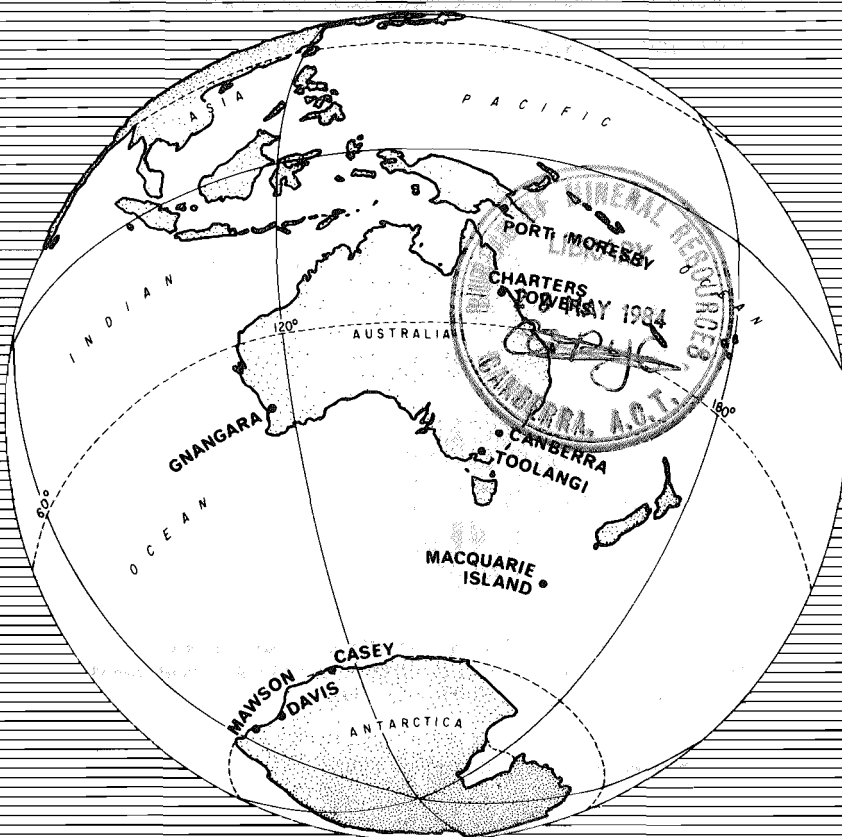


BMR PUBLICATIONS COMPACTUS
(LENDING SECTION)

112505



56 GEOPHYSICAL OBSERVATORY REPORT



MAGNETIC OBSERVATORIES

BMR
\$550
\$389.5
AUS. \$

VOLUME 32 NO. 1

JANUARY 1984

COPY 20 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 DIVISION 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, Canberra 1984.

© Commonwealth of Australia 1984

CONTENTS

	Page
Contributing Observatories.....	4
K-Indices.....	5
Principal Magnetic Storms.....	11
Monthly Mean Values, Sudden Commencements and Other Rapid Variations.....	12

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	W.D. Prohasky	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	B.J. Whitely	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.

