

Apia Observatory, Western Samoa.

Seismological Bulletin.

January to June, 1946.

1946



Nos. 1 & 2, 1946.

Latitude: 13° 48' 26" S.
Longitude: 171° 46' 30" W. or 11h. 37m. 6s. W.
Geocentric Direction Cosines: a=-9615, b=-1390, c=-2371.
Altitude: 2 metres.
Lithological Foundation: Coral sand on volcanic rock.

Instruments:

Horizontal components: Wiechert 1000 kg. astatic pendulum (Bartels)
The clock of this instrument has been in New Zealand for repairs during the period covered by this report.
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, 1939.
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).

January

5th. iP 20h. 02m. 01s. eS 20h. 06m. 57s. e? 20h. 11m. 13s.
Distance 30°, 2
11th. iP 17h. 07m. + Local shock: Pen lifted off chart.
12th. 20h. 30m. † Local shock. Only partly visible as pen had lifted off chart.
19th. 16h. 00m. † Light shock felt in Apia. Instrument out of order. Clock and drum removed, cleaned and replaced. Pen support tightened.
20th. 16h. 59m. + Slight seismic activity.
22nd. L? 03h. 10m. + " " "
24th. P? 02h. 19m. 39s. iS 02h. 20m. 00s. Distance 1.5° ca.
H = 02h. 19.2m.
28th. eP 16h. 53m. 06s. iS 16h. 53m. 29s. Distance 1.8° H=16h. 52.6m.

February:

8th. 16h. 04m. Slight Seismic activity.
16th. (1) iP 20h. 05m. 26s. iS 20h. 05m. 43s. Distance 1.3° H=20h. 05.1m.
(2) 21h. 18m. Slight Seismic Activity.
(3) iP 21h. 24m. 29s. iS 21h. 24m. 49s. Distance 1.6° H=21h. 24.0m
(4) iP 21h. 56m. 52s. iS 21h. 57m. 12s. Distance 1.6° H=21h. 56.4m.

February (Continued).

22nd. (1) iP 14h. 34m. 24s. iS 14h. 34m. 44s. Distance 1.6°
 H = 14h. 33.9m.
 (2) iP 14h. 37m. 53s. iS 14h. 38m. 17s. Distance 1.9°
 H = 14h. 37.3m.

March.

25th Light local shock: Distance 1.5° Time indecipherable owing to mutilated trace.
 30th. eP 19h. 34m. 42s. eS 19h. 34m. 59s. Distance 1.3° H=19h.34.3m.

April.

5th. iP 00h. 09m. 30s. S 00h. 09m. 53s. Small tremor. Distance 1.8°
 H= 00h. 08.9m.
 9th. Slight local shock. Distance 0.4°. Time indecipherable owing to mutilated trace.
 11th. eL 03h. 06m. 32s.
 13th. eS 19h. 00m. 27s. Slight local shock. Beginning lost while paper being changed.
 18th. eL 07h. 03m. 33s. Followed by 10 sec. period waves. Maximum phase 07h. 06m. 00s. followed by 5 sec. period waves.
 23rd. iP 10h. 40m. 25s. iS 10h. 40m. 49s. Distance 1.9° H=10h.39.8m.
 Felt locally M.M.3-4.

May.

5th. Distance 3.2°. Mutilated trace - unable to get times.
 11th. " 11° " " " " "
 15th iP 13h. 50m. 49s. Slight local tremor.
 19th. iP 17h.35m. 55s. iS 17h. 36m. 30s. Distance 2.9° H=17h.35.1m.
 26th. eP 13h. 35m. 37s. iS 13h. 33m. 50s. " 1.8° H=13h.33.1m.

June.

4th. 09h. 16m.+ Slight seismic activity.
 28th. Tremor 20h. 18m. 44s.
 29th. Tremor 17h. 42m. 00s.

Constants for Vertical Seismograph.

	<u>28th May, 1946.</u>	<u>29th June, 1946.</u>
Period:	4.6 secs.	4.6 secs.
Static Magnification:	65	55
Coefficient of Friction:	.0038cms/sec ²	.0038cms/sec ²
Damping Ratio:	2.2	2.2
Total Friction:	6.3 dynes	8.8 dynes.

