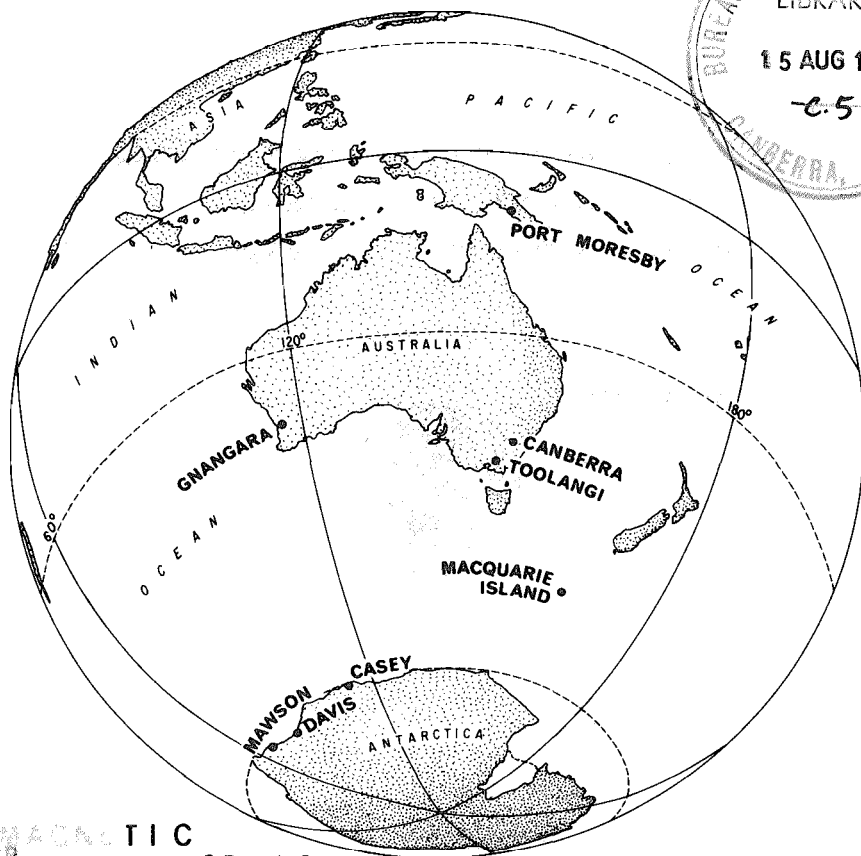
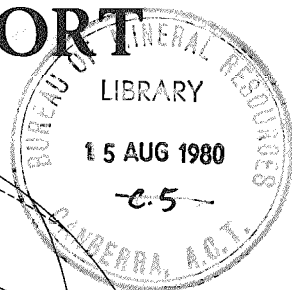




BMR PUBLICATIONS COMPACTUS
(LENDING SECTION)
BUREAU OF MINERAL RESOURCES,
GEOLOGY & GEOPHYSICS

074018

GEOFYSICAL OBSERVATORY REPORT



MAGNETIC
OBSERVATORIES
BMR
S550
.389.5
AUS.8
copy 2

Volume 28, No. 5
May 1980

DEPARTMENT OF NATIONAL DEVELOPMENT AND ENERGY

MINISTER: Senator The Hon. J.L. Carrick

SECRETARY: A. Woods

BUREAU OF MINERAL RESOURCES, GEOLOGY & GEOPHYSICS

ACTING DIRECTOR: L.W. Williams

THIS REPORT WAS PREPARED IN THE GEOPHYSICAL BRANCH

ACTING ASSISTANT DIRECTOR: J.C. Dooley

SUPERVISING GEOPHYSICIST: P.M. McGregor

ISSN 0433-5015



Commonwealth of Australia 1980

Printed by Canberra Publishing and Printing Company.

