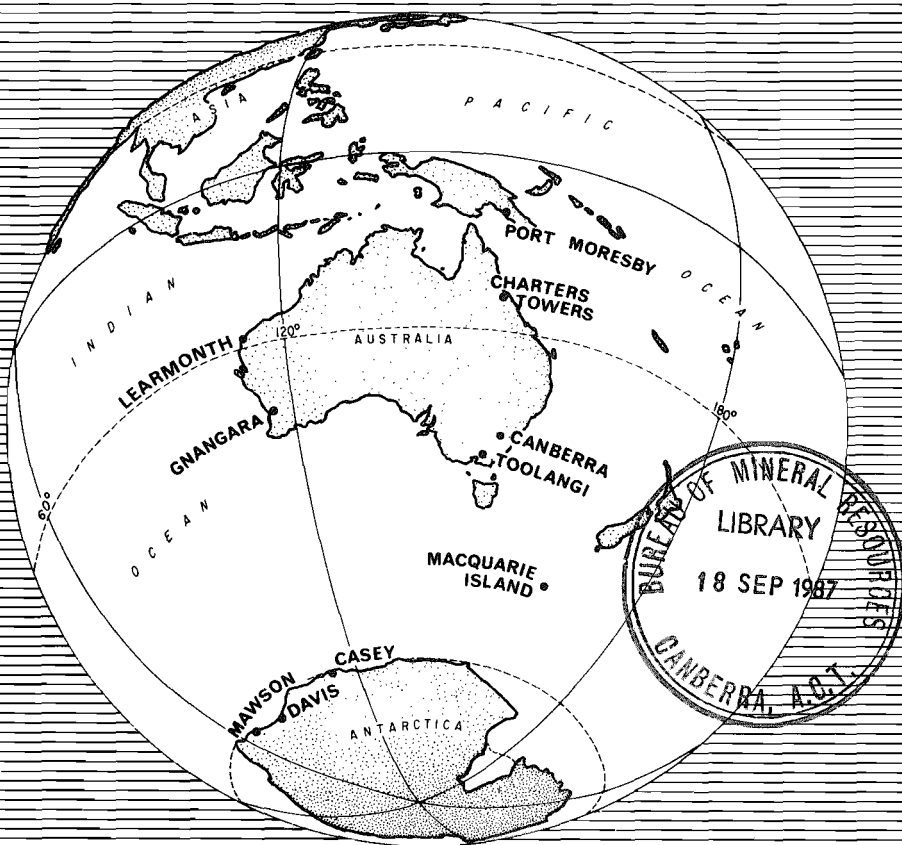


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GEOPHYSICAL OBSERVATORY REPORT



MAGNETIC OBSERVATORIES

BMR

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DIRECTOR: R.W.R. Rutland

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Section, Division of Geophysics

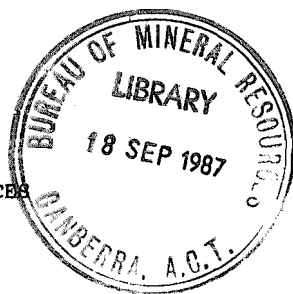
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For further Information write to:

GEOMAGNETISM SECTION
BUREAU OF MINERAL RESOURCES
G.P.O. Box 378
CANBERRA A.C.T. 2601



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The observers at Casey Davis and Macquarie Island are officers of the Antarctic Division, Department of Science and Technology: their contributions are gratefully acknowledged. These observers and the Bureau of Mineral Resources (BMR) geophysicist at Mawson are members of the Australian National Antarctic Research Expeditions (ANARE).

Data from the Port Moresby Geophysical Observatory are contributed by the Geological Survey of Papua New Guinea.

The terminology used in this report is that accepted by International Association of Geomagnetism and Aeronomy. The unit of field intensity is nanotesla (nT). All times are in Universal Time.

