Preliminary Bulletin

of the Dodaira Micro-earthquake Observatory

and its Substation

Jan., 1968

Dodaira Micro-earthquake Observatory

Earthquake Research Institute, the University of Tokyo

Preliminary Bulletin of the Dodaira Earthquake Observatory and its Substation

Observation stations

		N	E	h
Dodaira	(D or DDR)	35° 59'54".0	139° 11'36".2	800m
Tsukuba	(T or TSK)	36° 12'39".0	140° 6'35".0	280m
Kiyosumi	(K or KYS)	35° 11'51".6	140° 8'53".6	230m
Shiroyama	(S)	35° 36'30".0	139° 16'27".0	254m
(temporary)				

Expressions: Am: Amplitude in millimicron (half of peak to trough*) of short period vertical P motion maximum within few cycles after the onset. *In 1967 double amplitude (peak to trough) was used as Am.

T : Period in sec of the measured P maximum

" x : Teleseism

All stations are radio-telemetered to Tokyo giving record on multi-channel ink-recording oscillographs. The paper speed of the recorder is 1 mm per sec. For stronger events high speed recorder (10 mm/sec) is also triggered. The system are recorded in parallel on multi channel magnetic tape through a trigger system using an endless tape loop. Direct filter sum of short period seismometers at Dodaira and/or on line short period filter outputs of Tsukuba are also used for the detection of weak teleseismic signals. For teleseismic events records of long period and medium period seismographs are occasionally used, applying off line frequency filter, if necessary.

The Bulletin includes the preliminary readings sent to USCGS for teleseisms and larger near shocks with total durations (F-P) of short period vertical seismograph at Tsukuba (TSK) with magnification about 140.000 at 1 c/s or sensitivity about 300×10^{-3} mm/microkine at 10 c/s being longer than 100 seconds which correspond approximately shocks with $M \geq 3.5$. For the minor near earthquakes with $F\text{-}P < 100$ sec or $M < 3.5$, frequency of S-P times at each station is added at the end of the Bulletin, which may easily give a general idea of local seismicity around the station.

		;e	Time (G.M.T.)			'	T	Am
JAN. 1	T	iP	01	00	38.5			
	D	iP	01	56	33.5			
	T	iP			41.8			
	K	iP			51.4			
		eS		57	09.2			
	T	iP	01	58	19.3			
	K	eP			25.9			
	D	iP			29.3			
	D	iP	02	00	47.1			
	K	iP			48.7			
	T	iP			51.7			
	K	eP	04	28	53.9			
	D	eP		29	05.9			
	T	eP			06.2			
		eS		31	07.3			
	K	eP	08	37	31.9			
	D	eP			35.4			
	T	eP			38.8		0.17	2.5
	T	iP	15	53	03.4		0.17	2.3
		iS		54	06.7			
	D	eP		53	06.9			
	K	eP	20	16	10.0			
	D	eP			16.0			
	T	eP			18.6		0.17	1.5
	T	iP	20	54	51.4			
	K	iP			52.0			
	D	eP		55	00.4			
	K	eP	22	40	08.2	'		
	D	eP			11.3			
	T	eP			14.9		0.5	6.3
JAN. 2	K	iP	00	28	57.6	'		
		ePcP		30	54.3			
	T	iP		29	05.1		1.4	87.4
		ePcP		30	56.4			
	D	iP		29	05.4			
		ePcP		30	57.5			
		eS?		34	45.8			
	D	iP	01	05	40.3			
	T	iP			51.9			
	K	eP		06	02.0			
	K	eP	06	32	23.1			
	D	eP			33.0			
	T	eP			35.9			
	T	eP	07	32	57.6	'	0.5	5.6
	D	eP		33	07.7			
		eS		35	25.0			

		Phase	Time (G.M.T.)			T	Am
JAN. 2	T	iP	11	46	59.7		
	D	eP		47	06.2		
	K	eP			14.3		
	K	eP	12	40	07.2		
	T	eP			17.6		
	D	eP			19.7		
	D	iP	17	37	51.7		
	T	iP			52.2		
	K	iP			54.5		
	K	iP	19	19	07.3		
	D	iP			17.0		
	T	iP			20.1		
	T	iP	20	28	37.8		
	D	eP			38.0		
JAN. 3	T	eP or eX	02	31	54.1		
	K	iP	09	38	11.0		
	T	iP			23.8		
	T	iP	15	06	06.3		
	D	iP			10.0		
	K	eP			16.2		
	D	iP	21	07	20.7		
		eS		08	22.6		
	T	iP		07	21.3		
JAN. 4	T	iP	01	04	57.2	0.8	219.3
		ePcP?		07	15.6		
		eS		10	45.3		
		eScP?			58.7		
	D	iP		04	02.9		
	K	eP			03.8		
	T	iP	04	56	43.0		
	K	eP			43.8		
	D	eP			52.3		
	T	iP	08	12	39.5		
	D	iP			50.0		
	K	eP			50.0		
	K	eP	09	46	42.0		
	D	iP			48.3		
	T	iP			50.3		
	K	eP	10	21	32.1		
	T	eP			43.6	0.17	4.6
	D	eP			47.4		
	K	eP	10	36	00.8		
	D	eP			06.2		
	T	eP			08.7	1.0	19.4

			Time (G.M.T.)				T	Am
JAN. 4	T	eP	15	08	18.0	"	1.2	19.3
	K	eP			19.8			
	D	eP			20.1			
	K	eP	15	48	26.5			
	D	iP			27.2			
	T	iP			29.8			
	T	iP	18	54	37.1			
	K	iP			40.8			
	D	iP			46.2			
	T	eP	22	18	43.8			
		eX		20	22.0			
	D	eP		18	45.4			
		eX		20	23.8			
JAN. 5	K	eP	05	52	55.6			
	T	iP		53	09.2		0.17	3.9
	D	eP			11.1			
	K	eP	06	07	55.7			
	D	eP		08	04.5			
	T	eP			06.6			
	T	iP	08	22	56.2			
	D	iP		23	03.1			
	K	iP			08.7			
	T	eP	09	26	42.0	"	1.1	18.2
	D	iP			47.7			
	T	iP	16	29	28.8			
		eS		30	22.7			
	T	iP	16	37	50.2			
	D	iP		38	00.2			
	K	iP			00.7			
	T	iP	16	39	49.0			
	D	eP			59.4			
JAN. 6	T	eP	09	25	13.9			
		eS		26	01.6			
	T	eP	15	22	04.6	"?		
	T	ePKP	23	47	08.2	"		
		eX1			13.4			
		eX2			22.2			
	D	ePKP			10.6			
		eX2			18.1			
JAN. 7	D	eP	03	55	21.8	"Explosion?		
	T	iP			23.5		0.5	18.5
	K	eP			30.2?			

		Phase	Time (G.M.T.)				T	Am
JAN. 7	T	iP	07	44	07.2		0.17	11.7
	D	eP			08.0			
		iS		45	44.6			
	K	eP		44	18.7			
	D	iP	09	25	07.6			
		eS			27.1			
	T	iP			11.5		0.17	7.9
	K	eP			18.0			
	K	eP	10	04	24.0	"		
	T	eP			29.3		0.5	13.3
		eX		05	17.4			
	D	iP		04	29.8			
		ePcP?		06	18.9			
		eS		10	48.1			
	K	eP	11	13	06.1			
	T	iP			17.7			
	D	eP			23.4			
	K	eP	18	18	45.6			
	T	eP			57.2		0.17	5.8
	D	eP		19	02.5			
		eS			40.7			
	T	iP	18	31	22.7		0.5	14.7
	D	eP			43.5			
	K	eP			52.2			
	T	eP	21	41	46.8			
	T	eP	21	42	41.8		0.17	1.5
		eS		43	55.7			
	D	iS		44	10.7			
JAN. 8	K	eP	03	26	03.2	"?		
	T	eP			07.3		0.5	3.3
	D	eP			09.8			
	T	eP	11	38	23.8			
		eS		39	46.4			
	T	iP	13	53	03.4	"	1.2	69.4
		eS		55	41.6			
	D	eP		53	03.9			
	K	eP			17.4			
	T	iP	14	40	06.6	"?	0.5	5.7
	T	eP	16	31	24.7			
	T	eP	19	04	00.3	"	1.1	75.2
		epP			30.9			
	K	eP			04.4			
	D	eP	22	05	07.0	"		
	K	eP			08.4			
	T	eP			11.7		1.2	118.3
		epP?			15.7			

			Time (G.M.T.)				T	Am
JAN. 9	K	iP	09	51	10.5			
	T	iP			10.9			
	D	eP			19.3			
	D	eX	11	11	58.5	" ?		
	K	iP	11	40	39.6			
	T	iP			40.4			
	D	iP			44.4			
	T	iP	13	26	31.0			
	D	iP			41.7			
	K	eP			42.5			
	K	eP	13	29	34.3	" ?		
	D	eP			39.3			
		eX			47.3			
	T	eP			46.3		1.0	44.1
	D	eX	14	33	26.1	" ?		
	T	iP	15	38	36.6			
	D	iP			40.3			
		eS			59.0			
	K	iP			46.9			
	K	eP	15	49	42.6			
	D	iP			46.8			
	T	iP			49.4		0.17	4.1
	D	eP	18	26	59.0			
	T	eP		27	05.2			
	T	eP	19	21	39.9		0.17	3.0
		eS		22	49.4			
	D	eP		21	47.1			
JAN. 10	T	eP	02	35	31.7	"		
	D	eP			38.4			
	K	eP	07	52	01.4			
	D	eP			10.0			
	T	iP			11.0		0.17	6.9
	K	eP	09	43	20.1	"		
	T	eP			24.0		0.5	4.4
	D	eP			25.0			
	K	eP	10	11	21.7	"		
	D	iP			23.6			
	T	iP			27.4		0.5	13.4
	T	eP	11	16	14.7			
		eS			35.5			
	K	eP	22	26	10.4			
	D	iP			15.2			
	T	iP			18.3		0.17	7.0

		Phase	Time (G.M.T.)				T	Am
JAN. 10	T	iP	22	35	16.0			
	D	iP			26.4			
		eS			44.9			
	K	eP			28.9			
JAN. 11	K	eP	00	08	38.6			
	D	eP			43.5			
	T	eP			46.1		0.17	2.7
	T	iP	02	01	18.5			
	D	iP			22.2			
	K	iP			26.8			
	T	eP	12	43	16.3		0.17	9.3
	D	eP			24.5			
	K	eP			32.0			
	K	iP	16	13	08.5			
	T	iP			19.9			
	D	iP			23.6			
	K	eP	17	01	33.2	"		
	D	iP			35.9			
	T	eP			39.0		0.5	7.8
	T	eP	18	11	59.6	"	0.5	2.9
	K	eP		12	04.1			
	D	eP			08.1			
JAN. 12	D	iP	01	12	29.1			
	T	iP			30.7			
	K	iP			36.6			
	T	iP	01	20	56.1			
	K	eP		21	04.0			
	D	iP			07.1			
	T	iP	02	18	57.5			
	K	eP		19	05.4			
	D	iP			08.3			
	D	iP	03	00	04.9			
		iX			14.3			
	K	eP			12.2			
	T	iP			14.1		1.0	61.9
		iX			25.1			
		eS?		02	15.8			
	D	eP	04	26	13.9	"?		
	T	eP			17.8			
	K	iP	05	01	23.2			
	T	eP			36.9			
	D	eP			37.1			
	T	eP	08	33	05.7		0.17	1.7
		eS		34	01.6			
	D	eP		33	14.1			

			Time (G.M.T.)				T	Am
JAN. 12	D	iP	08	44	05.1			
	T	eP			16.6			
	K	eP			25.5			
	K	eP	11	51	16.6			
	D	iP			24.6			
		eX			27.4			
	T	iP			26.1		0.17	9.6
		eS		52	49.4			
JAN. 13	T	eP	04	30	43.7			
	D	iP			44.0			
	K	eP			57.1			
	D	eP	07	08	05.8	" ?		
	T	eP			10.3		1.2	22.6
		eS?		11	49.9			
	K	iP	07	25	14.8			
	T	iP			22.2			
	D	iP			25.1			
	D	eX	08	35	20.1	" ?		
	D	iP	12	04	11.8			
	T	iP			15.7		0.17	4.8
	K	eP			23.0			
	T	eP	16	17	50.8			
		eS		18	39.9			
	D	eP		17	02.6			
	T	eP	16	26	34.5	"	1.2	51.6
		eX1			43.4			
		eX2		27	43.7			
	D	eP		26	35.5			
		eX1			45.0			
		eX2		27	50.7			
	K	eX1		26	45.2			
	T	eP	16	26	56.6	"		
	D	eP		27	00.6			
	T	eP	17	02	32.5			
	D	eP			43.1			
	T	iP	20	48	44.7		0.17	12.2
	D	iP			51.3			
	K	eP			58.7			
	T	eX	21	49	20.0	" ?		
JAN. 14	T	eP	06	39	53.8		0.17	1.7
		eS		40	56.0			
	D	eP			03.3			
	K	eP	08	11	35.4			
	T	eP			39.3		0.5	6.7
	D	iP			40.5			

		Phase	Time (G.M.T.)				T	Am
JAN. 14	T	eP	08	32	20.0			
	D	eP			27.9			
	D	eP	11	20	45.3			
	T	eP			47.9			
	T	iP	12	05	20.9			
		eS		06	42.4			
	D	eP		05	29.8			
	K	eP	12	33	07.7	"		
		epP?			39.6			
	D	eP			10.1			
		epP?			41.4			
		eS		38	34.5			
	T	eP		33	13.4		1.2	132.0
		epP?			44.6			
		eS		38	36.4			
	T	eP	12	48	00.0	"	1.5	100.0
		eX1			28.5			
		eX2		50	19.3			
	D	eP		48	06.3			
		eX1			13.6			
		eX2		50	19.8			
	D	iP	14	15	36.3			
	T	iP			46.1			
	T	eP	17	50	23.0	"	1.4	170.8
		eX1			28.5			
		eX2		52	40.7			
	D	eP		50	29.1			
	T	eX	18	19	05.3			
	D	eP		18	58.6			
		eX		19	06.3			
JAN. 15	T	eX	02	24	30.0	"		
	K	eP	04	23	21.6			
	T	eP			25.1			
	D	iP			27.8			
	T	iP	12	12	10.3			
	D	iP			21.1			
	K	eP			21.8			
	K	eP	16	27	11.4			
	T	iP			23.6		1.0	23.9
	D	iP			26.2			
	D	eX	19	38	23.0	"		
	T	eX			27.1		1.0	27.8
	D	eX	23	43	54.0	"		
	T	eX			55.7		0.5	8.0

Date	Station	Phase	Time (G.M.T.)			T	Am
JAN. 16	K	iP	08	34	46.4		
	D	iP			53.2		
	T	iP			55.9	0.17	4.3
		eS		36	29.8		
	T	iP	09	10	00.8		
		iS			38.2		
	D	iP			09.6		
	T	iP	23	33	04.0		
	K	iP			07.2		
	D	iP			10.4		
JAN. 17	T	iP	00	09	04.9		
	D	iP			15.7		
	T	iP	06	50	03.5		
	D	iP			14.8		
	K	eP			15.6		
	T	iP	06	56	28.2		
	D	iP			39.1		
	K	eP			41.0		
	D	eP	11	17	44.9		
	T	iP			49.1	0.17	3.1
		eS		18	35.9		
	T	iP	12	22	09.6	0.17	2.2
		iS		23	04.7		
	D	eP		22	19.1		
	T	iP	13	06	20.1		
	K	iP			21.3		
	D	iP			29.2		
	K	eP	15	38	09.5		
	T	iP			21.6	0.17	2.7
	D	eP			26.1		
	T	iP	17	56	29.3		
	K	iP			32.7		
	D	iP			35.4		
	T	iP	19	46	06.4		
	K	iP			09.5		
	D	iP			12.4		
JAN. 18	D	iP	01	43	49.2		
	T	iP			51.6	0.17	9.8
	K	eP		44	01.9		
	D	iP	10	45	07.5		
	T	iP			11.9		
	K	iP			17.9		

			Time (G.M.T.)				T	Am
JAN. 18	T	iP	11	21	06.3			
	D	iP			16.7			
		eS			45.6			
	K	eP			17.0			
	T	eP	12	14	08.4	"		
	D	eP			11.9			
	D	eP	13	25	21.6			
	T	eP			25.1			
	T	eX	14	24	12.4	"?		
	K	iP	15	16	00.6			
	T	iP			02.9			
	D	iP			06.3			
	D	eP	21	58	39.1	"		
	T	eP			43.6			
	K	iP	23	15	17.8			
	T	iP			18.4			
	D	iP			21.4			
	T	iP	23	37	39.9			
		eS		38	39.8			
	D	iP		37	48.4			
	K	iP			53.5			
JAN. 19	T	iP	03	41	47.8			
	D	iP			55.1			
	K	eP		42	01.9			
	K	eP	06	13	14.4	"		
	T	eP			20.0		1.4	160.0
		epP			39.0			
		ePP?		15	14.0			
		eX		33	29.6			
	D	eP		13	20.5			
		eS		20	25.3			
	D	iP	09	50	40.1			
	T	iP			43.2		0.17	1.8
	K	eP	14	21	30.4	"?		
	T	eP			32.2		1.1	26.3
	K	eP	14	59	33.7	"		
	D	eP			34.7			
		eX			44.6			
	T	eP			34.9		1.0	11.4
	T	eX	15	55	33.1	"?		
	T	eP	15	57	20.1		0.17	2.1
		eS		58	26.6			
	D	eP		57	36.4			

Date	Station	Phase	Time (G.M.T.)			"	T	Am
JAN. 19	T	eP	16	07	27.3			
		eS		09	14.9			
	D	eP		07	33.9			
	T	eP	16	45	56.9			
	D	eP		46	05.6			
	T	iP	18	26	58.1	"	1.3	247.8
	D	iP		27	02.4			
		eX			59.2			
	K	eP			02.5			
	T	eP	20	10	01.7			
	T	iP	23	04	20.0		0.17	2.1
		eS		05	32.5			
	D	eP		04	27.5			
JAN. 20	K	iP	01	57	34.0			
	T	iP			35.4			
	D	iP			39.2			
	D	eP	02	32	28.5			
		eX			32.9			
	K	eP			34.3			
	T	eP			41.1		1.2	30.9
	K	eP	03	31	53.6			
	D	iP		32	04.9			
	T	iP			06.4		0.17	4.9
	K	iP	03	39	15.2			
	T	iP			21.2			
	D	iP			30.9			
	K	iP	06	45	53.5			
	D	iP		46	05.7			
	T	iP			06.3		0.17	6.4
	T	iP	09	45	57.0			
	D	iP		46	07.4			
	K	eP			08.4			
	K	eP	09	51	31.3			
	D	eP			42.6			
	T	eP			43.5		0.17	1.6
	D	eP	10	03	09.2	"		
	T	eP			10.4		1.2	19.3
	T	eP	15	07	05.0			
	T	eP	15	47	43.6			
		eS		48	59.7			
	K	eP	16	51	54.9	"		
	T	eP			56.2		1.6	58.2
	D	eP			58.5			

Date	Station	Phase	Time (G.M.T.)				T	Am
JAN. 20	K	eP	20	10	50.8	"		
	T	eP		11	01.6		0.9	30.9
		eS		14	24.5			
		iX			42.0			
	D	iP		11	02.6			
		eX			10.3			
	D	eP	21	16	09.1			
	T	eP			09.3			
	K	iP	21	32	36.0			
	T	iP			41.7		1.3	212.8
		eX			57.7			
	D	iP			43.1			
	T	iP	22	07	08.4		0.17	1.8
		iS			55.7			
	D	eP			16.6			
JAN. 21	K	eP	00	36	01.1	"		
	D	iP			03.4			
	T	eP			04.5		0.5	11.1
	K	eP	01	29	17.0	"		
	D	eP			20.8			
	T	eP			23.0		1.0	36.4
	K	iP	04	26	43.0			
	T	iP			53.7		0.5	28.8
	D	iP			58.0			
	T	iP	08	27	41.2		0.17	3.4
	D	iP			49.6			
		eS		28	50.0			
	T	eP	08	56	53.7		0.17	8.9
	D	iP		57	04.6			
	K	eP			07.9			
	K	eP	10	23	51.5			
	T	eP		24	05.0		0.17	1.8
	D	eP			08.2			
	T	eP	12	22	04.7			
	D	ePKP	17	04	44.2	"		
		eX		05	26.6			
	D	iP	22	43	59.2			
	T	iP		44	08.4			
	D	iP	22	48	09.7			
	T	iP			22.1			
JAN. 22	K	iP	02	26	52.2			
	D	iP			58.6			
	T	iP		27	00.8		0.17	10.1

Date	Station	Phase	Time (G.M.T.)				T	Am
JAN.22	D	iP	04	48	59.2			
	T	iP		49	10.4		0.17	13.3
		eS			36.5			
	K	iP			14.8			
	D	iP	08	42	05.2			
		eS			21.7			
	T	iP			16.7		0.5	13.5
	K	iP			20.6			
	K	iP	10	24	47.4			
	D	iP			58.2			
	T	iP			58.6		0.17	5.0
	T	eP	10	44	24.5		1.1	25.7
	K	eP			28.5			
	T	iP	11	56	29.0			
	D	iP			32.2			
	K	iP			37.8			
	T	eP	13	21	59.8			
		eS		22	59.7			
	D	iP	14	29	04.1			
	T	iP			15.6		0.17	7.2
		eS			38.1			
	K	eP			25.4			
	D	eP	18	25	17.9			
	T	eP			19.2		0.5	5.1
		eX		26	49.8			
	K	iP	18	37	03.3			
	D	iP			08.7			
	T	iP			11.3			
	K	iP	18	47	24.5			
	D	iP			32.5			
	T	iP			37.3			
	D	eP	19	07	19.6			
	T	eP			21.2		0.5	4.3
	D	eP	22	57	14.0			
	T	eP			16.4			
JAN.23	D	iP	09	19	35.9			
	K	iP			44.2			
	T	iP			47.5			
	T	iP	11	45	26.6			
	K	iP			28.5			
	D	iP			31.0			
	T	eP	16	14	00.8		0.9	49.4
		eX		16	18.1			
	D	eP		14	06.9			
	K	eP			09.6			

Date	Station	Phase	Time (G.M.T.)				T	Am
JAN.23	T	iP	18	28	29.3		0.17	4.9
	D	iP			39.1			
		eS		29	30.7			
	K	eP		28	41.9			
	T	iP	19	17	41.4			
	D	iP			50.6			
	K	iP			55.9			
	D	eP	21	45	01.8	" ?		
	T	eP			05.6			
	D	eP	22	57	58.4			
	T	eP		58	05.7			
JAN.24	T	eP	03	48	45.7		0.17	1.4
	D	eP			54.8			
	T	eP	03	55	57.2			
	D	eP		56	06.5			
	T	iP	05	24	06.3			
	K	eP			12.6			
	D	iP			16.8			
	T	iP	07	17	45.2		0.17	2.9
		eS		18	35.6			
	D	eP		17	55.2			
	T	eP	07	37	07.0	" ?	0.5	6.7
	D	eP			14.0			
	T	iP	09	36	17.4			
	D	iP			24.2			
	K	iP			25.4			
	D	eP	11	59	07.6	" ?		
	T	eP			09.9		0.5	3.9
	T	eP	13	41	03.4	" ?	1.5	50.0
		eS		42	44.7			
	D	eP		41	07.2			
	K	eP	15	04	39.0			
	D	iP			42.2			
	T	iP			45.4		0.17	8.5
	K	eP	16	22	13.2			
	T	iP			25.9		0.17	2.2
	D	eP			28.3			
	D	iP	17	05	59.9			
	T	iP		06	10.1			
	K	eP			21.4			
	K	iP	23	50	10.4			
	D	iP			18.4			
	T	iP			20.1		0.17	4.2

Date	Station	Phase	Time (G.M.T.)			"	T	Am
JAN. 25	K	iP	00	31	50.6			
	D	iP		32	00.3			
	T	iP			01.5		0.17	2.7
	T	iP	06	19	34.1		0.17	4.5
	D	iP			35.7			
	D	eP	08	58	12.7			
	T	eP			17.0		0.17	2.1
	T	iP	09	49	33.3			
	K	iP			40.6			
	D	iP			43.8			
	T	eX	10	25	08.1	"?		
	D	eP	12	18	32.2			
	T	eP			38.6			
JAN. 26	K	eP	04	54	19.5	"		
	D	eP			20.3			
		eX			34.0			
	T	eP			25.9		1.2	23.7
		eX			39.1			
	D	iP	07	55	39.1			
	T	iP			48.7			
	K	iP			58.0			
	D	iP	08	06	02.0			
		eS			15.6			
	T	iP			12.0			
	K	iP			21.4			
	D	iP	08	24	00.1			
	T	iP			10.5			
	K	eP			20.6			
	D	iP	09	08	24.2			
	T	iP			35.0			
	K	eP			44.0			
	D	iP	12	12	12.3			
	T	eP			22.0		0.17	12.6
	K	eP			32.7			
	D	eP	14	11	51.5			
	T	iP			55.2			
	K	eP		12	03.3			
	K	eP	22	32	17.9			
	D	eP			25.9			
	T	eP			27.8		0.17	3.6
JAN. 27	K	iP	00	56	32.7			
	D	iP			39.9			
	T	iP			41.6		0.17	6.0
		eS		58	02.0			
		eX			09.2			

Date	Station	Phase	Time (G.M.T.)			"	T	Am
JAN.27	D	iP	02	54	39.9			
	T	iP			51.5		0.5	37.1
		eS		55	17.3			
	K	iP		54	55.7			
	D	eP	04	24	53.2			
	T	eP			55.5			
	T	iP	07	22	30.8		0.17	4.6
	D	eP			39.5			
		eS		24	14.5			
	T	eP	12	32	58.5	"?		
	D	eP	14	00	54.1	"		
	K	eP			57.5			
	T	eP			58.4		0.5	12.7
	T	iP	14	10	50.4			
	D	iP			59.8			
	K	eP		11	02.3			
JAN.28	K	eP	02	21	08.0			
	D	eP			21.0			
	T	eP			21.1		0.17	1.7
	K	eP	03	23	56.9			
	T	eP		24	09.9			
	D	eP			10.3			
	K	iP	08	54	01.9			
	T	iP			06.5			
	D	eP			13.1			
	T	eP	12	53	17.6		0.5	3.1
	D	eP			23.0			
	T	iP	22	22	46.1			
	D	iP			48.3			
JAN.29	D	iP	05	09	15.0	"		
	T	iP			18.9		1.2	195.7
	D	eX	05	10	06.4	"		
	T	eX			09.6		1.3	89.7
	T	iP	06	56	34.6			
	D	iP			42.0			
	D	eP	09	12	34.2	"		
	T	eP			35.2		1.1	27.9
	T	iP	10	21	09.9			
	D	ePn?			14.4			
		iP			18.5			
	T	eP	10	35	00.5		0.5	14.2

Date	Station	Phase	Time (G.M.T.)			T	Am
JAN. 29	T	eP	10	44	12.2	0.5	4 0.2
	D	eP			21.9		
	T	eP	10	50	05.8	0.5	6.1
	T	eP	11	00	38.2	0.5	9.2
	D	eP			48.0		
	T	eP	11	25	06.7		
	T	eP	11	27	27.7		
	T	eP	11	31	06.5	0.5	9.1
	D	eP			16.2		
	T	eP	11	38	39.5	0.5	8.0
	D	eP			48.2		
	T	eP	11	46	05.4	0.5	4 3.5
		eS		47	39.4		
	D	eP		46	15.3		
	T	eP	12	09	15.0	0.5	3 0.6
		eS		10	49.1		
	D	eP		09	23.9		
	T	eP	12	25	06.5		
	T	eP	12	42	19.2	0.5	8.9
	T	eP	12	55	47.7		
	T	eP	13	53	52.6		
	T	eP	14	03	41.3	0.5	1 0.9
	D	eP			50.5		
	T	eP	14	12	37.7	0.5	4.7
	D	eP			48.7		
	T	eP	14	31	30.1		
	T	eP	14	33	48.1	0.5	4.4
	T	eP	14	41	43.4	0.5	1 6.0
	D	eP			52.4		
	T	eP	14	44	48.9	0.5	7.6
	D	eP			59.5		
	T	eP	14	45	51.9	0.5	2 8.6
		eS		47	23.5		
	D	eP		46	02.3		
	T	eP	14	54	04.6		

Date	Station	Phase	Time (G.M.T.)				T	Am
JAN. 29	T	eP	15	00	48.4		0.5	3.2
	D	eP			58.4			
	T	eP	15	50	19.2			
	T	eP	16	06	16.6		0.5	6.7
	D	eP			25.4			
	T	eP	16	17	35.1			
	T	iP	16	44	57.0		0.5	51.8
		eS		46	33.0			
	D	iP		45	05.6			
	T	eP	17	16	12.7		0.5	28.4
	D	eP			22.2			
		eS		18	01.7			
	T	eP	17	32	45.4			
	T	eP	18	05	33.0			
	D	eP	18	16	24.4	"		
	T	eP			24.9		0.5	12.0
		eS		18	57.5			
	T	eP	18	27	04.7			
	T	eP	18	40	42.4			
	T	eP	19	31	12.2			
	T	eP	19	41	25.0		0.5	30.0
	D	eP			34.9			
		eS		43	17.0			
	T	eP	20	27	23.6			
	T	eP	20	46	09.6		0.5	5.3
	D	eP			19.2			
		eS		47	59.2			
	T	eP	20	51	40.0			
	T	eP	21	01	01.6	"	1.8	133.1
	D	eP			07.1			
	T	eP	21	15	56.0			
	D	eP		16	06.1			
	T	eP	21	27	14.2			
	T	eP	21	51	00.4		0.5	11.1
		eS		52	36.7			
	D	eP		51	10.0			

Date	Station	Phase	Time (G.M.T.)			T	Am
JAN.29	T	eP	22	29	39.6	0.5	8.7
		eS		31	12.3		
	D	eP		29	50.7		
	T	eP	22	40	10.3	0.5	11.1
		eS		41	41.9		
	D	eP		40	19.8		
	T	eP	22	43	14.5	0.5	7.1
	T	eP	23	11	09.2		
JAN.30	T	eP	00	12	41.1	0.5	9.6
		eS		14	09.8		
	T	eP	00	34	35.5	0.5	15.0
		eS		36	06.8		
	D	eP		34	45.3		
	T	eP	01	32	19.7	0.5	50.8
	D	eP			28.5		
	T	eP	01	50	36.2	1.0	96.0
	D	eP			45.6		
	K	eP			50.7		
	T	iP	02	22	40.7	0.5	17.1
	D	eP			50.4		
	T	iP	02	40	21.2	0.5	28.7
		iX			35.0		
	D	iP			30.8		
	K	eP			34.8		
	T	iP	02	44	36.3	0.5	19.0
	D	iP			45.8		
	K	eP			49.9		
	T	iP	02	55	55.6	0.5	40.0
	D	iP		56	05.6		
	K	eP			10.3		
	T	iP	03	03	48.5	0.17	13.7
	D	iP			58.2		
	K	eP		04	01.7		
	T	iP	03	25	50.0	0.5	41.0
		eX		26	02.0		
	D	eP		25	59.3		
	K	eP		26	02.5		
	T	eP	03	31	58.9	0.5	17.5
	D	eP		32	09.4		

Date	Station	Phase	Time (G.M.T.)			T	Am
JAN.30	K	iP	03	52	11.8		
		iPcP		53	29.8		
	D	iP		52	14.0		
		iPcP		53	30.9		
	T	iP		52	17.5		
		iPcP		53	32.5		
		eS		58	34.5		
	T	eP	03	54	40.8	0.5	16.6
	D	eP			49.2		
	T	eP	04	04	13.6	0.5	15.1
	D	eP			23.3		
	T	eP	04	12	41.2	0.5	27.1
	D	eP			51.1		
	K	eP			51.9		
	T	eP	05	18	07.6	0.17	2.5
	D	eP			16.9		
	T	eP	05	29	34.1		
	D	eP			43.5		
	T	eP	05	49	23.6		
	D	eP			32.4		
	T	iP	06	10	41.8	0.5	45.5
	D	eP			50.8		
		eS		12	32.5		
	K	eP		10	58.8		
	T	eP	07	08	31.6		
	D	eP			39.7		
	T	eP	07	29	40.7		
	D	eP			49.9		
	T	eP	07	44	36.4	0.5	6.7
	D	eP			45.3		
	D	eP	08	02	46.3		
	T	eP			50.3	0.17	4.9
	T	iP	08	20	19.9		
	K	iP			20.1		
	D	iP			30.5		
	D	eP	08	26	37.8		
	T	eP			40.4	1.1	21.0
	K	eP			45.5		
	T	eP	08	37	49.8		
	T	eP	09	08	29.9	0.17	3.3
		iS		09	59.3		
	D	eP		08	39.0		

Date	Station	Phase	Time (G.M.T.)			"	T	Am
JAN.30	T	eP	09	15	55.2			
	T	iP	10	41	42.5			
	K	eP			47.6			
	D	iP			52.7			
	T	eP	10	58	46.2			
	T	iP	11	36	42.0		0.5	7.2
	D	eP			51.8			
	K	eP		37	01.2			
	T	eP	12	18	31.1			
	T	eP	13	24	37.5			
	T	eP	14	01	39.1			
	D	eP			49.1			
	T	iP	14	11	22.2		0.5	26.0
	D	iP			31.2			
	K	eP			40.8			
	T	eP	14	33	24.0		0.5	6.7
	D	eP			33.6			
	T	eP	15	06	21.9			
	T	eP	15	39	25.6		0.5	6.7
	D	eP			34.8			
	D	iP	16	43	36.7			
	K	iP			37.0			
	T	iP			40.9			
	T	eP	16	48	35.9			
	D	eP			44.3			
	T	iP	16	59	57.3		0.5	8.8
	D	eP			07.4			
	T	eP	17	19	38.1		0.5	4.7
	D	eP			47.1			
	K	eP	18	27	00.6			
	T	iP			13.0		0.17	5.7
	D	eP			15.5			
	T	iP	18	37	05.7		0.5	18.9
	D	eP			15.1			
		eS		38	53.7			
	K	eP		37	22.4			
	T	eP	18	52	27.2			
	D	eP			36.6			
	T	eP	19	41	12.0			
	T	eP	19	42	37.7			
	D	eP			47.2			

Date	Station	Phase	Time (G.M.T.)			"	T	Am
JAN. 30	T	iP	20	32	22.5	"	1.0	47.9
		iX1			31.4			
		iX2			54.0			
	K	eP			24.1			
		eX2			56.1			
	D	iP			24.4			
		eX1			35.2			
		eX2			56.3			
	T	eP	21	24	16.7			
	D	eP			25.8			
	T	eP	21	54	37.5			
	T	iP	22	52	05.5		0.5	16.5
	D	iP			14.8			
			22	52				
	T	eP	23	56	25.4		0.5	7.6
	D	eP			34.3			
JAN. 31	T	eP	00	21	52.3			
	T	eP	00	34	00.6			
	D	eP			09.0			
	T	iP	01	09	06.0		0.5	6.5
	D	eP			15.0			
	K	eP	01	20	19.1			
	T	eP			29.3		0.17	1.4
	D	eP			29.5			
	T	iP	01	40	13.5		0.17	3.5
		iS		41	03.3			
	D	iP		40	23.6			
	T	eP	02	25	08.8	"	1.1	29.9
	D	eP			13.7			
	K	eP	03	06	27.7	"		
	D	eP			31.7			
	T	eP			34.6		1.2	69.5
		eS		12	56.2			
	T	eP	03	41	06.4			
	D	eP			15.9			
	T	eP	04	23	25.8			
	K	eP	04	39	02.0	"		
	D	iP			12.6			
	T	iP			13.6		0.5	5.8
	T	iP	04	57	52.3		0.5	28.7
	D	eP		58	02.0			
		eS		59	44.7			
	K	eP		58	08.2			

Date	Station	Phase	Time (G.M.T.)				T	Am
JAN.31	T	eP	06	23	50.7		0.5	6.0
	D	eP			58.6			
	T	iP	09	26	28.0			
	D	iP			37.1			
	K	eP			40.5			
	T	eP	09	33	06.2			
	D	eP			20.8			
	T	eP	11	10	25.9			
	D	eP	11	21	23.0			
	T	eP			25.8			
	D	eX	11	52	53.7			
	T	eX			56.8		1.2	30.1
	D	iP	13	01	15.9			
	T	iP			17.9			
	K	iP			33.2			
	T	eP	13	46	53.0			
		eS		48	45.7			
	D	iP	15	36	29.4			
	K	eP			32.5			
	T	iP			34.3		0.17	6.0
	T	iP	15	40	14.8			
	D	iP			25.4			
	K	eP			30.7			
	T	iP	16	21	25.8		0.5	5.6
	D	eP			34.6			
	T	eP	17	38	44.3			
	D	eP			54.3			
	T	eP	18	25	45.8		0.5	4.0
	T	eP	19	24	07.5		0.5	22.5
	D	eP			16.5			
	T	eP	20	06	39.8		0.5	11.8
	D	eP			45.4			
	D	eP	21	39	47.0			
	T	iP			51.5			
	T	eP	22	00	30.7		0.5	7.3
	D	eP			41.1			
	T	eP	22	55	58.2		0.5	5.6
	D	eP		56	08.3			
	T	eP	23	07	44.5			

Dodaira

S-P \ Date	1	2	3	4	5	6	7	8	9	10	11	12	13
0— 0.9													
1— 1.9				1?	1?								
2— 2.9													
3— 3.9					1?								
4— 4.9													
5— 5.9													
6— 6.9													
7— 7.9	1			1	1					1			
8— 8.9		1			9	1	2						
9— 9.9					6					1			
10—10.9	1				2						2		2
11—11.9			1							3	1	1	1
12—12.9	1	3		1	1	2						1	1
13—13.9	2	2	1	1		3	1		2				1
14—14.9				2					1		1		
15—15.9				1					1		1		
16—16.9		1		1		1						2	
17—17.9					1			1		1			
18—18.9	1											1	
19—19.9													
20—20.9		1			1		1					1	
21—21.9	1									1			
22—22.9	1												
23—23.9						1	1						
24—24.9	1			1									
25—25.9				1									
26—26.9													
27—27.9							1						
28—28.9													
29—29.9													
above 30 sec		1	1							1			
?					1								
Total	9	9	3	10	24	8	6	1	4	8	5	6	5
no observation								09h. 46m ~24h.	00h. ~16h. 10m				

JAN.

14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
									1								1
1						1			1								
																	1
											2						
	1			1	1	1								1			
		1					1				1			1			1
						1								2			
						1		1					1				
1	1								1	1				2	1		
1		2	1	2	1	2	1	1	3		2	4	1	1		2	1
2	1	1			2	2	3	9	3		2	17	11	4	1		4
	1		1	1		1	1		1	2		4	6	2	2		
	1				1				1				1	2			
1							1		1	1	1						
		1						1	1	2		1	2	1			
1	1						1							2			
		1					1		1	1	1						
				1					1		2			1			
		1					1		1								
		1									1			2			
									1			2		1			
															1		
			1	1													
							1										
	2						2	1						2			
														1	2		
7	8	8	3	6	5	9	13	13	17	7	12	28	22	25	7	2	8

19h. 00m.
4 4m ~09h.
~24h. 49m

Tsukuba

S–P \ Date	1	2	3	4	5	6	7	8	9	10	11	12	13
0– 0.9													
1– 1.9													
2– 2.9													
3– 3.9													
4– 4.9					1	1	1						
5– 5.9	1	1		1	2	1	1	1		1	1	1	
6– 6.9					1	3	2	1	1				
7– 7.9		1		1			2	2	2	3	2	2	1
8– 8.9	1		2		1	3	1	4	4	3	1	1	3
9– 9.9	1	2	2	2	2	3	1	2	1	3	2	2	3
10–10.9				1	10		3	1	2	2	1	1	1
11–11.9	3			2	2	2	1	1	3		5	2	
12–12.9	1	1	2		1		1	1				1	
13–13.9		1								1		1	
14–14.9	1			1		1		3				1	1
15–15.9	1	1					2	1	1	1			
16–16.9				1		1					1		
17–17.9				1	1							3	1
18–18.9	1			1	1	2			2	1		1	
19–19.9			1							1		1	
20–20.9					1								3
21–21.9	1	1											
22–22.9	1	1	1								1		
23–23.9									1				
24–24.9												1	
25–25.9		1											
26–26.9													
27–27.9													
28–28.9													
29–29.9										1			
above 30 sec		1		1							1		1
?								2	1			1	
Total	12	11	8	12	23	17	15	19	18	17	15	19	14
no observation													

JAN.

14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
			1														
2	1				2	1	1		2		2	6					
	1	1	4	1		2			1		1			1			1
1	1		1	1	1		2	2	1	2	1		1	1	2	3	
1	2	1	2		1	2	1	2	1	3	2	1		5	3	2	1
1	1	5	3	1	1	1	2	1	4		1	1	4		1		
2	3		2	4	3	3	1	2	2	1	2	1	2	3	1	1	1
1	2	1	1	1	2	1			1	2	2	1	2	2	2		3
1			1		1	1				1	3	1		1	4	1	
		2	1	1	1	1	2	1	1	1	3		1	4	1		
	1								3			1		2			
			1		1		1		1	1				1		1	
		1	1			1	1		1		1			1	1	1	1
				1						1		3			2		1
	1		1	1		1											
	1		1		1	1		2	2	1	1	1					
			2	1	1		1		1	2		3	2	1			1
					1							3	6	2	1		
									2								
				2						1							
																	1
			1														
					1												
														1			
								1	1								
		1							1								
	3	2	1	1	2				1					2	1		
					1						2		1				1
9	17	14	24	15	20	15	12	11	26	16	21	22	19	27	19	9	11

Preliminary Bulletin

of the Dodaira Micro-earthquake Observatory

and its Substation

Feb., 1968

Dodaira Micro-earthquake Observatory

Earthquake Research Institute, the University of Tokyo

Preliminary Bulletin of the Dodaira Micro-earthquake Observatory and its Substation

Observation stations

		N	E	h
Dodaira	(D or DDR)	35°59'54".0	139°11'36".2	800m
Tsukuba	(T or TSK)	36°12'39".0	140° 6'35".0	280m
Kiyosumi	(K or KYS)	35°11'51".6	140° 8'53".6	230m
Shiroyama	(S or SRY) (temporary)	35°36'30".0	139°16'27".0	254m

Expressions: Am: Amplitude in millimicron (half of peak to trough*) of P motion maximum within few cycles after the onset recorded by a short period vertical seismograph. *In 1967 double amplitude (peak to trough) was used as Am.

T : Period in sec of the measured P maximum

t : Teleseism

All stations are radio-telemetered to Tokyo giving records on a multi-channel ink-recording oscillograph. The paper speed of the recorder is 1 mm per sec. For stronger events high speed recorder (10 mm/sec) is also triggered. The system is also recorded in parallel on multi channel magnetic tape through a trigger system using an endless tape loop. Direct filter sum of short period seismometers at Dodaira and/or on line short period filter outputs of Tsukuba are also used for the detection of weak teleseismic signals. For teleseismic events records of long period and medium period seismographs are

occasionally used, applying off line frequency filter, if necessary.

The Bulletin includes the preliminary readings sent to USCGS for teleseisms and larger near shocks with total durations (F-P) of short period vertical seismograph at Tsukuba (TSK) with magnification about 140.000 at 1 c/s or sensitivity about 300×10^{-3} mm/microkine at 10 c/s being longer than 100 seconds which correspond approximately shocks with $M \geq 3.5$. For the minor near earthquakes with $F-P < 100$ sec or $M < 3.5$, frequency of S-P times at each station is added at the end of the Bulletin, which may easily give a general idea of local seismicity around the station.

Date	Station	Phase	Time (G.M.T.)	t	T	Am
FEB. 1	T	eP	00 47 27.1			
	D	eP	36.2			
	T	eX	05 07 01.4	t?	1.1	21.9
	T	eP	07 02 03.0		0.17	2.5
	D	eP	11.8			
	T	eP	09 42 19.5		0.5	6.5
	D	eP	29.2			
	T	eP	10 20 52.5			
	T	eP	10 23 26.6			
	D	eP	36.1			
	T	eP	12 27 01.4			
	D	eP	11.3			
	T	iP	12 49 26.6		0.5	39.3
	D	iP	35.5			
	K	eP	40.3			
	T	eP	18 54 58.6		0.5	9.3
	D	eP	55 08.0			
	T	iP	19 04 12.0		0.5	15.8
	D	iP	21.3			
	K	eP	26.7			
	T	eP	19 30 39.7			
	T	eP	19 34 00.5		0.5	11.5
	D	eP	10.7			
	K	eP	18.0			
	T	eP	22 11 25.0			
	D	iP	22 49 17.9			
	T	iP	21.5			
	K	eP	23 23 34.2	t		
	T	eP	39.9		1.2	34.2
		eX	55.3			
	D	iP	40.3			
FEB. 2	T	eP	03 25 09.9			
	D	eP	22.8			
	T	iP	08 11 52.8		0.5	30.9
	D	iP	12 02.4			
	K	eP	05.3			
	K	iP	08 59 36.0			
	T	iP	36.6			
	D	iP	40.9			

Date	Station	Phase	Time(G.M.T.)			t	T	Am
FEB. 2	D	eP	09	47	35.1	t		
	T	eP			38.2		0.5	4.3
	D	eP	10	35	49.4			
	T	iP			52.5		0.1 7	9.1
	K	eP			59.7			
	T	eP	13	29	37.0			
	D	eP			45.0			
	K	eP	14	20	24.0			
	D	iP			30.1			
	T	iP			32.6		0.1 7	3.5
	T	eP	14	59	41.3		0.1 7	2.5
		eS	15	01	14.7			
	D	eP	14	59	51.4			
	T	eP	15	03	17.1			
	T	eP	15	39	00.8		0.5	9.4
	D	eP			11.0			
	T	eP	19	24	42.0			
	T	iP	20	17	28.1		0.5	10.4
	D	iP			38.0			
		iS		19	15.6			
	K	eP		17	45.4			
	T	eP	21	02	55.7			
	D	eP		03	12.4			
	T	iP	21	06	04.7		0.1 7	7.8
		eS			48.8			
	D	iP			14.6			
	K	eP			16.6			
	D	eP	21	22	15.5	t		
	T	eP			19.2			
FEB. 3	T	iP	03	29	30.1	t	0.5	11.5
		eS		31	57.8			
	D	eP		29	39.4			
	K	eP			48.8			
	T	eP	07	11	34.2			
	D	eP			45.4			
	T	eP	10	02	13.2		0.5	4.0
	K	eP	10	57	17.3	t?		
	T	eP			27.5		0.5	5.3
	T	iP	11	32	47.2		0.5	40.2
	D	iP			55.9			
	K	eP		33	01.0			

Date	Station	Phase	Time(G.M.T.)			t	T	Am
FEB. 3	T	eP	12	33	20.0			
	D	eP			29.8			
	T	eP	13	00	20.0		0.5	28
	D	eP			28.1			
	T	iP	13	09	13.0		0.5	6.4
	D	eP			22.0			
	K	eP			29.5			
	T	iP	17	11	54.7			
	D	iP		12	02.0			
	K	eP			11.8			
	T	iP	19	08	51.2			
	D	eP		09	03.0			
	T	iP	19	55	13.8		0.17	10.5
		iS		56	02.4			
	D	iP		55	22.1			
	K	eP			29.5			
	T	iP	20	34	46.7		0.17	1.9
	D	eP			55.6			
	D	iP	20	43	26.8			
	K	iP			28.3			
	T	iP			31.3		0.17	15.0
	K	eP	23	47	19.8			
	D	eP			29.9			
	T	iP			33.0		0.17	1.5
FEB. 4	T	iP	02	13	01.0			
	D	iP			04.8			
	K	iP			09.8			
	T	eP	05	10	14.3			
	D	eP			24.7			
	T	eP	07	07	19.7			
	D	eP			29.5			
	K	iP	08	42	24.4			
	D	iP			27.0			
	T	iP			30.3			
	T	eP	08	52	56.4			
	D	eP		53	18.7			
	T	iP	09	12	29.4			
	D	iP			38.9			
	K	eP			44.8			
	K	eP	09	27	45.1			
	T	eP			58.1			
	D	eP			59.0			

Date	Station	Phase	Time(G.M.T.)			t	T	Am
FEB. 4	T	iP	11	02	53.4			
	D	iP		03	02.3			
	K	eP			08.6			
	T	iP	11	08	24.8			
	D	iP			34.6			
	K	eP			37.7			
	D	eS	11	12	07.3			
	T	eP	11	19	48.5			
	D	eP			58.5			
	T	eP	11	47	03.5	t	09	29.6
		eX1			09.3			
		eX2			43.6			
	D	eP			05.4			
		eX2			46.1			
	K	eP			05.8			
	T	eP	12	06	25.5			
	T	eP	12	11	26.2			
	D	eP			36.8			
	T	eP	12	21	07.8			
	T	eP	12	23	44.5			
	T	eP	13	11	03.5			
	T	eP	13	56	50.2			
		eS		57	26.0			
	D	eP		56	59.9			
	T	eP	14	23	44.7			
	D	eP			53.2			
	D	eP	15	02	15.5			
	T	eP			17.1			
	T	eP	15	13	55.0			
	D	eP		14	04.6			
	T	eP	15	27	15.0			
	T	eP	15	50	17.7			
	D	eP			17.4			
	T	eP	16	19	32.9			
	D	eP			48.8			
	T	eP	16	53	59.2			
	T	iP	17	45	31.9			
	D	iP			41.7			
	K	eP			49.5			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
FEB. 4	T	eP	19	39	03.3			
	D	eP			1 25			
	T	iP	20	17	10.7			
	D	iP			19.4			
	T	eP	21	18	31.1			
	D	eP			40.2			
	T	iP	23	31	35.9			
	K	iP			45.2			
	D	iP			46.3			
	T	eP	23	49	48.9			
FEB. 5	T	eP	00	20	36.1			
	D	eP			45.5			
	T	eP	02	50	24.0			
	D	eP			30.9			
	T	eP	04	06	59.4		0.5	5.2
	D	eP		07	09.0			
	T	eP	05	16	08.2			
	T	eP	06	14	56.1		0.5	13.3
	D	eP		15	04.1			
		eS		16	43.0			
	D	eP	09	31	41.5	t		
	T	eP			47.4		1.0	10.0
	K	eP	11	35	31.9			
	D	iP			34.2			
	T	iP			37.6			
	T	eP	11	47	14.0			
	T	eP	12	22	41.5		0.5	5.0
	D	eP			51.5			
	T	iP	12	49	59.9			
	D	iP		50	02.0			
	K	iP			15.5			
	T	eP	13	01	05.8			
	D	eP	14	33	24.2			
	T	eP			24.8			
	D	eP	15	31	11.5			
	T	eP			12.5			
	K	eP	19	19	12.4			
	D	eP			18.6			
	T	eP			20.8			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
FEB. 5	K	eP	19	36	07.1			
	D	iP			17.3			
	T	eP			18.5			
	T	eP	19	45	16.4			
	D	iP	19	55	55.6			
	T	iP			58.2			
	K	iP			58.9			
	T	eP	20	17	26.3			
	T	eP	22	27	09.4			
	D	eP			18.5			
	T	eP	22	49	59.4			
FEB. 6	D	iP	01	38	31.9			
	T	iP			34.0			
	K	iP			35.0			
	D	iP	04	10	32.2			
	T	iP			36.8			
	K	eP			42.6			
	D	eP	04	44	30.8	t		
	K	eP			32.0			
	T	eP			34.6		1.3	25.7
	T	eP	06	50	55.3	t	1.1	19.3
	D	eP		51	02.0			
	D	eX	07	07	22.9	t?		
	T	eX			33.8		0.5	13.8
	K	eP	08	19	10.6			
	D	iP			17.9			
	T	iP			19.8			
	D	iP	09	49	36.3			
	K	iP			39.0			
	T	iP			41.1		0.17	10.2
	T	eP	09	53	06.5	t	1.2	34.2
	D	eP			12.4			
	K	eP			17.2			
	T	eP	09	59	50.6			
	T	ePKP	11	39	11.6	t	1.4	18.5
		eX1			18.8			
		eX2			30.1			
	D	ePKP			13.4			
		eX1			21.4			
		eX2			34.4			
	K	eX1			20.1			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
FEB. 6	T	eP	11	46	50.8			
	T	iP	11	59	20.3			
	D	iP			31.3			
	K	iP			31.9			
	T	eP	12	11	59.2			
	T	eP	13	43	37.4			
	K	eP	16	56	51.0			
	T	eP		57	04.9			
	D	eP			05.2			
	K	iP	19	34	34.7			
	T	iP			40.2			
	D	iP			48.1			
	T	iP	20	13	13.6			
	D	eP			21.8			
	K	iP	20	33	28.1			
	D	eP			38.8			
	T	eP			39.7			
	K	eP	22	44	02.6			
	T	iP			15.4			
	D	eP			23.7			
FEB. 7	K	iP	00	25	32.3	t		
	D	iP			43.1			
	T	iP			43.8		0.5	40.0
	T	eP	04	06	19.3			
	T	eP	04	13	45.9			
	D	eP			55.8			
	T	iP	04	14	43.6		0.17	2.2
	D	iP			52.8			
	D	eP	06	30	41.5	t?		
	K	eP			46.1			
	T	eP			49.5			
	D	eP	07	37	26.4			
	T	eP			29.2		0.17	1.4
	T	eP	08	06	28.0			
	T	eP	08	16	13.3			
	D	eP			17.5			
	T	iP	12	17	17.4		0.5	26.6
	D	iP			26.6			
		eS		19	04.8			
	K	eP		17	30.5			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
FEB. 7	K	iP	12	23	26.2			
	T	eP			37.9		0.17	4.8
	D	iP			41.8			
	K	eP	13	21	20.4	t		
	T	eP			24.5			
	D	iP			26.3			
	T	eP	14	21	39.2			
	D	eP			48.0			
	T	eP	15	34	21.4			
	T	eP	17	35	46.3		0.5	3.2
	T	eP	17	44	49.7			
FEB. 8	K	eP	01	44	29.1			
	T	eP			42.0			
	D	iP			42.4			
	T	eP	06	40	39.2			
	D	eP			49.5			
	D	eP	11	10	17.6	t?		
	T	eP			20.9			
	T	eP	11	10	59.6		0.5	5.9
	D	eP		11	05.2			
	T	iP	12	06	15.3		0.5	41.5
	D	eP			24.8			
	K	eP			29.5			
	D	eP	12	40	15.9	t		
	K	eP			18.1			
	T	eP			18.9		1.4	40.8
	T	eP	13	22	58.2		0.17	2.4
	D	eP		23	07.9			
	K	eP			14.8			
	T	eP	13	33	05.4			
	D	eP			13.2			
	T	eP	14	42	02.0			
	D	eP			11.3			
	K	eP	15	23	48.7			
	D	iP			51.0			
	T	eP			54.8			
	T	iP	17	25	40.5		0.5	5.7
	D	iP			50.4			
	K	eP	18	24	34.9	t?		
	T	eP			38.4			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
FEB. 8	K	iP	20	18	55.5			
	T	iP		19	06.1		0.17	7.4
	D	iP			10.6			
	T	eP	20	44	57.2			
	D	eP		45	04.5			
	T	eP	21	35	14.4			
	T	eP	22	52	03.1			
	T	iP	23	03	19.4		0.5	10.5
	D	eP			29.4			
	K	eP			35.2			
FEB. 9	T	iP	01	20	58.6			
	D	iP		21	15.5			
	D	eP	01	21	36.6			
	T	iP	02	05	30.6			
	K	eP	05	11	07.1	t?		
	D	eP			18.9			
	T	eP			20.3			
	T	eP	11	26	45.5			
	T	eP	11	46	46.8			
	D	eP			57.8			
	K	iP	12	28	01.4			
	T	iP			12.1			
	D	iP			13.9			
	T	iP	14	26	52.8			
	D	iP		27	01.6			
	K	eP			03.3			
	T	eP	14	54	56.3			
	D	eP	21	38	45.8			
	T	iP			51.0		0.17	2.0
	K	eP			52.5			
	T	eP	21	58	01.4			
	D	eP			10.4			
	T	eP	22	34	10.7			
FEB. 10	K	iP	00	18	50.3			
	D	iP			52.6			
	T	iP			56.4		0.17	5.4
	T	eP	01	51	31.7			
	T	eP	09	58	37.4		0.5	6.2
	D	eP			45.9			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
FEB. 10	T	iP	10	03	06.3	t	1.2	53.8
	D	eP			15.2			
		eS		05	42.4			
	K	eP		03	18.5			
	D	eP	13	44	29.0			
	T	eP			37.9			
	T	eP	17	23	51.9			
	D	eP		24	03.2			
	T	eP	21	40	27.9			
	K	iP	12	47	24.9			
	T	iP			36.2		0.17	31.6
	D	iP			39.9			
FEB. 11	T	eP	06	36	03.0			
	D	eP			12.7			
	D	iP	09	45	21.7			
	T	iP			26.2			
	K	eP			31.5			
	K	iP	12	15	57.8			
	D	iP		16	05.1			
	T	iP			06.8			
	T	iP	20	58	34.0			
	D	iP			44.0			
	T	iP	21	09	47.3			
	D	iP			57.1			
FEB. 12	K	eP	05	52	35.3	t		
	D	eP			43.1			
		ePP		54	33.0			
		eS		58	24.3			
		eScS	06	02	46.3			
	T	eP	05	52	43.8		1.4	2458
		ePP		54	23.1			
		eS		58	26.6			
	D	eP	06	24	14.3	t		
	T	eP			19.3		0.5	3.8
	T	eP	12	01	49.5	t?		
	D	eP			51.6			
	K	iP	13	26	29.6			
	T	iP			30.0			
	D	iP			34.8			
	K	iP	17	18	48.7			
	D	iP		19	00.4			
	T	iP			02.0		0.5	9.0

Date	Station	Phase	Time (G.M.T.)			t	T	Am
FEB. 12	K	iP	19	23	38.9			
	T	iP			52.9		0.1 7	6.5
	D	iP			54.1			
FEB. 13	D	iP	03	51	26.0			
	K	iP			26.0			
	T	iP	04	19	09.2			
	K	iP			10.3			
	D	iP			17.7			
	T	eP	05	45	06.6		0.1 7	2.3
	D	eP			16.4			
	T	iP	10	32	01.0			
	K	iP			03.0			
	D	iP			10.4			
	T	iP	11	31	24.8			
	D	eP			32.1			
	K	eP			39.6			
	K	eP	11	47	14.7			
	D	eP			21.3			
	T	eP			23.6			
	K	eP	14	14	08.0	t		
	D	eP			16.2			
		eX		16	07.5			
	T	eP		14	16.4		1.1	11.4
	T	iP	14	52	45.4			
	K	iP			49.1			
	D	iP			51.8			
	T	eP	15	28	43.8		0.1 7	3.4
	D	iP			53.4			
		eS			32.1			
	T	eP	21	08	01.1			
	D	eP			11.2			
FEB. 14	D	eP	02	32	20.6			
		eX			27.5			
	T	eP			29.8		0.5	15.5
	K	eP			31.1			
	T	eP	03	57	18.8			
	D	eP			28.3			
	T	eP	04	11	54.6		0.5	6.4
		iS		13	31.9			
	D	eP		12	04.7			
	T	iP	12	32	38.0			
	D	iP			46.7			
	K	eP			50.7			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
FEB. 14	T	eP	14	01	06.1			
	D	eX	14	40	53.7			
	T	eX			56.9			
	T	eP	17	02	09.3			
	K	iP	18	47	30.7			
	T	iP			30.9			
	D	iP			35.1			
	D	eP	19	09	00.8			
	T	eP			05.4			
	K	iP	19	35	18.3			
	D	iP			23.0			
	T	iP			25.8			
FEB. 15	T	eP	00	03	44.1		0.5	3.8
	D	eP			54.2			
	K	eP	01	47	34.0			
	D	eP			45.3			
	T	eP			45.7		0.17	1.1
	T	eP	02	49	57.4	t	1.1	62.3
		eX		52	34.9			
	D	eP		50	03.3			
	D	iP	15	06	11.5			
	D	eP	15	47	33.4	t		
	D	iP	18	18	31.4			
	D	eP	19	00	14.2			
	D	iP	21	13	06.3			
	D	iP	21	44	16.7			
FEB. 16	D	eP	03	11	11.5			
	T	iP	11	47	49.7		0.17	9.6
		iS		49	21.2			
	D	iP		47	57.5			
	T	eP	13	06	35.1		0.17	1.3
	D	eP			37.0			
	T	iP	14	26	46.6	t	0.5	40.2
		iS		29	18.5			
	D	iP		26	51.3			
		iS		29	26.0			
	D	eP	15	11	22.1			
	T	eP			31.0			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
FEB.16	T	iP	18	39	32.0			
	D	iP			36.8			
	T	eP	19	35	18.3		0.17	1.3
	D	eP			27.4			
	T	eP	20	27	23.6			
	D	eP			32.6			
	T	iP	20	39	38.2		0.5	6.4
	D	eP			48.1			
	D	iP	23	30	17.5			
	T	iP			21.8		0.5	27.2
		eS			48.5			
	D	eP	23	42	00.3			
		eS			24.3			
	T	iP			05.1		1.0	26.4
FEB.17	D	eP	00	11	54.8			
	T	iP			59.0		0.8	39.8
		eS		12	25.7			
	T	iP	10	40	45.9			
	D	iP			50.2			
	T	eP	10	56	19.1		0.17	2.3
	D	eP			27.0			
	T	iP	11	30	01.8			
	D	iP			12.2			
	T	eP	13	16	35.4			
	D	eP			45.4			
	T	eP	13	19	33.7			
	T	eP	14	15	54.2			
	D	eP		16	04.1			
	T	eP	14	22	05.9			
	D	eP			13.1			
	T	iP	14	32	41.8			
	D	iP			52.3			
	T	iP	15	36	34.6			
	D	iP			37.7			
	T	iP	16	59	05.5			
	D	iP			16.3			
		eS			34.1			
	D	iP	17	22	47.1	t?		
		iX			51.4			
	T	iP			47.3		0.5	9.3

Date	Station	Phase	Time (G.N.T.)			t	T	Am
FEB.17	D	eP	17	25	59.7	t?		
	T	eP		26	03.2		0.5	14.0
FEB.18	D	iP	01	45	15.4			
	T	iP			18.1			
	D	iP	01	46	50.8			
	T	iP			53.5			
	D	iP	07	14	51.6			
	T	iP		15	02.3			
	K	iP	09	36	55.5	t		
		ePcP		38	30.5			
	D	eP		36	56.4			
		ePcP		38	31.3			
		ePcS		42	29.2			
		eS			57.4			
		eScS		46	04.8			
	T	iP		37	01.6		0.5	17.4
		iPcP		38	32.5			
		eScP		41	38.6			
		eS		43	03.8			
	T	eP	10	20	37.6			
	D	eP			48.1			
	K	eP	10	31	39.6			
	T	eP			53.2		0.5	2.5
	D	iP			54.1			
	T	iP	10	49	26.1		0.17	3.0
	D	iP			35.5			
	T	iP	11	13	36.1	t	1.3	41.0
		eX		14	02.4			
	D	eP		13	49.1			
	K	iP	14	14	26.6			
	D	iP			27.9			
	T	iP			31.3			
	T	iP	15	20	30.5			
	D	iP			40.3			
	K	eP			44.8			
	T	eP	16	41	39.7			
	K	eP	20	14	38.6	t		
	T	eP			48.0		0.5	5.7
	D	eP			48.1			
	K	eP	22	14	40.1			
	D	iP			42.6			
	T	iP			46.1			
	T	iP	22	25	48.8			
	D	iP			58.3			
	K	eP		26	02.7			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
FEB.18	T	iP	23	15	20.4			
	D	ePg			28.9			
FEB.19	D	iP	02	27	03.4			
	T	iP			07.9			
	D	iP	07	08	24.4			
	T	ePg			25.1		0.17	2.0
	T	ePg	09	19	35.4			
	D	ePg			43.1			
	T	ePg	10	50	08.8		0.17	2.1
		eSg		51	39.4			
	D	ePg		50	17.6			
	D	iP	14	03	07.5	t		
		epP?			18.8			
		eX		04	58.7			
	T	iP		03	08.1		1.3	9.6
	T	iP	14	49	02.8			
	D	iP			12.5			
	D	ePg	15	20	50.3			
	T	iP			54.4			
	T	ePg	17	56	25.9			
	D	ePg			26.3			
	T	ePg	19	52	48.5			
	D	ePg			59.4			
	T	ePg	20	10	17.7		0.5	5.8
	D	ePg			18.6			
	D	ePg	20	49	09.5			
	T	iP			13.3			
	D	iP	22	47	17.3			
	T	iP			26.9			
	D	ePg	22	58	10.4	t		
		epP?			26.9			
	T	ePg			12.3		1.9	544.0
		epP?			31.6			
		ePP	23	01	38.0			
FEB.20	D	iP	00	07	57.2			
	T	iP		08	01.2			
	T	ePg	05	15	13.5	t?		
	D	ePg			14.3			
	T	iP	07	16	11.4			
	D	iP			21.0			
	K	ePg			26.2			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
FEB.20	T	eP	12	01	33.1		0.5	3.5
	D	eP			43.1			
	T	eP	12	05	51.6	t	0.5	6.4
	T	iP	12	16	48.3			
	D	eP		17	00.9			
	K	eP	13	51	27.9			
	T	eP			39.6			
	D	eP			40.1			
	T	eP	14	17	48.8			
	D	eP			58.7			
	T	iP	17	31	52.5		0.17	9.6
	D	iP		32	01.4			
	K	eP			06.9			
	T	eP	21	25	21.0	t		
	D	eP			26.4			
	T	iP	22	24	14.4		0.17	1.9
	D	iP			25.2			
	T	eP	23	18	41.7		0.17	9.3
	D	eP			49.7			
	D	iP	23	29	56.8			
	T	iP		30	00.8			
	K	iP			07.5			
	D	eP	23	53	40.0			
		eS		56	04.8			
	K	eP		53	44.1			
	T	eP			49.2		1.1	53.5
FEB.21	D	iP	01	30	22.0			
	T	iP			31.9			
	K	eP			41.9			
	D	iP	01	46	54.1			
	K	eP			59.4			
	T	iP		47	03.6		1.0	13.2
		eX			08.0			
		eS		49	35.6			
	T	iP	04	26	04.7		0.17	2.0
	T	iP	06	25	06.1	t	1.0	39.6
	D	iP			12.2			
	K	eP			14.2			
	T	iP	06	27	47.7	t	0.5	30.5
	D	iP			54.0			
	K	eP			56.0			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
FEB. 21	T	eP	06	30	16.6	t	1.0	10.8
	D	eP			20.8			
	T	eP	06	40	15.6			
		eS		41	49.3			
	D	eP		40	24.9			
		eS		42	04.5			
	T	eP	09	05	35.8	t	0.5	3.4
	D	eP			36.4			
	D	iP	10	19	09.2			
	K	eP			16.4			
	T	eP			18.7			
	T	eP	12	24	04.9			
		eS		25	21.2			
	D	eP		24	09.6			
	T	epP	12	41	04.4	t		
	D	eP		40	57.5			
		epP		41	09.8			
	T	eP	12	43	55.3	t	0.5	1.7
		epP		44	08.1			
	T	iP	14	07	27.4			
		eS		08	04.6			
	D	iP		07	35.9			
		eS		08	20.1			
	T	iP	15	42	03.2	t	1.1	39.5
	D	eP			07.2			
	K	iP			07.5			
	D	iP	17	09	11.6			
	K	iP			19.1			
	T	iP			22.3			
	T	eP	19	15	21.9	t	1.0	10.7
		epP			41.6			
	K	eP	19	38	51.5	t	1.1	9.2
	T	eP			54.4			
	D	eP			56.3			
	T	iP	21	14	40.9	t	1.0	25.4
		epP		15	01.3			
		ePcP		16	12.3			
		ePP		17	15.6			
	D	eP		14	50.5			
		ePcP		16	13.8			
		ePP		17	13.7			
	T	eX	21	21	53.7	t		
	D	eX		22	00.5			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
FEB. 21	T	eX	21	25	42.8	t		
FEB. 22	T	iP	01	31	45.4			
	K	iP			46.9			
	D	iP			52.0			
	K	iP	05	23	58.4			
	T	iP		24	00.4			
	D	eP			09.9			
	T	iP	09	24	00.4			
	D	iP			19.4			
	D	eP	10	21	09.0			
		eS		23	29.5			
	K	eP		21	13.4			
	T	eP			18.8		1.1	48.0
	T	iP	12	42	18.7			
	D	eP			29.5			
	T	iP	15	34	17.6			
	D	iP			21.3			
	K	iP			26.0			
	T	iP	17	53	41.1	t	1.0	76.4
		eX			58.3			
	D	iP			47.3			
	D	iP	21	54	56.2			
	K	eP			58.7			
	T	iP		55	00.9		0.17	5.0
FEB. 23	T	eP	00	17	21.9	t	1.0	26.1
	D	eP			28.0			
	T	iP	02	14	36.0			
	K	iP			40.7			
	D	iP			42.9			
	D	iP	03	07	59.2			
	T	iP		08	02.8			
	K	eP			09.2			
	T	iP	05	32	58.2			
	K	iP		33	05.1			
	T	iP	05	39	34.8			
	D	iP			45.0			
	T	eP	10	18	08.1		0.5	6.9
		eS		19	43.7			
	D	eP		18	18.0			

