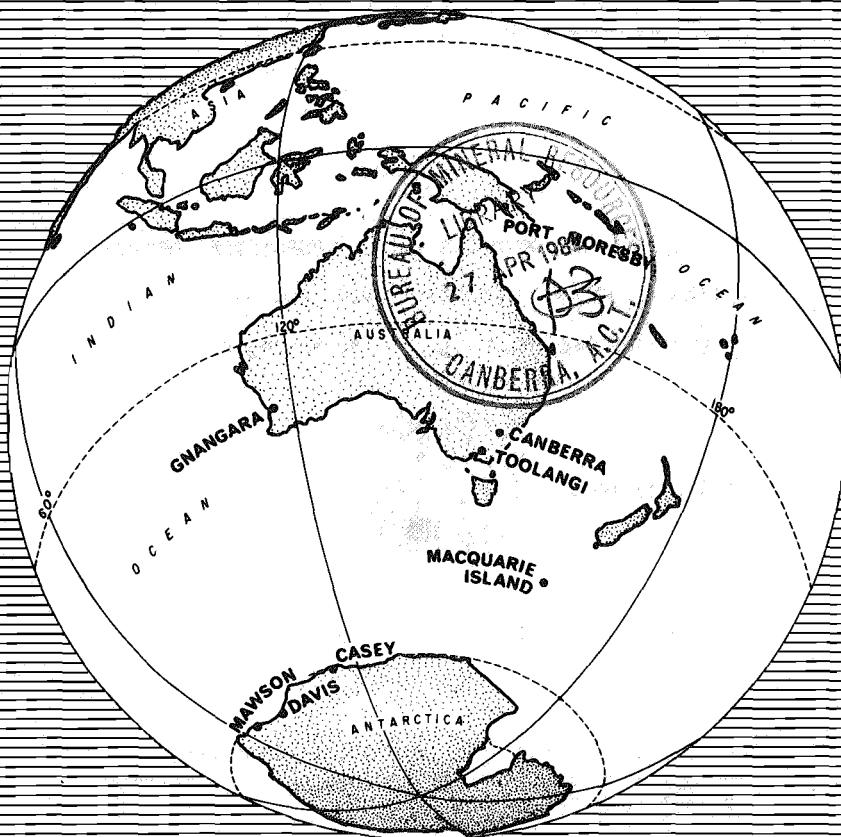


BMR PUBLICATIONS COMPACT 094701
(LENDING SECTION)



Copy 3 · **GEOFYSICAL
OBSERVATORY REPORT**



MAGNETIC OBSERVATORIES

BMR
5550
.389.5
AUS.8

VOLUME 29 NO 8

AUGUST 1981

copy 2 OF MINERAL RESOURCES, GEOLOGY & GEOPHYSICS

BUREAU OF MINERAL RESOURCES, GEOLOGY & GEOPHYSICS

DIRECTOR: R.W.R. Rutland

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 1981

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

Printed by Union Offset Co. Pty Ltd, Canberra.

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 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:

GEOMAGNETISM & SEISMOLOGY 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	W.J. Williams	54°30'S	158°57'E	-61.1°	243.1°
MAWSON	A.S. Marks	67°36'S	62°53'E	-73.1°	102.9°
DAVIS	R. Morris	68°35'S	77°58'E	-76.7°	119.9°
CASEY	E. Davis	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	Elsec 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 - AUGUST 1981

