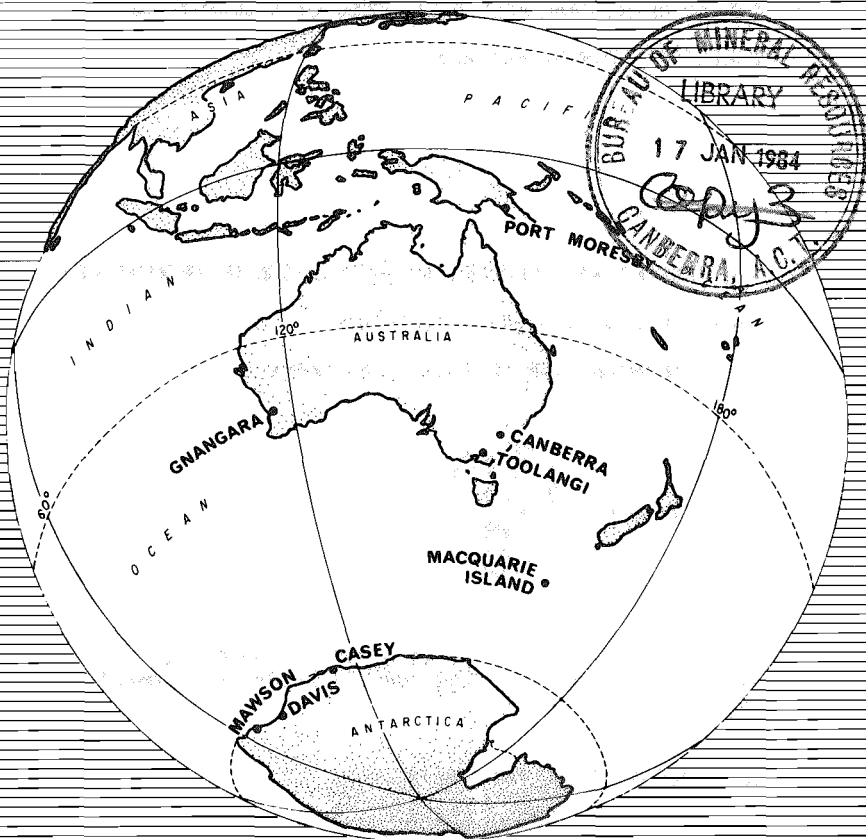


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GEOFYSICAL OBSERVATORY REPORT



MAGNETIC OBSERVATORIES

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VOLUME 31 NO. 5

MAY 1983

copy 2 OF MINERAL RESOURCES, GEOLOGY & GEOPHYSICS

DEPARTMENT OF RESOURCES AND ENERGY

MINISTER: Senator The Hon. Peter Walsh

SECRETARY: A. J. Woods

BUREAU OF MINERAL RESOURCES, GEOLOGY & GEOPHYSICS

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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	Elsecdigital (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 - MAY 1983

Range for lower limit of K = 9 is 300 nT

<u>Day</u>	<u>K-Indices</u>								<u>K-Sum</u>
01	2	3	3	4	3	2	4	3	24
02	3	3	2	1	2	4	4	3	22
03	3	3	4	3	3	2	2	3	23
04	3	5	3	3	4	4	2	3	27
05	2	2	2	3	3	3	2	2	19
06	2	3	4	2	3	3	2	2	21
07	2	2	2	2	2	1	2	2	15
08	2	3	3	2	1	2	3	1	17
09	2	3	3	1	1	0	0	2	12
10	1	1	1	1	2	2	3	3	14
11	2	2	5	6	5	5	3	4	32
12	4	4	4	3	3	4	3	5	30
13	4	4	5	4	4	3	3	3	30
14	3	3	4	2	3	3	3	3	24
15	4	3	2	3	3	3	2	2	22
16	2	2	3	3	3	2	2	2	19
17	4	4	4	4	5	3	4	5	33
18	3	3	3	3	2	1	2	1	18
19	1	3	2	2	1	1	1	2	13
20	2	1	1	1	1	1	3	3	13
21	3	4	3	3	4	4	3	2	26
22	4	5	4	4	3	4	3	4	31
23	3	3	5	4	3	4	3	3	28
24	2	3	3	3	4	5	6	5	31
25	5	4	2	0	0	0	1	1	13
26	2	2	2	1	2	1	3	2	15
27	2	3	3	1	2	2	1	1	15
28	2	1	3	1	1	1	1	1	11
29	2	1	2	2	3	2	1	1	14
30	1	2	2	2	2	2	2	2	15
31	3	3	3	2	3	2	2	2	20