CONTENTS

	Page
Contributing Observatories.....	2
K-Indices.....	3
Principal Magnetic Storms.....	8
Monthly Mean Values, Sudden Commencements and Other Rapid Variations.....	9

The observers at Casey and Davis are physicists of the Antarctic Division (Department of Science and the Environment) 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 International convention. 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:

GEOPHYSICAL OBSERVATORY SUBSECTION
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	R.S. Smith	35°19'S	149°22'E	-44.0°	224.7°
*TOOLANGI	R.S. Smith	37°32'S	145°28'E	-46.7°	220.8°
MACQUARIE I	P.M. Davies	54°30'S	158°57'E	-61.1°	243.1°
MAWSON	B.A. Gaul	67°36'S	62°53'E	-73.1°	102.9°
DAVIS	P. Murrell	68°35'S	77°58'E	-76.7°	119.9°
CASEY	K. Lewis	66°17'S	110°32'E	-77.8°	179.1°

MAGNETOGRAPHS

OBSERVATORY	TYPE	NOMINAL SCALE VALUES					
		NORMAL			SENSITIVE		
		D	H	Z	D	H	Z
PORT MORESBY	La Cour	0.5	3	4			
GNANGARA	Eschenhagen	1	3	6			
TOOLANGI	La Cour	1	5	5			
MACQUARIE I	La Cour	2.5	20	21			
MAWSON	La Cour	2.5	21	22	1	10	10
CANBERRA	Elsac digital	D	F	I			
			0.1nT				

Scale values are in minutes of arc/mm (D) and nT/mm (H,Z)

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.

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

PORT MORESBY

MAGNETIC K-INDICES - MAY 1980

Range for lower limit of K = 9 is 300 nT

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

GNANGARA

MAGNETIC K-INDICES - MAY 1980

Range for lower limit of K = 9 is 450 nT

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

TOOLANGIMAGNETIC K-INDICES - MAY 1980Range for lower limit of K = 9 is 500 nT

<u>Day</u>	<u>K-Indices</u>								<u>K-Sum</u>
01	2	2	0	1	1	2	2	0	10
02	0	0	1	0	0	0	0	0	01
03	0	0	0	0	0	0	0	1	01
04	0	2	0	1	2	0	0	0	05
05	0	0	1	1	2	1	1	2	08
06	1	2	3	2	3	1	2	1	15
07	0	0	2	1	1	3	2	2	11
08	1	2	1	0	0	1	0	1	06
09	2	2	1	3	3	4	3	2	20
10	2	1	1	1	0	1	1	2	09
11	3	1	4	5	4	3	4	4	28
12	3	3	2	3	3	2	2	2	20
13	2	1	2	2	0	0	2	4	13
14	3	2	2	1	2	2	3	1	16
15	1	2	2	0	2	0	0	1	08
16	0	1	1	1	1	0	0	0	04
17	0	0	0	0	0	0	0	0	00
18	0	0	0	2	1	1	0	0	04
19	0	1	2	2	3	3	2	1	14
20	1	1	1	1	0	0	0	0	04
21	0	0	0	1	0	0	0	1	02
22	0	1	1	1	1	2	0	0	06
23	1	2	1	0	4	4	1	0	13
24	0	0	1	3	3	2	4	2	15
25	2	3	5	6	5	4	0	1	26
26	0	0	1	1	0	0	0	2	04
27	0	1	0	0	0	0	0	0	01
28	1	1	0	1	0	0	0	0	03
29	0	0	0	0	0	0	2	0	02
30	2	1	2	2	1	2	1	1	12
31	1	2	2	2	2	3	1	4	17

MACQUARIE ISLAND

MAGNETIC K-INDICES - MAY 1980

Range for lower limit of K = 9 is 1500 nT

<u>Day</u>	<u>K-Indices</u>								<u>K-Sum</u>
01	2	2	0	2	1	1	1	0	09
02	0	0	1	0	0	0	-	-	--
03	0	0	0	0	0	0	0	0	00
04	0	1	0	0	2	0	0	0	03
05	0	0	0	0	1	0	0	1	02
06	2	2	4	3	5	2	1	2	21
07	0	0	1	0	1	3	3	0	08
08	1	2	3	0	1	1	0	0	08
09	2	2	2	5	4	5	4	2	26
10	2	1	1	1	0	0	1	1	07
11	2	1	4	6	4	4	5	5	31
12	4	5	3	6	4	4	4	2	32
13	1	2	2	0	0	0	2	3	10
14	4	4	2	1	3	2	4	2	22
15	1	1	2	0	1	0	0	0	05
16	1	1	1	1	0	0	0	0	04
17	0	0	0	0	0	0	0	0	00
18	0	0	0	3	0	0	0	0	03
19	0	0	1	3	5	4	1	0	14
20	1	1	1	2	0	0	0	0	05
21	0	0	0	0	0	0	0	0	00
22	0	1	1	0	0	1	0	0	03
23	1	1	0	0	5	4	0	0	11
24	0	0	1	5	5	4	4	2	21
25	2	2	6	7	6	6	2	1	32
26	1	1	1	2	1	0	0	0	06
27	1	1	0	0	0	0	0	0	02
28	1	0	0	0	0	0	0	0	01
29	0	0	0	0	1	0	1	0	02
30	1	0	2	0	0	1	0	0	04
31	1	3	3	3	5	5	1	3	24

