

SEISMOLOGICAL REPORT FOR I.G.Y.



July, 1957

STATION: Mt. Tsukuba (Japan)

Longitude: 140° 06' 36" E  
 Latitude : 36° 12' 39" N  
 Elevation: 286- m  
 Foundation: Granite

The Seismological Reports For I.G.Y. issued by Station Mt. Tsukuba (Japan) for the months of July and August 1957 have been found to contain serious errors in the "amplitude" column.

This revised report has therefore been issued for the two months in question, and will supersede the previous reports from Station Mt. Tsukuba for July and August 1957.

Instrument:

No.	Name	Component	V <sub>max</sub>	T <sub>1</sub>	T <sub>2</sub>	h <sub>1</sub>	h <sub>2</sub>	ρ	σ	Date of Calibration
				sec	sec			mm		
1.	Hagiwara Inverted Pendulum Seismograph	EW	37	4.4		0.67		0.35		May 13 1955
2.	"	NS	36	4.4		0.63		0.37		
3.	Ishimoto Acceleration Seismograph	EW	200	0.12		0.71		0.01		"
4.	"	NS	230	0.11		0.71		0.01		"
5.	"	UD	205	0.09		0.45		0.01		"
6.	Short-period Electromagnetic Seismograph	EW	29000	1.00	1.16	1.0	1.0		0.11	June 30
7.	"	NS	29000	0.98	1.10	1.0	1.0		0.1	1957
8.	"	UD	37000	0.97	1.26	1.0	1.0		0.1	"

T<sub>1</sub> : Period of pendulum

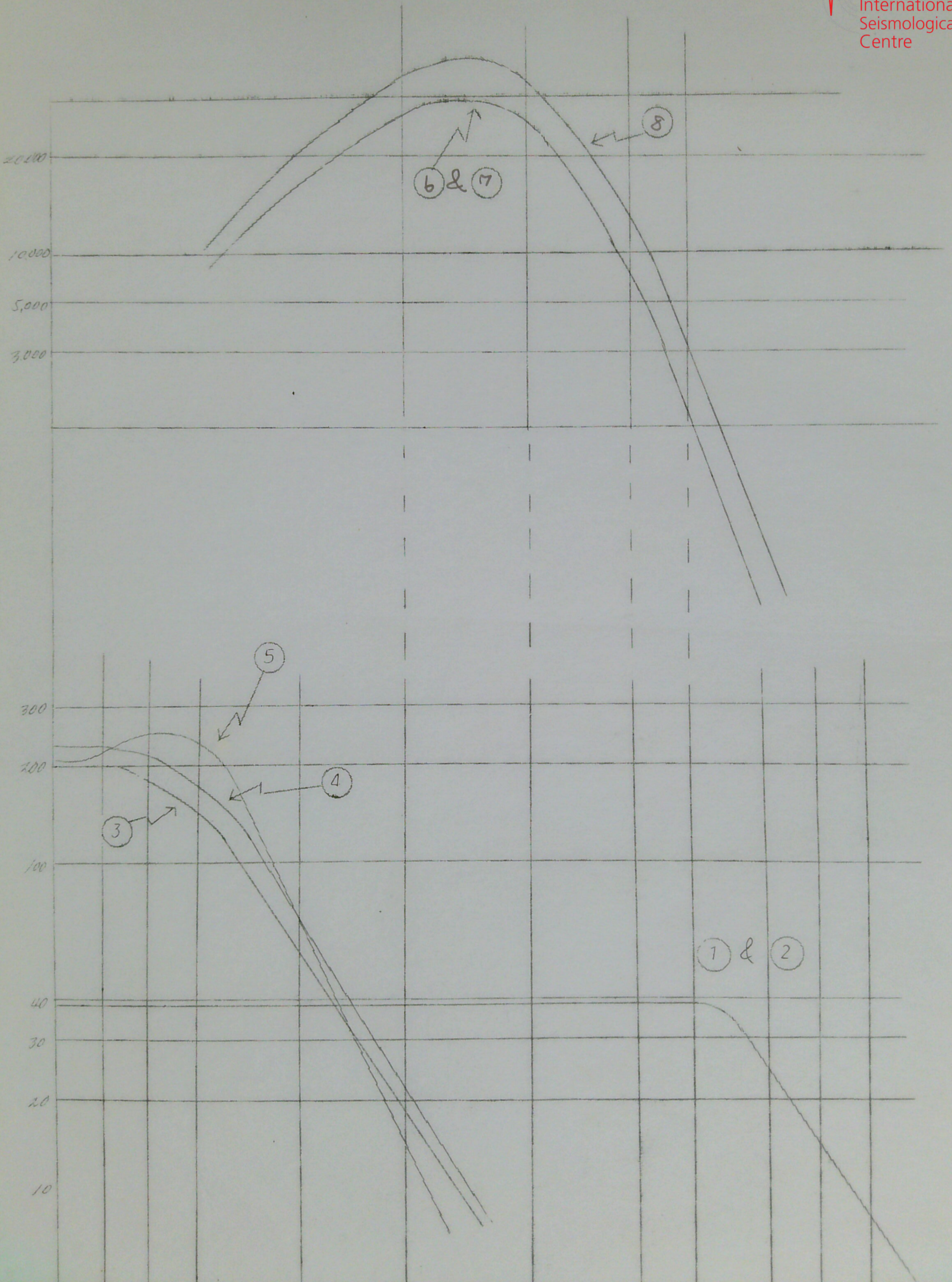
T<sub>2</sub> : Period of galvanometer

h<sub>1</sub> : Damping constant of pendulum

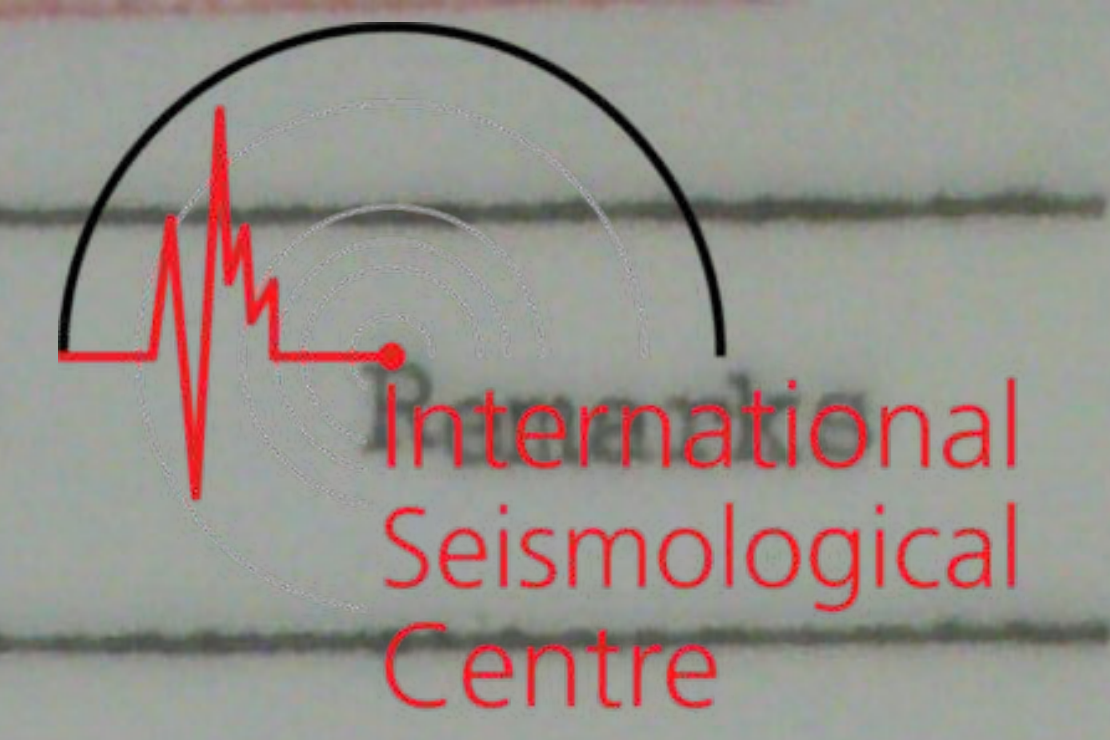
h<sub>2</sub> : Damping constant of galvanometer

ρ : Solid friction

σ : Coupling factor







Serial No.	Date	Phase	Time (h m s)	Period (sec)	Amplitude			$\Delta$ (ca)	Instrument			
					N	E	Z					
19.	July 14	iPN	06 35	17.8	1.2	7.0		75°	7			
		iPZ		18.0	0.8		30.0		8			
		iPE		"	"	1.2	-5.0			6		
		MN		20.7	1.2	-13.5			7			
		MZ		"	"	"		-44.0		8		
		ME		21.1	1.2		13.5			6		
		ePPE	38	07.9	1.4		-2.5			6		
		ePPN		"	1.6	2.0				7		
		ePPZ		09.0	1.6			7.0		8		
		eSE	44	35.2	7.6		-1.0			6		
		eSN		37.2	6.8	0.5				7		
		eSZ		38.1	2.0			-1.5		8		
		20.	14	iPN	08 22	40.2	0.8	-3.0			7	
				iPZ		"	0.8		16.0		8	
iPE				40.9	0.8		-3.0		6			
eXE	31			46.4	3.2		-0.5		6			
eXZ	32			04.2					8			
eXN				39.4					7			
21.	14	ePN	09 53	48.0				71°	7			
		ePZ		"	0.6		-1.5		8			
		ePE		48.3					6			
22.	17	iPZ	11 19	33.3	1.6		-4.5	53°	8			
		ePE		33.6	1.0		0.5		6			
		ePN		"					7			
		iXZ	20	03.2	2.0			12.0		8		
		eXE		07.7	1.2		-2.0		6			
		eXN		10.3	2.6	-2.0			7			
		ePPN	21	08.2					7			
		ePPN		09.6	2.4		-2.5		6			
		eXZ	22	06.2	2.0			-3.5		8		
		ePPPN		17.2					7			
		23.	17	ePN	16 33	26.8				39°	7	
ePZ				"	0.6		-1.5		8			
ePE				27.6					6			
epPE				35.4	1.2		-1.5		6			
epPZ				"	1.2			-2.0		8		
epPN				35.7	1.6	0.5			7			
MZ				27.7	1.2			3.0		8		
ME				35.4	1.2		-1.5		6			
24.												
25.	18	ePZ	11 18	46.6				42°	8			
		ePE		48.9					6			
		ePN		"					7			
		eXZ	21	19.6	2.0			1.0		8		
		eXE		53.0					6			
		eSZ	24	54.4					8			
		eSE	25	09.8					6			

No trace.

