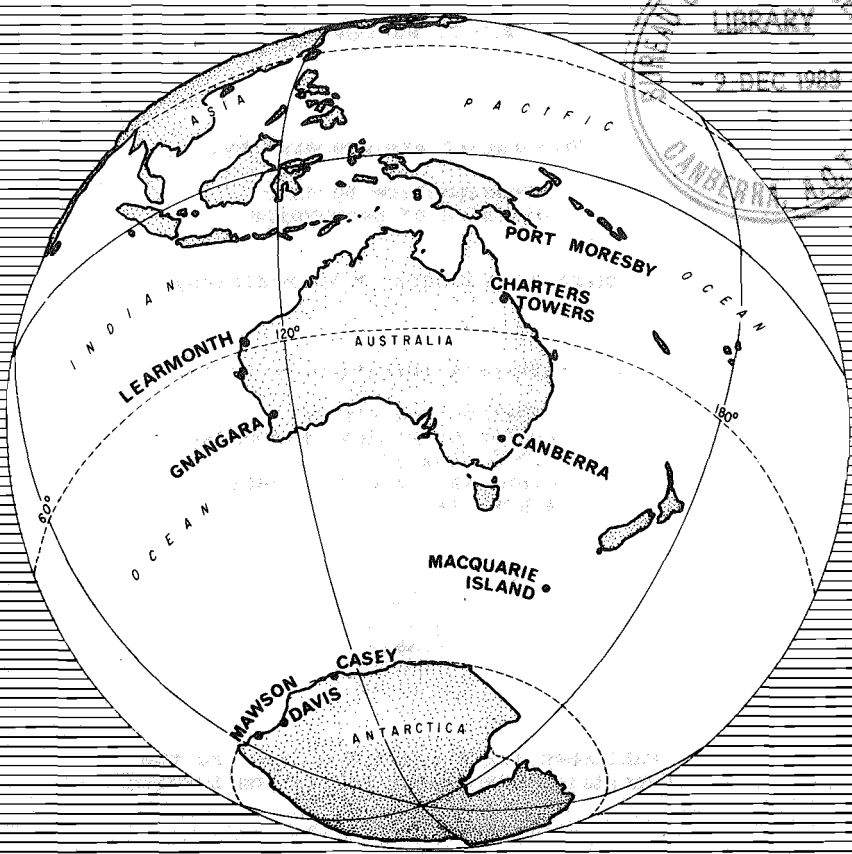
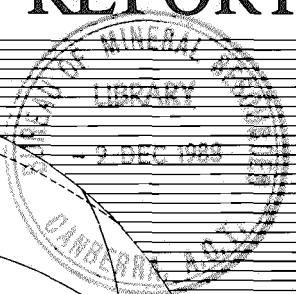


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GEOPHYSICAL OBSERVATORY REPORT



MAGNETIC OBSERVATORIES

BMR
\$550
389.5
AUS. \$
copy 2

VOLUME 36 No. 7
JULY 1988

DEPARTMENT OF MINERAL RESOURCES, GEOLOGY & GEOPHYSICS

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DEPARTMENT OF PRIMARY INDUSTRIES AND ENERGY

Minister for Resources:

Senator the Hon. Peter Cook

BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

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**Published for the B.M.R.G. & G. by the
Australian Government Publishing Service**

ISSN 0433-5015

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Printed in Australia by Better Printing Service, 44 Paterson Parade, Queanbeyan NSW

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The observers at Casey, Davis and Macquarie Island are officers of the Antarctic Division, Department of Administrative Services: 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	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 - JULY 1988

