

8th October - 14th October 1964.

						A mm	T sec	GM	Dist. o	Remarks	
8/10	iP	Z	10	40	03.5	56	0.6	d	3.5	Solomon Is. region H = 10 39 09	
	iS	N			45.0						
	iP	Z	14	57	46.2	7.0	0.4	d	1.5 ^o	New Britain region H = 14 57 22	
	iS	N		58	05.0						
9/10	i	Z	08	32	13.3			-		Disturbance due to ship moving in harbour (20.P.S.)	
	P	Z		54							
	e	Z/	20	21	47 $\frac{1}{2}$			-		Disturbance due to ship moving in harbour (20.P.S.)	
	i	Z	20	26	29.0			+			
	iP	Z	21	41	20.3	1.0	z	c	(41 ^o)		
	e(S)	Z/		47	25 $\frac{1}{2}$						
	e	N/		51	27						
10/10	iP	Z	01	03	09.2	40	0.6	c	0.8 ^o	Local H = 01 02 55	
	iS	N			20.0						
	iP	Z	01	56	29.2	32	0.4	c	1.1 ^o	New Britain region H = 01 56 10	
	iS	N			43.5						
	e	Z/	20	16	10			-			
	e	Z/	20	44	08			-			
11/10	iP	Z	01	11	03.3	4.0	0.6	c	6.4 ^o	Solomon Is region H = 01 09 29	
	iS	N		12	16.0						
	iP	Z	03	39	06.5	51	0.5	c	1.5 ^o	New Britain region H = 03 38 41	
	iS	E			26.0						
	iP	Z	10	22	38.0	10.0	1.0	d			
	eL	Z/			32.5						
	cP	Z	11	14	34	0.6	0.6	d			
	M	Z/			20.8						
	iP	Z	21	21	16.3	31.5	1.0	d			
	i	Z/			24	19					
eS	E/			26	22						
e	E/			28	35						
i	E/			30.9							
	iP	Z	22	57	07.0	35.8	0.3	d	1.3 ^o	New Britain region H = 22 56 44	
	iS	E			24.0						
12/10	iP	Z	11	45	27.0	2.0	1.0	c			
	eS	N/			47	02					
	e	Z/			49	35					
	Felt. Manam Int I-II 04 ^o 05'S., 145 ^o 05'E										
	cP	Z	15	48	27	3.6	0.7	d	28 ^o	h = 160km.	
	iP	Z			29.0						
	epP	Z/			49	05					
	eS	E/			53	07					
	eLq	E/			54	30					
	eLr	Z/			55	58					

Strong microseismic activity

						A	T	G.M.	Dist	Remarks
						mm	Sec		o	
17/9	e	Z/	07	16	26					
	iP	Z	09	39	53.0	46	0.4	d	2.8 ⁰	Solomon Is. region
	iS	N		40	20.3					H = 09 39 10
	1	Z	11	43	18	1.0	0.4	-		
			Disturbance due to ship moving in the Harbour							
18/9	e	Z/	16	11	22					+
	1	Z	07	54	15	1.0	0.4	-		
			Disturbance due to ship moving in the Harbour							
	iP	Z	13	46	23.3	1.6	0.4	d	3.5	Solomon Is. region
	iS	N/		47	05					H = 13 45 29
	e	Z/	14	20	33					+
	e	Z	14	43	42.8					+
	1	Z			49.5	1.5	0.9	d		
	iPn	Z	18	19	57.9	5.0	0.8	d	1.4	New Britain region
	iPg	Z		20	00.6					
	iSn	N			16					H = 18 19 34
	iSg	N			19					
	e(P)	Z	23	47	55½					C.B.M.
	e(S)	N/		49	07					
19/9	iP	Z	02	00	46.0	15.5	0.6	d	1.6 ⁰	New Britain region
	iS	N		01	06.3					H = 02 00 19
	eP	Z	03	27	49½	1.0	0.5	c		Local very shallow
	oLr	N		28.4						
	e	Z/	05	37	33½					+
	e	Z/	06	00.4						+
	e	Z/	19	27.2						-
	e	Z/	20	03.6						+
	iP	Z	23	11	27.5	5.5	0.6	d	1.4 ⁰	New Britain region
	iS	N			45.5					H = 23 11 04
20/9	e(P)	Z	04	06	21	1.7	0.9	-		C.B.M.
	iP	Z	06	09	40.5	167	0.4	c	1.4 ⁰	New Britain region
	iS	N/			58.0					H = 06 09 17
	Felt: Rabaul Int 1-XX 04°10'S., 152°10'E.									
	iP	Z	14	02	24.9	28	0.4	c	2.1 ⁰	New Britain region
	iS	E			50.0					H = 14 01 51
	iP	Z	14	42	31.0	3.0	1.0	d		deep
	e	Z		44	09					
	e	Z		43						
	eS	N		47	35					
	e	E		50						
21/9	iP	Z	04	24	21.5	3.0	1.0	c		

Sept.

TERRITORY OF PAPUA AND NEW GUINEA.
VULCANOLOGICAL OBSERVATORY RABAU

Seismological Preliminary Analysis Rabaul Station

Instruments at Rabaul Station: RAB.

World Wide Standardized Seismograph L.P. Z/N/E/
S.P. Z N E
Strong Motion two-component Omori Seismograph L.P. No Eo

Sulphur Creek Auxiliary Station

Lat. $04^{\circ}13.7'S.$, Long. $152^{\circ}11.8'S.$

Benioff Small Model three-component Seismograph Zr Nr Er

"c" or "d" indicates initial compression or dilatation of the ground, respectively, from a wave of the compressional type. "+" or "-" indicates upward or downward motion of the ground, respectively, from a wave not known to be of the compressional type. N, E, S, and W indicates that the initial horizontal direction of the ground motion was towards the north, east, south or west respectively.

When readings are given with a decimal figure they are to 1/10 second; other readings have been made to the nearest half second.

