

1950

Apia Observatory, Western Samoa.  
Preliminary Seismological Bulletin.



No. 1. 1950:

January-March, 1950:

Latitude: 13° 48' 26" S.  
 Longitude: 171° 46' 30" W.  
 or 11h.27m. 6s.W.  
 Geocentric Direction  
 Cosines: a=-9615, b=-1390, c=-2371.  
 Altitude: 2 metres.  
 Lithological Foundation: Coral sand on volcanic rock.

Instruments:

Horizontal Components: Short period Wood-Anderson torsion Seismograph.  
 Wiechert 1000 g. astatic pendulum (Bartels)  
 Vertical Component: Wiechert 80 kg. vertical pendulum (Splindler and Hoyer)

Tables for Computation:

H. Jeffreys and K.E. Bullen, Seismological Tables, 1940.  
 H. Jeffreys, Times of Transmission for small distances and focal depth, 1936.  
 G.J. Brunner and J.B. Macelwane, The Brunner focal depth-time-distance chart.

Time Service:

The Standard clock, Strasser and Rohde No. 381, is rated daily against radio time signals. A "Synchronome" clock is used to time-mark the records.

All times are entered in Greenwich Mean Time (Universal Time)

The column 'Reports' refers to the fortnightly airletters received from Pasadena, Brisbane, Wellington, and Christchurch.

January, 1950:

Date	Phase	Time	Dist	Depth	Origin Time	Magn	Reports	Comp	Remarks.
2	P	05 13 28	3.3		05 12.6	3.4			
	S	14 08							
2	iP	10 44 17	1.8		10 43.8				
	iS	44 40							
2	iP!	15 19 48	29½			(6.5)	PBWC	ENZ	C.G.P.E. 11½° S 165° E.
	iS	24 38						N	
	L	26.5						W	
5	iP	19 17 36	1.3		19 17.2			ENZ	
	iS	17 53						ENZ	
6	iP	04 09 18	1.4		04 08.9			EN	
	iS	09 37						EN	
6	e	06 40 ca						N	
6	P	16 12 18	1.1		16 12.0			EN	
	iS	12 32						EN	
7	S	05 25 54	Local						
7	iP	07 17 42	1.6		07 17.3	3.7			
	iS	18 03 ca							
8	eP	16 35 15	(20½)					N(E)	
	(S)	38 58						E	
8	iP	20 44 32	5.5		22 43.2	5.3	PBW		C.G.P.E. Tonga Is.
	iS	45 36							
8	eS	20 58.2							

Date	Phase	Time	Dist	Depth	Origin Time	Magn	Reports	Comp	Remarks
9	S	03 56 59	Local						Possibly International 4. Seismological Centre
9	e	19 29 35							
10	iS	03 05 19	Local						C.G.P.E. 11 N. 103° W.
10	e(L)	03 37.8					PC	EN	
	e	40.9						EN	
10	P	07 11 02	ca 3.2		07 10.2				
10	iS	11 40							
10	eS	07 32.2	Local						
11	S	20 06 45	Local						
12	S	05 00 35	Local						
12	iP!	12 07 57	6.9	480	12 06.2	6.2	PBWCA	ENZ	C.G.P.E. 17° S 178½° W. h = 500 km.
	iS!	09 22						ENZ	
	i	11 13						W	
	iScS	20 05						EN	
12	eS	13 01 14	local						
13	e	00 30.7	local						
13	P	06 27 52	1.6		06 27.4				
	S	28 12						EN	
	i	28 16						W	
13	eP	16 21 34	ca 3.7		16 20.6	4.3			
	iS	22 18							
13	iS	17 39 07	local						
13	e	20 57.5						N	
	e	57.7						Z	
	e	58.8						E	
14	eP	03 01 20	ca 1.1		03 01.0				
	S	01 34							
	S	01 41							
14	S	05 03 52	local						
14	S	13 31 57	local						
14	e(P)	13 33 24	ca (13½)				PWCA	WE	
	e(S)	35 54						W	
	eL	37.5							
14	e(L)	48.5							
14	P	15 33 33	2.7		15 32.9	4.0			
	S	34 06						EN	
14	e	22 48 54						E	
15	e(Lq)	21 09 05					WCA	E	
	i	10 52						E	
	Lr	11 26						E	
15	i	21 18 44						E	
	i	22 25						E	
16	(S)	04 58 09	local						
16	P	10 01 45	1.5		10 01.3	3.7			
	S	02 05	ca					EN	
17									Series of local tremors.
17	P	23 13 12	1.4		23 12.8	3.7		EN	
	iS	13 31						EN	
18	eP	07 42 28	ca 1.6		07 42.0	3.4			
	S	42 49						EN	
18	eP	07 58 15	ca 1.8		07 57.8	3.2			
	S	58 38						EN	
	(Sg)	58 44							
18	P	22 59 03	ca 3.4		22 58.9	4.7			
	S	59 44						EN	
18	S	23 34 28	local						
19	eP	02 18 07	ca 1.2		02 17.8	3.2			
	eS	18 22						EN	
	(Sg)	18 25							
19	eP	15 03 20	ca 1.9		15 02.8	3.5			
	S	03 44							
	S+	03 46							

Date	Phase	Time	Dist	Depth	Origin time	Magn	Reports	Comp	Remarks
20	P	04 12 02	ca 2.6		04 11.4	4.0			
	S	12 34						EN	
20	eP	05 23 44	ca 2.5		05 23.1	3.6			
	S	24 15							
20	iS	13 02 57	local					N	
20	iS	17 32 32	local						
20	S	18 05 02	local						
21	eP	05 43 46	ca 2.8		05 43.0	4.1			
	iS	44 20							
21	P	08 59 02	ca 1.8		08 58.6	3.5			
	S	59 25							
21	P	09 40 20	4.5		09 39.2	4.9			
	iS	41 13						EN	
21	eP	18 04 24	1.3		18 04.0	3.8			
	iS	04 42						EN	
21	eP	20 58 27	1.4		20 58.1				
	iS	58 46							
21	eS	21 32 35	local						
22	iS	03 24 54	local						
22	eP	09 59 26	1.3		09 59.1	3.5			
	iS	59 43							
22	iP	15 09 19	2.0		15 08.6	3.2			
	iS	09 44						EN	
22	P	16 32 20	1.6		16 36.9	3.6			
	S	37 41						EN	
22	e(P)	22 09 21	(14)				W	EN	
	i(S)	11 54						W	
25	S	10 49 02	local					EN	
23	eS	21 50 40	local					E	
23	P	22 36 25	1.2		22 36.1				
	S	36 40							
24	P	05 39 10	3.2		05 38.4	4.8			C.G.P.E. Fiji Is.
	i	39 33						NE	
	S	39 48						ENZ	
24	P	12 45 14	1.6		12 44.8	3.9		EN	
	iS	45 35						ENZ	
24	iP	16 51 45	21½	150	16 47.1	6.6	PBWCA	ENZ	
	PP	52 13						ENZ W	
	i	52 21						W	
	iS	55 28						ENZ	C.G.P.E. 14½° S. 167° E. h=150km
	i	56 36						EN	
	i	58 26						E	
24	P	17 14 34	2.1		17 14.0				
	iS	15 00						N	
25	(eP)	01 10 21	(3.2)		(01 09.6)			N	
	(eS)	12 02						N	
25	P	02 13 11	14½		02 09.8		PBWC(A)	N	C.G.P.E. 27° S 177° W.
	S	15 54						NE	
	i	16 07						W	
	(L)	17 7						EN	
25	P	02 52 08	2.3						
	S	53 37							
25	S	08 36 08	local					N	
25	S	11 17 27	local					N	
25	iP	21 51 57	(8)	(230)	(21 50.1)			E(W)	W.A. not recording.
	i	52 20						EN	
	(S)	53 27						EN	
	i	53 34						EN	
	(PcP)	58 07						E	



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Date	Phase	Time	Dist	Depth	Origin Time	Magn	Reports	Comp	Remarks
26	iP	03 54 13		deep			PW	ENZ!	C.G.P.E. Fiji Is. h = 500km.
	i	54 21						ENZ	
	iS	55 38						ENZ	
	i	59 27						WE	
26	(P)	11 09 57	(7.9)				P		C.G.P.E. South of Fiji Is.
	(S)	11 27						EN	
27	P	08 26 55	2.1		08 26.4	4.4	P	EN	C.G.P.E. Tonga Is.
	iS	27 21						ENZ	
27	P	14 05 07	1.9		14 04.6			EN	
	S	05 31						EN	
27	P	19 19 02		deep			PWCA	ENZ	Felt Apia MM III. C.G.P.E. 17°S 173°W.
	S	19 36						ENZ	
	(PcP)	26 14						ENZ	
	i	32 24						N	
28	e	02 58 ca						EN	
28	S	03 53 08	local					N	
28	(eP)	06 30 46	(8.1)	(deep)				EN	W.A. not recording
	e	31 16						EN	Interpretation.
	(S)	32 19						EN	Uncertain.
29	(eP)	01 32 33	(11½)	(deep)				EN	W.A. not recording.
	e	32 49						EN	Interpretation.
	e	32 02						ENZ	Uncertain.
	(S)	34 40						EN	
30	(L)	01 33.3ca					PWCA	E	C.G.P.E. 54°S 71°W.
30	P	04 03 20	2.8		04 02.6	3.8			
30	S	03 54							
30	P	05 33 58	5.5		05 32.6	5.2		EN	C.G.P.E. Tonga Is.
	S	35 02ca						EN	
	i	35 24						EN	
30	S	20 57 10	local					EN	
30	P	21 30 56	3.8		21 30.0				
	S	31 41							
31	P	02 55 44	1.3		02 55.4				
	S	56 02ca							
31	eS	10 17.4ca	local						
31	S	11 00 05ca	local						

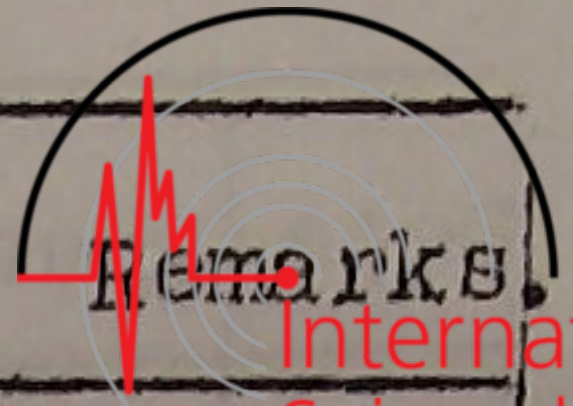
February 1950:



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Date	Phase	Time	Dist	Depth	Origin Time	Magn	Reports	Comp	Remarks
1	e	05 55.5	local						
1	e	21 38.6	local						
1	e	21 40.3	local						
2	e	06 40.4	local						
3	i(P)	05 58 46	(12½)	deep	(05 56.0)		PWAB	EN	C.G.P.E. 23° S 179° E. h=500.
	i(S)	06 00 55						EN	
4	eP	00 43 46	( 7½)	deep	(00 42.0)			EN	
	e	44 37						EN	
	(S)	45 13						EN	
4	S	01 00 05	ca local						
4	e	01 12 ca						EN	
4	P	12 21 02	ca 2ca		12 20.5			EN	
4	iS	21 26						EN	
5	iP	01 31 15	41½		01 23.5		WBPAC	N	Large L waves long coda.
	i	32 58						N	C.G.P.E. 50° S 164° E.
	S	37 28						EN	
	L	41.5						EN	
	i	43 45						N	
	i	59 12						E	
	e	02 23 ca						N	
	e	34 ca						E	
5	S	11 57 02	ca local						
5	S	20 31 17	local						
6	S	13 15 24	local						
6	S	22 20 16	local						
6	S	23 07 20	local						
8	e	00 39 45						N	
	e	43 51						E	
	(i)	45 39						E	
	(e)	52 46						E	
8	P	19 14 29	1.6		19 14.0				
	S	14 49							
8	S	19 18.7	local						
8	S	19 21.3	local						
8	S	22 58.3	local						
9									01 30-02- 30 local tremors.
9	S	03 32.1	local						
9	P	12 01 15	1.4		12 00.9				
	S	12 01 34							
9	P	21 53 47	1.9			3.9		EN	
	S	54 10						EN	
10	e	00 27 ca	local						
10	S	11 20.5	local						
10	e	19 13.7	local						
10	e	19 22.7	local						
10	e	19 23.7	local						
10	P	19 24 30	4.1ca		19 23.5			EN	
	eS	25 18ca						EN	
11									03-05 local tremors.
11	e	03 03.7						EN	Seismic Act- ivity.
11	iP!	11 30 58	2.2	380	11 30.0		PWBAC		Dilatation from S.W.

Date	Phase	Time	Dist	Depth	Origin Time	Magn	Reports	Comp	Remarks
	IS!	31 43						ENZ	 No W.A. record. C.G.P.E. 15½° S 175° W. h=250.
	1	34 48							
	PcP	37 48							
11	S	17 16.7	local						
11	e	20 48.8	local						
12	S	06 45 42	local						Hour not certain.
12	S	19 10.8	Local						
12	c	19 13.1	local						
12	eP	22 17 39	16		22 14.0		PCWBA	ENZ'	C.G.P.E. 19° S 178° E.
	IS	20 33						EN	No W.A. record.
	ScS	29 52						EN	Large L waves and long coda.
	e	39 27						N	
12	S	23 08 45	local						
13	S	11 00 24	local						
13	S	11 44 49	local						
13	P	13 57 15	1.2		13 56.9				
	S	57 30							
13	P	15 39 26	local						
	S	39 37							
13		18 47 ca							local tremors.
13	P	20 53 26	2.3		20 52.8	3.9			
	S	53 53							
14	P	01 38 25	4.1		01 37.4	4.7		EN	
	S	39 13							
14	S	04 14 ca	local						
14	S	13 34 59	local						
14	S	14 39 37	local						
14	e	20 35.5	local						
15	S	15 38 04ca	local						
15	S	16 15 32	local						
15	P	19 04 18	1.5		19 03.9				
	S	04 37							
15	S	21 11.9	local						
15	eP	21 45 43	1.9		21 45.2	4.4		EN	
	S	46 06						EN	
15	e	22 41.1	local						
16	S	13 12 47	local						
17	S	08 26 33	local						
17	S	16 18 15	local						
18	e	02 03 ca	local						
18	P	09 48 33	1.6		09 48.1	3.9		EN	
	S	48 53						EN	
18									19-20n. series of local tremors.
19									02-03n. series of local tremors.
19	e	05 13.5	local						
19	e	05 14.8	local						
20	e	20 25.6	local						
20	e	20 27.1	local						
21									00-07n. series of local tremors.