Range for lower limit of K=9 is 300nT

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

Mean of K-Sum is 16.4

Frequency of K-Indices

K :	0	1	2	3	4	5	6	7	8	9	-
f :	3	77	94	55	17	1	0	0	0	0	1

GNANGARA

MAGNETIC K-INDICES - JULY 1988

Range for lower limit of K=9 is 450nT

DAY	K-INDICES								K-SUM
01	3	2	2	2	2	2	3	2	18
02	2	2	2	2	1	1	2	1	13
03	0	1	0	1	2	2	2	2	10
04	1	2	1	0	0	0	0	0	04
05	0	0	0	0	0	1	1	1	03
06	2	2	2	2	2	1	3	2	16
07	1	1	1	3	2	1	4	2	15
08	1	1	1	2	4	2	3	1	15
09	0	0	0	0	0	0	0	0	00
10	1	0	0	1	2	2	2	1	09
11	3	3	3	3	5	3	3	2	25
12	2	2	2	2	4	3	4	4	23
13	1	1	0	0	0	0	1	1	04
14	3	2	2	1	0	1	3	2	14
15	2	1	1	1	3	4	4	2	18
16	2	2	3	3	5	2	2	3	22
17	1	1	1	1	3	3	1	2	13
18	1	2	2	3	2	3	2	1	16
19	1	1	2	3	3	1	1	0	12
20	1	1	1	1	0	1	0	0	05
21	1	3	4	5	5	3	2	1	24
22	3	3	3	3	4	4	4	4	28
23	3	2	2	3	2	1	1	1	15
24	2	2	2	1	0	2	2	2	13
25	1	1	0	1	1	1	1	1	07
26	2	2	2	3	3	4	3	3	22
27	3	2	-	2	2	2	2	2	--
28	1	1	1	0	2	3	4	3	15
29	1	0	0	0	0	1	2	4	08
30	1	2	1	0	1	1	1	1	08
31	0	2	2	1	1	1	2	1	10

Mean of K-Sum is 13.5

Frequency of K-Indices

K :	0	1	2	3	4	5	6	7	8	9	-
f :	40	75	74	39	15	4	0	0	0	0	1

CANBERRA

MAGNETIC K-INDICES - JULY 1988

Range for lower limit of K=9 is 450nT

DAY	K-INDICES								K-SUM
01	2	2	3	3	2	2	3	2	19
02	1	2	2	2	1	1	1	1	11
03	0	0	0	1	2	2	1	0	06
04	1	2	0	0	0	0	0	0	03
05	0	0	0	0	0	1	1	1	03
06	2	2	2	3	2	2	2	1	16
07	1	1	3	3	2	1	3	0	14
08	1	0	2	3	4	1	2	0	13
09	0	0	0	0	0	0	0	0	00
10	1	0	1	1	1	1	1	0	06
11	2	3	3	3	5	3	2	1	22
12	(1)	4	3	3	4	3	2	(2)	(22)
13	(1)	0	0	0	0	0	0	2	(03)
14	2	3	2	1	1	1	2	2	14
15	1	1	1	1	3	4	4	2	17
16	2	2	4	3	5	2	2	2	22
17	1	0	1	1	3	2	0	1	09
18	0	1	3	3	2	2	1	0	12
19	1	1	3	3	3	0	0	0	11
20	0	0	0	0	0	0	0	0	00
21	0	2	5	4	4	3	2	1	21
22	3	3	2	3	3	4	3	3	24
23	3	2	3	3	2	0	0	0	13
24	1	1	2	2	0	1	1	1	09
25	1	0	0	0	0	1	1	0	03
26	2	1	2	4	3	3	3	3	21
27	2	3	3	2	2	2	1	0	15
28	1	1	0	1	1	3	2	3	12
29	1	0	0	0	0	0	1	3	05
30	1	1	1	0	0	0	0	0	03
31	0	2	3	3	1	0	1	1	11

Mean of K-Sum is (11.6)

