

**UNIVERSITETET I BERGEN**  
**JORDSKJELVSTASJONEN**  
**(Seismological Observatory)**

**Seismological Bulletin**  
**Tromsö, Norway**  
**Sept. 17, 1960 - Dec. 31, 1961**

**By**

**ANDERS FARESTVEIT,**  
**REIDAR KANESTRÖM**  
**and**  
**ANDERS SÖRNES**

**BERGEN - NORWAY 1965**

**UNIVERSITETET I BERGEN**  
**JORDSKJELVSTASJONEN**  
**(Seismological Observatory)**

**Seismological Bulletin**  
**Tromsø, Norway**

**Sept. 17, 1960 - Dec. 31, 1961**

**By**

**ANDERS FARESTVEIT,**  
**REIDAR KANESTRÖM**  
**and**  
**ANDERS SÖRNES**

**BERGEN - NORWAY 1965**

UNIVERSITETET I BERGEN  
JØRSTADSTASJONEN  
(Seismological Observatory)

Tromsø (TRO), Norway

Coordinates: 69° 37' 57" N 18° 55' 41" E  
Elevation: 28 metres  
Foundation: Gneiss

Seismological Bulletin

The seismological station at Tromsø has been in normal operation since September 17, 1960. The U.S. Coast & Geodetic Survey has supplied the seismometers and the recorder. The station is operated by co-operation between Tromsø Museum and the University of Bergen.

The instrumentation comprises a three-component short-period Benioff system with a 35 mm film recorder. The free period of the seismometers is 1 sec. and of the galvanometer 0,2 sec. The magnification at 1 cps is kept about 30 000. The drum speed is 15 mm/min. During the time period prior to July 1961 the timing system which is frequency controlled by a quartz crystal, had an uneven rate of change. Therefore, the arrival times were read to a tenth of a second during the last six months covered by this bulletin. The arrival time given for each phase is the earliest onset of the phase on any component. The epicenters listed in this bulletin are the preliminary epicenters reported by the U.S. Coast & Geodetic Survey except where an other source is quoted.

TROMSØ 1960.

September		h m sec		h m sec		
17	eP	08	02	34		49.5N 155.4E
	eP	08	15	15		49.6N 155.2E
	eP	13	08	09		
	iPKP	20	15	21	ePP 20 17 34	21.0S 174.5W
	i		15	32	ePKS 19 01	
18	eP	04	37	31	e(S) 04 37 59	
	iP	09	54	20	ePP 09 58 30	6.8S 129.2E
	i		54	24	eSKS 10 04 54	
	eP	19	36	25	ipP 19 36 37	51.7N 170.1W
19	eP	03	51	39		15.8N 119.4E
	iP	19	14	04	i 19 14 05	6.9N 77.5W
20	iPKP	03	24	19		37.3S 176.7E
	eP	04	13	10	e 04 13 16	50.1N 88.4E
21	eP	10	48	17		53.6N 166.1W
	iP	16	19	11	pP 16 19 59	26.7N 124.8E
	e		19	14		
	eP	17	45	27	e 17 46 27	
	iP	23	12	51		31.8N 50.5E
22	iP	05	49	45		3.4S 29.1E
	iP	09	17	05	e 09 17 11	3.3S 29.3E
	iP	09	26	23	e 09 26 27	2.8S 29.8E
	eP	15	24	21		7.2N 77.2W
	iP	22	57	00	i 22 57 13	51.7N 168.8W
	i		57	06		
23	ePKP	23	21	37		22.3S 174.8W
26	iP	15	23	24		51.8N 172.2W
27	iP	06	01	13		51.7N 177.8E
	eP	18	48	35	e 18 48 59	14.5N 145.8E

## TROMSØ 1960.

## September

		h	m	sec		h	m	sec		
28	iP	03	59	56						
	iP	05	39	08	e	05	39	19	32.5N	95.8E

## October

1	iP	03	11	15					23.3N	94.6E
	eP	05	37	23					35.4N	26.2E
	iP	16	20	50	PcP	16	21	44	52.2N	172.6W
2	iP	18	19	06	pP	18	19	31	18.6N	94.9E
3	iP	00	57	57	pP	00	58	07	29.8N	68.2E
5	iP	19	46	18						
6	eP	20	01	00	PPP	20	01	45	58.2N	31.6W
	PP		01	33						
7	iP	03	20	55	PP	03	21	28	58.1N	31.9W
	pP		21	14						
	iP	15	32	33	iPPP	15	39	03	7.4S	130.7E
	i		32	42	SKS		43	11		
8	iP	02	04	14	pP	02	04	34	16.7N	97.9W
	i		04	23						
	iP	06	02	12	i	06	31	03	40.6N	129.7E
	iS		09	39	iP'P'		31	24		
	ScS		10	59						
	iP	20	51	54	PcP	20	52	09	7.9N	92.9E
9	iP	09	10	50	PPP	09	14	39	40.8N	141.2E
	pPP		13	22	S		19	10		
	sPP		13	48	SP		19	28		
	iP	13	16	33					40.2N	129.9E
11	iP	08	16	12					38.1N	107.6W
12	iP	00	32	14	PcP	00	32	43	40.9N	140.8E
	pP		32	36						
	iP	10	43	09	i	10	43	18		
	iP	17	36	33						
13	iP	02	26	30	PPP	02	27	17	45.2N	25.8E
	PP		27	02						

