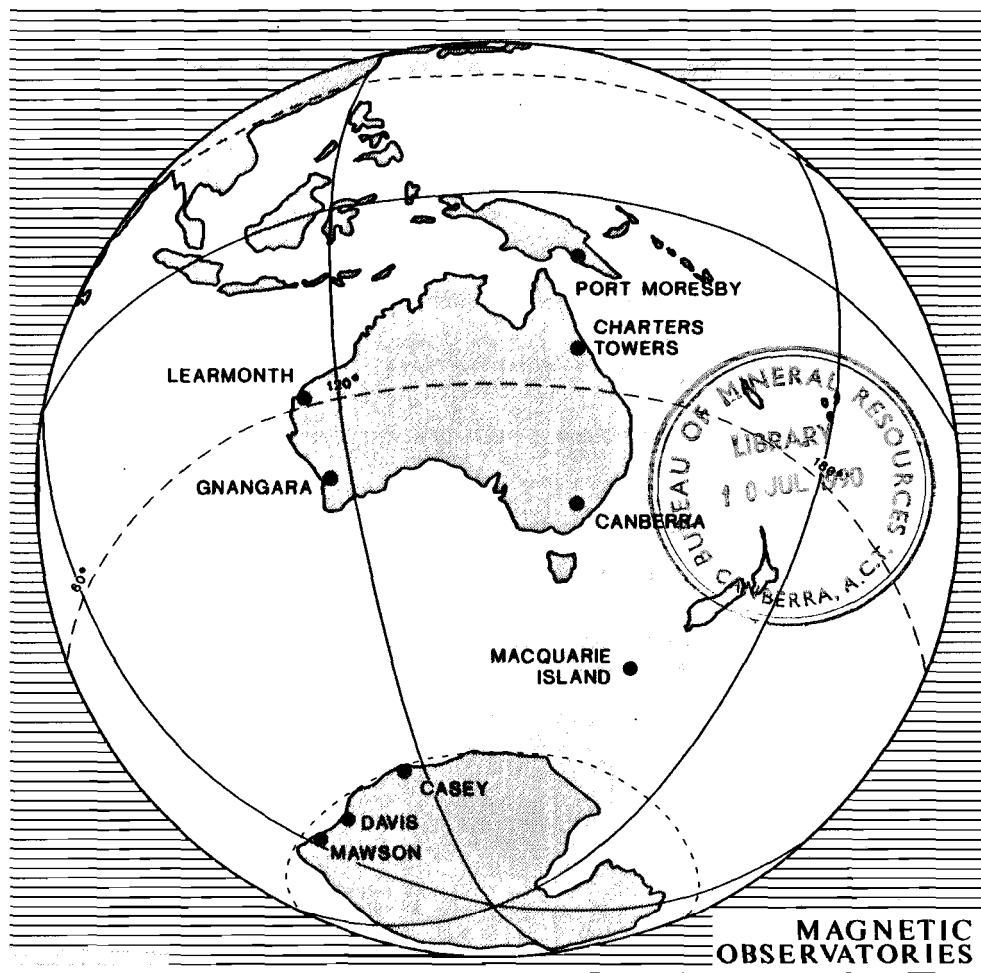


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MAGNETIC
OBSERVATORIES

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BUREAU OF MINERAL RESOURCES, GEOLOGY & GEOPHYSICS

DEPARTMENT OF PRIMARY INDUSTRIES AND ENERGY

Minister for Resources:

Senator the Hon. Peter Cook

BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

DIRECTOR:

R.W.R. Rutland AO

This report was prepared by:

**Geomagnetism Section
Division of Geophysics**

CHIEF OF DIVISION (Acting): D. Denham

For further information write to:

**GEOMAGNETISM SECTION
BUREAU OF MINERAL RESOURCES
G.P.O. Box 378
CANBERRA, A.C.T., 2601
AUSTRALIA.**



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CONTENTS

	Page
Contributing Observatories & Instrumentation ...	4
K-Indices	5
Principal Magnetic Storms	9
Monthly Mean Values	10
International Quiet & Disturbed Days	10
Sudden Commencements & other Rapid Variations .	11
Change of Title	11

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The observers at Casey, Davis and Macquarie Island are officers of the Antarctic Division, The Department of the Arts, Sport, the Environment, Tourism and Territories. 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 the International Association of Geomagnetism and Aeronomy (IAGA). The unit of field intensity is the nanoTesla (nT). All times are in Universal Time (UT).

CONTRIBUTING OBSERVATORIES

OBSERVATORY	OBSERVER IN CHARGE	GEOGRAPHIC		GEOMAGNETIC	
		LAT.	LONG.	LAT.	LONG.
PORT MORESBY	I.D.Ripper	9° 25' S	147° 09' E	-18.1°	219.8°
CHARTERS TOWERS	J.M.Millican	20° 05' S	146° 15' E	-28.7°	220.3°
LEARMONTH	M.W.McMullan	22° 13' S	114° 06' E	-33.2°	185.5°
GNANGARA	P.J.Gregson	31° 47' S	115° 57' E	-42.7°	188.0°
CANBERRA	P.A.Hopgood	35° 19' S	149° 22' E	-43.3°	226.6°
MACQUARIE IS.	J.Rich	54° 30' S	158° 57' E	-60.4°	244.7°
MAWSON	A.Lewis	67° 36' S	62° 53' E	-73.2°	106.3°
DAVIS	M.Hesse	68° 35' S	77° 58' E	-76.8°	124.0°
CASEY	H.Beggs	66° 17' S	110° 32' E	-77.3°	182.7°

