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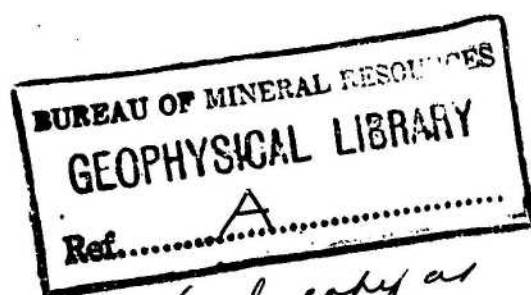
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DATE REF 16-11-60.

DEPARTMENT OF NATIONAL DEVELOPMENT.  
BUREAU OF MINERAL RESOURCES  
GEOLOGY AND GEOPHYSICS.

RECORDS.



1960/118



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at 2/12/60)

TRAVEL TIME TESTS, RABAU AREA

by

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## TRAVEL TIME TESTS

### Rabaul Area.

1960/118

In response to a request for data on the velocity of seismic waves in the Rabaul area, a field party from the Geophysical Section assisted in carrying out tests which have yielded preliminary figures on travel times.

The main purpose of the visit of the field party (Messrs. W. Weibenga and E. Polak) was to obtain data on structure in the Rapindik - Sulphur Springs area where geothermal steam prospects are being considered. During their seismic prospecting tests many explosive charges were set off