## TROMSØ 1960.

## October

		h	m	sec		h	m	sec		
13	iPg	14	04	00	Sg	14	04	57		
	Pb		04	22	eSb		05	16		
	iP	15	01	51	PPP	15	04	57	54.8N	161.2E
	PcP		03	01						
14	iP	21	29	05	PcP	21	30	57	51.7N	172.1W
	iP	23	01	32					55.5N	35.2W
15	iP	06	21	55	e	06	22	31		
	i		22	28						
17	iP	15	58	23					4.8N	78.4W
18	iP	00	31	42					52.5N	170.2W
19	iP	05	16	35						
	iPKP	07	27	15	i	07	27	20	20.0S	179.9W
20	iP	23	50	12	pP	23	50	22	45.3N	147.0E
21	iP	00	02	07	i	00	02	12		
	iP	02	11	56						
22	ePKP	08	40	24	sP'	08	41	02	10.3S	161.2E
	pPKP		40	51	PP		51	34		
	eP	19	23	03	PPP	19	23	53	45.4N	20.9E
	PP		23	37						
23	iP	06	41	22	i	06	41	26	31.2N	40.7W
26	iP	01	57	32	pP	01	57	44	52.4N	160.1E
27	iP	04	43	36	PcP	04	44	46	26.9N	140.1E
30	eP	13	39	07	i	13	40	06		
31	iP	23	53	34	i	23	53	47	54.7N	161.8E

## November

1	iPKP	09	05	03	PKS	09	08	39	38.4S	74.4W
	PP		07	08						
	iP	19	15	48	PcP	19	16	49	50.1N	153.9E
	eP	19	52	36	i	19	52	44		
2	iP	16	42	14	PcP	16	42	47	23.1N	93.8E

TROMSØ 1960.

November

		h	m	sec		h	m	sec	
5	iP	20	27	05	eS	20	33	09	39.2N 20.5E
	PP		28	03	Lg <sub>1</sub>		37	57	
6	iP	04	47	44	eS	04	55	18	53.0N 159.8E
	PcP		48	46					
	ePKP	06	34	15					31.0S 177.7W
	iP	08	50	29	i	08	50	44	LOCAL.
	iP	22	19	57	PcP	22	20	51	52.7N 168.0W
8	iP	05	32	19	pP	05	32	26	45.2N 149.8E
	iP	05	37	30	PcP	05	38	19	45.2N 149.8E
9	iPKP	03	37	14					60.7S 24.8W
	iP	10	53	33	PcP	10	54	24	32.7N 103.4E
10	iP	02	02	48	pP	02	03	03	36.6N 71.1E
	iP	02	10	59					
	iP	05	40	37	pP	05	40	44	30.2N 40.4W
	iP	14	58	47	PP	15	02	51	2.6S 139.4E
11	iP	05	37	47	i	05	38	50	39.5N 21.1E
12	iP	18	46	55					47.1N 148.8E
13	iP	06	50	24	pP	06	50	38	1.4N 127.2E
	iP	09	30	34	PP	09	32	37	51.1N 168.8E
	iP	10	00	12					

December

3	eP	04	08	03	ePP	04	35	04	42.8N 104.5E
	ePcP		34	06					
5	iP	18	16	46					54.3N 161.2E
10	iP	14	08	02	e	14	08	08	1.5N 124.3E
11	ePKP	19	11	57					15.7S 166.9E
13	ePKP	07	55	55					52.1S 160.9E
15	iP	00	04	37	eS	00	16	08	2.9N 126.5E
	eSKS		15	19					

TROMSØ 1960.

December

		h	m	sec		h	m	sec	
16	eP	01	30	04					51.1N 170.6W
22	eP	03	14	12	e	03	14	16	9.8N 94.2E
23	eP	09	54	41					3.3S 101.9E
25	eP	20	36	43					54.6N 161.6E
26	eP	01	55	36	e	01	55	42	33.8N 136.2E
	ePKP	04	51	38					57.4S 26.2W
31	ePKP	18	27	20	e	18	27	28	43.9S 75.0W

## TROMSØ 1961.

## TROMSØ 1961.

## January

		h m sec	h m sec	
5	iP	14 16 23	iPcP 14 17 03	51.6N 176.3W
	pP	16 30		
	iP	15 19 43		45.7N 149.3E
	iP	16 07 56	iPKP 16 12 15	4.1S 143.0E
	iPKP	18 16 53	ePKS 18 20 15	21.2S 169.3E
	iPKP	18 33 40		21.0S 169.1E
6	iP	01 30 46		42.5N 143.4E
	ePb	05 12 55	iSb 05 13 25	68N 15E H=05 12 05 (Uppsala)
	iP	06 31 32	pP 06 31 43	51.8N 176.2W
	eP	07 15 13		53.3N 159.7E
7	eP	10 37 23		35.9N 27.0E
	P	15 59 20		37.7N 21.1E
	P	17 00 38	i 17 01 11	
9	iP	11 18 12		17.1N 61.1W
	iP	11 22 24		17.6N 61.0W
	iP	19 33 18		17.8N 61.0W
	iP	19 36 11		17.7N 61.6W
10	iP	14 32 00		49.9N 156.2E
11	iP	12 09 50		52.3N 170.7W
29	eP	13 33 49		51.8N 175.9W
March				
18	iPg	13 09 49	iSg 13 10 13	Exp. at Kiruna
	ePKP	15 15 04		49.9S 163.3E
19	P	05 02 20		40.5N 142.9E
20	iP	03 38 22		36.6N 71.1E

## March

		h m sec	h m sec	
20	iP	11 47 55		46.3N 142.7E
	ePg	13 07 59	iSg 13 08 26	
	eSn	08 21		
	iPKP	16 11 50	i 16 24 27	18.4S 175.2W
	i	12 00		
23	iP(n)	04 10 40	i 04 11 43	
	i(Pb)	10 46	iS(g) 11 45	
24	iP	23 07 59		35.3N 140.9E
26	iP	14 42 14		5.7N 126.4E
	iP	20 20 00		55.5N 163.7W
28	iPn	09 36 21	i 09 36 56	86.5N 29.7E
	i	36 31	i 37 07	
	i	36 50	i(Sg) 37 20	
30	iP	09 49 09		0.2N 123.6E
	i(P)	12 45 51		
	iPn	13 31 51	iSg 13 32 29	Expl. at MalMBERGET (after Uppsala)
	iSn	32 22	iRg 32 36	
	iSb	32 25		
April				
1	iP	15 26 21	Lg <sub>1</sub> 15 40 37	39.6N 77.7E
	PP	27 58	Rg <sub>1</sub> 43 44	
3	P	02 53 16	pP 02 53 27	53.6N 161.1E
4	iP	01 25 53	i 01 25 59	39.7N 78.1E
	iP	09 54 34	iLg <sub>1</sub> 10 08 (20)	40.1N 77.6E
	i	54 38	iLg <sub>2</sub> 09 01	
	PP	56 15	Rg <sub>2</sub> 12 11	
	eP	12 07 12		30.1N 50.5E
	eP	22 45 14	iS 22 47 07	61.5N 4.3E
	i	45 19		Felt Bergen- Ålesund
6	iP	01 41 45		39.6N 77.8E
	iP	03 28 41		44.3N 148.1E