CONTRIBUTING OBSERVATORIES

OBSERVATORY	OBSERVER IN CHARGE	GEOGRAPHIC		GEOMAGNETIC	
		LAT	LONG	LAT	LONG
PORT MORESBY	I.D.Ripper	9° 25' S	147° 09' E	-18.2°	219.6°
CHARTERS TOWERS	J.M.Millican	20° 05' S	146° 15' E	-28.8°	220.2°
LEARMONTH	M.W.McMullan	22° 13' S	114° 06' E	-33.4°	185.5°
GNANGARA	P.J.Gregson	31° 47' S	115° 57' E	-42.9°	187.8°
CANBERRA	P.A.Hopgood	35° 19' S	149° 22' E	-43.5°	226.4°
MACQUARIE I	I.G.Jacobsen	54° 30' S	158° 57' E	-60.6°	244.6°
MAWSON	S.D.Dennis	67° 36' S	62° 53' E	-73.3°	105.9°
DAVIS	P. Williams	68° 35' S	77° 58' E	-76.9°	123.5°
CASEY	R.A.Rachinger	66° 17' S	110° 32' E	-77.5°	182.4°

MAGNETOGRAPHS

<u>OBSERVATORY</u>	<u>CODE</u>	<u>TYPE</u>	<u>ELEMENT/SCALE-VALUE</u>			
PORT MORESBY	PMG	La cour	(A)	H/3	D/5	Z/4
CHARTERS TOWERS	CTA	EDA/ELSEC	(D/1)	X	Y	Z
LEARMONTH	LRM	EDA/ELSEC	(D/1)	X	Y	Z
GNANGARA	GNA	Eschenhagen	(A)	H/3	D/7	Z/6
CANBERRA	CNB	ELSEC	(D/.1)	D	I	F
MACQUARIE ISLAND	MCQ	PEM	(D/.1)	X	Y	Z
MAWSON	MAW	PEM	(D/.1)	X	Y	Z

A = analogue, 20mm/hr, scale values in nT/mm
 D/1 = ditigal, 1 min readings, 1 nT resolution
 D/.1 = ditigal, 1 min readings, 0.1 nT resolution
 PEM = BMR Photo-electronic magnetograph.

MAGNETOMETERS

Absolute data are based on observations made with QHM's, BMZ's, fluxgate-theodolites, declinometers and proton precession magnetometers.

Errors in preliminary values obtained from magnetograms are not likely to exceed 5 nT or 0.5 minutes of arc.

PORT MORESBY

MAGNETIC K-INDICES - FEBRUARY 1987

Range for lower limit of K=9 is 300nT

DAY	K-INDICES								K-SUM
01	1	1	1	2	3	3	1	2	14
02	2	0	0	2	1	2	1	1	09
03	1	2	2	1	1	1	1	1	10
04	1	1	1	1	2	3	2	1	12
05	1	1	2	2	2	3	1	2	14
06	2	1	1	2	2	2	2	2	14
07	2	2	2	2	3	2	2	2	17
08	2	3	3	2	2	4	3	2	21
09	3	2	2	2	3	3	1	2	18
10	3	2	2	3	2	3	2	2	19
11	2	2	1	1	1	1	2	2	12
12	3	3	3	3	4	5	2	2	25
13	1	1	2	1	2	2	2	2	13
14	2	2	2	3	2	2	1	1	15
15	1	1	1	2	3	2	1	2	13
16	2	1	2	3	4	3	2	2	19
17	1	1	2	2	2	3	2	2	15
18	1	1	2	2	1	1	1	2	11
19	1	1	1	1	2	1	3	3	13
20	2	2	3	4	5	4	3	3	26
21	2	1	4	4	1	4	2	2	20
22	1	3	3	3	2	1	1	2	16
23	1	2	2	3	3	2	2	2	17
24	2	2	2	2	3	2	2	2	17
25	2	1	2	3	2	1	2	1	14
26	2	1	2	2	2	1	1	1	12
27	2	2	3	2	3	3	3	2	20
28	2	2	2	3	3	2	2	3	19

