No. 1 KÔTI Meteorological Observatory 1938

Seismolcgical Bulletin

Underground : Serpentin

$\phi = 33^\circ 33' 28''$ $\lambda = 133^\circ 31' 52''$ $h = 40.4m$

Constants of the Seismographs

Apparatus		Comp.	T_o	ε	r/T_o^2	V_o
			s			
Wiechert	200Kg	E	5.1	7.0	0.002	75
"	"	N	4.3	6.3	0.003	75
"	80Kg	Z	3.6	6.5	0.005	75
Omori	16Kg	E	22.4	1.9	0.004	20
"	"	N	23.7	3.5	0.004	20

No.	Date	Phase	G.M.T. h m s	Period s	Amplitude N μ	Amplitude E μ	Amplitude Z μ	Remarks
1	Jan.1/2	P	23 30 47.8					
		i	52.7					
		i	31 01.7					
		L_N	33 13					
		MN	34 17					
		ME	42					
		F	00 06.					
2	2	iP	07 54 12.4					Slightly felt
		S	32.2					C.M.O. gives
		M	37	0.8	60	40	35	34°53'N, 133°22'E
		F	08 00.					
3	8	P	05 51 21.3					C.M.O. gives
		S	37.2					33.7N, 132.1E
		M	38.4	1.6	10	15		
		F	05 53.					
4	10	PZ	20 55 30.0				Down	Deep focus type
		S	56 14.0					C.M.O. gives
		MNE	16.4	2.1	-15	-15		29.8N, 131.2E
		MZ	17.9	3.0			-10	H ca 80Km
		F	21 14.					
5	11	P	15 12 25.2		faint	2.0	-1.5	Felt strongly
		iE	27.4					C.M.O. gives
		eL_N	39	24				33°43'N, 135°10'E
		iS	42.5					
		MZ	46.0	0.9			-800	
		MN	46	24.4	-1000			
		ME	47	21.5		2200		
		MNE	53	24;22	1000	-2500		
6	11	iP_{NE}	17 34 19.0		faint	-3.5	4	C.M.O. gives
		iP_{GZ}	25					33°34'N, 135°11'E
		iS	35.2					
		MZ	35.5	2.0			-10	
		MNE	35.6	0.4	30	20		
		F	17 37.					
7	16	P	16 03 20.1			-	-	C.M.O. gives
		S	29.9					33.8N, 132.6E
		M	31.6	0.5	-55	-70	-35	
		F	16 07.					Felt slightly
8	24	P	10 47 40					
		F	11 38.					

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	Date		Phase	G.M.T. h	m	s	Period s	Amplitude N	E	Z	Remarks
	Jan.	24	iP	13	02	56.6		μ	-5 μ	6 μ	C.M.O. gives
			EZ	13	03	11.2					33.8N, 135.1E
			iSN			13.8					
			M			14.2	0.4	30	15	15	Felt slightly
			F	13	07						
	Feb.	1	ePz	19	11	31					
			iZN			50.5					
			ePPzN		13	17					
			eSz		17	31					
			SE			33					
			iLE		20	20	41.5				
			M			49	41.5		-11.mm		
			LrZ		23	10					
			M		24	29	22			-2.2mm	
			Finis of LrZ								
						25.3					
			MN		23	53	21.5	1.8mm			
			Begin.		25	57					
			MZ M		27	34	18.0			-2.3mm	
			Finis			28.5					
			ME		26	07	23.6		1.2mm		
			MZ		28	10	13.0			-2.3mm	
			MN		27	56	18.5	2.8mm			
			MN		29	47	18.4	1.9mm			
			MZ		29	53	18.5			-1.8mm	
			F	22	30.						
		1	ePz	19	57	10					May be aftershock Of no.10.
		7	iP	14	44	22.5			4	-3	
			S		45	44.5					
			M		46	25	4.0	20	15	15	
			F	20	00.						
	Mar.	5	P	13	16	02					Neighbourhood of Aki,Koti prefecture Felt slightly
			S			07		13	13		
			F	13	17.0						
		16	eP	20	39	54					
			S		40	10					
			M			11	0.5	20	15	15	
			F								
		28	eP	13	06	32					
			eNZ		07	13					
			S			18					
			M			52	5.0	7	7		
			F	13	14.						
		31	P	22	35	24					
			e		39	02					
			MN		46	08	14.	10			
			F	22	56.						
	April	1	iP	13	40	39.7		4	2	-4	C.M.O. gives
			iS			48.5		13	-80		34.1N, 134.0E
			MNZ			49.3	0.3,0.4	-130		-65	
			ME			49.9	0.5		100		Felt moderately
			F	13	43.						
		5	iP	17	28	45.2					
			iS			52.4					
			M			52.9	0.4	4	4		
			F	17	29.3						

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No.	Date	Phase	G.M.T. h m s	Period s	Amplitude N μ	E μ	Z μ	Remarks
19	April 13	e	02 57.					
20	14	P	02 23 23					
		iS	28 52					
		F	02 45.					
21	15	eP	00 06 00					C.M.O. gives 35.3N, 138.4E
		S	42					
		M	07 08	3.8	7	7		
		F	00 08.					
22	19	eP	11 19 11					
		MN	47 43	20.	25			
		ME	48 16	19.		26		
		F	12 04.					
23	21	iP	21 45 03.6					
		iS	07.4					
		M	07.5	0.2	15	13	5	Felt slightly
		F	21 45.4					
24	25	iP	00 29 20.0					C.M.O. gives 28.1N, 131.0E
		S?	30 21.0					
		MN	31 46	14	40			
		F	01 05.					
25	23	P	00 34 34					
		F	Lost in above quake					
26	25	eP	14 46 53					C.M.O. gives 37.1N, 141.8E
		S	48 23					
		M	49 22	4.4	10	7		
		F	15 00.					
27	May 2	eP?	13 56 40					
		e	57 15					
		S	49					
		M	58 11	4.0	15	13		
		F	14 06.					
28	3	P	15 20 03.6					
		eS	23 27					
		iS	40	5.0				
		F	15 30.					
29	5	P	18 34 18.6			4.5	-3.0	Neighbourhood of Mituhama, Matuyama
		iS	29.5					
		M	30.0	0.9	25	50	30	
		F	18 38.5					
30	9	P	03 48 09.6					W off Hatijozima Deep focus
		iS	49 00.6					
		F	03 55.					
31	12	P	15 46 51.3					
		PP	48 45					
		eS	53 02	(long period)				
		S	25	(short period)				
		SS	58 25					
		ME	57 23	20.		455		
		MZ	59 28	24.			430	
		MN	59	31.	-430			