## TROMSØ 1961.

April

		h m sec		h m sec	
6	iP	14 17 32			2.2N 97.2E
	iP	18 21 07	i	18 22 13	27.2N 56.7E
7	iP	04 48 37			36.2N 70.8E
	i	18 35 02			
	iP	21 25 29	PP	21 27 04	39.3N 73.0E
	pP	25 40			
8	iP	21 49 21			14.8N 145.1E
9	i(Pn)	05 15 37	i(Sg)	05 16 11	
	i(Sn)	16 05			
	iPKP	09 39 40	iSKP	09 42 13	26.0S 178.4E
	iP	15 46 33			24.1N 122.2E
10	iP(g)	08 25 33	i	08 25 42	
	i	25 38			
12	iP	17 31 04			0.3N 123.8E
	iP	18 04 01			23.2N 142.4E
	iP	22 32 54	i	22 33 01	13.1N 88.9W
13	o	14 20 32			
	i	15 12 56			
	iP	16 42 36	iLg <sub>1</sub>	16 57 04	40.1N 77.8E
	PP	44 (18)	iRg <sub>1</sub>	17 00 00	
15	iPKP	01 36 40			13.2S 166.9E
16	iP	06 28 05			29.9N 138.8E
	iP	11 50 02			53.5N 158.7E
19	iP	16 22 38			44.2N 148.0E
	iP	18 23 09			55.1N 163.6E
	iP	20 29 56			44.6N 150.2E
	iP	22 17 59			44.9N 149.5E

## TROMSØ 1961.

April

		h m sec		h m sec	
20	e(P)	10 45 40	i(S)	10 46 30	
	PKP	21 58 09	e	21 58 21	
21	iP	20 20 36			47.7N 154.6E
	iP	21 36 40	i	21 36 55	51.7N 173.9W
23	iP	10 11 34			
	iP	12 27 45			44.9N 150.1E
	iP	17 00 53			44.8N 150.0E
24	iP	11 52 12			
	iP	12 37 46			44.8N 150.3E
25	iP	00 38 21	e	00 38 58	44.9N 150.2E
	i	38 48	e	39 02	
	iP	01 27 47			44.7N 150.2E
	iPKP	11 36 10			32.7S 178.5W
	iP	17 01 50			
	eP	14 23 50	i	14 23 51	
26	iP	05 31 05			36.4N 71.4E
	iP	07 49 06			44.8N 149.9E
	iP	19 42 41	i	19 43 02	44.9N 150.2E
	i	42 45			
28	eP	05 56 40			
	iP	07 04 32			31.2N 57.2E
29	iPn	09 01 03	i	09 01 52	68.2N 30.5E
	iPb	01 13	iSg	02 05	H=09 00 01 (Uppsala)
	iP	09 30 25	i	09 30 32	40.6N 127.5E
	iP	09 31 22	i	09 34 40	71.4N 7.4W
	iS	33 02			

TROMSØ 1961.

April

		h	m	sec		h	m	sec	
29	iP	10	54	37		41.7N	104.7E		
30	eP	00	24	04					
	iP	00	55	41	i	00	57	22	
	i		55	53					
	iP	07	39	53		52.1N	31.9W		
	iP	11	10	43	e	11	11	00	45.3N 150.1E
	i		10	46					
	iP	11	25	24		44.8N	149.7E		

May

2	eP	03	06	28	i	03	07	19	
	iP	03	13	56	eT	03	22	07	71.3N 6.9W
	iS		15	37	i		22	28	
	iPKP	23	04	06	i(PP)	23	07	06	28.0S 176.5W
3	iP	14	15	39		17.7N	103.6W		
5	iP	12	32	20	i(S)	12	34	02	72.1N 4.3W
	iP	16	41	44					
6	eP	16	11	03		37.6N	11.2E		
	eP	19	49	56		1	2S	15.5W	
	iP	21	17	00					
	eP	21	29	28		6.3N	126.4E		
	eP	22	35	16	i	22	35	27	49.7N 176.5W
	eP	22	45	44	i	22	46	15	6.3N 126.3E
	iPKP	23	32	21	i	23	32	25	17.4S 167.9E
7	iP	02	08	17		8.3N	38.0W		
	iPn	15	43	00	i	15	46	04	71.6N 6.3W
	iS(n)		44	42	i		51	40	
8	iP	13	05	13	i	13	05	40	
	iP	13	07	59					
9	eP	12	23	16	i	12	23	49	

TROMSØ 1961.

