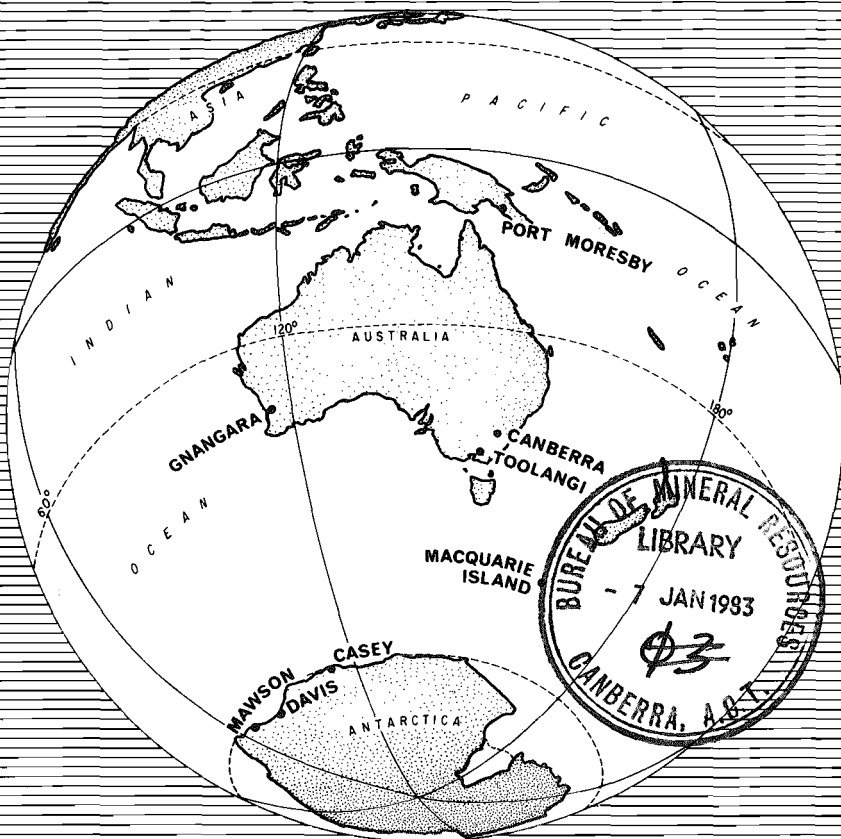


BMR PUBLICATIONS COMPACTUS
(L. D. L. G. E. C. T. O. N.)

102292



GEOPHYSICAL OBSERVATORY REPORT



MAGNETIC OBSERVATORIES

BMR
5550
.389.5
AUS.8
copy 2

VOLUME 30 NO 1
JANUARY 1982

BUREAU OF MINERAL RESOURCES, GEOLOGY & GEOPHYSICS

DEPARTMENT OF NATIONAL DEVELOPMENT AND ENERGY

MINISTER: Senator The Hon. J.L. Carrick

SECRETARY: A. Woods

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

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

Commonwealth of Australia 1982

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	G.H.Y. Thomas	54°30'S	158°57'E	-61.1°	243.1°
MAWSON	R.P. Silbestein	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	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 declinometer 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 MORESBYMAGNETIC K-INDICES - JANUARY 1982Range for lower limit of K = 9 is 300 nT

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

GNANGARAMAGNETIC K-INDICES - JANUARY 1982Range for lower limit of K = 9 is 450 nT

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

CANBERRAMAGNETIC K-INDICES - JANUARY 1982Range for lower limit of K = 9 is 450 nT