MAY

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No.	Date	Phase	G.M.T. h m s	Period s	Amplitude N	E	Z	Remarks
		ME	16 01 56	27.5		530		
		MZ	02 55	21.5			520	
		MN	02	22.7	360			
		F	17 05.					
32	May 14	L	12 19 36					
		MN	20 57	15.0	60			
		F	12 32.					
33	19	eP	17 15 37					
		P	50					Short period
		ePP_E	17 15	16				Long period
		eS	21 09					
		eL	26 34					
		MN	27 55	50.0	-1000			
		ME	28 16	27.		-350		
		F	13 45.					
34	19	S	21 09 48					
		F	21 10.4					
35	23	P	07 30 17					
		e_M	21 36	28.5		850		C.M.O. gives
		S	21 47.2					35.7ON, 141.45E
		L_Z	21 37	ca.10.				
		MN	22 24	28	-4200			
		MZ	53	3.1			-1400	
		MZ	37	23			-7000	
		MS	45	28.5		-5600		
		F	in next quake					
36	23	P	08 23 20.1		-	+		
		eS_E	30 01					
		S_N	10					
		MNE	31 50	31; 28	-120	320		
		F	09 30.					
37	28	P	16 43 05					C.M.O. gives
		S	43 30					43.6N, 144.3E
		F	17 25.					
38	30	P	14 43 16.0				+	
		S	45 43					
		F	15 35.					
39	June 3	e	00 30 19					Kasima-nada
		M	32 02	3.3				C.M.O. gives
		F	00 35.					36.4N, 141.1E
40	5	e	10 14.					Ka sima-nada
		M	14 52					C.M.O. gives
		F	10 16.					36.3N, 141.1E
41	5	P	16 33 03.1			+		C.M.O. gives
		Sz	34 45					35.92N, 140.28E,
		MNZ	37.5	3.5, 3.5	40		-20	R=85Km
		MNE	55 09.2	3.5, 3.5	-40	20		
		F	16 45.					

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NO.	Date	Phase	G.M.T. h m s	Period s	Amplitude N μ	E μ	Z μ	Remarks
42	June 9	eP NZ	19 22 19.0					
		S	28 12					
		LP NZ	33 55	24 at initial				
			to 43.0	almost 19				
		F	20 25.					
43	10	eP	09 56 18.0					C.M.O. gives
		eNE	57 52	8				25.3N, 125.2E
		LNE	58 39	45 at initial				NNW off Miyakozima
		MNE	59 25	32,32	-1400	1100		
		LP ZNE	10 00 33					
		MN	51	21.5	800			
		MZ	58	20.5			1200	
		ME	01 01	18.1		-700		
		MZ Begin.	01 28					
		MZ M	55	14.5			450	
		MZ Finis	02 10					
		ME Begin.	01 48					
		ME M	55	17.2		-800		
		MN	58	15	-300			
		ME	02 45	19.0		550		
		MN	49	10.3	555			
		MN	04 57	9.0	500			
		MZ	05 00	8.2			280	
		MNE Begin.	06 00					
		MNE MN	09	9.5	-450			
		MNE ME	36	9.0		-370		
		MNE Finis	06 44					
		F	11ØØ 50					
44	16	P	02 16 55.8		5	2.5	+	C.M.O. gives
		eS T	18 15					27.7N, 129.4E
		eLE	27					S off Amami-Osima
		iSNE	48					
		mN	55.3	4.6	130			
		eZ	19 02.0	3.7			-70	
		mNE	03	3.6,4.1	-120	110		
		LrN	39					
		ME	20 10	21		480		
		MN	14	21	620			
		MZ	17	25			1100	
		MN	27	21	-670			
		P of LrN	20.7					
		LrEZ	19 46					
		MZ	50	6.9			-230	
		ME	56	6.1		140		
		P of LrEZ	20 15					
		ME	56	19		-750		
		F	4 00.					
45	16	e	03 44.					
		M	45.5	4.0		<10		
		F	03 50.					
46	16	P	12 54 32.8					C.M.O. gives
		iS	43.1					33.7N, 132.4E
		M	44.6	0.8	-25	-30	-15	
		F	12 56.5					
47	18	P	00 44 55.6					C.M.O.gives
		L	46 37					36.5N, 141.1E
		Lr	47 00					
		MNZ	47 04	3.9	25		10	
		F	00 55.					

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No.	Date	Phase	G.M.T. h m s	Period s	Amplitude N	E	Z	Remarks
48	June 21	MN	00 15 36	18	-20 μ	μ	μ	
		F	00 50.					
49	22	i	23 21 40.0					
		F	23 28.					
50	23	P	13 05 57					
		S	14 31					
		F	13 45.					
51	24	e	13 09.					C.M.O. gives 36.3N, 141.2E Kasimanada
		M	09 52					
		F	13 11.					
52	29	eP	14 03 53					C.M.O. gives 36.75N, 141.15E
		Sz	05 03					
		MN	23	3.5	7			
		F	14 09.					
53	July 6	S	00 33 32					Faint Tanabewan
		F	00 35.					
54	6	e	02 03 08					
		F	02 13.					
55	6	eP	13 02 58					C.M.O. gives 36.3N, 141.5E
		S	4 26					
		F	13 20.					
56	7	eP	15 49 20					
		S	58					
		MN	50 16	2.5	-8			
		F	15 53.					
57	7	eP	17 33 15					
		S	37.2					
		F	17 50.					
58	7	eP	17 58 56					
		S	18 03.2					
		F	18 20.					
59	27	P	16 42 24					
		MN	49 23					
		F	17 25.					
60	Aug. 3	eP	08 25 41					C.M.O. gives 37.1N, 142.0ØE
		S	26 20					
		F	08 28.					
61	10	eP	09 10 53.8					
		S	11 31					Off Sibusi-wan
		F	09 12.					
62	12	P	03 00 51.8					Bungo-suido
		iS	01 06					
		F	03.					
63	16	M	Unknown		ca 300	ca 600		Drum of recorder stopped