Serial No.	Date	Phase	Time (h m s)	Period (sec)	N (mm)	E (mm)	Z (mm)	$\Delta$ (ca)	Instrument	Remarks	
26.	July 18	ePE	12 08 19.6							6	International Seismological Centre
		ePN	19.7							7	
		ePZ	"	0.6			-3.5			8	
		eXN	21.4	0.4	-5.0					7	
		eXE	21.6		-2.0					6	
		iXZ	55.5	0.2			-0.4			8	
		iSN	09 31.2	0.4	15.0					7	
		iSZ	31.5	0.4			-0.5			8	
		iSE	33.7							6	
		eScSZ	20 45.7	2.2			1.5			8	
		eScSN	53.5							7	
		eScSE	56.7	1.2		1.0				6	
		27.	19	ePZ	13 06 26.8					18°	
ePN	29.9									7	
ePE	30.1									6	
eSN	10 01.1			0.6	-1.5					7	
eSZ	01.5			1.4			-2.5			8	
eSE	02.3			0.8			-2.0			6	
28. 29.	21	ePN	07 08 07.5					43°		7	No trace.
		ePZ	"							8	
30.	21	eXZ	19.1	1.4			-1.0			8	
		MZ	"	1.4			-1.5			8	
		ePcPZ	10 03.2	1.6			-2.5			8	
		eXN	12 50.1							7	
		eXN	16 09.1							7	
		eXN	57.3							7	
		ePZ	19 48 46.1	3.6			1.5	77°		8	
31.	22	MZ	48.5	2.0			-1.5			8	
		ePcPZ	54.1	1.2			-1.0			8	
		ePZ	06 29 02.1					80°		8	
		ePE	03.6							6	
		MZ	21.1	1.6			1.5			8	
32.	22	epPZ	"	1.6			2.0			8	
		epPN	21.5	0.8	0.5					7	
		epPE	27.5	1.0			-0.5			6	
		ePE	10 17 40.5							6	
		ePZ	"	0.3			2.0			8	
		ePN	41.0							7	
		ePN	00 51 53.1					34°		7	
33.	23	iPN	54.1	0.8	-7.0		-7.0			8	
		ePE	54.5	0.8		1.5				6	
		eXN	52 02.0	1.2	1.5					7	
		eXZ	04.4	0.8			-2.5			8	
		ePPE	53 11.4	2.0			-2.5			6	
		ePPZ	"	2.0			7.0			8	
		ePPN	11.9							7	
		eXZ	00 54 07.4	2.0			-4.5			8	
		eXE	09.9	3.4			-2.0			6	
		eXN	10.8							7	
		ePcPZ	32.9	1.4			3.0			8	
		eXE	55 43.5	1.6			-1.0			6	
		eSN	57 17.2							7	
		eSE	17.4							6	
		eSZ	17.7	1.2			-2.0			8	

Serial No.	Date	Phase	Time	Period	N	E	Z	$\Delta$ (ca)	Instrument
34.	July 23	ePZ	03 40	48.3	2.0		-2.0	71.5°	8
		ePN		48.6					7
35.	24	eP <sub>1</sub> E	02 17	29.4				150°	6
		eP <sub>1</sub> Z		29.9	2.0		-2.0		8
		MZ		42.7	1.0		-3.5		8
		eP <sub>2</sub> Z		53.8	1.2		4.5		8
		eP <sub>2</sub> E		54.3	1.2		-1.0		6
		eXZ	18 11	11.8	1.2			-1.0	8
		eXE		12.3	0.8		-1.0		6
		epPZ	19 35	35.4	2.0			-1.5	8
36.	24	eXZ		47.1	1.6		-2.0		8
		ePE	08 07	46.9	0.6		-1.0		6
		iPZ		47.1	1.0			-3.0	8
		ePN		47.2					7
		MZ		48.7	1.2			-3.5	8
		eXN	08 03	03.0	1.0	-4.0			7
		eSZ	10 05	05.9	1.4			-1.5	8
		eSN		06.7					7
		eSE		07.4	0.6		-2.0		6
		37.	24	ePZ	11 12	17.8			
eXZ				44.0	2.8		-1.5		8
MZ				59.0	1.4		2.5		8
38.	24	ePE	14 48	18.7				40°	6
		ePZ		19.4	0.6		-0.5		8
		MZ		23.5	1.0		2.5		8
		epPZ		32.2	0.8		-1.5		8
39.	25	epPE		32.3	1.0		-1.5		6
		ePZ	07 49	03.0				43°	8
		ePF		08.9	1.6		-1.0		6
		ePN		"					7
		eXE	50 40	40.8	2.4		-1.0		6
		eXZ		41.2	2.0			-3.0	8
		eXE	51 25	25.9	2.8		-1.0		6
		eXZ		48.2	1.0			-2.0	8
		eSE	54 42	42.7					6
		40.	27	ePZ	18 51	13.0			
ePE				13.4					6
epPZ				27.8	1.6			1.5	8
ePPE	53 02			02.1					6
ePPZ				02.8	1.4			2.0	8
41.	28	ePE	08 54	11.9				103°	6
		ePN		12.3					7
		ePZ		12.6					8
		ePPE	58 21	21.7					6
		ePPN		"					7
		ePPZ		23.6	2.4			-3.5	8
		eXZ		32.0	2.4			3.0	8
		eXN		50.2					7
		eXE		51.0	2.6		-3.5		6
		eXN	59 15	15.7					7
		eXZ		16.8	2.6			-6.0	8
		eXE		26.0	1.8		-1.5		6
		ePPPTZ	00 09	09.7	2.0			-4.0	8
		ePPPTN		10.5					7
		eXZ	01 22	22.0	5.0			-4.0	8
		eSZ	06 22	22.8	3.4			-2.0	8
eSE		29.0					6		
eSN		32.7					7		

Serial No.	Date	Phase	Time (h m s)	Period (sec)	Amplitude			$\Delta$ (ca)	Instru- ment	Remarks
					N (mm)	E	Z			
42.	July 29	iP <sub>1</sub> Z	17 35 04.3	2.6			9.5	148.5 <sup>0</sup>	8	
		iXZ		11.5	1.2			-44.0	8	
		eXE		12.0	1.2		36.0		6	
		eXN		"	1.2	-1.0			7	
		MZ		11.5	1.2			36.0	8	
		ME		12.0			-4.5		6	
		eXN		35.0					7	
		eP <sub>2</sub> Z		36.3	1.0			-3.5	8	
		eXE	36 07.3		1.4		3.0		6	
		eXZ		08.6	1.2			8.5	8	
		ePP?Z	38 37.4		2.4			-2.0	8	
		eXZ	42 22.6						8	

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August 1957

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Longitude: 140° 06' 36" E  
 Latitude : 36° 12' 39" N  
 Elevation: 286 m  
 Foundation: Granite

The Seismological Reports For I.G.Y. issued by Station Mt. Tsukuba (Japan) for the months of July and August 1957 have been found to contain serious errors in the "amplitude" column.

