DEPARTMENT OF
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BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

Record 1976/26

PORT MORESBY GEOPHYSICAL OBSERVATORY ANNUAL REPORT 1974

by

I.D. Ripper, B.A. Gaull, and S.N. Sheard

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SUMMARY

Standard observatory programs in seismology and geomagnetism were continued at Port Moresby during 1974 by the Australian Bureau of Mineral Resources, Geology and Geophysics. Orientation tests on the three magnetic variometers and an intercomparison of the absolute magnetic instruments were conducted in March. A new seismograph station (MDG) was installed at the OTC station, Madang, in November.

Seismic activity decreased relative to the past few years. One M 7 earthquake occurred during 1974, in the mid-Solomon Sea 130 km northeast of Woodlark Island, too far from land to cause damage. An M 6.9 earthquake which occurred in the Solomon Sea, 30 km south of Bougainville, on 01 February was felt with intensity MM 7 at Buin, and a minor tsunami was noted along the Bougainville coast. Another on 31 January, of the same magnitude, but about 20 km to the southeast, caused tsunamis at Choiseul and several other Solomon Islands. An M 6.3 earthquake, which occurred beneath the Ramu-Markham Valley on 20 September and triggered both the Yonki and Intake accelerographs at the Ramu dam site, was widely felt throughout the Highlands. The maximum intensity was MM 6.

1. INTRODUCTION

The Australian Bureau of Mineral Resources, Geology and Geophysics (BMR) opened a geophysical observatory at Port Moresby in 1957 (Observatory Staff, 1965). The program of investigations was restricted initially to geomagnetic and seismological observations at Port Moresby, but it has been enlarged subsequently to include the operation of a network of regional seismographs. The Appendix summarizes principal events in the history of the observatory. Detailed annual accounts of operations to 1973 may be found in BMR Records by several authors.

This report describes the activities during the year 1974. In addition to seismological and geomagnetic work at Port Moresby, networks of seismograph and accelerograph stations were maintained in conjunction with other government and private agencies.

A brief review of 1974 New Guinea regional seismicity, and a list of well-recorded earthquakes for which hypocentres were computed by the United States Geological Survey, are included.

2. STAFF AND VISITORS

Tables 1 and 2 give details of staff, and Table 3 lists visitors to the Observatory during 1974.

The number of man-days spent by staff visiting other Papua New Guinea centres were: Talasea, 15; Kavieng 10; Momote, 8; Lae, 7; Wabag, 6; Madang, 6; Rabaul, 4; Yonki, 3; Musa, 2; Wewak, 1.

The Acting/Observer-in-Charge visited Canberra HQ for the annual planning meeting in September.

3. SEISMOLOGY

Table 4 lists the co-ordinates and instruments of the BMR seismograph stations, and Plate 1 shows the positions of all seismograph stations operating in Papua New Guinea during 1974.

The main problems at outstations were due to:

(a) malfunctions of EMI power units and the Sprengnether and Kinemetrics pen recorders;

(b) operator changes;

(c) observatory staff shortages (mid-year); and

(d) unreliability of airlines and postal services.

Recording stations

Port Moresby (PMG) Routine recording on the Port Moresby World Wide Standard Seismograph (WWSS) continued and regular calibration checks were made. The supplementary Willmore, Sprengnether, and Wood-Anderson seismographs continued to operate as standby instruments to the WWSS, for strong ground motion and for magnitude (ML) determinations. A tape recording seismograph was operated for the Carnegie Institution of Washington. Dr S. Sacks of the Institution visited Port Moresby in October for routine maintenance and instrument modifications.

Konedobu (KDB) The station operated whenever a seismograph was available in the office laboratory. Recordings were used for rapid visual monitoring of earthquake activity in conjunction with visual recorders at Rabaul, and Madang (from November).

Laetech (LAT) The station was operated by personnel of the Institute of Technoloby, Lae. Operation was satisfactory.

Kavieng (KVG) Operation of the Kavieng station during 1974 was poor. Early in the year, confusion over air travel delayed a visit. The seismometer was repaired in March and a new operator recruited, however, the pen suspension was damaged in April, causing the station to operate at a low gain, and no earthquakes were recorded. The pen suspension was repaired and subsequently damaged again in July and August. The Sprengnether pen recorder was replaced by a Kinemetrics recorder in October, but its motor broke down almost continually.

Momote (MOM) The unreliability of the mains power supply was the main operational problem. In March, a private operator took over from the Papua New Guinea National Meteorological Service, which was having difficulty operating the station owing to staff turnover. The private operator resigned in December.

Talasea (TLS) The observer resigned in July to accept a promotion in the Papua New Guinea Public Service. As difficulty was experienced in recruiting a new observer, the Papua New Guinea Geological Survey lent an operator from the Rabaul Observatory in October until the new permanent observer commenced duty at Talasea in December.

Wabag (WAB) The Willmore vertical component operated normally. The Wood Anderson horizontal seismometer was returned to Port Moresby in April for a new fibre and reinstalled in September. The observer took annual leave in December when the EMI clock broke down.

Madang (MDG) The pen-recorder seismograph was installed at the Overseas Telecommunications cable station on 19 November and operated normally. In addition to the normal function of routine earthquake recording, the station was used for providing arrival time data by STD phone for rapid location of large earthquakes.

Panguna (PAA) The Panguna seismograph is owned and operated by Bougainville Copper Limited. The seismograms are interpreted by the observatory staff. Operation during 1974 was normal.

Accelerograph network

Table 5 lists data on accelerographs operating in Papua New Guinea in 1974. The instrument sites are shown in Plate 1.

A summary of accelerograph movements during 1974 follows:

Date	Type & Block No	From	To	Action
17 May	MO2 1454	Port Moresby	Star Mountain	Reinstallation
10 Jul	MO2 162	Wewak	Port Moresby	Repair
10 Jul	MO2 446	Port Moresby	Wewak	Replacement
15 Dec	MO2 475	Port Moresby	Rabaul Wanliss St	Replacement

A new block was fitted to the Rabaul Wanliss Street accelerograph as the old block had reversed trace positions. The Wewak accelerograph was replaced as the motor clutch was slipping and no light spots were visible. The trigger unit from the ex-Wewak accelerograph (S/N 52) was fitted to the Frieda River B accelerograph (S/N 263). The Frieda B accelerograph was also fitted with a run control circuit card and the trigger sensitivity was increased by changing the resistor from 1K ohms to 500 ohms. The Star Mountains 2 accelerograph was inspected, cleaned, and reinstalled in May.

At Panguna, only the Pangua 1 accelerograph was operating, and only for the first nine months of the year.

The earthquakes which triggered PNG accelerographs in 1974 are listed in Table 6. Bougainville Copper Pty Ltd has not yet made all the Panguna data available.

Collection and distribution of data

Records were airmailed about twice weekly from the seismograph stations and analyses of all seismograms were then carried out at the observatory office, Port Moresby. P-wave arrival times were telegraphed to the United States Geological Survey, which has taken over the hypocentre location function from the United States Environmental Research Laboratories. Weekly bulletins listed all seismic analyses. Phase data were transcribed onto card punch forms, which were sent to BMR Canberra, for processing and inclusion in a magnetic tape for the International Seismological Centre (ISC), Edinburgh.

Table 7 lists the monthly number of seismic events recorded by each station.

Earthquake felt effects were entered on the storage and retrieval computer file held at the Computer Centre, Port Moresby. Accelerograms were forwarded to BMR Canberra for digitization and analysis.

Published papers, Reports and Records worked on during the year include those by Everingham (1974), Gaull (1974), Ripper (in prep. a, b) and Ripper & Gaull (1974).