in and around the harbour area. When charges were considered strong enough to be recorded by the Observatory Benioff seismograph, the explosions were triggered by means of a Mercer chronometer, which is normally used by the Observatory for seismic recording. Some of the later explosions in the series were set off in the sea for the specific purpose of obtaining travel time data in different parts of the Rabaul area.

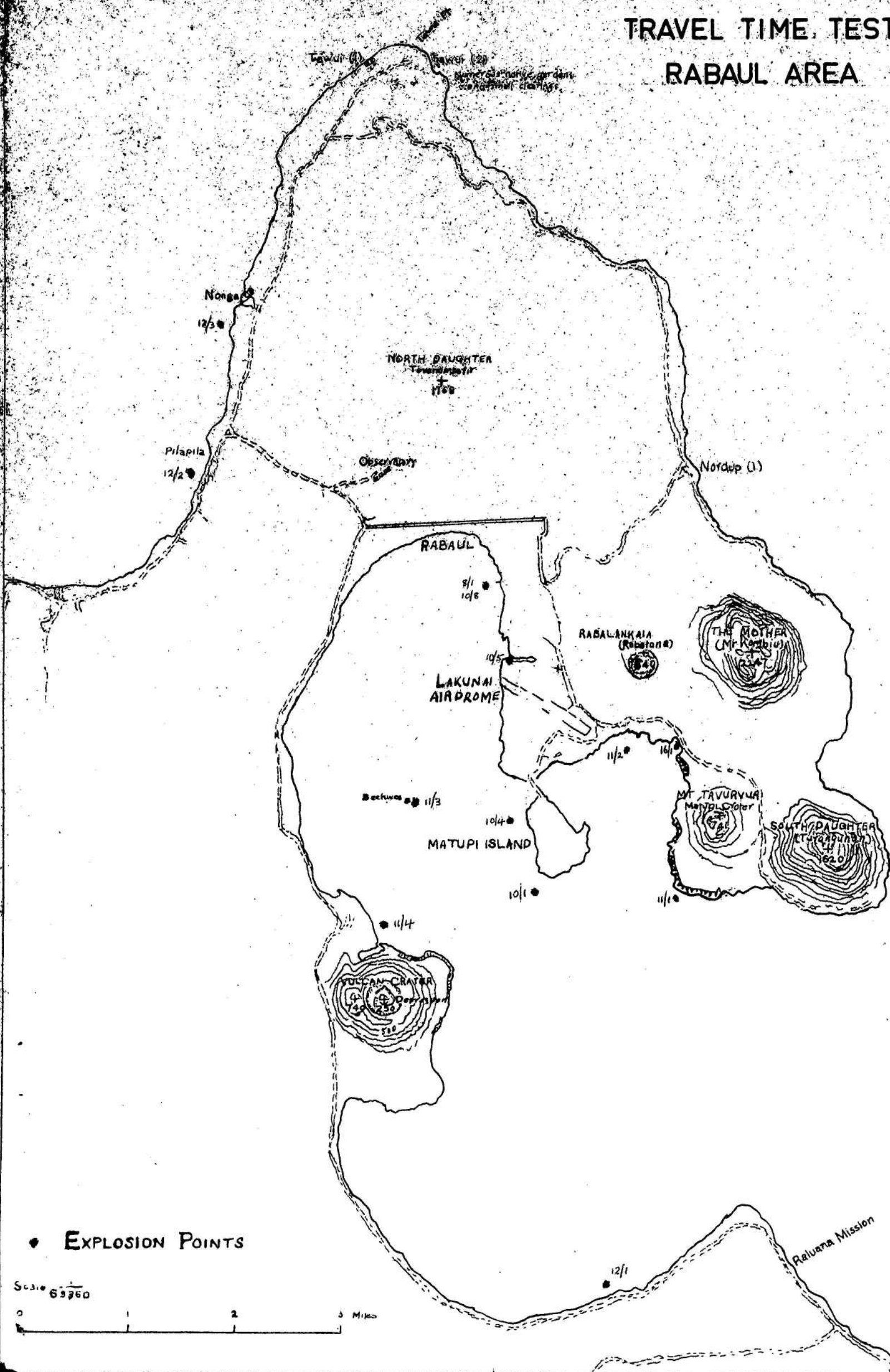
Observatory staff assisted in maintaining wireless contact between shotpoints and recorder and have been responsible for time checks before and after each series of tests. The readings of the Observatory instruments and roughly estimated velocities are given in the table below. A sketch map indicates the location of the shot points and reproductions of some of the Benioff records are attached. The signatures on 11th October are taken from the north-south component and all other reproductions are from the east-west component.

