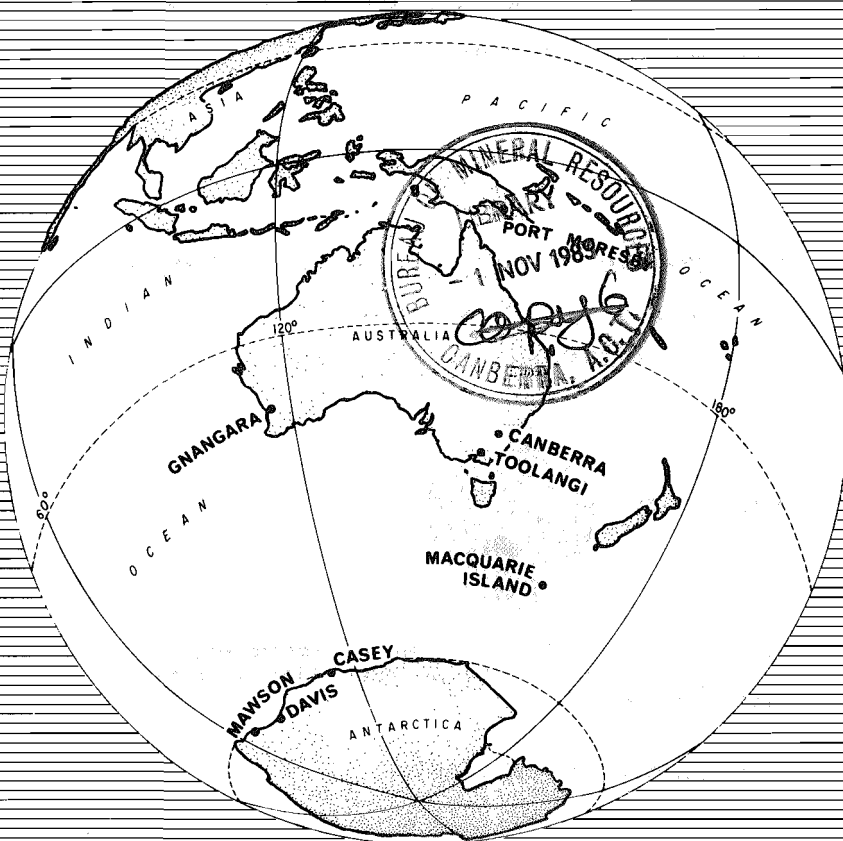


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~~GE~~ GEOPHYSICAL OBSERVATORY REPORT



MAGNETIC OBSERVATORIES

BMR
SS50
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AUS.8

VOLUME 31 NO. 2

FEBRUARY 1983

copy 2 BUREAU OF MINERAL RESOURCES, GEOLOGY & GEOPHYSICS

DEPARTMENT OF NATIONAL DEVELOPMENT AND ENERGY

MINISTER: Senator The Hon. Sir John Carrick, K.C.M.G.

SECRETARY: A. Woods

BUREAU OF MINERAL RESOURCES, GEOLOGY & GEOPHYSICS

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ISSN 0433-5015



Published for the Bureau of Mineral Resources,
Geology and Geophysics by the Australian Government
Publishing Service.

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Printed by Union Offset Co. Pty Ltd, Canberra.

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The observers at Casey and Davis are officers of the Antarctic Division (Department of Science and Technology) and their contributions are gratefully acknowledged: they and the BMR geophysicists at Macquarie Island and Mawson are members of the Australian National Antarctic Research Expeditions (ANARE).

The 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 IAGA. The units of field intensity, nanotesla (nT), are those of the SI system. All times are in Universal Time. Should further information be required, apply to:

GEOMAGNETISM SECTION
BUREAU OF MINERAL RESOURCES
P.O. BOX 378
CANBERRA CITY, A.C.T. 2601

CONTRIBUTING OBSERVATORIES

OBSERVATORY	OBSERVER IN CHARGE	GEOGRAPHIC		GEOMAGNETIC	
		LAT	LONG	LAT	LONG
PORT MORESBY	I.D. Ripper	9°25'S	147°09'E	-18.6°	217.9°
GNANGARA	P.J. Gregson	31°47'S	115°57'E	-43.3°	185.8°
CANBERRA	P.A. Hopgood	35°19'S	149°22'E	-44.0°	224.7°
*TOOLANGI	P.A. Hopgood	37°32'S	145°28'E	-46.7°	220.8°
MACQUARIE I	P.J. Kelsey	54°30'S	158°57'E	-61.1°	243.1°
MAWSON	R.P. Cechet	67°36'S	62°53'E	-73.1°	102.9°
DAVIS	S. Malachowski	68°35'S	77°58'E	-76.7°	119.9°
CASEY	D. Cheeseman	66°17'S	110°32'E	-77.8°	179.1°