New Guinea/Solomon Islands seismicity, 1974

Table 8 lists earthquakes which occurred in the New Guinea Solomon Island region during 1974 (USGS hypocentres).

The level of New Guinea region seismicity continued to drop during 1974. Port Moresby (PMG) recorded 2246 earthquakes; a drop of 700 from 1973. For the second consecutive year, no M 6 earthquakes occurred in Irian Jaya, although one occurred offshore beneath the Aru Basin, south of the Vogelkop Peninsula on 30 January.

One M 7 earthquake occurred during 1974 (23 October). It was located in the mid-Solomon Sea 130 km northeast of Woodlark Island, too far from land to cause damage. It occurred in the diffuse seismic zone associated with the postulated tensional opening of the Woodlark Basin.

An M 6.9 earthquake which occurred in the Solomon Sea 30 km south of Bougainville on 01 February was felt with intensity MM 7 at Buin, and a minor tsunami was noted along the Bougainville coast. Another on 31 January, of same magnitude, but about 20 km to the southeast, caused tsunamis at Choiseul and several other Solomon Islands.

An M 6.3 earthquake, which occurred beneath the Ramu-Markham Valley on 20 September and triggered both the Yonki and Intake accelerographs at the Ramu dam site, was widely felt throughout the Highlands. The maximum intensity was MM6.

On 16 October tremors were recorded from a submarine volcanic disturbance at Ritter Island off the western tip of New Britain. Minor sea waves were reported from Umboi and Sakar Islands.

Questionnaires were distributed for the earthquakes of 01 February (east Solomon Sea) and 20 September (Ramu-Markham Valley), and the resultant isoseismal maps will be presented in the Report on annual seismicity.

4. GEOMAGNETISM

Normal run magnetograph

The La Cour 15 mm/h magnetograph continued to record variations in geomagnetic horizontal intensity, vertical intensity, and declination at Port Moresby.

Fifty-four hours of record was lost owing to: (a) the recorder gears being jammed (20 hours); (b) maintenance of vault and equipment (10 hours); and (c) operator mistakes (24 hours).

Control observations. A set of absolute observations using 3 QHMs, a BMZ, and a declinometer was made once a week. The preliminary instrument corrections used in the calculation of results are shown in Table 9.

Scale values. H and Z scale values were measured weekly and D was measured monthly using coil currents of 6 mA and 10 mA provided by an MCO-1 calibrator. The rated accuracy of the MCO-1 calibrator is 0.1%. Adopted scale values and standard deviations are shown in Table 10.

Temperature coefficients. Previously derived values, qH = 10 nT/^{o}C and qZ = OnT/^{o}C, were applied to the ordinates; the temperature range was 29.4^{o}C to 32.4^{o}C.

Baseline values. The H baseline value continued to decrease, requiring decrements in adopted values of 1nT about every six days. The D and Z baselines showed only small fluctuations about the mean.

Orientation. A test made on the H variometer on 28 March showed that the H recording magnet (N pole) was 0.1^{o} $\pm$ 0.2^{o}N of the magnetic E prime vertical. The reference azimuth was 06.1^{o} and H at the time of measurement was 36095 nT.

A test made on the D variometer on 28 March showed the D recording magnet (N pole) was 0.5^{o} $\pm$0.2^{o}W of N. The reference azimuth was 06.1^{o} and D at the time of measurement was 06^{o} 11.1' E.

A test made on the Z variometer on 16 May showed that the Z recording magnet was N pole south and up at an angle of 0.7^{o} $\pm$ 0.4^{o}.

Data reduction and distribution

Adopted scale and baseline values were sent with the 35-mm magnetogram copies to World Data Centre A, and with the magnetograms to BMR Observatory Group, Canberra, for the mean hourly value derivation program. Recorded solar flare effects, sudden commencements, sudden impulses and magnetic storms were reported monthly to the Data Centre and to other international agencies.

Monthly mean values for 1974 of D, H, Z, and the K index at Port Moresby are listed in Table 11; H continued to decrease steadily but at a slightly greater rate of about 30 nT/yr than the average (about 27 nT/yr) for the past 10 years. Z increased at a greater rate (about 50 nT/yr) than the average (about 35 nT/yr) for the last 10 years. D continued its easterly trend of 1'/yr. Table 12 gives the annual mean values of all components for the 10 year period 1964-1974.

Intercomparisons

Between 10 and 15 March, the observatory magnetoncters (QHM 187, 188 and 189, BMZ 68 and Declinometer 580339) were intercompared with QHMS 493 and 305, Declinometer 630812 and PPM 329. The second group of magnetometers had been used on the first-order magnetic survey of Papua New Guinea and the Solomon Islands, conducted between 4 February and 9 March by Mr J. Silic, BMR, Canberra.

5. GRAVITY

On 22 September, an earth-tide gravity meter was installed at the PMG seismograph station by Professor P. Melchior and Dr B. Ducarme, Observatoire Royal de Belgique, Messrs B. Barlow and J. van Son, BMR Canberra, and K. Bretreger, University of NSW. It operated satisfactorily for the remainder of the year.

During 09-15 and 25-31 October, a team of seven USSR scientists led by Professor Boulanger and Dr N. Gusev, accompanied by Dr P. Wellman, BMR Canberra, conducted a series of gravity pendulum measurements at the observatory office (KDB seismograph station) as part of a global gravity tie.

6. NOTES ON OPERATIONS

June A burglar alarm was installed in the observatory office, and a security fence erected around the office complex.

7. ACKNOWLEDGEMENTS

The co-operation of the Australian Department of Housing and Construction, the Civil Aviation Agency, the National Meteorological Service, the Bureau of Water Resources, the Papua New Guinea Departments of Lands, Surveys, and Mines; Agriculture, Stocks and Fisheries; and Chief Minister and Development; Kennecott Pacific Pty. Ltd, Carpentaria Exploration Company, and Bougainville Copper Limited in the operation and maintenance of the seismic and accelerograph networks is gratefully acknowledged.

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APPENDIX

PRINCIPAL EVENTS,

PORT MORESBY GEOPHYSICAL OBSERVATORY, 1957-1974

1957 Mar	Port Moresby regular absolute observations (D, H, Z) commenced
1957 Dec	PMG seismograph recording commenced
1958 Mar	Port Moresby normal-run geomagnetic recording commenced
1959 Oct - 1971 Oct	Port Moresby rapid-run geomagnetic recording
1961 May - 1973 Mar	Port Moresby ionospheric recording
1962 - 1963	Regional magnetic survey, Papua New Guinea
1962 Jul	WWSSN station installed at PMG
1964 Jan	Gravity calibration range established in Port Moresby

1964 Nov - 1966 Dec	TPN LP-Z seismograph operation
1964 Dec - 1965 Dec	POP LP-Z seismograph operation
1965 Dec - 1967 Mar	KRG LP-Z seismograph operation
1966 Feb - 1966 Oct	DNG LP-Z seismograph operation
1966 Jul	DTM wide-band high dynamic range seismograph installed at PMG
1966 Nov - 1967 May	LAE LP-Z seismograph operation
1967 Jan - 1967 May	TPN SP-Z seismograph operation
1967 May	LAE seismograph converted to SP-Z
1967 Jul - 1970 May	GRK SP-Z seismograph operation
1967 Aug	2 MO2 accelerographs (property of CRA) installed at Kieta and subsequently moved to Panguna
1967 Oct	Ramu (Yonki) MO2 (CDW) accelerograph installed
1968 Apr - 1972 Nov	Rabaul (Sulphur Creek) MO2 (CDW) accelerograph operation
1968 Sep	WEW aftershock recording
1968 Oct - 1968 Dec	WEK aftershock recording
1968 Oct	Wewak MO2 (CDW) accelerograph installed
1968 Dec	WAB SP seismograph operation commenced
1969 Apr - 1969 Jun	Regional magnetic survey, Papua New Guinea
1969 Jul	Ramu (Intake) MO2 (CDW) accelerograph installed
1969 Oct	MOM SP seismograph operation commenced
1970 Mar - 1972 Nov	GKA SP seismograph operation (in lieu of GRK)
1970 May	LAT SP seismograph operation (in lieu of LAE)
1970 Nov	MAD aftershock recordings
1971 May	Frieda River A MO2 accelerograph (property of Carpentaria Exploration) installed
1971 Jul	Lae (CDW yard) MO2 accelerograph installed

