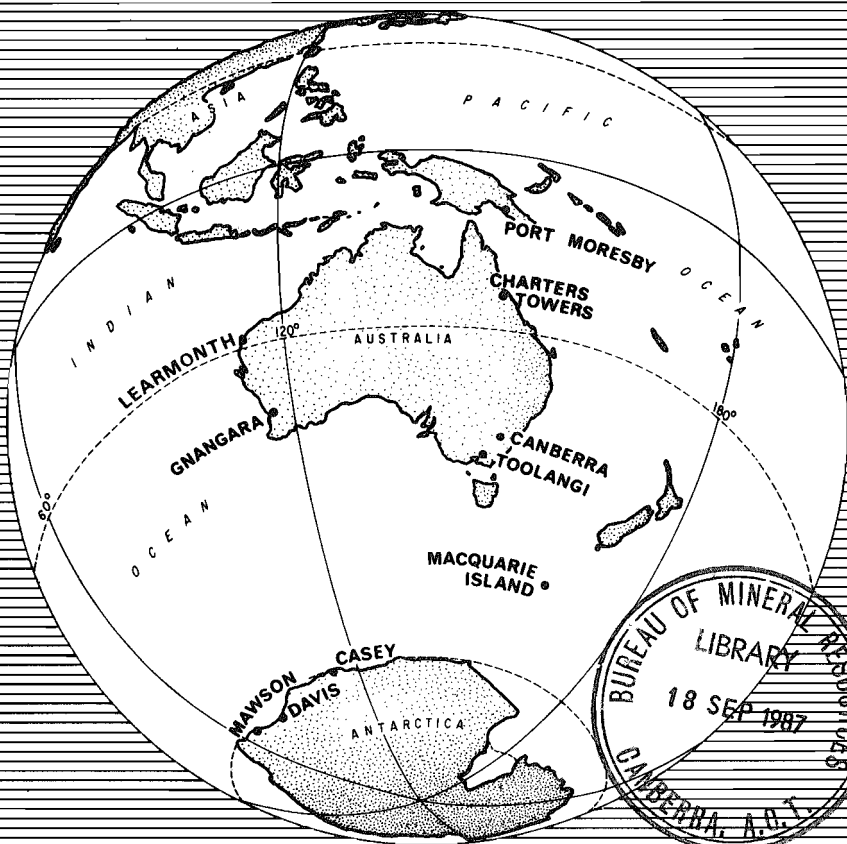


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GEOFYSICAL OBSERVATORY REPORT



MAGNETIC OBSERVATORIES

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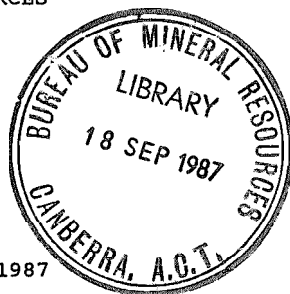
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The observers at Casey Davis and Macquarie Island are officers of the Antarctic Division, Department of Science and Technology: their contributions are gratefully acknowledged. These observers and the Bureau of Mineral Resources (BMR) geophysicist 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	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	R.G.McLoughlin	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 - JANUARY 1987

Range for lower limit of K=9 is 300nT

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

Mean of K-Sum is 15.2

Frequency of K-Indices

K :	0	1	2	3	4	5	6	7	8	9	-
f :	3	70	126	46	3	0	0	0	0	0	0

GNANGARA

MAGNETIC K-INDICES - JANUARY 1987

Range for lower limit of K=9 is 450nT

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

Mean of K-Sum is 14.2

Frequency of K-Indices

K :	0	1	2	3	4	5	6	7	8	9	-
f :	16	83	94	48	7	0	0	0	0	0	0

CANBERRA

MAGNETIC K-INDICES - JANUARY 1987

Range for lower limit of K=9 is 450nT

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

Mean of K-Sum is 12.3

Frequency of K-Indices

K :	0	1	2	3	4	5	6	7	8	9	-
f :	27	99	87	30	5	0	0	0	0	0	0

MAWSON

MAGNETIC K-INDICES - JANUARY 1987

Range for lower limit of K=9 is 1500nT

DAY	K-INDICES								K-SUM
01	5	5	4	4	3	4	5	5	35
02	2	4	3	2	3	3	4	3	24
03	3	5	3	2	2	1	0	3	19
04	3	2	1	0	0	1	1	4	12
05	3	2	2	0	0	1	2	2	12
06	2	4	0	1	0	0	1	4	12
07	3	4	1	0	0	1	3	5	17
08	3	4	2	2	3	3	4	3	24
09	3	4	4	3	3	2	1	4	24
10	3	3	2	2	3	2	1	1	17
11	2	3	3	1	1	2	3	4	19
12	4	5	5	2	1	1	1	4	23
13	3	3	3	2	1	4	3	4	23
14	2	2	1	0	2	2	4	1	14
15	1	3	1	1	1	1	5	3	16
16	4	3	3	3	4	4	4	3	28
17	5	5	2	1	2	2	3	5	25
18	4	2	3	2	1	2	1	6	21
19	3	2	2	3	2	2	2	4	20
20	3	4	5	3	4	7	6	4	36
21	3	3	4	3	3	2	3	5	26
22	3	3	3	2	3	3	6	5	28
23	4	4	2	4	3	2	2	6	27
24	4	4	-	2	2	3	3	3	--
25	2	3	2	2	2	3	4	5	23
26	5	5	3	1	3	2	1	2	22
27	2	3	2	3	4	0	1	1	16
28	3	5	2	2	3	4	3	5	27
29	4	4	4	2	3	2	0	2	21
30	4	0	0	0	1	2	1	1	09
31	5	5	2	2	2	2	3	4	25

Mean of K-Sum is 21.5

Frequency of K-Indices

K :	0	1	2	3	4	5	6	7	8	9	-
f :	16	35	60	66	43	22	4	1	0	0	1

JANUARY 1987

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						NIL								
Charters Towers						NIL								
Ghangara						NIL								
Canberra						NIL								

JANUARY 1987

PRELIMINARY MONTHLY MEAN VALUES

OBSERVATORY	H	D	Z	F
	nT	deg min	nT	nT
PORT MORESBY	35946	06° 35.3' E	-23713	43063
CHARTERS TOWERS	31787	07° 44.8' E	-38269	49748
LEARMONTH	29479	00° 37.5' W	-44412	53305
GNANGARA	23241	03° 14.9' W	-53805	58610
CANBERRA	23701	12° 23.9' E	-53704	58701
MACQUARIE ISLAND	12585	29° 26' E	-63588	64822
MAWSON	18468	63° 52.4' W	-46234	49786
DAVIS	16651	76° 53' W	-52193	54785
CASEY	9653	91° 02' W	-64072	64795

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			