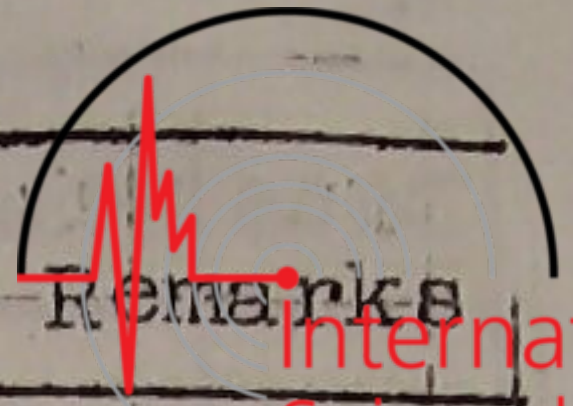


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Date	Phase	Time	Dist	Depth	Origin Time	Magn	Reports	Comp	Remarks
21	S	12 44 15	local						
21	(P)	16 04 16	local						
	(S)	04 24 3							
21-2									2030-07 on 22nd series of local tremors.
22	e	11 21.5					CW	EN	Possible activity.
22	e	23 16.2	local						
23	eS	13 05 35	local						
23	S	15 07 45	local						
23	P	16 26 59	4.3			4.8			
	S	27 49							
23	P	21 47 59	7.0	(deep)	21 46.2	5.5	WPA(C)	EN	Weakly recorded.
	S	49 18						EN	
23	S	22 41 23	local						
24	e	04 00.6	local						
24	eS	09 53 14	local						
24	i	16 09 40					(P)		Recorded by W.A. only. Probably related.
		12 03 ca							
25	S	08 28 53	local						
26	eP	01 19 17	1.5		01 18.9	3.9		EN	
	iS	19 36						EN	
26	eP	01 30 25	1.0		01 30.1				
	S	30 38							
26	eP	01 45 28	1.3		01 45.1	3.9		EN	
	iS	45 45						EN	
26	S	02 37 02 ca	local						
26	e	05 59.4	local						
26	S	07 47 51	local						
26	S	16 38.2	local						
27	S	07 58 03 ca	local						
27	eS	12 39.2	local						
27	eS	14 22 18	local						
27	eP	22 41 50	1.7		22 41.4	3.7			
	iS	42 11						EN	
28	P	06 21 42	1.0		06 21.4				
	eS	21 55							
28	iP	10 31 51	73	320	10 21.0	8ca	WBPAC	EN	C.G.P.E. 46 N. 143 1/2 E. h= 350.
	iS!	40 48						EN	
	iScS!	41 14						EN	
	i	41 30						EN	
→ 28	P	11 48 02 ca	(1.4)			(3.4)		EN	Unusual form.
	iS	48 30						EN	

March - 1950:

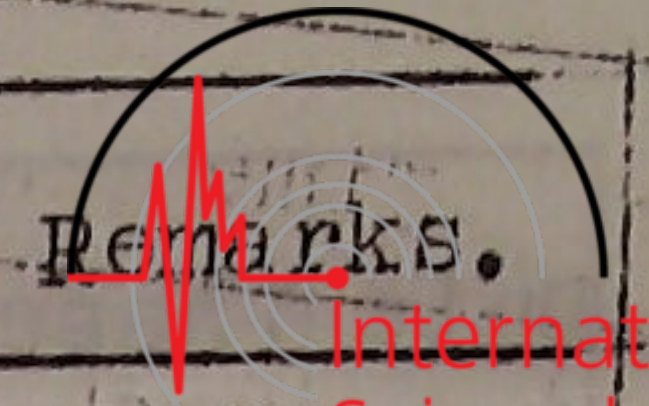
Date	Phase	Time	Dist	Depth	Origin Time	Magn	Reports	Comp	Remarks
1	P	03 34 41	1.7ca		03 34.2	5.0	P	EN	
	S	35 03 ca							
1	e	04 28.7	local						
2	e	03 06.0	local						
2	eP	06 20 25	2.9		06 19.7	5.3	AWP	ENZ )	
	iS	21 00						ENZ )	



Date	Phase	Time	Dist	Depth	Origin Time	Magn	Reports	Comp	Remarks
2	a	18 47 et seq	local						
2	e	23 32.8	local						
3	P	01 52 45	1.4		01 52.3	3.9			
	S	53 03						EN	
3	P	04 14 09	4.3		04 13.1	5.5	P	EN	Very large P:S ratio.
	S	04 15 00						EN	
3	eP	10 47 12	14½		10 43.8		WPACB	EN	C.G.P.E. 23°S 175½°W 10 43 52.
	eS	49 52							
3	(P)	10 57 15	(21½)					EN	No W.A. record.
	(PcP)	11 01 06						EN	Interpretation uncertain.
	(S)	01 22						EN	Superimposed on previous.
	L	02.6						EN	Smaller shock.
	(ScS)	08 36						EN	
3	e	17 46.5						EN	
3	S	23 02.2	local						
4	S	01 01 55	local						
4		02 47.5						E	Seismic activity.
4	S	04 19.4	local						
4	S	17 06.5	local						
4	S	19 00.2	local						
4	S	19 01.3	local						
4		21 22.5							Seismic activity.
4	S	21 37 16	local						
4	P	22 22 24	1.4		22 22.0	4.0			
	S	22 43							
5	P	09 23 11	4.3		09 22.1	7.55	BWA	EN	18°S 174°W
	S	24 02 ca						EN	09 21 45.
5	S	11 59.5	local						
5	S	12 01.2	local						
5	e	23 52.5	local						
6	P	19 09 29						EN	
	S	09 33						EN	
6	e	20 01 03 ca	local					EN	
6		21 57.3	<del>local</del>					EN	Seismic activity.
6-7									23 to 0330 seismic of local tremors.
7	e	02 18 ca					BWAC	E	May not all be one.
	i	26.5						E	Earthquake
	e	29.2						E(N)	C.G.P.E. 10 N 124 E
	e	36.8						E(N)	02 07 46.
	eL	41.5						E(N)	
	e	03 14.6	local						
7	e	07 02.7	local						
7	P	21 55 33	1.5		21 55.1				
	S	55 53							



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Date	Phase	Time	Dist	Depth	Origin Time	Magn	Reports	Comp	Remarks.
8	e	04 38.9	local						
8	e	04 43.6	local						
9	i	00 41 28						N	E not re- cording.
9	S	01 23 45	local						
9	SP	05 53 03	ca 1.5		05 52.6			EN	
9	SP	09 26 24	1.9		09 25.9				
9	SP	15 05 15	1.4		15 04.8			EN	
10	S	05 34						EN	Large num- ber of lo- cal tremors.
10	PS	01 48 58							
10	P	20 17 55	8.2		20 15.9	6.2	WP		C.G.P.E. Fiji 20 15 23.
10	S	19 28						EN	
10	S	23 08 ca						EN	Possibly activity.
11	P	03 04 25					W	EN	
11	e	16 17.1	local						
11	e	19 24.7	local						
11	e	22 37.9	local						
11	PS	23 50 34	2.4		23 49.9	4.4			
12	e	00 34.8	local						
12	is	04 10						ENZ	
12	e	03 52.3					C A	EN	
12	e	04 04.2						EN	
12	is	09 15						E	
12	e	06 40.4	local						
12	ip	02 39 45	(2.1)					ENZ	C.G.P.E. Tonga.
12	S	15 43 12	local						
12	S	18 35 03	local						
12	S	20 45 16						EN	P. not - clear on records.
12	S	21 16.0	local					EN	
12	S	21 56.5	local					E	
13	S	04 45.3	local						
13	S	07 36.9	local						
13	S	22 09.9	local						
14	S	00 58.3	local						
14	ep	06 28 05	6.0		06 26.6	5.7		EN	
14	S	29 15							
14	e	19 38 22	local						
14									20-23 seri- es of lo- cal tremors.
16	e	08 07.6	local						
16	S	10 32 55	local						
16	P	15 06 22	local						
16	S	06 33							
16	e	15 21.7	local						
16	P	19 26 49	(7.5)	(deep)	19 25.0	(6.3)	BPWA	EN	C.G.P.E. 17°S 178½° W h=600.
16	S	28 15						EN(Z)	
16	S	22 32 26	local						
17	P	05 36 41	1.4		05 36.3	4.5		ENZ	C.G.P.E. 14°S 173°W.
	S	37 00						ENZ	



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Date	Phase	Time	Dist	Depth	Origin Time	Magn	Reports	Comp	Remarks
	i	37 24						N	
	i	38 46						ENZ	
17	iP	06 48 43						ENZ	
	(S)	48 49						ENZ	
17	S	09 14.5	local						
17	S	18 38.9	local						
18	P	00 21 31	2.0		00 21.0	4.0			
	S	21 56							
18	eP	01 50 43ca	1.3		01 50.3	3.9		EN	
	S	51 01						EN	
18	S	02 43 15	local						
18	S	03 48 01	local						
18	P	04 39 28	1.4		04 39.1	4.3		EN	
	S	39 47						EN	
18	S	09 15.7	local						
18	S	18 57.6	local						
19	P	13 20 05	1.7		13 19.6	4.3			
	S	20 27						EN	
20	S	05 33.0							
20	P	15 28 49	2.0		15 28.3	4.0			
	S	29 14							
20	e	18 21.0	local						
20	e	18 59.7	local						
20	e	19 12.1	local						
20	e	19 12.8	local						
21	S	23 04.8	local						
21	S	23 24.5	local						
22	S	04 34 39	local						
22	S	07 02 07	local						
22	S	22 10 42	local						
23	e	00 08.3	local						
23	eP	08 10 17	5.9		08 08.8	5.6	(P) (W)	(C)	C.G.P.E. Fiji 08 08 33.
	S	11 25							
23	e	13 26.6	local						
24	S	15 17 45	local						
24	S	20 20 04	local						
25	e	00 00 58	local						
25	S	05 13 41	local						
25	eP	12 05 14	1.7		12 04.8				
	eS	05 36							
25	iP	22 22 18					WCA	EN	
	L(q)	46.6						EN	
	(lr)	51.1						E	
26	iP	00 47 04	4.8			5.5			
	iS	48 01							
26	e	05 29.8	local						
26	e	06 47.3	local						
26	iS	11 27 38	local					EN	W.A not re- cording.
28	P	04 24 19	1.4		04 23.9			EN	W.A. re- cord not clear.
	S	24 38						EN	
28	e	22 42.7	local						
29	e	05 10.8	local						
29	S	09 25 25	local						
29	eP	10 30 45	4.1		10 29.7				
	eS	31 33							
29	S	12 27 56	local						
29	eP	12 56 06	12.5			6.3	PBWC(A)	WN	C.G.P.E. 27°S 177° W. 12 52 53.
	eS	58 25						WEN	



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Date	Phase	Time	Dist	Depth	Origin Time	Magn	Reports	Comp	Remarks
29	L	13 00.1						EN	
29	e	13 09.3						W	
	e	10 02					WC	W	
	(L)	11.6						N	
29	e	17 50 10					PBWCA		C.G.P.F. 3° S 137 1/2° E. 17 41 07.
29	eS	18 43 48	local						
30	e	03 30 57	local						
30	P	04 28 07	2.5		04 27.4	4.8		EN	
	S	28 38						EN	
30	S	05 17 11	local						
30	S	10 19 43	local						
30/1	S	00 23 37	local						
31	S	01 49 06	local						

Seismological Bulletins Received:

The receipt of Seismological Bulletins and other information from the following sources is acknowledged with thanks:

- Batavia: April - June, 1949.
- Beograd: September, 1949.
- Bogoto: January - March, 1949.
- Brisbane: October - December, 1949.
- Bucarest: July - December, 1948. September - October, 1949. December, 1949.
- Budapest & Kolocsa: July - October, December, 1949.
- Cleveland: October, 1949. January, 1950.
- De Bilt: September - December, 1949. Seismic Records at De Bilt 1945.
- Granada: July, 1949. September, 1949.
- Harvard: July 1947 - June, 1949.
- Helsinki: April - December, 1949.
- Japan: August - November, 1949. The Seismological Bulletin of the Central Meteorological Observatory, Japan 1939.
- Jesuit Seismological Association: September - October, 1949. Supplement: May, July, 1949.
- Kew: October - December, 1949. January, 1950.
- Kaara: July - December, 1949.
- La Paz: October - December, 1948. January - June, 1949.
- La Plata: January - December, 1944.
- Lisbon: October - November, 1949.
- Nanking: January - June, 1949. January - December, 1949.
- Ottawa: July - August, 1949.
- Pasadena: Preliminary: October 17, 1949 - January 12, 1950. Seismological Laboratory Bulletin, 1949.
- Pennsylvania: Seismological Observatory Bulletin University of Pittsburg. January - December, 1949.
- Perth: July - September, 1949.
- Poona: Government of India: January - September, 1946.
- Riverview: January - December, 1948.
- Rome: August - November, 1949.
- Sofia: January - December, 1946.



Strasbourg:

Union Geodesique et Geophysique  
Internationale: July - October, 1949.  
Institut de Physique du Globe de  
Strasbourg: 11 October 1949 - 31 Jan-  
uary, 1950. Bulletin du Bureau  
Central Seismologique Francais:  
August - December, 1949.

Stuttgart:

July - September, 1949.

Suva:

1946. July 29 - November 12, 1947.

Toledo:

August - November, 1949.

U.S.C.G.S.

Preliminary Epicenters: Nos. 110-49 to  
26-50. Supplementary List: S27-49 to  
S11-50.

Wellington:

D.S.I.R. October - November, 1949.

D.S.I.R. Seismological Observatory

Bulletin No. R - 34.

Zagreb:

January - December, 1947.

Seismic Evidence for the fault origin of Oceanic deeps.

Bulletin of the Seismographic Stations July 1 - September 30, 1948.

" " " " " January 1 - March 31, 1948.

" " " " " April 1 - June 30, 1948.

Apia Western Samoa.

29th May, 1950:

\* \* \* \* \*

G.A.M. KING.  
OBSERVER-IN-CHARGE.

Apia Observatory, Western Samoa.  
Preliminary Seismological Bulletin.

April - June, 1950:



April 2 1950:

Latitude:  $13^{\circ} 48' 26''$  S.  
Longitude:  $171^{\circ} 46' 30''$  W.  
or  $11h.27m. 6s.W.$

Geocentric Direction Cosines:  $a=-9615, b=-1390, c=-2371$   
Altitude: 2 metres.  
Lithological Foundation: Coral sand on volcanic rock.

Instruments:

Horizontal Components: Short period Wood-Anderson torsion Seismograph.  
Wiechert 1000 kg. astatic pendulum (Bartels)  
Vertical Component: Wiechert 80 kg. vertical pendulum (Spindler and Hoyer)

Tables for Computation:

H. Jeffreys and K.E. Bullen, Seismological Tables, 1940.  
H. Jeffreys, Times of Transmission for small distances and focal depth, 1936.  
G.J. Brunner and J.B. Macelwane, The Brunner focal depth-time-distance chart.

Time Service:

The Standard clock, Strasser and Rohde No. 381, is rated daily against radio time signals. A "Synchrone" clock is used to time-mark the records.


All Times are entered in Greenwich Mean Time (Universal Time)

The column 'Reports' refers to the fortnightly airletters received from Pasadena, Brisbane, Wellington, and Christchurch.

In the Distance column d signifies less than  $1^{\circ}$ , v less than  $10^{\circ}$ .