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

MAGNETIC K-INDICES - JANUARY 1982Range for lower limit of K = 9 is 500 nT

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

MACQUARIE ISLAND

MAGNETIC K-INDICES - JANUARY 1982

Range for lower limit of K = 9 is 1500 nT

<u>Day</u>	<u>K-Indices</u>								<u>K-Sum</u>
01	2	2	2	1	4	6	2	2	21
02	2	2	2	4	4	4	4	3	25
03	3	3	3	4	3	6	4	3	29
04	4	2	2	3	4	5	3	3	26
05	2	3	2	3	0	0	1	2	13
06	2	4	5	4	4	2	4	2	27
07	3	3	4	3	6	5	3	3	30
08	3	-	-	2	0	1	2	2	--
09	3	1	2	1	2	1	1	1	12
10	2	1	1	0	0	0	1	2	07
11	2	2	2	1	3	1	1	2	14
12	3	2	1	1	0	0	1	2	10
13	-	-	-	-	-	-	-	-	--
14	-	-	-	-	-	-	-	-	--
15	3	2	3	5	4	3	2	2	24
16	2	3	4	4	5	6	3	3	30
17	4	2	3	4	3	4	1	2	23
18	2	2	1	2	2	2	5	4	20
19	2	2	1	2	3	0	0	2	12
20	2	3	3	2	0	0	1	2	13
21	2	1	4	5	3	5	4	3	27
22	3	6	6	6	4	4	3	4	36
23	4	4	3	6	6	5	3	3	34
24	4	-	3	5	6	6	4	3	--
25	-	(3)	2	3	4	4	2	1	--
26	2	1	1	1	2	1	3	2	13
27	3	4	4	4	6	4	2	2	29
28	4	3	4	6	4	2	1	2	26
29	1	2	2	0	3	3	3	3	17
30	6	4	5	6	4	5	3	3	36
31	4	6	4	7	7	6	6	3	43

MAWSONMAGNETIC K-INDICES - JANUARY 1982Range for lower limit of K = 9 is 1500 nT

<u>Day</u>	<u>K-Indices</u>								<u>K-Sum</u>
01	4	4	3	3	4	5	4	3	30
02	4	3	3	4	3	5	6	3	31
03	5	-	5	4	4	4	4	4	--
04	3	4	3	3	4	4	4	6	31
05	4	4	3	3	2	1	1	1	19
06	4	5	6	5	5	2	4	3	34
07	3	5	5	3	4	4	4	4	32
08	6	5	4	3	3	3	6	4	34
09	4	5	5	2	3	2	2	3	26
10	3	3	3	2	1	1	4	4	21
11	3	4	4	2	3	2	3	3	24
12	5	4	3	1	1	1	1	3	19
13	2	2	3	1	1	2	2	2	15
14	2	1	2	1	2	2	2	3	15
15	4	6	4	5	4	5	4	5	37
16	4	3	3	4	5	4	7	5	35
17	5	3	3	4	4	4	2	2	27
18	5	4	2	3	4	3	6	6	33
19	4	3	2	2	2	2	2	1	18
20	5	4	4	2	2	2	3	4	26
21	4	5	5	4	3	4	3	4	32
22	5	6	6	5	4	6	5	5	42
23	5	6	5	5	4	4	6	6	41
24	4	5	5	5	4	4	5	6	38
25	5	4	5	3	4	3	2	5	31
26	2	3	3	2	3	2	5	4	24
27	4	6	5	4	4	4	3	6	36
28	3	4	4	5	5	3	2	4	30
29	3	4	3	2	3	4	4	3	26
30	6	6	5	5	4	4	2	3	35
31	5	6	5	6	7	6	5	3	43

JANUARY 1982
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	28	02						28(4) 30(4) 31(5)		5 5 5		180		31	24
GNANGARA	20	19						21(6)		5	17	90	100	25	15
	29	13						30(1), 31(5,6,7)		5	27	240	150	31	21
CANBERRA	29	13						30(2) 31(4,5)		5	27	150	60	31	23

GEOPHYSICAL OBSERVATORY REPORT VOLUME 30 NO. 1 (JAN 1982)

OBSERVATORY	H	D	Z	F
	nT	o'	nT	nT
PORT MORESBY	35953	06 30.8E	-23695	43059
GNANGARA	23359	03 19.2W	-53695	58556
CANBERRA	23781	12 11.9E	-53759	58784
MACQUARIE I	12689	28 40.8E	-63702	64953
MAWSON	18465	63 18.6W	-46643	50165
DAVIS	16621	76 33.0W	-52589	55153
CASEY	9699	90 12.0W	-64097	64827

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	13	ssc B	0410	+15	+ 4	+15
GNANGARA				NIL		
CANBERRA				NIL		

12