MAWSONMAGNETIC K-INDICES - MAY 1980Range for lower limit of K = 9 is 1500 nT

<u>Day</u>	<u>K-Indices</u>								<u>K-Sum</u>
01	5	3	1	2	2	2	2	2	19
02	1	1	2	1	0	0	0	2	07
03	2	1	2	0	0	0	0	1	06
04	1	1	0	1	1	1	0	1	06
05	0	0	1	0	0	0	3	5	09
06	5	5	4	2	3	2	3	6	30
07	0	1	1	1	0	3	5	1	12
08	5	4	4	1	1	0	0	2	17
09	5	5	5	3	2	5	4	6	35
10	5	2	2	0	0	0	1	1	11
11	3	2	5	5	4	4	7	8	38
12	5	5	4	2	2	3	5	6	32
13	2	4	5	2	0	4	5	6	28
14	5	6	4	2	2	6	5	5	35
15	3	3	3	2	0	0	0	4	15
16	3	2	2	1	0	0	0	1	09
17	0	0	1	0	0	1	2	5	09
18	2	0	1	1	1	0	0	0	05
19	0	1	2	1	4	4	3	1	16
20	4	3	2	0	1	1	0	2	13
21	0	1	1	1	0	0	0	0	03
22	0	1	1	0	0	2	1	1	06
23	1	3	1	1	3	3	3	4	19
24	4	2	1	3	2	4	3	5	24
25	3	4	6	7	3	3	2	5	33
26	4	1	3	3	1	1	1	5	19
27	1	3	1	1	0	0	0	0	06
28	1	1	1	1	1	0	1	1	07
29	0	1	1	1	0	0	3	4	10
30	2	4	5	1	0	2	2	1	17
31	5	5	4	2	3	5	3	7	34

MAY 1980

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	01	..	...		...	...	11	(1)	5	5	190	80	12	16
	25	00	..	...		...	...	25	(4,5)	6	6	250	70	25	17
GNANGARA	11	01	..	...		...	...	11	(7)	5	17	120	100	13	00
								12	(1)	5					
	24	09	..	...		...	...	25	(4)	6	17	150	160	26	00
	31	21	37	ssc*	+1.9*	+ 3	+ 7*	31	(8)	5	15	90	110	01	23
								1	(4)	5					
TOOLANGI	24	23	..	...		...	...	25	(4)	6	27	150	90	25	18

MAY 1980

PRELIMINARY MONTHLY MEAN VALUES

OBSERVATORY	H	D		Z	F
	nT	o	'	nT	nT
PORT MORESBY	35973	06	28.3E	-23634	43042
GNANGARA	23409	03	17.6W	-53647	58532
CANBERRA	23809	12	08.3E	-53772	58807
TOOLANGI		no absolute control			
MACQUARIE I	12718	28	29.2E	-63774	65030
MAWSON	18433	63	06.0W	-46805	50304
DAVIS		not available			
CASEY	9576	89	37.9W	-64531	65238

CASEY PRELIMINARY MONTHLY MEAN VALUES

DECEMBER 1979	9518	89	09.9W	-64445	65144
JANUARY 1980		not available			
FEBRUARY	9587	90	06.0W	-64581	65289
MARCH	9636	89	36.4W	-64504	65220
APRIL	9578	89	17.4W	-64504	65212

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	29	ssc B	1832	+10	+ 1	+ 8
GNANGARA	29	ssc B	1833	+ 9	+ 6	+ 6
	31	ssc* B	2137	+ 3	+13*	+ 7*
TOOLANGI	31	ssc B	2134	+ 8	+ 4	0

R79/271 (12) Cat. No. 80 1212 8