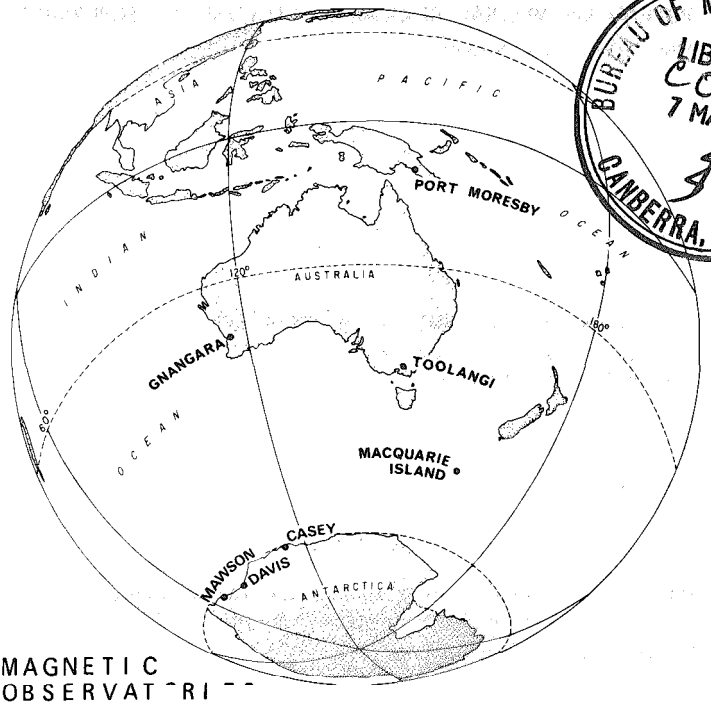
BUREAU OF MINERAL RESOURCES,
GEOLOGY & GEOPHYSICS

GEOPHYSICAL OBSERVATORY REPORT



MAGNETIC OBSERVATORIES

Volume 26, No. 5

May 1978

DEPARTMENT OF NATIONAL DEVELOPMENT
MINISTER: The Hon. K.E. Newman, M.P.
SECRETARY: A. Woods

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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 will be transferred to that country's Geological Survey during 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.B. Everingham	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 - MAY 1978

Range for lower limit of K=9 is 300 nT

Day	K-Indices								K-Sum
01	2	4	5	5	6	3	5	6	36
02	6	5	6	6	5	3	2	4	37
03	4	4	5	6	5	5	4	5	38
04	-	-	-	-	-	4+	3	3	-
05	2	3	2	1	1	0	1	2	12
06	2	1	2	1	1	0	0	2	09
07	2	3	3	2	1	2	2	2	17
08	2	3	2	4	3	4	4	4	26
09	5+	4	5+	5+	5+	4	4	4	36+
10	2	2	2	1	2	1	4	4	18
11	3	4	4	3	2	3	2	2	23
12	3	3	4	3	3	2	3	3	24
13	3	3	1	1	2	2	1	3	16
14	1	2	2	2	2	1	3	2	15
15	3	3	2	3	2	1	1	1	16
16	2	2	1	2	1	2	1	1	12
17	2	3	3	1	2	0	1	2	14
18	1	1	0	2	1	2	0	2	09
19	1	1	2	2	0	0	1	2	09
20	1	1	2	1	1	2	3	0	11
21	4	4	4	2	2	2	5	4	27
22	3	2	2	2	3	2	3	2	19
23	2	2	3	2	4	2	2	3	20
24	3	2	2	4	3	2	1	3	20
25	2	2	2	1	3	1	1	2	14
26	1	1	2	2	2	1	0	1	10
27	0	0	1	0	0	0	0	1	02
28	1	1	2	2	2	2	2	0	12
29	2	0	1	2	3	1	3	3	15
30	5	3	3	2	3	2	3	2	23
31	3	3	3	3	2	1	1	2	18