* Geomagnetic co-ordinates based on the 1980 DGRF Geomagnetic North pole position of 78.8°N, 70.9°W

MAGNETOGRAPHS

OBSERVATORY	CODE	MODEL (TYPE/RES.)	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 IS.	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 = digital, 1 minute readings, 1 nT resolution
D/.1 = digital, 1 minute 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, proton vector magnetometers 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 1990

Range for lower limit of K=9 is 300nT

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

Mean of K-Sum is 18.5

Frequency of K-Indices

K :	0	1	2	3	4	5	6	7	8	9	-
f :	2	48	93	84	19	2	0	0	0	0	0

GNANGARA

MAGNETIC K-INDICES - JANUARY 1990

Range for lower limit of K=9 is 450nT

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

Mean of K-Sum is 19.8

Frequency of K-Indices

K :	0	1	2	3	4	5	6	7	8	9	-
f :	9	38	70	95	29	7	0	0	0	0	0

CANBERRA

MAGNETIC K-INDICES - JANUARY 1990

Range for lower limit of K=9 is 450nT

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

Mean of K-Sum is 19.8

Frequency of K-Indices

K :	0	1	2	3	4	5	6	7	8	9	-
f :	13	32	68	98	34	3	0	0	0	0	0

MAWSON**MAGNETIC K-INDICES - JANUARY 1990**

Range for lower limit of K=9 is 1500nT

DAY	K-INDICES								K-SUM
01	4	5	6	6	4	4	6	5	40
02	5	3	4	5	4	4	5	5	35
03	4	5	4	3	4	5	3	3	31
04	4	4	3	3	5	3	3	5	30
05	5	4	5	4	4	5	4	5	36
06	5	5	3	2	3	3	3	4	28
07	-	-	-	-	-	-	-	-	--
08	-	-	-	-	-	-	-	-	--
09	6	5	5	4	4	3	3	5	35
10	4	5	4	4	3	4	4	5	33
11	5	5	5	5	4	4	4	4	36
12	5	5	5	5	4	3	6	4	37
13	5	4	4	4	3	3	2	4	29
14	4	3	3	3	4	4	2	3	26
15	4	4	4	3	4	3	3	2	27
16	3	3	3	3	3	3	4	5	27
17	4	5	5	3	4	3	3	5	32
18	5	4	4	3	3	3	3	4	29
19	3	2	3	2	2	2	2	4	20
20	5	5	5	3	5	6	5	4	38
21	5	4	5	6	4	5	6	5	40
22	5	6	5	5	4	4	6	6	41
23	5	5	5	5	4	4	6	5	39
24	5	5	6	5	4	6	7	6	44
25	5	5	5	5	4	4	4	4	36
26	4	6	5	4	4	4	5	5	37
27	3	5	4	1	1	3	3	2	22
28	2	2	3	2	3	3	4	4	23
29	5	5	6	5	5	4	5	6	41
30	5	6	5	3	5	6	5	4	39
31	5	5	5	5	5	4	6	3	38

Mean of K-Sum is 33.4

Frequency of K-Indices

K :	0	1	2	3	4	5	6	7	8	9	-
f :	0	2	13	49	69	77	21	1	0	0	16

PRINCIPAL MAGNETIC STORMS - JANUARY 1990

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	NIL				PRINCIPAL		MAGNETIC			STORMS		
Gnangara	NIL				PRINCIPAL		MAGNETIC			STORMS		
Canberra	NIL				PRINCIPAL		MAGNETIC			STORMS		

JANUARY 1990

PRELIMINARY MONTHLY MEAN VALUES

OBSERVATORY	H	D		Z	F
	nT	deg	min	nT	nT
PORT MORESBY	35934	06°	36.1' E	-23714	43054
CHARTERS TOWERS	31759	07°	46.6' E	-38261	49725
LEARMONTH	29495	00°	32.2' W	-44424	53324
GNANGARA	23204	03°	07.7' W	-53808	58598
CANBERRA	23665	12°	29.6' E	-53668	58654
MACQUARIE IS.	12591	29°	39.1' E	-63518	64754
MAWSON	18506	64°	16.0' W	-46046	49626
DAVIS	16782	77°	00.0' W	-52066	54704
CASEY	9560	90°	36.0' W	-63480	64196

The values are derived from magnetograms for selected quiet days except at Davis and Casey, where they are derived from semi-weekly absolute measurements.

INTERNATIONAL QUIET AND DISTURBED DAYS

Quietest days (1- 5): 27 19 07 28 06
Quietest days (6-10): 14 18 17 15 13
Most Disturbed days : 24 29 30 23 22

JANUARY 1990

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	08	ssc B	1435	+28	+2	+20
GNANGARA	08	ssc B	1432	+25	+13	+10
CANBERRA	08	ssc B	1432	+33	+2	+5

CHANGE OF TITLE

To more accurately reflect the nature of its contents
the title of this publication has been changed.
Prior to this issue the title was the "Geophysical
Observatory Report" with ISSN 0433-5015.