Intensities on felt earthquakes are given in Roman Numerals based on Modified Mercalli Scale of 1931.

A peak - to - trough trace amplitude
C.B.M. = Confused by microseisms.
G.M. = Ground Motion

Seismograms interpreted by G.W.D'Addario - Vulcanologist.

C.D.Branch - Senior Vulcanologist.

TERRITORY OF PAPUA AND NEW GUINEA.
Vulcanological Observatory Rabaul

Seismological Preliminary Analysis 30th July to 5th August.

Instruments at Rabaul Station: RAB.

World Wide Standard Seismograph SP Z N L
LP Z/N/E/
Strong Motion Two-component Omori Seismograph LP No Eo
Sulphur Creek Auxiliary Station
Benioff Small Model 3 component Seismograph Zr Nr Er

"c" or "d" indicates initial compression or dilatation of the ground, respectively, from a wave of the compressional type. "+" or "-" indicates upward or downward motion of the ground, respectively, from a wave not known to be of the compression type. N, E, S, or W indicates that the initial horizontal direction of the ground motion was toward the north, east, south or west, respectively.

C.B.M. = Confused by microseisms.

30th July.	iP	Z	13	13	39	d	C.B.M.!
							Traces on Omori.
							New Britain region
							Delta = 2.75°
							H = 13 12 56
	iP	Z	18	16	20	d	
	iP	Z	19	39	08.1	c	Traces on Omori
	i(S)	E			17.5		Local
	i	N			28		Delta = 0.7°
							H = 19 38 55
31st July	iP	Z	05	53	09.4	c	Time breaks failed
	i(S)	No			38		from 1500-2400
							New Britain region
							Delta = 2.4°
							H = 05 52 32

Felt:-

- Walindi Int 5 (M.M.)
05°25'S., 150°05'E.
- Kandrian Int 4 (M.M.)
06°15'S., 149°35'E.
- Talasea Int 3-4 (M.M.)
05°20'S., 150°05'E.
- Cape Gloucester Int 4 (M.M.)
05°25'S., 148°25'E.
- Lagenda Int 3-4 (M.M.)
05°20'S., 150°05'E.
- Numundo Int 6 (M.M.)
05°32'S., 150°07'E.
- Volupal Int 3-4 (M.M.)
05°15'S., 150°00'E.
- Keravat Int 2 (M.M.)
04°20'S., 152°00'E.
- Rabaul Int 2 (M.M.)
04°10'S., 152°10'E.

iP Z 06 48 43.4 d Local

31st July contd.	iP	Z	07	01	25.3	c	Local
	iP	Z	14	56	44	d	
	iP!	Z	22	08	(41)	d	ESE Recorded on Omori. Felt:- Rabaul Int 1-2 (M.M.) <u>04°10'S., 152°10'E.</u>
1st Aug.	iP	Z	06	16	29.5	d	Power Unit failure Secondary Power from 0900 to 0029 New Britain region Delta = 1.3° H = 05 16 07
	iS	N			46.2		
	iP	Z	10	20	59	d	SW Local
2nd Aug.	iP	Z	02	30	31.2	d	Local. Secondary time from 0012 to 0103
	i	N		30	43.6		
	i	N		31	14		
	e	N/ N/	07	14	22½	-	Traces
	e			15	29		
	oIP	Z	08	40	18.6	d	Local
	o(P)	Z	08	48	01	+	Traces
iP	Z	16	43	18.6	c	Local	
iP	Z	16	48	31.6	d	New Britain region Delta 2.03° H = 16 47 59	
iS	N			56.1			
3rd AUG.	o(P)	Z	20	44	00	-	Traces
	e	N/ N/		46	10		
	iP	Z	00	30	52.4	c	Traces on Omori Delta = 2.4° H = 00 30 14
	iS	E/ E/		31	21.4		
	iP	Z	02	06	41.5	d	
iP	Z	07	52	24.5	d		
iP	Z	10	53	00.8	d	Local	
4th Aug.	e	Z/ Z/	03	39	40½	+	Traces
	iP	Z	17	33	20	c	deep
	eS	E/ E/		40	29		
M	Z/ Z/		47	53			
5th Aug	e	Z/ Z/	02	05.3		+	Traces. Timing system failure: Time correction right within 0.1 minute.

5th Aug.
contd.

1P	Z	04	02.3	d	
e	Z/	05	30.0	+	Traces
1P	Z	11	15.3	c	
1P	Z	11	21.0	c	In coda of preceding shock
1P	Z	18	35.3	c	Local
1(P)	Z	22	43.1	-	

Seismograms read by G.W.D'Addario

G.A.M. Taylor
A/Senior Resident Vulcanologist.

Rabaul

TERRITORY OF PAPUA AND NEW GUINEA
Volcanological Observatory Rabaul

Seismological Preliminary Analysis 6th August to 12th August 1964.

Instruments at Rabaul Station: RAB

Strong Motion Two-component Omori Seismograph LP No Eo
World Wide Standard Seismograph SP Z N E
LP Z/N/E/
Sulphur Creek Auxiliary Station Lat. $04^{\circ}13.7'S.$, Long. $152^{\circ}11'E.$
Benioff Small Model 3 component Seismograph Zr Nr Er

"c" or "d" indicates initial compression or dilatation of the ground, respectively, from a wave of the compressional type. "+" or "-" indicates upward or downward motion of the ground, respectively, from a wave not known to be of the compressional type. N, E, S, or W indicates that the initial horizontal direction of the ground motion was toward the north, east, south or west, respectively.

World Wide Standard Seismograph not operating from 6th August. All readings correct to $\frac{1}{2}$ second.

C.B.M. = Confused by microseisms.