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No.	Date	Phase	G.M.T. h m s	Period s	Amplitude N ± μ	Amplitude E ± μ	Amplitude Z ± μ	Remarks
64	Aug. 18	iP	09 38 34					
		e	40 28					
		eS_E	45 27					
		F	09 50.					
65	18	eP_N	19 08 00					Amami-Osima
		eS_E	09 07					
		eS_gN	39					
		ME	51	7.		10		
		F	19 26.					
66	25	P	01 39 20					
		S	43 26					
		LrN	02 03.2					
		F	02 13.					
67	25	eP_gP_g	23 38 52.5					Beppu-wan
		eS_g	39 10					
		F	40.3					
68	26	e	19 15 19					
		F	19 15.7					
69	29	P	15 27 30					
		S	31 40					
		ME	32 36	22		-200		
		ME	33 32	9.3		75		
		F	16 37.					
70	29	P	16 37 28					
		e	38 39					
		F	16 54.					
71	29	P	17 54 30					
		eS	55 12					
		F	17 58.					
72	30	P	11 56 59					
		L_E	12 05.7					
		ME	05 55	23		-100		
		LrE	07 12					
		M	5 waves	10		±40		Neaely equall A.& Tp
		F of LrE	08 50					
		F	12 24.					
73	Sept. 1	P	02 57 40					
		S?	03 00 34					
		F	03 12.					
74	7	eP	04 06 44					
		eS	09 24					
		iN	45					
		eNZ	10 05					
		mN	11	10	80			
		L_E	10 07					
		ME	37	28		-50		
		F of L_E	11.8					
		Lr1Z	11 17					
		Lr1N	31					
		MN1	45	22	70			
		Lr2N	12 44					
		MN2	52	19	-120			
		Lr2Z	53					
		MZ	13 16	15			-150	
		ME	13 16	18		-200		
		MN3	13 51	16	200			

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No	Date	Phase	G.M.T. h m s	Period s	Amplitude N	E	Z	Remarks
75	Sept.10	iPgEZ	05 20 30.1		3μ	20μ	20μ	C.M.O. gives
		iSg	39.3					33.7N, 132.4E
		M	40.8		-100	-90	180	Iyo-Nada
		LrE	50					Felt moderately
		ME	53	4.3		-20		
		F	05 32.					
76	21	eS	11 39 49					28.4N, 141.0E: C.M.O.
		F	11 47.					H 400Km
77	21	iP	18 53 42		-2.0	-5.5		C.M.O. gives
		2 waves between P & S		ca 30.	±70			36.35N, 141.05E
		eSN	55 02					
		eEN	14					
		eLEN	16	E 38, N 34				
		iN	44					
		mE1	50	3.1			110	
		mN1	51	3.1	110			
		iN	55					
		mN2	57	3.8	180			
		mE2	56 02	3.5			-110	
		MN	55 58	22.	270			
		ME	59	25			-320	
		eLrNE	56 06					
		ME	09	25			360	
		MN	17	22	100			
		F of Lr	57.0					
		F	19 30.					
78	Oct. 8	P	08 17 43					Saeki-WAN
		eS	57					
		F	08 19.					
79	10	P	20 54 32					
		eS	59.4					
		eLE	06 01.6					
		LrN	03.4					
		MN	04 15	26.	100			
		Begin.	05 13					
		M ME	40	30		-280		
		MN	46	23	120			
		F	21 52.					
80	12	eP	00 37 05					C.M.O. gives
		eSE	39 14					39.8N, 144.3E
		eN	31					
		eZ	49					
		mNE	49	10.5	120	-60		
		eEZ	40 17					
		mE	37	7.3		-80		
		mZ	39	6.5			60	
		eLNE	39 51	ca 32				
		MNE	40 36	22, 22	400	-450		
		MN	47	17.5	-450			
		ME	48	17.5		600		
		MN	58	17.5	550			
		ME	59	17.5		-700		
		MN	41 02	15.5	-350			
		ME	04	17		550		
		MN	11	15,5	150			
		ME	13	17		-500		

to be continued

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No.	Date	Phase	C.M.T. h m s	Period s	Amplitude N	E	Z	Remarks
Continued		F of L_{NE}	00 41.5		μ	μ	μ	
		Lr_Z	40 45					
		MZ	41 15	16			100	
		F of Lr_Z	41.5					
		MN Begin.	42 10					
		M	25	15	300	-faint		
		F	01 30.					
81	Oct. 12	P	15 17 23					Neighbournood of Wakayama
		S	42					
		F	15 19.					
82	13	eP	15 30.0					Neighbourhood of Kwarenkô, Taiwan
		eS	32 41					
		F	16 00.					
83	17	P_N	15 29 44					C.M.O. gives 44.4N, 140.0E H 200Km
		eS_N	32 54					
		iN	33 08					
		F	15 40.					
84	19	P?	04 20 27					May be different quake to those that following eN
		eN	26 08					
		eS_E	30.1					
		iN	32 57					
		L_{NE} (Lr?)	33 25					
		MN	45	16	100			
		ME	48	15		50		
		ME	36 07	11.5		90		
		MN	08	11.5	-90			
		F	04 53.					
85	20	P	02 27 26					
		PPPN	29 39					
		SN	33 47					
		SSN	37 18					
		eLN	40.6	ca 40.				
		F	03 00					
86	29	ePE	13 10 03			-		C.M.O. gives 35.4N, 141.0E SE off Cape Inubô
		eSZ	11 19					
		mN	12 14	3.5	-40			
		eZ	17					
		LrE	12 26					
		ME	46	19.		-70		
		ME	15 20	15.5		20		
		F	13 40.					
87	29	eP	15 41 09					C.M.O. gives 35.6N, 141.1E
		F	15 44.					