April - 1950:

Date	Phase	Time	Dist	Depth	Origin Time	Magn	Reports	Comp	Remarks.
1	P	01 15 27	2.4		01 14.8				
1	iS	15 56						WEN	
	eP	20 59 37						WEN	
	ipP	21 00 12						WN	
	S	03 00						W	
1	eP	22 05 02						WEN	
	i	05 22						WE	
	eS	08 39						EN	
2	(P)	01 02 05						W	
	(S)	03 54							
2	P	06 52 15	3.3		06 51.4				
2	P	12 14 36	2.3		12 14.0			EN	
	S	15 03ca						EN	
	S	52 54							
2	S	13 59 10	v						
2	i	17 22 01	d						
3	S	04 16 51	v						
3	e	22 14 51	d						
3	e	22 42.2	v						
3	S	23 51 47	v						

Date	Phase	Time	Dist	Depth	Origin Time	Magn	Reports	Comp	Remarks
4	e	00 39 16	v						 International Seismological Centre C.G.P.E. Tonga 11 19 25.
4	S	07 19 16	v						
4	e	07 42 53	v						
4	eP	11 20 55	4.1		11 19.9			EN	
	iS	21 42						ENZ	
4	e	22 24.5	d						
5	eP	03 31 00ca	1.4		03 30.6				
	S	31 18						EN	
5	e	07 27.8	d						
5	i	09 45 29						N	
5	P	10 17 02	16½	(Deep)	10 13.2			WEN	C.G.P.E. Kermadecs 10 12 56.
	S	20 03						W	
5	e	11 30.2	d						
6	eP	17 24 40	13		17 24.3				
	S	24 56							
6	eP	18 29 03	1.3		18 28.7				
	eS	29 20							
7	S	03 07 44	v						
7	eP	11 27 34	2.2		11 27.0				
	S	28 00							
7	e	12 42.5						N	
	i	43 41						E	
7	eS	13 44.3	v						
8	eS	21 13 51	d					N	
9	e	07 00.1						N	
	i	04 16						NE	
9	e	14 12.4						N	
10	e	06 28.5						E	
	e	31.3						N	
10	L	18 28.5						E	
11	eS	06 21 49	v						
11		08 45							Local tremors.
11	e	22 58.7	v						
11	P	23 20 01	1.4		23 19.6			W	Large microseismos.
	eS	22 19						W	
11	S	23 31 00	v						
13	e	16 50 04	d						
13	S	17 01 52	d						
14	eP	08 07 44	1.4		08 07.4			EN	
	eS	08 02						EN	
14	e(Lq)	20 28.3					WC	N	C.G.P.E. o.w. 36° S 103° W 19 59 58.
	e(Lr)	34.5							
15	eS	06 47 41	v						
15	eP	06 59 48						ENZ	C.G.P.E. Tonga 06 58 20 h200.
	iS	07 00 58						ENZ	
15	e	22 00 ca						W	Possibly 6 - 7°.
16	eS	19 32 33							
16	P	22 30 57	1.4		22 30.6			EN	
	S	31 15						EN	
18	i	15 00 31					PWC	N	C.G.P.E. o.w. 4½° S 106° W 14 31 46.
	e	02 19						N	
	e	04.0						EN	

Date	Phase	Time	Dist	Depth	Origin Time	Magn	Recorded	Comp	Remarks.
19	S	12 32 34	v						
19	iP	16 10 16	v	<u>Deep</u>				ENZ	W.A. record not clear No. S.
19	eP	16 24 15		Deep				EN	
	iS	24 32						ENZ	
20	iP	19 00 17	v	<u>Deep</u>				EN	
	i	00 35						ENZ	
20	e	22 11.7	d						
22	eP	02 29 41	2.0		02 29.2	4.5			
	S	30 05							
22	eS	02 46.8	d						
22		03 03.3						EN	Possible Activity.
22	P	12 30 40	(25)	(150)	(12 25.5)	(7.4)		ENZ	Interpretation very uncertain.
	i(pP)	31 10						ENZ	
	i	31 27						N	
	i	34 21						ENZ	
	e	34 33						E	
	i(S)	34 53						EN	
22	S	17 10 32	d						
22	eP	18 50 27	2.2		18 49.9	4.2		EN	
	eS	50 53						EN	
22		19 13 ca	d						
		19 17 ca	d						
22	P	21 44 40	(6 $\frac{1}{2}$ )	(170)	(21 41.1)	(6.9)		ENZ	Interpretation very uncertain.
	i(pP)	45 13						ENZ	
	i	47 15						EZ	
	e	47 30						EN	
	i(S)	47 46						EN	
23	e	02 09.6	d						
23	e	02 42.1	d						
23	e	02 42.7	d						
23	P	10 18 51		<u>Deep</u>					
	S	20 20							
24	P	00 03 55	2.0		00 03.4	4.9		EN	
	S	04 19						ENZ	
24	S	02 08 30	v						
24	S	19 15 04	v						
25	i	01 38 43						EN	
25	i	23 42 28	d						
25	eS	06 08 55	v						
26		14 12 18		Deep				EN	
	S	13 04						ENZ	
26	eL	20 22.3						EN	
26	eL	20 57.5						EN	
27	eP	10 20 35						W	
	(pP)	21 15						W	
	(S)	25 51						W	
27	e	13 21 47	v						
27	P	13 25 22	2.8		13 24.7			ENZ	
	S	25 55						ENZ	
27	i	14 10 28	d						
28		00-09							Series of local tremors.
28	Pn	05 58 46	5.1		05 57.5				
	P+	59 00							
	Sn	59 44							
28	iS	12 21 27	v						
28	eP	18 14 28	1.5			4.0			

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Centre

Date	Phase	Time	Dist	Depth	Origin Time	Magn	Recorded	Comp	Remarks
28	iS	14 47							
29	i	19 31 21	v						
	i	02 38 37						E	
	i	39 09						EN	
	i	39 22						N	
	e	52.0						EN	
29	P	09 57 29	1.3		09 57.1			ENZ	
	iS	57 46						ENZ	
29	i	11 17 30	v						
30	eP	17 07 08	3.3		17 06.3			WEZ	
	i	07 34						W	
	i	07 42						E.	
	(eS)	07 47						EN	
	i	09 03						WZ	
30	iS	18 29 17	v						
30	eP	21 21 05	3.4		21 20.2				
	S	21 45						EN	

May - 1950:

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Date	Phase	Time	Dist	Depth	Origin Time	Magn	Recorded	Comp	Remarks
1	eP	09 59 12ca	6.0		09 57.7	5.6		EN	
	S	10 00 21						EN	
1		19 58							Possible Activity
	P	20 08 27	Deep				P	EN	
	S	10 31						EN	
1		20 16							Possible Activity
2	P	08 58 31	2.1		08 58.0	5.0		ENZ	
	S	58 56						ENZ	
3	e(Lq)	01 55 33ca					WCA	NZ	Large - amplitude dying - quickly 9 sec. period.
	eLr	56 15ca							
3	(P)	11 15 24					WCA	EN	
	(pP)	15 37						E	
	L	26 57ca						N	
		27 36						E	
4	eP	02 02 21	1.9		02 01.8	4.1			
	S	02 44						EN	
4	(S)	06 21 ca	v						
4	i	09 33 08	d						
4	P	10 43 56	2.3		10 43.3	4.7		N	
	iS	44 24						ENZ	
5		22-24							Local tremors.
6	P	11 34 10	2.3		11 33.6	4.5			
	S	34 37						EN	
6	e	13 07.3	v						
6	eP	13 34 31ca	2.4		13 33.9	4.9			
	iS	35 00							
6	P	14 43 57		(Deep)					
	S	45 24							
6	e	20 08.3	v						
6	i	21 00 59	d						



Date	Phase	Time	Dist	Depth	Origin Time	Magn	Recorded	Comp	Remarks,
6	i	21 35 25	d						
7	P	04 33 ca					WA.	EN	No marks.
	S-P	108 secs.						EN	Drum rate uncertain.
	i-P	254" "						E	
	i-P	415 "						N	
	e-P	430 "						E	
7	P	04 50 ca	1.5			3.9			
7	S-P	19 secs. 18 37						EN	Possible activity.
7	iS	19 49 15	v						
8	iP	13 06 23	1.4		13 06.0	5.0		ENZ	Compression from S.W.
9	iS	06 41						ENZ	
	e	20 26 05ca						E	N not clear
	i	26 31						EW	
	e	28 43						W	
11	eS	03 36 46	v						
12	iS	00 53 19	v						
12	S	06 26 18	d						
13	i	05 10 04	v					NW	
13	eS	12 02.4	v					EN	
13	P	14 59 40	1.8		14 59.2	4.7		EN	
14	iS	15 00 02						EN	
14	P	15 50 14	1.8		15 49.8	4.5		EN	
	iS	50 36						EN	
16	S	00 11 48	v						
16	iP	12 40 09	1.9		12 39.6	4.7		ENZ	
	iS	40 32						ENZ	
16	iP	12 41 45	2.0		12 41.2	5.0		ENZ	Compression.
	iS	42 09						ENZ	
17	S	12 10 12	v					EN	
17	eS	12 30.2	v						
17	eS	14 23.8	v						
17	S	14 58 37	v						
17	eS	16 21.7	v						
17	iP	18 17 41					PWCA	ENZ	
	ipP	17 55						ENZ	
	e(S)	21 07						ENZ	
17	S	23 55 20	v						
18	iP	08 26 28	3.2	Deep				EN	
	S	28 05ca						EN	
19	P	02 42 46					PWA.	ENZ	
	pp	42 57						W.	
	i	43 11						W.	
	S	46 20ca						EN	
	L	47.8						W.	
19	P	07 10 05					PWCA	ENZ	
	pp	10 17						ENW	
	S	13 19						N.	
20		02 02						EN	Possible Activity.
20		02 52						EN	Possible activity.
20	P	18 46 26						EW.	
	ipP	46 45						ENZ	
	S	48 26						(EN)Z	
21		5-8						ENZ	Local tremors.
21		17 20 ca							Local tremors.
21	L	21 52.7						N.	

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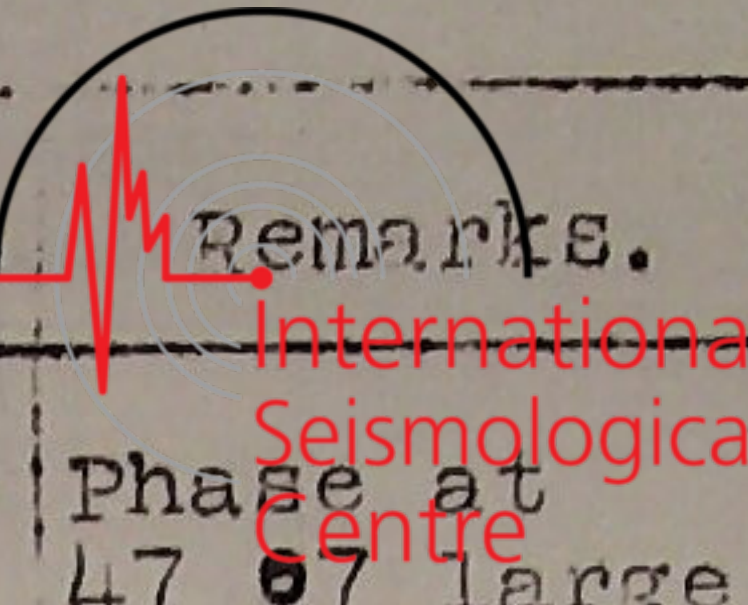
Date	Phase	Time	Dist	Depth	Origin Time	Magn	Recorded	Comp	Remarks
21	iS eL	23 19 16 24.4 25.2					PWA.	E. N E. EN EN	
22	P iS	00 23 12 23 30	1.4		00 22.8				Z out of action.
22	P S	07 14 50 15 20		(deep)					
22	i eS	15 24 10 13 49	v						Possible activity.
23		02 32 21 49						N	Possible activity.
23	S	22 38 59	v						Possible Activity.
24		00 49						E	
24	e	01 04.5	d						
24	i(P)	04 00 25		(deep)			PWCA	(E)	
24	i	04 56 06	d						
24	P S	09 35 26 36 13	4.1		09 34.4	5.0			
24	e	12 35.7	d						
24	e	18 53.7	d						
25	iP ipP i iS! e L	18 44 08 44 31 45 31 51 25 54 37 56.8					PBWA	ENW ENW EN EN EN N	L very small Local tremors.
25		18 45-19 00							
25	e	21 29.4	d						
25	e	21 46.2	d						
25	e	22 13.8	d						
25	e	22 16.1	d						
25	e	22 40.5	d						
25	e	22 44.4	d						
26	eP ipP	01 21 37 21 46					PBWCA	W EN	Z out of action.
	i i (eS) (Lq) (lr)	23 26 24 36 25 34 26.2 27.6						W W EN W W	
26	e	04 24.7	v						
26	e	11 49.7	d						
26	e	14 50.5	d						
26	e	20 28.7	d						
27	i	01 33 50	d						
27		09 09							Local tremors.
27	eP eS L i(SS)	12 44 09 47 54 50 10 50 38 54 55 55 07					PBWCA	EN EN E N E N	
27	P	14 29 05		Deep			PBWCA	ENZ	Large P:S ratio.
	i S	29 25 30 37						W EN	
27	e	18 03.6	d						

Date	Phase	Time	Dist	Depth	Origin Time	Magn	Recorded	Comp	Remarks.
27	e	19 07.8	d						International Seismological Centre Local tremors.
27	e	19 10.4	d						
27		19 14							
27	P	20 41 53	6.1		20 40.4	5.8	F		Local tremors all day.
	S	43 03							
28	P	01 41 16					PBWCA	EN	
	pp	41 27						ENZ	
	i	42 02						W	
	S	45 06						EN	
	i	56 08						N	
28	e	08 13 19	d						Local tremors all day.
28	e	09 19.1	d						
28	P	18 16 51	1.1		18 16.5	3.4		E	
	S	17 05							
29									
30	P	03 04 15	1.3		03 03.9	4.4		E(N)Z	Local tremors all day.
	S	04 31						ENZ	
30	iP	15 06 16	deep				PBWC	ENZ	
	iS	07 57						ENZ	
	e	09 06						N	
30	e	22 08.6	d						Local tremors all day.
30	e	23 55.8	d						
31	e	17 39.3	d						
31	e	21 54 24						E	
	i	55 09						N	
	e	22 04 11						EN	
31	e	22 06.3	d						

June - 1950:

Date	Phase	Time	Dist	Depth	Origin Time	Magn	Recorded	Comp.	Remarks
1	i	01 51 33	d						Local tremors.
1	e	03 28.5	d						
1	e	03 33.5	d						
1		04 44-55							
1	e	05 10.6	d						No time marks.
1	e	07 23 02ca	v						
1	i	13 33 51	d						
1	eP	13 58 01ca						E	
	S	59 00							
	i	59 03							No time marks.
	i	59 09							
2	eP	14 45 ca		(DEEP)					
	eS-P	61secs.							Possible activity.
2	eP	18 30 ca	1.5			3.9			
	iS-P	19secs.							
3	S	11 30 ca	v					EN	C.G.P.E. 21°S 170°E. 100km. 15 18 20.
3		19 21 ca.							
4	iP	15 22 33		deep			PWCA	WENZ	

Date	Phase	Time	Dist	Depth	Origin Time	Magn	Recorded	Comp	Remarks.
5	iS	26 29						EN	International Seismological Centre
5	e	02 15 ca	v						
5	e-i	26 secs.							Possible activity.
5	S	10 08 27	v						
6		04 42 ca							E.&M. be- ing changed Felt MM. II.
6	iP!	19 17 48	1.3		19 17.4	5.4	P	Z	
6	iS!	18 05						Z	Series of local tre- mors.*
6	P	22 30 ca	2.1			4.2			
7	S-P	25secs.							
7		04 30 ca							
7	S	12 10 ca	v						Long coda.
8	e	01 18.8	v						
8	e	01 22.6	d						EN EN
8	eP	03 27 35	1.4		03 27.2	4.3			
8	S	27 53							E EN EN EN EN ENZ
8	eP	03 31 59							
8	iS	32 04							EN EN EN EN ENZ
8	iP	04 35 43							
8	iS	35 17							1.7
8	i	36 38			05 44.4	4.5			
8	eP	05 45 54							v
8	i	46 15							
8	iS	47 05							v
8	iS	07 20 26							
8	S	10 00 33	v						1.5
8	eP	13 29 52			13 29.5				
8	iS	30 11							PWCA.
8	i	30 12						N	
8	eL	17 02.5							deep
8	P	18 16 03							
8	S	18 24							d
9	e	12 21.4							
9	e	23 59.0						EN	EN
10	i	01 45 52	d						
10	i	01 54 14	d						d
10	i	18 21 50							
10	i	19 42 42	d						d
10	e	19 43 35							
11	e	01 05 29	d						d
11	e	09 24 17							
11	e	11 08							Possible activity. C.G.P.E. S. of New- Zealand 22 11 12.
11	e	22 28.1					BWC	N	
11	eL	36.4						N	N E N
11	e	37.6							
11	e	23 05.7					P		Local tre- mors.
12		20-05 on 13.							
12	P	22 13 52	4.5		22 12.7	5.0			E EN EN
12	eS	14 44							
12	eP	23 59 35	2.7		23 58.9	4.2			E EN EN
13	eS	24 00 07							
13	P	11 13 24	2.0		11 12.9	4.8			(deep)
13	iS	13 48							
13	(P)	15 23 35							1.4
13	i(S)	23 58			19 42.9	3.7			
13	eP	19 43 18							Local tre- mors.
13	eS	43 36							
13		20 50-21 10							