6th Aug.	iP	Zr	01	03	39	d	Local	
	iS	Nr			45 $\frac{1}{2}$			
	iP	Zr	03	06	03	c		
	iP	Zr	05	16	58 $\frac{1}{2}$	c		
	iP	Zr	23	59	34	c		
7th Aug.	iP	Zr	02	32	58 $\frac{1}{2}$	c	New Britain region Felt:- Rabaul Int 2 (M.I.) <u>$04^{\circ}10'S., 152^{\circ}10'E.$</u> Delta = 1.2° H = 02 32 37	
	iS	Nr		33	14 $\frac{1}{2}$			
	iP	Zr	11	06	16 $\frac{1}{2}$	c		
	iP	Zr	12	56	16	d		
	iS	Er			35			
	iP	Zr	20	41	31.5	d		
	i	Zr			39			
8th Aug.	iP	Zr	01	21	20	d	New Britain region Delta = 1.6° H = 01 14 53.5	
	iS	Er			40			
	e	Nr	06	13	09	+		Traces
	iP	Zr	09	18	15	c		
	e(P)	Zr	15	06	45 $\frac{1}{2}$	-		
	e(P)	Zr	15	56	44			
	i	Zr			50			
	eS	Nr		57	30 $\frac{1}{2}$			

				2			
9th Aug.	iP iS	Zr Nr	03	14	13½ 30½	c	New Britain region Delta = 1.3° H = 03 13 51
	iP iS	Zr Er	09	43 44	50 16	c	New Britain region Delta = 2° H = 09 43 15½
	iP iS	Zr Nr	13	37	36 51	d	New Britain region Delta = 1.6° H = 13 37 16
	iP iS	Zr Nr	16	13	14 30	c	New Britain region Delta = 1.8° H = 43-37=46 16 12 53
	eP e(S)	Zr Nr	20	12	07½ 25½	c	
10th Aug.	eP i i(S)	Zr Zr Er	00	19	30½ 31½ 08		
	eP iS	Zr Er	03	55 56	14 07½		Solomon Is. region Delta = 5° H = 03 54 04½
	iP	Zr	17	18	20	e	
	eP i iS	Zr Zr Er	22	41	01½ 03 44		
11th Aug.	eP i(S)	Zr Er	00	56 57	23½ 11		near shock
	iP iS	Zr Nr	02	00	32½ 54	e	near shock
	iP	Zr	09	11	32	c	
	eP iS	Zr Nr	19	51	00 43½		near shock
12th Aug.	e	Nr	00	23	19½		
	e	Nr	08	31	20½		
	iP iP	Zr Nr	09	04 05	44 04½	d	
	eP iS	Zr Nr	12	02	19½ 42		New Britain region Delta = 1.8° H = 12 01 50

Seismograms read by G.W.D'Addario.

G.A.M. Taylor
A/Senior Resident Vulcanologist.

Rabaul

TERRITORY OF PAPUA AND NEW GUINEA.
Vulcanological Observatory Rabaul

Seismological Preliminary Analysis 13th August to 19th August 1964.

Instruments at Rabaul Station: RAB.

World Wide Standard Seismograph LP Z/N/E/
SP Z N E
Strong Motion Two-component Omori Seismograph LP No Mo
Sulphur Creek Auxiliary Station Lat. $04^{\circ}13.7'S.$, Long. $152^{\circ}11'E.$
Benioff Small Model 3 component Seismograph Zr Nr Er

"c" or "d" indicates initial compression or dilatation of the ground, respectively, from a wave of the compressional type. "+" or "-" indicates upward or downward motion of the ground, respectively, from a wave not known to be of the compressional type. N, E, S, or W indicates that the initial horizontal direction of the ground motion was toward the north, east, south or west respectively.

When readings are given with a decimal figure they are to 1/10 second; other readings have been made to the nearest half second.

W.W.S. Seismograph not operating until 01 21 (G.M.T.) of the 18th August.

C.B.M. = Confused by microseisms.

Date	Instrument	Time	Phase	Duration	Character	Location	
13th August	Nr, Er recorder lamp failed at 19.20 G.M.T.	1P	Zr	00 32 13	Dil.	WNW Felt:- Rabaul Int 3 M.M. $04^{\circ}10'S.$, $152^{\circ}10'E$	
		iP	Zr	04 33 06.	d	Near shock	
		i(S)	Er		36		
		iP	Zr	12 40 57	c	Local	
		eP	Zr	18 41 37		Local	
		iS	Nr		43		
14th August		iP	Zr	02 21 14	c	Local	
		i(S)	Er		22		
		iP	Zr	02 31 33	c	Local	
		iS	Er		38		
		iP	Zr	02 33 16	d	in coda of preceding shock.	
		iP	Zr	05 03 59	e	Local	
15th August		iP	Zr	09 08 10	c	Local	
		iP	Zr	12 22 41	e	Disturbance - frequency 4cps - due to ship moving in Harbour.	
		iP	Zr	13 25 44	d	idem	
		iP	Zr	14 13 53	d	idem	
		eP	Zr	14 42 06	d	Solomon Is. region	
		eS	Er		56	Delta = 4.3° H = 14 41 01	

29th August.

Secondary time from 0128 on 29th to 0145 on 31st.

1P	Z	02	43	50.6	13.0	$\frac{1}{2}$	d	0.6°	Local
1S	N		44	00.0					H = 02 43 38
e	Z/	08	53	24			+		Traces
e	Z/	13	01	17			-		Traces
e	Z	13	30	25			-		Traces
1P	Z	20	06	00 $\frac{1}{2}$	12.5	$\frac{1}{2}$	d	3°	New Britain region
1S	E		06	27					H = 20 05 25
e	Z/	21	26	24			-		Traces

30th August.