Constants of the Seismographs

Apparatus		Comp.	T_o		r/T_o^2	V_o
Wiechert	200Kg	E	5.1	7.0	0.002	75
"	"	N	4.3	6.3	0.003	75
Wiechert	80Kg	Z	4.3	6.5	0.005	75
Omori	16Kg	E	22.5	3.8	0.003	20
"	"	N	20.0	3.5	0.007	20

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$\phi = 33.33'28"N$ $\lambda = 133\ 31'52"E$ $h = 40.4m$

Underground : Serpentin

Constants of the Seismographs

Apparatus		Comp.	T_o	ε	r/T_o^2 mm/sec²	V_o
Wiechert	200Kg	E	5.1	7.0	0.002	75
"	"	N	4.3	6.3	0.003	75
"	80Kg	Z	4.3	6.5	0.005	75
Omori	16Kg	E	22.5	3.8	0.003	20
"	"	N	20.0	3.5	0.007	20

NO.	Date	Phase	G.M.T. h m s	Period s	Amplitude N	Amplitude E	Amplitude Z	Remarks
88	Nov. 5	eP	08 45 09.5		to S			C.M.O. gives 37.10N ; 141.65E
		il	17.0					
		iNE	54.2					
		Long waves	from il to S with		period	of 36s.		
		mlE	45 43	36		-1.6mm		
		mlN	45	36	-1.4mm			
		m2E	46 19	36		-1.5mm		
		eSZNE	31					
		iZ	48	3.5				Group of short period
		m of S	48	19.5		-0.5mm		
		S*NZ	47 12					
		mZ	34	4.0			470	
		LNE	46 59					
		M	47 25	30; 29	9.0mm	6.6mm		
		Lr	48 00					
		ME	13	20.5		3.3mm		
		MN	14	17.0	2.7mm			
		MZ	14	19.			5.5mm	
		MZ	21	16.5			-6.0mm	
		ME	23	20.5		-3.6mm		
		MN	25	17.0	-1.8mm			
		F of LrNE	45					
		F of LrZ	52					
		MN	50 39	16.2	1.4mm			
		F	lost in next quake					
89	5	P	10 10 16					Aftershock of 88.
		eS	12 08					
		F	10 15.					
90	5	iP	10 52 07.1			to W		C.M.O. gives
		iP*	35.1	42;41;54	26μ	47μ	-60μ	37.15N; 141.70E
		S	53 37					
		eZN	55.3					
		iSg	54 27					
		m(Sg)N	41	8.7	-1.8mm			
		m(Sg)Z	57	6.9			0.7mm	
		ME	54 30	30		-1.4mm		
		MN	52	23	5.5mm			
		ME	55	23		-1.6mm		
		Lr	55 25					
		MNE	37	16; 16	3.3mm	3.4mm		
		MZ	41	17			-5.0mm	
		ME	43	18		-4.7mm		
		MN	46	16	-4.3mm			
		MZ	48	14.4			5.7mm	
		F of Lr	56.5					

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No.	Date	Phase	G.M.T. h m s	Period s	Amplitude N	E	Z	Remarkes
continued		MN Begin.	10 56 30		2.4			
		M	40	21	-4.2mm			
		MN	57 50	16	-2.2mm			
		F	13 10.					
91	Nov. 5	e	11 14.					37.4N;141.8E(C.M.O.)
	5	e	11 17.					37.1N;141.8E(C.M.O.)
92		M	18.5					
93	5	e	14 55 57					Aftershock
		F	15 01.					
94	5	e	15 19.					Aftershock
95	5	e	16 04.					Aftershock
		F	16 06.					
96	5	M	17 28.					Aftershock
97	5	e	18 14.					37.2N;141.6E(C.M.O.)
		F	18 16.					
98	5	e	19 03.					Aftershock
		F	19 04.					
99	5	S	19 52 10					Aftershock
		F	19 55.					
100	5	P	21 25 26.9					37.0N;142.3E(C.M.O.)
		SN	27 06					
		SgN	39					
		LrE	28 33					Tp decreasing
		ME	41	16	-30μ			
		F	21 44.					
101	5	e	21 40.					Aftershock
102	5	eP	22 18 12					37.0N;142.1E(C.M.O.)
		e	20 23					
		e	40					
		F	22 24.					
103	5	eP	23 30 25.					37.0N;141.9E(C.M.O.)
		eE	32 17					
		e	33 35					
		F	23 38.					
104	6	e	01 22.					37.0N;141.9E(C.M.O.)
		F	01 24.					
105	6	e	01 55.					Aftershock
		F	01 57.					
106	6	e	02 06 06					Aftershock
		F	02 08.					

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No.	Date	Phase	G.M.T. h m s	Period s	Amplitude N	Amplitude E	Amplitude Z	Remarks
107	Nov. 6	iP	08 55 48.7	4.2	-45μ	-30μ	12μ	C.M.O. gives 37.55N ; 141.75E
		ip*	56 12.4					
		SEN	57 02					
		eZ	29					
		iS*	46.9					
		iSgZ	58 01.9					
		iSgEN	03.4					
		MN	15	23	1.6mm			
		mZ	29	5.7			0.5mm	
		LrZN	59 00					
		MNE	24	13; 11	2.5mm	1.9mm		
		ME	29	12		-2.2mm		
		MZ	35	10			2.4mm	
		Begin.	09 00 17(Z)					
		"(N)	19					
		M_{NZ} MN	20	16	2.7mm			
		MZ	23	9			-1.5mm	
		(MNE)(by W.)	22	11, 11	2.6mm	0.8mm		
		MN	01 35	13.0	-2.3mm			
		F	12 30.					
108	6	e	09 29.					Aftershock
109	6	ePE	10 47 11.6					37.1N;141.3E(C.M.O.)
		e	49 26					
110	6	e	10 53.					Aftershock
111	6	eS*	11 12 19					Aftershock
112	6	eS*	11 34 27					37.6N;142.2E(C.M.O.)
		F	11 36.					
113	6	eS*	12 56 20					37.3N;142.1E(C.M.O.)
114	6	e	13 06.					Aftershock
115	6	ePE(O.)	13 42 58.8					
		ePE(W.)	43 02.1					
		Sg	45 24					
		LrE	46 32					
		ME	39	14				
		F	14 04.					
116	6	e(Sg)	14 55 20					37.5N;141.7E(C.M.O.)
117	6	e	15 32.					Aftershock
118	6	e	16 21.					Aftershock
		F	16 22.					
119	6	e	17 15.1					Aftershock
120	6	iPE	17 21 10.8		+	+		C.M.O. gives 37.4N ; 141.8E
		eLN (O.)	22 56	10				
		SZ*	23 00					
		eLN (W.)	08	8 9				
		SgN	30					
		eE	58					
		LrZE	24 27					