May

		h	m	sec		h	m	sec	
9	eP	13	44	25		3.6S	136.8E		
10	e(P)	08	13	01	i	08	13	13	
	iP	09	01	52					
	iP	13	00	50					
11	iPKP	08	57	25		37.4S	73.6E		
	eP	13	34	50		43.7N	148.8E		
	iP	13	45	49		44.2N	149.9E		
13	iP	03	41	13					
	i	09	25	51					
	iPKP	14	38	08	i	14	38	21	28.0S 176.3W
	e	15	10	51	iPKP	15	11	00	17.6S 178.8W
	iP	15	59	43	i	16	00	15	43.5N 147.9E
	iP	17	33	09					
	iP	19	30	43		25.5N	122.6E		
	i(P)	23	37	46					
14	iPKP	00	32	18		39.8S	176.8E		
	iP	15	11	14		67.5N	18.4W		
	eP	15	41	20		67.8N	18.4W		
	iP	19	42	30		41.0N	127.4W		
15	eP	05	51	49	i	05	52	12	
	iPKP	19	31	23		15.4S	166.6E		
	iPKP	21	11	21		20.2S	177.1W		
16	iP	03	42	06		52.0N	171.3W		
	iP	04	02	35		52.0N	171.3W		
	iP	21	56	36	i	21	56	46	30.2N 132.0E
17	iP	08	13	15	i	08	14	37	68 3/4N 32E
	i		14	15	i		14	46	H=08 11 40 (Uppsala)
	iP	19	39	08	i	19	40	11	52.2N 173.9E



## TROMSØ 1961

May		h m sec		h m sec	
18	iP	00 33 32			33.5N 99.3E
	iPn	09 40 42	iSg	09 42 10	73.7N 8.5E
	iPb	40 53	i	43 00	
	iPg	41 04	i	45 38	
	iSn	41 40	i	45 50	
	iP	13 06 43	i	13 07 40	
	i	06 49			
	iP	17 03 10			
	i(P)	17 04 07			
	iP	20 50 52			4.5N 125.8E
19	iP	01 03 25			3.8N 125.7E
	iPKP	02 39 43			22.7S 179.2E
	P	09 38 05			12.8N 88.2W
	e(P)	15 48 04	i	15 48 06	
	iP	16 48 51			23.8N 123.5E
	iP	21 38 11	iPP	21 39 51	38.5N 72.6E
20	iP	00 54 03			52.1N 170.7W
	iPn	07 08 12	i	07 13 04	73.9N 8.6E
	iPg	08 33	i	13 12	
	iSn	09 11			
21	iP	14 18 20	e	14 19 20	
22	iPKP	17 51 26	i(PKS)	17 55 00	22.9S 176.1W
	i	51 33	i	55 33	
	ePP	53 46			
23	iP	02 51 53	eS	02 55 59	36.6N 28.3E
	iPP	52 57			
	iP	03 52 53	i	03 55 36	9.8N 84.0W
	iP	07 13 17	e	07 14 11	Arctic Ocean
	i	13 33	e	18 25	(after Uppsala)
	iP	16 57 17	iPP	17 00 31	12.7N 87.3W
26	iP	23 00 25			38.5N 143.2E
27	iP	05 22 35	i	05 22 51	36.4N 70.8E

## TROMSØ 1961.

May		h m sec		h m sec	
27	eP	06 07 10			
	iP	07 28 20	i	07 28 35	43.1N 142.2E
	iP	10 33 34	i	10 33 53	39.2N 141.6E
	iP	10 45 49			35.4N 70.0E
	eP	11 14 38			
	i(P)	11 26 32			
	iP	17 04 56	i	17 05 07	0.8N 98.5E
	iP	17 39 07	i	17 39 22	1.2N 98.4E
	i	39 15			
28	i(P)	02 13 11	e	02 14 41	
29	iP	00 05 25			14.5N 144.6E
	iP	00 32 46	i	00 33 14	52.3N 166.6W
	iP	01 23 41			
	iPKP	07 47 17			39.1S 73.5W
	iP	10 41 07			27.9N 141.7E
	iP	19 34 13	i	19 34 45	10.6N 39.9E
31	iP	09 59 47	i	10 00 50	
	i	59 57	i	01 07	
	i	10 00 34			
	iP	14 49 06	ePP	14 51 00	49.1N 154.5E
	i	50 00			
	e(P)	16 46 38			
June					
1	iP	03 36 55			55.5N 161.7E
	eP	06 07 59			
	eP	10 14 03			19.3N 69.3W
	eP	16 38 19			37.9N 36.8E
	eP	17 58 48			55.0N 161.5E
	eP	23 39 24	i	23 39 29	10.4N 39.9E

TROMSØ 1961..

June		h m sec		h m sec	
2	eP	00 06 59			10. 1N 39. 6E
	iP	00 11 56	e	00 11 59	10. 4N 39. 8E
	iP	00 19 06	i	00 21 13	10. 4N 40. 0E
	i	20 17			
	iP	01 26 24			9. 4N 40. 2E
	iP	05 01 24			10. 3N 39. 8E
	iP	05 32 42			10. 4N 39. 6E
	eP	05 55 06			10. 4N 39. 8E
	eP	06 27 09	i	06 27 23	10. 5N 39. 7E
	eP	07 13 00			10. 0N 40. 0E
	eP	07 31 56	i	07 32 01	10. 1N 39. 6E
	eP	11 09 15			79. 4N 4. 9E
	eP	18 21 43			21. 4N 145. 9E
3	eP	01 22 36			56. 3N 164. 8E
	iP	15 30 37			10. 6N 39. 8E
	iP	15 33 34			9. 8N 39. 6E
4	eP	07 41 51			34. 1N 82. 0E
	iP	14 00 16	i	14 00 24	33. 9N 82. 1E
5	eP	03 39 22	i	03 39 25	27. 9N 55. 1E
6	iP	00 44 47			17. 7N 60. 9W
	iP	09 54 29			30. 1N 52. 4E
	eP	17 45 29			
	eP	21 04 14	ePP	21 05 46	39. 4N 77. 9E
	e	04 23			
7	iP	14 27 18	i	14 27 23	5. 4S 11. 6W
9	iP	04 04 08			34. 7N 73. 8E
	iP	09 43 27			41. 0N 50. 7E
	eP	15 29 57			4. 8N 92. 2E

TROMSØ 1961.

