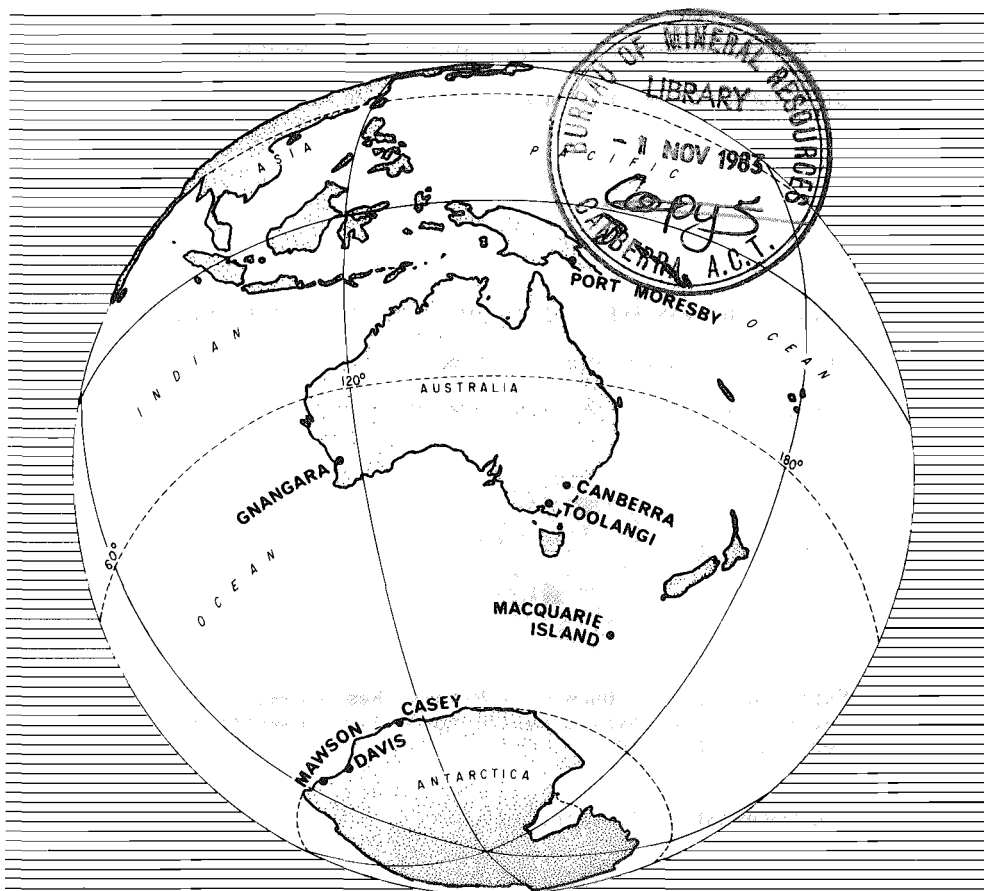


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G EOPHYSICAL OBSERVATORY REPORT



MAGNETIC OBSERVATORIES

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VOLUME 31 NO. 1

JANUARY 1983

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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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 - JANUARY 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	1	2	2	2	3	3	17
02	2	4	3	3	3	2	2	2	21
03	2	2	3	2	4	2	2	2	19
04	2	1	2	3	3	1	2	1	15
05	1	1	1	2	3	1	1	1	11
06	1	1	1	1	1	0	0	1	06
07	1	2	1	1	1	1	1	1	09
08	2	2	1	3	3	2	2	2	17
09	2	2	2	2	2	5	3	4	22
10	6	6	5	5	4	3	2	2	33
11	2	3	5	3	3	3	3	5	27
12	5	5	4	2	3	2	2	1	24
13	3	2	2	0	2	3	2	2	16
14	1	2	1	2	3	2	3	3	17
15	2	2	3	2	3	4	4	3	23
16	3	4	4	5	4	4	3	2	29
17	2	2	2	3	4	3	3	3	22
18	2	3	3	3	4	3	3	3	24
19	2	2	2	3	4	2	3	3	21
20	3	2	2	2	2	2	2	1	16
21	2	2	2	1	3	2	1	1	14
22	1	2	3	2	2	1	1	1	13
23	1	1	1	1	2	1	3	3	13
24	3	2	2	3	3	3	3	3	22
25	2	3	2	3	2	3	3	2	20
26	2	2	2	2	4	2	2	2	18
27	2	1	2	1	1	2	3	2	14
28	2	2	2	2	3	3	3	4	21
29	3	2	3	2	5	4	4	2	25
30	2	2	3	4	3	2	1	2	19
31	2	2	1	1	3	2	3	2	16