GNANGARAMAGNETIC K-INDICES - MAY 1983Range for lower limit of K = 9 is 450 nT

<u>Day</u>	<u>K-Indices</u>								<u>K-Sum</u>
01	3	2	3	5	3	2	4	3	25
02	3	3	3	2	3	3	4	2	23
03	2	2	3	3	2	1	2	2	17
04	3	4	3	4	5	4	3	3	29
05	3	3	2	3	5	4	4	4	28
06	3	4	2	3	3	3	3	2	23
07	2	2	2	1	2	1	2	2	14
08	3	3	2	2	1	1	3	2	17
09	2	2	1	1	0	0	1	1	08
10	1	1	1	0	1	1	2	2	09
11	2	2	5	5	3	7	5	4	33
12	4	3	4	4	3	4	5	5	32
13	4	2	4	4	5	5	4	3	31
14	3	3	3	3	3	3	4	2	24
15	3	2	4	4	3	4	3	3	26
16	2	1	2	2	2	2	1	2	14
17	4	3	4	4	6	4	6	6	37
18	3	4	3	3	2	1	3	2	21
19	0	2	3	2	1	1	0	1	10
20	1	1	0	0	1	0	2	5	10
21	2	3	3	2	4	4	3	2	23
22	3	5	4	4	4	4	4	5	33
23	4	4	4	4	3	5	5	4	33
24	3	3	2	3	4	6	6	5	32
25	4	3	2	0	0	0	0	0	09
26	0	0	1	1	2	2	4	2	12
27	3	3	2	2	3	3	2	1	19
28	1	1	1	1	0	0	1	1	06
29	1	1	1	1	3	1	0	0	08
30	1	2	2	1	1	3	3	1	14
31	2	2	2	1	2	2	1	2	14

CANBERRA

MAGNETIC K-INDICES - MAY 1983

Range for lower limit of K = 9 is 450 nT

<u>Day</u>	<u>K-Indices</u>								<u>K-Sum</u>
01	2	3	4	4	3	1	4	2	23
02	2	2	1	1	3	3	3	1	16
03	3	2	3	2	3	1	1	1	16
04	3	4	3	4	5	4	2	2	27
05	2	2	1	3	4	4	3	3	22
06	3	3	2	3	3	2	3	1	20
07	1	2	2	2	3	1	2	2	15
08	3	2	2	2	1	2	3	2	17
09	2	1	0	0	0	0	0	2	05
10	1	0	0	1	2	1	2	1	08
11	1	2	5	5	4	5	4	3	29
12	3	3	4	4	3	4	4	4	29
13	4	2	6	4	4	4	3	3	30
14	3	3	3	3	3	3	3	1	22
15	3	2	3	3	3	2	2	2	20
16	1	1	2	3	3	2	1	1	14
17	3	2	3	3	6	4	5	6	32
18	1	3	3	3	2	1	1	1	15
19	0	1	2	2	1	0	0	0	06
20	1	0	0	0	1	0	2	4	08
21	2	3	3	3	4	4	2	1	22
22	3	3	4	4	3	4	3	4	28
23	4	3	5	4	3	4	3	3	29
24	2	3	3	3	4	6	7	4	32
25	4	3	1	0	0	0	0	0	08
26	0	0	1	1	1	1	4	3	11
27	3	2	1	1	2	2	1	1	13
28	1	1	1	0	0	0	0	1	04
29	1	0	1	2	3	0	0	0	07
30	0	1	1	1	0	2	2	1	08
31	2	2	2	1	2	2	1	1	13

TOOLANGI

MAGNETIC K-INDICES - MAY 1983

Range for lower limit of K = 9 is 500 nT

<u>Day</u>	<u>K-Indices</u>								<u>K-Sum</u>
01	1	3	4	5	3	1	5	1	23
02	2	2	1	1	3	3	3	1	16
03	3	2	3	2	2	1	1	1	15
04	2	4	3	4	5	4	2	2	26
05	2	2	2	3	5	3	3	3	23
06	2	3	2	3	3	2	2	1	18
07	1	2	1	1	3	1	2	2	13
08	2	2	2	2	0	1	3	2	14
09	1	1	0	0	0	0	0	2	04
10	0	0	0	2	1	2	2	1	08
11	1	2	5	5	4	6	5	4	32
12	3	3	4	5	4	4	4	5	32
13	4	3	6	5	4	4	3	3	32
14	3	3	3	3	3	3	3	2	23
15	3	2	2	3	3	2	2	2	19
16	2	1	2	3	3	2	1	2	16
17	3	2	4	3	6	5	6	6	35
18	1	3	3	3	2	1	2	1	16
19	0	1	2	2	1	0	0	0	06
20	0	0	0	0	1	0	1	4	06
21	1	3	2	2	4	4	2	1	19
22	3	3	4	4	3	4	3	4	28
23	4	2	5	4	3	4	3	3	28
24	2	3	3	3	4	6	7	5	33
25	4	3	1	0	0	0	0	0	08
26	0	0	1	1	1	1	4	3	11
27	2	1	2	1	2	2	1	0	11
28	1	1	1	0	0	0	0	1	04
29	1	0	1	2	3	0	0	0	07
30	0	1	1	1	0	2	2	1	08
31	2	2	2	1	2	2	1	1	13