1P	Z	08	49	29	16.5	1.0	d	7.3°	N.E. New Guinea
1S	N/		51	03					H = 08 47 27

Felt:- Mendi Int V M.M.
 06°10'S., 143°40'E
 Goroka Int I-II M.M.
 06°05'S., 145°25'E.
 Hapou Is. Int. 3
 04°05'S., 145°05'E.

e	Z/	17	59	17 $\frac{1}{2}$			-		Traces
e	N/	18	10	47			+		
e(P)	Z/	20	40	50			+		Traces
e(S)	E/		46	10					

31st August.

e	Z/	01	57	32 $\frac{1}{2}$			+		Traces
e	Z/	02	58	08			-		Traces
1P	Z	9	28	12.2			d	0.5°	C.B.M.
1S	N/			20.0					Local
									H = 09 28 01

Felt:- Rabaul Int III M.M.
 04°10'S., 152°10'E

1P	Z	13	06	46.0	40.0	$\frac{1}{2}$	d	3.7°	New Britain region
1S	E/		07	29.0					H = 13 05 50
e	Z/	19	37	50			-		Traces
e(P)	Z/	19	58	46			(a)	5.4°	C.B.M.
eS	N/		59	48					Near shock
									Probably NE
									New Guinea
									H = 19 51 (26)

(Strong Microseismic activity)
1st September.

e(P)	Z/	13	33	25			(a)		Traces
e	Z/	17	46	20			-		Traces
e	Z/	21	13	50			+		Traces

2nd September.

No records from 2244 1st to 0547 2nd

2nd September contd.

e	Z/	13	27	08 _g	-		Traces
1P	Z	13	39	44.0	6	$\frac{1}{8}$	New Britain
1S	N			57.0		1 ⁰	region H = 13 39 26

Seismograms interpreted by G.W.D'Addario

C.D.Branch
Senior Vulcanologist.

TERRITORY OF PAPUA AND NEW GUINEA.
Vulcanological Observatory Rabaul

Seismological Preliminary Analysis 2nd July to 8th July 1964.

Instruments at Rabaul Station: RAB.

World Wide Standard Seismograph	L.P.	Z/N/E/
	S.P.	Z N E
Strong Motion Two-component Omori Seismograph	L.P.	No Eo
<u>Vertical Experimental Seismograph</u>	<u>S.P.</u>	<u>Zm</u>

"c" or "d" indicates initial compression or dilatation of the ground, respectively, from a wave of the compression type. "+" or "-" indicates upward or downward motion of the ground, respectively, from a wave not known to be of the compressional type. N, E, S, or W indicates that the initial horizontal direction of the ground was toward the North, East, South or West, respectively.

C.B.M. = Confused by microseisms.

2nd July	e	Z/	01	54	11	+	
	iP	Z	05	07	57.2	d	Local
	iS	E/		08	12.5		New Britain region
							Delta = 1.2°
							H = 05 07 35
	e	Z/	07	05	32.5	+	
	e	E/	09	18	11	-	
	iP	Z	12	17	04.3	d	
	iP	Z	20	49	51.2	c	
	e(S)	E/		50	18.4		
	iP	Z	21	03	15.1	d	Local
							Traces on Omori
							New Britain region
							Delta = 8°
							H = 21 03 01
<u>3rd July</u>	eiP	Z	04	17	22.5		
	i	Z			27.0		
	i	N		18	08		
	i	N			15.5		
	iP	Z	07	55	56.2	c	
	e	Z	13	50	37.8	-	
	eL	E/		55	49		
	eiP	Z	15	30	52.3		Traces on Omori
	i	N		31	10		
	i	N			21.5		
<u>RAB</u>	<u>eP</u>	<u>N/</u>	<u>22</u>	<u>08</u>	<u>05</u>	<u>+</u>	
4th July	iP	Z	10	53	32.6		
	iS	N/		57	05.5		

4th July
contd.

continuation of previous shock.

	iLQ	E/		57	15	c	S.E.	
	eSS	E/		57	31.5			
	eLR	Z/		58	10		Delta = 19°	
	iP!	Z	14	19	24.5	d	Local Traces on Omori	
	iS	N			34		New Britain region	
	Felt: Rabaul Int 1 M.M.							Delta = 7°
	<u>04°10'S., 152°10'E.</u>							H = 14 19 11
	e	N/	15	57	11	-		
	iP	Z	18	18	23.5	+		
5th July	iP	Z	06	44	16	c		
	e	Z	09	27	30	+		
	e	N/		29	50			
	iP	Z	13	02	22	c	Traces on Omori.	
	iP	Z	13	12	17.8	d	In coda	
	e	Z	19	32	15.5			
	eL	Z		53	34	-		
6th July	i	Z/	02	59	23	-	In coda of proceeding teleseisms	
	eP	Z/	07	36	25			
	i	Z/		50	11	-	Mexican shock	
	iP	Z	10	06	56.3	c	Recorded on Omori	
	iS	E/		07	45.5		Delta = 3.4° H = 10 06 05	
	eiP	Z	12	39	01.5	+		
	e	Z/	14	24	38.5	-	{ Felt:- Emira Int 3 (M.M.) <u>01°41'S., 149°55'E</u>	
	iP	Z	19	56	37.2	d		
7th July	eiP	Z	07	45	01.8	+		
	i	Z		50	27.1			
	e	Z	16	31	49			
	e	Z/		35	06			
8th July.	iP	Z	07	51	10.0	c		
	eS	E/		55	37			
	e	Z/		57	54			
	iPn	Z	11	50	15.9	d	Traces on Omori	
	i	Z			21.0		Felt:- Rabaul Int 1 M.M. 04°10'S., 152°10'E.	

Vulcanological Observatory Rabaul.

Seismological Preliminary Analysis 9th July to 15th July 1964.

Instruments at Rabaul Station: RAB.

World Wide Standard Seismograph L.P. Z/N/E/
S.P. Z N E
Strong Motion Two-component Omori Seismograph L.P. No Eo
Vertical Experimental Seismograph S.P. Zm

"c" or "d" indicates initial compression or dilatation of the ground, respectively, from a wave of the compressional type. "+" or "-" indicates upward or downward motion of the ground, respectively, from a wave not known to be of the compressional type. N, E, S, or W indicates that the initial horizontal direction of the ground was toward the North, East, South or West, respectively.

