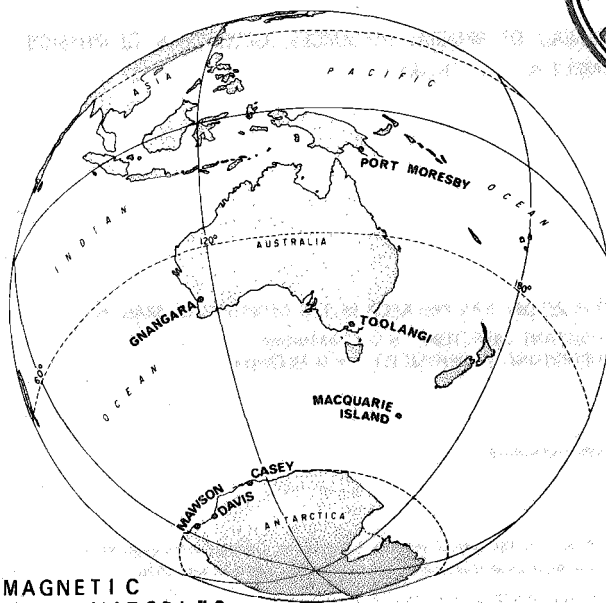
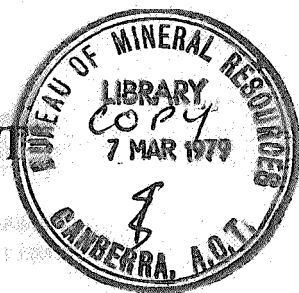




BUREAU OF MINERAL RESOURCES.
GEOLOGY & GEOPHYSICS

GEOPHYSICAL OBSERVATORY REPORT



Volume 26, No. 7

July 1978

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RESEARCH REPORTS
(GEO-11-10-4-SECTION)

BUREAU OF MINERAL RESOURCES

23-10-1978



DEPARTMENT OF NATIONAL DEVELOPMENT

MINISTER: The Hon. K.E. Newman M.P.

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BUREAU OF MINERAL RESOURCES, GEOLOGY & GEOPHYSICS

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The observers at Casey and Davis are physicists of the Antarctic Division (Department of Science) 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 geophysical observatory at Port Moresby, Papua New Guinea was transferred to that country's Geological Survey on 1 July 1978. Geomagnetic data will continue to be published in this Report series.

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 GROUP
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°
TOOLANGI	M.W. McMullan	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	J.J. Petkovic	67°36'S	62°53'E	-73.1°	102.9°
DAVIS		68°35'S	77°58'E	-76.7°	119.9°
CASEY	R. Morris	66°17'S	110°32'E	-77.8°	179.1°

MAGNETOGRAPHS

OBSERVATORY	TYPE	NOMINAL SCALE VALUES					
		NORMAL		SENSITIVE		RAPID RUN	
		D	H Z	D	H Z	D	H Z

PORT MORESBY	La Cour	½	2½	3½			
GNANGARA	Eschenhagen	1	2½	5½			
TOOLANGI	La Cour	1	4½	5			
MACQUARIE I	La Cour	2½	19½	21		1	5½ 6
MAWSON	La Cour	2½	21	22	1	10	10

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

MAGNETOMETERS

Absolute data are based on control observations made with QHM's BMZ's
 Askania Declinometers and Proton Precession Magnetometers
 Errors in preliminary values are not likely to exceed ±5 nT or 0.5 minutes