Date	Station	Phase	Time (G.M.T.)			t	T	Ar.
FEB. 23	K	iP	11	04	28.3	t		
	T	iP			36.6		0.5	48.0
		eS		07	29.8			
		eScP?		11	11.7			
	D	iP		04	36.7			
		epP?		05	57.0			
		eX		07	12.8			
		eS			30.6			
		eScP?		11	11.9			
	D	iP	12	07	04.7			
	K	iP			06.5			
	T	iP			09.3		0.17	6.8
	T	eP	16	09	35.7		0.17	1.3
		eS		11	06.6			
	D	eP		09	44.1			
	K	eP	16	22	22.6	t		
	D	eP			27.1			
	T	eP			29.5		0.5	6.4
	K	iP	19	38	30.7	t		
	T	iP			38.9		0.5	32.0
	D	iP			39.1			
		epP?		39	48.1			
		eS		41	30.7			
FEB. 24	K	iP	03	31	29.1			
	T	iP			41.5			
	D	iP			44.1			
	D	eP	11	48	03.1			
	T	eP			16.8		0.5	6.2
	K	eP	11	59	58.4			
	T	eP	12	00	12.4			
	D	iP			12.8			
	K	eP	14	41	42.7			
	D	eP			52.0			
	T	eP			55.8		0.5	10.0
	K	eP	15	11	07.1			
	D	iP			16.2			
		eX			19.5			
	T	eP			20.1		1.2	206.0
	K	iP	15	13	45.9			
	D	iP			54.9			
	T	iP			58.5			
	K	iP	15	24	53.3			
	D	iP		25	02.0			
	T	iP			05.1			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
FEB. 24	K	eP	15	33	53.8			
	D	iP		34	02.5			
	T	iP			06.3			
	K	eP	16	01	51.8			
	D	iP		02	01.6			
	T	iP			05.8			
	K	eP	16	06	51.2			
	D	eP		07	00.9			
	T	eP			04.7			
	K	iP	16	08	42.1			
	D	iP			50.8			
	T	iP			56.3			
	K	iP	16	41	50.2			
	D	iP			59.1			
	T	iP		42	03.0			
	K	iP	16	50	08.1			
	D	iP			17.2			
	T	iP			21.0			
	D	iP	16	52	05.3			
	K	eP	17	14	03.0			
	D	eP			11.0			
	T	eP			15.0			
	K	eP	17	20	10.6			
	D	eP			18.6			
	T	eP			23.4			
	T	iP	17	28	30.9			
	K	iP			35.0			
	D	iP			41.3			
	K	iP	19	03	19.0			
	D	iP			27.8			
	T	iP			31.8		1.1	64.6
	K	iP	19	15	51.7			
	D	eP		16	00.3			
	T	iP			04.5		0.5	15.9
	T	eP	19	57	24.6			
	D	eP			33.9			
	K	iP	03	31	29.1			
	T	iP			41.5			
	D	iP			44.1			
	D	eP	11	48	03.1			
	T	eP			16.8		0.5	6.2

Date	Station	Phase	Time (G.M.T.)			t	T	Am
FEB.24	K	eP	11	59	58.4			
	T	eP	12	00	12.4			
	D	iP			12.8			
	K	eP	14	41	42.7			
	D	eP			52.0			
	T	eP			55.8		0.5	10.0
	K	eP	15	11	07.1			
	D	iP			16.2			
		eX			19.5			
	T	eP			20.1		1.2	206.0
	K	iP	15	13	45.9			
	D	iP			54.9			
	T	iP			58.5			
	K	iP	15	24	53.3			
	D	iP		25	02.0			
	T	iP			05.1			
	K	eP	15	33	53.8			
	D	iP		34	02.5			
	T	iP			06.3			
	K	eP	16	01	51.8			
	D	iP		02	01.6			
	T	iP			05.8			
	K	eP	16	06	51.2			
	D	eP		07	00.9			
	T	eP			04.7			
	K	iP	16	08	42.1			
	D	iP			50.8			
	T	iP			56.3			
	K	iP	16	41	50.2			
	D	iP			58.1			
	T	iP		42	03.0			
	K	iP	16	50	08.1			
	D	iP			17.2			
	T	iP			21.0			
	D	iP	16	52	05.3			
	K	eP	17	14	03.0			
	D	eP			11.0			
	T	eP			15.0			
	K	eP	17	20	10.6			
	D	eP			18.6			
	T	eP			23.4			
	T	iP	17	28	30.9			
	K	iP			35.0			
	D	iP			41.3			
	K	iP	19	03	19.0			
	D	iP			27.8			
	T	iP			31.8		1.1	64.6

Date	Station	Phase	Time (G.M.T.)			t	T	Am
FEB. 24	K	iP	19	15	51.7			
	D	eP		16	00.3			
	T	iP			04.5		0.5	15.9
	T	eP	19	57	24.6			
	D	eP			33.9			
	T	iP	21	51	03.0			
	D	iP			13.6			
	D	iP	22	03	33.1			
	T	iP			42.4			
	K	eP			53.4			
FEB. 25	T	iP	08	41	59.0			
		iS		42	49.4			
	D	iP			09.8			
	D	eP	08	50	41.7			
	T	eP			50.0		1.0	15.0
	T	iP	10	27	00.6			
	D	iP			06.4			
	K	eP			16.1			
	K	eP	14	33	05.6			
	D	eP			12.3			
	T	eP			15.1		0.17	1.1
	K	eP	14	46	50.4			
	T	eP		47	02.2			
	D	eP			05.2			
	T	iP	16	48	56.4			
	D	iP		49	07.2			
	K	eP			07.8			
	T	iP	18	15	04.2	t	1.0	35.7
		eX		17	38.8			
	D	eP		15	10.8			
		ePP?			27.4			
		eX		17	43.1			
	K	iP	18	37	54.5			
	D	iP		38	03.2			
	T	iP			07.4		0.5	20.0
	T	iP	20	00	59.2			
	D	iP		01	09.6			
	T	iP	21	18	55.1			
	D	iP		19	04.3			
	K	iP			08.1			
FEB. 26	D	eP	00	48	44.3			
	K	eP			45.4			
	T	eP			52.4			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
FEB. 26	D	iP	03	32	49.3			
	T	eP			58.3			
	K	eP		33	09.4			
	K	eP	04	38	27.2			
	D	eP			36.5			
	T	eP			41.3		0.5	11.9
	D	eP	05	33	09.3			
	T	eP			10.8		0.17	2.1
	K	eP			21.9			
	D	eP	10	54	55.6	t		
		eS		58	47.6			
		ePcP			59.0			
		eScP	11	02	40.0			
		ePcS			46.6			
		eScS		06	21.4			
	K	eP	10	54	59.2			
		eScP	11	02	41.3			
	T	eP	10	55	00.4		1.3	198.6
		epP?			04.4			
		eS		58	57.8			
		eScP	11	02	42.5			
		eScS		06	25.9			
	T	eP	11	20	00.4			
	D	eP			09.0			
	T	iP	12	45	30.3	t	1.2	27.3
	D	eP			30.6			
	T	iP	13	40	11.5			
	D	eP			19.0			
	K	eP			28.5			
	K	iP	18	30	52.2			
	D	iP		31	01.4			
	T	iP			05.5		0.17	5.0
	T	iP	19	16	56.3			
	D	iP		17	05.9			
	T	eP	23	17	04.5	t	1.2	17.2
		iX			18.8			
	D	eP			07.4			
		eX			23.5			
FEB. 27	K	iP	02	32	19.0			
	D	iP			32.5			
	T	iP			33.1		0.17	11.9
	T	eP	02	56	00.1		0.5	8.9
	K	eP			20.6			
	T	eP	03	16	49.1			
	D	eP			52.7			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
FEB.27	K	eP	05	24	06.2	t		
	D	eP			11.2			
		epP?			23.8			
		eX			48.7			
		eS		28	37.4			
	T	eP		24	13.2		1.2	231.0
	K	iP	07	03	19.7			
	T	iP			19.7			
	D	iP			24.0			
	K	eP	08	48	21.8			
	D	iP			28.1			
	T	iP			30.8			
	K	eP	10	59	42.3	t		
	D	eP			47.9			
	T	iP			49.6		1.0	138.0
	K	eP	16	19	15.1			
	T	eP			28.4		0.5	4.7
	D	eP			29.4			
FEB.28	T	eP	03	32	05.8	t	0.5	4.3
	D	eP			06.1			
	K	eP			08.0			
	T	iP	10	58	41.7			
	K	iP			45.3			
	D	iP			46.8			
	K	iP	12	08	59.3			
	D	iP		09	02.9			
		eScP		18	50.0			
		eScS		22	21.8			
		eX		23	54.0			
	T	iP		09	06.0			
	K	iP	12	20	39.9			
	D	iP			43.7			
	T	iP			46.9			
	K	eP	13	03	21.0			
	D	iP			29.7			
	T	iP			30.2			
	T	eP	16	18	41.8			
	D	iP	21	10	14.2	t		
	T	iP			17.9		0.5	10.5
	K	iP	21	43	51.8			
	D	iP		44	02.7			
	T	eP			04.1		0.17	4.5
FEB.29	K	eP	07	31	33.8			
	T	eP			46.6		0.5	12.1
	D	iP			47.9			

Date	Station	Phase	Time(G.M.T.)			t	T	Am
FEB. 29	D	iP	10	19	32.3			
	T	iP			33.0			
	K	iP			39.7			
	T	eP	10	29	25.6	t?		
	D	eP			28.7			
	T	eP	13	10	37.9		0.5	9.1
	D	eP			40.3			
	D	eP	14	28	19.0	t		
	T	iP			19.2		1.1	22.8
	T	eP	15	50	46.5	t	1.0	72.2
	D	eP			52.6			
		eS		54	46.3			
	K	eP		50	57.2			
	D	iP	16	01	33.0			
	T	iP			44.3			
	T	iP	18	43	15.4			
	D	iP			23.0			
	T	iP	23	19	32.8			
	D	iP			41.4			

Tsukuba

S−P \ Date	1	2	3	4	5	6	7	8	9	10	11	12	13
0− 0.9													
1− 1.9													
2− 2.9													
3− 3.9													
4− 4.9				1							1		
5− 5.9		1	1				1	1				1	
6− 6.9		1	2		1		1					1	
7− 7.9	1	4	2	1	1	1	2		1	1		1	2
8− 8.9		1	3		3	3	1	4	1			3	1
9− 9.9	3	3	3	1	1	3	1	2	4		1		1
10−10.9	3	1	1	2	2	2	1	4	1	1	1		
11−11.9		2	3	2	2	1	1		1	1		1	2
12−12.9	1		1	2	1	2				1	1		1
13−13.9				1	1	1	1			1		1	
14−14.9			2	1		1	2	1	1	2	1		
15−15.9		1			1	1		1		1			
16−16.9			1	1		1	1	3					
17−17.9	1	1									1		
18−18.9				1		1	1		1		1		
19−19.9	1		2	1	1		1	1	1		1		
20−20.9				1			2	2		2		1	
21−21.9		2					1		1				
22−22.9						1		2					
23−23.9	1				1								1
24−24.9				1									
25−25.9		1								1			
26−26.9						1							
27−27.9													
28−28.9													
29−29.9													
above 30 sec	1	2		2	1			1			1		
?	1	1			1								
Total	13	21	21	18	17	19	17	22	12	11	9	9	8
no observation											07h 00m ~08h 50m	07h 00m ~09h 48m	
Remarks													

F E B

14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	Total
																0
																0
																0
																0
																2
	1				2				1	1					1	11
			1	1	1	1	2		2		1	2		1	2	20
2	2		1	1	1		1	1	5	2		2	2	5	1	43
4	4			4	2	2	2	3	1		1	3	1	2	2	51
7	3		4	4		1	2	1		2	2	1	3		1	54
		2	2	5	2	4	5	2	3	1		2	2	1	1	51
2	2				2		1	2	4	1				1		31
1	3		2		3					1	3		1			24
2			1		1	2	2			2				1	2	19
					3	2	1		1				1	1		20
1					1	1	1				1	1	2			13
								1				1				9
	2				1					1			1			8
								1								6
1	2	1				1	3								2	19
1	2		1		1	1	2	1	1		1	1	1	1		22
					1			3			1			1	1	11
1	1					1		1	1				1			9
4							1	1								9
	1		1							1						4
			1		1											4
1				1												3
																0
																0
																0
8	3								1					1		21
						1	2	1	1				1	1	1	11
35	26	3	14	16	22	17	25	18	21	12	10	13	16	16	14	
		00h 00m ~17 h 00m														

S − P \ Date	1	2	3	4	5	6	7	8	9	10	11	12	13
0 − 0.9													
1 − 1.9													
2 − 2.9													
3 − 3.9													1
4 − 4.9													
5 − 5.9						1		1					
6 − 6.9	1							1					
7 − 7.9									1		1		
8 − 8.9				1			1				1	1	
9 − 9.9	1	1	1										
10 − 10.9	1	1						1					
11 − 11.9	1		1	1		1		1	1	1			
12 − 12.9	2	2	4	1	1	1	1	1			1	1	
13 − 13.9	2	1		3		3	1	1		1	1	2	
14 − 14.9	1	1	1		1	2	1	1				2	
15 − 15.9			1	1					1	1			
16 − 16.9			1		1	1	2					1	
17 − 17.9							2		2				
18 − 18.9													
19 − 19.9					2		1						
20 − 20.9						1				1		1	
21 − 21.9													
22 − 22.9							2			1			
23 − 23.9		1											1
24 − 24.9										1			
25 − 25.9			1										
26 − 26.9			1										
27 − 27.9													1
28 − 28.9								1		1			
29 − 29.9													
above 30 sec	1			5	1	3	1	1		1			1
?								1					
Total	10	7	11	10	6	13	12	10	5	8	4	8	4
no observation													

Remarks

FEB

14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	Total
																0
1	1															2
										2						2
	1															2
					1											1
							1			1						4
					1											3
							1								2	5
	1		1	1								3	1	1		12
			1	4	1											9
		1														4
				1				1	2							11
	3	3	2	1	1	2	2		1	1	1	2		1		35
1	2	1	1	1		1	4	1	2	1		1			1	32
	2		1	1		1				1						16
1								1			1					7
				1				1					1			9
				1	1		1		1					1		9
	1					1		2								4
				1					1					1		6
																3
			1			1										2
	1						1						1	1		7
					1	1										4
							1				1					3
																1
																1
						1		1								3
1																3
		1						1								2
						1	1			1						15
1								1	1		1					5
5	12	6	7	12	6	9	12	9	8	7	4	6	3	5	3	
														10h 00m ~17h 00m		

Preliminary Bulletin

of the Dodaira Micro-earthquake Observatory

and its Substation

March, 1968

Dodaira Micro-earthquake Observatory

Earthquake Research Institute, the University of Tokyo

Preliminary Bulletin of the Dodaira Micro-earthquake Observatory and its Substation

Observation stations

		N	E	h
Dodaira	(D or DDR)	35°59'54".0	139°11'36".2	800m
Tsukuba	(T or TSK)	36°12'39".0	140° 6'35".0	280m
Kiyosumi	(K or KYS)	35°11'51".6	140° 8'53".6	230m
Shiroyama	(S or SRY) (temporary)	35°36'30".0	139°16'27".0	254m

Expressions: Am: Amplitude in millimicron (half of peak to trough*) of P motion maximum within few cycles after the onset recorded by a short period vertical seismograph. *In 1967 double amplitude (peak to trough) was used as Am.

T : Period in sec of the measured P maximum

t : Teleseism

All stations are radio-telemetered to Tokyo giving records on a multi-channel ink-recording oscillograph. The paper speed of the recorder is 1 mm per sec. For stronger events high speed recorder (10 mm/sec) is also triggered. The system is also recorded in parallel on multi channel magnetic tape through a trigger system using an endless tape loop. Direct filter sum of short period seismometers at Dodaira and/or on line short period filter outputs of Tsukuba are also used for the detection of weak teleseismic signals. For teleseismic events records of long period and medium period seismographs are

occasionally used, applying off line frequency filter, if necessary.

The Bulletin includes the preliminary readings sent to USCGS for teleseisms and larger near shocks with total durations (F-P) of short period vertical seismograph at Tsukuba (TSK) with magnification about 140.000 at 1 c/s or sensitivity about 300×10^{-3} mm/microkine at 10 c/s being longer than 100 seconds which correspond approximately shocks with $M \geq 3.5$. For the minor near earthquakes with $F\text{-}P < 100$ sec or $M < 3.5$, frequency of S-P times at each station is added at the end of the Bulletin, which may easily give a general idea of local seismicity around the station.

Date	Station	Phase	Time (G.M.T.)			t	T	Am
MAR. 1	T	iP	09	07	10.6			
		iS			57.6			
	D	eP			13.5			
	T	eP	14	09	56.9	t		
	D	eP	18	04	43.7			
	T	eP			46.3			
	T	iP	23	12	39.7			
		iS			58.3			
	D	eP			50.0			
	T	eP	23	32	01.4			
MAR. 2	K	iP	02	53	38.6			
	T	iP			39.7			
	D	eP			48.4			
	T	iP	07	05	35.6			
	K	iP			37.5			
	D	iP			40.3			
	D	eP	11	33	57.7	t		
		eX		34	09.2			
	T	eP		33	57.9			
	K	iP	11	58	49.2			
	T	iP			55.6			
	D	iP		59	00.2			
	T	eP	14	55	36.4		0.17	2.3
	D	eP			44.9			
	K	eP	18	40	45.9			
	T	eP			59.2			
	D	eP		41	00.3			
	T	eP	18	43	46.7			
	D	eP	22	14	10.0	t		
	T	eP			13.4		1.5	93.7
	K	eP	23	43	39.7	t		
	D	eP			42.5			
	T	eP			45.5		0.5	15.5
MAR. 3	T	iP	05	27	17.2			
	D	eP			21.3			
	K	eP			28.3			
	T	eP	16	17	31.0			
	T	eP	20	20	34.5			
	D	eP			45.1			
	T	iP	20	33	46.7			
	D	iP			48.3			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
MAR. 3	T	iP	20	37	23.2			
	T	eP	21	15	38.1			
	K	eP	23	02	09.6	t		
	D	eP			11.5			
		epP?		03	37.0			
		ePcP?		04	34.2			
		eS		07	24.9			
		eScP?			27.9			
		ePcS?		08	27.8			
		eScS		11	39.3		1.0	1230
	T	eP		02	15.3			
		eS		07	26.7			
MAR. 4	T	iP	03	31	02.4			
	D	iP			09.8			
	K	iP			13.6			
	T	iP	09	22	30.9		0.5	25.3
	D	iP			39.9			
	K	eP			43.9			
	T	eP	09	33	18.8			
	T	iP	10	04	53.8		0.17	12.1
	D	iP		05	03.7			
	K	eP			06.2			
	T	iP	12	07	47.8			
	D	iP			58.2			
	K	iP		08	01.4			
	K	eP	18	49	54.5		0.17	3.0
	T	iP		50	07.8			
	D	eP			09.0			
MAR. 5	T	eP	00	30	04.3	t	1.3	43.6
	D	eP			10.4			
	T	eP	00	38	50.2	t	1.2	23.0
	D	eP			55.8			
	T	iP	04	08	33.0			
	D	iP			41.7			
	K	eP			46.5			
	K	iP	05	47	29.8			
	T	iP			33.3			
	D	iP			38.0			
	T	eP	07	42	34.9		0.17	1.8
	D	eP			44.5			
	K	eP	07	48	26.9			
	D	eP			40.0			
	T	eP			40.2			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
MAR. 5	T	iP	08	55	57.5			
	D	iP		56	08.0			
	T	eP	14	47	34.2	t	1.6	143.0
	D	eP			36.0			
	T	eP	14	52	32.5		0.17	4.9
	D	eP			41.8			
	K	eP	18	22	30.6	t		
	D	eP			31.7			
		eX1		25	42.5			
		eX2		33	31.4			
	T	eP		22	35.5		1.1	28.5
		eX1		25	45.1			
	D	eP	18	43	59.8	t		
	T	eP		44	03.8		1.2	30.6
	T	eP	20	10	54.9			
	D	eP			05.3			
	T	eP	20	26	35.4	t?	1.0	32.1
	T	eP	23	29	43.7			
	D	eP			51.4			
MAR. 6	T	iP	00	12	41.8			
	D	iP			45.7			
	K	iP			50.3			
	T	iP	01	54	12.2			
	D	iP			16.3			
	K	iP			20.6			
	T	iP	06	25	13.8			
	D	iP			24.1			
	K	eP	06	36	50.1			
	D	eP			54.2			
	T	eP			56.9		0.17	33.3
	T	eP	14	29	20.6			
	D	eP			31.3			
	D	eP	16	36	07.2			
	T	iP			10.7			
	K	eP			15.6			
	T	iP	16	54	00.0	t	0.5	24.7
		eX			13.0			
	D	iP			05.2			
		eX			18.4			
		eS		56	26.5			
	K	eP		54	13.7			
MAR. 7	K	iP	02	54	53.2			
	T	iP			55.4			
	D	iP			58.8			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
MAR. 7	T	iP	03	01	03.0			
	D	iP			14.0			
	K	eP			17.7			
	T	eP	07	32	30.5	t	1.0	9.2
	D	eP			31.6			
	T	eP	08	41	31.3			
	D	eP			33.2			
	T	iP	08	52	00.9		0.17	4.0
	D	iP			10.4			
	T	eP	12	43	35.5			
		eS		44	56.8			
	D	eP		43	45.3			
	D	eP	13	30	13.9	t		
		ePP?		32	04.0			
	T	eP		30	14.0		1.2	19.4
		eX			35.3			
	D	eP	14	15	21.2			
	T	eP			30.5			
	T	eP	14	58	24.3			
	D	eP			32.8			
	D	eP	17	43	31.4	t?		
	T	eP			35.9		0.5	6.4
	T	iP	18	25	15.4			
	K	iP			16.2			
	D	iP			23.8			
	D	eP	21	30	30.9			
	T	eP			34.8			
MAR. 8	D	eP	05	16	06.2			
	K	eP	11	24	58.4			
	T	eP		25	08.2		0.17	7.8
	D	eP			12.6			
	T	eP	13	21	58.5			
	D	eP	17	18	17.3	t		
	T	eP			25.3		0.5	2.8
	T	iP	19	52	31.6			
	K	iP			32.0			
	D	iP			39.8			
	T	iP	21	46	43.6			
	D	iP			53.2			
	K	eP			57.3			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
MAR. 8	K	eP	23	02	39.7			
	D	eP			54.3			
	T	eP			59.4		0.17	2.5
	K	iP	23	17	27.8			
	T	iP			38.7		0.17	6.9
	D	iP			43.2			
	T	eP	23	19	24.5			
MAR. 9	K	eP	03	27	15.0	t		
	D	iP			20.0			
		iX		29	07.0			
	T	eP		27	22.0		0.5	3.5
	D	eP	06	30	35.2	t		
	T	eP			37.4		0.5	2.0
	D	eP	08	33	26.8	t		
	T	eP			29.8		0.5	2.0
	K	eP	19	42	40.3			
	T	eP			51.1			
	D	eP			55.0			
	T	eP	20	35	25.4			
		eS		36	17.6			
	D	eP		35	34.0			
MAR. 10	T	eP	02	47	09.1			
	K	eP			26.2			
	T	iP	03	56	10.5	t		
	D	iP			17.3			
	D	eP	07	23	28.5	t		
		iX		26	37.0			
	T	eP		23	31.5			
	T	eP	13	01	57.8			
	T	eP	21	27	26.7			
		eS		28	58.6			
MAR. 11	D	iP	03	00	58.3			
	K	eP		01	06.9			
	T	iP			10.3			
	K	eP	04	22	26.0			
	D	eP			30.8			
	T	eP			33.4			
	T	iP	08	37	20.2	t	1.8	230
	D	iP			23.2			
		eS		46	17.8			
	T	iP	10	57	39.6			
	K	iP			40.4			
	D	iP			48.0			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
MAR.11	T	eP	11	30	06.9		0.17	2.0
		eS		31	08.4			
	D	eP		30	15.6			
		eS		31	22.5			
	D	eP	15	17	53.0	t?		
	T	eP	16	55	34.2			
	D	eP			36.5			
	T	iP	18	31	22.9	t	1.0	12
		iX		32	05.9			
	D	iP		31	29.4			
MAR.12	D	eP	05	49	01.8	t		
	K	eP			02.9			
	T	eP			06.6			
	D	eP	05	55	55.6	t?		
	D	iP	09	23	51.5			
	T	eP		24	01.2			
	K	eP			08.1			
	T	eP	10	41	51.7		0.17	0.37
		eS		42	46.1			
	T	eP	11	15	50.9		0.17	0.28
		eS		17	27.4			
	D	eP	13	29	27.5			
	T	eP			31.9		0.17	1.2
		eS		30	30.6			
	D	iP	13	38	06.2			
		eS			20.4			
	T	iP			08.2			
	T	eP	18	09	25.8			
		eS			43.6			
	K	eP			26.7			
	T	eP	20	05	05.2		0.17	0.3
		eS		06	21.7			
	D	eP		05	16.2			
		eS		06	37.2			
	T	iP	20	47	17.5			
	D	iP			20.6			
		eS			29.3			
	T	eP	21	32	24.2	t		
	D	eP			24.4			
MAR.13	T	eP	04	25	57.8			
	D	eP		26	07.7			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
MAR. 13	K	eP	10	30	29.3			
	D	iP			36.4			
	T	iP			38.3		0.17	13.5
	T	eP	11	02	08.9	t	1.0	23.6
	D	eP			15.4			
	T	eP	11	41	25.1			
	D	eP			34.1			
	T	eP	14	31	08.2	t	1.2	20.4
	D	eP			14.7			
	D	eP	16	54	37.0	t		
	T	eP	18	11	48.4		0.5	6.2
	D	eP			57.1			
	T	eP	20	13	18.5	t		
	D	iP	20	35	45.7	t		
	T	iP			47.9		1.2	125.0
		epP?			59.2			
	D	iP	21	16	13.2			
	T	iP			16.2			
	D	eP	21	47	41.7			
	T	iP			46.1			
	D	eP	22	48	10.0	t		
	T	iP			12.8		1.0	70.7
		eX			16.5			
	D	iP	23	29	43.3			
	T	iP			48.3			
MAR. 14	D	eP	02	18	08.2	t		
	T	iP			10.6		1.1	109.0
		iX			15.3			
	K	eP			15.7			
	D	iP	04	12	11.2			
	T	iP			11.2			
	T	iP	10	45	22.6			
	K	iP			22.8			
	D	iP			31.1			
	T	iP	12	05	32.8			
	K	iP			33.0			
	D	iP			41.3			
	T	eP	13	03	14.4			
	D	eP			15.4			
	T	iP	13	59	09.0			
	D	iP			13.7			
	K	iP			18.8			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
MAR.14	K	iP	17	49	01.6			
	T	iP			14.7			
	D	iP			16.5			
	T	eP	18	56	56.1	t	1.5	4 5.5
	D	eP			57.6			
		epP		57	05.7			
		ePcP?		58	36.4			
	T	iP	20	07	12.8		0.17	2.1
		iP		08	45.7			
	D	eP		07	21.1			
	D	iP	20	46	32.6			
	T	iP			36.9			
	T	eP	21	50	09.2			
MAR.15	T	eP	07	22	14.7		0.5	8.3
		eS		24	04.3			
	D	eP		22	21.4			
	T	eP	12	31	54.3			
	D	eP		32	04.6			
	D	iP	13	27	03.3			
	T	iP			07.6			
	T	eP	16	36	40.9	t	0.9	14.6
		eS		39	06.8			
	D	eP		36	41.7			
	D	eP	16	45	54.0			
	T	eP			58.0			
	K	eP	17	44	55.8			
	T	iP		45	08.7		0.17	3.0
	D	iP			10.7			
	T	eP	18	06	54.9		0.5	6.2
	D	eP		07	04.4			
	T	eP	18	07	40.3		0.5	9.6
	D	eP			50.2			
	D	eP	21	48	10.8			
	T	eP			14.1		0.17	3.0
	T	eP	22	19	09.4		0.17	4.0
MAR.16	K	iP	01	08	01.2			
	T	iP			10.0			
	D	iP			14.6			
	D	iP	02	07	47.7			
	K	iP			47.9			
	T	iP			51.8			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
MAR.16	K	eP	02	20	38.3			
	D	eP			42.7			
	T	eP			46.6		0.17	2.4
	T	iP	03	59	18.0			
	D	iP			20.0			
	K	eP			26.9			
	T	eP	06	19	50.2		0.17	3.5
	D	eP		20	02.0			
		eS		21	14.7			
	K	eP		20	08.9			
	T	eP	08	59	20.5			
	D	iP			21.9			
	T	iP	15	58	42.0			
	D	iP			50.5			
	K	eP	16	33	38.4	t		
	D	eP			39.1			
	T	eP			50.2		0.5	4.4
	D	eP	16	51	59.4			
	K	eP		52	02.1			
	T	iP			04.7			
	K	eP	18	47	54.0			
	D	iP		48	05.9			
	T	iP			06.1		0.17	2.5
MAR.17	T	eP	04	12	10.4	t	1.2	42.9
		iX			19.8			
	D	eP			10.7			
		eX			20.9			
	T	iP	10	07	30.1			
	D	iP			34.2			
	K	eP			35.0			
	K	iP	12	36	23.1			
	D	iP			36.1			
	T	iP			36.1			
	T	eP	13	56	43.4	t	0.5	27
	D	eP			47.4			
	T	eP	15	11	35.1		0.17	2.8
	D	eP			44.6			
	D	iP	15	52	20.7			
	T	iP			23.8			
	K	iP			30.7			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
MAR.17	D	iP	20	21	11.8	t		
		epP			41.2			
		iPcP		23	50.5			
		eS?		26	32.5			
		eScP		27	27.6			
		ePcS			38.1			
		eScS		31	30.4			
	T	iP		21	14.7		1.3	76.3
		iPcP		23	51.2			
	T	iP	23	56	10.9			
	D	iP			21.9			
	K	eP			22.6			
MAR.18	K	iP	00	44	31.2			
	T	iP			42.9			
	D	iP			43.3			
	T	iP	01	33	38.8			
	D	eP			45.7			
	T	iP	04	49	56.2			
	D	iP		50	06.7			
	K	eP			10.0			
	D	eP	07	33	26.4			
	T	eP			27.6		0.5	49
	T	iP	07	39	20.4			
	D	iP			29.6			
	K	eP			37.3			
	T	iP	12	35	38.2			
	D	iP			48.1			
	T	iP	17	21	02.3		0.17	4.9
	D	eP			11.6			
	K	eP			16.2			
	T	iP	18	13	38.7			
	D	iP			47.1			
	K	eP	18	23	27.6	t		
	D	eP			31.2			
	T	eP			34.8		0.5	7.0
	T	eP	19	23	27.1			
	D	eP			36.9			
MAR.19	T	eP	01	46	57.5	t	1.6	1420
	D	eP		47	00.9			
	D	eP	03	34	19.6			
	T	eP			30.2		1.1	13.1
	T	eP	13	29	23.4	t	1.0	30.7
		iX			30.9			
	D	eP			26.2			
		eX			33.0			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
MAR. 19	D	eP	17	57	55.1	t		
	T	eP			57.1		0.5	2.7
	D	iP	20	52	49.8			
	T	iP		53	01.1		0.17	5.9
MAR. 20	T	eP	11	37	23.9		0.5	5.3
		eS		39	12.2			
	D	eP		37	33.2			
	T	eP	12	19	20.1	t	1.4	34.6
	D	eP			26.7			
	T	eP	13	04	54.6	t	1.5	25.0
	D	eP			57.5			
	D	iP	14	15	41.0			
	T	iP			45.1			
	T	eP	16	18	55.3			
	D	eP		19	10.6			
	T	iP	17	31	15.7		0.17	4.1
	D	iP			20.5			
	T	eP	19	02	31.6			
	D	eP			41.3			
MAR. 21	T	eP	00	22	55.1			
	D	eP			55.4			
	T	iP	00	41	09.3			
	D	iP			17.4			
	T	iP	02	03	57.3			
	D	iP		04	03.7			
	K	iP			08.3			
	T	iP	06	59	15.3			
	K	iP			15.8			
	D	eP			23.5			
	T	iP	08	18	45.1			
	D	iP			51.3			
	K	eP			56.3			
	T	eP	11	04	53.9	t	0.5	3.3
	D	eP		05	02.2			
	T	eP	14	46	22.0			
	D	eP			27.5			
	T	eP	15	42	30.3			
	D	iP			39.7			
	T	eP	16	15	34.3		0.17	4.9
	D	eP			40.1			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
MAR. 22	D	eP	00	17	07.9	t		
	T	eP			11.2			
	T	eP	02	15	25.2	t	1.4	92.3
	K	eP			27.2			
	D	iP			27.3			
		iX			54.7			
	D	iP	08	06	15.7			
	T	iP			20.4			
	T	eP	09	20	12.5	t	1.0	23.5
		eS		24	34.0			
	D	eP		20	16.7			
		eX		24	04.7			
		eS			34.5			
		eScP?		27	42.6			
	T	eP	15	12	02.0	t	1.3	69.3
	D	eP			06.7			
	D	eX	15	27	01.4	t		
	T	eP	18	59	11.1	t	1.2	22.5
	D	eP			13.1			
		eX			43.2			
	T	eP	20	35	21.0			
	D	eP			31.3			
	T	eP	20	39	59.5			
	D	eP		40	08.2			
	T	eP	21	27	55.8		0.17	3.5
	D	eP		28	06.5			
	D	eP	22	05	50.8			
	T	eP			51.0			
	T	eP	22	25	33.6			
	D	eP			44.0			
	D	eP	22	56	01.0			
	T	eP			03.3			
MAR. 23	T	eP	00	08	17.2	t	0.5	8.0
	D	eP			22.7			
	D	iP	00	34	36.1			
	T	eP			41.5			
	T	eP	02	55	18.7		0.17	3.9
	T	eP	04	21	10.8			
	D	eP			18.8			
	T	eP	06	11	18.5			
	D	eP			26.2			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
MAR.23	D	eP	06	46	27.6			
	T	iP			31.5			
	T	eP	07	45	48.6			
	T	eP	11	39	34.2			
	D	eP			43.5			
	D	eP	14	11	23.0	t		
	T	eP			23.7		1.0	45.7
		eS		13	51.0			
MAR.24	T	eP	11	03	10.8			
		eS		04	23.4			
	D	eP		03	22.9			
	K	iP	11	15	48.3			
	D	iP			55.3			
	T	iP			57.1		0.17	12.4
	T	eP	12	12	30.1			
	D	eP			38.8			
	T	iP	12	28	51.5			
	D	iP			58.0			
	K	iP			59.6			
	D	eP	16	00	54.7			
	K	eP			57.0			
	T	eP		01	01.1		1.1	71.0
	D	eP	16	23	04.1			
	K	eP			10.6			
	T	eP			12.3		1.1	65.8
		eX			48.5			
	K	eP	17	11	26.4			
	D	eP			34.5			
	T	iP			37.9			
MAR.25	D	eP	01	39	37.2			
	D	eP	03	32	29.4			
	T	eP			31.1			
	D	iP	22	00	09.5			
	K	eP			13.6			
	T	iP			14.4		0.17	5.0
	K	eP	22	05	57.4			
	D	iP		06	05.2			
	T	iP			07.0		0.17	4.5
MAR.26	K	iP	00	10	43.9			
	T	iP			56.2			
	D	iP			57.1			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
MAR.26	K	iP	00	49	44.1	t		
		iPcP		51	06.0			
		iScP		54	07.2			
	D	iP		49	46.3			
		iPcP		51	07.5			
		epP?			17.9			
		ePP			35.1			
		iScP		54	07.8			
		ePcS		55	05.7			
		eX			21.6			
		iS			58.3			
		eScS		58	41.9			
	T	iP		49	49.9		0.6	104.0
		iPcP		51	08.5			
		epP?			19.1			
		ePP			38.2			
		iScP		54	09.8			
		eX		55	21.8			
	K	iP	04	03	31.7			
	T	iP			31.9			
	D	iP			36.3			
	T	eP	06	24	08.2			
	D	eP			20.2			
	K	iP	08	38	35.6			
	T	iP			49.0		0.17	2.9
	D	iP			49.5			
	T	eP	10	21	55.0			
	D	eP		22	08.4			
	K	eP	10	42	40.9			
	T	iP			53.8			
	D	eP			55.7			
	K	eP	19	46	41.6	t		
	D	eP			45.0			
		epP		47	05.3			
		ePcP		50	09.1			
		eS		51	33.4			
	T	eP		46	48.5		1.4	30.8
		epP		47	08.1			
		eX1		48	00.9			
		eX2		49	48.4			
		ePcP		50	09.8			
	T	eP	21	36	48.3			
	D	eP			48.7			
	K	iP	22	38	08.6			
	D	iP			11.7			
	T	iP			14.9		0.17	8.1
MAR.27	T	iP	00	59	12.1			
	D	iP			30.0			
	K	iP			30.3			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
MAR. 27	K	eP	03	38	54.5			
	T	eP		39	09.0		0.5	11.1
	D	eP			09.2			
	D	iP	04	56	30.0	t		
		epP			36.7			
		eS		59	21.2			
	K	eP			36.5			
	T	iP	11	16	28.9			
	D	iP			35.3			
	K	eP			45.3			
	T	eP	12	42	49.2	t		
	D	eP			51.0			
	T	eP	15	08	19.5			
	D	eP			26.8			
	K	iP	17	06	17.7			
	T	eP			30.9		0.17	9.4
	D	iP			34.0			
	T	eP	18	54	44.7		0.5	16.7
	D	eP			46.6			
	T	eP	21	21	32.3	t		
	D	iP			33.4			
		eS?		30	15.6			
	D	eP	22	44	18.0	t		
	T	eP			24.7		0.5	11.0
	D	eP	23	36	55.6	t		
MAR. 28	T	eP	05	54	19.7	t	1.6	66.6
		eX			32.7			
	D	eP			21.4			
		eX			34.3			
	D	eP	07	52	43.9	t		
	T	eP						
	D	eP	11	47	17.0	t		
	T	eX	13	57	34.1	t	0.5	10.5
	D	eX			37.3			
	T	eP	13	57	54.4	t		
	K	eP			54.7			
	D	eP			58.3			
	T	eP	16	50	28.6	t	0.5	3.5
	D	eP			33.8			
	T	iP	20	38	28.3			
	D	iP			31.7			
	K	iP			44.9			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
MAR. 28	K	eP	22	43	36.7			
	T	eP			50.0		0.5	7.5
	D	eP			50.2			
	T	eP	23	38	03.6			
	D	iP			14.6			
MAR. 29	T	eP	04	35	31.3			
	D	eP			39.8			
	K	eP	05	52	57.8			
	D	iP		53	04.8			
	T	eP			06.9		0.17	5.5
	T	iP	08	18	18.3			
	D	iP			20.0			
	K	iP			22.3			
	K	iP	10	56	53.2			
	T	eP		57	00.7		0.5	45.5
	D	eP			09.1			
	K	iP	11	06	05.0			
	T	eP			10.9			
	D	eP			18.3			
	D	eP	12	20	11.0	t?		
	T	eP			15.6		0.5	3.9
	T	iP	13	07	23.9			
	D	iP			33.9			
	K	eP			36.7			
	K	eP	17	46	49.7	t?		
	T	eP			58.3		0.5	5.0
	D	eP			58.8			
	T	iP	17	47	03.9			
	D	iP			09.9			
	K	iP			11.8			
	D	eP	19	05	33.4			
		eX			44.8			
	K	eP			39.1			
	T	iP			43.5		0.5	10.6
		eX		06	04.8			
	D	iP	20	41	47.4			
	T	eP			58.1		0.5	30.3
	K	eP		42	02.3			
	T	iP	22	08	49.7			
	K	eP			57.1			
	D	iP		09	00.4			
MAR. 30	K	iP	00	11	13.2			
	T	eP			25.7		0.17	3.0
	D	iP			28.8			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
MAR. 30	T	iP	03	07	37.5	t	1.1	36.0
	D	eP			40.5			
	K	eP	05	16	49.0			
	D	iP			53.5			
	T	iP			56.8		0.17	9.3
	K	iP	11	16	44.5			
	T	eP			56.7			
	D	eP		17	00.2			
	D	iP	11	36	32.3	t		
	T	iP			32.7		1.1	31.9
	D	iP	11	38	26.7			
	T	iP			31.5			
	D	eP	17	11	52.6			
	T	eP			54.3			
	T	eP	19	05	35.9		0.17	4.9
	D	eP			39.4			
	T	eP	22	33	46.4			
		eS		35	03.1			
MAR. 31	T	eP	10	57	59.3			
	D	eP		58	08.9			
		eS		59	51.3			
	T	eP	14	21	14.6		0.17	3.1
	D	eP			17.8			
	T	iP	16	03	23.7			
	D	iP			34.8			
	T	iP	22	01	42.8			
	D	iP			52.8			

Tsukuba

S−P \ Date	1	2	3	4	5	6	7	8	9	10	11	12	13
0− 0.9													
1− 1.9													
2− 2.9													
3− 3.9													
4− 4.9						2							1
5− 5.9		2				8		1	1		3		2
6− 6.9	2				1			2			1		
7− 7.9	1	2	3	1			1		2	1	1	1	2
8− 8.9	3	2	5		3	1	2		2	1	3	2	3
9− 9.9	2	5	5	2	2	2	2	1	2	5	4	2	2
10−10.9	1	3	1	1		2	1	1	2	1	2	1	
11−11.9	1		2	1		1		2	3	1		1	
12−12.9		2	1	1		1	4		1		2		1
13−13.9		2		1	1		1		1			2	
14−14.9	1	1	2		1		1				1		1
15−15.9									1		1		
16−16.9				1	1	3	1		1	1			1
17−17.9				1		2	2		1				
18−18.9	1					1		1	1				
19−19.9			1				1	1		1	2	1	
20−20.9		1	1	2			1		1				
21−21.9									1			1	
22−22.9		1								2			1
23−23.9		1											
24−24.9													
25−25.9			1								1		
26−26.9				1				1					
27−27.9									1				
28−28.9													
29−29.9												1	
above 30 sec	1					1			1	1			
?		1							5	1			
Total	13	23	22	12	9	24	17	10	27	15	21	12	14
no observation										10h 10m ~15h 00m			
Remarks													

MARCH

14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Total
																		0
																		0
																		0
																		0
															1			4
2	2		1	2	1		5	2	3		1	1		2	1			40
1		1	1	2				1	1	2		3		1				19
1	4		1	1	2	1	2	3		1	1	1	1	3	2			39
1	1	3	1	2	4	2	3	3		2	4	1	1	1	1			57
1	4	2	2	4	2	2	2	1	1	1			3	2	1	2	1	67
	1	1	2	2	2	2	1	2	3			2	4	1	1		1	41
			2		2		3	2		1	2	3	1	1	1		1	31
1	3	2		1	1	1	1				1	3	2	2		1	4	36
2		1		2				1	1		2		2					19
	1				1	1		1			2		1	2		1	2	20
		1																3
						1					1	2						13
					1							1			2			10
			1			1	1			2	1		1		1		2	14
															1		1	9
												1			1			8
	1			1		1		1		1						1		8
2												1						7
																		1
																		0
																1		3
																		2
																		1
																		0
									1									2
						1								1			1	7
				2				1		1			1			2		14
11	17	11	11	19	16	13	18	18	10	11	15	19	17	16	13	8	13	
			09h 09m ~ 12h 04m 13h 07m ~ 16h 18m			07h 58m ~ 18h 58m 20h 37m ~ 20h 40m											09h 19m ~ 18h 51m	

S − P \ Date	1	2	3	4	5	6	7	8	9	10	11	12	13
0− 0.9													
1− 1.9													
2− 2.9			2				1		1				
3− 3.9													
4− 4.9													
5− 5.9													
6− 6.9													
7− 7.9						1		1					
8− 8.9			1						2		1		
9− 9.9											1		
10−10.9													
11−11.9										1			
12−12.9	2	3	2				1	1		2	2	1	
13−13.9		1			1	1				1	1		2
14−14.9					1								
15−15.9		1	1				1		1				
16−16.9								1	1				
17−17.9									2				
18−18.9			2			1							
19−19.9									2	1		1	
20−20.9		1		1						1			
21−21.9							3		1				
22−22.9											1		
23−23.9										1			
24−24.9													
25−25.9													
26−26.9													
27−27.9										1			
28−28.9									1				
29−29.9													
above 30 sec			1					1					
?									1	1			
Total	2	6	9	1	2	3	6	4	12	9	6	2	2
no observation										10h 10m ~15h 00m			
Remarks													

MARCH

14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Total
																		0
																		0
										1	1	1						7
													1					1
										1	1							2
1																		1
																		0
				1														3
1				2	1	1	2	2	1	1				1				16
									1	1								3
				1		1				2	1			1				6
1			2	1		1	1					2	1					10
2	2				1	1	1	1	1	2				2	1	1	4	33
	3	4	2	1		3		2	2	2	1	3	2	3	3	1		39
		1						2	1		1	2		1	1			10
	1												1					6
				1										1				4
	1	1							1					1				6
			1	1	1					1			1	1	1			10
		1													1			6
																1		4
	1										1			1				7
		1														1		3
												1						2
						1												1
																2		2
										1			1					2
																		1
												1						2
																		0
1	1								3							1		8
		1								2				1	1		1	8
6	9	9	5	8	3	8	4	7	10	14	6	10	7	13	8	7	5	
			09h 09m ~12h 04m 13h 07m ~16h 18m			07h 58m ~18h 58m 20h 37m ~20h 40m											07h 00m ~07h 36m 09h 19m ~18h 51m	

Preliminary Bulletin

of the Dodaira Micro-earthquake Observatory

and its Substation

May, 1968

Dodaira Micro-earthquake Observatory

Earthquake Research Institute, the University of Tokyo

Preliminary Bulletin of the Dodaira Micro-earthquake Observatory and its Substation

Observation stations

	N	E	h
Dodaira (D or DDR)	35°59'54".0	139°11'36".2	800m
Tsukuba (T or TSK)	36°12'39".0	140° 6'35".0	280m
Kiyosumi (K or KYS)	35°11'51".6	140° 8'53".6	230m
Shiroyama(S or SRY) (temporary)	35°36'30".0	139°16'27".0	254m

Expressions: Am: Amplitude in millimicron (half of peak to trough*) of P motion maximum within few cycles after the onset recorded by a short period vertical seismograph. *In 1967 double amplitude (peak to trough) was used as Am.

T : Period in sec of the measured P maximum

t : Teleseism

All stations are radio-telemetered to Tokyo giving records on a multi-channel ink-recording oscillograph. The paper speed of the recorder is 1 mm per sec. For stronger events high speed recorder (10 mm/sec) is also triggered. The system is also recorded in parallel on multi channel magnetic tape through a trigger system using an endless tape loop. Direct filter sum of short period seismometers at Dodaira and/or on line short period filter outputs of Tsukuba are also used for the detection of weak teleseismic signals. For teleseismic events records of long period and medium period seismographs are

occasionally used, applying off line frequency filter, if necessary..

The Bulletin includes the preliminary readings sent to USCGS for teleseisms and larger near shocks with total durations (F-P) of short period vertical seismograph at Tsukuba (TSK) with magnification about 140.000 at 1 c/s or sensitivity about 300×10^{-3} mm/microkine at 10 c/s being longer than 100 seconds which correspond approximately shocks with $M \geq 3.5$. For the minor near earthquakes with $F-P < 100$ sec or $M < 3.5$, frequency of S-P times at each station is added at the end of the Bulletin, which may easily give a general idea of local seismicity around the station.

Date	Station	Phase	Time (G.M.T.)			t	T	Am
MAY. 1	T	eP	04	38	40.7	t	1.0	17.5
	D	eP			42.4			
		eX		40	51.8			
	T	iP	08	38	30.0			
	D	iP			40.3			
		eS		39	26.4			
	K	eP		38	47.2			
	T	iP	08	44	37.9			
	D	iP			40.2			
		eS		45	34.9			
	K	iP		44	49.6			
	T	iP	09	22	59.2		0.17	7.1
	D	eP		23	09.6			
	T	iP	09	31	50.5		0.5	16.5
	D	eP		32	00.4			
	T	iP	09	38	08.2		0.17	6.0
	D	eP			18.8			
		eS		39	07.2			
	D	eP	12	56	38.3	t		
		eS		58	56.1			
	T	eP		56	45.6		1.0	5.0
	K	iP	14	23	21.7			
	D	iP			30.6			
		iS			51.2			
	T	iP			34.2		0.5	24.3
	T	iP	18	27	57.2			
	D	iP		28	08.0			
		eS			54.1			
	K	eP			11.1			
	T	iP	19	14	08.7			
	D	iP			17.1			
	K	iP			22.4			
	T	iP	19	17	52.6			
	D	eP		18	01.0			
	K	eP			09.4			
	D	eP	19	41	04.0	t		
	T	iP	19	52	27.0		0.17	8.5
	D	eP			37.1			
	K	eP			41.0			
	T	iP	20	01	01.0			
	D	iP			02.8			
		eS			11.8			
	K	eP			18.6			
	T	eP	21	28	54.5		0.17	1.8
	D	eP		29	03.0			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
MAY. 2	K	iP	03	20	44.0			
	S	iP			44.8			
	D	iP			48.7			
	T	iP			51.3			
	S	iP	04	53	40.1			
	K	iP			47.8			
	D	iP			49.8			
		iS		54	04.8			
	T	iP		53	51.5			
	T	eP	05	40	01.9			
	D	eP			11.0			
		eS		41	13.2			
	K	eP		40	14.3			
	S	eP			15.0			
	T	eP	05	41	37.6			
	T	iP	09	07	05.8		0.17	5.5
	D	eP			14.2			
	K	eP			22.0			
	T	eP	16	11	09.2			
	D	eP			19.8			
	T	iP	16	18	51.8		0.17	10.6
	D	eP		19	02.4			
	S	eP			03.7			
	K	eP			06.3			
	K	eP	23	33	47.2	t		
	S	eP			47.9			
	D	iP			51.9			
		iScP		39	20.3			
		ePcS			37.1			
		eS		40	03.6			
		eScS		43	40.0			
	T	iP		33	54.5		0.5	36.9
MAY. 3	K	eP	00	52	18.4			
	D	eP			26.7			
	T	eP			27.8			
	S	eP	05	36	29.9	t		
	D	iP			33.9			
		iS		39	45.0			
		iScP		44	45.2			
		iScS		48	23.7			
	K	iP		36	35.6			
	T	iP			40.2		0.6	148.0
		eS		39	52.7			
	T	eP	09	01	07.6			
		eS		02	25.0			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
MAY. 3	T	iP	09	48	12.5			
	D	iP			23.1			
		iS			40.8			
	K	eP			25.4			
	S	iP			25.7			
	S	eP	10	43	33.4			
	D	eP			35.5			
	T	iP			37.7		0.17	14.8
		eS		44	46.3			
	K	iP		43	44.7			
	T	iP	12	31	25.6			
	D	iP			29.9			
	S	iP			31.9			
	K	iP			34.4			
	T	eP	12	40	53.6			
	T	iP	16	21	34.8	t	0.5	10.3
	D	eP			40.8			
	T	iP	18	35	32.6		0.5	28.2
	K	eP			39.7			
	D	eP			43.8			
	T	iP	18	56	32.4		0.17	3.5
	D	eP			40.5			
MAY. 4	T	iP	00	27	54.3			
	D	eP			57.7			
		eS		28	23.7			
	S	iP			03.7			
	K	eP			12.2			
	K	iP	03	23	00.0			
	S	iP			02.7			
	D	iP			06.8			
	T	iP			08.9			
	T	iP	14	15	24.5			
	K	iP			25.1			
	S	iP			27.7			
	D	iP			29.7			
		eS			43.7			
	T	iP	14	54	51.3			
	K	eP		55	03.1			
	D	eP			06.3			
	S	eP			07.7			
	T	iP	16	37	45.0			
	K	iP			45.8			
	S	iP			48.4			
	D	iP			50.7			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
MAY. 4	T	iP	17	31	09.6			
	D	iP			16.6			
		iS			44.7			
	S	iP			21.6			
	K	iP			23.6			
	K	iP	22	56	49.5			
	S	iP			53.5			
	D	iP			58.0			
		eS		58	29.1			
	T	iP		56	59.7			
MAY. 5	S	iP	03	11	05.5	t		
	D	iP			09.0			
	T	eP			13.7		0.5	5.5
	S	iP	07	22	04.1			
	K	eP			08.2			
	D	eP			09.4			
		eS		23	15.0			
	T	eP		22	22.0		0.5	8.2
	K	eP	09	17	45.6	t		
	S	iP			47.8			
	T	eP			49.7		1.1	26.8
	D	eP			50.8			
	T	iP	15	14	18.8			
	D	iP			29.1			
		eS		15	09.1			
	K	iP		14	32.4			
	S	iP			32.5			
MAY. 6	K	iP	09	10	31.0			
	S	eP			36.5			
	T	iP			42.8		0.17	4.4
	D	eP			43.8			
	T	iP	09	57	19.3			
		iS			50.5			
	K	iP			20.2			
	S	iP			27.8			
	D	iP			36.0			
	K	iP	10	53	51.3			
	S	iP			58.6			
		iS		54	14.9			
	D	iP			04.3			
	T	iP			04.9		0.17	9.5
	T	eP	11	19	01.2	t	0.5	5.8
	D	eP			08.0			
	T	eP	19	17	04.9		0.17	1.3
		eS		18	36.0			
	D	eP		17	13.4			
	D	eP	20	58	48.2	t?		

Date	Station	Phase	Time (G.M.T.)			t	T	Am
MAY. 7	S	iP	11	53	39.3	t		
	T	iP			40.2		1.2	44.0
	D	iP			42.1			
	T	iP	13	55	41.2			
	D	iP			45.6			
		iS			56.3			
	S	iP			46.2			
	K	iP			46.3			
	D	eP	15	13	20.7			
	T	iP			20.9		0.17	6.4
		eS		14	51.6			
	K	eP	18	03	57.2	t		
	T	eP		04	02.5		1.2	27.8
	D	eP			04.3			
	T	eP	18	21	17.5		0.17	1.4
		eS		22	22.0			
	D	eP		21	21.9			
	D	eP	18	37	56.6	t?		
	T	eP		38	05.0		1.4	39.0
MAY. 8	T	iP	02	51	39.7			
	D	iP			50.2			
		iS		52	12.8			
	S	eP		51	52.9			
	K	eP			54.6			
	T	eP	04	25	16.6			
		eS		26	09.1			
	D	eP		25	23.1			
	T	iP	10	04	03.4			
		iS			45.8			
	D	eP			05.8			
	T	iP	12	28	07.4	t	1.6	80.3
	D	iP			12.3			
		ePP		30	45.3			
	S	iP		28	13.1			
		ePP		30	46.9			
	K	eP		28	14.2			
	D	eP	14	14	02.8	t?		
	K	eP	20	14	26.9			
	T	eP			40.5			
	D	eP			41.8			
	D	iP	22	54	10.8	t		
	S	iP			11.6			
	T	iP			13.9		1.2	40.7
	K	iP			17.8			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
MAY. 8	T	iP	23	26	52.3			
	D	iP		27	03.0			
		eS			50.9			
	K	iP			03.3			
	S	iP			06.1			
MAY. 9	T	iP	01	23	27.0			
	D	eP			33.8			
		eS		24	29.6			
	S	eP		23	38.8			
	K	iP			40.4			
	T	eP	03	14	04.4	t	1.2	20.4
	S	eP			04.8			
	D	eP			05.6			
	T	iP	04	54	27.6			
	D	iP			37.9			
		iS			55.6			
	K	eP			39.5			
	S	iP			40.3			
	T	iP	14	36	35.2			
	D	iP			43.2			
		iS		37	02.2			
	S	iP		36	46.9			
	K	iP			49.3			
	T	eP	07	31	54.6	t	0.5	3.4
	D	eP			57.0			
	S	eP	09	55	54.0			
	D	eP			57.4			
		eS		56	50.3			
	T	eP			05.7		0.5	4.9
	S	iP	14	22	47.8			
	D	eP			52.2			
		eS		23	34.1			
	K	eP		22	55.7			
	T	eP		23	01.7			
	S	iP	15	04	12.7			
	D	eP			15.4			
		eS			51.0			
	K	eP			20.8			
	T	eP			26.9		0.5	8.2
	T	iP	18	47	30.5			
	K	iP			31.2			
	S	iP			39.1			
	D	eP			39.5			
	T	eP	18	52	07.9	t	1.2	18.5
		eX			41.2			
	S	eP			09.4			
	D	eP			10.2			
		eX			44.0			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
MAY. 9	D	iP	19	22	40.0			
	S	eP			41.7			
	T	iP			42.6			
	K	iP			49.9			
	T	iP	23	02	24.2		0.17	9.2
	D	iP			34.3			
		eS		03	20.9			
	S	eP			37.5			
	K	eP			38.2			
MAY.10	K	eP	00	13	16.7	t		
	D	eP			24.2			
	T	eP			24.6		0.5	6.1
	T	eP	07	23	15.7		0.17	1.5
		eS		24	30.0			
	T	eP	09	28	01.6	t	0.5	5.0
	T	eP	10	21	33.8		0.17	9.5
	D	eP			44.3			
		eS		23	22.1			
	S	eP		21	46.8			
	K	eP			51.0			
	S	eP	15	13	39.8	t		
	T	eP			49.1		0.5	3.7
	D	eP			52.5			
	T	iP	17	15	51.9			
	D	eP		16	02.5			
	S	eP	20	37	33.8	t		
	D	eP			35.3			
	K	eP			37.1			
	T	eP			40.8		0.5	10.2
	K	iP	22	59	25.8	t		
	S	iP			29.4			
	T	iP			30.1		1.2	61.1
	D	eP			32.1			
		eX	23	00	21.3			
MAY.11	D	eP	04	55	20.2			
	S	eP			23.5			
	K	eP			26.3			
	T	iP			29.5		0.17	11.5
	T	iP	06	53	47.1			
	K	iP			50.1			
	D	eP			56.4			
	S	iP			58.1			
	T	eP	12	24	46.4			
		eS		25	47.2			
	T	eP	13	49	38.4	t	0.5	3.3
	D	eP			42.7			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
MAY. 11	K	iP	15	41	27.5	t		
	S	iP			30.1			
		epP			41.8			
		eScP		47	07.6			
		eS			46.0			
		eScS		51	20.6			
	D	eP		41	34.3			
		epP			45.1			
		ePP?		43	32.7			
		eScP		47	08.0			
		eS			50.8			
		eScS		51	28.6			
	T	iP		41	34.3		0.5	19.5
		epP			47.9			
		eScP		47	09.7			
	T	eP	15	50	19.4	t	0.5	3.7
		eS		53	27.7			
	D	eP		50	28.4			
	T	iP	19	03	23.5			
		eS		04	13.5			
	D	eP		03	32.8			
	T	eP	23	02	01.4			
		eS		03	56.8			
	D	eP		02	13.3			
MAY. 12	T	eP	03	13	44.9			
		eS		14	55.8			
	D	eP		13	52.3			
	K	eP			59.6			
	K	iP	03	59	46.7			
	S	iP			52.8			
	T	eP	04	00	00.4		0.17	2.5
	D	eP			01.5			
	K	iP	06	32	57.6			
	T	iP			57.9			
	S	iP		33	05.0			
	D	iP			06.6			
	S	eP	08	16	12.8	t?		
	D	eP			15.6			
	T	eP			23.8		0.5	3.4
	T	iP	11	36	46.2			
	D	iP			57.0			
	K	eP		37	00.8			
	S	eP			01.2			
	K	iP	13	15	28.6			
	T	iP			38.3			
	S	iP			39.5			
	D	iP			43.1			
	T	iP	17	59	02.4			
	D	iP			11.7			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
MAY.12	K	eP	18	49	23.9	t		
	S	eP			27.9			
	T	eP			29.9		1.2	22.2
	D	eP			31.8			
	D	eP	19	06	46.5	t		
	K	eP	21	42	52.1			
	T	eP		43	02.0			
	D	eP			04.7			
	K	eP	21	44	46.2			
	S	eP			53.3			
	T	eP			59.1			
	D	eP		45	02.1			
MAY.13	D	eP	01	52	10.9			
	T	eP			14.4			
	S	eP	04	06	27.3	t		
	T	eP			28.8		1.2	33.3
	D	eP			30.4			
	K	eP	11	57	17.9	t		
	S	eP			20.4			
	D	eP			24.1			
	T	eP			25.6		0.5	3.0
	T	eP	13	16	26.0	t	0.5	7.4
	D	eP			33.0			
	T	iP	15	53	32.0			
	D	iP			41.8			
		iS			58.0			
	S	eP			44.4			
	K	eP			49.3			
	T	iP	18	31	10.6			
		eS		32	11.2			
	D	eP		31	21.0			
	T	eP	20	28	42.6	t	0.5	3.2
	K	eP			44.5			
	D	eP			49.3			
	K	eP	22	51	48.8			
	S	eP			52.8			
	D	eP			58.8			
	T	eP			59.1		0.17	3.0
		eS		53	28.4			
MAY.14	T	eP	11	31	35.5			
	S	eP			48.1			
	D	eP			52.6			
	T	iP	13	35	29.0			
	S	eP			35.8			
	D	iP			37.5			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
MAY. ~~15~~ 14	S	eP	14	07	27.2			
	D	eP			30.0			
		eScP		16	44.2			
		eScS		20	16.6			
	K	iP		07	34.1			
	T	iP			38.4		1.1	330.0
	D	eP	14	33	30.8	t		
	T	eP			31.9		0.5	2.4
	T	eP	18	20	25.2			
		eS		21	35.5			
	D	eP		20	35.2			
	D	eP	19	19	52.6	t?		
	D	eP	19	51	32.0	t		
	S	eP			36.2			
	T	eP			38.2		1.1	18.7
MAY.15	T	iP	07	15	10.4		0.17	5.9
		eS			59.5			
	D	eP			20.7			
	T	iP	10	56	37.2			
	D	iP			46.9			
	S	eP			50.0			
	K	eP			51.2			
	T	eP	15	12	15.6	t	1.3	43.9
	S	eP			18.8			
	D	eP			20.9			
		eX			24.9			
	T	iP	20	08	23.7			
	K	iP			28.6			
	D	iP			33.8			
	S	eP			35.8			
MAY. 16	T	iP	00	50	13.3			
	D	iP			22.5			
	S	iP			26.8			
	K	iP			27.3			
	T	iP	03	46	45.4			
	D	eP			53.7			
	S	eP			56.3			
	K	eP			56.5			
	T	eP	04	02	46.6			
	D	iP			54.8			
	K	eP			58.2			
	S	iP			58.4			
	T	iP	04	16	57.4			
	D	iP		17	06.3			
	S	iP			10.2			
	K	iP			11.2			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
MAY. 16	T	iP	04	25	34.3			
	D	iP			43.5			
	S	iP			46.4			
	K	iP			47.2			
	T	eP	04	59	20.3			
	D	eP			29.7			
	S	eP			34.4			
	K	eP			34.4			
	T	iP	05	12	50.2			
	D	iP			59.4			
	S	iP		13	03.3			
	K	iP			03.7			
	T	iP	05	16	21.3			
	D	iP			30.7			
	S	iP			34.8			
	K	iP			36.0			
	T	eP	05	32	58.4			
	D	eP		33	07.3			
	S	eP			10.8			
	K	eP			11.6			
	T	iP	05	45	53.7			
	D	iP		46	02.4			
	S	iP			05.8			
	K	iP			06.3			
	T	iP	06	31	37.2			
	D	iP			46.4			
	S	iP			49.9			
	K	iP			50.2			
	T	iP	06	38	09.2			
	D	iP			18.7			
	S	iP			21.7			
	K	iP			22.9			
	T	eP	06	52	26.5			
	D	eP			36.5			
	S	eP			40.6			
	K	eP			40.8			
	T	eP	07	08	24.8			
	D	eP			34.5			
	K	eP			36.8			
	S	eP			37.0			
	T	iP	07	17	35.6			
	D	iP			45.3			
	S	iP			48.5			
	K	iP			48.5			
	T	iP	07	23	04.9			
	D	iP			14.2			
	S	iP			17.7			
	K	iP			17.8			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
MAY. 16	T	iP	07	29	13.0			
	D	iP			23.0			
	S	iP			26.2			
	K	iP			26.6			
	T	iP	07	43	37.8			
	D	iP			47.6			
	K	eP			49.3			
	S	eP			51.5			
	T	iP	07	50	21.0			
	D	iP			29.3			
	S	iP			33.6			
	K	iP			35.4			
	T	iP	08	03	49.2			
	D	eP			58.5			
	K	eP		04	03.5			
	S	eP			04.1			
	T	iP	08	21	15.1			
	D	iP			24.0			
	S	iP			27.9			
	K	iP			29.3			
	T	eP	08	47	57.4			
	D	eP		48	05.9			
	S	eP			09.2			
	K	eP			12.0			
	T	iP	08	59	34.6			
	D	iP			43.0			
	S	iP			47.7			
	K	iP			48.9			
	T	eP	09	16	51.2			
	D	eP		17	01.4			
	S	eP			05.6			
	K	eP			08.1			
	T	iP	09	36	27.0			
	D	iP			36.6			
	K	iP			39.6			
	S	iP			40.1			
	T	iP	09	43	32.7			
	D	iP			41.1			
	S	eP			44.9			
	K	eP			47.9			
	T	iP	09	49	07.3			
	D	iP			15.8			
	S	eP			18.6			
	K	eP			19.4			
	T	iP	10	13	50.5			
	D	iP			59.9			
	S	eP		14	03.3			
	K	iP			03.9			

