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16-6-65

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MATUSHIRO SEISMOLOGICAL OBSERVATORY, JAPAN.

Seismological Bulletin

for November 1 to December 31, 1961

November							
Date	Phase	Comp.	Time(GMT)	Date	Phase	Comp.	Time(GMT)
			h m s				h m s
1.	P	NZ	00 01 06.7	2.	iP	Z	03 04 13.0
	i	E	07		S	NZ	21.2
	i	E	02 15		i	E	21.4
	e	E	03 31		P:N		
	43.6 N., 146.5 E. Off east coast of Hokkaido, Japan. h:15 km ca. H=23 58 50.7 USCGS			2.	P	Z	04 34 41
					i	E	41.3
					iS	NZ	59
					i	E	35 00
1.	eP	Z	04 05 56	2.	P	Z	04 48 45.8
1.	P	Z	06 06 14		i	Z	51.7
1.	eP	Z	09 49 34	2.	iP	Z	05 32 44.5
	i	E	37		P:C		
1.	iP	Z	10 52 21.8		17.9 S., 178.5 W. Fiji Is. h:598 km ca. H=05 22 41.4 USCGS		
	P:C			2.	P	NEZ	06 25 39
	18.0 S., 178.5 E. Fiji Is. region. h:621 km ca. H=10 42 21.1 USCGS				i	Z	27 12
					P:D		
1.	eP	Z	11 42 11	2.	iP	EZ	06 29 42.0
1.	P	NZ	14 27 17.6		S	N	51
1.	eP	Z	15 17 56	2.	iP	NEZ	10 24 47.2
1.	iP N,P Z		16 00 48.4		i	E	25 26.2
	i	Z	49.4		i	N	26.8
	S	Z	52	2.	eP	Z	10 42 29
	i	Z	59		i	NEZ	37.8
1.	P	Z	17 28 10.4	2.	P	EZ	17 26 11
	i	N	11.1		i	N	34.5
	i	E	11.3	2.	iP	EZ	19 30 17.5
	e	E	32 30 ca.		i	N	18.0
	e	E	35 43 ca.		S	Z	30.7
1.	eP	Z	20 20 44		i	Z	32
	17.9 S., 178.4 W. Fiji Is. h:629 km ca. H=20 10 41.7 USCGS			2.	eP	NZ	21 36 19
					iS	N	37.8
					i	E	38.6
1.	eP	Z	22 17 35		i	Z	39.5

Date	Phase	Comp.	Time(GMT)			Date	Phase	Comp.	Time(GMT)		
			h	m	s				h	m	s
2.	iP	Z	23	44	00.8	continued					
	i	NE			01.0	i	NE	16	58	26.6	
	i	Z			48	i	NE			50.7	
	L	E		58	40						
	P:D 54.5 N., 162.3 W. Alaska Peninsula. h:40 km ca. H=23 35 50.7 USCGS					3.	P	EZ	17	06	16
						3.	P	NEZ	17	50	13
3.	P	Z	04	13	42	3.	iP	NEZ	20	03	20.6
							S	N			38.1
	13.4 S., 167.8 E. Santa Cruz Is. h:75 km ca. H=04 04 04.7 USCGS						P:N,E				
						3.	P	NEZ	20	21	22
3.	P	Z	05	15	26		S	N			29.4
	i	Z			59	3.	eP	Z	21	17	21
	S	NE		16	05		20.0 S., 173.8 W. Tonga Is. h:25 km ca. H=21 05 49.7 USCGS				
3.	e	E	05	19	35						
	eL	E		22	04	3.	P	NZ	21	50	11
	eL	Z		24	05		S	N			28
3.	iP	NEZ	10	20	43.9	3.	eP	Z	22	26	23
	S	E		21	11		22.5 S., 170.2 E. Loyalty Is. region. h:91 km ca. H=22 15 46.1 USCGS				
	i	Z			13						
	P:S,E,C					3.	P	EZ	22	28	07.6
3.	P	Z	10	29	49.5		i	N			07.8
	S	NZ			50.6		S	NE			31
	i	NEZ		30	11.6	3.	iP	Z	22	32	37.1
3.	eP	Z	13	52	30		eL	N			50 16
	i	Z		53	35.7		P:D 5.1 S., 131.2 E. Banda Sea. h:63 km ca. H=22 24 44.3 USCGS				
3.	P	Z	14	22	13	3.	iP	Z	23	28	03.8
	i	EZ			25.8		P:D				
	iS	N		23	09.5						
	i	Z			15						
3.	iP	NEZ	15	03	03.6						
	iS	NZ			17	4.	eP	Z	00	19	45
	P:N,W,C						i	Z			20 05
3.	P	Z	15	30	03.0	4.	iP	EZ	01	47	29.8
	eL	N		16	00 15 ca.		i	N			46.1
	10.5 S., 165.8 E. Santa Cruz Is. h:66 km ca. H=15 20 44.5 USCGS					4.	P:W,C				
3.	eP	Z	16	49	55	4.	iP	EZ,P N	02	10	45.8
3.	eP	Z	16	58	25		e	E			12 26
	(cont.)						e	Z			13 28
							(cont.)				(cont.)

Date	Phase	Comp.	Time(GMT)			Date	Phase	Comp.	Time(GMT)		
			h	m	s				h	m	s
	continued.					4.	P	Z	17	28	14
	P:W,D						S	Z			27
	29.9 N., 131.8 E. Ryukyu Is. h:98 km ca. H=02 08 50.6 USCGS					4.	eP	Z	18	24	43
							e	E			30 44
							e	E			34 08
							eL	Z			38 44
4.	eP	Z	03	11	48		eL	E			39 13
	i	Z		12	04	4.	eP	Z	19	03	41
	eS	E		17	44	4.	iP	NEZ	19	09	03.1
	e	E		21	12		S	NE			20
	eLr	E		23	52		i	Z			22
	eLr	Z		24	30		P:N,W				
	eLr	N		48		4.	eP	Z	20	19	29
	2.9 S., 137.2 E. Near north coast of New Guinea. h:51 km ca. H=03 04 21.2 USCGS					4.	iP	NEZ	22	52	05.7
4.	iP	NZ,P E	03	42	45.5		i	Z			19
	eS	E		46	16		P:N,W,C				
	eL	E		48	13		Mt. Asama explosion.				
	eL	Z			36	4.	eP	Z	22	59	02
	P:N,D						i	EZ			12
	50.0 N., 155.5 E. Kurile Is. h:32 km ca. H=03 38 30.1 USCGS					4.	P	Z	23	07	04.7
							S?	NEZ			05.7
4.	P	Z	07	41	26	5.	eP	Z	00	18	30
	e	E		50	06		i	N			37
	eL	E		52	28	5.	P	Z	00	32	07
	eL	Z			47	5.	P	Z	00	35	59
4.	P	Z	10	43	22.9		i	N			36 47.7
	i	Z		44	50	5.	iP	EZ,P N	01	11	26.5
	e	E			57		S	NE			49
	e	E		45	32		P:S,W,D				
4.	P	Z	13	12	21.2	5.	P	NEZ	02	47	35
	L	E		23	33		S	N			48 29
	eL	Z		27	52		i	Z			31
	32.1 N., 92.2 E. Eastern Tibet. h:25 km ca. H=13 05 03.3 USCGS						P:E				
4.	P	Z	14	03	45.5	5.	iP	NEZ	03	16	18.3
4.	P	Z	14	36	42.4		S	N			17 04
4.	P	Z	14	41	47.6		36.6 N., 140.9 E. Honshu, Japan. h:60 km ca. H=03 15 44.6 USCGS				
	52.4 N., 175.4 W. Andreanof Is., Aleutian Is. h:75 km ca. H=14 34 36.5 USCGS					5.	P	NZ	03	44	19.4
							S	N			46 26
							(cont.)				(cont.)