C.B.M. = Confused by microseisms.

9th July	1P	Z	05	24	21	d	
	eiP	Z/	11	29	07	+	
	1P	Z/	16	44	01.6	d	S.E.
	ePP	Z			21		Recorded on
	ePPP	Z			40		Omori
	iS	E		47	40.9		
	1PcS	Z		51	50		
	e	Z/	21	46	29	+	
	1P	Z	23	47	17.5	c	
	i(S)	E		48	02.3		New Britain
							region
							Delta = 3.82°
							H = 23 46 19
10th July	1P	Z	03	57	25.7	d	
	eiP	Z	16	23	41	+	
	1P	Z	21	50	11	c	
11th July	eiP	Z	01	37	32.5	d	
	e	Z/	06	47	39.3		
	e	Z/	10	02	04		
	1P	Z	11	21	01.3	d	Traces on Omori.
	iS	N/			21		New Britain region
							Felt. :-
							Rabaul Int 1 K.M.
							04° 19' S., 152° 10' E
							Delta = 1.6°
							H = 11 20 35
	1P	Z	15	26	39.6	c	
	e	Z	16	51	13.5		
		N/		52	27.5		

11th July
1964 contd. iP Z 18 57 41.5 c
eiP Z 20 47 23.3 -
e Z/ 21 02 28

12th July iP Z 01 53 35.5 c
eS E/ 02 00 07.0
eP Z/ 20 26 08 +
iP Z 21 42 39.8 c
iS N 51

Local
Traces on Omori
New Britain region
Delta = $.85^{\circ}$
H = 21 42 24

13th July e Z/ 06 36 08
e Z 10 12 37.8
iP Z 11 09 01.7 d
e Z/ 12 34 16
e Z/ 17 22 30
eiP Z 19 13 58.6 -
e Z/ 22 22 33.2
eiP Z 23 21 50.5 c
iS E/ 22 02.8

Local
Traces on Omori
New Britain region
Delta = 0.94°
H = 23 21 24

14th July iP! Z 02 43 56.2 d
iS E/ 44 17
eiP Z 07 32 45.5
iS E/ 33 11

Traces on Omori
New Britain region
Delta = 1.2°
H = 02.43 29

C.B.M.
Traces on Omori
New Britain region
Delta = 2.12°
H = 07 32 12

RAB

iP	Z	11	13	14.4	d
iS	Z/			39.5	
e	N/	12	34	42.5	
e	Z/	13	27	29.8	
e(P)	Z/	23	19	34	

15th July	iP eS	Z N/	13	00 01	51.5 11.5	c	Traces on Omori New Britain region Delta = 1.6° H = 13 00 25
	iP iS	Z N	15	18 19	02.4 19	d	Traces on Omori New Britain region Felt:- Rabaul Int 1 (M.M.) $04^{\circ}10'S., 152^{\circ}10'E.$ Delta 1.30° H = 15 17 40
	iP	Z	22	18	14.5	c	
	iP! iS	Z E/	22	23	16.3 32.5	d	Traces on Omori New Britain region in coda of pre- ceding shock Delta = 1.30° H = 22 22 54
	eiP	Z	22	48	41	c	Traces on Omori
	iP! iS	Z E	23	27	16.4 27.6	d	Local Traces on Omori New Britain region Delta = $.85^{\circ}$ H = 23 27 01

Seismograms read by M. Gaiam

C.D. Branch - Vulcanologist.

TERRITORY OF PAPUA AND NEW GUINEA.
Vulcanological Observatory Rabaul

Seismological Preliminary Analysis 16th July to 22nd July 1964.

Instruments at Rabaul Station : RAB.

World Wide Standard Seismograph L.P. Z/N/E/
 S.P. Z N E
 Strong Motion Two-component Omori Seismograph L.P. No Eo
 Vertical Experimental Seismograph. S.P. Zm

"c" or "d" indicates initial compression or dilatation of the ground, respectively, from a wave of the compressional type. "+" or "-" indicates upward or downward motion of the ground, respectively, from a wave not known to be of the compressional type. N, E, S, or W indicates that the initial horizontal direction of the ground motion was toward the north, east, south or west, respectively.

C.B.M = Confused by microseisms

16th July.	iP iS	Z E	06 32	21.5 43	d	New Britain region Delta = 1.8° H = 06 31 53
RAB	eP	E/	13	23	39	-
17th July	e	Z/	02	54	42	- Traces
	eP	Z	04	02	59.5	c Traces
	iP	Z	04	50	25	d Traces
	eL	Z/	05	05	47½	+
	iP	Z	21	35	34.7	d Traces on Omori New Britain region Delta = 1.30° H = 21 35 13
	eL	Z/	23	17	15	+ Traces
18th July	eP eS	Z E	12	51 56	40 22	c (New Hebrides)
19th July	e	Z	06	54	17½	+ Traces
	e	Z/	13	55	25	+ Traces
	iP eS	Z N	16	08 09	51 10.4	c New Britain region Delta = 1.5° H = 16 08 25

19th July
contd.

e	Z	18	17	14½	-	Traces
iP	Z	22	36	13.1	c	Local Traces on Omori Delta = 0.4° H = 22 36 04
iS	N			20		
iP	Z	23	23	19	d	Local Traces on Omori Delta = 0.7° H = 23 23 05
iS	N			29		

20th July

iP	Z	04	30	22.5	d	Traces on Omori New Britain region Delta = 3.9° H = 04 29 23
iS	E/		31	08		
iP	Z	08	13	02.2	c	Local
e	Z/	10	03	30½	-	Traces
eP	Z	10	30	22½	d	Traces
iP	Z	10	51	19.4	d	Traces
e	Z	13	48	37	-	Traces
eP	Z	19	26	27	d	
iP	E	21	23	06	d	
iP	Z	22	50	29.5	d	
iP	Z	23	03	13	d	
eL	Z/	23	24	36½	-	Traces