MAGNETOGRAPHS

OBSERVATORY	CODE	TYPE	ELEMENT/SCALE		VALUE
PORT MORESBY	PMG	La Cour (A)	H/3	D/5	Z/4
GNANGARA	GNA	Eschenhagen (A)	H/3	D/7	Z/6
CANBERRA	CNB	Elsec digital (D1)			
TOOLANGI	TOO	La Cour (A)	H/5	D/6	Z/5
MACQUARIE I	MCQ	La Cour (A)	H/20	D/9	Z/21
MAWSON	MAW	La Cour (A)	H/21	D/13	Z/22

Scale values are in nT/mm

A = analogue, 20 mm/hr

D1 = digital, 1 min readings, 0.1 nT resolution

MAGNETOMETERS

Absolute data are based on observations made with QHM's BMZ's declinometers and proton precession magnetometers.

Errors in preliminary values are not likely to exceed 5 nT or 0.5 minutes.

* Toolangi Observatory is only a variation observatory, since 1 July 1979.

PORT MORESBY

MAGNETIC K-INDICES - FEBRUARY 1983

Range for lower limit of K = 9 is 300 nT

<u>Day</u>	<u>K-Indices</u>								<u>K-Sum</u>
01	2	2	3	1	3	2	2	1	16
02	1	1	1	1	1	2	2	3	12
03	3	3	2	1	2	1	1	1	14
04	2	2	2	2	2	8	6	5	29
05	5	6	6	7	6	5	5	4	44
06	3	-	-	-	-	-	-	-	--
07	3	3	5	4	5	4	2	3	29
08	3	3	3	3	2	2	1	1	18
09	1	1	1	3	5	3	3	4	21
10	3	3	2	5	4	2	2	2	23
11	1	1	4	5	4	2	4	4	25
12	3	3	3	4	5	3	2	3	26
13	3	3	4	4	5	3	2	3	27
14	4	2	4	4	3	4	3	3	27
15	3	2	2	3	3	4	4	2	23
16	3	4	3	4	3	4	3	2	26
17	2	2	2	3	3	3	2	1	18
18	3	2	2	2	3	2	2	2	18
19	2	3	3	3	3	2	2	2	20
20	3	3	3	3	4	4	4	4	28
21	3	4	3	4	5	4	3	3	29
22	3	2	2	2	2	1	2	2	16
23	3	3	2	1	2	3	2	2	18
24	2	2	2	2	4	3	3	2	20
25	2	2	2	2	2	3	2	2	17
26	1	1	2	1	2	2	2	1	12
27	1	2	2	3	2	1	3	3	17
28	2	2	2	2	2	2	2	4	18

GNANGARA

MAGNETIC K-INDICES - FEBRUARY 1983

Range for lower limit of K = 9 is 450 nT

<u>Day</u>	<u>K-Indices</u>								<u>K-Sum</u>
01	2	2	2	2	3	3	3	1	18
02	2	1	0	1	1	3	1	2	11
03	3	2	4	1	2	1	3	3	19
04	2	2	2	3	2	7	7	5	30
05	6	6	5	5	7	6	5	4	44
06	5	4	4	4	4	4	1	1	27
07	3	2	4	5	6	7	2	3	32
08	4	2	3	2	3	1	1	1	17
09	1	0	1	2	4	3	4	5	20
10	4	3	2	4	4	3	3	2	25
11	1	0	1	3	5	2	3	4	19
12	3	2	3	4	5	3	3	2	25
13	3	2	3	5	4	4	3	4	28
14	4	3	4	4	3	3	3	4	28
15	3	3	3	3	4	4	4	3	27
16	4	4	3	4	4	5	3	3	30
17	3	2	2	3	4	4	4	2	24
18	3	1	2	2	2	2	2	1	15
19	1	2	3	2	4	3	2	4	21
20	4	3	3	4	5	5	4	4	32
21	4	3	3	4	4	5	4	4	31
22	3	2	2	2	3	2	4	2	20
23	3	2	1	1	2	4	4	3	20
24	2	2	3	2	3	4	5	1	22
25	1	1	0	1	2	3	2	2	12
26	2	0	1	0	1	2	2	2	10
27	0	0	1	2	1	1	2	2	09
28	1	1	1	1	2	2	3	4	15