MACQUARIE ISLAND

MAGNETIC K-INDICES - MAY 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	4	7	6	1	5	3	31
02	3	2	2	3	4	5	4	2	25
03	2	2	2	1	1	0	0	2	10
04	3	5	5	7	7	6	4	3	40
05	3	3	2	5	6	6	3	2	30
06	3	4	4	4	4	3	2	1	25
07	1	2	1	5	4	1	2	1	17
08	2	2	1	3	2	2	3	2	17
09	2	2	1	0	0	0	1	1	07
10	1	1	0	1	3	1	2	1	10
11	1	2	6	7	6	7	6	4	39
12	5	5	6	6	5	6	5	5	43
13	4	5	7	6	6	7	4	4	43
14	5	4	4	5	5	5	5	2	35
15	5	4	5	6	6	5	3	3	37
16	2	2	1	5	5	4	2	2	23
17	4	2	3	7	7	7	6	5	41
18	2	3	4	3	4	1	1	2	20
19	1	2	4	3	2	0	0	0	12
20	1	1	0	0	2	0	1	3	08
21	2	2	3	4	6	5	4	2	28
22	3	5	5	7	5	6	5	4	40
23	5	4	6	6	6	6	6	4	43
24	5	5	4	4	6	8	8	6	46
25	5	4	2	0	0	0	0	0	11
26	1	1	1	1	2	1	3	3	13
27	2	2	3	2	5	5	2	1	22
28	3	2	1	0	0	0	0	1	07
29	1	1	0	2	4	0	0	0	08
30	1	2	1	0	0	2	2	1	09
31	2	3	3	4	2	3	1	1	19

MAWSONMAGNETIC K-INDICES - MAY 1983Range for lower limit of K = 9 is 1500 nT

<u>Day</u>	<u>K-Indices</u>								<u>K-Sum</u>
01	4	5	4	4	4	3	6	4	34
02	3	4	3	2	3	4	6	3	28
03	4	2	3	1	2	1	2	4	19
04	3	6	5	4	4	4	2	3	31
05	2	5	3	3	4	4	5	5	31
06	3	5	5	4	3	3	3	5	31
07	3	3	4	2	4	3	3	4	26
08	7	3	4	2	3	3	4	6	32
09	5	5	3	1	1	1	1	1	18
10	2	3	2	1	2	2	2	2	16
11	3	4	6	7	4	8	6	7	45
12	7	5	7	6	4	7	8	7	51
13	8	5	5	6	6	6	6	7	49
14	5	6	5	3	4	7	6	4	40
15	5	5	5	4	3	3	3	7	35
16	3	3	3	2	3	3	3	5	25
17	6	4	4	4	6	5	6	7	42
18	3	3	5	3	3	2	5	2	26
19	1	3	3	2	1	1	1	3	15
20	1	1	2	1	0	0	3	6	14
21	2	5	5	3	4	4	4	2	29
22	2	3	6	4	4	7	7	7	40
23	5	6	5	5	3	5	7	6	42
24	5	6	4	4	5	9	8	7	48
25	4	3	2	1	0	0	0	1	11
26	1	1	1	2	2	3	7	5	22
27	5	5	5	2	2	4	3	3	29
28	2	4	2	2	3	0	1	2	16
29	4	2	1	1	1	1	0	0	10
30	2	3	2	1	1	3	4	3	19
31	5	4	5	3	3	3	4	6	33

MAY 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	11	07	..	...	..	..	..	11(4)	6	9	110	60	14	00
	17	00	21	ssc*	-0.6*	+37	+31	17(5,8)	5	11	130	70	18	16
	24	17	..	...	..	..	..	24(7)	6	9	110	100	25	06
GNANGARA	11	07	..	...	..	..	..	11(6)	7	31	110	180	14	07
	17	00	22	ssc	+2.3	+16	+ 8	17(5,7,8)	6	36	120	200	18	00
	21	12	..	...	..	..	..	24(7,8)	6	32	180	150	25	05
CANBERRA	11	07	..	...	..	..	..	13(3)	6	27	128	69	13	18
	17	00	21	ssc*	-2.4	+22*	+13*	17(5,8)	6	36	133	71	18	00
	22	01	..	...	..	..	..	24(7)	7	27	226	78	25	05

MAY 1983
PRELIMINARY MONTHLY MEAN VALUES

OBSERVATORY	H	D	Z	F
	nT	o ' ''	nT	nT
PORT MORESBY	35930	06 32.5E	-23712	43049
GNANGARA	23284	03 18.2W	-53734	58562
CANBERRA	23727	12 16.0E	-53759	58762
MACQUARIE I	12651	28 55.6E	-63683	64927
MAWSON	18437	63 26.6W	-46531	50051
DAVIS	16570	76 22 W	-52464	55019
CASEY	9558	90 39 W	-64357	65063

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	17	ssc*A	0021	+37	- 6*	+31
GNANGARA	17	ssc B	0022	+16	+15	+ 8
CANBERRA	17	ssc*B	0021	+22*	-16	+13*

GEOPHYSICAL OBSERVATORY REPORT VOLUME 31 NO. 5 MAY 1983