21st July.

e	Z/	01	53	25½	+	Traces
eL	Z/		55	04½		
iP	Z	03	55	38	c	
iP	Z	04	01	31.5	d	in coda of preceding shock.
i(P)	Z	12	07	01	(d)	
eP	Z	13	19	42½	-	
eS	N/		25	10		
eP	Z	17	29	11	d	
iP	Z			12.5		
iP!	Z	21	02	11.7	C, E N E	Recorded on Omori Felt Rabgul Int IV M.L. 04°10'S., 152°10' (E)
iSo!	E			26		
						Delta = 1.°
						H = 21 01 52

25th July contd.	iP	Z	16	07	26.3	c	
	eiP	Z	18	08	57	d	
	eP	Z	19	50	12½	d	
	iP	Z	21	34	58	c	
	iS	N/ E		39	17		
26th July	iP	Z	10	15	36.1	d	SP.2 light bulbs failed 10 42
	iP	Z/ N	18	03	26.8	d	New Britain region Delta = 2° H = 13 04 02
	iS	N			53.2		
	i(P)	N	22	14	44	d	New Britain region Delta = 1.8° H = 22 14 16
	iS	E		15	05.3		
27th July	i(P)	Z	05	12	07.7	d	Local Light bulb replaced at 0142
	iP	Z	11	42	50	d	
	iS	N		43	11.9		New Britain region Delta = 1.8° H = 11 42 28
	iP	Z	12	39	13.4	c	Local
	iP	Z	18	13	22.6	d	Local Delta = 0.7° H = 18 13 04
	iP	Z	20	50	58.2	d	Deep?
	eS	N/ E		51.8			
	iP	Z	21	06	16.9	c	
	iS	E			34.5		New Britain region Delta = 1.4° H = 21 05 54
	iP	Z	21	18	36.3	d	Traces
	i(P)	Z	23	09	42.6	e	C.B.M.
	i	Z			50.9		
28th July	e	Z/ E	06	42	53	-	Traces
	e	Z/ E	12	45	46½	-	Traces
	iP	Z	14	54	56.4	d	Local

TERRITORY OF PAPUA AND NEW GUINEA.
Vulcanological Observatory Rabaul.

Seismological Preliminary Analysis 4th June to 10th June 1964.

Instruments at Rabaul Station: RAB.

World Wide Standard Seismograph S.P. Z.N.E.
 L.P. Z/N/E/
 Strong Motion Two-component Omori Seismograph L.P. No Eo
 Vertical Experimental Seismograph S.P.Zm

"c" or "d" indicates initial compression or dilatation of the ground, respectively, from a wave of the compressional type. "+" or "-" indicates initial upward or downward motion of the ground, respectively, from a wave not known to be of the compressional type. N,E,S, or W indicates that the initial horizontal direction of ground motion was toward the north, east, south or west respectively.

C.B.M. = Confused by microseisms.

4th June	iP iS	Z N	04 05	29.8 45	d WSW	Traces on Omori New Britain region. Felt:- Palmalmal Int III (M.M.) 05°37'S., 151°28'E. Delta = 1.2° H = 04 05 10
	iP e(S)	Z Eo	11 17 18	58.4 35	cNE Deep	New Britain region Felt:- Lagenda Int I-II M.M. 05°20'S., 150°05'E. Walandi Int III M.M. 05°25'S., 150°05'E
	e(P) e	Z E/	13 00 06.4	12.5	-	
	iP iS	Z E	17 04 05	51.7 01.7	d Local	Delta = 0.72° H = 17 04 38
5th June	iP	Z	00 35	34	d	
	iP iS	Z N	02 25	11.1 41	d	New Britain region Delta = 2.5° H = 02 24 32
	e e	N/ Z/	09 25 27	23 16	+ Traces	
	iP iS	Z E	14 19 20	54 31	d	New Britain region Delta = 3.2° H = 14 19 05
	eL	N/	20 21	38	+	
6th June	iP iS	Z N/	06 01 02	42.9 03	d	Traces on Omori New Britain region Delta = 2.3° H = 06 01 16
	iP iS!	Z E	07 23	55.5 18	d	New Britain region Delta = 1.8° H = 07 23 26

6th June contd. eP Z 19 20 55.5 d
 e N/ 32 11
 e E/ 38 20

7th June iP Z 05 25 08.2 d
 iS N 28

Traces on Omori
 New Britain region
 Delta = 1°
 H = 05 24 51

iP Z 05 29 57.2 d
 iS E/ 30 19

In coda of preceding shock.
 New Britain region
 Delta = 1.8°
 H = 05 29 28

iP Z 07 21 07.5 d
 iS N/ 33

New Britain region
 Delta = 1.5°
 H = 07 20 34

iP Z 13 21 55.5 d
 e N/ 23 45

e Z/ 20 51 17 +

Traces

8th June iP Z 08 33 59.5 d

Local

iP Z 10 13 08 c
 iS! E 22.5

New Britain region
 Delta = 1.12°
 H = 10 12 49

iP Z 15 48 32.7 c
 iS E 57.7

New Britain region
 Delta = 2.1°
 H = 15 48 00

iP Z 17 56 55 d
 iS E 57 43

(deep?)
 Traces on Omori
 New Britain region
 Delta = 3.12°
 H = 17 55 52

8

RAB

eP Z/ 22 58 09# d

C.B.M.

9th June

e N/ 09 29 39 -

Traces

iP Z 10 29 01.9 d

Disturbance due to ship leaving wharf.
 (frequency 3c/s.)

RAB

~~e(P) Z 11 20 56 -~~
~~iP Z 11 21 01.4 c~~
~~iLQ N/ 22 13~~
~~M N/ 23 01~~

eP Z 19 29 24.3 c
 iS N 56

New Britain region
 Delta = 2.7°
 H = 19 28 43

10th June eL Z/ 18 44 54 +

Traces

eP Z 19 18 33 c

e Z/ 40

e N/ 22 47

3.

