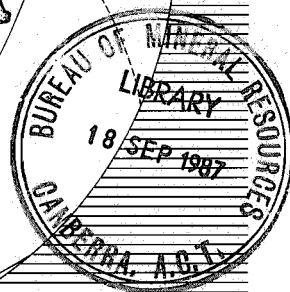
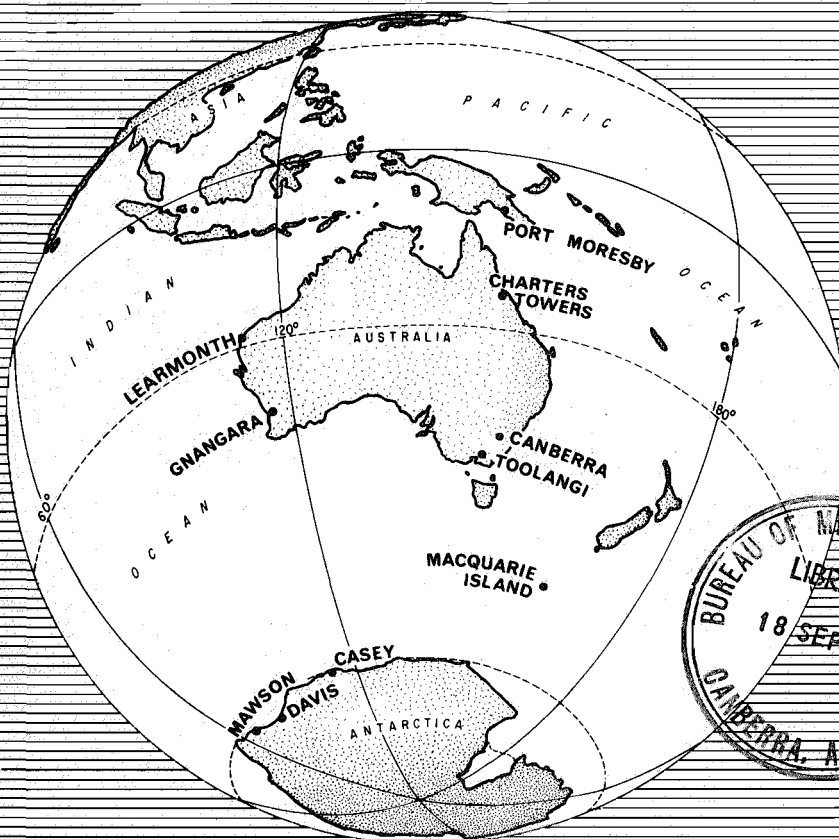


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GEOPHYSICAL OBSERVATORY REPORT



MAGNETIC OBSERVATORIES

VOLUME 35 No. 3

MARCH 1987

MINERAL RESOURCES, GEOLOGY & GEOPHYSICS

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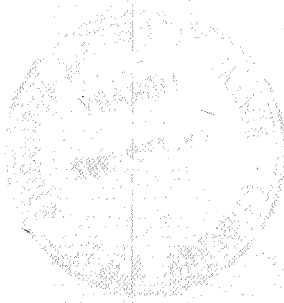
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Minister: Senator The Hon. Gareth J. EVANS

BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

DIRECTOR: R.W.R. Rutland

**This report was prepared by Geomagnetism
Section, Division of Geophysics**

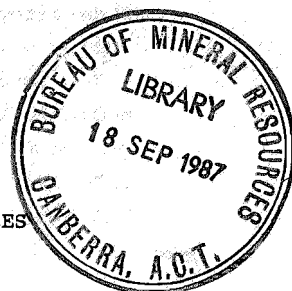
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The observers at Casey Davis and Macquarie Island are officers of the Antarctic Division, Department of Science and Technology: their contributions are gratefully acknowledged. These observers and the Bureau of Mineral Resources (BMR) geophysicist 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 OBSERVATORIESBMR PUBLICATIONS COMPACTUS
(LENDING SECTION)

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	-22.4°	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 - MARCH 1987

Range for lower limit of K=9 is 300nT

DAY	K-INDICES								K-SUM
01	2	2	2	2	2	3	3	2	18
02	1	1	1	1	2	1	1	1	09
03	2	2	1	2	1	2	2	2	14
04	2	2	2	3	2	2	1	2	16
05	2	2	2	3	4	3	3	3	22
06	2	1	1	2	2	2	2	2	14
07	3	2	4	4	4	2	1	1	21
08	1	1	3	3	3	3	2	1	17
09	1	1	2	1	1	2	1	2	11
10	1	2	3	1	4	3	2	1	17
11	2	-	-	3	3	3	3	2	--
12	2	1	3	3	2	2	1	2	16
13	2	2	2	2	2	2	1	2	15
14	2	2	2	2	1	1	1	1	12
15	2	2	2	2	3	1	1	2	15
16	2	1	3	4	4	2	2	2	20
17	2	2	2	2	3	2	1	2	16
18	2	1	2	1	3	3	3	3	18
19	3	2	2	3	3	1	1	1	16
20	1	1	1	1	2	1	1	1	09
21	2	1	2	4	4	3	3	3	22
22	4	2	2	2	2	2	3	3	20
23	2	1	2	3	3	2	2	1	16
24	1	1	3	1	1	1	2	2	12
25	1	1	1	1	1	2	1	3	11
26	2	2	4	4	3	3	1	1	20
27	2	3	3	3	3	3	3	2	22
28	3	3	3	3	3	1	1	1	18
29	1	2	3	2	1	1	1	1	12
30	1	1	1	1	2	1	1	1	09
31	1	2	1	1	2	1	1	1	10