Date	Phase	Comp.	Time(GMT)			Date	Phase	Comp.	Time(GMT)		
			h	m	s				h	m	s
13.	P S	EZ E	18	15	16.1 36.3	14.	P i e	Z EZ E	10	32	14 22.4 37 30
13.	P Z, eP i i S eL	E NZ E E E	19	41	55.2 58.2 42 04 45 14 46 35			47.0 N., 153.7 E. Kurile Is. h:26 km ca. H=10 28 33.4			USCGS
		Mag. 5.1 (Mat.) 46.8 N., 153.9 E. Kurile Is. h:39 km ca. H=19 38 15.5				14.	PKP 1 PKP 2	Z Z	13	30	51.7 31 00
								19.5 S., 69.6 W. Northern Chile. h:121 km ca. H=13 11 14.1			USCGS
13.	P	Z	20	30	15	14.	iP ePcP P:N, E, C	NEZ Z	17	23	17.4 24 27
13.	P S P:S, D	NEZ N	21	09	19.2 30.7			5.7 S., 104.3 E. Near coast of Sumatra. h:16 km ca. H=17 14 00.1			USCGS
14.	eS? eL eL	E E E	01	13	48 14 32 15 03	14.	iP S i P:S, W, D	NEZ E Z	17	55	51.2 56 34.2 38.7
14.	P S i P:N, D	NZ N E	03	05	05.7 08.2 08.7	14.	P i eS e P:C	Z N E E	22	29	16.3 22.6 31 16 33
14.	P	Z	03	20	37.7			44.2 N., 147.6 E. Kurile Is. h:25 km ca. H=22 26 47.9			USCGS
14.	e eSS eScSScS e Lq Lr	E E E E E Z	05	12	47 19 50 23 37 27 50 35 18 40 33	14.	P	Z	23	22	54
		Mag. 6.1 - 6.2 (Mat.) 7.3 N., 82.4 W. Off coast of Panama. h:29 km ca. H=04 42 26.5				15.	P i i S i	Z Z N E N	04	06	03 04 05.6 07 35 39
						15.	P P:D	Z	04	32	03.9
14.	P S P:N, E, D	NEZ NE	09	45	47.2 58.7			4.1 S., 105.0 E. Sumatra. h:126 km ca. H=04 22 51.9			USCGS
14.	iP i S P:S, E, D	NEZ E NEZ	10	02	57.7 03 14.7 18.2	15.	eP i	Z N	04	34	43 52
		Mag. 5.0 (Mat.) 35.2 N., 139.5 E. Near coast of Honshu, Japan. h:120 km ca.						Mt. Asama.			
		J.M.A.									

Date	Phase	Comp.	Time(GMT)			Date	Phase	Comp.	Time(GMT)		
			h	m	s				h	m	s
15.	P eS P:S, E, D	Z E	07	12	08.8 29	15.	eP eS i	Z E E	14	09	17 24 31
								Mt. Asama.			
15.	iP S L P:S, W, C	NEZ E E	07	19	11.8 20 39 21 18	15.	eP i	Z Z	14	14	42 53
								Mt. Asama ?			
		Mag. 6.1 - 6.2 (Pas.) 42.7 N., 145.3 E. Near coast of Hokkaido, Japan. h:40 km ca.				15.	eP e	Z E	14	16	06 21
								Mt. Asama.			
		J.M.A.				15.	eP eS i	Z E E	14	20	32 38 44
								Mt. Asama.			
15.	P S P:E, D	EZ N	09	34	36.3 35 17.1	15.	eP e P:W, D	Z Z N	14	59	31 55
								Mt. Asama.			
15.	P eS P:W, D	EZ N	10	20	22.3 52	15.	P i	Z Z	15	02	27 31
								Mt. Asama.			
15.	eP i	Z NE	10	58	39 48	15.	eP i eS P:W, D	Z Z E N	15	14	47 51 53
								Mt. Asama?			
15.	eP e	Z NZ	11	15	39 58	15.	eP eS e	N N Z	16	08	50 56
								Mt. Asama.			
15.	eP e	E Z	11	44	56 45 05	15.	eP eS e	N N Z	16	10	16 30 50
								Mt. Asama.			
15.	e Mt. Asama.	Z	11	59	25	15.	eP i i	Z E E	16	10	16 30 50
								Mt. Asama.			
15.	eP e S Mt. Asama.	Z Z E	12	07	34 38 47	15.	eP eS e	Z N	16	46	38 44
								Mt. Asama.			
15.	eP i Mt. Asama.?	Z E	12	48	13 44	15.	eP eS e	Z N	16	47	52 59
								Mt. Asama.			
15.	eP Mt. Asama ?	EZ	13	05	57	15.	eP eS i	Z E E	16	52	02 09 15
								Mt. Asama.			
15.	eP e	Z E	13	11	30 39	15.	P i	Z E	17	20	38 48
								Mt. Asama.			
15.	eP i Mt. Asama ?	Z Z	13	22	21 31						