Date	Station	Phase	Time (G.M.T.)			t	T
MAY.16	T	eP	10	37	51.0		
	D	eP		38	00.4		
	S	eP			04.1		
	K	eP			04.5		
	T	eP	10	40	21.4		
	D	eP			31.4		
	S	eP			35.6		
	K	eP			37.0		
	T	eP	11	17	11.0		
	D	eP			20.2		
	S	eP			23.4		
	K	eP			24.2		
	T	eP	11	42	13.7		
	D	eP			23.4		
	S	iP			27.7		
	K	iP			28.8		
	T	eP	11	58	47.0		
	D	eP			53.8		
	S	eP			59.0		
	K	eP			59.6		
	T	iP	12	10	50.8		
	D	eP			59.6		
	S	eP		11	03.9		
	K	eP			05.0		
	T	eP	12	35	50.2		
	D	eP			58.3		
	S	eP		36	02.9		
	K	eP			04.1		
	T	iP	12	39	27.0		
	D	eP			35.3		
	S	eP			40.3		
	K	eP			41.5		
	T	iP	13	18	18.7		
	D	eP			26.2		
	S	eP			32.4		
	K	eP			33.2		
	T	eP	13	21	20.8		
	D	eP			29.6		
	S	eP			34.4		
	K	eP			35.5		
	T	iP	13	27	15.5		
	D	iP			24.1		
	S	iP			28.3		
	K	iP			29.5		
	T	iP	13	30	57.1		
	D	iP		31	05.9		
	S	eP			10.1		
	K	eP			12.0		

Date	Station	Phase	Time (G.M.T.)			t	T	Am
MAY. 16	T	iP	13	38	16.7			
	D	iP			25.7			
	S	iP			29.5			
	K	iP			29.7			
	T	eP	13	40	25.8			
	D	eP			32.8			
	S	eP			37.6			
	K	eP			41.0			
	T	eP	13	50	25.5			
	D	eP			35.0			
	K	eP			38.0			
	S	eP			38.7			
	T	eP	13	58	41.1			
	D	eP			50.7			
		eS		59	52.3			
	S	eP		58	53.9			
	K	eP			53.9			
	T	iP	14	04	00.8			
	D	iP			09.2			
	S	iP			14.0			
	K	iP			15.5			
	T	iP	14	17	40.1			
	D	iP			49.2			
	K	eP			54.1			
	S	eP			54.5			
	T	iP	14	22	00.8			
	D	iP			10.2			
	S	eP			13.2			
	K	eP			13.2			
	T	eP	14	27	18.0			
	D	iP			27.1			
	S	iP			31.7			
	K	eP			31.7			
	T	iP	14	50	16.8			
	D	iP			25.4			
	S	eP			30.3			
	K	eP			30.8			
	T	iP	14	52	09.1			
	D	eP			18.3			
	S	eP			22.1			
	K	eP			23.6			
	T	iP	15	21	48.4			
	D	iP			57.2			
	S	eP		22	01.1			
	K	eP			02.5			

Date	Station	Phase	Time (G.M.T)	t	T	Am
MAY.16	T	eP	15 29 56.0			
	D	eP	30 05.6			
	S	eP	10.1			
	K	eP	11.2			
	T	iP	15 38 17.6			
	D	eP	24.9			
	K	eP	35.0			
	T	eP	15 46 10.2			
	D	eP	18.5			
	K	eP	28.7			
	T	eP	16 01 18.5			
	D	eP	28.2			
	K	eP	37.5			
	T	iP	16 06 18.5			
	D	iP	27.7			
	S	iP	31.8			
	K	eP	31.8			
	T	iP	16 14 50.2			
	D	eP	15 00.5			
	S	iP	04.1			
	K	eP	04.1			
	T	eP	16 22 58.5			
	D	iP	23 10.0			
	K	eP	12.3			
	S	iP	13.3			
	T	iP	16 36 50.1			
	D	iP	37 01.2			
	S	iP	04.6			
	K	eP	05.7			
	T	eP	16 50 41.6			
	D	iP	49.2			
	S	eP	53.5			
	K	eP	55.5			
	T	iP	17 23 08.2			
	D	iP	17.0			
	S	iP	21.0			
	K	iP	22.6			

Date	Station	Phase	Time (G.M.T.)			t	T	AmA
MAY. 16	T	iP	17	29	35.1			
	D	iP			44.7			
	S	iP			48.8			
	K	iP			49.6			
	D	iP	18	29	01.2			
	K	eP			03.6			
	S	iP			04.6			
	D	iP	18	44	38.6			
	S	iP			42.7			
	K	iP			45.5			
	D	iP	18	54	29.7			
	S	iP			33.1			
	K	eP			33.1			
	D	iP	19	18	13.5			
	S	iP			18.5			
	K	iP			19.5			
	K	iP	19	37	10.2			
	S	iP			19.4			
	D	iP			24.6			
	D	iP	19	45	28.6			
	S	eP			34.2			
	K	eP			34.2			
	K	iP	19	50	11.2			
	S	iP			14.2			
	D	iP			18.5			
	D	iP	20	05	15.9			
	S	eP			22.9			
	K	eP			23.4			
	D	eP	20	13	51.2			
	S	eP			56.0			
	K	eP			57.5			
	D	iP	20	23	43.1			
	S	iP			48.2			
	K	iP			50.2			
	D	iP	21	04	50.7			
	S	iP			54.2			
	K	iP			56.4			

Date	Station	Phase	Time (G.M.T.)			t	T
MAY.16	D	iP	21	24	22.0		
	S	iP			25.6		
	K	eP			25.6		
	D	iP	21	27	22.6		
	S	iP			27.2		
	K	eP			27.2		
	D	iP	22	27	40.0		
	K	eP			42.5		
	S	iP			43.2		
	D	iP	22	58	13.3		
	S	iP			16.4		
	K	eP			17.4		
	D	iP	23	04	09.2		
	K	eP			11.8		
	S	iP			12.3		
	D	eP	23	06	06.6		
	S	eP			09.8		
	K	eP			11.1		
	D	eP	23	32	31.4		
	K	eP			33.9		
	S	eP			34.9		
	D	iP	23	39	29.2		
	K	eP			31.8		
	S	iP			31.8		
MAY.17	D	iP	00	25	42.1		
	S	iP			46.2		
	K	eP			47.1		
	T	iP	02	29	48.3		
	D	iP			56.1		
	S	iP		30	00.4		
	K	iP			02.7		
	T	iP	02	44	00.5		
	D	iP			09.0		
	S	eP			13.7		
	K	eP			13.9		
	T	iP	02	47	54.9		
	D	iP		48	04.3		
	K	iP			07.9		
	S	iP			08.0		

Date	Station	Phase	Time (G.M.T.)			t	T	Am
MAY. 17	T	iP	02	55	24.0			
	D	iP			34.1			
	K	eP			37.2			
	S	eP			37.4			
	T	iP	04	01	58.8			
	D	iP		02	07.3			
	S	iP			11.4			
	K	iP			12.2			
	T	iP	04	04	38.6			
	D	iP			47.6			
	T	iP	04	08	43.7			
	D	iP			52.0			
	S	iP			57.1			
	K	iP			58.5			
	T	iP	04	37	27.4			
	D	iP			37.5			
	K	iP			39.7			
	S	iP			40.9			
	D	iP	04	47	28.3			
	S	iP			34.5			
	T	iP			39.7			
	K	iP			48.4			
	T	iP	05	04	47.8			
	D	iP			57.5			
	K	iP		05	00.6			
	S	iP			01.1			
	T	iP	05	04	47.8			
	D	iP			32.5			
	S	iP			36.0			
	K	eP			36.3			
	T	iP	05	20	37.4			
	D	iP			47.3			
	K	iP			50.4			
	S	iP			50.8			
	T	iP	06	25	33.5			
	D	iP			44.2			
	K	iP			45.6			
	S	iP			46.7			
	T	eP	07	13	56.7			
	D	eP		14	06.1			
	S	eP			13.0			
	K	eP			14.8			
	T	iP	07	38	01.6			
	D	iP			09.4			
	S	eP			14.8			
	K	eP			15.2			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
MAY. 17	S	ePorPKP	08	08	00.4	t		
	T	ePorPKP			02.2		1.4	52.0
		eX			09.7			
	D	ePorPKP			02.3			
	K	ePorPKP			04.0			
	T	iP	09	03	14.0			
	D	iP			22.2			
	S	iP			27.7			
	K	iP			28.8			
	T	iP	09	59	34.4			
	D	iP			43.4			
	T	iP	10	09	37.4			
	D	iP			46.4			
	S	eP			50.7			
	K	eP			51.1			
	T	iP	10	43	59.4			
	D	iP		44	00.2			
	S	iP			01.8			
	K	iP			02.0			
	T	iP	11	16	45.8			
	D	iP			54.9			
	T	eP	12	14	45.4			
	D	eP			53.3			
	T	iP	12	44	42.5			
	D	iP			51.8			
	S	eP			56.7			
	K	iP			57.3			
	T	eP	12	58	35.9			
	D	iP			44.6			
	S	eP			49.2			
	K	eP			52.1			
	T	iP	13	03	59.0			
	D	iP		04	07.1			
	S	iP			10.8			
	K	iP			13.3			
	S	eX	13	14	28.3	t		
	T	ePorPKP			19.5			
		eX			29.7			
	D	ePorPKP			20.2			
					31.1			
	T	iP	13	16	02.1			
	D	iP			11.4			
	K	eP			13.0			
	S	eP			15.0			
	T	iP	13	24	51.2			
	D	eP		25	01.2			
	S	eP			04.5			
	K	eP			05.7			

Date	Station	Phase	Time (G.M.T.)		t	T	Am
MAY.17	T	iP	13	26	12.9		
	D	iP			21.7		
	S	eP			24.8		
	K	eP			26.5		
	T	iP	14	01	02.8		
	D	iP			12.2		
	S	eP			16.1		
	K	eP			16.2		
	T	iP	14	54	15.5		
	D	iP			25.8		
	K	iP			27.9		
	S	iP			28.8		
	T	iP	15	18	36.0		
	D	iP			45.5		
	S	iP			48.8		
	K	eP			49.2		
	T	iP	15	26	54.4		
	D	eP		27	04.3		
	S	iP			08.0		
	K	eP			08.1		
	T	eP	16	03	40.4		
	D	iP			50.2		
	S	iP			53.9		
	K	iP			53.9		
	T	iP	16	15	21.2		
	D	iP			30.4		
	S	iP			34.6		
	K	iP			34.8		
	T	iP	16	59	16.6		
	D	iP			25.9		
	K	eP			30.5		
	T	iP	17	29	18.9		
	D	iP			27.8		
	S	iP			32.0		
	K	iP			32.9		
	T	eP	18	04	50.6		
	D	eP			59.8		
	K	eP		05	03.2		
	S	eP			03.6		
	T	iP	18	18	08.2		
	D	iP			18.1		
	K	iP			20.8		
	S	iP			21.3		
	T	eP	18	43	25.4		
	D	eP			34.3		
	S	eP			36.7		
	K	eP			36.7		

Date	Station	Phase	Time (G.M.T.)			t	T
MAY.17	T	iP	19	15	02.6		
	D	iP			12.4		
	K	iP			14.9		
	S	iP			15.6		
	T	iP	19	35	12.8		
	D	iP			22.6		
	S	iP			25.0		
	K	iP			26.0		
	T	iP	19	45	17.9		
	D	iP			28.2		
	K	eP			30.0		
	S	eP			31.3		
	T	iP	19	49	59.6		
	D	iP		50	09.0		
	S	iP			12.2		
	K	iP			12.2		
	T	iP	20	15	28.2		
	D	iP			37.3		
	K	iP			41.9		
	T	iP	20	57	31.2		
	D	iP			40.7		
	S	eP			43.9		
	K	eP			45.2		
	T	iP	21	04	06.9		
	D	iP			15.3		
	S	eP			20.3		
	K	eP			20.9		
	T	iP	22	37	31.1		
	D	iP			39.4		
	S	iP			43.8		
	K	iP			44.2		
	T	iP	23	10	26.4		
	D	iP			35.6		
	K	eP			39.6		
	S	eP			41.9		
	T	iP	23	18	21.9		
	D	iP			31.1		
	S	iP			35.2		
	K	iP			35.2		
MAY.18	T	iP	00	28	11.2		
	D	iP			19.1		
	T	iP	01	25	09.2		
	D	iP			17.7		
	T	iP	02	11	35.4		
	D	iP			45.0		
		iS		12	46.6		
	K	eP		11	45.7		

Date	Station	Phase	Time (G.M.T.)			t	T	Am
MAY.18	T	iP	02	27	38.5			
	K	eP			44.1			
	D	iP			49.0			
	S	eP			50.8			
	T	iP	03	08	56.5			
	D	iP		09	06.3			
	T	iP	04	52	27.5			
	D	iP			35.7			
	S	eP			40.5			
	K	iP			41.7			
	T	iP	04	57	23.6			
	D	iP			31.3			
	T	iP	05	45	54.0			
	D	iP		46	02.4			
	S	iP			08.1			
	K	iP			08.1			
	T	iP	06	23	49.0			
	D	iP			56.9			
	T	iP	06	52	15.2			
	D	iP			22.5			
	T	iP	07	05	45.3			
	D	iP			53.5			
	S	eP			57.3			
	K	eP			59.2			
	K	iP	07	12	10.4			
	T	iP			11.9			
	S	iP			18.4			
	D	iP			20.1			
	T	iP	08	10	31.4			
	D	iP			40.3			
	S	eP			44.6			
	K	eP			45.1			
	T	iP	09	31	56.3			
	D	eP			05.1			
	K	eP			10.2			
	S	eP			11.6			
	T	iP	09	09	00.7			
	D	iP			09.1			
	S	iP			12.7			
	K	eP			13.8			
	T	iP	09	30	11.9			
	D	iP			21.2			
	K	eP			24.8			
	S	eP			26.4			

Date	Station	Phase	Time (G.M.T.)			t	T
MAY. 18	T	iP	10	30	31.7		
	D	iP			41.4		
	K	eP			43.1		
	S	iP			45.4		
	T	iP	10	42	23.3		
	D	iP			31.9		
	S	iP			35.8		
	K	eP			41.3		
	T	iP	11	26	53.9		
	D	iP		27	03.0		
	T	iP	12	56	48.6		
	D	iP			57.0		
	S	eP		57	02.2		
	K	eP			03.1		
	T	iP	14	09	13.2		
	D	iP			21.5		
	S	iP			26.3		
	K	iP			27.4		
	T	eP	15	01	18.9		
	D	iP			29.5		
	T	iP	15	34	59.7		
	D	iP		35	08.3		
	S	iP			12.2		
	K	iP			13.0		
	T	iP	16	57	30.6		
	D	iP			39.7		
	S	eP			42.0		
	K	eP			44.5		
	T	iP	17	28	55.5		
	D	iP		29	04.1		
	S	eP			08.6		
	K	eP			09.0		
	T	iP	19	01	57.9		
	D	iP		02	05.7		
	T	iP	19	11	18.5		
	D	iP			26.7		
	T	iP	19	18	27.4		
	D	iP			35.7		
	S	iP			40.9		
	K	iP			41.6		
	T	iP	19	35	23.8		
	D	iP			32.7		
	S	eP			36.6		
	K	eP			37.0		

Date	Station	Phase	Time (G.M.T.)			t	T	Am
MAY.18	T	iP	20	30	05.7			
	D	iP			15.8			
	S	eP			19.0			
	T	iP	20	45	27.0			
	D	iP			35.6			
	S	iP			39.7			
	K	iP			40.3			
	T	iP	22	22	29.5			
	D	iP			38.8			
	S	eP			42.3			
	K	eP			43.3			
	T	iP	22	52	58.8			
	D	iP		53	08.4			
MAY.19	T	iP	00	29	15.2			
	D	iP			23.0			
	S	eP			29.4			
	K	eP			30.0			
	T	iP	00	49	58.8			
	D	iP		50	07.3			
	T	iP	01	19	18.7			
	D	iP			28.5			
	K	iP			31.5			
	S	iP			31.7			
	T	iP	02	14	34.6			
	D	iP			42.7			
	S	eP			46.8			
	K	eP			49.0			
	K	eP	02	18	31.1			
	S	iP			40.7			
	T	iP			45.5			
	D	iP			46.0			
	T	iP	02	58	41.1			
	D	iP			49.3			
	S	eP			54.0			
	K	eP			56.0			
	T	iP	03	21	01.1			
	D	eP			10.2			
	T	iP	03	27	13.5			
	D	iP			23.1			
	S	iP			26.4			
	K	eP			26.8			
	T	iP	03	32	54.5			
	D	iP		33	05.1			
	K	eP			06.1			
	S	iP			08.1			

Date	Station	Phase	Time (G.M.T.)			t	T	Am.
MAY.19	K	iP	04	13	03.7			
	T	iP			03.9			
	S	iP			13.2			
	D	iP			14.2			
	T	iP	04	23	49.5			
	D	iP			59.8			
	K	eP		24	01.4			
	T	eP	04	25	15.2			
	K	eP			23.6			
	T	iP	04	45	44.8			
	K	iP			54.4			
	D	iP			55.9			
	S	iP			58.4			
	T	eP	04	52	28.4			
	D	eP			37.8			
	K	eP			43.2			
	K	iP	05	54	34.6			
	T	iP			34.8			
	S	iP			43.9			
	D	iP			44.7			
	T	iP	06	14	33.5			
	D	iP			40.7			
	S	eP			46.5			
	T	eP	06	46	32.1			
	D	iP			41.7			
	S	eP			44.9			
	T	iP	07	54	51.5			
	D	iP		55	01.1			
	T	eP	08	48	47.4			
	T	iP	10	09	25.2			
	D	eP			34.4			
	S	eP			39.7			
	K	eP			40.1			
	T	iP	10	23	36.6			
	D	iP			45.3			
	S	eP			50.9			
	T	eP	11	39	43.7			
	D	eP			51.6			
	T	iP	13	00	22.0			
	D	iP			31.6			
	S	eP			35.5			
	K	eP			35.6			
	T	iP	13	04	45.7			
	D	iP			53.8			
	S	eP			59.0			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
MAY.19	T	eP	13	12	30.3			
	D	eP			39.2			
	T	eP	14	09	44.5			
	D	eP			54.1			
	T	eP	14	48	31.4			
	D	eP			39.5			
	T	iP	15	05	27.5			
	D	iP			37.2			
	S	eP			40.0			
	K	eP			41.1			
	T	iP	16	19	52.3			
	D	iP		20	03.8			
	S	iP			05.6			
	T	iP	16	33	13.3			
	D	iP			24.1			
	S	iP			27.0			
	T	iP	18	59	08.3			
	D	iP			17.3			
	D	eP	21	43	02.3	t		
	T	iP			07.9		1.3	45.5
	T	iP	22	18	03.0			
	D	iP			11.9			
	S	iP			16.6			
	K	iP			17.1			
	T	iP	22	27	18.5			
	D	iP			28.8			
	S	eP			33.2			
	T	iP	23	04	04.5			
	D	eP			13.4			
MAY.20	T	eP	00	47	51.3			
	D	eP		48	02.0			
	S	eP			05.5			
	T	eP	00	49	20.3			
	K	eP			20.5			
	T	iP	01	57	34.9			
	D	iP			44.3			
	S	eP			47.8			
	K	eP			48.8			
	T	iP	02	10	43.6			
	D	iP			52.6			
	S	eP			58.6			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
MAY.20	T	eP	03	17	31.5			
	D	iP			41.2			
	K	eP			44.2			
	S	eP			44.3			
	T	iP	04	16	06.4			
	D	iP			15.2			
	S	eP			19.7			
	K	eP			19.9			
	T	iP	04	26	02.1			
	D	iP			11.3			
	S	eP			15.9			
	T	eP	04	38	38.7			
	D	iP			48.6			
	K	eP			51.7			
	S	eP			52.3			
	T	eP	05	05	31.3			
	D	eP			39.9			
	T	iP	05	08	55.3			
	D	iP		09	04.1			
	S	eP			08.1			
	T	iP	05	19	39.7			
	D	iP			48.8			
	T	iP	05	36	38.4			
	D	iP			48.9			
	K	eP			50.5			
	T	iP	06	16	28.6			
	D	iP			37.8			
	S	iP			41.7			
	K	iP			43.4			
	T	iP	06	54	48.4			
	D	iP			58.2			
	K	eP		55	01.4			
	S	iP			01.5			
	T	eP	07	07	28.4			
	D	eP			37.0			
	K	eP	07	24	52.7	t		
	S	eP			55.7			
	T	eP			56.8		1.4	1 18.0
	D	eP			58.6			
	T	iP	07	28	26.0			
	D	iP			35.1			
	S	iP			39.2			
	K	eP			40.7			
	T	eP	08	12	40.7			
	D	eP			49.4			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
MAY.20	T	iP	08	18	11.1			
	K	iP			16.6			
	D	iP			22.0			
	S	iP			24.0			
	T	eP	09	01	22.4			
	D	eP			30.9			
	T	iP	10	38	04.9	t	1.1	95.5
	D	eP			13.9			
	S	eP			18.3			
	K	eP			19.3			
	T	iP	11	58	29.3	t	1.3	247.0
	D	iP			35.8			
	S	iP			39.5			
	K	eP			42.3			
	T	iP	12	27	00.8			
	D	iP			08.8			
	T	iP	14	32	58.6			
	D	iP		33	07.4			
	S	iP			11.0			
	K	iP			12.3			
	T	iP	14	51	53.0			
	D	iP		52	01.6			
	K	eP			07.3			
	S	iP			07.5			
	T	eP	15	36	01.8			
	D	eP			12.6			
	T	iP	16	24	15.6			
	D	iP			24.5			
	T	iP	16	27	40.8			
	D	iP			49.4			
	S	eP			54.7			
	K	eP			55.0			
	T	iP	17	25	07.4			
	D	eP			15.5			
	S	eP			20.8			
	T	eP	17	58	48.0			
	D	eP			57.4			
	T	eP	18	14	05.1			
	D	eP			14.5			
	S	eP			18.3			
	T	iP	19	52	28.0			
	D	iP			38.0			
	K	eP			40.7			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
MAY.20	K	iP	20	17	34.4	t		
	S	iP			37.6			
	T	iP			38.6		1.3	133.0
	D	iP			40.4			
		epP		18	02.8			
	K	iP	20	22	18.0			
	T	iP			18.9			
	S	eP			27.7			
	D	iP			29.5			
	T	eP	20	32	07.5	t		
	K	eP			08.1			
	S	eP			10.8			
	D	eP			13.2			
	T	eP	21	12	23.4			
	D	iP			33.2			
	S	eP			38.2			
	K	eP			39.5			
	K	eP	22	32	52.1	t		
	D	eP			52.9			
	T	eP			55.4		0.5	82
	T	iP	23	10	09.0			
	D	iP			17.8			
	S	eP			20.0			
	K	eP			22.3			
	T	iP	23	23	25.4			
	D	iP			33.7			
	S	eP			34.8			
	T	iP	23	58	43.5			
	D	iP			52.5			
	S	eP			57.0			
	K	eP			58.6			
MAY.21	T	eP	00	22	13.6			
	D	eP			23.0			
	S	eP			26.4			
	K	eP			29.1			
	T	iP	00	46	05.0			
	K	iP			13.8			
	D	iP			15.4			
		iS			32.5			
	S	iP			17.1			
	T	iP	02	00	21.0			
	D	iP			29.8			
	T	iP	02	19	49.4			
	D	iP			50.4			
	S	eP			54.1			
	K	eP			55.5			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
MAY.21	T	iP	02	31	27.6			
	D	iP			36.2			
	S	eP			40.9			
	K	eP			42.1			
	T	iP	02	47	23.0			
	D	iP			32.6			
	K	eP			35.6			
	T	iP	03	01	20.8			
	D	iP			30.5			
	K	eP			32.9			
	S	iP			33.5			
	T	iP	03	22	31.0			
	D	iP			41.0			
	T	iP	03	34	56.8			
	D	iP		35	05.5			
	T	iP	03	49	11.7			
	D	iP			20.8			
	D	iP	04	09	00.4	t		
	S	iP			02.4			
	T	iP			04.6		1.0	149.0
	K	iP			08.7			
	T	iP	04	12	45.7			
	D	iP			54.6			
	S	iP			58.4			
	K	iP			59.2			
	T	eP	04	45	49.9			
	D	eP			59.0			
	T	iP	05	12	52.9			
	D	iP		13	03.8			
	S	iP			06.5			
	K	iP			06.7			
	T	iP	05	23	26.8			
	D	iP			35.8			
	S	iP			39.7			
	K	iP			40.1			
	T	iP	05	44	04.6			
	K	eP			12.8			
	D	iP			15.4			
	S	iP			17.3			
	T	eP	05	56	41.8			
	D	eP			47.2			
	T	iP	06	38	19.3			
	D	iP			25.4			
	S	iP			33.5			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
MAY.21	T	eP	08	05	47.4			
	D	eP			55.4			
	S	eP			58.8			
	T	eP	08	22	40.2			
	D	eP			49.4			
	S	eP			52.7			
	K	eP			57.0			
	D	eP	10	57	08.3	t		
	T	eP			15.0		0.5	8.4
	T	iP	11	02	28.2			
	D	eP			36.8			
	T	eP	11	05	23.5	t		
	D	eP			39.6			
	T	iP	11	23	39.4			
	D	iP			48.4			
	T	eP	12	13	49.4			
	D	eP			58.3			
	S	eP		14	05.2			
	K	eP			05.7			
	T	eP	13	11	16.4			
	D	eP			27.2			
	T	iP	13	43	26.7			
	D	iP			36.0			
	S	eP			39.2			
	K	eP			39.6			
	T	iP	15	11	36.9			
	D	iP			45.4			
	S	eP			49.1			
	K	iP			50.9			
	T	iP	15	29	20.4			
	D	iP			29.0			
	S	iP			32.9			
	K	iP			34.0			
	T	iP	15	56	05.5			
	D	iP			14.2			
	S	iP			18.3			
	K	eP			19.7			
	K	eP	15	58	08.1			
	S	eP			10.6			
	D	iP			13.9			
	T	iP			16.4			
	T	iP	16	05	45.5			
	D	iP			53.3			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
MAY.21	S	iP	18	20	16.4			
	K	iP			18.2			
	D	iP			19.3			
	T	iP			22.8			
	T	eP	18	50	10.3			
	D	eP			18.3			
	S	eP			22.9			
	K	eP			24.7			
	T	iP	20	03	06.7			
	D	iP			15.4			
	T	eP	20	13	31.9			
	D	iP			39.8			
	T	eP	21	06	48.7			
	D	eP			58.1			
	T	iP	23	05	56.7			
	D	eP		06	05.7			
MAY.22	T	iP	02	10	46.7			
	D	iP			53.9			
	S	eP			59.2			
	K	eP		11	01.7			
	T	eP	04	17	38.6			
	D	eP			46.3			
	K	eP			54.9			
	T	iP	04	27	46.4			
	D	iP			57.1			
	K	eP		28	01.6			
	T	iP	05	04	42.3			
	D	iP			51.5			
	K	eP			57.8			
	T	eP	05	30	01.4			
	D	eP			10.8			
		eS		32	18.6			
	T	eP	05	49	15.6			
	D	iP			26.0			
	K	eP			27.5			
	T	iP	05	54	54.5			
	D	eP		55	03.5			
	T	iP	06	37	58.4			
	D	iP		38	07.1			
	K	eP			10.8			
	T	iP	08	15	32.1			
	D	iP			42.6			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
MAY.22	T	iP	08	21	09.6			
	D	iP			19.3			
	K	iP			22.9			
	T	iP	10	46	49.8			
	D	iP			59.8			
	T	iP	10	53	15.4			
	D	iP			23.9			
	K	iP			29.5			
	T	iP	11	24	57.6			
	D	iP		25	06.1			
	K	iP			12.0			
	T	iP	11	49	29.2			
	D	iP			39.6			
	T	eP	12	39	57.4			
	D	eP		40	07.3			
	T	iP	13	38	53.7			
	D	eP		39	02.0			
	T	iP	14	02	15.7			
	D	eP			24.8			
	T	iP	14	48	13.4			
	D	eP			22.0			
	K	eP			29.5			
	T	iP	14	51	30.5			
	D	iP			38.4			
	K	eP			44.4			
	T	eP	14	55	30.5			
	D	eP			39.6			
	T	eP	15	29	21.3			
	D	eP			30.5			
	T	iP	15	50	44.7			
	D	iP			53.7			
	K	iP			58.8			
	T	eP	17	27	17.1			
	D	eP			25.6			
	T	eP	17	43	07.4			
	D	eP			17.2			
	T	eP	17	52	04.6			
	D	eP			12.0			
	T	eP	18	38	57.3			
	D	eP		39	07.6			
		iS		41	16.2			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
MAY.22	K	eP	19	08	18.4			
	T	eP			32.2			
	D	eP			33.3			
	T	iP	19	30	30.9			
	D	iP			39.5			
	K	iP			44.6			
	T	eP	19	39	25.0			
	T	eP	20	03	52.5			
	D	eP		04	01.8			
		eS		06	09.3			
	T	eP	20	10	50.7			
	D	eP			59.4			
	T	iP	20	33	02.4			
	D	eP			11.8			
	D	eP	21	17	31.1	t		
	T	eP			35.5		0.5	7.1
	K	eP	21	28	36.6			
	T	eP			49.6			
	D	eP			50.2			
	K	eP	21	36	26.9			
	D	eP			39.7			
	T	eP			46.7			
	T	eP	21	49	49.8			
	D	iP			58.7			
	K	eP	22	11	30.6			
	T	eP			40.9			
	D	eP			41.3			
	K	eP	22	32	18.8			
	T	eP			32.7		1.3	27.7
	D	eP			32.8			
	T	iP	22	42	28.4			
	D	iP			37.9			
	T	iP	23	19	06.7			
	D	iP			14.5			
	K	eP			20.7			
MAY.23	T	eP	00	10	05.4			
	D	eP			14.0			
	T	iP	00	37	36.5			
	D	iP			45.6			
	T	eP	02	58	56.1			
	D	eP		59	05.1			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
MAY.23	T	eP	03	52	16.0			
	D	eP			24.3			
	T	eP	05	31	05.9			
	D	eP			15.6			
	T	iP	06	45	10.2			
	D	iP			18.2			
	T	iP	07	22	27.4			
	D	iP			37.0			
	T	iP	07	50	51.2			
	D	iP		51	01.4			
	K	eP			04.5			
	S	eP			04.6			
	T	eP	08	17	01.6			
	D	eP			10.2			
	S	eP			13.3			
	T	iP	08	49	24.3			
	D	iP			33.8			
	T	iP	10	42	59.5			
	D	iP		43	08.6			
	T	eP	11	01	30.3			
	D	eP			39.9			
	T	iP	12	32	38.3			
	D	iP			48.6			
	T	iP	13	05	52.3			
	D	iP		06	02.0			
	S	eP			06.0			
	K	eP			06.4			
	T	iP	13	21	01.0			
	D	iP			11.0			
	T	iP	13	32	41.8			
	D	iP			50.7			
	K	eP			55.6			
	S	eP			56.0			
	T	eP	14	21	46.5			
	D	eP			57.0			
	T	iP	15	10	25.3			
	D	iP			34.9			
	K	eP			41.0			
	T	iP	15	19	57.6			
	D	iP		20	07.1			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
MAY.23	D	iP	15	35	12.8			
		iS			26.2			
	S	iP			18.3			
	T	iP			23.5			
	K	eP			32.1			
	T	iP	16	50	23.3			
	D	eP			33.0			
	K	eP	17	36	34.1	t		
	S	eP			36.8			
	D	eP			38.4			
		eS		47	01.0			
	T	eP		36	39.5		2.2	130.0
		ePP		39	58.0			
	T	iP	18	32	15.0			
	D	iP			24.2			
	K	eP			29.2			
	T	eP	18	35	57.0			
	D	eP		36	07.2			
	T	iP	18	44	35.6			
	D	eP			45.6			
	S	eP	18	54	49.0	t		
	T	eP			50.2			
	D	eP			51.9			
	S	eP	19	21	08.1	t		
	T	eP			09.1		1.2	19.3
	D	eP			10.4			
	T	iP	19	54	45.7			
	D	eP			53.3			
	S	eP			58.0			
	K	eP		55	00.4			
	T	iP	21	08	57.7			
	D	iP		09	06.5			
	S	eP			10.9			
	K	eP			11.8			
	T	iP	21	18	01.0			
	D	iP			09.2			
	K	eP			15.2			
	D	iP	21	58	57.8			
	T	iP		59	03.9			
	S	iP			04.4			
	K	eP			14.8			
	T	eP	22	54	09.0			
	D	eP			18.1			
	T	eP	23	38	47.5			
	D	iP			56.8			
	S	eP			59.8			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
MAY.23	T	iP	23	57	34.7			
	D	iP			43.9			
	S	iP			47.0			
	K	iP			47.4			
MAY.24	T	iP	02	31	08.8			
	D	iP			17.7			
	K	eP			22.1			
	T	eP	02	41	51.9?			
	T	eP	03	37	38.7			
	D	eP			47.7			
	T	iP	08	35	37.6			
	D	iP			47.8			
	T	iP	10	26	18.1			
	D	iP			27.4			
	S	eP			29.5			
	K	eP			30.8			
	T	iP	10	45	59.3			
	D	iP		46	08.1			
	S	eP			09.3			
	K	eP			12.9			
	T	iP	10	49	44.5			
	D	iP			54.2			
	T	iP	11	29	33.5			
	D	iP			42.6			
	S	eP			46.5			
	K	eP			46.9			
	T	iP	11	58	12.0			
	D	iP			21.3			
	T	eP	12	42	38.5			
	D	iP			47.2			
	S	eP			52.1			
	K	eP			52.1			
	T	iP	13	00	43.2			
	D	iP			52.3			
	S	eP			56.4			
	K	eP			57.2			
	T	iP	13	34	01.1			
	D	iP			10.4			
	T	iP	13	55	58.2			
	D	iP		56	06.9			
	S	eP			11.8			
	K	eP			11.8			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
MAY.24	T	iP	14	07	39.5			
	D	iP			48.4			
	S	iP			52.7			
	K	iP			53.5			
	T	iP	14	32	39.5			
	D	iP		33	05.5			
	S	eP			08.8			
	T	eP	14	34	55.8			
	D	eP		35	06.1			
	T	eP	14	37	15.0			
	D	eP			23.3			
	T	eP	15	30	58.4			
	D	eP		31	07.6			
	S	eP			13.8			
	K	eP			14.1			
	T	iP	15	50	03.6			
	D	iP			12.7			
	S	eP			16.6			
	K	eP			17.2			
	S	iP	15	51	27.4	t		
		iPcP		52	50.6			
		iScP		55	46.2			
		eS		57	23.1			
	K	eP		51	29.2			
		iPcP		52	51.6			
		iScP		55	46.9			
	D	eP		51	31.6			
		iPcP		52	52.6			
		iScP		55	47.5			
		ePcS		56	51.1			
		eS		57	30.0			
		eScS	16	00	19.6			
	T	eP	15	51	32.1			
		iPcP		52	53.4			
		iScP		55	50.0			
		eS		57	31.9			
	T	iP	16	08	42.0			
	D	iP			51.7			
	T	iP	17	02	47.3			
	D	iP			58.8			
	K	iP			59.1			
	S	eP		03	01.5			
	T	iP	17	44	48.8			
	D	iP		45	00.1			
	S	iP			02.9			
	K	eP			03.4			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
MAY.24	T	iP	18	11	31.8			
	D	iP			41.5			
	K	eP			46.4			
	S	eP			46.8			
	T	iP	19	48	47.0			
	D	iP			56.0			
	S	eP		49	02.2			
	K	eP			02.2			
	T	iP	20	04	56.2			
	D	iP		05	07.6			
	S	iP			10.0			
	K	iP			10.2			
	S	eP	21	09	48.6	t		
	T	eP			50.9		1.9	110.0
	D	eP			51.7			
	T	iP	21	35	43.1			
	D	iP			52.8			
	S	iP			56.5			
	K	eP			56.7			
	T	eP	21	39	42.0			
	D	eP			51.6			
	T	eP	21	42	56.2	t	1.0	21.4
	D	eP		43	02.4			
		eX			19.7			
	S	eP			05.1			
	T	iP	21	45	50.2			
	D	iP			59.2			
	T	iP	23	38	53.6			
	D	iP		39	03.0			
	K	eP			08.6			
MAY.25	T	iP	00	26	03.0			
	D	iP			1 42			
	S	iP			16.6			
	K	iP			228			
	T	eP	00	47	02.0			
	T	eP	02	17	353			
	D	eP			43.9			
	T	eP	03	32	37.6			
	D	eP			48.2			
	T	eP	03	42	36.6			
	D	eP			46.2			
	T	eP	04	13	10.7			
	D	eP			19.8			

Date	Station	Phase	Time (G.M.T.)	t	T	Am
MAY.25	T	eP	04 51 07.1			
	D	eP	16.4			
	S	eP	19.9			
	T	iP	06 50 49.8			
	D	eP	51 00.4			
	T	iP	07 25 54.2			
	D	eP	26 03.2			
	T	eP	09 13 59.2			
	D	eP	14 08.9			
	T	iP	09 46 53.9			
	D	eP	47 03.5			
	T	eP	09 53 32.0			
	D	eP	42.3			
	T	eP	09 56 26.1			
	D	eP	34.7			
	T	eP	10 24 56.0			
	D	eP	25 05.7			
	T	iP	10 59 17.0			
	D	eP	25.0			
	T	eP	11 40 16.6			
	D	eP	26.4			
	T	iP	11 54 04.1			
	D	iP	13.3			
	S	iP	16.4			
	K	iP	17.4			
	T	eP	13 38 55.5			
	D	iP	39 05.7			
	S	eP	06.3			
	K	eP	07.8			
	T	iP	13 42 19.0			
	D	eP	28.6			
	S	eP	32.1			
	K	eP	33.6			
	T	eP	13 51 27.6			
	D	eP	36.6			
	T	iP	13 55 22.7			
	D	eP	30.8			
	S	eP	36.6			
	K	eP	37.2			
	T	iP	14 19 43.9			
	D	iP	54.3			
	K	eP	56.1			
	S	eP	56.3			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
MAY.25	T	eP	14	20	16.6			
	D	eP			26.9			
	T	eP	14	35	05.0			
	D	eP			13.5			
	T	eP	16	48	16.0			
	D	eP			26.0			
	T	eP	18	07	46.9			
	D	eP			56.4			
	K	eP			58.4			
	S	eP		08	01.1			
	K	iP	18	49	47.3			
	S	iP			54.9			
	D	iP		50	01.1			
	T	iP			01.2			
	T	iP	19	35	42.7			
	K	iP			45.8			
	D	iP			52.4			
	S	eP			53.9			
	T	iP	20	10	43.4			
	D	iP			53.3			
	K	eP			55.6			
	S	iP			56.7			
	T	iP	20	28	51.5			
	D	eP		29	00.3			
	T	iP	21	11	19.5			
	S	eP			28.4			
	D	iP			28.9			
	K	eP			32.9			
MAY.26	T	eP	02	30	58.2			
	D	eP		31	05.5			
	D	iP	03	07	26.1			
	K	eP			28.7			
	S	eP			29.5			
	K	eP	04	09	10.6	t		
	S	eP			11.1			
	D	eP			12.2			
		eX		11	25.6			
		eS?		15	04.4			
	D	iP	06	41	10.9			
	S	eP			14.6			
	S	iP	07	19	43.7			
	D	iP			46.0			
	K	iP			46.6			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
MAY.26	S	iP	14	00	11.2	t		
	D	iP			13.0			
	K	iP			13.2			
	D	iP	14	05	30.3			
	K	iP			33.4			
	S	iP			33.7			
	D	iP	15	12	14.6			
	S	eP			18.2			
	D	iP	17	42	51.9			
	S	iP			55.4			
	K	eP			57.6			
	D	eP	18	35	51.0			
	K	eP			57.8			
	S	eP			59.0			
	D	eP	20	54	51.3			
	S	eP			55.1			
	D	eP	21	29	53.5			
	S	eP			55.4			
	D	iP	21	54	27.6			
	S	iP			29.8			
	K	iP			34.2			
	K	eP	22	41	22.8			
	D	iP			25.2			
	S	eP			26.3			
	D	iP	23	00	38.3			
	S	iP			42.0			
	K	iP			42.6			
MAY.27	D	eP	02	00	51.7			
	S	eP			55.0			
	K	eP			55.1			
	D	eP	06	03	18.3			
	D	iP	06	19	08.1			
	S	iP			13.0			
	K	eP			14.6			
	T	eP	08	32	14.8			
	D	eP			23.5			
	T	eP	09	04	47.6			
	D	eP			56.0			
	T	eP	09	07	03.6			
	D	eP			13.3			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
MAY.27	T	iP	10	39	09.9			
	D	iP			19.9			
	K	ePg			22.9			
	S	ePg			23.5			
	T	iP	11	56	47.0			
	D	iP			57.3			
	T	iP	13	06	49.2			
	D	ePg			58.2			
	S	iP	13	30	32.1			
	K	iP			33.8			
	D	iP			34.9			
	T	iP			38.2			
	T	iP	13	43	41.6			
	D	ePg			53.2			
	T	ePg	15	33	29.8			
	D	ePg			38.7			
	T	ePg	15	50	00.8			
	D	ePg			10.8			
	T	ePg	18	39	36.3			
	D	ePg			45.7			
	T	ePg	19	01	16.7			
	D	ePg			27.2			
	T	ePg	19	14	02.0	t	1.1	22.9
	D	ePg			04.8			
	T	ePg	20	09	26.4			
	D	ePg			35.7			
	T	ePg	20	12	07.2			
	D	ePg			17.3			
	T	ePg	21	13	58.8			
	D	ePg		14	02.4			
	T	ePg	21	40	41.5			
	D	ePg			50.8			
	T	iP	22	15	18.3			
	D	ePg			26.4			
	T	ePg	23	40	49.0			
	D	ePg			57.5			
MAY.28	T	ePg	00	28	04.4			
	D	ePg			12.5			
	T	ePg	00	32	57.3			
	D	ePg		33	06.6			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
MAY. 28	K	eP	02	48	04.5			
	D	eP			18.5			
	T	iP	03	59	18.2			
	K	iP			23.2			
	D	iP			25.1			
	S	iP			25.5			
	T	eP	04	24	27.6			
	D	eP			35.5			
	T	iP	05	10	20.0			
	D	iP			30.2			
	T	iP	05	58	47.1			
	D	eP			56.5			
	T	iP	07	33	36.8			
	D	eP			43.1			
	S	eP			45.6			
	T	eP	07	58	22.2			
	D	eP			31.8			
	T	eP	08	27	44.2			
	D	eP			54.5			
	K	eP	09	18	21.9	t		
	S	eP			22.5			
	T	eP			25.2		1.4	23.4
	D	eP			25.5			
	T	eP	10	26	41.3			
	D	eP			49.4			
	T	eP	11	26	42.9			
	D	eP			51.8			
	T	eP	11	41	00.4			
	D	eP			09.2			
	T	eP	11	45	58.2			
	D	eP		46	07.5			
	T	iP	12	22	41.0			
	D	iP			49.0			
	S	eP			52.3			
	K	eP			54.7			
	T	iP	13	10	09.9			
	D	iP			19.7			
	K	eP			22.6			
	S	eP			23.3			
	T	eP	13	23	33.4			
	D	eP			42.4			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
MAY.28	K	iP	13	34	31.5	t		
	S	iP			34.0			
	D	iP			37.8			
		eS		40	29.1			
		eScP?			51.0			
		eScS		44	44.4			
	T	iP		34	39.5			
	T	eP	13	52	24.4			
	D	eP			32.9			
	T	iP	14	00	57.0			
	D	iP		01	07.4			
	D	eP	14	06	42.0	t		
	T	iP	14	06	59.4			
	D	eP		07	09.4			
	T	iP	14	31	36.8			
	D	iP			45.5			
	S	iP			49.0			
	K	iP			50.5			
	T	iP	15	23	17.3			
	D	eP			25.0			
	T	iP	15	56	26.0			
	D	eP			35.0			
	T	eP	16	48	12.5			
	D	eP			22.0			
	T	eP	17	01	38.4			
	D	eP			47.2			
	T	iP	17	19	24.0			
	D	eP			32.3			
	T	iP	17	34	40.9			
	D	iP			41.5			
	S	iP			44.6			
	K	iP			50.6			
	T	iP	18	27	14.4			
	D	eP			24.2			
	T	eP	18	56	56.0			
	D	iP		57	05.5			
	T	iP	19	22	24.0			
	D	iP			31.5			
	S	eP			34.5			
	T	iP	20	35	24.2			
	D	iP			34.4			
	S	iP			37.6			
	K	iP			38.1			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
MAY.28	T	iP	21	20	52.3			
	D	iP		21	01.5			
	T	iP	22	07	51.2			
	D	eP		08	01.1			
	T	eP	22	35	49.1	t	1.2	50.0
	D	eP			55.8			
	S	eP			58.0			
	T	iP	23	01	50.1			
	D	eP			58.0			
	S	eP		02	02.6			
	K	eP			05.6			
MAY.29	T	eP	00	20	33.9			
	D	eP			41.5			
	D	eP	04	45	02.0	t		
	T	eP			03.4		1.1	23.2
	K	eP	07	53	17.2			
	S	eP			19.9			
	D	eP			23.8			
	T	eP			26.3			
	T	iP	07	56	29.2			
	D	iP			38.4			
	S	eP			41.7			
	K	eP			42.9			
	T	eP	09	18	03.0			
	D	iP			13.3			
	T	iP	10	04	02.3			
	D	iP			09.5			
	K	iP			10.7			
	S	iP			11.0			
	T	iP	10	09	23.4			
	D	eP			33.4			
	K	eP	10	50	56.9			
	S	eP		51	00.5			
	D	eP			04.7			
	T	iP			06.4			
	T	eP	14	06	52.8			
	D	eP		07	02.8			
	T	eP	14	43	42.7			
	T	eP	15	47	12.3			
	D	eP			21.3			
	T	iP	15	58	51.6			
	D	eP		59	01.1			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
MAY.29	T	iP	16	11	43.0			
	D	eP			52.4			
	T	eP	16	29	34.6			
	D	eP			44.6			
	K	eP	17	31	39.6	t		
	S	eP			41.8			
	T	eP			45.7		1.2	20.4
	D	eP			47.8			
	T	iP	17	37	25.5			
	D	iP			35.7			
	K	eP			38.0			
	T	iP	17	39	40.7			
	D	iP			58.8			
	T	iP	17	48	44.7			
	D	eP			53.7			
	T	iP	18	01	21.1			
	D	eP			29.9			
	T	eP	18	10	51.1			
	D	eP			59.8			
	T	iP	18	18	54.7			
	D	eP		19	03.2			
	T	eP	19	05	49.4			
	D	eP			59.6			
	T	eP	19	07	32.2			
	T	iP	20	12	17.6			
	D	iP			25.5			
	K	eP			32.3			
	S	eP			32.7			
MAY.30	T	eP	01	10	24.0			
	D	eP			33.1			
	S	eP	01	21	43.7	t		
	D	eP			44.8			
	T	eP			45.7		1.2	28.7
	K	eP			50.5			
	T	iP	03	42	11.6			
	D	iP			20.5			
	K	eP			24.3			
	S	eP			26.3			
	T	eP	03	53	29.8			
	D	eP			38.7			
	K	eP			42.7			
	S	eP			42.7			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
MAY.30	T	iP	04	15	22.4			
	D	eP			31.3			
	K	eP			36.6			
	S	eP			37.3			
	T	iP	04	38	13.8			
	D	eP			23.9			
	K	eP			26.8			
	T	eP	05	06	25.0	t	1.4	221.0
	D	eP			34.6			
		epP			50.2			
		eS		08	43.4			
	S	eP		06	38.6			
	K	eP			39.6			
	T	eP	06	25	42.6			
	D	eP			49.9			
	K	eP			56.3			
	S	eP		26	01.4			
	T	eP	06	30	31.9			
	D	eP			43.2			
	T	eP	06	49	53.8			
	D	eP		50	01.4			
	T	iP	09	05	30.5			
	D	iP			38.7			
	S	eP			43.2			
	K	eP			44.7			
	T	eP	09	37	18.4			
	D	eP			29.1			
	S	eP	10	03	28.4	t		
	K	eP			29.6			
	D	eP			33.0			
	T	eP			34.9		1.4	46.1
	T	iP	10	05	10.4			
	D	eP			18.9			
	D	iP	10	50	21.7			
	S	iP			23.4			
	T	iP			32.4			
	K	eP			35.1			
	T	iP	12	20	06.7			
	D	iP			15.1			
	S	eP			17.4			
	K	eP			22.4			
	T	eP	12	48	03.0			
	D	eP			12.9			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
MAY.30	K	eP	16	14	01.2	t		
	S	eP			05.9			
		eX			17.2			
	T	eP			07.9		1.2	17.6
	T	eP	16	22	50.2			
	D	eP			59.3			
	D	iP	16	37	45.7			
	S	iP			46.7			
	T	iP			50.6			
	K	iP			53.8			
	T	eP	17	52	58.0	t	1.0	22.1
	S	eP			59.0			
		eX		53	16.2			
	D	eP		52	59.4			
	T	eP	18	01	09.4			
	D	eP			18.9			
	S	eP	18	05	01.1	t		
		ePcP		07	49.6			
	D	eP		05	04.4			
		ePcP		07	51.1			
	T	eP		05	07.3		0.5	3.7
		ePcP		07	51.6			
	T	eP	18	32	11.0			
	D	eP			19.0			
	T	eP	18	53	28.8			
	D	eP			38.1			
	T	eP	19	16	42.6			
	D	eP			53.0			
		eS		19	15.0			
	T	eP	19	47	03.0			
	D	eP			12.7			
	K	eP	19	54	16.2	t		
	S	eP			16.8			
	T	eP			17.2		1.2	34.7
	D	eP			19.8			
		eX			23.5			
	D	eP	20	04	28.0	t		
	S	eP			30.2			
	T	eP			31.5		1.2	47.2
	K	eP	21	33	28.6			
	S	eP			37.8			
	T	eP			41.0			
	D	eP			42.0			
MAY.31	T	eP	01	19	21.8			
	D	eP			30.5			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
MAY.31	T	eP	02	33	12.6			
	T	eP	04	20	52.4			
	D	eP		21	02.0			
	T	iP	05	50	35.5			
	D	iP			45.4			
	S	iP			48.8			
	T	iP	06	01	23.8			
	D	iP			33.8			
	T	eP	07	13	19.9			
	D	eP			31.1			
	T	iP	08	30	37.7			
	D	iP			46.7			
	S	eP			50.2			
	K	eP			50.3			
	S	iP	09	00	23.0			
	K	iP			27.1			
	D	iP			29.3			
	T	iP			35.4			
	T	eP	09	45	16.7			
	D	eP			25.6			
	T	iP	10	03	05.1			
	D	iP			13.6			
	S	eP			17.8			
	K	eP			18.6			
	T	eP	10	35	35.5			
	D	eP			43.3			
	T	iP	12	20	40.7			
	D	eP			49.7			
	T	eP	13	55	03.0			
	D	eP			12.0			
	T	iP	14	01	31.0			
	D	iP			40.2			
	S	eP			43.5			
	K	eP			44.5			
	T	iP	16	23	51.5			
	D	eP			59.8			
	T	eP	16	38	15.5			
	D	eP			24.6			
	K	eP	17	04	53.7			
	D	eP			59.8			
	T	eP		05	01.8			
	D	eP	17	34	06.4	t		
	T	eP			10.0		1.2	14.8

Date	Station	Phase	Time (G.M.T.)			t	T	Am
MAY.31	T	iP	17	57	37.8			
	D	iP			45.7			
	S	eP			50.9			
	K	iP	18	29	54.8	t		
	S	iP			59.0			
	T	iP			59.8		1.5	25.8
	D	iP		30	02.5			
	S	eP	19	39	45.0	t		
	D	eP			48.6			
	T	eP			50.0		1.2	12.8
		eX		40	17.4			
	T	iP	19	53	19.9			
	D	iP			28.3			
	S	eP			32.5			
	K	eP			34.0			
	T	eP	20	35	22.0			
	D	eP			29.7			
	T	iP	20	59	43.0			
	D	eP			51.3			

Tsukuba

S-P \ Date	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
0 – 0.9															
1 – 1.9															
2 – 2.9															
3 – 3.9															
4 – 4.9							1			1					1
5 – 5.9			1	1		2	2	1	2	1				2	
6 – 6.9			1	2		1	2	1		3		1	1		
7 – 7.9	2	1		2	3	1	1	1	1	1	2	2		2	3
8 – 8.9		2	2	4	3		1	6		3	1	2	1	3	2
9 – 9.9			1	2	2	4		5	3	2	1	2	2		2
10 – 10.9		2	4			2			2	3	2	1		1	2
11 – 11.9		2		2	1	4		1			1			2	1
12 – 12.9		1		1	1							2		1	
13 – 13.9				1		1	2			1	3			1	1
14 – 14.9		1				1			1			1	2		1
15 – 15.9				1					1			1			
16 – 16.9	1							1			1				
17 – 17.9		1					1						2		
18 – 18.9				1			1				1	2			
19 – 19.9	1	1					1		2						
20 – 20.9			1					2							
21 – 21.9					1								1		
22 – 22.9															
23 – 23.9			1			1									
24 – 24.9															
25 – 25.9					1										
26 – 26.9									1						
27 – 27.9	1														
28 – 28.9											1				
29 – 29.9															
above 30 sec	3	1	3			1		2			1		1	1	
?						4		1	1		2				
Total	8	12	14	17	12	22	12	21	14	15	16	14	10	13	13
no observation															
Remarks															

MAY

16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Total
																0
																0
																0
																0
														1		4
								2	2				1	1		18
							1					1				14
								3	3		1		1	1		31
							2	4	3		1		4	1	2	47
								1	2	1	1	3	1	4	3	42
									2			3			1	25
								1				1				16
									2			2	1	1		12
														1		11
																7
							1		1						1	6
									1			2			2	8
										1			1			6
								1							1	7
							1	2	1							9
								2				1	1	1	1	9
								1		1		2				6
												1	1		1	3
																2
																0
																1
												1				2
																1
																1
																0
232	246	301	190	155	106	85	41	39	35	6	8	21	19	17	20	1,534
									2			1				11
							46	56	54	9	11	39	30	28	32	
	03h ~ 09h						00 h 00 m ~ 10 h			10h 00m ~ 24h 00m	00h 00m ~ 18h 00m	07h 00m ~ 12h 59m				
After Shock of Tokachi earthq.																

S-P \ Date	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
0 – 0.9															
1 – 1.9						1	1							1	
2 – 2.9															
3 – 3.9															
4 – 4.9														1	
5 – 5.9										1			1		
6 – 6.9	1											1			
7 – 7.9		1		3	1		1	1		1	1				
8 – 8.9	1	1				1	2		2	1	1			2	1
9 – 9.9	1				1			1		2		1			
10 – 10.9								1			1				
11 – 11.9	1		2	2	2	1	2					1	2		1
12 – 12.9		3	1	3	1	2	1	3	3	2	2	3			1
13 – 13.9		4	1	3	1	1	2		3	2	3		1		3
14 – 14.9		1				1	1		3						
15 – 15.9			1		1					2	2				
16 – 16.9		2						1			1			1	
17 – 17.9							1	2	1						1
18 – 18.9				2		1		3							
19 – 19.9		1	1					1				1	1		
20 – 20.9				1	1		1								
21 – 21.9						1									
22 – 22.9									1			1			
23 – 23.9					1							1			
24 – 24.9															
25 – 25.9					1								1		
26 – 26.9	1														
27 – 27.9															
28 – 28.9	1		1										1		
29 – 29.9															
above 30 sec	3	1	1			1		1		2		1		2	
?					1			1	1		1				1
Total	9	14	8	14	11	10	12	15	14	13	12	10	7	7	8
no observation										11h 35m ~ 18h 55m	09h 50m ~ 12h 31m				
Remarks															

MAY

16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Total
																0
																3
																0
								1								1
									1	1						3
													1			3
											1					3
									1							10
								1						2	1	16
											1	1	4		1	13
							1						1			4
								1		3						18
							1	2	3	1	1	3	3	2	2	43
							1	4	1	1	1	1	4	1	1	39
								1	1	1	1					10
									2	1		2			1	12
							1	2	1					1		10
											1					6
								1					1			8
											1					6
												1				4
								1								2
								1								3
									1			1		1		5
							1					1	1			3
																2
								1				1			1	4
							1									1
																3
											1	1				2
227	266	164	109	117	98	43	23	19	24	13	18	18	17	16	14	1,198
							1			1		1	1			9
							30	35	35	22	26	31	33	23	21	
							00h 00m ~ 10h									
After Shock of Tokachi earthq.																

Preliminary Bulletin

of the Dodaira Micro-earthquake Observatory

and its Substation

June, 1968

Dodaira Micro-earthquake Observatory

Earthquake Research Institute, the University of Tokyo

Preliminary Bulletin of the Dodaira Micro-earthquake Observatory and its Substation

Observation stations

		N	E	h
Dodaira	(D or DDR)	35°59'54".0	139°11'36".2	800m
Tsukuba	(T or TSK)	36°12'39".0	140° 6'35".0	280m
Kiyosumi	(K or KYS)	35°11'51".6	140° 8'53".6	230m
Shiroyama	(S or SRY) (temporary)	35°36'30".0	139°16'27".0	254m

Expressions: Am: Amplitude in millimicron (half of peak to trough*) of P motion maximum within few cycles after the onset recorded by a short period vertical seismograph. *In 1967 double amplitude (peak to trough) was used as Am.

T : Period in sec of the measured P maximum

t : Teleseism

All stations are radio-telemetered to Tokyo giving records on a multi-channel ink-recording oscillograph. The paper speed of the recorder is 1 mm per sec. For stronger events high speed recorder (10 mm/sec) is also triggered. The system is also recorded in parallel on multi channel magnetic tape through a trigger system using an endless tape loop. Direct filter sum of short period seismometers at Dodaira and/or on line short period filter outputs of Tsukuba are also used for the detection of weak teleseismic signals. For teleseismic events records of long period and medium period seismographs are

occasionally used, applying off line frequency filter, if necessary.

The Bulletin includes the preliminary readings sent to USCGS for teleseisms and larger near shocks with total durations (F-P) of short period vertical seismograph at Tsukuba (TSK) with magnification about 140.000 at 1 c/s or sensitivity about 300×10^{-3} mm/microkine at 10 c/s being longer than 100 seconds which correspond approximately shocks with $M \geq 3.5$. For the minor near earthquakes with $F\text{-}P < 100$ sec or $M < 3.5$, frequency of S-P times at each station is added at the end of the Bulletin, which may easily give a general idea of local seismicity around the station.

