2.0	T	Tonga Islands Region 15.2 S 173.7 W 0 = 18:18:29.1 h about 33 km $\Delta = 78.6^\circ$ Dir = 235° P-Phase Dir = SSW
	IB BB LP	e	18:30:41.6					
	LP	e	18:31:22			15.0		
	LP	ePP	18:33:42			22.0		
	E	eS	18:40:23.6			4.8		
	IBE BBE LPE							
	LP	eSP	18:41:17			23.0		
	LP	e	18:42:58			21.0		
	LPN	eSS	18:45:30			23.0		
		e	18:49:40.7			1.4		
	LPE	eLQ	18:51:26			34.0		
	LP	eLR	18:54:15			32.0		
	BB	eP'P'	18:57:31.1			2.4		
8		eP	19:28:20.6		1	0.9	T	
8		eP e	21:19:20.2 21:20:11.3		2	0.8 1.0	T	P-Phase Dir = SE
8	IB BB LP LPN	iP	21:38:59.4	C	55	1.0	T	Salta-Santiago Del Estero Provinces Border, Argentina 25.8 S 63.4 W 0 = 21:27:22.2 h about 620 km $\Delta = 85.8^\circ$
	LPN	e	21:40:18.0			21.0		
		epP	21:41:06.4			1.2		
	LPN	e	21:42:15			20.0		

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
	LPN	e	21:44:22			24.0		Dir = 133°
	LP	epPP	21:45:29			31.0		P-Phase Dir = S
		eSKS	21:48:33.0			2.0		
	IB BB LP							
	LP	e	21:52:32			22.0		
	BB	ePKKP	21:56:57.2			1.2		
	BBE	e(sSSS)	22:01:33			14.0		
	LPE							
		e	22:04:37.6			1.5		Phases may be from separate events
		e	22:07:27.2			1.1		
		e(P'P'P')	22:24:51.2			1.3		
		e	22:27:25.4			1.7		
8		eP	22:11:31.4		1	0.2	L	$\Delta(S-P) = 0.7^\circ$
	N	eS	22:11:40.4			0.2		P-Phase Dir = ENE
8		eP	22:21:02.9		2	0.8	T	
8		eP	22:34:19.4		1	0.3	NR	$\Delta(S-P) = 2.8^\circ$
	N	eS	22:34:55.0			0.4		
8		eP	22:42:51.5		6	1.5	T	
	LPN	e	22:49:48			34.0		
8		eP	22:46:38.4		1	0.5	NR	$\Delta(S-P) = 4.6^\circ$
	N	eS	22:47:33.6			0.4		
8		eP	22:58:18.0		2	1.1	T	
8		eP	23:02:30.7		230	1.7		Andreanof Islands, Aleutian Islands 50.5 N 176.8 W 0 = 22:55:01.2 h about 33 km $\Delta = 39.5^\circ$ Dir = 300°
	IB BB							
	LP	e	23:03:22			27.0		
	LP	e(PPP)	23:04:36			20.0		
	E	eS	23:08:28.4			1.9		
	LPE	e(SSS)	23:11:44			17.0		
	LP	eLR	23:14:22			28.0		
		e(PKKP)	23:26:35.8			0.8		Possible new event
		e	23:34:10.8			1.4		
8		eP	23:24:28.0		1	0.4	L	$\Delta(S-P) = \text{less than } 0.1^\circ$
	N	eS	23:24:31.6			999		P-Phase Dir = SE

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
8		eP	23:31:23.6		3	0.8	T	
9		eP	00:47:07.3		1	0.7	T	
9	N	eP	02:17:52.5		1	0.2	L	$\Delta(S-P) = \text{less than } 0.1^\circ$ P-Phase Dir = SE
		eS	02:17:56.0			0.2		
9	E	eP	02:21:21.7		1	0.1	L	$\Delta(S-P) = \text{less than } 0.1^\circ$
		eS	02:21:25.0			0.2		
9	N	eP	02:37:59.9		1	0.2	L	$\Delta(S-P) = 0.1^\circ$ P-Phase Dir = SE
		eS	02:38:04.0			999		
9		eP	03:32:53.8		2	1.0	T	
		e	03:33:23.7			1.1		
9	N	iP	06:25:43.2	D	1	0.2	L	$\Delta(S-P) = \text{less than } 0.1^\circ$ P-Phase Dir = SE
		eS	06:25:46.9			0.2		
9		eP	07:01:32.2		1	0.6	T	
9	E	eP	07:09:43.4		1	0.3	NR	$\Delta(S-P) = 2.5^\circ$
		eS	07:10:15.0			0.4		
9		eP	08:10:37.9		1	0.4	R	$\Delta(S-P) = 11^\circ$
		e	08:11:48.5			1.2		
		e(S)	08:13:43.4			0.7		
9	E	eP	08:15:04.7		1	0.3	NR	$\Delta(S-P) = 4.7^\circ$
		eS	08:16:01.8			0.5		
9	IB	eP	10:09:33.5		1	0.3	NR	$\Delta(S-P) = 2.8^\circ$
		e	10:09:36.9			0.8		
	N	eS	10:10:09.1			999		
	IBN							
9		eP	10:28:13.6		2	1.0	T	Kurile Islands 43.5 N 147.3 E 0 = 10:17:39.5 h about 34 km $\Delta = 64.3^\circ$ Dir = 306°

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
9		eP	11:29:50.6		11	1.5	T	
		e	11:30:12.8			1.4		
9		eP	14:28:24.3		3	0.8	T	Tonga Islands Region 22.4 S 177.0 W 0 = 14:16:05.2 h about 204 km $\Delta = 86.2^\circ$ Dir = 233°
		epP	14:29:12.2			1.1		
		e(PKKP)	14:46:30.4			0.8		
		eP'P'	14:54:40.5			1.1		
9	LP	eP	14:40:30.5		9	1.5	T	New Britain 4.7 S 153.7 E 0 = 14:27:04.1 h about 117 km $\Delta = 92.6^\circ$ Dir = 266°
		eLR	15:09:40			42.0		
9	E	eP	15:15:05.9		1	0.2	L	$\Delta(S-P) = 0.6^\circ$
		eS	15:15:14.8			0.4		
9	N	eP	17:51:33.4		1	0.1	L	$\Delta(S-P) = \text{less than } 0.1^\circ$
		eS	17:51:37.2			0.3		
9		eP	18:03:06.6		7	1.4	T	
9	E	eP	18:03:33.0		2	0.2	NR	$\Delta(S-P) = 2.1^\circ$
		eS	18:04:00.4			0.3		
9	N	eP	18:40:50.2		1	0.3	NR	$\Delta(S-P) = 4.9^\circ$
		eS	18:41:49.8			0.4		
9		eP	20:02:32.8		1	0.8	T	
9	LPN LP LP	eP	21:06:20.2		10	1.1	T	Tonga Islands Region 17.7 S 173.6 W 0 = 20:54:13.7 h about 60 km $\Delta = 80.6^\circ$ Dir = 234° P-Phase Dir = SW
		e	21:06:32.1			1.1		
		e(PP)	21:09:36.9			1.2		
		eS	21:16:28			16.0		
		eSur	21:28:14			25.0		
		e	21:31:02			23.0		
	e(P'P')	21:33:23.8			1.2			

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
9		eP	21:28:14.6	1	0.6	T	Northern Honshu, Japan 39.9 N 140.5 E 0 = 21:17:02.0 h about 33 km $\Delta = 70.5^\circ$ Dir = 307°	
		e	21:28:15.8		1.0			
		e	21:29:35.6		1.0			
9	E	eP	23:03:52.3	4	0.3	NR	$\Delta (S-P) = 1.4^\circ$	
		eS	23:04:10.0		0.3			
9		eP	23:27:27.0	2	0.9	T		
9		eP	23:30:25.3	10	1.1	T		
9		eP	23:57:55.0	6	1.3	T		
10	N	eP	00:51:04.0	1	0.5	NR	$\Delta (S-P) = 1.3^\circ$	
		eS	00:51:20.0		0.6			
10		eP	03:19:12.0	2	1.0	T		
10	N	eP	03:46:34.0	1	0.1	NR	$\Delta (S-P) = 1.6^\circ$	
		eS	03:46:54.4		0.3			
10		eP	04:31:25.9	1	0.8	T		
10		eP	05:10:28.5	1	1.0	T		
		e	05:10:45.5		0.9			
10	IB	eP ₁	05:16:18.2	7	1.3	T	Indian Ocean 28.3 S 62.7 E 0 = 04:56:19.4 h about 33 km $\Delta = 163.5^\circ$ Dir = 300°	
		eP ₂	05:17:10.5		1.1			
	IB	e	05:17:17.3		1.1			
	IB	e	05:20:50.8		1.4			
	IB							
	LP	ePcPP'	05:24:40.5		1.4			

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
	LP	ePPP	05:25:00				15.0	
		e	05:26:13.6				1.7	
	LP	e	05:31:11				16.0	
	LPN	eSS	05:41:37				26.0	
	LPN	eSSS	05:48:18				37.0	
	LPN	e	05:52:47				33.0	
	LP	e(LR)	06:12:25				40.0	
10		eP	06:25:05.1	3	1.0	T	Solomon Islands 8.4 S 157.4 E 0 = 06:11:56.2 h about 39 km $\Delta = 92.5^\circ$ Dir = 261°	
		e	06:25:36.5		1.1			
	LP	e	06:54:15		37.0			
10		eP	07:06:02.9	2	0.8	T		
	LP	e	07:11:04.0		17.0			
10		eP	07:40:32.0	2	1.0	T		
10		eP	08:11:40.8	1	0.7	T		
10		eP	10:22:06.5	1	0.9	NR	$\Delta (S-P) = 4.0^\circ$ P-Phase Dir = E	
	N	eS	10:22:55.4		0.5			
	N	e	10:23:12.8		0.6			
10		eP	10:25:31.4	1	0.3	NR	$\Delta (S-P) = 1.8^\circ$	
	N	eS	10:25:55.7		0.3			
10		eP	10:40:01.1	2	0.8	T		
10		eP	10:46:29.1	1	0.3	L	$\Delta (S-P) = \text{less than } 0.1^\circ$	
	N	eS	10:46:32.6		999			
10		eP	11:25:57.3	3	1.1	T		
10		eP	16:19:34.2	3	0.7	T	Kurile Islands Region 49.7 N 155.8 E 0 = 16:09:58.3 h about 45 km $\Delta = 56.0^\circ$ Dir = 309°	
		epP	16:19:48.2		1.2			
	LP	eLR	16:36:32		35.0			

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
10		eP	16:29:26.4	2	0.9		T	
10		eP	16:55:52.4	1	0.7		T	
10		eP	16:58:37.6	1	0.4		NR	$\Delta(S-P) = 5.5^\circ$
	N	eS	16:59:43.2		0.8			
10		eP	17:08:54.2	27	1.5		T	Kermadec Islands Region 27.2 S 176.8 W 0 = 16:56:04.5 h about 88 km $\Delta = 89.9^\circ$ Dir = 230°
	IB							
	LP	e	17:09:07.4		0.9			
		e(pP)	17:09:14.2		1.4			
	LPE	e(S)	17:19:47		23.0			
	LPE	ePS	17:20:54		18.0			
	LP	ePSP	17:21:40		12.0			
	LPE	eSS	17:25:55		25.0			
		e(PKKP)	17:26:28.4		0.8			
	LPN	e	17:32:37		15.0			
	LPE	eG	17:33:23		40.0			
	LP	e(LR)	17:37:07		29.0			
10		eP	17:10:59.2	4	0.5		NR	$\Delta(S-P) = 1.6^\circ$
	N	eS	17:11:21.6		999			P-Phase Dir = N
10		eP	17:34:57.8	1	1.0		T	
10		eP	17:42:32.3	1	0.9		T	
		e	17:43:17.0		1.5			
10		eP	18:55:39.6	2	0.9		T	
		e	18:56:08.9		1.0			
	LP	e	19:17:40		22.0			
10		eP	19:30:10.4	1	0.3		NR	$\Delta(S-P) = 2.0^\circ$
	E	eS	19:30:36.8		0.6			
10		eP	21:08:20.5	1	0.8		T	
	LP	e(Sur)	21:29:32		20.0			
10		eP	21:38:27.8	1	0.2		L	$\Delta(S-P) = \text{less than } 0.1^\circ$
	N	eS	21:38:29.4		0.4			

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
10		eP	22:11:25.0	1	0.1		L	$\Delta(S-P) = 0.5^\circ$
	N	eS	22:11:32.0		0.3			P-Phase Dir = NE
10		eP	22:55:55.9	1	0.2		L	$\Delta(S-P) = 0.8^\circ$
	N	eS	22:56:07.4		0.5			
10		eP	23:05:17.8	1	0.5		NR	$\Delta(S-P) = 3.9^\circ$
	N	eS	23:06:05.9		0.6			
10		eP	23:19:40.9	1	0.4		NR	$\Delta(S-P) = 2.8^\circ$
	N	eS	23:20:26.4		0.4			
10		eP'	23:23:25.3	2	1.0		T	Near South Coast of Central Java 8.0 S 108.6 E 0 = 23:04:42.0 h about 193 km $\Delta = 126.0^\circ$ Dir = 298°
		e	23:23:51.5		0.6			
10		eP	23:37:41.2	1	0.4		NR	$\Delta(S-P) = 2.1^\circ$
	E	eS	23:38:08.2		0.4			
10		eP	23:56:17.7	1	0.4		NR	$\Delta(S-P) = 2.4^\circ$
	E	eS	23:56:49.0		0.4			
11		eP	00:02:23.6	1	0.4		NR	$\Delta(S-P) = 2.5^\circ$
		e	00:02:28.3		0.3			P-Phase Dir = WNW
	N	eS	00:03:55.0		0.4			
11		eP'	02:53:35.5	1	1.0		T	South of Australia 48.9 S 124.6 E 0 = 02:34:09.6 h about 33 km $\Delta = 138.5^\circ$ Dir = 242°
11		eP	07:07:30.5	1	0.5		T	
11		eP	08:16:38.8	1	0.2		L	$\Delta(S-P) = 1.2^\circ$
	N	eS	08:16:53.4		0.6			

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Blue Mountains Seismological Observatory

Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
11		iP e	10:30:07.3 10:30:30.9	C	2	0.8 0.8	R	Central Utah 39.4 N 110.3 W 0 = 10:28:17.5 h about 33 km $\Delta = 7.5^\circ$ Dir = 134° P-Phase Dir = SSE
11	N	eP eS	10:33:02.1 10:33:06.5		1	0.1 0.4	L	$\Delta(S-P) = 0.2^\circ$ P-Phase Dir = E
11	N	iP eS	12:26:13.6 12:26:59.0	D	3	0.2 0.3	L	$\Delta(S-P) = 3.7^\circ$ P-Phase Dir = ESE
11		eP	12:49:43.3		1	0.4	T	
11		eP	13:22:13.7		1	0.5	T	
11		eP	13:55:18.6		1	0.7	T	P-Phase Dir = SW
11		eP	14:06:07.5		1	0.7	T	Fiji Islands 19.7 S 178.4 W 0 = 13:54:36.3 h about 630 km $\Delta = 84.9^\circ$ Dir = 236° P-Phase Dir = SW
11		eP	14:24:10.6		1	0.6	T	Possible PKKP of previous event
11		eP	14:31:41.4		1	0.8	T	
11		eP e LP e(Sur)	14:57:18.2 14:57:26.2 15:24:54		5	1.1 0.9 23.0	T	P-Phase Dir = SW
11		eP	16:05:25.0		2	0.9	T	
11	E	eP eS	16:14:07.3 16:14:41.5		1	0.3 0.4	NR	$\Delta(S-P) = 2.7^\circ$ P-Phase Dir = N

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
11		eP	16:25:48.9		2	0.9	T	Off East Coast of Honshu, Japan 39.1 N 144.3 E 0 = 16:14:47.1 h about 44 km $\Delta = 68.9^\circ$ Dir = 304°
11	N	eP eS	16:35:51.5 16:36:27.1		1	0.4 0.4	NR	$\Delta(S-P) = 2.8^\circ$
11	IB N IBN	iP eS	17:15:50.7 17:16:14.5	C		999 999	NR	$\Delta(S-P) = 1.8^\circ$ P-Phase Dir = SE
11		eP eS	17:23:52.6 17:24:37.4		1	0.5 0.4	NR	$\Delta(S-P) = 3.7^\circ$
11	N	eP eS	17:26:15.6 17:26:44.4		1	0.4 0.4	NR	$\Delta(S-P) = 2.2^\circ$ P-Phase Dir = NW
11	N	eP eS	17:32:06.9 17:32:52.4		1	0.4 0.5	NR	$\Delta(S-P) = 3.7^\circ$ P-Phase Dir = E
11		eP e	18:04:40.7 18:05:17.2		15	1.5 1.4	T	Tonga Islands 24.8 S 177.6 W 0 = 17:51:58.9 h about 98 km $\Delta = 88.4^\circ$ Dir = 232° P-Phase Dir = SW
11		eP e	18:23:37.6 18:24:02.4		3	0.9 0.7	T	Near North Coast of New Guinea 3.9 S 143.6 E 0 = 18:09:58.6 h about 33 km $\Delta = 99.2^\circ$ Dir = 274° P-Phase Dir = SW

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks	
					A	T			
11		eP	18:36:48.6		2	0.7	T	Bismarck Sea 5.3 S 150.6 E 0 = 18:23:30.8 h about 58 km $\Delta = 95.2^\circ$ Dir = 268° P-Phase Dir = SW	
		epP	18:37:02.6						0.7
11	E	eP	19:32:17.0		1	0.3	NR	$\Delta (S-P) = 2.9^\circ$	
		eS	19:32:53.3						0.6
11	N	eP	19:59:18.6		1	0.2	NR	$\Delta (S-P) = 2.3^\circ$	
		eS	19:59:48.6						0.4
11	N	eP	21:33:51.0		1	0.6	NR	$\Delta (S-P) = 5.0^\circ$	
		eS	21:34:50.9						0.6
11	N	iP	22:13:26.1	C	6	0.2	L	$\Delta (S-P) = 0.5^\circ$ P-Phase Dir = NE	
		eS	22:13:33.1						0.3
11	N	eP	22:15:08.4		1	0.3	NR	$\Delta (S-P) = 2.5^\circ$	
		eS	22:15:40.7						0.4
11	N	eP	22:30:10.2		1	0.5	L	$\Delta (S-P) = 0.6^\circ$	
		eS	22:30:18.4						0.5
11	E	eP	22:33:30.0		1	0.4	NR	$\Delta (S-P) = 3.6^\circ$	
		eS	22:34:14.7						0.4
11	E	eP	22:40:11.3		1	0.4	NR	$\Delta (S-P) = 3.7^\circ$ P-Phase Dir = E	
		eS	22:40:56.5						0.5
11	E	eP	23:54:21.1		1	0.1	L	$\Delta (S-P) = 0.2^\circ$	
		eS	23:54:25.5						0.5
11		eP	23:59:20.0		1	0.6	T		
12	N	eP	00:01:36.8		1	0.3	NR	$\Delta (S-P) = 2.5^\circ$	
		eS	00:02:08.3						0.4
		e	00:02:16.0						0.4