Date	Phase	Comp.	Time(GMT)			Date	Phase	Comp.	Time(GMT)		
			h	m	s				h	m	s
15.	eP eS Mt. Asama.	Z N	18	59	31 38	16.	eP S	Z E	13	47	27 48 12
15.	e e eL	E E E	19	47	42 55 24 20 02 08	16.	iP P:S,C	NZ	14	07	07.3
15.	iP i S P:C	Z Z NE	21	31	24.6 27.9 34	16.	P S eL L P:C	Z E E Z	16	14	36.1 23 23 30 24 34 09
15.	ePKP 56.6 S., 25.7 W. Sandwich Is. h:41 km ca. H=22 01 43.8	Z	22	22	06	16.	P S EZ N	EZ N	19	43	01.4 48
15.	eP i	Z E	23	11	27 35	17.	P S P:E	EZ E	00	02	03 19
16.	P eS e P:D	Z E E	01	54	43.1 56 12 47	17.	P eS	Z E	06	53	57.4 54 28
16.	P S P:S,D	NZ NE	02	02	12.9 31.7	17.	P P:N	NZ	08	23	53.8
16.	eP i	Z Z	02	23	17 28	17.	P S i	Z N E	14	50	30.0 54 55
16.	P	Z	04	07	54.6	17.	P S i	Z N E	14	56	29.0 58 39.0
16.	P P:N	NEZ	05	29	38.2	17.	P PcP P:S,C	NZ Z	14	56	29.0 58 39.0
16.	iP P:S,W,C	NEZ	05	34	11.2	17.	eP eS	Z E	17	00	52 01 11
16.	PKP pPKP 18.6 N., 68.9 W. Near coast of Dominican Republic. h:147 km ca. H=08 19 54.3	Z E	08	38	27 39 19	17.	P i S eL P:N,C	NZ Z E E	17	21	06.9 20.5 22 35 23 14
16.	eP i	Z Z	09	35	33 37 02.3	17.	P i S eL P:N,C	NZ Z E E	17	21	06.9 20.5 22 35 23 14
16.	iP iS P:E,D	Z N	12	55	13.0 41.0						

Date	Phase	Comp.	Time(GMT)			Date	Phase	Comp.	Time(GMT)		
			h	m	s				h	m	s
17.	iP i P:D	Z NE	19	14	52.8 53.3	18.	P S eLr	Z E Z	22	14	11 17 55 20 20
18.	e	E	01	53	28	18.	P P:E,C	EZ	00	41	55.0
18.	iP PcP eS i L L P:S,D	NZ Z E E Z E	06	09	55.3 12 08.1 15 47 18 44 57 24 10	19.	P e	EZ E	00	41	55.0 42 55
18.	e	E	01	53	28	19.	P eS	Z E	08	01	52.8 59
18.	iP e P:S,C	NEZ E	08	44	51.1 46 25	19.	eL	E	08	59	53
18.	P i S eL P:C	Z NZ NE E	10	10	47.8 48.3 12 21.3 51	19.	iP S P:S,W,D	NEZ NE	13	33	59.4 34 16.8
18.	iP i eS L P:C	Z E E E	11	28	42.3 43.3 38 32 49 03	19.	eP S	Z Z	21	20	06 12
18.	eP S	Z N	13	13	51 14 34	19.	P eS	Z E	22	09	37 10 15
18.	P eS P:E	EZ N	15	50	14.8 59	19.	iP i iPP iPcP S ScP i iScS P:C	Z NEZ NEZ E NE Z E E	23	28	59.3 29 00.0 30 31.8 31 02.4 34 34.3 41.3 37 32 38 51.8
18.	P eS P:E	EZ N	15	50	14.8 59	19.	P eS	Z E	22	09	37 10 15
18.	P eS P:E	EZ N	15	50	14.8 59	20.	iP i	NEZ N	04	33	16.5 17.3 (cont.)

Date	Phase	Comp.	Time(GMT) h m s	Date	Phase	Comp.	Time(GMT) h m s	Date	Phase	Comp.	Time(GMT) h m s
continued.				20.	P	Z	19 01 00.7				
i	E		04 33 24	i	N		41	21.	P	Z	05 21 19.2
S	N		51	P:C				i	EZ		21.0
i	N		34 02	21.7 S., 170.0 E.				22.	e	Z	09 43 20
P:E,D				Loyalty Is. region.				S?	EZ		25
Mag. 4.8 (Mat.)				h:24 km ca.				i	N		26
37.1 N., 141.8 E.				H=18 51 36.7	USCGS			22.	iP	Z	10 46 49.8
Near east coast of Honshu,								i	Z		47 35.5
Japan.				20.	P	Z	19 06 01.0	P:D			
h:60 km ca.				i	E		02.3	21.4 S., 170.2 E.			
J.M.A.				iS	E		21.5	Loyalty Is.			
				P:C				h:52 km ca.			
								H=10 36 12.7	USCGS		
20.	eP	Z	06 45 32	20.	eP	Z	19 15 50	22.	P	NEZ	11 17 18
i	NEZ		32.3	e	E		59	i	N		35
i	Z		34.3	5.0 S., 144.4 E.				P:S,E,D			
e	E		49 56	New Guinea.				21.5 S., 169.8 E.			
54.7 N., 161.8 E.				h:65 km ca.				Loyalty Is.			
Near east coast of Kamchatka.				H=19 08 06.6	USCGS			h:41 km ca.			
h:71 km ca.								H=11 06 40.5	USCGS		
H=06 40 20.9				USCGS							
				20.	P	NEZ	23 09 47.6	22.	iP	Z	19 28 26.8
				S	NE		11 22.7	eS?	N		29 05
				ScS	NE		21 35	e	N		06
				P:N,W,C							
				28.3 N., 138.9 E.				22.	P	Z	20 51 01
				South of Honshu, Japan.				26.8 S., 176.6 W.			
				h:525 km ca.				Kermadec Is. region.			
				H=23 07 47.5	USCGS			h:77 km ca.			
								H=20 39 18.6	USCGS		
20.	P	NEZ	10 51 57.1	21.	iP	NEZ	01 18 57.8	22.	P	Z	21 55 04
S	N		58.8	S	N		20 37	i	N		24.7
				P:S,W,C				22.	iP Z,P N		22 39 43.0
				43.8 N., 145.3 E.				P:C			
				Northern Hokkaido, Japan.				8.8 S., 110.5 E.			
				h:165 km ca.				Near south coast of Java.			
				H=01 16 50.2	USCGS			h:188 km ca.			
								H=22 30 52.1	USCGS		
				21.	P	Z	01 24 18	23.	P	Z	04 50 57
				i	E		18.2	S E, eS N			51 30
				eS	N		52	i	N		34
				21.	iP EZ,P N		02 26 28.3	22.	P	Z	02 56 03.5
				i	N		28.6	P:C			
				S	NE		49	21.6 S., 169.9 E.			
				P:S,E,D				New Hebrides Is.			
								h:74 km ca.			
				21.	iP	NZ	05 01 24.0	H=02 45 26.7	USCGS		
				i	Z		28				
				iS	NE		49.4				
				P:S,C							
				21.	P	NEZ	05 09 16	23.	iP	Z	06 06 19.9
				39.7 N., 69.3 E.				P:C			
				Tadzhik, S.S.R.				32.2 S., 178.8 W.			
				h:249 km ca.				Kermadec Is.			
				H=05 00 25.9	USCGS			h:112 km ca.			
								H=05 54 59.4	USCGS		
				21.	eP	NZ	05 37 05	24.	iP	Z	00 36 49.5
				S	E		25	i	Z		54
				i	N		26.2	eS	E		39 30
				i	E		28.2	P:C			