A time and distance graph of the results shows considerable scatter in the plotted points. Some of this inconsistency is undoubtedly due to approximations in distance and poor time control. The most anomalous result, from Keravia Bay, has been omitted. The explosion here was located near one of the deepest parts in the harbour area and may have a structural explanation. Poor chronometer rating when the instrument was being moved from site to site has not helped the accuracy of the results. The method of using timed charges and recording by Observatory equipment could be greatly improved by using suitable radio equipment for time checks in the field.

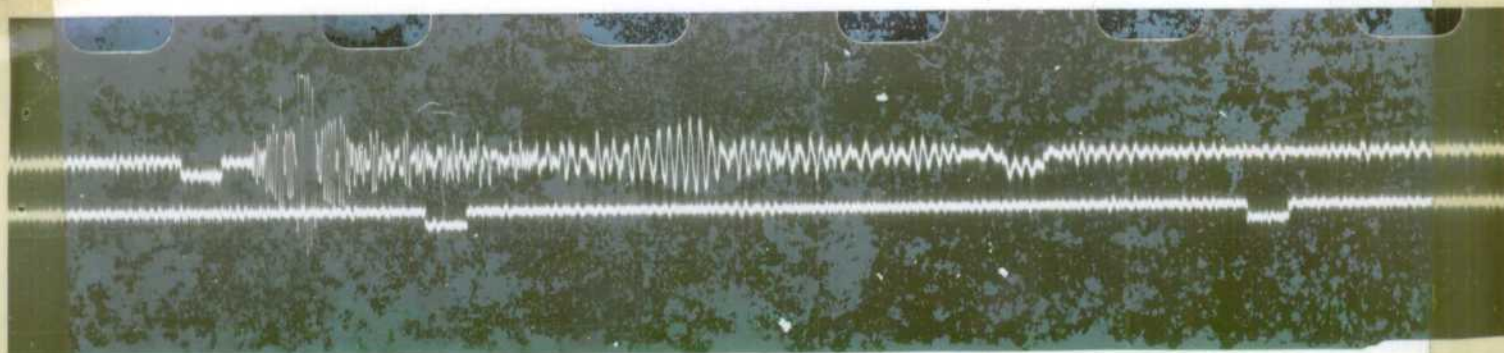
Date & No.	Locality	Depth Feet	Charge lbs.	Shot Chron. Time	Time Corr.	Origin Time	READINGS AT OBSERVATORY			Time Corr.	Arrival at Observatory	P-H Travel Time Secs.	Approx. Map Distance Feet	Indicated Velocity Feet/Sec.	REMARKS
							Z	M	N						
16.9.60 16/1	Harbour near Bridge S.S.	6	25	01 19 58	-2.6	01 19 55.4	1P 01 19 37.5 1 39.1 1 41.1 1 59.2			+20.1	01 19 57.6	2.2	18,900	8,600	
16/2		6	50	02 05 58	-2.6	02 05 55.4	1P 02 05 37.8 1 38.8 1 41.1 1 59.2			+20.2	02 05 57.2	1.8	"	10,500	
6.10.60 6/1	In Harbour	7	7	04 13 58	-43.2	04 13 14.8	1P 04 13 12.5 1P 04 13 12.8 1P 04 13 12.4			+ 3.2	04 13 15.7	0.9	7,000	7,800	
8.10.60 8/1	In Harbour nr. burnt wharf	7	25	00 14 58	-49.2	00 14 08.8	1P 00 14 05.9 1P 00 14 05.9 1P 00 14 06.0 1 09.7 1 08.0 1 07.6			+ 3.8	00 14 09.7	0.9	"	7,800	
8/2			25	00 32 58	-49.2	00 32 08.8	1P 00 32 05.9 1P 00 32 05.9 1P 00 32 06.0 1 09.3 1 08.0 1 07.6			"	00 32 09.7	0.9	"	7,800	
8/3			25	00 57 58	-49.3	00 57 08.7	1P 00 52 05.9 1P 00 32 06.0 1P 00 32 06.1 1 09.2 1 08.0 1 07.7			"	00 52 09.7	1.0	"	7,000	
8/4			25	01 17 58	-49.3	01 17 08.7	1P 01 17 05.9 1P 01 17 05.8 1P 01 17 05.9 1 09.1			"	01 17 09.7	1.0	"	7,000	
10.10.60 10/1	South of Matupi Island	90	25	00 28 58	-53.6	00 28 04.4	1P 00 28 02.0 1P 00 28 02.1 1P 00 28 02.2 1 03.9 1 03.1			+ 4.6	00 28 06.6	2.2	22,700	10,300	
10/2		92	15	00 59 58	-53.6	00 59 04.4	1P 00 59 02.0 1P 00 59 02.1 1P 00 59 02.2			"	00 59 06.6	2.2	"	10,300	