1971 Aug - 1972 May	PNG SP seismograph operation and aftershock recordings
1971 Aug	KAV SP seismograph operation commenced
1971 Aug	Rabaul (Observatory) MO2 accelerograph installed
1971 Aug	Frieda River B MO2 accelerograph (property of Carpentaria Exploration) installed
1971 Aug	Star Mountains (No. 1) MO2 accelerograph (property of Kennecott) installed
1971 Sep	Star Mountains (No. 2) MO2 accelerograph (property of Kennecott) installed
1971 Nov	Lae (Botany Building) MO2 (CDW) accelerograph installed
1972 Jun - 1972 Dec	Musa Damsite - two MO2 accelerographs operated
1972 Aug - 1972 Nov	Lae P&T repeater station - SMA/1 (CDW) accelerograph operated
1972 Sep - 1972 Nov	Lae DCA transmitter station - SMA/1 (CDW) accelerograph operated
1972 Nov	Rabaul (Wanliss Street) MO2 (CDW) accelerograph installed (removed from Sulphur Creek)
1973 Feb	Lae DCA transmitter station - MO2 (BMR) accelerograph installed
1973 Aug	KVG recording commenced (in lieu of KAV)
1974 Nov	MDG SP Z recording commenced

TABLE 1

Officer	Designation
	AUSTRALIAN PUBLIC SERVICE
I.B. Everingham	Observer-in-Charge (on leave from 1 April)
I.D. Ripper	Geophysicist Class 2 (A/OIC from 1 April)
B.A. Gaull	Geophysicist Class 1
S.N. Sheard	Geophysicist Class 1 (from 9 July)
P.J. Hill	Geophysicist Class 1 (from 16 July until 1 October)
Mrs W.M.J. Byrne	Technical Officer Grade 2 (until 2 August)
P. Mendrinos	Technical Officer Grade 1 (until 3 April)
E. Hassel	Technical Officer Grade 1 (from 14 October)
Mrs C. Capp	Typist
	PAPUA NEW GUINEA PUBLIC SERVICE
P. Rupa	Clerk Class 3
A. Tom	Technical Assistant Grade 1
B. Nesol	Technical Assistant Grade 1
D. Kepalan	Observer, Wabag
H. Mohi	Observer, Talasea (until 26 July)
R. Gorea	Observer, Talasea (from 9 December)
F. Sevese	Clerical Assistant Grade 1
A. Kaila	Gardener

TABLE 2

ASSOCIATED PERSONNEL, 1974

Officer	Designation
O. Amolevesa	Cleaner (from 7 May)
J. Wui	Gardener
J. Saun	Observer, Talasea (on loan from PNG Geological Survey, from 22 October until 9 December)
Mrs J. Forsyth	Typist (from 30 August until 11 November)

TABLE 3

VISITORS TO THE PORT MORESBY GEOPHYSICAL OBSERVATORY, 1974

Visitor	Organisation	Month
K. Sharp)	Snowy Mountains	January
P. Mc Pherson)	Engineering	January
I. Pinkerton)	Corporation	January
J. Silic	BMR	March
P. Ryan	BMR	March
A. Hara	PNG Public Works Department	April
P. Hellier	Western Geophysical	May
B. Ross	Commonwealth Audit	June
B. Williams	BMR	July
P. Power	Department of Minerals and Energy	July
Dr N.H. Fisher	BMR (Director)	August
Prof. P. Melchior	Ob. Royal de Belgique	September
Dr B. Ducarme	Ob. Royal de Belgique	September
B. Barlow	BMR	September
J. Van Son	BMR	September
K. Bretreger	Univ. N.S.W.	September
Prof. Boulanger)	Academy of Sciences	October
Dr N. Gusev	of the U.S.S.R.	October
Dr P. Wellman	BMR	October
P. Giltinan)	Department of	October
R. Fell	Housing & Construction	October

TABLE 4

PORT MORESBY GEOPHYSICAL OBSERVATORY SEISMOGRAPH NETWORK, 1974

STATION DETAILS

Station	Code	Lat (°S)	Long (°E)	Elevation (m)	Foundation
Port Moresby	PMG	09° 24' 33"	147° 09' 14"	67	Eocene cherts
Konedobu	KDB	09° 28' 23"	147° 09' 11"	35	Eocene cherts
Kavieng	KVG	02° 34' 20"	150° 47' 42"	1	Coral
Laetech	LAT	06° 39' 10"	147° 00' 00"	72	Alluvium
Momote	MOM	02° 04' 28"	147° 24' 41"	10	Coral
Wabag	WAB	05° 29' 41"	143° 43' 42"	2032	Clay
Talasea	TLS	05° 18' 35"	150° 02' 41"	(40)	Volcanic soil
Panguna	PAA	06° 18' 02"	155° 29' 28"	699	Diorite stock
Madang	MDG	05° 14' 59"	145° 46' 47"	20	Coral

Commenced operating 19th November

TABLE 4 (Cont'd)

STATION INSTRUMENTS

Station	Seismometer	Component	Ts(s)	Tg(s)	Magnification	Recorder
PMG	WWSSN	Z, N, E	1.0	0.75	25 000 at 1 s	Photo drum
		Z	15.0	100	15 00 at 15 s	Photo drum
		N, E	15.0	100	375 at 15 s	Photo drum
	Willmore	Z	0.7	0.3	30 000	Photo drum
	Wood-Anderson	N, E	0.8	-	2042	Photo drum
	Sprengnether	N, E	15.0	14	-	Photo drum
KDB	Willmore	Z	0.7	-	-	Pen drum
KVG	Willmore	Z	0.7	-	-	Pen drum
LAT	Willmore	Z	0.7	0.7	-	Photo drum
	Willmore	Z	1.0	14	-	Photo drum
	Wood-Anderson	E	0.8	-	2042	Photo drum
MOM	Willmore	Z	2.0	0.3	-	Photo drum
	Wood-Anderson	E	0.8	-	2042	Photo drum
WAB	Willmore	Z	0.7	1.3	-	Photo drum
	Wood-Anderson	N	0.8	-	2042	Photo drum
PAA	Willmore	Z	1.0	-	40 000	Helicorder
TLS	Willmore	Z	0.7	0.7	-	Photo drum
	Wood-Anderson	E	0.8	-	2042	Photo drum
MDG	Willmore	Z	0.7		2000	Pen drum