Date	Phase	Time	Dist	Depth	Origin Time	Magn	Recorded	Comp	Remarks
14	eP	03 45 08					PRWCA	E	Phase at 47 07 large amplitudes long waves. Long coda. C.G.P.E. 181 1/2 S. 174 1/2 W. 03 44 10.
	i	45 42						EN	
	(S)	46 28						EN	
14	i	04 47 07					PRWCA	EN	Possible activity. C.G.P.E. 17 S 163 E. 04 41 59.
15	e	01 28.7	d						
15	e	06 55.2	d						
15	i	18 18 59	d						
15	i	19 57 15	d						
15	P	23 49 34		deep.			PW	ENZ	C.G.P.E. of Fiji. h= 600km. 23 47 00.
	i	50 16						NW	
	i	50 22						EN	
	iS	51 18						ENZ	
16	eP	13 35 44ca							
	e	36 36ca						E	
	e	41 15ca							
16	e	21 37.3						EN	
17	e	02 39.2						NE	
17	e	02 46.5						EN	
17	P	09 21 23	1.6		09 21.0	4.9		ENZ	
	S	21 43						ENZ	
17	P	20 27 32	2.3		20 26.9	5.1		ENZ	
	iS	28 00						ENZ	
17	iS	20 43 05	v						
17	eP	20 52 05ca	1.8		20 51.6	4.2			Long coda.
	S	52 27						EN	
	e	54.4						EN	
17	e	22 07.8	d						
18	e	00 06.8	d						
18									Scattered local tremors, all day.
19	e	12 58.6					PBWCA	EN	C.G.P.E. 8 S. 112 E. 12 36 58.
	e	13 02.5						N	
	eLq	09.0						N	
	eLr	11.0						NE	
19	P	16 48 10	2.3		16 47.5	5.0		EN	
	S	48 43						ENZ	
20	e	05 27.5	d						
20	e	13 42.2	v						
20	S	14 08 43	v						
20	S	16 40 43	v						
20	(eP)	19 38 31							
	eS	38 54							
20	e	22 16 34	v						
21	(eP)	07 00 01ca					PRWCA	Z	C.G.P.E. 21 S. 169 E. 06 55 39.
	(pP)	00 14ca						ENZ	
	S	04 12						EN	
	L	05.1						N	

Date	Phase	Time	Dist	Depth	Origin Time	Magn	Recorded	Comp	Remarks.
23	CP iS	05.4 08 06 01ca 06 22	1.7		08 06.6	4.6		E E E	International Seismological Centre
24	eP S	13 32 07ca 32 25	1.4		13 31.7	3.9		EN ENZ	
24	P rP S L	22 29 57 30 07 34 14 35.4					PWCA	EN ENZ EN N EZ	
25	eS	05 28 33	v						
26		21-01. on 27							Local tremors.
27		08 55 ca							Local tremors.
27		12 56 ca							Local tremors.
27	i	16 36 43	d						
27	S	23 10 42	v						
28	eS	06 25 25	v					N	
28	i	20 36 44	d						
29	P S	07 22 21 23 03ca	3.6		07 21.4			EN EN	
30	e	02 57.4	d						
30	e	09 49 34	d						
30	eP S	23 23 03 23 19	1.3		23 22.7	3.9		ENZ	

Seismological Bulletins Received:

Batavia: July - September, 1949.  
 Beograd: October, 1949 - February, 1950.  
 Brisbane: January - March, 1950.  
 Bucarest: November, 1949. January, 1950.  
 Budapest & Kolocsa: November, 1949. January - February, April, 1950.  
 Cleveland: November - December, 1949. March - April, 1950.  
 Colombo: March - May, 1949.  
 Copenhagen: January - December, 1941. No. 11.  
 Bulletin of the Seismological Station Scoresby Sund: September, 1946 - December, 1947. January - December, 1948.  
 Czechoslovakia: Bulletin Seismique des stations Seismologiques de Praha et de Cheb Annee 1948.  
 De Bilt: January - March, 1950.  
 Delhi: June, 1949.  
 Government of India: July, 1949 - December, 1949.  
 Granada: October, 1949. December, 1949. January, 1950. March, 1950.  
 Harvard: July 1, 1949 through December 31, 1949. No. 33.  
 Helsinki: January - March, 1950.  
 Japan: December, 1949. February, 1950.  
 Japan: The Seismological Bulletin of the Central Meteorological Observatory, Japan, for the years 1940, 1941 and 1942.  
 Kew: February - April, 1950.  
 La Plata: January - December, 1947.  
 Lisbon: December, 1949. Anais do Observatorio Central Meteorologico do Infante D. Luis. Vol. LXXXIV. 1946. III Parte. Observacoes Seimologicas.

Seismological Bulletins Received (Contd.)



Melbourne

1949

Ottawa

September and October, 1949.

Pasadena

Preliminary: January - March, 1950.

Pasadena and auxiliary stations April 1 - September 26, 1949.

Pennsylvania:

January - December, 1949.

Perth:

30 September - 29 December, 1949.

January - March, 1950.

Port of Spain Castle

January - March, 1950

Rome:

December, 1949 - January, 1950.

Strasbourg.

Bulletin Geologique et Geophysique Internationale.

November - December, 1949. 28 February, 1950

Institut de Physique du Globe de Strasbourg.

30 February - 3 March, 1950.

Bulletin du Bureau Central Seismologique

Francais: January - February, 1950.

Stuttgart:

October - December, 1949. Jan 1950.

Toledo.

October, 1949 - April, 1950.

U.S.G.C.S.

Preliminary Epicentres: Nos. 27-66, 50  
12-823, 50

Wellington

D.S.I.R. December 1949 - February, 1950.

Seismological Reports for January - September, 1948

Apia, Western Samoa.

G.A.M. King.

14th July, 1950

OBSERVER-IN-CHARGE

Apia Observatory, Western Samoa.

Preliminary Seismological Bulletin.



International  
Seismological  
Centre

No. 3 1950:

July - September, 1950.

Latitude: 13° 48' 26" S.  
 Longitude: 171° 46' 30" W.  
 or 11h.27m. 6s.W.  
 Geocentric Direction  
 Cosines: a=-9615, b=-1390, c=-2371  
 Altitude: 2 metres.  
 Lithological Foundation: Coral sand on volcanic rock.

Instruments:

Horizontal Components: Short period Wood-Anderson  
 torsion Seismograph. Magnification 1150  
 Wiechert 1000 kg. astatic  
 pendulum (Bartels)  
 Vertical Component: Wiechert 80 kg. vertical  
 pendulum (Spindler and Hoyer)

Tables for Computation:

H. Jeffreys and K.E. Bullen, Seismological Tables, 1940.  
 H. Jeffreys, Times of Transmission for small distances  
 and focal depth, 1936.  
 G.J. Brunner and J.B. Macelwane, The Brunner focal depth-  
 time-distance chart.

Time Service:

The Standard clock, Strasser and Rohde No. 381, is rated  
 daily against radio time signals. A "Synchronome".  
 clock is used to time-mark the records.

All times are entered in Greenwich Mean Time (Universal Time)

The column 'Reports' refers to the fortnightly airletters  
 received from Pasadena, Brisbane, Wellington and Christchurch.

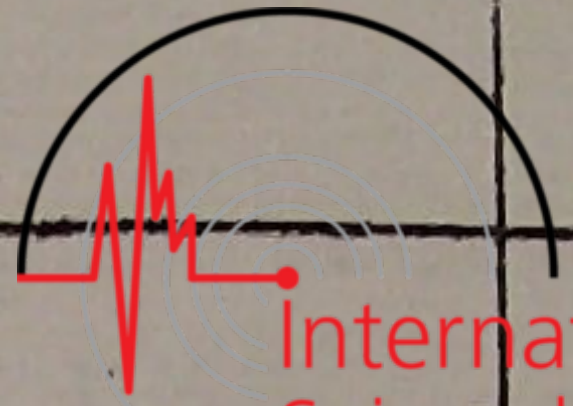
In the Distance column d signifies less than 1°, v less than 10°,  
 r greater than 10°.

Epicentres given in the remarks column are U.S.C.G.S. preliminary  
 determinations unless otherwise stated.

July - 1950:

Date	Phase	Time	Comp	Max. W.A. Amp.	Airletters Reports.	Remarks.	D.
1.	S	00 49 14	EN	1.4			v
1	e	08 06 03 <sup>ca</sup>	N	0.7			v
1	e	08 33.3	E	0.7			v
1	e	18 18.2	EN	0.9			d
1	eS	18 35.2	E	1.2			v
1	e	18 47.1	EN	1.0			d
1	i	20 03 23		1.1			d
1	e	20 19.3		0.7			d
1		21 40 ca	EN			Possible activity.	
1	e	22 04.4	EN	0.6			d
1		23 07 ca	EN			Possible activity.	
2	iS	03 47 31	EN	5.2			v
3	eP	10 12 37	W		PBWC	8° N. 141½° E 10 03 36*	
	ipP	12 48	W				
	e	17.3	E				
	e	24.7	N				
	Lq	28.3	EN				
	Lr	30.8	EN				





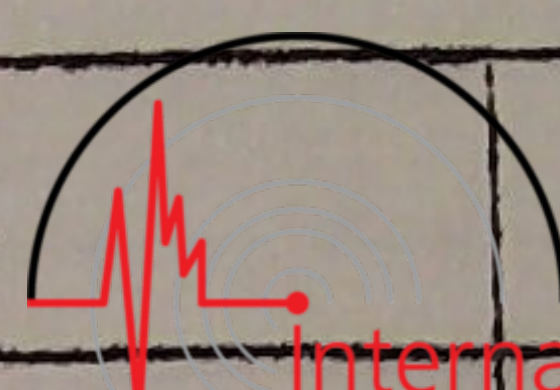
International  
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Date	Comp	Phase	Time	Max W.A. Amp.	Airletters Reports	Remarks.	D.
3	EN	eP	10 39 17				
	ENZ	S	39 47	4.3			
3	W	eP	12 31 52		PBWC	Tonga Is. 200km. 12 29 33	
	NW	(e)	32 27ca				
	WN	e	33 34	1.1			
	EN	i	34 49				
	NE	i	36 11				
	NE	e	36 45				
	NE	e	45.5				
4		iS	14 29 58	1.2			d
5	EN	e	01 45				
5	W	P	03 39 48		BWC	19°S. 168°E, 03 34 59*	
	E	e	43.3				
	EN	e	45.6				
5	EN	S	05 39 10	2.2			v
6	EN	eP	02 07 13ca				
	N	e	20.2				
	EN	e	26.7				
6	EN	e	04 19.2	1.0			d
6	W	P	11 08 11	0.5	W	Deep.	
		S	10 21				
7		S	15 48 35	1.3			v
7	ENZ	P	16 15 09				
	ENZ	iS	15 30	18			
7	W	P	16 52 02		PBWC	11°S 163½°E 16 46 55*	
	WENZ	pP	52 10				
	W	(i)	54 23				
	EN	S	57.1				
	E	Lq	59.2				
	WEZ	i	59 30	0.6			
	EN	Lr	17 00.3				
	E	ScS	02.0				
7	E	e	21 53.2	1.3			d
7	ENZ	P	22 39 15				
	ENZ	S	39 36	6.3			
		e	23 58.6	1.4			d
8	EN		03 14			Possible activity.	r
8	EN		07 40			Possible activity.	r
8		e.	09 49.5	1.5			d
8	N	eP	17 32 08				
	ENZ	S	32 42	3.9			
8	EN	i	19 34 04	1.3			d
8	EN	e	19 35.3	0.7			d
8	EN		23 54			Possible activity.	r
8	EN	S	23 55 22	1.3			d
9	N	eP	00 08.1		BWC	10°S 161°E 00 03 02*	
	E	e	09.1				
	NE	e	16.3				
	N	e	18.2				
	E	e	22.5				
9	W	P	01 49 19		PWC	33°S 112°W 01 39 29*	
	EN	S	57 48				
	EN	i	02 05 33				
	EN	e	07.3				
	EN	i	11 28				d
9	EN	i	03 52 10	1.2			
9	EN	e	03 56.5	0.7			d
9	N	e	05 03.3		PBWC	Mag 7.8½°S 71°W 600km. 04 39 57*	
	EN	e	06.3				
9	EN	S	15 55 21	15			v
9		eP	18 40 24ca				
	EN	S	40 50	2.2			
10		eP	04 25 41				
	EN	S	26 01	2.5			



Date	Comp	Phase	Time	Max. W. A. Amp:	Airletters Reports.	Remarks.	D.
10	N EN	eP S	13 53 36 55 19	3.2	BW	Short coda. 21°S 178½°W 600km. 13 51 20*	
11		eS	05 42 57	1.5			v
11		e	07 00.5	½			d
11		iS	13 19 02	0.8			d
12	ENZ ENZ WZ	eP S e	11 49 37 50 38 54 40	12	PBWC	Tonga Is. 100km. 11 40 12*	
12		iS	15 33 39	1.2			d
13	E	(eP)	19 31 10ca				r
13	EN	i	20 31 10	1.1			
14	ENZ ENZ	iP! iS!	01 33 28 34 25			<u>Deep.</u>	
14		e	11 19.5	1.3			d
14		e	22 25.6	0.7			d
15	EN	i	02 27 10				r
15		eS	05 50 12	1.3			d
15		iS	05 55 18	2.4			v
15	EN ENZ	eP eS	10 30 23 31 06	2.3	P	Tonga Is. 10p 28 56** 100km. mLong coda.	
15	EN EN	eP	13 30 45 31 39	2.4	P	Tonga Is. 13 29.01	
15	EN ENZ	P iS	15 29 19 29 41	6.8	(P)		
15		S	23 35 04	1.5			v
16	EN	S	01 27 57	1.4			v
16		iS	08 05 15	1.1			d
16		i	11 48 48	0.6			d
16	EN EN	P S	12 41 20 41 39	2.2			
16		S	17 38 21	0.9			d
17	EN EN	EP iS	00 54 21ca 54 40	3.4			
17	EN	e	07 06.2	0.8			d
17	EN	e	07 10.4	0.6			d
17	N EN	eP iS	11 46 12 46 43	3.0			
17	N EN	eP S	17 10 51 11 08	2.2			
17	N(E)	S	20 25 22		PWC	20½°S 171°E 20 17 50*	r
18	E	e	02 16.5	½			d
18	N(L)	(S)	11 13.0				
18	ENZ EN (MP)	iP i (S)	12 33 39 33 51 34 25 ca			Long coda.	
18	NE W	i	35 13 37 04	1.0			
18		e	14 56.3	½			d
18	EN EN	eP S	20 31 31ca 31 59	2.6			
19	E		02 56			Possible activity.	r
19		i	17 37 07	1.0			d
19	E	e	22 22.2	1.0			d
19	E	i	22 26 21	2.3			d
20	E	e	01 45.3	1.5			d
20	EN	i	04 47 14	1.6			d
20	EN	i	04 48 21	1.3			d
20	ENZ (N)W	iP pP	09 34 19 34 33	1.5	PBWC	17°S 174°E 09 30 48*	
20	WN	i	37 19				
20	EN	iS	37 52				
20	E	S	15 26 37	1.3			
20	P	i	17 28 50	1.4			
20	P(N)	e	21 49 ca				