Date	Phase	Comp.	Time(GMT)	Date	Phase	Comp.	Time(GMT)
December			h m s				h m s
1.	iP Z,P NE e eL P:D	E Z	00 28 40.5 29 50 30 37	continued			
				Northern Tunisia. h:62 km ca. H=12 40 17.8			USCGS
1.	iP S i P:E,C	EZ N E	03 02 13.3 30 31.5	2.	P e	Z E	14 16 00 31 00
				16.9 S., 168.2 E. New Hebrides Is. h:219 km ca. H=14 06 10.0			USCGS
1.	iP S P:N,W	NEZ NE	07 08 33.6 09 03	2.	iP P:S,W,C	NEZ	17 22 14.0
1.	P i i S L	Z NEZ Z E E	07 39 38 39 43 17 44 05 45 45	2.	iP iS P:E,D	EZ NE	18 24 25.5 45.7
				2.	iP P:D	Z	19 26 29.4
				Mag. 5 $\frac{1}{4}$ - 5 $\frac{1}{2}$ (Mat.) 56.6 N., 158.8 E. Kamchatka. h:18 km ca. H=07 34 17.9			USCGS
1.	P eS P:D	Z N	17 26 52 27 37	2.	P S	Z N	22 07 37 10 35
1.	P S	NEZ E	20 20 00 21 42	3.	eL eL	E E	01 53 55 59 35
				17.9 N., 99.3 E. Guerrero, Mexico. h:31 km ca. H=01 00 35.2			USCGS
1.	P i i pP sP S i i	Z Z NEZ Z NE N E	21 16 26 28.5 30 17 09 27 19 22 20 18 22	3.	iP Z,P E i eS i iScP P:W,C	N E E Z	08 44 22.5 24.5 47 40 50 52 20
				25.0 N., 122.9 E. Off coast of Formosa. h:91 km ca. H=08 40 20.6			USCGS
				Mag. 6.3 (Mat.) 26.5 N., 124.9 E. East China Sea. h:206 km ca. H=21 13 04.1			USCGS
2.	iP P:E,C	EZ	01 57 45.2	3.	iP i i	NZ N E	09 04 05.4 05 19 26
2.	iP P:W,D	EZ	07 28 24.2	3.	iP i P:D	Z Z	09 41 05.5 17
2.	L E	E	13 29 00				
				41.4 N., 75.0 E. Kirghiz S.S.R. h:25 km ca. H=09 32 23.1			USCGS

(cont.)

Date	Phase	Comp.	Time(GMT)	Date	Phase	Comp.	Time(GMT)
			h m s				h m s
3.	P eS	Z N	13 57 19 57	4.	iP i iS P:S,E,D	NEZ Z NE	04 27 54.8 28 00.0 12.0
3.	iP S P:S,D	EZ NE	14 20 34.5 21 07.0	4.	eP e L	Z E E	05 41 20 50 55 55 30
3.	iP Z,P NE i i S P:C	E N NE	15 19 24.8 27.2 28.7 46				
				5.2 S., 151.6 E. New Britain. h:59 km ca. H=05 33 18.5			USCGS
3.	P i S L Lr	NZ E E E E	16 23 48 50 31 30 37 25 39 44	4.	eP eS L	Z E E	08 26 02 31 17 33 20
				4.	iP i P:S,C	NEZ E	12 39 37.9 45
				Mag. 5 $\frac{1}{2}$ - 5 $\frac{3}{4}$ (Mat.) 11.6 N., 166.1 E. Santa Cruz Is. h:122 km ca. H=16 14 31.4			USCGS
3.	eP i	Z Z	18 43 05 46 36	4.	P i S L L Lr	Z Z E N E E	12 45 04 16.4 50 38 53 12 20 55 04 20
				41.2 N., 44.0 E. Armenia S.S.R. - Turkey border region. h:49 km ca. H=18 31 59.1			USCGS
3.	iP e L P:N,E,D	NEZ E E	18 54 41.3 57 10 19 04 33	4.	iP NE,P Z iS P:S,W	Z E	12 59 07 13.4
3.	iP S P:N,E,C	NEZ NEZ	19 38 01.8 19	4.	P i i e	Z NEZ N Z	15 41 19 20 42 10.4 43 45 ca.
3.	iP NZ,P E iS ScP ScS P:N,D	E NEZ Z NEZ	19 56 53 58 23 20 05 48 09 21	4.	P i S	Z EZ NE	18 47 10 25 48 20
				43.6 N., 134.9 E. Near Vladivostok, U.S.S.R.			
				h:420 km ca. H=19 55 05.3			USCGS
3.	P	NE	20 55 36	4.	iP i i S P:N,D	NZ E E N	20 07 58.6 59.2 08 16 20
4.	eP P:W,C	Z	03 50 46	4.	iP EZ,P N P:W,C		21 42 35.9
				55.2 N., 159.9 W. Off south coast of Alaska Peninsula. h:106 km ca. H=03 42 38.2			USCGS
3.	P	NE	20 55 36	5.	iP Z,P N i	E	13 12 19.6 20.4

(cont.)