Mean of K-Sum is 15.8

Frequency of K-Indices

K :	0	1	2	3	4	5	6	7	8	9	-
f :	2	63	107	42	8	2	0	0	0	0	0

GNANGARA

MAGNETIC K-INDICES - FEBRUARY 1987

Range for lower limit of K=9 is 450nT

DAY	K-INDICES								K-SUM
01	1	1	1	2	3	3	2	2	15
02	2	1	1	1	2	2	1	1	11
03	2	1	2	1	0	0	1	2	09
04	2	1	1	1	2	2	2	1	12
05	1	1	2	2	1	2	1	2	12
06	2	2	1	2	2	2	1	2	14
07	2	0	1	1	3	3	2	3	15
08	2	2	3	1	3	4	4	3	22
09	2	1	1	2	3	3	2	2	16
10	2	1	1	2	3	3	1	1	14
11	3	1	1	0	2	2	3	2	14
12	3	2	2	3	4	4	2	1	21
13	2	1	1	0	1	1	2	1	09
14	2	1	2	2	2	2	1	1	13
15	1	0	0	1	4	2	2	2	12
16	2	0	1	3	4	3	3	2	18
17	1	1	1	1	3	3	3	2	15
18	2	1	1	1	2	1	1	2	11
19	1	1	0	0	1	1	1	3	08
20	3	4	4	5	5	5	3	3	32
21	2	1	3	2	1	4	2	3	18
22	2	3	3	4	2	1	1	2	18
23	3	2	1	2	4	2	3	1	18
24	1	1	1	2	3	3	3	3	17
25	2	1	2	3	2	2	3	1	16
26	1	0	1	3	2	1	1	1	10
27	1	2	2	3	3	3	4	2	20
28	2	1	3	4	3	2	2	2	19

Mean of K-Sum is 15.3

Frequency of K-Indices

K :	0	1	2	3	4	5	6	7	8	9	-
f :	11	76	77	44	13	3	0	0	0	0	0

CANBERRA

MAGNETIC K-INDICES - FEBRUARY 1987

Range for lower limit of K=9 is 450nT

DAY	K-INDICES								K-SUM
01	1	1	1	2	3	2	0	2	12
02	0	0	0	1	2	2	0	0	05
03	1	1	2	1	1	0	0	2	08
04	1	1	0	1	1	2	1	0	07
05	1	1	1	2	1	2	1	2	11
06	2	2	1	2	3	1	1	2	14
07	1	1	2	2	3	2	1	3	15
08	2	3	3	2	3	4	3	2	22
09	1	1	2	3	3	3	1	2	16
10	2	1	2	2	1	2	0	1	11
11	2	2	2	0	1	1	2	1	11
12	2	2	2	2	4	4	1	2	19
13	1	1	2	0	1	0	0	1	06
14	1	1	2	2	0	1	0	1	08
15	0	0	1	1	3	1	1	1	08
16	1	1	2	3	3	3	2	1	16
17	0	1	1	1	2	2	2	2	11
18	1	1	1	2	1	1	0	2	09
19	0	0	0	0	1	1	1	2	05
20	2	4	3	4	4	4	3	2	26
21	2	2	3	3	1	4	1	3	19
22	1	3	3	4	2	1	1	3	18
23	1	2	2	2	3	2	2	2	16
24	1	1	2	2	3	2	2	1	14
25	1	1	1	3	1	1	1	0	09
26	1	0	1	3	2	1	0	1	09
27	0	2	3	3	2	3	3	2	18
28	1	1	2	4	3	1	1	3	16