TABLE 5

PAPUA NEW GUINEA ACCELEROGRAPHS, 1974

1. SITE DATA

Place	Operator	Co-ordinates	Elevation (m)	Foundation
Bougainville Panguana (1)	Bougainville Copper Pty Ltd	6.325°S 155.485°E	640	Unconsolidated volcanic ash
Frieda River A	Carpentaria Exploration/BMR	4.7°S 141.8°E	-	Alluvium
Frieda River B	Carpentaria Exploration/BMR	4.7°S 141.8°E	-	Hard rock
Lae, Botany	BMR	6.713°S 146.999°E	50	Alluvium
Lae, PWD	BMR	6.723°S 146.989°E	25	Coarse clastic alluvials
Lae, CAA	BMR	6.731°S 146.986°E	-	Alluvium - near swamp
Lae, P & T	BMR	6.728°S 147.009°E	-	Consolidated rock overlain by clay
Lae, Bumbu Bridge	Civil Engineering	6.698°S 147.000°E	-	On concrete pier. 20 m gravel
Lae, University of Technology	Civil Engineering	6.674°S 146.995°E	58	30 m gravel
Musa River A	BMR	9.556°S 148.674°E	406	Alluvium
Musa River B	BMR	9.556°S 148.679°E	112	Weathered gabbro
Konedobu	BMR	9.472°S 147.160°E	35	Eocene chert
Rabaul Observatory	BMR	4.191°S 152.170°E	184	Basalt flow
Rabaul, Wanliss Street	BMR	4.194°S 152.186°E	25	Basalt flow
Ramu, Intake	Australian Department of Housing & Construction (DHC)	6.232°S 145.975°E	1190	Miocene siltstone and greywacke
Ramu, Yonki	DHC/BMR	6.245°S 145.978 E	1250	Recent lake sediments
Star Mountains 1 (Base Camp)	Kennecott/BMR	5.209°S 141.197°E	678	Landslide material underlain by siltstone
Star Mountains 2 (Hong Kong)	Kennecott/BMR	5.207°S 141.137°E	2076	Quartz porphyry
Wewak	BMR	3.590°S 143.687°E	10	Weathered coral

TABLE 5 (continued)

PAPUA NEW GUINEA ACCELEROGRAPHS, 1974

2. INSTRUMENT DATA

Type and Block No.	Calibration Data (g/cm)	Site	Date	Owner	Remarks
MO2 39	0.564 0.576 0.372	Bougainville Panguna (1)	1974	CRA	
MO2 416	0.610 0.602 0.372	Frieda River A	1974	Carpentaria Exploration	
MO2 453	0.614 0.593 0.400	Frieda River B	1974	Carpentaria Exploration	
MO2 259	0.581 0.596 0.403	Lae Botany	1974	BMR	
MO2 1118A	0.560 0.524 0.371	Lae PWD	1974	BMR	
SMA-1 S/N 578	1.82 1.85 1.77	Musa River A	1974	PWD	
SMA-1 S/N 577	1.90 1.95 1.70	Musa River B	1974	PWD	
MO2 476	0.509 0.517 0.374	Lae Posts & Telegraphs	1974	BMR	Makeshift timing No Z component
MO2 249	0.639 0.636 0.418	Lae Bumbu Bridge	1974	University of Technology	
MO2 79	0.612 0.628 0.412	Lae University of Technology	1974	University of Technology	
SMA-1 S/N1281	1.76 1.96 1.88	Lae University of Technology	1974	University of Technology	
MO2 SMA-1		Port Moresby Observatory Office Konedobu		BMR	Tests
MO2 425	0.614 0.591 0.425	Ramu, Yonki	1974	PWD	
MO2 44	0.555 0.566 0.384	Ramu, Intake	1974	PWD	

TABLE 5 (continued)

PAPUA NEW GUINEA ACCELEROGRAPHS, 1974

2. INSTRUMENT DATA

Type and Block No.	Calibration Data (g/cm)	Site	Date	Owner	Remarks
M02 1428	0.581 0.604 0.402	Star Mtns 1 (OK Tedi)	1974	Kennecott	
M02 1454	0.619 0.615 0.404	Star Mtns 2 (HongKong)	1974	Kennecott	
M02 162	0.635 0.652 0.430	Wewak	To 10.7.74	PWD	
M02 446	0.589 0.638 0.393	Wewak	From 10.7.74	PWD	
M02 1467A	0.611 0.636 0.385	Rabaul Observatory	1974	BMR	
M02 163		Rabaul Wanliss St.	To 15.12.74	PWD	NS & Z traces transposed
M02 475		Rabaul Wanliss St.	From 15.12.74	PWD	

TABLE 6

PAPUA NEW GUINEA ACCELEROGRAPH TRIGGERINGS 1974

MN	DY	HR	MIN	SEC	DPH	LAT°S	LONG°E	M	ML	ACCELEROGRAPH	INTENSITY (MM) AT SITE	PRELIM. MAX. ACCEL(g) (1 component)	PREDOM. PERIOD(s) AT MAX ACCEL.
01	20	02	07	17.9	74	5.3	151.5	5.3	5.5	Rabaul	3 - 4	0.022	0.25
01	31	23	30	05.3	34	7.5	155.9	6.9	-	Panguna 1	5	0.107	0.5
02	01	03	12	33.1	40	7.4	155.6	6.9	6.6	Panguna 1	5 - 6	0.152	0.75
02	03	04	24	53.1	105	6.0	146.5	5.5	5.5	Yonki	-	0.015	0.16
03	02	23	11	52.0	Local Event					Rabaul	4 - 5	0.01	0.10
03	02	23	23	51.7	Local Event					Rabaul	5	0.036	0.31
03	04	06	21	48.4	76	5.9	147.1	4.9	5.1	Yonki	4	0.01	0.16
03	25	18	01	18.5	114	6.1	146.1	5.2	5.4	Yonki	5	0.055	0.17
06	23	06	20	50.3	70	7.0	155.8	5.6	-	Panguna 1	4 - 5		
06	27	07	46	11.9	70	4.7	152.5	6.0	6.1	Panguna 1	4		
08	13	01	32	02.5	125	6.2	145.8	4.4	4.8	Yonki	-	0.014	0.16
08	22	02	14	12.3	107	6.1	147.0	4.7	5.1	Yonki	-	-	
"	"	"	"	"	"	"	"	"	"	C.A.A.	4	0.015	0.16
09	20	21	20	12.3	111	6.2	146.1	6.3	6.5	Yonki	6	0.23	0.17
"	"	"	"	"	"	"	"	"	"	Intake	-	0.029	0.09
"	"	"	"	"	"	"	"	"	"	Botany	4 - 5	0.02	0.33
"	"	"	"	"	"	"	"	"	"	C.A.A.	4 - 5	0.073	0.21
"	"	"	"	"	"	"	"	"	"	P.W.D.	4 - 5	0.016	0.24
"	"	"	"	"	"	"	"	"	"	P & T	4 - 5	0.012	0.21
09	25	17	10	47.7	97	6.4	146.9	5.0	4.9	Botany	-	0.017	0.33
"	"	"	"	"	"	"	"	"	"	C.A.A.	-	0.049	0.27
"	"	"	"	"	"	"	"	"	"	P.W.D.	-	0.045	0.27
"	"	"	"	"	"	"	"	"	"	P & T	-	0.01	0.23
12	07	14	26	52.3	93	5.6	154.3	5.8	5.9	Rabaul	4	0.006	0.14
"	"	"	"	"	"	"	"	"	"	Panguna 1			

TABLE 7

NUMBER OF SEISMIC ARRIVALS RECORDED BY EACH STATION 1974

	PMG	LAT	KVG	MOM	TLS	WAB	MDG	PAA
Jan	350	215	0	97	189	228		151
Feb	374	254	0	60	97	212		363
Mar	273	245	0	20	102	154		222
Apr	126	152	0	30	54	89		81
May	111	162	0	17	19	149		109
Jun	180	149	0	52	15	171		78
Jul	170	173	0	34	9	182		90
Aug	130	146	7	22	00	98		99
Sep	115	185	0	43	0	29		130
Oct	113	140	12	24	1	115		98
Nov	130	149	19	15	20	23	9	130
Dec	174	193	0	0	15	10	36	130
Total	2246	2163	38	414	521	1460	45	1673