Date	Phase	Comp.	Time(GMT)		
			h	m	s
continued					
	pP or PcP	Z	13	13	06
	sP	Z			48
	ScP	Z	16	49	
	S	N	20	14	
	sS	E	21	09	
	SS	E	24	29	
	SSS	E	27	18	
	L	E	36	38	
	Lr	E	38	20	
	P:D				
	Mag. $6\frac{1}{4}$ - $6\frac{1}{2}$ (Mat.)				
	16.0 S., 168.1 E.				
	New Hebrides Is.				
	h:145 km ca.				
	H=13 02 31.9 USCGS				
5.	P	Z	13	55	12
5.	eP	Z	19	16	15
	S	Z			53
6.	iP	Z	02	16	56.1
	i	NEZ			56.7
	S	NE	17	58	
	P:C				
	37.3 N., 142.7 E.				
	Off east coast of Honshu,				
	Japan.				
	h:60 km ca. J.M.A.				
6.	iP	EZ	02	21	49.6
	i	E			22 45
	P:E				
6.	P	Z	05	56	56
	i	NZ			57.6
	i	EZ			57 03.1
	PP	EZ			58 38
	S	E	06	03	40
	ScS	N			07 25
	Lr	N			09 45
	Lr	E			11 37
	Mag. 6 - $6\frac{1}{4}$ (mat.)				
	13.7 N., 93.6 E.				
	Andaman Is.				
	h:53 km ca.				
	H=05 48 39.3 USCGS				
6.	iP	Z	08	59	00
	iS	E			32.6
6.	P	Z	11	05	26
	S	Z			06 17.6
6.	iP	Z	11	24	02.4
	S	E			25 25
	P:C				

Date	Phase	Comp.	Time(GMT)		
			h	m	s
6.	P	Z	13	47	18
	i	E			56 42
	i	N	14	01	20
	i	E			30
	eL	NE	05	05	
	Mag. $6\frac{1}{4}$ (Mat.)				
	23.5 S., 176.0 W.				
	Tonga Is. region				
	h:18 km ca.				
	H=13 35 43.8 USCGS				
6.	eP	Z	15	49	11
	8.2 S., 117.4 E.				
	Flores Sea.				
	h:64 km ca.				
	H=15 40 30.6 USCGS				
6.	iP	NZ	16	43	40.7
	i	EZ			42.1
	S	NE	47	04	
	L	E	49	25	
	L	N			35
	P:D				
	Mag. $6\frac{1}{4}$ (Mat.)				
	49.4 N., 155.2 E.				
	Kurile Is.				
	h:22 km ca.				
	H=16 39 31.5 USCGS				
6.	iP	Z	17	32	57.1
	iS	N			33 15.6
	P:C				
6.	iP	Z, P NE	18	22	19.1
	i	N			41
	e	N	23	23	
	P:C				
6.	iP	Z	19	19	06.6
	i	NE			07.3
	iS	NE			20.6
	P:D				
6.	iP	NZ	22	34	51.1
	P:S, E, C				
7.	iP	EZ	00	42	04.9
	e	E			53 18
	L	E			55 20
	L	N			56 00
	P:E, D				
7.	iP	NZ	01	16	42.5
	P:S, W, C				
7.	iP	Z	08	02	05.1
	e	E			10 00
	P:D				

Date	Phase	Comp.	Time(GMT)		
			h	m	s
7.	iP	EZ	12	25	28.3
	i	N			33
	i	E			43.6
	P:E, D				
7.	iP	Z, P N	15	31	58.4
	e	E			33 07
	P:C				
7.	P	EZ	17	10	28
	e	E			11 00 ca.
	e	N			09
7.	iP	EZ, P N	18	55	29.5
	S	E			52.5
	i	N			53
	P:W, C				
8.	iP	NZ	01	06	21.5
	iS	NEZ			24.0
8.	P	Z	01	40	05
8.	P	Z	06	15	03
	e	E			23 00 ca.
	3.0 S., 136.9 E.				
	Northwest New Guinea.				
	h:64 km ca.				
	H=06 07 38.6 USCGS				
8.	iP	NEZ	06	17	10.5
	S	N			28
	P:S, E, C				
8.	iP	NEZ	06	44	12.3
	iS	NEZ			26.0
	P:E, D				
8.	iP	EZ	08	29	55.1
	S	N			30 07
	i	EZ			08
	P:S, E, C				
8.	P	Z	09	43	42
	i	Z			45 58
	eS	E			49 33
	L	E			52 05
	1.8 S., 139.4 E.				
	Near north coast of New Guinea.				
	h:55 km ca.				
	H=09 36 24.9 USCGS				
8.	P	Z	10	27	47
	30.5 N., 86.7 E.				
	Tibet.				
	h:45 km ca.				
	H=10 19 54.4 USCGS				

Date	Phase	Comp.	Time(GMT)		
			h	m	s
8.	P	Z	21	12	16
8.	P	Z	21	38	18.3
	iS	NEZ			44.5
9.	iP	NEZ	02	24	08.3
	S	E			31 18
	L	E			33 25
	L	N			35 00 ca.
	P:S, C				
	Mag. $6\frac{1}{4}$ (Mat.)				
	56.3 N., 153.9 W.				
	Kodiak I., Alaska region.				
	h:31 km ca.				
	H=02 15 22.0 USCGS				
9.	PKP	Z	04	18	24
	14.9 S., 75.7 W.				
	Off coast of Peru.				
	h:39 km ca.				
	H=03 58 55.4 USCGS				
9.	P	Z	05	32	28
9.	iP	Z	06	23	41.7
	i	Z			56
	P:D				
9.	eP	Z	10	27	11
	7.5 S., 108.3 E.				
	Java.				
	h:295 km ca.				
	H=10 18 23.8 USCGS				
9.	PKP 1	Z	11	37	57
	i	Z			38 05.0
	PKP 2	E			19.3
	PP	Z			41 50
	SPP	E			42 35
	SKSP	E			52 15
	SKSP	N			22
	SPS or SSP	E			55 15
	eSSS	E	12	02	48
	L	E			19 30
	L	N			21 25
	L	Z			28 40
	Lr	E			50
	Mag. $6\frac{3}{4}$ - 7 (Mat.)				
	43.7 S., 75.2 W.				
	Near coast of southern Chile.				
	h:34 km ca.				
	H=11 18 08.9 USCGS				
9.	P	Z	13	23	07
	i	Z			37
9.	P	Z	13	57	44
	i	Z			49.0
	i	E			58 15
	i	N			20