Date	Station	Phase	Time (G.M.T.)			t	T	Am
JUN. 1	T	iP	03	22	44.9			
	D	iP			53.7			
	S	eP			58.2			
	T	iP	03	29	35.7			
	D	iP			44.7			
	T	iP	03	58	51.0			
	D	eP		59	00.7			
	S	iP			04.5			
	T	eP	04	43	03.8			
	D	eP			07.9			
	T	eP	09	10	57.8			
	D	eP		11	06.7			
	D	eP	09	17	03.0	t?		
	T	eP	09	24	08.9			
	D	eP			19.0			
	T	iP	09	57	19.7			
	D	iP			29.1			
	T	eP	10	24	05.3			
	D	eP			13.4			
	T	iP	10	32	52.5			
	D	iP		33	00.4			
	S	iP			05.1			
	K	iP			07.0			
	D	eP	11	34	32.3	t		
	T	iP	11	46	44.2			
	D	iP			54.5			
	T	iP	12	26	01.0			
	D	iP			11.0			
	D	eP	12	29	56.3	t?		
	T	iP	12	33	41.3			
	D	iP			51.3			
	T	iP	13	47	47.9			
	D	eP			58.0			
	S	eP		48	01.6			
	K	eP			06.7			
	T	iP	13	54	45.1			
	D	eP			52.8			
	S	eP		55	00.8			
	T	iP	15	46	09.2			
	D	eP			17.6			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
JUN. 1	T	eP	16	26	22.6			
	D	eP			31.8			
	T	iP	16	44	01.0			
	D	iP			10.6			
	S	eP			14.3			
	T	iP	17	20	57.6			
	D	eP		21	05.1			
	S	eP			08.2			
	T	eP	17	41	26.3			
	D	eP			36.8			
	T	iP	18	59	34.4			
	D	iP			44.3			
	T	iP	19	47	04.9			
	D	iP			09.5			
	S	iP			12.5			
	K	iP			14.5			
	T	iP	20	18	40.8			
	D	eP			50.2			
	T	iP	20	30	37.3			
	D	eP			46.1			
	T	iP	21	13	30.6			
	D	eP			38.3			
	S	eP			46.3			
	K	eP			46.5			
	T	eP	21	18	55.2			
	D	eP		19	05.3			
	T	iP	21	30	52.7			
	D	eP		31	01.7			
	T	eP	22	16	45.7			
	D	eP			55.4			
JUN. 2	T	eP	07	54	45.1			
	D	eP			54.5			
	T	iP	08	01	20.6			
	D	iP			29.7			
	S	iP			33.7			
	K	eP			34.7			
	S	eP	08	27	07.3	t		
		eX			25.8			
	K	eP			07.6			
	D	eP			10.4			
		eX			31.2			
		ePcP?		28	40.9			
		eS		34	03.4			
	T	eP		27	10.1		1.4	62.4

Date	Station	Phase	Time (G.M.T.)			t	T	Am
JUN. 2	T	ePn	08	35	51.1			
	D	ePn			58.8			
	T	iPn	09	58	50.7			
	D	ePn			59.8			
	T	iPn	10	07	41.3			
	D	iPn			50.6			
	T	iPn	10	17	20.3			
	D	iPn			23.9			
	K	iPn			29.5			
	T	iPn	10	55	30.5			
	D	ePn			38.6			
	T	iPn	12	18	36.6			
	D	ePn			44.5			
	T	iPn	13	13	01.8			
	K	ePn			08.7			
	D	iPn			12.8			
	T	ePn	13	27	51.3			
	D	ePn		28	00.6			
	T	iPn	14	25	34.5			
	D	iPn			42.8			
	T	ePn	19	28	13.4			
	D	ePn			23.0			
	T	ePn	20	10	04.0			
	D	ePn			12.2			
	T	iPn	20	25	20.7			
	D	ePn			28.4			
	T	ePn	21	13	52.5			
	D	ePn		14	02.5			
	T	iPn	23	14	03.7			
	D	iPn			13.3			
	K	ePn			16.6			
	T	iPn	23	21	04.9			
	D	ePn			12.2			
	K	ePn			20.5			
JUN. 3	T	ePn	02	07	11.0			
	D	ePn			20.6			
	T	ePn	02	13	55.2			
	D	ePn		14	02.1			
	T	iPn	05	32	15.2			
	K	iPn			18.8			
	D	iPn			25.8			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
JUN. 3	T	eP	05	48	59.5			
	D	eP		49	07.7			
	K	eP			13.7			
	T	iP	06	35	47.6			
	D	iP			58.5			
	T	iP	07	38	42.6			
	D	iP			52.8			
	T	iP	08	32	17.9			
	K	iP			21.3			
	D	iP			28.8			
	K	eP	08	55	40.5			
	D	eP			46.5			
	T	iP			48.8			
	T	eP	08	57	56.7			
	D	iP		58	06.7			
	K	eP	09	25	11.8	t		
	D	eP			19.4			
		ePcP?		27	12.4			
		eScP		30	42.6			
		ePcS?			43.4			
		eS		31	23.9			
		eScS		35	01.9			
	T	iP	09	25	14.1			
	K	eP			14.5			
	D	eP			23.1			
	T	eP	11	44	36.6			
	D	eP			45.9			
	T	eP	12	31	29.6			
	D	eP			39.0			
	T	iP	12	47	11.3			
	D	eP			19.0			
	T	eP	13	21	47.0			
	D	eP			56.5			
	T	eP	13	46	26.6			
	D	eP			36.3			
	T	iP	14	18	52.0			
	D	iP		19	01.3			
	K	iP			06.5			
	T	eP	17	55	27.8			
	D	eP			36.9			
	T	eP	20	03	43.0			
	D	eP			50.8			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
JUN. 3	T	iP	21	04	29.4			
	K	ePP			33.0			
	D	iP			39.8			
JUN. 4	T	iP	01	10	07.3			
	D	iP			16.7			
	T	iP	02	32	14.3			
	D	iP			22.8			
	T	iP	02	54	08.1			
	D	ePP			17.3			
	T	iP	03	32	22.8			
	D	ePP			30.7			
	T	iP	05	44	33.9			
	D	iP			43.0			
	K	iP			47.3			
	T	iP	08	28	39.0			
	D	ePP			48.3			
	T	ePP	10	06	57.3			
	D	ePP		07	06.2			
	T	iP	10	35	05.2			
	D	iP			14.8			
	T	ePP	11	24	48.8			
	D	ePP			58.1			
	K	ePP	13	22	17.8			
	D	iP			26.2			
	T	iP			28.5		0.5	4 1.6
	T	iP	14	49	52.5			
	D	iP		50	02.2			
	T	iP	15	11	36.6			
	D	ePP			44.9			
	K	ePP			51.1			
	T	iP	15	32	10.2			
	D	iP			18.5			
	K	ePP			24.3			
	T	ePP	17	17	13.3			
	D	ePP			22.3			
	K	ePP			27.7			
	D	ePP?	17	17	35.6	t		
		ePPP		19	47.8			
		eS		23	38.2			
	T	ePP	17	48	55.4			
	D	ePP		49	04.5			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
JUN. 4	T	eP	18	24	06.0			
	D	eP			16.8			
	T	iP	18	32	51.9			
	D	eP		33	00.8			
	K	eP			06.5			
	T	eP	18	57	57.2			
	D	eP		58	07.1			
	T	eP	19	23	14.0			
	D	eP			23.8			
	T	iP	19	32	21.9			
	K	eP			32.4			
	D	eP			32.9			
	T	eP	19	41	44.5			
	D	eP			53.2			
	T	iP	21	21	47.0			
	D	iP			55.4			
	K	eP		22	02.4			
	T	iP	22	27	06.9			
	D	iP			17.0			
	K	iP	22	38	49.7			
	D	iP			50.1			
	T	iP			54.1			
	T	eP	22	55	22.6			
	D	eP			31.9			
JUN.5	T	eP	03	11	51.9			
	D	eP		12	01.2			
	T	iP	03	44	21.1			
	D	eP			29.8			
	T	iP	04	47	11.2			
	D	iP			21.1			
	T	iP	06	20	53.5			
	D	iP		21	04.3			
	D	eP	06	38	35.7	t		
	T	iP	07	17	13.3			
	D	iP			23.0			
	K	eP			26.4			
	T	eP	07	38	37.8			
	D	eP			45.2			
	T	eP	08	16	03.7			
	D	eP			10.8			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
JUN. 5	T	iP	09	10	20.2			
	D	iP			29.0			
	T	iP	09	13	50.9			
	D	ePn		14	00.3			
	T	iP	09	22	34.8			
	D	iP			42.9			
	T	iP	09	24	25.8			
	D	ePn			33.7			
	K	ePn			40.2			
	T	ePn	09	40	31.4			
	D	ePn			41.3			
	T	iP	09	58	11.0			
	D	ePn			18.8			
	T	ePn	10	17	23.4			
	D	ePn			32.3			
	T	iP	11	00	27.1			
	D	iP			37.3			
	T	ePn	12	34	47.5			
	D	ePn			56.2			
	T	iP	12	40	17.0			
	D	iP			27.1			
	D	ePn	12	55	42.0	t?		
	D	ePn	15	15	06.7	t		
		eS		20	09.0			
		eScP		21	10.2			
		eScS		25	12.6			
	T	ePn		15	09.8		1.1	33.9
		eScP		21	10.8			
	T	iP	16	56	02.0			
	D	iP			11.9			
	T	ePn	19	26	05.2			
	D	ePn			15.0			
	T	ePn	20	03	21.8			
	D	ePn			30.7			
	T	iP	21	43	35.6			
	D	iP			45.0			
	K	ePn			52.9			
	D	ePn	22	14	14.5	t		
	T	ePn			15.1			
	T	iP	22	38	07.4			
	D	ePn			15.8			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
JUN. 5	T	eP	23	02	58.0			
	D	eP		03	07.3			
	T	eP	23	11	35.1	t	1.1	15.0
	D	eP			45.1			
	T	iP	23	30	33.5			
	D	iP			42.5			
	K	iP			47.8			
JUN. 6	T	eP	03	22	02.5			
	D	eP			11.6			
	T	eP	04	00	41.3			
	D	eP			49.2			
	T	iP	04	31	40.4			
	D	iP			49.1			
	K	iP			55.3			
	T	iP	05	11	44.1			
	D	eP			50.6			
	T	eP	06	00	33.7			
	D	eP			43.5			
	T	iP	07	16	25.1			
	D	iP			35.3			
	K	eP			41.8			
	T	iP	07	41	07.2			
	K	eP			10.3			
	D	eP			17.3			
	T	eP	10	02	34.8			
	D	eP			43.3			
	T	iP	11	15	11.2			
	D	eP			20.3			
	T	iP	14	38	58.3			
	D	iP		39	02.0			
	K	iP			07.5			
	T	eP	15	05	47.1			
	D	eP			56.6			
	T	eP	15	13	34.7			
	D	eP			44.6			
	T	eP	16	07	26.4			
	D	eP			39.1			
	T	iP	16	33	31.3			
	D	iP			35.4			
	K	iP			42.8			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
JUN. 6	T	iP	18	22	33.4			
	D	iP			41.6			
	K	iP			47.8			
	T	ePn	18	43	31.2			
	D	ePn			39.0			
	D	ePn	19	49	42.7	t		
		iPcP		53	05.9			
		eS		54	25.4			
		ePcS		56	47.6			
		eScS	20	00	46.2			
	T	ePn	19	49	50.2		1.1	9.0
		iPcP		53	06.8			
	T	iP	21	18	33.4			
	D	iP			41.2			
	K	iP			47.5			
	T	ePn	21	27	25.1			
	D	ePn			35.1			
	T	ePn	21	32	06.3	t?	1.0	26.4
	D	ePn			10.1			
	K	ePn	21	46	51.7			
	D	ePn			54.9			
	T	iP			58.4			
	T	iP	22	52	59.5			
	D	iP		53	03.4			
	K	ePn			13.0			
	T	ePn	22	53	44.2			
JUN. 7	K	iP	00	02	47.6			
	T	iP			59.8			
	D	iP		03	02.7			
	T	iP	01	41	46.5			
	D	iP			56.6			
	K	ePn		42	02.2			
	T	iP	03	16	57.8			
	D	iP		17	03.7			
	K	iP			08.5			
	T	iP	07	37	56.9			
	D	iP		38	05.1			
	K	ePn			10.2			
	T	iP	09	26	09.6			
	D	ePn			19.2			
	D	iP	10	52	04.1			
	K	iP			06.2			
	T	iP			10.5			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
JUN. 7	T	iP	11	33	27.7			
	D	iP			36.6			
	K	eP			41.6			
	T	iP	11	56	03.9			
	D	iP			11.9			
	D	eP	12	05	15.4	t		
		epP			31.6			
		eX		06	03.2			
		ePP or PcP			54.6			
		eS		11	38.8			
		eSS?		14	56.4			
	K	eP		05	15.8			
	T	eP			20.2		1.1	102.0
	D	eP	12	18	02.6	t		
	T	eP			06.7		1.1	11.4
	T	eP	12	28	00.6			
	D	eP			08.1			
	T	eP	14	33	05.2			
	T	eP	15	28	38.2			
	T	eP	15	38	15.0			
	D	eP			22.8			
	T	eP	17	20	35.7			
	D	eP			45.2			
	T	eP	18	33	35.4	t		
	D	eP			36.5		1.1	25.2
	D	eP	20	04	13.2	t		
	T	eP			17.9		1.2	24.5
	T	eP	21	18	51.9			
	D	iP		19	02.1			
	D	eP	21	38	39.0	t		
		ePP		40	32.1			
		eS?		44	41.6			
	T	eP		38	43.0		1.1	29.2
	T	iP	22	12	43.3			
	D	eP			53.1			
	T	iP	22	48	08.6			
	D	iP			16.4			
	K	eP			23.0			
	T	iP	23	05	33.7			
	D	iP			43.7			
	D	eP	23	16	29.4			
	T	eP			37.6		1.1	9.4

Date	Station	Phase	Time (G.M.T.)			t	T	Am
JUN. 7	T	iP	23	23	51.7			
	D	eP			58.2			
JUN. 8	T	eP	00	25	11.6	t	1.1	13.8
	D	eP			14.4			
		eS		32	11.8			
	T	iP	02	45	52.7			
	D	iP		46	02.5			
	K	eP			06.7			
	T	eP	03	44	14.1			
	D	eP			24.0			
	T	iP	05	31	53.2			
	D	iP		32	02.6			
	S	eP			06.0			
	K	eP			07.5			
	T	eP	05	45	42.4			
	D	eP			50.5			
	S	eP	10	40	23.1			
	K	eP			25.2			
	D	iP			25.4			
	T	iP			29.6			
	T	eP	11	07	03.7	t	0.5	2.6
	D	eP			12.2			
	T	eP	12	06	14.6			
	D	eP			23.8			
	S	eP			27.2			
	K	eP			28.4			
	T	iP	12	33	53.9			
	D	iP		34	02.9			
	S	iP			06.5			
	K	eP			08.9			
	T	iP	14	15	39.2			
	D	iP			49.0			
	T	iP	15	07	08.2			
	D	iP			18.1			
	S	eP			20.9			
	K	eP			22.4			
	T	eP	16	36	33.0			
	D	eP			41.4			
	T	iP	16	52	53.1			
	D	iP		53	03.1			
	S	eP			06.7			
	K	eP			06.9			
	T	iP	20	21	31.1			
	D	eP			40.2			
	K	eP			44.2			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
JUN. 8	D	eP	20	52	25.0	t		
		eS		55	22.9			
	T	eP		52	29.6		0.5	4.7
	T	iP	20	56	04.9			
	D	iP			12.6			
	S	eP			17.9			
	K	iP			20.0			
	D	eP	21	35	01.3	t?		
	T	eP			01.6			
	S	eP	21	44	43.6	t?		
	D	eP			47.1			
	K	eP			49.0			
	T	eP			55.3		1.3	73.3
	T	eP	22	13	15.3			
	D	eP			25.2			
	T	eP	22	54	38.8			
	D	eP			48.5			
	T	iP	23	05	01.4			
	D	eP			08.8			
	S	eP	23	43	04.7	t		
	D	eP			06.1			
	T	eP			06.5		1.1	12.2
	T	eP	23	55	12.0			
	D	eP			22.8			
JUN. 9	D	eP	00	34	08.8	t?		
	T	eP	02	11	41.1			
	D	eP			50.8			
	T	iP	04	41	05.6			
	D	iP			15.3			
	S	eP			19.3			
	K	eP			19.6			
	T	iP	04	49	25.5			
	D	iP			35.4			
	K	eP			38.0			
	S	eP			38.4			
	D	iP	09	25	22.4			
	T	iP			23.4			
	S	iP			24.0			
	K	iP			29.3			
	K	iP	10	57	44.4			
	S	eP			52.7			
	D	iP			57.8			
	T	eP			58.5			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
JUN. 9	T	iP	13	13	47.3			
	D	eP			56.5			
	T	iP	13	49	25.3			
	D	iP			34.7			
	S	eP			37.6			
	K	eP			38.4			
	T	iP	15	21	48.2			
	D	iP			56.8			
	T	iP	16	16	17.8			
	D	eP			26.3			
	S	eP			32.3			
	K	eP			33.0			
	T	eP	18	00	34.7			
	D	eP			43.1			
	S	eP			47.6			
	K	eP			49.7			
	T	iP	19	37	46.7			
	D	iP			56.6			
	K	eP		38	01.8			
	S	eP	22	13	50.9	t?		
	D	eP			52.9			
	K	eP	23	06	47.7			
	S	eP			57.7			
	D	eP		07	01.6			
	T	eP			02.9		0.5	7.6
JUN.10	T	iP	02	39	45.7			
	D	iP			54.5			
	S	eP			58.6			
	K	eP		40	00.8			
	S	iP	02	49	28.4			
	K	iP			30.6			
	D	iP			31.3			
	T	iP			35.1			
	T	iP	03	40	07.0			
	D	iP			12.6			
	S	iP			15.0			
	K	iP			17.4			
	T	eP	04	23	24.2		0.5	5.7
	D	eP			34.3			
	T	iP	10	14	08.0			
	D	iP			18.2			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
JUN. 10	T	iP	10	11	47.9		0.5	43.0
		ipP?			58.3			
	D	iP			57.3			
		ipP?		12	07.3			
	S	ePcP?			00.3			
	K	eP			01.0			
	T	iP	11	24	24.0			
	D	iP			34.2			
	T	iP	12	48	52.5	t	1.2	79.1
		ipP		49	33.6			
		ePcP?		50	37.6			
	D	iP		48	58.2			
		ipP		49	39.0			
		ePcP?		50	41.0			
	S	eP		49	00.0			
		ipP			41.9			
	T	eP	13	02	31.9			
	D	eP			40.4			
	T	iP	14	02	42.3			
	D	iP			52.3			
	S	iP			55.5			
	T	iP	18	07	59.4			
	D	eP		08	08.3			
	T	iP	20	09	20.2			
	D	eP			29.2			
JUN. 11	T	iP	02	10	40.8			
	D	iP			50.8			
	D	eP	03	14	20.9	t	Explosion?	
	S	iP			22.4			
	T	iP			23.2		0.5	32.1
	K	iP			29.5			
	T	iP	06	20	32.7			
	D	iP			41.0			
	K	eP	07	20	25.2			
	S	eP			27.2			
	D	iP			31.6			
	T	iP			32.9			
	T	iP	07	23	19.3			
	D	iP			29.6			
	S	eP			33.0			
	K	eP			34.3			
	T	iP	07	50	43.1			
	D	eP			50.4			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
JUN.11	S	iP	10	33	23.2	t		
	K	iP			24.9			
	D	ePn			25.4			
	T	iP			28.9		0.5	25.8
	T	iP	10	38	40.7			
	D	ePn			49.2			
	D	ePn	11	58	45.3	t?		
	T	ePn	14	43	19.1			
	D	ePn			24.6			
	T	iP	15	20	52.7			
	D	iP			54.7			
	S	iP		21	00.1			
	K	iP			08.7			
	T	iP	16	59	57.7			
	D	ePn	17	00	05.6			
	T	iP	17	33	34.6			
	D	iP			45.3			
	K	iP			47.6			
	S	iP			48.7			
	T	ePn	18	44	49.2			
	D	ePn			58.0			
	T	iP	21	03	47.5		0.5	38.2
	D	iP			56.3			
	S	ePn		04	00.6			
	D	iP	22	27	38.8			
	T	iP			40.9			
	T	ePn	22	29	34.6			
	D	ePn			43.2			
	T	ePn	22	33	02.7		1.1	22.8
	D	ePn			11.0			
		eS		35	27.5			
	T	ePn	23	21	32.8			
	D	ePn			42.6			
JUN.12	T	iP	04	37	14.9	t?	1.2	20.3
	T	ePn	06	27	43.0	t?	1.2	19.5
	K	iP	06	39	55.2			
	S	iP			55.4			
	D	iP			59.0			
	T	iP		40	02.2			
	T	ePn	07	04	35.8			
	D	ePn			46.9			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
JUN.12	T	iP	10	33	08.4			
	D	iP			17.6			
	T	iP	13	42	46.8			
	D	iP			56.4			
	K	iP			59.7			
	S	iP		43	00.0			
	D	iP	14	18	32.5			
	K	eP			35.6			
	S	iP			36.0			
	T	eP	14	28	17.0			
	D	iP			27.0			
	K	iP			29.8			
	S	eP			30.2			
	T	eP	14	30	20.0			
	D	iP			29.4			
	S	eP			31.1			
	T	eP	14	32	03.6			
	D	eP			13.2			
	D	iP	14	34	10.2			
	K	eP			13.4			
	S	eP			13.4			
	T	eP	14	39	11.0			
	D	iP			19.5			
	K	iP			22.6			
	S	iP			22.8			
	T	eP	14	42	25.6			
	D	eP			34.1			
	T	eP	14	44	58.0			
	D	eP		45	07.3			
	K	eP			14.2			
	S	eP			16.2			
	T	iP	14	48	26.7			
	D	iP			35.9			
	K	eP			39.5			
	S	eP			40.2			
	T	iP	14	53	04.5			
	D	iP			13.4			
	S	eP			17.1			
	K	eP			17.3			
	T	eP	14	57	04.5			
	D	iP			13.2			
	K	iP			16.2			
	S	iP			16.4			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
JUN. 12	T	iP	14	59	33.3			
	D	iP			42.3			
	K	eP			44.7			
	S	eP			46.2			
	T	iP	15	03	13.0			
	D	eP			22.2			
	T	iP	15	06	44.7			
	D	iP			54.1			
	K	eP			56.7			
	S	eP			57.3			
	T	eP	15	09	52.3			
	D	iP		10	02.0			
	K	iP			05.3			
	S	iP			05.3			
	T	eP	15	16	52.9			
	D	eP		17	02.6			
	T	eP	15	20	53.8			
	D	eP		21	03.7			
	T	eP	15	22	14.2			
	T	eP	15	23	25.5			
	D	eP		24	07.1			
	T	eP	15	24	52.2			
	D	eP		25	02.1			
	K	iP			05.6			
	S	iP			05.9			
	T	eP	15	28	33.2			
	D	eP			42.9			
	T	eP	15	29	09.2			
	D	eP			19.3			
	T	iP	15	32	23.4			
	D	iP			33.5			
	T	iP	15	40	08.9			
	D	eP			18.8			
	K	eP			22.0			
	S	iP			22.0			
	T	iP	15	49	57.6			
	D	iP		50	07.3			
	K	eP			10.2			
	S	iP			10.2			
	T	eP	16	21	30.7			
	D	eP			40.7			
	K	eP			43.8			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
JUN.12	T	eP	16	24	18.3			
	D	eP			28.4			
	K	eP			31.8			
	S	eP			31.9			
	T	eP	16	28	06.9			
	D	eP			16.9			
	K	eP			19.8			
	S	eP			20.3			
	T	iP	16	30	11.2			
	D	eP			21.9			
	K	eP			23.4			
	T	eP	16	33	54.9			
	D	eP		34	05.8			
	K	eP			09.6			
	T	eP	16	35	35.6			
	D	eP			46.8			
	T	eP	16	46	36.0			
	D	eP			45.8			
	D	iP	16	57	07.7			
	K	eP			10.5			
	S	eP			11.2			
	D	eP	17	09	19.8			
	K	eP			23.1			
	D	eP	17	24	28.4			
	K	eP			31.4			
	S	eP			31.6			
	D	eP	17	36	04.8			
	K	eP			07.6			
	D	eP	17	38	18.9			
	D	eP	17	47	28.5			
	D	iP	17	53	06.6			
	K	iP			09.5			
	S	eP			10.2			
	D	eP	17	58	44.2			
	D	eP	18	12	39.8			
	D	eP	18	16	11.7			
	D	eP	18	18	30.3			
	D	iP	18	42	29.9			
	D	iP	18	50	00.5			
	K	iP			03.5			
	S	iP			03.6			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
JUN.12	D	iP	18	56	58.3			
	K	ePg		57	01.2			
	S	iP			01.7			
	D	iP	19	37	32.3			
	K	iP			35.6			
	S	iP			36.1			
	D	ePg	19	39	48.0			
	K	ePg			51.3			
	D	ePg	19	46	19.3			
	K	ePg			21.2			
	D	iP	19	49	35.6			
	K	iP			38.7			
	S	iP			38.9			
	D	ePg	20	14	22.4			
	K	iP			24.1			
	S	iP			25.4			
	D	ePg	20	21	26.4			
	K	ePg			28.9			
	S	ePg			30.1			
	D	ePg	20	27	24.4			
	K	ePg			27.9			
	D	iP	20	32	09.4			
	K	iP			11.8			
	S	ePg			12.2			
	D	ePg	20	35	14.5			
	K	ePg			17.3			
	D	iP	21	17	48.3			
	K	ePg			50.8			
	S	iP			51.7			
	D	iP	21	41	01.2			
	K	iP			04.6			
	S	ePg			04.9			
	K	iP	21	52	56.8			
	S	ePg		53	08.6			
	D	ePg			12.4			
	D	ePg	21	54	55.7			
	K	ePg			57.9			
	S	ePg			58.8			
	D	iP	21	58	47.8			
	K	iP			50.8			
	S	iP			50.8			
	D	ePg	22	08	17.3			
	D	ePg	22	09	47.7			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
JUN.12	D	iP	22	16	40.9			
	K	eP			43.7			
	S	eP			43.7			
	D	eP	22	19	20.4			
	K	eP			23.4			
	S	eP			23.6			
	D	eP	22	22	41.9			
	D	eP	22	34	33.7			
	K	eP			35.6			
	S	eP			36.8			
	D	eP	22	51	48.8			
	D	eP	22	53	122			
	K	eP			145			
	D	iP	22	56	51.4			
	D	iP	23	21	56.2			
	K	eP			59.5			
	S	eP		22	00.0			
	S	eP	23	32	50.7	t		
	D	eP			53.9			
		eS		38	18.0			
	T	eP		32	59.4		1.2	18.7
	D	iP	23	35	42.2			
	K	eP			46.6			
	D	iP	23	44	52.0			
	K	iP			55.0			
JUN.13	D	iP	00	06	10.5			
	K	iP			13.5			
	S	iP			14.0			
	D	iP	00	43	20.7			
	K	iP			23.9			
	S	iP			24.1			
	T	eP	00	52	15.2			
	D	eP			25.4			
	K	eP			29.4			
	T	iP	00	55	11.2			
	D	iP			21.3			
	K	eP			24.9			
	S	eP			25.2			
	T	iP	01	01	07.0			
	D	iP			16.7			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
JUN. 13	T	iP	01	10	45.7			
	D	iP			55.7			
	K	eP			58.9			
	S	eP			59.1			
	T	iP	01	23	12.2			
	D	iP			21.7			
	S	eP			28.2			
	K	eP			28.6			
	T	iP	01	43	54.7			
	D	iP		44	04.4			
	K	iP			07.0			
	S	eP			08.1			
	T	iP	02	06	42.0			
	D	iP			52.1			
	K	iP			54.7			
	S	iP			55.1			
	T	iP	02	17	09.8			
	D	iP			18.9			
	K	iP			22.0			
	S	iP			22.3			
	T	iP	02	18	04.3			
	D	eP			14.0			
	T	iP	02	20	28.4			
	D	iP			38.5			
	T	eP	02	39	38.8			
	D	iP			47.1			
	T	iP	02	57	04.5			
	D	iP			08.7			
	T	iP	03	02	01.4			
	D	eP			12.0			
	T	iP	03	09	18.5			
	D	iP			28.8			
	T	iP	03	18	01.8			
	D	iP			11.1			
	S	eP			16.2			
	K	eP			20.1			
	T	iP	03	23	19.3			
	D	iP			28.5			
	T	iP	03	31	01.3			
	D	iP			11.2			
	K	eP			13.7			
	S	eP			14.2			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
JUN.13	T	iP	03	34	12.6			
	D	iP			21.6			
	S	iP			25.3			
	K	eP			28.4			
	T	iP	03	47	46.2			
	D	eP			54.2			
	T	iP	04	31	15.4			
	D	iP			25.3			
	K	iP			28.2			
	S	iP			28.4			
	T	iP	04	37	33.8			
	D	iP			43.0			
	K	eP			46.7			
	S	eP			47.4			
	T	iP	05	05	41.0			
	D	iP			50.9			
	T	eP	05	06	43.9			
	D	eP			53.1			
	T	iP	05	34	50.2			
	D	iP		35	00.2			
	K	eP			03.5			
	S	eP			04.0			
	T	eP	05	38	06.1			
	D	iP			15.4			
	K	eP			17.2			
	T	iP	05	39	04.4			
	D	iP			14.0			
	S	eP			17.3			
	K	eP			18.0			
	T	iP	05	45	47.8			
	D	iP			57.5			
	K	eP		46	00.6			
	S	iP			01.2			
	T	iP	05	32	43.5			
	D	iP			53.3			
	K	eP			55.9			
	S	eP			56.8			
	T	eP	06	05	20.8			
	D	iP			30.5			
	T	iP	06	07	32.2			
	D	iP			42.0			
	S	eP			45.0			
	K	eP			47.0			
	T	iP	06	31	23.0			
	D	iP			32.7			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
JUN. 13	T	iP	07	02	30.5			
	D	eP			40.1			
	K	eP			43.4			
	S	eP			44.1			
	T	eP	07	10	02.4			
	D	eP			11.5			
	S	eP			1 42			
	T	iP	07	12	54.1			
	D	iP		13	04.1			
	T	iP	07	12	16.7			
	D	iP			26.1			
	S	eP			29.9			
	K	eP			31.1			
	T	iP	07	28	44.7			
	D	iP			51.7			
	T	iP	07	59	58.8			
	D	iP	08	00	08.1			
	T	iP	08	02	09.8			
	D	iP			19.3			
	T	iP	08	03	58.9			
	D	iP		04	08.5			
	T	iP	08	05	56.6			
	D	iP		06	05.1			
	T	iP	08	07	03.0			
	D	iP			14.0			
	T	iP	08	21	05.2			
	D	iP			14.8			
	S	eP			18.3			
	K	eP			18.3			
	T	iP	08	49	10.2			
	D	iP			20.2			
	K	iP			22.3			
	S	eP			23.5			
	T	iP	08	55	00.3			
	D	iP			10.5			
	K	iP			1 23			
	S	eP			13.8			
	T	eP	08	57	11.4			
	D	eP			21.9			
	K	eP	09	03	12.0			
	T	iP			13.9			
	S	eP			21.7			
	D	eP			23.9			

Date	Station	Phase	Time (G.M.T.)	t	T	Am
JUN.13	T	iP	09 32 35.4			
	D	iP	45.3			
	K	iP	47.1			
	S	iP	48.4			
	T	eP	10 09 02.9			
	D	eP	12.2			
	T	eP	10 12 40.6			
	D	eP	51.1			
	T	eP	10 50 09.1			
	D	eP	19.5			
	T	eP	11 34 01.2			
	D	eP	11.2			
	K	eP	15.2			
	T	eP	11 36 12.9			
	D	eP	21.9			
	T	iP	11 57 20.3			
	D	iP	30.1			
	K	iP	32.6			
	S	iP	33.4			
	T	eP	12 18 15.2			
	D	eP	25.2			
	T	eP	12 24 10.4			
	D	eP	20.3			
	T	iP	12 29 07.8			
	D	iP	17.6			
	K	eP	23.0			
	T	eP	12 32 23.0			
	D	eP	33.2			
	T	eP	12 36 46.8			
	D	eP	56.2			
	T	eP	12 43 07.2			
	D	eP	16.8			
	T	iP	13 00 26.4			
	D	iP	36.5			
	T	iP	13 15 55.9			
	D	iP	16 06.1			
	T	eP	13 17 26.2			
	D	eP	35.8			
	T	eP	13 25 52.9			
	D	eP	26 02.1			
	T	iP	13 31 46.8			
	D	iP	55.7			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
JUN. 13	T	iP	13	39	10.2			
	D	iP			19.9			
	K	eP			25.4			
	T	eP	13	46	00.0			
	D	iP			11.2			
	T	iP	14	14	53.8			
	D	iP		15	03.5			
	T	iP	14	29	45.7			
	D	iP			54.9			
	T	iP	14	57	14.7			
	D	iP			24.6			
	K	iP			27.9			
	S	iP			28.3			
	T	eP	15	09	00.9			
	D	eP			10.7			
	T	eP	15	11	15.2			
	D	iP			24.4			
	K	eP			29.1			
	T	iP	15	34	27.9			
	D	iP			37.2			
	S	eP			41.4			
	K	eP			41.6			
	K	iP	15	38	17.5			
	S	iP			19.3			
	T	iP			23.4			
	D	iP			23.4			
	T	eP	15	39	00.0			
	D	iP			09.8			
	T	iP	16	11	21.2			
	D	iP			30.3			
	K	iP			33.4			
	S	iP			34.0			
	T	iP	16	17	41.2			
	D	iP			50.9			
	K	iP			53.8			
	S	iP			54.0			
	T	eP	16	25	13.2			
	D	iP			23.2			
	T	iP	16	53	58.0			
	D	iP		54	07.9			
	T	iP	17	18	37.4			
	D	eP			46.6			
	T	iP	17	22	28.6			
	D	iP			38.6			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
JUN. 13	T	eP	17	24	52.0			
	D	eP		25	02.5			
	T	iP	17	27	51.5			
	D	iP		28	01.8			
	T	iP	17	36	31.6			
	D	iP			36.6			
	K	iP			41.7			
	T	eP	18	24	22.4			
	D	eP			32.1			
	T	eP	18	30	28.4			
	D	eP			38.4			
	T	eP	18	38	17.3			
	D	eP			26.6			
	K	eP			30.5			
	T	eP	18	39	04.6			
	D	eP			14.2			
	K	eP			17.8			
	S	eP			18.5			
	T	eP	18	48	14.9			
	D	eP			24.6			
	T	iP	18	53	52.3			
	D	iP		54	03.6			
	K	iP			05.6			
	S	eP			06.1			
	T	iP	19	14	55.1			
	D	eP		15	06.1			
	K	eP			08.8			
	D	eP	19	18	08.1			
	T	eP			10.4			
	T	iP	19	32	20.3			
	D	eP			28.5			
	S	eP			33.6			
	K	eP			34.5			
	T	eP	19	34	50.1			
	D	eP		35	02.2			
	T	eP	19	43	33.6			
	D	iP			43.3			
	T	iP	19	47	16.1			
	D	iP			25.9			
	K	eP			29.0			
	S	eP			29.0			
	T	eP	20	04	05.6			
	D	eP			15.2			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
JUN.13	T	eP	20	21	50.1			
	D	eP		22	01.3			
	T	eP	21	11	34.6			
	D	iP			44.0			
	K	iP			47.3			
	S	iP			47.3			
	T	eP	21	20	32.6			
	D	eP			42.3			
	T	eP	21	23	27.2			
	D	eP			37.3			
	T	eP	21	25	27.5			
	D	eP			36.8			
	K	eP			40.7			
	S	eP			40.8			
	T	eP	21	27	42.7			
	D	eP			52.4			
	T	eP	21	59	37.2			
	D	eP			47.3			
	T	eP	22	01	28.5			
	D	eP			37.6			
	T	iP	22	04	59.3			
	D	eP		05	09.3			
	T	eP	22	21	18.5			
	D	eP			28.5			
	T	eP	22	23	43.8			
	D	iP			53.8			
	K	eP			56.9			
	T	eP	22	52	08.7			
	D	eP			17.9			
	T	eP	23	08	43.7			
	T	eP	23	09	01.2			
	D	eP			10.7			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
JUN.13	T	cP	23	14	49.8			
	D	eP		15	00.2			
	T	iP	23	17	01.2			
	D	eP			11.7			
	T	iP	23	30	18.8			
	D	iP			28.9			
	T	iP	23	39	58.0			
	D	iP		40	08.1			
	K	iP			10.7			
	S	iP			11.2			
	T	eP	23	44	38.8			
	D	eP			46.4			
	K	eP	23	51	03.2			
	S	cP			05.7			
	D	eP			09.9			
	T	iP			11.7			
JUN.14	T	eP	00	12	35.8			
	D	eP			45.9			
	T	eP	00	18	56.9			
	D	eP		19	07.3			
	K	eP			09.7			
	T	iP	00	37	28.5			
	D	iP			38.6			
	T	iP	00	43	28.0			
	D	iP			37.6			
	T	iP	00	47	05.9			
	D	iP			15.9			
	K	iP			19.3			
	S	iP			19.3			
	T	iP	00	58	45.9			
	D	iP			56.2			
	K	eP			56.9			
	S	iP			59.5			
	T	eP	01	09	10.6			
	D	iP			27.9			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
JUN. 14	D	iP	01	17	57.5			
	T	iP			58.9			
	S	eP		18	00.6			
	K	eP			08.9			
	T	iP	01	23	18.0			
	D	iP			27.2			
	T	iP	01	37	36.7			
	D	iP			46.2			
	K	iP			49.4			
	S	iP			49.5			
	T	iP	02	25	35.4			
	D	iP			44.3			
	S	iP			48.0			
	K	iP			51.2			
	T	iP	02	39	48.5			
	D	iP			56.4			
	S	eP		40	02.2			
	K	eP			02.7			
	T	iP	03	19	15.0			
	D	iP			24.4			
	K	iP			27.7			
	S	iP			27.8			
	T	eP	03	27	13.3			
	D	eP			22.7			
	T	iP	03	34	20.0			
	D	iP			29.0			
	T	eP	03	41	12.2			
	D	iP			22.3			
	T	iP	04	10	54.0			
	D	iP		11	03.7			
	K	iP			06.7			
	S	iP			07.1			
	T	iP	04	36	17.5			
	D	iP			27.4			
	K	eP			29.4			
	S	eP			31.4			
	T	iP	04	57	25.2			
	D	iP			34.1			
	T	iP	05	18	26.6			
	D	iP			35.7			
	T	iP	06	05	00.2			
	D	iP			10.2			
	S	eP			13.2			
	K	eP			13.8			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
JUN.14	T	iP	06	09	14.5			
	D	iP			23.9			
	T	iP	07	40	58.4			
	D	iP		41	08.1			
	T	eP	07	53	23.6			
	D	iP			33.2			
	S	eP			36.4			
	T	iP	08	42	51.2			
	D	iP		43	01.2			
	K	eP			04.5			
	S	iP			04.7			
	T	iP	09	17	34.1			
	D	eP			43.3			
	T	iP	09	25	05.7			
	D	iP			15.0			
	S	eP			19.3			
	K	eP	09	32	41.3	t		
	S	eP			45.1			
	T	eP			48.2		0.5	3.3
	D	eP			48.8			
	T	iP	09	58	35.6			
	D	eP			45.2			
	T	iP	10	44	26.6			
	D	iP			36.1			
	T	iP	11	21	15.7			
	D	iP			25.6			
	D	iP	11	23	38.7			
	S	iP			44.6			
	T	iP			48.2			
	K	iP			58.2			
	T	iP	11	53	36.2			
	D	iP			45.9			
	K	iP			49.0			
	S	iP			49.3			
	T	iP	12	00	07.3			
	D	iP			16.4			
	T	iP	12	13	56.4			
	D	iP		14	07.5			
	K	eP			10.2			
	S	eP			11.1			
	T	eP	12	16	38.8			
	D	eP			48.3			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
JUN. 14	T	eP	12	20	32.0	t	1.2	46.0
		eS		22	52.8			
	D	eP		20	42.7			
		eS		23	11.2			
	S	eP		20	45.8			
	K	eP			50.3			
	T	iP	12	46	50.0			
	D	iP		47	00.0			
	K	eP			03.6			
	S	eP			04.0			
	T	iP	12	50	08.1			
	D	iP			17.9			
	K	eP			21.4			
	S	eP			21.4			
	T	eP	12	56	39.7			
	D	eP			48.8			
	T	eP	13	04	11.0			
	D	eP			20.3			
	T	eP	13	17	47.0			
	D	eP			57.5			
	T	iP	13	28	16.8	t	1.2	64.8
	D	iP			23.1			
	S	eP			27.1			
	K	eP			27.1			
	T	eP	13	48	42.8	t		
	D	eP			49.5			
	T	eP	14	27	49.8			
	D	eP		28	00.0			
	T	eP	14	32	31.7			
	D	eP			40.8			
	T	eP	14	45	30.5			
	D	eP			40.7			
	K	eP	15	09	47.3			
	T	eP			56.9			
	D	eP		10	05.6			
	D	eP	15	34	19.0			
	T	eP			22.9			
	D	eP	15	35	29.5			
	T	eP			34.6			
	T	iP	16	11	11.4			
	D	iP			17.1			
	K	eP			22.0			
	T	iP	16	16	41.7			
	D	iP			51.0			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
JUN.14	T	eP	16	20	51.3			
	D	eP		21	01.7			
	S	eP	17	01	55.0	t		
	D	eP		02	00.0			
	K	eP			07.6			
	T	eP			11.2		1.0	17.8
	T	eP	18	03	13.5			
	D	eP			23.0			
	T	eP	18	09	51.9			
	D	eP		10	00.8			
	T	iP	18	23	29.9			
	D	iP			39.7			
	S	eP			43.3			
	K	eP			43.7			
	T	iP	19	04	24.0			
	D	iP			33.6			
	T	iP	19	20	01.8			
	D	iP			11.4			
	K	eP			12.3			
	T	eP	19	21	14.7			
	D	eP			25.9			
	K	eP			28.7			
	S	eP			28.7			
	T	eP	20	06	14.2			
	D	eP			23.2			
	T	eP	20	26	20.3			
	D	eP			30.2			
	T	eP	20	28	05.4			
	D	iP			15.2			
	K	eP			18.3			
	S	eP			20.8			
	T	eP	20	33	39.4			
	D	eP			48.7			
	T	iP	20	53	43.2			
	D	iP			52.8			
	K	eP			55.9			
	S	eP			55.9			
	T	eP	21	28	41.2			
	D	eP			50.8			
	T	eP	21	48	39.8			
	D	eP			48.8			
	T	iP	21	58	30.5			
	D	iP			40.4			
	S	eP			43.7			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
JUN.14	T	eP	22	16	16.8			
	D	eP			26.2			
	T	eP	23	07	43.2	t	1.2	32.4
	S	eP			48.2			
	D	eP			52.0			
	T	iP	23	14	05.9			
	D	iP			10.9			
	S	iP			11.2			
	K	iP			11.4			
JUN.15	T	eP	00	30	04.8			
	D	eP			13.9			
	S	eP			17.8			
	K	eP			18.8			
	T	eP	00	33	06.1			
	D	iP			16.3			
	K	eP			19.8			
	S	eP			20.6			
	T	eP	00	48	21.7	t	1.0	14.2
	D	eP			29.5			
	T	eP	00	52	48.3			
	D	eP			57.5			
	T	iP	02	09	42.4			
	D	iP			52.5			
	D	iP	02	14	32.5			
	T	iP			36.4			
	S	iP			38.5			
	K	iP			50.0			
	T	iP	02	30	25.4			
	D	iP			35.7			
	K	eP			38.2			
	S	eP			39.0			
	T	eP	02	53	12.5			
	D	eP			22.4			
	T	iP	03	32	16.2			
	D	iP			26.0			
	K	iP			29.0			
	S	iP			29.4			
	D	eP	03	51	15.1	t		
	T	eP			16.4		1.3	16.7
	T	eP	04	19	53.2			
	D	iP		20	02.8			
	T	eP	04	38	14.8			
	D	eP			24.6			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
JUN. 15	T	eP	05	11	39.8			
	D	iP			48.7			
	T	eP	05	18	35.7			
	D	eP			43.5			
	S	eP	06	02	14.3	t		
		eS		05	04.1			
	D	eP		02	17.0			
		eS		05	08.6			
		eScP		10	51.8			
		eScS		14	29.8			
	K	eP		02	18.9			
	T	eP			25.6		1.5	83.4
	T	iP	06	21	26.4			
	D	iP			34.6			
	T	iP	06	31	06.1			
	D	iP			15.2			
	T	iP	07	14	07.9			
	D	iP			17.6			
	T	iP	07	18	26.6			
	D	iP			36.0			
	S	eP			39.9			
	K	eP			40.9			
	T	iP	07	25	34.5			
	D	iP			44.9			
	S	eP			46.7			
	K	eP			47.8			
	K	eP	07	42	39.5	t		
	S	eP			44.1			
	D	eP			48.4			
	T	eP			48.8		0.5	8.2
	T	eP	07	50	22.6			
	D	eP			31.0			
	D	eP	08	03	43.1	t?		
	S	eP			43.4			
	T	iP	09	10	10.3			
	D	eP			20.1			
	T	iP	11	32	10.6	t	1.2	141.0
	D	iP			17.3			
		eS?		36	21.8			
	S	iP		32	20.6			
	K	eP			21.3			
	T	iP	11	45	08.6			
	D	iP			18.6			
	S	eP			21.3			
	K	eP			21.5			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
JUN.15	T	iP	11	51	41.0			
	D	iP			51.1			
	T	iP	12	04	33.5			
	D	iP			43.0			
	K	eP			46.4			
	S	iP			46.6			
	T	iP	12	21	20.3			
	D	iP			29.4			
	T	iP	12	49	38.6			
	D	iP			48.4			
	T	iP	13	04	05.7			
	D	eP			13.9			
	T	eP	13	10	22.9			
	D	eP			31.1			
	S	eP	13	44	22.7	t		
	K	eP			23.2			
	D	eP			26.4			
	T	eP			26.8		1.3	23.4
	T	iP	14	01	40.8			
	D	iP			50.6			
	S	eP			54.3			
	T	iP	14	12	01.9	t	1.2	126.0
	D	iP			06.1			
	K	eP			06.3			
	S	iP			07.1			
	T	iP	15	36	23.4			
	D	iP			33.5			
	T	iP	17	15	01.4			
	D	iP			10.5			
	K	eP			15.2			
	S	eP			16.3			
	T	iP	17	37	08.1			
	D	iP			18.2			
	S	iP			21.5			
	K	eP			22.4			
	T	iP	18	03	21.7			
	D	iP			31.5			
	T	iP	18	32	50.2			
	D	iP		33	00.4			
	T	iP	18	57	47.1			
	D	iP			56.9			
	T	iP	19	54	36.0			
	D	iP			43.9			
	S	iP			49.6			
	K	eP			50.1			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
JUN.15	T	iP	19	59	35.6			
	D	iP			45.2			
	S	ePP			48.8			
	K	ePP			50.9			
	T	iP	20	06	19.3			
	D	iP			28.6			
	T	iP	20	56	52.1			
	D	ePP		57	01.6			
	T	iP	22	54	07.1			
	D	iP			16.8			
	T	iP	23	15	42.6			
	D	iP			51.2			
	K	ePP			56.9			
	S	ePP			57.8			
	T	iP	23	20	38.2			
	D	iP			46.0			
	T	ePP	23	25	53.0			
	D	ePP		26	02.6			
JUN.16	T	iP	00	04	41.2			
	D	iP			51.1			
	T	ePP	01	08	00.0			
	D	ePP			08.6			
	T	ePP	01	42	00.0			
	D	ePP			09.4			
	T	ePP	02	18	02.3			
	D	ePP			11.2			
	K	iP	02	31	17.9	t		
		eS		34	26.2			
		eScP		38	52.9			
	S	iP		31	23.4			
		eS		34	34.6			
	T	iP		31	27.4		1.0	53.5
		eS		34	41.7			
		eScP		39	00.8			
	D	iP		31	27.4			
		eS		34	41.9			
		eScP		39	01.0			
	T	ePP	02	59	55.3			
	D	ePP	03	00	05.1			
	T	ePP	04	08	16.5			
	T	iP	06	41	20.5			
	D	ePP			29.6			
	S	ePP			33.2			
	K	ePP			34.1			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
JUN. 16	T	ePg	08	07	08.6			
	D	ePg			18.1			
	T	ePg	08	48	38.1			
	D	ePg			45.7			
	K	cP			52.8			
	T	ePg	09	12	06.1			
	D	ePg			13.7			
	S	ePg			18.8			
	K	ePg			21.3			
	T	ePg	09	25	22.9			
	D	ePg			31.5			
	S	ePg			35.4			
	K	ePg			38.8			
	T	ePg	09	43	32.0			
	D	ePg			41.5			
	S	ePg			49.4			
	T	ePg	10	47	12.1			
	D	ePg			21.9			
	T	ePg	11	39	22.9			
	D	ePg			32.6			
	K	ePg			39.2			
	S	ePg			39.6			
	T	ePg	11	46	02.6			
	D	iP			12.7			
	S	ePg			16.8			
	T	iP	12	05	51.3			
	D	ePg		06	00.6			
	S	ePg			04.7			
	K	ePg			05.8			
	T	ePg	12	14	19.5			
	D	ePg			29.0			
	T	ePg	12	19	25.4			
	D	ePg			35.6			
	T	iP	15	41	51.2			
	D	iP		42	01.2			
	S	ePg			05.8			
	K	ePg			05.8			
	T	ePg	16	00	33.0			
	D	iP			42.6			
	S	ePg			45.8			
	K	ePg			46.6			
	T	iP	16	55	07.1			
	D	ePg			16.7			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
JUN. 16	T	iP	16	57	51.8			
	D	eP		58	01.7			
	S	eP			05.8			
	K	eP			05.8			
	T	eP	17	07	25.4			
	D	eP			35.2			
	T	eP	17	35	02.5			
	D	eP			12.9			
	T	eP	18	17	43.7			
	D	eP			52.9			
	T	iP	18	52	26.4			
	D	iP			36.5			
	K	eP			39.7			
	S	iP			40.1			
	T	eP	19	00	51.8			
	D	eP		01	01.2			
	T	eP	19	04	04.7			
	D	eP			13.2			
	T	iP	20	39	43.3			
	D	iP			52.3			
	K	eP			56.9			
	S	eP			56.9			
	T	eP	20	43	52.4			
	D	eP		44	03.0			
	T	eP	20	48	21.4			
	D	eP			30.5			
	T	eP	20	58	00.0			
	D	eP			09.3			
	T	iP	21	47	35.6			
	D	eP			44.8			
	T	eP	22	27	53.9			
	D	eP		28	03.5			
	T	eP	23	05	01.7			
	D	iP			11.2			
	T	eP	23	57	27.4			
	D	eP			37.4			
JUN. 17	T	eP	01	46	37.6			
	D	eP			47.6			
	T	iP	02	42	59.4			
	D	iP		43	08.6			
	T	iP	04	16	27.9			
	D	iP			37.6			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
JUN.17	S	iP	04	31	09.7	t		
	D	ePg			11.1			
	T	iP	05	06	06.7			
	D	iP			15.8			
	S	ePg	07	38	45.9	t		
	T	iP	09	19	03.7			
	D	iP			12.8			
	T	iP	10	38	56.2			
	D	iP		39	05.6			
	T	iP	11	54	15.9			
	D	iP			24.6			
	S	iP			29.1			
	K	iP			29.4			
	T	iP	13	53	10.6			
	D	iP			19.6			
	S	ePg			23.9			
	K	ePg			24.0			
	T	iP	14	30	31.0			
	D	ePg			39.7			
	K	ePg			45.6			
	T	ePg	15	38	33.7			
	T	iP	16	27	45.6			
	D	iP			55.5			
	T	iP	16	43	56.0			
	D	ePg		44	04.6			
	S	ePg			08.8			
	K	ePg			12.6			
	T	iP	16	46	01.2			
	D	iP			10.3			
	S	iP			14.2			
	K	iP			14.2			
	T	iP	16	57	27.7			
	D	iP			37.4			
	S	iP			40.4			
	K	iP			40.6			
	T	ePg	17	08	45.4			
	D	ePg			56.0			
	T	iP	17	25	12.0			
	D	ePg			21.4			
	T	ePg	17	27	50.9			
	D	ePg		28	00.2			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
JUN.17	K	iP	17	53	43.2			
	S	iP			43.7			
	D	iP			47.0			
	T	iP			50.0			
	K	iP	17	57	22.0	t		
	T	iP			29.6		1.2	21.3
	D	iP			30.3			
	K	eP	18	18	54.9	t		
	S	eP			53.2			
	T	eP			59.6		1.7	60.7
	D	eP		19	02.7			
	T	iP	18	51	31.2			
	D	iP			41.5			
	K	iP			43.7			
	S	eP			44.4			
	T	iP	18	58	24.3			
	D	iP			34.6			
	K	iP			35.1			
	S	iP			37.8			
	T	iP	19	22	22.5			
	D	iP			32.5			
	S	eP			36.8			
	K	eP			37.0			
	S	eP	19	41	24.6	t		
	D	eP			29.6			
	T	iP			30.5		1.0	45.3
	T	eP	19	51	37.6			
	D	eP			46.3			
	T	eP	20	00	12.1			
	D	eP			21.2			
	T	iP	20	13	09.4			
	D	iP			18.6			
	T	eP	21	40	08.8			
	D	eP			19.1			
	T	eP	22	10	02.8			
	D	eP			12.8			
	T	iP	22	12	50.4			
	D	iP		13	01.6			
	K	eP			02.2			
	S	eP			04.1			
	T	iP	22	16	53.3			
	D	eP		17	02.9			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
JUN. 17	T	iP	22	18	14.7			
	D	iP			24.1			
	S	iP			27.8			
	K	iP			27.9			
	T	iP	22	35	56.2			
	D	iP		36	06.4			
	K	eP			09.3			
	S	eP			09.5			
	T	iP	22	42	10.7			
	D	iP			20.1			
	S	eP			23.4			
	T	eP	23	02	16.1			
	D	eP			24.6			
JUN. 18	T	iP	00	20	56.6			
	D	eP		21	04.3			
	T	eP	01	55	42.7			
	D	iP			52.1			
	T	iP	02	32	54.9			
	D	iP		33	04.5			
	K	eP			07.1			
	S	eP			07.6			
	T	iP	02	51	16.2			
	D	eP			24.6			
	S	eP			28.8			
	K	eP			29.0			
	T	eP	03	02	04.3			
	D	eP			13.8			
	T	iP	03	19	48.3			
	D	eP			57.7			
	T	eP	03	59	53.0			
	D	eP	04	00	03.0			
	T	iP	04	11	33.2			
	D	iP			42.6			
	T	iP	04	36	17.7			
	D	iP			26.8			
	T	eP	06	08	37.5			
	D	eP			42.8			
	T	iP	06	22	48.2			
	D	eP			57.4			
	K	eP	06	34	57.4			
	T	eP			58.5			
	D	eP		35	07.6			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
JUN.18	K	iP	06	52	26.4	t		
	S	iP			29.9			
	T	eP			30.7		1.3	45.6
	D	iP			32.8			
	T	iP	07	15	23.2			
	D	iP			32.1			
	T	iP	07	19	36.0			
	D	iP			45.3			
	S	iP			48.4			
	K	iP			49.7			
	T	iP	07	39	36.0			
	D	iP			43.8			
	S	eP			46.9			
	K	eP			51.0			
	T	iP	08	57	19.9			
	D	iP			28.4			
	S	iP			32.1			
	K	eP			34.0			
	T	iP	09	50	48.6			
	D	eP			56.7			
	S	eP		51	02.8			
	K	eP			05.5			
	T	iP	10	02	03.2			
	D	iP			12.8			
	K	eP			16.7			
	K	iP	10	12	34.0			
	T	iP			42.8			
	S	eP			44.9			
	D	iP			49.4			
	K	iP	10	21	14.2			
	T	eP			23.4			
	S	eP			26.2			
	D	eP			29.8			
	T	iP	10	41	26.4			
	D	iP			35.8			
	K	eP			37.9			
	S	iP			39.0			
	T	iP	13	38	56.6			
	D	iP		39	07.7			
	K	iP			10.2			
	S	iP			10.5			
	T	iP	14	02	05.5			
	D	iP			15.5			
	T	iP	14	54	46.7			
	D	iP			56.3			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
JUN.18	T	iP	16	05	39.4			
	D	iP			49.3			
	S	iP			52.0			
	K	iP			52.7			
	K	eS	16	08	10.3			
	S	eS			14.8			
	D	eS			24.0			
	T	eP		07	09.3			
		eS		08	26.0			
	T	iP	17	00	28.0			
	D	iP			36.9			
	T	iP	17	12	02.2			
	D	iP			10.0			
	S	eP			14.3			
	K	eP			15.9			
	T	eP	18	44	17.6			
	D	eP			26.0			
	T	iP	20	27	47.5			
	D	eP			56.7			
	T	eP	20	46	24.4			
	D	eP			32.9			
	T	iP	21	49	20.8			
	D	eP			28.7			
	T	eP	22	57	10.6			
	D	eP			19.6			
	T	eP	23	10	03.2			
	D	eP			13.0			
	T	iP	23	41	56.5			
	D	iP		42	05.0			
	T	iP	23	45	37.2			
	D	iP			47.1			
	S	eP			48.8			
	K	eP			50.3			
JUN.19	T	eP	00	19	08.1			
	D	eP			09.8			
	T	iP	01	00	12.8			
	D	iP			22.6			
	T	iP	01	39	16.1			
	D	iP			25.4			
	K	iP			29.0			
	S	iP			29.1			
	T	iP	01	50	31.3			
	D	eP			40.9			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
JUN. 19	T	iP	01	59	46.2			
	D	iP			56.3			
	S	eP			59.0			
	K	eP	02	00	01.4			
	T	eP	02	28	12.7			
	D	eP			22.0			
	T	iP	03	13	57.9			
	D	eP		14	06.9			
	T	iP	03	18	34.5			
	D	eP			43.6			
	S	eP			46.7			
	K	eP			47.5			
	T	eP	04	18	16.1			
	D	eP			26.8			
	T	iP	04	54	36.6			
	D	eP			46.1			
	D	eP	05	14	15.0	t	Explosion	
	S	iP			17.3			
	T	iP			18.3		1.2	86.5
		eX		16	24.5			
	K	iP		14	25.1			
	T	iP	05	46	21.8			
	D	iP			29.3			
	T	iP	06	00	18.1			
	D	eP			27.0			
	T	iP	06	20	21.9			
	D	iP			32.1			
	K	eP			38.8			
	T	iP	06	26	49.1			
	D	eP			57.9			
	T	iP	07	02	49.0			
	D	eP			58.3			
	T	iP	07	25	58.2			
	D	iP		26	07.5			
	S	eP			10.8			
	T	iP	07	51	56.0			
	D	iP		52	05.7			
	T	eP	08	26	50.5			
	D	eP		27	00.6			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
JUN.19	T	ePKP	08	32	37.7	t	1.3	30.0
		eX			51.8			
		ePP		35	30.5			
	S	ePKP		32	42.3			
	D	ePKP			43.5			
		eX			54.8			
		ePP		35	35.8			
		ePS?		45	41.4			
	T	iP	11	03	18.2			
	D	iP			28.0			
	K	eP			30.9			
	S	iP			31.2			
	T	iP	13	33	17.3			
	D	eP			26.0			
	T	iP	14	02	12.8			
	D	iP			22.8			
	S	eP			25.8			
	K	eP			26.0			
	T	iP	14	10	33.0			
	K	eP			39.4			
	D	iP			42.5			
	T	iP	15	15	50.0			
	D	eP			59.8			
	T	iP	15	24	14.0			
	D	iP			24.7			
	K	eP			25.5			
	S	iP			27.9			
	T	iP	15	38	35.9			
	D	eP			42.8			
	T	eP	16	00	48.3			
	D	eP			58.2			
	T	iP	17	33	48.9			
	D	iP			58.1			
	T	iP	18	04	31.7			
	D	iP			40.8			
	S	iP			44.4			
	K	eP			44.6			
	T	iP	18	35	56.1			
	D	eP		36	05.7			
	T	iP	19	14	10.8			
	D	iP			20.2			
	K	iP			24.1			
	S	iP			24.2			
	T	iP	19	38	53.6			
	D	eP		39	02.4			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
JUN.19	T	iPKP	20	17	54.9	t	1.2	29.6
		eX		18	05.7			
	K	ePKP		17	54.9			
	S	iP			55.9			
	D	iPKP			56.6			
		eX		18	05.8			
JUN.20	T	eP	02	55	28.4			
	D	iP			38.2			
	T	iP	07	17	46.7			
	D	eP			56.4			
	T	iP	07	24	27.7			
	D	eP			36.8			
	T	iP	08	02	28.8			
	D	eP			38.0			
	K	eP			43.5			
	T	iP	08	16	10.6			
	D	iP			19.6			
	S	eP			23.7			
	K	eP			26.2			
	T	eP	08	18	29.8			
	T	iP	10	15	24.3			
	D	eP			33.7			
	T	iP	10	31	15.0			
	D	iP			25.2			
	T	eP	10	34	46.9			
	D	eP			57.3			
	T	iP	11	26	43.5			
	D	eP			51.7			
	T	iP	11	54	05.5			
	D	iP			15.3			
	T	iP	12	01	55.0			
	D	iP		02	05.1			
	T	eP	12	10	38.7			
	D	eP			46.8			
	T	iP	13	17	37.2			
	D	eP			45.4			
	T	iP	13	42	26.0			
	D	iP			35.6			
	K	eP			40.0			
	T	iP	14	05	47.1			
	D	eP			55.7			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
JUN. 20	T	eP	14	11	55.9			
	D	eP		12	05.8			
	T	eP	15	49	14.8			
	D	eP			25.0			
	D	iP	17	49	37.3			
		iS			50.8			
	S	iP			42.8			
	T	iP			47.8			
	K	eP			56.9			
	T	iP	17	50	54.3			
	D	iP		51	04.9			
	T	eP	18	04	35.7			
	D	eP			43.0			
	T	iP	18	13	44.6			
	D	eP			54.2			
	S	eP			57.0			
	K	eP			57.9			
	T	eP	19	08	14.2		1.2	22.0
	D	eP			23.2			
	T	iP	19	23	14.2			
	D	eP			23.5			
	T	eP	19	47	59.7			
	D	eP		48	07.6			
	T	eP	20	05	04.5		0.5	6.1
	D	eP			13.8			
	S	eP	20	24	04.1	t?		
	D	eP			08.5			
	T	eP			08.7		0.5	4.0
	T	eP	20	34	27.1			
	D	eP			36.6			
	D	iP	20	39	10.0			
	S	iP			15.9			
	T	iP			19.1			
	K	eP			30.0			
	T	eP	21	00	39.6			
	D	eP			48.9			
	D	eP	22	00	27.2	t?		
	T	iP	22	18	05.9			
	D	iP			15.4			
	S	eP			16.9			
	K	eP			20.1			
	T	iP	22	29	45.7			
	D	eP			55.0			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
JUN.20	T	eP	23	23	12.2			
	D	eP			21.2			
JUN.21	T	eP	01	48	45.0			
	D	eP			55.0			
	T	iP	01	57	14.6			
	D	eP			24.0			
	T	eP	02	10	14.8			
	D	eP			23.8			
	T	eP	03	24	19.8			
	D	eP			25.6			
	T	iP	03	55	38.2			
	D	iP			47.8			
	T	iP	04	23	17.3			
	K	iP			27.1			
	D	iP			28.3			
	S	iP			30.5			
	T	iP	05	28	38.1			
	D	eP			47.2			
	T	eP	07	20	09.4			
	D	eP			17.9			
	T	iP	07	36	24.6			
	D	iP			33.9			
	T	eP	08	17	00.8			
	D	eP			10.7			
	T	eP	10	33	44.8			
	D	eP			53.9			
	T	iP	11	54	51.4			
	D	eP			56.2			
	T	iP	12	30	13.5			
	D	eP			23.5			
	T	iP	13	50	51.1			
	D	eP			59.4			
	S	eP		51	04.0			
	K	eP			05.0			
	T	iP	15	37	57.8			
	D	eP		38	08.1			
	T	iP	16	23	43.7			
	D	iP			53.6			
	S	eP			56.7			
	K	eP			57.6			
	T	iP	16	26	36.2			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
JUN.21	D	ePg	18	09	57.0	t?		
	T	iP	18	37	33.4			
	D	ePg			42.2			
	T	iP	18	52	36.3			
	K	ePg			44.9			
	D	ePg			47.3			
	K	iP	18	53	00.5			
	S	iP			10.5			
	T	ePg			14.2			
	D	iP			15.4			
	T	iP	19	21	06.5			
	D	ePg			15.7			
	T	ePg	19	31	29.8			
	D	ePg			39.4			
	D	ePg	20	20	30.0			
	T	ePg			32.6			
	K	iP	21	06	40.4			
	S	iP			42.0			
	D	iP			45.5			
	T	iP			48.0			
	T	iP	21	27	57.6			
	D	iP		28	07.1			
	S	ePg			12.2			
	K	ePg			14.2			
JUN.22	T	iP	00	09	43.7			
	D	iP			53.8			
	T	iP	01	13	45.9			
	D	iP			55.3			
	S	iP			58.6			
	K	iP			58.8			
	T	iP	01	25	38.1			
	D	ePg			47.9			
	S	ePg			49.8			
	K	ePg			51.3			
	T	ePg	01	30	08.6			
	D	ePg			19.3			
	T	ePg	02	55	10.9			
	D	ePg			21.3			
	T	iP	02	56	46.2			
	D	ePg			34.0			
	T	iP	03	06	46.2			
	D	ePg			54.8			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
JUN. 22	T	iP	03	09	53.3			
	D	iP		10	03.2			
	K	eP			08.3			
	S	eP			08.8			
	T	iP	04	59	36.8			
	D	iP			46.4			
	S	eP			49.8			
	K	eP			51.6			
	T	eP	05	25	00.9			
	D	eP			10.9			
	T	eP	05	43	46.7			
	D	eP			55.9			
	T	iP	06	51	27.2			
	D	eP			35.8			
	T	iP	07	06	30.0			
	D	iP			39.6			
	S	eP	08	19	05.9	t		
	T	eP			07.0		1.2	21.3
	D	eP			08.3			
	T	iP	09	09	04.9			
	D	iP			14.6			
	S	eP			18.3			
	K	eP			20.0			
	T	iP	09	31	30.9			
	D	eP			40.1			
	T	eP	09	56	33.1			
	D	eP			42.8			
	S	eP			46.4			
	K	eP			48.9			
	T	eP	11	04	14.1			
	D	eP			22.4			
	T	eP	11	07	12.3			
	D	eP			22.1			
	S	eP			24.3			
	S	iP	11	08	58.6			
	D	iP			59.8			
	K	iP		09	02.9			
	T	iP			04.5			
	T	iP	14	28	44.6			
	D	eP			53.9			
	T	eP	14	53	14.4			
	D	eP			23.5			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
JUN.22	T	iP	18	10	01.6			
	K	eP			09.9			
	D	iP			12.6			
	T	iP	18	45	32.3			
	D	eP			40.5			
	T	iP	18	55	52.7			
	D	eP		56	06.6			
	T	iP	19	28	03.9			
	D	iP			14.1			
	K	eP			20.0			
	T	eP	19	39	51.1			
	T	iP	20	44	23.7			
	D	iP			33.5			
	K	eP	21	10	49.0	t		
	S	eP			53.1			
	T	eP			53.5		1.0	22.1
	D	eP			56.5			
	T	iP	21	30	34.9			
	D	eP			44.5			
	T	eP	22	14	40.5			
	D	eP			49.3			
	T	iP	23	23	04.8			
	D	eP			14.9			
	S	iP	23	28	14.1			
	D	iP			15.5			
	K	eP			17.5			
	T	iP			19.9			
	T	iP	23	47	14.0			
	D	eP			23.8			
JUN.23	D	eP	00	42	21.2	t		
	S	eP	01	21	21.5	t		
	D	eP			24.4			
	T	iP	02	02	19.3			
	D	iP			28.9			
	S	eP			32.1			
	K	eP			33.7			
	T	iP	02	43	00.3			
	D	iP			10.0			
	T	eP	03	42	19.2			
	D	eP			32.5			
	T	eP	04	01	18.3			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
JUN.23	T	iP	04	59	19.3			
	D	eP			27.5			
	S	eP			32.6			
	K	eP			32.8			
	T	iP	05	21	32.5			
	D	iP			42.4			
	K	eP			45.5			
	S	eP			46.5			
	T	iP	06	43	08.3			
	D	iP			18.0			
	D	eP	07	56	44.9			
	T	eP			46.5			
	T	iP	08	58	02.8			
	D	eP			12.8			
	D	eP	09	27	39.0	t		
	S	eP			40.0			
	T	eP			41.1		1.2	21.8
	T	eP	09	39	06.8			
	D	iP			16.6			
	K	eP			19.4			
	S	eP			19.9			
	T	eP	10	50	18.4			
	T	iP	11	10	51.3			
	D	iP		11	01.4			
	T	eP	11	45	34.3	t	1.0	14.3
	D	eP			38.7			
	T	iP	12	20	30.7			
	D	eP			37.7			
	T	iP	13	50	42.8			
	D	iP			52.7			
	T	iP	14	00	32.6			
	D	eP			42.5			
	K	eP			45.0			
	S	eP			49.2			
	D	eP	14	10	29.5			
	T	eP			32.8			
	S	eP			34.9			
	T	iP	14	27	57.1			
	D	iP		28	06.5			
	K	eP			11.2			
	S	eP			11.7			
	T	iP	14	45	07.2			
	D	eP			17.2			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
JUN.23	D	eP	15	10	42.8	t?		
	K	iP	16	49	26.4			
	S	iP			32.3			
	D	eP			37.2			
	T	iP			39.6			
	T	eP	17	02	32.1	t		
	D	eP			37.7			
	S	eP			38.3			
	D	eP	18	45	36.1	t?		
	T	iP	19	28	40.1			
	D	eP			49.5			
	T	eP	19	32	32.9			
	D	eP			43.4			
	T	iP	19	36	57.4			
	D	eP		37	06.5			
	T	iP	20	54	43.7			
	D	iP			53.3			
	T	eP	23	06	30.9	t	1.1	17.1
	D	eP			33.9			
JUN.24	T	eP	02	19	39.8			
	D	eP			49.2			
	T	iP	04	23	05.3			
	D	iP			15.0			
	S	eP			18.9			
	T	iP	04	48	27.7			
	D	eP			36.7			
	T	iP	05	55	53.1			
	D	iP		56	03.1			
	K	eP			04.5			
	S	eP			06.5			
	T	eP	06	33	35.8			
	D	eP			46.4			
	T	iP	07	27	18.3			
	D	iP			29.1			
	K	eP			31.1			
	S	eP			31.2			
	T	iP	07	42	26.6			
	D	iP			37.9			
	K	eP			33.3			
	S	iP			39.7			
	T	eP	08	21	41.6			
	D	eP			51.7			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
JUN.24	T	iP	08	29	23.5			
	D	iP			33.0			
	K	ePg			36.6			
	S	iP			36.7			
	D	ePg	09	09	35.3			
	T	ePg			36.3			
	T	iP	10	01	14.4			
	D	ePg			23.8			
	T	iP	11	11	49.5			
	D	iP			58.4			
	S	ePg		12	02.3			
	K	ePg			04.3			
	T	ePg	11	51	16.0			
	D	ePg			25.2			
	T	ePg	12	26	11.5			
	D	ePg			21.8			
	T	iP	15	13	01.4		0.17	8.6
	D	ePg			09.6			
	S	ePg			15.4			
	K	ePg			15.8			
	T	ePg	15	18	15.7			
	T	iP	19	12	22.2			
	D	ePg			25.2			
	T	ePg	20	20	54.9			
	T	ePg	21	55	40.7			
	D	ePg			50.0			
	T	iP	22	49	48.7			
	D	ePg			56.9			
	T	iP	23	07	54.9			
	D	ePg		08	04.7			
	T	iP	23	30	49.6			
	D	iP			58.2			
	K	iP			59.8			
	S	iP		31	02.4			
JUN.25	T	ePg	00	26	53.3			
	D	ePg		27	02.1			
	T	iP	02	33	38.6			
	D	ePg			47.9			
	T	iP	03	58	49.4			
	D	ePg			58.5			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
JUN. 25	K	eP	04	06	58.7			
	S	iP		07	02.4			
	T	eP			05.7			
	D	eP			07.9			
	T	iP	07	24	58.7			
	D	iP		25	08.0			
	T	iP	07	38	10.9			
	D	eP			20.0			
	T	iP	07	44	15.8			
	D	eP			26.2			
	T	eP	07	48	19.2			
	D	eP			22.1			
	T	iP	09	14	35.8			
	D	eP			45.0			
	T	iP	11	09	34.5			
	D	iP			43.6			
	K	eP			48.9			
	S	eP			50.7			
	T	eP	11	19	46.8			
	D	eP			56.3			
	T	iP	12	31	24.7			
	D	iP			34.2			
	T	eP	14	38	41.8			
	D	eP			50.0			
	T	iP	15	45	08.1			
	D	iP			18.1			
	T	eP	17	04	20.4			
	D	eP			30.7			
	T	eP	18	10	54.3			
	D	eP		11	04.6			
	T	eP	18	48	54.0			
	D	eP		49	03.2			
	K	iP	19	03	26.7			
	S	eP			29.1			
	D	eP			34.7			
	T	iP			39.5		0.5	8.2
	K	iP	21	44	25.5			
	T	iP			35.0			
	S	iP			36.1			
	D	iP			40.8			
	T	eP	22	49	47.9			
	D	eP			58.0			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
JUN.25	T	iP	23	08	26.7			
	D	eP			35.6			
	T	eP	23	22	50.7			
	D	eP		23	00.8			
	K	eP			03.0			
	S	eP			04.1			
	T	eP	23	34	22.3			
	D	iP			32.6			
	K	iP			34.9			
	S	iP			35.6			
	T	iP	23	58	18.9			
	D	iP			28.1			
JUN.26	T	eP	02	08	14.4			
	D	eP			23.5			
	T	iP	02	25	11.2			
	D	iP			20.5			
	T	eP	02	48	46.1			
	D	eP			56.2			
	T	eP	04	49	20.8			
	D	eP			31.9			
	T	eP	05	04	03.7			
	D	eP			13.0			
	T	iP	05	51	33.8			
	D	iP			43.6			
	T	iP	05	55	43.6			
	D	iP			51.3			
	K	eP			58.0			
	T	iP	06	48	14.2			
	D	iP			20.1			
	K	eP			27.8			
	T	eP	07	37	50.9			
	D	eP		38	00.8			
	T	iP	10	25	17.2			
	D	iP			24.9			
	S	iP			30.0			
	K	iP			32.0			
	T	eP	10	43	41.4			
	T	iP	10	54	46.4			
	D	eP			54.1			
	T	iP	11	05	01.9			
	D	iP			11.8			
	K	eP			16.1			
	S	iP			17.2			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
JUN.26	T	iP	11	09	00.1			
	D	eP			07.7			
	K	eP			15.9			
	T	iP	12	12	40.7			
	D	iP			49.0			
	S	iP			52.0			
	K	iP			54.8			
	K	iP	13	44	27.5			
	S	eP			36.4			
	T	iP			40.7			
	D	iP			41.5			
	T	eP	14	58	52.6			
	D	eP		59	00.3			
	K	eP	15	50	59.4	t		
	S	iP		51	02.7			
	T	eP			04.3		1.4	88.3
	D	iP			06.1			
		eScS?	16	01	01.9			
	S	eP	16	37	05.8			
	K	eP			07.9			
	D	iP			08.1			
	T	iP			12.0			
	T	iP	18	10	23.4			
	T	iP	18	22	23.4			
	K	iP			43.4			
	D	iP			44.1			
	S	iP			46.8			
	T	iP	18	54	06.7			
	D	eP			14.8			
	T	iP	20	12	38.5			
	D	eP			47.6			
	T	iP	20	27	18.1			
	D	iP			27.7			
	K	eP			31.5			
	S	iP			31.8			
	T	iP	20	40	18.6			
	D	iP			28.5			
	S	eP			31.7			
	K	eP			32.3			
	K	eP	22	03	47.4			
	T	eP		04	00.8			
	D	eP			02.0			
	D	iP	22	55	57.2			
	S	iP		56	02.9			
	T	iP			07.7			
	K	eP			17.5			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
JUN.26	K	eP	23	13	09.6			
	S	eP			20.2			
	T	iP			22.6			
	D	eP			23.4			
JUN.27	T	eP	01	40	41.1			
	D	iP			50.7			
	K	eP			53.2			
	S	eP	02	12	45.9	t		
	T	eP			46.6		1.5	37.9
	K	eP			47.0			
	D	eP			48.7			
	T	iP	02	29	51.1			
	D	eP		30	00.3			
	K	eP	03	13	31.0			
	T	iP			43.8			
	D	eP			44.8			
	T	iP	03	20	04.6			
	D	eP			13.9			
	T	iP	04	12	25.4			
	K	iP			31.0			
	D	eP			36.2			
	S	eP			37.6			
	K	iP	06	12	06.9			
	T	iP			08.1			
	S	iP			17.2			
	D	eP			18.5			
	T	iP	06	18	13.6			
	D	eP			24.6			
	K	eP	06	31	14.4			
	D	eP			14.6			
	T	eP			18.7			
	K	eP	07	24	54.3			
	S	eP			55.1			
	D	iP			58.6			
	T	eP		25	01.6			
	T	eP	08	07	54.2			
	T	iP	09	34	26.8			
	D	iP			36.1			
	K	eP			42.7			
	T	iP	11	06	22.7			
	D	eP			32.1			
	T	iP	14	09	01.5			
	D	iP			11.1			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
JUN.27	T	iP	14	30	01.0			
	D	iP			10.7			
	T	iP	15	24	25.1			
	D	iP			23.2			
	K	ePn			40.4			
	T	iP	16	56	19.3			
	D	ePn			29.8			
	T	iP	17	13	00.3			
	D	iP			09.2			
	S	ePn			12.8			
	K	ePn			14.4			
	D	iP	17	45	14.5			
	S	iP			15.8			
	T	iP			19.0			
	K	iP			22.8			
	T	ePn	18	32	37.2			
	D	ePn			48.7			
	T	iP	19	14	03.2			
	D	iP			12.9			
	K	ePn			16.0			
	T	ePn	20	34	10.5			
	D	ePn			20.3			
	T	iP	21	04	32.5			
	D	ePn			42.2			
	T	iP	21	30	35.4			
	D	iP			44.8			
	T	iP	21	55	26.0			
	D	iP			35.6			
	K	ePn			38.2			
	S	ePn			39.1			
	T	ePn	22	02	53.9			
	D	ePn		03	03.9			
	D	ePn	22	16	45.9	t?		
	T	ePn			49.8		1.4	22.1
	S	ePn	22	22	28.4	t		
		epP		23	04.4			
	K	ePn		22	29.1			
	D	ePn			31.5			
		epP		23	08.1			
		eSc P		27	39.4			
		eSn		28	39.6			
	T	ePn		22	34.9		1.0	18.6
		epP		23	10.9			
		eSc P		27	40.3			
	T	iP	22	30	39.0			
	D	iP			48.9			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
JUN.27	T	eP	22	42	34.7			
	D	eP			44.5			
	T	iP	23	14	50.4			
	D	iP		15	00.2			
	K	eP			03.2			
	S	eP			03.9			
	T	iP	23	42	21.0			
	D	eP			30.5			
	K	eP			33.9			
	S	eP			34.3			
	T	iP	23	53	36.3			
	D	iP			44.6			
	K	eP			48.0			
JUN.28	T	iP	00	30	04.3			
	D	iP			13.8			
	T	iP	01	47	42.3			
	D	iP			51.9			
	K	eP			56.8			
	T	iP	02	12	11.6			
	D	iP			21.9			
	K	eP			24.2			
	S	iP			25.3			
	T	iP	02	44	49.6			
	D	iP			59.4			
	T	eP	04	25	59.4			
	D	eP		26	07.2			
	S	eP	06	04	35.6			
	D	iP			36.4			
	K	iP			39.6			
	T	iP			41.2			
	T	iP	07	17	07.4			
	D	eP			10.6			
	S	iP	07	23	07.9			
	K	iP			12.9			
	D	iP			15.0			
	T	iP			20.4			
	D	eP	07	28	48.6	t?		
	T	eP	07	31	41.3			
	D	eP			50.3			
	S	iP	08	04	31.6			
	D	iP			33.5			
	K	iP			34.4			
	T	iP			37.8			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
JUN. 28	T	iP	09	31	33.3			
	D	iP			42.7			
	S	iP			45.9			
	K	iP			46.4			
	T	iP	09	45	04.3			
	D	iP			13.4			
	S	ePg			16.7			
	K	iP			16.7			
	T	iP	10	23	59.8			
	D	iP		24	08.8			
	T	iP	11	04	39.2			
	D	iP			49.0			
	S	iP			52.6			
	K	ePg			52.9			
	T	ePg	12	34	01.4	t	1.3	24.5
	D	ePg			05.9		Explosion.	
	K	ePg			06.5			
	S	ePg			07.2			
	T	iP	13	05	31.7			
	D	iP			41.5			
	S	iP			44.9			
	K	ePg			45.4			
	K	iP	13	34	41.9	t		
	S	iP			45.9			
	D	iP			49.6			
	T	iP			50.8		1.0	34.3
		epP?		35	27.2			
	T	iP	14	25	14.2			
	D	iP			23.4			
	S	iP			26.8			
	K	ePg			29.0			
	T	iP	14	52	12.2			
	D	iP			21.4			
	S	ePg			24.9			
	S	iP	16	11	12.0			
	D	iP			17.8			
	K	iP			24.3			
	T	iP			27.2			
	T	ePg	16	21	48.5			
	D	ePg			58.4			
	T	ePg	16	27	40.0			
	T	iP	17	41	06.4			
	D	ePg			15.4			
	T	ePg	17	44	22.6			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
JUN.28	T	iP	18	17	57.3			
	D	iP		18	05.5			
	S	eP			09.7			
	K	eP			12.4			
	T	iP	21	26	34.3			
	D	eP			42.2			
	T	iP	21	49	01.0			
	D	iP			11.6			
	K	eP			12.8			
	T	iP	23	13	52.2			
	D	eP		14	01.7			
JUN.29	T	iP	00	07	26.2			
	D	iP			33.8			
	S	eP			38.5			
	K	eP			41.0			
	T	iP	01	18	29.6			
	D	iP			39.2			
	K	iP			42.4			
	D	eP	01	37	41.9			
	T	iP	02	26	43.2			
	D	eP			52.5			
	D	iP	03	12	42.2			
	K	iP			42.3			
	T	iP			46.6			
	T	iP	03	32	46.8			
	D	eP			55.6			
	T	iP	03	37	08.3			
	D	iP			18.0			
	K	eP			20.6			
	T	iP	04	21	50.5			
	D	iP			59.8			
	K	iP		22	04.5			
	T	iP	05	23	48.5			
	D	iP			59.6			
	K	eP		24	00.4			
	T	eP	05	55	14.0			
	D	iP			23.2			
	T	eP	06	19	09.6			
	D	eP			19.5			
	T	iP	07	41	04.7			
	D	eP			13.6			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
JUN.29	T	iP	08	10	41.8			
	D	iP			50.6			
	K	ePg			58.3			
	T	iP	10	29	14.4			
	D	iP			24.0			
	S	iP			27.5			
	K	iP			27.5			
	T	iP	10	55	43.3			
	T	iP	13	53	28.8			
	D	ePg			38.4			
	T	ePg	16	34	26.0			
	D	ePg			37.1			
	T	iP	16	46	32.4			
	D	ePg			41.6			
	T	iP	16	59	09.6			
	D	iP			17.8			
	K	ePg			24.8			
	T	iP	17	04	39.4			
	D	iP			49.0			
	K	ePg	18	12	06.6	t		
	S	ePg			09.7			
	D	ePg			14.2			
	T	ePg			14.4		0.5	3.7
	T	iP	19	02	39.8			
	D	iP			49.9			
	T	ePg	20	01	41.0			
	D	ePg			51.9			
	T	iP	20	21	59.2			
	D	iP		22	09.2			
	K	iP			12.2			
	S	iP			12.6			
	S	iP	21	48	22.2			
	K	iP			24.2			
	D	iP			24.3			
	T	iP			28.3			
JUN.30	T	iP	00	30	21.4			
	D	ePg			31.8			
	T	iP	00	41	58.6			
	D	ePg		42	06.7			
	T	ePg	00	47	56.9			
	D	ePg		48	06.5			
	T	ePg	03	29	12.6			
	D	ePg			25.3			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
JUN. 30	T	iP	06	08	46.4			
	D	iP			50.9			
	S	eP			52.9			
	K	iP			57.8			
	S	iP	06	47	43.6			
	D	iP			45.8			
	K	iP			45.9			
	T	iP			50.1			
	T	eP	07	13	19.1			
	D	iP			28.8			
	T	iP	08	57	06.7			
	D	iP			13.4			
	T	iP	09	04	59.5			
	D	eP		05	08.6			
	K	eP	09	40	26.4	t		
	S	eP			30.7			
	T	eP			33.5		0.5	18.7
		ePcP		44	27.2			
	D	eP		40	36.2			
		ePcP		44	29.0			
		eS			47.4			
		eScS		51	49.4			
	T	iP	09	50	04.0			
	D	eP			13.7			
	T	eP	10	20	32.3			
	D	iP	11	04	12.4			
	S	iP			12.8			
	T	iP			16.8			
	K	iP			19.3			
	D	iP	11	48	05.4			
	S	iP			07.7			
	T	iP			09.5			
	K	iP			15.7			
	D	eP	13	18	08.6	t		
		eS		22	19.6			
	T	eP		18	10.6		0.5	3.7
	T	iP	13	41	05.5			
	D	iP			14.2			
	S	iP			17.8			
	K	eP			21.2			
	T	iP	13	52	02.0			
	D	iP			11.8			
	T	iP	14	41	22.6			
	D	eP			31.7			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
JUN.30	D	iP	14	49	27.8			
	T	eP			28.9			
	K	iP			41.1			
	S	iP			41.4			
	T	iP	15	15	28.8			
	D	iP			38.6			
	K	eP			41.3			
	T	iP	17	05	22.8			
	D	iP			31.8			
	S	eP			37.6			
	T	eP	17	29	58.2			
	T	eP	18	43	49.5			
	D	eP			59.2			
	T	iP	19	21	21.9			
	D	eP			31.9			
	T	iP	21	18	51.7			
	D	eP		19	01.6			
	T	iP	22	59	13.7			
	K	iP			18.7			
	D	eP			25.8			
	T	eP	23	01	10.2			
	D	eP			19.9			
	T	eP	23	06	21.0			
	D	eP			30.8			
	T	iP	23	50	34.0			
	D	iP			43.7			
	K	iP			45.5			