P O R T M O R E S B Y

MAGNETIC K-INDICES - JULY 1978

Range for lower limit of K=9 is 300 nT

<u>Day</u>	<u>K-Indices</u>								<u>K-Sum</u>
01	2	1	1	3	1	1	0	0	09
02	1	0	1	2	1	1	0	1	07
03	0	1	3	2	1	1	2	4	14
04	5	5	5	4	6	5	4	5	39
05	4	5	5	6	4	2	2	2	30
06	3	3	4	2	2	3	2	2	21
07	3	3	3	4	3	2	3	1	22
08	3	2	2	1	2	2	3	3	18
09	1	1	1	1	1	2	2	1	10
10	2	2	2	2	2	1	1	1	13
11	1	1	1	1	0	0	0	2	06
12	1	0	0	0	0	1	1	1	04
13	3	2	4	2	2	1	0	4	18
14	4	5	5	5	4	4	4	3	34
15	4	4	2	1	0	0	1	1	13
16	3	1	1	1	2	2	1	0	11
17	9	1	2	3	1	0	2	0	09
18	3	3	1	2	3	4	2	4	22
19	3	4	4	2	2	2	1	1	19
20	1	1	1	1	0	0	0	0	04
21	1	1	1	1	1	0	0	2	07
22	1	2	1	1	1	1	1	2	10
23	2	2	2	0	0	1	2	2	11
24	1	1	1	1	2	1	1	0	08
25	1	2	0	1	1	1	2	1	09
26	0	0	1	1	1	1	1	1	06
27	1	0	2	2	2	0	1	2	10
28	2	1	2	2	1	0	0	1	09
29	1	2	2	2	2	1	0	1	11
30	1	3	1	0	0	0	0	0	05
31	0	0	0	0	0	0	0	0	00

G N A N G A R A

MAGNETIC K-INDICES - JULY 1978

Range for lower limit of K=9 is 350 nT

<u>Day</u>	<u>K-Indices</u>								<u>K-Sum</u>
01	1	2	2	2	2	2	0	0	11
02	1	1	3	1	9	1	1	1	09
03	1	1	2	1	2	2	3	4	16
04	5	4	4	4	5	6	4	6	38
05	4	4	5	6	5	3	3	2	32
06	2	2	4	2	1	4	3	1	19
07	2	3	3	3	3	3	3	2	22
08	2	2	2	1	2	3	2	2	16
09	2	1	2	1	1	3	1	1	12
10	2	2	3	1	3	1	2	2	16
11	2	2	1	1	1	0	0	0	07
12	0	0	0	0	1	1	1	1	04
13	3	4	4	3	2	2	1	3	22
14	4	5	3	5	5	5	5	3	35
15	3	3	2	0	0	0	0	1	09
16	2	1	0	0	1	3	1	1	09
17	1	0	1	2	1	1	2	1	09
18	1	3	2	2	3	4	3	5	23
19	2	4	4	2	1	2	1	1	17
20	1	1	2	1	0	1	1	1	08
21	1	2	1	1	1	0	0	0	06
22	2	2	1	0	0	2	2	3	12
23	1	2	1	0	0	1	3	3	11
24	2	1	0	0	1	3	2	3	12
25	1	2	1	2	2	2	4	3	17
26	1	1	1	1	1	1	2	1	09
27	1	0	0	1	1	0	1	2	06
28	2	1	2	2	1	1	0	0	09
29	1	1	1	1	2	2	1	1	10
30	1	1	0	0	0	1	1	0	04
31	0	0	0	0	0	0	1	0	01

T O O L A N G I

MAGNETIC K-INDICES - JULY 1978

Range for lower limit of K=9 is 500 nT

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

MACQUARIE ISLAND

MAGNETIC K-INDICES - JULY 1978

Range for lower limit of K=9 is 1500 nT

Day	K-Indices								K-Sum
01	1	1	1	1	2	1	0	0	07
02	1	0	1	0	0	0	0	0	02
03	1	0	1	1	1	2	1	3	10
04	4	3	5	4	7	9	4	3	39
05	5	6	7	7	6	4	4	2	41
06	1	2	2	1	1	4	3	1	15
07	2	1	2	4	4	4	4	0	21
08	1	2	3	0	4	6	3	1	20
09	2	1	0	0	2	4	1	1	11
10	2	1	4	2	4	0	1	0	14
11	1	0	0	1	1	0	0	0	03
12	0	0	0	1	1	0	0	0	02
13	2	3	5	3	3	1	0	2	19
14	3	6	5	6	7	5	4	2	38
15	2	3	2	0	0	0	1	0	08
16	3	1	0	0	0	1	1	1	07
17	1	1	0	2	1	0	0	0	05
18	1	1	0	1	3	5	3	3	17
19	2	3	3	2	1	2	0	0	13
20	1	1	1	1	0	0	0	0	04
21	1	1	3	3	1	0	0	0	09
22	1	4	2	1	1	1	1	1	12
23	1	2	2	0	0	0	2	2	09
24	1	0	1	0	1	0	1	1	05
25	1	1	0	3	3	0	2	2	12
26	1	1	0	0	1	0	0	0	03
27	0	0	0	0	2	0	0	0	02
28	1	1	2	3	3	0	0	0	10
29	0	0	0	3	1	0	0	0	04
30	0	0	0	0	0	0	0	0	00
31	0	0	0	0	0	0	0	0	00