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NO.	Date	Phase	G.M.T. h m s	Period s	Amplitude N	Amplitude E	Amplitude Z	Remarks
continued		ME	24 34	12.5	μ	-50 μ	μ	
		MZ	47	11.5			-40	
		MN	48	11.5	-50			
		MZ	58	11.0			40	
		F of LrZ	25 26					
		F MN	26 28	16	30			
		F	18 00.					
121	Nov. 6	eE	17 33 06					37.2N;142.3E(C.M.O.)
		eSgN	21.8					
		F	17 35.					
122	6	e	17 54.					Aftershock
		F	17 55.					
123	6	e(P)	18 22 14					36.9N;141.75E(C.M.O.)
		e(Sg)	24 14.7					
		ME	25 25	14 16		-8		
		ME	32	14 16		8		
		F	18 35.					
124	6	e(P)	19 21.6					Aftershock
		LN	22 54					
		eE	23 06					
		iSgN	38.0					
		ME	25 29	ca. 15		-20		
		ME	36	ca. 15		20		
		F	19 37.					
125	6	P	21 05 46.2					36.9N;141.8E(C.M.O.)
		SgN	08 02.7					
		LrZ	43					
		ME	54	15.0		-110		
		ME	09 02	15.0		∦∦Ø160		
		MZ	08				-110	
		MZ	20	12 13			110	
		F of LrE	30					
		F of LrZ	42					
		F	21 35.					
126	6	Sg	21 26 10					
127	6	e	21 27.6					36.9N;141.7E(C.M.O.)
		Sg	29 14					
		F	21 34.					
128	6	eP	21 40 42.0		-	-	+	C.M.O. gives
		iP*Z	55.4					37.15N ; 141.85E
		SN	42 14					
		eLNE	42.4.					
		iSgNE	42 56.9					
		MNE	42 40	44	1.1mm	-0.8mm		
		MNE	43 30	18	2.2mm	-1.3mm		
		mZ	43 35	6.0			0.2mm	
		LrZ	43 51					
		MZ	44 16	12.1			-0.9mm	
		ME	19.	12.5		-1.6mm		
		MZ	28	11.8			-2.1mm	
		MZ	50	8.9			-1.0mm	
		MNE	52	8.0	-1.3mm	-.46mm		
		F of LrZ	44 57					

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No.	Date	Phase	G.M.T. h m s	Period s	Amplitude N	Amplitude E	Amplitude Z	Remarks
continued		Begin.	44 57					
		M3 MEN	45 44	17.3	-2.7mm	-2.9mm		
		MEN	52	17.3	2.9mm	2.4mm		
		F	46 08					
		MN	46 54	11.7	1.4mm			
		ME	57	12.3		1.3mm		
		F	lost in 132.					
129	Nov. 6	(S)	22 53 18					
130	6	e	23 01.					Aftershock
131	6	e	23 12.					Aftershock
132	6	P	23 17 15					36.9N;142.0E(C.M.O.)
		e(S*)	19 18					
		LrZ	20 17	15.0		95μ		
		ME	32					
		F	23 24.					
133	7	PE	00 49 51.5			-		37.1N;141.9E(C.M.O.)
		iP*	59.7	4.5	4μ	9	6μ	
		eS	51 25					
		eLN	35					
		eZ	40					
		eE	43					
		LrZ	52 54					
		ME	53 11	13.0		110		
		MZ	17	12			-100	
		MN	18	11.5	-50			
		MZ	28	11.8			100	
		F of LrZ	53 59					
		MN	54 57	17	-30			
		F	01 14.					
134	7	iPE	01 40 22.9		-	-		37.0N;141.9E(C.M.O.)
		P*	30					
		eSE	41 48					
		eLN	42 00					
		eZ	06					
		Sg	31					
		MN	46	ca.30	310			
		LrE	43 17					
		ME	38	15.3		400		
		MN	39	15.3	280			
		MZ	44	12.0			-400	
		F of LrZ	43 56					
		F ofLrE	59					
		MN	45 29	15.3	270			
135	7	e(S*?)	01 49 31					37.2N;141.9E(C.M.O.)
136	7	ePE	01 56 22.5					
		e(S?)	57 15					
		Sg	58 27					
		mN	51	4.7	50			
		LrE	59 28					
		ME	40	15.5		200		
		MN	41	12	60			
		MZ	51				270	
		F	lost in 137.					

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No.	Date	Phase	G.M.T. h m s	Period s	Amplitude N	Amplitude E	Amplitude Z	Remarks
					μ	μ	μ	
137	Nov. 7	eP	02 16 19					36.8N;142.3E
		Sg	19 02.5					(C.M.O.)
		M	16	4.5	-35			
138	7	P	02 30 38.5					37.0N; 142.0E
		e(S)	32 02					(C.M.O.)
		Sg	51.8					
		mN	33 16.4	3.8	-15			
		mE	19	4.5		15		
		LrE	45					
		ME	57	12.		80		
139	7	e	02 43 57					36.8N; 142.2E.
		F	03 08.					(C.M.O.)
140	7	P	03 41 10.3					Aftershock
		iSg	43 34.3					
		F	03 57.					
141	7	iPE	04 17 28.2			+		
		P*E	57					37.2N ; 141.8E
		(S)	19 08					(C.M.O.)
		Sg	49					
		mNE	20 17	4.5,4.5	40	40		
		mZ	23	4.5			30	
		LrN	20 11					
		LrZ	33					
		MN	53	16	120			
		ME	21 00	14.5		120		
		MZ	13	15			250	
		ME	16	14.5		120		
		F of LrE	33					
		F of LrN	40					
		F of LrZ	21.8					
		F	04 58.					
142	7	e	07 29.9					Aftershock
		F	07 34.					
143	7	e	07 53 00					Ditto
		F	08 03.					
144	7	e	08 10.					Ditto
		F	08 14.					
145	7	e	11 06.0					Ditto
		F	11 08.					
146	7	e	12 34 38					Ditto?
		mNE	35 13	4.0,3.8	3	-2		
		F	12 40.					
147	7	iPNE	19 14 27.4		-	-		Ditto
		iS	16 05.8					
		Sg	17 06					
		ME	18 17	15.0		-35		
		MN	21	12.4	-40			
		F	losy in 148					

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No.	Date	Phase	G.M.T. h m s	Period s	Amplitude N	E	Z	Remarks
148	Nov. 7	P	19 35 28.8		-3.7$^{\mu}$	-7.5$^{\mu}$	$^{\mu}$	37.0N;141.8E(C.M.O.)
		S	37 07.6					
		eN	13					L of short period?
		eLN	14					L of long period.
		MN	26.5	9.6	100			
		SgEN	38 01.6					
		mN	04	4.0	70			
		mE	09.5	5.5		-75		
		mZ	28	4.3			-40	
		MN	32	ca. 15.	90			
		LrE	34					
		ME	55	14.6		230		
		F of LrE	39.6					
		MN	40 02	ca. 15	70			
		F	20 20.					