Errata: In our previous report No.4 for 1945 please substitute "10.9 dynes" for "1.09 dynes" which was given as the Total Friction constant for December 30th, 1945.

Bulletins Received.

The receipt of seismological bulletins and other information from the following sources between January 1st and June 30th is acknowledged with thanks:

Jesuit Seismological Association: September - November, 1945.
 U.S.C.G.S.: Earthquakes in U.S.A. for 1941 and 1942: Bulletins October - December, 1943.
 Ottawa: August, 1945; January & February, 1946.
 Brisbane: November, 1945 - March, 1946.

Apia Observatory Western Samoa.

Seismological Bulletin.

July to December, 1946.



Nos. 3 & 4, 1946:

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: Wiechert 1000 kg. astatic
 pendulum (Bartels)
 The clock of this instrument was returned from New Zealand
 in September after repair.
 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, 1939.
 G.J. Brunner and J.B. MacCallwane, 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).

July:

8th. 06h. 19m. + Slight Seismic Activity.
 9th. eS? 01h. 10m. 17s. eL? 01h. 12m. 54s. $\Delta = 25.4^\circ$? H=01h. 00. 3m.
 24th. eP 14h. 04m. 22s. eS 14h. 04m. 41s. $\Delta = 1.3^\circ$ H=14h. 04. 0m.

August:

8th. 01h. 09m. 31s. Slight Seismic Activity.
 12th. eP 06h. 57m. 38s. eS 06h. 58m. 33s. $\Delta = 4.7^\circ$ H=06h. 56. 4m.

September:

7th. iP 12h. 02m. 09s. Small Local Shock.
 16th. eP 11h. 08m. 56s. iS 11h. 09m. 16s. $\Delta = 1.5^\circ$ H=11h. 08. 5m.
 18th. eP 01h. 42m. 30s. iS 01h. 42m. 33s. $\Delta = 1.8^\circ$ H=01h. 42. 0m.
 20th. iP 06h. 46m. 31s. iS 06h. 47m. 03s. $\Delta = 2.6^\circ$ H=06h. 45. 8m.
 21st. Local Shock $\Delta = 2.4^\circ$ Time indecipherable.
 30th. " " $\Delta = 2.4^\circ$ " "

October:

8th. eP 13h. 59m. 25s. iS 14h. 01m. 56s. $\Delta = 14.8^\circ$ H=13h. 56. 4m.
 Depth = 540 km. c.a.
 10th. 23h. 42m. + Slight Seismic Activity.
 11th. 01h. 17m. + Slight Seismic Activity.
 14th. e 04h. 51m. 57s. eS 04h. 54m. 34s. eL 04h. 56m. 10s.
 $\Delta = 18.4^\circ$ H= 4h. 46. 9m.
 15th. 07h. 51m. + Slight Seismic Activity.
 15th. 11h. 40m. 56s. Slight Local Tremor.

October (Continued)

15th.	eP	12h. 08m. 04s.	eS	12h. 08m. 51s.	$\Delta = 4.0^\circ$	H=12h. 07.0m.
21st.	iP	00h. 05m. 20s.	iS	00h. 05m. 50s.	$\Delta = 2.4^\circ$	H=00h. 04.7m.
			Felt locally M.M.II			
30th.	s	08h. 19m. 14s.	L?	19 sec. period.		
31st.	eP	18h. 16m. 46s.	iS	18h. 17m. 04s.	$\Delta = 1.4^\circ$	H=18h. 16.3m.



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November:

1st.	eS	11h. 33m. 47s.	eBR	11h. 40m. 01s.	eL	11h. 44m. 30s.	$\Delta = 60.6^\circ$	H=11h. 15.3m.
			19 sec. period					
2nd.	e	19h. 23m. 14s.	e	19h. 32m. 06s.	L?			
9th.	iP	21h. 41m. 17s.	i	21h. 41m. 50s.	$\Delta = 2.7^\circ$	H=21h. 40.6m.		
12th.	iPn	17h. 30m. 18s.	P	17h. 30m. 30s.	Pg	17h. 30m. 47s.		
	Sn	17h. 31m. 23s.	S	17h. 31m. 40s.	Sg	17h. 31m. 57s.		
				$\Delta = 5.6^\circ$	H=19h. 28.9m.			
15th.	eP	02h. 21m. 43s.	iS	02h. 22m. 04s.	$\Delta = 1.6^\circ$	H=02h. 21.3m.		
20th.	eP	09h. 23m. 16s.	iS	09h. 23m. 34s.	$\Delta = 1.4^\circ$	H=09h. 22.8m.		
23rd.	eP	06h. 55m. 23s.	eS	06h. 55m. 46s.				
				$\Delta = 1.8^\circ$	H=06h. 54.9m.			
28th.	iP	15h. 52m. 48s.	iS	15h. 53m. 41s.				
				$\Delta = 4.6^\circ$	H=15h. 51.6m.			
					Depth= 290 km. c.a.			