CANBERRAMAGNETIC K-INDICES - FEBRUARY 1983Range for lower limit of K = 9 is 450 nT

<u>Day</u>	<u>K-Indices</u>								<u>K-Sum</u>
01	1	2	2	2	3	2	3	1	16
02	0	0	1	1	0	3	1	2	08
03	2	2	3	0	2	0	1	1	11
04	1	3	1	2	2	7	6	4	26
05	6	6	6	7	7	6	6	4	48
06	4	4	4	4	4	5	2	1	28
07	2	2	5	5	6	5	2	3	30
08	3	3	3	3	3	1	0	2	18
09	1	1	2	3	4	3	3	3	20
10	3	3	2	5	4	2	2	2	23
11	0	0	3	4	4	2	3	4	20
12	2	3	3	5	4	3	2	3	25
13	3	2	3	5	4	3	2	3	25
14	4	3	4	4	3	4	3	3	28
15	2	3	3	2	5	4	4	2	25
16	3	4	3	4	4	4	3	2	27
17	2	2	2	3	3	3	3	2	20
18	2	1	2	3	3	2	1	2	16
19	0	3	3	3	3	2	1	3	18
20	3	4	3	4	5	4	4	5	32
21	3	4	3	4	5	4	4	3	30
22	3	2	3	3	2	1	3	2	19
23	3	3	1	1	2	3	3	3	19
24	1	2	2	2	4	4	4	1	20
25	1	1	0	2	2	3	2	1	12
26	0	0	1	2	0	2	1	0	06
27	0	0	1	3	2	1	2	3	12
28	1	2	1	1	2	2	2	4	15

TOOLANGI

MAGNETIC K-INDICES - FEBRUARY 1983

Range for lower limit of K = 9 is 500 nT

<u>Day</u>	<u>K-Indices</u>								<u>K-Sum</u>
01	1	2	2	2	3	3	2	1	16
02	0	1	1	0	0	3	1	3	09
03	3	2	3	1	2	0	1	2	14
04	1	3	1	3	2	7	6	4	27
05	6	6	6	7	7	6	6	5	49
06	4	4	5	4	4	5	1	1	28
07	2	3	5	5	6	5	2	2	30
08	4	3	3	3	3	1	0	2	19
09	1	0	2	3	4	3	3	3	19
10	3	3	2	5	4	2	2	2	23
11	0	1	1	4	5	2	3	4	20
12	2	2	3	4	5	3	3	2	24
13	3	3	3	5	5	3	2	3	27
14	4	3	4	5	3	3	3	3	28
15	2	3	3	3	5	4	3	2	25
16	3	4	3	4	4	4	2	2	26
17	2	2	2	3	3	2	3	2	19
18	2	1	3	3	3	2	1	2	17
19	0	3	3	3	3	2	1	3	18
20	3	4	3	4	5	5	4	5	33
21	3	4	3	4	5	5	3	4	31
22	3	2	3	3	2	1	3	2	19
23	3	3	1	1	2	3	3	3	19
24	1	2	2	2	4	4	4	1	20
25	0	1	0	2	1	4	1	1	10
26	1	0	1	2	0	2	1	0	07
27	0	1	1	3	2	1	2	2	12
28	1	2	1	2	2	2	2	4	16