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks	
					A	T			
12	IB	iP	00:14:13.8	C	10	1.0	T	Southern Honshu 33.0 N 136.0 E 0 = 00:02:58.4 h about 407 km $\Delta = 77.9^\circ$ Dir = 305° P-Phase Dir = W	
		e	00:16:02.4						1.5
12	N	eP	00:16:05.7		1	0.4	NR	$\Delta (S-P) = 3.4^\circ$	
		eS	00:17:48.0						0.4
12	N	eP	00:38:38.8		1	0.4	NR	$\Delta (S-P) = 3.7^\circ$	
		eS	00:39:24.2						0.4
12		eP	01:04:52.5		4	1.2	T	P-Phase Dir = SW	
12	E	eP	03:19:59.5		2	0.2	L	$\Delta (S-P) = 0.4^\circ$ P-Phase Dir = NE	
		eS	03:20:06.3						0.3
12		eP	05:58:45.7		1	0.9	T		
12	IB	eP	07:01:38.1		2	1.0	T		
12	N	eP	08:36:13.3		1	0.3	NR	$\Delta (S-P) = 2.3^\circ$	
		eS	08:36:43.4						0.3
12	N	iP	10:21:52.9	D	12	1.1	T	New Britain 4.8 S 153.8 E 0 = 10:08:48.5 h about 94 km $\Delta = 92.6^\circ$ Dir = 266° P-Phase Dir = SW	
		e	10:22:15.4						1.5
		e	10:23:17.9						1.6
		e(PP)	10:25:53.8						1.7
		eSKS	10:32:23.2						1.5
		eSP	10:34:05.5						1.2
		e(PKKP)	10:38:37.0						1.0
		e	10:40:06.7						1.3
		e(P'P')	10:47:30.6						1.4
12	N	iP	10:31:24.5		1	0.2	L	$\Delta (S-P) = \text{less than } 0.1^\circ$ P-Phase Dir = SE	
		eS	10:31:28.3						999
12	N	iP	11:15:36.5	C	9	0.1	L	$\Delta (S-P) = 0.8^\circ$ P-Phase Dir = NE	
		eS	11:15:47.6						999

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
12		iP e	11:40:49.9 11:41:18.1	C	8	1.2 1.4	T	Northern Honshu, Japan 39.6 N 140.5 E 0 = 11:29:39.5 h about 66 km $\Delta = 70.7^\circ$ Dir = 307° P-Phase Dir = W
12	E	eP e eS	13:15:33.0 13:16:05.5 13:17:42.2		1	0.6 0.8 0.9	R	$\Delta(S-P) = 5.8^\circ$
12		iP	14:04:44.4	C	2	0.8	T	
12		iP' ₁ e e e	14:15:37.4 14:16:03.2 14:16:11.3 14:16:18.1	C	8	0.9 1.1 1.3 1.3	T	Sandwich Islands Region 60.3 S 25.9 W 0 = 13:56:32.4 h about 33 km $\Delta = 128.3^\circ$ Dir = 138°
12	N	eP eS	17:04:58.6 17:05:02.4			0.3 0.2	L	$\Delta(S-P) = \text{less than } 0.1^\circ$ P-Phase Dir = SE
12		eP	17:05:47.0		1	0.6	T	
12	N N E	eP e e(S) e(Sur)	17:26:56.8 17:27:19.0 17:27:29.8 17:29:00.4		1	0.4 0.4 0.8 1.1	NR	$\Delta(S-P) = 1.6^\circ$
12	N	eP eS	17:33:08.4 17:33:20.9		2	0.2 0.4	L	$\Delta(S-P) = 1.0^\circ$ P-Phase Dir = S
12	N	eP eS	18:43:06.7 18:43:10.4			0.3 999	L	$\Delta(S-P) = \text{less than } 0.1^\circ$ P-Phase Dir = SE
12	E	eP e eS	18:46:58.9 18:47:26.1 18:49:14.3		3	0.8 0.9 1.3	R	$\Delta(S-P) = 12^\circ$

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
12		eP e e E eS	18:56:54.4 18:57:09.8 18:57:38.8 18:58:52.6		1	0.5 1.2 1.2 1.4	R	$\Delta(S-P) = 11^\circ$
12		eP	19:58:51.1		3	1.1	T	
12		eP	20:45:54.7		1	0.4	T	
12	E	eP eS	21:20:41.5 21:21:13.2		1	0.3 0.4	NR	$\Delta(S-P) = 2.5^\circ$
12	N	eP eS	21:26:03.8 21:26:31.7		1	0.3 0.5	NR	$\Delta(S-P) = 2.1^\circ$ P-Phase Dir = NW
12		eP eS	21:29:38.4 21:30:05.8		1	0.4 0.4	NR	$\Delta(S-P) = 2.1^\circ$
12	N	eP eS	22:04:42.0 22:05:27.6		1	0.9 0.4	NR	$\Delta(S-P) = 3.7^\circ$
12	E	iP eS	22:06:26.2 22:06:33.4	D	1	0.2 0.4	L	$\Delta(S-P) = 0.5^\circ$ P-Phase Dir = NE
12	N	iP eS	22:11:38.9 22:11:46.5	D	1	0.4 0.3	L	$\Delta(S-P) = 0.5^\circ$ P-Phase Dir = SE
12	E	eP e eS	22:19:12.8 22:19:55.1 22:19:58.6		1	0.3 0.2 0.4	NR	$\Delta(S-P) = 3.7^\circ$
12	N	eP eS	23:07:30.6 23:07:45.9		2	0.3 999	L	$\Delta(S-P) = 1.2^\circ$ P-Phase Dir = NW
12		eP' e ePKKP e	23:15:23.7 23:15:32.8 23:25:17.5 23:25:35.7		1	0.6 0.7 0.8 0.6	T	Sumatra 4.6 N 96.5 E 0 = 22:56:45.8 h about 136 km $\Delta = 122.2^\circ$ Dir = 319°

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
12	N	eP	23:28:34.4		1	0.3	NR	$\Delta(S-P) = 2.2^\circ$
		eS	23:29:03.0			0.4		
12	N	eP	23:57:51.8		1	0.2	L	$\Delta(S-P) = \text{less than } 0.1^\circ$
		eS	23:57:55.0			999		
12	E	eP	23:58:42.8		1	0.2	NR	$\Delta(S-P) = 2.5^\circ$
		e	23:58:48.5			0.2		
		eS	23:59:14.8			0.6		
13	N	eP	00:35:25.8		1	0.5	NR	$\Delta(S-P) = 4.4^\circ$ P-Phase Dir = SW
		eS	00:36:19.4			0.4		
13	N	eP	00:39:54.6		2	0.4	NR	$\Delta(S-P) = 2.2^\circ$ P-Phase Dir = NW
		eS	00:40:23.3			0.4		
13	N	eP	01:04:58.5		1	0.4	NR	$\Delta(S-P) = 2.1^\circ$
		eS	01:05:25.9			0.4		
13	N	eP	02:44:12.7		1	0.3	NR	$\Delta(S-P) = 2.6^\circ$
		eS	02:44:45.5			0.5		
13	N	eP	02:59:05.7		1	0.2	L	$\Delta(S-P) = \text{less than } .1^\circ$
		eS	02:59:08.8			0.4		
13	N	iP	03:55:01.7	D	1	0.2	L	$\Delta(S-P) = 0.5^\circ$ P-Phase Dir = NE
		eS	03:55:08.8			0.3		
13	IB LPN LPE IB LP	iP	04:26:51.3	C	12	1.2	T	South Central, Alaska 63.3 N 149.7 W 0 = 04:21:21.2 h about 47 km $\Delta = 26.1^\circ$ Dir = 327° P-Phase Dir = NW
		e	04:26:57.0			1.0		
		e(S)	04:31:43			24.0		
		eLQ	04:32:58			24.0		
		eLR	04:35:08.7			2.3		
13	N	eP	05:56:56.7		1	0.2	L	$\Delta(S-P) = \text{less than } 0.1^\circ$
		eS	05:57:00.4			0.2		
13		eP	07:01:43.5		3	1.1	T	
13		iP	08:03:05.6	C	3	0.8	T	

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
13	LP	eP	08:12:33.4		11	0.8	T	P-Phase Dir = SW
		e	08:12:58.8			1.2		
		e	08:14:36.0			1.0		
13		eP	08:26:33.4		1	1.0	T	New Britain 4.7 S 153.8 E 0 = 08:13:34.4 h about 112 km $\Delta = 92.5^\circ$ Dir = 266°
		e	08:36:14.8			1.7		
13	N	eP	09:32:18.9		1	0.4	NR	$\Delta(S-P) = 5.7^\circ$
		eS	09:33:26.0			0.4		
13		eP	10:45:03.1		3	1.2	T	
13		eP	11:25:42.1		6	1.0	T	
		e	11:26:28.1			1.3		
13	N	eP	14:24:08.4		1	0.3	NR	$\Delta(S-P) = 2.4^\circ$
		eS	14:24:39.2			0.4		
13		eP	15:01:26.2		2	1.1	T	
13	IB BB IB LPE LP E IBE LPE	iP	15:02:38.2	C	30	1.3	T	Kenai Peninsula, Alaska 61.4 N 147.2 W 0 = 14:57:27.9 h about 69 km $\Delta = 24.1^\circ$ Dir = 324° P-Phase Dir = NW
		epP	15:02:52.9			2.0		
		e	15:04:13.0			1.2		
		eS	15:06:50			18.0		
		e	15:07:07			27.0		
		e	15:09:42.0			2.2		
13	N E	eP	16:36:21.5		1	0.4	NR	$\Delta(S-P) = 4.5^\circ$
		eS	16:37:16.0			0.4		
		eSur	16:37:42.2			0.6		

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
13		eP	16:47:32.2		2	0.8	T	
13	N	eP	16:48:36.4		1	0.2	L	$\Delta(S-P) = 0.5^\circ$
		eS	16:48:43.6			0.2		P-Phase Dir = NE
13	N	eP	17:15:55.4		1	0.4	NR	$\Delta(S-P) = 3.2^\circ$
		eS	17:16:35.3			0.5		
		e(Sur)	17:17:01.5			1.0		
13	N	eP	17:31:55.8		1	0.2	NR	$\Delta(S-P) = 3.4^\circ$
		eS	17:32:38.2			0.5		
13	E	eP	17:42:57.0		1	0.4	NR	$\Delta(S-P) = 4.5^\circ$
		eS	17:43:51.4			0.4		
13	N	eP	17:58:11.1		1	0.1	L	$\Delta(S-P) = 0.5^\circ$
		eS	17:58:18.4			0.2		P-Phase Dir = NE
13	N	eP	18:51:42.2		1	0.3	NR	$\Delta(S-P) = 2.6^\circ$
		e	18:52:01.1			0.3		
		eS	18:52:15.2			0.4		
		eSur	18:52:23.7			0.5		
13	E	eP	19:08:27.8		1	0.4	NR	$\Delta(S-P) = 3.6^\circ$
		e	19:08:55.2			0.4		
		eS	19:09:11.3			0.4		
13	N	eP	19:24:28.7		1	0.4	NR	$\Delta(S-P) = 3.6^\circ$
		e	19:24:58.4			0.4		
		eS	19:25:13.1			0.4		
13	IB N IBN	iP	19:30:21.6	C	21	0.2	L	$\Delta(S-P) = 0.5^\circ$ P-Phase Dir = NE
		eS	19:30:28.8			999		
13	N	eP	19:40:28.6		1	0.5	NR	$\Delta(S-P) = 2.5^\circ$
		eS	19:41:00.2			0.5		
		eSur	19:41:11.0			0.4		
13	N	eP	19:53:29.6		1	0.4	NR	$\Delta(S-P) = 4.9^\circ$
		eS	19:54:28.1			0.4		

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
13	N	eP	20:01:26.6			0.4	NR	$\Delta(S-P) = 4.2^\circ$
		eS	20:02:17.9			0.5		
13		eP	20:10:55.8		1	0.3	(T)	
13	E	eP	20:24:11.2		1	0.5	NR	$\Delta(S-P) = 1.9^\circ$
		eS	20:24:36.6			0.5		P-Phase Dir = SW
13	N	eP	22:03:58.8		1	0.4	L	$\Delta(S-P) = 1.3^\circ$
		eS	22:04:14.7			0.4		P-Phase Dir = SE
13	N	eP	22:51:12.0		1	0.3	NR	$\Delta(S-P) = 2.6^\circ$
		eS	22:51:44.9			0.4		
13		eP	22:58:44.8		3	1.0	T	Dodecanese Islands
		e	22:58:49.4			0.6		35.2 N 28.3 E
		epP	22:58:57.3			0.8		0 = 22:45:28.4
		e	22:59:44.5			0.8		h about 39 km $\Delta = 94.4^\circ$ Dir = 28°
13	N	eP	23:05:12.1		1	0.4	NR	$\Delta(S-P) = 2.9^\circ$
		eS	23:05:48.6			0.4		
13	N	eP	23:18:21.1		4	0.3	NR	$\Delta(S-P) = 1.5^\circ$
		eS	23:18:39.3			0.3		P-Phase Dir = NW
13	N	eP	23:41:36.7		1	0.4	NR	$\Delta(S-P) = 4.0^\circ$
		eS	23:42:25.2			0.5		
13	N	eP	23:49:14.7		1	0.4	NR	$\Delta(S-P) = 2.9^\circ$
		eS	23:49:50.7			0.4		
13	E	iP	23:53:20.0	C	3	0.5	NR	$\Delta(S-P) = 1.7^\circ$
		eS	23:53:43.2			0.5		P-Phase Dir = NW
13	N	eP	23:56:54.7		1	0.2	L	$\Delta(S-P) = 0.2^\circ$
		eS	23:56:59.0			0.2		
14	E	eP	00:00:35.7		1	0.3	NR	$\Delta(S-P) = 3.2^\circ$
		eS	00:01:14.8			0.3		P-Phase Dir = NW
14	N	eP	00:30:03.5		1	0.3	NR	$\Delta(S-P) = 2.3^\circ$
		eS	00:30:33.3			0.4		P-Phase Dir = NW

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
14		eP e	00:34:08.4 00:36:37			0.5 0.7	T	
14	N	eP eS	00:48:08.4 00:48:45.1		1	0.6 0.5	NR	$\Delta(S-P) = 2.9^\circ$
14		eP	03:42:57.7		1	0.5	T	
14	N	eP eS	03:43:59.3 03:44:33.0		1	0.4 0.5	NR	$\Delta(S-P) = 2.6^\circ$
14	N	eP eS	05:20:22.7 05:20:44.7		1	0.3 0.3	NR	$\Delta(S-P) = 1.6^\circ$
14		eP	07:51:59.2		3	1.1	T	
14	N	eP eS	08:24:24.2 08:24:51.2		1	0.4 0.3	NR	$\Delta(S-P) = 2.1^\circ$
14		eP epP	09:06:49.2 09:07:17.5		1	0.8 0.8	T	Solomon Islands 4.8 S 153.8 E 0 = 08:53:49.4 h about 117 km $\Delta = 92.6^\circ$ Dir = 266°
14		eP	11:09:36.4		1	0.6	T	
14	LPE LPN	iP e e	13:10:11.7 13:28:36 13:34:44	C	3	1.0 42.0 24.0	T	
14		eP e	13:17:50.4 13:18:05.6		2	0.8 1.4	T	Northern Honshu, Japan 41.8 N 141.1 E 0 = 13:06:52.3 h about 97 km $\Delta = 68.9^\circ$ Dir = 308°
14		eP	14:24:54.3		1	0.7	T	
14		eP	14:38:22.1		1	0.6	T	

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
14		eP e	15:18:43.5 15:19:38.1		3	1.3 1.3	T	
14		eP	15:25:32.3		1	0.8	T	
14		eP e e	17:05:08.0 17:05:16.3 17:05:21.1		2	1.0 0.6 1.0	T	Outer Mongolia - U. S. S. R. Border 50.3 N 90.6 E 0 = 16:52:49.8 h about 33 km $\Delta = 82.2^\circ$ Dir = 342°
14	E	eP eS	17:25:00.7 17:26:33.4		1	0.4 0.5	NR	$\Delta(S-P) = 2.5^\circ$
14	IB	iP e	18:04:39.2 18:05:39.2	D	13	1.0 1.3	T	P-Phase Dir = S
14	IB	iP	18:11:50.0	C	3	1.0	T	Kurile Islands 43.8 N 148.3 E 0 = 18:01:30.8 h about 125 km $\Delta = 63.6^\circ$ Dir = 306°
14	N	eP eS	19:01:43.2 19:02:27.0		1	0.6 0.4	NR	$\Delta(S-P) = 3.6^\circ$
14	N	eP eS	19:21:10.9 19:21:51.0		1	0.3 0.4	NR	$\Delta(S-P) = 3.3^\circ$
14	N	iP eS	19:24:08.6 19:24:15.8	C	1	0.1 999	L	$\Delta(S-P) = 0.5^\circ$ P-Phase Dir = NE
14	E	eP eS	19:36:48.4 19:37:21.1		1	0.4 0.4	NR	$\Delta(S-P) = 2.6^\circ$
14	LP	eP e e	19:52:33.5 19:54:29.0 20:11:28		6	1.0 0.7 20.0	T	P-Phase Dir = SW