Range for lower limit of K = 9 is 300 nT

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

GNANGARAMAGNETIC K-INDICES - AUGUST 1981Range for lower limit of K = 9 is 450 nT

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

CANBERRAMAGNETIC K-INDICES - AUGUST 1981Range for lower limit of K = 9 is 450 nT

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

TOOLANGIMAGNETIC K-INDICES - AUGUST 1981Range for lower limit of K = 9 is 500 nT

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

MACQUARIE ISLAND

MAGNETIC K-INDICES - AUGUST 1981

Range for lower limit of K = 9 is 1500 nT

<u>Day</u>	<u>K-Indices</u>								<u>K-Sum</u>
01	1	3	4	3	3	2	4	2	22
02	0	0	0	2	2	4	2	1	11
03	1	3	5	4	3	4	2	1	23
04	1	1	2	3	1	0	0	0	08
05	0	2	3	3	2	3	3	0	16
06	3	2	5	4	3	4	1	0	22
07	0	0	0	3	5	3	3	1	15
08	0	0	0	0	0	0	0	0	00
09	1	0	0	0	0	0	1	0	02
10	0	3	2	4	3	3	0	0	15
11	0	0	0	0	4	5	3	2	14
12	1	1	0	0	0	1	0	1	04
13	1	1	0	2	0	0	0	1	05
14	0	0	0	4	3	0	0	0	07
15	0	0	0	0	0	0	1	2	03
16	1	1	0	0	0	0	0	0	02
17	2	1	5	6	3	1	2	1	21
18	2	2	2	5	5	4	2	3	25
19	1	1	1	1	4	2	0	0	10
20	0	0	1	0	0	0	1	0	02
21	1	2	4	2	3	3	3	2	20
22	2	1	2	2	0	0	4	1	12
23	2	2	5	6	6	5	4	4	34
24	3	3	2	1	5	6	2	2	24
25	1	1	2	5	3	4	2	1	19
26	0	0	0	0	0	4	0	0	04
27	0	0	0	2	5	5	3	1	16
28	2	2	2	6	3	4	2	0	21
29	1	1	4	3	4	3	3	1	20
30	1	1	2	6	5	2	0	1	18
31	2	4	1	0	3	1	0	0	11

MAWSON

MAGNETIC K-INDICES - AUGUST 1981

Range for lower limit of K = 9 is 1500 nT

<u>Day</u>	<u>K-Indices</u>								<u>K-Sum</u>
01	5	5	5	5	3	2	5	7	37
02	4	3	3	3	3	4	3	7	30
03	3	6	6	5	3	3	6	6	38
04	6	6	5	5	3	2	3	4	34
05	3	4	6	3	3	4	6	5	34
06	6	6	6	4	3	3	4	4	36
07	5	4	3	1	3	7	6	5	34
08	4	1	1	1	1	1	1	5	15
09	5	3	2	1	2	1	2	3	19
10	4	6	4	4	3	3	4	4	32
11	4	3	1	2	3	4	6	5	28
12	6	4	4	2	3	3	3	5	30
13	5	5	4	3	2	1	5	6	31
14	5	4	3	2	3	2	4	5	28
15	3	3	3	2	2	2	7	6	28
16	4	3	2	2	3	2	2	5	23
17	4	3	3	4	2	2	4	6	28
18	4	3	5	4	4	3	4	5	32
19	4	5	4	2	3	2	4	4	28
20	3	5	3	2	1	2	3	4	23
21	3	4	4	3	3	3	5	3	28
22	3	4	4	3	2	3	6	4	29
23	6	6	5	5	6	5	4	7	44
24	4	4	4	3	3	7	4	7	36
25	6	4	4	3	4	4	6	5	36
26	2	4	3	1	1	3	4	4	22
27	4	3	3	3	4	5	4	4	30
28	4	5	6	3	3	7	3	6	37
29	4	4	4	4	4	3	4	3	30
30	5	6	4	4	2	3	3	6	33
31	3	4	4	2	1	1	2	3	20

AUGUST 1981
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	10	04	35	ssc*	+0.8*	+44*	+34*	10(2)	5	3	100	90	10	15
	17	00	45	ssc*	+0.5	+40*	+37*	17(1,4)	5	7	160	150	18	19
	23	12	56	ssc	0	+33	+26	23(5)	5	8	160	80	25	22
GNANGARA	23	06						23(5)	6	36	90	180	25	02
TOOLANGI	22	22						23(5)	6	25	150	60	25	12

AUGUST 1981
PRELIMINARY MONTHLY MEAN VALUES

OBSERVATORY	H	D	Z	F
	nT	o	nT	nT
PORT MORESBY	35945	06 30.5E	-23584	42991
GNANGARA	23352	03 18.9W	-53697	58555
CANBERRA	23774	12 10.4E	-53769	58790
MACQUARIE I	12681	28 39.6E	-63738	64987
MAWSON	18428	63 17.5W	-46706	50210
DAVIS	16573	76 21.4W	-51788	54375
CASEY	9553	90 45.4W	-64115	64823

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	10	ssc*B	0435	+44*	+8*	+34*
	17	ssc*B	0045	+40*	+5	+37*
	23	ssc B	1256	+33	0	+26
GNANGARA	10	ssc*B	0434	+15	-22*	-12*
	17	ssc*B	0045	+14*	-51*	-20*
TOOLANGI	10	ssc*B	0434	+40	-8*	+10
	17	ssc*B	0046	+22*	-33*	+ 5

R81/75(2) Cat. No. 82 0203 7