Mean of K-Sum is 15.6

Frequency of K-Indices

K : 0 1 2 3 4 5 6 7 8 9 -
f : 0 85 96 53 12 0 0 0 0 0 2

GNANGARA

MAGNETIC K-INDICES - MARCH 1987

Range for lower limit of K=9 is 450nT

DAY	K-INDICES								K-SUM
01	2	2	1	1	1	3	4	2	16
02	0	1	1	1	1	1	1	1	07
03	1	1	1	1	1	3	3	2	13
04	3	1	1	3	2	2	2	2	16
05	2	2	1	4	4	4	3	3	23
06	2	1	1	1	1	1	3	2	12
07	2	2	4	5	4	1	2	1	21
08	2	0	3	2	3	3	1	1	15
09	1	1	1	0	1	2	1	1	08
10	1	1	2	1	4	3	1	0	13
11	1	1	1	2	3	3	3	1	15
12	2	1	1	3	1	1	1	3	13
13	2	1	2	2	2	1	1	1	12
14	1	2	2	1	1	2	2	1	12
15	2	2	1	2	3	2	1	3	16
16	1	1	1	2	4	1	2	1	13
17	1	2	2	1	2	2	1	0	11
18	1	1	1	1	2	3	2	2	13
19	2	1	2	3	3	1	1	1	14
20	1	0	1	0	1	1	0	1	05
21	1	1	1	3	3	4	3	3	19
22	3	2	1	1	1	2	3	3	16
23	2	1	1	2	1	0	0	0	07
24	1	0	1	3	0	0	1	1	07
25	1	0	1	0	1	3	2	2	10
26	2	2	3	3	2	3	2	1	18
27	2	2	3	4	4	4	2	2	23
28	3	2	3	2	3	1	2	1	17
29	1	1	2	1	0	1	1	1	08
30	1	1	1	1	2	2	1	0	09
31	1	1	0	0	1	0	0	1	04

Mean of K-Sum is 13.0

Frequency of K-Indices

K :	0	1	2	3	4	5	6	7	8	9	-
F :	22	111	64	38	12	1	0	0	0	0	0

CANBERRA

MAGNETIC K-INDICES - MARCH 1987

Range for lower limit of K=9 is 450nT

DAY	K-INDICES								K-SUM
01	1	3	2	2	1	3	2	2	16
02	0	0	1	0	2	1	0	1	05
03	0	2	2	2	1	1	1	1	10
04	2	1	2	3	3	2	1	2	16
05	1	2	2	4	4	4	2	3	22
06	1	1	1	2	1	0	1	2	09
07	3	3	4	4	4	0	1	1	20
08	1	1	3	3	3	3	1	1	16
09	1	2	2	0	1	1	1	1	09
10	0	2	3	1	4	3	1	0	14
11	2	1	2	2	3	3	2	1	16
12	1	2	2	3	2	1	1	3	15
13	2	2	2	2	2	1	1	1	13
14	0	2	1	2	1	1	1	1	09
15	1	2	2	2	3	1	1	2	14
16	2	0	2	3	4	1	1	1	14
17	1	2	2	1	2	1	1	1	11
18	1	1	2	1	2	3	2	3	15
19	2	2	2	3	2	1	0	1	13
20	1	0	1	0	2	1	0	1	06
21	1	1	1	3	3	4	3	3	19
22	2	2	1	2	1	1	3	2	14
23	2	2	2	2	2	1	0	0	11
24	1	0	2	0	0	0	1	1	05
25	0	0	0	0	0	2	1	1	04
26	1	2	3	3	2	2	1	1	15
27	1	2	3	4	4	4	2	2	22
28	3	2	3	2	2	1	1	0	14
29	0	1	2	2	0	0	1	0	06
30	0	1	0	1	2	2	1	0	07
31	1	1	0	1	1	0	0	1	05