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
14	N IBN	iP	20:18:42.8	C	5	0.2	L	$\Delta(S-P) = 0.4^\circ$ P-Phase Dir = NE
		eS	20:18:49.2			999		
14	N	eP	20:20:06.8		1	0.4	L	$\Delta(S-P) = 1.3^\circ$ P-Phase Dir = ESE
		eS	20:20:22.8			0.4		
14	E	eP	21:35:57.7		1	0.4	NR	$\Delta(S-P) = 5.0^\circ$
		eS	21:36:57.7			0.5		
14	E	eP	22:05:36.1		1	0.4	NR	$\Delta(S-P) = 2.5^\circ$
		eS	22:06:08.2			0.4		
14	N	eP	22:32:50.0		1	0.4	NR	$\Delta(S-P) = 3.6^\circ$
		eS	22:33:34.1			0.4		
14	N	eP	22:43:17.9		3	0.2	L	$\Delta(S-P) = 0.1^\circ$ P-Phase Dir = SSW
		eS	22:43:32.0			0.4		
14	E	eP	22:51:59.0		1	0.4	NR	$\Delta(S-P) = 3.6^\circ$
		eS	22:52:43.0			0.4		
14	E	eP	23:10:29.4		1	0.4	NR	$\Delta(S-P) = 3.5^\circ$
		eS	23:11:12.7			0.4		
15	N	eP	00:27:28.4		2	0.4	NR	$\Delta(S-P) = 1.6^\circ$
		eS	00:27:48.6			0.5		
15	N	eP	02:47:02.8		1	0.4	NR	$\Delta(S-P) = 2.6^\circ$
		eS	02:47:35.5			0.4		
15		eP	02:49:30.6		1	0.7	T	Fiji Islands 17.3 S 178.9 W 0 = 02:37:56.4 h about 509 km $\Delta = 83.4^\circ$ Dir = 238°
15		eP epP	03:58:57.9 03:59:08.4		6	1.0 0.5	T	Near Coast of Central Norway 67.2 N 13.7 E 0 = 03:48:38.0 h about 33 km $\Delta = 62.3^\circ$ Dir = 19°

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
15		eP	04:50:22.1		5	1.2	T	
		e	04:50:30.2			1.1		
15	IB	eP	06:36:02.0		1	0.2	NR	Nevada 40.7 N 117.5 W 0 = 06:34:58.6 h about 33 km $\Delta = 4.1^\circ$ Dir = 182° Mag = 4 1/2 - 4 3/4 (Pas)
		e	06:36:03.9			0.5		
		e	06:36:06.0			0.3		
		e	06:36:09.2			999		
	IB BB N IBN BBN LPN	e(S)	06:37:06.0			999		
		eSur	06:37:34.0			999		
	IB BB LP							
15	E	eP	06:47:39.5		1	0.3	NR	$\Delta(S-P) = 4.6^\circ$
		eS	06:48:34.7			0.5		
15	N	eP	06:51:22.7		1	0.3	NR	$\Delta(S-P) = 4.6^\circ$
		eS	06:52:18.6			0.3		
15	E	eS	09:17:50.5			0.4	NR	No P-phase visible
15	E	eS	09:27:44.0			0.5	NR	No P-phase visible
15	E	eP	09:44:21.0		1	0.2	L	$\Delta(S-P) = 1.5^\circ$
		eS	09:44:39.1			0.3		
15	E	eP	10:50:34.1		1	0.2	L	$\Delta(S-P) = 1.1^\circ$
		eS	10:50:47.9			0.3		
15	N	eP	11:08:17.6		1	0.2	L	$\Delta(S-P) = \text{less than } 0.1^\circ$
		eS	11:08:20.9			0.3		
15	N	eP	11:57:33.4		1	0.1	L	$\Delta(S-P) = \text{less than } 0.1^\circ$
		eS	11:57:37.1			0.2		
15	N	eP	12:02:36.1		1	0.2	L	$\Delta(S-P) = 0.2^\circ$
		eS	12:02:40.6			0.3		

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
15	E	eP	12:16:48.5	1	0.1	L	$\Delta(S-P) = \text{less than } 0.1^\circ$	
		eS	12:16:52.0		0.2			
15		eP	13:32:52.7	1	0.7	T		
		e	13:44:13.3		1.1			
15	N	eP	14:37:16.5	1	0.3	NR	$\Delta(S-P) = 3.6^\circ$ P-Phase Dir = NE	
		e	14:37:27.6		999			
		eS	14:38:00.8		999			
15	E	eP	14:42:36.8	1	0.3	NR	$\Delta(S-P) = 4.5^\circ$	
		eS	14:43:32.2		0.3			
15	N	eS	16:06:21.5		0.3	NR	No P-phase visible	
15	N	eP	17:33:48.6	1	0.4	NR	$\Delta(S-P) = 4.6^\circ$ P-Phase Dir = S	
		eS	17:34:44.6		0.4			
15	N	eP	17:47:25.1	1	0.4	NR	$\Delta(S-P) = 3.7^\circ$	
		eS	17:48:10.8		0.4			
15	E	eP	18:59:21.8	1	0.5	NR	$\Delta(S-P) = 3.5^\circ$	
		eS	19:00:05.0		0.5			
15	N	eP	19:10:23.7	1	0.3	NR	$\Delta(S-P) = 3.6^\circ$	
		eS	19:11:08.4		0.3			
15	N	eP	19:11:26.8	1	0.3	NR	$\Delta(S-P) = 1.6^\circ$	
		eS	19:11:47.2		0.3			
15	E	eP	19:16:36.5	1	0.3	NR	$\Delta(S-P) = 3.8^\circ$	
		eS	19:17:22.4		0.5			
15	E	eP	19:22:15.1	1	0.4	NR	$\Delta(S-P) = 3.8^\circ$	
		eS	19:23:01.7		0.5			
15	N	eP	19:33:57.0	1	0.4	NR	$\Delta(S-P) = 3.5^\circ$	
		eS	19:34:40.2		0.5			
15		eP	19:47:13.3	2	0.9	T	P-Phase Dir = SSE	
		e	19:47:18.6		0.8			
15	N	eP	20:05:51.2	1	0.5	NR	$\Delta(S-P) = 4.7^\circ$	
		eS	20:06:47.8		0.5			

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
15	N	iP	20:31:04.7	C	999	L	$\Delta(S-P) = 1.4^\circ$	
		eS	20:31:22.0		999			
15	E	eP	20:54:15.0	1	0.4	NR	$\Delta(S-P) = 0.5^\circ$	
		eS	20:54:22.4		0.5			
15	N	eP	21:18:10.0	1	0.4	NR	$\Delta(S-P) = 4.6^\circ$	
		eS	21:19:05.4		0.3			
15	N	eP	21:19:05.1		0.2	NR	$\Delta(S-P) = 3.8^\circ$	
		eS	21:19:51.1		0.3			
15		eP	21:41:56.5	2	0.8	T		
15	E	eP	21:47:34.9	1	0.5	NR	$\Delta(S-P) = 3.6^\circ$ P-Phase Dir = E	
		eS	21:48:18.7		0.5			
15	E	eP	22:16:27.0	1	0.5	NR	$\Delta(S-P) = 3.5^\circ$	
		eS	22:17:10.0		0.5			
15	N	eP	22:40:28.1	1	0.4	NR	$\Delta(S-P) = 3.6^\circ$ P-Phase Dir = E	
		eS	22:41:11.9		0.5			
15	E	eP	22:55:09.2	1	0.4	NR	$\Delta(S-P) = 3.6^\circ$	
		eS	22:55:53.6		0.5			
15		eP	23:28:15.8	2	0.7	T		
15	E	iP	23:30:51.3	C	0.2	L	$\Delta(S-P) = 1.1^\circ$	
		eS	23:31:05.6		0.3			
16	LP	eP	00:22:27.9	1	0.8	T		
		e	00:23:21.5		1.3			
		eSur	00:39:37		18.0			
16	E	eP	00:42:42.4	1	0.4	NR	$\Delta(S-P) = 4.6^\circ$	
		eS	00:43:37.9		0.5			
16	N	eP	00:58:09.8	1	0.2	L	$\Delta(S-P) = \text{less than } 0.1^\circ$	
		eS	00:58:13.2		0.3			
16	N	eP	01:22:16.9	1	0.3	NR	$\Delta(S-P) = 4.2^\circ$	
		e	01:22:20.3		0.5			
		eS	01:23:08.6		999			

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
16	E	eP	01:43:18.2	1	0.5	NR	$\Delta(S-P) = 4.6^\circ$	
		eS	01:44:13.5		0.5			
16	E	eS	03:53:23.6		0.5	NR	No P-phase visible	
16		eP	05:01:33.1	1	1.2	T		
16	E	eS	06:02:35.0		0.3	L	No P-phase visible	
16	E	eP	06:13:20.6	2	0.4	NR	$\Delta(S-P) = 4.6^\circ$ P-Phase Dir = S	
		e	06:13:24.0		0.9			
		eS	06:14:16.3		0.6			
16	E	eP	06:28:37.2	1	0.3	NR	$\Delta(S-P) = 4.6^\circ$	
		eS	06:29:32.4		0.4			
16	N	eP	06:46:20.5	1	0.2	L	$\Delta(S-P) = 1.2^\circ$ P-Phase Dir = E	
		eS	06:46:35.2		0.3			
16	E	eP	06:57:37.1	1	0.4	L	$\Delta(S-P) = 1.4^\circ$	
		eS	06:57:54.4		0.4			
16	N	eS	07:04:25.1		0.3	L	No P-phase visible	
16		eP	08:28:30.9	2	0.4	NR	$\Delta(S-P) = 4.6^\circ$ P-Phase Dir = S	
		eS	08:29:26.4		0.4			
16	E	eP	08:28:34.5	2	0.8	NR	$\Delta(S-P) = 4.3^\circ$	
		eS	08:29:27.0		0.5			
16	N	eP	10:23:28.8	1	0.4	NR	$\Delta(S-P) = 2.1^\circ$ P-Phase Dir = NW	
		eS	10:23:56.7		0.5			
16	N	eP	10:44:17.8	1	0.2	L	$\Delta(S-P) = \text{less than } 0.1^\circ$ P-Phase Dir = SSE	
		eS	10:44:20.0		0.3			
16	E	eP	11:08:20.8	2	0.6	R	Nevada 38.7 N 117.5 W 0 = 11:06:45.7 h about 33 km $\Delta = 6.1^\circ$ Dir = 181 $^\circ$	
		e(S)	11:09:41.0		0.8			
16		eP	12:15:04.5	1	0.7	T		

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
16	E	eS	12:28:09.0		0.3	L	No P-phase visible	
16	N	eS	12:29:04.5		0.4	L	No P-phase visible	
16		eP	12:38:32.8	1	0.7	T		
16		eP	12:49:22.2	1	0.7	T		
16		eP	13:37:34.5	19	1.7	T	P-Phase Dir = NE	
		e	13:37:42.0		0.9			
16		eP	14:22:51.2	2	1.0	T		
16		eP	14:30:04.4	5	1.6	T		
16	N	eP	15:49:09.5	1	0.2	L	$\Delta(S-P) = \text{less than } 0.1^\circ$ P-Phase Dir = SW	
		eS	15:49:12.7		0.2			
16	E	eP	16:13:59.7	1	0.3	L	$\Delta(S-P) = 0.9^\circ$	
		eS	16:14:11.8		0.4			
16		eP	16:38:02.0	2	0.8	T		
16		eP	17:50:16.3	1	0.6	T	P-Phase Dir = W	
16		eP	18:32:32.4	1	1.0	T		
16		eP	18:37:59.3	1	0.5	T		
		e	18:38:36.3		0.6			
16		eP	19:03:30.8	1	0.9	T		
16		eP	20:35:37.0	1	0.6	T		
16		eP	20:52:58.1	1	0.4	NR	$\Delta(S-P) = 4.6^\circ$ P-Phase Dir = SSE	
		e	20:53:01.4		0.5			
		eS	20:53:53.8		0.4			
16	N	eP	22:06:50.4	1	0.4	NR	$\Delta(S-P) = 4.1^\circ$	
		eS	22:07:40.6		0.3			
16		iP	22:28:11.7	3	1.0	T	P-Phase Dir = SSE	
		e	22:28:35.0		1.0			

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
16	N	eS	22:34:54.5			0.2	L	No P-phase visible
16		eP	22:46:27.2	1		0.4	NR	$\Delta(S-P) = 4.6^\circ$
	N	eS	22:47:22.6			0.5		
16		eP	23:28:18.4	1		0.7	R	$\Delta(S-P) = 6.4^\circ$
	N	eS	23:29:35.0			0.7		
17		eP	00:12:15.8	1		0.3	NR	$\Delta(S-P) = 4.8^\circ$
		e	00:12:18.4			0.5		P-Phase Dir = SSW
	N	eS	00:13:14.2			999		
17		eP	00:14:17.0	2		0.4	NR	$\Delta(S-P) = 4.6^\circ$
		e	00:14:21.0			0.9		P-Phase Dir = SSW
	N	eS	00:15:13.1			0.5		
17		eP	00:56:09.9	1		0.4	NR	$\Delta(S-P) = 4.5^\circ$
		e	00:56:15.2			0.5		
	E	eS	00:57:04.0			0.6		
17		eP	01:41:57.0	1		0.3	NR	$\Delta(S-P) = 4.2^\circ$
	E	eS	01:42:48.0			0.4		
17		eP	04:20:39.8	1		0.4	NR	$\Delta(S-P) = 2.3^\circ$
	N	eS	04:21:10.0			0.5		
17		eP	04:24:49.3	1		0.4	NR	$\Delta(S-P) = 4.2^\circ$
	E	eS	04:25:41.0			0.5		
17		eP	06:02:00.1	2		0.4	NR	$\Delta(S-P) = 4.6^\circ$
		e	06:02:03.8			0.9		P-Phase Dir = S
	N	eS	06:02:56.1			0.4		
17		eP	06:25:33.2	1		0.8	T	
		e	06:25:53.5			1.2		
	LPE	eLQ	06:44:30			18.0		
	LP	eLR	06:45:14			17.0		
17		eP	06:42:37.3	2		0.9	T	
		e	06:42:57.2			1.2		
17		eP	07:59:42.7	2		1.0	T	
	LP	eLR	08:26:07			20.0		

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
17		eP	08:40:57.1			0.7	NR	$\Delta(S-P) = 5.8^\circ$
	N	eS	08:42:05.0			0.5		
17		e(Sur)	09:13:55.6	1		0.8	R	No Primary phases visible
17		eP	10:53:19.0	1		0.3	NR	$\Delta(S-P) = 3.7^\circ$
	N	eS	10:54:04.9			0.5		
17		iPd	11:13:59.2	C	11	1.5	T	Celebes Sea
		e	11:14:07.6			1.2		2.1 N 122.9 E
		ePKP	11:18:00.5			1.4		0 = 11:00:16.0
		e(PP)	11:18:43.4			1.4		h about 393 km
	LP	e(PPP)	11:20:42			27.0		$\Delta = 109.6^\circ$
	LP	e	11:23:00			20.0		Dir = 291°
	LPE	e	11:26:54			20.0		
		ePKKP	11:29:10.0			1.2		
	LPE	ePPS	11:29:18			25.0		
	LP	e	11:30:00			23.0		
	LPE	eSS	11:33:30			40.0		
	LPN	e(SSS)	11:37:38			25.0		
	LP	e	11:44:32			25.0		
17	E	eS	12:24:15.2			0.4	NR	No P-phase visible
17		eP	14:00:26.3	1		0.3	L	$\Delta(S-P) = \text{less than } 0.1^\circ$
	E	eS	14:00:29.7			0.4		
17		eP	14:06:48.0	1		0.4	NR	$\Delta(S-P) = 4.6^\circ$
	N	eS	14:07:44.2			0.4		
17		eP	14:35:49.8	1		0.3	L	$\Delta(S-P) = 0.2^\circ$
	N	eS	14:35:54.3			0.3		
17	N	eS	14:36:18.0			0.3	L	P-phase lost in coda of previous event
17		eP	14:51:21.3	1		0.2	NR	$\Delta(S-P) = 2.1^\circ$
	N	eS	14:51:49.4			0.5		
17		eP	16:11:23.9	1		0.4	NR	$\Delta(S-P) = 4.6^\circ$
	N	eS	16:12:19.1			0.4		

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
17	N	eP	16:46:03.3	2	0.4	NR	$\Delta(S-P) = 4.8^\circ$	
		eS	16:47:00.9		0.5			
17		eP	17:26:27.0	1	0.8	T		
17		eP	17:38:32.6	9	1.3	T	Ningsia Province, China 38.0 N 106.1 E 0 = 17:25:40.8 h about 33 km $\Delta = 88.7^\circ$ Dir = 327 $^\circ$	
		ePP	17:42:01.2		1.8			
	LPE	e(Sur)	18:11:16		30.0			
	LPE	e(Sur)	18:13:15		24.0			
17	N	eP	17:42:57.4	1	0.4	L	$\Delta(S-P) = \text{less than } 0.1^\circ$	
		eS	17:42:58.8		0.4			
17	E	eP	17:43:55.8	1	0.4	NR	$\Delta(S-P) = 2.5^\circ$	
		eS	17:44:27.7		0.7			
17		eP	17:49:05.7	3	1.2	T		
17	E	eP	17:50:59.9	1	0.4	NR	$\Delta(S-P) = 3.7^\circ$	
		eS	17:51:45.7		0.4			
17		eP	17:54:14.5	9	1.3	T		
		e	17:58:44.6		0.6			
17	N	eP	18:00:06.6	1	0.4	NR	$\Delta(S-P) = 2.5^\circ$	
		eS	18:00:38.5		0.3			
17		eP	18:07:26.5	6	1.4	T		
17		eP	18:28:37.7	1	0.9	T		
17	N	eP	19:03:07.8	1	0.1	L	$\Delta(S-P) = 0.1^\circ$	
		eS	19:03:11.6		0.3			
17	N	eP	19:08:21.4	1	0.4	NR	$\Delta(S-P) = 3.7^\circ$	
		eS	19:09:06.4		0.4			
17	N	eP	19:13:19.4	1	0.4	NR	$\Delta(S-P) = 3.7^\circ$	
		eS	19:14:04.6		0.4			
17	N	eP	19:19:24.4	1	0.4	NR	$\Delta(S-P) = 3.8^\circ$	
		eS	19:20:10.6		0.5			
17	N	eP	19:24:39.0	1	0.4	NR	$\Delta(S-P) = 2.6^\circ$	
		eS	19:25:11.6		0.4			
		e(Sur)	19:25:25.0		0.4			