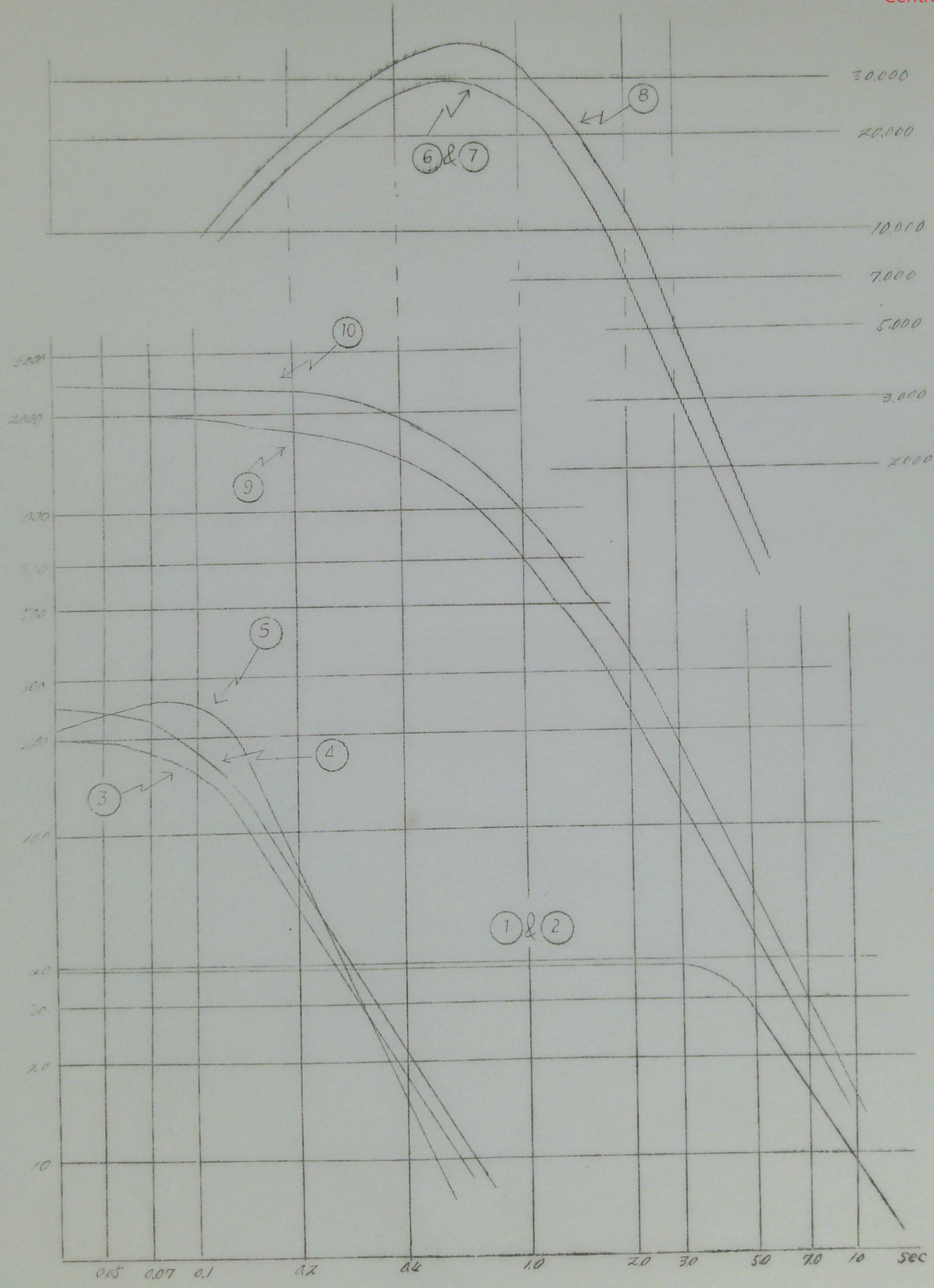
This revised report has therefore been issued for the two months in question, and will supersede the previous reports from Station Mt. Tsukuba for July and August 1957.

Instrument:

No.	Name	Component	V <sub>max</sub>	T <sub>1</sub>	T <sub>2</sub>	h <sub>1</sub>	h <sub>2</sub>	ρ	σ	Date of Calibration
				sec	sec			mm		
1.	Hagiwara Inverted Pendulum Seismograph	EW	37	4.4		0.67		0.35		May 13 1955
2.	"	NS	36	4.4		0.63		0.37		"
3.	Ishimoto Acceleration Seismograph	EW	200	0.12		0.71		0.01		"
4.	"	NS	230	0.11		0.71		0.01		"
5.	"	UD	205	0.09		0.45		0.01		"
6.	Short-period Electromagnetic Seismograph	EW	29000	1.00	1.16	1.0	1.0		0.1	June 30 1957
7.	"	NS	29000	0.98	1.10	1.0	1.0		0.1	"
8.	"	UD	37000	0.97	1.26	0.8	1.0		0.1	"
9.	Wood-Anderson type Seismograph	EW	2000	0.80	nearly					"
10.	"	NS	2400	0.80	critical					"

- T<sub>1</sub> : Period of pendulum
- T<sub>2</sub> : Period of galvanometer
- h<sub>1</sub> : Damping constant of pendulum
- h<sub>2</sub> : Damping constant of galvanometer
- ρ : Solid friction
- σ : Coupling factor







Serial No.	Date	Phase	Time (h m s)	Period (sec)	Amplitude			$\Delta$ (ca)	Instrument	Remarks	
					N	E	Z				
54.	August 18	ePZ	08 42 46.2					28°	8		
		ePE		57.3					6		
		ePN		58.0					7		
		eXZ	43 07.1	1.6		3.5			8		
		ePPZ		39.4	2.4		4.0		8		
		ePPE		40.3	2.4		-3.0		6		
		eXZ	44 57.3	4.2		-5.0			8		
		eXE	45 02.2	2.4		-2.5			6		
		eSE	47 24.8	2.8		-1.0			6		
		eSN		25.5					7		
		eSSE	49 05.6	12.8					6		
		eSSN		08.3					7		
		eSSZ		08.6					8		
		ePcSN		56.3					7		
		eXZ	52 51.1	9.0		-3.0			8		
		eScSZ	53 39.8						8		
		eScSE		40.6	3.2		-1.0		6		
		eScSN		42.3	2.8		-1.0		7		
		55.	18	ePE	21 46 44.1	1.4		2.0	19°	6	
				ePN		44.8	0.8	1.5		7	
iPZ	"			1.2		-7.0		8			
MZ				50.8	1.2		14.0	8			
ME				58.4	1.4		-8.5	6			
MN	47 08.6			1.2	-10.5			7			
eXZ	48 01.3			1.2		11.0		8			
eXE				02.7	1.6		-5.5		6		
eXN				49.0	2.0	-3.0			7		
eXE				50.5	1.6		-5.0		6		
eXZ				51.3	1.6		-5.0		8		
eXN	49 54.1			0.6	-2.5				7		
eXE				54.7	0.8		4.0		6		
eXZ				55.4					8		
eSE	50 05.8			0.6	6.0				6		
eSN				05.9	1.2	-10.5			7		
56.	19			ePN	11 41 36.0				50°	7	
				ePZ	"					8	
		eXN	42 06.9			-3.0		7			
		eXZ		08.7	1.0		-2.0		8		
		MN	41 47.2	2.0	1.0			7			
		MZ	42 00.3	1.6			-1.5	8			
57.	20	ePE	06 36 02.9				50°	6			
		ePN		04.3				7			
		ePZ		04.4				8			
		ePcPZ	37 47.6	6.0			-1.5	8			
		eXE	41 10.1					6			
58.	20	ePZ	12 10 52.9				-50°	8			
		ePN		53.5				7			
		eXZ		57.3				8			
		eXZ	14 18.3	6.0			-2.0	8			
		eYE		22.7				6			
		eSN	18 11.3	2.0	-0.5			7			
		eSPZ		17.4	2.4		1.0	8			

Serial No.	Date	Phase	Time (h m s)	Period (sec)	Amplitude			$\Delta$ (ca)	Instrument	Remarks
					N	E	Z			
59.	August 22	ePZ	08 02 20.5					37.5°	8	
		ePN	20.6						7	
		ePE	21.2						6	
		eXZ	26.1	0.6		4.0			8	
		eXE	27.8	0.4		1.0			6	
		eXN	"	0.8	1.5				7	
		eSE	08 03.7	1.6		0.7			6	
		eSZ	05.1						8	
60.	23	eSN	05.6	1.2	-1.0				7	
		ePN	02 08 14.1					44°	7	
		ePZ	14.3						8	
		ePE	14.8						6	
		eXZ	29.3	2.0		-4.0			8	
		eXN	29.8	1.6	-1.5				7	
		epPE	43.2	1.4		-3.0			6	
		eSZ	14 35.6	1.6		-1.0			8	
61.	26	eSE	39.4						6	
		eSN	41.3						7	
62.	26	eXN	42.2	2.2	-1.0				7	
		ePoZ	11 48 45.4	2.0		-1.5	153°	8	No trace.	
		ePoE	46.3						6	
		ePoN	46.4						7	
		iP Z	51.6	2.4		-7.0			8	
		ePPN	52 40.4	2.2	-0.5				7	
		ePPZ	40.8	2.6		-4.0			8	
		ePPE	41.8	2.0		1.0			6	
63.	26	MZ	53 02.4	1.4		-6.5			8	
		eXZ	14 18 04.2	1.6		1.0	136°	8		
		MZ	10.2	1.0		1.5			8	
		eXE	14.5						6	
64.	26	eXN	15.2						7	
		ePN	20 01 33.8				44°	7		
		ePE	35.2						6	
		eXE	41.2	0.8		0.5			6	
		epPN	02 06.1						7	
		eXE	40.8	0.6		0.5			6	
		eSN	07 48.3	1.6					7	
65.	27	eSE	50.5						6	
		ePZ	21 06 50.5	0.8		1.0	71.5°	8		
		ePcPZ	07 08.3	0.6		1.0		8		
		epPZ	09 02.0					8		
66.	28	MZ	06 50.8			-1.5			8	No trace.
		ePE	23 21 00.9						6	
		eFN	01.2	1.4	1.5				7	
67.		ePZ	"					8		

Serial No.	Date	Phase	Time (h m s)	Period (sec)	Amplitude			△ (ca)	Instrument	Remarks		
					N	E	Z					
68.	August 28	ePZ	23 26 08.8	2.0			1.0	16°	8			
		ePN		09.1	2.0	2.0			7			
		iPPZ		21.5	0.8		-5.5		8			
		MN		31.2	0.4	-4.5			7			
		ME		34.8	1.2		-3.5		6			
		MZ		38.0	0.6			-7.5	8			
		eSN	29	05.2	0.6	-1.5			7			
		eSZ		05.5	1.0			-1.5	8			
		eXZ		44.3	0.8			-2.0	8			
		eXZ	31	59.7	1.0			1.0	8			
		69.	28	ePZ	23 53 46.6					16°	8	
				ePN		48.4					7	
ePE				48.9					6			
ePPN	54			07.1	0.6	-3.0			7			
ePPZ				07.2	1.2			-4.0	8			
ePPP				16.1	0.4		-3.5		6			
eSE	56			50.8					6			
eSN				52.4					7			
eSZ				53.3					8			
eSSE	57			11.5	0.6		-5.0		6			
70.	29			ePE	01 01 46.5					16°	6	
				ePN		58.8					7	
		ePZ		40.2					8			
		eSE	04	21.4					6			
		eSN		24.1					7			
		eSZ		"					8			
71.									Lack of time-marks.			

