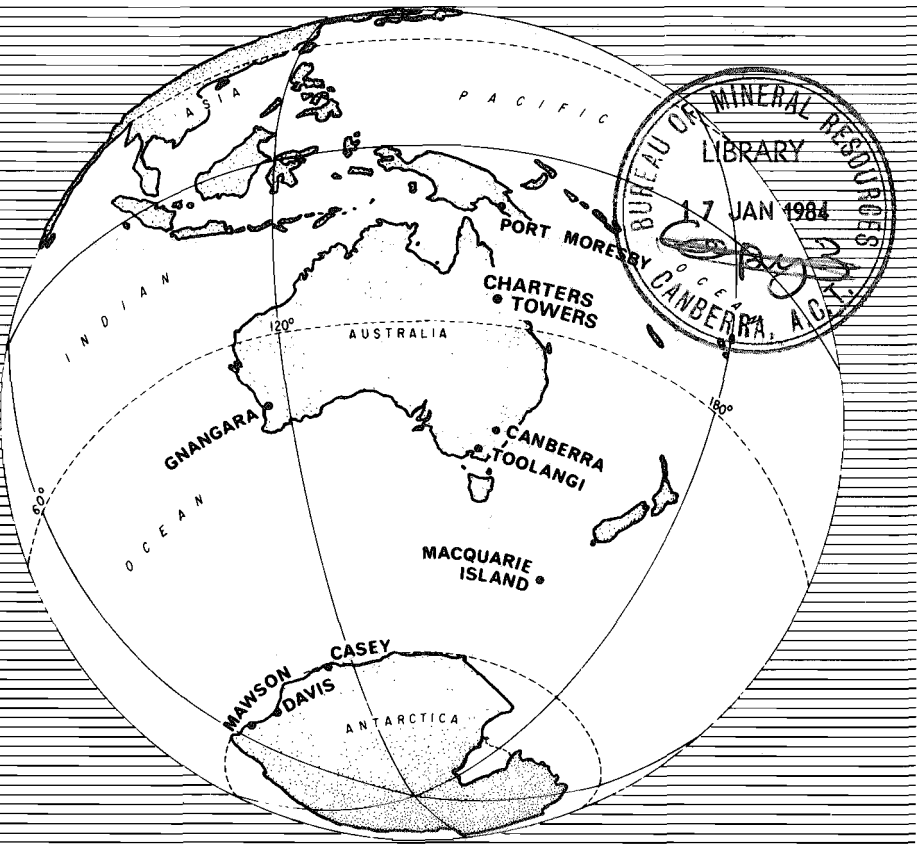
AUSTRALIA

GEOPHYSICAL OBSERVATORY REPORT



MAGNETIC OBSERVATORIES

VOLUME 31 NO. 7
JULY 1983
BMR JOURNAL 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

DIRECTOR: R.W.R. Rutland

THIS REPORT WAS PREPARED IN THE DIVISON OF GEOPHYSICS

CHIEF OF DIVISION: M.W. McElhinny

HEAD, GEOMAGNETISM SECTION: P.M. McGregor

ISSN 0433-5015

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

CONTENTS

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
G.P.O. BOX 378
CANBERRA 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°
CHARTERS TOWERS	J.M. Millican	20°05'S	146°15'E	-29.3°	218.4°
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
CHARTERS TOWERS	CTA	EDA/ELSEC digital (D1/1)			
GNANGARA	GNA	Eschenhagen (A)	H/3	D/7	Z/6
CANBERRA	CNB	Elsec digital (D1/0.1)			
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
D1/0.1,1 = digital, 1 min readings, 0.1 or 1 nT resolution

MAGNETOMETERS

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

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

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

New Australian Magnetic Observatory

A digital magnetic observatory was installed at CHARTERS TOWERS, Queensland during June 1983 and will provide standard data from 1 July 1983. It is operated jointly with the University of Queensland (see IAGA NEWS No. 21).

The equipment comprises fluxgate and proton magnetographs and a fluxgate -theodolite for calibrations. Signals are recorded at one-minute intervals on a cassette data logger and a chart recorder. Results are reduced at BMR Canberra; initial results will be published, with current results, in Vol. 32 of this report series.

PORT MORESBY

MAGNETIC K-INDICES - JULY 1983

Range for lower limit of K = 9 is 300 nT

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

GNANGARA

MAGNETIC K-INDICES - JULY 1983

Range for lower limit of K = 9 is 450 nT

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

CANBERRA

MAGNETIC K-INDICES - JULY 1983

Range for lower limit of K = 9 is 450 nT

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

TOOLANGI

MAGNETIC K-INDICES - JULY 1983

Range for lower limit of K = 9 is 500 nT

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

MACQUARIE ISLAND

MAGNETIC K-INDICES - JULY 1983

Range for lower limit of K = 9 is 1500 nT

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

MAWSON

MAGNETIC K-INDICES - JULY 1983

Range for lower limit of K = 9 is 1500 nT

Day	K-Indices								K-Sum
01	3	3	3	2	3	1	2	5	22
02	3	2	3	2	3	3	3	5	24
03	4	3	3	4	2	2	3	5	26
04	3	3	2	2	3	2	4	4	23
05	4	3	2	2	2	2	2	2	19
06	2	3	2	3	3	3	4	6	26
07	2	4	2	5	3	4	2	7	29
08	4	5	4	4	2	4	3	5	31
09	5	5	4	3	2	2	3	6	30
10	4	4	3	3	2	1	2	3	22
11	3	1	1	2	2	2	2	3	16
12	2	2	1	1	3	3	5	5	22
13	7	6	6	5	3	3	3	5	38
14	3	3	3	3	2	2	3	2	21
15	4	4	3	1	3	2	5	5	27
16	5	4	3	4	3	2	6	6	33
17	6	6	6	4	3	5	6	6	42
18	5	5	5	4	3	3	4	6	35
19	4	4	4	3	2	4	6	4	31
20	5	4	4	4	3	2	3	4	29
21	3	6	4	3	2	3	4	4	29
22	5	4	3	3	1	2	2	7	27
23	3	4	5	5	2	4	8	6	37
24	7	7	6	4	5	4	4	7	44
25	6	5	5	4	3	3	5	4	35
26	5	3	3	4	3	3	3	4	28
27	3	3	3	3	3	2	4	6	27
28	5	4	4	4	3	3	6	4	33
29	4	4	4	4	2	3	5	5	31
30	5	6	4	4	3	2	4	4	32
31	3	2	3	3	2	2	3	4	22

JULY 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						NIL								
GNANGARA	22	21	..	...	..	..	..	22(8), 23(6,7), 24(5)	5	21	110	130	25	17
CANBERRA	22	22	..	...	..	..	..	24(5)	5	19	128	49	24	18

JULY 1983

PRELIMINARY MONTHLY MEAN VALUES

OBSERVATORY	H	D	Z	F
	nT	o '	nT	nT
PORT MORESBY	35936	06 32.7E	-23711	43054
GNANGARA	23301	03 19.3W	-53727	58562
CANBERRA	23737	12 16.6E	-53751	58759
MACQUARIE I	12663	28 56.2E	-63677	64924
MAWSON	18436	63 27.7W	-46491	50013
DAVIS	16540	76 29 W	-52461	55018
CASEY	9593	90 38 W	-64345	65057

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			NIL			
GNANGARA			NIL			
CANBERRA	23	ssc*B	0253	+12*	- 5	+ 4

GEOPHYSICAL OBSERVATORY REPORT VOLUME 31 NO. 7 JULY 1983

Summit Press Pty. Ltd.

R83/257(4) Cat. No. 83 21859