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
17	N	eP	19:30:13.3	1	0.4	NR	$\Delta(S-P) = 3.8^\circ$	
		eS	19:31:00.0		0.5			
17	N	eP	19:35:11.4	1	0.4	NR	$\Delta(S-P) = 2.4^\circ$	
		eS	19:35:42.0		0.3			
17		eP	19:39:16.5	17	1.8	T		
		e	19:39:21.8		1.4			
		e	19:39:28.6		1.4			
17	E	eP	19:48:35.2	1	0.3	NR	$\Delta(S-P) = 4.4^\circ$	
		eS	19:49:28.2		0.4			
17	N	eP	19:55:15.7	1	0.2	L	$\Delta(S-P) = 0.1^\circ$ P-Phase Dir = SE	
		eS	19:55:19.7		999			
17	N	eP	19:57:23.3	1	0.1	NR	$\Delta(S-P) = 4.6^\circ$	
		eS	19:58:18.8		0.4			
17	LPE LP	iP	19:58:35.2	C	9	T		
		e	19:58:41.8		1.4			
		e	20:35:32		22.0			
		e	20:36:52		22.0			
17		eP	20:28:41.7	2	1.0	T		
		e	20:28:46.6		1.5			
		e	20:28:53		1.2			
17	N	iP	21:09:21.6	C	1	L	$\Delta(S-P) = 0.5^\circ$ P-Phase Dir = NE	
		iS	21:09:29.0		999			
17		eP	21:20:36.1	3	1.2	T		
17		eP	21:39:17.5	3	1.2	T		
17		eP	21:52:38.0	1	0.6	T		
17	N	iP	22:05:42.0	1	0.1	L	$\Delta(S-P) = \text{less than } 0.1^\circ$	
		eS	22:05:45.2		999			
17		eP ^t	22:21:15.1	1	0.7	T	Flores Region 8.2 S 120.5 E 0 = 22:02:45.2 h about 151 km $\Delta = 118.3^\circ$ Dir = 288 $^\circ$	

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
17	N	eP	22:33:58.4		1	0.2	L	$\Delta(S-P) = 0.5^\circ$
		eS	22:34:05.6			0.3		
17	N	eP	22:36:54.8		1	0.3	NR	$\Delta(S-P) = 3.7^\circ$
		eS	22:37:40.0			0.5		
17	E	eP	23:49:38.7		1	0.6	NR	$\Delta(S-P) = 4.6^\circ$
		eS	23:50:34.4			0.5		
17	N	eS	23:51:35.8			0.3	NR	No P-phase visible
18	N	eP	00:50:50.4		1	0.3	NR	$\Delta(S-P) = 2.5^\circ$
		eS	00:51:22.0			0.5		
18		eP	01:02:00.6		4	1.1	T	
		e	01:02:06.5			1.0		
18		eP	02:06:04.8		1	0.5	T	
18		eP	02:19:26.1		1	0.6	T	Kirghiz S. S. R. 39.8 N 71.4 E 0 = 02:06:09.2 h about 77 km $\Delta = 95.4^\circ$ Dir = 353 $^\circ$
		e	02:22:42.3			1.0		
18	N	eP	02:50:13.1		1	0.3	NR	$\Delta(S-P) = 4.5^\circ$
		eS	02:51:07.7			0.5		
18	LPE	iP	03:06:32.3	D	32	0.8	T	Mariana Islands 21.6 N 143.1 E 0 = 02:54:47.1 h about 306 km $\Delta = 81.5^\circ$ Dir = 292 $^\circ$ P-Phase Dir = SW
		e	03:07:36.3			0.9		
		eS	03:16:26			20.0		
18		eP	03:25:03.6		2	0.8	T	P-Phase Dir = SE Possible PKKP of previous event

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
18	LPN	eP	05:44:29.7		2	0.9	T	
		e	05:44:42.4			1.2		
		e	05:59:10			18.0		
18		eP	06:09:40.0		1	0.7	T	
18		eS	07:23:54.8			0.6	NR	No P-phase visible
18		eP	07:34:17.9		1	0.9	T	
		e	07:37:54.5			0.8		
18	N	eP	07:50:25.8		1	0.5	NR	$\Delta(S-P) = 5.1^\circ$
		eS	07:51:26.6			0.5		
18	LPE LPN LPN LPE LPE	eP	08:00:46.0		3	1.0	T	Easter Island Region 35.2 S 104.8 W 0 = 07:48:36.6 h about 33 km $\Delta = 80.6^\circ$ Dir = 175 $^\circ$ Possible new event
		eS	08:10:59			11.0		
		e(PS)	08:11:56			22.0		
		eSS	08:16:10			23.0		
		eLQ	08:22:38			44.0		
		eSKKS	08:25:52			24.0		
	e	08:49:41.1	0.9					
18	N	eP	08:50:55.6		1	0.4	NR	$\Delta(S-P) = 4.6^\circ$
		eS	08:51:51.4			0.4		
18	LP	eP	10:24:39.5		2	1.0	T	
		e	10:45:24.0			20.0		
18	IB	iP	10:46:41.2	C	70	1.9	T	Kermadec Islands 28.3 S 178.2 W 0 = 10:33:58.4 h about 214 km $\Delta = 91.5^\circ$ Dir = 230 $^\circ$ P-Phase Dir = SSW
		epP	10:47:33.7			1.6		
18	LPE LP LPN LP	e(PPP)	10:51:07.0			1.5	T	
		e(S)	10:57:04			23.0		
		e	10:58:32			20.0		
		ePKKP	11:04:01.5			0.9		
		eLQ	11:11:50			45.0		
		eP'P'	11:12:10.0			1.0		
LP	e	11:13:10	18.0					

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
18		eP	11:42:14.7		1	0.6	T	Fiji Islands Region 24.7 S 180.0 0 = 11:30:07.3 h about 486 km $\Delta = 89.7^\circ$ Dir = 234°
18		eP	12:11:37.0		3	1.2	T	
18	N	eP	12:50:21.7		1	0.2	NR	$\Delta(S-P) = 1.6^\circ$
		eS	12:50:42.1			0.3		
18	N	eP	13:42:54.7		1	0.2	L	$\Delta(S-P) = \text{less than } 0.1^\circ$
		eS	13:42:58.5			999		P-Phase Dir = SE
18	IB	eP	13:50:36.0		2	0.2	NR	$\Delta(S-P) = 5.1^\circ$ P-Phase Dir = NE
		e	13:50:48.7			0.3		
		e	13:51:11.5			0.5		
	IB							
	N	eS	13:51:37.1			999		
	IBN							
	N	e(Sur)	13:52:11.0			999		
	IBN							
	BBN							
18	IB	eP	13:52:59.0		8	0.4	R	$\Delta(S-P) = 11^\circ$
		e	13:53:10.6			0.4		
	IB	e	13:53:30.4			0.5		
	IB							
	N	eS	13:54:00.7			999		
	IBN							
	BBN							
18		eP	14:30:38.1		1	0.2	NR	$\Delta(S-P) = 5.0^\circ$
		e	14:30:52.4			0.3		
		e	14:31:16.7			0.4		
	N	eS	14:31:38.6			0.4		
	IBN							

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
18	E	eP	15:34:36.6		1	0.2	L	$\Delta(S-P) = 1.0^\circ$
		eS	15:34:50.3			0.3		P-Phase Dir = SE
18	E	eS	16:07:04.2			0.4	NR	No P-phase visible
18	E	eP	16:23:53.3		1	0.2	L	$\Delta(S-P) = 0.1^\circ$
		eS	16:23:57.3			0.3		
18	N	eP	16:41:11.7		1	0.1	L	$\Delta(S-P) = \text{less than } 0.1^\circ$
		eS	16:41:14.9			0.1		
18	N	eP	18:29:36.6		1	0.3	NR	$\Delta(S-P) = 2.3^\circ$
		eS	18:30:06.4			0.3		
18	N	eP	19:05:02.6		1	0.3	NR	$\Delta(S-P) = 3.9^\circ$
		eS	19:05:49.8			0.4		
18	N	eP	19:06:03.4		1	0.2	NR	$\Delta(S-P) = 1.4^\circ$
		eS	19:06:21.2			0.4		
18	E	eP	19:18:47.5		1	0.3	NR	$\Delta(S-P) = 3.9^\circ$
		eS	19:19:35.4			0.4		
18	N	eP	19:31:38.2		1	0.1	L	$\Delta(S-P) = \text{less than } 0.1^\circ$
		eS	19:31:39.9			999		
18	E	eP	20:33:12.0		1	0.4	NR	$\Delta(S-P) = 4.6^\circ$
		eS	20:34:08.2			0.3		
18	N	eP	20:56:06.3		1	0.2	NR	$\Delta(S-P) = 3.9^\circ$
		eS	20:56:54.1			0.4		
18		eP	20:58:10.4		1	0.9	T	East of Hokkaido, Japan 43.7 N 147.0 E 0 = 20:47:41.5 h about 80 km $\Delta = 64.4^\circ$ Dir = 307°
		epP	20:58:28.6			1.0		

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
18		eP	21:08:25.4		2	0.9	T	Fiji Islands Region 18.4 S 176.9 W 0 = 20:56:32.3 h about 308 km $\Delta = 83.0^\circ$ Dir = 236°
18	N	eP eS	21:29:13.6 21:30:19.0		1	0.4 0.5	NR	$\Delta(S-P) = 0.3^\circ$
18	N	eP eS	21:38:12.3 21:39:08.0		1	0.6 0.4	NR	$\Delta(S-P) = 4.6^\circ$
18	N	eP eS	21:55:40.0 21:56:25.6		1	0.4 0.6	NR	$\Delta(S-P) = 3.7^\circ$
18	N IBN	eP eS	22:01:15.3 22:01:22.4		2	0.1 999	L	$\Delta(S-P) = 0.5^\circ$
18	IB	iP	22:55:36.8	C	8	1.2	T	P-Phase Dir = NW
	IB	e	22:55:48.3			1.0		
18	N	eP eS	23:02:11.1 23:02:56.8		1	0.4 0.5	NR	$\Delta(S-P) = 3.7^\circ$
18	N	eP eS	23:05:54.3 23:06:45.0		1	0.4 0.4	NR	$\Delta(S-P) = 4.2^\circ$
19	N	eP eS	00:38:00.4 00:38:47.4		1	0.6 0.4	NR	$\Delta(S-P) = 3.9^\circ$
19	N	eP eS	00:38:41.7 00:39:20.7		1	0.4 0.3	NR	$\Delta(S-P) = 3.2^\circ$
19	N	eP eS	02:32:14.3 02:32:43.8		1	0.3 0.5	NR	$\Delta(S-P) = 2.3^\circ$
19	E	eP iS	04:08:52.3 04:08:53.4		1	0.1 0.1	L	$\Delta(S-P) = \text{less than } 0.1^\circ$ P-Phase Dir = SW

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
19		iP e	04:49:09.5 04:49:13.6	D	1	0.3 0.6	NR	$\Delta(S-P) = 2.9^\circ$ P-Phase Dir = NW
	IB							
	E	eS	04:49:46.1			999		
	IBE							
19	IB	iP	05:24:14.8	C	4	0.9	T	Fox Islands, Aleutian Is. 51.6 N 170.3 W 0 = 05:17:19.7 h about 33 km $\Delta = 35.3^\circ$ Dir = 300°
19		eP e	07:55:14.9 07:55:33.3		1	0.4 0.6	NR	$\Delta(S-P) = 4.6^\circ$
	N	eS	07:56:11.0			0.4		
19		eP e	07:55:49.7 07:56:08.1		1	0.4 0.6	NR	$\Delta(S-P) = 5.4^\circ$
	E	eS	07:56:54.2			0.3		
19		eP e	10:34:33.4 10:34:36.8		1	0.4 0.5	NR	$\Delta(S-P) = 4.6^\circ$
	N	eS	10:35:29.2			0.5		
19		eP	11:32:27.6		2	0.7	T	
19		eP e	12:35:38.1 12:35:45.5		2	0.4 0.9	NR	$\Delta(S-P) = 4.6^\circ$
	N	eS	12:36:33.5			999		
19		eP e	12:50:01.8 12:50:18.1		6	1.2 0.9	T	
		e	12:51:07.0			0.8		
		e	12:53:26.6			1.5		
19		eP e	13:09:21.9 13:09:23.4		2.0	0.7 0.7	T	Solomon Islands
	IB	epP	13:09:48.6			1.6		4.7 S 154.0 E 0 = 12:56:19.7 h about 98 km $\Delta = 92.4^\circ$ Dir = 266°
	LP							
		e	13:10:09.1			1.0		
		e	13:11:05.1			1.0		
	LPN	e(S)	13:19:50			23.0		

(Continued)

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
	LPE	ePS	13:21:42			28.0		
	LPE	eSPS	13:26:40			28.0		
	LPN	eSSS	13:30:20			28.0		
	LPN	e	13:35:40			31.0		
	LP	eLR	13:38:30			36.0		
19		eP	13:50:56.8		1	0.2	L	$\Delta(S-P) = 1.3^\circ$
	LPN	eS	13:51:12.6			0.3		
19		eP	13:59:40.0		1	0.3	NR	$\Delta(S-P) = 4.7^\circ$
	N	eS	14:00:37.3			0.6		
19		eP	14:13:42.8		1	0.8	T	
19		eP	14:27:21.5		1	0.4	NR	$\Delta(S-P) = 1.0^\circ$
	N	eS	14:27:34.3			0.5		
19		eP	14:32:48.6		1	0.2	NR	$\Delta(S-P) = 3.8^\circ$
	N	eS	14:33:35.0			0.6		
19		eP	14:48:36.0		1	0.2	NR	$\Delta(S-P) = 4.9^\circ$
	N	eS	14:49:34.5			0.6		
19		eP	14:54:35.3		1	0.1	L	$\Delta(S-P) = 0.1^\circ$
	N	eS	14:54:39.4			0.2		
19	N	eS	15:14:47.2			0.3	L	No P-phase visible
19		eP	15:23:18.4		1	0.1	NR	$\Delta(S-P) = 1.6^\circ$
	N	eS	15:23:40.8			0.6		
19		eS	15:35:28.8			0.3	L	No P-phase visible
19		eP	15:48:18.0		1	0.2	L	$\Delta(S-P) = 0.1^\circ$
	N	eS	15:48:22.0			999		
19		eP	15:49:09.9		1	0.2	L	$\Delta(S-P) = 0.1^\circ$
	N	eS	15:49:13.9			999		
19		eP	16:33:02.1		1	0.2	NR	$\Delta(S-P) = 1.3^\circ$
	N	eS	16:33:18.0			0.3		

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
19		eP	16:38:30.0		1	0.2	L	$\Delta(S-P) = \text{less than } 0.1^\circ$
	E	eS	16:38:33.2			0.3		
19		eP	17:18:40.0		1	0.3	NR	$\Delta(S-P) = 3.2^\circ$
	N	eS	17:19:19.5			0.6		
19		eP	17:43:49.1		1	0.6	T	
19		eP	18:13:40.8		1	0.4	NR	$\Delta(S-P) = 2.1^\circ$
	N	eS	18:14:08.0			0.4		
19		eP	18:48:24.1		2	1.0	T	
19		eP	18:54:18.0		1	0.3	NR	$\Delta(S-P) = 3.9^\circ$
	N	eS	18:55:04.9			0.6		
19		eP	19:06:01.0		1	0.4	NR	$\Delta(S-P) = 3.7^\circ$
	N	eS	19:06:46.4			0.4		
19		eP	19:17:56.3		1	0.5	NR	$\Delta(S-P) = 3.8^\circ$
	N	eS	19:18:43.0			0.5		
19		eP	19:27:53.6		1	0.4	NR	$\Delta(S-P) = 3.7^\circ$
	N	eS	19:28:38.8			0.6		
19		eP	20:07:37.6		1	0.4	NR	$\Delta(S-P) = 2.4^\circ$
	N	eS	20:08:08.9			0.6		
19		eP	20:28:05.6		2	0.7	T	Kermadec Islands Region
		e	20:28:25.8			0.9		23.9 S 179.4 W
								0 = 20:15:58.8
								h about 451 km
								$\Delta = 88.8^\circ$
								Dir = 234 $^\circ$
19		eP	20:28:20.0		1	0.3	NR	$\Delta(S-P) = 5.0^\circ$
	N	eS	20:29:20.0			0.8		
19		eP	21:13:49.3		1	0.3	L	$\Delta(S-P) = 1.1^\circ$
	E	eS	21:14:02.9			0.4		
19		iP	21:25:23.2	C	999	999	L	$\Delta(S-P) = 0.5^\circ$
	N	iS	21:25:30.3			999		

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
19	N	eP	21:41:20.9	1	0.3	0.4	NR	$\Delta(S-P) = 2.4^\circ$
		e	21:41:25.8					
		eS	21:41:52.2					
19		eP	21:57:24.6	2	1.2	1.3	T	
		e	21:57:41.1					
19	E	eP	22:30:10.3	2	0.5	0.5	NR	$\Delta(S-P) = 2.9^\circ$
		eS	22:30:46.3					
19	N	eP	22:50:21.0	1	0.3	0.3	NR	$\Delta(S-P) = 2.7^\circ$
		eS	22:50:55.0					
19		eP	22:50:25.2	2	1.2		T	
19	N	eP	22:52:17.7	1	0.2	0.6	NR	$\Delta(S-P) = 1.6^\circ$
		eS	22:52:38.7					
19	N	eP	23:19:04.6	4	1.2	0.6	NR	$\Delta(S-P) = 2.8^\circ$
		eS	23:19:40.0					
19		eS	23:25:34.0		0.4		NR	No P-phase visible
20	E	eP	00:36:07.5	1	0.4	0.3	NR	$\Delta(S-P) = 3.2^\circ$
		e	00:36:16.1					
		eS	00:36:46.6					
20	N	eP	00:40:33.6	1	0.3	999	R	$\Delta(S-P) = 6.7^\circ$ P-Phase Dir = NE
		e	00:40:51.5					
		eS	00:41:53.1					
20		eP	01:18:36.1	1	0.7		T	
20		eS	01:50:21.7		0.2		L	No P-phase visible
20	N	eP	02:50:52.0	1	0.5	0.4	NR	$\Delta(S-P) = 4.4^\circ$
		eS	02:51:45.3					
20	N	eP	03:10:00.7	1	0.4	0.5	NR	$\Delta(S-P) = 5.0^\circ$
		e	03:10:14.0					
		eS	03:11:01.1					
20		eP	03:55:02.6	1	0.6		T	