SEISMOLOGICAL REPORT FOR I.G.Y.

September 1957

STATION: Mt. Tsukuba (Japan)

Longitude: 140° 06' 36" E

Latitude : 36° 12' 39" N

Elevation: 286 m

Foundation: Granite

Instrument:

No.	Name	Component	V <sub>max</sub>	T <sub>1</sub>	T <sub>2</sub>	h <sub>1</sub>	h <sub>2</sub>	ρ	σ	Date of Calibration
				sec	sec			mm		
1.	Hagiwara Inverted Pendulum Seismograph	EW	34	5.0		0.60		0.45		Aug. 30
2.	"	NS	34	5.0		0.64		0.47		1957
3.	Ishimoto Accelera- tion Seismograph	EW	200	0.12		0.70		0.05		"
4.	"	NS	220	0.11		0.58		0.04		"
5.	"	UD	190	0.10		0.57		0.05		"
6.	Short-period Elec- tromagnetic Seismograph	EW	29000	1.00	1.16	1.0	1.0		0.1	June 30,
7.	"	NS	29000	0.98	1.10	1.0	1.0		0.1	1957
8.	"	UD	37000	0.97	1.26	0.8	1.0		0.1	

T<sub>1</sub> : Period of pendulum

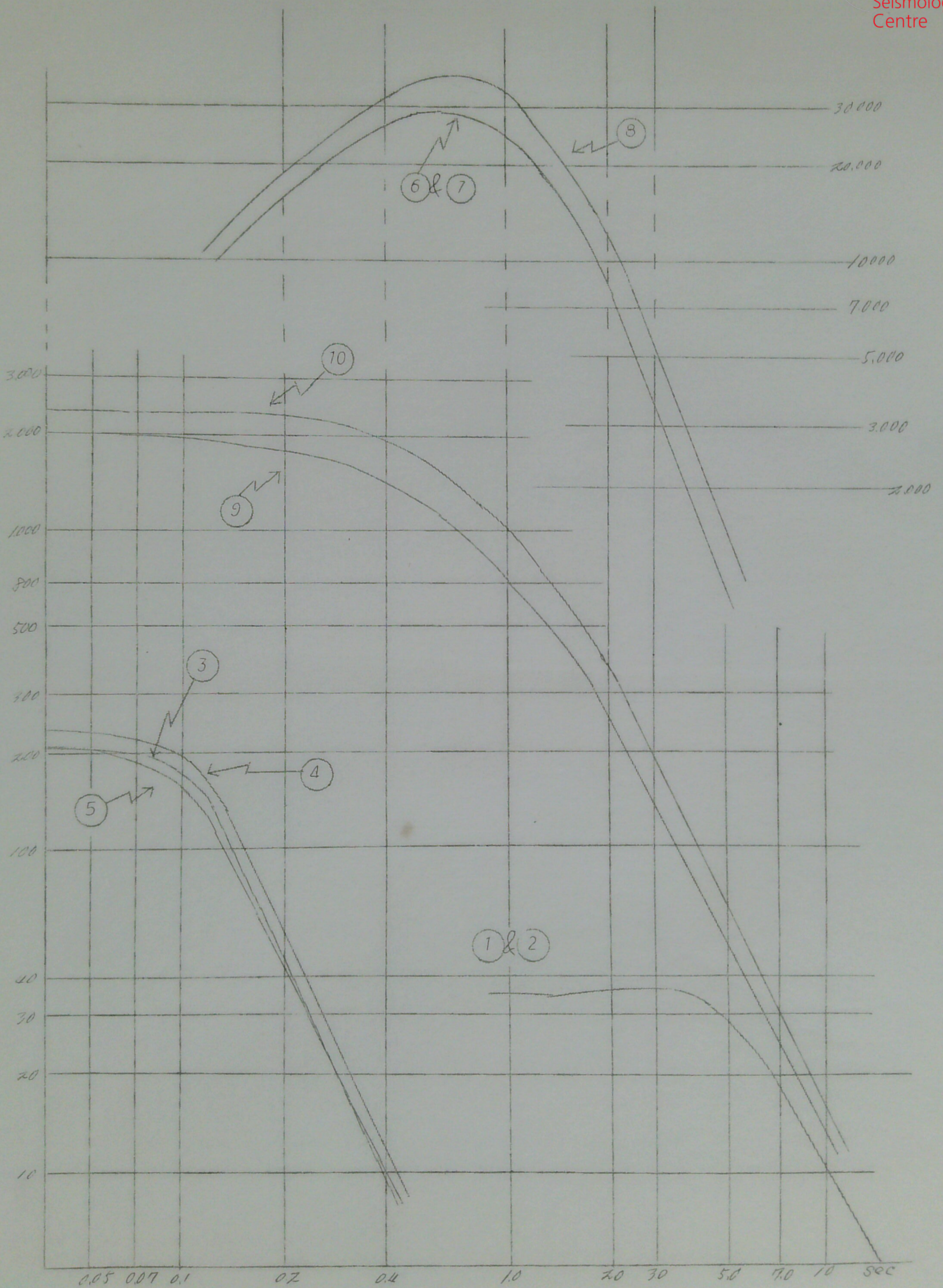
T<sub>2</sub> : Period of galvanometer

h<sub>1</sub> : Damping constant of pendulum

h<sub>2</sub> : Damping constant of galvanometer

ρ : Solid friction

σ : Coupling factor



## Readings:

Serial No.	Date	Phase	Time (h m s)	Period (sec)	Amplitude			Instrument	Remarks
					N (mm)	E (mm)	Z (ca)		
72.	Sept. 2	ePZ	00 04 23.0	1.2		-3.0	19°	8	
		ePN	23.6		-1.5			7	
		ePE	24.1					6	
		eXN	32.0		-7.5			7	
		iXZ	"	0.8		-9.0		8	
		eXE	05 13.3	1.0		-3.0		6	
		eSN	08 10.7	0.8	-3.0			7	
		eSZ	"	1.2		-8.0		8	
		eSE	14.1	0.6		-5.0		6	
		ME	21.9	1.2		7.5		6	
		MN	23.0	0.8	-7.5			7	
		MZ	29.1			8.5		8	
73.	2	ePE	09 57 25.6	1.8		1.0	68°	6	
		ePZ	"	1.6		-2.0		8	
		ePN	27.2		2.0			7	
		MZ	27.0	1.8		3.5		8	
74.	2	iPZ	21 36 42.3	1.0		2.5	54°	8	
		ePE	42.7	1.2		-2.5		6	
		ePN	43.0					7	
		esPN	37 40.4					7	
		esSZ	45.2	1.0		-3.0		8	
75.									No trace.
76.	7	ePN	06 52 49.3	1.2	2.5		18°	7	
		iPZ	49.6	0.8		-7.0		8	
		iPE	50.0	1.0		2.0		6	
		MZ	50.2	1.2		10.5		8	
		ME	53 12.6	1.2		7.0		6	
		MN	22.7	1.2	-8.5			7	
		eSN	55 57.6	0.6	-2.5			7	
		eSE	58.1			-4.0		6	
		eSZ	"			2.5		8	
77.	7	ePZ	10 13 22.6	0.4		-1.0	34°	8	
		ePE	22.9			-1.5		6	
		ePN	"		-1.0			7	
		MZ	23.6	0.8		-11.0		8	
		eXE	17 59.6					6	
		eXZ	18 00.5					8	
		eXN	"					7	
		eSE	51.9	1.4		1.5		6	
		eXZ	19 47.3	1.0		-1.0		8	
78.									No trace.
79.	9	ePZ	09 11 22.1	1.2		-1.5	65.5°	8	
		epPZ	32.7	1.2		-1.0		8	
		ePcPZ	43.8	1.6		-2.0		8	
80.									No trace.
81.	11	iPZ	23 33 18.0	1.6		4.0	69°	8	
		ePN	18.2	1.2	1.0			7	
		ipPZ	27.2	1.0		-4.0		8	
		epFN	27.6	1.2	-1.0			7	
		iXZ	35.5	1.2		-5.5		8	
		eXN	35.9	1.0	-1.0			7	
		MZ	35.5	1.2		-4.0		8	
		ME	44.9	2.0		1.5		6	
		ePcPZ	41.5	1.4		5.0		8	
		ePcPN	44.0	1.2	-1.0			7	



