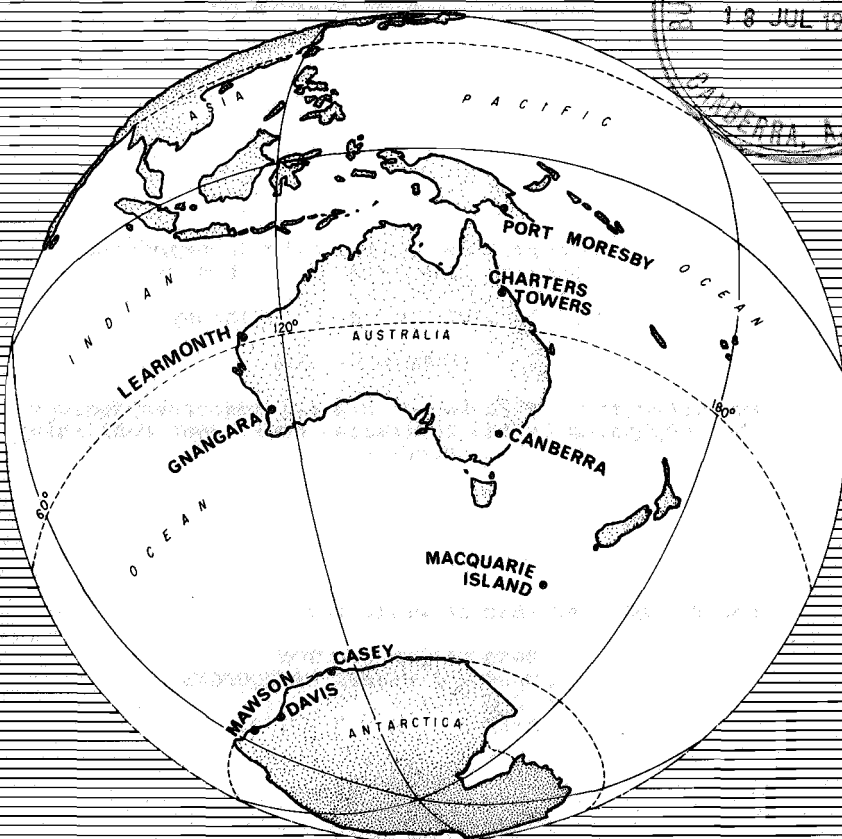
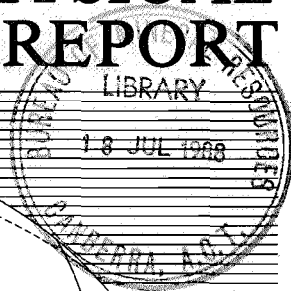


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(LENDING SECTION)



GEOPHYSICAL OBSERVATORY REPORT



MAGNETIC OBSERVATORIES

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VOLUME 36 No. 1
JANUARY 1988

MINERAL RESOURCES, GEOLOGY & GEOPHYSICS

DEPARTMENT OF PRIMARY INDUSTRIES AND ENERGY

Minister for Resources: Senator the Hon. Peter Cook

BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

DIRECTOR: R.W.R. Rutland AO

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

CHIEF OF DIVISION: M.W. McElhinny

ISSN 0433-5015

**Published for the Bureau of Mineral Resources, Geology
and Geophysics by the Australian Government Publishing
Service.**

For further Information write to:

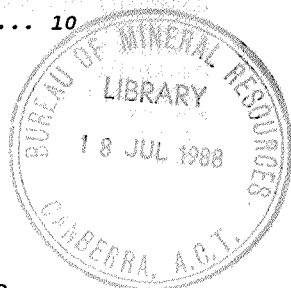
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BMR PUBLICATIONS COMPACTUS (LENDING SECTION) (CONTENTS)

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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	J.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	G. Kowalik	54° 30' S	158° 57' E	-60.6°	244.6°
MAWSON	R. Hutchinson	67° 36' S	62° 53' E	-73.3°	105.9°
DAVIS	M. Craven	68° 35' S	77° 58' E	-76.9°	123.5°
CASEY	T. Maggs	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 - JANUARY 1988

Range for lower limit of K=9 is 300nT

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

Mean of K-Sum is 18.0

Frequency of K-Indices

K :	0	1	2	3	4	5	6	7	8	9	-
f :	0	71	92	52	19	12	2	0	0	0	0

GNANGARA

MAGNETIC K-INDICES - JANUARY 1988

Range for lower limit of K=9 is 450nT

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

Mean of K-Sum is 17.3

Frequency of K-Indices

K :	0	1	2	3	4	5	6	7	8	9	-
f :	12	72	72	50	20	11	3	0	0	0	8

CANBERRA

MAGNETIC K-INDICES - JANUARY 1988

Range for lower limit of K=9 is 450nT

DAY	K-INDICES								K-SUM
01	2	3	1	2	2	2	2	4	18
02	5	3	3	5	6	6	6	4	38
03	3	4	3	3	3	2	2	4	24
04	4	3	2	1	2	3	5	6	26
05	4	5	4	2	4	2	2	5	28
06	4	4	5	5	3	6	6	4	37
07	6	5	5	4	4	3	6	5	38
08	4	6	4	4	4	4	5	3	34
09	4	5	5	3	0	0	3	3	23
10	1	1	1	1	3	2	5	5	19
11	5	6	5	1	2	1	1	2	23
12	4	3	3	5	6	4	7	2	34
13	3	2	2	2	3	3	4	3	22
14	6	6	3	2	4	-	6	7	--
15	5	7	6	5	3	5	5	5	41
16	2	1	3	3	3	1	1	4	18
17	2	3	2	3	3	3	4	5	25
18	3	3	3	3	3	4	7	3	29
19	2	3	4	3	3	3	2	3	23
20	4	3	4	3	2	3	3	5	27
21	4	4	3	2	2	1	3	4	23
22	3	4	2	2	3	3	3	2	22
23	3	3	0	1	2	1	0	1	11
24	3	2	0	2	2	2	2	4	17
25	3	2	2	2	2	2	4	4	21
26	2	2	2	2	3	2	3	3	19
27	3	4	4	3	2	2	3	5	26
28	3	5	3	2	1	1	1	3	19
29	2	3	0	1	1	2	1	3	13
30	1	2	1	0	0	0	3	4	11
31	2	4	2	0	2	1	2	2	15