10/3		94	15	01 19 58	-53.6	01 19 04.4	1P 01 19 02.0 1P 01 19 02.1 1P 01 19 02.2 1 04.0 1 03.2			"	01 19 06.6	2.2	"	10,300	
10/4	2000 ft. south of spread	60	5	01 49 58	-53.6	01 49 04.4	1P 01 49 01.7 1P 01 49 02.0 1P 01 49 03.2 1 03.0 1 04.0			"	01 49 06.3	1.9	18,800	9,900	
10/5	Mouth of Sulphur Creek	10	3	02 30 58	-53.7	02 30 04.3	1P 02 30 01.0 1 02 30 01.4 1P 02 30 03.0			"	02 30 05.6	1.3	11,000	8,500	
10/6	Matupi Island	110	25	05 50 58	-53.7	05 50 04.3	1P 05 50 01.9 1P 05 50 02.0 1P 05 50 02.0 1 03.0			+ 4.7	05 50 06.6	2.3	22,700	9,900	
10/7		96	50	06 37 58	-53.7	06 37 04.3	1P 06 37 01.9 1P 06 37 02.0 1P 06 37 02.0 1 03.0			+ 4.7	06 37 06.6	2.3	"	9,900	
10/8	In Harbour nr. burnt wharf	46	50	23 39 58	-55.2	23 39 02.8	1P 23 38 58.5 1P 23 38 58.5 1P 23 38 58.7			+ 5.1	23 39 03.6	0.8	7,000	8,700	
Readings at Ranindik.															
10/1	In Harbour nr. burnt wharf						1P 00 27 15.2			+ 5.1	00 28 06.2	1.8	11,900	6,700	
10/2							1P 00 58 15.2			+ 5.1	00 59 06.2	1.8	11,900	6,700	
10/3							1P 01 18 15.1			+ 5.1	00 19 06.1	1.7	11,900	7,000	
10/4							1P 01 48 15.0			+ 5.1	00 49 06.0	1.6	8,200	5,100	
10/5							1P 02 29 13.9			+ 5.1	00 30 04.9	0.5	2,400	4,800	
11.10.60 11/1	150 feet south Sulphur Creek Point Beach	35	50	04 27 58	-55.4	04 27 02.6	1P 04 26 59.8 1P 04 27 00 04 27 01.0			+ 5.2	04 27 05.0	2.4	25,400	10,600	
11/2	In sea near Papuan Village	70	50	05 10 58	-55.4	05 10 02.6	1P 05 09 59.0 1P 05 09 59.3 1P 05 09 59			+ 5.2	05 10 04.2	1.6	18,000	11,200	
11/3	Beehives	20	50	06 19 58	-55.5	06 19 02.5	1P 06 18 59.0 1P 06 18 59.2 1P 06 18 59.0 1 19 00.1 1 19 00.7			+ 5.3	06 19 04.3	1.8	16,500	9,200	
11/4	Vulcan	30	50	23 28 58	-56.5	23 28 01.5	1(P)23 27 57.7			+ 5.8	23 28 03.5	2.0	22,000	11,000	
12.10.60 12/1	Keravia Bay	50	100	00 55 58	-56.6	00 55 01.4	1P 00 55 00.7 1P 00 55 00.9 1 03.8 1 04.0 1 00 55 04.0			+ 5.8	00 55 06.5	5.1	42,700	8,400	
12/2	Pila Pila	20	50	05 04 58	-56.8	05 04 01.2	1P 05 03 56.5 1P 05 03 57.1 1P 05 03 57.1 1 58.8			+ 5.9	05 04 02.4	1.2	9,600	8,400	
12/3	CPL Sawmill		50	06 09 58	-56.9	06 09 01.1	1P 06 08 56.8 1P 06 08 56.6 1P 06 08 56.6 1 59.9 1 57.8 1 59.0			+ 6.0	06 09 02.8	1.7	11,000	6,500	