Serial No.	Date	Phase	Time (h m s)	Period (sec)	Amplitude			△ (ca)	Instru- ment	Remarks
					N	E	Z			
82.										No trace
83.	Sept., 15	ePE	04 31 11.1					51°	6	
		ePN	"						7	
		ePZ	"						8	
		MZ	13.0	0.8		5.5			8	
		eSN	38 07.5						7	
		eSE	08.1						6	
		eXZ	19.3						8	
84.	15	ePE	18 50 21.8	0.4		-1.0		44°	6	
		epPE	28.5	0.8		-0.5			6	
		eXE	51 14.1	1.2		-0.5			6	
		ePcPE	52 08.1	1.2		1.0			6	
		or PPE								
85.	24	ePZ	08 27 41.1					32.5°	8	
		ePN	41.5						7	
		eXN	29 09.2	4.0	5.0				7	
		eXZ	22.0	3.0		-5.0			8	
		eSN	32 50.6	4.0					7	
		eXN	33 02.2	12.8	4.0				7	
		iSSN	35 19.5	14.4	-19.0				7	
		eXZ	27.4	14.0		-7.0			8	
		eLRZ	36 58.0	36.0		-6.0			8	
		eLRN	58.5	30.0	20.0				7	
		MN	37 32.2	20.0	32.5				7	
		MZ	"	22.0		-27.0			8	
86.										No trace.
87.	25	ePN	16 43 07.9					32.5°	7	
		ePZ		0.6		1.0			8	
		ePE	11.4	1.0		-1.5			6	
		MZ	15.8	0.6		-2.5			8	
		eXZ	46 10.9	1.2		-2.0			8	
		eSE	48 15.1						6	
88.	25	ePN	22 23 36.7					32.5°	7	
		ePZ	36.9						8	
		ePE	37.3						6	
89.	26	ePZ	18 53 14.4					32.5°	8	
		ePN	16.0						7	
		ePE	17.2						6	
		eXE	55 45.3						6	
		eXN	58 33.82						7	
		eXE	33.8						6	
90.	27	ePN	04 15 52.5					39.5°	7	
		ePE	52.8						6	
		ePZ	53.1						8	
		iXZ	16 02.3	0.8		4.0			8	
		eXN	03.0	1.0	-3.0				7	
		eXE	03.3	1.0	-1.5				6	
		eSE	21 51.6						6	
		eSN	52.0						7	
		eSZ	53.8						8	
91.										No trace.
92.	28	iPN	00 29 06.6						7	
		iPE	06.8						6	
		iPZ							8	

Serial No.	Date	Phase	Time (h m s)	Period (sec)	Amplitude			$\Delta$ (ca)	Instru- ment	Remarks		
					N	E	Z					
93.	Sept. 28	iPZ	14 30	08.2	1.6			-21.5	69°	8		
		iPE		08.4	1.2		3.5			6		
		iPN		"		1.8	-5.0				7	
		iXN			09.9	0.8	-13.0				7	
		iXE			10.2			-13.0			6	
		MN			12.4	1.2	-35.0				7	
		ipPE	32		06.5	1.0		-6.0			6	
		ipPZ			10.4	4.0			-44.0		8	
		esP	33		45.6	2.4	-5.0				7	
		or ScPN										
		isP			46.9	1.6			-9.0		8	
		or ScPZ										
		isZ	38		25.6	2.4			-9.0		8	
		isE			28.6	3.2	-7.0				6	
		isN			31.1	4.6	-20.5				7	
94.										No trace.		
95.	29	ipN	08 23	47.1	1.4	-3.0			7			
		ipZ		"	1.4		-11.5		8			
		ePE		47.5	0.8		2.0		6			
		MZ		47.1	1.4		-20.5		8			
		MN		47.8	1.4	-6.0			7			
		ME		57.2	0.6	-5.5			6			
		iXN	25	42.9	2.4	-2.9			7			
		ipPZ		43.3	1.6		-5.0		8			
		eXE		50.1	2.8		-2.5		6			
		eXN		51.4	1.6	2.0			7			
		ePPZ	26	34.6	2.0		7.0		8			
		ePPN		35.4	2.6	-4.5			7			
		eSN	32	11.8	2.6	1.5			7			
		eSZ		18.3	2.2		-4.0		8			
		eSE		19.8	3.0	-3.0			6			
		eScSZ		55.6	2.0		-2.0		8			
		eScSN		59.6	2.4	3.0			7			
		eScSE	33	02.1	2.4		-2.0		6			

SEISMOLOGICAL REPORT FOR I.G.Y.

October 1957

STATION: Mt. Tsukuba (Japan)

Longitude: 140° 06' 36" E  
Latitude : 36° 12' 39" N  
Elevation: 286 m  
Foundation: Granite

Instrument:

No.	Name	Component	$V_{max}$	$T_1$	$T_2$	$h_1$	$h_2$	$\rho$	$\sigma$	Date of Calibration
				sec	sec			mm		
1.	Hagiwara Inverted Pendulum Seismograph	EW	34	5.0		0.60		0.45		Aug.30 1957
2.	"	NS	34	5.0		0.64		0.47		"
3.	Ishimoto Accelera- tion Seismograph	EW	200	0.12		0.70		0.05		"
4.	"	NS	220	0.11		0.58		0.04		"
5.	"	UD	190	0.10		0.57		0.05		"
6.	Short-period Elec- tromagnetic Seismograph	EW	29000	1.00	1.16	1.0	1.0		0.1	June 30, 1957
7.	"	NS	29000	0.98	1.10	1.0	1.0		0.1	
8.	"	UD	37000	0.97	1.26	0.8	1.0		0.1	

$T_1$  : Period of pendulum

$T_2$  : Period of galvanometer

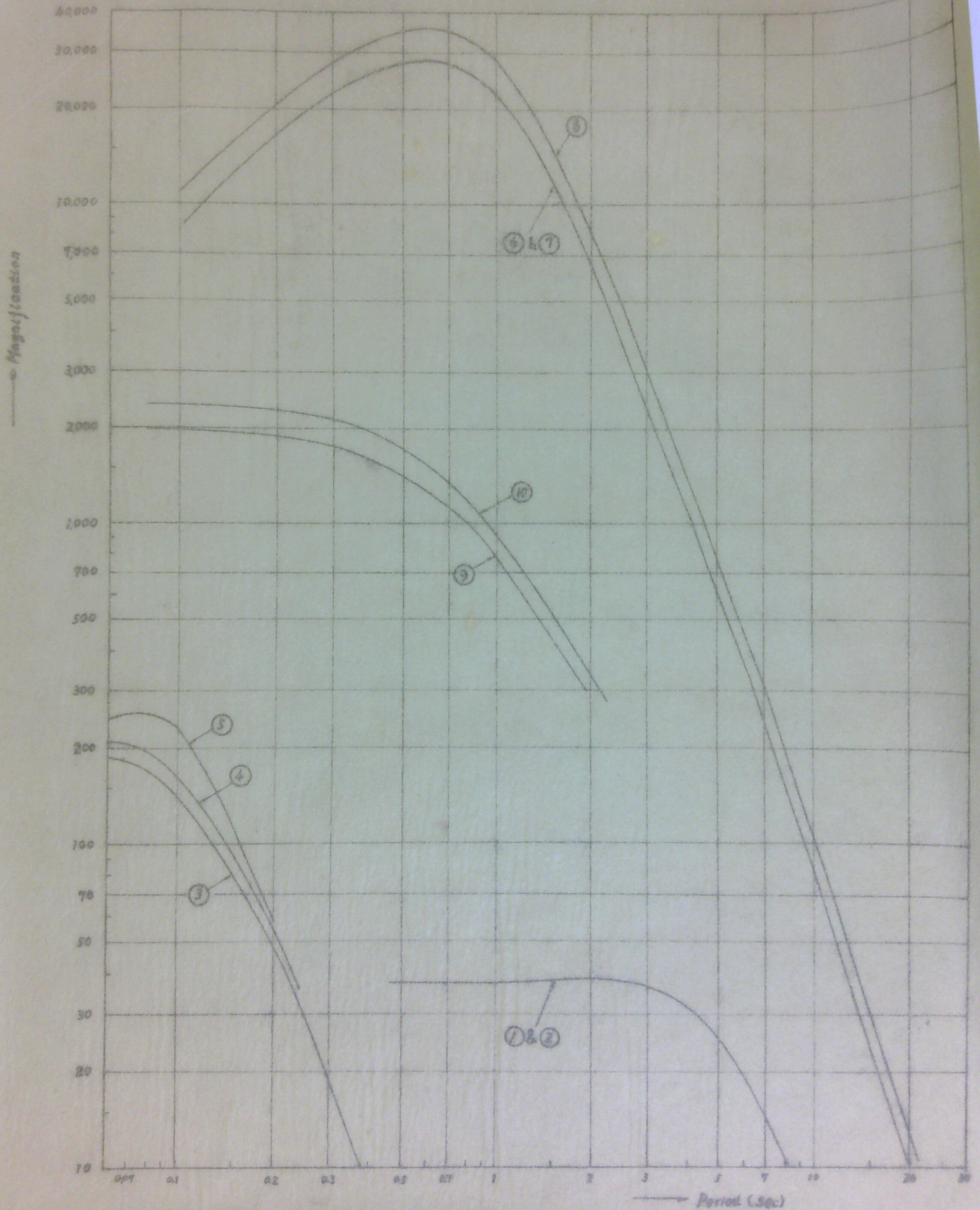
$h_1$  : Damping constant of pendulum

$h_2$  : Damping constant of galvanometer

$\rho$  : Solid friction

$\sigma$  : Coupling factor

Magnification curves of the seismographs (1, 2, ..... 10)



1, 2 ..... indicate the number of the instrument respectively.