Date	Phase	Comp.	Time(GMT)			Date	Phase	Comp.	Time(GMT)		
			h	m	s				h	m	s
18.	P i	NZ E	08	47	39 41	19.	P i i	Z NEZ NEZ	14	51	10 18 52 00 ca.
18.	iP i P:W,D	NEZ NEZ	09	10	14.1 11 16	19.	eP i	Z Z	15	47	50 48 17
18.	iP Z,P S P:D	NE E	10	43	48.3 44 08	19.	iP P:C	Z Z	16	17	50.2
18.	P S	NEZ E	10	58	22 42	19.	iP P:C	Z Z	16	17	50.2
18.	iP S P:N,W,C	NEZ NE	12	48	42.5 49 01.5	19.	iP P:C	Z Z	16	17	50.2
18.	iP i P:N,D	NZ E	16	49	23.7 24.7	19.	P i	Z E	17	34	28
		26.4 N., 96.3 E. Burma - India border. h:85 km ca. H=16 42 21.6				19.	eP i	Z E	21	35	30 54
18.	iP	E	19	45	49.5	20.	P eL	Z E	01	51	40 02 00 27
18.	iP P:E,D	EZ	20	10	38.0	20.	iP Z,P S P:E,D	NE N N	19	05	57.6 06 18.5 22.3
18.	iP i i S P:E,C	EZ N NE NE	20	17	43.8 45 56 18 05	20.	eP e	Z E	06	59	22 07 05 03
18.	iP P:S,D	NZ	22	36	21.7	20.	P e e	Z Z E	11	35	05 38 00 ca. 40 46
		21.3 S., 174.2 W. Tonga Is. h:25 km ca. H=22 24 49.8				20.	iP Z,P S P:D	NE NEZ	11	53	20.7 41
19.	iP S P:S,E	NEZ NEZ	11	57	44.2 58	20.	PKP i PP pPP SPP SPP i PSKS sSS G e e	NEZ Z Z Z E E E E Z NE	13	44	21.2 45 07 46 20 47 12 27 30 48 30 56 52 14 04 50 19 06 27 02 08
19.	iP i P:C	Z NE	14	08	59.4 10 21	20.	iP Z,P S P:D	NE NEZ	11	53	20.7 41
19.	iP i i i P:E,D	EZ E NE NE	14	31	59.1 32 22 40 44	20.	P e e	Z Z E	11	35	05 38 00 ca. 40 46
		37.2 N., 141.9 E. Off east coast of Honshu, Japan. h:50 km ca.				20.	iP Z,P S P:D	NE NEZ	11	53	20.7 41
		J.M.A.				20.	PKP i PP pPP SPP SPP i PSKS sSS G e e	NEZ Z Z Z E E E E Z NE	13	44	21.2 45 07 46 20 47 12 27 30 48 30 56 52 14 04 50 19 06 27 02 08
						20.	iP Z,P S P:D	NE NEZ	11	53	20.7 41
						20.	P e e	Z Z E	11	35	05 38 00 ca. 40 46
						20.	iP Z,P S P:D	NE NEZ	11	53	20.7 41
						20.	PKP i PP pPP SPP SPP i PSKS sSS G e e	NEZ Z Z Z E E E E Z NE	13	44	21.2 45 07 46 20 47 12 27 30 48 30 56 52 14 04 50 19 06 27 02 08
						20.	iP Z,P S P:D	NE NEZ	11	53	20.7 41
						20.	P e e	Z Z E	11	35	05 38 00 ca. 40 46
						20.	iP Z,P S P:D	NE NEZ	11	53	20.7 41
						20.	PKP i PP pPP SPP SPP i PSKS sSS G e e	NEZ Z Z Z E E E E Z NE	13	44	21.2 45 07 46 20 47 12 27 30 48 30 56 52 14 04 50 19 06 27 02 08
						20.	iP Z,P S P:D	NE NEZ	11	53	20.7 41
						20.	P e e	Z Z E	11	35	05 38 00 ca. 40 46
						20.	iP Z,P S P:D	NE NEZ	11	53	20.7 41
						20.	PKP i PP pPP SPP SPP i PSKS sSS G e e	NEZ Z Z Z E E E E Z NE	13	44	21.2 45 07 46 20 47 12 27 30 48 30 56 52 14 04 50 19 06 27 02 08
						20.	iP Z,P S P:D	NE NEZ	11	53	20.7 41
						20.	P e e	Z Z E	11	35	05 38 00 ca. 40 46
						20.	iP Z,P S P:D	NE NEZ	11	53	20.7 41
						20.	PKP i PP pPP SPP SPP i PSKS sSS G e e	NEZ Z Z Z E E E E Z NE	13	44	21.2 45 07 46 20 47 12 27 30 48 30 56 52 14 04 50 19 06 27 02 08
						20.	iP Z,P S P:D	NE NEZ	11	53	20.7 41
						20.	P e e	Z Z E	11	35	05 38 00 ca. 40 46
						20.	iP Z,P S P:D	NE NEZ	11	53	20.7 41
						20.	PKP i PP pPP SPP SPP i PSKS sSS G e e	NEZ Z Z Z E E E E Z NE	13	44	21.2 45 07 46 20 47 12 27 30 48 30 56 52 14 04 50 19 06 27 02 08
						20.	iP Z,P S P:D	NE NEZ	11	53	20.7 41
						20.	P e e	Z Z E	11	35	05 38 00 ca. 40 46
						20.	iP Z,P S P:D	NE NEZ	11	53	20.7 41
						20.	PKP i PP pPP SPP SPP i PSKS sSS G e e	NEZ Z Z Z E E E E Z NE	13	44	21.2 45 07 46 20 47 12 27 30 48 30 56 52 14 04 50 19 06 27 02 08
						20.	iP Z,P S P:D	NE NEZ	11	53	20.7 41
						20.	P e e	Z Z E	11	35	05 38 00 ca. 40 46
						20.	iP Z,P S P:D	NE NEZ	11	53	20.7 41
						20.	PKP i PP pPP SPP SPP i PSKS sSS G e e	NEZ Z Z Z E E E E Z NE	13	44	21.2 45 07 46 20 47 12 27 30 48 30 56 52 14 04 50 19 06 27 02 08
						20.	iP Z,P S P:D	NE NEZ	11	53	20.7 41
						20.	P e e	Z Z E	11	35	05 38 00 ca. 40 46
						20.	iP Z,P S P:D	NE NEZ	11	53	20.7 41
						20.	PKP i PP pPP SPP SPP i PSKS sSS G e e	NEZ Z Z Z E E E E Z NE	13	44	21.2 45 07 46 20 47 12 27 30 48 30 56 52 14 04 50 19 06 27 02 08
						20.	iP Z,P S P:D	NE NEZ	11	53	20.7 41
						20.	P e e	Z Z E	11	35	05 38 00 ca. 40 46
						20.	iP Z,P S P:D	NE NEZ	11	53	20.7 41
						20.	PKP i PP pPP SPP SPP i PSKS sSS G e e	NEZ Z Z Z E E E E Z NE	13	44	21.2 45 07 46 20 47 12 27 30 48 30 56 52 14 04 50 19 06 27 02 08
						20.	iP Z,P S P:D	NE NEZ	11	53	20.7 41
						20.	P e e	Z Z E	11	35	05 38 00 ca. 40 46
						20.	iP Z,P S P:D	NE NEZ	11	53	20.7 41
						20.	PKP i PP pPP SPP SPP i PSKS sSS G e e	NEZ Z Z Z E E E E Z NE	13	44	21.2 45 07 46 20 47 12 27 30 48 30 56 52 14 04 50 19 06 27 02 08
						20.	iP Z,P S P:D	NE NEZ	11	53	20.7 41
						20.	P e e	Z Z E	11	35	05 38 00 ca. 40 46
						20.	iP Z,P S P:D	NE NEZ	11	53	20.7 41
						20.	PKP i PP pPP SPP SPP i PSKS sSS G e e	NEZ Z Z Z E E E E Z NE	13	44	21.2 45 07 46 20 47 12 27 30 48 30 56 52 14 04 50 19 06 27 02 08
						20.	iP Z,P S P:D	NE NEZ	11	53	20.7 41
						20.	P e e	Z Z E	11	35	05 38 00 ca. 40 46
						20.	iP Z,P S P:D	NE NEZ	11	53	20.7 41
						20.	PKP i PP pPP SPP SPP i PSKS sSS G e e	NEZ Z Z Z E E E E Z NE	13	44	21.2 45 07 46 20 47 12 27 30 48 30 56 52 14 04 50 19 06 27 02 08
						20.	iP Z,P S P:D	NE NEZ	11	53	20.7 41
						20.	P e e	Z Z E	11	35	05 38 00 ca. 40 46
						20.	iP Z,P S P:D	NE NEZ	11	53	20.7 41
						20.	PKP i PP pPP SPP SPP i PSKS sSS G e e	NEZ Z Z Z E E E E Z NE	13	44	21.2 45 07 46 20 47 12 27 30 48 30 56 52 14 04 50 19 06 27 02 08
						20.	iP Z,P S P:D	NE NEZ	11	53	20.7 41
						20.	P e e	Z Z E	11	35	05 38 00 ca. 40 46
						20.	iP Z,P S P:D	NE NEZ	11	53	20.7 41
						20.	PKP i PP pPP SPP SPP i PSKS sSS G e e	NEZ Z Z Z E E E E Z NE	13	44	21.2 45 07 46 20 47 12 27 30 48 30 56 52 14 04 50 19 06 27 02 08
						20.	iP Z,P S P:D	NE NEZ	11	53	20.7 41
						20.	P e e	Z Z E	11	35	05 38 00 ca. 40 46
						20.	iP Z,P S P:D	NE NEZ	11	53	20.7 41
						20.	PKP i PP pPP SPP SPP i PSKS sSS G e e	NEZ Z Z Z E E E E Z NE	13	44	21.2 45 07 46 20 47 12 27 30 48 30 56 52 14 04 50 19 06 27 02 08
						20.	iP Z,P S P:D	NE NEZ	11	53	20.7 41
						20.	P e e	Z Z E	11	35	05 38 00 ca. 40 46
						20.	iP Z,P S P:D	NE NEZ	11	53	20.7 41
						20.	PKP i PP pPP SPP SPP i PSKS sSS G e e	NEZ Z Z Z E E E E Z NE	13	44	21.2 45 07 46 20 47 12 27 30 48 30 56 52 14 04 50 19 06 27 02 08
						20.	iP Z,P S P:D	NE NEZ	11	53	20.7 41
						20.	P e e	Z Z E	11	35	05 38 00 ca. 40 46
						20.	iP Z,P S P:D	NE NEZ	11	53	20.7 41
						20.	PKP i PP pPP SPP SPP i PSKS sSS G e e	NEZ Z Z Z E E E E Z NE	13	44	21.2 45 07 46 20 47 12 27 30 48 30 56 52 14 04 50 19 06 27 02 08
						20.	iP Z,P S P:D	NE NEZ	11	53	20.7 41
						20.	P e e	Z Z E	11	35	05 38 00 ca. 40 46
						20.	iP Z,P S P:D	NE NEZ	11	53	20.7 41
						20.	PKP i PP pPP SPP SPP i PSKS sSS G e e	NEZ Z Z Z E E E E Z NE	13	44	21.2 45 07 46 20 47 12 27 30 48 30 56 52 14 04 50 19 06 27 02 08