Distances very approximate

# TRAVEL TIME TESTS RABAU AREA

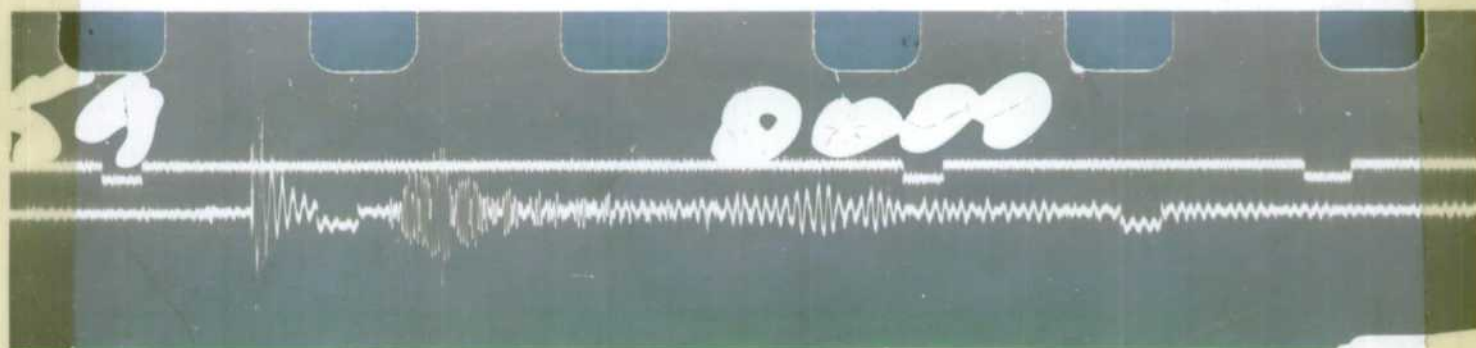






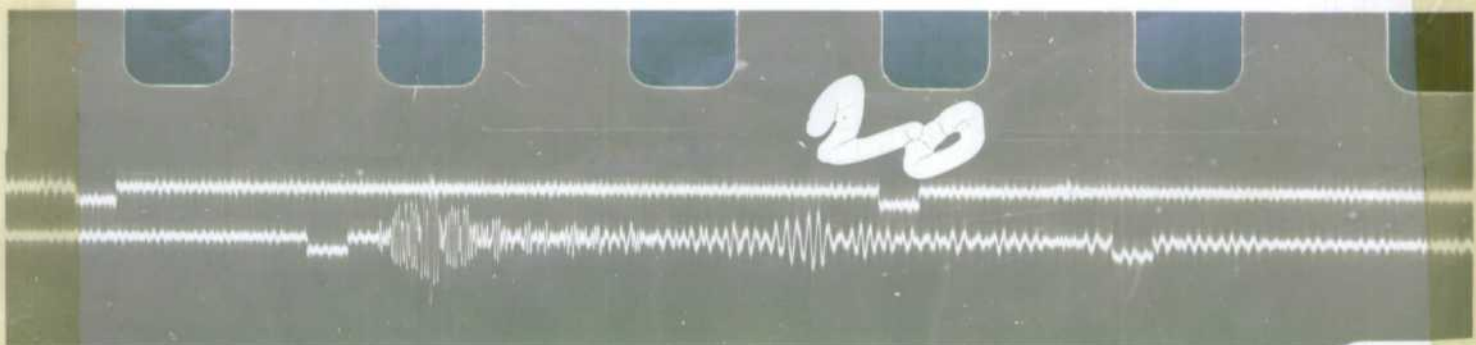
10/1

South of Matupi Island



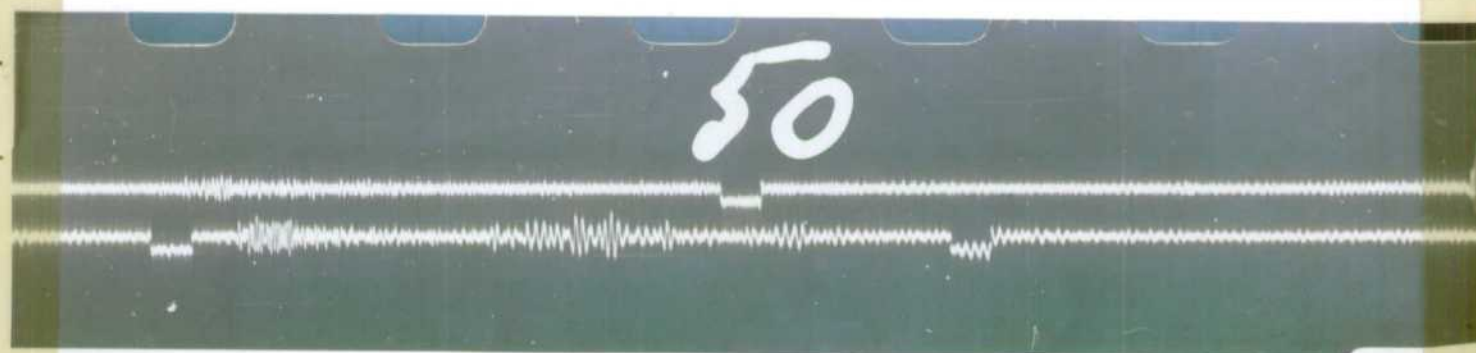
10/2

Asabove



10/3

As above



10/4

2000 feet south of spread  
West of Matupi Island.



