COMMONWEALTH OF AUSTRALIA
DEPARTMENT OF NATIONAL DEVELOPMENT
BUREAU OF MINERAL RESOURCES,
GEOLOGY AND GEOPHYSICS

GEOPHYSICAL OBSERVATORY REPORT

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DEPARTMENT OF NATIONAL DEVELOPMENT

Minister - SENATOR The HON. W. H. SPOONER

Secretary - H. G. RAGGATT

BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

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C O N T E N T S

Unless otherwise stated all times are given in Greenwich Mean Time

The terminology used in this report is that accepted by international convention. Should further information be required, explanation can be obtained by applying to :-

Chief Geophysicist,
Bureau of Mineral Resources,
Geology and Geophysics,
203 Collins Street,
MELBOURNE, C.1.
A U S T R A L I A.

CONTRIBUTING OBSERVATORIES

TOOLANGI MAGNETIC OBSERVATORY J.R. Cleary, Observer-in-Charge

Geographic Latitude 37°32'S Longitude 145°28'E
Geomagnetic Latitude -46.7° Longitude 220 8°

Instruments

Ruska magnetometer No.4813
Schulze earthinductor No.49
La Cour QHMs Nos.288, 289, 290
La Cour BMZ No.119
La Cour D, H & Z recording variometers
Sensitivity : D 1.16 min/mm
H 4.6 γ/mm
Z 4.4 γ/mm
Recording speed : 15 mm/hour

GNANGARA MAGNETIC OBSERVATORY P.M. McGregor, Observer-in-Charge

Geographic Latitude 31°47'S Longitude 115°57'E
Geomagnetic Latitude -43.2° Longitude 185.8°

Instruments

C.I.W. field magnetometer and theodolite earthinductor No.7
Askania magnetometer No.508810
Askania earthinductor No.5111081
La Cour QHMs No.291, 292, 293
La Cour BMZ No.120
La Cour D, H & Z recording variometers
Standard instrument : Sensitivity : D 0.9 min/mm
H 3.2 γ/mm
Z 5.4 γ/mm
Recording speed : 15 mm/hour
Rapid-run instrument: Sensitivity : D 1.0 min/mm
H 4.5 γ/mm
Z 1.5 γ/mm
Recording speed : 180 mm/hour
Askania (Eschenhagen type) H variometer with visual recorder
Sensitivity : 3 γ/mm
Recording speed : 20 mm/hour

CONTRIBUTING OBSERVATORIES

MACQUARIE ISLAND MAGNETIC OBSERVATORY R. Hollingsworth, Observer-in-Charge

Geographic Latitude 54°30'S Longitude 158°57'E
Geomagnetic Latitude -60.7° Longitude 243.0°

Instruments

La Cour QHMs Nos.177, 178, 179
La Cour BMZ No.64
Kew pattern magnetometer No.158
La Cour D, H & Z recording variometers
Sensitivity : D 0.9 min/mm
H 12.5 γ/mm
Z 14.1 γ/mm
Recording speed : 15 mm/hour

MAWSON MAGNETIC OBSERVATORY M. Kirton, Observer-in-Charge

Geographic Latitude 67°36'S Longitude 62°53'E
Geomagnetic Latitude -73.2° Longitude 103.1°

Instruments

La Cour QHMs Nos.300, 301, 302
La Cour BMZ No.62
La Cour D, H & Z recording variometers
Sensitivity : D 0.8 min/mm
H 9.9 γ/mm
Z 10.3 γ/mm
Recording speed : 15 mm/hour
Bar fluxmeter magnetometer N-S, E-W and vertical components

CONTRIBUTING OBSERVATORIES

WILKES MAGNETIC OBSERVATORY R. Underwood, Observer-in-Charge

Geographic Latitude 66°15'S Longitude 110°35'E
Geomagnetic Latitude -77.2° Longitude 179.2°

Instruments

C.I.W. field magnetometer and theodolite earthinductor No.28
Ruska D, H & Z recording variometers

Standard instrument :	Sensitivity	: D 11.3 min/mm
		H 24.2 γ/mm
		Z 24.7 γ/mm
	Recording speed	: 20 mm/hour
Rapid-run instrument:	Sensitivity	: D 1.2 min/mm
		H 5.2 γ/mm
		Z 5.7 γ/mm
	Recording speed	: 240 mm/hour

PORT MORESBY MAGNETIC OBSERVATORY J.A. Brooks, Observer-in-Charge

Geographic Latitude 9°24.'5S Longitude 147°09.'1E
Geomagnetic Latitude -18.7° Longitude 218.0°

Instruments

La Cour QHMs Nos.187, 188, 189
La Cour BMZ No.68
La Cour D, H & Z recording variometers

	Sensitivity	: D 0.9 min/mm
		H 6.1 γ/mm
		Z 7.1 γ/mm
	Recording speed	: 15mm/hour