G N A N G A R A

MAGNETIC K-INDICES - MAY 1978

Range for lower limit of K=9 is 350 nT

Day	K-Indices								K-Sum
01	2	3	4	5	7	4	5	8	38
02	5	5	5	7	6	4	3	5	40
03	4	5	5	5	6	5	5	5	40
04	6	5	5	6	6	4	4	3	39
05	1	1	1	1	1	1	2	4	12
06	1	1	2	1	0	0	1	3	09
07	2	2	2	2	2	2	3	2	17
08	1	2	2	3	4	3	4	4	23
09	5	6	6	6	6	7	4	4	44
10	1	2	1	0	3	2	3	3	15
11	4	5	4	3	3	3	3	3	28
12	2	3	4	2	4	3	4	2	24
13	4	1	1	1	2	2	1	3	15
14	2	1	1	1	2	2	3	2	14
15	1	1	0	2	1	2	1	1	09
16	2	1	1	1	1	2	2	2	12
17	2	1	2	2	2	2	1	3	15
18	2	1	0	1	2	3	1	0	10
19	1	1	1	1	1	1	1	0	07
20	0	1	2	1	0	1	4	0	09
21	2	3	3	1	2	2	5	6	24
22	4	2	3	2	3	3	4	4	25
23	3	2	2	3	3	4	3	5	25
24	5	4	5	4	3	3	2	3	29
25	4	3	2	1	3	2	2	4	21
26	2	2	2	3	2	2	3	1	17
27	1	1	1	0	0	1	1	1	06
28	1	2	1	3	3	3	3	1	17
29	1	1	0	1	2	2	3	3	13
30	5	3	4	3	3	3	2	1	24
31	3	2	2	1	1	1	1	1	12

T O O L A N G I

MAGNETIC K-INDICES - MAY 1978

Range for lower limit of K = 9 is 500 nT

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

M A C Q U A R I E I S L A N D

MAGNETIC K-INDICES - MAY 1978

Range for lower limit of K=9 is 1500 nT

Day	K-Indices								K-Sum
01	4	5	6	6	8	5	7	8	49
02	5	6	7	6	6	5	3	4	42
03	4	5	7	6	7	6	6	6	47
04	5	7	8	6	6	4	5	2	43
05	2	2	0	0	0	0	1	2	07
06	1	1	0	0	0	0	0	1	03
07	2	2	1	0	2	1	2	1	11
08	1	1	0	4	4	2	2	2	16
09	3	5	9	6	7	5	5	3	43
10	1	3	0	1	3	1	2	2	13
11	4	4	6	5	4	4	4	3	34
12	3	4	6	5	6	4	4	2	34
13	4	3	1	3	3	1	0	1	16
14	1	1	1	2	3	1	2	2	13
15	0	0	0	3	1	1	0	0	05
16	1	1	0	0	3	1	0	1	07
17	0	1	3	2	2	2	1	1	12
18	1	2	0	2	3	3	1	0	12
19	0	0	0	2	1	0	0	0	03
20	0	1	0	0	0	0	2	0	03
21	1	1	1	0	2	0	5	5	15
22	4	2	3	4	5	6	5	3	32
23	2	3	4	5	3	4	2	2	25
24	3	3	5	7	6	4	2	2	32
25	3	2	2	1	4	2	1	2	17
26	2	2	1	5	4	3	1	1	19
27	0	1	1	2	0	0	0	0	04
28	0	1	0	4	4	2	2	0	13
29	0	0	0	1	3	0	1	1	06
30	5	4	5	4	4	3	1	1	27
31	2	2	2	2	2	0	0	0	10