30

10/5

Mouth of Sulphur Creek

10/6

Mouth of Matupi Island

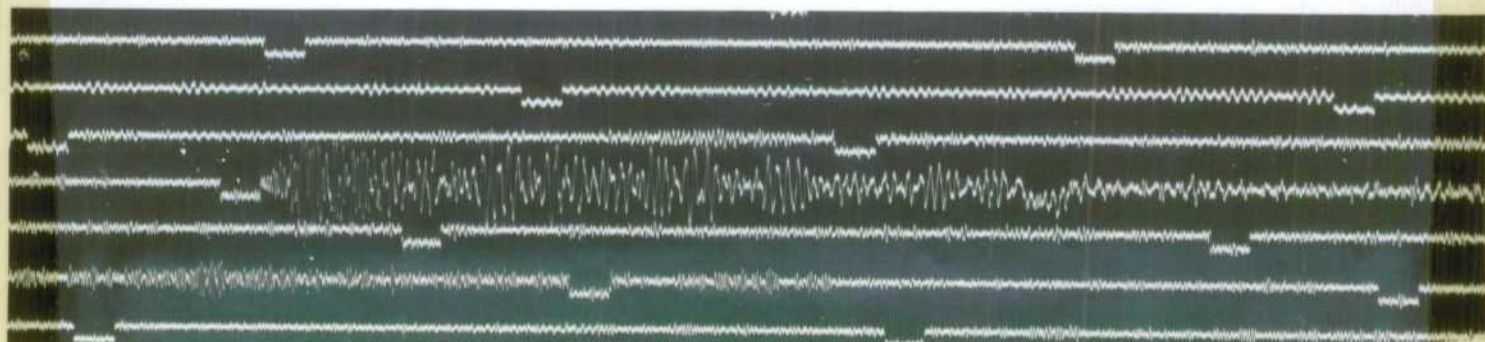
10/7

As above

10/8

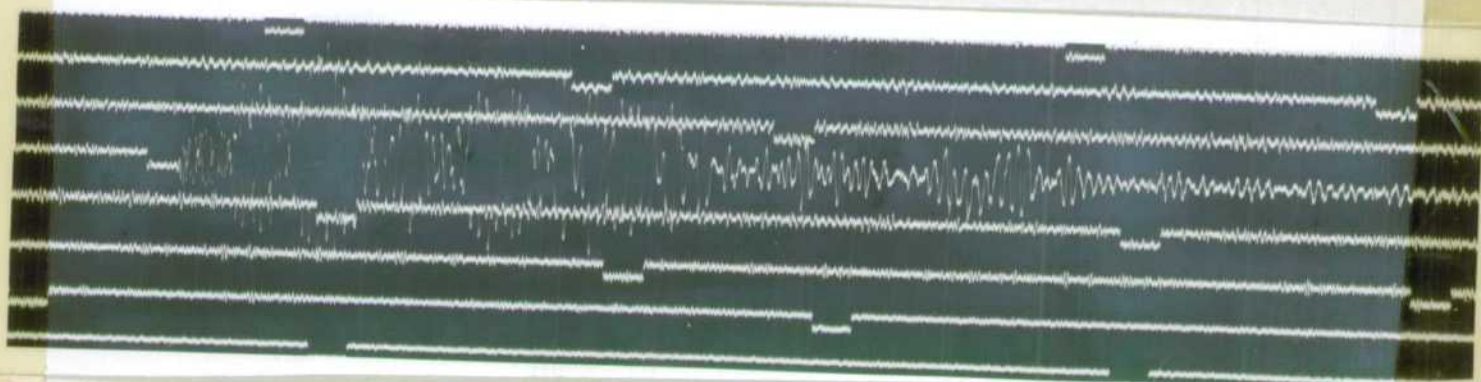
Near Burnt Wharf  
(Namanula Street)





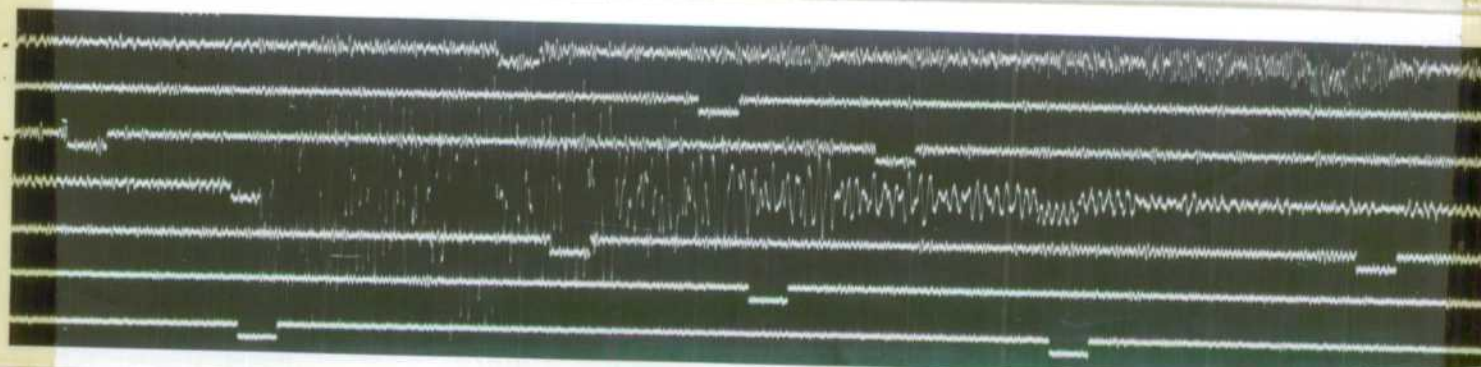
11/1

Sulphur Creek (TAVURVUR)



11/2

Near Papua Village  
Rapindik



11/3

Beehives



SS

12/1

Koravia Bay

12/2

Pila Pila

12/3

CPL Saw Mill (Nonga)