Note.

A time correction of −1.0 sec (to be added to the reported time) should be made for a period from $07^h\ 30^m$ (GMT), Jan. 18, 1968 to $01^h\ 57^m$ (GMT), Jan. 20, 1968.

S-P \ Date	1	2	3	4	5	6	7	8	9	10	11	12	13
0– 0.9													
1– 1.9													
2– 2.9					1			1				1	
3– 3.9													
4– 4.9													
5– 5.9													
6– 6.9													
7– 7.9											2		
8– 8.9							1		3			1	
9– 9.9		1			1							1	
10–10.9	1		1	1	3			1			2	2	
11–11.9	2	1	2		3		1		1		1		
12–12.9	2	2	4	2		1		1	2	1	1	1	
13–13.9		1	2	2		2	3	3			3	2	
14–14.9	1	1	1	1		2		1				1	
15–15.9												1	
16–16.9	1										1	1	
17–17.9	1			1	2	1					1	1	
18–18.9		3	1				2	1			1		
19–19.9				1				1					
20–20.9				1	2	1				1	1	2	
21–21.9	1		1		1	1						1	
22–22.9							1		1				
23–23.9			1			2							
24–24.9				1								1	
25–25.9			1				1						
26–26.9													
27–27.9	1							1					
28–28.9													
29–29.9							1						
above 30 sec	22	8	7	8	9	12	9	5	15	8	14	8	111
?	1	2		3				1	1		2		
Total	33	19	21	21	22	22	19	16	23		29	24	
no observation		10h ~ 16h 39m								10h ~ 20h			
remark													

JUNE.

14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	Total
																	0
																	0
								1									4
							1										1
					1							1					2
																	0
					1			1								1	3
					1										1		4
						1		1	1	1			1				10
		1				1								1			6
	1		1	1				1	3	1		1		1			21
	1				2					1	1	1	1	2		1	21
	2	1		4	3	3	2	1	3	5	2	5	4	4	2		58
			1	1	4	1	4	3	2	2		3	1			1	41
		1			1	1		1	1	1				2		2	18
				1			2				1		2	1			8
	1	1		2						1			2				10
		1	1		1			1		1		2		1			15
		1															9
		1													2	1	6
								1									9
		1												1			7
	1	1					1						1		1		7
	1																4
																	2
	1						1				1						5
												1			1		2
						1							2				5
																	0
					1												2
41	33	25	26	9	15	9	5	12	10	7	9	5	6	7	2	3	460
	1	2		2							1						16
	42	36	29	20	30	17	16	23	20	20	15	19	20	20	9	9	

Tsukuba.

S-P \ Date	1	2	3	4	5	6	7	8	9	10	11	12	13
0– 0.9													
1– 1.9													
2– 2.9													
3– 3.9													
4– 4.9													
5– 5.9		2			2					3		3	
6– 6.9				1				1	2	1	2	4	
7– 7.9	1				3	1	1	1	2	3	2	2	
8– 8.9	2	3		1	1	3			1	2	3	1	
9– 9.9	1	2	3	1	2	4		1	2	1	1		
10–10.9		1		2	2				1		1	2	
11–11.9		1	1	1			1	2		1	1		
12–12.9	2			1	2	1		1	1	1		2	
13–13.9			1	3	1				3	1			
14–14.9							4				1		
15–15.9				1	1	2	2		1			2	
16–16.9		1	3	3		1	1	1		1			
17–17.9			5	2		1		1					
18–18.9	1		6	2	1	3			2		2		
19–19.9			4	4	1	1			2	1	1	1	
20–20.9	1					1							
21–21.9	1										1		
22–22.9		1				1	1				1		
23–23.9			1			1							
24–24.9					1						1		
25–25.9													
26–26.9													
27–27.9						1							
28–28.9													
29–29.9										1			
above 30 sec	18	13	17	15	21	11	10	15	11	13	16	9	71
?						1	1			1			
Total	27	24	41	37	38	33	21	23	28	30	33	26	
no observation		10h ~ 16h 39m											
remark													

JUNE.

14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	Total
																	0
																	0
																	0
																	0
																	0
	1			3	1	3		1	2	1		1					23
	1				1	1		1	1	2	1	1		1		5	26
			1	2	1		1	1	2		1		3	1	2		31
	2	1		2	1		3	1	3	3	2	1	3	4	2		45
	1	1		3	4	1	2		4	2	2		1	1	1	3	44
	2	3	1	1	1					1	1		1	1	1	1	23
	1				3			1	1				1	1	1	1	18
		1	2	2					3	3	1	2					25
	2							1	1	3	1						17
		2			1		1	1		1		1	2	3	1	1	19
		1										1				1	12
	2					1				1							15
						1			1			1				1	13
				1		1			1				1		1		22
	1	1								1		1	1		1	1	22
		3					1	1		1	2	1					11
										1	2			2			7
							1		1								6
	1					1											4
	1			1													4
											1						1
			2		1						1						4
			1														2
	1																1
			1											1			3
60	40	30	38	12	17	14	9	17	16	3	7	12	7	8	12	3	545
												1					4
	56	43	46	27	31	23	18	25	36	23	22	23	20	23	22	17	

Preliminary Bulletin

of the Dodaira Micro-earthquake Observatory

and its Substation

July, 1968

Dodaira Micro-earthquake Observatory

Earthquake Research Institute, the University of Tokyo

Preliminary Bulletin of the Dodaira Micro-earthquake Observatory and its Substation

Observation stations

		N	E	h
Dodaira	(D or DDR)	35°59'54".0	139°11'36".2	800m
Tsukuba	(T or TSK)	36°12'39".0	140° 6'35".0	280m
Kiyosumi	(K or KYS)	35°11'51".6	140° 8'53".6	230m
Shiroyama (temporary)	(S or SRY)	35°36'30".0	139°16'27".0	254m

Expressions: Am: Amplitude in millimicron (half of peak to trough*) of P motion maximum within few cycles after the onset recorded by a short period vertical seismograph. *In 1967 double amplitude (peak to trough) was used as Am.

T : Period in sec of the measured P maximum

t : Teleseism

All stations are radio-telemetered to Tokyo giving records on a multi-channel ink-recording oscillograph. The paper speed of the recorder is 1 mm per sec. For stronger events high speed recorder (10 mm/sec) is also triggered. The system is also recorded in parallel on multi channel magnetic tape through a trigger system using an endless tape loop. Direct filter sum of short period seismometers at Dodaira and/or on line short period filter outputs of Tsukuba are also used for the detection of weak teleseismic signals. For teleseismic events records of long period and medium period seismographs are

occasionally used, applying off line frequency filter, if necessary..

The Bulletin includes the preliminary readings sent to USCGS for teleseisms and larger near shocks with total durations (F-P) of short period vertical seismograph at Tsukuba (TSK) with magnification about 140.000 at 1 c/s or sensitivity about 300×10^{-3} mm/microkine at 10 c/s being longer than 100 seconds which correspond approximately shocks with $M \geq 3.5$. For the minor near earthquakes with $F\text{-}P < 100$ sec or $M < 3.5$, frequency of S-P times at each station is added at the end of the Bulletin, which may easily give a general idea of local seismicity around the station.

Date	Station	Phase	Time (G. M. T.)	t	T	Am	
JUL. 1	T	eP	03 22 58.0				
	T	iP	03 29 41.3				
	D	iP	50.8				
	K	eP	56.1				
	T	iP	03 45 38.8				
	D	iP	48.0				
	T	eP	03 54 50.7				
	D	eP	55 01.3				
	D	eP	04 12 40.3	t			
	T	iP	41.7		1.1	23.2	Explosion
	K	eP	47.0				
	T	iP	08 34 55.6				
	D	eP	35 03.7				
	T	iP	08 52 11.8				
	D	eP	20.8				
	K	eP	23.7				
	T	eP	08 59 59.6				
	D	eP	09 00 08.9				
	T	iP	09 10 26.2				
	D	iP	35.3				
	T	iP	10 08 47.8				
	D	eP	57.4				
	D	iP	10 45 21.0				
	S	iP	23.2				
	T	iP	24.7				
	K	iP	31.9				
	D	iP	11 07 18.0				
	S	iP	19.8				
	T	iP	21.7				
	K	iP	27.6				
	T	iP	11 22 10.6				
	D	iP	19.2				
	S	eP	24.2				
	K	eP	24.9				
	T	eP	11 56 51.3	t	0.5	11.2	
	D	eP	57.6				
	D	iP	12 06 16.4				
	S	iP	18.4				
	T	iP	20.3				
	K	iP	26.2				
	T	iP	12 23 25.0				
	D	iP	35.1				
	K	iP	37.3				
	S	eP	38.3				

Date	Station	Phase	Time (G. M. T.)	t	T	Am	
JUL. 1	T	eP	03 22 58.0				
	T	iP	03 29 41.3				
	D	iP	50.8				
	K	eP	56.1				
	T	iP	03 45 38.8				
	D	iP	48.0				
	T	eP	03 54 50.7				
	D	eP	55 01.3				
	D	eP	04 12 40.3	t			
	T	iP	41.7		1.1	23.2	Explosion
	K	eP	47.0				
	T	iP	08 34 55.6				
	D	eP	35 03.7				
	T	iP	08 52 11.8				
	D	eP	20.8				
	K	eP	23.7				
	T	eP	08 59 59.6				
	D	eP	09 00 08.9				
	T	iP	09 10 26.2				
	D	iP	35.3				
	T	iP	10 08 47.8				
	D	eP	57.4				
	D	iP	10 45 21.0				
	S	iP	23.2				
	T	iP	24.7				
	K	iP	31.9				
	D	iP	11 07 18.0				
	S	iP	19.8				
	T	iP	21.7				
	K	iP	27.6				
	T	iP	11 22 10.6				
	D	iP	19.2				
	S	eP	24.2				
	K	eP	24.9				
	T	eP	11 56 51.3	t	0.5	11.2	
	D	eP	57.6				
	D	iP	12 06 16.4				
	S	iP	18.4				
	T	iP	20.3				
	K	iP	26.2				
	T	iP	12 23 25.0				
	D	iP	35.1				
	K	iP	37.3				
	S	eP	38.3				

Date	Station	Phase	Time (G. M. T.)		t	T	Am
JUL.	T	iP	12 47	08.5			
	D	eP		17.9			
	T	eP	13 27	19.8			
	D	eP		29.7			
	T	eP	14 49	39.4			
	D	eP		49.			
	T	iP	15 32	20.3			
	D	iP		29.9			
	S	eP		33.9			
	K	eP		35.9			
	T	iP	16 31	50.7			
	D	eP		58.6			
	T	iP	17 34	07.2			
	D	eP		16.8			
	D	eP	17 36	33.9			
	S	iP		37.1			
	T	iP		38.9			
	K	iP		44.1			
	D	iP	18 24	44.1			
	S	iP		46.4			
	T	iP		47.6			
	K	iP		53.9			
	T	eP	18 48	02.4			
	D	eP		10.9			
	T	iP	18 49	26.3			
	T	iP	20 06	22.2			
	K	eP		24.9			
	D	eP		32.2			
	S	eP		33.0			
	T	iP	21 15	29.8			
	D	iP		37.4			
	S	eP		42.0			
	K	eP		44.1			
JUL. 2	D	eP	02 33	07.5			
	T	eP		11.4			
	K	eP		18.4			
	K	iP	02 44	28.9			
	T	iP		41.3			
	D	eP		44.1			
	T	eP	03 58	39.8	t	1.2	47.7
	S	eP		46.0			

Date	Station	Phase	Time (G. M. T.)			t	T	Am
JUL. 2	K	eP	04	42	35.0	t		
	S	eP			37.1			
	T	eP			38.4		1.3	745
	D	eP			39.8			
	T	eP	05	07	38.0			
	D	eP			47.9			
	T	iP	06	39	29.6			
	D	eP			34.0			
	T	iP	10	40	42.1			
	D	iP			52.0			
	K	eP			54.9			
	S	eP			56.0			
	T	eP	13	54	15.1			
	D	eP			22.9			
	T	iP	14	34	12.2			
	D	iP			22.4			
	S	eP			25.4			
	T	iP	15	03	16.6			
	D	iP			27.3			
	T	eP	15	45	46.8			
	D	eP			55.8			
	T	iP	15	51	58.1			
	D	iP		52	08.1			
	S	eP			12.0			
	K	eP			14.2			
	T	iP	16	45	03.0			
	D	iP			12.7			
	K	eP			15.3			
	S	iP			15.5			
	T	iP	17	13	11.8			
	D	eP			19.9			
	S	eP			23.2			
	T	iP	18	31	55.8			
	D	iP		32	07.3			
	K	eP			09.5			
	S	eP			10.3			
	T	iP	18	46	39.3			
	D	iP			48.7			
	K	iP	18	47	21.4	t		
	S	iP			24.5			
	D	iP			27.5			
		ePcP		49	41.0			
		eScP		53	23.6			
		eS			48.2?			
		eScS		57	32.1			
	T	iP		47	28.8		1.0	1580

Date	Station	Phase	Time (G.M.T.)	t	T	Am
JUL. 2	S	eP	22 15 44.1	t		
	L	eP	46.5			
	T	eP	54.0		1.2	37.5
	T	iP	22 28 58.2			
	D	eP	29 07.9			
	T	iP	23 44 38.0			
	D	iP	47.1			
JUL. 3	D	eP	01 22 33.8	t?		
	T	eP	01 44 18.1			
	D	iP	28.0			
	S	iP	31.4			
	K	eP	31.8			
	T	iP	02 41 08.5			
	D	iP	17.2			
	S	eP	21.2			
	K	eP	21.8			
	T	eP	02 55 30.2			
	D	iP	39.8			
	K	eP	42.4			
	S	iP	42.5			
	T	eP	07 32 21.0			
	D	eP	30.0			
	T	eP	09 10 09.2			
	D	eP	17.5			
	T	iP	10 07 33.6			
	D	iP	43.1			
	S	eP	43.3			
	K	eP	45.4			
	T	iP	11 26 57.0			
	D	iP	27 06.5			
	S	eP	09.6			
	T	iP	14 17 19.1			
	D	eP	27.3			
	T	iP	14 32 12.7			
	D	iP	21.9			
	S	eP	25.3			
	K	eP	26.8			
	T	eP	15 29 19.6			
	D	eP	28.9			
	T	iP	15 39 14.1			
	D	iP	23.8			
	S	eP	26.8			
	K	eP	26.9			

Date	Station	Phase	Time (G. M. T.)	t	T	Am
JUL. 3	T	iP	16 38 18.9			
	D	eP	28.0			
	T	iP	19 42 00.8			
	D	iP	10.1			
	K	eP	13.6			
	S	eP	15.2			
	T	eP	19 54 21.4			
	D	iP	31.0			
	S	eP	33.3			
	K	eP	35.7			
	D	iP	19 56 03.6			
	S	iP	05.1			
	T	iP	07.1			
	K	iP	13.0			
	K	eP	20 57 46.7	t		
	S	eP	51.9			
	T	eP	53.7		0.5	5.3
	D	eP	57.4			
	T	iP	21 19 11.4			
	D	eP	20.8			
	T	eP	21 25 55.2			
	D	iP	26 05.5			
	S	eP	08.3			
	K	eP	08.7			
	T	iP	21 53 41.5			
	D	iP	51.2			
	S	eP	54.6			
JUL. 4	T	iP	00 18 31.8			
	D	iP	40.7			
	K	iP	00 34 29.3			
	D	iP	36.4			
	T	iP	37.5			
	K	iP	03 29 35.8			
	T	iP	41.8			
	S	iP	43.8			
	D	iP	46.7			
	T	eP	05 14 48.9			
	D	eP	59.5			
	T	iP	07 14 37.2			
	D	eP	45.5			
	S	eP	49.5			
	D	iP	09 17 50.4			
	S	iP	52.3			
	T	iP	54.1			
	K	iP	59.5			

Date	Station	Phase	Time (G. M. T.)	t	T	Am
JUL. 4	T	iP	10 57 40.9			
	D	iP	46.1			
	S	ePg	48.0			
	K	ePg	50.6			
	T	iP	11 49 40.0			
	D	iP	49.5			
	T	iP	12 43 34.0			
	D	ePg	43.1			
	T	iP	13 22 04.3			
	D	iP	15.7			
	K	ePg	16.1			
	S	ePg	16.9			
	T	iP	13 32 19.0			
	D	iP	28.2			
	T	ePg	13 37 14.6			
	D	ePg	19.9			
	T	iP	14 22 00.4			
	D	iP	10.0			
	K	ePg	12.8			
	S	ePg	13.4			
	T	ePg	16 25 48.2			
	D	ePg	57.5			
	T	ePg	18 00 58.2			
	D	ePg	01 07.1			
	T	ePg	18 47 34.3			
	D	iP	43.9			
	S	ePg	47.5			
	K	ePg	47.6			
	K	iP	19 17 35.8			
	T	iP	41.0			
	S	ePg	46.3			
	D	iP	51.0			
	T	iP	19 43 25.0			
	D	ePg	33.4			
	T	iP	20 09 37.4			
	D	iP	42.1			
	S	ePg	45.5			
	K	ePg	47.0			
	S	iP	20 38 52.4			
	D	iP	55.6			
	K	iP	39 05.5			
	T	iP	08.3			
	T	ePg	21 34 16.9			
	D	ePg	26.6			

Date	Station	Phase	Time (G. M. T.)		t	T	Am
JUL. 4	T	ePKP?	22 55	07.1			
	D	ePKP?		15.2			
	T	iP	23 18	45.6			
	D	eP		54.4			
	T	iP	23 34	40.9			
	D	iP		48.9			
JUL. 5	T	ePKP?	00 57	17.4	t	1.9	1000
	D	ePKP?		21.3			
	S	ePKP?		22.1			
	T	iP	02 25	44.0			
	D	iP		53.0			
	T	iP	03 26	08.9			
	D	iP		18.5			
	D	eP	07 32	37.5	t?		
	T	iP	09 22	10.4			
	D	iP		17.7			
	S	eP		21.2			
	K	eP		24.4			
	T	iP	11 28	53.7			
	D	iP	29	04.2			
	S	iP		07.9			
	K	iP		08.2			
	S	eP	13 49	41.9	t		
	T	eP		43.1		0.5	2.7
	D	eP		43.6			
	T	eP	14 40	50.3			
	D	eP		59.0			
	T	iP	15 06	53.4			
	D	iP	07	03.1			
	T	eP	15 19	21.4			
	D	eP		31.8			
	S	iP	16 30	25.2			
	K	iP		25.8			
	T	iP		27.0			
	D	iP		27.2			
	T	iP	16 50	06.7			
	D	eP		15.2			
	T	eP	17 48	45.5			
	D	eP		54.6			
	T	eP	18 01	46.3			
	D	eP		55.6			

Date	Station	Phase	Time (G. M. T.)	t	T	Am
JUL. 5	T	iP	18 16 23.2			
	D	eP	31.1			
	S	eP	36.0			
	T	iP	22 40 44.6			
	D	eP	53.9			
JUL. 6	K	iP	01 44 53.9			
	S	iP	45 02.0			
	T	iP	08.1			
	D	iP	08.1			
	D	iP	03 06 06.4			
	S	iP	08.1			
	T	iP	09.6			
	T	eP	03 43 14.4			
	D	eP	23.6			
	T	eP	05 06 09.8			
	D	eP	20.8			
	T	eP	08 14 49.5			
	D	eP	57.2			
	T	eP	03 56 39.2			
	D	eP	50.4			
	T	iP	09 26 33.5			
	D	eP	42.3			
	S	eP	45.6			
	T	eP	09 29 58.0			
	D	eP	30 06.4			
	S	eP	09.2			
	T	iP	09 34 41.0			
	D	eP	49.2			
	T	iP	10 36 40.9			
	K	iP	41.5			
	S	iP	48.2			
	D	iP	48.6			
	T	eP	11 45 31.2			
	D	eP	40.4			
	T	iP	12 45 47.7			
	D	iP	55.2			
	K	iP	56.0			
	S	iP	57.1			
	T	iP	17 12 41.2			
	D	eP	49.0			
	K	eP	53.9			
	T	eP	17 38 31.7	1	0.5	4.7
	D	eP	34.3			

Date	Station	Phase	Time (G. M. T.)	t	T	Am
JUL. 6	T	iP	17 40 36.9			
	D	eP	44.6			
	T	iP	17 55 51.9			
	D	iP	56 01.8			
	T	iP	18 28 32.5			
	D	eP	41.9			
	S	eP	19 36 45.3	t		
	D	eP	49.2			
	T	eP	50.3		1.0	47.1
		epP?	37 04.0			
		ePcP?	12.2			
	T	eP	21 23 00.8			
	D	eP	10.0			
	K	eP	22 19 48.9			
	S	iP	49.6			
	D	iP	51.9			
	T	iP	55.1			
	T	eP	22 25 15.8			
	D	eP	24.0			
	T	iP	22 38 46.0			
	D	eP	56.9			
JUL. 7	T	eP	00 28 20.4			
	D	eP	31.4			
	T	iP	06 03 41.5			
	T	iP	06 08 42.8			
	T	iP	08 06 25.2			
	T	iP	08 39 21.7			
	T	iP	09 43 44.3			
	T	eP	10 22 03.9			
	T	iP	13 17 11.4			
	K	iP	24.8			
	S	iP	25.3			
	T	iP	14 05 57.0			
	T	eP	14 11 39.8			
	T	iP	14 16 39.1			
	S	eP	55.3			
	T	eP	14 34 54.9	t?	1.5	50.7
	S	eP	55.0			

Date	Station	Phase	Time (G. M. T.)	t	T	Am
JUL. 7	K	ePg	14 45 38.3			
	S	ePg	48.6			
	T	iPg	51.5		0.5	12.5
	K	iP	15 41 30.1			
	S	iP	33.7			
	T	iP	34.5			
	T	ePg	16 03 08.4			
	T	ePg	17 46 04.5			
	T	iP	18 15 09.2			
	T	iP	19 07 21.2			
	T	iP	21 43 38.2			
	S	ePg	53.1			
	T	iP	23 10 48.3			
	T	iP	23 41 20.6			
JUL. 8	K	ePg	00 05 54.5	t		
	S	ePg	06 02.5			
	T	ePg	08.6			
	T	iP	00 19 54.3			
	S	ePg	20 07.7			
	K	ePg	09.2			
	T	iP	02 44 54.1			
	T	iP	03 08 44.5			
	S	ePg	58.1			
	K	ePg	59.0			
	T	iP	03 19 03.2			
	S	ePg	16.4			
	K	ePg	17.3			
	T	ePg	03 36 36.9			
	T	iP	03 47 27.8			
	S	ePg	42.4			
	K	ePg	42.4			
	T	iP	03 54 45.7			
	K	ePg	55 02.6			
	D	ePg	04.5			
	K	iP	06 08 58.7			
	S	iP	09 04.9			
	T	iP	12.5			
	T	iP	07 14 48.2			

Date	Station	Phase	Time(G.M.T.)	t	T	Am
JUL. 8	T	eP	08 03 32.5			
	D	eP	42.5			
	S	eP	45.0			
	K	eP	46.3			
	K	eP	08 37 48.0			
	S	eP	58.0			
	T	eP	38 02.7			
	T	iP	09 54 45.9			
	D	eP	54.9			
	T	iP	10 37 10.1			
	D	iP	19.9			
	K	eP	21.4			
	S	iP	23.2			
	T	iP	10 51 29.9			
	D	iP	38.6			
	T	eP	11 09 52.5			
	D	eP	10 02.1			
	T	eP	11 41 24.4			
	D	eP	24.4			
	K	eP	12 19 32.8	t		
	S	eP	37.2			
	T	iP	37.3		1.0	15.0
	D	iP	39.3			
	T	iP	12 28 31.3			
	D	eP	39.8			
	T	eP	13 18 45.2			
	D	iP	55.3			
	T	eP	13 24 10.4	t?	0.5	2.5
	D	eP	17 26 48.4	t		
	T	eP	51.7		1.1	16.3
	D	eP	17 53 49.5	t		
	S	eP	49.5			
	T	eP	50.9		1.2	25.4
	T	eP	18 21 54.8			
	D	eP	56.8			
	D	eP	21 15 58.1			
	T	iP	59.7			
	K	eP	21 26 25.0	t		
	S	iP	33.6			
	T	iP	38.3		0.6	111.0
	D	iP	39.1			
	T	iP	21 36 43.1			
	D	iP	52.3			

Date	Station	Phase	Time (G.M.T.)	t	T	Am
JUL. 8	T	eP	22 27 59.4			
	D	eP	28 08.4			
	T	eP	22 36 51.9			
	D	eP	58.4			
	T	iP	22 39 10.4			
	K	iP	22 45 30.2			
	T	iP	35.2			
	S	iP	39.4			
	D	iP	41.9			
	T	iP	23 36 00.4			
	D	eP	10.7			
JUL. 9	T	iP	00 00 41.7			
	D	iP	51.3			
	T	eP	00 14 57.2			
	D	eP	15 06.3			
	T	iP	02 06 38.8			
	D	eP	48.1			
	T	eP	02 27 23.9	t		
	D	eP	35.4			
	T	iP	02 37 19.4			
	D	eP	27.3			
	K	iP	33.4			
	K	iP	03 36 34.1	t		
	S	eP	41.1			
	D	iP	44.8			
		eS	39 21.2			
	T	iP	36 45.2		0.5	13.4
	K	eP	03 44 59.2	t		
	S	eP	45 04.4			
	D	eP	08.3			
	T	eP	09.6		1.2	27.8
	T	iP	03 52 04.9			
	D	iP	15.0			
	K	eP	18.9			
	S	eP	19.5			
	D	eP	04 01 40.3	t		
	T	eP	42.5		0.5	6.3
	T	iP	04 29 21.3		0.5	56.6
	D	iP	30.0			
	S	iP	34.1			
	K	eP	34.8			

Date	Station	Phase	Time (G. M. T.)	t	T	Am
JUL. 9.	T	eP	04 31 45.2			
	D	eP	54.1			
	T	iP	08 07 05.5			
	D	iP	14.5			
	K	eP	18.4			
	S	iP	19.3			
	T	iP	08 16 46.2			
	D	iP	56.0			
	T	eP	08 29 38.1			
	D	eP	47.1			
	S	iP	50.2			
	K	eP	51.0			
	T	iP	08 41 12.2			
	D	eP	22.0			
	T	eP	09 09 52.1			
	D	eP	10 01.4			
	T	iP	09 35 56.7			
	D	eP	36 05.4			
	S	eP	10.2			
	K	eP	11.7			
	T	iP	11 41 59.2			
	D	iP	42 08.6			
	S	eP	09.9			
	K	eP	13.1			
	T	eP	11 53 52.8			
	D	iP	54 02.2			
	S	eP	07.0			
	T	eP	12 06 32.7			
	D	eP	42.1			
	T	iP	12 41 52.9			
	D	iP	42 03.3			
	K	iP	04.3			
	S	eP	06.4			
	T	iP	12 51 53.8			
	D	iP	52 03.2			
	T	eP	13 07 40.9			
	D	eP	52.3			
	T	iP	14 32 08.5			
	D	iP	17.9			
	K	eP	15 17 13.5	t		
	S	eP	18.3			
	T	eP	23.1		0.5	6.8
	D	eP	24.0			
		eS	20 41.5			

Date	Station	Phase	Time (G. M. T.)	t	T	Am
JUL.. 9	T	eP	16 49 02.6			
	D	eP	13.5			
	K	eP	17 10 14.7			
	S	eP	23.5			
	T	iP	28.1			
	D	iP	28.9			
	T	iP	17 35 43.3			
	T	eP	20 10 46.6			
	D	eP	57.4			
	K	iP	21 13 19.2			
	T	iP	21.6			
	S	iP	23.1			
	D	iP	25.3			
	K	iP	22 22 04.6			
	S	iP	14.3			
	T	iP	15.7			
	D	iP	19.5			
	T	eP	22 25 22.2			
	D	iP	23 02 49.8			
	S	iP	52.4			
	T	iP	54.1			
	K	iP	59.9			
	K	eP	23 27 08.1	t		
	T	eP	12.5		0.5	4.2
	D	eP	14.7			
JUL.10	T	eP	00 16 32.0			
	D	eP	40.9			
	T	eP	00 46 08.7	t	1.3	20.0
	D	eP	12.5			
		eX	49 42.0			
	T	eP	02 12 34.0			
	D	iP	43.3			
	K	eP	47.5			
	S	eP	48.0			
	T	eP	04 12 33.5			
	D	eP	42.5			
	T	eP	04 57 02.0			
	D	eP	12.4			
	D	eP	06 26 47.6	t?		
	T	iP	06 57 21.1			
	D	eP	29.3			

Date	Station	Phase	Time (G.M.T.)	t	T	Am
JUL.10	T	iP	08 18 12.1			
	K	iP	12.8			
	S	iP	20.9			
	D	eP	22.7			
	D	eP	11 30 03.8	t		
	T	eP	04.8		1.4	41.6
	T	iP	11 36 22.7			
	D	iP	33.2			
	T	iP	11 57 54.0			
	D	iP	58 04.3			
	S	iP	14 52 05.6			
	D	iP	08.6			
	K	iP	16.9			
	T	iP	19.5			
	T	iP	16 35 11.2			
	D	iP	21.0			
	T	eP	17 01 37.9			
	D	eP	47.0			
	D	eP	19 42 56.7	t?		
	K	iP	19 46 25.7			
	T	iP	27.1			
	S	iP	28.3			
	D	iP	30.3			
	T	iP	20 41 39.9			
	D	iP	49.3			
	S	iP	52.7			
	K	eP	53.2			
	T	iP	21 06 20.7			
	D	eP	29.0			
	D	eP	21 49 03.9	t		
	T	iP	22 22 20.4			
	D	iP	29.8			
	S	iP	33.1			
	K	iP	33.7			
	T	eP	23 42 10.1			
	D	eP	17.0			
JUL.11	S	iP	02 49 39.4			
	D	iP	43.3			
	K	iP	52.0			
	T	iP	53.9			
	T	iP	06 06 43.1			
	D	iP	53.4			
	K	eP	58.4			
	S	eP	58.6			

Date	Station	Phase	Time (G. M. T.)			t	T	Am
JUL. 11	T	iP	06	09	55.9			
	D	eP		10	04.6			
	T	iP	06	44	55.5			
	D	iP		45	03.7			
	S	eP			08.1			
	K	eP			09.2			
	K	iP	10	15	36.4	t		
	S	iP			41.1			
	T	iP			42.0		0.5	15.1
	D	iP			44.6			
	K	iP	10	57	22.3			
	T	iP			25.3			
	S	eP			32.9			
	D	eP			35.5			
	T	eP	11	57	40.9			
	D	eP			50.5			
	S	eP			56.3			
	T	iP	13	02	41.2			
	D	iP			51.0			
	K	iP	15	18	11.6			
	S	iP			24.1			
	T	iP			24.7			
	D	iP			28.1			
	T	iP	16	32	40.1			
	D	eP			49.7			
	T	eP	16	40	56.5			
	T	iP	19	28	44.5			
	D	iP			45.1			
	S	iP			46.3			
	K	iP			50.5			
	T	iP	19	49	58.2			
	D	iP		50	08.8			
	T	iP	21	07	31.4			
	D	iP			41.8			
	T	iP	22	36	42.7			
	D	eP			51.2			
	T	iP	23	00	05.2			
	D	iP			13.5			
	S	iP			17.8			
JUL. 12	T	iP	00	45	38.0			
	D	iP			48.2			
	K	iP			50.8			
	S	iP			51.0			

Date	Station	Phase	Time (G. M. T.)	t	T	Am
JUL.12	T	eP	00 54 38.1			
	D	iP	48.3			
	T	iP	01 16 43.1			
	D	iP	53.1			
	T	iP	01 20 17.8			
	D	iP	27.7			
	K	iP	30.6			
	S	iP	31.2			
	T	iP	01 31 33.5			
	D	iP	43.5			
	K	eP	46.4			
	S	eP	46.6			
	T	iP	01 39 00.3			
	D	iP	09.8			
	T	iP	01 49 52.3			
	D	iP	50 02.1			
	S	eP	06.2			
	K	eP	07.4			
	T	eP	01 52 42.3			
	D	iP	52.2			
	T	iP	02 01 42.7			
	D	iP	53.0			
	T	iP	02 41 35.0			
	S	eP	49.9			
	T	iP	02 48 37.2			
	T	iP	02 55 24.3			
	D	iP	34.3			
	T	iP	03 57 29.0			
	D	iP	39.1			
	K	iP	42.1			
	S	iP	42.4			
	T	eP	04 02 13.7			
	D	iP	23.8			
	T	iP	04 07 48.3			
	D	iP	57.2			
	T	iP	05 38 46.8			
	T	iP	06 00 16.0			
	T	eP	06 11 59.6			
	T	iP	06 50 50.3			

Date	Station	Phase	Time(G.M.T.)	t	T	Am
JUK.12	K	iP	06 56 59.8			
	S	eP	57 04.9			
	T	iP	06.1			
	T	iP	09 09 32.1			
	K	iP	34.9			
	D	iP	41.5			
	S	eP	43.1			
	S	eP	09 21 20.2	t		
	K	eP	21.7			
	D	iP	22.4			
		epP?	36.2			
	T	iP	26.1		1.0	37.9
	T	iP	10 03 14.1			
	D	eP	23.3			
	D	eP	10 45 27.5	t		
	T	eP	30.1		1.1	16.3
	S	eP	11 35 55.8			
	D	eP	57.8			
	T	eP	36 06.4			
	S	eP	11 39 15.1	t		
	T	eP	16.3			
	D	eP	18.7			
	T	iP	11 42 16.4			
	D	iP	26.4			
	K	eP	29.3			
	S	eP	29.6			
	T	iP	11 51 56.0			
	D	iP	52 05.3			
	D	eP	12 16 21.3	t	Explosion?	
	S	iP	21.9			
	T	iP	22.9		0.5	29.7
	K	iP	29.5			
	T	iP	14 35 40.7			
	D	iP	51.0			
	S	eP	54.4			
	K	eP	56.8			
	T	iP	14 47 41.1			
	K	iP	44.0			
	S	iP	45.5			
	D	iP	46.3			
	T	iP	16 43 47.9			
	D	iP	57.3			
	S	eP	44 00.8			
	K	eP	01.0			
	T	iP	18 00 36.8			
	D	eP	46.7			

Date	Station	Phase	Time(G.M.T.)			t	T	Am
JUL.12	T	iP	18	44	29.3			
	D	iP			39.0			
	S	eP			43.1			
	K	eP			44.8			
	T	iP	21	39	50.6			
	D	iP			58.7			
	T	eP	22	04	46.6	t	0.5	9.0
	D	eP			57.4			
		eS		07	51.5			
JUL.13	T	iP	02	15	15.0			
	D	iP			25.0			
	K	eP	06	46	20.6	t		
	S	eP			21.5			
	D	eP			25.2			
		eScP		52	05.4			
		eS			55.9			
		eScS		56	26.7			
	T	eP		46	24.8		1.3	11.1
	D	eP	07	55	25.6	t?		
	T	eP	08	10	22.6			
	D	eP			34.7			
	T	eP	08	53	45.5			
	D	eP			54.3			
	T	iP	09	51	50.8			
	D	eP			58.8			
	K	eP	10	24	13.1			
	S	eP			23.8			
	T	iP			25.6			
	D	eP			28.0			
	T	iP	11	55	19.2			
	D	iP			28.9			
	T	iP	12	05	27.9			
	D	iP			37.3			
	K	eP			45.7			
	S	eP			50.7			
	D	eP	12	13	45.7			
	T	iP			50.5			
	T	iP	12	35	43.1			
	D	iP			52.6			
	D	eP	13	18	40.7	t		
	T	eP			41.7		1.2	21.3
	S	iP	13	44	30.5			
	D	iP			31.9			
	K	iP			34.2			
	T	iP			36.6			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
JUL. 13	T	eP	14	32	15.9			
	D	eP			23.5			
	T	iP	15	40	51.2			
	D	eP		41	00.4			
	T	eP	16	24	58.6			
	D	eP		25	09.2			
	T	iP	16	39	23.0			
	D	eP			31.5			
	T	iP	17	54	35.2			
	D	eP			44.0			
	T	iP	20	28	41.0			
	D	iP			50.3			
	T	iP	20	37	37.5			
	D	iP			47.1			
	S	eP			50.3			
	K	eP			50.8			
	T	iP	23	27	50.6	t	1.0	16.1
	S	eP			50.6			
	D	iP			53.1			
JUL.14	K	iP	00	40	53.6			
	S	iP			54.6			
	T	iP			57.2			
	D	iP			57.8			
	T	iP	02	01	20.6			
	D	iP			25.3			
	S	iP			27.5			
	K	iP			29.5			
	T	iP	02	14	16.9			
	D	eP			26.8			
	T	iP	02	58	28.7			
	D	eP			35.4			
	T	iP	04	39	14.7			
	D	eP			23.5			
	T	iP	05	26	02.0			
	D	iP			10.9			
	S	iP			15.1			
	K	eP			16.0			
	T	iP	07	10	42.2			
	D	iP			50.8			
	S	eP			51.6			
	K	eP			56.2			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
JUL.14	T	iP	07	24	51.2			
	D	eP		25	00.7			
	S	eP			04.7			
	T	eP	07	35	56.5	t	0.5	34.2
	S	eP		36	00.4			
	D	eP			01.8			
	T	eP	08	08	09.6	t	1.2	16.7
	D	eP			12.6			
	T	iP	08	31	00.9			
	D	eP			10.2			
	T	iP	09	55	31.2			
	D	iP			40.9			
	T	eP	10	07	35.6			
	D	eP			44.1			
	S	iP	12	28	10.7			
	D	iP			12.5			
	K	eP			13.5			
	T	iP			16.6			
	T	eP	16	03	11.8			
	D	eP			19.8			
	T	iP	18	38	21.1			
	D	iP			27.0			
	S	iP			28.8			
	K	iP			29.2			
	T	iP	19	05	09.1			
	D	iP			19.3			
	S	eP			22.6			
	K	eP			25.6			
	T	iP	19	13	30.2			
	D	iP			39.8			
	T	iP	19	23	42.0			
	D	iP			51.3			
	T	eP	20	53	46.2		1.0	30.3
	D	eP			55.7			
	S	eP			59.4			
	T	eP	21	45	18.9	t	0.5	3.2
	D	eP			20.9			
		eX			51.0			
	T	eP	23	07	11.3			
	D	eP			21.2			
	K	iP	23	49	44.6			
	T	iP			48.5			
	S	iP			55.6			
	D	eP			58.0			
		eScP?		59	32.3			

Data	Station	Phase	Time (G.M.T.)			t	T	Am
JUL.15	T	eP	01	22	24.1			
	D	iP			33.0			
	K	eP			35.9			
	S	eP			36.5			
	S	iP	02	50	50.2			
	D	iP			55.0			
	T	iP			55.8			
	D	iP	03	16	24.3			
	S	iP			30.4			
	T	iP			34.5			
	K	eP			45.1			
	T	eP	03	37	23.7			
	D	eP			33.2			
	K	eP	04	22	16.5	t		
	S	eP			19.2			
	T	eP			21.1		1.2	19.4
	D	eP			23.8			
		eS?		30	33.0			
	S	eP	07	20	16.6	t		
	D	eP			19.7			
	K	eP			24.9			
	T	eP			26.8		0.5	9.9
	T	iP	07	21	47.9			
	D	eP			56.5			
	T	iP	07	29	47.9			
	D	eP			56.5			
	D	eP	07	34	29.6	t?		
	T	eP			30.6		1.0	12.1
	D	eP	09	17	12.7	t		
	T	iP			15.2		1.1	20.3
		epP?			25.4			
	T	eP	10	25	28.8			
	D	eP			39.5			
	T	eP	13	35	31.8			
	D	eP			42.5			
	K	iP	18	17	11.6			
	T	iP			15.3			
	S	iP			22.5			
	D	iP			25.3			
	K	iP	19	21	11.1			
	T	iP			14.2			
	S	iP			22.3			
	D	eP			24.5			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
JUL.15	T	iP	19	27	12.1			
	D	iP			18.0			
	S	iP			19.8			
	K	iP			20.1			
	K	iP	19	34	07.8			
	T	iP			11.5			
	S	iP			19.0			
	D	iP			23.2			
	K	iP	19	44	33.2			
	T	iP			37.0			
	S	eP			44.5			
	D	eP			47.5			
	T	iP	19	58	48.9			
	D	eP			57.5			
	T	iP	20	09	55.3			
	D	eP		10	04.7			
	T	eP	20	24	14.3			
	D	eP			23.4			
	T	eP	21	34	44.8			
	D	eP			54.7			
	K	iP	21	59	32.2			
	S	eP			42.4			
	T	eP			46.7			
	D	eP			46.9			
	K	iP	22	02	09.7			
	T	eP			14.1			
	S	eP			21.5			
	D	iP			24.4			
	K	iP	22	09	10.3			
	T	iP			19.0			
	S	eP			21.5			
	D	eP			25.4			
JUL.16	T	iP	07	11	25.8			
	D	eP			35.3			
	D	iP	08	00	05.0			
	S	iP			10.5			
	T	iP			15.1			
	K	eP			25.5			
	T	eP	10	56	59.0			
	D	eP		57	07.3			
	S	eP			12.4			
	K	eP			14.2			
	T	iP	12	05	46.2			
	D	iP			50.3			
	S	iP			52.2			
	K	iP			54.7			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
JUL.16	T	eP	13	18	05.3			
	D	eP			13.4			
	T	eP	14	18	44.0			
	D	eP			51.4			
	T	iP	16	34	27.5			
	D	eP			37.5			
	S	iP	17	05	46.4			
	D	iP			47.8			
	T	iP			50.6			
	K	iP			52.3			
	T	iP	19	45	35.5			
	D	iP			45.3			
	K	eP	21	34	52.0	t		
	S	eP			55.8			
	K	eP			57.9		1.8	50.0
	T	eP			59.5			
		eX		35	57.0			
	K	iP	22	38	49.7			
	T	iP			53.2			
	S	iP		39	01.1			
	D	iP			04.1			
	K	eP	22	40	51.2			
	T	eP			53.6			
	S	eP		41	02.2			
	D	eP			04.5			
	T	iP	23	51	45.6			
	D	eP			55.6			
JUL.17	K	eP	00	56	21.9			
	S	eP			31.8			
	T	eP			33.0			
	D	eP			37.3			
	D	eP	01	06	02.8	t?		
	T	iP	03	17	23.1			
	D	eP			30.2			
	T	iP	05	19	18.9			
	K	eP			31.8			
	S	eP			32.4			
	T	eP	05	32	45.4	t	1.2	132.5
		eScP?		38	11.5			
		eS		39	35.2			
	T	eP	09	40	08.5			
	D	eP			15.9			
	K	eP			20.5			
	S	eP			20.6			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
JUL.17	T	iP	10	01	10.0			
	D	iP			19.4			
	K	eP			22.4			
	S	eP			23.6			
	S	eP	12	31	33.9	t		
	D	eP			37.4			
	T	eP			37.8		1.2	10.4
	T	eP	15	04	38.7			
	D	eP			48.0			
	T	eP	16	12	06.0			
	D	iP			15.4			
	T	iP	16	17	33.9			
	D	iP			44.1			
	K	eP			46.5			
	S	eP			47.3			
	T	iP	16	25	11.0			
	D	iP			20.8			
	T	eP	16	53	42.6			
	D	eP			49.7			
	T	eP	20	53	51.3			
	D	eP			59.8			
JUL.18	T	eP	01	03	55.9	t	1.2	24.0
		eX		04	07.4			
	D	eP			04.8			
		eS?		05	39.8			
	S	eX			17.8			
	T	iP	01	12	14.4			
	D	eP			23.1			
	T	eP	02	23	04.3			
	D	iP			14.0			
	D	iP	04	27	47.5			
	T	iP			52.4			
	T	iP	05	15	12.0			
	K	iP			16.3			
	D	iP			20.4			
	S	iP			22.1			
	T	iP	07	07	05.6			
	D	iP			14.5			
	T	eP	10	01	59.4			
	D	eP		02	08.5			
	S	iP	10	30	22.0			
	D	iP			25.7			
	K	iP			26.6			
	T	iP			27.3			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
JUL.18	T	iP	11	22	10.9			
	D	iP			20.3			
	S	iP			23.7			
	K	eP			24.0			
	T	eP	13	27	44.4			
	D	eP			53.3			
	T	iP	16	38	20.6			
	D	iP			29.4			
	T	iP	16	42	34.3			
	D	eP			42.5			
	D	eP	16	52	18.7			
	T	eP			22.4			
	T	iP	19	21	31.9			
	D	iP			42.7			
	T	iP	20	44	05.5			
	D	iP			14.9			
	K	eP			17.8			
	S	eP			18.5			
	T	eP	21	34	41.0			
	D	iP			49.7			
	T	iP	22	13	50.3			
	D	iP		14	00.9			
	S	eP			04.1			
JUL.19	T	iP	03	56	02.7			
	D	iP			10.9			
	D	eP	05	05	17.3	t		
	T	eP			22.7		1.4	11.6
	D	eP	05	38	51.6			
	T	eP			54.1			
	K	eP	09	30	30.6	t		
	S	eP			34.6			
	T	eP			36.6		1.4	29.7
	D	eP			38.2			
		ePcP?		31	40.0			
		eS		37	37.9			
	T	iP	11	38	55.5			
	D	iP		39	04.2			
	T	iP	12	07	17.4			
	K	eP			27.2			
	D	iP			28.8			
	S	eP			31.6			
	D	iP	13	08	10.2			
	T	iP			12.4			
	S	eP			13.6			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
JUL.19	T	iP	17	25	05.9			
	D	iP			16.8			
	T	iP	18	58	32.0			
	D	eP			42.6			
	D	iP	22	20	37.5			
	S	iP			39.2			
	T	eP			50.8			
JUL.20	T	iP	01	33	10.5			
	D	eP			21.0			
	T	iP	02	39	56.8			
	D	eP		40	05.6			
	T	eP	02	52	01.4			
	D	eP			11.8			
	S	iP	06	18	20.6			
	K	iP			21.3			
	T	iP			21.3			
	D	iP			22.2			
	T	eP	06	30	52.0			
	D	eP		31	00.4			
	T	eP	06	54	16.4			
	D	eP			24.9			
	K	eP	07	54	28.0	t		
	S	eP			33.6			
	D	eP			39.2			
		eS		57	17.8			
	T	iP		54	39.2		0.5	142
	T	iP	08	53	20.3			
	D	iP			30.3			
	T	eP	10	27	16.8			
	D	eP			25.9			
	T	eP	13	29	38.2			
	T	iP	13	39	13.3			
	D	iP			23.2			
	K	eP			25.4			
	S	eP			25.4			
	T	eP	14	12	22.5			
	D	iP			32.5			
	T	iP	18	34	27.6			
	D	iP			38.1			
	T	iP	19	08	27.6			
	D	iP			38.1			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
JUL.20	T	iP	19	31	01.1			
	D	eP			09.2			
	T	iP	21	04	24.7			
	D	iP			34.9			
JUL.21	S	eP	01	40	24.0	t		
	T	eP			24.6		0.5	3.4
	D	eP			26.8			
	S	iP	02	15	02.6			
	D	iP			06.8			
	K	iP			10.7			
	T	iP			16.1			
	K	iP	04	32	23.1			
	S	iP			30.1			
	D	iP			35.5			
	T	iP			35.5			
	K	eP	05	40	08.1			
	S	iP			17.6			
	T	eP			20.3			
	D	iP			21.9			
	S	eP	05	59	45.3	t		
	D	eP			48.6			
	T	eP			50.5		1.4	37.5
	S	eP	06	17	11.0	t		
	D	eP			15.8			
		ePcP		19	29.0			
		eS?		23	27.6?			
		eScS		27	16.8			
	T	eP		17	16.8		1.4	40.3
	T	eP	11	58	40.7			
		eS	12	00	25.3			
	T	eP	12	24	08.8			
	D	eP	12	54	13.9	t?		
	T	eP			17.7			
	K	eP	18	29	59.0			
	S	eP		30	02.9			
	D	eP			07.0			
	T	iP			07.8			
	T	eP	20	56	22.1			
	D	eP			31.2			
	T	iP	21	05	35.4	t	0.5	59.2
		eS		08	07.7			
	D	iP		05	40.5			
		eS		08	14.0			
		eScP		12	46.0			
		eScS		16	26.0			
	S	ep		05	43.9			
	K	ep			47.3			

Date	Station	Phase	Time (G. M. T)			t	T	Am
JUL•21	T	eP	21	08	23.7			
	T	iP	23	06	39.3			
	D	eP			47.3			
	T	iP	23	54	16.3			
	D	iP			27.5			
JUL.22	T	iP	00	15	25.0			
	D	iP			32.2			
	S	eP			37.9			
	K	eP			39.0			
	K	eP	02	05	56.3			
	S	eP			57.6			
	D	iP		06	01.2			
	T	iP			04.1			
	T	iP	05	07	46.4			
	D	iP			56.4			
	S	eP	05	28	52.4	t		
	D	eP			53.0			
	T	eP			55.4		1.4	39.0
	D	iP	08	31	33.0			
	S	eP			36.3			
	T	eP			42.6			
	T	eP	12	23	00.4			
	D	eP			10.1			
	T	iP	13	17	01.1			
	D	eP			11.3			
	D	eP	15	07	22.2			
	T	iP			27.1			
	T	iP	17	21	59.4			
	K	eP	18	08	46.8	t		
	S	eP			50.6			
		epP?		09	00.8			
	T	eP		08	51.8		1.6	100.0
		epP?		09	01.0			
	D	eP		08	53.2			
		epP?		09	04.8			
		ePcP?			42.8			
	D	ip	18	12	48.2			
	T	ip			52.6			
	S	ip			55.3			
	K	ip		13	05.2			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
JUL.22	T	eP	19	44	25.0			
	D	eP			35.7			
	K	eP	20	45	35.9			
	T	iP			44.8			
	S	iP	22	35	09.9			
	D	iP			14.2			
	T	iP			16.1			
JUL.23	T	iP	00	08	02.1			
	D	eP			12.4			
	K	eP			15.5			
	S	eP			18.0			
JUL.24	T	iP	01	40	45.6			
	D	iP			55.2			
	T	eP	08	08	08.4			
	D	eP			18.3			
	K	eP	08	56	03.9			
	S	eP			15.9			
	T	eP			16.4			
	D	eP			19.5			
	S	eP	09	30	46.1	t		
	D	eP			49.5			
	T	eP			53.0		0.5	5.0
	T	eP	09	38	30.5			
	D	eP			40.4			
	K	eP	11	09	32.0			
	S	iP			41.1			
	T	iP			44.7			
	D	eP			45.5			
	T	iP	12	04	36.9			
	D	eP			45.2			
	T	iP	16	26	48.9			
	D	eP			57.2			
	S	eP		27	01.5			
	K	eP			03.0			
	T	eP	18	34	28.4			
	D	eP			37.5			
	T	eP	20	31	46.1	t	1.2	19.4
	D	eP			49.1			
	T	eP	21	49	28.3			
	D	eP			38.4			
	T	eP	22	19	51.8			
	D	eP		20	01.4			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
JUL.24	T	eP	23	09	25.5			
	D	eP			33.9			
JUL.25	T	iP	01	50	12.0			
	D	iP			21.4			
	T	iP	03	32	55.8			
	T	iP	04	16	32.1			
	K	iP			38.1			
	S	iP			39.6			
	T	eP	05	41	54.2			
	D	eP		42	02.6			
	S	eP	06	52	47.0	t		
	T	eP			47.3		1.3	65.6
	D	eP			49.8			
	T	iP	07	21	31.7			
	D	iP			41.4			
	K	eP	07	34	52.8	t		
	S	eP			55.3			
	T	eP			56.4		1.2	148.0
	D	iP			58.2			
		ePP		38	09.0			
		eS		44	51.0			
		eP"P" or P'P'	08	01	59.2			
		eP'P'P'		20	37.6			
	D	eP	07	59	38.2	t		
	D	eP	09	52	50.2			
	T	iP			54.3			
	T	eP	10	53	01.3	t	0.5	34.5
	D	eP			09.3			
		eS		55	12.6			
	S	eP		53	14.7			
	K	eP			16.5			
	T	eP	12	21	46.1			
	D	eP			55.7			
	T	iP	14	28	16.5			
	D	iP			26.7			
	K	eP			29.7			
	S	iP			30.2			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
JUL. 25	K	eP	14	57	34.5			
	S	eP			42.4			
	T	eP			47.2			
	D	eP			48.3			
	T	eP	15	13	18.6			
	D	eP			27.2			
	T	iP	15	46	46.3			
	D	eP			55.1			
	T	iP	17	51	13.3			
	D	iP			16.1			
	S	iP			18.4			
	K	iP			22.6			
	T	eP	19	17	12.7			
	D	eP			22.8			
	T	eP	19	51	00.4			
	D	iP			09.5			
	S	eP			13.9			
	K	eP			15.2			

Date	Station	Phase	Time(G.M.T.)			t	T	Am
JUL.26	T	eP	00	33	27.9			
	D	eP			37.2			
	T	eP	02	17	01.4			
	T	iP	07	09	11.8			
	D	eP			17.3			
	D	eP	17	27	18.2	t		
	S	eP			18.9			
	T	eP			20.1		1.4	50.7
		epP?			28.1			
	T	eP	17	38	20.5			
	T	eP	18	18	27.1			
	D	eP			36.4			
	T	iP	22	08	00.8			
	D	iP			08.5			
	K	eP			11.0			
	S	iP			11.5			
	T	eP	23	15	33.6			
	D	eP			42.2			
	T	iP	23	25	20.7			
	D	iP			30.5			
JUL.27	T	iP	01	26	44.5			
	D	eP			52.6			
	T	iP	02	21	41.3			
	D	eP			50.3			
	D	eP	02	58	21.7	t		
	T	eP			26.0		1.0	29.6
		eX			46.5			
	T	iP	03	52	45.0			
	D	eP			55.0			
	T	eP	04	23	27.5			
	D	eP			36.5			
	D	eP	07	29	50.1	t?		
	T	iP	08	23	29.1			
	D	iP			39.9			
	S	iP			43.0			
	K	eP			43.0			
	T	iP	14	13	12.9			
	D	iP			21.7			
	S	iP	15	03	36.0			
	D	iP			38.1			
	K	eP			38.5			
	T	iP			42.4			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
JUL.27	T	iP	16	35	28.3			
	D	iP			38.8			
	T	iP	17	48	58.9	t	0.5	15.0
	D	eP		49	05.1			
	T	iP	19	17	19.1			
	D	eP			27.7			
JUL.28	T	eP	04	05	58.6			
	D	eP		06	06.8			
	T	iP	07	18	21.9			
	D	eP			30.5			
	S	eP			35.0			
	K	eP			36.7			
	D	eP	08	12	52.0			
	T	iP			57.2			
	T	iP	08	54	28.2			
	D	iP			38.5			
	T	eP	09	40	42.1			
	D	eP			51.9			
	T	eP	11	13	27.9			
	D	eP			37.2			
	T	iP	14	02	18.3			
	D	iP			20.8			
	S	iP			23.3			
	K	iP			27.4			
	T	iP	14	04	49.0			
	D	iP			57.2			
	S	eP		05	01.8			
	K	eP			04.4			
	T	iP	15	56	18.6			
	D	iP			27.1			
	S	eP			31.0			
	K	iP			31.1			
	T	eP	16	53	52.9			
	D	iP		54	02.9			
	S	eP			10.0			
	T	iP	17	13	08.3			
	D	eP			17.3			
	T	iP	18	49	27.1			
	D	iP			37.1			
	K	eP			39.3			
	S	iP			40.4			
	T	eP	21	18	14.6	t		
	D	eP			20.0			
		ePc p?		22	05D			
		eS?		23	26.2			
	S	eP		18	22.7			

Date	Station	Phase	Time (G M T)			t	T	Am
JUL•28	D	eP	21	28	49.0	t		
	D	eP	21	38	49.6	t?		
	T	eP	21	57	58.8			
	D	eP		58	08.7			
	T	eP	23	33	18.4			
	D	eP			27.4			
JUL.29	K	iP	02	29	04.6			
	T	iP			11.7			
	S	iP			11.8			
	D	iP			15.0			
	T	iP	04	05	50.7			
	D	iP		06	00.9			
	S	eP			04.6			
	T	eP	04	52	17.5			
	D	eP			26.8			
	T	eP	06	16	47.4	t	1.1	36.1
	D	eP			50.2			
	T	eP	06	32	21.6	t	1.6	57.2
	D	eP			29.0			
	S	eP			31.0			
	D	eP	07	44	09.0	t?		
	T	iP	09	26	17.2			
	D	iP			26.1			
	S	eP			29.8			
	K	eP			30.9			
	T	eP	11	23	22.7	t	1.7	136.0
	S	eP			22.7			
	D	eP			26.2			
	D	eP	12	08	20.0	t?		
	K	eP	12	31	07.0	t		
	T	eP			10.4		1.5	41.7
	D	eP			14.0			
	D	eP	13	24	27.2	t		
	S	eP	13	38	04.6	t		
	D	eP			07.7			
	T	eP			08.8		1.1	37.0
	T	iP	14	09	25.3			
	D	iP			35.4			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
JUL.29	T	iP	15	16	24.5			
	D	eP			33.7			
	S	eP			37.3			
	K	eP			40.2			
	T	eP	15	19	07.5			
	D	eP			16.9			
	T	eP	15	31	18.1	t	1.1	28.4
	S	eP			18.3			
	D	eP			21.5			
	T	eP	16	04	55.3			
	D	eP		05	04.6			
	S	eP			07.6			
	K	iP	16	41	25.4			
	S	iP			30.4			
	D	eP			35.6			
	T	iP			36.2			
	T	iP	16	49	34.4			
	D	iP			42.5			
	T	iP	23	10	57.7			
	D	eP		11	07.2			
	S	eP	23	59	16.5	t		
	K	eP			16.8			
	D	eP			20.7			
		ePP	00	01	47.9			
		ePcP?			58.1			
		eS		05	35.2			
		eScS		09	41.0			
	T	eP	23	59	22.7		1.8	150.0
JUL.30	K	eP	03	00	41.6	t		
	S	eP			45.6			
	T	eP			46.2		1.5	48.9
	D	eP			48.2			
	T	eP	04	21	35.0	t	1.4	44.8
	S	eP			35.1			
	D	eP			37.3			
	S	eP	05	50	41.1	t		
	T	eP			44.6			
	D	eP			45.0			
	D	eP	07	13	40.3	t?		
	T	iP	08	35	39.9			
	D	iP			49.3			
	T	iP	13	20	18.8			
	D	iP			28.8			
	S	eP			31.8			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
JUL.30	K	eP	16	46	52.7			
	T	eP		47	04.1			
	D	eP			04.5			
	T	iP	17	36	56.0			
	D	eP			06.2			
	S	eP			10.2			
	K	eP			13.2			
	T	iP	19	47	14.8			
	D	eP			24.3			
	D	ePKP?	20	58	08.8	t		
		eX			22.0			
JUL.31	T	eP	01	38	38.4		1.4	102.0
	D	iP			48.0			
	S	eP			50.3			
	K	eP			52.2			
	T	eP	01	41	48.5			
	D	eP			58.1			
	S	eP			59.5			
	K	eP		42	00.9			
	S	eP	02	34	15.9			
	T	eP			17.8			
	D	eP			20.0			
		eS		36	42.2			
	T	iP	03	59	39.4			
	D	iP			48.4			
	T	eP	06	17	39.6			
	T	iP	12	49	28.0			
	T	eP	16	01	35.6			
	D	iP			41.1			
	T	iP			52.0			
	S	iP	20	09	29.3			
	K	eP			29.6			
	D	iP			32.1			
	T	iP			35.7			
	K	eP	20	16	10.5			
	S	eP			11.1			
	D	eP			16.0			
	T	iP			18.2			
	T	iP	21	53	43.1			
	D	eP			52.8			
	T	iP	23	13	20.7			
	K	iP			22.7			
	S	eP			30.6			
	D	eP			30.8			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
JUL. 31	S	eP	00	25	40.6	t		
	T	eP			41.2		1.6	101.0
	D	eP			43.5			
		epP?		27	52.7			
		eSKS?		35	15.9			
		eS			44.0			

S—P \ Date	1	2	3	4	5	6	7	8	9	10	11	12	13
0— 0.9													
1— 1.9													
2— 2.9											2		
3— 3.9	2												
4— 4.9					1			1					
5— 5.9	23	17	7	2		2	1	1			1	1	
6— 6.9	7	8	1						1		1	1	
7— 7.9												1	
8— 8.9	2		1		1				2				
9— 9.9	1	2								1		1	
10—10.9			1		1					2			2
11—11.9	5	1		2	5	1			1				
12—12.9		2		2		1	1	1	2	1		1	1
13—13.9		2	4	1	1		1	1	1	1	3	3	
14—14.9		1	1	1	2					1	1	1	
15—15.9		1								1		1	
16—16.9	1								2				
17—17.9	1		1										
18—18.9		1		1			1						1
19—19.9		1		1									
20—20.9				1					1				
21—21.9				1		1				1	2		
22—22.9					1								1
23—23.9					1								1
24—24.9													
25—25.9		1											
26—26.9						1							
27—27.9				1									
28—28.9													1
29—29.9				1									
above30sec	6	8	5	9	6	4	2	4	8	4	5	7	8
?		1		2	1					1	2		1
Total	48	46	21	25	20	10	6	7	18	13	17	17	16
no observation					12h ≀ 14h		12h 20m ≀ 24h	ooh ≀ 17h 05m				09h 38m ≀ 17h	
Remarks													

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14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Total
																		0
																		0
		1																3
																		2
					1													3
1	1		1															58
					1			1										21
	1					1	2								1			6
	1	1	2	3			2	1		1			1		1		1	20
2					1	1												9
							1										1	8
1		1	1											2			3	23
2	1	7	1		2	3	3	1			2			1		2	6	42
1	3	1	1	3									1		1	2	1	32
1	3	1	3		1	2	2								2	1		24
		1		1		1				1								7
				1			1			1		2				1		9
	1	1	1	1				1							2		1	10
	1					1		1								1		8
							1								1			4
					1							1			1			5
		1									1							7
											1				1		1	5
1					1						1						1	6
		4			2			1										7
																		1
		2			1									1				5
												1	1					3
		1			1		1					1						5
1				1		1											1	5
3	13	4	7	12	8	6	7	1		2	5	6	3		4	6	4	167
		2	1	1	1			2		1		1	1			2		20
13	25	28	18	23	21	16	20			6	10	12	7	4	14	15	20	
								02h 54m ~ 09h 57m	00h ~ 24h	00h ~ 09h 46m		10h 53m ~ 14h 02m						
								17h57m 24h00m		19h 21h								

Tsukuba

S−P \ Date	1	2	3	4	5	6	7	8	9	10	11	12	13
0− 0.9													
1− 1.9													
2− 2.9													
3− 3.9													
4− 4.9													
5− 5.9		1			3	2	1					1	2
6− 6.9					1	1	2	2					
7− 7.9	4		2	1		1		2	2	3			2
8− 8.9	14	10	4	4	3	3	1	1	1		1	1	1
9− 9.9	7	7	6	2	1	7	1	2	5	6	1	5	6
10−10.9		2	1	2	1	1	4	3	2		3	4	1
11−11.9		3			1		1	1			1		
12−12.9	2		1	3	4		3	1		1	1	1	2
13−13.9	3		1		1		1				2	1	
14−14.9			1	1						1	1	2	
15−15.9	1	2		1	3						2	1	
16−16.9		1		2	2					1	1		
17−17.9	2	2			1	1	1		1				
18−18.9		1	1				1			1		1	1
19−19.9	2	2				1	2			1	1		1
20−20.9			2	1	1					1			
21−21.9								3	3				
22−22.9		1			1						2		
23−23.9	2				1		1						
24−24.9													1
25−25.9				1	1	1						1	
26−26.9													
27−27.9													
28−28.9					1				1				
29−29.9	1	1		1	1							1	
above 30 sec	6	14	5	16	8	7	5	6	9	13	10	17	17
?	2	3	3				1			1	1		
Total	46	50	27	35	35	25	25	21	24	27	27	36	34
no observation													
Remarks													

Preliminary Bulletin

of the Dodaira Micro-earthquake Observatory

and its Substation

Aug., 1968

Dodaira Micro-earthquake Observatory

Earthquake Research Institute, the University of Tokyo

Preliminary Bulletin of the Dodaira Micro-earthquake Observatory and its Substation

Observation stations

		N	E	h
Dodaira	(D or DDR)	35°59'54".0	139°11'36".2	800m
Tsukuba	(T or TSK)	36°12'39".0	140° 6'35".0	280m
Kiyosumi	(K or KYS)	35°11'51".6	140° 8'53".6	230m
Shiroyama	(S or SRY) (temporary)	35°36'30".0	139°16'27".0	254m

Expressions: Am: Amplitude in millimicron (half of peak to trough*) of P motion maximum within few cycles after the onset recorded by a short period vertical seismograph.
*In 1967 double amplitude (peak to trough) was used as Am.