Date	Comp	Phase	Time	Max. W.A. Amp.	Airletters Reports.	Remarks.	D.
1	EN	eP	16 25 49				
	EN(Z)	iS	26 15	2.6			
1	EN	e	16 42.4				
1	E!NZ	iP	20 36 29		BWC	15½°S 168½°E 20 32 01*	
	W	pP	36 49				
	N!EZ	iS	40 13				
22	EN	e	02 46				
22	N	eP	11 11 17				
	ENZ	iS	12 07	6.5			d
22		i	22 30 08	1.8			d
22		i	22 30 49	1.3			
22	WZ	iP	23 12 47	1.0	PBC	E&N out of action. Deep. New Hebrides 23 07 45**	
	WZ	(S)	16 34ca				
23	EN	P	04 28 41				
	ENZ	iS	29 01	4.0			
23	N	eP	09 22 18ca				
	EN	S	22 43	2.2			
23	WZ	iP	15 55 11	1.0	PBWC	E&N out of action compression Deep. 16°S 165°E 15 50 06*	
	Z	S	59.2				
25	ENZ	P	10 50 29				
	ENZ	iS	51 00	30			
25	EN		21 40			Possible activity.	r
25		S	01 17 25	1.5			v
27	ENZ	P	17 32 2	1.0	B	17°S 179°W 600km. 17 30 29*	
	NE	(S)	33 44				
27		iS	21 58 39	1.4			v
27		e	23 28.7	½			d
28		eP	00 05 52				
	EN	S	06 29	2.8			
28		i	02 23 17	0.7			d
28	W	(P)	04 59 51		PBC	E&N Traces overlapping	
	WZ!	i(P)	59 56				
	W	pP	05 00 01				
	W	(S)	03 50 ca				
28	W	(eP)	05 26 32		PBC	E&N Traces overlapping.	
	W	i(P)	28 13	0.7			
	W	(S)	31 32ca				
28		e	05 58.4	½			v
28		eP	06 35 17				
		iS	35 51	3.8			
28	N	eP	17 25 36				
	EN	iS	25 53	2.5			
28	EN	e(P)	20 34.6				r
	EN	e	54.1				
29		eP	11 52 16				
		S	52 40	0.7			
29		iS	16 02 25	1.2			d
29	ENZ	iP	16 56 21	½	BC	Compression from W. Deep. Very small L. waves.	r
	N(E)	iS	17 04 48				
29	EN	iS	21 17 27	2.2			v
29	W	P	23 55 37		BWC	6°S 155°E 23 48 58* Mag. 7.	
	EN	i	55 41				
	WZ	i	55 56				
	NE	eS	24 01 20				
	N	L	03.1				
	E		04.3	½		Long period.	
30		eP	02 01 44				
	EN	iS	02 33	3.6			
31	EN	iS	03 05 29	1.2			v
31	EN	e	05 18.3				r
31		eP	06 27 29				
	EN	S	27 59	2.3			
31	EN	iS	07 22 56	1.5			v



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August 1950:



Date	Comp	Phase	Time	Max. W.A. Amp.	Airletters Reports.	Remarks.	
1	NE	e	00 25.0		BWC		P
1	NW	(P)	03 01 36		P		d
1		e	04 58.7	1/2			
1	ENZ	P	06 32 11	2.3			
1	ENZ	iS	32 32	14		Disturbed by thunder.	
1	EN	eP	11 17 07	1.3			
2	ENZ	S	17 25	4.8		Deep. Compression	
2	ENZ	iP	06 05 19	1.1			
2	E	iS	06 20	0.5			v
2	EN	eS	11 12 08	1.7			
2	W	eL	11 15.7		PBWC	12°N 143°E 10 50 07.	v
2	EN	eS	12 42 19	1.3		W.A. out of action.	
3	EN	P	06 17 27ca				
3	ENZ	iS	17 49				d
3		e	20 29.7	0.8			
4	EN	P	16 10 22	0.7			
4	ENZ	eS	10 43	7.0			d
4		S	16 44 17				
5	EN	P	04 58 18				
5	ENZ	S	58 37	3.1			
5	ENZ	iP!	09 24 37	0.5	PWC	Compression from S.S.E. 50°S 164°E 09 16 48.	
	W	pP	24 46	0.7			
	N	iS	30 32				
	NE	i	30 42				
	N	Lq	33 45				
	N	Lr	38.0				
	EN		42.0				
6		eP	12 45 41			Long coda.	
	ENZ	e	45 54	2.7		Samoa 12 54 25.	
	ENZ	iS	46 21	11			
6	EN	eP	15 36 38	1.2			
		S	37 17			Short coda.	
	ENZ	i	37 19	10			
7	EN		02 09 ca		B	Possible activity.	
7	ENZ	iP	02 55 33		PWC	Deep.	
	W	(pP)	56 09	0.7			
	W	i	56 43				
	W	i	57 26				
	ENZ	iS	03 04 09	1.0			
7	EN		07 11 ca			Possible activity.	r
7	ENZ	iP	10 53 33			W.A. out of action.	
	ENZ	iS	54 07				
8	E: N	iP	03 02 38		P	W.A. out of action. Deep.	
	EN	(S)	04 09			Fiji 600km 02 59 16.	r
10	N	e	02 27.5				
	EN	e	47.2				d
10	EN	S	06 22 47	0.8			
10	W	(P)	10 55 27	L 1/2			
	W	(S)	56 09	L 1/2			d
10	EN	e	16 17 16	L 1/2			r
10	N	(S)	18 03 05			20°S 168°E 17 55 08.	
10	EN	eP	21 28 34	1/2		(Deep).	
10	(EN)	iS	28 57	1.0			d
11	N	e	06 51.8	1/2			
11	EN	eP	12 15 25ca				
	ENZ	iS	15 49	2.8			
11	EN	(S)	20 24 45		BWP	Tonga 20 20 52.	
		L	26.2				
12	N	e	05 57.4	1			d
12	N	e	09 06.4	1			d
12	EN	eP	20 38 49	0.9			
	EN	S	39 12	3.2			
13	N	i	07 32 47	0.7			d
13	W	eP	23 0) 43ca				



Date	Comp	Phase	Time	Max. W.A. Amp.	Airletters Reports.	Remarks.	D.
13	W	i	09 56				
	N	i	10 00				
	EW	S	11 42				
	EN	P	23 19 52				
	W	i	19 55				
	EN	(S)	21 31				
	ENZ	i	21 45	2.5			
	ENZ	i	23 23				
14	EN	S	03 53 17	1.1			v
14		e	04 33.2	1/2			d
14	EW	(P)	23 03 06		PBWC	P.P. gives compression from S.E.	
	EW	(e)	04 08			D e e p. 27°S 62 1/2°W 700km. 22 51 28. Mag. 7 1/4 - 7 1/2.	
	WE	(pP)	05 22				
	EW	sP	07 07				
	EW	(i)	07 41				
	ENZW	iPP	08 21	0.7			
	E(N)	PPP	10 27				
	ENW	iS	13 49	0.7			
	N	e	14.8				v
15	EN	S	09 39 57	2			
15	ENZ	P	14 23 10		PBWC	28 1/2°N 97°E 14 09 30. Mag. 8 1/4 - 8 1/2.	
	W	pP	23 20				
	WEN	i	24 12				
	EW	PP	27 19				
	WZE	PPP	29 26				
	N!E	iS	34 43				
16	EN	eP	03 28 08	1/2			
	ENZ		28 25	3.0			
16	N	P	05 38 27	0.7			
	ENZ	S	38 48	2.3			
16	EN	eP	11 19 19	1/2			
	ENZ	iS	19 39	4.2			
16		e	12 11.4	1/2			d
16	EN	S	14 00 50	0.6			v
17		eS	12 34.8	0.4			d
17		(P)	13 28 03				
	EN	S	28 13	2.6			
17	ENZ	P	14 23 51	6		12 1/2°S 172°W 150km. 14 23 16.	
	ENZ	S	24 31	33			
17	ENZ	P	16 17 53		PW	Compression from S.W. Deep.	
	W	i	17 56	4.4		Drift at 19 43 on E.&N.	
	ENZ	S	19 49	10		21°S 180° 600km 16 15 22 Mag. 6 3/4 - 7.	
	EW	iScS	29 12				
18	EN	S	01 04 15	0.8			v
18	EN(7)	P	02 45 37	1.3			
			45 59	7.5			
18	N	e(P)	04 41 08			Long coda.	
	ENW	(pP)	41 33	0.7			
	NW	i	41 55				
	NE	e(S)	42 25			Long period.	
	W	e	46 21			Short " .	
	EN	e	46 48			Long " .	
18	EN	eS	05 57 13	1.2			d
18		eS	10 43 09	0.6			v
18	EN	eS	20 23.2	0.7			v
19		eP	06 34 27ca			E&N. out of action.	
	Z	iS	34 47	10			
19	EN	e	22 25.2	1			d
19	EN	e	22 26.1	1			d
20		eS	21 45 49	0.9			d



Date	Comp	Phase	Time	Max. W.A. Amp.	Airletters Reports.	Remarks.	D.
20	WEZ	P	23 39 05		PB	15°S 167°E 23 34 19.	
	W	pP	39 15				
	N	e(s)	42 43				
	EN	e	47.1				
22		S	01 07 39	1.2			d
22		S	04 02 56	0.8			d
22		e	04 44.1	1/2			d
22		iS	15 04 56	1.3			v
22		eS	15 36 21	0.7			d
22	Z	iP	16 52 00	2.7		E. & N. out of action.	
	Z	iS	52 21	13			
23	WZ	iP!	03 54 52			Felt Apia MM II.	
	Z	S	55 03	52		E. & N. out of action.	
23		iS	09 08 27	1.3			d
23	Z	iS	19 58 37	3.5			v
24		i	03 17 49	0.7			d
24		e	04 46 50	0.6			d
24		e	04 49 47	0.8			d
24			14 49.5	1/2			d
26		e	07 19.7	0.7			d
26		eP	12 34 07				
		S	36 26				
26		eP	14 08 07				
		S	10 10				
26		eP	19 50 34				
		S	52 56				
26		e	20 33.1	1			d
27		eP	02 54 00				
		S	56 13				
27		(eP)	10 54 08				
		i	54 19				
		i	54 25				
		i(s)	56 08				
27		eP	11 12 16				
		(S)	14 55				
27		eP	11 32 24				
		i	32 44				
		S	34 23				
27		e	23 26.8	1/2			d
28		e	00 49.8	1/2			v
28		P	15 19 04				
		(S)	21 55				
28		(eP)	16 31 48				
		(S)	34 07				
28		eP	16 40 30				
		e	40 55				
		(S)	42 46				
28		eP	17 02 07				
		e	02 20				
		(S)	04 13				
28		e	20 04.5	1.2			d
28		e	20 08.4	1.6			d
28		e	20 23.9	1.5			d
28		e	20 28.2	1.4			d
28		P	21 21 04				
		(S)	23 13				
29		eP	00 37 53 <sup>ca</sup>				
		(S)	40 03				
29		eP	11 05 19				
		(S)	07 42				
29		S	11 11 07	1.4			d
29		S	12 42 03	1.1			d
30		eP	02 19 16				
		S	21 02				
30		eP	12 38 51				
		eP	39 45	1.8			



Date	Comp	Phase	Time	Max. W.A. Amp.	Airletters Reports.	Remarks.	D.
30		(S)	23 18.0				12°E
31	W	P	07 16 22		DBWC	E&N out of action. Deep.	r
	W	i	16 25	1.0		6°N 126°E 07 05 35 Mag. 7.	
	W	i	16 45				
31		S	16 44 40	1.3			v
31		e	21 27.	1/2			d
31		P	22 41 57ca				
		S	42 21	1.4			

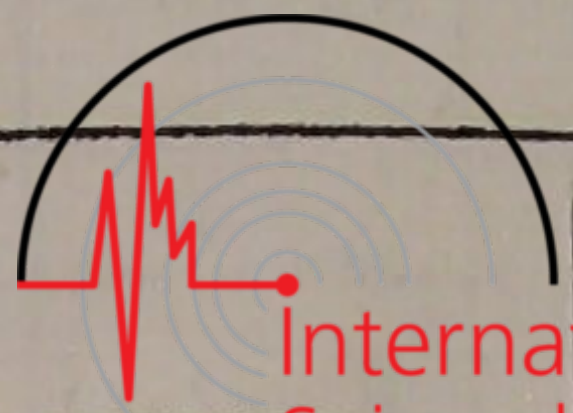
September 1950:

Date	Comp	Phase	Time	Max. W.A. Amp.	Airletters Reports.	Remarks.	D.
1		(S)	03 16 03	L 1/2			v
1		(P)	10 20 08ca				
		(S)	22 14	1/2			
1		(P)	14 24 12				
		i	24 36				
		(S)	26 18				
1		eS	16 08 56	0.7			d
1		eP	16 51 06				
		(S)	53 07				
1		eP	19 29 46				
		(S)	31 47				
2		eP	13 13 53				
		S	15 54				
2		eS	16 23.2	1.0			d
3		eP	00 36 22			Fiji 00 33 20.	
		(S)	38 19				
3		eP	01 06 30				
		(S)	08 29				
3		(S)	04 10 45	L 1/2	PBC		12°E
4		S	04 43 38	1.7			d
4		e	19 32.3	0.8			d
5		e	09 52.3	0.7			d
6		S	19 (39) 07	1.0			d
6		P	20 13 05				
		S	14 55	2.0			
6		S	22 04 02	1.8			v
7		i	02 00 01	0.6			d
7		P	14 58 04	0.7	BW		
		iS	58 58	3.7			
7		e	16 15.8	0.7			d
7		eP	20 37 25				
		S	37 40	3.5			
7		e	20 51.8	1/2			d
7		S	21 22 20	1/2			d
8	W	eP	07 00 39		PW	Deep.	
	W	i	02 20	0.6		Fiji 600km 06 58 30.	
8		P	16 27 21				
		S	27 42	2.0			
8		P	16 59 58	1.5			
		S	17 00 18	7			
9		eP	10 28 05	2.0			
		S	28 24	7			
9	W	L	10 41.2		BWC	Beginning lost in local shock. E&N. out of action. 4°S 153°E 10 21 40 Mag. 6 1/4.	
9		P	12 43 43	1/2			v
		i	44 03	1.4			
9	W	iP	12 46 21			E, & N. out of action.	

