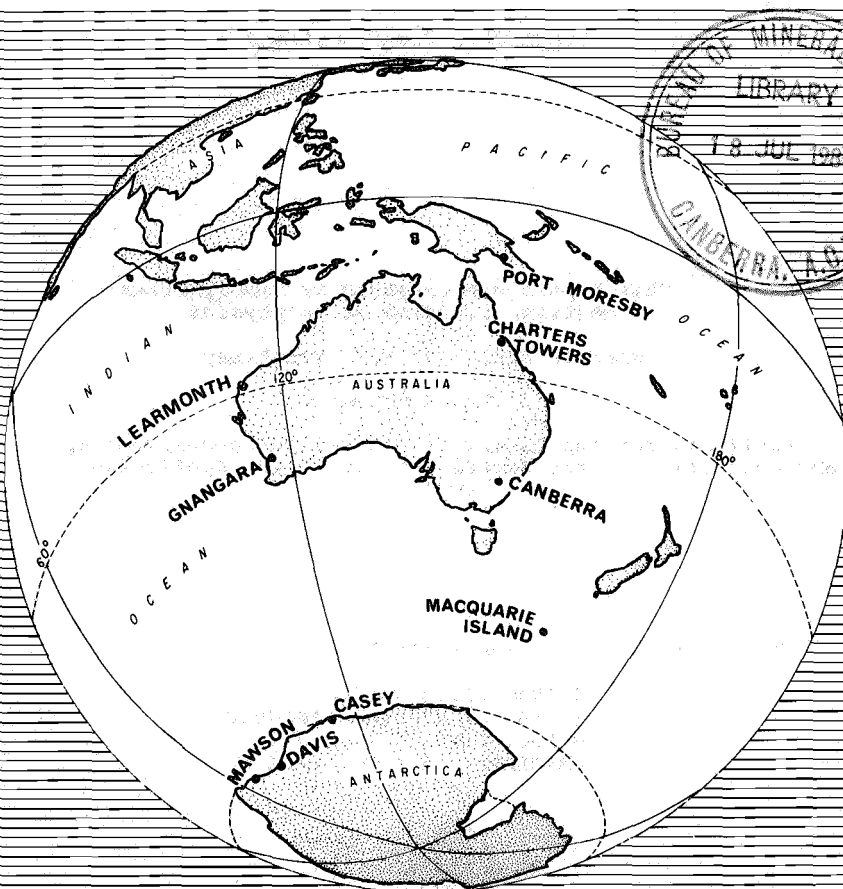


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BMR PUBLICATIONS COMPACTUS
(BINDING SECTION)



GEOFYSICAL OBSERVATORY REPORT



MAGNETIC OBSERVATORIES

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DEPARTMENT OF PRIMARY INDUSTRIES AND ENERGY

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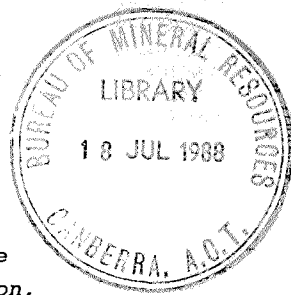
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The observers at Casey Davis and Macquarie Island are officers of the Antarctic Division, Department of Science and Technology: their contributions are gratefully acknowledged. These observers and the Bureau of Mineral Resources (BMR) geophysicist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



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	P. Williams	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 - NOVEMBER 1987

Range for lower limit of K=9 is 300nT

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

Mean of K-Sum is 17.8

Frequency of K-Indices

K :	0	1	2	3	4	5	6	7	8	9	-
f :	1	52	102	60	16	4	0	0	0	0	5

GNANGARA

MAGNETIC K-INDICES - NOVEMBER 1987

Range for lower limit of K=9 is 450nT

DAY	K-INDICES								K-SUM
01	1	1	1	2	1	1	1	1	09
02	1	2	2	2	3	4	5	5	24
03	3	2	2	3	4	5	6	4	29
04	3	2	2	1	2	2	2	2	16
05	1	1	2	3	1	3	3	4	18
06	2	1	1	2	3	2	3	3	17
07	2	3	2	1	1	1	0	1	11
08	1	1	2	2	1	1	1	1	10
09	0	1	1	2	3	2	2	3	14
10	3	2	3	3	3	1	1	3	19
11	1	2	3	2	2	3	2	2	17
12	3	2	3	3	2	3	4	5	25
13	3	3	3	4	4	4	2	3	26
14	3	3	2	3	3	4	2	3	23
15	3	2	2	2	3	3	2	3	20
16	2	2	1	2	2	3	1	1	14
17	1	0	0	0	0	0	1	1	03
61	1	2	2	0	1	1	2	3	12
19	2	2	2	2	3	3	1	1	16
20	2	3	3	2	3	3	3	2	21
21	1	2	2	2	1	1	2	2	13
22	1	2	2	2	2	2	2	2	15
23	2	2	3	5	5	3	5	3	28
24	3	3	2	5	4	4	2	2	25
25	2	2	2	2	4	4	2	2	20
26	2	2	2	3	3	3	2	3	20
27	3	2	3	3	4	4	2	3	24
28	3	1	2	2	2	2	3	2	17
29	2	2	1	2	1	1	1	1	11
30	1	0	0	2	2	2	2	2	11

