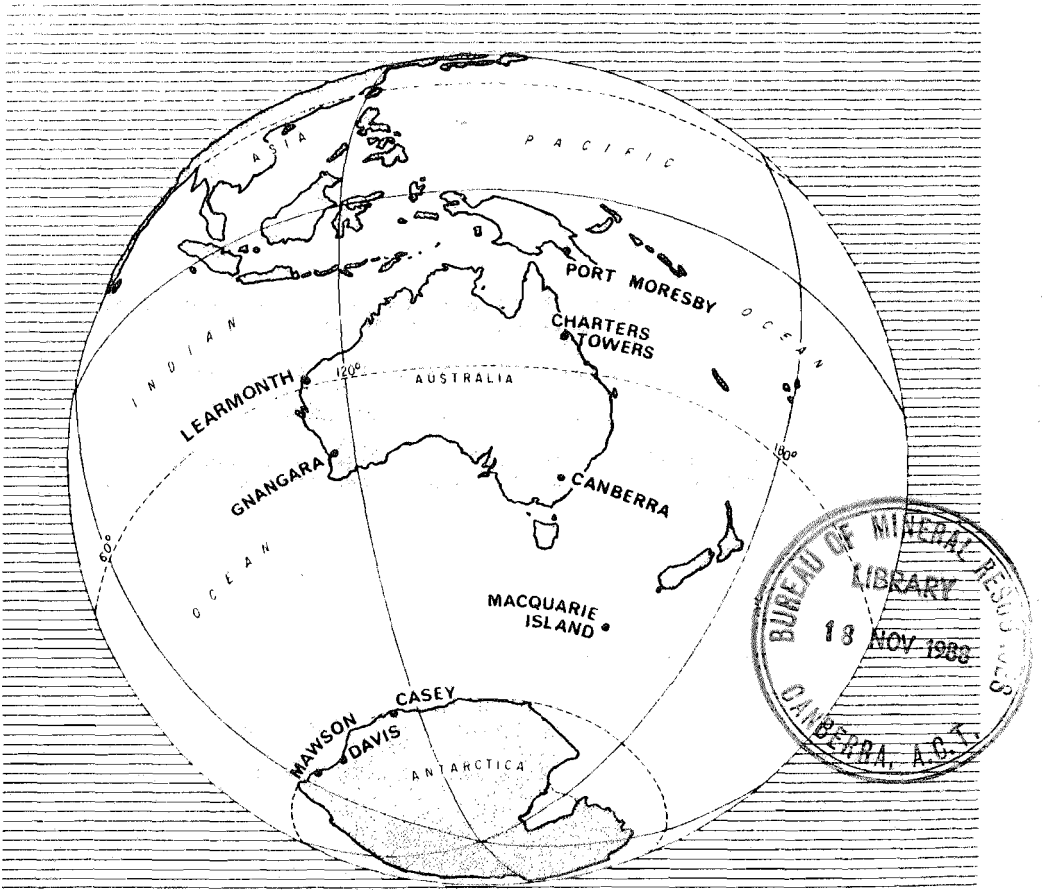
GEOPHYSICAL OBSERVATORY REPORT



MAGNETIC OBSERVATORIES

VOLUME 36 No. 3
MARCH 1988
BUREAU OF MINERAL RESOURCES, GEOLOGY & GEOPHYSICS

DEPARTMENT OF PRIMARY INDUSTRIES AND ENERGY

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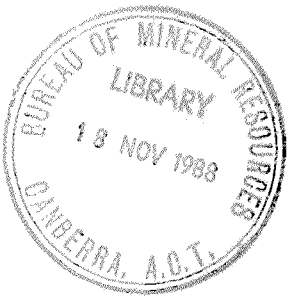

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The observers at Casey, Davis and Macquarie Island are officers of the Antarctic Division, Department of Science and Technology: their contributions are gratefully acknowledged. These observers and the Bureau of Mineral Resources (BMR) geophysicist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

OBSERVATORY	OBSERVER IN CHARGE	GEOGRAPHIC LAT	GEOGRAPHIC LONG	GEOMAGNETIC LAT	GEOMAGNETIC 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	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