10th June
contd.

iP	Z	21	43	04.4	d
iS	N			34	
iP	Z/	22	23	08	c
i	Z/			38	
iS	E/		26	37	
i	E/		27	55	
i	Z/		29	31	

New Britain region
Delta = 1.5°
H = 21 42 39Seismograms read by
G.W.D'Addario

C.D.Branch - Vulcanologist.

TERRITORY OF PAPUA AND NEW GUINEA.
Vulcanological Observatory Rabaul

Seismological Preliminary Analysis 11th June to 17th June 1964.
Instruments at Rabaul Station: RAB.

World Wide Standard Seismograph S.P. Z.N.E.
L.P. Z/N/E/
Strong Motion Two-component Omori Seismograph L.P. No Eo
Vertical Experimental Seismograph S.P. Zm.

"c" or "d" indicates initial compression or dilatation of the ground, respectively, from a wave of the compressional type.
"+" or "-" indicates upward or downward motion of the ground, respectively, from a wave not known to be of the compressional type. N, E, S, or W indicates that the initial horizontal direction of the ground was toward the north, east, south or west, respectively.

C.B.M. = Confused by microseisms.

Timing System Failure from 11th June to 17th June
error rate more than 600 milliseconds per day.

11th June

e	Z	02	04	03	+	Traces
iP	Z	08	28	13	c	Local
eP	Z	10	28	56		(Foreshock of the 17 04 35 shock).
iP	Z			59		
iLQ	N/			31.3		
iS	N/			31.4		
eP	Z	13	22	27 $\frac{1}{2}$		(Foreshock of the 17 04 35 shock).
iP	Z			32 $\frac{1}{2}$		
iLQ	N/			24.8		
eS	N/			25.0		

RAB

iP	Z	14	02	20	d	Traces
----	---	----	----	----	---	--------

RAB

eP	Z	15	16	56	-	Traces
----	---	----	----	----	---	--------

e	Z	15	23	36 $\frac{1}{2}$	-	Traces
---	---	----	----	------------------	---	--------

iP	Z	16	26	57 $\frac{1}{2}$	d	New Britain region. Delta = 1.4° H = 16 26 33
iS	N		27	15 $\frac{1}{2}$		

iP	Z	17	04	35	c	Delta = 12°
i	Z			39 $\frac{1}{2}$		
i!	Z			55 $\frac{1}{2}$		
iLQ	N/			06.9		

eP	Z	19	44	54		(Aftershock of the 17 04 35 shock).
iP	Z			59 $\frac{1}{2}$		
iS	N/		47	35		

e(P)	Z	21	48	17	+	Traces C.B.M.
------	---	----	----	----	---	------------------

RAB

12th June

iP	Z	10	52	54 $\frac{1}{2}$	d	C.B.M.
iS	N/		55.2			

iP	Z	16	02	26	d	C.B.M.
----	---	----	----	----	---	--------

12th June contd e N/ 18 22.7 - Traces
 eP Z 22 48.7 C.B.M.
 eS E/ 49.5

Large microseismic activity.

RAB 13th June eP Z 03 50 35 $\frac{1}{2}$ Local or regional?
 RAB eP Z/ 05 07 $\frac{1}{2}$ 12 c
 eS E/ 09 $\frac{1}{2}$ 30
 RAB eP Z/ 08 00 $\frac{1}{2}$ 54 c
 eS N/ 03 $\frac{1}{2}$ 12
 iP! Z 14 02 44 d
 iS! N/ 03 33 $\frac{1}{2}$

Delta = 4.3
 H = 14 01 40

e(P) Z/ 22 38.8 + Traces

14th June Strong microseismic activity

e Z/ 05 30.6 - Traces
 e Z/ 12 34.8 + Traces
 e Z/ 12 54.2 - Traces
 iP Z 14 51 49 $\frac{1}{2}$ c Local

15th June iP Z 00 15 09 d C.B.M.
 other phases lost in changing the records.

iP Z 16 57 12 d New Britain region
 iS E 36
 Delta = 2^o
 H = 16 56 40

eP Z 23 51 17 New Britain region
 iS N 40
 Delta = 2^o
 H = 23 50 47

16th June iP Z 02 31 18.7 c

eP Z 04 09 48 $\frac{1}{2}$ Onset on Major shock
 L.P. records hard to decipher. Honshu, Japan
 many killed and injured, extensive damage at Niigate.

eP Z 07 01 16 $\frac{1}{2}$

eP Z 07 23 03 $\frac{1}{2}$

eP Z 11 18 51
 eS N/ 21.3

eP Z 17 24 09 $\frac{1}{2}$ Traces on Omori
 iS N/ 45 New Britain region.
 Delta = 3^o
 H = 17 23 23

3

16th June
contd.iP! Z 22 40 57 c
iS! N/ 41 09Traces on Omori
New Britain region
Delta 0.9°
H = 22 40 4117th June eP Z 23 38 $52\frac{1}{2}$ dSeismograms read by G.W.D'AddarioC.D.Branch
Vulcanologist.

VULCANOLOGICAL OBSERVATORY

RABAU T.P.N.G.

TERRITORY OF PAPUA AND NEW GUINEA.

Seismological Preliminary Analysis 18th June to 24th June 1964

Instruments at Rabaul Station: RAB.

World Wide Standard Seismograph S.P. Z N E
L.P. Z/N/E/
Strong Motion Two-component Omori Seismograph L.P. No Eo
Vertical Experimental Seismograph S.P. Zm

"c" or "d" indicates initial compression or dilatation of the ground, respectively, from a wave of the compressional type.
"+" or "-" indicates upward or downward motion of the ground, respectively, from a wave not known to be of the compressional type. N,E,S, or W indicates that the initial horizontal direction of the ground was toward the North, East, South or West, respectively.