Date	Phase	Comp.	Time(GMT)			Date	Phase	Comp.	Time(GMT)		
			h	m	s				h	m	s
23.	iP S	NEZ NE	19	12	36.1	continued					
	P:N,E,C 35.1 N., 138.4 E. Near east coast of Honshu, Japan. h:240 km ca. J.M.A.						Mag. 5 3/4 - 6 (Mat.) 5.7 S., 80.9 W. Near coast of northern Peru. h:52 km ca. H=14 25 32.7 USCGS				
23.	P	NEZ	20	30	40.4	24.	P S	EZ NE	16	00	16.9 35
23.	iP P:S,E,C	NZ	22	10	17.4	24.	P	Z	17	05	54
24.	iP Z,P E e eS eLr P:S,D	E E E	02	47	40.1 49 44 53 40 56 57	24.	P e P:C	EZ NE	19	38	54.9 39 24
	Mag. 5 3/4 (Mat.) 3.4 S., 140.3 E. New Guinea. h:29 km ca. H=02 40 07.6 USCGS					25.	eL eL	E E	00	17	39 28 00
24.	eP	Z	02	59	50		3.4 S., 140.3 E. New Guinea. h:22 km ca. H=00 01 52.1 USCGS				
24.	iP eS P:N,E,D	NEZ E	06	52	50.2 54 17	25.	P	Z	02	13	34
	Mag. 6 (Mat.) 43.1 N., 144.3 E. Near coast of northern Hokkaido, Japan. h:110 km ca. J.M.A.					25.	P	NEZ	08	08	44
24.	P	Z	07	22	04.5		3.7 S., 127.7 E. Ceram. h:47 km ca. H=08 00 59.3 USCGS				
	29.5 N., 80.9 E. Nepal. h:20 km ca. H=07 13 25.4 USCGS					25.	iP PcP P:C	Z Z	08	20	32.1 22 59
24.	iP e eL	Z E E	07	27	27.1 29 05 37 39		1.1 S., 126.7 E. Spice Is. h:25 km ca. H=08 13 07.2 USCGS				
24.	iP NZ,P E e P:S,C	E E	08	56	35.1 58 08	25.	P	NEZ	08	29	23
	20.4 S., 173.6 W. Tonga Is. h:45 km ca. H=09 19 02.7 USCGS					25.	P	Z	09	16	50
24.	iP e P:C	Z Z	09	30	29.5 42		3.7 S., 127.7 E. Ceram Sea. h:54 km ca. H=09 09 07.4 USCGS				
	20.4 S., 173.6 W. Tonga Is. h:45 km ca. H=09 19 02.7 USCGS					25.	eP	Z	09	21	57
24.	eSS eLr	E E	15	05	20 27 27 (cont.)	25.	P	Z	09	29	13
							3.7 S., 127.3 E. Ceram Sea. h:27 km ca. H=09 21 22.5 USCGS				