June		h m sec		h m sec	
9	iP	15 54 10			30. 3N 139. 9E
10	eP	11 42 12			51. 4N 179. 0W
	iPKP	20 50 52			24. 2N 112. 1W
11	eP	04 12 19			51. 6N 159. 3E
	iP	05 18 52			27. 9N 54. 6E
	eP	06 27 53			
	iP	06 28 42			
	eP	06 40 27			
	iP	06 47 53			
	iP	06 55 15			27. 7N 55. 1E
	iP	06 59 54			27. 8N 54. 9E
	iP	12 38 50	iPcP	12 39 53	27. 8N 54. 4E
	iP	14 06 25	ePP	14 08 15	27. 8N 54. 6E
	i	06 33			
	iP	15 14 41			27. 8N 54. 5E
	eP	17 10 45			
	iP	17 21 00	i	17 21 09	
	i	21 02			
	iP	20 52 29			51. 6N 159. 4E
	eP	22 12 40			22. 2N 141. 8E
	iP	23 21 35			27. 8N 54. 9E
12	iPKP	07 53 23			49. 8S 163. 8E
	iP	10 09 20			21. 6N 106. 0E
	eP	21 11 07			27. 5N 54. 3E
	iP	21 56 59			27. 5N 55. 1E
13	iP	15 26 19			42. 2N 148. 4E
	ePKP	21 56 51	ePP	21 59 08	21. 5S 176. 4W
	i	57 36	ePKS	22 00 05	

16

TROMSØ 1961.

June

		h m sec		h m sec	
14	eP	00 32 53			27.9N 55.0E
	eP	00 51 30			24.5N 94.8E
	iP	20 42 30			10.5N 39.9E
15	eP	00 00 19			51.8N 175.0E
	eP	04 27 45			
	iP	06 30 03			27.8N 54.8E
	eP	20 05 16			
	iP	20 57 22	ePP	20 58 55	39.1N 70.0E
	iP	22 35 26			51.9N 158.8E
	iP	22 49 24			40.1N 146.2E
	iP	23 34 45	i	23 35 45	45.9N 151.2E
	iPcP	35 33			
16	iP	10 44 12			8.9N 73.4W
	iP	15 06 38			35.1N 27.5E
	i(P)	16 15 28			
17	e(P)	05 49 56	i	05 50 28	
	e	50 17			
	iP	08 14 20	i(PP)	08 16 15	27.9N 55.0E
	i	14 54			
	iP	15 19 57	i	15 20 05	14.2N 92.0W
	iP	18 52 14	i	18 52 29	14.6N 92.1W
18	iP	03 25 03			5.9S 113.0E
	iP	10 18 37	i	10 19 06	27.8N 55.2E
	iP	11 00 32			27.3N 54.7E
	iPKP	14 13 51	ePP	14 15 51	31.5S 179.8E
	i	14 00	i	16 54	
19	iP	01 57 46	i	01 57 57	12.7N 122.1E
	iP	02 56 30			39.3N 143.1E
	iP	07 48 58	i	07 49 11	39.3N 143.0E

17

TROMSØ 1961.

June

		h m sec		h m sec	
19	iP	17 12 20	ePP	17 15 03	36.5N 70.9E
	ePcP	14 37			
20	iP	03 31 35			12.2N 44.2E
21	iP	06 47 50	ePcP	06 49 33	27.8N 54.8E
	iP	19 23 02			27.5N 54.8E
	iP	20 38 20	i	20 39 33	7.6N 110.0E
	i	38 48			
	eP	23 01 04			
22	iP	01 01 46	iPP	01 02 40	42.4N 19.3E
23	eP	09 06 30			44.1N 128.9W
	iP	10 17 41	i	10 18 37	18.6N 145.2E
	iP	16 44 52	iPP	16 46 48	27.6N 55.1E
	epP	45 06	ePPP	47 21	
24	iP	09 48 18			4.0N 97.5E
	iPn	10 41 02	iSn	10 42 04	68.2N 30.2E
	iPb	41 12	iSb	42 21	
	i	41 50	eRg	42 52	
	iP	16 33 16			4.6S 144.9E
25	iP	02 39 54	iPcP	02 40 23	40.9N 144.2E
	i	40 02			
	iP	09 28 19			19.5S 177.9W
	iP	10 21 56			
	iP	12 48 47	i	12 48 53	27.9N 53.7E
	iP	16 58 49	ePP	17 02 08	21.8N 143.5E
	i(PcP)	58 54			
26	iP	14 57 13	ePcP	14 58 03	52.2N 174.7E
	i	57 24	ePP	59 42	
27	iP	07 13 55	ePP	07 16 20	28.0N 99.4E
	ePcP	14 36			
	iP	08 01 41	iPcP	08 02 47	54.6N 158.6E

TROMSØ 1961.

June		h m sec		h m sec		
28	eP	18 06 58	i	18 07 52		
	iP	19 05 50	i	19 07 50		
	i	06 57				
29	ePKP	09 42 49	i	09 43 04	13.9S 166.0E	
	iP	11 44 57			45.5N 151.3E	
	iP	14 12 30	i	14 12 50	52.4N 173.4W	
	iP	22 05 59	i	22 06 54	85.0N 97.8E	
	i	06 17				
July						
2	eP	02 17 14.0			42.8N 143.1E	
4	iP	06 23 09.5			17.9N 146.4E	
5	iP	06 42 24.9				
	iP	08 26 20.0				
6	eP	16 20 27.4			7.0S 13.1W	
	iPKP	22 28 30.7	iPKS	22 31 53.2	20.0S 169.0E	
	iPP	30 42.2	iPcPP'	41 35.7		
7	i(PP)	13 29 44.5	iPKKP	13 40 23.2	5.7S 149.7E	
	iP	15 37 40.1			53.5N 159.9E	
	iP	16 06 39.1				
	iP	17 12 21.6			24.8N 98.5E	
	iP	19 38 38.9				
	iPKP	22 38 31.6			20.1S 169.2E	
8	iPKP	02 54 22.9			20.0S 168.8E	
	iP	06 45 39.2				
	iP	07 54 02.4				
	iP	07 57 24.9				
	eP	08 02 08.2				
	iP	09 05 18.3	i	09 06 10.2		
	iPn	12 11 03.5	iSn	12 12 46.3	61.9N 29.1E H=12 08 50 (Uppsala)	

TROMSØ 1961.