GNANGARA

MAGNETIC K-INDICES - JANUARY 1983

Range for lower limit of K = 9 is 450 nT

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

CANBERRA

MAGNETIC K-INDICES - JANUARY 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	1	2	2	2	3	16
02	1	3	2	2	3	2	3	2	18
03	1	2	3	2	4	2	2	2	18
04	2	2	2	3	3	2	2	1	17
05	0	1	2	2	3	2	1	1	12
06	0	0	2	1	2	0	0	1	06
07	0	2	0	1	2	0	1	1	07
08	1	3	1	1	3	1	3	2	15
09	2	3	3	3	2	5	3	4	25
10	6	6	6	5	4	3	2	2	34
11	1	2	4	2	2	2	2	4	19
12	4	4	4	3	3	2	2	1	23
13	1	2	3	0	1	3	1	2	13
14	1	2	1	2	3	1	2	3	15
15	2	3	4	2	3	5	4	2	25
16	2	4	3	4	4	3	3	1	24
17	1	2	3	3	5	3	3	3	23
18	3	4	3	4	4	3	3	3	27
19	2	3	3	2	4	3	2	3	22
20	3	2	2	2	1	1	2	1	14
21	2	3	2	1	3	2	2	1	16
22	1	1	2	2	2	1	1	1	11
23	0	1	1	1	1	1	2	3	10
24	2	2	2	2	3	3	3	4	21
25	2	2	2	3	3	3	4	2	21
26	2	2	2	3	4	3	3	2	21
27	1	2	3	2	2	1	2	1	14
28	1	0	3	2	2	3	3	4	18
29	2	3	2	2	4	4	3	2	22
30	1	3	3	5	3	2	1	2	20
31	2	2	2	1	3	3	3	1	17

TOOLANGI

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

MACQUARIE ISLAND

MAGNETIC K-INDICES - JANUARY 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	2	2	2	2	2	19
02	2	2	2	2	5	1	2	2	18
03	2	2	3	5	6	5	2	2	27
04	2	2	3	5	5	4	2	1	24
05	1	1	1	3	5	3	2	1	17
06	1	1	2	1	3	1	0	1	10
07	1	1	1	3	4	2	0	1	13
08	1	2	1	3	5	2	3	2	19
09	3	3	4	5	3	7	6	4	35
10	6	8	6	6	5	5	2	2	40
11	1	2	2	1	2	2	2	4	16
12	4	4	4	5	5	4	2	1	29
13	2	2	2	1	1	4	3	2	17
14	2	3	3	3	4	3	3	3	24
15	3	3	4	4	4	7	4	2	31
16	3	5	3	6	6	7	6	2	38
17	2	2	3	6	6	5	5	3	32
18	3	4	4	6	5	5	3	3	33
19	2	4	3	4	7	6	2	3	31
20	3	2	3	4	2	1	3	3	21
21	2	3	2	2	4	3	3	1	20
22	2	2	4	5	6	1	1	1	22
23	1	2	2	2	1	0	1	3	12
24	3	4	3	4	5	6	4	4	33
25	3	3	3	5	6	6	4	2	32
26	2	2	3	5	6	4	3	1	26
27	2	2	3	3	3	2	4	1	20
28	1	1	2	1	5	6	2	3	21
29	3	2	1	5	4	6	5	3	29
30	3	4	4	7	5	4	2	2	31
31	2	3	1	2	6	3	4	2	23

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

<u>Day</u>	<u>K-Indices</u>								<u>K-Sum</u>
01	3	6	6	3	3	3	3	3	30
02	4	4	3	2	5	2	2	3	25
03	3	2	4	5	4	3	4	3	28
04	4	3	3	3	3	4	5	5	30
05	4	3	2	4	4	3	2	2	24
06	3	2	3	2	2	2	3	3	20
07	4	2	2	3	4	3	1	3	22
08	3	4	4	4	3	3	4	5	30
09	5	5	4	4	4	6	4	5	37
10	7	9	7	6	4	3	3	4	43
11	3	3	3	1	3	2	2	4	21
12	4	5	4	3	4	3	5	4	32
13	3	4	4	2	3	3	3	4	26
14	4	4	4	3	4	3	3	5	30
15	6	4	5	3	5	5	5	5	38
16	4	6	5	6	5	5	6	3	40
17	5	4	5	6	7	4	6	7	44
18	5	6	5	6	6	4	4	5	41
19	3	5	5	4	5	4	2	4	32
20	5	3	4	4	3	2	6	5	32
21	5	5	5	2	4	3	6	3	33
22	3	4	5	3	4	2	3	4	28
23	3	3	3	2	2	1	2	5	21
24	4	5	4	3	5	5	6	6	38
25	5	6	6	4	4	4	5	3	37
26	3	4	4	4	4	6	5	3	33
27	4	5	6	3	3	3	6	3	33
28	3	2	3	2	4	4	5	6	29
29	4	4	3	2	4	5	3	2	27
30	3	5	5	5	4	5	4	6	37
31	4	4	4	3	4	4	4	5	32

JANUARY 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	09	15	44	ssc	+0.7	+62	+43	10(1,2)	6	13	210	130	12	16
GNANGARA	09	15	45	ssc*	+3.2	+61*	+26*	10(1)	7	32	250	180	10	21
CANBERRA	09	15	44	ssc*	+3.2*	+66	+ 8	10(1,2,3)	6	31	270	195	10	18
	15	06	..	..	..	..	..	15(6),17(5)	5	23	130	55	19	15

JANUARY 1983

PRELIMINARY MONTHLY MEAN VALUES

OBSERVATORY	H	D		Z	F
	nT	o	'	nT	nT
PORT MORESBY	35935	06	32.3E	-23715	43055
GNANGARA	23313	03	19.3W	-53715	58560
CANBERRA	23744	12	14.4E	-53763	58773
MACQUARIE I	12659	28	51.4E	-63681	64927
MAWSON	18455	63	22.7W	-46519	50046
DAVIS	16675	76	15 W	-52484	55069
CASEY	9515	90	11 W	-64297	64997

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	09	ssc A	1545	+62	+ 7	+43
GNANGARA	09	ssc*B	1545	+61*	+22	+26
	11	ssc*B	2308	+25	-94*	-52*
CANBERRA	09	ssc*A	1544	+65	+22*	+ 8
	11	ssc B	2309	+20	-57	+22