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
20	N	eP	03:56:13.4	C	1	0.4	NR	$\Delta(S-P) = 2.0^\circ$
		eS	03:56:39.5					
20		eP	04:16:22.4		1	0.4	NR	$\Delta(S-P) = 0.7^\circ$
20	N	eP	06:49:15.6	1	0.2	999	L	$\Delta(S-P) = 0.9^\circ$
		eS	06:49:27.4					
20	N	eP	08:37:34.4	1	0.3	999	L	$\Delta(S-P) = 0.2^\circ$
		eS	08:37:38.6					
20		iP	08:44:59.8	C	5	1.1	T	Tonga Islands Region 20.0 S 174.1 W 0 = 08:32:37.3 h about 33 km $\Delta = 82.7^\circ$ Dir = 232 $^\circ$
		e	08:45:26.3					
		e	08:46:07.0					
20	E LP	eP	08:59:24.6	1	0.8	1.8	T	Fiji Islands Region 23.4 S 179.3 E 0 = 08:47:23.3 h about 512 km $\Delta = 88.3^\circ$ Dir = 234 $^\circ$
		e	09:01:29.4					
		e	09:01:57.1					
		eScS	09:09:32.4					
		e	09:13:02					
		ePKKP	09:16:58.4					
		eP'P'	09:25:02.6					
e	09:25:09.3							
20	E	eP	11:04:33.0	1	0.3	0.4	NR	$\Delta(S-P) = 2.1^\circ$
		eS	11:05:00.0					
20	E	eP	11:21:54.0	1	0.4	0.4	NR	$\Delta(S-P) = 2.0^\circ$
		eS	11:22:20.8					
20		eP	14:24:13.9	2	0.6		T	P-Phase Dir = SW
20	N	eP	16:39:35.9	1	0.1	999	L	$\Delta(S-P) = \text{less than } 0.1^\circ$
		eS	16:39:39.3					

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
					20	LPE LP		
20	N	eP eS	19:03:13.8 19:03:57.6	1	0.4 0.4	NR	$\Delta(S-P) = 3.6^\circ$	
20	E	eP eS	19:25:01.4 19:25:42.3	1	0.4 0.4	NR	$\Delta(S-P) = 3.3^\circ$	
20	IB LP	eP eLR	19:44:51.8 20:12:22	4	1.0 22.0	T	Mariana Islands 17.8 N 144.6 E 0 = 19:32:27.4 h about 33 km $\Delta = 83.2^\circ$ Dir = 288°	
20	E	eP eS	19:46:22.4 19:47:06.3	1	0.3 0.4	NR	$\Delta(S-P) = 3.6^\circ$	
20		eP	19:52:36.0	1	0.8	T		
20	IB N IBN	eP eS	20:29:16.4 20:29:37.5	2	0.4 0.4	NR	$\Delta(S-P) = 1.6^\circ$	
20	E	eP eS	21:02:22.1 21:03:07.8	1	0.4 0.2	NR	$\Delta(S-P) = 3.7^\circ$	
20		eP e	21:10:02.1 21:10:36.4	2	0.8 1.0	T	Santa Cruz Islands 13.7 S 166.9 E 0 = 20:57:21.1 h about 166 km $\Delta = 89.8^\circ$ Dir = 250°	
20	N	eP e eS	21:32:59.0 21:33:07.9 21:33:57.4	1	0.2 0.4 0.4	NR	$\Delta(S-P) = 4.9^\circ$	

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
					20	IB N IBN		
20	E	eP eS	21:54:05.4 21:54:49.7	1	0.4 0.4	NR	$\Delta(S-P) = 3.6^\circ$	
20		eP e eS	22:31:51.6 22:32:24.4 22:32:37.3	1	0.4 0.4 0.4	NR	$\Delta(S-P) = 3.7^\circ$	
20	N	eP eS	22:34:08.0 22:34:36.6	1	0.4 0.5	NR	$\Delta(S-P) = 2.2^\circ$	
20		eP eS	23:08:21.7 23:08:48.0	1	0.3 0.3	NR	$\Delta(S-P) = 2.0^\circ$	
20	E	eP eS	23:16:43.0 23:17:16.4	1	0.2 0.3	NR	$\Delta(S-P) = 2.6^\circ$	
20		eP	23:24:23.4	1	0.6	T		
20	E	eP eS	23:51:08.0 23:51:40.8	1	0.2 0.3	NR	$\Delta(S-P) = 2.6^\circ$	
20		eP e	23:55:34.2 23:55:57.2	3	1.0 1.6	T		
21		eP e e	00:05:41.9 00:06:24.5 00:24:04.5	1	0.7 0.8 0.5	T		
21		eP e N N	00:36:18.2 00:36:26.8 00:36:49.8 00:36:57.7	1	0.4 0.3 0.5 0.7	NR	$\Delta(S-P) = 2.5^\circ$	
21	N	eP eS	00:38:52.3 00:39:47.8	1	0.4 0.3	NR	$\Delta(S-P) = 4.6^\circ$	
21		eP	01:00:55.3	2	0.9	T		

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
21		iP'	01:03:13.6	C	19	0.8	T	Near South Coast of Java 9.0 S 112.4 E 0 = 00:44:19.7 h about 64 km $\Delta = 124.3^\circ$ Dir = 294°
	LP	ePP	01:05:01.7			2.0		
	IB							
	BB							
	LP							
	E	ePKS	01:06:48.0			2.0		
	LPE							
		ePPP	01:07:50.0			4.6		
	LP							
	LPE	e(SKS)	01:10:33			16.0		
	LPE	e	01:12:00			20.0		
		ePKKP	01:12:53.5			1.5		
	LPE	e	01:14:27			22.0		
	LPE	ePSKS	01:15:00			25.0		
		eSPP	01:16:25.0			5.0		
	LP							
	LP	e	01:17:26			18.0		
	LP	ePcPSKP	01:20:20			24.0		
	LPE	e	01:20:57			46.0		
	LPE	eSSS	01:26:38			38.0		
	LPE	e(P'SKS)	01:29:26			31.0		
LP	e	01:33:36			32.0			
LPN	eLQ	01:36:16			28.0			
LP	eLR	01:42:23			28.0			
21		eP	01:39:24.3		1	1.0	T	New Britain Region 4.2 S 152.9 E 0 = 01:26:31.5 h about 150 km $\Delta = 92.7^\circ$ Dir = 267°
		e	01:40:02.1			1.3		
		e	01:59:26.1			1.0		
21		eP	02:19:02.6		1	0.7	T	Andreanof Islands, Aleutian Islands 51.2 N 179.8 E 0 = 02:11:20.7 h about 60 km $\Delta = 41.1^\circ$ Dir = 302° P-Phase Dir = NW
		e(pP)	02:19:16.5		6	0.9		
		eScP	02:24:43.2			0.6		
						1.0		
	LP	eLR	02:35:00			27.0		
	e	02:39:15						
21		eP	03:03:43.6		1	1.0	T	

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
21		e(P)	03:42:23.6		1	1.1	T	Central Luzon, Philippine Islands 15.4 N 121.8 E 0 = 03:28:35.3 h about 46 km $\Delta = 99.6^\circ$ Dir = 303°
21		eP	04:20:55.0		1	0.4	NR	$\Delta(S-P) = 4.6^\circ$
	N	eS	04:21:50.0			0.5		
21		eP	04:42:53.1		1	0.1	NR	$\Delta(S-P) = 5.0^\circ$
		e	04:42:55.9			0.3		P-Phase Dir = NE
		e	04:43:00.0			0.5		
		e	04:43:06.6			0.6		
	N	eS	04:43:52.8			999		
21		eP	04:53:16.6		3	1.4	T	
21	N	eS	05:05:15.9			0.5	L	No P-phase visible
21		iP	06:34:33.1	D	55	1.4	T	Fox Islands, Aleutian Is. 52.5 N 168.7 W 0 = 06:27:49.1 h about 33 km $\Delta = 34.2^\circ$ Dir = 302° P-Phase Dir = NW
	LP	e(PP)	06:36:07.5			2.5		
		e	06:36:28.5			2.6		
		e	06:36:42.2			2.0		
		e(PcP)	06:37:05.7			2.5		
	E	iS	06:40:00.0			4.0		
	LPE							
	LPN	eLQ	06:42:08			38.0		
	LP	eLR	06:44:15			22.0		
	LPN							
21		eP	06:38:14.2		4	1.0	T	Fox Islands, Aleutian Is. 52.6 N 168.6 W 0 = 06:31:42.4 h about 39 km $\Delta = 34.1^\circ$ Dir = 302°
	N	eS	06:44:53.6			2.6		

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
21		eP e	06:57:29.3 06:57:32.2		1	1.0	T	Tonga Islands Region 17.0 S 173.4 W 0 = 06:45:26.3 h about 53 km $\Delta = 79.9^\circ$ Dir = 234°
21		eP	07:02:24.3		2	0.6	T	
21	N	eP	07:02:31.0		1	0.2	L	$\Delta(S-P) = 1.4^\circ$
		eS	07:02:48.2				0.4	
21		eP	07:13:32.8		2	1.0	T	
21		e(P)	07:13:54.4		7	1.3	T	Fox Islands, Aleutian Is. 52.8 N 168.8 W 0 = 07:07:05.9 h about 33 km $\Delta = 34.2^\circ$ Dir = 302°
21		eP	08:40:47.8		5	1.3	T	
21		eP	08:43:34.5		3	1.0	T	Fox Islands, Aleutian Is. 52.8 N 168.6 W 0 = 08:36:53.9 h about 33 km $\Delta = 34.1^\circ$ Dir = 302°
21	IB BB LP	eP	08:49:31.7		300	1.7	T	Fox Islands, Aleutian Is. 52.4 N 168.5 W 0 = 08:42:48.3 h about 33 km $\Delta = 34.0^\circ$ Dir = 302°
		ePP	08:50:44.0				1.8	
	IB BB LP	ePPP	08:51:06.9					3.6
		ePcP	08:52:08.4				999	
	IB BB LP							

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
		e	08:53:42.0					1.6
	IB BB LP							
		N	eS	08:54:54.2				
	IBN BBN LPN							
			eScP	08:55:47.3				
	IB N							
			eSS	08:56:54.2				
	IBN BBN LPN							
		N	eLQ	08:57:22.0				
	IBN BBN LPN							
			eLR	08:59:14.0				
	IB BB LP							
			e(P'P')	09:22:31.7				
21	N	iP	08:55:18.5	C	4	0.2	L	$\Delta(S-P) = \text{less than } 0.1^\circ$
		eS	08:55:21.5				0.3	
21		eP	08:56:49.9		11	1.2	T	Fox Islands, Aleutian Is. 52.8 N 168.1 W 0 = 08:50:08.2 h about 33 km $\Delta = 33.8^\circ$ Dir = 302°
21	IB	eP	09:07:23.7		460	2.0	T	Fox Islands, Aleutian Is. 52.4 ^o 168.5 W 0 = 09:00:41.4 h about 33 km $\Delta = 34.0^\circ$ Dir = 301°
		epP	09:07:33.2				2.0	
	IB	e	09:07:49.5					2.2
	IB	ePP	09:08:41.6					2.5
	IB E IBE							
			eS	09:12:49.6				

(Continued)

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
		e(ScP)	09:13:36.7			1.5		
	IBN	eLQ	09:15:25.0			999		
	BBN							
	LPN							
		eLR	09:17:05.0			999		
	IB							
	BB							
	LP							
		e(P'P')	09:40:34.5			1.4		
21		eP	09:16:44.7	310		2.0	T	Fox Islands, Aleutian Is. 52.5 N 168.5 W 0 = 09:10:01.6 h about 33 km $\Delta = 34.0^\circ$ Dir = 302°
	IB							
	BB							
	LP							
		ePP	09:18:06.5			2.2		
	IB							
	BB							
	LP							
	E	eS	09:22:12.0			4.2		
	LPN	eLQ	09:24:29			17.0		
	IBN							
	BBN							
	IB	eLR	09:26:30.0			999		
	BB							
	LP							
21		eP	09:28:12.7		6	1.0	T	
		e	09:28:52.8			1.1		
		e	09:31:07.5			1.0		
21		iP	09:44:12.6	C 150		1.2	T	Near South Coast of Hokkaido, Japan 42.4 N 142.3 E 0 = 09:33:15.5 h about 27 km $\Delta = 67.3^\circ$ Dir = 308° P-Phase Dir = SW
	IB							
	BB							
	LP							
		e(P'P')	10:12:24.2			1.2		
21		iP	09:54:43.2	D 140		1.3	T	Bolivia Argentina Border Region 22.8 S 66.5 W 0 = 09:42:46.0 h about 200 km $\Delta = 81.7^\circ$ Dir = 134° P-Phase Dir = SE
	IB							
		e(pP)	09:55:36.7			1.4		
		e	09:55:47.7			1.3		
		e(SKP)	10:00:12.2			1.0		
		e(SKKP)	10:16:41.6			1.3		
		e(P'P')	10:21:01.3			1.0		

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks	
					A	T			
21		eP	10:41:14.7			1	0.2	NR	$\Delta(S-P) = 4.7^\circ$
	N	eS	10:42:11.9				0.5		
21		eP	12:09:00.8			1	0.3	NR	$\Delta(S-P) = 5.0^\circ$
	N	eS	12:10:00.8				0.3		
21		eP	12:43:10.7			10	1.6	T	
		e	12:44:00.0				1.0		
		e	12:45:08.4				1.1		
		e	12:46:18.9				1.4		
		e	13:11:43.2				1.7		
21		eP	13:38:41.1			2	1.0	T	
		e	13:39:13.0				1.3		
		e	13:39:41.6				1.2		
21		eP	13:48:00.2			1	0.5	T	
		e	13:48:27.7				1.1		
		e	13:48:31.6				0.7		
21		eP	14:01:20.9			1	0.3	R	$\Delta(S-P) = 6.4^\circ$
		e	14:01:32.4				0.5		
		e	14:01:58.7				0.5		
	N	eS	14:02:36.9				0.5		
21		eP	14:38:16.8			1	0.4	NR	$\Delta(S-P) = 4.0^\circ$
	N	eS	14:39:05.7				0.4		
21		eP	14:47:24.0			7	1.5	T	Fox Islands, Aleutian Is. 52.6 N 168.3 W 0 = 14:40:40.3 h about 16 km $\Delta = 33.9^\circ$ Dir = 302°
	IB								
		e	14:47:57.4				1.2		
21		iP	15:16:26.2	D		1	0.2	L	$\Delta(S-P) = \text{less than } 0.1^\circ$ P-Phase Dir = E
	IB								
	N	eS	15:16:28.2				999		
	IBN								
	BBN								
21		eP	15:25:51.8			1	1.0	T	

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
21		eP	15:34:58.0	8	1.3	T	Fox Islands, Aleutian Is.	
		e	15:35:59.4					
	LP	e	15:43:44					
	LPN	e(LQ)	15:44:10					
	LP	e(LR)	15:45:32					
21	N	eP	15:35:15.7	1	0.2	L	$\Delta(S-P) = \text{less than } 0.1^\circ$ P-Phase Dir = E	
		eS	15:35:18.0					999
21		eP	15:49:46.6	1	0.8	T		
21		eP	16:00:59.1	1	0.6	T		
21		eP	16:46:04.0	2	1.3	T		
21	LPN	eP'	18:06:29.3	2	0.8	T	Gulf of Aden 14.2 N 51.7 E 0 = 17:47:30.8 h about 27 km $\Delta = 120.4^\circ$ Dir = 12°	
		e	18:07:49.0					
		e	18:08:32.1					
		e	18:29:47					
21	LP	eP	18:34:25.4	2	1.0	T	Near West Coast of Central Luzon, Philippines Islands 15.3 N 121.7 E 0 = 18:20:44.7 h about 55 km $\Delta = 99.7^\circ$ Dir = 303°	
		e	18:41:16.8					
		e	18:45:12					
		e	18:51:23.7					
21	E	eP	19:06:51.3	1	0.4	NR	$\Delta(S-P) = 2.0^\circ$	
		eS	19:07:17.8					0.4
21	N	eP	19:10:33.6	1	0.3	NR	$\Delta(S-P) = 4.2^\circ$	
		e	19:11:11.1					
		eS	19:11:24.7					0.4
21	N	eP	19:20:43.5	1	0.4	NR	$\Delta(S-P) = 3.6^\circ$	
		eS	19:21:28.0					0.4
21		eP	19:34:19.3	1	0.9	T		
		e	19:35:26.6					1.0

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
21	N	eP	19:59:33.3	1	0.2	L	$\Delta(S-P) = 1.2^\circ$	
		eS	19:59:48.7					0.4
21	N	eP	20:01:04.3	1	0.3	NR	$\Delta(S-P) = 2.2^\circ$	
		eS	20:01:33.4					0.4
21		eP	20:33:56.1	7	1.5	T	Fox Islands, Aleutian Is. 52.4 N 168.5 W 0 = 20:27:13.3 h about 40 km $\Delta = 34.0^\circ$ Dir = 301°	
		e	20:34:02.4					1.4
21	N	iP	20:54:16.1	D	1	L	$\Delta(S-P) = 0.5^\circ$ P-Phase Dir = NE	
		eS	20:54:23.3					999
21	N	eP	21:04:30.8	1	0.2	L	$\Delta(S-P) = 0.2^\circ$	
		eS	21:04:35.3					0.3
21	N	eP	21:21:24.8	1	0.3	NR	$\Delta(S-P) = 1.7^\circ$	
		eS	21:21:47.3					0.3
21	N	eP	21:27:56.2	1	0.5	NR	$\Delta(S-P) = 4.2^\circ$	
		eS	21:28:47.5					0.5
21	IB LP	eP	21:37:26.6	10	1.2	T	Near Coast of Central Ecuador 0.9 S 80.9 W 0 = 21:27:51.6 h about 33 km $\Delta = 55.8^\circ$ Dir = 134°	
		e	21:37:45.8					1.4
		e(PcP)	21:38:22.6					1.0
		e	21:38:40.3					1.2
		e	21:38:54.9					1.4
		ePP	21:39:25.0					1.4
		e	21:45:19					17.0
		eScS	21:47:20					21.0
		e(SS)	21:49:16					20.0