TABLE 8

EARTHQUAKES IN THE NEW GUINEA SOLOMON ISLANDS REGION, 1974

(USGS HYPOCENTRES, 15 OR MORE STATIONS USED IN LOCATIONS)

MN	DY	HR	MIN	SEC	LAT°S	LONG°E	DPH (km)	MB (GS)	ML	MS	M	NO. STNS	POE
01	08	15	24	08.4	10.2	161.7	056	5.3			5.5	39	02
	11	01	08	56.3	05.0 (USGS recomputation)	144.3	117	5.1			5.2	21	-
	12	10	23	55.9	05.5	147.1	219	5.5	5.3		5.4	19	09
	14	17	24	36.0	06.3	152.3	024	5.2			5.4	22	05
	14	23	32	10.6	09.6	161.2	053	5.6			6.0	38	05
	19	04	08	49.9	03.1	139.1	076	5.3			5.6	35	04
	20	02	07	17.9	05.3	151.5	074	5.1	5.5		5.3	41	06
	21	11	49	28.7	08.9	160.7	038					36	05
	30	09	53	12.0	05.2	134.1	033	5.9		6.2	6.4	89	08
	31	20	16	22.5	07.5	156.0	062	5.3			5.6	53	08
	31	22	07	37.1	07.4	156.1	055	4.8			4.9	21	09
	31	23	30	05.3	07.5	155.9	034	6.0		7.0	6.9	164	14
02	01	01	04	14.5	07.3	155.9	049	5.2			5.3	29	09
	01	01	39	20.0	07.1	155.6	033	4.9			4.9	17	12
	01	03	12	33.1	07.4	155.6	040	6.2	6.6	7.0	6.9	53	12
	01	04	19	20.6	07.2	156.0	033	5.0			5.0	21	09
	01	04	54	39.3	07.2	155.1	033	5.3			5.5	31	10
	01	05	12	13.9	07.2	155.6	033	5.0			5.0	22	09
	01	07	02	14.3	07.6	156.0	033	5.4		5.6	5.6	39	10
	01	07	59	00.7	07.3	155.3	033	5.2			5.4	21	09
	01	08	12	16.3	07.2	155.3	062	5.2			5.5	43	12
	01	08	16	09.9	07.8	155.6	033	5.3			5.5	15	11
	01	08	24	33.7	06.9	155.2	033	5.3		5.8	5.6	19	09
	01	09	08	24.5	07.2	155.8	048	5.3			5.6	28	09
	01	09	38	11.3	07.2	155.2	033	5.2			5.4	21	09
	01	10	12	17.4	07.1	155.3	033	5.2			5.4	33	10
	01	10	48	47.6	07.3	155.9	033	5.3			5.6	28	09
	01	11	22	12.5	07.1	155.2	033	5.1			5.3	28	12
	01	14	55	23.6	07.2	155.3	041	5.1			5.3	30	12
	01	15	24	04.6	07.1	155.1	048	5.6		5.2	5.6	42	10

TABLE 8 continued

EARTHQUAKES IN THE NEW GUINEA SOLOMON ISLANDS REGION, 1974

(USGS HYPOCENTRES, 15 OR MORE STATIONS USED IN LOCATIONS)

MN	DY	HR	MIN	SEC	LAT°S	LONG°E	DPH (km)	MB (GS)	ML	MS	M	NO. STNS	PDE
02	01	19	08	13.0	07.2	155.3	033	5.0			5.0	21	09
	01	22	36	04.7	07.6	155.8	056	4.8			4.8	25	10
	01	23	16	55.2	07.2	155.4	047	5.4			5.7	34	09
	02	02	19	14.1	07.0	155.3	037	5.0			5.1	20	10
	02	10	27	47.5	07.2	155.2	042	4.8			4.8	23	09
	02	15	35	15.6	07.2	155.0	033	5.2	5.6	5.5	5.5	27	10
	03	04	24	53.1	06.0	146.5	105	5.2	5.5		5.5	43	10
	03	16	12	56.7	07.3	155.5	043	5.4		5.6	5.6	30	09
	03	20	22	20.0	07.0	155.7	069	4.9			4.9	22	12
	04	13	12	08.7	06.9	155.6	058	4.8			4.8	15	10
	04	20	10	42.0	07.3	155.8	055	5.4	5.7	6.0	5.7	48	10
	05	04	59	44.8	05.9	148.3	131	5.0	5.1		4.9	23	10
	06	14	40	13.9	06.9	155.2	054	4.7				15	10
	07	09	41	51.0	03.8	134.0	030	5.8		5.4	5.8	39	10
	07	19	09	24.7	08.9	159.3	152	5.3			5.5	32	11
	10	02	15	13.7	07.3	155.1	038	5.4			5.6	34	10
	17	10	33	07.5	07.1	155.6	053					15	23
	24	22	08	39.2	06.4	152.8	036	4.8	5.3		4.9	17	17
	25	03	03	15.3	06.2	146.8	046	4.7	5.0		4.7	21	16
	27	17	49	08.0	07.0	155.0	049	5.0			5.0	18	16
	27	22	46	45.3	06.4	154.9	048	5.1			5.1	17	15
	28	20	20	10.9	05.1	154.0	128	5.4			5.7	16	19
03	04	06	21	48.4	05.9	147.1	076	5.0	5.1		4.9	34	17
	09	20	14	28.3	07.5	156.2	050	5.8			6.2	86	18
	09	20	18	06.3	07.3	156.2	033	5.7			6.0	19	18
	09	20	34	16.3	07.5	156.1	048	5.2			5.4	21	18
	10	02	51	35.5	07.4	156.1	017	4.8			4.8	17	20
	10	07	47	32.6	07.4	156.0	054	5.3			5.6	47	18
	12	07	38	14.5	06.6	154.9	056	5.1			5.3	47	22
	13	08	09	46.2	07.4	156.1	054	5.4			5.7	49	23
	15	17	37	17.6	05.0	151.5	122	4.6	5.2		4.7	19	27
	20	08	05	49.0	05.8	147.5	120	4.9	4.5		4.9	34	21
	20	09	05	58.5	05.5	147.5	168	5.2	5.2		5.1	42	21

TABLE 8 continued

EARTHQUAKES IN THE NEW GUINEA SOLOMON ISLANDS REGION, 1974

(USGS HYPOCENTRES, 15 OR MORE STATIONS USED IN LOCATIONS)