Frequency of K-Indices

K :	0	1	2	3	4	5	6	7	8	9	-
f :	73	64	53	45	10	3	0	0	0	0	0

MAWSON

MAGNETIC K-INDICES - JULY 1988

Range for lower limit of K=9 is 1500nT

DAY	K-INDICES								K-SUM
01	5	4	4	4	4	4	6	5	36
02	3	5	3	4	2	2	6	3	28
03	2	3	1	2	2	2	3	5	20
04	3	5	1	1	0	1	0	1	12
05	0	0	1	0	0	0	2	2	05
06	2	4	3	2	3	2	6	3	25
07	3	3	3	3	2	2	6	3	25
08	4	3	4	3	1	1	5	5	26
09	4	0	0	0	0	0	1	4	09
10	1	1	1	1	0	2	4	3	13
11	3	4	4	3	4	4	3	5	30
12	4	6	4	3	3	1	6	7	34
13	4	2	3	1	0	0	0	4	14
14	6	5	3	2	1	1	6	5	29
15	3	3	3	2	2	5	5	2	25
16	4	5	5	4	3	3	3	7	34
17	3	3	2	2	3	3	1	5	22
18	2	4	3	4	2	2	3	5	25
19	6	3	4	4	3	2	3	3	28
20	2	1	2	1	0	1	2	4	13
21	4	5	6	5	5	3	3	5	36
22	6	6	5	3	4	6	5	7	42
23	6	5	5	3	2	1	3	2	27
24	5	5	5	3	2	1	2	2	25
25	3	3	4	2	2	1	3	6	24
26	3	4	4	3	3	3	6	6	32
27	4	5	5	3	2	1	3	5	28
28	3	3	4	3	3	3	6	6	31
29	5	3	4	0	0	1	6	7	26
30	3	4	3	3	0	0	0	5	18
31	3	3	4	2	2	1	3	5	23

Mean of K-Sum is 24.7

Frequency of K-Indices

K :	0	1	2	3	4	5	6	7	8	9	-
f :	22	27	38	67	37	33	20	4	0	0	0

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PRINCIPAL MAGNETIC STORMS

OBSERVATORY	<u>Commencement</u>		<u>SSC-amplitude</u>			<u>Max. 3hr K-index</u>		<u>Ranges</u>			<u>UT End</u>	
	day	hr min	type	D(')	H(nT)	Z(nT)	day (3hr-period)	K	D(')	H(nT)	Z(nT)	day hr
Port Moresby	21	03 16	ssc*	+0.5*	+24	+21	21 (3)	5	5	130	70	23 12
Charters Towers	21	03 17	ssc*	+0.5*	+24	-1	21 (3)	6	7.2	110	19	21 18
Gnangara	NIL			PRINCIPAL			MAGNETIC		STORMS			
Canberra	NIL			PRINCIPAL			MAGNETIC		STORMS			

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PRELIMINARY MONTHLY MEAN VALUES

OBSERVATORY	H	D		Z	F
	nT	deg	min	nT	nT
PORT MORESBY	35923	06°	36.0' E	-23720	43048
CHARTERS TOWERS	31760	07°	46.3' E	-38267	49730
LEARMONTH	29479	00°	35.9' W	-44429	53319
GNANGARA	23212	03°	11.0' W	-53812	58605
CANBERRA	23671	12°	27.4' E	-53688	58675
MACQUARIE ISLAND	12574	29°	34.7' E	-63562	64794
MAWSON	18470	64°	05.3' W	-46137	49697
DAVIS	16643	77°	06.5' W	-52100	54694
CASEY	9595	91°	43.9' W	-63995	64710

The values are derived from magnetograms for selected quiet days except at Davis, Casey and Macquarie Is. 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	21	ssc*B	0316	+24	+ 5*	+21
CHARTERS TOWERS	21	ssc*B	0317	+24	+ 5*	- 1
GNANGARA	11	ssc B	0055	+ 4	+ 3	+ 2
	16	ssc*B	0303	- 5*	- 6	- 3
	21	ssc*B	0317	-17*	-17*	U/S
CANBERRA	21	ssc*B	0318	+18	+ 9*	+ 5

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