Serial No.	Date	Phase	Time (h m s)	Period (sec)	Amplitude				Instrument	Remarks
					N	E	Z	$\Delta$ (ca)		
96.	October									No trace.
97.	2	iPZ	21 10 47.3	1.4			2.0	79°	8	
		ePN	47.5						7	
		ePE	47.8						6	
		ePcPZ	51.5	1.2			-2.0		8	
		eXE	20 17.3						6	
		eXN	17.4						7	
		eXZ	17.7						8	
98.	3	ePN	06 05 54.2	1.0	1.0			40°	7	
		ePZ	"	0.8			3.5		8	
		ePE	54.5						6	
		epPE	06 05.2	1.2		2.5			6	
		epPN	05.9	1.0	-2.0				7	
		epPZ	06.3	1.2			-2.5		8	
		iPPN	07 36.7						7	
		ePPZ	37.2	1.0			-1.5		8	
		ePPE	38.3						6	
		eXN	06 22.2		1.5				7	
		MZ	59.1	1.0			-3.5		8	
		ePcPZ	07 56.1	1.0			-1.5		8	
99.	4	eXN	05 44 52.8					128°	7	
		eXZ	53.9						8	
		eP"N	45 02.2						7	
		eP"Z	04.0	1.0			-1.0		8	
		eP"E	06.9						6	
		eXE	28.7						6	
		eXN	39.8						7	
		eXZ	40.3	1.0			-1.5		8	
		ePPZ	47 14.0	2.0			-2.0		8	
		eXE	22.0						6	
		MZ	29.5	2.2			2.0		8	
		eXE	35.9	2.0			-1.0		6	
		eXN	36.2	1.4	-1.0				7	
		eXZ	56.3	2.0			2.0		8	
100.	7	iPZ	13 24 27.1	1.6			3.0	20°	8	
		ePN	27.9	1.2	-1.0				7	
		ePE	28.0	1.0			-0.5		6	
		eXN	38.4	0.8	-1.0				7	
		eXE	39.2	0.8			-2.0		6	
		eXZ	40.6	1.2			-7.5		8	
		ePPZ	42.6	0.6			7.0		8	
		ePPE	46.8	1.0			-2.5		6	
		eXZ	52.1						8	
		ME	52.5	1.0			3.5		6	
		eXE	25 08.8	2.8			-3.0		6	
		eXN	11.6	0.4	-6.0				7	
		MN	16.0	2.4	4.0				7	
		eXZ	25.0	2.0			5.0		8	
		eXN	50.0	1.6	2.0				7	
		eXN	26 03.2	1.6	-1.5				7	
		eXE	03.5	1.8			-1.5		6	
		eXE	35.9	1.6			-2.0		6	
		eXN	28 34.0						7	

Serial No.	Date	Phase	Time (h m s)	Period (sec)	Amplitude (mm)			$\Delta$ (ca)	Instru- ment	Remarks		
					N	E	Z					
101.	October	12	ePE	19 06 15.6	1.0		0.5	52°	6			
			ePZ	15.8	1.0		2.0	8				
			iPN	15.9	1.2	1.0		7				
			MZ	15.8	1.0		3.5	8				
			epPN	22.7	0.6	-1.0		7				
			epPZ	24.6	0.6		-1.0	8				
			eXE	30.0	1.0		-2.5	6				
			iPcPZ	07 28.7	1.0		-7.0	8				
			eSP?Z	13 03.7				8				
			eSNZ	35.1				7				
			eSE	36.1				6				
			eSZ	41.1				8				
			esPN	14 00.0				7				
			eScSE	16 01.6				6				
			eScSN	02.6	3.0	-1.6		7				
			eXZ	26.4	2.0		1.5	8				
			eXN	30.0	2.8	2.0		7				
			eXE	31.4	2.0		2.0	6				
			102.	13	ePN	04 24 09.2	2.8	2.0		22°	7	
					ePZ	08.7	0.8		-1.0	8		
ePE	09.0	1.0				-1.0	6					
iXZ	17.7	2.8				-7.0	8					
eXE	23.7	1.0				4.0	6					
eXN	24.1	1.0			3.5		7					
MZ	23.6	1.0				-5.0	8					
MN	37.8	1.0			3.5		7					
ME	40.2	0.8				-3.0	6					
eXZ	33.3	0.8				4.0	8					
eXZ	51.7	1.2				3.0	8					
eXE	25 08.7	2.4				-2.5	6					
eXN	09.0	1.6			-3.0		7					
eXZ	09.7	1.2				3.0	8					
iXZ	32.6	2.4				-7.5	8					
eXE	26 04.1	2.0				-2.5	6					
eXN	11.3	2.4			-2.0		7					
eSE	28 03.7	2.8				2.0	6					
eSN	04.8	2.8			3.0		7					
eSZ	06.7	7.2				-2.5	8					
103.									No trace.			
104.	19	ePN	18 33 28.2				20°	7				
		ePE	28.6				6					
		ePdZ	28.4	0.6		-1.0	8					
		ePuZ	30.5	0.8		3.0	8					
		epPE	35.5	0.6		3.5	6					
		epp	38.1	0.4	-0.5		7					
		or sPN										
		ipPZ	37.9	0.6		-4.0	8					
		ePPN	48.5	0.4	-1.0		7					
		ePPE	51.3	0.4		-2.0	6					
		iPPZ	51.8	1.4		8.5	8					
		MZ	34 03.4	0.6		-7.5	8					
		ME	46.6	1.4		5.0	6					
		eSN	37 11.7				7					
eSE	12.6				6							

Serial No.	Date	Phase	Time (h m s)	Period (sec)	Amplitude (mm)			$\Delta$ (ca)	Instru- ment	Remarks
					N	E	Z			
105.	October	19	ePN	21 44 07.3	0.6	-1.5		10 <sup>0</sup>	7	
			iPZ	"	0.8		-4.0		8	
			iPE	07.7	0.5		6.0		6	
			ipPE	17.8	0.4		-12.0		6	
			iSN	45 42.2	2.4	27.5			7	
			iSE	42.6					6	
			iSZ	42.9					8	
106.									No trace.	
107.	21	ePZ	00 26 30.3				54 <sup>0</sup>	8		
		eXE	30.7					6		
		eSE	27 25.8					6		
108.	23	eSN	26.2					7		
		ePE	06 04 16.5				40 <sup>0</sup>	6		
		ePN	"					7		
		ePZ	16.7	0.8		2.5		8		
		eXZ	28.6	0.8		-2.0		8		
		eXN	29.0	1.0	-2.0			7		
		eXZ	40.0	1.6		3.5		8		
		eXN	05 00.5					7		
		eXZ	01.5	1.8		-3.5		8		
		eXZ	16.2	1.2		-3.0		8		
		ePPZ	49.8	1.6		-4.0		8		
		eXZ	06 27.8	1.0		2.0		8		
		eXN	28.2					7		
		eXZ	39.6	1.2		-3.5		8		
		eSE	10 12.9	2.6		1.0		6		
109.	24	eSM	25.6					7		
		ePN	00 27 28.5				56 <sup>0</sup>	7		
		ePZ	28.9	1.2		-1.0		8		
		eXN	39.4	1.0	1.5			7		
		eXZ	39.6	0.8		3.0		8		
		eXE	47.1	1.2		-0.5		6		
		eXN	49.2	2.0	-1.5			7		
110.	24	ePcPN	28 25.5	1.6	-4.0			7		
		ePN	09 17 45.6	0.8	-1.0		69 <sup>0</sup>	7		
		iPZ	"	1.0		-3.0		8		
		ePE	46.4	0.6		-2.0		6		
		MZ	45.6	1.0		-9.5		8		
		MN	46.6	0.8	2.0			7		
		ME	55.5	1.0		1.5		6		
		eXE	52.0	1.2		2.0		6		
		ePcPZ	18 05.7	1.6		-3.0		8		
		eSE	26 08.5	2.0		1.0		6		
		iSN	10.0	2.6	-3.5			7		
		eScSE	27 02.5	3.0		-1.0		6		
111.	24	ePZ	20 28 00.6				155 <sup>0</sup>	8		
		ePN	00.8					7		
		eP'Z	25.5	2.0		-1.0		8		
		eP'N	53.7		-1.0			7		
		eP'E	54.1					6		
		eP'Z	"					8		
112.	24	ePZ	22 58 09.1					8		
		ePE	10.3					6		





SEISMOLOGICAL REPORT FOR I.G.Y.

November 1957

STATION: Mt. Tsukuba (Japan)

Longitude: 140° 06' 36" E  
Latitude : 36° 12' 39" N  
Elevation: 286 m  
Foundation: Granite

Instrument:

No.	Name	Component	V <sub>max</sub>	T <sub>1</sub>	T <sub>2</sub>	h <sub>1</sub>	h <sub>2</sub>	ρ	σ	Date of Calibration
				sec	sec			mm		
1.	Hagiwara Inverted Pendulum Seismograph	EW	34	5.0	0.60			0.45		Aug. 30 1957
2.	"	NS	34	5.0	0.64			0.47		"
3.	Ishimoto Accelera- tion Seismograph	EW	200	0.12	0.70			0.05		"
4.	"	NS	220	0.11	0.58			0.04		"
5.	"	UD	190	0.10	0.57			0.05		"
6.	Short-period Electro- magnetic Seismograph	EW	29000	1.00	1.16	1.0	1.0		0.1	June 30, 1957
7.	"	NS	29000	0.98	1.10	1.0	1.0		0.1	
8.	"	UD	37000	0.97	1.26	0.8	1.0		0.1	