MACQUARIE ISLAND

MAGNETIC K-INDICES - FEBRUARY 1983

Range for lower limit of K = 9 is 1500 nT

<u>Day</u>	<u>K-Indices</u>								<u>K-Sum</u>
01	2	3	3	3	5	4	2	1	23
02	1	1	0	1	0	4	2	3	12
03	1	2	4	1	3	0	1	1	13
04	2	4	3	4	3	8	7	6	37
05	7	8	8	8	7	8	8	6	60
06	6	6	6	7	7	7	2	3	44
07	3	5	8	7	7	7	3	3	43
08	5	4	7	5	5	2	1	2	31
09	2	2	1	5	7	5	3	3	28
10	3	4	5	6	6	3	2	1	30
11	0	1	1	5	6	4	4	4	25
12	2	4	4	7	7	6	4	2	36
13	3	4	4	6	6	6	4	4	37
14	3	3	4	6	5	6	3	3	33
15	3	4	5	6	6	7	5	2	38
16	4	4	6	6	6	7	3	3	39
17	3	3	3	6	6	5	3	2	31
18	3	4	5	4	4	2	2	2	26
19	0	3	4	5	5	4	2	2	25
20	3	5	5	7	6	7	6	6	45
21	4	6	6	7	6	7	6	3	45
22	4	3	4	6	5	2	3	2	29
23	3	5	2	3	3	4	3	2	25
24	2	3	3	5	5	5	4	1	28
25	1	1	2	4	2	5	2	1	18
26	1	0	1	3	0	1	1	1	08
27	0	1	2	4	4	1	2	2	16
28	1	1	1	2	4	2	2	3	16

MAWSON

MAGNETIC K-INDICES - FEBRUARY 1983Range for lower limit of K = 9 is 1500 nT

<u>Day</u>	<u>K-Indices</u>								<u>K-Sum</u>
01	3	5	5	3	4	5	3	3	31
02	3	3	2	2	2	3	2	3	20
03	4	4	3	2	2	2	4	5	26
04	4	5	5	3	3	8	8	6	42
05	6	8	8	7	6	7	7	7	56
06	6	5	6	6	6	7	3	3	42
07	6	5	5	5	5	7	4	6	43
08	7	6	6	3	3	2	1	6	34
09	5	5	4	3	4	5	7	5	38
10	5	5	5	2	2	2	3	5	29
11	2	3	2	4	5	3	5	5	29
12	4	4	5	6	6	4	4	5	38
13	6	5	5	5	5	5	4	5	40
14	5	4	5	4	3	4	3	6	34
15	4	5	5	4	5	4	6	5	38
16	3	6	5	4	5	7	6	5	41
17	3	4	3	3	4	5	6	5	33
18	6	6	6	3	3	3	6	3	36
19	3	3	3	-	-	-	-	-	--
20	-	7	6	5	5	5	6	7	--
21	6	6	6	5	4	5	6	6	44
22	4	5	5	4	3	3	5	5	34
23	5	6	3	2	3	6	6	6	37
24	4	4	5	3	3	5	7	3	34
25	3	5	4	2	3	4	3	4	28
26	3	2	3	2	2	2	4	5	23
27	3	4	3	2	2	2	4	4	24
28	2	4	3	1	2	2	5	3	22

FEBRUARY 1983
PRINCIPAL MAGNETIC STORMS

OBSERVATORY	COMMENCEMENT				SSC AMPLITUDES			MAX 3h INDEX K	RANGES				UT	END
	d	h	min	TYPE	D(°)	H(nT)	Z(nT)	d (3h-PERIOD)	K	D(°)	H(nT)	Z(nT)	d	h
PORT MORESBY	04	16	14	ssc*	+2.2*	+114	+95	04(06)	8	11	340	1180	07	20
GNANGARA	04	16	15	ssc	+12.0	(+ 70)	+65	04(6,7)	7	52	320	(300)	06	18
CANBERRA	04	16	14	ssc*	+10.2*	+132	+22	04(6),05(4,5)	7	46	374	170	07	18
	19	23	..	..	..	..	+..	20(5,8),21(5)	5	19	133	46	22	03

FEBRUARY 1983

PRELIMINARY MONTHLY MEAN VALUES

OBSERVATORY	H	D		Z	F
	nT	o	'	nT	nT
PORT MORESBY	35924	06	32.4E	-23715	43046
GNANGARA	23299	03	19.7W	-53727	58561
CANBERRA	23736	12	15.2E	-53764	58771
MACQUARIE I	12658	28	46 E	-63680	64926
MAWSON	18449	63	19.8W	-46544	50067
DAVIS	16512	77	09 W	-52548	55081
CASEY	9446	90	00 W	-64290	64980

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	04	ssc*A	1614	+114	+23*	+95
GNANGARA	04	ssc A	1615	(+ 70)	+80	+65
CANBERRA	04	ssc*B	1614	+132	+70*	+22