Mean of K-Sum is 12.8

Frequency of K-Indices

K :	0	1	2	3	4	5	6	7	8	9	-
f :	29	84	68	33	10	0	0	0	0	0	0

MAWSON

MAGNETIC K-INDICES - FEBRUARY 1987

Range for lower limit of K=9 is 1500nT

DAY	K-INDICES								K-SUM
01	5	4	2	2	2	2	3	4	24
02	3	1	1	2	2	2	2	1	14
03	4	3	3	2	1	1	2	2	18
04	3	3	1	1	2	3	3	1	17
05	1	1	2	2	1	3	1	2	13
06	5	4	-	-	-	-	-	-	--
07	4	3	2	2	-	-	4	5	--
08	3	4	5	3	3	-	-	-	--
09	-	5	3	3	3	4	2	6	--
10	3	4	2	3	3	2	2	1	20
11	4	2	2	1	2	2	5	4	22
12	6	4	4	4	5	4	4	3	34
13	4	3	2	-	1	1	2	2	--
14	2	4	3	2	2	1	2	1	17
15	2	3	2	2	3	3	3	4	22
16	4	3	3	4	4	4	5	5	32
17	4	3	4	2	3	3	4	5	28
18	4	3	2	2	2	1	2	6	22
19	3	2	3	2	2	2	1	1	16
20	3	-	5	5	4	4	5	5	--
21	4	3	5	4	3	3	3	6	31
22	4	5	5	4	3	2	2	-	--
23	6	5	3	3	3	4	6	5	35
24	4	3	3	3	3	3	6	6	31
25	3	4	2	2	2	1	4	4	22
26	2	2	2	2	2	1	2	3	16
27	2	3	3	3	3	4	3	5	26
28	4	5	5	4	3	3	6	6	36

Mean of K-Sum is 23.6

Frequency of K-Indices

K :	0	1	2	3	4	5	6	7	8	9	-
f :	0	23	56	57	41	22	10	0	0	0	15

FEBRUARY 1987

PRINCIPAL MAGNETIC STORMS

OBSERVATORY	Commencement			SSC-amplitude			Max. 3hr K-index		Ranges			UT End		
	day	hr	min	type	D(')	H(nT)	Z(nT)	day (3hr-period)	K	D(')	H(nT)	Z(nT)	day	hr
Port Moresby	19	21	..	...	..	..	..	20(5)	5	6	140	80	21	00
Charters Towers	19	21	50	ssc	+0.4	-12	+1	20(5)	5	14.7	109	39	20	21
Gnangara							NIL							
Canberra	19	21	49	ssc	+0.4	-11	-3	20(2,4,5,6)	4	19.1	102	35	21	10

FEBRUARY 1987

PRELIMINARY MONTHLY MEAN VALUES

OBSERVATORY	H	D	Z	F
	nT	deg min	nT	nT
PORT MORESBY	35943	06° 35.1' E	-23714	43061
CHARTERS TOWERS	31784	07° 44.9' E	-38267	49745
LEARMONTH	29473	00° 37.7' W	-44416	53305
GNANGARA	23235	03° 14.5' W	-53802	58605
CANBERRA	23707	12° 24.2' E	-53698	58698
MACQUARIE ISLAND	12601	29° 26' E	-63588	64825
MAWSON	18481	63° 50.9' W	-46224	49782
DAVIS	16664	76° 50' W	-52110	54711
CASEY	9635	91° 17' W	-64072	64792

The values are derived from magnetograms for selected quiet days except at Davis and Casey where they are derived from semi-weekly absolute measurements.

SUDDEN COMMENCEMENTS AND OTHER RAPID VARIATIONS

OBSERVATORY	DAY	TYPE AND QUALITY	TIME	SENSE AND AMPLITUDE OF CHIEF MOVEMENT		
				H(nT)	D(nT)	Z(nT)
PORT MORESBY		NIL				
CHARTERS TOWERS		ssc C	2150	-12	+4	+1
GNANGARA		ssc*B	2150	-11	-18*	-13*
CANBERRA		ssc C	2149	-11	+3	-3