OBSERVATORY	CODE	TYPE		ELEMENT/SCALE-VALUE		
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 1988

Range for lower limit of K=9 is 300nT

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

Mean of K-Sum is 17.9

Frequency of K-Indices

K :	0	1	2	3	4	5	6	7	8	9	-
f :	1	63	91	65	23	5	0	0	0	0	0

GNANGARA

MAGNETIC K-INDICES - MARCH 1988

Range for lower limit of K=9 is 450nT

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

Mean of K-Sum is 18.0

Frequency of K-Indices

K :	0	1	2	3	4	5	6	7	8	9	-
f :	18	48	72	62	20	11	2	0	0	0	15

CANBERRA

MAGNETIC K-INDICES - MARCH 1988

Range for lower limit of K=9 is 450nT

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

Mean of K-Sum is 15.3

Frequency of K-Indices

K :	0	1	2	3	4	5	6	7	8	9	-
f :	34	62	74	53	17	8	0	0	0	0	0

MAWSON

MAGNETIC K-INDICES - MARCH 1988

Range for lower limit of K=9 is 1500nT

DAY	K-INDICES								K-SUM
01	4	2	2	1	1	0	3	4	17
02	2	1	2	2	2	3	0	6	18
03	3	3	2	2	1	3	3	4	21
04	5	4	5	3	3	4	6	4	34
05	3	5	2	2	2	2	6	6	28
06	6	5	5	3	3	4	7	3	36
07	4	4	4	2	2	3	6	5	30
08	3	7	7	3	4	2	2	2	30
09	3	4	6	4	2	3	3	2	27
10	2	3	4	2	3	3	6	6	29
11	4	3	3	2	3	3	5	4	27
12	3	4	3	3	2	2	4	7	28
13	2	2	3	1	0	1	1	3	13
14	4	3	4	1	3	3	4	7	29
15	3	5	5	4	2	2	6	6	33
16	5	5	4	4	2	1	3	4	28
17	3	4	5	2	1	1	5	5	26
18	2	3	3	3	1	2	3	5	22
19	2	3	2	1	0	0	2	2	12
20	2	1	1	4	2	0	0	1	11
21	0	0	0	0	0	0	0	4	04
22	3	1	0	0	0	0	0	0	04
23	1	2	2	0	1	3	4	2	15
24	2	2	1	0	0	0	1	4	10
25	0	2	2	2	2	4	5	3	20
26	5	5	5	3	4	5	7	6	40
27	7	4	4	3	4	3	6	5	36
28	3	5	5	4	3	3	7	6	36
29	4	5	5	5	4	7	7	3	40
30	6	6	5	2	3	2	3	7	34
31	4	5	4	1	2	3	7	4	30

Mean of K-Sum is 24.7

Frequency of K-Indices

K :	0	1	2	3	4	5	6	7	8	9	-
f :	25	22	50	54	41	28	16	12	0	0	0

MARCH 1988

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	07	17	46	ssc	+0.3	+29	+23	08	(2,3)	5	4	120	60	08	16
Gnangara	26	05	..	...	..	..	..	26	(7,8)	5	17	120	100	27	09
								27	(1)	5					
	29	05	..	...	..	..	..	29	(4,7)	6	20	100	140	30	22
Canberra	26	13	..	...	..	..	..	26	(6,7,8)	5	21.9	173	47	27	07
	29	09	..	...	..	..	..	29	(4,7)	5	23.3	126	50	30	15
								30	(4,5)	5					

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PRELIMINARY MONTHLY MEAN VALUES

OBSERVATORY	H	D		Z	F
	nT	deg	min	nT	nT
PORT MORESBY	35932	06°	35.7′ E	-23716	43053
CHARTERS TOWERS	31770	07°	46.2′ E	-38270	49739
LEARMONTH	29480	00°	36.9′ W	-44419	53311
GNANGARA	23218	03°	11.6′ W	-53810	58605
CANBERRA	23677	12°	26.8′ E	-53689	58677
MACQUARIE ISLAND	12549	29°	25.0′ E	-63555	64782
MAWSON	18471	64°	02.7′ W	-46155	49714
DAVIS	16665	77°	01.9′ W	-52148	54746
CASEY	9594	91°	22.6′ W	-64468	65178

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	07	ssc B	1746	+29	+03	+23
CHARTERS TOWERS	07	ssc B	1728	+31	-02	-03
GNANGARA	07	ssc A	1727	+32	+18	+19
CANBERRA	07	ssc*B	1727	+27	+11*	+03

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