M A W S O N

MAGNETIC K-INDICES - JULY 1978

Range for lower limit of K=9 is 1500 nT

Day	K-Indices								K-Sum
01	2	3	3	3	3	2	2	3	21
02	4	2	2	3	2	2	2	5	22
03	3	3	3	3	3	2	5	5	27
04	7	5	6	4	5	6	4	7	44
05	6	8	7	5	3	4	7	5	45
06	4	2	4	2	2	4	4	1	23
07	5	5	3	3	4	3	5	6	34
08	6	5	4	3	4	5	3	3	33
09	5	3	2	2	2	3	2	4	23
10	3	4	3	3	3	2	2	4	24
11	4	3	2	3	2	1	2	2	19
12	1	1	1	1	2	3	2	5	16
13	5	5	5	4	4	3	5	5	36
14	6	5	5	6	5	5	6	4	42
15	3	4	3	1	1	1	1	1	15
16	5	2	1	1	1	2	1	4	17
17	4	4	2	3	2	2	3	2	22
18	4	4	2	2	3	5	6	5	31
19	6	5	4	2	2	2	3	3	27
20	2	3	3	3	2	2	1	5	21
21	4	3	2	3	2	2	1	3	20
22	2	5	3	2	2	1	4	6	25
23	4	4	3	2	1	1	6	5	26
24	4	3	3	2	1	2	5	5	25
25	4	3	3	3	2	2	4	7	28
26	5	3	3	1	1	1	1	5	20
27	3	1	1	1	1	1	1	6	15
28	5	4	5	3	2	1	1	1	22
29	1	1	2	2	3	2	3	5	19
30	5	3	2	1	1	1	3	3	19
31	1	1	1	1	1	1	1	3	10

JULY 1978

PRINCIPAL MAGNETIC STORMS

OBSERVATORY	COMMENCEMENT			SSC - AMPLITUDES			MAX 3h - INDEX K		RANGES				UT END
	DAY	h min (UT)	TYPE	D(')	H(nT)	Z(nT)	DAY (3h-PERIOD)	K	D(')	H(nT)	Z(nT)	DAY h	
PORT MORESBY	03	23 05	ssc	+0.4	+29	+24	04 (5)	6	8	240	80	05 21	
							05 (4)	6					
	13	23 27	ssc	+0.3	+24	+21	14 (2,3,4)	5	6	110	70	15 09	
GNANGARA	03	23 05	ssc*	+4.8*	+14	+19*	04 (6,8)	6	23	180	160	05 20	
							05 (4)						
	13	23 28	ssc	+1.0	+8	+4	14 (2,4,5,6,7)	5	13	100	90	15 07	
	18	04 17	ssc*	-1.3	-9*	-6	18 (8)	5	13	50	70	19 09	
TOOLANGI	04	08 46	ssc	+0.9	+22	..	04 (6)	6	41	200	90	05 16	
							05 (3,4)	6					
	13	23 28	ssc	+0.4	+11	..	14 (4,5)	5	21	140	60	15 08	

JULY 1978
PRELIMINARY MONTHLY MEAN VALUES

OBSERVATORY	H	D		Z	F
	nT	°	'	nT	nT
PORT MORESBY	35999	6	25.0E	-23537	43011
GNANGARA	23471	3	15.2W	-53595	58509
TOOLANGI	22098	10	59.4E	-56305	60486
MACQUARIE I	12774	28	12.3E	-63830	65096
MAWSON	18416	62	54.1W	-46970	50451
DAVIS		not available			
CASEY	9543	89	06.8W	-64607	65308

*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	03	ssc	A	2305	+29	+4	+24
	13	ssc	A	2327	+24	+3	+21
GNANGARA	03	ssc*	B	2305	+14	+33*	+19*
	10	sfe		0612	-22	-2	-2
	12	sfe		0246	+2	-3	-2
	13	ssc	B	2328	+8	+7	+4
TOOLANGI	03	ssc	B	2305	+13	+2	..
	04	ssc	B	0846	+22	+6	..
	13	ssc	B	2328	+11	+2	..