Mean of K-Sum is 24.1

Frequency of K-Indices

K :	0	1	2	3	4	5	6	7	8	9	-
f :	10	25	58	68	40	27	15	4	0	0	1

MAWSON

MAGNETIC K-INDICES - JANUARY 1988

Range for lower limit of K=9 is 1500nT

DAY	K-INDICES								K-SUM
01	2	3	1	2	2	2	2	4	18
02	5	3	3	5	6	6	6	4	38
03	3	4	3	3	3	2	2	4	24
04	4	3	2	1	2	3	5	6	26
05	4	5	4	2	4	2	2	5	28
06	4	4	5	5	3	6	6	4	37
07	6	5	5	4	4	3	6	5	38
08	4	6	4	4	4	4	5	3	34
09	4	5	5	3	0	0	3	3	23
10	1	1	1	1	3	2	5	5	19
11	5	6	5	1	2	1	1	2	23
12	4	3	3	5	6	4	7	2	34
13	3	2	2	2	3	3	4	3	22
14	6	6	3	2	4	-	6	7	--
15	5	7	6	5	3	5	5	5	41
16	2	1	3	3	3	1	1	4	18
17	2	3	2	3	3	3	4	5	25
18	3	3	3	3	3	4	7	3	29
19	3	3	4	3	3	3	2	3	24
20	4	3	4	3	2	3	3	5	27
21	4	4	3	2	2	1	3	4	23
22	3	4	2	2	3	3	3	2	22
23	3	3	0	1	2	1	0	1	11
24	3	2	0	2	2	2	2	4	17
25	3	2	2	2	2	2	4	4	21
26	2	2	2	2	3	2	3	3	19
27	3	4	4	3	2	2	3	5	26
28	3	5	3	2	1	1	1	3	19
29	2	3	0	1	1	2	1	3	13
30	1	2	1	0	0	0	3	4	11
31	2	4	2	0	2	1	2	2	15

Mean of K-Sum is 24.1

Frequency of K-Indices

K :	0	1	2	3	4	5	6	7	8	9	-
f :	10	25	57	69	40	27	15	4	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	02	09	..	...	..	..	..	02	(4)	6	06	130	40	03	10
	04	20	22	ssc	-0.6	+47	+37	04	(7,8)	5	11	90	80	07	08
								06	(4,6,7)	5					
	13	23	29	ssc*	-1.3*	+36	+28	14	(2)	6	11	240	130	15	15
Charters Towers	02	09	..	...	..	..	..	02	(4)	6	9.1	115	37	03	10
	06	01	..	...	..	..	..	06	(3,4,6,7)	5	11.3	115	34	07	04
								07	(1)	5					
	13	23	29	ssc	-1.9	+18	- 2	14	(2,6,7,8)	6	13.4	238	45	15	13
								15	(4)	6					
Gnangara	01	23	..	...	..	..	..	02	(4,5,7)	5	20	120	130	03	10
	06	00	..	...	..	..	..	06	(2,3,6,7)	5	15	130	90	08	19
	13	23	30	ssc	0.5	12	06	14	(7,8)	6	27	260	160	16	00
								15	(1)	6					
Canberra	06	03	..	...	..	..	..	06	(3,4,6,7)	5	17.5	157	57	07	04
	13	23	30	ssc*	-4.1	+13*	+14	14	(2,6)	6	21.8	302	103	15	13

JANUARY 1988

PRELIMINARY MONTHLY MEAN VALUES

OBSERVATORY	H	D	Z	F
	nT	deg min	nT	nT
PORT MORESBY	35930	06° 35.7' E	-23720	43053
CHARTERS TOWERS	31769	07° 45.7' E	-38270	49738
LEARMONTH	29491	00° 37.5' W	-44423	53321
GNANGARA	23223	03° 12.5' W	-53812	58609
CANBERRA	23683	12° 26.5' E	-53693	58685
MACQUARIE ISLAND	12592	29° 19.2' E	-63553	64789
MAWSON	18486	63° 59.5' W	-46166	49730
DAVIS	16660	77° 06.9' W	-52176	54771
CASEY	9689	91° 21.7' W	-64112	64840

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	04	ssc A	2022	+47	-06	+37
	13	ssc*B	2329	+36	-12*	+28
CHARTERS TOWERS	04	ssc B	2012	+50	-08	-04
	13	ssc B	2329	+18	-18	-02
GNANGARA	04	ssc A	2012	+51	+13	+09
	13	ssc B	2330	+12	+03	+06
CANBERRA	04	ssc*B	2013	+42	+11*	+05
	13	ssc*B	2330	+13*	-28	+14

R No.85/1665(19)
Cat. No.88 0929 8

Printed by Highland Press, Fyshwick. A.C.T..