T : Period in sec of the measured P maximum

t : Teleseism

All stations are radio-telemetered to Tokyo giving records on a multi-channel ink-recording oscillograph. The paper speed of the recorder is 1 mm per sec. For stronger events high speed recorder (10 mm/sec) is also triggered. The system is also recorded in parallel on multi channel magnetic tape through a trigger system using an endless tape loop. Direct filter sum of short period seismometers at Dodaira and/or on line short period filter outputs of Tsukuba are also used for the detection of weak teleseismic signals. For teleseismic events records of long period and medium period seismographs are

occasionally used, applying off line frequency filter, if necessary..

The Bulletin includes the preliminary readings sent to USCGS for teleseisms and larger near shocks with total durations (F-P) of short period vertical seismograph at Tsukuba (TSK) with magnification about 140.000 at 1 c/s or sensitivity about 300×10^{-3} mm/microkine at 10 c/s being longer than 100 seconds which correspond approximately shocks with $M \geq 3.5$. For the minor near earthquakes with F-P $<$ 100 sec or $M < 3.5$, frequency of S-P times at each station is added at the end of the Bulletin, which may easily give a general idea of local seismicity around the station.

Date	Station	Phase	Time (G.M.T.)			t	T	Am
AUG. 1	T	iP	06	52	27.4			
	D	iP			37.0			
	K	iP			40.4			
	S	iP			41.4			
	D	ePg	07	45	01.2	t		
	T	ePg			01.4		1.2	16
	T	ePg	08	49	51.4	t	1.3	19
	D	ePg			59.8			
	T	ePg	12	06	17.6			
	D	ePg	12	21	08.4			
	T	ePg			09.4			
	T	iP	14	37	23.8			
	T	iP	15	08	37.6			
	D	iP			38.1			
	T	iP	18	28	20.2			
	D	iP			26.9			
	S	ePg			31.1			
	K	ePg			35.5			
	T	iP	19	59	10.7			
	D	ePg			15.8			
	K	ePg			19.1			
	S	ePg	20	24	36.3	t		
	D	ePg			39.2			
		eScS		35	47.4			
	K	ePg		24	39.7			
	T	ePg			43.0		1.8	185
	D	ePg	20	47	46.2	t		
	D	ePg	20	57	53.9	t		
	D	ePg	21	02	41.5	t		
AUG. 2	D	ePg	01	11	19.2	t?		
	T	iP	01	14	02.1			
	D	ePg			16.1			
	D	ePg	02	00	56.8	t		
	D	ePg	07	10	06.2			
	T	ePg			08.3			
	T	ePg	08	43	35.5			
	D	ePg			45.4			
	T	iP	09	50	45.0			
	D	iP			54.2			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
AUG. 2	T	iP	11	43	34.7			
	K	iP			43.5			
	D	iP			46.0			
	S	iP			47.3			
	T	iP	11	59	54.7			
	K	ePcorr	12	00	02.7			
	D	iP			05.4			
	S	iP			07.2			
	D	iP	13	41	02.2	t		
		epP			18.6			
	S	iP			03.1			
		epP			19.6			
	T	iP			05.6		1.0	47
		ipP			22.4			
	K	eP			08.8			
	T	eP	14	20	47.5	t	1.0	13.5
		ePP		25	01.6			
	D	eP		20	55.9			
		ePP		25	06.0			
		eX		37	54.0			
	D	eP	15	26	45.6	t		
		eX			58.5			
	T	eP			50.5		0.5	4.3
	D	eX	15	28	12.2	t		
	T	eX			33.3		0.5	4.9
	D	eX	15	29	17.8	t		
	T	eX			39.8		0.5	3.9
AUG. 3	T	eP	03	37	23.2			
		eS		38	18.8			
	D	eP		37	30.6			
	S	iP	04	57	48.0	t		
	D	iP			52.4			
		eS	05	00	51.0			
		ePcS		06	49.0			
		eScS		10	24.1			
	K	eP	04	57	55.0			
	T	iP			58.4		1.3	20.5
	S	iP	06	30	20.0	t		
	D	iP			21.9			
		ePcP		34	02.6			
		eScS		41	28.7			
	T	iP		30	26.1			
		ePcP		34	03.2		1.5	16.5
	T	eP	07	02	12.0			
	D	eP			15.9			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
AUG. 3	D	eP	14	59	35.7	t?		
		eX			56.3			
	T	eP			41.2			
		eX	15	00	08.9		0.5	7.9
	T	eP	15	01	35.8			
		eS		02	21.7			
	D	eP		01	44.6			
	T	eP	15	26	08.3			
		eS			58.8			
	D	eP			18.1			
	D	eP	15	29	31.5	t?		
	D	eP	15	44	20.3	t?		
	T	eP	18	49	18.8			
		eS		50	49.0			
	D	eP		49	27.2			
		eS		50	05.7			
	D	eP	19	24	51.1	t		
		eX		28	01.2			
	T	eP		24	54.8			
		eX		28	02.0			
	T	iP	23	39	52.5			
	K	iP			46.4			
	D	eP		40	03.6			
	S	eP			04.9			
AUG. 4	T	eP	01	18	54.8			
	D	eP		19	01.3			
	S	eP			06.2			
	K	eP			11.9			
	T	eP	07	08	47.0			
	T	iP	08	30	47.3			
	D	iP			56.2			
	T	iP	08	55	31.9			
	D	iP			36.0			
	S	eP			37.5			
	K	eP			39.8			
	T	iP	10	17	27.9			
	D	eP			39.4			
	K	eP	11	32	07.3			
	D	eP			17.8			
	T	eP			18.3			
	T	eP	11	43	23.8			
	D	eP			34.1			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
AUG. 4	S	iP	11	47	32.3	t		
	K	ePcP			33.5			
	D	iP			35.5			
		ePcP		50	33.6			
		eS		52	40.2			
		eScP		54	04.0			
		eScS		58	00.5			
	T	iP		47	37.2		1.7	73.0
		ePcP		50	32.6			
		eS		52	42.1			
	T	ePcP	13	18	04.8			
	D	ePcP	15	27	57.0	t		
	T	ePcP		28	00.9			
	T	ePcP	17	03	43.3			
	D	ePcP			50.7			
	T	ePcP	18	32	06.4	t	0.5	4.4
	D	ePcP			06.7			
	T	iP	19	40	15.4			
	D	iP			25.3			
	S	ePcP			28.7			
	K	ePcP			29.3			
	T	iP	19	48	19.7			
	T	ePcP	21	45	36.4			
	D	ePcP			45.8			
	K	ePcP	22	37	47.8			
	T	ePcP		38	01.6			
	D	ePcP			03.2			
	T	ePcP	23	55	43.4			
AUG. 5	T	iP	01	08	47.0			
	D	iP			56.2			
	K	ePcP			58.7			
	S	ePcP		09	00.0			
	T	iP	01	31	45.9			
	D	ePcP			55.2			
	T	ePcP	01	39	14.3			
	D	ePcP			22.9			
	T	ePcP	02	08	01.3			
	D	iP			10.0			
	T	ePcP	02	36	01.4			
	D	ePcP			11.3			
	T	ePcP	03	23	23.6			
	D	ePcP			24.8			
	T	iP	07	17	50.5			
	D	iP			57.2			
	S	ePcP		18	02.1			
	K	ePcP			04.7			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
AUG. 5	D	eP	07	53	30.5			
	T	iP			34.7			
	T	eP	08	32	41.7			
	D	iP			45.8			
	T	eP	10	13	07.5			
	D	iP			17.2			
	T	eP	13	33	02.9			
	S	iP	13	45	45.0			
	D	iP			45.7			
	T	iP			46.3			
	K	iP			49.0			
	T	eP	16	07	24.8			
	S	iP	16	18	35.8			
	D	iP			36.8			
	K	eP			43.9			
	T	eP			47.1			
	T	eP	18	04	36.2			
		eS		07	13.5			
	D	eP		04	36.7			
		eS		07	13.9			
	T	eP	18	34	38.4	t	0.5	3.9
	D	eX		36	15.5			
	T	eP	18	58	42.4			
	D	eP			47.7			
	T	iP	20	37	51.1			
	D	iP			57.2			
	S	eP			59.3			
	K	eP		38	01.9			
	D	eP	20	52	52.3			
		eS		54	55.3			
	S	eP		52	52.4			
	T	eP		53	00.7		0.5	5.3
	K	eP			02.6			
AUG. 6	T	eP	00	27	25.4			
		eS		28	28.5			
	D	eP		27	33.8			
		eS		28	41.8			
	K	eP		27	38.8			
	T	iP	01	10	20.4			
	D	iP			28.3			
	T	eP	02	21	50.5			
	D	eP			52.2			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
AUG. 6	D	eP	02	24	06.3			
	T	eP			10.5			
	D	eP	02	36	12.4			
	S	eP			17.5			
	T	eP			20.2			
	S	eP	04	22	34.7			
	D	eP			35.9			
	T	eP			45.7			
	S	eX	04	38	42.8	t		
	D	eP			37.7			
		eX			45.3			
	T	eX			48.5			
	S	eP	04	58	25.0	t		
	D	eP			27.3			
	T	eP			31.5			
	T	eP	07	06	18.6			
	T	eP	07	08	23.5			
	D	eP			33.1			
	S	eX	10	11	23.0	t		
	D	ePKP			16.3			
		eX			26.2			
	T	eX			28.9			
	T	eP	13	31	13.9	t	1.0	12.8
	D	eP			20.0			
	T	eP	18	17	51.7			
		eS		18	43.1			
	D	eP			02.5			
	D	eP	19	57	47.6			
		eS		58	42.1			
	T	eP		57	50.2			
	S	iP	20	16	46.9	t		
	D	iP			49.2			
	T	eP			52.2			
	T	eP	23	14	21.9			
		eS		15	22.9			
	D	eP		14	30.8			
		eS		15	36.7			
	S	eP		14	36.0			
AUG. 7	T	iP	01	31	07.2			
	D	iP			16.6			
	K	iP			19.8			
	S	iP			20.2			
	T	iP	08	02	02.6			
	D	iP			10.9			
	S	eP			16.3			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
AUG. 7	S	eP	12	14	36.5	t		
	T	eP			40.3		0.5	5.3
	D	eP			41.0			
	S	eP	12	24	56.4	t		
	T	eP		25	00.4			
	D	eP			029			
	T	iP	13	08	20.6			
	T	eP	13	37	10.6			
	D	eP			20.9			
	T	eP	17	15	10.0			
	D	eP			19.8			
	S	eP			24.2			
	D	eP	17	45	36.0	t		
	T	eP			42.6		0.5	2.6
	T	eP	19	13	29.8			
	T	eP	19	22	04.0	t	0.5	3.4
	D	eP			04.6			
	T	eP	21	07	47.6			
	T	eP	21	39	47.0			
AUG. 8	S	eP	00	07	40.5			
	D	iP			40.6			
	T	eP			422			
	T	eP	00	09	19.6			
	D	eP			30.4			
	S	eP			342			
	T	iP	03	06	10.9			
	D	iP			21.7			
	T	iP	04	08	30.3			
	D	iP			41.0			
	T	iP	04	55	28.6			
	K	iP			36.6			
	D	iP			39.4			
	S	iP			40.7			
	T	iP	05	25	40.5			
	D	iP			51.7			
	T	eP	08	09	37.9			
	D	eP			48.4			
	K	iP	08	24	19.3			
	S	iP			25.9			
	T	iP			26.6			
	D	iP			28.5			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
AUG. 8	S	eP	09	23	14.7	t		
	T	eP			15.7			
	D	eP			18.3			
	T	eP	10	50	15.1			
	D	eP			24.1			
	T	eP	11	06	44.0	t		
	S	eP			46.2			
	D	eP			49.3			
	T	iP	11	31	51.9			
	D	eP		32	01.4			
	S	eP			06.6			
	D	eP	14	13	09.0	t		
	T	eP			13.9			
	T	eP	16	56	02.9			
	D	eP			11.8			
	T	eP	17	21	39.0			
	D	eP			41.4			
	T	eP	20	23	01.8			
	T	iP	22	24	09.9			
	D	iP			20.4			
AUG. 9	T	eP	01	48	38.2			
	D	iP			47.8			
	K	eP			50.8			
	S	eP			51.5			
	D	eP	03	37	32.0	t		
	T	eP			33.5			
	T	iP	04	16	51.0			
	K	eP		17	00.0			
	D	iP			02.6			
	S	eP			04.1			
	T	iP	10	40	11.8			
		eS		41	37.4			
	D	eP		40	21.6			
		eS		42	03.1			
	S	eP		40	25.6			
	K	eP			28.5			
	T	eP	14	28	29.2			
		eS		29	33.2			
	D	eP		28	40.3			
		eS		29	51.6			
	S	eP	17	04	57.2			
	T	eP		05	10.9			
	D	eP			13.4			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
AUG. 9	T	eP	18	10	23.0	t	1.0	10.5
	D	eP			25.5			
	D	eP	21	39	21.1	t		
	T	eP			23.9			
	T	eP	22	33	57.0			
	T	eP	23	20	20.6			
		eS		21	10.1			
	D	eP		20	29.6			
		eS		21	28.9			
AUG.10	S	iP	02	14	03.1	t		
	D	iP			06.4			
		eS		19	49.8			
		eScS		24	30.8			
	T	iP		14	09.2		1.4	77
		ePcP		16	34.5			
	D	eP	02	29	59.4	t		
	T	eP		30	05.7			
	D	eP	02	44	44.3	t		
	D	eP	02	46	49.6	t		
	T	eP			54.7			
	S	eP	02	50	29.2	t		
	D	eP			32.5			
	T	eP			37.2		0.5	6.5
		eS		56	52.2			
	D	eP	02	51	36.1	t		
	T	eP			39.0			
	D	eP	02	54	52.3	t		
	T	eP			56.9			
	D	eP	03	02	57.9	t		
	D	eP	03	07	03.5	t		
	D	eP	03	39	39.2	t		
	T	eP			44.6			
	D	eP	03	54	46.0	t		
	T	eP			48.1			
	D	eP	04	04	12.3	t		
	T	eP			15.9			
	D	eP	04	09	29.0	t		
	T	eP			33.5			
	D	eP	04	11	55.0	t		

Date	Station	Phase	Time (G.M.T.)			t	T	Am
AUG.10	S	eP	04	12	48.5	t		
	D	iP			52.2			
		ePcP		15	20.1			
	T	eP		12	56.7		0.5	7.5
	S	eP	04	17	09.4	t		
	T	eP			17.4			
	D	eP	05	02	11.5	t		
	T	eP			16.3			
	D	eP	05	15	47.0	t		
	T	eP			51.2			
	D	eP	05	21	21.6	t		
	T	eP			26.5			
	D	eP	05	23	28.2	t		
	S	eP	05	58	46.1	t		
	D	eP			49.6			
		ePcP	06	01	14.6			
		eScS		09	10.2			
	T	eP	05	58	53.8		1.0	38.5
	D	eP	06	29	34.1	t?		
	D	eP	07	24	50.1	t		
	T	eP			54.2			
	D	eP	07	43	52.5	t		
	T	eP			56.0			
	D	eP	07	55	17.5			
	T	eP			27.4			
	D	eP	07	57	35.2	t		
	D	eP	08	16	40.8	t		
	D	iP	08	17	17.5	t		
	T	eP			20.1		0.5	7.5
	D	iP	10	12	53.7	t		
	T	iP		13	01.2		0.5	7.5
	D	eP	10	19	02.0	t		
	T	iP	10	54	44.8			
	D	iP			54.7			
	D	eP	12	22	11.4			
	T	iP			32.1			
	S	eP	13	48	25.3			
	D	iP			29.0			
	T	iP			30.8			

Date	Station	Phase	Time (G.M.T.)			t	T	
AUG.10	D	eP	14	07	41.0	t		
	T	eP			42.6		0.5	3.4
	S	eP	15	52	34.4	t		
	D	iP			39.0			
	T	iP			41.0		0.5	6.0
	D	eP	16	46	55.5	t		
	T	eP			58.5			
	D	eP	17	34	18.5	t		
	D	eP	17	55	07.0	t		
	T	iP			09.9		0.5	3.0
	T	iP	18	28	09.4			
	D	eP			22.0			
	S	iP	19	29	03.1	t		
	T	iP			05.5		0.5	10.0
	D	iP			06.9			
	D	eP	19	55	15.0	t		
	D	eP	20	07	01.8	t		
	T	iP	20	40	40.7			
	D	iP			52.2			
	T	iP	23	04	25.4			
	D	eP			33.4			
	T	iP	23	20	40.3			
	D	iP			49.3			
	S	eP			53.0			
	K	eP			54.5			
AUG.11	T	iP	00	51	54.3			
	D	iP		52	02.3			
	S	eP			05.7			
	K	eP			14.1			
	D	eP	02	52	54.9	t?		
	T	eP			57.1			
	D	eP	02	55	20.3	t?		
	T	eP			23.3			
	T	eP	03	01	13.7	t?		
	D	eP			17.4			
	D	eP	03	17	03.0	t?		
	D	eP	03	27	22.1	t?		
	T	eP			26.3			
	T	eP	03	56	23.3			
		eS		57	19.8			
	D	eP		56	32.6			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
AUG.11	T	eP	08	25	13.9			
		eS		26	19.2			
	S	iP	09	07	20.7	t		
	D	iP			23.9			
	T	iP			26.9		0.5	5.2
	D	eP	09	09	52.1	t		
	T	eP	09	42	12.3	t?		
	D	eP			12.6			
	D	eP	10	09	42.3	t		
	T	eP			45.5			
	D	eP	11	26	42.9			
	T	iP			47.1			
	S	eP			51.2			
	D	eP	11	43	47.2	t		
	D	eP	11	54	38.0	t		
	T	eP			42.6			
	D	eP	12	11	029	t		
	T	eP			07.2			
	T	iP	12	43	43.9	t	1.0	67.8
	K	ePcP		46	29.9			
	D	iP		43	50.3			
		ePcP		46	31.0			
	K	iP		43	50.5			
	S	iP			52.0			
	D	eP	12	49	54.1	t		
	T	iP			59.9		1.0	46.5
	T	iP	13	40	055			
	D	eP			13.4			
	D	eP	15	14	52.3	t		
	T	eP			56.8		0.5	5.2
	T	iP	15	16	18.1			
	D	iP			27.4			
	T	iP	17	24	51.1			
	D	iP		25	00.5			
	K	eP			09.8			
	S	eP			14.1			
	D	eP	17	37	37.0	t		
	T	eP			41.0			
	D	eP	18	54	13.2	t		
	T	eP			17.3			
	T	iP	19	04	08.5			
	D	eP			18.5			

Date	Station	Phase	Time (G.M.T.)			t	T	A
AUG. 11	D	eP	19	25	03.5	t		
	T	eP			08.6			
	K	iP	20	07	39.3	t		
	S	iP			39.7			
	D	iP			42.7			
		ePcP		10	12.5			
		eS		13	21.6			
	T	iP		07	45.7		1.2	69.4
		ePcP		10	14.2			
		eS		13	28.0			
	D	eP	20	14	23.5	t		
	D	eP	21	11	52.5	t		
	T	eP			57.2			
	D	eP	22	12	26.4	t		
	T	eP			27.7			
	D	eP	22	14	56.8	t		
	T	eP		15	02.1			
	T	iP	22	51	07.4			
	D	iP			16.3			
AUG. 12	D	eP	02	35	38.8	t		
	T	eP	02	41	07.6			
	D	iP			17.3			
	S	eP			21.4			
	K	eP			28.3			
	T	eP	04	09	39.5			
	D	eP			51.0			
	D	eP	07	06	10.5	t		
	D	eP	09	17	17.3	t		
	D	eP	11	54	56.5	t		
	D	eP	13	21	43.5	t		
	T	eP			47.0		0.5	3.4
	S	iP	13	50	43.0	t		
		ePcP		53	12.3			
	D	iP		50	46.4			
		ePcP		53	14.6			
	T	iP		50	48.8		0.5	9.5
		ePcP		53	14.4			
	D	eP	14	11	45.0	t		
	T	eP			46.7			
	D	eP	14	14	00.0	t	0.5	9.8
	T	eP			02.5			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
AUG.12	T	eP	18	19	06.0	t		
	D	eP			08.3			
	T	iP	20	05	45.3			
	D	iP			53.5			
	T	iP	20	33	10.5			
	D	iP			18.9			
	S	iP			23.6			
	K	iP			24.4			
	T	iP	20	59	11.0			
	D	iP			19.9			
	K	eP			25.9			
	S	eP			26.3			
	T	eP	23	18	24.5			
AUG.13	T	eP	00	00	05.1			
	D	eP			10.1			
	T	iP	00	47	14.4			
	S	iP	02	59	47.9	t		
	D	iP			51.1			
	K	iP			51.7			
	T	iP			54.2		1.2	31.0
	D	eP	04	12	24.9	t		
	T	eP			26.8			
	D	eP	06	56	06.1	t		
	T	eP	07	46	10.3			
	D	eP			19.9			
	T	iP	08	42	36.0			
	D	iP			45.8			
	T	iP	08	49	43.3			
	D	iP			53.2			
	D	eP	08	59	33.1	t		
	D	eP	09	09	47.6	t		
	T	eP			52.5			
	T	iP	10	00	07.4			
	D	iP			17.0			
	D	eP	10	47	17.5	t		
	D	eP	12	02	21.1	t		
	T	eP	12	29	34.8			
	D	iP			43.3			
	D	eP	12	41	35.1	t		

Date	Station	Phase	Time (G.M.T.)			t	T	Am
AUG.14	S	eP	08	02	04.2	t		
	D	eP			09.2			
		eX		05	44.6			
	T	eP		02	11.8			
		eX		05	44.5			
	D	eP	10	20	48.9	t		
	T	eP			52.0			
	D	eP	10	29	39.1	t?		
	T	iP	11	44	08.5			
	T	iP	14	32	14.8			
		eS		33	13.7			
	D	iP		32	24.3			
		iS		33	29.8			
	T	iP	18	43	21.8			
	D	iP			31.5			
	T	iP	19	16	04.8			
	T	iP	20	13	45.5			
	D	eP			55.6			
	T	iP	20	34	11.6			
	D	eP			20.4			
	S	eP	22	21	49.6	t		
		eScP		27	54.2			
	K	eP		21	51.5			
		eScP		27	55.2			
	D	iP		21	52.1			
		eScP		27	56.7			
	T	iP		21	57.2		1.0	47.9
		ePP		24	13.0			
		eScP		27	56.8			
AUG.15	D	eP	02	42	16.0	t		
	T	eP			18.9		1.0	13.9
	D	eP	04	20	31.4	t		
	S	eP	05	12	16.6	t		
	D	eP			19.8			
		eX		14	46.8			
	T	eP		12	23.3		0.5	25.0
	T	eP	05	27	37.4			
	D	eP			47.0			
	T	iP	05	44	11.6			
	D	iP			13.3			
		eS			40.2			
	S	eP			18.8			

Date	Station	Phase	Time (G.M.T.)			t	T	Am	
AUG. 15	T	eP	05	51	48.4				
	D	eP			56.8				
	T	iP	06	02	03.1				
		eS		03	04.0				
	D	eP		02	14.3				
		eS		03	22.6				
	S	eP		02	18.3				
	K	eP			21.9				
	T	iP	06	08	17.9				
		eS		09	20.3				
	D	eP		08	25.6				
		eS		09	36.9				
	K	eP	07	01	39.0	t			
	S	iP			41.2				
	T	iP			42.6		1.3	51.1	
	D	iP			45.0				
		eS?		10	54.9				
	T	iP	08	52	59.5				
	D	iP		53	09.8				
		eS		54	00.5				
	K	eP		53	13.0				
	S	eP			13.3				
	T	eP	09	28	57.0				
	D	eP		29	07.2				
		eS		30	01.2				
	S	eP		29	17.0				
	K	eP			17.5				
	D	eP	09	51	49.4	t?			
	D	eP	11	48	06.0	t			
	T	eP			13.8		0.5	2.6	..
	D	eP	11	50	11.1	t			
	T	eP			11.5				
	T	iP	14	43	16.4				
	K	iP			24.6				
	D	iP			27.3				
		eS		44	18.5				
	S	eP		43	33.9				
	T	iP	15	50	58.5				
	D	eP		51	08.2				
		eS		52	14.3				
	T	iP	16	01	36.8				
	K	eP			47.4				
	D	iP			47.8				
	S	iP			50.2				

Date	Station	Phase	Time (G.M.T.)			t	T	Am
AUG.15	S	eP	17	50	59.5	t		
	T	eP		51	00.8		2.0	115.0
		ePcP?			11.8			
	D	eP			02.1			
		ePcP?			13.5			
		eX		52	16.1			
	D	eP	20	52	33.2	t		
	S	eP	21	33	29.6	t		
	D	eP			33.0			
		eX		35	39.7			
	T	eP		33	36.9		1.1	24.3
	D	eP	21	53	39.1	t		
	T	eP			41.4		0.5	3.0
	K	eP	21	55	00.0			
	T	eP			17.4			
	D	eP			19.7			
	T	eP	23	47	16.5			
		eS		48	30.0			
AUG.16	K	eP	03	42	09.9	t		
	S	eP			11.4			
	T	eP			11.6		1.1	18.5
	D	iP			13.9			
	T	iP	06	21	55.3			
	D	eP		22	04.1			
	S	eP			07.2			
	K	eP			10.7			
	T	iP	09	36	34.6			
	D	iP			44.7			
	K	eP			46.7			
	S	iP			48.1			
	T	iP	10	40	09.8			
	D	iP			20.6			
	K	eP			20.8			
	S	iP			23.1			
	D	eP	11	15	42.8	t		
	T	eP			45.4		0.5	5.5
	K	iP	11	44	15.6	t		
	S	iP			19.3			
	T	iP			19.7		1.0	85.0
		eX			34.9			
	D	iP			22.1			
	T	eP	13	04	40.4			
	D	eP			48.3			
	S	eP			55.8			
	T	eP	13	13	44.6			

Date	Station	Phase	Time (G.M.T.)					
AUG. 16	T	iP	14	34	45.0			
	D	eP			52.0			
	S	eP			58.2			
	K	eP		35	00.3			
	K	eP	15	16	25.4			
	S	eP			27.2			
	D	iP			31.4			
	T	iP			33.9			
	T	eP	15	47	36.0			
	D	eP			46.6			
	T	eP	19	41	12.8			
	D	iP			22.6			
	T	iP	19	54	20.0			
	D	eP			28.9			
	T	iP	20	18	03.1			
	D	eP			13.1			
	T	iP	20	52	55.6			
	D	iP		53	05.5			
	S	eP			07.7			
	K	eP			12.7			
	T	eP	23	32	41.4			
	D	eP			49.8			
AUG. 17	T	iP	00	54	2 63			
	D	iP			31.8			
	T	eP	02	44	06.2			
	D	eP			14.5			
	S	eP			14.5			
	K	eP	04	07	34.1	t		
	S	eP			35.4			
	D	eP			38.7			
		ePP or PcP		10	05.2			
		eS		13	32.4			
		eScS		17	58.4			
	T	eP		07	41.5		0.5	44.7
	T	eP	04	17	02.7			
	D	eP			12.7			
	K	iP	04	38	59.4			
	S	iP		39	07.4			
	T	iP			12.4			
	D	iP			13.7			
	K	iP	06	26	59.9			
	T	iP		27	00.8			
	S	iP			09.6			
	D	iP			09.9			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
AUG.17	T	iP	11	14	38.4			
	D	ePg			44.3			
	D	ePg	12	13	59.2	t		
	T	ePg			59.3		0.5	4.2
	S	ePg	13	35	47.8	t		
	D	ePg			51.7			
	T	ePg			54.6		0.5	10.0
	S	ePg	14	48	33.8	t		
	D	ePg			36.7			
	K	ePg			37.8			
	T	ePg			40.4		0.5	52.6
	D	ePg	18	11	27.4	t		
	T	ePg			31.7			
	S	ePg	18	54	22.9	t		
	D	ePg			26.3			
	T	ePg			26.7		0.5	3.2
	D	ePg	21	54	04.0	t		
	T	ePg	22	24	22.4			
	D	ePg			30.0			
AUG.18	S	iP	00	57	01.1			
	D	ePg			03.3			
	K	ePg			03.7			
	T	iP			12.2			
	D	ePg	02	17	43.3	t?		
	S	ePg	05	39	36.1	t		
	D	ePg			39.6			
	T	ePg			41.5		0.5	52.7
	S	iP	05	50	56.5	t		
	D	iP		51	00.0			
	T	ePg			02.3		1.0	30.0
	T	ePg	06	58	04.7			
	S	ePg	07	13	08.7			
	D	ePg			09.3			
	K	ePg			18.4			
	T	iP			18.8			
	S	ePg	07	20	44.6			
	D	ePg			46.1			
	T	ePg			55.8			
	T	ePg	11	58	59.3	t	1.1	20.3
	S	ePg		59	02.7			
	D	ePg			09.5			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
AUG.18	T	eP	14	26	55.2	t	1.3	15.6
	D	eP		27	01.4			
	K	eP	15	28	22.1	t		
	S	eP			26.4			
	T	eP			29.1		1.2	14.8
	D	eP			30.0			
	T	iP	17	38	50.3			
	D	eP		39	00.4			
	S	eP	17	42	36.1	t		
	K	eP			37.9			
	D	eP			39.5			
	T	eP			43.2		0.5	16.8
	T	iP	17	44	37.3			
	D	iP			48.1			
	K	eP			48.3			
	S	eP			51.0			
	K	eP	18	17	57.2	t		
	S	eP		18	01.0			
	T	iP			02.5		1.4	123.0
	D	eP			03.7			
		ePcP		19	08.9			
		eScP		23	10.0			
		ePcS			25.4			
		eS		25	45.2			
	K	eP	18	38	42.1	t		
	S	eP			47.0			
	T	eP			48.5		1.3	24.5
	D	eP			50.3			
	K	iP	18	46	27.7	t		
	S	iP			31.7			
	T	eP			33.8			
	D	eP			35.7			
		epP		47	47.9			
		ePcP		48	21.9			
		ePP		49	29.4			
		eScP		50	58.2			
		eS		53	07.1			
		esS		55	34.0			
		eX1	19	16	17.4			
		eX2		17	18.4			
		eX3		18	26.6			
	K	eP	19	03	48.5	t		
	S	eP			48.8			
	D	eP			52.2			
		ePP?		06	06.0			
		eS		09	30.2			
		eScS		14	07.4			
	T	eP		03	54.8		1.0	67.9

Date	Station	Phase	Time (G.M.T.)			t	T	Am
AUG.18	T	ePn	21	55	51.0			
	D	ePn			59.8			
AUG.19	T	ePn	03	33	28.7	t?		
	S	iP	05	39	13.8			
	D	iP			17.4			
	K	iP			20.8			
	T	iP			21.5			
	T	ePn	07	06	45.9			
	D	ePn			55.0			
	T	ePn	09	44	33.5			
	D	ePn			42.1			
	K	iP	11	39	55.0			
	S	ePn		40	02.6			
	T	ePn			07.5			
	D	ePn			08.9			
	K	iP	15	53	08.3	t		
	T	iP			12.2		1.2	72.1
	S	ePn			12.4			
	D	iP			12.6			
	K	ePn	16	47	59.8			
	T	iP		48	01.9			
	S	ePn			11.0			
	D	iP			12.6			
	T	iP	18	00	14.3			
	D	ePn			23.0			
	D	ePn	23	07	39.5	t		
AUG.20	T	iP	01	18	12.0			
	D	iP			21.9			
	T	ePn	03	26	58.4	t	1.4	26.6
	D	ePn		27	00.3			
		eX		28	30.0			
	T	iP	03	55	36.7			
	D	ePn			45.0			
	T	ePn	09	04	35.4			
	S	iP	11	23	12.5	t		
	K	ePn			13.0			
	D	iP			15.9			
		iPcP		26	13.4			
		eS		28	46.0			
	T	iP		23	16.2		1.3	37.8

Date	Station	Phase	Time (G.M.T.)			t	T	Am
AUG.20	D	iP	22	11	41.2			
	S	iP			43.9			
	T	iP			44.6			
	K	iP			51.5			
AUG.21	T	iP	01	36	23.6			
	K	iP			30.7			
	D	iP			32.2			
	S	iP			33.8			
	T	eP	08	07	07.0			
	D	eP			17.6			
	K	eP	12	22	04.1			
	S	eP			10.7			
	T	eP			16.1			
	D	eP			17.9			
	K	eP	18	08	34.5	t		
	T	eP			34.5		1.4	53.2
	S	eP			37.9			
	D	eP			40.8			
		eX		11	40.1			
	T	iP	18	25	46.8	t	1.0	20.0
	D	eP			52.8			
	T	iP	20	51	10.0			
	D	iP			18.7			
	S	eP			23.9			
	K	eP			25.3			
	T	iP	23	15	44.0			
	D	eP			52.5			
AUG.22	T	eP	14	05	51.4	t	1.1	21.5
	D	eP			56.0			
	S	eP			57.2			
	S	eP	14	19	04.8	t		
	K	eP			06.2			
	D	eP			07.4			
	T	eP			08.7		1.5	54.6
	T	iP	15	10	24.1			
	D	iP			33.7			
	S	iP			36.7			
	K	eP			36.9			
	K	eP	16	29	34.3	t		
	S	eP			39.1			
	T	eP			39.9		0.5	4.2
	D	eP			41.1			
	T	eP	16	35	00.4			
	D	eP			09.8			
	T	iP	18	01	27.0			
	D	eP			36.4			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
AUG.22	T	iP	21	30	14.3			
	D	eP			22.1			
AUG.23	D	eP	06	48	22.6			
	D	eP	07	25	47.5			
	S	eP			50.2			
	T	eP		26	01.0			
	D	eP	08	25	06.3			
	T	eP			09.1			
	S	eP	08	45	30.7	t		
	D	eP			34.2			
	D	eP	12	58	35.0	t		
	S	eP	13	07	22.4			
	D	eP			24.3			
	K	eP			29.5			
	T	eP			33.1			
	D	eP	20	59	37.7	t		
	T	ePKP?	22	55	45.5	t		
		eX1			54.1			
		eX2		56	12.9			
		ePP?		58	00.6			
		eX3			14.6			
	S	ePKP?		55	46.8			
		ePP?		58	02.6			
	D	ePKP?		55	47.0			
		eX1			55.7			
		ePP?		58	03.2			
AUG.24	S	iP	06	20	05.2			
	D	eP			09.8			
	T	iP	13	29	37.4			
	D	iP			47.3			
	S	eP			50.4			
	T	eP	13	31	39.0			
	T	iP	15	15	20.8			
	D	eP			29.6			
	D	eP	17	18	40.8			
	T	iP			44.7			
	T	iP	17	40	00.8			
	D	iP			10.0			
	T	iP	17	58	43.7			
	D	eP			52.3			
	S	iP	21	35	46.6			
	T	iP			47.7			
	D	iP			51.2			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
AUG.24	S	iP	23	23	20.2			
	T	iP			23.4			
	D	iP			25.4			
AUG.25	T	ePg	00	03	02.1			
	D	ePg			11.0			
	D	ePg	00	06	01.1			
	T	ePg			02.2			
	D	ePg	00	18	36.2	t		
	T	ePg	07	36	47.0			
	D	ePg			58.2			
	T	iP	09	08	38.2			
	D	iP			48.3			
	S	iP			51.5			
	T	iP	09	14	54.9			
	D	iP		15	05.0			
	S	iP			08.3			
	T	iP	10	06	33.8			
	D	iP			43.9			
	S	ePg			47.5			
	T	ePg	11	09	20.9			
	D	ePg			30.6			
	S	iP	11	26	50.0	t		
	T	iP			50.2		1.0	81.2
	D	iP			52.7			
	T	iP	12	00	07.0			
	D	ePg			15.9			
	T	iP	12	33	18.0			
	D	iP			28.0			
	S	ePg			31.2			
	S	ePg	13	30	11.0	t		
	D	ePg			14.8			
		eSg		32	40.0			
	T	ePg		30	17.3		1.0	17.8
	D	iP	15	45	46.7	t		
	T	ePg			51.3		0.5	12.4
	D	ePg	16	43	30.1			
	T	iP			31.4			
	T	iP	19	00	01.8			
	D	iP			11.4			
	T	ePg	23	04	09.9			
	D	ePg			19.6			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
AUG.25	T	iP	23	07	40.7			
	D	eP			50.2			
AUG.26	T	eP	01	08	31.0			
		eS		09	25.1			
	D	iP		08	40.8			
	T	eP	01	11	04.4			
		eS		12	00.0			
	D	eP		11	15.1			
	T	eP	03	35	01.4			
		eS		36	09.2			
	D	eP		35	08.6			
	T	eP	07	00	01.9			
		eS		01	03.1			
	D	eP		00	11.1			
	T	eP	07	02	46.2			
		eS		03	38.7			
	D	eP		02	55.1			
	T	iP	09	11	24.3			
		eS		12	24.9			
	D	iP		11	33.4			
	T	eP	09	36	27.1	t		
	D	eP			29.5			
	D	eP	14	42	10.2	t		
	T	eP			14.7		0.5	5.3
	D	eP	15	42	47.2	t		
	T	iP	18	24	09.5			
		iS		25	09.1			
	T	eP	20	34	30.1	t		
	D	eP			31.6			
	S	iP	21	22	57.0			
		eS		23	07.8			
	D	iP		22	58.6			
	T	iP		23	00.9			
	K	iP			01.9			
	K	iP	23	06	49.9			
	T	iP		07	02.9			
	D	iP			04.4			
AUG.27	T	iP	03	07	39.3			
	K	eP			46.9			
	D	iP			49.7			
	S	eP			56.1			
	T	iP	04	44	07.3			
		eS			57.7			
	D	iP			15.9			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
AUG.27	K	iP	08	15	29.4			
	T	iP			37.1			
	S	iP			39.7			
	D	eP			43.4			
	T	iP	09	02	00.8			
		eS			45.0			
	D	iP			11.0			
	T	iP	10	47	58.0			
		eS		49	00.0			
	D	eP		48	07.3			
	S	eP	12	59	33.3			
	D	eP			34.9			
	T	eP			43.8			
	K	eP			52.0			
	T	eP	13	03	15.5			
		eS		04	22.3			
	D	eP		03	26.2			
	T	iP	13	34	10.8			
	D	iP			20.0			
	T	iP	13	44	33.0			
	D	iP			42.3			
	S	eP			46.3			
	K	eP			50.9			
	K	eP	13	51	56.7	t		
	S	eP			59.8			
	D	iP		52	01.7			
		eS		55	25.8			
		eScP		58	31.0			
		eScS	14	02	10.0			
	T	iP	13	51	03.5		0.7	40.0
	D	eP	13	53	43.0			
	S	eP			45.5			
	T	eP			52.4			
		eS		54	51.8			
	K	eP			53.2			
	K	eP	15	18	14.9			
	S	eP			24.8			
	T	iP			29.0			
	D	iP			30.5			
	D	iP	15	59	21.2			
	T	iP			23.5			
	D	iP	16	40	09.1			
	T	iP			09.9			
	S	iP			12.7			
	K	iP			19.2			
	D	eP	19	58	33.4	t		
	T	eP			38.6		0.5	2.6

Date	Station	Phase	Time (G.M.T.)			t	T	Am
AUG.27	T	iP	20	17	50.3			
	D	eP			55.3			
	D	eP	21	06	00.0			
	T	eP			01.1			
	T	eP	21	14	45.2			
	D	iP			47.6			
	T	eP	21	27	50.0			
	D	eP			52.7			
	D	iP	22	13	49.7			
	S	eP			56.5			
	T	iP		14	01.6			
	K	eP			11.5			
AUG.28	S	eP	00	03	10.5	t		
	D	eP			14.6			
	T	iP	00	11	02.7			
	D	iP			13.4			
	S	eP			16.4			
	K	eP			20.9			
	T	iP	00	30	07.2			
	D	iP			18.0			
	D	eP	02	16	51.0	t?		
	T	iP	02	57	43.0			
	D	eP			45.7			
	T	iP	06	12	31.0			
	D	iP			38.6			
	S	eP	09	41	22.1			
	T	eP			24.2			
	D	eP			27.5			
	S	eP	12	01	14.5	t		
	D	eP			15.3			
	T	eP			15.5		1.4	33.9
	T	iP	12	40	03.4			
	D	iP			14.4			
	K	eP			15.0			
	S	eP			17.0			
	T	iP	15	15	39.1			
	S	iP			40.0			
	D	iP			44.5			
	D	eP	15	35	47.8	t?		
	T	eP	19	55	04.7			
	D	eP			14.5			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
AUG.28	S	eP	20	47	43.1	t		
		ePcP		51	17.8			
	D	eP		47	43.8			
		epP?			51.5			
		ePP		48	24.9			
		ePcP		51	19.1			
		eS			28.7			
		eScP		55	02.1			
		eScS		58	43.5			
	T	eP		47	47.6		1.5	80.2
		ePcP		51	19.9			
AUG.29	T	eP	07	39	03.5			
	D	iP			14.5			
	D	eP	21	13	32.0	t		
	T	eP			38.2		0.5	5.9
	T	iP	22	57	02.2	t	1.2	123.6
	D	iP			06.5			
	S	iP			07.3			
	T	eP	23	35	39.1			
	D	eP			48.7			
AUG.30	T	iP	01	59	32.7			
	T	iP	02	45	56.7			
	D	iP		46	06.0			
	S	iP			09.6			
	K	eP			11.3			
	K	iP	04	22	15.6			
	S	iP			16.4			
	D	iP			19.9			
	T	iP			22.7			
	T	iP	05	29	10.9	t	0.5	7.9
	D	eP			16.8			
	D	eP	06	25	30.8	t		
	T	eP			34.4		0.5	5.3
	D	iP	07	21	28.0			
	S	iP			30.0			
	T	iP			32.7			
	K	iP			37.1			
	K	iP	09	40	06.7			
	T	iP			07.8			
	S	iP			14.3			
	D	iP			16.0			
	K	iP	15	07	47.4			
	T	iP			52.1			
	S	iP			54.1			
	D	iP			57.1			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
AUG.30	T	iP	15	52	44.6			
	D	eP			54.7			
	T	eP	17	17	54.1			
	D	eP		18	04.7			
	S	iP	21	02	34.2			
	D	iP			36.7			
	K	eP			45.5			
	T	iP			47.3			
	T	eP	21	38	48.1			
		eS		40	14.8			
	D	eS			30.2			
AUG.31	D	eP	02	15	03.2			
	S	eP			04.0			
	T	eP			17.2			
	T	iP	03	22	34.6			
	K	eP			42.3			
	D	eP			46.0			
	S	eP			46.8			
	T	iP	07	17	24.4			
	D	iP			34.5			
	T	eP	08	59	35.5	t		
	D	eP			38.5			
	D	eP1	10	58	10.3	t		
		eP2			14.8			
		eS	11	07	07.0			
		eX		27	18.0			
	S	eP1	10	58	11.5			
		eP2			16.0			
	T	eP1			13.2		1.1	216.0
		eP2			17.8			
	K	eP1			17.2			
		eP2			22.3			
	D	eP	11	45	06.7	t		
	S	eP			06.1			
	T	eP			07.8		1.3	72.2
	K	eP			12.4			
	S	eP	12	56	08.0			
	D	iP			09.8			
	K	eP			11.3			
	T	iP			14.3			
	D	eP	14	16	54.9	t		
	S	eP			56.6			
	T	eP			58.3			
	T	iP	14	25	36.2			
	D	iP			46.3			
	K	eP			49.9			
	S	eP			49.9			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
AUG.31	T	iP	16	46	35.7			
	D	iP			45.7			
	K	eP			47.8			
	S	eP			48.9			
	T	iP	17	55	08.6			
	D	eP			17.9			
	T	eP	18	08	39.3			
	D	eP			47.5			
	D	eP	18	12	05.9	t		
	T	eP			07.4			
	K	eP	20	04	47.9	t		
	S	eP			51.8			
	T	eP			52.2		0.5	4.6
	D	eP			54.1			
	T	eP	20	44	59.1			

Tsukuba,

S-P \ Date	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
0 – 0.9																
1 – 1.9																
2 – 2.9																
3 – 3.9																
4 – 4.9									1							
5 – 5.9	1				1	6	2			1	1	3	1	3	2	4
6 – 6.9	2	4	6		1		3				2	1	1	1	1	1
7 – 7.9	1	1	1	3		1	3	1	1	2	2	2			1	4
8 – 8.9	1	3	3	2	1	3	2	2	2	3	2		1		4	2
9 – 9.9	3		1	2	3		1	1	3	1	3		2	2	1	2
10 – 10.9	2	1	2	2	1	2	3	2	3	2	1		3	3	1	3
11 – 11.9	2		2			2	1	1	2	1	1	2	2	7		
12 – 12.9	1					1	1	3	2		1	1				
13 – 13.9			2		1		1	3	3					1	2	
14 – 14.9	1		1			1	2	2	1		1	2	1		1	
15 – 15.9	1	1	2		3	1			1			1	1			1
16 – 16.9	1	1			1		2	1			1		1	1	1	
17 – 17.9	1		1				1						1			1
18 – 18.9			2		1		1		1	3	1		1			
19 – 19.9	2		1			1		1	1		1					1
20 – 20.9	2		1	1	1	2									1	
21 – 21.9						1			1		1	1				
22 – 22.9	1															
23 – 23.9												2				
24 – 24.9																
25 – 25.9	1	1				1		1								
26 – 26.9																
27 – 27.9							1	2								
28 – 28.9																
29 – 29.9				1							1		1			
above 30 sec	2	6	2	2	8	6	7	4	5	2	1	1	10	3	0	5
?	1			3	2						2					
Total	26	18	27	16	24	28	31	24	27	15	22	16	26	21	15	24
no observation Remarks																

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17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Total
															0
															0
															0
															0
															1
2		3	2	1		1	1	2	2		1			3	43
4		1	1	3	1	2			2		2	1		7	47
1	2	3	1	3	3		2	1	2	1	1	1	1		45
1		4	1	4		1		2	3	2	2	5		2	59
	5		3	2		4	4	1		4	1			5	54
	2	1	3	1	1	1			1	4	1	2	1	1	50
1		1			1	1	1	1			1	1	1		32
4	2	3		2	1							1	1	1	25
	1					1	1								16
1	2		1		1			1		1	1		1		22
		1		2		1				2		1	2	1	22
				1					1				2		14
	1				2						2			1	11
				2	1					1	2	2	1		19
	1	1	1		1	1			1	1	1		1	1	18
			1	1			1			3	1	2	1		18
1	1			2	1								1		10
			1		1						1		1		5
								1							3
									1						1
						1									5
															0
														1	4
											1				1
		1							1				1		5
6	1	5	4	4	2	4	2	1	3	8	5	5	10	7	130
												4	1	1	15
21	18	24	19	28	16	18	12	10	17	27	23	25	26	31	
	07h 20m ~ 09h		05h 50m ~ 09h 52m	21h 45m ~ 24h	00h ~ 01h 40m 13h 30m ~ 22h 21m	09h 53m ~ 16h									

S-P \ Date	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
0 – 0.9															
1 – 1.9															
2 – 2.9															
3 – 3.9															
4 – 4.9				1											
5 – 5.9		1	1	1							1			1	
6 – 6.9			1	2		1				1				1	1
7 – 7.9								1					1		1
8 – 8.9			1	1		2	2		1			2	1		1
9 – 9.9						2	1		1	2					1
10 – 10.9	2		1	2		1	3	1	1	1	3	1	1		2
11 – 11.9		1	1	1		1	2	1						1	1
12 – 12.9		1	1				1	3	2	1	1		2	2	1
13 – 13.9	1	3	4	1	3		5	1	2	1		2			
14 – 14.9	1					1	4	1		1		3	1	1	
15 – 15.9								2			1		1		
16 – 16.9	1													1	1
17 – 17.9	1				3		1	1	1		1				
18 – 18.9	1					1			1				1	1	
19 – 19.9							1		1						
20 – 20.9												2		1	
21 – 21.9	1	2	1						1			1			
22 – 22.9			1	1								1			
23 – 23.9					1			1			1		1		
24 – 24.9								1					1		1
25 – 25.9			1		1										1
26 – 26.9			1												
27 – 27.9									1	1	1				
28 – 28.9				1											
29 – 29.9			1			1		1	1						
above 30 sec	3	4	2	1	5	5	7	8	2	4	5	4	8	4	1
?	1			1		1					1				
Total		12	17	13	13	16	27	22	15	12	15	16	18	13	12
no observation															
Remarks															

AUG . 1963

16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Total
																0
															1	1
																0
	1															1
	2															3
																5
			2		1	1								1	1	13
1	1	1	2				2	4				2	1			17
1	1				1		1	2	1	2	2				4	26
1			3				1		2	1						15
					1		1	1					1			23
1	1			1	1			1	1	3		1	1	1	2	23
2	3			2	3	1	1	2	1		3	2	1			36
1	1	2		1	4	2	3		1	3	5	5	2	3	1	57
			2	2		1		1		1	1	1	1	3	2	28
		1		2	2		1	1					1			13
		1	2		2	1				1			2			12
		1					1	1	2			1	1	1		15
1								1					2		1	10
						2	1	1						1		7
	1	1			1	1							1			8
				1	1		1									9
1									1							5
	2	1								1	1					9
1			1									1				6
			1									1				5
				1	1											3
						1	1	1				1	1	2		10
							1					2				4
						1										5
4	6	7	3	3	3	3	6	3	1	5	3	7	2	8	6	133
1		2				1					1		1	1	1	12
15	19	17	16	13	21	15	21	19	10	17	16	24	18	21	19	

Preliminary Bulletin

of the Dodaira Micro-earthquake Observatory

and its Substation

September, 1968

Dodaira Micro-earthquake Observatory

Earthquake Research Institute, the University of Tokyo

Preliminary Bulletin of the Dodaira Micro-earthquake Observatory and its Substation

Observation stations

		N	E	h
Dodaira	(D or DDR)	35°59'54".0	139°11'36".2	800m
Tsukuba	(T or TSK)	36°12'39".0	140° 6'35".0	280m
Kiyosumi	(K or KYS)	35°11'51".6	140° 8'53".6	230m
Shiroyama (temporary)	(S or SRY)	35°36'30".0	139°16'27".0	254m

Expressions: Am: Amplitude in millimicron (half of peak to trough*) of P motion maximum within few cycles after the onset recorded by a short period vertical seismograph. *In 1967 double amplitude (peak to trough) was used as Am.

T : Period in sec of the measured P maximum

t : Teleseism

All stations are radio-telemetered to Tokyo giving records on a multi-channel ink-recording oscillograph. The paper speed of the recorder is 1 mm per sec. For stronger events high speed recorder (10 mm/sec) is also triggered. The system is also recorded in parallel on multi channel magnetic tape through a trigger system using an endless tape loop. Direct filter sum of short period seismometers at Dodaira and/or on line short period filter outputs of Tsukuba are also used for the

detection of weak teleseismic signals. For teleseismic events records of long period and medium period seismographs are occasionally used, applying off line frequency filter, if necessary.

The Bulletin includes the preliminary readings sent to USCGS for teleseisms and larger near shocks with total durations (F-P) of short period vertical seismograph at Tsukuba (TSK) with magnification about 140.000 at 1 c/s or sensitivity about 300×10^{-3} mm/microkine at 10 c/s being longer than 100 seconds which correspond approximately shocks with $M \gtrsim 3.5$. For the minor near earthquakes with F-P $\lesssim$ 100 sec or $M \lesssim 3.5$, frequency of S-P times at each station is added at the end of the Bulletin, which may easily give a general idea of local seismicity around the station.

Date	Station	Phase	Time(G.M.T.)			t	T	Am
SEP. 1	S	iP	00	06	05.2			
	D	iP			05.5			
	T	iP			09.3			
	K	eP			11.3			
	T	iP	00	08	06.9			
	D	iP			15.9			
	S	iP			19.5			
	K	eP			19.5			
	D	eP	00	36	01.6	t		
	D	eP	00	46	55.1	t		
	D	iP	07	38	07.3	t		
	S	eP			09.6			
	T	iP			11.0		1.4	246.0
	T	iP	09	26	22.2			
		eS		28	20.0			
	D	iP		26	31.5			
	T	iP	10	40	34.9			
	K	iP			35.2			
	D	iP			43.0			
	S	iP			43.4			
	T	iP	10	45	47.6			
	D	eP			50.0			
	T	iP	11	44	02.2			
		eS		45	06.0			
	D	iP		44	12.0			
	T	iP	14	29	57.5			
	D	iP			58.0			
	T	iP	15	48	13.7			
		eS			58.0			
	D	eP			17.8			
	T	eP	19	46	06.3			
	T	iP	22	21	37.0			
	D	iP			47.4			
	D	iP	23	13	29.3			
	T	iP			31.8			
SEP. 2	T	iP	01	07	14.2			
		eS			58.0			
	D	iP			24.0			
	K	eP			26.7			
	S	iP			28.0			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
SEP. 2	S	iP	03	23	16.9			
	K	iP			18.6			
	D	iP			19.2			
	T	iP			23.3			
	T	eP	09	19	23.3			
		eS		20	22.8			
	D	eP		19	34.4			
	S	iP	09	33	29.3			
	D	iP			31.2			
	K	eP			38.5			
	T	iP			40.7			
	T	iP	09	37	32.5			
	D	eP			40.9			
	T	iP	11	59	58.0			
	D	eP	12	00	06.0			
	S	eP			08.8			
	K	eP			09.4			
	T	iP	13	48	37.3			
	D	iP			47.5			
	T	iP	16	58	15.7			
	K	iP			18.8			
	S	iP			20.1			
	D	iP			21.0			
	T	iP	18	23	42.3			
	D	iP			50.7			
	K	eP			58.0			
SEP. 3	T	eP	04	47	58.0			
	D	iP		48	06.8			
	T	iP	05	11	32.9			
	K	iP			37.5			
	D	iP			43.9			
	S	iP			45.0			
	T	iP	05	25	21.7			
	D	iP			31.2			
	S	iP			35.0			
	T	eP	05	45	15.5			
	T	iP	07	02	09.7			
	D	iP			19.5			
	S	iP			22.3			
	K	iP			22.7			
	T	iP	07	57	15.2			
	D	iP			24.8			
	T	iP	08	19	23.5			

Date	Station	Phase	Time(G.M.T.)			t	T	Am
SEP. 3	D	eP	08	31	51.2	t		
	S	eP			51.8			
	T	eP			56.0		1.4	37.7
	T	eP	08	52	42.8			
	D	eP			52.9			
	T	iP	16	06	30.6			
	D	iP			36.0			
	K	eP	16	47	51.0			
	S	eP			52.6			
	D	iP			55.4			
	T	iP			57.6			
	D	eP	18	57	43.4	t?		
	S	eP			44.2			
	T	eP			46.8		1.2	17.6
	K	iP	22	23	39.7			
	S	iP			43.5			
	T	iP			44.5			
	D	iP			48.0			
SEP. 4	D	eP	04	07	57.3	t?		
	T	eP		08	00.6		0.5	8.8
	K	eP	05	07	17.5			
	S	iP			19.4			
	D	iP			23.0			
	T	iP			25.6			
	T	iP	09	50	32.8			
	D	eP			42.9			
	T	iP	10	04	23.4			
	T	eP	10	39	18.8	t	1.2	27.3
	D	eP			27.0			
	S	eP			29.3			
	D	iP	12	48	09.6			
	T	iP			11.9			
	S	iP			12.3			
	K	iP			19.3			
	K	eP	15	18	46.1			
	S	eP			47.2			
	D	iP			52.8			
	T	iP			55.1			
	T	iP	16	38	48.2			
	K	eP			53.5			
	D	iP			58.8			
	S	eP		39	00.5			
	T	eP	20	49	58.5	t?	0.5	7.8

Date	Station	Phase	Time(G.M.T.)			t	T	Am
SEP. 4	T	iP	22	23	50.2			
	D	iP		24	01.4			
	D	eP	23	35	23.3	t		
		eX		37	51.0			
	S	eP		35	25.0			
	T	eP			27.6			
SEP. 5	D	iP	04	14	21.3	t	Explosion?	
	S	eP			22.6			
	T	iP			23.5		0.5	60.0
	K	eP			29.7			
	D	eP	06	39	29.0	t?		
	T	iP	09	06	26.1			
	D	iP			35.0			
	T	iP	11	37	33.3			
	D	eP			41.1			
	S	eP			50.3			
	K	eP			51.5			
	T	iP	11	56	37.2			
	D	iP			45.8			
	S	eP			50.3			
	K	eP			51.5			
	S	eP	17	10	36.4	t		
	D	eP			38.1			
	T	eP			43.2		1.2	22.7
	T	iP	18	01	00.5			
	D	iP			07.7			
	T	iP	19	02	31.5			
	D	iP			42.8			
	T	eP	20	00	41.1			
	D	iP	20	46	11.2			
	S	eP			16.6			
	T	iP			21.6			
	K	eP			31.0			
	T	iP	21	20	52.9			
	D	iP		21	03.9			
	S	iP			06.3			
	K	eP			09.1			
	T	eP	22	25	50.7			
	D	eP			51.0			
SEP. 6	S	eP	00	47	02.5			
	D	iP			02.8			
	T	eP			11.3			

Date	Station	Phase	Time(G.M.T.)			t	T	Am
SEP. 6	D	eP	03	32	09.5	t?		
	T	iP	05	35	14.8			
		iS			44.9			
	D	iP			24.1			
	D	eP	07	46	15.1	t		
	S	eP			17.1			
	D	iP	07	58	19.4			
	T	iP			20.5			
	T	iP	10	48	56.0			
	D	iP		49	06.7			
	T	eP	14	12	04.5	t	1.2	33.3
	D	eP			08.0			
	S	eP	16	37	07.0			
	D	iP1			07.6			
		iP2			11.8			
	K	eP			16.9			
	T	iP			17.1		1.2	40.1
	S	iP	19	24	39.6			
	D	iP			43.6			
	K	eP			45.3			
	T	iP			52.2		1.4	226.0
	T	eP	19	44	14.1			
	T	iP	22	32	44.9			
	D	iP			55.0			
SEP. 7	T	iP	00	11	46.0			
	D	iP			52.2			
	S	iP			56.0			
	K	eP		12	00.4			
	T	eP	01	49	12.5			
		eS		50	46.3			
	D	iP		49	22.6			
	K	eP	02	20	07.1			
	S	iP			16.8			
	D	iP			16.8			
	T	iP			17.9			
	D	iP	03	04	45.0			
	S	iP			46.4			
	T	iP			47.3			
	K	iP			52.4			
	T	iP	06	55	38.8	t		
	S	iP			36.9			
	T	iP			41.8		0.5	29.5
	D	eP			42.0			
	D	eP	08	35	49.1	t?		