July		h m sec		h m sec		
8	iPn	13 50 13.4	iSb	13 51 08.4		
	e(Pb)	50 17.0	eSg	51 27.5		
	iSn	50 56.3				
	iP	14 08 26.4	iS	14 09 20.6		
	iP	14 10 36.4	iS	14 11 29.9		
	e	14 13 20.0				
	iPKP	15 53 40.2			20.1S 169.8E	
	ePKP	21 33 00.7			20.2S 169.0E	
	ePKPK	22 07 47.5			20.2S 169.0E	
9	iP	07 34 47.3				
	iP	08 14 10.2	iPP	08 16 03.7	28.8N 54.7E	
	iP	16 55 54.7			51.7N 176.2E	
10	iP	02 31 51.7	i	02 31 56.0		
11	iP	09 43 35.7			8.3N 93.3E	
12	iP	05 06 51.8				
	iP	13 40 01.3			45.2N 151.0E	
13	iP	02 22 50.7			26.9N 139.9E	
	iP	09 37 22.4	iPP	09 39 24.1		
	i	37 32.4				
	iP	21 56 01.1	i(PcP)	21 56 18.6	22.8N 122.7E	
14	iP	00 18 41.2			14.6N 120.9E	
	iP	13 03 37.4				
	iP	21 53 57.7			53.7N 169.5W	
15	iP	00 30 06.7	i	00 30 38.0	13.1N 120.4E	
	iP	05 53 01.7	i	05 53 10.0	48.4N 157.6E	
16	iP	04 32 18.1				
	iPKP	05 41 23.2			19.0S 175.4W	
	iPKP	07 06 08.6			18.6S 175.7W	
	iP	09 12 23.2				

## TROMSØ 1961.

July		h m sec		h m sec	
16	iPKP	23 21 28.1			18.0S 178.3W
17	iP	01 13 33.4	i	01 13 44.4	16.7N 97.7W
	iP	05 21 51.2	i	05 22 04.7	
	i	21 54.7	i(PP)	23 47.9	
	iP	15 00 55.5	i(PP)	15 02 39.6	14.2N 72.4E
	iP	16 31 07.8	i	16 31 16.6	35.7N 141.2E
18	iPn	06 51 06.6	eSn	06 51 44.9	
	iPb	51 08.4	iSb	51 55.4	
	i	51 13.4	iSg	52 00.4	
	iP	14 14 48.0	eP'P'	14 42 43.9	
	iS	23 56.4		42 50.5	
	iP	14 45 11.9			29.9N 131.2E
	iP	15 27 23.6			29.5N 131.3E
	iP	19 40 19.8			29.3N 131.6E
	iP	23 53 45.9			29.7N 131.4E
19	iP	06 44 31.1			29.6N 131.7E
	iP	10 56 55.0			29.8N 131.5E
	iP	12 09 54.1	i	12 10 12.6	29.6N 131.5E
	iP	23 07 21.1			37.0N 20.2E
20	iP	02 25 08.1			
	iP	03 15 51.9	i	03 16 02.9	29.5N 131.2E
	iP	08 56 47.3			18.7N 103.0W
	iP	09 13 50.3			28.4N 133.6E
	iP	23 04 03.3	i	23 04 20.8	
21	iP	19 02 02.0			29.6N 131.6E
	iP	22 51 03.6			29.6N 131.6E
22	iP	14 01 36.3			36.8N 70.3E
	iP	21 00 54.9	i	21 01 11.4	39.2N 70.0E
23	ePKP	14 22 38.7			18.5S 168.2E
	iPKP	15 49 15.2	i	15 49 19.2	18.5S 168.0E

## TROMSØ 1961.

July		h m sec		h m sec	
23	ePKP	22 10 02.8			18.3S 168.3E
	iPKP	22 20 55.3			18.4S 168.3E
24	ePKP	00 05 18.3			18.4S 167.8E
	iPKP	01 48 59.8	i(PP)	01 51 27.8	21.1S 179.3W
	iP	09 01 22.5			0.0 124.1E
25	iP	18 51 19.2			
	iP	18 52 47.5			0.0 124.7E
26	iPKP	09 38 23.6			37.1S 177.3E
27	iP	12 24 26.3			
	iP	15 42 44.9			
	iP	15 53 12.4	i	15 53 28.5	
28	iP	00 45 20.3			27.0N 126.6E
	eP	01 18 34.6	eSKS	01 28 57.6	2.2S 77.1W
	ipP	19 11.9			
	ePKP	06 30 35.8			18.6S 167.7E
	iP	10 26 17.1			20.0N 109.2W
	iP	10 50 44.7			20.2N 109.1W
	iP	15 29 51.3			43.4N 146.1E
	i(P)	03 06 57.0			
	i(P)	14 18 44.9			
August					
1	iPKP	01 36 37.0	i	01 36 42.7	14.2S 166.7E
	iPKP	05 58 33.2	i	05 58 41.7	9.8S 160.5E
	iP	14 43 00.8	i	14 43 08.2	19.1N 104.1W
2	iP	12 22 09.1			44.5N 148.7E
	iP	14 41 58.1			51.9N 157.8E
3	iP	00 51 32.0	i	00 51 39.0	14.3N 52.2E
	iP	03 19 13.1			18.2N 66.2W