MN	DY	HR	MIN	SEC	LAT°S	LONG°E	DPH (km)	MB (GS)	ML	MS	M	NO. STNS	PDE
03	21	16	40	52.4	04.7	152.7	075	4.9	5.0		4.9	28	22
	25	11	44	52.3	06.7	155.1	058	5.1			5.3	38	22
	25	18	01	18.5	06.1	146.1	114	5.1	5.4		5.2	39	21
	30	21	57	34.9	06.5	155.0	004	5.0			5.0	44	25
	31	06	47	45.0	02.2	139.1	033	5.6		5.6	5.9	71	24
04	02	04	02	33.6	06.9	155.3	047	5.4		5.7	5.7	55	28
	02	09	49	18.4	05.7	154.5	105	4.4	4.2		4.0	15	27
	04	19	30	55.1	06.9	155.2	056	4.5				17	28
	04	23	31	51.6	06.7	155.1	054	5.2			5.4	27	28
	05	14	29	54.0	05.5	153.5	050		5.4		5.0	18	26
	09	20	25	36.0	10.1	160.5	025	5.1		4.8	5.1	37	28
	10	06	01	07.4	05.5	147.1	186	5.0	5.1		5.0	29	25
	14	11	16	44.2	05.0	143.9	100	5.2	4.6		5.0	33	30
	17	13	06	48.8	11.3	162.1	038	4.7			4.7	18	27
	23	20	20	43.7	10.3	161.3	107	4.8			4.8	15	28
	28	18	01	40.0	05.6	154.3	112	5.2	5.4		5.3	56	29
05	04	01	18	24.8	04.9	152.5	069	5.3	5.0		5.3	29	33
	04	07	12	54.7	04.7	153.2	070	5.0	5.2		5.0	33	31
	06	07	48	51.9	04.4	141.9	110	4.8			4.8	19	32
	08	09	47	40.9	07.5	156.1	045	5.0			5.1	30	33
	12	18	53	31.2	06.1	147.0	105	4.9	4.6		4.6	19	34
	13	11	52	55.9	07.3	155.5	033	5.6		5.4	5.7	65	35
	14	06	09	45.0	06.9	155.2	033	5.3			5.5	36	39
	16	07	56	49.7	10.4	161.1	077	5.2			5.4	60	36
	17	03	51	29.6	10.8	161.9	058	5.4			5.5	65	37
	19	21	40	23.1	04.9	153.3	057	5.5	5.2		5.1	18	38
	22	16	35	25.7	06.2	154.2	050	4.9			4.9	20	35
	27	23	09	37.6	07.1	155.4	048	4.7			4.8	34	42
06	04	14	23	19.3	06.3	154.0	027	5.1		5.4	5.3	18	38
	05	01	47	03.6	06.6	149.2	049	5.0	5.3		5.0	20	40
	06	18	15	33.4	02.9	149.1	037	5.3		5.7	5.6	39	39

TABLE 8 continued

EARTHQUAKES IN THE NEW GUINEA SOLOMON ISLANDS REGION, 1974

(USGS HYPOCENTRES, 15 OR MORE STATIONS USED IN LOCATIONS)

MN	DY	HR	MIN	SEC	LAT°S	LONG°E	DPH (km)	MB (GS)	ML	MS	M	NO. STNS	PDE
06	07	11	31	25.5	04.9	152.5	069	4.9	4.7		4.9	23	41
	08	05	15	07.4	07.0	155.1	054	4.8			4.8	24	40
	08	17	15	25.1	07.2	155.1	033	5.1		5.3	5.2	40	39
	08	21	26	24.2	09.5	160.6	043	4.9			4.9	22	40
	08	21	56	05.2	09.5	160.7	034	5.4			5.5	53	40
	09	06	45	14.4	06.8	154.9	051	4.8			4.8	23	41
	12	21	27	21.2	10.2	160.9	033	5.4			5.5	27	48
	21	11	42	18.6	05.2	152.7	055	4.7			4.7	24	46
	22	13	53	51.7	02.3	141.0	026	5.1			5.3	30	43
	23	06	20	50.3	07.0	155.8	070	5.5			5.6	47	43
	23	14	29	21.8	04.2	142.5	107	5.4			5.5	41	42
	24	21	35	09.8	02.3	141.1	033	5.7		5.6	5.9	81	47
	24	21	45	36.9	02.2	141.2	027	5.1			5.2	26	46
	24	22	44	21.0	02.2	141.2	023	5.1			5.1	18	47
	24	23	49	07.7	06.0	130.1	033	5.3			5.5	26	49
	25	16	58	27.1	09.5	160.9	035	5.0			5.0	25	50
	25	23	12	27.5	06.0	130.9	092	5.1			5.2	21	46
	26	17	36	32.2	09.7	151.8	018	5.2	5.7		5.4	25	47
	27	07	46	11.9	04.7	152.5	070	6.1	6.1		6.0	62	43
	27	12	29	08.4	06.6	154.7	050	5.1	5.0	5.4	5.2	44	48
	30	17	55	44.4	07.1	155.8	053	5.3			5.6	95	47
07	12	09	01	46.2	06.8	155.4	052	4.1				16	54
	13	16	50	17.3	05.5	131.2	020	5.2			5.4	28	52
	15	03	38	14.2	03.2	139.4	059	5.2			5.4	25	51
	19	17	45	43.9	06.1	154.9	157	5.7			6.1	80	51
	21	03	28	58.7	04.7	152.6	071	5.0			5.1	22	50
	22	11	29	19.7	08.7	157.5	033	5.2		4.4	5.3	32	51
	25	17	17	38.9	06.1	153.1	033	5.5	5.7	5.3	5.6	66	51
08	01	01	26	30.1	08.6	157.6	030	4.8		5.1	5.0	31	52
	12	05	26	24.9	06.4	130.0	128	5.4			5.1	17	56
	12	12	54	01.4	06.6	154.8	040	5.1		5.1	5.2	21	54
	13	00	15	56.8	06.1	150.8	037	4.9	5.1		4.8	16	56

TABLE 8 continued

EARTHQUAKES IN THE NEW GUINEA SOLOMON ISLANDS REGION, 1974

(USGS HYPOCENTRES, 15 OR MORE STATIONS USED IN LOCATIONS)

MN	DY	HR	MIN	SEC	LAT°S	LONG°E	DPH (km)	MB (GS)	ML	MS	M	NO. STNS	PDE
08	13	15	03	14.7	05.3	150.8	100	5.5	6.0		5.9	67	56
	15	03	35	58.0	09.1	159.1	059	5.5			5.9	58	54
	15	08	49	15.6	10.3	161.4	099	5.1			5.3	33	54
	22	02	14	12.3	06.1	147.0	107	4.6	5.1		4.7	29	55
	25	04	03	55.3	05.1	151.2	160	4.9	5.1		4.8	17	59
	29	21	39	45.6	04.7	153.4	055	5.0				19	58
	30	19	17	54.9	05.6	147.2	205	4.8	4.8		4.8	19	60
09	02	07	56	07.5	03.5	139.8	044	5.1			5.2	21	58
	05	21	17	57.2	04.3	143.5	063	5.5	5.5		5.5	40	58
	06	02	58	10.9	04.1	154.0	420	5.2	5.4		5.3	40	58
	06	23	26	32.8	07.1	155.9	063	5.4	5.8		5.5	35	61
	08	05	17	27.5	03.7	153.9	449	5.7			6.1	69	58
	09	18	00	31.0	06.3	154.5	056	4.6			4.6	16	61
	20	21	20	12.3	06.2	146.1	111	5.8	6.5		6.3	105	63
	25	15	49	37.5	09.9	150.0	010	5.4	5.6	5.0	5.2	36	65
	25	17	01	47.5	05.7	154.4	151	4.8			4.8	35	62
	25	17	10	47.7	06.4	146.9	097	5.1	4.9		5.0	37	62
	25	19	31	56.5	04.6	153.2	077	4.8	5.1		4.8	22	65
	25	22	03	32.8	04.8	149.8	457	5.2	5.0		5.0	35	62
	27	06	46	06.2	05.7	154.4	400	5.0	5.4		5.1	39	62
	28	08	13	20.6	06.1	151.7	030	5.2			5.4	25	62
	30	13	21	39.6	10.8	162.2	057	5.0			5.1	33	64
10	01	19	10	01.6	05.6	146.4	061	4.7	4.6		4.3	24	66
	04	23	27	10.4	10.3	161.1	079	5.1			5.2	25	63
	06	17	53	11.1	04.6	155.0	508	4.8			4.9	35	63
	08	05	27	53.4	05.6	145.9	075	4.5	4.7		4.2	16	63
	16	05	37	04.4	06.7	155.1	048	5.2			5.4	35	68
	16	17	30	34.7	06.3	148.4	070	5.7	5.5		5.8	48	67
	18	09	04	04.3	03.2	142.0	036	5.4		5.4	5.6	61	66
	18	09	26	50.3	03.2	142.1	046	4.8			4.8	21	65
	20	15	27	39.6	06.6	154.8	043	5.6	5.6	5.7	5.7	63	67
	20	19	39	31.1	06.6	154.7	043	5.5	5.3	5.8	5.7	72	68