December:

6th.	eP	06h. 39m. 20s.	eS	06h. 40m. 17s.	$\Delta = 4.9^\circ$	H=06h. 38.1m.
8th.	iP	21h. 04m. 21s.	iS	21h. 04m. 41s.	$\Delta = 1.5^\circ$	H=21h. 03.9m.
17th.	eP	09h. 27m. 15s.	eS	09h. 27m. 52s.	$\Delta = 3.1^\circ$	H=09h. 26.4m.
17th.	eP	22h. 43m. 11s.	iS	22h. 44m. 49s.	$\Delta = 8.6^\circ$	H=22h. 41.1m.
18th.	eP	02h. 37m. 44s.	eS	02h. 38m. 26s.	$\Delta = 3.6^\circ$	H=02h. 36.8m.
20th.	eP	19h. 29m. 40s.	eL	19h. 47m. 20s.		
	eLR	19h. 52m. 31s.	$\Delta = 70^\circ$ Records changed during			
	first phases.		H= 19h. 48.5m.			
29th.	eP	10h. 30m. 59s.	eS	10h. 31m. 16s.	$\Delta = 1.5^\circ$	H=10h. 30.5m.
30th.	eP	11h. 34m. 22s.	iS	11h. 34m. 40s.	$\Delta = 1.6^\circ$	H=11h. 33.9s.

Bulletins Received.

The receipt of seismological bulletins and other information from the following sources between July 1st. and December 31st. is acknowledged with thanks:

- | | |
|--|---|
| Bagota - Instituto Geofisico de Los Andes: | September-December 1945.
January - March 1946. |
| Brisbane
Bureau Central Seismologique Francais: | April - October 1946.
October-December 1945.
January, March, April,
May 1946.
Supplement to January &
February 1946.
1940 - 1944. |
| Harvard University:
Institut Physique du Globe de l'Universite
de Paris: | January, March, April
1943. July, August 1944.
January - March 1946. |
| Instituto Nazionale di Geofisica, Rome: | May - August, 1946. |
| Istanbul: | August, 1946. |
| Jesuit Seismological Association: | June - August, 1946. |
| Ksara: | January, April, May,
July, August, October,
November 1945. |
| Observatoire Royal de Belgique a Uccle: | January - October 1946. |
| Observatorio del Ebro: | Series A., Vol XXXII
Nos. 4 to 12.
Resumen for 1944, Vol
XXXII, Series A. |
| Ottawa: | September-December 1945.
March - May 1946. |

Pasadena:

Perth:

Pittsburgh:

Sydney:

Toledo - Observatorio Geofisico:

University of California:

Universidad Nacional de Mexico:

U.S.C.G.S.

Riverview:

Wellington:

Apia, Western Samoa.

February 6th, 1947.

July - December 1945.
 January - March 1946.
 Preliminary Bulletin
 January, February, June,
 August 1945.
 January - September 1946.
 January - December 1944.
 March - April 1945.
 May - July 1946.
 September 1946.
 January - June 1946.
 January - June 1945.



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Bulletin January - March 1944.
 Earthquakes in U.S.A. for year
 1944.

May, July 1946.
 August - October 1946.
 Reports for 1941, 1942.

J.W. BRAGLEY.

Director.

Addenda:

Nov. 12th: is 17h. 37m. 45s. Early phases indecipherable owing to movement caused by earlier shock.

Niue: Reported light prolonged earthquake felt approx. 17.35 G.M.T.

Nukualofa: Sharp tremor lasting 30 secs. at 17.30 G.M.T. followed by a light one for 5 secs. five minutes later.