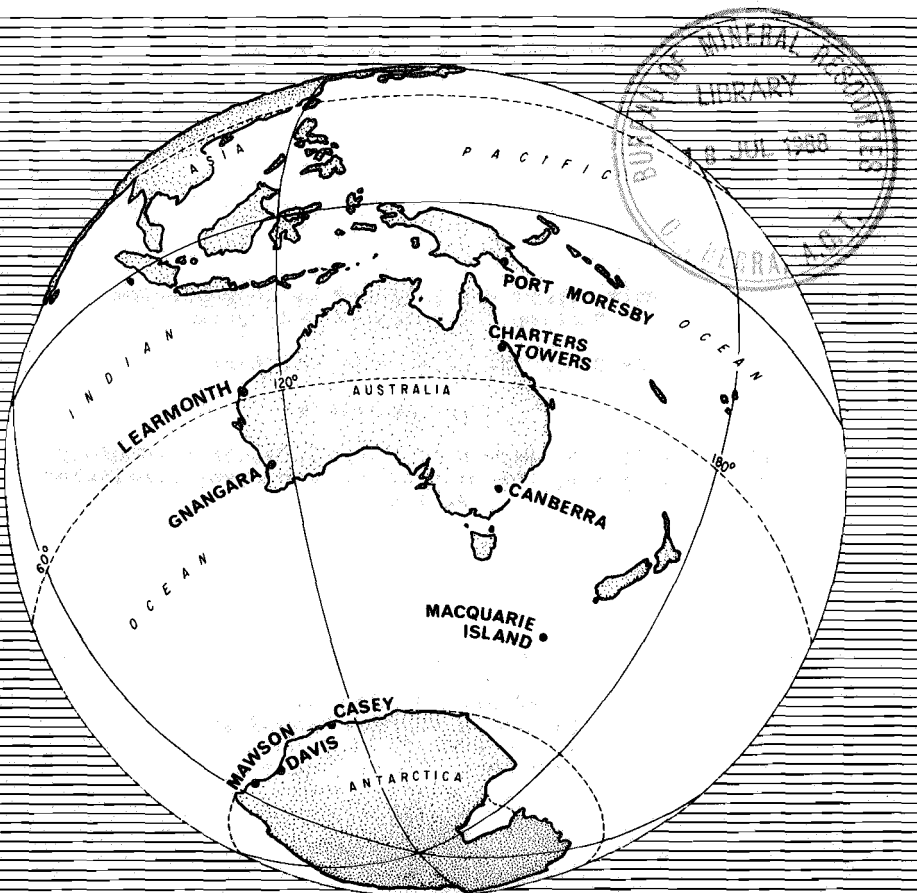


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GEOPHYSICAL OBSERVATORY REPORT



MAGNETIC OBSERVATORIES

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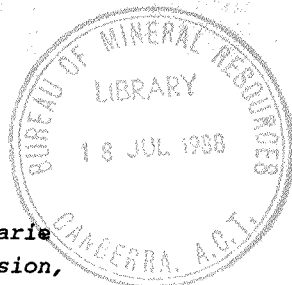
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The observers at Casey, Davis and Macquarie Island are officers of the Antarctic Division, Department of Science and Technology: their contributions are gratefully acknowledged. These observers and the Bureau of Mineral Resources (BMR) geophysicist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

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 - FEBRUARY 1988

Range for lower limit of K=9 is 300nT

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

Mean of K-Sum is 16.7

Frequency of K-Indices

K :	0	1	2	3	4	5	6	7	8	9	-
f :	2	77	82	47	16	7	1	0	0	0	0

GNANGARA

MAGNETIC K-INDICES - FEBRUARY 1988

Range for lower limit of K=9 is 450nT

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

Mean of K-Sum is 17.7

Frequency of K-Indices

K :	0	1	2	3	4	5	6	7	8	9	-
f :	17	56	65	57	28	7	2	0	0	0	0

CANBERRA

MAGNETIC K-INDICES - FEBRUARY 1988

Range for lower limit of K=9 is 450nT

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

Mean of K-Sum is 14.1

Frequency of K-Indices

K :	0	1	2	3	4	5	6	7	8	9	-
f :	36	72	67	33	17	6	1	0	0	0	0

MAWSON

MAGNETIC K-INDICES - FEBRUARY 1988

Range for lower limit of K=9 is 1500nT

DAY	K-INDICES								K-SUM
01	3	1	0	0	0	0	0	1	05
02	3	1	1	1	1	2	4	2	15
03	2	1	1	1	0	0	0	1	06
04	2	3	2	1	2	2	2	5	19
05	5	4	5	4	4	5	5	6	38
06	4	5	4	3	3	2	2	4	27
07	3	5	4	2	1	1	3	4	23
08	4	2	0	2	1	1	6	3	19
09	2	3	3	2	2	3	6	4	25
10	3	4	5	2	3	2	1	2	22
11	2	2	3	3	4	2	4	5	25
12	5	5	5	3	2	3	4	3	30
13	3	5	5	3	4	4	3	2	29
14	3	3	3	3	2	0	3	4	21
15	4	4	4	4	3	4	3	2	28
16	3	2	3	2	4	7	6	2	29
17	3	4	1	3	3	4	2	6	26
18	5	4	3	3	3	3	6	6	33
19	2	3	3	1	2	2	5	2	20
20	2	2	0	1	2	2	5	5	19
21	4	5	6	5	1	2	4	5	32
22	8	8	8	4	6	6	7	5	52
23	7	7	5	4	3	4	6	3	39
24	4	4	3	3	3	3	5	2	27
25	5	4	4	2	3	3	6	6	33
26	5	3	3	2	1	5	5	4	28
27	3	5	4	2	1	0	3	4	2?
28	2	3	3	1	1	2	3	3	18
29	2	1	1	2	0	1	2	3	12

Mean of K-Sum is 24.8

Frequency of K-Indices

K :	0	1	2	3	4	5	6	7	8	9	-
f :	13	27	48	56	39	29	13	4	3	0	0

FEBRUARY 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	21	01	56 ssc	+0.2	+32	+24	22 (3)	6	07	210	80	23	18	
Charters Towers	21	01	57 ssc	-0.6	+24	0	21 (3)	6	10.8	180	34	23	12	
							22 (1,3)	6						
Gnangara	21	15		..	..	..	22 (5,6)	6	28	150	170	23	14	
Canberra	21	01	57 ssc	-1.0	+18	+8	22 (6)	6	25.9	202	107	23	12	

FEBRUARY 1988

PRELIMINARY MONTHLY MEAN VALUES

OBSERVATORY	H	D		Z	F
	nT	deg	min	nT	nT
PORT MORESBY	35930	06°	35.3 E	-23718	43052
CHARTERS TOWERS	31776	07°	46.1 E	-38271	49743
LEARMONTH	29495	00°	37.3 W	-44421	53321
GNANGARA	23222	03°	11.8 W	-53810	58607
CANBERRA	23686	12°	26.6 E	-53691	58684
MACQUARIE ISLAND		NIL DATA			
MAWSON	18483	64°	01.9 W	-46158	49721
DAVIS	16697	76°	53.6 W	-52174	54781
CASEY	9596	91°	25.6 W	-64393	65104

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	21	ssc B	0156	+32	+02	+24
CHARTERS TOWERS	21	ssc B	0157	+24	-06	0
GNANGARA	21	ssc*B	0156	+07	-23*	-12*
CANBERRA	21	ssc B	0157	+18	-07	+08

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