Mean of K-Sum is 17.6

Frequency of K-Indices

K :	0	1	2	3	4	5	6	7	8	9	-
f :	10	51	94	61	15	8	1	0	0	0	0

CANBERRA

MAGNETIC K-INDICES - NOVEMBER 1987

Range for lower limit of K=9 is 450nT

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

Mean of K-Sum is 14.9

Frequency of K-Indices

K :	0	1	2	3	4	5	6	7	8	9	-
f :	30	61	83	45	18	3	0	0	0	0	0

MAWSON**MAGNETIC K-INDICES - NOVEMBER 1987**

Range for lower limit of K=9 is 1500nT

DAY	K-INDICES								K-SUM
01	3	4	2	2	3	3	3	2	22
02	4	5	3	2	3	5	6	5	33
03	4	5	4	2	4	4	7	6	36
04	4	4	4	1	1	1	3	4	22
05	4	2	3	2	2	3	5	6	27
06	5	6	5	3	3	1	2	3	28
07	3	4	2	1	1	1	1	1	14
08	3	3	3	2	2	2	1	2	18
09	3	1	3	2	2	3	4	6	24
10	5	5	6	3	2	2	3	3	29
11	3	5	5	3	3	2	5	6	32
12	4	4	4	4	2	2	5	5	30
13	5	5	6	5	5	5	6	5	42
14	5	6	4	5	4	5	3	6	38
15	5	4	4	3	3	4	7	4	34
16	3	5	2	2	2	3	3	3	23
17	2	3	1	1	1	1	2	3	14
18	3	4	2	1	2	2	2	4	20
19	4	5	4	4	4	3	3	3	30
20	5	5	4	3	3	3	4	4	31
21	4	4	3	2	1	1	2	2	19
22	4	4	4	3	3	2	3	4	27
23	4	4	4	6	5	4	7	5	39
24	5	5	4	5	5	3	5	5	37
25	4	5	5	2	4	4	4	5	33
26	5	5	3	3	4	5	3	5	33
27	4	6	6	4	4	5	3	5	37
28	4	5	5	4	4	3	4	2	31
29	3	3	1	2	1	2	0	1	13
30	2	1	1	1	1	1	3	2	12

Mean of K-Sum is 27.6

Frequency of K-Indices

K :	0	1	2	3	4	5	6	7	8	9	-
f :	1	26	40	54	55	47	14	3	0	0	0

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PRINCIPAL MAGNETIC STORMS

OBSERVATORY	Commencement			type	SSC-amplitude			Max. 3hr K-index			Ranges			UT End	
	day	hr	min		D(°)	H(nT)	Z(nT)	day	(3hr-period)	K	D(°)	H(nT)	Z(nT)	day	hr
Port Moresby	02	15	52	ssc	0	+29	+23	02	(6)	5	6	90	70	04	00
								03	(6,7)	5					
	07	..	..	...	..	..	..	24	(5)	5	9	90	50	24	17
Charters Towers	02	13	..	...	..	..	..	02	(6)	5	7.1	90	15	03	21
								03	(6,7)	5					
	23	07	..	...	..	..	..	23	(3,4)	5	11.9	105	22	24	16
								24	(5)	5					
Gnangara	23	06	..	...	..	..	..	23	(4,5,7)	5	19	80	140	24	17
								24	(4)	5					
Canberra	23	05	..	...	..	..	..	23	(3,4,5)	5	16.4	129	49	24	17

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PRELIMINARY MONTHLY MEAN VALUES

OBSERVATORY	H	D	Z	F
	nT	deg min	nT	nT
PORT MORESBY	35929	06° 35.6' E	-23723	43054
CHARTERS TOWERS	31776	07° 45.7' E	-38271	49743
LEARMONTH	29522	00° 37.1' W	-44427	53341
GNANGARA	23223	03° 12.6' W	-53812	58609
CANBERRA	23689	12° 25.9' E	-53693	58687
MACQUARIE ISLAND	12604	29° 23.2' E	-63581	64818
MAWSON	18479	63° 59.1' W	-46179	49739
DAVIS	16641	77° 05.0' W	-52097	54690
CASEY	9647	91° 07.0' W	-64001	64724

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	02	ssc B	1552	+29	0	+23
CHARTERS TOWERS			NIL			
GNANGARA	02	ssc B	1552	+35	+7	+12
CANBERRA			NIL			

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