Date	Phase	Comp.	Time(GMT)			Date	Phase	Comp.	Time(GMT)		
			h	m	s				h	m	s
25.	P P:W,D	EZ	11	26	55.7	26.	P S	NEZ NEZ	03	46	45 47 38
	26.9 N., 90.1 E. Bhutan - India border. h:46 km ca. H=11 19 11.9 USCGS					26.	iP iP S eScS sS	NEZ Z E NE E	04	32	55.6 34 37.5 39 20 41 55 42 13
25.	iP NZ,P E i eScS eL P:S,D	E Z E E	14	07	02.4 17.0 17 22 25 20		P:N,E,C 5.5 S., 110.7 E. Java Sea. h:566 km ca. H=04 24 55.4 USCGS				
	20.4 S., 173.7 W. Tonga Is. h:64 km ca. H=13 55 38.8 USCGS					26.	SKKS? PS SS eLq eL eL	Z E E E E	06	42	49 47 00 54 23 07 32 15.5 31 30
25.	P S e	NEZ E NZ	14	28	09 37 40		Mag. 6 1/4 (Mat.) 44.2 S., 38.1 E. Prince Edward Is. region. h:22 km ca. H=06 17 30.6 USCGS				
25.	iP S i P:N,C	NZ NEZ N	14	31	25.0 29 35.7	27.	P	Z	02	35	46
	44.3 N., 142.7 E. Hokkaido, Japan. h:250 km ca. H=21 47 49.3 USCGS						22.3 S., 67.6 W. Near Chile - Bolivia border. h:47 km ca. H=02 15 49.2 USCGS				
25.	P	EZ	18	37	42	27.	eLq	E	02	46	10 ca.
25.	iP S i P:N,E,D	N NEZ E	21	29	46.5 48.8 51 24		2.7 S., 141.3 E. Near north coast of New Guinea. h:22 km ca. H=02 25 48.2 USCGS				
	8.9 S., 110.2 E. Off coast of Java. h:155 km ca. H=22 25 00.2 USCGS					27.	iP S P:D	Z Z	04	09	46.6 10 18
25.	P e	Z Z	22	34	01 07	27.	P	Z	07	15	47
	23 10 42					27.	P	Z	14	07	18.5 28.5
25.	iP iS P:S,W,C	NEZ NE	23	18	28.5 46.5	27.	eL	E	17	59.0	
	23 47 32.5 48 32						1.7 S., 12.9 W. Atlantic Ocean, north of Ascension I. h:37 km ca. H=16.46 31.2 USCGS				
25.	iP S P:S,E,D	NEZ NEZ	23	47	32.5 48 32	27.	P	Z	19	09	34
	27. 19 09 34					27.	P S	Z Z	21	10	28 42
26.	iP i P:D	Z Z	01	06	05.7 28.5						

Date	Phase	Comp.	Time(GMT)			Date	Phase	Comp.	Time(GMT)		
			h	m	s				h	m	s
30.	iP i P:C	NZ NZ	03	51	17.8 33.0	30.	P i	Z Z	18	24	35.5 55
	7.2 S., 148.0 E. Near northern coast of New Guinea. h:78 km ca. H=03 43 10.6 USCGS						8.7 N., 126.3 E. Near coast of Mindanao, P.I. h:119 km ca. H=18 18 32.6 USCGS				
30.	P eL	EZ E	07	17	02 31 28	31.	iP eS P:E,C	EZ N	04	14	56.5 15 39
	39.7 N., 77.7 E. Sinkiang Province, China. h:35 km ca. H=07 08 29.1 USCGS						31.				
30.	P S	Z N	07	38	53 39 35	31.	P S	Z Z	09	29	30.2 30 31
30.	P	Z	07	58	59	31.	iP eS P:E,D	NEZ Z	11	54	49.5 55 28
30.	iP Z,P E		08	08	27.2						
30.	P S	Z NEZ	08	43	34.3 53	31.	iP PcP eS eL	NZ Z E E	13	52	51.2 55 14.5 58 14 14 01 04
30.	eL	E	09	31	48		P:N,C 1.6 N., 127.3 E. Halmahera. h:140 km ca. H=13 46 01.8 USCGS				
	52.3 N., 179.7 E. Rat Is., Aleutian Is. h:57 km ca. H=09 17 21.1 USCGS										
30.	P eS	NEZ E	10	21	02 26 25	31.	iP S	NZ N	14	12	47.7 57
	52.0 N., 178.2 E. Rat Is., Aleutian Is. h:62 km ca. H=10 14 37.2 USCGS						P:N,D				
30.	eP	Z	11	47	57	31.	iP Z,P N S	EZ	14	26	49.0 27 05
30.	iP S P:W,C	EZ NE	12	07	30.3 08 12	31.	eP	NEZ	14	52	35
30.	iP S P:E,D	EZ N	12	18	46.6 19 33	31.	P e eL P:C	Z E E	16	01	09.7 06 33 08 09
30.	iP S	Z NZ	16	46	56.2 47 05.7	31.	P	Z	16	17	00
	51.7 N., 178.5 E. Rat Is., Aleutian Is. h:63 km ca. H=16 41 51.5 USCGS						7.8 S., 106.8 E. Near coast of Java. h:66 km ca. H=16 07 46.4 USCGS				
30.	P	Z	16	48	16	31.	P S P:S	NZ E	17	54	06.4 31

Date	Phase	Comp.	Time(GMT)		
			h	m	s
31.	P	EZ	17	55	47.5
	eLq	E	18	03	52
	eL	E		04	44

51.8 N., 171.2 W.
Fox Is., Aleutian Is.
h:47 km ca.
H=17 48 27.8 USCGS

Takeshi Honda

Director