TABLE 8 continued

EARTHQUAKES IN THE NEW GUINEA SOLOMON ISLANDS REGION, 1974

(USGS HYPOCENTRES, 15 OR MORE STATIONS USED IN LOCATIONS)

MN	DY	HR	MIN	SEC	LAT°S	LONG°E	DPH (km)	MB (GS)	ML	MS	M	NO. STNS	PDE
10	23	06	14	54.0	08.4	154.0	048	6.1	7.3	7.0	7.0	84	64
	23	20	51	35.6	08.5	153.9	033					15	73
	25	03	19	07.7	06.3	152.3	018	5.7	5.4	5.0	5.5	50	64
	25	07	06	48.4	03.7	151.4	435	4.8	5.1		4.8	20	68
	29	23	54	52.7	02.1	141.1	009	5.3			5.5	39	68
11	03	22	04	30.5	06.1	150.2	012	4.7	5.4		4.9	16	70
	11	09	15	05.7	10.6	161.5	107	4.8			4.8	22	70
	17	09	26	36.8	05.1	151.7	066	5.2	5.2		5.1	45	72
	19	04	58	23.0	03.2	150.6	018	5.5		6.1	6.0	55	73
	19	05	07	56.0	03.0	150.6	001	5.6			6.0	29	73
	21	01	47	51.4	05.6	150.8	098	5.0	4.6		4.5	16	68
	21	07	32	49.5	08.0	155.7	033	5.1		5.2	5.2	21	68
12	02	00	45	46.3	05.2	130.4	033	5.4			5.7	47	73
	02	06	43	30.4	06.2	153.1	028	5.8	6.0	5.3	5.9	64	71
	04	14	20	15.1	09.5	155.7	017	5.2			5.3	17	71
	04	14	30	03.1	09.5	155.8	021	5.2			5.3	19	71
	04	18	59	14.1	07.3	147.9	051	5.0	4.7		4.8	19	71
	07	14	26	52.3	05.6	154.3	093	5.4	5.9		5.8	53	72
	08	11	37	42.0	09.7	150.4	005	5.2	5.0		5.1	34	72
	10	03	03	26.1	04.9	152.4	068	5.0	5.3		5.0	31	72
	16	05	11	49.2	07.5	156.0	150	4.8			4.8	28	77
	16	13	15	58.2	10.7	162.0	093	5.0			5.0	28	77
	18	12	19	45.8	04.9	130.0	033	5.2			5.4	35	77
	18	19	22	38.2	03.1	136.8	037	4.8			4.8	22	81
	23	00	33	10.8	05.0	153.4	076	4.8	5.6		5.0	26	78
	24	01	45	47.5	05.0	152.3	057	4.7	5.1		4.7	16	77
	26	08	38	02.7	05.0	153.5	042	4.8	5.3	4.9	4.9	29	75
	28	08	15	52.9	05.0	130.0	033	5.0			5.0	26	80
	29	04	10	00.7	05.0	130.0	040	4.8			4.8	15	78

MB (GS) Body wave magnitude published by the United States Geological Survey

ML Richter magnitude derived from Papua New Guinea stations

MS Surface wave magnitude derived from teleseismic stations bulletins and USGS

M Weighted unified magnitude on the surface-wave scale

TABLE 9

PRELIMINARY MAGNETOMETER CORRECTIONS

1974	QHM 187 (nT)	QHM 188 (nT)	QHM 189 (nT)	Decl. 580339 (mins)	BMZ 68 (nT)
Jan	-121	- 7	-82	0	0
Feb	-122	- 8	-83	0	0
Mar	-122	- 8	-83	0	0
Apr	-122	- 8	-83	0	0
May	-123	- 8	-84	0	0
Jun	-123	- 8	-84	0	0
Jul	-123	- 9	-84	0	0
Aug	-123	- 9	-84	0	0
Sep	-124	- 9	-85	0	0
Oct	-124	-10	-85	0	0
Nov	-124	-10	-85	0	0
Dec	-125	-10	-86	0	0

TABLE 10

MAGNETOGRAPH PARAMETERS

COMPONENT	DATE	SCALE VALUE	STD DEVIATION SCALE VALUE	STD DEVIATION BASELINE VALUE
D	1974	0.445	0.03	0.15
H	1974	2.75	0.02	2.5
Z	Jan 01	3.10		
	Jul	3.20	0.04	1.0
	Sep 01	3.30		

The H scale value is So; "a" factor = 0.003
D values in minutes and minutes per mm.
H and Z values in nT and nT per mm.

TABLE 11

PRELIMINARY MONTHLY MEAN MAGNETIC VALUES AND K-INDEX

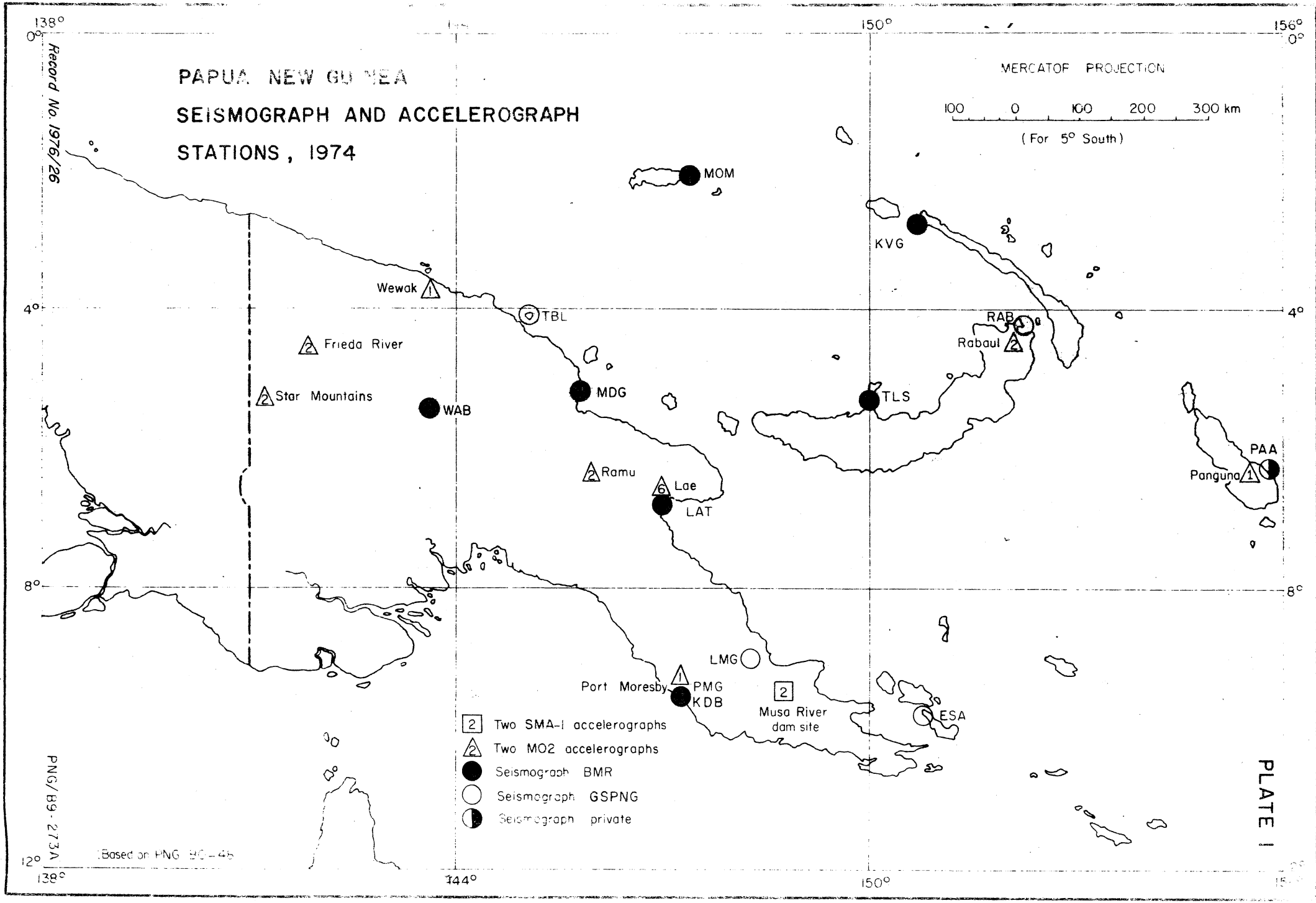
1974	D (E)	H nT	Z nT	F nT	K
Jan	06° 16.8'	36120	-23291	42978	2.24
Feb	16.8'	114	296	976	2.21
Mar	17.2'	096	301	963	2.57
Apr	17.0'	102	304	970	2.55
May	17.1'	096	309	968	2.32
Jun	17.4'	093	315	968	2.31
Jul	17.7'	081	323	962	2.32
Aug	17.8'	085	329	969	2.51
Sep	17.8'	080	331	966	2.54
Oct	18.0'	080	333	967	2.48
Nov	17.9'	082	334	970	2.17
Dec	18.5'	084	341	975	2.41
Annual Mean	06° 17.5'	36093	-23317	42969	2.39