Mean of K-Sum is 12.4

Frequency of K-Indices

K :	0	1	2	3	4	5	6	7	8	9	-
f :	38	91	75	32	12	0	0	0	0	0	0

MAWSON

MAGNETIC K-INDICES - MARCH 1987

Range for lower limit of K=9 is 1500nT

DAY	K-INDICES								K-SUM
01	5	3	2	2	3	3	6	4	28
02	2	2	3	2	1	1	2	4	17
03	3	3	2	3	2	2	5	6	26
04	5	4	2	3	3	2	2	6	27
05	4	6	4	3	5	6	5	6	39
06	5	5	4	2	2	1	6	7	32
07	6	6	5	4	4	2	3	4	34
08	3	3	4	3	3	4	2	5	27
09	5	5	4	2	2	2	2	1	23
10	4	5	3	4	3	3	1	0	23
11	2	2	3	1	3	3	4	3	21
12	4	3	3	3	2	1	4	7	27
13	5	4	4	4	2	1	1	5	26
14	5	4	4	2	3	3	6	5	32
15	3	4	4	3	2	2	4	3	25
16	5	3	3	3	4	2	5	6	31
17	5	5	4	2	2	2	1	4	25
18	3	2	2	2	3	3	3	6	24
19	5	4	3	3	2	2	6	6	31
20	2	1	1	0	1	-	3	4	--
21	2	3	3	2	4	5	7	7	33
22	6	3	3	4	3	3	7	5	34
23	2	3	3	2	2	1	1	5	17
24	2	0	3	2	0	0	2	2	11
25	2	1	1	1	2	3	3	5	18
26	4	3	4	4	3	3	3	3	27
27	5	5	4	3	5	4	5	5	36
28	4	4	4	4	2	2	3	2	25
29	1	3	3	2	1	1	2	4	17
30	2	2	1	1	3	3	3	0	15
31	3	3	2	1	2	2	1	1	15

Mean of K-Sum is 25.5

Frequency of K-Indices

K :	0	1	2	3	4	5	6	7	8	9	-
f :	6	26	58	66	42	29	15	5	0	0	1

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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						NIL								
Charters Towers						NIL								
Gwangara						NIL								
Canberra						NIL								

MARCH 1987

PRELIMINARY MONTHLY MEAN VALUES

OBSERVATORY	H	D		Z	F	
	nT	deg	min	nT	nT	
PORT MORESBY	35941	06°	35.5	E	-23712	43058
CHARTERS TOWERS	31774	07°	45.4	E	-38266	49738
LEARMONTH	29471	00°	37.7	W	-44415	53301
GNANGARA	23228	03°	14.1	W	-53804	58604
CANBERRA	23691	12°	24.7	E	-53702	58695
MACQUARIE ISLAND	12599	29°	29	E	-63599	64835
MAWSON	18467	63°	54.7	W	-46216	49769
DAVIS	16636	76°	57	W	-52159	54748
CASEY	9640	91°	17	W	-64076	64797

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			NIL			
GNANGARA			NIL			
CANBERRA			NIL			

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DATE	TIME	LOCATION	DEPTH	WAVELENGTH	PERIOD	AMPLITUDE	PHASE	REMARKS
1987-03-01	00:00	1000	1000	1000	1000	1000	1000	1000
1987-03-01	01:00	1000	1000	1000	1000	1000	1000	1000
1987-03-01	02:00	1000	1000	1000	1000	1000	1000	1000
1987-03-01	03:00	1000	1000	1000	1000	1000	1000	1000
1987-03-01	04:00	1000	1000	1000	1000	1000	1000	1000
1987-03-01	05:00	1000	1000	1000	1000	1000	1000	1000
1987-03-01	06:00	1000	1000	1000	1000	1000	1000	1000
1987-03-01	07:00	1000	1000	1000	1000	1000	1000	1000
1987-03-01	08:00	1000	1000	1000	1000	1000	1000	1000
1987-03-01	09:00	1000	1000	1000	1000	1000	1000	1000
1987-03-01	10:00	1000	1000	1000	1000	1000	1000	1000
1987-03-01	11:00	1000	1000	1000	1000	1000	1000	1000
1987-03-01	12:00	1000	1000	1000	1000	1000	1000	1000
1987-03-01	13:00	1000	1000	1000	1000	1000	1000	1000
1987-03-01	14:00	1000	1000	1000	1000	1000	1000	1000
1987-03-01	15:00	1000	1000	1000	1000	1000	1000	1000
1987-03-01	16:00	1000	1000	1000	1000	1000	1000	1000
1987-03-01	17:00	1000	1000	1000	1000	1000	1000	1000
1987-03-01	18:00	1000	1000	1000	1000	1000	1000	1000
1987-03-01	19:00	1000	1000	1000	1000	1000	1000	1000
1987-03-01	20:00	1000	1000	1000	1000	1000	1000	1000
1987-03-01	21:00	1000	1000	1000	1000	1000	1000	1000
1987-03-01	22:00	1000	1000	1000	1000	1000	1000	1000
1987-03-01	23:00	1000	1000	1000	1000	1000	1000	1000

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