M A W S O N

MAGNETIC K-INDICES - MAY 1978

Range for lower limit of K=9 is 1500 nT

Day	K-Indices								K-Sum
01	5	7	6	6	7	4	6	7	48
02	6	6	7	5	7	6	5	7	49
03	5	7	6	6	5	4	7	8	48
04	7	8	7	6	4	5	5	5	47
05	3	3	3	1	2	1	2	6	21
06	2	2	2	1	1	1	1	5	15
07	4	3	3	2	1	2	5	3	23
08	2	2	2	2	4	4	4	4	24
09	4	5	7	5	4	6	5	3	39
10	1	3	2	1	1	1	5	4	18
11	5	7	6	4	4	4	4	6	40
12	5	5	5	3	2	4	7	5	36
13	7	3	2	1	2	2	1	6	24
14	4	5	4	2	2	3	5	4	29
15	3	2	0	1	1	1	2	2	12
16	4	4	2	1	2	3	3	2	21
17	4	4	5	2	2	2	2	6	27
18	3	4	3	2	2	2	3	2	21
19	1	2	1	2	3	2	1	1	13
20	3	1	2	1	1	2	5	4	19
21	2	6	3	2	2	1	7	7	30
22	6	4	4	4	3	4	4	5	34
23	5	6	5	4	3	4	4	7	38
24	7	4	5	5	3	3	5	7	39
25	6	5	5	3	4	2	2	6	33
26	5	4	3	2	3	2	4	3	26
27	3	3	3	1	1	1	3	5	20
28	5	3	1	2	3	3	5	4	26
29	4	2	1	1	2	1	2	5	18
30	7	5	5	3	2	2	2	1	27
31	5	3	3	2	3	1	1	3	21

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	01	08	28	ssc*	-0.4*	+15	+10	01	(5)	6	9	120	60	01	18
	01	18	35	ssc	+1.5	+30	+31	01	(8)	6	7	170	80	02	15
								02	(1,3,4)						
	02	23	18	ssc	+0.8	+12	+12	03	(4)	6	6	110+	80	04	20
	08	11	..	...	..	..	..	09	(1,3,4,5)	5+	10	150+	130	10	00
	21	02	..	...	..	..	..	21	(7)	5	4	100	60	22	03
	29	18	31	ssc	+0.5	+17	+16	30	(1)	5	4	110	30	31	09
GNANGARA	01	08	29	ssc*	+1.3	+16*	+ 6	01	(5)	7	22	80	180	01	18
	01	18	36	ssc	+6.8	+30	+36	01	(8)	8	52	200	210	02	20
	02	23	19	ssc	+5.2	+13	+25	03	(5)	6	21	180	180	04	21
								04	(1,4,5,)	6					
	08	11	..	...				09	(6)	7	34	200	210	10	00
TOOLANGI	01	08	29	ssc*	+3.3*	+10	..	01	(5)	6	33	130	40	01	18
	01	18	36	ssc	+1.2	+35	+ 5	01	(8)	7	55	230	70	02	18
	02	23	18	ssc	+2.6	+ 9	..	04	(3,4)	7	47	240	70	04	20
	08	11	..	...	..	..	..	09	(3,4,5)	6	47	230	120	09	23
	21	18	..	...	..	..	..	21	(7,8)	5	16	150	30	24	18

MAY 1978

PRELIMINARY MONTHLY MEAN VALUES

OBSERVATORY	H nT	D ° ′	Z nT	F nT
PORT MORESBY	35995	06.24.9E	-23531	43004
GNANGARA	23478	03 14.6W	-53600	58516
TOOLANGI	22089	10 58.5E	-56311	60488
MACQUARIE I	12772	28 10.9E	-63855	65120
MAWSON	18410	62 52.8W	-47006	50483
DAVIS		not available		
CASEY	9470	89 18.6W	-64572	65263

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	01	ssc A	0828	+15	-4*	+10
	01	ssc A	1835	+30	+16	+31
	02	ssc A	2318	+12	+8	+12
	29	ssc A	1831	+17	+5	+16
GNANGARA	01	ssc* B	0829	+16*	+9	+ 6
	01	ssc B	1836	+30	+49	+36
	02	pc6 A	1032	period 30 minutes		
		amplitude		47	120	73
	02	ssc B	2319	+13	+40	+25
	21	ssc* B	0241	+ 9	-3*	-1*
	29	ssc B	1832	+12	+15	+13
TOOLANGI	01	ssc* B	0829	+10	-22*	
	01	ssc* A	1836	+35	+ 8	+ 5
	02	ssc C	2318	+ 9	+17	
	10	bps A	1414	+25	+6	+ 6