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
21	IB BB N IBN BBN	iP eS	22:05:12.5 22:05:15.9	C	999	999	L	$\Delta(S-P) = \text{less than } 0.1^\circ$ P-Phase Dir = SW
21	N	eP eS	22:39:01.5 22:39:48.3		1	0.4	NR	$\Delta(S-P) = 3.8^\circ$
21	N	eP eS	22:52:16.0 22:53:00.8		1	0.3	NR	$\Delta(S-P) = 3.6^\circ$
21	N	eP e eS	22:57:18.9 22:57:19.9 22:57:32.6		1	0.4	L	$\Delta(S-P) = 1.1^\circ$
21	N	eP eS	22:58:52.8 22:59:25.0		1	0.3	NR	$\Delta(S-P) = 2.5^\circ$
21	N	eP eS	23:03:09.7 23:03:46.1		1	0.4	NR	$\Delta(S-P) = 2.9^\circ$
22	N	eP e eS	00:23:58.0 00:24:11.8 00:25:10.5		1	0.5	R	$\Delta(S-P) = 6.2^\circ$
22	N	eP e eS	00:28:41.4 00:28:55.0 00:29:54.8		1	0.3	R	$\Delta(S-P) = 6.2^\circ$
22	N	eP eS	00:32:22.1 00:33:22.4		1	0.4	NR	$\Delta(S-P) = 5.0^\circ$
22	N	eP eS	00:40:20.1 00:40:59.2		1	0.4	NR	$\Delta(S-P) = 3.1^\circ$
22	N	eP eS	00:41:31.5 00:42:02.3		1	0.3	NR	$\Delta(S-P) = 2.4^\circ$

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
22	IB BB LP	eP	01:05:36.8		16	1.5	T	Loyalty Islands Region 22.0 S 170.1 E 0 = 00:52:23.4 h about 33 km $\Delta = 93.7^\circ$ Dir = 242°
		e ePP	01:07:50.6 01:09:23.4			1.6 6.2		
	IB BB LP							
	LPE BBE	eSKS	01:16:09			22.0		
	E IBE BBE LPE	eS	01:16:47.0			4.2		
	E IBE BBE LPE	ePS	01:18:09.0			6.5		
	LPE LPE BBE IBE	ePPS	01:18:43			28.0		
		e ePKKP	01:22:31.6 01:22:43.1			0.9 0.8		
	LPE BBE LPE BBE LPE	eSS e	01:23:00 01:27:05			29.0 28.0		
	LPE BBE LP BB	e(SKKS) eP'P' eLO eLR	01:30:21 01:30:47.8 01:31:13 01:35:05			27.0 1.1 38.0 38.0		
22		eP	01:26:16.8		1	1.0	T	Loyalty Islands Region 22.0 S 170.1 E 0 = 01:13:02.6 h about 33 km $\Delta = 93.6^\circ$ Dir = 242°

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
22		eP	01:42:02.8		2	0.9	T	Loyalty Islands Region 21.9 S 170.1 E 0 = 01:28:48.9 h about 33 km $\Delta = 93.6^\circ$ Dir = 243°
		e	01:46:16.7			1.5		
		ePKKP	01:59:08.8			0.7		
		eSS	01:59:25.2			1.5		
		e	02:00:55.6			1.0		
		eP'P'	02:07:23.7			1.0		
22		eP	02:14:47.1		1	0.8	T	
22		eP'	02:18:44.5		47	1.5	T	Near South Coast of Java 9.2 S 112.4 E 0 = 01:59:50.3 h about 69 km $\Delta = 124.5^\circ$ Dir = 294°
		e	02:19:09.1			1.0		
		e(PP)	02:20:36.5			1.9		
		eSKP	02:22:23.7			1.5		
		e	02:23:51.9			1.1		
		eSP	02:30:11.2			1.3		
		e(SKKP)	02:32:00.5			1.3		
22		eP	02:48:23.9		7	1.5	T	
22		eP	03:12:14.2		1	0.2	NR	$\Delta(S-P) = 3.1^\circ$
		e	03:12:24.8			0.4		
	E	eS	03:12:53.4			0.4		
	N	eSur	03:13:08.2			999		
22		eP	03:17:36.8		1	1.0	T	
22		iP	03:33:45.6	C	3	0.2	L	$\Delta(S-P) = 0.5^\circ$ P-Phase Dir = NE
	N	eS	03:33:52.8					
22		eP	03:46:10.6		2	1.0	T	
22		eP	04:01:39.0		1	0.5	T	
22		eP	04:37:06.3		1	0.4	NR	$\Delta(S-P) = 5.1^\circ$
	E	eS	04:38:07.4			0.5		
22		eP	05:37:15.2		1	0.3	NR	$\Delta(S-P) = 2.2^\circ$
	N	eS	05:37:44.4			0.3		
22		eP	06:45:33.7		2	1.1	T	Near Coast of Ecuador 1.1 S 81.0 W 0 = 06:35:57.1 h about 33 km $\Delta = 56.0^\circ$ Dir = 134°
		e	06:46:00			1.0		

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
22		eP	06:58:30.5		1	0.5	T	
		e	06:58:40.9			0.7		
22		eP	07:24:09.6		1	0.7	T	
22		eP	08:26:08.8		1	0.5	NR	$\Delta(S-P) = 4.8^\circ$
	N	eS	08:27:06.9			0.5		
22		eP	09:38:50.5		2	1.0	T	Molucca Sea 0.9 N 125.8 E 0 = 09:24:41.5 h about 33 km $\Delta = 108.1^\circ$ Dir = 290°
	LP	eLR	10:15:10			23.0		
22		eP	09:40:58.8		2	0.7	NR	$\Delta(S-P) = 5.1^\circ$
	N	eS	09:41:59.9			0.7		
22		eP	09:51:07.3		1	0.4	R	$\Delta(S-P) = 6.3^\circ$
		e	09:51:21.7			0.6		
	N	eS	09:52:19.7			0.7		
22		eP	10:16:02.4		1	0.3	NR	$\Delta(S-P) = 4.4^\circ$
		e	10:16:10.7			0.6		
	N	eS	10:16:55.6			0.7		
22		eP	11:01:26.0		1	0.6	T	
		e	11:03:15.7			0.7		
22		eP	11:07:13.6		1	0.3	NR	$\Delta(S-P) = 5.2^\circ$ P-Phase Dir = E
		e	11:07:26.3			0.3		
	N	eS	11:08:16.3			999		
22		eP	11:36:37.1		3	0.3	NR	$\Delta(S-P) = 4.6^\circ$ P-Phase Dir = S
		e	11:36:40.4			0.9		
	N	eS	11:37:33.0			0.4		
22		iP	11:39:59.0	D	7	1.0	T	Samoa Islands Region 15.1 S 173.0 W 0 = 11:28:03.4 h about 55 km $\Delta = 78.2^\circ$ Dir = 235° P-Phase Dir = SW
		e	11:40:18.3			1.0		
	LP	eLR	12:04:36			32.0		

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
22		eP	13:39:51.5		1	0.7	T	
22	N	eP	14:18:10.7		1	0.3	NR	$\Delta(S-P) = 1.8^\circ$
		eS	14:18:34.5				0.4	
22	N	eP	14:25:34.0		1	0.3	NR	$\Delta(S-P) = 5.0^\circ$
		eS	14:26:34.0				999	P-Phase Dir = NE
22		eP	15:23:03.8		9	1.5	T	
22		eP	15:27:12.5		78	2.2	T	Fox Islands, Aleutian Is.
		e	15:27:19.9			1.6		52.5 N 168.8 W
	IB							0 = 15:20:31.0
	BB							h about 47 km
	LP							$\Delta = 34.2^\circ$
	LP	ePP	15:28:35.0			20.0		Dir = 302°
	IB							P-Phase Dir = NW
	E	eS	15:32:41.9			3.0		Mag 6 1/4 (Pas)
	IBE							
	BBE							
	LPE							
	LP	eLR	15:35:00.0			20.0		
	E	eScS	15:37:35.0			2.0		
	IBE							
	BBE							
	LPE							
		e	15:51:09.8			1.0		
		e	15:58:20.6			0.9		
		e	15:59:54.0			1.1		
22	N	eP	15:43:02.5		1	0.3	NR	$\Delta(S-P) = 5.0^\circ$
		eS	15:44:02.6				0.4	P-Phase Dir = NE
22	N	eP	17:17:16.2		1	0.4	NR	$\Delta(S-P) = 4.5^\circ$
		eS	17:18:11.0				0.4	
22		eP	18:04:02.3		2	1.0	T	
22		eP	19:56:55.1		2	1.0	T	
22		eP	21:24:58.9		1	0.5	T	
22	E	eP	21:49:51.3		1	0.3	NR	$\Delta(S-P) = 3.7^\circ$
		eS	21:50:36.3				0.4	

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
22	N	eP	22:23:28.8		1	0.3	NR	$\Delta(S-P) = 3.6^\circ$
		eS	22:24:13.2				0.4	
22	N	eP	22:29:47.5		1	0.3	NR	$\Delta(S-P) = 2.7^\circ$
		eS	22:30:21.6				0.4	
22	N	eP	23:01:10.3		1	0.4	NR	$\Delta(S-P) = 3.7^\circ$
		eS	23:01:55.2				0.5	
22		eP	23:41:09.3		1	0.7	T	New Britain Region
		epP	23:41:36.9			1.1		5.1 S 151.2 E
		e	23:42:06.0			1.5		0 = 23:27:59.5
								h about 105 km
								$\Delta = 94.6^\circ$
								Dir = 267°
23	N	eP	00:26:48.4		1	0.3	NR	$\Delta(S-P) = 2.2^\circ$
		eS	00:27:17.2				0.4	
23		eP	00:56:36.1		2	0.7	T	Albania-Yugoslavia
		e	00:56:50.4			0.8		Border Region
		e	00:57:08.9			0.8		41.3 N 20.4 E
								0 = 00:43:56.3
								h about 33 km
								$\Delta = 86.2^\circ$
								Dir = 30°
23	E	eP	01:53:28.4		1	0.3	L	$\Delta(S-P) = \text{less than } 0.1^\circ$
		eS	01:53:31.7				0.3	P-Phase Dir = SE
23		eP	02:03:13.0		1	0.6	T	
23		eP	02:40:20.7		1	0.6	T	
23	IB	eP	02:41:25.8		1	0.3	NR	$\Delta(S-P) = 4.8^\circ$
		e	02:41:28.1				0.9	P-Phase Dir = S
	E	eS	02:42:24.0			0.5		
	IBE							
23	LP	e(Sur)	04:29:20			30.0	T	No primary phases visible
23	E	eP	04:49:56.0		1	0.5	NR	$\Delta(S-P) = 3.8^\circ$
		eS	04:50:42.2				0.6	

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
23	LP	eP	05:50:13.4	1	0.8	T		
		e(Sur)	06:15:57		18.0			
23		eP	06:21:28.5	1	0.8	T		
23		eP	06:22:44.5	2	1.0	T		
23	LP	e(Sur)	07:22:35		15.0	T	No primary phases visible.	
23		eP	09:36:55.9	1	0.8	T		
23	LPN LP	eP	10:35:36.2	1	0.8	T	Near East Coast of Luzon, Philippine Is. 15.3 N 121.7 E 0 = 10:21:55.3 h about 52 km $\Delta = 99.7^\circ$ Dir = 302°	
		eLQ	11:03:40		25.0			
		eLR	11:06:13		22.0			
23	N	eP	10:45:02.6	1	1.0	NR	$\Delta(S-P) = 4.0^\circ$	
		eS	10:45:50.9		0.7			
23		eP	10:54:56.4	13	1.5	T	Fox Islands, Aleutian Is. 52.5 N 168.9 W 0 = 10:48:14.1 h about 53 km $\Delta = 34.3^\circ$ Dir = 302°	
23		eP	11:05:23.9	2	1.0	T		
23	N	eP	11:43:46.6	1	0.5	NR	$\Delta(S-P) = 4.6^\circ$	
		eS	11:44:41.7		0.5			
23	LP	e(Sur)	11:46:22.0		20.0	T	No primary phases visible.	
23		eP	13:24:02.2	4	1.1	T		
23	N	eP	14:01:21.8	1	0.3	NR	$\Delta(S-P) = 4.8^\circ$	
		eS	14:02:19.6		0.3			
23		eP	14:01:24.9	1	0.8	T		

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
23	N	eP	14:08:47.7	1	0.3	NR	$\Delta(S-P) = 4.7^\circ$	
		eS	14:09:45.0		0.4			
23	LPE	eP	15:11:15.5	2	1.1	T	Fox Islands, Aleutian Is. 52.5 N 168.3 W 0 = 15:04:37.6 h about 33 km $\Delta = 33.9^\circ$ Dir = 302°	
		eSur	15:18:04		18.0			
23	LP	eSur	16:31:49		17.0	T	No primary phases visible.	
23		eP	18:59:24.9	1	0.9	T	Fox Islands, Aleutian Is. 52.5 N 169.0 W 0 = 18:52:38.8 h about 33 km $\Delta = 34.3^\circ$ Dir = 302°	
23		eP	19:12:11.9	5	1.0	T	P-Phase Dir = SW	
23	N	eP	19:23:09.8	1	0.5	NR	$\Delta(S-P) = 4.6^\circ$	
		eS	19:24:04.8		0.4			
23	LP	eP	19:45:27.7	3	0.8	T	P-Phase Dir = W	
		eSur	19:52:27		17.0			
23	N	eP	19:53:33.5	1	0.3	L	$\Delta(S-P) = \text{less than } 0.1^\circ$	
		eS	19:53:36.8		0.3			
23		eP	21:23:33.1	3	1.1	T		
		eS	21:23:33.1		1.1			
23	N	eP	21:38:45.7	1	0.4	NR	$\Delta(S-P) = 5.1^\circ$	
		eS	21:39:46.0		0.7			
23		eP	23:57:19.4	2	0.8	T		
		e	00:11:42.1		1.0			
24		eP	00:19:00.0	1	0.9	T		

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
24		eP'	00:42:55.4		10	1.0	T	Sandwich Islands Region 59.1 S 26.0 W 0 = 00:23:53.1 h about 33 km $\Delta = 127.6^\circ$ Dir = 139° P-Phase Dir = SW
		e	00:43:11.2			1.2		
		e	00:43:22.6			0.7		
		e	00:44:02.8			2.1		
24	E	eP	00:48:07.2		1	0.5	NR	$\Delta(S-P) = 3.8^\circ$
		eS	00:48:53.6			0.3		
24		eP	02:23:09.5		2	0.7	T	
24		eP	03:28:11.6		1	0.7	T	
24		eP	03:48:37.2		2	0.9	T	
24		iP	03:54:03.5	C	8	0.8	T	Near West Coast of Northern Honshu, Japan 39.1 N 139.0 E 0 = 03:42:42.1 h about 33 km $\Delta = 71.9^\circ$ Dir = 307° P-Phase Dir = WNW
		e	03:54:06.3			1.0		
		e	03:55:08.2			1.2		
		e	04:14:28.0			1.2		
24	E	eP	04:33:20.5		1	0.6	NR	$\Delta(S-P) = 5.8^\circ$
		eS	04:34:28.6			0.7		
24	N	eP	05:25:58.6		1	0.4	NR	$\Delta(S-P) = 4.6^\circ$
		e	05:26:01.6			0.9		
		eS	05:26:54.3			0.5		
24		eP	06:49:34.4		5	1.4	T	
24		eP	07:54:22.1		1	1.0	T	
24	E	eP	08:12:16.7		1	0.6	NR	$\Delta(S-P) = 4.0^\circ$
		eS	08:13:05.6			0.5		
24		eP	08:53:17.0		4	1.3	T	

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
24	N	eP	09:09:33.0		1	0.4	NR	$\Delta(S-P) = 1.8^\circ$
		eS	09:09:57.4			0.5		
24		eP	09:35:46.6		2	0.9	T	
		e	09:35:52.5			0.7		
24	E	eP	09:44:46.0		1	0.4	NR	$\Delta(S-P) = 4.0^\circ$
		eS	09:45:35.0			0.4		
24	LP	eP	10:54:38.1		5	1.2	T	
		e	11:14:00			24.0		
24	N	eP	12:03:24.6		1	0.2	L	$\Delta(S-P) = 0.2^\circ$
		eS	12:03:29.0			0.3		
24		eP	12:11:07.4		4	1.4	T	
24		eP	12:31:29.8		2	1.0	T	
24		eP	13:19:24.3		1	0.8	T	
24		eP	14:02:07.3		2	1.0	T	
24		eP	16:48:08.6		1	1.0	T	
24	LPN	e(Sur)	17:12:00			30.0	T	No primary phases visible.
24	E	eP	17:22:52.7		1	0.4	NR	$\Delta(S-P) = 4.3^\circ$
		eS	17:23:45.0			0.3		
24		eP	17:53:26.7		2	0.7	T	Near Coast of Central Peru 8.4 S 78.7 W 0 = 17:43:05.3 h about 80 km $\Delta = 63.4^\circ$ Dir = 136°
		e	17:53:59.1			0.8		
24	N	eP	19:05:49.1		1	0.4	NR	$\Delta(S-P) = 3.6^\circ$
		eS	19:06:33.8			0.6		
24	E	eP	21:10:13.4		1	0.3	NR	$\Delta(S-P) = 3.6^\circ$
		eS	21:10:58.0			0.3		

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks	
					A	T			
24	E	eP	22:40:57.4		1	0.5	NR	$\Delta(S-P) = 3.7^\circ$	
		eS	22:41:42.3		1	0.5			
24		eP	23:33:28.6		1	0.6	T		
24		iP	23:35:27.5	C	4	0.6	T		
24		eP	23:37:36.4		1	0.6	T		
25	N E	eP	00:40:35.9		1	0.4	NR	$\Delta(S-P) = 2.1^\circ$	
		eS	00:41:03.0						0.4
		eSur	00:41:09.2						0.3
25	E	eP	00:59:56.2		1	0.4	NR	$\Delta(S-P) = 4.6^\circ$	
		eS	01:00:52.1						0.4
25	N	eP	01:28:48.2		1	0.3	L	$\Delta(S-P) = \text{less than } 0.1^\circ$	
		eS	01:28:51.6						0.2
25	N N	eP	01:48:13.5		1	0.4	NR	$\Delta(S-P) = 3.4^\circ$ P-Phase Dir = S	
		e	01:48:20.4						0.6
		eS	01:48:55.1						0.5
		e	01:49:10.7						0.4
25		eP	06:20:55.0		1	1.0	T		
		e	06:22:53.7						1.0
25	N	eP	06:57:53.9		1	0.2	NR	$\Delta(S-P) = 4.8^\circ$ P-Phase Dir = S	
		e	06:57:55.6						0.4
		e	06:57:59.4						0.4
		eS	06:58:51.6						0.3
25		eP	07:23:11.7		1	1.4	T		
25	LP	eP	07:41:18.7		1	0.7	T		
		e	08:05:49						22.0
25		eP	08:08:17.8		1	0.9	T		
25	E	eP	08:47:43.8		1	0.1	NR	$\Delta(S-P) = 1.4^\circ$	
		eS	08:48:01.6						0.2
25		eP	10:09:35.4		1	0.9	T		
		e	10:10:38.1						0.8

