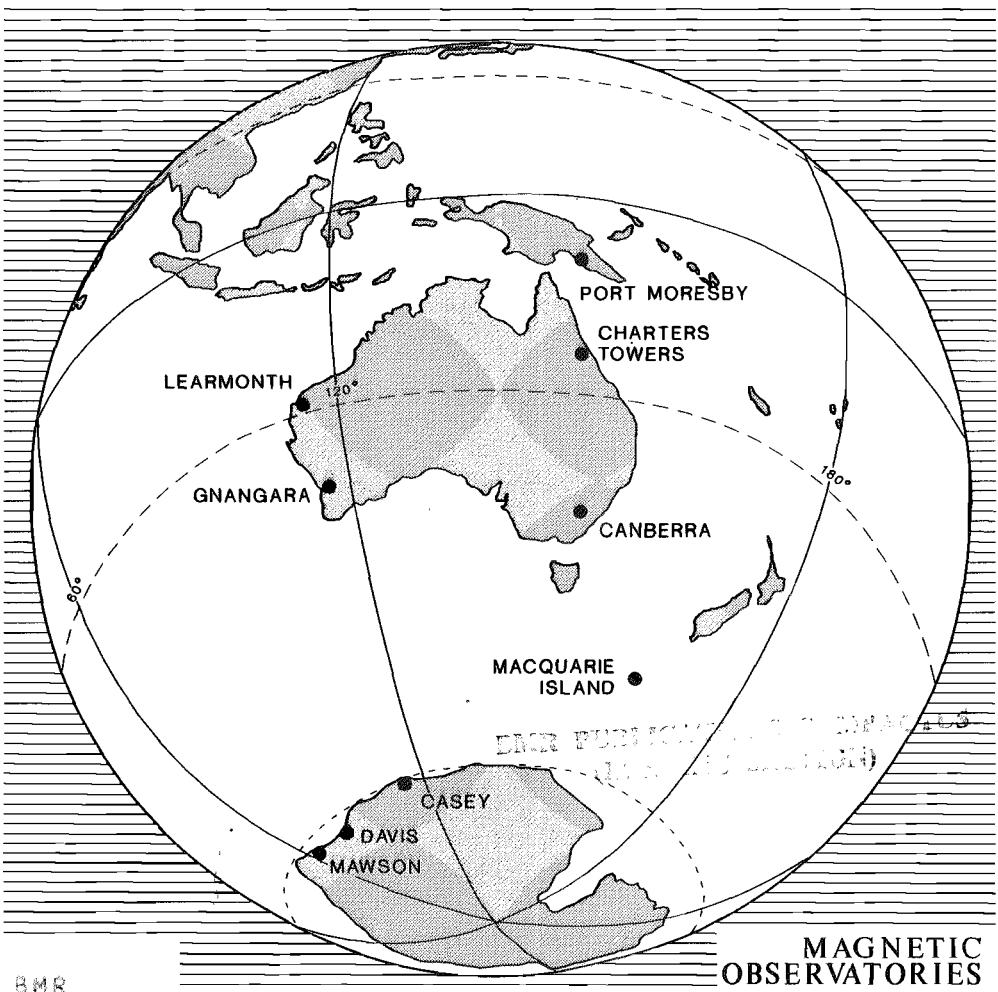


AUSTRALIAN GEOMAGNETISM REPORT



MAGNETIC
OBSERVATORIES

VOLUME 38 No.11

NOVEMBER 1990

MINERAL RESOURCES, GEOLOGY & GEOPHYSICS

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Minister for Resources:

The Hon. Alan Griffiths MP

BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

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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.	M.J.Underwood	54° 30'S	158° 57'E	-60.4°	244.7°	
MAWSON	P.Crosthwaite	67° 36'S	62° 53'E	-73.2°	106.3°	
DAVIS	R.McLoughlin	68° 35'S	77° 58'E	-76.8°	124.0°	
CASEY	O. Holmwood	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

<u>OBSERVATORY</u>	<u>CODE</u>	<u>MODEL (TYPE/RES.)</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 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 - NOVEMBER 1990