T<sub>1</sub> : Period of pendulum

T<sub>2</sub> : Period of galvanometer

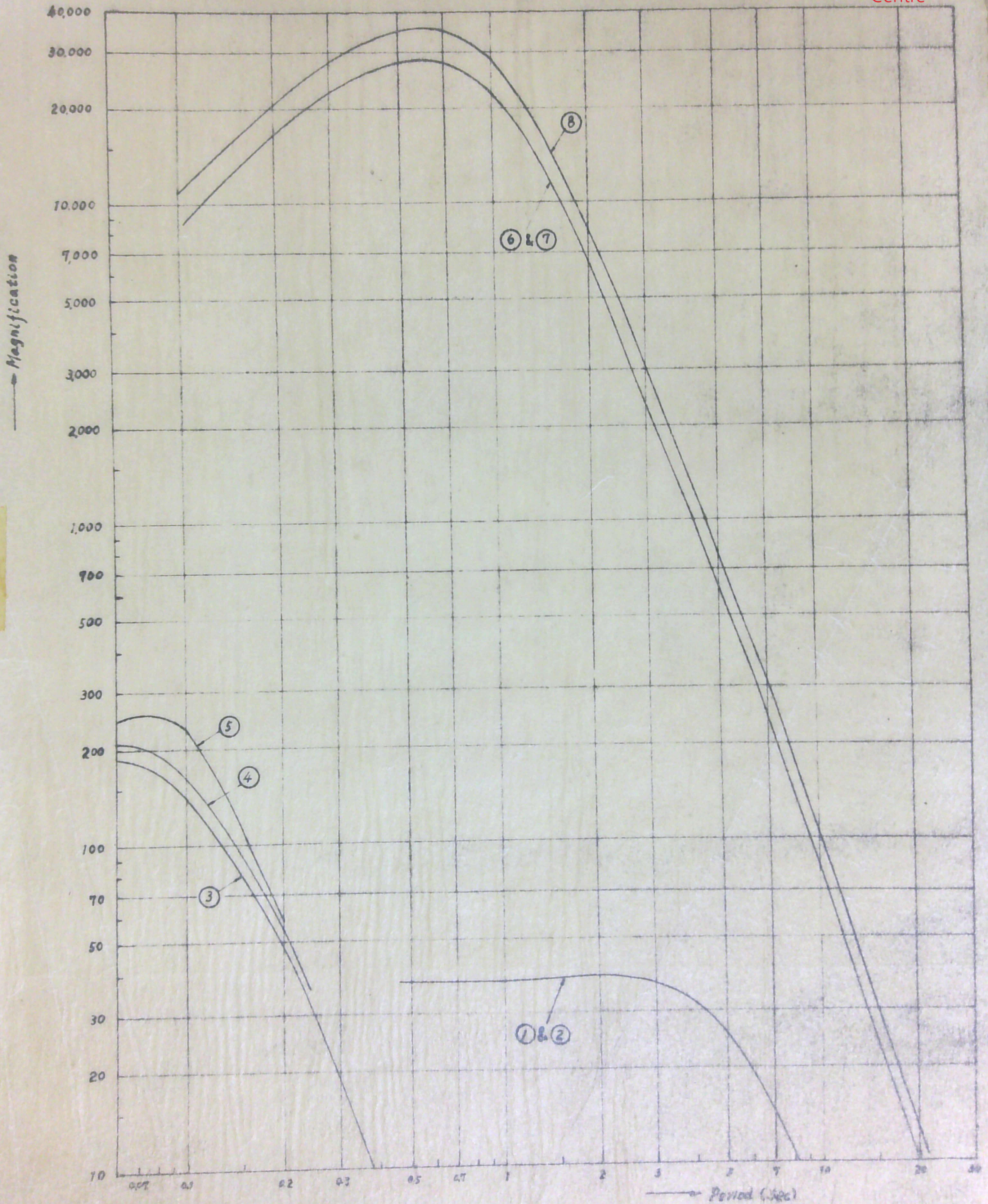
h<sub>1</sub> : Damping constant of pendulum

h<sub>2</sub> : Damping constant of galvanometer

ρ : Solid friction

σ : Coupling factor

Magnification curves of the seismographs (1, 2, ..... 8)



1, 2 ..... indicate the number of the instrument respectively.

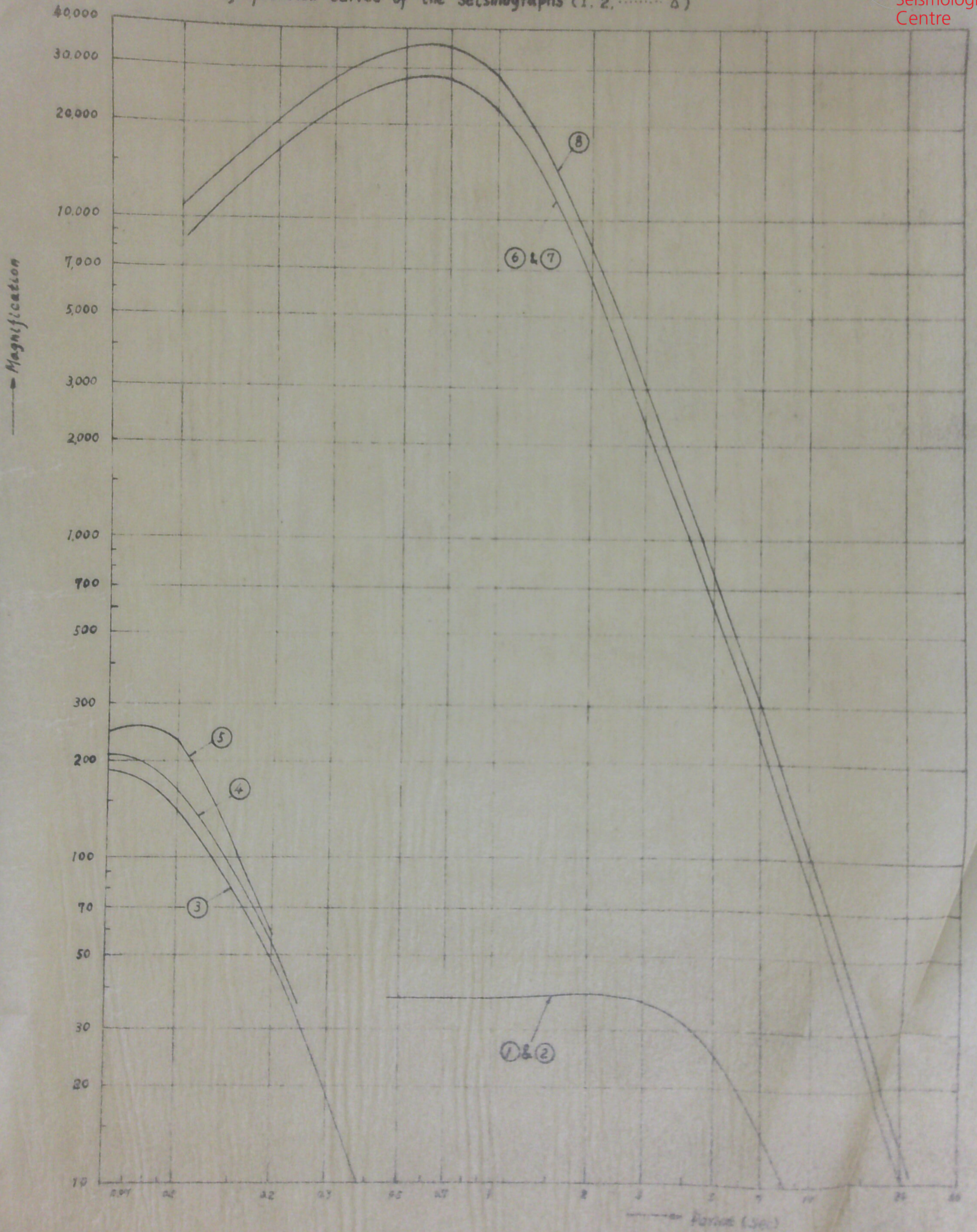
Serial No.	Date	Phase	Time (h m s)	Period (sec)	Amplitude			$\Delta$ (ca)	Instrument	Remarks	
					N	E (mm)	Z				
122.	November 2	ePZ	18 40 04.4	1.6			6.5	55°	8		
		ePE	04.5	1.0		-1.0			6		
		ePN		0.8	1.5					7	
		MZ	04.5	2.0			-9.0			8	
		epPE	12.6	0.8		-3.0				6	
		epPZ	15.7	2.0			7.0			8	
		ePPZ	42 04.8	1.6			-1.0			8	
		eSE	47 53.5							6	
123.	5	ePZ	10 03 14.4	0.8			-3.5	57°	8		
		ePN	14.7	0.8	-1.0				7		
		ePE	15.4	0.8		-1.0			6		
		MZ	14.4	0.8			-4.0		8		
		epPZ	30.5	0.8			-1.0		8		
		epPN	32.4	1.0	-1.5				7		
		ePPE	05 19.1						6		
		ePPN	23.1						7		
ePPZ	28.7						8				
124.									No trace.		
125.	10	ePE	02 44 43.5				45°	6			
		ePZ	45.8	1.6		2.0		8			
		ePN	46.1	1.6	1.0				7		
		epPZ	49.8	1.0		6.0		8			
		epPE	54.4	1.0		-2.0		6			
		epPN	58.3	1.2	4.0			7			
		MZ	57.4	0.8			-6.0	8			
		eSE	51 52.9					6			
126.	10	ePZ	05 57 00.4	1.6			1.0	42.5°	8		
		ePE	00.6					6			
		ePN	"	2.4	-2.0			7			
		epPE	08.7	2.2		-2.0		6			
		ePPZ	58 37.0					8			
		ePPN	39.3	2.8	-2.5			7			
		eSZ	06 03 19.5					8			
		eSSN	30.7					7			
		eSSZ	36.3					8			
		eSSE	40.0					6			
		iPN	19 20 33.6	0.8	2.5		2.0°	7			
		iPE	34.0	0.6		-3.0		6			
128.	12	ePN	17 34 44.1				78°	7			
		ePE	44.3				6				
		ePZ	"	2.8		-5.0		8			
		eXE	56.8				6				
		eXN	58.1	1.0	-2.0		7				
		epP or PcPZ	56.8	1.8		5.0		8			
		ePE	06 58 48.0				32°	6			
129.	15	ePN	"				7				
		ePZ	"				7				
		ePPE	59 50.9	1.6		1.5		6			
		ePPPZ	07 00 24.0	1.6		-2.0		8			
		eXN	03 57.0				7				
		eXE	59.6				6				
		eSZ	04 01.6	1.4		-1.0		8			
		eXZ	05 59.6	3.2		-1.5		8			