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks							
					A	T									
25		eP	10:58:56.6		3	1.2	T								
25		eP	11:17:10.0		1	0.7	T								
25	N	eP	12:07:54.5		1	0.2	NR	$\Delta(S-P) = 0.1^\circ$							
		eS	12:07:58.5						0.3						
25	N	eP	12:08:14.3		1	0.3	NR	$\Delta(S-P) = 4.1^\circ$							
		eS	12:09:04.6						0.5						
25	IB	eP	12:22:03.6		7	1.3	T	South Pacific Ocean 36.2 S 100.2 W 0 = 12:09:45.6 h about 33 km $\Delta = 82.1^\circ$ Dir = 166° P-Phase Dir = SW							
		e	12:22:11.1						1.6						
		e	12:28:36.3						0.9						
		LPE	12:32:25						24.0						
		LPE	12:37:52						24.0						
		e	12:39:12.6						1.1						
		LPE	12:44:03						44.0						
		LP	12:49:50						28.0						
		25							eP	12:55:47.7		1	0.5	T	Santiago del Estero Province, Argentina 28.2 S 63.2 W 0 = 12:43:58.9 h about 589 km $\Delta = 87.8^\circ$ Dir = 134°
		25	IB						eP	13:38:21.2		3	0.9	T	P-Phase Dir = W
e	13:38:35.0			0.9											
25	IB	e	13:41:34.0		1	1.3	T								
		LPE	13:44:45						15.0						
		LPE	13:48:58						23.0						
		e	13:57:20.7						1.5						
		e	13:59:52.2						1.1						
		LPE	14:01:16						32.0						
		LP	14:05:13						25.0						
		25							eP	13:46:20.0		8	1.4	T	

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
25		eP	13:59:30.7		2	0.8	T	
25	N	eP	14:25:41.1		1	0.4	NR	$\Delta(S-P) = 1.6^\circ$
		eS	14:26:02.9			0.5		
25	N	eP	14:26:42.5		1	0.2	L	$\Delta(S-P) = 0.2^\circ$ P-Phase Dir = SE
		eS	14:26:47.0			0.3		
25		eP	19:09:03.7		3	1.0	T	Near East Coast of Honshu, Japan 36.7 N 141.0 E 0 = 18:57:45.4 h about 80 km $\Delta = 72.4^\circ$ Dir = 304°
25		eP	19:29:38.7		1	0.4	T	
25		eP	19:56:49.4		1	0.7	T	
25		eP	20:39:47.1		1	0.7	T	
25		eP	21:12:06.7		1	1.5	T	
		e	21:12:23.4			1.6		
25		eP	21:44:07.1		2	1.1	T	
26	IB LPE LP	iP	01:25:34.6	C	9	1.2	T	Guerrero, Mexico 16.6 N 99.2 W 0 = 01:19:10.2 h about 33 km $\Delta = 32.0^\circ$ Dir = 146° P-Phase Dir = SSE
		e	01:25:41.1			1.0		
		e	01:35:40			20.0		
		e	01:39:21			12.0		
26	N	eP	04:23:54.2		1	0.4	NR	$\Delta(S-P) = 2.2^\circ$
		eS	04:24:22.5			0.5		
26		eP	04:28:24.3		1	0.8	T	

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
26	LPE	eP	05:35:19.8		11	1.6	T	Fox Islands, Aleutian Is. 52.5 N 168.4 W 0 = 05:28:36.7 h about 33 km $\Delta = 34.0^\circ$ Dir = 302°
		e	06:14:43			16.0		
26	LPN	iP	06:22:14.5	C	5	1.3	T	Windward Islands 12.8 N 60.9 W 0 = 06:12:26.5 h about 32 km $\Delta = 57.4^\circ$ Dir = 105°
		e	06:22:48.5			1.4		
		e(LQ)	06:39:15			26.0		
26	E	eP	07:19:52.4		1	0.4	NR	$\Delta(S-P) = 4.1^\circ$
		eS	07:20:42.1			0.4		
26		eP	07:26:44.3		3	1.2	T	
26		eP	08:33:43.3		2	1.1	T	
26		eP	09:09:42.4		7	0.7	T	Off Coast of Portugal 39.3 N 10.6 W 0 = 08:58:11.1 h about 19 km $\Delta = 73.5^\circ$ Dir = 51°
26	LPE LPE LPN LPN	eP	09:10:00.4		6	0.8	T	
		e	09:19:26.0			27.0		
		e	09:30:46			42.0		
		e	09:35:00			24.0		
		e	09:36:12			23.0		
26		eP	12:05:56.9		2	1.0	T	
26	IB	eP	12:20:50.4		2	1.1	T	
		e	12:34:55.7			1.6		
26		eP	12:51:45.5		2	1.2	T	
26		eP	13:17:35.8		3	1.4	T	
26		eP	14:11:36.2		3	1.4	T	

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
26	N IBN	iP	16:07:58.6	D	2	0.2	L	$\Delta(S-P) = \text{less than } 0.1^\circ$ P-Phase Dir = SE
		eS	16:08:02.0			999		
26	N IBN	eP	16:18:34.2		1	0.2	L	$\Delta(S-P) = \text{less than } 0.1^\circ$ P-Phase Dir = SE
		eS	16:18:37.8			999		
26		eP	16:50:07.2		11	1.6	T	
26	N	eP	16:51:51.8		1	0.2	L	$\Delta(S-P) = \text{less than } 0.1^\circ$
		eS	16:51:55.2			0.1		
26	N IBN	eP	17:03:01.2		1	0.2	L	$\Delta(S-P) = \text{less than } 0.1^\circ$ P-Phase Dir = SE
		eS	17:03:03.9			999		
26	N IBN	iP	17:08:23.8	D	6	0.2	L	$\Delta(S-P) = \text{less than } 0.1^\circ$ P-Phase Dir = SE
		eS	17:08:27.4			999		
26	N IBN	iP	17:10:34.7	D	3	0.2	L	$\Delta(S-P) = \text{less than } 0.1^\circ$ P-Phase Dir = SE
		eS	17:10:38.3			999		
26	N	eP	17:11:54.4		1	0.2	L	$\Delta(S-P) = \text{less than } 0.1^\circ$ P-Phase Dir = SE
		eS	17:11:58.0			0.1		
26	N	eP	17:30:02.3		1	0.2	L	$\Delta(S-P) = \text{less than } 0.1^\circ$ P-Phase Dir = SE
		eS	17:30:06.0			0.1		
26		eP	18:13:00.2		1	1.0	T	
26	N	eP	18:15:42.9		1	0.2	L	$\Delta(S-P) = \text{less than } 0.1^\circ$ P-Phase Dir = SE
		eS	18:15:46.4			0.1		
26	E	eP	19:30:14.6		1	0.4	NR	$\Delta(S-P) = 3.6^\circ$
		eS	19:30:59.0			0.4		
26	N	eP	19:41:59.4		1	0.4	NR	$\Delta(S-P) = 2.6^\circ$
		eS	19:42:33.0			0.4		
26	E	eP	20:20:21.2		1	0.8	R	$\Delta(S-P) = 2.8^\circ$
		eS	20:21:57.1			1.1		

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks	
					A	T			
26	E	eP	21:27:34.6		1	0.1	L	$\Delta(S-P) = 0.5^\circ$ P-Phase Dir = NE	
		eS	21:27:41.9			0.2			
26	N	eP	21:42:59.8		1	0.4	NR	$\Delta(S-P) = 3.8^\circ$	
		eS	21:43:46.0			0.6			
26	E	eP	22:29:27.2		1	0.3	NR	$\Delta(S-P) = 2.6^\circ$	
		eS	22:30:00.0			0.3			
26	IB BB LP	iP	22:33:44.3	D	28	1.0	T	Komandorskie Islands 53.9 N 168.7 E 0 = 22:25:15.5 h about 33 km $\Delta = 47.0^\circ$ Dir = 309° P-Phase Dir = NW Mag 6 1/2 (Pas) (Pal)	
		e	22:33:51.8						1.2
		ePP	22:35:40						23.0
		eScP	22:39:18						20.0
		eS	22:40:35.1						2.8
		e	22:40:51.4						3.3
		eScS	22:43:35.8						999
		e	22:44:25						23.0
		eLQ	22:45:27						999
		eLR	22:47:22						999
26		e	22:58:34.8		1	1.2	T		
		eP'P'	23:04:29.2			1.6			
26		eP	23:01:58.2		1	1.2	T		
26	E	eP	23:30:43.0		1	0.5	NR	$\Delta(S-P) = 2.5^\circ$	
		eS	23:31:15.0			0.3			
26		eP	23:34:19.8		2	0.8	T		
26		ePd	23:40:00.0		1	1.4	T	Arabian Sea 23.9 N 65.4 E 0 = 23:25:16.7 h about 34 km $\Delta = 111.5^\circ$ Dir = 358°	
		ePP	23:44:32.3			1.2			

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks		
					A	T				
26		iP	23:54:43.1	C	55	1.2	T	Komandorskie Islands		
		e	23:55:35.8						1.4	54.0 N 168.8 E
		ePcP	23:56:26.0						1.0	0 = 23:46:14.7
	LPE	e	23:57:07.0						18.0	h about 33 km
	E	eS	00:01:33.0						2.7	$\Delta = 46.9^\circ$
	N	eScS	00:04:35.4						2.7	Dir = 309°
	LPN	e	00:05:22						23.0	P-Phase Dir = NW
	LPN	eLQ	00:06:42						35.0	
	LP	eLR	00:08:06						20.0	
		e	00:18:26.0						1.0	
	eP'P'	00:25:37.5	1.0							
27	N	eP	00:20:27.5	1	0.4	NR	$\Delta(S-P) = 4.5^\circ$			
		eS	00:21:21.5					0.3		
27	E	eP	00:40:08.9	1	0.4	NR	$\Delta(S-P) = 2.4^\circ$			
		e	00:40:09.4					0.5	P-Phase Dir = WNW	
		e	00:40:17.5					0.4		
		e	00:40:35.5					0.4		
		eS	00:40:40.3					0.4		
		e	00:40:48.2					0.6		
27		iP	01:37:16.7	D	5	1.2	T	Komandorskie Islands		
		e	01:37:30.8						1.2	53.9 N 168.7 E 0 = 01:28:47.6 h about 33 km $\Delta = 47.0^\circ$ Dir = 309°
27		iP	01:49:59.2	D	9	1.3	T	Jujuy Province, Argentina		
		e								23.7 S 65.4 W 0 = 01:37:57.1 h about 227 km $\Delta = 83.0^\circ$ Dir = 133° P-Phase Dir = SW
27		eP	04:00:22.1		2	1.0	T			
27	LP	eP	04:25:48.8	6	0.9	T	Samoa Islands			
		e	04:26:05.2					1.1	14.8 S 173.2 W	
		e	04:26:12.3					1.1	0 = 04:13:54.7	
		e(Sur)	04:50:02					31.0	h about 54 km	
	e	04:51:42.2	1.0	$\Delta = 78.0^\circ$ Dir = 235° P-Phase Dir = SW						

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
27		eP	05:10:38.5		12	1.5	T	
27		eP	05:24:07.5		2	1.2	T	
27		eP	05:28:46.7		3	1.2	T	
27		eP	06:06:40.0		2	1.1	T	
27	LP	eP	06:32:59.5		2	1.0	T	
		e	07:02:00			34.0		
27	N	eP	06:42:15.5		2	0.2	L	$\Delta(S-P) = 0.5^\circ$
		eS	06:42:22.7			0.3		
27		eP	06:58:47.5		1	0.8	T	New Britain 5.1 S 152.2 E 0 = 06:45:35.3 h about 66 km $\Delta = 93.9^\circ$ Dir = 267°
		e	07:13:24.3			1.4		
27		eP	08:14:36.6		1	0.6	T	
27	N	eP	08:26:11.5		1	0.2	NR	$\Delta(S-P) = 4.7^\circ$ P-Phase Dir = S
		e	08:26:13.3			0.4		
		e	08:26:16.9			0.9		
		eS	08:27:09.2			0.3		
27	N	eP	08:33:21.1		1	0.4	NR	$\Delta(S-P) = 4.8^\circ$
		eS	08:34:17.7			0.3		
27	N	eP	08:43:07.8		1	0.5	NR	$\Delta(S-P) = 4.8^\circ$ P-Phase Dir = S
		e	08:43:10.1			0.4		
		e	08:43:13.3			0.9		
		eS	08:44:05.5			0.5		
27		eP	08:50:05.0		1	0.6	T	
27	N	eP	09:32:20.6		1	0.2	L	$\Delta(S-P) = 0.7^\circ$
		e	09:32:21.8			999		
		eS	09:32:32.1			0.3		
		eSur	09:32:35.7			999		

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
27	N	eP	09:36:32.3		1	0.2	L	$\Delta(S-P) = 0.6^\circ$
		eS	09:36:41.0			0.3		
27		eP	10:09:41.0		1	0.7	T	
27		eP	10:54:25.3		1	1.0	T	
27		eP	10:54:59.1		1	0.8	T	
27	N	eP	11:00:43.0		1	0.3	NR	$\Delta(S-P) = 3.8^\circ$
		eS	11:01:29.2			0.3		
27		iP	11:26:16.8	D	9	0.9	T	Near Coast of Central Chile 28.6 S 67.4 W 0 = 11:13:38.2 h about 33 km $\Delta = 86.1^\circ$ Dir = 137.6° P-Phase Dir = ESE
	e	11:26:45.9	1.1					
27	N	eP	12:13:24.0		1	0.2	L	$\Delta(S-P) = \text{less than } 0.1^\circ$
		eS	12:13:26.4			0.2		
27		eP'	13:07:11.5		1	0.8	T	Off Coast of Java 9.1 S 113.1 E 0 = 12:48:17.9 h about 40 km $\Delta = 123.9^\circ$ Dir = 293°
27		eP	13:11:34.5		1	0.8	T	
27		eP	13:17:37.3		2	1.0	T	
27	N	eP	13:37:13.7		1	0.2	L	$\Delta(S-P) = \text{less than } 0.1^\circ$
		iS	13:37:17.4			0.2		
27		eP	13:59:02.9		1	0.4	T	
27		iP	14:15:40.1	C	12	1.0	T	Near North Coast of New Guinea 4.9 S 145.1 E 0 = 14:02:02.1 h about 35 km $\Delta = 98.8^\circ$ Dir = 272°
	e	14:15:58.0	1.6					
	e	14:17:53.7	1.4					

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
		e	14:18:44.6			1.5		May be more than one event
		e	14:21:24.6			1.4		
	LP	e	14:23:24			25.0		
	LP	e	14:25:26			22.0		
	LPE	ePS	14:28:43			18.0		
		e	14:31:31.5			1.2		
	LPE	ePPS	14:34:06			38.0		
	LP	e	14:37:34			35.0		
	LPN	eLQ	14:43:50			28.0		
	LP	eLR	14:47:30			33.0		
27		eP	14:32:08.3		4	1.1	T	
		e	14:32:35.0			1.3		
		e	14:47:28.7			1.6		
27	N	eP	16:58:35.0		1	0.4	NR	$\Delta(S-P) = 3.8^\circ$
		eS	16:59:21.1	0.3				
27	N	eP	16:58:54.6		1	0.4	NR	$\Delta(S-P) = 4.7^\circ$
		eS	16:59:51.7	0.3				
27		iP	18:29:49.7	C	10	1.0	T	Near West Coast of Southern Honshu, Japan 39.9 N 142.0 E 0 = 18:18:42.0 h about 36 km $\Delta = 69.7^\circ$ Dir = 306°
	e	18:30:02.5	1.2					
	IB							
	BB							
	LP							
	LPE	eS	18:38:58			18.0		
	LPE	e	18:42:35			45.0		
	LPN	eSSS	18:46:40			30.0		
	LP	eLR	18:51:14			36.0		
		eP'P'	18:57:43.6			1.1		
27		eP	20:04:35.2		1	1.0	T	
27		eP	20:23:31.9		1	0.7	T	
27	E	eP	21:28:05.2		1	0.5	NR	$\Delta(S-P) = 4.7^\circ$
		eS	21:29:02.3	0.4				
27	N	iP	22:00:56.4	C	1	0.2	L	$\Delta(S-P) = 0.5^\circ$ P-Phase Dir = NE
		eS	22:01:04.0			999		
27		eP	22:18:15.0		1	0.7	T	

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
27	N	eP	23:33:12.4	1	0.3	NR	$\Delta(S-P) = 2.5^\circ$	
		eS	23:33:44.8		0.4			
27	E	eP	23:37:21.6	1	0.3	L	$\Delta(S-P) = \text{less than } 0.1^\circ$	
		eS	23:37:25.2		999			
28	N	eP	00:39:33.8	1	0.4	NR	$\Delta(S-P) = 4.4^\circ$	
		eS	00:40:27.2		0.4			
28	E	eP	00:49:15.0	1	0.2	NR	$\Delta(S-P) = 2.3^\circ$	
		eS	00:49:45.0		0.3			
28	N	iP	01:38:46.6	D	0.1	L	$\Delta(S-P) = 0.5^\circ$	
		eS	01:38:53.9		0.5			P-Phase Dir = NE
28		eP	03:45:43.9	2	1.1	T		
28		eP	03:58:57.7	1	0.8	T	P-Phase Dir = NW	
28		eP	04:13:48.6	3	1.0	T		
		e	04:13:59.1		1.3			
28		eP	04:34:00.0	1	0.7	T		
28	LPE	eP	05:36:01.5	1	0.5	R	$\Delta(S-P) = 15^\circ$	
		eS	05:38:50		25.0			P-Phase Dir = NW
28		eP	07:26:52.3	1	0.8	T		
28	E	eP	08:03:54.8	1	0.1	L	$\Delta(S-P) = 0.4^\circ$	
		iS	08:04:01.4		0.2			P-Phase Dir = NE
28		eP	08:16:49.3	3	1.2	T		
28	E	eP	09:09:02.8	1	0.3	NR	$\Delta(S-P) = 4.6^\circ$	
		eS	09:09:58.3		0.4			
28	IB	iP	10:02:23.5	C	0.4	NR	Montana 48.4 N 113.9 W	
		e	10:02:36.3		0.7			0 = 10:01:23.6 h about 33 km
	E	e(S)	10:03:25.2		999		$\Delta = 4.3^\circ$ Dir = 32° P-Phase Dir = NE	
	IBE							
	BBE							
	LPE							