TABLE 12

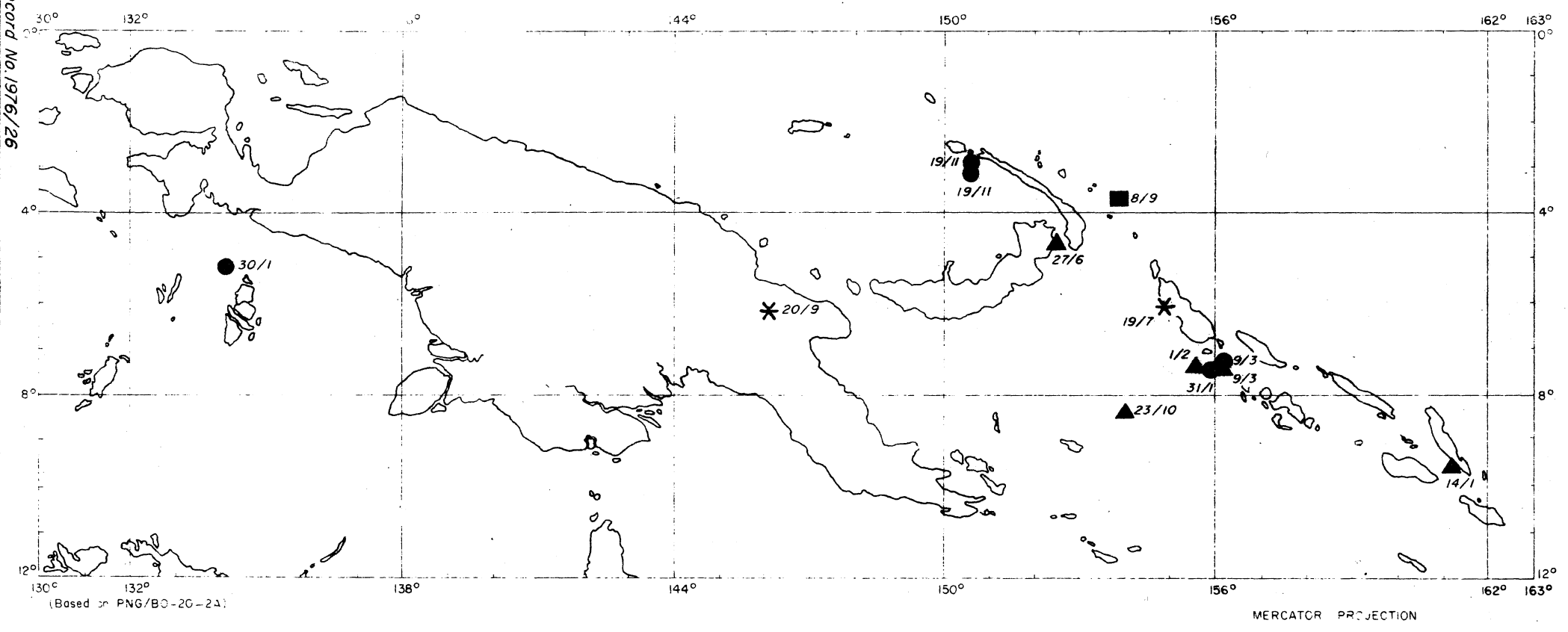
GEOMAGNETIC ANNUAL MEAN VALUES, 1964-1974

YEAR	D	I	H	X	Z	F	NOTES	
1964	6° 7.5	-32 16.7	36359	36151	3879	-22966	43005	2B
1965	6° 8.9	-32 19.7	36339	36130	3892	-22998	43005	2B
1966	6° 9.9	-32 23.8	36315	36105	3900	-23043.	43009	2B
1967	6° 10.5	-32 26.2	36284	36073	3903	-23059	42991	2B
1968	6° 11.4	-32 30.2	36256	36045	3909	-23100	42990	2B
1969	6° 12.3	-32 33.8	36233	36021	3916	-23139	42991	2B
1970	6° 13.1	-32 36.6	36200	35987	3921	-23160	42975	2C
1971	6° 14.0	-32 39.4	36178	35964	3928	-23187	42971	2C
1972	6° 14.9	-32 43.2	36151	35936	3935	-23226	42969	2C
1973	6° 16.0	-32 47.3	36123	35907	3943	-23269	42969	2C
1974	6° 17.5	-32 51.8	36093	35876	3955	-23317	42970	2C
Mean Annual Change	+ 1.00	-3.51	-26.6	-27.5	+7.6	-35.1	-3.5	

NOTES 2B Preliminary mean annual value based on 5 IQ days
2C " " " " " " 10 Q days.


Record No. 1976/26
PAPUA NEW GUINEA
SEISMOGRAPH AND ACCELEROGRAPH
STATIONS, 1974
MERCATOR PROJECTION
100 0 100 200 300 km
(For 5° South)
138°
150°
156°
0°
4°
8°
12°
144°
MOM
KVG
Wewak
TBL
RAB
Rabaul
Frieda River
Star Mountains
WAB
MDG
TLS
PAA
Panguna
Ramu
Lae
LAT
LMG
Port Moresby
PMG
KDB
Musa River
dam site
ESA
Two SMA-1 accelerographs
Two MO2 accelerographs
Seismograph BMR
Seismograph GSPNG
Seismograph private
Based on PNG 80-45
PNG/B9-273A
PLATE 1

Record No.1976/26



DEPTH (km)

- 0-39 ●
- 40-99 ▲
- 100-299 ✱
- 300. ■

EARTHQUAKES WITH MAGNITUDES EQUAL TO OR GREATER THAN M6 IN THE NEW GUINEA/SOLOMON ISLANDS REGION, 1974

(USGS HYPOCENTRES)

PNG/B9-274A

PLATE 2