Range for lower limit of K=9 is 300nT

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

Mean of K-Sum is 16.0

Frequency of K-Indices

K :	0	1	2	3	4	5	6	7	8	9	-
f :	0	81	101	42	12	2	2	0	0	0	0

GNANGARA

MAGNETIC K-INDICES - NOVEMBER 1990

Range for lower limit of K=9 is 450nT

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

Mean of K-Sum is 14.2

Frequency of K-Indices

K :	0	1	2	3	4	5	6	7	8	9	-
f :	28	69	90	38	13	0	2	0	0	0	0

CANBERRA

MAGNETIC K-INDICES - NOVEMBER 1990

Range for lower limit of K=9 is 450nT

DAY	K-INDICES								K-SUM
01	2	2	1	2	1	1	2	3	14
02	2	2	2	2	1	3	2	2	16
03	1	1	2	2	2	0	1	2	11
04	0	0	0	1	0	0	0	0	01
05	0	0	0	0	0	0	0	0	00
06	0	0	0	0	0	0	0	1	01
07	1	0	2	3	2	2	2	1	13
08	1	2	3	2	3	3	2	2	18
09	2	2	3	1	3	2	2	2	17
10	3	2	3	1	2	3	2	2	18
11	2	2	2	3	3	1	2	2	17
12	1	4	2	1	1	1	2	2	14
13	0	1	2	1	0	0	0	0	04
14	0	0	0	0	0	0	0	0	00
15	0	0	0	0	1	1	2	1	05
16	3	3	4	4	4	2	3	2	25
17	2	2	3	3	4	3	3	2	22
18	2	3	0	3	4	3	3	2	20
19	2	3	2	1	1	2	2	2	15
20	2	3	2	1	2	1	1	1	13
21	3	3	1	1	4	1	2	2	17
22	2	2	1	0	1	0	1	0	07
23	1	1	0	0	2	2	1	1	08
24	1	1	0	0	0	0	0	1	03
25	1	1	1	2	0	1	1	2	09
26	2	3	2	2	3	0	0	4	16
27	4	4	3	3	5	6	5	3	33
28	3	4	3	1	2	2	3	2	20
29	1	2	1	0	0	0	1	2	07
30	1	2	2	1	2	3	2	1	14

Mean of K-Sum is 12.6

Frequency of K-Indices

K :	0	1	2	3	4	5	6	7	8	9	-
f :	58	55	76	37	11	2	1	0	0	0	0

MAWSON

MAGNETIC K-INDICES - NOVEMBER 1990

Range for lower limit of K=9 is 1500nT

DAY	K-INDICES								K-SUM
01	3	4	4	3	3	2	5	6	30
02	5	5	4	2	2	2	4	5	29
03	3	3	3	3	3	2	4	4	25
04	3	4	2	2	1	1	1	2	16
05	2	2	2	1	1	1	1	4	14
06	3	2	2	1	1	1	1	3	14
07	3	1	2	3	3	3	2	5	22
08	3	3	4	3	2	4	4	2	25
09	6	5	5	3	3	5	4	4	35
10	5	4	4	3	3	4	5	5	33
11	4	6	5	3	3	2	3	3	29
12	3	4	2	2	3	2	1	3	20
13	3	3	2	2	1	2	1	2	16
14	3	2	2	1	1	1	1	2	13
15	4	3	1	2	2	2	2	3	19
16	5	5	6	4	6	5	4	5	40
17	3	4	4	4	5	5	5	5	35
18	5	4	4	4	4	4	3	4	32
19	5	4	3	2	2	2	2	5	25
20	3	4	4	2	3	2	3	3	24
21	4	6	5	3	4	3	3	3	31
22	4	3	3	1	2	2	4	1	20
23	2	2	2	3	3	3	3	5	23
24	3	4	2	1	2	0	1	3	16
25	3	2	2	3	2	2	3	4	21
26	5	4	4	3	4	4	1	4	29
27	6	5	5	4	5	7	6	4	42
28	4	5	5	3	3	3	6	4	33
29	4	4	3	2	2	2	3	4	24
30	5	4	3	3	4	5	4	4	32

Mean of K-Sum is 25.6

Frequency of K-Indices

K :	0	1	2	3	4	5	6	7	8	9	-
f :	1	25	52	64	55	33	9	1	0	0	0

PRINCIPAL MAGNETIC STORMS - NOVEMBER 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	16	01 ..	...	..	..	..	16(5)	5	5	190	80	16	18
	26	23 ..	...	..	..	..	27(6,7)	6	7	200	80	29	00
Gnangara	26	23 ..	...	..	..	..	27(6,7)	6	24	140	150	28	06
Canberra	26	23 ..	..	..	..	..	27(6)	6	20.2	185	68	28	08

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PRELIMINARY MONTHLY MEAN VALUES

OBSERVATORY	H	D		Z	F
	nT	deg	min	nT	nT
PORT MORESBY	35935	06°	35.9' E	-23709	43052
CHARTERS TOWERS	31760	07°	47.1' E	-38253	49719
LEARMONTH	29537	00°	27.8' W	-44428	53351
GNANGARA	23212	03°	05.0' W	-53793	58587
CANBERRA	23662	12°	30.6' E	-53651	58637
MACQUARIE IS.	12579	29°	43.6' E	-63503	64737
MAWSON	18503	64°	22.8' W	-45989	49572
DAVIS	16670	77°	18.0' W	-51930	54540
CASEY	9570	91°	42.0' W	-63447	64165

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): 06 05 14 04 24
Quietest days (6-10): 13 15 22 23 25
Most Disturbed days : 27 16 28 17 18

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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					
GNANGARA						
	NIL					
CANBERRA						
	NIL					