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
28		eP	10:56:36.8		2	1.0	T	
28		iP	14:53:25.2	C	13	1.4	T	Fox Islands, Aleutian Is. 53.7 N 163.7 W 0 = 14:47:08.1 h about 33 km $\Delta = 31.0^\circ$ Dir = 303° P-Phase Dir = NW
		e	14:56:07.0		1.0			
		ePcP	14:56:19.5			0.8		
	LPE	eS	14:58:33			24.0		
	LPN	ePcS	15:00:00			36.0		
		e	15:00:36.2			1.2		
	LP	eLR	15:02:10			27.0		
		e	15:26:57.2			0.8		
28	E	eP	15:57:49.5	1	0.6	NR	$\Delta(S-P) = 2.9^\circ$	
		eS	15:58:26.0		0.4			
28	N	iP	18:06:19.0	C	999	999	L	$\Delta(S-P) = 0.5^\circ$ P-Phase Dir = NE
		eS	18:06:26.2		999			
28		eP	19:23:00.0		1	0.8	T	
28		eP	19:48:23.6		2	1.0	T	
28	LP	iP	20:00:53.0	C	8	1.0	T	Off East Coast of Hokkaido, Japan 42.9 N 145.4 E 0 = 19:50:10.7 h about 41 km $\Delta = 65.8^\circ$ Dir = 307° P-Phase Dir = W
		e	20:01:09.6		1.1			
		e	20:01:24.5			1.2		
		e	20:17:51.2			2.3		
		eLR	20:21:38			24.0		
28		eP	20:18:15.6		2	1.3	T	
28	E	eP	21:00:22.2	2	0.9	NR	$\Delta(S-P) = 2.1^\circ$	
		eS	21:00:49.2		0.5			
28		eP	21:35:40.0		1	0.6	T	
28	N	eP	21:39:46.6	1	0.4	L	$\Delta(S-P) = 1.2^\circ$	
		eS	21:40:02.2		0.4			
28		eP'	21:57:35.0		2	0.9	T	South Atlantic Ocean 17.1 S 14.1 W 0 = 21:39:07.9 h about 33 km $\Delta = 111.1^\circ$ Dir = 93.3°

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
					28			
28	E	eP eS	23:05:55.0 23:06:32.0		1	0.3 0.3	NR	$\Delta(S-P) = 2.9^\circ$
28		eP	23:27:36.8		1	0.8	T	
28		eP e e LP LP	23:42:44.0 23:42:52.7 23:57:44.4 00:18:48 00:25:40		2	1.0 1.3 1.0 30.0 20.0	T	Mediterranean Sea 34.7 N 23.9 E 0 = 23:29:30.2 h about 33 km $\Delta = 93.4^\circ$ Dir = 31°
29	E N	eP e eS eSur	00:35:46.3 00:35:51.0 00:36:17.8 00:36:25.7		1	0.3 0.3 0.3 0.4	NR	$\Delta(S-P) = 2.5^\circ$
29	N	eP e eS	00:39:11.3 00:39:19.6 00:40:04.1			0.4 0.6 0.4	NR	$\Delta(S-P) = 4.4^\circ$
29	E	eP eS	02:50:30.1 02:50:37.4		2	0.2 0.3	L	$\Delta(S-P) = 0.5^\circ$ P-Phase Dir = NE
29	E	eP eS	04:06:22.4 04:07:18.0		1	0.4 0.5	NR	$\Delta(S-P) = 4.6^\circ$
29		eP e e e e ePP LP LPE LP LPN LPN LPN LP	04:26:26.4 04:26:45.0 04:26:55.4 04:27:10.5 04:30:16.8 04:30:57.3 04:33:16 04:41:20 04:45:50 04:49:35 04:55:23 05:01:20		2	0.9 1.0 1.1 1.0 1.3 1.5 40.0 21.0 24.0 25.0 42.0 26.0	T	Halmahera Region 2.4 N 127.1 E 0 = 04:12:09.0 h about 33 km $\Delta = 106.1^\circ$ Dir = 290°
29	E	eP eS	06:23:17.0 06:24:11.9		1	0.3 0.4	NR	$\Delta(S-P) = 4.5^\circ$

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
					29			
29	N	eP eS	09:53:44.7 09:54:37.3		1	0.2 0.4	NR	$\Delta(S-P) = 4.3^\circ$
29	N	eP eS	10:29:03.4 10:29:13.9		2	0.2 0.3	L	$\Delta(S-P) = 0.8^\circ$
29		iP IB BB LP e e LP LP N IBN BBN LPN LPE LPE e LPN LP	10:52:57.7 10:53:08.7 10:54:40.0 10:56:20 11:02:48 11:08:10 11:11:30 11:12:33.8 11:13:53 11:20:37	C 110		1.4 1.1 1.6 25.0 2.5 37.0 31.0 0.6 29.0 37.0	T	Northern Chile 20.0 S 69.9 W 0 = 10:41:04.1 h about 46 km $\Delta = 77.6^\circ$ Dir = 135° P-Phase Dir = SW Mag 6 3/4 (Pas), 6 1/2 (Brk), 6 (Pal).
29	N	eP eS	11:12:24.2 11:13:27.0		1	0.4 0.5	NR	$\Delta(S-P) = 5.3^\circ$
29	E	eP eS	11:51:38.2 11:52:24.4		1	0.3 0.3	NR	$\Delta(S-P) = 3.8^\circ$
29	N	eP e	15:00:52.0 15:00:56.2		4	1.3 0.9	T	Kermadec Islands Region 31.2 S 177.9 W 0 = 14:47:41.4 h about 43 km $\Delta = 93.6^\circ$ Dir = 228°

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
29		eP	18:27:15.6	3	1.2	1.2	T	Kermadec Islands Region 31.6 S 177.8 W 0 = 18:13:59.3 h about 33 km $\Delta = 93.9^\circ$ Dir = 228 $^\circ$
		e	18:28:15.5					
29		eP	18:32:54.1	2	0.8	1.1	T	Kermadec Islands Region 31.5 N 177.6 W 0 = 18:19:40.7 h about 33 km $\Delta = 93.7^\circ$ Dir = 228 $^\circ$
		e(PP)	18:36:33.9					
	LP	e	18:55:00					
	LP	e	19:02:00					
29	N	eP	19:25:33.6	1	0.3	0.3	NR	$\Delta(S-P) = 3.5^\circ$
		eS	19:26:17.2					
29	N	eP	19:43:05.4	1	0.3	0.3	NR	$\Delta(S-P) = 3.5^\circ$
		eS	19:43:48.9					
29	E	eP	20:00:53.3	2	0.4	0.4	NR	$\Delta(S-P) = 1.6^\circ$
		eS	20:01:14.0					
29		eP	20:58:09.4	3	0.6		T	
29	E	eP	19:02:11.1	1	0.4	0.4	NR	$\Delta(S-P) = 3.6^\circ$
		eS	19:02:54.9					
		eP	19:08:12.5					
29	N	eS	19:08:56.4	1	0.3	0.3	NR	$\Delta(S-P) = 3.6^\circ$
30	E	eP	00:42:13.5	1	0.2	0.3	L	$\Delta(S-P) = 0.7^\circ$
		eS	00:42:23.8					

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
30	LP	eP	02:10:42.4	3	1.0	1.1	T	New Hebrides Islands 14.9 S 166.6 E 0 = 01:57:43.7 h about 49 km $\Delta = 90.8^\circ$ Dir = 250 $^\circ$ P-Phase Dir = W
		e	02:10:55.0					
		eLR	02:39:20					
30	LP	eP	03:53:23.0	4	1.1	20.0	T	
30		e	04:17:36					
30		eP	05:40:54.1	1	0.9		T	
30	E	eP	07:14:41.2	4	1.2	1.2	T	
		e	07:14:50.9					
		e	07:15:16.4					
30		e	07:18:50.9			1.3		
30	E	eP	07:36:02.9	1	0.3	0.2	NR	$\Delta(S-P) = 2.2^\circ$
		eS	07:36:31.3					
30	N	eP	08:01:59.3	1	0.1	0.3	L	$\Delta(S-P) = 0.4^\circ$
		eS	08:02:06.0					
30	N	eP	11:06:10.4	1	0.3	0.4	NR	$\Delta(S-P) = 4.9^\circ$
		e	11:06:23.8					
		eS	11:07:09.6					
30	E	eS	12:54:00.4		0.3		L	No P-phase visible.
30	LP	eP	13:36:06.3	5	1.1	20.0	T	Kermadec Islands 28.2 S 175.8 W 0 = 13:23:09.8 h about 47 km $\Delta = 90.1^\circ$ Dir = 229 $^\circ$
		eSur	14:08:07					
30	LP	eP	14:08:35.5	2	0.5	16.0	T	
		e	14:27:05					
30		eP	16:01:59	2	0.7		T	

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
30		iP e	16:30:07.8 16:30:25.7	C	4	0.8 1.2	T	
30		eP e	18:00:16.2 18:00:25.4		1	1.3 1.5	T	Loyalty Islands 21.1 S 169.3 E 0 = 17:47:15.4 h about 71 km $\Delta = 93.5^\circ$ Dir = 244 $^\circ$
30		eP e	18:08:02.3 18:08:13.9		1	0.7 0.8	T	
30		eP	18:22:00.9		2	0.9	T	Poss. phase of previous event.
30	LP	eP e	18:29:23.2 18:29:47.9		1	0.6 1.5	T	New Britain 4.7 S 153.7 E 0 = 18:16:21.4 h about 116 km $\Delta = 92.6^\circ$ Dir = 266 $^\circ$ P-Phase Dir = W
	IB LP	e	18:30:32.0			1.5		
	IB	e	18:33:26.6			1.3		
	LP	e	18:33:41			17.0		
	LP	e	18:34:43			17.0		
	LPE	e(SKS)	18:39:50			25.0		
	LP	eSP	18:41:41			24.0		
	LPN	eLQ	18:54:50			32.0		
	LP	eLR	18:58:43			33.0		
30	N	eP eS	20:04:10.7 20:05:50.6		1	0.4 0.6	NR	$\Delta(S-P) = 3.2^\circ$
30	LPE LP	e(Sur) e(Sur)	20:22:45 20:29:14			48.0 27.0	T	No primary phases visible
30	N	eS	21:12:35.0			0.3	L	No P-phase visible
30		eP	21:30:55.5		4	1.0	T	Banda Sea 5.0 N 125.8 E 0 = 21:16:42.5 h about 33 km $\Delta = 105.1^\circ$ Dir = 293 $^\circ$

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
30		eP	22:19:21.0		3	1.0	T	Near South Coast of Hokkaido, Japan 42.6 N 144.3 E 0 = 22:08:38.3 h about 86 km $\Delta = 66.6^\circ$ Dir = 307 $^\circ$
30	E	eP eS	22:36:55.1 22:38:16.4		1	0.3 0.5	R	$\Delta(S-P) = 7.0^\circ$
30		eP	22:47:18.7		1	1.0	T	
30		eP	23:03:24.3		4	1.3	T	Kermadec Islands 27.1 S 176.5 W 0 = 22:50:25.9 h about 49 km $\Delta = 89.6^\circ$ Dir = 230 $^\circ$
30		eP e	23:24:31.6 23:24:44.6		1	0.3 0.5	NR	$\Delta(S-P) = 4.9^\circ$
	N	eS	23:25:30.4			0.5		
31		eP	01:31:06.8		1	0.2	L	$\Delta(S-P) = 0.9^\circ$
	N	eS	01:31:18.4			0.3		
31		eP	01:39:54.3		1	0.4	NR	$\Delta(S-P) = 1.6^\circ$
	N	eS	01:40:15.5			0.4		P-Phase Dir = SE
31	N	eS	03:50:01.5			0.2	L	No P-phase visible
31		eP	04:43:03.8		2	1.0	T'	
31		eP	05:19:11.2		2	1.1	T	
31		eP	06:02:10.0		1	0.8	T	
31		eP	06:08:41.0		1	0.1	L	$\Delta(S-P) = 0.7^\circ$
	E	eS	06:08:50.3			0.2		
31	N	eS	06:54:29.3			0.3	L	No P-phase visible

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
31		eP	07:55:43.7		1	0.7	T	
31		eP	08:09:29.1		7	1.2	T	Near East Coast of Kamchatka
	LPE	e(pP)	08:09:44.1			1.2		52.5 N 160.8 E
	LP	eScS	08:20:31			14.0		0 = 08:00:23.8
	LP	eLR	08:26:34			24.0		h about 51 km $\Delta = 51.9^\circ$ Dir = 310° P-Phase Dir = W
31		eP	09:02:45.0		1	0.7	T	Near Coast of Sumatra
31	LP	eP	09:18:07.2		5	1.2	T	0.1 S 99.3 E
		e	09:43:04			8.0		0 = 11:00:59.5 h about 33 km $\Delta = 124.3^\circ$ Dir = 300°
31		eP	11:19:58.9		1	0.8	T	
		e	11:22:52.5			1.2		
	LPE	e	11:44:18			30.0		
	LP	e	11:49:26			28.0		
	LPN	e	11:55:00			24.0		
	LPE	e	11:59:05			25.0		
31		eP	11:24:44.9			0.3	NR	$\Delta(S-P) = 5.8^\circ$
		e	11:24:59.5			0.5		
	N	eS	11:25:53.0			0.5		
31		eP	11:29:34.0		1	0.8	T	
31	E	eP	12:20:34.5		1	0.4	R	$\Delta(S-P) = 6.0^\circ$
		eS	12:21:45.0			0.5		
31		eP	13:58:07.9		1	0.7	T	P-Phase Dir = S
31		eP	14:40:42.2		1	0.8	T	
31	E	eS	15:03:17.8			0.7	NR	No P-phase visible
31	IB	eP	15:47:42.3		15	1.0	T	Central Alaska
		e(pP)	15:48:08.3			1.0		62.5 N 149.5 W
	IB							0 = 15:43:23.0
	LP	eLR	15:55:00			30.0		h about 113 km
	LP	e(Sur)	16:18:30			32.0		$\Delta = 25.6^\circ$ Dir = 325° P-Phase Dir = WNW

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
31	N	e(Sur)	17:10:23.5			0.6	(R)	No primary phases visible
31		eP	17:32:15.5		1	0.7	T	$\Delta(S-P) = 91.6^\circ$
		epP	17:33:43.3			1.0		h (pP-P) = 380 km
	LPE	eS	17:42:44			26.0		0 = 17:19:46.3
	LP	eSPP	17:44:30			23.0		
	LPE	e	17:49:43			22.0		
	LPE	e	17:53:09			25.0		
	LP	e	17:58:34			25.0		
	LP	e	18:01:32			37.0		
31	E	eP	17:46:25.3		1	0.2	L	$\Delta(S-P) = \text{less than } 0.1^\circ$
		eS	17:46:28.7			0.3		
31	N	eP	18:52:47.5		1	0.2	L	$\Delta(S-P) = 0.5^\circ$
		eS	18:52:54.7			0.3		P-Phase Dir = NE
31	N	eS	18:58:27.2			0.2	L	No P-phase visible
31	N	eP	19:05:38.9		1	0.2	L	$\Delta(S-P) = 0.5^\circ$
		eS	19:05:46.0			0.3		P-Phase Dir = NE
31	N	eP	19:20:33.1		1	0.2	L	$\Delta(S-P) = \text{less than } 0.1^\circ$
		eS	19:20:36.5			0.2		P-Phase Dir = SE
31		eP	19:53:21.9		5	0.9	T	Loyalty Islands Region
	LPE	eSKS	20:03:57			19.0		22.7 S 171.4 E
	LPE	eSS	20:10:12			20.0		0 = 19:40:10.5
		eP	20:10:29.6			0.8		
	LPN	eLO	20:19:27			26.0		h about 39 km
	LP	eLR	20:23:44			29.0		$\Delta = 93^\circ$ Dir = 229° P-Phase Dir = SW
		e	20:11:05.2			0.9		
31	IB	iP	20:50:34.6	C	999	999	NR	Pierce County, Washington
	BB							47.1 N 122.0 W
	LP							0 = 20:49:35.3
	N	e(S)	20:51:31.0			999		h about 33 km
	IBN							$\Delta = 4.0^\circ$
	BBN							Dir = 306°
	LPN							P-Phase Dir = WNW

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Day	System	Phase	Arrival Time GCT	C or D	Ground Motion		Type	Remarks
					A	T		
31	E	eP	21:09:00.6	1	0.5	0.3	NR	$\Delta(S-P) = 4.9^\circ$
		eS	21:09:59.1					
31		eP	21:57:44.8	1	0.8	T	Kermadec Islands Region 28.3 S 178.4 W 0 = 21:45:04.7 h about 239 km $\Delta = 91.6^\circ$ Dir = 231 $^\circ$	
31	E	eP	22:10:18.8	1	0.3	0.2	NR	$\Delta(S-P) = 2.9^\circ$
		eS	22:10:54.8					
31		eP	22:15:03.7	1	0.6	T		
31		eP	22:43:27.7	1	0.3	0.2	L	$\Delta(S-P) = 1.0^\circ$ P-Phase Dir = NE
		eS	22:43:40.7					
31		eP	23:49:55.4	4	1.1	1.0	T	Tonga Islands 21.6 S 176.8 W 0 = 23:37:18.9 h about 33 km $\Delta = 85.5^\circ$ Dir = 234 $^\circ$ P-Phase Dir = S
		e	23:59:10.0					