## TROMSØ 1961.

August		h m sec		h m sec	
4	iP	07 28 01.4			42.7N 144.8E
	iP	23 02 58.7	i	23 03 05.6	45.3N 151.1E
6	iP	03 32 23.2			26.7N 141.8E
7	iP	04 12 24.7			42.2N 142.1E
	ePKP	17 17 00.7	i	17 17 14.2	27.5S 177.1W
8	ePn	05 09 53.6	iSb	05 10 25.1	
	iPb	09 55.5	iSg	10 28.1	
	eSn	10 20.6			
	iP	12 28 22.9	iP'P'	12 58 01.9	50.9N 170.7W
	iS	36 32.4			
	iP	15 53 23.5			51.2N 170.3W
	iP	23 59 16.2			50.9N 170.5W
9	iP	04 12 47.8	i	04 12 59.8	40.6N 142.8E
	iPKP	16 21 33.2	i	16 21 47.7	19.1S 168.7E
14	eP	17 47 38.1			
	iPKP	19 10 06.0			24.2S 175.7W
	iPKP	23 47 43.6	i	23 47 51.5	20.3S 169.4E
15	iP	19 15 06.2	iPP	19 17 48.5	32.8N 142.4E
16	eP	16 04 01.4			33.6N 137.2E
	i(P)	17 04 37.9	i	17 04 39.8	
17	iP	21 26 11.2	i	21 35 45.4	46.3N 149.3E
	iS	34 02.2			
18	eSn	05 23 20.0	iSg	05 23 49.5	67.7N 32.4E
	i	23 41.8			H=05 21 02 (Uppsala)
19	iP	02 53 09.9			43.1N 145.0E
	iP	05 22 31.4	i	05 32 59.2	10.7S 71.0W
	iSKS	32 10.2	i(SP)	34 26.9	
	iP	05 44 13.9	i(PK')	05 04 31.1	
	i	48 52.4			
	iP	12 55 10.1			43.4N 145.2E

## TROMSØ 1961.

August		h m sec		h m sec	
19	iP	15 03 46.0	ipP	15 04 12.4	18.0N 68.8W
	iP	20 38 46.4			2.1N 96.9E
20	iPKP	05 22 15.2	i	05 22 23.7	17.8S 178.8W
21	eP	07 08 40.0			36.3N 71.5E
23	iP	04 20 15.5			38.7N 68.7E
24	iP	05 02 33.0			42.9N 145.3E
	e(Sn)	05 26 26.2	iSg	05 26 55.0	
	i	26 45.0			
	iP	22 51 05.0			43.0N 145.0E
25	iP	07 09 19.2			53.5N 161.2W
26	iP	19 02 19.7			18.0N 146.4E
27	iP	16 32 09.7			46.6N 154.1E
	iP	17 00 19.7	iS	17 10 40.8	18.3N 146.6E
	i	04 08.2			
	iP	18 10 28.7			17.9N 146.4E
	iP	21 24 09.0			
	iP	22 15 28.2			35.9N 23.7E
	i(P)	22 35 17.7			
29	iP	15 01 07.0			52.2N 170.8W
31	iP	02 01 20.5	iSKS	02 10 59.4	10.6S 70.9W
	ipP	03 33.5			
	iP	02 09 51.0	iS	02 20 37.5	10.4S 70.7W
	iSKS	19 29.5			
September					
1	ePKP	00 28 27.0			59.3S 27.3W
	eP	09 59 06.7	i	09 59 55.7	13.5N 92.5W
4	i(P)	16 00 33.2	i(S)	16 01 26.9	
5	iP	02 40 24.2			80.0N 2.3W
	iP	11 43 32.6	i	11 43 45.1	59.8N 150.6W
6	eP	08 27 27.6			2.8N 125.8E

## TROMSØ 1961.

## September

	h	m	sec		h	m	sec	
6	iP	08	35	38.1				
	iP	13	43	23.6			36.3N	70.6E
8	iPKP	11	45	27.9			56.1S	27.3W
10	eP	09	02	55.7	iS	09	05	00.2
							74.4N	52.5E (Uppsala)
11	iP	02	56	42.4	i	02	56	51.2
	i(P)	14	41	27.7	i(S)	14	41	43.2
	iP	22	26	42.0	ipP	22	27	11.8
	iP	23	57	44.3	i	23	57	44.3
							42.8N	145.4E
12	eP	10	11	01.9	i	10	13	38.4
	iS			13 08.9			74.4N	52.5E H=10 08 12 (Uppsala)
	eP	12	37	14.0			43.8N	147.8E
13	eP	14	13	09.0			32.9N	47.9E
	iP	15	55	55.1	i	15	56	08.0
	i			56 00.1			32.8N	47.6E
	iPKP	21	38	25.7	iPKS	21	41	49.0
							41.6S	73.2W
14	iP	08	10	39.8			33.6N	48.8E
	eP	10	01	05.5			74.4N	52.5E H=09 56 16 (Uppsala)
	iP	14	41	23.0				
15	iP	01	53	05.5			35.1N	33.9E
16	i(P)	06	30	38.5				
	eP	09	10	58.9	eS	09	13	04.4
							74.4N	52.5E (Uppsala)
	iP	12	20	39.4			28.3N	138.6E
17	i(P)	04	17	06.7	i(S)	04	18	00.7
	e			17 47.2				
	iP	08	53	18.4			23.9N	122.2E
18	iP	00	29	20.3	i	00	29	27.0
	e(S)	08	04	25.0			74.4N	52.5E (Uppsala)

## TROMSØ 1961.

## September

	h	m	sec		h	m	sec	
18	iP	11	07	35.5			40.8N	50.1E
19	eP	02	39	08.0	e	02	43	33.7
	iP	08	13	35.0				
	iP	09	59	10.4			6.7N	82.4W
	iPKP	18	43	32.4			21.6S	179.4W
	iP	20	11	49.3			41.0N	50.3E
24	iP	19	16	53.8			18.4N	98.6W
	iP	21	51	58.3			33.3N	141.3E
25	iP	21	14	24.5			75.9N	7.3E
27	iPKP	06	52	06.1			17.4S	178.7W
	e(P)	08	30	24.1			29.0N	54.7E
	iP	11	30	42.6			52.3N	168.7W
	iP	19	30	40.5			52.5N	168.7W
	iP	19	36	65.5			52.2N	168.7W
28	iP	01	37	00.4			3.9S	102.0E
	iP	03	35	57.7	i	03	41	55.8
	i			36 30.5			30.5N	141.3E
	iP	05	08	25.0			36.5N	70.7E
	iP	15	39	58.6	i	15	41	00.6
	iP	22	44	59.2			27.6N	57.1E
29	eP	08	56	43.2			13.8N	94.0E
	iP	17	00	46.4	i	17	00	58.6
	P	22	46	03.1			42.9N	145.4E
	e(P)	23	01	06.6			28.2N	87.9E
October								
1	eP	04	14	21.4				
2	iP	07	28	18.0	i	07	28	34.2
	iP	08	19	03.7			51.4N	179.4E
3	eP	01	07	59.7			35.4N	22.7E