PORT MORESBY

MAGNETIC K-INDICES - JANUARY 1984

Range for lower limit of K = 9 is 300 nT

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

GNANGARA

MAGNETIC K-INDICES - JANUARY 1984

Range for lower limit of K = 9 is 450 nT

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

CANBERRA

MAGNETIC K-INDICES - JANUARY 1984

Range for lower limit of K = 9 ls 450 nT

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

TOOLANGI

MAGNETIC K-INDICES - JANUARY 1984

Range for lower limit of K = 9 is 500 nT

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

MACQUARIE ISLAND

MAGNETIC K-INDICES - JANUARY 1984

Range for lower limit of K = 9 is 1500 nT

<u>Day</u>	<u>K-Indices</u>								<u>K-Sum</u>
01	5	3	5	5	6	5	4	3	36
02	3	4	5	5	7	5	2	2	33
03	2	3	6	4	6	7	3	1	32
04	3	4	6	7	4	5	4	3	36
05	5	5	4	4	6	2	2	2	30
06	2	2	3	6	5	5	1	1	25
07	2	2	1	3	1	2	1	1	13
08	2	0	1	0	1	0	0	1	05
09	1	2	0	4	0	0	1	2	10
10	2	1	1	1	4	3	5	3	20
11	2	2	2	4	4	2	2	2	20
12	2	3	2	2	1	2	1	1	14
13	1	1	1	0	6	6	2	2	19
14	1	2	1	1	4	1	1	2	13
15	1	2	3	0	2	3	0	1	12
16	1	3	1	0	5	4	2	2	18
17	2	2	1	2	2	0	0	1	10
18	1	0	1	4	1	0	2	2	11
19	3	4	4	6	4	5	2	2	30
20	2	3	1	5	1	0	1	2	15
21	2	3	3	5	1	1	1	2	18
22	3	3	4	3	4	3	1	2	23
23	2	2	0	1	2	4	1	1	13
24	2	2	2	0	0	0	0	1	07
25	1	3	3	4	3	4	4	1	23
26	3	5	5	4	6	5	4	2	34
27	2	2	1	2	5	3	2	2	19
28	2	4	3	6	5	6	3	2	31
29	3	4	4	5	5	2	3	3	29
30	4	5	3	6	6	6	4	3	37
31	2	3	2	5	7	6	4	3	32

MAWSON

MAGNETIC K-INDICES - JANUARY 1984

Range for lower limit of K = 9 is 1500 nT

<u>Day</u>	<u>K-Indices</u>								<u>K-Sum</u>
01	6	5	6	5	4	4	5	5	40
02	5	4	5	4	5	3	3	5	34
03	5	4	4	3	4	4	6	6	36
04	5	5	6	5	3	3	6	5	38
05	5	5	5	4	4	3	6	6	38
06	5	4	4	4	4	4	5	5	35
07	2	4	3	3	3	2	2	4	23
08	3	3	3	2	2	2	2	1	18
09	3	3	2	2	1	2	1	4	18
10	3	5	3	2	4	5	6	5	33
11	5	5	3	3	2	3	5	5	31
12	5	5	3	2	2	3	2	4	26
13	3	4	3	2	4	4	4	5	29
14	4	5	3	2	2	2	5	4	27
15	4	4	4	2	3	3	2	4	26
16	3	4	3	1	4	3	3	5	26
17	6	4	3	1	2	2	3	3	24
18	2	3	2	3	3	3	5	5	26
19	6	4	6	5	4	4	3	6	38
20	4	4	3	4	3	3	2	4	27
21	4	5	5	4	3	2	6	5	34
22	6	5	4	2	4	3	3	3	30
23	4	4	3	2	3	2	4	4	26
24	4	3	3	2	0	0	0	1	13
25	2	3	3	4	3	4	4	5	28
26	5	6	5	3	4	5	4	5	37
27	3	5	4	2	3	3	3	5	28
28	4	4	6	5	4	4	6	6	39
29	5	5	5	4	4	3	2	4	32
30	5	5	5	5	4	6	7	5	42
31	5	4	4	5	5	6	4	6	39

JANUARY 1984

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	03	..	...	..	..	..	04 (3)	6	10	140	90	05	15
CHARTERS TOWERS	04	05	..	...	..	..	..	04 (3)	6	13.9	134	37	05	06
GNANGARA								NIL						
CANBERRA	04	04	..	...	..	..	..	04 (3)	6	22.9	141	70	05	14

JANUARY 1984
PRELIMINARY MONTHLY MEAN VALUES

OBSERVATORY	H	D	Z	F
	nT	o ' "	nT	nT
PORT MORESBY	35953	06 32.9E	-23713	43069
CHARTERS TOWERS	31798	07 41.0E	-38277	49763
GNANGARA	23290	03 19.2W	-53745	58574
CANBERRA	23730	12 16.7E	-53744	58750
MACQUARIE I	12647	28 59.1E	-63643	63643
MAWSON	18437	63 29.7W	-46426	49953
DAVIS	16640	76 18 W	-52428	55005
CASEY	9670	90 49 W		

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			
CHARTERS TOWERS			NIL			
GNANGARA			NIL			
CANBERRA			NIL			