C.B.M. = Confused by microseisms.

Date	Station	Frequency	Standard	Unserviceable	Times approximate.	
18th June	e	Z/	02	51	37	-
	iP	Z	16	11	36	
	iP!	Z	16	12	06	d in coda.
	eP	N/	17	18	36	Traces on Omori.
	e	N/	21	03	30	-
19th June	iP	Z	10	13	45.8	d
	e	E/	10	48	19	+
	iP iS	Z N	14	22	29.7 48.7	c New Britain region Delta = 1.5° H = 14 22 05
20th June	e iL	Z/ N/	02	04 18	05 30	+
	iP iS	Z N/	03	45 47	58.0 04.4	c Delta = 4.° H = 03 44 48
	e	N/	10	18	08	+
	eiP	Z	16	09	06.6	-
	eiP	Z	21	05	26.1	-
	21st June	eP	Z	15	21	02.5
eP		Z	16	54	24.7	c RAB Traces on Omori New Britain region Delta = 1.12° H = 16 53 59
22nd June	eP	Z/	00	23	28.5	e

2

22nd June	iP	Z/	03	06	11	c
contd.	iS	N/		08	26.8	
	iSS	N/			48	
	iLR	N/		09	06	

Delta = 12°

(22)	e P	N/	07	35	38	- RAB
(22)	e P	Z/	17	22	30.4	- RAB
	e	N/	21	36	09	-

23rd June	iP	Z/	01	35	07	
	iP	Z	10	16	12.6	c
	iS	N/			32	

Traces on Omori
New Britain region
Delta = 1.12°
H = 10 15 47

(23)	e P	Z	19	15	48	+ RAB
------	-----	---	----	----	----	-------

24th June	iP	Z	15	01	06	d
	iS?	E/		02	08	RAB

C.D. Branch - Vulcanologist.

TERRITORY OF PAPUA AND NEW GUINEA.
Vulcanological Observatory Rabaul.

Seismological Preliminary Analysis 25th June to 1st July 1964.

Instruments at Rabaul Station : RAB.

World Wide Standard Seismograph I.P. Z/N/E/
S.P. Z N E
Strong Motion Two-component Omori Seismograph L.P. No Eo
Vertical Experimental Seismograph S.P. Zm.

"c" or "d" indicates initial compression or dilatation of the ground, respectively, from a wave of the compressional type. "+" or "-" indicates upward or downward motion of the ground, respectively, from a wave not known to be of the compressional type. N, E, S, or W indicates that the initial horizontal direction of the ground was toward the North, East South or West, respectively.

C.B.M. = Confused by microseisms.

25th June	iP	Z	02	24	03.1	d	New Britain region Delta = 1.3 ⁰ H = 02 23 41
	iS	N			19.5		
	e	Z/	03	50	21	+	
	iP	Z	20	53	07.6	c	Traces on Omori. New Britain region. Delta = 2.3 ⁰ H = 20 52 31
	iS	E/			35		
26th June	iP	Z	10	17	25.5	c	Delta = 5.9 ⁰ H = 10 16 57
	iS	N		18	33.5		
	eSS	E/			43.5		
	eIP	Z	13	34	02.4	c	RAB
	iP	Z	15	26	00	d	Delta = 3.1 ⁰ H = 15 25 12
	iS	N			36		
27th June	iP	Z	03	03	19	d	New Britain region Delta = 2.7 ⁰ H = 03 02 36
	iS	N			51.5		
	e	Z/	17	58	44	-	
28th June	iP	Z	07	03	20	c	Local Delta = .8 ⁰ H = 07 03 04
	iS	N			31.3		
	iP	Z	11	59	36.4	d	
	iP!	Z	12	16	35.2	d	Local Traces on Omori Felt:- Rabaul Int I (MM) 04 ⁰ 10'S., 152 ⁰ 10'E. Delta = .8 ⁰
	iS	N/			46		

28th June
contd

continuation of previous shock H = 12 16 20

	1P	Z	12	52	29	c	Recorded on Omori. Felt:- Emira Int. VI (M.M.) 01°41'S., 152°02'E. Mussau Int VI (M.M.) 01°33'S., 149°42'E. Tagkul Int II (M.M.) 02°35'S., 150°25'E. Selapiu Int I (M.M.) 02°36'S., 150°34'E. Kavieng Int I-II (M.M.) 02°35'S., 150°50'E 54 small aftershocks felt Mussau. No damage. Delta 3.3° H = 12 52 39
	1S	E/		53	08		
	1SS	E/			19		
	eP	Z	13	10	29.2	-	
	eiP	Z		18	03.5	+	in coda
	1P!	Z	18	38	09	d	Traces on Omori New Britain region Delta = 1.5° H = 18 37 43
	1S	N/			28		
29th June	e	N/	07	48	49.5	-	
	eiP	Z	13	48	14.1	d	
	1P	Z	20	48	34.5	c	Traces on Omori New Britain region Delta = 2.3° H = 20 47 58
	1S	E/		49	02		
<u>30th June</u> record	1P	Z	23	49	59	d	New Britain region Delta = 1.5° H = 23 49 34
			date of shock 29th June				
RAB	eiP	Z	02	41	06	-	
	1P	Z	03	12	36	o	
	1P	Z	06	43	20.5	d	New Britain region Delta = 1.6° H = 06 42 55
	1S	N/			40		
	1P	Z	13	52	26.6	d	Felt:- Manam Is. Int I-II (M.M.) 04°05'S., 145°05'S. Delta = 6°
	1PP	Z/			35.5		
	1PPP	Z/			42		
	i(S)	E/		53	38.7		
	1LR	Z/		54	01		
	1P	Z	15	55	30.6	d	New Britain region Delta = 1.5° H = 15 55 06
	1S	N/			49.5		
	1P	Z	19	23	27.5	d	
	eP	Z	20	16	53	o	