## TROMSØ 1961.

October

	h	m	sec		h	m	sec	
4	iP	07	33	43.6	iS	07	35	45.6
	i		33	53.1				
								74.4N 52.5E (Uppsala)
5	iPKP	18	27	39.5				19.4S 169.0E
	iP	19	40	17.7				18.6N 146.9E
	iP	23	09	51.2				51.0N 49.7E
6	iP	11	14	26.3				42.4N 142.1E
	iP	14	11	05.0				
7	eP	14	12	39.3				
	iP	23	02	22.0				
8	eP	03	07	52.0				51.6N 170.9W
	e(P)	18	24	11.5	i	18	24	52.0
	iP	22	06	30.9				53.1N 166.7W
	eP	23	54	47.4				1.6N 127.3E
9	iP	01	49	45.6				
	iP	06	59	11.5	i	06	59	24.5
	eP	20	50	22.3	i	20	51	14.0
	i(P)	21	33	11.0				
11	iP	07	13	14.2				57.5N 154.1W
12	iP	03	55	40.7				5.4N 126.0E
	iP	08	02	44.6				
14	iP	09	21	24.0				
	iP	22	08	29.5				51.1N 159.1E
16	iP	13	37	17.8				
	iP	13	45	53.0				
22	eP	23	04	58.5				
23	iPKP	00	27	53.0	i	00	27	56.2
	iP	04	48	48.5				60.4S 33.4W 27.9N 54.4E
	iP	14	52	48.5	i	14	53	18.0
	i		52	50.5	iS		03	49.6
								3.5N 126.4E

## TROMSØ 1961.

October

	h	m	sec		h	m	sec	
24	iP	07	35	16.4	i	07	35	27.4
								45.0N 146.4E
25	iP	16	34	21.6				14.4N 56.7E
26	iP	15	39	48.0				0.4S 98.6E
27	iP	08	33	16.5				Novaya Zemlya (Uppsala)
28	iP	10	54	09.8	iPP	10	55	43.2
	e(P)	14	09	29.8	i(S)	14	10	25.7
	e		09	56.7				
30	iP	16	06	38.4				
	iP	21	27	09.1				28.9N 141.8E
31	iP	01	53	42.6				51.9N 176.1E
	eP	08	32	15.7	iS	08	34	27.1
								73.8N 54.0E (Uppsala)
	eP	08	41	05.1	iS	08	43	26.8
	iP	08	50	54.1				22.2N 143.0E
	iP	13	48	51.0	i(Sg)	13	49	24.5
November								
2	eP	09	22	06.2				
	iP	23	45	31.2				54.5N 162.3W
3	iP	04	09	48.2	i(Sg)	04	10	45.0
	iP	08	42	52.1	i(Sg)	08	43	10.0
	iP	16	51	28.8				
4	eP	07	23	16.0	iS	07	25	33.0
								74.2N 54.2E (Uppsala)
	iP	18	26	56.7				
5	eP	08	47	14.1				
	iP	10	46	28.0				45.7N 147.9E
8	eP	17	40	23.0				
12	iP	02	26	22.7				0.8N 29.5E
15	iP	07	27	23.1				43.1N 145.1E
17	iP	14	58	55.2				52.4N 170.7W



## TROMSØ 1961.

## November

		h	m	sec		h	m	sec	
18	iP i(Sg)	14	56	31.4 57 05.0	i	14	56	59.2	Explosion in the Kiruna ironore mines. (Upsala)
	eP	22	21	13.4	ipP	22	21	34.2	23.7N 121.8E
19	eP	23	34	57.6	i	23	35	03.2	0.8N 124.3E
20	eP	18	07	14.4					31.3N 40.9W
25	iP	20	30	37.0					36.4N 141.4E
27	i(P) iP	00	37	21.0 06 08 08.7					31.6N 131.1E
28	iP	10	23	00.5					35.7N 73.6E

## December

3	iP	18	38	16.7					41.2N 44.0E
	iP	20	04	20.2					43.6N 134.9E
4	eP	12	47	38.6					33.2N 95.3E
	iP	17	39	42.5	i	17	41	22.0	70.6N 4.0W
	i	40	03	3	i(SS)	41	33	2	(Uppsala)
	iS	41	17	3	iT	47	57	0	
5	e(PKP)	13	20	46.4					50.8S 139.8E
	iPKP	13	21	08.9					16.0S 168.1E
6	iP	06	00	01.0	i	06	00	11.5	13.7N 93.6E
	iPKP	13	55	01.0					23.5S 176.0W
	eP	16	49	21.0					49.4N 155.2E
8	eP	10	50	42.0	i	10	50	47.9	11.4N 49.7E
	e	14	14	51.9					
9	iP	02	24	49.9	i	02	25	00.4	56.3N 153.9W
	iPKP	04	45	25.8	i	04	45	46.9	35.9S 179.3W
	ePKP	11	37	18.8	i	11	37	33.9	43.7S 75.2W
	ePKP	20	07	40.7	i	20	07	54.7	21.7S 179.9E
	i	07	46	9					
11	iP	09	49	48.6					
	iP	10	02	37.9					23.4N 94.8E

## TROMSØ 1961.

## December

		h	m	sec		h	m	sec	
14	iP	16	07	48.2	i(S)	16	08	42.3	
20	eP	03	20	53.6	iSg	03	21	43.1	66.8N 14.0E (Uppsala)
	eP	13	38	03.0					4.6N 75.6W
24	iP	07	00	52.2	i	07	01	00.1	43.8N 143.9E
	iP	07	22	42.7					29.5N 80.9E
	eP	20	29	41.2	eT	20	35	42.1	