Date	Comp	Phase	Time	Max. W.A. Amp.	Airletters Reports.	Remarks.	D.
	W	e	47 21			15°S 171°W 12 42 34.	
	W	S	49 49				
9	W	e	16 57.5				
9		i	21 32 26	1.1			d
9		i	23 22 05	L $\frac{1}{2}$			v
10		S	00 20 43	L $\frac{1}{2}$			d
10			00 49 09	L $\frac{1}{2}$			d
10		S	01 29 02	L $\frac{1}{2}$			d
10	W	P	15 20 44		BWC	14°S 167°E. 15 15 57 Mag. 7. E.&N. out of action. Deep.	
	W	S	24 22				
10	W	P	18 27 32				
	W	S	29 19	0.7			v
11		e	00 06.5	$\frac{1}{2}$			
11	ZW	eP	01 15 20	2.2		Long coda. Samoa 01 14 50.	
	ZW	iS	15 39	8.7			
11	W(Z)	eP	09 10 54	0.8			
	ZW	S	11 12	4.0			
11		S	10 12 31	1.7			d
11		eS	20 11 31	2.2			v
11		eS	20 12 47	1.6			v
12		iS	07 55 31	1.5			d
12	W	P	22 14 17				
	W	S	18.4				
12		iS	23 58 33	1.3			v
13		e	17 55 13	0.4			d
14		eP	03 17 22	0.8			
		eS	17 43	2.1			
14		iS	11 02 49	2.0			v
14		eS	18 13 21	0.8			v
15		eP	03 59 10	0.6			
		S	59 35	1.0			
15		S	07 58 50	0.7			v
15		eP	11 28 51	1.3			
		iS	29 16	3.4			
15		P	14 17 23	0.4	PBWC	23°S 176°W 100km 14 14 30.	
		eS	19 29	1.3			
15		P	16 14 05	0.7			
		iS	14 26	2.2			
15		iS	17 15 03	1			v
15	Z	iP	19 06 09		PBW	Compression. Deep. E.&N. out of action	
	Z	iS	06 53			W being changed 16°S 175° W. 250km. 19 05 08.	
15		P	23 01 10	0.6			
		S	01 40	1.7			
16		iS	00 57 19	4.0			d
17	W	eP	15 01 42				
	W	eS	03 36	$\frac{1}{2}$			
17		eP	23 19 49	0.8			
		eS	20 32	1.7			
18		eS	07 43 13	1.4			v
18		S	11 17 50	0.6			d
18	W	eP	12 48 37	0.6			
	W	i(S)	51 13	$\frac{1}{2}$			
18	ENZ	eP	17 25 47	1.0		Long coda.	
	EN	i	26 01				
	ENZ	iS	26 09	3.5			
18		S	17 38 23	$\frac{1}{2}$			v
19	W	(P)	02 38 33	L $\frac{1}{2}$	W.	E.&N. mechanically distur- bed. (Deep). S. of Fiji 02 35 00.	
	W	(S)	40 47	$\frac{1}{2}$			
19		S	16 43 45	1.3			d







Date	Comp	Phase	Time	Max. W.A. Amp.	Airletters Reports.	Remarks.	D.
19	ENZ	P	20 38 51		PBWC	2° S 138½° E. 20 29 48 Mag. 7.	
	pP	W	39 07				
	EN	PP	40 36				
	EN	S	46 10				
	E(N)	Lq	47.1				
	EN	Lr	48.2				
20		P	07 03 00	1.5			
20.	ENZ	iS	03 30	6.5			
20		eS	12 22 26	1.3			v
21	W	P	01 30 07	½			r
21		e	04 13.4	1.1			d
21		i	04 49 28	½			d
21		eP	07 50 57				
		iS	51 16	2.2			
21		eP	09 52 05				
		iS	52 23	2.1			
21		e	21 24 53	½			d
22	EN	e	08 05.5		PW	W. out of action.	
	N	e	07.3			25° S 114° W 07 52 07 Mag. 6.8	
	EN	e	08:0				
	NE	iS	09 42				
	EN	e	16.7				
22	ENZ	iP!	23 55 08		W	Dilatation. W. out of action.	
	EZ	i	56 12			18° S 177° W 450 km 23 53 29 Mag. 7.	
	EN	iS	56 20				
23	NE	e	02 10.9			W. out of action.	
	EN	e	22.7				
23	W	S	20 25 34			Fiji 20 21 55.	10°
25		e	11 15.5	½			d
25	W	(P)	19 41 47				
	EN	L	51.9				
25			20 52.1	½			d
25	EN	(L)	23 48.5		WC		
26		eP	06 34 40				
		S	35 03	2.9			
26		eS	06 37 56	1.1			d
26		(P)	13 19 43			Deep.	
		iS	20 00	1.0			
26		S	15 04 19	2.2			v
26		(S)	18 56 20	L½			v
26	W	(P)	19 26 07				
	W	(S)	27 11	0.6			
27		S	06 17 14	0.7			v
27		S	07 42 25	1.2			v
27	ENZ	P	08 27 15		BPWC	18½° S 175° E 08 23 58.	
	WEN	pP	27 27				
	EN	S	29.7				
	EN		31.0			Regular large waves.	d
27		S	08 53 11	0.7			v
27		S	10 13 51	2.3			
27	W	P	23 53 09	½		Deep.	
	W	S	54 36	½			
28	EN	eP	03 12 33	1.0			
	EN(Z)	S	12 58	6			
28	ENZ	eP	05 41 30	3.5		Felt Apia MM II.	
	ENZ	iS	41 50	26½			
28		eS	14 02 53	0.8			v
29	EN	L	02 39.0				
29	W	(P)	06 43 47		BPC.		
	WE	i	44 07	½			

Date	Comp	Phase	Time	Max. W.A. Amp.	Airletters Reports.	Remarks.	D.
	E(N)	(S)	54.3				
29	EN	(L)	07 03.9				
		eP	15 59 31				
		eS	59 49	1.2			
30		S	02 39 20	$\frac{1}{2}$			
30		eP	02 52 38ca			Short coda.	
	EN	S	53 45	1.2			
30		eP	04 49 19				
		S	50 02				
30	EN	(L)	21 59.3				
30	EN	(L)	22 41.3				



Seismological Bulletins Received:

The receipt of Seismological Bulletins and other information from the following sources is acknowledged with thanks:

- |                                   |  |
|-----------------------------------|--|
| Batavia:                          | October - December, 1949.  |
| Beograd:                          | March, April, June, 1950.  |
| Brisbane:                         | April - June, 1950.  |
| Cleveland:                        | June, 1950.  |
| Copenhagen:                       | 1942, 1944, 1945, 1946, 1947.  |
| De Bilt:                          | April - June, 1950.  |
| Government of India:              | January - December, 1947.  |
|                                   | January - February, 1949.  |
|                                   | January, 1950.   |
| Granada:                          | February, April, May, 1950.  |
| Istanbul:                         | July - December, 1949. January - May, 1950.                            |
| Japan:                            | January, March, 1950.  |
| Jesuit Seismological Association: | October - December, 1949. January, 1950. May 21, 1950.                 |
|                                   | Supplement: August - November, 1949.                                   |
| Kew:                              | May - June, 1950.  |
| Ksara:                            | January - June, 1950.  |
| Lisbon:                           | January - March, 1950.   |
| Macquarie Island:                 | June - August, 1950.   |
| Pasadena:                         | Preliminary: June - July, 1950.  |
|                                   | Pasadena and Auxiliary stations, September 26 - December 31, 1949.     |
|                                   | 1942, 1943, 1944.  |
| Pennsylvania:                     | April - June, 1950.  |
| Perth:                            | May - June, 1950.  |
| Prague:                           | January 24 - December 31, 1948.  |
| Reykjavik:                        | February 23 - December 31, 1949.                                       |
|                                   | February - April, 1950.  |
| Rome:                             | May, 1950.   |
| Skalnate Pleso:                   | Union Geodesique et Geophysique Internationale: January - April, 1950. |
| Strasbourg:                       | Institut de Physique du Globe de Strasbourg: April - July, 1950.       |
|                                   | Bulletin du Bureau Central Seismologique Francais: April - May, 1950.  |
|                                   | January - March, 1950.   |
| Stuttgart:                        | March - June, 1950.  |
| Toledo:                           | Preliminary Epicenter: Nos. 67-50 to 114-50. 117-50.                   |
| U.S.C.G.S.                        | Supplementary List: Nos. S25-50 to S39-50.                             |



International  
Seismological  
Centre

<u>Additional:</u>		<u>August.</u>					
4	EN ENZ	P. iS	11	24 01 24 15	0.5 9		
<u>Additional:</u>		<u>September.</u>					
8		P. iS	00	06 03 06 18	4.6		
<u>Additional:</u>		<u>August.</u>					
22 30	W W	e P (PP)	20 07	03.5 01 11 02 08	0.6	PBWC	E.&N. out of action. 3 $\frac{1}{2}$ <sup>0</sup> S 130 $\frac{1}{2}$ <sup>0</sup> E 06 51 03 Mag. 6 $\frac{1}{2}$ .
							v. r.

Seismological Bulletins Received (Contd).

Wellington: D.S.I.R.: March - May, 1950.  
Seismological Reports October - December, 1948. Bulletin E 114.  
Seismological Reports January - March, 1949. Bulletin E 115.

Observations on Seismic Waves reflected at the Core boundary of the Earth. By Samuel T. Martner.

Apia Observatory,  
Apia, Western Samoa,  
18th October, 1950.  
\* \* \* \* \*

(G.A.M. KING),  
OBSERVER-IN-CHARGE.

Apia Observatory, Western Samoa.

Preliminary Seismological Bulletin.



No. 4. 1950:

October - December, 1950.

Latitude  $13^{\circ} 48' 26''$  S.  
 Longitude:  $171^{\circ} 46' 30''$  W.  
 or  $11h.27m. 6s.W.$

Geocentric Direction  
 Cosines:  $a=-9615, b=-1390, c=-2371$   
 Altitude: 2 metres.  
 Lithological Foundation: Coral sand on volcanic rock.

Instruments:

Horizontal Components: Short period Wood-Anderson torsion Seismograph. Magnification 1150. Wiechart 1000 kg. astatic pendulum (Bartels).  
 Vertical Component: Wiechart 80 kg. vertical pendulum (Spindler and Hoyer).

Tables for Computation:

H. Jeffreys and K.E. Bullen, Seismological Tables, 1940.  
 H. Jeffreys, Times of Transmission for small distances and focal depth, 1936.  
 G.J. Brunner and J.B. Macelwane, The Brunner focal depth-time-distance chart.

Time Services:

The Standard clock, Strasser and Rohde No. 381, is rated daily against radio time signals. A "Synchronome" clock is used to time-mark the records.

All times are entered in Greenwich Mean Time (Universal Time)

The column "Reports" refers to the fortnightly airletters received from Pasadena, Brisbane, Manila, Wellington and Christchurch.

In the Distance column d signifies less than  $1^{\circ}$ , v less than  $10^{\circ}$  r greater than  $10^{\circ}$ .

Epicentres given in the remarks column are U.S.C.G.S. preliminary determinations unless otherwise stated.

October - 1950:

Date	Comp	Phase	Time	Max W.A. Amp.	Airletters Reports.	Remarks.	D.
1		S	00 39 17	1.0			
1	ENZ	P	01 36 03	1.7	C	Felt Apia MM II. Dilatation.	d
	ENZ	S	36 32	6.5		Long Coda. Samoa 01 35 30**	
	EN	i	36 36			Long period.	
	W	i	38 43			Short period.	
1	ENZ	iP	09 29 04	5.8	P	Felt Apia MM II.	
	ENZ	iS	29 24	14		Tonga 09 28 10**	
1	ENZ	eP	14 11 13	2.2			
	ENZ	iS	11 36	8.8			
1		P	17 29 46				
		S	30 04	2			
1	NE	e	20 21.5				r
2		(e)	01 54 05			(Deep)	
	EN	e(P)	54 24	0.8			
		i	55 11				



Date	Comp	Phase	Time	Max. W.A. Amp.	Airletters	Remarks	
2	EN	(S)	55 23	$\frac{1}{2}$			
2		iS	03 54 47	1.0			d
2		P	03 59 23	$\frac{1}{2}$			
2		S	04 02 12			Deep.	
2		iS	(05 12)42	0.8			d
2		eS	08 02 17	1.2			d
2		e	14 20.6	$\frac{1}{2}$			v
2		eS	18 26.5	0.6			v
2		eP	19 29 28				
2		S	29 53	0.6			
2		P	23 15 00				
2		S	16 31	$\frac{1}{2}$			
3	EN		04 04.3				r
3		i(S)	08 50 43	0.7			d
3	E(N)	e	09 11.7		P		r
3	ENZ	eP	11 57 18	2.5	P	Tonga 11 56 10**	
3	ENZ	iS	57 51	$> 1.3$			
4		S	07 21 19	2			d
4		S	16 49 38				v
4	W	P	18 05 54	0.2	B	Similar in appearance to following.	r
4	WENZ	P	18 08 19	0.4	PBWC	19°S. 169°E 18 03 23* This does not agree with reading.	
		S	11 10				
	N	L	11.8				
	E		2.3				
5	NZW	iP	00 45 31		PBW	Dilatation. E.&N. illegible.	
	W	S	49 06			18½°S 170°E 00 41 07*	d
5		S	01 09 13	$\frac{1}{2}$			
5	W(NE)	P	16 22 41		PWC	10½°N 85°W 100km 16 09 34*	
	EN	S	33 08			Mag. 7½ - 7¾.	
5		P	18 00 16				
		i	00 19				
		S	00 31	$> 2\frac{1}{2}$			
6		P	11 38 33	$\frac{1}{2}$			
	EN	S	39 17	2.7			
6		eS	15 59 17	0.8			d
6		e	18 35 23	0.7			d
6	W	(P)	19 09 10	$\frac{1}{2}$		Deep	v
6	W	iP	19 44 26	0.5		Deep.	
6	W	S	45 55	$\frac{1}{2}$			
6		e	21 41 20	1.0			v
6		e	21 53.3	$\frac{1}{2}$			d
7		P	09 37 39	0.4		Deep.	v
7	EN	L	21 53 03ca				
8		eS	00 25 05	0.9			d
8		e	03 22.6				d
8	WEN	iP	03 33 19		PWC	Z. out of action.	
	W	pP	33 31			4°S 128°E 03 23 09* Mag. 7.6	
	EN	i	33 40				
	EN		35 03ca				
	W	i	35 44				
	W	e	36 48				
	E(N)	e	37 17				
	W(E)	(S)	39 48				
	NE	(L)	41 03ca				
	EN	e	47 19				
8		S	05 06 30	1.0			v
8		e	07 21.7	$\frac{1}{2}$			d
8	W	P	11 39 00		P	400 miles S of Fiji	
						11 35 06**	
8	W	S	41 11	$\frac{1}{2}$		Deep.	
	W	(P)	14 56 49		PWC		
	EN	e	15 02.8				



Date	Comp	Phase	Time	Max. W.A. Amp.	Airletters.	Remarks.	
	NE	e	05.6				
	NE	L	08.1				
9		i	06 09 10	1.4			d
9		eP	06 57 53	0.9		Short coda.	
	ENZ	S	58 15	9			
9		e	11 47.2	0.9			d
9		e	20 42 51	0.8			d
9		eS	20 45 18	1.0			d
9	E		23 54.5			Possible activity.	r
10	W	(eP)	07 26 21				
	W	(eS)	27 29				
10	W	(P)	07 33 15	0.9	P	(Deep).	v
10		eP	13 44 16				
	EN	iS	44 33	2.3			
10		S	15 36 59	0.7			d
10	ENZ	iS	16 37 35	3.0			
10	W	P	18 49 24	$\frac{1}{2}$	WC		r
10	WEN	iP	23 17 12	1.0	PB	17°S 179°W 600km 23 15 21* Deep.	v
11	EN		07 00.7			Possible activity.	r
11		(eP)	11 28 38				
	ENZ	eS	28 54	4.2			
11		eP	13 51 27				
	EN	S	52 05	1.7			
11		S	16 29 48	0.6			v
11	EN	L	19 37.0				
12		S	07 01 53	1.2			v
12	N	S	10 12 30	0.9			d
12	EN		10 49			Possible activity.	r
13		S	01 51 47	$\frac{1}{2}$			d
13	EN	iS	09 41 36	1.4			d
13		eS	21 12 27	0.8			v
14	W	P	02 18 37	$\frac{1}{2}$		Deep	
	W	S	20 27	0.7			
14		S	02 46 17	1.0			d
14		S	03 36 34	0.7			d
14		S	07 06 43	$\frac{1}{2}$			d
14		S	22 58 02	0.6			d
15	EN	S	00 04 50	2.4			v
15		P	13 09 07				
	N	S	09 40	0.6			
15	W	P	16 06 30		PBWC	10°S 160°E 15 59 55* Mag. 0.1	
	NE	i	07 14				
	NE	i	08 23				
	EN	S	12 30				
	EN	Lq	13.4				
	EN	Lr	14.3				
15	W	P	18 13 25		PW		r
	W	pP	13 34				
15		P	23 44 23				
	EN	S	45 16	2.2			
16		(P)	07 36 35			(Deep).	v
16	W	(P)	07 36 31			Deep	
	W	S	30 09				
		P	10 31 24	0.6			v
16	W	P	21 16 35			Deep	
	W	S	17 28				
17	W	(P)	(12 50)			Time uncertain.	(r)
17		eP	13 04 09				
		iS	04 51	1.8			
17		eP	13 33 31				
		S	33 51	3.1			
17	W	i(P)	14 03 11	$\frac{1}{2}$			10°ca
17	ENW	P	16 40 27		PBC		
	E	(S)	46 18				