149 Nov. 7 e 20 00. F 20 01. 150 Nov. 8 e 05 30 42 F 05 36.
151 Nov. 8 e 11 05 07 F 11 12. ... 37.0N;141.8E(C.M.O.)
152 Nov. 8 e 11 17 59 F 11 22. 153 Nov. 8 e 11 45 59 F 11 51.

154	8	P	13 16 02					37.2N;142.1E(C.M.O.)
		eSN	17.9					
		F	13 33.					

155 Nov. 8 P 14 04 02 F 14 07. 156 Nov. 9 e 00 06. F 00 08. Bungo-suido
157 Nov. 9 e 02 24 59 F 02 32.... 37.5N;141.5E(C.M.O.)
158 Nov. 9 e 04 06 03 F 04 11. 159 Nov. 9 e 09 12.6 F 09 19. 37.0N;141.9E(C.M.O.)

160	9	iPE	09 17 49.4			-2		C.M.).
		eS	19 24					C.M.O. gives
		eLN	56					36.75N ; 141.85E
		MN	20 28	23	-220			
		ME	58	13		240		
		LrN	21 02					
		MN	07	16.0	480			Z comp.is disabled
		ME	44	14		-220		
		LrE	22 22					
		ME	30	11.0		-340		
		MN	35	14.7	-570			
		MN	23 53	14.7	330			
		ME	50	11		320		
		F	11 20.					
161	9	e	12 39 59					37.1N;141.4E(C.M.O.)
		F	12 48.					
162	9	P	16 10 45.2					36.9N;141.9E(C.M.O.)
		eS	12.5					
		Sg	12 59.2					
		Lr	13.6					
		F	16 29.					
163	10	e	02 28 05					
		F	02 33.					
164	10	e	06 48 40.0					
		F	07 00.					
165	10	e	08 20.					
		F	08 24.					
166	10	PE	10 48 16.7					SE off Hatijo-zima
		Long waves	48 20					3 waves of Tp 27,20
		to	49 30					and 19
		m1	48 34	27		37		
		m2	59	20		37		

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No.	Date	Phase	G.M.T. h m s	Period s	Amplitude N μ	E μ	Z μ	Remarks
continued		eLE	10 50 16					
		ME	51 13.5	15.0		310		
		F of LE	52 00					
		LrN	51 12					
		MN	53	13.0	230			
		F of LrN	52 27					
		F	11 37.					
167	Nov. 10	ePNZ	20 27 43					very faint
		P2	50					
		PPE	29 20					
		SE	35 06					of short period
		m of SN	36 16	37.	1200			
		eZ	37 06					
		eLN	40.0	ca.1m				
		MNE	42 04	ca.36	3000	-1.700		
		LrZ	43 19					
		MZ	44 54	25			1200	
		F of LrZ	45.5					
		ME	43 55	27		1800		
		MN	44 04	27	-2000			
		MN	46	25	-1500			
		ME	57	27		-550		
		ME	45 35	24		-1900		
		ME	49 25	20		-900		
		MZ	51 12	20.0			1100	
		ME	52 58	19.5		-900		
		F	lost in 168.					
168	10	ePE	22 24 19					37.1N;142.4E(C.M.O.)
		SgN	26 51					
		MN of LN	54	ca.25	80			
		LrEZ	28 03					
		ME	28	13		-200		
		MZ	32	13			-170	
		F of LrEZ	57					
	11	F	00 16					
169	11	e 01 06. F 01 09. (Dist. Quakes)			170	11	M 01 14.	
171	11	P	02 58 59.2					Off Hatijo-zima
		Long from	59 03					3 waves of Tp 26,21
		waves to	03 00 08					and 18,alike No.166.
		mlE	02 59 13	26		-15		
		m2E	39	21		-15		
		LE	03 00 33					
		ME	01 41.5	16.7		-45		
		MZ	48	16.7			70	
		F	03 35.					
172	11	e	04 41.					Off Hatijo-zima
		ME	42 48.0	17.5		30		
		F	04 55.					
173	12	e(Sg)N	08 07 34					Aftershock
		F	08 13.					
174	12	PZ	14 54 40.9					Off Etorohuto.
		iSE	58 41					
		Surface waves? from	15 00.6					
		F	15 35.					

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No.	Date	Phase	G.M.T. h m s	Period s	Amplitude N	Amplitude E	Amplitude Z	Remarks
					μ	μ	μ	
175	Nov.13	P	04 58 32.					F lost into pre-
		iS	05 02 43					vailing pulsatior
	13	eP	22 33 16					37.0N;141.5E(C.M.O.)
177		eZ	35 15					
		eE	19					
		Sg	36 03					
		eNE	23					
		eLN	35.2	0.6 m				
		mN	36 28	6.0	120			
		mZ	31	6.6			-40	
		MN	45	16.5	280			
		mE	37 04	7.6		180		
		MN	18	15.5	-520			
		ME	45	14		-460		
		LrZ	37.5					
		LrN	38.0					
		MN	38 26	13.4	-550			
		MZ	29	12			250	
		ME	30	15		-460		
		F of LrZ	38.6					
		F of LrE	38.8					
	14	F	00 15					
176	13	eP	13 17 35					C.M.O. gives
		eSE	20.0					44.7N ; 149.4E
		ME	23 25	23.5		60		H=ca. 100Km
		F	13 35.					
177								
178	14	P	02 38 20					37.1N;141.6E(C.M.O.)
		SgN	41 13					
		ME	52	14		40		F 02 55.

179 14 e 04 19. 180 14 eP 12 14 07 eSN 12 20.5 F 12 40. 181 15 eP 02 19 43
182 15 eP 10 00 50.2 eZ 10 01 09 184 15 e 18 03. F 18 08.