Date	Station	Phase	Time(G.M.T.)			t	T	Am
SEP. 7	T	eP	09	27	24.0			
	D	iP			32.2			
	T	iP	14	43	53.1			
	D	eP		44	04.6			
	T	iP	14	47	05.7			
	D	eP			17.7			
	T	iP	14	54	30.2			
	D	iP			35.5			
	T	iP	15	30	12.8			
		eS			49.0			
	D	iP			22.0			
	D	eP	16	12	12.2	t		
	T	iP			29.1		1.3	26.1
	D	iP	17	15	57.1			
	T	eP			47.3			
		eS		17	13.3			
	D	eP	18	18	12.0	t?		
	D	eP	23	26	19.3	t?		
SEP. 8	D	eP	00	26	45.3	t		
	T	eP			51.6		1.3	18.9
	T	eP	01	44	54.4			
	D	eP		45	04.6			
		eS		46	09.7			
	T	iP	02	04	33.6			
	D	iP			37.6			
		iS		06	26.7			
	D	eP	04	50	57.3			
	T	eP			58.4			
	T	iP	07	46	30.1			
	D	iP			39.8			
		eS		47	36.9			
	T	eP	08	46	03.4			
	D	iP			12.7			
	T	eP	12	19	29.5			
	D	eP			38.1			
	D	iP	14	22	16.1			
	T	iP			16.9			
	T	iP	14	31	14.8			
		eS		32	14.3			
	D	eP		31	23.9			

Date	Station	Phase	Time (G.M.T)			t	T	Am
SEP. 8	D	eP	15	19	54.6	t		
		epP?		20	01.5			
		eP$_c$P or PPP						
				22	09.5			
		eS		25	53.6			
		eScS		30	05.2			
	T	eP		19	55.9		1.8	169.0
	D	eP	15	39	39.2	t		
	T	eP			41.0		0.5	2.6
	T	eP	19	51	11.8	t	1.2	46.3
	D	eP			15.8			
		epP?			54.6			
		eX		53	28.0			
	T	eP	20	12	53.4	t	0.5	22.1
	D	eP		13	02.5			
		eS		15	11.8			
SEP. 9	D	eP	02	27	07.4	t?		
	D	eP	02	44	37.8	t?		
	T	eP	05	03	41.4	t	1.2	68.5
		eX			47.9			
	D	eP			46.5			
	S	eP			47.9			
	K	eP			48.5			
	T	eP	07.	17	01.0			
		eS		18	31.8			
	D	eP		17	11.2			
	D	eP	07	18	42.2			
	T	eP	12	28	53.2			
	D	eP	13	33	26.9			
	T	iP			31.6			
	K	eP			31.7			
	T	eP	20	35	17.0			
	T	eP	20	54	34.4			
		iS		55	58.3			
	D	eP		54	43.1			
SEP.10	T	iP	01	23	43.3			
	D	iP			52.9			
		eS		24	45.5			
	K	eP		23	55.9			
	S	eP			56.7			
	D	eP	02	31	30.3	t?		

Date	Station	Phase	Time(G.M.T.)			t	T	Am
SEP.10	S	eP	03	48	35.2			
	D	iP			35.8			
		iS		49	10.6			
	T	iP		48	40.4			
	K	iP			40.4			
	T	eP	04	11	49.0			
	S	eP	05	32	26.0	t		
	D	eP			30.8			
	T	eP	05	47	21.0	t	1.4	27.9
	S	eP			24.8			
	D	eP			29.6			
	T	eP	06	03	48.5	t	0.5	6.3
	D	eP		04	00.0			
		eS		06	11.8			
	D	eP	07	08	13.8	t?		
	D	eP	08	21	40.7			
	T	eP			42.2			
	T	eP	12	12	07.7			
	D	eP			16.7			
	T	eP	12	29	57.8			
	D	eP		30	07.3			
	T	eP	15	12	48.6	t?		
	D	eP			57.1			
	T	iP	16	16	11.9			
	D	eP			21.9			
	D	eP	17	27	12.2	t		
	S	eP			13.7			
	T	eP			16.0		1.3	28.9
	K	eP			20.2			
	S	eP	21	27	49.2	t		
	K	eP			51.7			
	D	eP			54.3			
		eS		31	15.2			
		eScP		35	41.4			
	T	iP		27	54.7		0.5	12.1
	T	eP	23	01	52.1	t	1.5	30.3
	D	eP			54.2			
	T	iP	23	57	49.0			
	D	iP			58.8			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
SEP.11	K	eP	00	56	17.8			
	S	eP			20.7			
	D	iP			24.7			
	T	iP			26.5			
		iS		57	59.0			
	T	iP	04	38	02.7			
	D	eP			10.0			
	S	ePn	05	50	04.7			
		eP			10.7			
	D	ePn			07.4			
		eP			12.3			
		eS			52.7			
	K	ePn			15.2			
	T	ePn			16.7			
		eP			24.1		0.5	25.3
	D	eP	08	52	01.0	t		
	T	iP	09	04	29.5			
	S	eP			33.0			
	K	eP			39.5			
	D	iP			40.8			
	D	iP	11	40	59.4			
	T	iP			59.9			
	T	iP	12	54	15.5			
	D	iP			24.8			
		iS		55	29.7			
	S	eP		54	28.3			
	K	eP			28.7			
	T	iP	12	59	57.0			
	D	iP	13	00	05.0			
	K	eP	16	59	53.0			
	D	eP	17	00	04.5			
	T	eP			04.5			
	T	iP	17	21	02.8			
	D	iP			13.1			
	T	iP	17	29	44.3			
	K	eP			54.2			
	D	iP			56.0			
	T	ePKP	18	46	30.4	t	1.4	44.4
		eX			39.0			
	K	ePKP			30.5			
	S	ePKP			31.3			
	D	ePKP			31.6			
	D	eP	19	27	45.0	t		
	T	eP			45.2		1.2	44.0

Date	Station	Phase	Time (G.M.T.)			t	T	Am
SEP.11	D	ePg	21	51	42.0	t?		
SEP.12	T	iP	00	16	33.4			
	D	iP			42.6			
	T	iP	02	24	02.1			
		eS			27.6			
	D	iP			13.8			
	K	ePg	03	54	45.7			
	S	ePg			51.3			
	T	iP			55.5			
	D	iP			55.7			
	T	ePg	11	48	46.4		1.2	13.9
	D	ePg			58.6			
	T	iP	12	41	36.3			
	D	ePg			45.0			
	T	iP	13	37	35.6			
	D	iP			45.7			
		iS		38	50.0			
	K	iP		37	48.6			
	S	iP			49.0			
	T	iP	14	29	56.3			
	D	iP		30	06.5			
	T	ePg	17	11	22.6			
		eS		12	46.8			
	D	ePg		11	34.4			
	K	iP	22	54	07.9	t		
	S	iP			11.6			
	T	iP			12.6		1.4	207.8
		ePcP?			29.0			
	D	iP			14.7			
		eX		56	22.0			
		ePP		57	23.6			
		eS	23	02	37.2			
		eScS		03	12.3			
		ep', P',		22	13.6			
		$eP'_2P'_2$			30.8			
	T	iP	23	03	17.5			
		eS		04	02.4			
	D	iP		03	27.9			
	K	ePg			31.4			
	S	ePg			32.3			
SEP.13	T	iP	01	01	34.6			
	D	iP			42.9			
	S	ePg			47.5			
	K	ePg			48.6			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
SEP.13	T	iP	05	00	22.3			
	D	eP			32.8			
		iS		02	00.9			
	T	iP	05	07	04.6			
		ePcP?		13	45.0			
	D	iP		07	14.4			
		eX		13	41.1			
		ePcP?			49.8			
	K	eP		07	17.9			
	S	eP			18.8			
	D	eP	05	31	04.0	t?		
	T	iP	07	40	41.0			
	D	iP			49.4			
	K	eP	12	58	57.2	t		
	S	iP		59	01.3			
	T	iP			03.1		1.5	90.8
	D	iP			04.5			
		eX	13	00	15.5			
	T	iP	14	26	54.1			
	D	iP		27	02.5			
	K	eP			14.1			
	D	iP	17	32	05.4			
	T	iP			07.8			
	T	iP	22	22	44.9			
	D	iP			54.5			
SEP.14	T	eP	01	18	38.4			
	D	eP			48.4			
	T	iP	01	37	39.4	t?	1.5	20.8
	T	eP	06	02	57.2			
	D	eP		03	07.1			
	D	eP	07	04	40.3	t		
	T	eP			43.8		0.5	5.3
	T	eP	09	38	48.0			
	D	eP			57.4			
	T	iP	13	26	38.0			
	D	iP			48.3			
	S	eP			52.0			
	T	iP	13	38	07.8			
	D	eP			18.0			
	D	eP	13	59	47.8	t		
	S	eS	14	09	04.1			
	S	eP	13	59	49.5			
	T	iP			50.3		1.3	27.1
	K	eP			53.6			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
SEP.14	T	eP	19	31	39.6	t	0.5	5.5
	K	eP			45.0			
	T	iP	19	55	31.5			
	D	iP			41.4			
	S	eP			46.5			
	K	eP			47.4			
SEP.15	D	iP	00	35	03.7			
	S	iP			08.7			
	T	iP			11.9			
	K	eP			22.9			
	K	eP	03	17	09.5	t		
	S	eP			13.4			
	T	eP			17.1		1.3	26.1
	D	eP			17.6			
	S	iP	05	03	49.2			
	K	iP			52.0			
	D	iP			52.1			
	T	iP			55.9			
	T	iP	10	51	30.3			
	D	iP			39.0			
	S	iP			42.6			
	K	iP			43.9			
	S	eP	12	05	33.8	t		
	D	eP			39.5			
		ePcP?		08	05.3			
	T	eP		05	42.8		0.5	10.2
		ePcP?		08	05.5			
	K	iP	14	53	09.8			
	S	eP			19.9			
	T	eP			21.0			
	D	eP			24.8			
	D	iP	16	54	55.7			
	S	eP		55	01.6			
	T	eP			05.8			
	K	eP			14.9			
	K	eP	17	34	12.4	t		
	S	eP			17.7			
	D	eP			21.0			
	T	eP			24.5		0.5	6.5
	T	iP	19	18	30.8			
	D	iP			41.2			
	K	eP			43.6			
	S	eP			43.9			

Date	Station	Phase	Time(G.M.T.)			t	T	Am	
SEP.15	T	iP	20	01	22.5				
	D	iP			24.9				
	S	iP			31.7				
	K	eP			38.3				
	T	iP	21	19	11.5				
	D	eP			21.8				
SEP.16	D	iP	06	06	19.3				
	S	eP			23.4				
	T	iP			30.2				
	K	eP			37.4				
	T	iP	09	20	05.1				
	T	iP	10	07	37.9				
	K	eP	11	11	40.2				
	D	eP			52.5				
	T	iP			52.6				
	K	iP	14	03	22.0	t			
	S	iP			26.0				
	T	iP			29.8		1.3	139.0	
	D	iP			30.2	LZ	24.4	74.5	U
		eScP		09	09.1	LE	26.8	156.0	U
		ePcS?			13.1	LN	22.4	123.0	U
		eS		10	00.1				
		eScS		13	30.1				
		eP'P'		35	26.2				
	K	eP	14	21	15.2	t			
	T	eP			21.6		1.0	23.6	
	D	eP			24.0				
	T	eP	15	08	36.2	t			
	D	eP			38.8				
	K	eP	15	27	44.8				
	S	eP			54.2				
	T	iP			58.5				
	D	iP		28	00.4				
	D	iP	15	37	42.6				
	T	iP			47.3				
	T	eP	15	53	02.7	t			
	D	eP			03.0				
	K	eP	16	08	38.8	t			
	S	eP			42.1				
	D	eP			45.6				
		eX		10	37.6				
	T	eP		08	45.9		1.2	37.0	

Date	Station	Phase	Time(G.M.T.)			t	T	Am
SEP.16	T	iP	17	50	025			
	D	iP			13.9			
	T	eP	18	33	02.7	t	1.2	22.2
	D	eP			08.9			
	T	eP	21	33	44.3			
	D	eP			58.7			
	T	iP	22	21	48.2			
	D	iP			58.0			
	S	eP		22	01.7			
	K	eP			01.9			
SEP.17	T	iP	01	47	24.5			
	T	eP	03	37	36.6			
	T	eP	05	24	46.0		0.5	5.9
	D	eP			57.0			
	T	iP	06	35	38.9			
	D	iP			46.8			
	S	eP			50.3			
	K	eP			53.3			
	T	iP	08	39	22.1		0.5	24.6
	D	iP			27.1			
	S	eP			31.8			
	K	eP			35.0			
	T	iP	09	11	56.2			
	D	iP		12	06.5			
	T	iP	11	39	45.3			
	K	eP			48.9			
	D	iP			56.5			
	T	iP	13	18	55.4			
	D	iP		19	04.8			
	T	iP	15	15	59.0			
	D	iP		16	09.4			
	T	iP	16	29	54.2			
	D	iP		30	02.1			
	K	eP			08.7			
	T	iP	17	22	12.9			
	D	iP			22.6			
	T	eP	18	00	34.4	t	1.0	17.5
	D	eP			39.1			
	D	eP	21	07	14.3	t		

Date	Station	Phase	Time(G.M.T.)			t	T	Am
SEP.18	T	iP	02	17	31.6			
	D	iP			38.1			
	S	eP1	06	47	50.5			
		eP2			57.3			
	D	eP1			50.8			
		eP2			58.9			
	T	eP1		48	01.6			
		eP2			11.0			
	T	iP	07	32	2 45			
	D	eP			26.0			
	K	eP			44.3			
	T	eP	07	59	20.7			
	E	eP			34.2			
	S	eP	08	52	26.4			
	K	eP			28.1			
	D	iP			28.7			
	T	iP			32.7			
	K	iP	09	07	09.6			
	S	eP			20.4			
	T	eP			22.0			
	D	eP			24.8			
	T	iP	11	05	49.4			
	D	eP		06	02.4			
	T	eP	11	53	50.2	t		
	D	eP			53.1			
	T	iP	14	09	00.2			
	K	eP			10.6			
	D	iP			11.0			
	S	iP			13.3			
	T	eP	14	18	53.0	t	1.5	31.1
	D	eP			53.9			
	T	iP	16	19	00.2			
	T	iP	18	44	19.3			
	D	iP			25.8			
	S	eP			33.4			
	K	eP			40.6			
	T	iP	20	50	30.2			
	D	eP			38.7			
	T	iP	22	58	29.6			
	K	eP			38.0			
	D	iP			40.8			
	S	iP			42.9			
SEP.19	T	eP	01	16	58.0			
	D	eP		17	08.5			

Date	Station	Phase	Time(G.M.T.)			t	T	Am
SEP.19	D	eP	05	26	11.5	t?		
	T	eP	05	28	02.6			
	T	iP	14	29	01.1			
	D	iP			07.3			
	S	eP			09.8			
	K	iP			17.1			
	T	iP	17	18	08.0			
		iS			33.6			
	D	eP			13.4			
	K	eP			19.1			
	T	iP	20	10	06.3			
	K	eP			16.4			
	D	iP			17.7			
	D	eP	22	23	54.8	t		
	T	eP			58.1		1.2	13.9
	K	eP		24	01.4			
SEP.20	T	iP	01	08	15.9			
		iS		09	22.1			
	D	iP		08	23.2			
	K	eP			29.8			
	T	iP	01	29	14.5			
	D	iP			25.8			
	K	eP			26.9			
	S	eP			28.2			
	T	ePKP	06	18	59.3	t	1.2	41.6
		ePP		21	01.4			
		eSKP		22	10.2			
	D	ePKP		19	02.1			
		epPKP?			25.0			
		ePP		21	05.9			
		eSKP		22	12.4			
		eSS		38	36.8			
	S	ePKP		19	02.5			
		ePP		21	08.4			
		eSKP		22	13.2			
	T	iP	07	23	09.1			
	D	iP			17.0			
	K	eP	10	51	06.5			
	S	eP			08.7			
	D	iP			13.0			
	T	iP			15.2			
	D	iP	12	28	10.6			
	S	eP			18.1			
	T	iP			18.9			
	K	eP			31.8			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
SEP. 20	T	iP	13	54	52.0			
	D	iP		55	01.2			
	S	eP			05.0			
	K	eP			05.5			
	T	iP	14	32	16.8			
	D	iP			27.3			
	K	eP			28.9			
	S	eP	15	30	46.7			
	K	eP			48.4			
	D	iP			49.5			
	T	iP			53.3			
	T	iP	15	48	28.3			
	T	iP	16	46	38.0			
	K	eP			23.7			
	S	eP			31.6			
	D	iP			38.5			
	K	eP	18	40	49.3	t		
	T	eP			49.7		1.2	53.3
	D	iP			51.5	LZ	24.0	2.5 U
		iX		41	02.2			
	D	iP	18	45	06.0			
	S	iP			13.6			
	T	iP			14.0			
	K	eP			24.8			
	D	iP	19	36	34.9			
		eS		37	05.2			
	S	eP		36	40.2			
	T	iP			43.1			
	D	iP	20	50	25.4			
	T	iP			28.2			
	D	iP	22	25	52.4			
	T	iP		26	00.4			
	D	eP	22	29	56.2			
	S	eP		30	05.4			
	T	iP			06.0			
	D	iP	22	41	04.7			
	S	iP			11.0			
	T	iP			12.8			
	K	eP			25.7			
	D	iP	23	35	29.8			
	S	iP			35.9			
	T	iP			37.9			
	K	iP			48.1			

Date	Station	Phase	Time(G.M.T.)			t	T	Am
SEP.20	D	iP	23	57	29.3			
	S	iP			35.3			
	T	iP			37.3			
	K	iP			47.1			
SEP.21	D	iP	01	20	24.7			
	S	eP			32.0			
	T	iP			32.6			
	K	eP			45.0			
	T	eP	01	38	13.4			
	T	iP	01	49	15.7			
	S	eP			25.2			
	D	iP			29.7			
	D	iP	02	21	34.8			
	S	eP			41.6			
	T	iP			43.1			
	K	eP			54.1			
	T	eP	04	57	37.2			
	D	iP			45.7			
	S	eP	05	14	25.0			
	K	eP			26.3			
	T	eP			39.2			
	D	iP			39.3			
	T	iP	06	53	54.1			
	K	eP			59.5			
	D	iP		54	00.4			
	S	eP			01.6			
	T	iP	06	59	55.6			
	D	iP			58.2			
	K	eP	07	00	06.7			
	T	iP	07	55	25.2			
	K	eP			31.9			
	D	eP			36.0			
	S	eP			39.6			
	K	iP	12	42	11.1			
	T	iP			17.2			
	S	eP			21.3			
	D	iP			27.1			
	T	iP	13	07	28.2			
	D	iP			36.1			
	S	iP			40.5			
	K	iP			43.2			
	T	iP	14	26	21.6			
	D	iP			30.3			
	T	iP	18	21	10.2			
	D	iP			18.8			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
SEP.21	T	eP	22	17	12.0			
	T	eP	22	28	44.5			
SEP.22	T	eP	00	06	59.5			
	K	iP	06	00	20.8			
	S	iP			28.8			
	T	iP			33.4			
	D	iP			35.1			
	K	eP	08	10	20.3	t		
	S	eP			24.0			
	T	eP			25.0		1.0	77.1
	D	eP			27.2			
	D	eP	09	25	53.1	t		
	K	iP	13	41	08.8			
	S	iP			16.5			
	T	iP			16.6			
	D	iP			20.0			
		iS			36.4			
	T	iP	17	31	27.5			
	D	iP			38.9			
	K	eP			40.2			
	S	iP			41.5			
	T	iP	22	06	27.5			
	D	iP			36.0			
	T	eX1	22	12	37.4	t	1.4	90.0
		iX2			51.6			
	D	iPKP			31.1			
		iX1			40.3			
		iX2			56.6			
SEP.23	T	iP	03	13	28.3			
	K	eP			38.7			
	D	eP			39.6			
	S	eP			41.7			
	T	iP	05	05	01.9			
	D	iP			11.3			
	S	iP			14.9			
	K	eP			15.6			
	T	eP	14	48	14.1			
	D	eP			21.5			
	D	eP	15	06	21.1	t		
	T	eP			21.2		0.5	11.0
	T	eP	16	10	45.4			
	D	eP			54.7			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
SEP.23	T	eP	17	35	44.0			
	D	eP			51.0			
	T	eP	19	26	06.5			
	D	eP			14.2			
	T	eP	22	08	05.2			
	D	eP			15.8			
SEP.24	T	eP	02	43	25.2			
	D	eP			33.3			
	T	iP	03	36	02.0			
	D	iP			10.6			
	T	eP	03	43	27.8			
	D	eP			36.1			
	T	iP	04	47	16.7			
	D	iP			25.8			
	T	eP	05	08	30.3			
	D	eP			39.8			
	T	eP	05	53	12.7			
	D	eP			22.1			
	T	eP	06	05	56.8			
	D	eP		06	06.0			
	T	iP	07	28	41.4			
	D	iP			42.7			
	D	eP	08	55	12.4	t LZ	20.0	2.1 U
	T	iP	13	36	36.0			
	D	iP			45.2			
	T	eP	14	36	40.9			
	D	eP			49.1			
	D	eP	18	08	09.0			
	D	iP	20	45	42.0			
	T	iP			43.7			
	T	iP	20	55	58.5			
	D	iP		56	09.3			
SEP.25	T	iP	00	25	35.2	t	0.5	17.6
	D	iP			37.0			
	T	iP	05	43	45.6			
	D	eP			52.8			
	D	eP	07	15	28.6	t		
	T	eP			30.8		1.0	15.7

Date	Station	Phase	Time (G.M.T.)			t	T	Am
SEP.25	T	iP	07	23	19.1			
	D	iP			28.9			
	D	ePKP	10	57	18.2	t		
	D	ePKP	11	08	05.3	t		
	D	iP	12	50	42.6			
	T	eP			45.2			
	D	iP	14	45	09.1	t		
		epP?		46	14.1			
	T	iP		45	06.1		1.1	128.9
	T	eP	16	38	04.4	t	0.5	11.3
	D	eP			06.1			
	T	eP	18	54	30.0	t	0.5	10.3
	D	eP			30.3			
		eS		58	07.4			
	T	iP	21	38	14.2			
		iS		39	19.8			
	D	iP		38	21.6			
	T	eP	22	51	26.2			
	D	eP			32.6			
SEP.26	D	eP	00	55	48.6	t		
	T	eP			52.1		1.1	34.1
	D	eP	01	41	01.5	t		
	T	eP			15.1		0.5	3.2
	T	iP	02	50	03.1	t	1.0	137.0
	D	iP			05.8			
		eS		58	26.0			
	T	eP	04	39	29.8			
	D	eP			37.8			
	T	eP	08	26	32.0	t	0.5	4.5
		eS		28	42.4			
	D	eP		26	42.7			
	T	iP	08	51	15.8	t	1.1	151.0
	D	iP			18.0			
	T	eP	08	54	20.2			
	D	eP			29.2			
	T	eP	11	03	33.5	t	0.5	3.9
		eS		05	44.2			
	D	eP		03	42.6			
	T	eP	11	25	01.0	t	0.5	3.9
		eS		27	11.2			
	D	eP		25	09.3			

Date	Station	Phase	Time(G.M.T.)			t		T	Am	
SEP.26	T	eP	14	39	15.0					
	D	eP			22.2					
	T	iP	14	48	31.4	t		1.0	251.0	
	D	iP			33.6					
		ePcP?			44.0					
		eS		57	25.6					
		eScS?		58	24.2					
	D	eP	18	14	42.7	t	LZ	20.0	36.4	U
		eS		24	35.6		LE	20.0	60.8	U
	T	eP		14	43.1			1.2		
	D	eP	22	05	47.0					
	T	eP			50.8					
	T	iP	22	55	16.3					
	D	eP			19.0					
SEP.27	S	eP	04	06	44.3	t				
	K	eP			45.1					
	D	eP			47.6					
		eScP		12	04.2					
		ePcS			30.3					
		eS		13	01.8					
		eSS?			59.2					
		eScS		16	30.3					
	T	eP		06	50.7			1.2	169.3	
		ePP?		07	26.7					
		eScP		12	10.3					
		eS		13	09.1					
	T	iP	06	27	51.3					
	D	iP		28	01.3					
	K	eP			05.8					
	S	eP			06.7					
	S	eP	10	47	00.4	t				
	T	iP			03.5			1.1	43.5	
	D	eP			03.8					
	T	iP	16	46	54.5					
	K	eP		47	01.7					
	D	iP			05.2					
	S	eP			08.8					
	S	eP	16	53	01.7	t				
	D	eP			04.1					
	T	eP			05.6			1.4	46.1	
	K	eP	19	14	11.6	t				
	S	eP			12.5					
	D	eP			15.4	LZ		20.0	28.6	U
		ePcP?		16	26.8	LN		20.0	34.2	U
		eS		20	17.2					
		eScS		24	25.6					
	T	eP		14	17.1			1.4	63.0	

Date	Station	Phase	Time (G.M.T.)			t	T	Am
SEP.27	D	eP	21	06	34.9	t?		
	D	eP	21	25	38.0	t?		
	D	eP	22	03	10.8	t?		
	D	eP	22	59	32.2	t?		
	K	iP	23	45	34.7			
	T	iP			42.5			
	D	iP			44.0			
SEP.28	T	iP	01	30	34.9			
	T	iP	03	07	31.5			
	D	iP			40.2			
	D	eP	09	35	48.8	t		
	T	eP			52.6		1.2	28.2
	D	eP	10	00	09.3	t		
	T	ePKP	14	12	49.2	t	1.1	24.5
		eX			59.8			
	D	ePKP			54.4			
	D	eP	15	04	43.6			
	T	eP			45.3			
	T	iP	15	59	34.4			
	D	iP			43.3			
	T	iP	17	21	23.4			
	D	eP			30.9			
	S	iP	17	43	57.7			
	D	iP		44	04.9			
	K	iP			05.2			
	T	iP			09.9			
	T	iP	18	21	54.6			
	K	eP		22	02.2			
	D	iP			02.9			
	S	eP			09.4			
	S	iP	18	37	22.7			
	K	iP			30.8			
	D	iP			30.9			
	T	iP			54.5			
SEP.29	D	eP	01	44	42.8	t		
	T	eP			45.4			
	D	eP	03	51	19.9	t	Explosion?	
		ePcP		52	58.7			
	T	iP		51	23.1		0.6	103.0
	K	iP			29.5			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
SEP. 29	D	ePcP	05	18	56.0	t?		
	T	ePcP			59.1		0.5	9.2
	T	ePcP	05	57	57.5			
	D	ePcP		58	06.9			
	S	ePcP			10.1			
	K	ePcP			12.7			
	T	ePcP	06	22	56.2			
	D	ePcP		23	04.6			
	S	ePcP	08	25	48.4	t		
	D	ePcP			52.5			
	T	ePcP			52.9		1.4	39.6
	S	ePcP	08	43	02.6			
	D	ePcP			07.6			
	T	ePcP			07.7		1.1	24.8
	S	ePcP	08	50	40.5	t		
	D	ePcP			44.8			
	T	ePcP			45.1		1.1	19.1
	T	ePcP	09	11	26.0			
	D	ePcP			34.0			
	T	ePcP	09	31	08.7			
	D	ePcP			17.3			
	S	ePcP	13	33	45.1	t		
	D	ePcP			48.2			
		ePcP		36	13.7			
		eS		39	26.5			
	T	ePcP		33	51.0		0.5	25.6
	D	ePcP	16	45	08.1			
	T	ePcP			10.3			
	T	ePcP	18	28	08.5	t	1.1	19.1
	D	ePcP			13.5			
	D	ePcP	19	49	43.4	t		
	T	ePcP			46.4		0.5	18.2
	D	ePcP	22	34	46.7	t		
	T	ePcP			47.8		1.0	29.6
	D	ePcP	22	49	34.3	t		
SEP. 30	T	ePcP	06	12	33.4			
	D	ePcP			42.6			
	T	ePcP	10	55	59.6	t	0.5	7.9
	D	ePcP		56	05.6			
	T	ePcP	11	49	09.8	t	1.2	17.6
	D	ePcP			11.5			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
SEP.30	T	iP	12	36	47.0			
	T	iP	13	21	46.6			
	D	iP			54.5			
	S	eP	14	12	16.0	t		
	D	eP			18.6			
	T	eP			23.8		0.5	10.5
	S	iP	14	22	24.5	t		
	K	eP			25.0			
	D	iP			29.2			
		ePcP		25	04.8			
		eScP		28	34.8			
		ePcS			52.2			
		eScS		32	39.8			
	T	iP		22	32.6		0.5	61.3
		ePcP		25	05.5			
	T	iP	19	17	23.8			
	D	eP			33.0			
	T	iP	19	53	40.6			
	D	iP			48.8			
	T	iP	20	06	50.0			
	D	iP			58.7			

Tsukuba,

S-P \ Date	1	2	3	4	5	6	7	8	9	10	11	12	13
0– 0.9													
1– 1.9													
2– 2.9													
3– 3.9													
4– 4.9	1		1										
5– 5.9	1	1				1			2		3		1
6– 6.9		1	1				2	1	1			2	1
7– 7.9	1	3	3	*		1	2		1	2	1	1	
8– 8.9		1	3	3		4*	1		3	2	1	3	1
9– 9.9	2	3	3	2		5	2		1	5	1*	2	3
10–10.9	2	6	3		2	2	1*	1	4	1	1	1	4
11–11.9	3		2		1	2		1	2			1	5
12–12.9	2	3	2						1	2	2		1
13–13.9				1								2	
14–14.9			2	1		*			2	1	2	1	1
15–15.9	3*		1		2			1			1		*
16–16.9	2	2	1	1*					2	1		1	1
17–17.9	1			1		1			1	1		1*	
18–18.9		1		1	1	1	*	1	2			1*	
19–19.9	3		1	2	2	2	1			1			
20–20.9		1		1	2	1**				1		1	
21–21.9			1	1						1		1	
22–22.9							**		1			1	
23–23.9													1
24–24.9			*				1						
25–25.9												1	
26–26.9							1					*	
27–27.9								1	2		1		
28–28.9					1								
29–29.9		1				1*	1						
above 30 sec	4	7	5	1	5	5	2	2	2	3	4	5	5
?							1						
Total	25	30	29	15	16	26	15	8	27	21	17	25	24
no observation													
Remarks	*: indicates a larger earthquake which is included												

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14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	Total
																	0
																	0
																	0
																	0
1																	3
2	2		2		3		1	2	1	1		1	2	3	1	1	31
1	1		2	3	1	1			1	1		2	2	3	1		28
2			1	1	3	3		1	1		1	5	2	1		2	38
2	1	3	3	1	2	1		1	2	2	1	1	1	2			45
4	3	2	1	4	5	2	2	5	1	2*	2	1	1	4	1		69
	2	2	1	1	1	1	1	1	2		1	2		3	2	1	49
1	1	2	3	*	2	1	*	1	1	1			1	1	1		33
	1							1		1			2		1		19
1		1	1								2						8
	1			3								1	1	1*	1		18
			*		1	1			1			3		2*	1	1	18
				1			*					1		1			14
		1			1		*	*	2			1	1				12
	1		*		***		1*	1						1		1	13
	2		1	2		1*	1	1	2*				2				24
	*	4		1		1	2								1	1	17
	2	2	1*	1		1	4*				1	1	1	*			18
	1	1			1		4		1*		2		2	1			15
				1	1		1	1					*				5
1	1	**	1														4
			1	1			1*										4
																	1
1																	5
			1									1					3
			*											1		1	5
5	3	8	2	2	2	3	2	1	2	8	3	4	1		2	2	100
					1												2
21	22	26	21	22	24	16	20	16	17	16	13	24	19	24	12	10	
											02h ≀ 03h		Noisy		Noisy		

in the main table the Bulletin.

Date / S-P	1	2	3	4	5	6	7	8	9	10	11	12	13
0– 0.9													
1– 1.9													
2– 2.9	4						2						
3– 3.9							2						
4– 4.9						1							
5– 5.9			1										
6– 6.9							1			1		1	
7– 7.9		1	3			1	1		1				
8– 8.9				1			2			2		1	
9– 9.9		1						1					1
10–10.9	1	2		1					3		1		
11–11.9	4	2		*		2	1	1	1		1		
12–12.9	3	1	1	3	1	3*			1	3			1
13–13.9	*	2	1	1	2	5	2	3	2	1	1	2	2
14–14.9			1			1			1			1	2
15–15.9			1	1*			1		1				
16–16.9	1	1**				*		1	1				1
17–17.9		2		1		1							
18–18.9	*					1				1	1*		1
19–19.9	1	1					*		**				
20–20.9	2	1	1	1				*					
21–21.9	1						*					1	*
22–22.9	1		1			1	1						
23–23.9			1			*	*		2			1	1
24–24.9													
25–25.9			1										
26–26.9										1		*	
27–27.9									1		2	*	
28–28.9						*						1	
29–29.9				1									
above 30 sec	3	3	4	2	7	3	3	1	2	1	2	4	
?													1
Total	21	17	16	12	10	19	16	7	16	10	8	12	10
no observation													
Remarks	*: indicates a larger earthquake which is included												

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14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	Total
																	0
					1												1
				3													9
																	2
															1	1	3
					1										1		3
1		1													1	1	7
1				2	3					1	1						15
1		1					2						1			1	12
											2						5
					2	1		1	1	*	1		1	3	1		19
			1		1			2	1	1						1	19
	1		1	1	3	1		1	1		3	2	2	2	1	1	37
	1*	5*			3	2	1	3	1	1		1	2	1	3	1	49
		1			2		3**								1		13
			1	1			5 *	3	1				2	1*			18
	1	1					1 ***							2			10
	1*	*	1	1*		*	1	1	1	2				1	1	1	15
1	1				1		2				*			1	1		10
1	2						2			1	1						9
1	2		*	*		*		2									10
						1	1*				2	1	1	1		1	10
												1	1	1			7
1									*	1	1	1					9
				1								1	*				2
		*					1		1*						*		3
													*				1
			1														4
					*		*							1			2
					*			1									2
1	2	3	1		4		1	1	5	4	5	5	2	2	1	3	75
			1		3		3		1								9
7	11	12	7	9	24	5	23	15	13	11	16	12	12	16	12	11	

in the main table the Bulletin.

Preliminary Bulletin

of the Dodaira Micro-earthquake Observatory

and its Substation

October, 1968

Dodaira Micro-earthquake Observatory

Earthquake Research Institute, the University of Tokyo

Preliminary Bulletin of the Dodaira Micro-earthquake Observatory and its Substation

Observation stations

		N	E	h
Dodaira	(D or DDR)	35°59'54".0	139°11'36".2	800m
Tsukuba	(T or TSK)	36°12'39".0	140° 6'35".0	280m
Kiyosumi	(K or KYS)	35°11'51".6	140° 8'53".6	230m
Shiroyama	(S or SRY) (temporary)	35°36'30".0	139°16'27".0	254m

Expressions:

Am: Amplitude in millimicron (half of peak to trough*) of P motion maximum within few cycles after the onset recorded by a short period vertical seismograph. *In 1967 double amplitude (peak to trough) was used as Am.

T : Period in sec of the measured P maximum

t : Teleseism

All stations are radio-telemetered to Tokyo giving records on a multi-channel ink-recording oscillograph. The paper speed of the recorder is 1 mm per sec. For stronger events high speed recorder (10 mm/sec) is also triggered. The system is also recorded in parallel on multi channel magnetic tape through a trigger system using an endless tape loop. Direct filter sum of short period seismometers at Dodaira and/or on line short period filter outputs of Tsukuba are also used for the

detection of weak teleseismic signals. For teleseismic events records of long period and medium period seismographs are occasionally used, applying off line frequency filter, if necessary.

The Bulletin includes the preliminary readings sent to USCGS for teleseisms and larger near shocks with total durations (F-P) of short period vertical seismograph at Tsukuba (TSK) with magnification about 140.000 at 1 c/s or sensitivity about 300×10^{-3} mm/microkine at 10 c/s being longer than 100 seconds which correspond approximately shocks with $M \gtrsim 3.5$. For the minor near earthquakes with F-P $\lesssim$ 100 sec or $M \lesssim 3.5$, frequency of S-P times at each station is added at the end of the Bulletin, which may easily give a general idea of local seismicity around the station.

Date	Station	Phase	Time (G. M. T)			t	T	Am
OCT. 1	T	iP	00	16	32.4			
	D	eP			41.0			
	T	iP	02	11	55.3			
	D	iP			55.9			
	T	iP	03	01	28.5			
	D	iP			36.7			
	T	eP	07	41	39.6			
	D	eP			47.5			
	T	eP	09	57	11.9			
	T	iP	10	42	05.5			
	D	eP			15.2			
	S	eP			20.9			
	K	eP			22.0			
	T	iP	18	46	32.6			
	D	iP			41.7			
	T	iP	18	50	59.4			
	D	iP		51	09.2			
	D	eP	21	23	08.0	t?		
OCT. 2	D	eP	05	55	14.4	t?		
	D	eP	06	48	36.5	t?		
	D	eP	06	58	40.2	t?		
	D	eP	07	39	20.2	t?		
	K	iP	09	11	48.0			
	S	iP			53.0			
	D	iP			57.0			
	T	iP			58.0			
	T	eP	13	31	51.0	t	1.1	27.6
	D	eP			53.2			
	S	eP	18	32	35.8	t		
	D	eP			37.8			
	T	eP			42.7		0.5	5.3
	D	eP	19	12	42.8	t?		
	S	eP	19	55	02.8	t		
	T	eP			07.3		1.0	25.0
	D	eP		55	18.3			
		eS		58	56.0			
	T	eP	21	41	40.9			

Date	Station	Phase	Time (G. M. T.)			t	T	Am
OCT. 2	T	iP	22	02	17.1			
	D	eP			18.0			
OCT. 3	T	iP	02	58	06.4			
	D	eP			13.8			
	D	eP	07	52	32.1	t?		
	T	iP	08	01	47.6			
	D	iP			55.0			
	D	iP	08	12	28.2	t		
		ePcP?		14	30.4			
		eS		18	31.3			
		eScS		22	21.4			
	T	eP		12	32.3		0.5	26.3
	T	iP	11	15	35.0	t	1.0	47.5
	D	iP			41.4			
		ipP?			54.8			
	S	iP			44.0			
	T	iP	12	08	04.7			
	D	iP			14.5			
	S	eP	12	30	09.6	t		
	D	eP			10.0			
	T	eP			1 55		1.2	15.7
	T	iP	13	18	59.0			
	D	iP		19	06.7			
	T	eP	18	16	10.8	t	1.3	17.7
	D	eP			17.5			
	T	iP	18	54	19.5			
	D	eP			28.0			
	T	iP	20	34	28.7			
	D	iP			38.1			
OCT. 4	T	iP	00	41	24.6			
	D	eP			28.5			
	T	eP	02	00	35.2			
	T	iP	04	25	20.8			
	D	iP			30.0			
	S	iP			33.0			
	K	iP			33.4			
	D	eP	05	08	49.3	t?		
	D	eP	05	49	49.6	t?		

Date	Station	Phase	Time (G. M. T.)			t	T	Am
OCT. 6	T	iP	03	47	26.9			
	D	iP			35.6			
	D	eP	05	06	17.4	t		
	T	eP			17.7		1.2	25.4
	T	eP	05	25	54.9	t	1.2	27.7
	D	eP			58.6			
	D	eP	07	51	01.3	t		
	T	eP			05.1		1.0	10.3
	D	iP	07	52	24.3	t		
	T	iP			26.2		0.5	15.1
	D	eP	08	08	54.0	t ?		
	T	eP	08	57	45.1	t	1.3	103.0
	D	eP			49.1	LZ	22.0	4.2U
	T	iP	09	23	55.1			
	D	eP		24	03.6			
		eS		25	42.8			
	T	eP	09	36	44.2	t	0.5	4.7
	D	eP			48.2			
		eS		40	32.8			
	T	iP	10	00	09.1			
	D	eP			17.2			
	T	eP	10	25	10.0			
	D	eP			17.5			
	D	iP	14	32	22.9			
	T	iP			27.1			
	D	eP	15	19	18.1	t ?		
	D	eP	19	41	30.9			
	T	eP			30.9			
	T	eP	19	51	51.2			
	D	eP			59.2			
OCT. 7	D	eP	00	09	46.3	t ?		
	T	eP	00	26	33.8			
	D	iP			43.5			
	D	eP	04	34	30.5	t		
		eS		37	35.5			
	T	eP		34	31.0		0.5	11.4
	T	eP	05	30	15.5			
	D	eP			23.5			

Date	Station	Phase	Time (G. M. T.)			t	T	Am
OCT. 7	S	eP	07	57	43.0	t		
	D	eP			44.5			
		eS	08	00	23.1			
	D	eP	09	01	05.5	t		
	T	eP			12.5		1.1	28.6
	T	eP	09	05	25.7			
	D	eP			36.0			
	D	eP	09	21	56.2	t ?		
	K	eP	16	07	09.6			
	S	eP			18.1			
	D	eP			21.6			
	T	eP			22.5			
	T	iP	18	38	16.0			
	D	iP			18.9			
	S	eP			21.0			
	D	eP	19	18	21.1	t ?		
	K	iP	19	22	26.6			
	S	iP			31.4			
	D	iP			34.5			
	T	iP			36.5			
	K	eP	19	49	08.7			
	S	iP			13.3			
	D	iP			17.5			
	T	iP			19.5			
	D	eP	19	58	42.4			
		eS	20	01	10.6			
	K	eP	20	23	15.6			
	S	eP			18.4			
	D	iP			22.3			
	T	eP			24.5			
	D	eP	20	06	15.2	t ?		
	T	eP	20	33	52.7		0.5	34.8
	D	iP		34	02.0			
		iX			14.2			
	S	eP			05.5			
	T	iP	20	50	29.4			
	D	iP			36.1			
	S	eP			42.7			
	K	eP			44.0			
	T	eP	21	31	39.0			
	D	eP			47.2			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
OCT. 7	K	eP	22	33	37.9			
	S	eP			45.0			
	T	eP			50.0			
	D	eP			50.3			
	K	eP	23	52	27.3	t		
	S	eP			32.5			
	D	eP			36.2			
		eS		56	35.1			
	T	eP		52	36.6		0.5	19.5
OCT. 8	K	iP	00	50	54.2			
	T	iP			55.1			
	S	iP			56.3			
	D	iP			58.5			
	S	eP	07	56	13.5	t		
	K	eP			14.0			
	D	eP			16.6			
	T	eP			17.0		1.5	190.0
	S	iP	11	49	13.8			
	D	iP			15.6			
	K	iP			17.5			
	T	iP			17.6			
	T	eP	13	22	57.6			
	T	iP	14	11	45.2			
	D	iP			50.2			
	S	iP			51.5			
	K	iP			54.3			
	T	eP	14	44	50.0			
	D	iP			59.2			
	T	eX	15	13	12.3	t	1.5	63.0
		ePKP2			26.7			
	D	ePKP1			06.0			
		eX			14.9			
		ePKP2			29.8			
	S	ePKP1			06.1			
		eX			15.6			
		ePKP2			30.1			
	T	eP	17	50	06.4			
	D	eP			14.2			
	T	eP	20	18	15.1			
	D	eP			23.4			
	T	iP	22	31	53.7			
	D	iP		32	04.0			
	S	iP			07.1			
OCT. 9	T	eP	01	55	30.0			
	D	eP			39.5			

Date	Station	Phase	Time (G. M. T.)			t	T	Am
OCT. 9	T	iP	02	17	29.5			
	D	eP	03	49	30.3	t LZ	28.0	8.4U
		eX		50	31.4			
	T	eP		49	30.8		1.1	50.0
	T	iP	09	58	34.1			
	D	iP			44.3			
	K	iP	11	23	39.9			
	T	iP			40.9			
	S	iP			41.8			
	D	iP			43.9			
	S	eP	11	36	46.7			
	D	iP			48.5			
	T	iP			52.8			
	T	eP	16	22	34.8			
	D	eP	17	21	21.1	t		
	T	eP			25.1		1.2	36.9
OCT. 10	T	eP	14	05	47.7		0.5	6.3
		eS		07	33.5			
	D	eP		05	57.0			
	T	iP	14	42	45.6			
	D	iP			55.6			
	K	eP1	15	13	26.1	t		
		eP2			39.3			
	S	eP1			26.8			
		eP2			40.6			
	T	eP1			29.8		1.6	30.7
		eP2			44.0			
	D	eP1			30.0			
		eP2			44.2			
	D	eP	16	22	31.5	t		
	T	eP			32.1		0.5	5.8
	T	eP	19	36	23.7			
	K	eP	19	46	05.3			
	S	eP			16.0			
	T	iP			18.7			
	D	iP			20.0			
	T	eP	23	26	36.6			
	T	iP	23	37	25.7			
	D	eP			35.0			
OCT. 11	T	iP	04	08	34.0			
		iS		09	24.5			
	D	iP		08	42.4			
	S	eP			46.2			
	K	eP			51.0			
	T	eP	07	56	04.0			
	D	eP	08	10	21.0	t		

Date	Station	Phase	Time (G. M. T.)			t	T	Am
OCT. 11	T	iP	08	28	27.9			
		eS		29	43.3			
	D	iP		28	35.7			
	S	eP			40.2			
	S	iP	09	14	56.0	t		
	D	iP		15	00.2			
		eS		19	21.4			
	T	iP		15	00.3		1.0	18.5
	D	eX	12	32	58.4	t		
	K	eP	12	49	28.1			
	S	eP			31.8			
	D	iP			36.2			
		eS		51	21.0			
	T	iP		49	37.7		0.5	10.3
	T	iP	13	10	49.0			
	D	iP			53.4			
	K	eP			54.0			
	S	iP			54.2			
	S	eP	17	22	36.8	t		
	K	eP			38.6			
	D	eP			44.4			
	D	eP	19	11	57.9	tLZ	20.0	2.5 U
	K	eP	19	52	13.6			
	S	eP			22.5			
	T	eP			24.2			
	D	eP			25.4			
	T	eP	19	59	06.2			
OCT. 12	K	eP	00	10	15.0			
	S	eP			23.9			
	T	eP			26.6			
	D	eP			29.2			
	D	eP	08	05	14.5	t ?		
	D	iP	10	15	25.4			
	S	iP			30.8			
	T	iP			36.3			
	K	eP			46.0			
	T	eP	11	45	08.2			
	D	eP			16.1			
	S	eP	12	17	03.2			
	D	eP			14.6			
	T	eP			18.8		1.1	13.4
	K	eP	19	27	42.0	t		
	T	iP			45.0		1.6	238.4
	S	iP			45.7			
	D	iP			48.0			
		ePP		29	51.3			
		eS		37	05.0			
	D	eP	23	29	25.2	t		
	S	eP			26.2			
	T	eP			29.4		1.0	33.8

Date	Station	Phase	Time (G.M.T.)			t	T	Am
OCT. 13	T	iP	03	00	43.1			
	D	iP			52.9			
		eS		01	24.6			
	S	iP		00	55.8			
	K	eP	03	07	06.2			
	S	eP			13.0			
	D	iP			17.8			
		eS		08	03.1			
	T	eP		07	20.5			
	D	eP	08	16	58.5	t?		
	D	iP	08	47	41.8			
	S	eP			42.5			
	T	iP			46.7			
	D	iP	10	25	18.4			
	S	eP			22.8			
	K	eP			26.2			
	T	eP	12	24	45.1	t	1.1	37.7
	S	eP			48.3			
	D	eP			49.1			
	S	iP	14	02	25.3	t		
	T	eP			27.2		1.3	26.7
	D	eP			30.9			
	K	eP	19	29	38.0			
	D	iP			42.7			
	T	iP			46.1			
	T	eP	21	23	35.0			
OCT. 14	D	iP	01	03	31.3			
		eS			45.7			
	T	iP			31.5			
	K	eP	03	10	01.8	t		
	D	eP1			05.0	LZ	24.4	19.4 U
		eP2			17.4	LE	21.6	24.1 U
		ePP			54.4	LN	23.6	15.5U
		ePP		12	19.0			
		eS		19	22.7			
		eP'P'		38	07.7			
	T	eP		10	06.8		1.2	85.3
	T	eP	06	00	48.6	t	1.4	49.6
	D	eP			50.2			
	K	eP	07	30	39.6	t		
	T	eP			52.6		1.2	144.4
	D	eP			53.1			
		eS		33	27.0			

Date	Station	Phase	Time (G. M. T.)			t	T	Am
OCT. 14	T	iP	09	12	06.0			
	D	iP			16.4			
	K	ePg			20.6			
	T	ePg	12	14	18.0			
	D	ePg			26.9			
		eSg		15	30.4			
	K	ePg		14	37.1			
	D	ePg	17	02	49.2	t		
	T	ePg			52.2		0.5	8.6
	D	ePg	17	37	52.2	t		
	T	ePg	19	40	43.7			
	D	ePg			52.4			
	D	iP	22	58	22.2			
		eSg		59	09.0			
	T	ePg		58	26.6			
	D	ePg	23	56	13.8			
	T	ePg			17.9			
OCT. 15	D	ePg	02	02	42.5	t		
		eX		04	53.1			
	T	ePg		02	45.5		1.2	19.0
	D	ePg	02	19	28.4	t		
	K	ePg			29.2			
	T	ePg			32.7		0.5	9.5
	K	ePg	09	14	37.2			
	T	ePg			49.2			
	D	ePg			50.4			
		eSg		15	56.3			
	T	iP	15	46	49.0			
	D	iP			58.8			
	K	ePg		47	02.7			
	D	iP	20	15	06.0	t		
		eS?		19	55.8			
		eScS		25	43.6			
	T	ePg		15	09.0		1.2	35.6
	T	ePg	22	22	27.4			
	D	ePg			35.6			
OCT. 16	K	iP	05	08	53.0			
	T	ePg		09	03.8			
	D	iP			05.0			
	T	ePg	06	17	50.0			
		eSg		18	46.2			
	D	ePg		17	51.0			

Date	Station	Phase	Time (G. M. T.)			t	T	Am
OCT. 16	T	eP	06	44	46.6			
	D	eP			56.0			
	D	eP	07	48	23.6	t LZ	18.0	21.2U
		eScS?		58	58.0	LE	18.0	21.5U
	K	eP		48	27.8	LN	17.2	17.6U
	T	eP			34.7		1.1	36.6
	T	iP	08	18	50.0			
	D	iP			51.6			
	K	eP		19	01.8			
	T	eP	09	50	06.3			
	D	eP			16.2			
	T	eP	12	57	14.0			
	D	eP			24.2			
		eS		58	04.8			
OCT. 17	T	iP	00	05	04.0			
	D	eP			14.5			
	T	eP	03	22	18.2			
	D	eP			27.4			
	D	eP	05	16	57.2	t		
	K	eP	06	57	16.7	t		
	D	eP			27.4			
		eS	07	00	51.2			
	T	eP	06	57	28.5		1.2	55.6
	T	eP	07	31	18.8			
	D	eP			26.8			
	T	iP	10	52	04.3			
		eS		53	10.1			
	D	eP		52	13.8			
	T	eP	11	15	58.0			
	D	cP		16	07.2			
	T	eP	12	40	47.3			
	D	eP			55.8			
	T	iP	13	29	14.9			
	D	iP			24.3			
	K	eP			30.2			
	T	eP	16	34	08.7			
	D	eP			20.2			
		eS			55.2			
	T	eP	19	17	38.6			

Date	Station	Phase	Time (G. M. T.)			t	T	Am
OCT. 17	T	iP	21	03	00.4			
	D	eP			09.2			
	T	eP	21	05	11.8	t	0.5	3.9
	D	eP	23	25	14.2	t		
OCT. 18	K	eP	02	51	11.0	t		
	D	eP			15.3			
		eS		54	30.4			
	T	eP		51	22.5		1.2	31.9
	D	eP	05	58	17.0	t ?		
	T	iP	09	17	14.7			
	D	eP			23.2			
	T	iP	09	58	32.0			
	D	eP			39.6			
	K	eP			49.6			
	D	eP	11	28	01.5	t		
	T	eP			05.3		0.5	7.5
	T	iP	11	42	33.4			
	D	eP			42.2			
	T	iP	12	10	13.3			
	D	eP			21.4			
		eS		10	21.4			
	T	eP	14	29	01.5			
		eS			53.8			
	D	eP			09.7			
	T	eP	18	08	18.4			
	D	eP			26.8			
	T	eP	21	25	38.8			
	D	eP			47.2			

Date	Station	Phase	Time(G.M.T)			t	T	Am
OCT.19	D	eP	04	37	32.0	t?		
	D	eP	07	10	39.1	t		
	T	eP			42.4		1.1	42.2
	K	eP			47.3			
	D	eP	10	01	09.6	t		
	T	eP			14.0		1.2	50.0
	K	eP			18.2			
	D	eP	10	19	17.6			
	T	eP			20.2			
	T	eP	12	07	28.0	t	0.5	12.2
	D	eP			28.2			
	T	iP	13	43	19.4			
		eS		45	08.2			
	D	eP		43	23.1			
	K	eP			23.4			
	T	eP	15	07	38.4			
	T	eP	17	39	38.3	t	1.2	31.0
	D	eP			41.6			
	T	eP	18	20	23.0			
	D	eP			33.7			
		eS		21	02.0			
	T	iP	18	56	15.7			
	D	eP			26.3			
	T	iP	19	18	12.8			
		eS		19	18.0			
	D	eP		18	20.0			
	K	eP			30.9			
	K	eP	20	01	26.4			
	T	eP			36.6			
	D	eP			42.0			
	T	iP	20	56	17.6			
	D	iP			20.2			
	T	eP	21	05	14.0			
	D	iP			24.0			
		eS		06	13.2			
	T	iP	21	21	23.1			
	K	eP			31.7			
	D	eP			34.2			
OCT.20	T	eP	05	07	54.0			
	D	iP		08	04.2			
		eS		07	56.8			

Date	Station	Phase	Time (G.M.T)			t	T	Am
OCT.20	D	eP	07	12	30.6	t LZ	17.6	17.7U
	K	eP			35.4			
	T	eP			36.5		1.6	1120
	T	eP	08	28	07.4			
	D	eP			17.9			
	T	eP	12	23	05.3		1.2	61.1
		eX			15.8			
	D	iP			15.4	LZ	16.0	26.0U
		iX			25.8			
		eS		24	21.8			
	K	eP		23	17.8			
	D	eP	13	30	05.2			
	T	eP			08.0			
	D	eP	14	36	28.1			
	T	iP			30.4			
OCT.21	T	iP	01	28	19.5			
	K	eP			21.8			
	D	eP			29.0			
	T	eP	01	33	17.4			
	T	eP	06	01	17.6			
		eS		02	08.9			
	D	eP		01	27.7			
	D	iP	07	48	04.7			
		eS			46.3			
	T	eP			08.8			
	T	eP	09	55	54.0			
		eS		57	04.4			
	T	eP	18	06	56.2			
	D	eP		07	07.7			
		eS			37.2			
OCT.22	D	eP	03	56	57.5			
	T	eP		57	00.4			
	D	eSKS?	08	10	52.0	t LZ	20.0	2.1U
	T	eP	13	58	24.7			
		eS		59	10.1			
	D	eP		58	33.6			
	T	iP	14	42	49.4			
		eS		43	43.8			
	D	eP			00.0			
	T	eP	19	13	42.0			
		eS		14	41.8			
	D	eP		13	50.8			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
OCT.22	T	eP	19	51	57.2			
		eS		52	59.0			
	D	eP			06.0			
	K	eP	23	00	23.2			
	T	eP			36.4			
	D	iP			38.4			
OCT.23	K	eP	00	02	33.8			
	D	iP			40.1			
		eS		03	44.6			
	T	iP		02	41.9			
	T	eP	02	02	08.2			
	D	eP			18.4			
		eS		03	18.7			
	K	eP	05	36	27.2			
	D	eP			31.3			
		eS		37	22.8			
	T	iP		36	34.4			
	T	eP	08	19	10.5			
		eS		20	20.1			
	D	eP		19	16.8			
	K	eP	08	31	11.8			
	T	iP			13.4			
	D	eP			22.2			
	D	eP	11	48	58.6			
		eS		50	11.6			
	T	eP		48	59.0			
	D	eP	13	35	02.6	t		
	T	eP			06.8		0.5	9.3
	K	eP	21	12	05.0	t		
	D	eP			11.2	Lz	19.6	50.0 U
		epP			25.6			
		eX1		13	15.8			
		ePP ?		14	22.7			
		eX2			35.3			
		eS		18	12.0			
		eScS		22	23.6			
	T	eP		12	13.0		1.2	81.5
	D	eP	21	25	03.6	t		
OCT.24	D	eP	00	48	30.8	t		
		epP ?			48.6			
		eX		51	29.8			
	T	eP		48	35.6		1.0	54.5
	T	iP	01	41	39.0			
	D	iP			48.3			
	K	eP			51.8			

Date	Station	Phase	Time (G.M.T.)				t	T	Am
OCT.24	T	ePn	01	49	20.6		t	1.0	50.7
	D	ePn			24.3				
		eX			54.2				
	K	ePn	03	07	28.5				
	T	ePn			41.8				
	D	ePn			44.2				
	T	ePn	04	20	11.0				
	D	ePn			19.0				
		iS		21	28.9				
	T	ePn	09	34	36.4		t	0.5	8.9
	D	ePn			37.4				
	D	ePn	14	05	34.8		t		
		epP		06	06.4				
		eX		08	02.9				
	T	ePn		05	39.5			0.5	12.9
	T	iP	15	57	07.9				
	D	iP			16.2				
	D	iP	15	57	38.6		t		
	T	ePn			40.0			1.0	58.6
						DDR	LZ	20.0	21.8U
							LE	20.0	17.2U
							LN	20.0	34.3U
	T	ePn	20	02	39.2		t	0.5	3.9
	K	ePn	20	12	06.0				
	T	ePn			20.6				
	D	ePn			21.4				
	D	ePn	21	01	37.8		t		
	T	ePn			43.2			0.5	8.2
	K	iP	21	45	28.0				
	T	iP			39.5			0.5	42.4
	D	iP			42.6				
		iX			56.1				
	T	ePn	22	59	54.6		t	1.0	110.0
	D	epP		40	02.0				
		eS ?		43	22.1				
OCT.25	T	ePn	05	49	54.6				
	T	ePn	06	17	06.0				
	D	ePn	07	48	00.7				
	T	iP			03.3				
	T	iP	09	00	25.0				
	D	ePn			33.0				

Date	Station	Phase	Time (G.M.T.)			t	T	Am
OCT.25	D	ePn	10	03	36.0	t?		
	D	ePn	10	23	36.4	t?		
	S	ePn	10	38	24.2	t		
	D	ePn			25.0	LZ	20.0	2.1 U
		eSn			41.2			
	T	ePn			30.0		0.5	16.2
	T	ePn	11	00	53.3			
	D	ePn		01	02.8			
	D	ePn	11	44	33.4	t?		
	D	ePn	12	04	01.8	t?		
	D	ePn	13	32	11.8	t?		
	D	ePn	13	42	35.1	t?		
	D	ePn	13	46	03.7	t?		
	D	ePn	13	47	13.9	t?		
	D	ePn	13	54	06.8	t?		
	D	ePn	13	57	29.3	t?		
	D	ePn	14	09	43.9	t?		
	T	ePn	16	01	55.8	t	0.5	5.1
	D	ePn			56.6			
	D	ePn	20	13	57.3	t?		
	D	ePn	20	16	52.0	t?		
OCT.26	T	ePn	03	44	57.4			
	D	ePn		45	05.2			
	S	ePn	10	07	23.9	t		
	D	ePn			31.5			
	T	ePn			34.5		0.5	7.0
	K	ePn	12	26	23.7			
	S	ePn			32.0			
	T	ePn			36.0			
	D	ePn			38.8			
	T	iPn	15	58	19.0			
	D	iPn			27.7			
		eSn		59	53.9			
	S	iPn		58	31.9			
	K	ePn			32.4			
	T	ePn	16	59	57.2			
	D	ePn	17	00	00.7			

Date	Station	Phase	Time(G.M.T.)			t	T	Am
OCT.28	T	eP	07	05	09.6			
	K	iP	14	41	10.3			
	S	iP			20.6			
	T	iP			24.2			
	D	iP			25.4			
	T	eP	22	12	41.8			
	D	eP			50.7			
	T	eP	23	41	51.7	t	1.5	338.0
	D	eP			53.5	LZ	23.6	22.4U
		ePcP		42	56.7	LE	26.4	31.4U
		eScP ?		46	54.6	LN	27.1	23.6U
		eS		49	29.9			
		eScS		51	49.4			
OCT.29	K	iP	04	07	08.0			
	S	iP			17.0			
	T	iP			21.9			
	D	iP			22.4	LZ	13.6	15.7U
						LE	14.8	27.1U
						LN	15.6	21.0U
	K	eP	04	23	13.3			
	S	eP			23.1			
	T	eP			26.6			
	D	iP			27.7			
	K	eP	06	27	54.2			
	S	eX		28	02.1			
		eP			05.1			
	T	eP			07.2			
	D	eX			07.7			
		eP			10.2			
	K	eP	06	46	19.5			
	S	eP			27.7			
	T	eP			31.2			
	D	eP			33.8	LZ	15.6	6.4U
	S	iP	07	31	11.0	t		
	T	eP			11.1		1.1	102.0
	D	iP			13.7			
		eX		34	43.3			
	D	eP	07	45	23.8	t		
	T	eP			24.0		0.5	10.0
	T	iP	07	50	11.5			
	D	iP			20.9			
	S	eP			23.5			
	K	eP			24.1			
	T	eP	09	46	27.2			
	D	eP			28.7			

Date	Station	Phase	Time(G.M.T.)			t	T	Am
OCT.29	D	ePn	10	10	12.4	t		
	T	ePn	11	06	31.1			
	D	ePn			34.4			
	T	ePn	11	38	16.0	t	1.2	38.0
	D	ePn			22.3			
	T	ePn	11	50	50.6	t	1.2	25.9
	D	ePn			52.9			
	S	ePn	12	50	49.0	t		
	D	ePn			52.5			
	T	ePn			55.8		0.5	6.8
	T	ePn	13	11	05.2			
	D	ePn			06.3			
	S	ePn	17	07	34.2	t		
	D	ePn			40.7	LZ	24.8	4.1U
		eSn		10	08.2			
	T	ePn		07	41.6		0.5	13.5
	K	ePn	18	33	46.4			
	S	ePn			57.1			
	D	ePn		34	00.0			
	T	ePn			00.4			
	T	ePn	22	25	07.3	t	1.7	125.0
	D	ePn			12.1	LZ	22.4	21.4U
		eSn			18.0	LE	22.8	31.8U
		ePcP ?			50.4	LN	21.6	69.2U
		eSn		32	22.4			
	S	ePn		25	14.0			
	K	ePn			15.9			
OCT.30	D	ePn	00	14	17.0			
	T	eSn		16	44.5			
	D	ePn	04	16	31.0	t		
	S	ePn			32.3			
	T	ePn			34.8		1.1	48.0
	D	ePn	05	46	10.8	t ?		
	D	iPn	06	03	42.8			
	K	ePn			46.2			
	S	ePn			56.6			
	T	ePn	07	03	44.2			
	D	ePn			55.3			
		eSn		04	26.2			
	S	ePn		03	58.0			
	K	ePn		04	02.1			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
OCT.30	T	eP	09	32	18.1			
	D	eP			27.4			
		eS			55.8			
	S	iP			30.9			
	K	eP			32.2			
	K	eP	09	53	22.8	t		
	S	eP			25.2			
	T	eP			25.8		1.2	38.0
	D	eP			28.2			
	D	eP	11	16	03.2			
	S	eP			03.4			
	T	iP			08.5			
	D	eP	13	57	42.3			
	T	eP			44.3			
	D	eP	18	18	01.0			
	S	iP			06.5			
	T	eP			12.6			
	K	eP			20.4			
OCT.31	T	eP	00	11	18.2			
	D	eP			27.5			
	D	eP	00	35	00.3	t ?		
	T	iP	01	29	27.5			
	D	iP			37.6			
	K	eP			39.4			
	S	iP			40.7			
	T	iP	02	18	44.7			
	D	iP			54.9			
	S	eP			56.9			
	K	eP			58.9			
	T	eP	03	34	49.3	t	1.0	4.4
	D	eP			49.5			
	T	iP	07	40	58.3			
	D	eP		41	09.2			
	K	eP			12.1			
	S	eP			12.3			
	T	iP	08	12	06.5			
	D	eP			26.1			
		eS		13	05.6			
	T	eP	08	33	13.2			
	D	eP			21.8			
		eS		34	19.0			
	S	eP		33	26.4			
	K	eP			34.5			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
OCT.31	K	ePcP	09	16	04.0	t		
	S	iP		13	36.4			
		iPcP		16	04.2			
	D	iP		13	39.7	LZ	28.0	13.0U
		iPcP		16	06.0			
		epPcP			24.1			
		eS		19	22.8			
		ePcS			54.7			
		eX1		20	11.9			
		eScS		23	57.7			
		eX2		24	19.7			
	T	iP		13	42.2		1.2	169.0
		ePcP		16	06.1			
	T	eP	09	35	15.1	t	1.0	53.2
	S	eP			18.1			
	K	eP			18.5			
	D	eP			18.7	LZ	28.4	2.7U
		eX		36	55.0			
	D	eP	10	10	27.4			
	S	eP			27.8			
	T	iP			31.2			
	K	eP			35.5			
	D	eP	10	27	32.1	t ?		
	S	eP	11	49	24.6	t		
	D	eP			26.0			
		eX		51	55.8			
	T	eP		49	31.4		0.5	4.7
	K	eP	12	14	52.6			
	S	eP		15	02.3			
	T	eP			06.0			
	D	eP			07.8			
	K	iP	15	56	02.6			
	S	iP			07.8			
	D	iP			13.6			
	T	iP			15.2			
	T	iP	16	15	54.7			
	K	eP		16	02.7			
	D	iP			05.2			
	S	eP			07.4			

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S-P \ Date	1	2	3	4	5	6	7	8	9	10	11	12	13
0 – 0.9													
1 – 1.9				2									
2 – 2.9						1	1						
3 – 3.9	1												
4 – 4.9				2									
5 – 5.9	1												1
6 – 6.9				1									
7 – 7.9		2				1						2	1
8 – 8.9	2	2	1		1	1	1			1			2
9 – 9.9	2	1				1	1				1*		1
10 – 10.9	1						1	1*					1
11 – 11.9	1	1	2	1	1*		1	1	2			1	
12 – 12.9	1		3	3	2			4	3*	1	2	2*	1
13 – 13.9	1	3	1		2		4	2	2	1		2	
14 – 14.9		1		2	1	1	1						1
15 – 15.9										1			
16 – 16.9		1		1				1					1
17 – 17.9				1	3	2	2		1			1	
18 – 18.9			2	1		1							
19 – 19.9									*		1		
20 – 20.9	2				1		2						1
21 – 21.9		2									1	1	
22 – 22.9	1						1	1	1				
23 – 23.9		2						2	*	1			
24 – 24.9							1	1				1	
25 – 25.9		1	1			1							
26 – 26.9						1							*
27 – 27.9	1												
28 – 28.9				1			1						
29 – 29.9					1				*				
above 30 sec	2	1	1	3	1	2			1	2	1	2	2
?				1	2	2							
Total	16	17	11	19	15	14	17	13	10	7	6	12	12
no ovservation													
Remarks													

OCT.1968

14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Total
																		2
																	1	3
																		1
															1			3
		1		1			1							*				5
																		1
1			1	2		1			1									12
	1	1	1		1	1	1		1						1			19
1	1			1						2	1			1				14
1				1								1		1			1	9
	1		1	2	1		1	1				1						19
	1			2		1	1				2	1		1		1*	1	33
2*		2	1		2	1		1			1	1		2		1		32
	1				1	1				1		1						12
3								1					1	1	*		*	7
	1			2	1				1								2*	11
		1								1								12
	1	1		1					2				1*			1		11
			1			1		1	1					1				6
		1	1*	1							1							10
1			3			2	*		1				2*		1		*	14
		1							*1			1				1		7
		**																5
		1*		1		1		*		1		1						8
					1				*	1	1					1		7
*								1		1*					1			4
																		1
																		2
						*									1			2
1	3		3	3	1	4		2	2	3	1				1	1		43
	1	1						1	1				2		1			12
10	11	10	12	17	8	13	4	8	10	10	7	7	6	7	7	6	5	
					10h (17h		00h (09h		14h 20m (15h 50m		13h (17h							

Tsukuba,

S − P \ Date	1	2	3	4	5	6	7	8	9	10	11	12	13
0 − 0.9													
1 − 1.9													
2 − 2.9													
3 − 3.9	1					1	1						
4 − 4.9		1					1						
5 − 5.9	1	1	1	1		2	1	1			1	1	1
6 − 6.9	2	1	2				1	*			2*	2	2
7 − 7.9	3	1		1			3	5	4	1	1	2	2
8 − 8.9	2	4	2	1	1	3	1	2	1*	1	2	1	2
9 − 9.9	6	1	1	4	3		5	3	4	2	5	2	2
10 − 10.9	2	1	1	2	1	1	1	2		2	1	1	
11 − 11.9		2	1		1	1						1	
12 − 12.9		3	2	1	1	1	1					1	
13 − 13.9	1						3	4	1	1	1	1	
14 − 14.9	1				4			1	2		1		
15 − 15.9		1	1			2			1			1	1
16 − 16.9		4			1		1		1*		1		
17 − 17.9				1	1								
18 − 18.9	1		1	1	1	1					1	1	
19 − 19.9	1												
20 − 20.9				2	1			1		1			
21 − 21.9								1					1
22 − 22.9												*	
23 − 23.9							2						*
24 − 24.9													1
25 − 25.9				3				1					
26 − 26.9				1									
27 − 27.9													
28 − 28.9						1							
29 − 29.9													
above 30 sec	5	4	1	4	3	3		4	3	5		5	
?	1						1					1	
Total	26	24	13	22	18	15	21	25	17	13	16	20	12
no observation													19h (21h
Remarks													

Oct.1968

14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Total
													1?					1
										1								3
2	2		2		1	1	2		3	1			3		1	1	2	32
1	4		1	2		2	1		1			2	1	2		1		30
3	1	1	1	4		2	1	1		1		2	1	1			1	43
3		3	1	2	2	1		1	2		2	2	1	3	1	2	2	51
3	4	5	5	2	4	1	1	4	1		1	2	2			4	3	80
1	1	1	1*	3	3	1	2				3		2	3	2	2	2	42
	2	1	1	2	1		1	3	2			1	2	1	2	1	2	28
1		3	1		3	3	1	1		1			*		1	1	2	28
3			1	1		7	4	1	1			1	1	1	1	1		35
			1		1					1				2		1		15
1			1		1					1		1	2	1		*	1*	16
1		1					1				2	1						14
				1	1	*		*:					1		1			6
		1	1	2				4		1			2		1			19
1			1			1*				1	1			1				7
						1		1			2	1	2			1		13
													1					3
						1	1				1			1		1*		5
		*					1			1						1		5
				*									1			1*		3
						*	1		1					1			1	8
																		1
									1					*				1
								1										2
											*							
1	2		1	4	4	4	2	2	3	1	2	4		2	2	5	1	77
		1		1		1										1		7
21	16	17	19	24	21	26	19	19	15	10	14	17	23	19	12	24	17	

Preliminary Bulletin

of the Dodaira Micro-earthquake Observatory

and its Substation

Nov., 1968

Dodaira Micro-earthquake Observatory

Earthquake Research Institute, the University of Tokyo

Preliminary Bulletin of the Dodaira Micro-earthquake Observatory and its Substation

Observation stations

		N	E	h
Dodaira	(D or DDR)	35°59'54".0	139°11'36".2	800m
Tsukuba	(T or TSK)	36°12'39".0	140° 6'35".0	280m
Kiyosumi	(K or KYS)	35°11'51".6	140° 8'53".6	230m
Shiroyama	(S or SRY) (temporary)	35°36'30".0	139°16'27".0	254m

Expressions:

Am: Amplitude in millimicron (half of peak to trough*) of P motion maximum within few cycles after the onset recorded by a short period vertical seismograph.
*In 1967 double amplitude (peak to trough) was used as Am.