Date	Comp	Phase	Time	Max. W.A. Amp.	Airletters	Remarks.	D.
18	EN	L	49.3				
18		S	00 27 35	1.3			v
18		S	18 34 19	1.5			v
18			19-20			Series of local tremors.	
19	EN	(P)	09 55 58		PBWC	W. out of action. Recording mechanically disturbed.	
	Z	(P)	56 01				
	EN	S	59 46				
	EN	L	10 01.2				
19		i	13 24 13	$\frac{1}{2}$			v
19		e	20 18.2	$\frac{1}{2}$			v
20	EN	e	02 24.7		P	Long period.	r
	EN	e	42.8			Long period.	
20			03-07			Series of local tremors.	
20		P	05 10 32				
		S	10 53	1.4			
20		P	05 35 32				
		S	36 06	2.0			
20		S	06 16 57	1.5			v
20		(P)	14 04 28	$< \frac{1}{2}$			10ca
20			17-23			Series of local tremors.	
21	ZEN	iP	04 14 09		PBWC	Compression.	
	Z(EN)	iS	15 01			18 $\frac{1}{2}$ <sup>o</sup> S 174 <sup>o</sup> W 100km. 04 12 59*	
	Z	iP&P	20 47			Mag. 6.4 - 6 $\frac{1}{2}$ .	
21	W	P	09 54 41		PWC	17 $\frac{1}{2}$ <sup>o</sup> N 106 <sup>o</sup> W 09 42 58* Mag. 7 $\frac{3}{4}$ ca	
	EN	e	10 14.6				
	EN	L	16.0				
21		S	13 20 19	1.5			d
21		P	14 03 32				
		S	04 11	0.6			
21		i	17 35 21	$< \frac{1}{2}$			v
21		S	21 13 26	1.0			d
21		S	21 50 29	$\frac{1}{2}$			d
22		(S)	11 01 05	$\frac{1}{2}$			d
23		e	11 35 08	$\frac{1}{2}$			d
23	W	P	16 26 09		PBWC	14 $\frac{1}{2}$ <sup>o</sup> N 92 <sup>o</sup> W 100km 16 13 24*	
	EN	e	32.3			Mag. 7.0 - 7.2	
	EN	e	35.5				
	EN	(S)	36.2				
	EN		48.2			Very long wave.	
23		S	21 05 07	$\frac{1}{2}$			d
24	W	P	01 50 03		BC	Very short period for the distance.	
						Kermadec 01 45 25**	
24	EN	S	54 13				
	W	(P)	01 59 56				
	W	(S)	02 02 35				
24		S	07 01 05	0.6			d
25	W	P	00 29 19				
	W	S	30 49	0.6			
25		S	04 53 15	1.1			d
25	EN	L	09 01.4		PBW	6 $\frac{1}{2}$ <sup>o</sup> S 155 <sup>o</sup> E 08 44 07*	
25	E	(L)	16 18.9				
	N		19.7				
25	W	P	16 19 49	$< \frac{1}{2}$		W. not recording from 20h. on the 25th till 09h. on the 8th of November.	r
26	EN	P	03 54 16		PBC		
	EN	S	57 52				
26	EN	P	07 15 03 <sup>ca</sup>		PBWC	11 <sup>o</sup> S 171 <sup>o</sup> E 07 10 42*	
	EN	S	18 39				
26	EN	P	15 43 08		PBC	32 <sup>o</sup> S 178 <sup>o</sup> W 15 38 43*	
						Mag. 6 $\frac{1}{2}$ - 6 $\frac{3}{4}$ .	
	EN	S	46 43				
27	EN	L	01 57.5				
27	EN	S	21 33 21		PBWC	15 <sup>o</sup> S 167 <sup>o</sup> E 21 28 41*	r

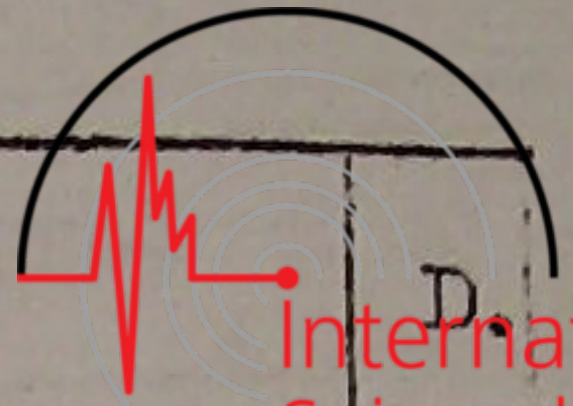


Date	Comp	Phase	Time	Max. W.A. Amp.	Airletters.	Remarks.	D
28	EN N	e e(S)	37.4 02 42.2				r
28	E EN ZEN NE N E	e P S L	42.6 03 00.7 09 10 04 13 13 13.4		PBC	32°S 177½°W 09 05 38*	
30	ENZ	P	13.7 02 26.37		PW	Felt Apia MM III. Felt Tuasiyi. Felt Piula.	
31	ENZ N	S (L)	26 58 20 55.8			14°S 173°W 100km 02 26 15*. 23½°N 108°W 20 22 30*	

November - 1950.

Date	Comp	Phase	Time	Max. W.A. Amp.	Airletters.	Remarks.	D
2	NEZ NE N(E) E(N) N(E) N E EN	iP PcP PP i PPP SP PS iS	15 37 50 38 45 39 47 40 41 41 07 43 45 43 51 45 46		PBMWC	6°S 129½°E 15 27 49* Mag. 7¼-½.	
2 4	EN EN EN	e(P)	21 10 02 17.2			Possible activity. Record badly disturbed by working in the room. Possibly completely artificial.	r
4	EN EN EN ENZ EN EN EN	e(S) e e iP i S	27.5 40.5 03 02.4 07 27 15 27 39 31 01ca		PBWC	Dilatation. (Deep). 15°S 167°E 200km. 07 22 50*.	
5 6 6	EN EN EN EN EN	S (P) eS (P) eS	09 10 05 51 16 09 56 16 10 00 40 10 52 16 57 46		W	Possible activity. No time marks on N.	r v
6	EN ENZ	L P	58.1 22 28 38		PBWC		
8	EN E	eS e	35 40ca 02 06.3				r
8	EN NE NE	e P S L	07.4 02 24 13 28 49 30.3		PBWC	9½°S 150½°E 02 18 09* Mag. 7¼-½.	
8 8 8 8 8 8	N E	e(P) e e e e eP	06 48 55 11 58 ca 12 00 31 14 43 ca 19 53 ca 20 35 ca 21 32 52	0.7 0.8 0.6 0.8	W W		r d r v d d
8	ENZ EN	iS iS	33 10 21 33 56	4.7 5.0		Same form as preceding.	v

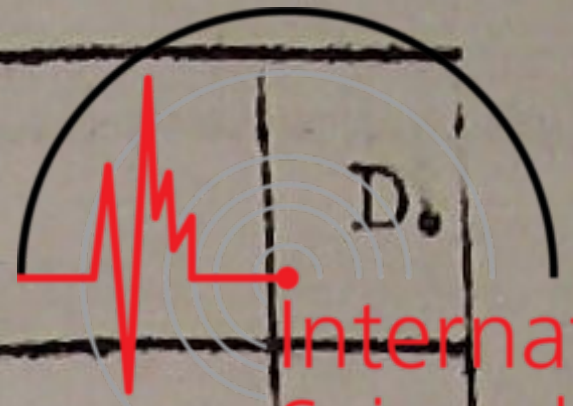




Date	Comp	Phase	Time	Max. W.A. Amps.	Airletters.	Remarks.	
10		S	02 10 14	2.6			v
10	ENZ	iP	05 03 22	4.3	PBWC.	Dilation. <u>Deep.</u>	
	ENZ	iS	04 20	12.5		16°S 176°W 350km. 05 02 05*.	
		i	06 25				
		i	07 40				
		i	08 34				
10		eP	18 26 55	0.6			
		iS	27 15	5.2			
10		e	18 52 11	1.2			d
11		eP	00 13 41				
	E(N)Z	eS	14 13	2.5			
		i	16 39				
		i	16 55				
	E(N)Z	i	17 10				
11	EN	L	02 30.4				
	EN	L	47.3				
11	W	(P)	03 38 51		(e)		r
11		(eP)	08 22 13			Long coda.	
		eS	22 35	0.8			
		e	25 10				
11		S	21 01 23	0.7			d
12	EN		00 20			Possible activity.	r
12		S	00 55 25	0.6			v
13		S	06 15 19	0.6			d
13		e	17 16.8	1/2			d
14	E(N)	eP	04 29 22		PBWC	W. trace very thick.	
	EN	eS	34 28			11°S 161°E 04 23 46* Mag 6 1/4.	
	N	L	35.2				
	E		35.4				
15		P	14 52 11				
	EN	eS	53 06	3.4			
15	EN	S	20 01 30	0.8			d
15	EN	S	21 32 51	1.0			d
15	EN	S	22 49 39	0.6			d
16	EN	eP	05 47 24	0.4			
	EN(Z)	S	47 49	4.2			
16		(eP)	21 05 31			Wiechart disturbed.	
		(eP)	05 51				
		S	06 14	2.2			
17	EN		00 53.6			Possible activity.	
17		eP	02 06 30				
	N(E)	iS	06 54	2.2			
17		eS	05 00 42	1.2			v
17		eS	08 00 45	1/2			d
17		eS	09 39 41	0.8			v
17		eS	11 52 41	1/2			d
17	EN	L	21 10.5				
18		eS	19 31 05	1.0			v
18	N	iS	19 51 35	2.5			v
19		eS	04 51 43	0.9			v
19		eP	06 12 14	0.6			
		S	12 35				
	EN	i	12 37	4.0			
19	EN		13 39			Possible activity.	
19		P	15 59 05	0.2			
	ENZ	S	59 25	3.0			
21	ENZ	eP	02 47 01	1.8			
	ENZ	iS	47 12	6.5		Long coda.	
21		eP	19 03 05				
		eS	03 15	0.9			
21	EN	L	20 41.6		(P)W.		
21		eP	21 29 13				
		iS	29 31	2.2			
22		eP	03 58 06				



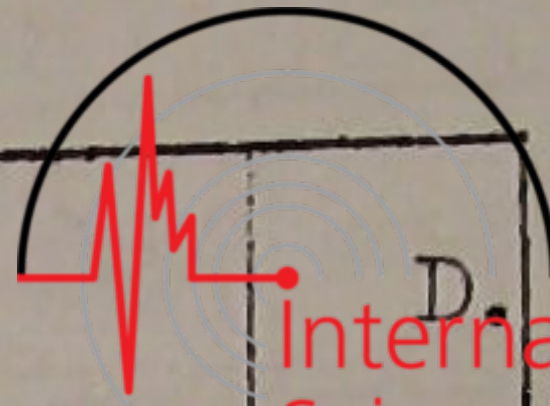
Date	Comp	Phase	Time	Max. W.A. Amp.	Airletters.	Remarks.	
22		eS	58 23	1.1		Long coda.	
22		S	04 45 55	1.5			d
22	W	(P)	10 27 19			51°N 176°W. (Deep) 10 16 26* Mag. 6 $\frac{3}{4}$ .	r
22	ENZ	iS	21 50 38	4.0			d
23		eS	02 28 02	1.5			v
23		(eP)	09 03 35				
23	ENZ	eS	03 55	2.3		Long coda.	
23	E	S	14 13 47	1.4			d
23		iS	20 36 33	1.6			d
24	ENZ	S	11 39 49	2.3		Long coda.	v
24	ENZ	S	11 40 18	2.0		Long coda.	v
24	ENZ	iP	13 04 11	6.2	PBWC.	Dilatation from S.W.	
24	ENZ	iS	04 29	>33		Long coda. 15°S 173°W 13 03 43*.	
24		eP	13 16 32 <sup>ca</sup>			In coda of previous shock.	
24	ENZ	eS	16 37	4 $\frac{1}{2}$		Long coda.	
24		eP	13 27 16	1.2			
24	ENZ	iS	27 33	8.5		Long coda.	
24		eP	13 33 49			Trace confused by earlier shock.	
24	EN	S	34 06			Long coda.	
24		S	14 54 57	0.7			v
24		S	15 40 33	0.9			v
24	EN	S	16 22 21	1.6			v
24		S	17 26 11	0.8			v
24	E	S	18 28 49	1.1			d
24	E	S	18 44 19	1.4		Long coda.	v
24	ENZ	eP	20 19 16	7.3	PWC.	No felt reports.	
24	ENZ	iS	19 33	50		Long coda. 15°S 173°W. 20 18 48*.	
24		S	20 31 11	0.8		Long coda. In coda of main shock.	v
24		S	20 33 27	$\frac{1}{2}$		Long coda. In coda of main shock.	v
24		eS	20 38 14	2.0			v
24	E	S	21 14 47	0.8			v
24		S	21 31 09	0.6			v
24		eP	23 57 08				
25	ENZ	iS	57 25	2.9		Long coda.	
25	E	S	00 13 10	1.4		Long coda.	d
25	E	S	00 40 58	1.5		Long coda.	v
25	E	S	01 14 56	0.9			d
25	E	eS	01 47 24	1.2			d
25	ENZ	eP	02 50 17	1.0			
25	ENZ	iS	50 34	9.5		Long coda.	
25	E	S	03 09 23	1.1			v
25		eP	03 14 05				
25	ENZ	S	14 21	4.0		Long coda.	
25		eP	03 29 02				
25	ENZ	iS	29 16	4.0		Long coda.	
25		eP	05 21 23				
25	ENZ	iS	21 42	4.5			
25	ENZ	iS	05 22 03	23	PWC	P. lost in previous shock. Long coda Felt Apia MM II. Samoa 05 21 30**.	
25	EN	S	05 27 25	3 <sup>ca</sup>		In coda of previous shock. Long coda.	v
25		eP	05 59 35				
25	ENZ	iS	59 53	4.7		Normal coda.	
25	EN	S	06 57 25	2.2		Normal coda.	v
25		eS	22 01 09	1.1			v
26	ENZ	eP	03 02 55	1.7	P	Deeper than normal.	
26	ENZ	S	03 21	14		Samoa 03 02 12**.	