183	15	PZ	15 23 50.1					ENE off Hatijo-zima
		eS	25 25					
		ME	26 32	17		-35		F 15 45.
185	15	P	21 09 18					F 21 34.
		S	16 32					
186	16	PE	11 10 00					C.M.O. gives
		SN	11 31					37.35N ; 141.8E
		eNE	52					
		iZ	12 10					
		SgN	24					
		m of SgN	28	4.5	30			
		eZ	36.0					
		eNE	40.2					
		mZ	40.8	4.0			-15	
		mNE	42.2	4.0,4.0	-40	20		
		ME	12 39	24.5		-40		
		MN	13 12	12.2	-160			
		MZ	27	8.6			9.5	
		ME	48	11.4		-85		F 11 40.
187	17	P	04 03 41					
		S	11 00	21				
		e(ScS?)	13 33					
		eLN	17.2					
		M1NE	18 30	31,28	70	-70		
		M2NE	19 33	26,28	80	-130		F 06 10.

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NO.	Date	Phase	G.M.T. h m s	Period s	Amplitude N	E	Z	Remarks
188	Nov.17	eP	17 52 42		μ	μ	μ	Aki-nada
		S	55					
		M	56	<0.2	-4			F 17 54
189	18	eN	07 22 45					Syoseito,Tyosen
		eN	50					F 07 25.
190	18	e	14 27 09	F 14 34.				Kii-suido
191	18	eP	15 36 33					Off Uruputo
		eS	40 34					F 15 44.
192	18	e	17 53 53	F 17 58.				
193	18	eP	18 34 45					Off Uruputo
		S	38 42					F 18 49.
194	19	P	05 44 23					Off Urupu
		S	48 14					
		eLE	50.1					F next quake
195	19	e	05 56 23					37.0N;141.75E(C.M.O.)
		Sg	58 26					F 15 11.
196	21	e	01 29.					
		LrE	32 20					
		ME	27	13.0		45		
		MNZ	32	12.5			20	F 01 47.
		F of LrE	33.1					
197	21	e	07 02.8	F 07 18.				23.9N;121.7E(C.M.O.)
198	21	P	09 47 44					
		S	56					F 09 50.
199	21	eP	09 52 27	F 09 54.				Very faint
200	22	eP	01 15 56.4		+	+	-	37.0N;141.8E(C.M.O.)
		iP	59.0		3	39	-3	
		P*NE	16 15	4.0				
		eLN	17 33					
		eN	46					
		eS*Z	53					
		Ss	18 17					
		mE } of Sg	20	4.2		50		
		mZ } of Sg	22	5.6			-55	
		mN } of Sg	26	3.8	120			
		MN	18 14	22.5	220			
		MEN	32	20.0		470		
		LrN	41					
		MN	50	16.5	-440			cf. no. 225.
		F of LrN	19 05					resembles each other
		ME	28	14.4		410		
		MN	58	15.5	620			
		MNZ	58	7.7;7.0	450		230	
		MN	20 45	15.2	-830			
		MZ	53.	9.0			-220	F lost in next quake
		ME	from 21 28	12.2		±220		
			to 22 45					
201	22	PZ	01 41 45					36.9N;142.1E(C.M.O.)
		Sg	44 14					F lost in nachläufer of no. 200.
		MN	18 14	22.5	220			
		MEN	52	20.0		470		
		LrN	41					
		MN	50	16.5	-440			cf. no. 225.
		F of LrN	19 05					resembles each other
		ME	28	14.4		410		
		MN	58	15.5	620			
		MNZ	58	7.7;7.0	450		230	
		MN	20 45	15.2	-830			
		MZ	53.	9.0			-220	F lost in next quake
		ME	from 21 28	12.2		±220		
			to 22 45					
201	22	PZ	01 41 45					36.9N;142.1E(C.M.O.)
		Sg	44 14					F lost in nachläufer of no. 200.

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No.	Date	Phase	G.M.T. h	m	s	Period s	Amplitude N μ	E μ	Z μ	Remarks
202	Nov.22	e	01	58.						
203	22	P	02	53	07					
		Sg		55	33					
204	22	eP	03	25	33					37.1N;142.1E(C.M.O.)
		P*E			51					
		LN		27	25					
		S*NE		28	05					
		LrE			46					
		M		29	01	12.6		35		
		F of Lr			12					F 03 53.
205	22	P	08	15	22					36.9N;142.0E(C.M.O.
		S*NE		17	33					
		LrE		18	31					
		ME			42	13.0		28		
		F of LrE		19	12					F 08 32.
208	23	ePE	00	17	59					
		eSNE		20	05					
		SgN			27					
		LrE		21	14					
		ME			30	ca.12.		S		F 00 33.
209	23	eP	08	21	39					Etrohuto.
		S		25	17					F 08 31.
210	23	eP	14	01	28					
		S*		03	42					
		LrE		04	36					
		ME			44	ca.13.		5		F 14 14.
212	25	eZ	08	22	20.7					37.0N;141.9E(c.M.O.
		SZ		23	43					cf. NO.200.
		eZE			59					
		eLN		24	02	7.				
		eSgZ			28					
		mZ			33	3.4			-30	
		eN			35					
		mN			45	4.7	-50			
		LrE		25	06					
		ME			32	17		80		
		F of LrE		25.7						
		MN		25	23	15	-65			F 09 05.
213	26	e	03	37	38					37.1N;141.9E(C.M.O.
		SgN		40	03					F 03 52.
214	26	e	10	03	39					37.6N;142.2E(C.M.O.
		S		05	28					F 10 09.
215	27	e	03	05	05					SE off Yakuzima.
		S			45					F 03 11.

206 22 e 09 36. F 09 40. 207 22 e 18 38. 211 24 e 13 50.