T : Period in sec of the measured P maximum

t : Teleseism

All stations are radio-telemetered to Tokyo giving records on a multi-channel ink-recording oscillograph. The paper speed of the recorder is 1 mm per sec. For stronger events high speed recorder (10 mm/sec) is also triggered. The system is also recorded in parallel on multi channel magnetic tape through a trigger system using an endless tape loop. Direct filter sum of short period seismometers at Dodaira and/or on line short period filter outputs of Tsukuba are also used for the

detection of weak teleseismic signals. For teleseismic events records of long period and medium period seismographs are occasionally used, applying off line frequency filter, if necessary.

The Bulletin includes the preliminary readings sent to USCGS for teleseisms and larger near shocks with total durations (F-P) of short period vertical seismograph at Tsukuba (TSK) with magnification about 140.000 at 1 c/s or sensitivity about 300×10^{-3} mm/microkine at 10 c/s being longer than 100 seconds which correspond approximately shocks with $M \gtrsim 3.5$. For the minor near earthquakes with F-P $\lesssim$ 100 sec or $M \lesssim 3.5$, frequency of S-P times at each station is added at the end of the Bulletin, which may easily give a general idea of local seismicity around the station.

Date	Station	Phase	Time (G. M. T.)			t	T	Am
NOV. 1	D	eP	01	44	51.0	t		
	D	eP	03	19	57.4	t		
	T	eP		20	00.9		0.5	8.7
	D	eP	07	49	10.1	t?		
	D	eP	13	27	47.8	t		
		eS		33	14.3	LZ	20.0	1.8U
	T	eP		27	48.5		0.5	7.9
	T	iP	13	58	43.2			
	D	iP			53.6			
	S	iP			57.6			
	T	eP	14	50	14.4			
	D	eP			23.8			
	T	iP	16	27	38.0			
	D	iP			44.0			
	S	iP			47.8			
	K	eP			49.9			
	D	eP	18	17	57.0			
	T	eP			59.0			
	T	eP	21	06	19.5			
NOV. 2	S	eP	03	29	09.3	t		
	T	eP			09.7		1.3	25.6
	D	eP			11.9			
	T	iP	04	57	29.8			
	D	iP			41.1			
		eS			59.6			
	T	eP	06	24	53.6			
	D	eP		25	04.2			
	S	eP			07.0			
	T	iP	09	27	36.7			
	D	eP			46.2			
NOV. 3	K	iP	02	26	44.4			
	S	iP			51.3			
	T	iP			56.1			
	D	iP			5 50			
	T	eP	02	44	36.6			
	D	eP			5 50			
	T	eP	03	19	20.0	t	0.5	13.2
	D	eP			22.3			

Date	Station	Phase	Time (G. M. T.)			t	T	Am
NOV. 3	D	eP	05	02	06.7	t		
		eX			16.4	LZ	20.0	2.9U
	T	eP			07.0		1.6	39.2
	S	eP			08.0			
	D	eP	05	58	52.8	t?		
	D	eP	07	38	05.3			
	S	eP			09.9			
	T	eP			15.5		1.2	76.1
	K	eP			24.4			
	S	eP	08	16	24.6	t		
	D	eP			26.4			
		eX			38.3			
	T	eP			33.5		0.5	5.0
	T	eP	08	20	52.4			
	D	eP			55.2			
	T	eP	12	26	21.3			
	D	eP			31.9			
	S	iP	13	59	15.2			
	D	iP			18.8			
	T	iP			21.6			
	T	eP	14	54	48.0			
	D	iP			57.2			
	S	eP		55	00.4			
	K	eP			01.4			
	T	eP	18	22	18.6			
	D	eP			26.4			
	T	iP	18	49	41.6			
	D	iP			50.8			
	S	eP			54.6			
	K	eP			55.0			
	T	eP	22	22	22.0			
	D	eP			30.0			
NOV. 4	S	eP	01	09	27.0			
	D	eP			39.2			
	T	eP			40.0			
		eS		11	29.8			
	T	eP	03	40	24.0			
	D	eP			31.8			
	T	iP	04	43	23.0			
	D	iP			33.9			
	K	eP			34.5			
	S	iP			36.6			

Date	Station	Phase	Time (G. M. T.)			t	T	Am
NOV. 4	D	ePg	06	17	55.2			
	D	iP	09	14	16.5	t		
	T	iP			19.9		1.2	52.3
	K	ePg	09	16	36.8	t		
	S	iP			40.7			
		iPcP		17	24.0			
		iScP		20	31.6			
	T	iP		16	41.8		0.5	24.6
	D	iP			43.9			
		epP			57.6			
		ePcP		17	27.0			
		ePP		18	34.7			
		iScP		20	32.6			
		iS		24	06.9			
		esS?			26.7			
		eScS		25	39.9			
		eP'P'		46	11.7			
	D	ePg	10	45	25.3	t		
	T	ePg	18	38	11.7			
	D	ePg			21.2			
	D	ePg	22	10	40.8	t		
NOV. 5	K	iP	00	18	48.9	t		
	S	iP			53.0			
	T	ePg			55.2		1.1	40.2
	D	ePg			56.6			
	D	ePg	02	11	46.2	t		
	S	ePg			47.1			
	T	ePg			50.3		1.2	32.4
	S	ePg	03	19	05.6	t		
	D	ePg			08.8			
		eX		21	01.7			
	K	ePg	04	14	55.0	t		
	S	ePg		15	01.6			
	D	ePg			07.4			
	T	ePg			08.5		0.5	6.6
	S	ePg	04	17	57.8			
	K	ePg			59.5			
	D	ePg		18	00.6			
	T	iP			04.4			
	T	ePg	11	41	35.6			
	D	ePg			43.6			
	S	ePg			47.8			
	T	ePg	11	46	21.0			
	D	ePg			29.0			
	S	ePg			33.8			

Date	Station	Phase	Time (G. M. T.)			t	T	Am
NOV. 5	T	iP	14	07	54.6			
	D	eP		08	03.9			
	T	iP	14	33	59.5			
	D	eP		34	08.8			
	T	eP	14	46	35.2			
	D	eP			44.5			
	T	iP	14	59	16.7			
	D	iP			26.3			
	S	eP			30.4			
	D	eP	15	39	21.9	t		
	S	eP	18	17	23.8	t?		
	D	eP			30.2			
	K	iP	21	46	35.1			
	S	iP			37.0			
	D	iP			41.7			
	T	iP			43.2			
	T	eP	21	59	47.3	t	0.5	6.1
	D	eP			53.6			
NOV. 6	S	eP	00	49	48.6	t		
	D	eP			49.6			
		eX		52	30.6			
	T	eP		49	54.2		0.5	5.9
	T	iP	01	29	58.8			
	D	iP		30	08.4			
		iS		31	10.4			
	S	eP		30	11.6			
	K	eP			12.2			
	T	eP	05	45	06.4			
		iS		46	03.2			
	D	iP		45	16.2			
	S	eP			19.7			
	T	iP	06	23	26.2			
	D	eP			35.2			
		iS		24	45.5			
	S	eP		23	38.6			
	K	eP			40.4			
	S	eP	07	07	14.6			
	T	iP		08	11.2			
	D	eP			20.2			
	T	eP	07	47	09.4			
	D	eP			18.1			

Date	Station	Phase	Time (G. M. T.)			t	T	Am
NOV. 6	T	eP	08	06	43.4			
	D	eP			52.8			
	S	eP			56.2			
	T	eP	10	31	02.6			
	D	eP			03.0			
	D	eP	15	14	59.4			
	T	eP		15	05.0			
	S	eP	16	09	15.4			
	D	iP			19.4			
		eS		10	12.2			
	T	iP		09	21.6			
	D	eP	23	28	59.4	t?		
	T	eP	23	34	01.6			
	D	eP			11.2			
NOV. 7	K	eP	03	43	55.8	t		
	T	eP			56.0		1.1	19.6
	D	eP			57.6			
	T	eP	07	31	58.9			
	D	eP		32	08.6			
	S	eP	08	23	32.0			
	D	eP			37.0			
	T	eP			38.4			
	T	iP	09	20	08.8			
	D	iP			17.6			
	S	iP			21.3			
	K	eP			23.6			
	T	iP	10	11	33.6	t	1.1	14.23
		ePP?		12	37.8			
	D	eP		11	34.2			
		ePP?		12	38.2			
		eS?		16	40.4			
	S	iP		11	36.6			
		ePP?		12	39.7			
	K	iP		11	42.8			
	T	eP	10	33	10.0	t	1.1	17.8
	S	eP			13.4			
	D	eP			13.8			
	D	eP	12	29	31.8	t		
	D	eP	13	28	23.0	t?		
	K	eP	14	13	18.4			
	S	eP			25.8			
	D	eP			31.2			
	T	eP			32.5		0.5	7.4

Date	Station	Phase	Time (G. M. T.)			t	T	Am
NOV. 7	T	eP	14	23	00.0	t	0.5	3.6
	D	eP			13.0			
	D	eP	14	25	02.1	t		
	T	eP	14	39	18.6		0.5	15.5
	D	eP			27.0			
	S	eP			31.8			
	K	eP			34.1			
	K	eP	19	02	51.7			
	S	eP			58.6			
	T	eP		03	05.1			
	D	eP			06.4			
	D	eP	19	12	30.0	t		
	D	eP	22	37	43.9	t		
	T	eP			44.2		1.1	34.1
	D	eP	23	13	02.4	t		
	D	eP	23	32	21.6	t		
NOV. 8	T	iP	02	05	16.7			
	K	iP			16.8			
	S	iP			19.2			
	D	iP			21.2			
	T	eP	02	10	03.9			
	D	eP			14.4			
	T	iP	02	38	40.2			
	D	iP			50.3			
	D	eP	07	28	04.0	t?		
	S	eP			06.6			
	K	iP	07	52	08.7	t		
	S	iP			13.0			
	T	eP			13.8		1.6	66.1
	D	iP			16.0			
	T	eP	10	04	42.8			
	D	eP			44.4			
	S	eP	12	07	18.3	t		
	D	eP			21.0			
	S	eP	12	51	22.5	t		
	D	eP			26.4			
	T	eP			29.7		0.5	6.8
	T	eP	17	16	01.6			
	D	eP			06.6			

Date	Station	Phase	Time (G. M. T.)			t	T	Am
NOV. 8	S	eP	18	37	18.1	t		
	T	eP			18.6		1.0	12.0
	D	eP			21.9			
		eS?		45	32.8			
NOV. 9	S	eP	02	25	19.1	t		
	D	eP			22.8			
	T	eP			31.1		0.5	3.7
	D	eP	04	38	55.0	t		
	T	eP	06	47	26.6			
	S	eP	13	23	33.0	t		
	T	eP			33.3		0.5	8.2
	D	eP			35.1			
	K	eP	16	22	05.7			
	T	iP			05.8			
	S	eP			13.2			
	D	eP			14.5			
	T	eP	17	14	55.2	t	1.3	36.2
	D	eP			58.2			
	S	iP	17	53	22.1			
	K	eP			24.2			
	D	iP			24.3			
		iS		54	07.6			
	T	iP		53	28.7			
	S	eP	20	37	31.2	t		
	D	eP			35.0	LZ	24.0	27.1 U
						LE	18.4	8.1 U
						LN	20.0	38.7 U
	T	eP			38.6		1.2	45.4
	D	iP	21	09	14.8			
	S	iP			16.3			
	T	iP			18.4			
	K	eP			24.6			
	D	eP	22	22	00.4			
	T	eP			06.0			
NOV. 10	T	eP	14	16	37.5			
	D	eP			46.7			
	D	eP	14	18	39.3	t?		
	T	iP	15	15	59.4			
	D	iP		16	07.1			
	S	eP			13.1			
	K	eP	16	40	31.8			
	D	eP			42.6			
	T	eP			44.7			

Date	Station	Phase	Time (G. M. T.)			t	T	Am
NOV. 10	D	eP	16	43	09.9			
	T	eP	17	04	57.6			
	D	eP		05	06.2			
	S	iP	17	06	54.1	t		
	D	iP			56.0	LZ	20.0	2.1U
		eS		10	57.8	LE	20.0	2.4U
		eScP		14	27.8	LN	20.0	4.1U
		eScS		18	10.8			
	T	eP		07	01.4		1.3	65.6
	T	eP	20	50	04.0			
	D	eP			13.2			
NOV. 11	T	eP	00	20	57.4			
	D	eP		21	05.0			
	T	eP	02	08	09.5	t	1.0	35.0
	D	eP			16.0			
		eX			36.5			
	K	eP	06	51	50.2			
	S	eP			57.3			
	D	eP		52	02.6			
	T	eP			02.7			
	T	iP	09	02	18.0	t	1.1	68.3
	D	iP			24.5			
	S	iP			25.7			
	D	eP	09	41	27.0	t?		
	T	eP			28.0		0.5	7.6
	T	eP	09	51	15.8	t	0.5	2.1
	D	eP			22.0			
		eX		52	44.0			
	T	iP	14	42	20.8			
	D	iP			32.0			
	S	iP			35.6			
	K	eP			35.8			
	T	eP	14	52	31.6			
	D	eP			41.2			
	T	eP	15	02	22.0			
	D	eP			34.6			
	S	eP			37.6			
	T	eP	15	11	58.2			
	D	eP		12	07.4			
	T	eP	15	25	01.0			
	D	eP			09.7			

Date	Station	Phase	Time (G.M.T.)			t	T	Am	
NOV.11	T	eP	16	30	21.4				
	D	eP			33.6				
	K	eP	16	56	00.5				
	T	iP			01.6				
	S	iP			02.7				
	D	iP			04.8				
	K	iP	17	06	54.5				
	S	iP		07	00.3				
	D	iP			05.1				
	T	iP			05.8				
	D	eP	21	57	36.6				
	T	eP			40.8				
	T	eP	22	06	23.8				
	D	eP			34.4				
NOV.12	S	eP	00	47	08.2	t			
	D	eP			11.0	LZ	20.0	9.3	U
		eX			20.2	LE	20.8	14.2	U
		eS		50	00.3	LN	28.0	8.2	U
	T	eP		47	19.7		1.1	104.1	
	K	eP			20.1				
	T	iP	02	46	51.2				
	D	iP		47	02.0				
	S	iP			04.8				
	D	eP	05	52	49.4	t			
	S	eP	05	55	21.3	t			
	D	eP			33.8				
	T	iP	08	58	53.2				
	D	iP		59	01.3				
		iS	09	00	11.6				
	S	iP	08	59	05.4				
	K	eP	09	56	14.5	t			
	D	eP			18.0				
	T	eP			27.5		1.1	33.3	
	D	eP	13	34	22.0	t			
	T	iP	14	05	37.1				
	D	iP			46.5				
	S	eP			50.4				
	K	iP			51.8				
	T	iP	14	32	22.9				
	D	iP			26.1				
	S	eP			28.4				
	K	eP			32.4				

Date	Station	Phase	Time (G.M.T.)			t	T	Am
NOV.12	T	eP	16	50	56.6			
	S	eP		51	05.0			
	D	eP			05.3			
		eS		52	01.6			
	T	eP	17	25	54.7			
	D	eP		26	04.8			
		eS		27	46.5			
	T	eP	21	48	04.5			
	D	eP			13.1			
	T	eP	22	11	36.3	t	1.4	66.2
	S	eP			38.1			
	D	eP			39.8			
NOV.13	K	eP	02	07	40.7	t		
	T	eP			44.4		1.5	56.0
	D	eP			47.8			
	S	eP	03	29	55.3	t		
	D	eP			57.8			
	T	eP	08	38	01.4			
	D	eP			10.4			
	K	iP	10	02	31.0			
	S	iP			41.2			
	T	eP			42.2			
	D	iP			46.0			
		eS		03	05.9			
	S	iP	15	59	33.6	t		
	T	eP			33.7		1.4	50.0
	D	iP			36.3			
	T	iP	18	42	52.9			
	D	iP		43	01.0			
	S	iP			04.4			
	K	iP			05.1			
	T	eP	19	00	08.0			
	D	eP			16.9			
	S	eP			21.7			
	K	eP			24.6			
	T	eP	22	54	34.4			
NOV.14	D	iP	03	32	51.0			
	S	iP			57.3			
	T	iP			59.2			
	T	eP	04	57	58.4			
	D	eP			58.8			
	D	eP	09	31	22.0	t		

Date	Station	Phase	Time (G.M.T.)			t	T	Am
NOV.14	T	eP	09	52	18.0			
	D	eP			26.5			
	S	eP	11	45	59.2	t		
	T	eP		46	00.3		1.0	54.3
	D	iP			01.9			
		eX			52.8			
	S	eP	12	13	43.5	t		
	D	eP			45.7	LZ	18.4	14.0 U
						LE	20.4	25.9 U
						LN	19.6	29.4 U
	T	eP			56.0			
	T	eP	13	24	57.8			
	S	eP	20	56	00.8	t		
	D	eP			06.8	LZ	20.0	2.1 U
		eS?		58	43.7			
	T	eP		56	16.6		0.5	4.1
	T	eP	21	49	14.3			
	D	eP			22.6			
	S	eP	23	19	17.5	t		
	T	eP			18.9		1.5	182.6
	D	eP			20.8	LZ	24.0	2.1 U
NOV.15	T	eP	00	15	59.4	t	1.3	68.3
		eX		16	04.6			
	D	iP			04.0			
		eX			09.8			
	S	eP			06.4			
		eX			12.4			
	T	iP	01	48	38.3			
	D	eP			46.6			
	S	eP			51.4			
	T	iP	04	36	56.8			
	D	iP		37	07.6			
	S	iP			11.6			
	S	eP	04	51	04.2	t		
	D	eP			06.8			
	T	iP	10	19	58.9			
	D	eP		20	08.4			
	S	eP			11.2			
	T	eP	18	13	26.3			
	D	eP			34.4			
	S	eP	23	46	26.1			
	T	eP			31.0			
	D	eP			38.5			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
NOV. 16	S	iP	04	42	13.6			
	D	iP			17.2			
	T	eP			19.6			
	D	eP	07	39	31.0			
	S	eP			33.8			
	T	iP			34.8			
	S	eP	07	56	09.4	t		
	T	eP			10.6		1.8	155.0
	D	eP			12.3	LZ	2 0.0	2.7U
	T	eP	11	22	56.6			
	D	eP		23	06.4			
	T	eP	11	33	04.0			
	D	eP			12.0			
	D	eP	13	55	49.3			
	S	eP			49.4			
	T	eP			51.5			
	T	eP	17	21	27.2			
	D	eP			30.1			
	S	eP	22	07	09.4	t		
	D	eP			13.6			
	T	eP			16.1		0.5	5.0
NOV. 17	T	eP	00	35	35.1	t	1.2	25.9
	D	eP			37.0			
	S	eP			37.3			
	T	eP	05	26	31.5	t	0.5	8.9
	T	eP	09	16	06.2			
	D	eP			16.2			
	S	eP			20.0			
	T	iP	13	00	12.0			
	D	iP			22.0			
	S	iP			25.5			
	T	eP	20	01	56.1			
	S	eP	23	07	15.6	t		
	D	eP			20.0			
	T	eP			21.0		0.5	6.6
	T	eP	23	40	10.0			
	D	eP			20.4			
NOV. 18	D	eP	00	34	32.5	t		
	T	eP			38.2		0.5	13.2

Date	Station	Phase	Time (G.M.T.)			t	T	Am
NOV.18	D	eP	01	14	09.3	t?		
	D	eP	02	50	13.5	t?		
	T	eP			14.8		1.1	29.7
	D	iP	03	01	20.1			
	S	eP			26.1			
	T	iP			29.5			
	S	eP	04	28	18.9	t		
	D	eP			26.3			
	T	iP	06	02	58.0			
	D	iP		03	07.5			
	S	eP			10.3			
	T	eP	15	04	25.4	t?	0.5	4.0
	D	eP			30.0			
	T	eP	15	24	38.8			
	D	eP			45.0			
	T	iP	16	25	05.6			
	D	iP			14.9			
	S	eP			18.4			
	T	iP	17	17	28.1			
	D	iP			37.4			
	S	iP			39.9			
	S	eP	20	30	24.6	t		
	D	eP			26.7			
	T	eP			31.0		0.5	4.9
	D	eP	21	50	16.5	t		
		eX		51	52.8			
	T	eP		50	17.2		1.2	19.4
NOV.19	T	eP	13	15	02.6			
	D	eP			10.4			
	D	iP	17	08	32.3			
	T	iP			33.1			
	S	iP			34.6			
	D	eP	17	54	33.8			
	T	eP			35.2			
	T	eP	18	38	39.0			
	D	eP			50.2			
		eS		40	55.6			
	T	iP	21	20	03.2			
	D	iP			04.9			
	S	iP			06.5			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
NOV.20	T	eP	04	03	18.0			
	D	eP			26.3			
	T	iP	05	50	51.8			
	S	iP			53.4			
	D	iP			54.0			
	T	eP	06	45	16.7			
	D	eP	07	34	49.1	t?		
	D	eP	09	11	57.8			
	S	eP		12	01.7			
	T	eP			13.5			
	S	eP	20	36	18.2			
	D	eP			20.8			
	T	iP			24.2			
	T	eP	21	36	21.0			
	D	eP	22	30	46.2	t		
	T	eP	22	47	18.1			
	D	eP			26.3			
	S	eP			36.3			
	T	iP	23	26	57.4			
	D	eP		27	06.2			
NOV.21	D	eP	02	47	43.3	t		
	D	eP	03	13	45.6	t		
	S	eP			46.8			
	T	eP			49.0		1.2	31.0
	T	iP	06	58	04.4			
	D	iP			15.0			
	S	eP			17.8			
	T	eP	10	42	03.4			
	D	eP			12.4			
	D	eP	11	11	25.3	t		
	T	eP			29.4		0.5	3.0
	S	iP	14	35	58.6	t		
		eS		39	04.8			
	D	eP		36	03.0			
		eS		39	12.6			
	T	iP		36	04.5		0.5	61.6
		eS		39	19.4			
	D	eP	15	06	33.8			
	S	iP			35.6			
	T	eP			38.2			

Date	Station	Phase	Time(G.M.T.)			t	T	Am
NOV.21	S	ePcP	16	37	58.7	t		
	D	eP		38	03.8			
		eS		39	40.4			
	T	eP		38	04.3		0.5	17.9
	T	eP	17	17	35.2			
	D	eP			43.5			
	D	eP	18	03	59.8	t		
	S	eP	21	49	22.0			
	D	eP			27.0			
	T	eP			27.4			
	D	eP	23	42	34.0	t?		
NOV.22	T	eP	01	53	32.8			
	S	eP			32.2			
	D	eP			34.0			
	S	eP	04	55	21.0	t		
	D	eP			25.9			
		eX			30.2			
	T	eP			27.7		1.0	21.1
	S	iP	04	58	02.3			
	D	iP			06.6			
	T	iP			08.6			
	S	iP	06	19	45.8			
	D	iP			47.0			
	T	iP			52.2			
	T	eP	06	45	43.6			
	D	eP			52.4			
	S	eP	09	04	41.8	t		
	D	eP			44.0	LZ	16.0	5.1U
		eScS		15	48.5	LE	20.0	21.2U
						LN	20.0	27.9U
	T	eP		04	54.6		1.3	19.5
	S	eP	10	38	49.7	t		
		ePcP		41	16.1			
	D	eP		38	52.9			
		eX		39	04.9			
		ePcP		41	17.8			
		eS		44	32.7			
	T	eP		38	56.2		1.0	53.1
		ePcP		41	18.4			
	S	eP	11	43	56.2	t		
	D	eP		44	00.8			
		eX		47	23.2			
	T	eP		44	05.6		1.6	46.4

Date	Station	Phase	Time (G.M.T.)			t	T	Am
NOV.22	S	iP	15	54	27.9	t		
	T	eP			28.6		1.2	19.0
	D	iP			30.2			
		eS	16	03	06.0			
		eScS			52.8			
	D	eP	16	18	47.2	t?		
	S	eP	18	00	16.8	t		
	D	eP			19.3			
	T	eP	20	05	20.1			
NOV.23	T	eP	01	46	04.8			
	D	eP			14.4			
	T	iP	05	23	16.2			
	D	eP			24.5			
	S	eP			28.8			
	T	eP	05	26	26.2			
	D	eP			34.3			
	S	eP			38.8			
	T	eP	14	18	08.5			
	D	eP			19.0			
	S	eP	15	20	25.0	t		
	D	eP			28.7			
	S	eP	17	01	38.8	t		
	D	eP			41.0			
	S	eP	17	28	52.2			
	D	eP			56.8			
		eS		30	33.3			
	T	eP		28	57.0			
NOV.24	T	eP	03	17	19.6			
	D	eP			28.4			
	S	eP			32.6			
	T	eP	13	43	00.0			
	D	eP			08.5			
	S	eP			12.0			
	T	eP	15	47	11.0			
	D	eP			11.0			
	T	iP	20	41	31.5			
	D	iP			32.2			
	S	iP			38.0			
	T	eX	21	20	33.8	t	1.2	32.9
	S	eX			35.1			
	D	eX			36.0			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
NOV.24	T	iP	21	22	04.7			
	D	iP			13.3			
	S	iP			17.0			
NOV.25	T	ePg	05	29	53.0			
	D	ePg			54.8			
	S	ePg	17	01	42.4			
	D	iP			46.2			
		eS		03	15.8			
	T	ePg		01	48.5			
	S	ePg	18	43	21.8	t		
	D	ePg			23.4	LZ	18.0	17.2 U
		ePP?		44	55.7	LE	18.0	30.0 U
		ePcP?		46	12.0	LN	19.2	42.9 U
		eS		48	34.7			
		eScP?		49	55.5			
		eScS		53	53.8			
	T	ePg		43	26.1		0.5	47.7
	T	iP	21	20	01.9			
	D	iP			12.7			
	S	iP			14.7			
NOV.26	S	ePg	00	22	59.8	t		
	D	ePg		23	00.7			
	D	ePg	01	18	03.5	t		
		eX			20.0			
		iPcP		19	57.8			
		eScP		23	43.3			
		ePcS			44.0			
		eScS		28	04.6			
	S	ePg	01	59	57.0	t		
	D	ePg	02	00	00.0			
	D	ePg	02	40	36.9	t?		
	D	ePg	21	22	27.5			
	D	ePg	21	59	53.3	t		
	S	ePg	22	51	16.0	t		
	D	ePg			18.5			
NOV.27	S	ePg	01	08	24.0	t?		
	D	ePg			28.9			
	K	ePg	05	47	23.0			
	S	iP			25.2			
	D	iP			29.4			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
NOV.27	T	iP	07	01	02.3			
	S	iP			02.6			
	D	iP			03.4			
	K	eP			04.2			
	T	eP	11	13	41.9			
	D	eP			51.8			
		eS		14	48.2			
	S	eP		13	55.0			
	T	eP	15	41	33.4			
	D	eP			35.7			
	T	eP	16	22	46.3			
	D	eP			56.1			
	S	eP	20	46	09.5			
	K	eP			10.3			
	D	eP			16.2			
	T	eP			21.6			
NOV.28	T	eP	05	09	55.0			
	T	eP	05	30	41.7			
	D	iP			52.4			
	K	eP			53.3			
	S	eP			55.4			
	T	eP	06	19	37.5			
	D	eP			47.8			
	T	iP	07	01	11.3			
	D	iP			21.0			
	S	iP			23.4			
	K	eP			26.1			
	D	eP	08	08	37.0	t?		
	D	eP	09	07	10.4			
	T	iP			15.1			
	T	eP	10	03	44.0			
	D	iP			53.0			
	S	eP			53.5			
	D	eP	15	02	50.4	t		
	T	eP			53.6		0.5	3.2
	T	eP	15	31	57.5			
	D	eP		32	04.5			

Date	Station	Phase	Time(G.M.T.)			t	T	Am
NOV.28	K	eP	16	38	29.2	t		
	S	iP			32.8			
		ePcP		40	57.5			
	T	iP		38	35.8		0.5	61.0
		epP		39	13.4			
	D	iP		38	36.9			
		ipP		39	15.9			
		ePcP		40	57.1			
		eScP		43	51.3			
		eX		44	50.0			
		eS		45	10.7			
		eScS?		48	20.7			
	S	eP	20	28	39.8			
	D	iP			42.3			
	T	iP			46.2			
NOV.29	T	eP	01	29	03.6			
	D	eP			13.8			
	T	iP	01	38	02.2			
	D	eP			12.4			
	T	iP	04	05	07.1			
	D	eP			14.2			
	S	eP			19.5			
	D	eP	04	35	42.6	t		
	T	eP	06	10	24.9			
	D	eP			35.1			
		eS		11	37.2			
	T	eP	06	15	23.9			
	D	eP			33.1			
		eS		16	34.8			
	D	eP	07	06	56.2			
	T	eP			57.9			
	T	eP	07	10	01.4			
	D	eP			11.6			
	T	eP	12	20	14.1			
	D	eP			23.6			
	T	eP	12	51	17.0			
	D	eP			26.9			
	T	eP	22	02	17.2	t	0.5	03.0
	D	eP			19.6			
NOV.30	K	iP	03	37	59.9			
	T	iP		38	00.7			
	S	iP			02.1			
	D	iP			04.1			

Date	Station	Phase	Time(G.M.T.)			t	T	Am
NOV.30	T	eP	07	29	02 3			
	D	eP			10.3			
	D	eP	12	02	24.0			
		eS			56.3			
	T	eP			25.7			
		eS		03	00.2			
	S	iP	12	58	21.2			
	K	eP			23.7			
	D	iP			24.2			
	T	iP			27.3			
	T	eP	15	34	25.5			
	D	eP			33.3			
	T	iP	18	14	21.1			
	D	iP			29.6			
	S	eP			33.5			
	K	eP			38.1			
	T	iP	19	11	27.7			
	D	eP			37.4			
	S	eP			41.4			
	D	iP	20	42	46.6			
	S	iP			51.7			
	T	iP			57.2			
	K	eP		43	02.6			

Tsukuba,

Date / S-P	1	2	3	4	5	6	7	8	9	10	11	12	13
0– 0.9													
1– 1.9													
2– 2.9													
3– 3.9													
4– 4.9													
5– 5.9			1				1		2				1
6– 6.9	1	2	2	2	1			2			1	1	1
7– 7.9	1	1			4	3	2				3		2
8– 8.9					1	2	3	2*	1	2	2	1	
9– 9.9	1		2		4	2	1	1	1	3*		1	4
10–10.9	5	2	1	5		1	3	1	1	3	1	2	1
11–11.9	1		1	1	1	1	1	1					1
12–12.9	1	1		1		1	1	2*	1		2		1
13–13.9				1		1			1			2	
14–14.9		2		2		1	1	1					2
15–15.9	*						1				1		2
16–16.9		1			1							1	
17–17.9				*		1			1		1		
18–18.9	2 *			1									
19–19.9		1	1	1		1				1			1
20–20.9		1		1		1					1		
21–21.9		3	1		1			2		1		2	
22–22.9	1		1							1			
23–23.9	1		1					1		1	1		
24–24.9													
25–25.9			1			1	2	1			1		
26–26.9			1										
27–27.9													
28–28.9													
29–29.9													
above 30sec	2	1	1	3	1	4	4	1				5	
?	2						1		2				1
Total	18	15	14	18	14	20	21	15	10	12	14	15	17
no observation													
Remarks	* : indicates a larger earthquake which is included in the main table the												

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14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	Total
3	1	1	2	2	1	1		1	1	1	4						23
1	1	1			1	1		1					1		2		22
1	2	1		3	3	1		1	7				1	2	1		39
1	3	2	3	2		3	3	6	3	1		1	1	2		5	50
	2	10	3	2	4	6*	6*	6	1	6	1*	3	2		1	2*	75
1	2	3	1	1	1		4	7	6	4	2	2	1	2	4		67
			1		1	1		1		1	2			2		1	18
	2	1			1		1*	1	2	2						2	23
1	1			1	1	1		1	1		3		1		2	2	20
			2	3				1		2	3			1		1	22
2		1	1					1		3	4			1	1	1	19
2		1						1		1					*		8
1	*	1			1	*	2	2							2		12
1	1	1	2	*	1	2		1		1	2			1			16
		1		1		1			1		1			1	1		13
						1			1					2	1	1	10
	1		*	1			1				1					1	15
															1		4
2	1						1*						1				10
	1	1	1					*									3
1								*		1	1						9
										1							2
		1		1													2
						*											0
								1									1
2	1	1		2	1		2		1		2			1	1	3	39
											2						8
19	19	27	16	19	16	18	20	32	24	24	28	6	8	15	17	19	
												07h (24h	00h (16h				

Bulletin.

Dodaira,

Date / S-P	1	2	3	4	5	6	7	8	9	10	11	12	13
0– 0.9													
1– 1.9													
2– 2.9							1						
3– 3.9													
4– 4.9													
5– 5.9													
6– 6.9													
7– 7.9		1			1				1			1*	
8– 8.9				1			1		1				
9– 9.9								1					1
10–10.9		2					1				1		1
11–11.9	2					1							
12–12.9	1	1		1		2						*	
13–13.9			2	2		1	1	2				1	
14–14.9				1				1		2		1	1
15–15.9	1*	1				1		*			1		
16–16.9				1									
17–17.9		1*		1				2					
18–18.9		1*					1						1
19–19.9				1			1						
20–20.9						1		*		*		1*	
21–21.9													*
22–22.9	1		1			2							
23–23.9			1							1*			
24–24.9		1					1						
25–25.9	1										1		
26–26.9				*									
27–27.9													
28–28.9													
29–29.9										1	1		
above 30sec			2	3					1	1	1		
?						1						3	
Total	6	8	6	11	1	9	7	6	3	5	5	7	4
no observation													
Remarks	*:indicates a larger arthquake which is included in the main table. the												

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14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	Total
																	1
			1					1									2
	1											1					2
								1									1
											1				1		6
1	1		1	1	1			2		1	1	3					15
		1				*		3			*		2				8
1			1						1			1	1		1		11
		1		1	2*				1		2		1	1		*	12
2	1	2	2	2		2*		2			1	3	2		3	1	28
			1	1	1	1	1	1			1	1	*	1	1	1	20
1					1	1					1			1		1	12
			1						1					1			7
1			1			*							1		1		5
		2					*					*			*		6
					1		*	1				1					6
1	1						1			1			1	1			8
																2	4
			1														1
1															1	1	7
									1		1						4
											1				*		3
						1		*								1	4
1	*						*					1					2
								1			1	1					3
						1											1
							1										3
2		1		1		1			1	2	1		3	3		1	24
		1								2		1		1			9
11	4	8	9	6	6	7	3	12	5	6	11	13	11	9	8	8	
				00h (04h													

Bulletin. Noisy Noisy

Preliminary Bulletin

of the Dodaira Micro-earthquake Observatory

and its Substation

Dec., 1968

Dodaira Micro-earthquake Observatory

Earthquake Research Institute, the University of Tokyo

Preliminary Bulletin of the Dodaira Micro-earthquake Observatory and its Substation

Observation stations

		N	E	h
Dodaira	(D or DDR)	35°59'54".0	139°11'36".2	800m
Tsukuba	(T or TSK)	36°12'39".0	140° 6'35".0	280m
Kiyosumi	(K or KYS)	35°11'51".6	140° 8'53".6	230m
Shiroyama	(S or SRY) (temporary)	35°36'30".0	139°16'27".0	254m

Expressions: Am: Amplitude in millimicron (half of peak to trough*) of P motion maximum within few cycles after the onset recorded by a short period vertical seismograph. *In 1967 double amplitude (peak to trough) was used as Am.

T : Period in sec of the measured P maximum

t : Teleseism

All stations are radio-telemetered to Tokyo giving records on a multi-channel ink-recording oscillograph. The paper speed of the recorder is 1 mm per sec. For stronger events high speed recorder (10 mm/sec) is also triggered. The system is also recorded in parallel on multi channel magnetic tape through a trigger system using an endless tape loop. Direct filter sum of short period seismometers at Dodaira and/or on line short period filter outputs of Tsukuba are also used for the

detection of weak teleseismic signals. For teleseismic events records of long period and medium period seismographs are occasionally used, applying off line frequency filter, if necessary.

The Bulletin includes the preliminary readings sent to USCGS for teleseisms and larger near shocks with total durations (F-P) of short period vertical seismograph at Tsukuba (TSK) with magnification about 140.000 at 1 c/s or sensitivity about 300×10^{-3} mm/microkine at 10 c/s being longer than 100 seconds which correspond approximately shocks with $M \gtrsim 3.5$. For the minor near earthquakes with F-P $\angle$ 100 sec or $M \angle 3.5$, frequency of S-P times at each station is added at the end of the Bulletin, which may easily give a general idea of local seismicity around the station.

Date	Station	Phase	Time (G. M. T.)			t	T	Am
DEC. 1	S	eP	02	53	37.4	t		
	D	eP			39.9			
	T	eP			44.0		0.5	7.2
	S	eP	11	03	12.5	t		
	T	eP			15.4		0.5	3.3
	D	eP			23.6			
	K	eP	13	31	58.8			
	S	eP		32	07.9			
	D	eP			12.4			
	T	eP			12.8			
	S	eP	14	58	47.8			
	D	eP			51.9			
	T	eP			54.5			
	T	eP	15	41	27.7			
	D	eP			36.3			
	T	eP	17	06	52.2			
	D	eP		07	01.1			
	S	eP	20	45	44.5	t		
	D	eP			46.5			
	T	eP			55.3		0.5	3.4
DEC. 2	T	iP	00	21	37.6			
	D	iP			39.3			
	S	eP			44.2			
	D	iP	04	48	32.5			
	D	iP	07	09	16.9			
	T	eP	08	06	11.7			
	D	eP			21.4			
	T	eP	13	43	23.9	t	0.5	2.8
	D	eP			30.0			
	K	eP	16	25	22.0			
	S	eP			33.6			
	T	eP			36.5			
	D	eP			37.2			
	T	iP	20	24	38.0			
	D	iP			43.1			
	S	iP			44.3			
	K	eP			44.8			
DEC. 3	T	iP	04	48	22.9			
	D	iP			32.5			
	T	iP	07	09	08.4			
	D	iP			16.9			
	T	eP	09	57	32.6			
	D	eP			45.1			

Date	Station	Phase	Time (G. M. T.)	t	T	Am
DEC. 3	K	eP	13 11 36.2	t		
	S	eP	46.2			
		eX	51.5			
	D	iP	48.3			
		eX	55.8			
	T	eP	48.7		0.5	9.2
	T	eP	18 23 52.9			
	D	eP	24 00.5			
	K	eP	19 36 01.4	t		
	D	eP	02.2			
	T	eP	06.0		1.2	26.9
	T	eP	20 56 28.3			
	D	eP	36.4			
	T	iP	21 08 29.1			
	D	eP	39.2			
	S	eP	43.3			
DEC. 4	D	iP	13 24 50.9			
	T	eP	25 00.4			
	T	eP	18 09 38.1			
	D	eP	46.7			
	T	eP	19 19 07.5			
	D	eP	17.0			
	T	eP	20 49 18.6	t	1.2	34.3
	D	eP	19.7			
DEC. 5	T	eP	02 16 38.3			
	D	eP	50.3			
	D	iP	04 18 12.7			
	S	eP	15.5			
	T	iP	16.0			
	T	eP	09 56 20.0	t		
	D	eP	21.3			
	T	eP	10 26 23.7			
	D	eP	32.3			
	T	iP	13 00 29.1			
	D	iP	37.0			
	S	iP	41.8			
	K	eP	44.4			
DEC. 6	T	iP	01 49 02.0			
	D	iP	05.2			
	S	eP	07.2			
	K	eP	10.4			
	T	eP	06 25 09.2			
	D	eP	20.0			
	S	eP	22.3			

Date	Station	Phase	Time (G. M. T.)			t	T	Am
DEC. 6	T	eP	13	52	37.0			
	D	eP			47.3			
DEC. 7	K	eP	05	05	19.0	t		
	S	eP			20.8			
	D	eP			24.0			
		eS		11	30.8			
	T	eP		05	25.0		1.5	312.9
	D	eP	05	09	41.0	t		
		eX		12	01.0			
	K	eP		09	45.9			
	S	eP			47.8			
	T	eP			53.6		1.2	45.0
	S	eP	11	48	37.5	t		
	D	eP			41.0			
	T	eP			42.5		1.3	23.9
	T	eP	12	10	37.8			
	S	eP			44.8			
	D	eP			47.4			
	D	eP	12	58	03.2	t		
	T	eP			04.0		1.2	26.9
	D	eP	15	47	06.7	t		
						LZ	20.0	2.5U
	T	eP			03.4		1.6	84.0
	T	eP	15	52	46.7	t	1.2	20.4
	D	eP			51.9	LZ	20.0	2.1U
	T	eP	17	04	43.6			
	D	eP			53.5			
	S	iP	17	19	26.9	t		
	T	eP			27.0		1.2	25.0
	D	eP			28.5			
		eX		20	28.5			
	T	eP	20	55	00.5	t	1.2	61.1
	D	eP			01.5			
	S	iP			05.0			
	T	iP	21	28	04.7			
	D	iP			14.2			
	S	iP	21	46	05.3	t		
		ePcP			20.5			
	T	eP			06.7		1.2	90.7
		ePcP			23.3			
	D	eP			08.3	LZ	20.0	2.5U
		ePcP			25.2			
		eS		54	39.0			
		eScS		55	05.0			
		esS		56	02.5			
		esScS			30.7			
		eP'P'	22	15	10.7			

Date	Station	Phase	Time (G. M. T.)			t	T	Am
DEC. 8	K	eP	02	11	15.8			
	T	eP			18.7			
	S	eP			25.6			
	D	eP			28.4			
	S	eP1	09	11	31.5	t		
		eP2			40.3			
	D	eP1			35.0			
		eP2			44.0			
	T	eP1			37.0		0.5	5.5
		eP2			44.2			
	T	eP	09	44	47.4	t	0.5	6.2
	D	eP			55.4			
	T	eP	11	46	08.7			
	D	eP			16.2			
	D	eP	13	19	20.8	t		
		eS		25	17.3			
		eScS		28	54.6			
	T	eP		19	23.5		1.4	46.7
	T	eP	15	40	04.8			
	D	eP			14.7			
		eS		41	10.4			
	S	eP		40	19.0			
	S	iP	16	43	19.4			
	D	iP			23.5			
	K	iP			31.2			
	T	iP			34.0			
	T	eP	17	54	38.0			
	D	eP			48.7			
	T	iP	19	02	01.3			
	D	eP			10.4			
	T	eP	21	15	19.8			
	D	eP			29.3			
	S	eP			33.7			
	T	eP	23	18	50.4			
	D	eP		19	00.4			
DEC. 9	T	eP	06	42	57.0			
	D	eP		43	06.0			
	T	iP	11	08	13.4			
	D	iP			24.9			
	K	eP			25.9			
	S	iP			27.0			
DEC. 10	T	eP	04	50	35.2			
	D	eP			46.6			

Date	Station	Phase	Time (G.M.T.)			t	T	Am
DEC.10	T	eP	04	50	56.2			
	D	eP		51	05.7			
		eS		52	18.4			
	S	eP		51	10.0			
	T	eP	05	24	03.8			
	T	eP	05	50	08.0			
	T	eP	07	49	12.7			
	D	eP			22.4			
	S	eP			25.9			
	K	eP			31.0			
	T	eP	07	54	10.3			
	D	eP			20.4			
	T	iP	10	26	29.4			
	D	iP			32.6			
	S	eP			34.6			
	K	eP			38.7			
	T	eP	13	32	26.6			
	T	eP	14	12	48.5			
	T	eP	19	15	41.4			
DEC.11	D	eP	06	06	01.4	t?		
	T	eP	06	24	16.0			
	D	eP			25.2			
	S	eP	11	46	42.3			
	D	eP			45.0			
	K	eP			50.7			
	T	eP			54.0			
	T	eP	12	26	07.6			
	T	eP	20	06	12.5			
	D	eP			20.0			
	S	eP			25.8			
	T	eP	20	17	17.8	t	1.2	23.1
	D	eP			24.0			
	S	eP	21	45	27.3	t		
	D	eP			29.8			
	T	eP	22	58	50.8			
	D	eP		59	01.9			
DEC.12	D	eP	00	35	30.0	t		
	S	eP	05	31	21.4	t		
	D	eP			25.6			
		ePcP		34	35.3			
		eS		36	04.5			
		eScS		38	05.9			
		ePcS			18.5			
	T	eP		31	27.3		1.6	66.1

Date	Station	Phase	Time (C.M.T.)			t	T	Am
DEC.12	S	eP	07	29	46.5	t		
	T	eP			46.8		1.4	71.5
	D	eP			49.0			
		ePcP?			29.4			
	T	iP	12	18	49.9			
	D	iP			58.3			
	T	iP	15	25	26.8			
	D	eP			36.9			
	K	eP	20	22	16.6			
	T	iP			20.2			
	S	eP			27.4			
	D	iP			30.7			
DEC.13	T	iP	03	55	06.7			
	K	eP			07.0			
	S	iP			09.3			
	D	iP			11.3			
	D	eP	12	34	46.0			
	T	eP			48.2			
	T	eP	17	39	38.4			
DEC.14	D	eP	05	00	00.2	t		
		eS		02	57.9	LZ	20.0	7.6U
	T	eP		00	08.2		0.5	14.7
	T	eP	08	49	38.0			
	D	eP			47.2			
	T	eP	10	05	05.7	t	1.3	38.8
	D	eP			12.4	LZ	14.0	3.1U
	T	eP	10	15	06.7			
	D	eP			17.8			
	T	iP	10	41	11.5			
	D	eP			18.2			
	T	iP	21	18	03.5			
	K	eP			13.3			
	D	eP			14.2			
DEC.15	T	eP	02	20	21.2	t	1.2	63.9
	D	eP			28.0	LZ	15.2	15.3U
	T	eP	02	34	36.3	t	1.1	72.1
	D	eP			42.8	LZ	14.4	10.0U
	K	eP	05	24	01.5			
	T	eP			11.9			
	D	eP			13.2			

Date	Station	Phase	Time (G. M. T.)			t	T	Am
DEC. 15	T	eP	14	05	44.6	t	0.5	33.4
		eS		08	47.5			
	D	eP		05	53.6			
		eX		06	09.0			
		eS		09	06.7			
	K	eP	18	33	46.7			
	D	iP			59.0			
	T	iP			59.2			
	D	iP	18	58	05.2			
	T	eP			06.0			
DEC. 16	D	eP	08	40	32.7			
	D	eP	10	56	51.9	t?		
	D	iP	21	24	12.7			
	D	eP	23	10	18.7			
DEC. 17	T	eP	03	57	28.8			
	D	eP			39.3			
	T	eP	09	55	47.3			
	D	eP			54.7			
	T	eP	12	10	48.0	t	1.2	411.7
		iScP		15	58.9			
	D	eP		10	53.0			
		ePcP?		12	48.2			
		eScP		16	02.8			
		ePcS			03.3			
		eS		17	51.2			
		eScS		20	38.0			
		eP'P'		40	25.7			
	D	iP	18	37	03.7			
	T	iP			04.6			
	T	iP	22	17	29.0			
	D	iP			39.7			
	T	eP	22	31	48.8			
	D	iP			59.0			
DEC. 18	T	iP	14	32	14.4			
	D	iP			25.3			
	T	iP	17	16	49.1			
	D	iP			59.6			
	K	eP		17	00.3			
	T	eP	17	39	23.6	t	1.7	47.9
	D	eP			27.2			
	T	eP	19	41	50.5			
	D	eP		42	01.3			
	K	eP			05.2			

Date	Station	Phase	Time (G. M. T.)			t	T	Am
DEC. 18	K	eP	20	14	06.9	t		
	T	iP			09.8		1.0	157.8
	D	iP			12.6			
		iS		22	48.0			
		eScS		23	46.0			
	D	eP	21	51	22.4			
		eX			30.6			
	T	eP			31.5			
		eX			41.4			
DEC. 19	D	eP	00	33	58.0	t		
		ePcP		36	12.0			
		eS		39	47.9			
	T	eP		34	01.8			
	T	iP	02	53	52.8			
	D	iP			58.2			
	K	eP		54	01.7			
	T	iP	03	49	32.4			
	K	eP			34.4			
	D	iP			35.5			
	D	eP	05	27	07.0	t		
		ePcP		28	06.4			
		eScP		31	50.4			
		eS?		34	34.4			
		eScS		36	38.2			
	T	eP		27	09.6		1.2	93.5
	T	eP	06	42	05.4			
	D	eP			18.3			
	T	eP	09	14	55.3			
	T	eP	13	20	17.3			
	T	eP	13	24	56.5			
	T	iP	15	20	52.2	t	1.5	61.3
	D	iP			58.5			
		eS		25	23.9			
	K	eP		21	04.0			
	T	iP	16	42	01.0	t	1.5	272.7
	K	eP			05.5		Explosion?	
	D	iP			06.0			
		ePP		45	03.2			
	T	eP	17	54	36.9			
	D	eP			45.8			
	D	iP	18	00	28.0			
	T	iP			31.5			
	K	eP			38.4			
	T	eP	19	09	12.9			
	D	eP			14.2			

Date	Station	Phase	Time (G. M. T.)			t	T	Am
DEC. 19	T	iP	21	53	04.9			
	D	iP			15.4			
	K	eP			15.7			
DEC. 20	T	iP	04	06	53.9			
	D	iP		07	03.6			
	D	eP	04	19	52.4	t		
	T	iP	19	12	59.8			
	K	eP		13	08.0			
	D	eP			10.2			
	S	eP			12.4			
	T	eP	19	44	07.8	t		
	D	eP	21	47	55.7			
DEC. 21	T	iP	01	47	26.2			
	D	iP			31.0			
	S	eP			32.5			
	K	eP			34.8			
	T	iP	04	04	29.8			
	D	eP			38.8			
	T	eP	12	59	31.3			
	D	iP			40.0			
	S	iP			44.3			
	K	eP			47.9			
	T	eP	13	07	25.7			
	D	eP			36.2			
	S	eP			39.8			
	T	eP	15	04	43.3			
	D	eP			51.9			
	K	eP	17	33	36.2			
	S	iP			45.6			
	T	eP			49.2			
	D	eP			49.3			
	T	eP	22	53	43.6			
	D	eP			52.7			
	K	eP			53.2			
	S	eP			56.0			
DEC. 22	T	eP	05	28	00.2			
	D	eP			00.3			
	T	eP	07	20	22.2	t	1.3	54.4
	D	eP			29.2			
	S	eP			33.1			
	T	eP	10	38	52.0			
	D	eP		39	02.6			
	S	eP			06.0			

Date	Station	Phase	Time (G. M. T.)			t	T	Am
DEC. 22	T	eP	12	14	33.7			
	S	eP	12	51	54.2	t		
	T	eP			54.6		0.5	5.5
	D	eP			57.0			
	T	eP	15	30	03.1	t	0.5	12.4
	D	eP			09.6			
	T	iX	15	35	23.8	t	0.5	42.9
	D	eX			29.6			
		ePcP?		37	09.0			
	S	eX		35	32.0			
	T	eP	16	03	09.9	t	0.5	6.4
	T	eP	16	53	18.6	t	1.6	117.9
	D	eP			25.0			
	S	eP			25.9			
	S	eP	17	46	32.0	t		
	D	eP			37.1			
	T	eP			37.2		0.5	5.0
	T	eP	21	48	31.3			
	D	eP			33.5			
	T	eP	23	19	22.7			
DEC. 23	T	eP	04	54	26.0			
	S	eP	05	59	49.8	t		
	D	eP			50.0			
		ePcP	06	02	19.1			
		eS?		05	36.0			
	T	eP	05	59	53.0		0.5	12.5
	T	eP	07	59	18.8			
	D	eP	08	23	43.4	t		
	T	eP	21	17	03.2			
	D	eP			11.6			
	S	eP			18.3			
DEC. 24	T	eP	12	03	33.8			
	D	eP			43.2			
	D	eX	13	04	55.8	t		
	T	eX			56.8		0.5	1.8
	T	iP	16	21	34.0			
	D	iP			43.0			
	S	eP			46.8			
	K	eP			47.5			
	S	eP	16	29	03.0			
	D	eP			07.9			
	T	eP			08.2			

Date	Station	Phase	Time (G. M. T.)			t	T	Am
DEC. 24	T	eP	16	54	20.2			
	D	eP			29.3			
	T	iP	22	01	02.7			
	S	eP			11.7			
	D	iP			12.4			
	K	eP			12.8			
DEC. 25	T	eP	00	46	15.6	t		
	D	eP			18.1			
	T	eP	01	56	19.2			
	D	eP			26.7			
	K	eP			34.8			
	S	eP			34.9			
	T	iP	03	58	04.0			
	D	eP			11.6			
	T	eP	08	55	24.0	t	1.0	21.1
	D	eP			30.1			
	T	eP	16	54	20.5			
	D	eP			27.4			
	T	eP	17	01	22.8			
	D	eP			29.0			
	S	eP	21	38	40.0			
	D	eP			44.4			
	T	eP			46.4			
DEC. 26	T	eP	06	14	05.0			
	D	eP			14.2			
	K	eP	17	35	01.8			
	D	iP			04.7			
	T	iP			08.2			
	T	iP	17	45	18.2			
	D	iP			26.8			
	S	eP			31.5			
	K	eP			34.5			
	T	eP	20	10	42.7			
	D	eP			51.4			
	S	eP	21	12	46.2	t	0.5	11.3
	D	eP			50.0			
	T	eP			52.4			
	T	eP	21	54	45.7			
	S	eP			53.0			
	D	iP			53.7			
DEC. 27	K	eP	07	15	28.6	t		
	S	eP			29.8			
	D	iP			36.3			
	T	iP			40.8		0.5	41.7

Date	Station	Phase	Time (G. M. T.)			t	T'	Am
DEC. 27	D	ePn	09	48	57.3			
	T	ePn		49	00.7			
	T	ePn	11	23	45.9			
	T	ePn	22	38	58.0	t	0.5	13.7
		eS?		39	26.9			
	D	ePn	22	40	56.6	t		
		epPn		41	27.5			
		eSn		44	49.3			
		eX		45	19.7			
	T	ePn		40	57.6		0.5	6.1
		epPn		41	28.0			
DEC. 28	T	iP	05	48	19.6			
	D	iP			28.4			
	S	iP			32.8			
	S	ePn	06	34	49.4	t		
	D	ePn			51.7	LZ	20.0	2.1 U
	T	ePn			53.9		0.5	3.5
	T	ePn	08	04	46.3			
	D	ePn			55.4			
	S	ePn			58.9			
	T	ePn	14	13	10.8			
	D	ePn			19.8			
	D	ePn	15	29	05.6			
	T	ePn			07.9			
	T	iP	19	22	55.8			
	D	iP			59.3			
	S	iP		23	01.4			
	K	iP			04.0			
DEC. 29	T	ePn	02	07	21.1	t		
	D	ePn			23.2			
	T	ePn	02	17	50.8			
	T	ePn	05	14	04.4			
	S	ePn	06	58	33.2	t		
	D	ePn			38.0			
	T	ePn			38.1		0.5	6.3
	D	ePn	07	21	38.0	t LZ	20.0	5.9 U
	D	ePn	07	30	13.7	t		
	T	ePn	08	44	36.0			
	D	ePn			46.2			
	K	iP	09	41	43.8			
	S	iP			47.4			
	D	iP			52.2			
	T	iP			54.2			

Date	Station	phase	Time (G.M.T.)			t	T	Am
DEC.29	T	iP	10	38	50.5			
	D	eP			58.3			
	T	eX1	16	49	06.9	t	1.1	13.9
		eX2			21.6		1.0	79.2
	K	eX1			10.2			
		eX2			24.2			
	D	ePKP			02.1			
		eX1			10.4			
		eX2			25.7			
	S	eX2			25.9			
	T	eP	19	21	02.3			
	D	eP			12.2			
	S	eP	20	13	29.5	t		
	T	eP			30.3		0.5	3.2
	D	eP			32.6			
DEC. 30	T	eP	04	59	46.1	t	1.0	20.0
	D	eP			48.9			
	T	iP	07	11	56.5	t	1.0	34.0
	D	iP		12	01.8			
	S	iP			03.5			
	T	iP	08	50	42.6			
	D	iP			53.8			
	S	iP			56.5			
	K	eP			59.0			
	T	iP	09	11	13.5			
	D	iP			24.6			
	S	eP			27.2			
	K	eP			30.5			
	T	eP	14	58	55.5	t	1.0	40.0
	D	eP			58.7			
	D	eP	22	16	10.5			
	S	eP			10.7			
	T	eP			13.6			
DEC. 31	T	iP	20	53	13.4			
	D	iP			18.5			
	T	iP	23	30	01.2			
	D	iP			05.0			
	S	eP			07.5			
	K	eP			10.8			

S—P \ Date	1	2	3	4	5	6	7	8	9	10	11	12	13
0— 0.9													
1— 1.9													
2— 2.9													
3— 3.9													
4— 4.9				1					1				
5— 5.9		2		2	1	1	1	1	3			2	
6— 6.9		4		1		1							3
7— 7.9	2		1*	3	1	1	1	2	1		1	2	4
8— 8.9	1	3	4	1	1	2	1		3	1	1	1	1
9— 9.9	1	2	4	3	4	2	2	2	2	2	1		1*
10—10.9	2	2		1				3	*		2		4
11—11.9		1			1	1			1		2		
12—12.9			1	1	2	1		2*	1			1	
13—13.9		1		1	1	1		2	1		2	1	2*
14—14.9					1		3				1		
15—15.9	2					*			2	4	3		
16—16.9										3			
17—17.9	1			2						2	1	1	1
18—18.9		1	1	1	3			1	1				1
19—19.9	*	1	1	2		1	1	1	1		1	1	1
20—20.9								1	1	1			
21—21.9										1			1
22—22.9	1	1			1				2				
23—23.9						1							
24—24.9													
25—25.9	*		1		*			*				1	*
26—26.9													
27—27.9													
28—28.9													
29—29.9													
above 30sec	3	2	1	1	3		2	2	3				1
?			1			2				1			
Total	13	20	15	20	19	14	11	17	23	15	15	10	20
no observation													
Remarks	*: indicates a larger earthquake which is included in												

Dec.

14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Total
																		2
2			1	1		1	1	1		1				1	4	2		28
	1	2	1			1	2			2	1	1	1	2				23
	4			1	1		2*	3	4		1	3	3	2		2		45
2	2	2	1	2	2	4	2	4	2	2		1	2	1		1	5	55
1	2	1	1	4	2	2	3	1	1	1	3	2	3	1	3	3	3	63
3	2	1	2	1		3		2	4	1	2	1	1	2	2	1	1	43
			2			1*		1		3		1		1	1	2	3	21
				1	3	1	1	1	1	3	1	1		1		1	3	27
1				1			1	1				1	2	2		2		23
			1	1		1	3							2	1	2		16
1				2	*			1		1			1				2	19
1	1	*						1			3	1		2*	*			12
				1	1	1	1	1				1				4		18
	1				1		1				2						1	15
				1			1*								1			14
		*	1	1			1		1	1				1	1		1	11
1		1								1	1					1		7
			1			*					1			1	1	1		10
												4						5
															2			2
						1				1								4
												2						2
					1													1
4	1*		1	2	5		3	2	1		7	3	1	1	2	2		53
												1						5
16	14	7	12	19	16	16	22	19	14	17	22	23	14	20	18	24	19	
		10h03 / 24h00	00h / 09h57	11h / 15h														

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S–P \ Date	1	2	3	4	5	6	7	8	9	10	11	12	13
0– 0.9													
1– 1.9							1						
2– 2.9			1										1
3– 3.9									1				
4– 4.9		1											
5– 5.9													
6– 6.9				1									
7– 7.9		1			1	*			1				2
8– 8.9		1		2									1
9– 9.9	1	1			1			1				1	1
10–10.9	1			1	1						1		1
11–11.9		1	1*	2	2		2		1			2	2
12–12.9		1*		3*	3	1		1	2	1	1		
13–13.9		1			2	1	1	1	1	2			1
14–14.9					1		1						
15–15.9	*	2						1			1		*
16–16.9	1		2		1	1	1			1			
17–17.9				1					1	1			1
18–18.9								1					1
19–19.9													
20–20.9		1							1				
21–21.9					1								
22–22.9			1										
23–23.9	1		1		*	*	1		1*				
24–24.9										1		1	
25–25.9										1			
26–26.9	*												
27–27.9													*
28–28.9				1									
29–29.9													
above 30sec	1		1	1	1				2	2	2	1	
?					1			1	1				
Total	5	10	7	12	15	3	7	6	12	9	5	5	11
no observation													
Remarks	*: indicates a larger earthquake which is included in noisy												

Dec.

14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Total
																		1
						1												3
		1																2
																		1
			1															1
											1			1				3
				1	1			1				1		1				10
	1	1				2*	1		1		1				*	1		12
					1	2										1		10
1							*	3										9
	1	1			*				1				2		1			19
1		*		3	2*	1			1			1	1					23
		3		5	1				2		3				3	1		28
			1	1			2	2	1				1			2		12
		1	1				1		1	1						1	1	11
1				2		*	2											12
				1					1								2	8
		1								1							1	5
	*	1*											1	1				3
1	1							1							1	1		7
											1				*			2
												1						2
1	*										1			*		1		7
							1					1						4
												1						2
					1													1
																1**		1
			1	*				*										2
							1*			1								2
3		1			1		2	1			1	1	1					22
				1			1			1				1				7
8	3	10	4	14	7	6	11	8	8	4	8	6	6	4	5	9	4	

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