Serial No.	Date	Phase	Time (h m s)	Period (sec.)	Amplitude			$\Delta$ (ca)	Instrument	Remarks		
					N	E (mm)	Z					
130.	November 15	ePZ	16 34 58.6					20.5°	8			
		iPE		58.9					6			
		ePN		"					7			
		epPE	35	07.6	0.4		-3.0			6		
		ePPZ		24.7					8			
		ePPN		27.5					7			
		iPPPZ		37.7	1.2			-9.0	8			
		ePPPN		43.6					7			
		eSE	38	29.4					6			
		eSZ		30.8					8			
		eSSE		46.1					6			
		ePcPZ	39	09.0	2.4			3.5	8			
		131.	17	iPE	06 00 45.4	0.6		-16.0		15°	6	
iPZ				46.8	0.4			-14.0	8			
iPN				47.2	0.8	-7.5			7			
iSE	03			10.3			24.0		6			
iSN				10.4		6.5			7			
iSZ				11.9					8			
eXN	05			13.4	1.0	-3.0			7			
ePcPE				30.4			-5.0		6			
132.	20			ePZ	12 48 14.8	0.8			-5.5	42.5°	8	
				ePE		16.3	1.0		3.0		6	
				ePN		"	1.2	2.5			7	
		MN		19.7	1.2	-3.5			7			
		ME		20.2	1.2		5.5		6			
		MZ		"	1.2			-20.0	8			
		epPN		22.7	1.2	-2.5			7			
		epPZ		24.9	1.0			-5.5	8			
		eXN		54.8	1.2	3.5			7			
		ePPZ	49	34.9	0.8			-2.0	8			
		ePPPZ	50	27.5	0.8			2.0	8			
		133.	23	ePN	01 06 12.5	1.2	-1.0			38°	7	
				ePZ		"	1.6			7.5	8	
				ePE		12.7	1.0		-1.5		6	
MZ				12.9	1.2			-16.5	8			
ME				13.2	1.6		-5.0		6			
epPE				17.8	0.8		1.5		6			
epPN				20.5	1.4	6.0			7			
eXE				26.0	0.6		-1.0		6			
eXZ				28.5	0.6			-3.0	8			
esPN				30.4	0.6	-0.5			7			
eXE				54.4	1.6		-1.0		6			
134.	25			ePZ	22 43 10.6					44°	8	
				ePE		10.8					6	
				ePN		"					7	
		iXZ		15.7	0.6			-2.0	8			
		eXE		17.2	0.6		-1.0		6			
		MZ		16.7	0.6			-4.5	8			
		epPZ		19.8	0.6			-4.0	8			
		epPE		12.5	1.2		2.5		6			
		epPN		21.7	0.8	-3.0			7			
		esPE		26.9	1.0		2.0		6			
		esPN		30.4	0.6	-2.0			7			

(continuing.)



Magnification curves of the seismographs (1, 2, ..... 8)



1, 2 ..... indicate the number of the instrument respectively.

Serial No.	Date	Phase	Time	Period	Amplitude			△	Instrument	Remarks
					N	E	Z			
			h m s	sec		mm	ca.			
140.	December 1	ePN	01 03 58.8				15°	7		
		ePE	59.3					6		
		ePZ	59.8					8		
		cXZ	04 08.3	1.6		-3.5		8		
		eSE	06 36.8					6		
		eSN	"					7		
		eSZ	40.4	0.8		+3.0		8		
		eXZ	44.7	1.4		-5.0		8		
		eSSZ	07 00.8	0.8		-4.5		8		
		eSSE	03.0	0.8		-2.5		6		
		eXN	08.3	0.8	-5.0			7		
141.	1	ePN	01 12 31.7				15.5°	7		
		ePZ	33.3	1.0		-2.0		8		
		ePE	33.6					6		
		eXZ	40.9	2.0		-4.5		8		
		eSN	15 08.4					7		
		eSE	09.0	0.6		+2.0		6		
		eSZ	09.4					8		
142.	4	ePZ	03 44 09.8				32°	8		
		ePE	14.3					6		
		ePN	16.1					7		
		epPZ	16.6	2.8		+8.0		8		
		epPN	25.4	0.6	-1.5			7		
		epPE	26.1	1.2		-4.0		6		
		cPPN	45 09.4	0.8	-5.0			7		
		cPPE	13.1	2.0		-15.0		6		
		cPPZ	16.6	2.8		-19.0		8		
		iSZ	49 20.2	1.6		-13.0		8		
		eSE	34.6	1.6		-4.5		6		
		iXZ	50 30.1	3.8		+54.0		8		
		eLQE	52 33.7	50				6		
		eLQN	"	48				7		
		eLRZ	53 33.7	40				8		
		ME	55 19.1	9.4	+264.0			6		
		MN	scale out					7		
		MZ	59 00.8	7.6	+280.0			8		
143.	7	ePE	03 24 18.7				45°	6		
		ePN	"					7		
		ePZ	19.0	1.0		-4.0		8		
		cPcPZ	25 42.9	1.4		-1.0		8		
		cSZ	30 07.3					8		
		eSE	14.1	1.0		-1.0		6		
		eSN	"	1.0	-1.0			7		
		eXZ	15.7	1.2		-4.0		8		
144.	10	ePZ	14 44 14.6	1.6		+2.5	45°	8		
		ePN	16.8					7		
		ePE	17.2					6		
		epPZ	20.5	0.6		-4.0		8		
145.	12	ePZ	18 47 58.1	1.6		+3.0	55.5°	8		
		ePN	58.5					7		
		ePE	59.0					6		
		epPN	48 06.8	1.4	-1.0			7		
		epPE	07.0	0.8		-1.0		6		
		epPZ	09.0	1.8		+3.5		8		
		eXE	28.4	2.2		+1.5		6		

(continuing)

Serial No.	Date	Phase	Time			Period sec	Amplitude			Instrument	Remarks	
			h	m	s		N	E	Z			
146.	December	ePKPZ	01	50	26.6					125.5°	8	
		ePPZ		52	13.7						8	
147.		ePE	01	56	27.0	2.8	+3.0			72°	6	
		ePZ			27.5	2.8		+8.0			8	
		ePN			28.9	2.0	+2.0				7	
		MZ			29.2	1.2		-22.5			8	
		ipPZ			35.0	2.4		+27.5			8	
		epPE			35.1	2.8		+7.5			6	
		epPN			40.7	1.2	+8.0				7	
		ePcPZ			45.8	1.2		+6.0			8	
		ePcPE			46.5	1.0		-4.5			6	
		cSE	02	05	48.0	6.4		+3.0			6	
		eSN			48.9	3.4	+4.0				7	
		cSZ			51.9	5.6		+8.5			8	
		cSSN	06	00.9		3.2	-2.0				7	
		iSSZ			06.8	4.4		-10.0			8	
		eScSN			30.0	4.0	-3.5				7	
		eScSZ			40.0	2.0		+1.5			8	
148.		ePE	20	33	46.0					39.5°	6	
		ipZ			47.1	1.0		-5.5			8	
		oPN			47.4						7	
149.		ePZ	17	38	36.7	2.0		+1.0		65.5°	8	
150.		ePN	05	15	04.2					19°	7	
		oPZ			04.9	2.4		-1.0			8	
		ePE			05.3						6	
		ixE			18.1	2.4		-2.0			6	
		oXN			"	2.4	-1.0				7	
		ixZ			"	2.8		+4.0			8	
		ixZ			30.2	1.6		+6.0			8	
		ixN			39.5	2.0	+10.0				7	
		eXN			50.7	2.0	-7.0				7	
		oXZ			52.2	2.0		+22.0			8	
		ME			51.7	1.6		-9.0			6	
		MZ			53.0	1.6		+34.5			8	
		MN			54.1	2.0	+10.1				7	
		cSE	18	55.2		1.2		-1.0			6	
		eSN	19	06.1							7	
		ePcPE			30.4	2.8		+4.0			6	
		ePcPZ			30.8	3.2		+5.0			8	
		ePcPN			31.6	2.0	+4.0				7	
		eLQZ	27	34.2		16.0		-4.0			8	
151.		ePZ	13	29	34.3	1.6		+2.0		55°	8	
		ePN			34.7	1.6	-1.0				7	
		ePE			35.8	2.0		-1.0			6	
		ipPZ			38.4	3.2		-23.0			8	
		epPN			38.8	1.6	+5.0				7	
		ippe			40.7	2.8		+8.0			6	
		MZ			40.0	3.2		-71.0			8	
		MN			40.3	1.6	-16.0				7	
		ME			48.0	1.6		-13.5			6	
		ippZ	31	37.7		1.6		-13.0			8 (continuing)	



Serial No.	Date	Phase	Time			Period sec	Amplitude			△ ca.	Instrument	Remarks
			h	m	s		N	E	Z			
151.	December	17	eSN	13	37	04.7	4.8	+4.0			7	(continued)
			eSE			05.0	3.6	-4.0			6	
			eLQN			57.2	21.0	-3.0			7	
152.												No trace.
153.		25	cPN	02	14	25.1	1.6	-1.0		23°	7	
			cPE			25.3	0.8	+1.0			6	
			epPZ			36.9	1.6				8	
			cPPZ			47.6	1.6				8	
154.												No trace.
155.												"
156.		31	cPZ	14	40	47.9	3.6		+4.0	85°	8	
			iPN			50.2	2.0	-3.0			7	
			cPE			51.3	1.2	+1.0			6	
			epPZ	41	00	00.7	1.6		+4.0		8	
			csPN			06.7	1.6	-3.0			7	
			eSZ	50	55	55.8	4.0		-2.0		8	