216	29	eP	13	41	23			+		36.75N ; 142.0E
		P*NE			36					(C.M.O.)
		eSZ		42	50					
		LN		43	06					
		MN			37	9.5	-120			
		ME			56	18		95		
		LrZ		44	57					
		MR			49	13.4		-190		

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No.	Date	Phase	G.M.T. h	m	s	Period s	Amplitude N	E	Z	Remarks
continued		MZ	13	45	05	11.0	μ	μ	130μ	
		MN			16	10.5	-150			
		ME from		46	32	12.5		±110		
		to		47	05					F 14 53.
217	Nov.29	P	15	30	07					
		Sg		32	29					F 15 40.
218	30	iP	02	31	42.5		5.5	-11.	4.5	37.0N;141.8E(C.M.J.)
		eZ		32	37					
		eE		33	16					
		eN			26					
		iPgN		34	02.0					
		mZ			03.0	3.6			150	
		mN of Sg			06.5	3.7	230			
		mE			11	4.0		140		
		MN		34	02.9	26.	400			
		ME			03.4	27.		-170		
		LrZ			24					
		MZ			48	17			-1040	
		LrNE			27					
		MN			45	15.5	480			
		F of LrN		55	03					
		ME		34	42	17		740		
		MN		35	37	18	-340			
		ME		36	30	15.5		230		F 04 00.
219	30	ePE	17	18	04					
		ePN		19	13					
		eSgN		20	08					
		LrE			43					
		ME		21	21	14		40		
		F of LrE		21.	7					
222	Dec. 1	PZ	02	16	54.5					
		eSgZ		20	28					
		LrZ		22	53					
		LrN		23	10					
		from		25	28					
		MN to		25	32	15.2.		±130		
		MZ		21	37	16.7			160	
		F of LrN		27.	0					
		F of LrZ		27.	1					
		MN		32	35	13.5	-50			
		MZ			56	13.5			40	F 03 27.

220 Nov.30 eSN 15 34 45 F 15 57. 221 Nov.30 eP 23 27 24 F 23 28.
223 Dec. 2 IN 22 33 44 F 22 45. 226 4 eP 01 05 36 F 01 08.

224	3	eIN	00	45	41.4					
		eSN		47	44					
		MN		49	11	11.		15		F 01 04.
225	3	iP	12	15	34		-1.3	-5.5	+	cf. No. 200.
		Regular wave group from			38					
		to			52	4.1		±9		
		eN		15	24	8				
		iPgN			47.3					
		n of SgN			49.0	4.0	-100			
		eNZ			58					
		mNZ		16	01	4.1,4.1	75		40	
		mE			07	3.7		-65		
		MN		15	50	23.	90			

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No.	Date	Phase	G.M.T. h m s	Period s	Amplitude N μ	Amplitude E μ	Amplitude Z μ	Remarks
continued		LrN	16 21					
		MN	12 16 24	14.5	-150			
		ME	39	15.		-300		
		LrZ	32					
		MZ	44	14.			230	
		F of LrE	17.0					
		F of LrZ	17.2					F 13 24.
227	Dec. 3	P	01 23 54.5					Region of R.Abe
		iS	24 39.5					F 01 30.
228	4	eP	06 13 58					
		S	15 23					
		Sg	16 16					
		mN	19	4.5	-10			
		LrE	43					
		ME	55	15.		-15		
		F of LrE	17.2					F 06 29.
232	5	P	15 35 48					
		S	37 49					
233	5	eP	18 56 22					
		eSE	57 19					
		LrE	58 36					
		ME	50	14		10		
		F of LrE	59.0					F 19 08.
234	6	P	23 04 35.2					
		eZ	47					
		eS	07 38					
		eLE	46					
		ME	08 52	32	80			
		MN	10 27	20	-60			
		MEZ	35	23, 20		80	-110	
		LrNE	12 37					
		LrZ	46					
		ME	55	14		-45		
		MN	59	12.0	-120			
		MZ	13 02	12			-50	
		F of LrN	13.5					
		F of LrZ	13.7					
		ME	13 24	15		160		F 00h.2
235	7	ePN	13 06 44					
		S	10 36					
		eLE	12 56					
		ME	13 45	18		-30		
238	9	eP	09 37 20					
		S*N	39 50					
		LrE	40 27					
		ME	40	13.6		25		
		F of LrE	41.2					F 10 00.

29 4 e 16 32 31 M 16 35 19; 230 4 e 16 39 58 MN 16 40 20; 231 4 e 16 47 46
36 7 L?E 13 42.2 F 14 14. 237 7 e 15 06. F 15 35. 239 11 e 03 23 17 F 03 26.
40 12 eP 02 43 58 F 02 55.

41	12	P	23 40 35					
		eE	41 57					
		LE	42 00					
		eN	06					
		eZ	21					
		iSg	41					
		ME	43 30	13.5		-15		F 23 55.

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	Date	Phase	G.M.T. h m s	Period s	Amplitude N μ	E μ	Z μ	Remarks
242	Dec.13	ePE	00 01 03					
		eSE	02 30					
		eN	02 54					F 00 08
243	13	PZ	18 27 45.5					
		eZ	30 19					
		mZ	31	4.1			20	
		ME1	40	17.0		-30		
		Mn	40 37	13.8	-20			
		ME2	41 31	10.8		-45		F 19 15.
244	16	e(P?)	04 37 26					
		eL	39 32					
		ME	41 00	12.2		15		
		MN	42 12	ca.11.	-10			F 04 58.
247	16/17	e	23 37.0					
		ME	00 00 25	16.0		10		
248	17	eP	16 49 31					
		e	52 31					
		eLE	53 53	27.				
		eN	54 30					
		ME1	54 30	15.6		25		
		ME2	56 46	14.5		-25		F 17 26
249	18	PZ	21 47 56					
		eN	50 46					
		ME1	50	~~15.6~~ 17.5		35		
		ME2;Z	51 40	11.8;11.8		35		F 22 27.
251	19	P	18 27 16					
		PP	23					
		e	30 21					
		S	42					
		eLE	31 07	30.				
		ME1	32 14	24.		-35		
		ME2;Z	37	19;17		-35		
252	20	eP	14 54 07					
		S	55 42					
		S*N	56 20					
		S&NE	43					
		ME	57 16	10.9		15		F 15 08.
253	22	eP	16 59 50					
		eS	17 03 00					M 17 05. F 17 18.
254	23	iPZ	01 53 31					
		P*Z	44					
		S*	55 08					
		S&	54					
		ME	56 36	13.6		20		F 02 10.
255	26	P	23 28 07					
		SN	12					
		MNE	13	very short	7	-9		F 23 28.7
256	29	eP	20 57 50					
		P*	58					
		S	58 28					
		S&	56	2.7	-10			F 21 07.

246 16 e 19 41. ME 20 00.4 F $20^{h}2$; 245 16 e 17 33.5 LrE $43^{m}59$. F 18 45.
250 19 iP 10 26 29 S $26^{m}43$ F $27^{m}.1$;