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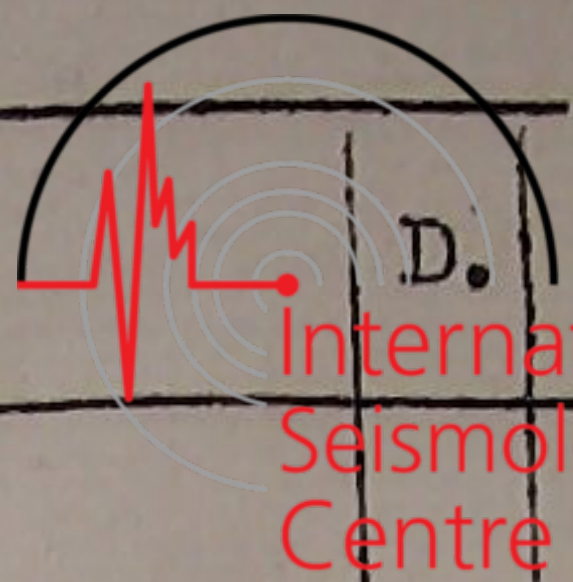
Date	Comp	Phase	Time	Max. W.A. Amp.	Airletters.	Remarks.	D.
25	EN	S	09 15 57	1.0		Long coda.	v
26	EN	S	10 10 07	0.8			v
27	ENZ	eP	02 02 01	2.0	PWC.	Long coda. Samoa 02 01 23***	
	ENZ	iS	02 19	15			
27	ENZ	eP	03 28 57	1.7	PWC.	Long coda.	v
	ENZ	iS	29 15	20			v
27		S	03 36 04	1ca.		Long coda.	v
27	EN	eS	06 08 35	1.3			v
27	EN	eS	08 37 13	1.3			d
27		S	13 15 23	1.0			v
27	EN	eS	13 35 35	1.8		Long coda.	
27	ENZ	iP	17 10 37	7.7	P	Felt Apia MM III.	
	ENZ	iS	10 57	> 27		Long coda. Samoa 17 10 03***	v
27	EN	eS	18 33 18	1.1		Long coda.	v
27		eS	20 28 22	1.2			d
28	EN	S	11 19 55	2.5			
28	ENZ	eP	12 19 16	2.3	P	Long coda. Tonga 12 18 30***	d
	ENZ	S	19 33	11			
28	EN	(S)	23 24 05	2.1-		Deeper than normal.	
29	ENZ	eP	01 17 47	1.8			
	ENZ	iS	18 09	15			d
29	EN	S	07 13 58	1ca.			d
29		S	17 42 49	1/2		Long coda.	v
30	N	eS	07 20 26	1.1			d
30		eS	18 17 02	1.2			

December, 1950.



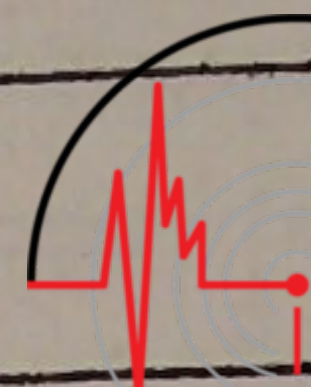
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Date	Comp	Phase	Time	Max. W.A. Amp.	Airletters.	Remarks.	
1	EN	e	03 40.3				
1		eP	12 18 27ca				
		S	18 39	3.2		Long coda.	
2		eP	07 03 12ca				
		eS	03 32				
	EN	i	03 36	2.5		Long coda.	
2	W	pP	16 21 42	0.4	PB		20ca.
2		iS	18 13 29	2.5			v
2	ENZ	iP	19 56 28	1.1	PBMWC.	18°S 167°E 19 51 45* Mag. 7½ - 8.	
	ENZ	ipP	56 41	4.0			
	W	(PP)	57 11	4			
	W	i	57 19	4			
	W	(PPP)	57 38	3			
	W	i	58 58	1½			
	EN	S	20 00 24				
	EN	L	00 57				
	Z	iScS	04 54				
2		S	23 17 16	1.2		Long coda.	d-v
3		S	06 40 02	1.1		Long coda.	d-v
3	EN	(eP)	07 52 07		PBMWC.	17½°S 167°E 07 47 33* Mag. 6½.	
	EN	ipP	52 25				
	EN	S	55.0				
3		eS	10 02 37	½			v
3		eS	15 25 06	1.1			d
4		e	01 50 23	0.7			d
4		S	05 35 09	1.0			d
4	N	eP	07 42 42		PBWC.	E out of action.	
	NZ	pP	42 51	½		18°S 167°E. 07 38 02*.	
	N	S	46 30				
4	W	eP	10 22 31		PBWC	18°S 167°E 10 18 01*.	20ca.
4	W	P	11 12 25		PBWC	18°S 167°E 11 07 43*.	20ca.
4		eP	16 26 25				
	N	S	26 57	2.0		Short coda.	
4	NZ	iP	16 34 52	0.7	PBMWC	Compression.	
	Z	ipP	35 15	1.1		E out of action.	
	W	(PP)	35 39			5°S 153½°E 100km 16 28 01* Mag. 7.	
	W	(PPP)	36 12	1.0			
	Z	i	36 30				
	N	S	41 21				
	NZ	L	42.8				
4	E(N)	(L)	19 48				
4		eS	20 27 06	1.5			v
4		eP	22 45 33ca				
	ENZ	S	45 51	3.7			
5	E	P	05 47 24			Very long coda.	
	ENZ	S	47 52	1.8			
	N	i	50 16				
	Z	i	50 28	0.9			
	EN(E)	i	50 42				
5	E	iS	08 15 50	1.6			d
5		eP	11 55 11		W	Deep.	
	ENZ	iS	55 27	6.5			
5		eP	16 56 55		PWC	17½°S 166½°E. 16 52 16*.	
	EN	ipP	57 12	½			20ca.
6		e	14 44 36	½			v
6		eP	19 54 39	0.8			
	ENZ	iS	54 47	2.6			
7		eP	01 08 55ca				
	EN	S	09 05	2.0		Long coda.	
7	E	eS	17 08 39	0.6			d
7	EN	eS	17 34 09	1.0			v

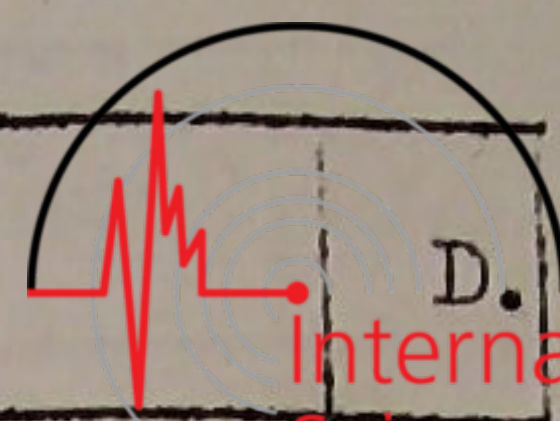


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Date	Comp	Phase	Time	Max. W.A. Amp.	Airletters.	Remarks.	
8	EN	L	07 14.6		PBWC	23°S 178°W 07 09 12*.	
8	ENZ	P	12 50 39	1.3	PBWC	Very long coda.	
	ENZ	S	51 08	>7.5		15°S 173°W 12 49 57*.	
	WNE	i	53 29				
	N	i	53 58				
8		eP	13 29 08	2.0		Long coda.	
	ENZ		29 28	10.5			
8		eP	14 47 22			Long coda.	
	ENZ	eS	47 46	2.0			
9		eP	00 26 45				
	EN	S	27 03	1.7			
9		eP	05 46 16			Tonga 05 45 14**	
	ENZ	S	47 32	2.5		Very long coda.	
		i	49 01				
9		eS	15 00 11	1/2			V
9	ENZ	P	21 52 15		PBMWC	Compression.	
	W	pP	52 25			24°S 67 1/2°W 200km 21 38 56*.	
						Mag. 7.7 - 8. .	
	ENZ	(PP)	56 11				
	EN	S	22 02 39				
10		eP	01 42 52				
	ENZ	eS	43 11	2.7			
10	EN	e	03 24.2		PWC	14 1/2°S 76 1/2°W 60km 02 50 40*	R
						Mag. 7.	
	EN	e	45.2				V
10		eS	05 13 14	0.9			
10	E	eP	11 21 19		PBWC		
	EN	pP	21 27				
	N	(S)	24.2				
10	ENZ	eP	13 26 45	11.3	PBMWC.	Dilatation from S.W. Deep.	
	W	e	29 30			28 1/2°S 179°W 300km. 13 23 10*	
						Mag. 7 1/4 - 7 3/4.	
	ENZ	S	29 42	23			
	Z	ScS	38 06	2 1/2			
10		eS	15 39 21	1.8		Very long coda.	V
11		S	13 42 54	1.2		Long coda.	V
11		eP	18 39 22	1/2			
	E	eS	40 19	1 1/2			
12		eS	10 52 52	1/2			V
13		S	12 03 43	0.8			V
13		eP	19 24 20	1.0			
	EN	S	24 41	5ca			
13		eP	20 12 45	1/2			
	EN	S	13 02	3ca.			
14	ENZ	P	00 36 07	0.4	PWC.	19°S 171°E 00 31 53*	
	EN	S	39 49				
14	ENZ	P	01 54 28	>47	PBMWC	Dilatation from S.S.W.	
						19 1/2°S 176°W 200km 01 52 47*	
						Mag. 7 1/2 - 8 1/4.	
	ZW	S	55 41 ca			E.&N. pens thrown off. W trace too rapid to record. Felt Apia MM III. Long coda.	
14	EN	eP	03 02 09	0.6	P	In coda of previous shock.	
						Samoa 200km 03 00 45**.	
	EN	eS	03 15	5.5		Z being changed.	
14	EN	eS	06 13 07	1.7		Very long coda.	V
14		eP	06 52 55			Very long coda.	
		eS	53 34	1.2			
14	EN	S	08 18 56	1.2			V
14		eP	13 52 17	0.7	P		
		eS	53 26	1.7			
14	ZE	P	14 28 09		PB(M)WC	17°N 98°W 14 15 50* Mag. 7 1/2 - 7 3/4.	
	W	e	28 29				
	E	e	37 06				



Date	Comp	Phase	Time	Max. W.A. Amp.	Airletters.	Remarks.	D.
	N	L	49.2				
	E		50.5				
	Z		51.5				
14		eP	16 53 11			Unusual form.	
		eS	53 32				
		e	53 43	2.4			
14		P	19 01 22	1.8			
	EN	S	01 42	3.6		Long coda.	
15		eP	04 44 45			Long coda.	
		S	45 00	1.5			
15		S	12 16 05	$\frac{1}{2}$			v
15		eP	17 25 05				
		S	25 25	1.3			
15		eP	20 21 27				
	EN	eS	21 44	1.3			
16	EN	S	01 34 19	1.4			v
16		eP	03 08 29	0.7			(15°)
	WEN	i(pP)	08 49	0.5			
16	EN	e	04 20 25	$\frac{1}{2}$			d
16		S	10 15 05	1.1			d
16		e	14 12 39	$\frac{1}{2}$			d
16		S	18 21 55	1.0			d
16		S	20 34 38	1.2			v
16		eP	20 40 39				
	E	iS	40 55	2.3			d
18		S	00 42 01	1ca			(r)
18	W	(P)	12 37 31				d
18		e	19 33 11	0.5			d
18	E	eS	22 08 29	1.1			d
19	NZ	iP	09 18 51		PW	E not recording. W movement too fast to record. Felt Apia MM II.	
	NZ	iS	19 07				
19		e	14 32 38	$< \frac{1}{2}$			d
20		eP	03 09 52			Z not recording.	
	EN	S	10 31	3.0			
20	E	S	21 31 51	1.3			d
21		e	07 43 30	$\frac{1}{2}$			d
21		eP	18 47 15			Z not recording.	
		S	47 33	4		Long coda.	
21	E	S	22 24 17	0.7			v
21		eS	23 13 05	$\frac{1}{2}$			d
22	EN	P	03 17 35	1.8		Z not recording.	
	EN	S	17 54	$7\frac{1}{2}$ ca		Long coda.	
22	W	(P.)	17 41 11		PB		r
23		S	07 21 39	$\frac{1}{2}$			v
23	E(N)	P	17 48 29		PB	(Deep)	
		eS	50 11	1.8			
23	EN	S	18 15 36	2ca			v
25		eP	14 24 39				
		S	25 02	1ca			
25	EN	L	15 38.4		WC		
25		S	18 39 04	1ca			v
26		eP	14 54 50				
	EN	S	55 09	1ca			
28		P	01 38 19	1ca			
	EN	S	38 48				
28		e	06 22 46				d
28		eP	13 41 05ca				
	EN	S	41 22				
28		e	19 30 36				v
29	EW	P	03 41 41				
	ENZ	S	42 03ca				
29	N	e	07 05 20				d
29		eP	11 16 27			Long coda.	



D.  
International  
Seismological  
Centre

Date	Comp	Phase	Time	Max. W.A. Amp.	Airletter.	Remarks.	
29	ENZ	S	17 05ca				
		eP	12 26 19				
30	EN	S	26 40				
30	EN	S	04 05 23	1.5			v
30		eP	04 42 10ca				
30	EN	S	42 33	0.8			
30	NE	P	06 47 09		BC		
30	EN	S	50 37ca				
30	N	e	10 08 35				d
30	ENZ	eP	11 53 55	1½	W		
30	ENZ	iS	54 14	> 7		Long coda.	
30	N	S	12 02 51	1.3			v
30		eP	12 12 30				
30	EN	S	12 45	2.2			
30	N	eP	12 27 51				
30	EN	S	28 07	1.9			
30	EN	S	12 40 44	1.3			v
30		S	13 02 08	0.6			v
30	N	S	13 09 45	0.8			v
30		e	13 37 25	½			
30	EN	S	13 39 11	1.2			v
30	ENZ	eP	21 16 12	2.7	PWC.		
30	ENZ	S	17 11	> 8			
30	ENZ	P	22 11 47	1.4			
30	ENZ	S	12 19	> 3			
31		P	20 13 29				
		S	13 53	2ca.			

Seismological Bulletins Received.

The receipt of Seismological Bulletins and other information from the following sources is acknowledged with thanks:

- Beograd: July - August, 1950.
- Bogota: April - December, 1949.
- Brisbane: July, September, 1950.
- Budapest: May - July, 1950.
- Cleveland: May, July, 1950.
- De Bilt: July - August, 1950.
- Firenze: July - August, 1950.
- Government of India: January - February, 1948. February, 1950.
- Granada: June, August, September, 1950.
- Japan: April - June, 1950.
- Jesuit Seismological Association: May - July, 1950.
- Kalocsa: May - July, 1950.
- Kew: July - September, 1950.
- La Plata: January - December, 1948.
- Lisbon: April - June, 1950.
- Manila: November, 1950.
- Ottawa: November - December, 1949.
- Prague: January - June, 1950.
- Rathfarnham Castle: July - August, 1950.
- Riverview: April - July, 1950.
- Rome: January - December, 1949.
- Strasbourg: May - June, 1950.
- Union Geodesique et Geophysique Internationale: May - June, 1950.
- 15 Aug., 1950. Institut de Physique du Globe de Strasbourg. 10 August - 10 October, 1950.
- Bulletin du Bureau Central Seismologique Francais: June - July, 1950.



Seismological Bulletins Received (Contd).

Stuttgart:	April - June, 1950.
Toledo:	May - October, 1950.
U.S.C.G.S.	Preliminary Epicenter: No.115-50 to 152-50. Supplementary List: Nos. S40-50 to S49-50.
Wellington:	D.S.I.R.: June - July, 1950.
Bulletin of Seismographic Stations:	January - March, 1942.
" " " "	April - June, 1942.
" " " "	July - September, 1942.
" " " "	October - December, 1942.
" " " "	January - March, 1943.
" " " "	April - June, 1943.
" " " "	July - September, 1943.
" " " "	January - March, 1948.
" " " "	April - June, 1948.
" " " "	July - September, 1948.
" " " "	October - December, 1948.
" " " "	January - March, 1949.
" " " "	April - July, 1949.
Seismische Registrierungen in Jena.	1 January - 31 December, 1949. By Von Fr. Gerecke. Heft. 54.

Apia Observatory,  
Apia, Western Samoa,  
16th January, 1951.

(G.A.M. KING),  
OBSERVER-IN-CHARGE.

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