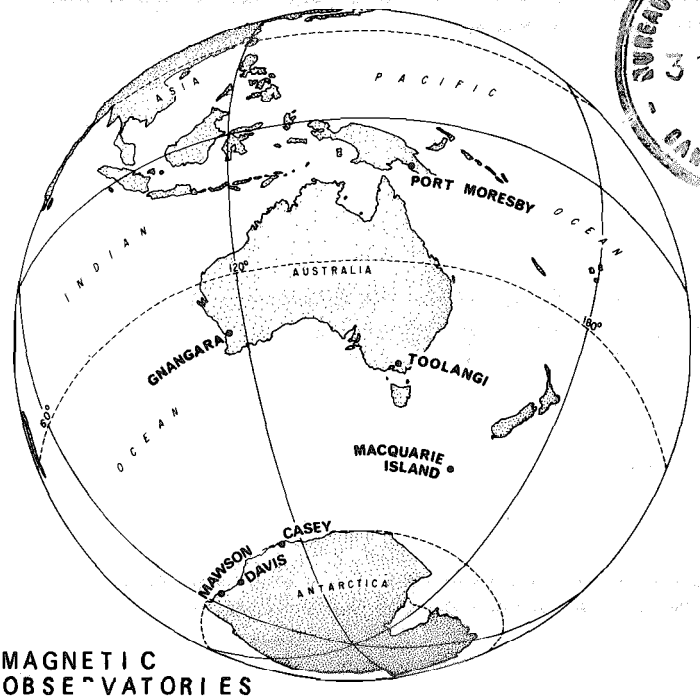
BUREAU OF MINERAL RESOURCES,
GEOLOGY & GEOPHYSICS

GEOPHYSICAL OBSERVATORY REPORT



MAGNETIC OBSERVATORIES

Volume 25, No. 1
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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 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

Note : 1 nT ≡ 1 gamma in the C.G.S. system

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	M.H. Sexton	54°30'S	158°57'E	−61·1°	243·1°
MAWSON	K.D. Wake–Dyster	67°36'S	62°53'E	−73·1°	102·9°
DAVIS	D. Ward	68°35'S	77°58'E	−76·7°	119·9°
CASEY	R. Harding	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	24	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 - JANUARY 1977

Range for lower limit of K = 9 is 300 nT

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

G N A N G A R A

MAGNETIC K-INDICES - JANUARY 1977

Range for lower limit of K=9 is 350 nT

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

T O O L A N G I

MAGNETIC K-INDICES - JANUARY 1977

Range for lower limit of K = 9 is 500 nT

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

Page with corrections issued in 1977.

T O O L A N G I

MAGNETIC K-INDICES - JANUARY 1977

Range for lower limit of K = 9 is 500 nT

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

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

MAGNETIC K-INDICES - JANUARY 1977

Range for lower limit of K=9 is 1500 nT

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

M A W S O N

MAGNETIC K-INDICES - JANUARY 1977

Range for lower limit of K=9 is 1500 nT

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

JANUARY 1977

PRINCIPAL MAGNETIC STORMS

Observatory	Commencement			SSC-amplitudes			Max 3hr-index K		Ranges			UT end	
	day	hr min (UT)	type	D(')	H(nT)	Z(nT)	day (3hr-period)	K	D(')	H(nT)	Z(nT)	day	hr
PORT MORESBY	11	09	..	...			11 (6)	5	7	60	50	12	16
GNANGARA	30	00	..	...			30 (5,6,7,8)	5	18	80	120	31	15
TOOLANGI	NIL												

JANUARY 1977

PRELIMINARY MONTHLY MEAN VALUES

OBSERVATORY	H nT	D ° '	Z nT	F nT
PORT MORESBY	36051	06 21.5E	-23472	43019
GNANGARA	23549	03 13.1W	-53545	58495
TOOLANGI	22161	10 53.9E	-56300	60505
MACQUARIE I	12816	27 54.8E	-63862	65135
MAWSON	18431	62 39.1W	-47094	50572
DAVIS	not available			
CASEY	not available			

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	TIME	SENSE OF MOVEMENT H	D	Z
PORT MORESBY			NIL			
GNANGARA			NIL			
TOOLANGI	12	bps A	1320	+	-	-

R76/262(6) Cat. No.77 2520 0