MAGNETIC K-INDICES FOR MAY - TOOLANGI

Range for lower limit of K=9 is 500 gammas

Day	K-Indices								K-Sum
1	2	3	2	3	3	1	2	2	18
2	1	1	1	1	1	1	2	2	10
3	2	1	1	0	1	1	1	3	10
4	2	2	3	4	3	3	2	3	22
5	4	4	3	3	4	3	1	0	22
6	1	1	1	0	1	1	0	1	06
7	1	1	1	1	1	1	0	1	07
8	3	5	5	5	3	3	2	3	29
9	2	3	2	2	3	2	2	2	18
10	3	4	3	3	1	3	2	3	22
11	2	3	3	3	3	3	3	4	24
12	7	5	5	4	4	6	3	3	37
13	3	3	3	3	3	2	3	3	23
14	2	1	0	2	3	1	0	0	09
15	2	2	3	4	3	3	3	4	24
16	4	4	4	3	2	1	1	3	22
17	2	3	2	3	3	3	1	0	17
18	3	4	4	3	2	3	3	3	25
19	3	3	2	4	3	1	2	2	20
20	2	2	2	2	2	3	4	1	18
21	1	2	2	1	2	1	3	2	14
22	2	2	3	2	3	3	2	1	18
23	2	2	2	2	1	3	2	1	13
24	2	3	5	5	3	4	3	5	30
25	3	4	4	4	1	3	2	2	23
26	3	2	0	2	1	3	2	1	14
27	2	1	1	1	1	0	0	0	06
28	1	1	0	1	2	0	0	1	06
29	1	1	0	1	0	0	0	1	04
30	0	0	0	1	3	2	1	0	07
31	2	3	2	2	3	4	3	3	22

PRELIMINARY MEAN VALUES OF THE MAGNETIC ELEMENTS FOR MAY

TOOLANGI - Declination, Horizontal Intensity, Vertical Intensity — Will be published when available

SOLAR FLARE EFFECT

Day	Began h	Began m	K	K'	
17	05	19	3	2	Unconfirmed

MAGNETIC K-INDICES FOR MAY - GNANGARA

Range for lower limit of K=9 is 350 gammas

Day	K-Indices								K-Sum
1	0	3	2	3	3	1	3	3	18
2	1	1	1	1	1	1	1	2	09
3	2	2	1	1	1	1	2	2	12
4	2	1	3	3	3	2	2	4	20
5	5	4	3	3	4	3	1	0	23
6	1	1	1	0	1	0	0	0	04
7	1	2	1	1	1	1	0	1	08
8	3	3	4	5	3	3	2	3	26
9	3	3	3	2	2	2	3	2	20
10	2	4	5	3	0	2	3	3	22
11	3	3	4	2	2	3	3	5	25
12	6	5	5	5	4	6	3	3	37
13	2	1	2	3	2	2	3	3	18
14	2	1	1	2	1	1	0	0	08
15	2	2	3	3	3	4	4	5	26
16	4	3	4	3	2	1	1	3	21
17	2	3	3	2	3	3	1	1	18
18	3	3	4	2	1	3	3	4	23
19	3	2	1	4	3	2	3	3	21
20	2	2	2	1	1	1	2	5	16
21	3	3	2	1	1	1	4	3	18
22	2	2	3	2	3	4	3	2	21
23	3	2	3	2	1	3	4	2	20
24	2	4	5	5	3	4	2	7	32
25	5	3	3	3	1	4	3	3	25
26	3	1	0	1	1	2	3	2	13
27	2	1	1	0	1	0	0	0	05
28	1	1	0	0	1	0	0	0	03
29	1	0	0	0	0	0	0	1	02
30	1	0	1	1	2	2	1	0	08
31	2	2	3	2	3	3	3	4	22

PRELIMINARY MEAN VALUES OF THE MAGNETIC ELEMENTS FOR MAY

GNANGARA - Declination 2° 53.'3 west
Horizontal Intensity 23949 gamma
Vertical Intensity -53561 gamma

SOLAR FLARE EFFECTS

Day	Began h	m	K	K'	
03	03	23	2	1	Confirmed by I.P.S.
17	05	25	3	1	Canberra.

MAGNETIC K-INDICES FOR MAY - MACQUARIE ISLAND

Range for lower limit of K=9 is 1500 gammas

Day	K-Indices								K-Sum
1	2	3	4	5	5	2	2	1	24
2	2	2	2	1	1	1	1	1	11
3	1	1	1	2	2	0	2	1	10
4	1	2	3	5	5	4	3	2	25
5	5	5	1	5	5	4	1	1	27
6	1	1	0	0	0	0	0	0	02
7	1	0	0	2	1	0	1	1	06
8	2	5	5	7	5	3	2	3	32
9	2	2	2	4	4	3	2	1	20
10	2	2	3	4	1	4	3	3	22
11	2	2	4	6	6	5	4	4	33
12	6	6	7	7	6	7	6	5	50
13	3	1	5	5	5	2	3	4	28
14	2	1	0	2	4	1	1	1	12
15	2	2	4	5	5	5	4	5	32
16	6	6	6	5	4	2	2	3	34
17	2	2	3	5	6	5	3	1	27
18	3	5	6	6	2	4	3	4	33
19	3	2	2	5	4	3	3	2	24
20	3	2	3	3	2	4	3	3	23
21	2	3	3	4	3	3	4	2	24
22	2	3	5	4	6	5	3	1	29
23	3	3	2	3	4	4	3	3	25
24	2	4	6	5	6	6	3	5	37
25	4	4	5	6	2	3	3	2	29
26	3	1	0	1	1	1	2	1	10
27	2	2	1	2	1	0	0	0	08
28	1	1	0	2	3	0	0	0	07
29	1	0	0	2	0	0	0	0	03
30	1	0	0	0	1	0	0	0	02
31	1	3	1	2	6	6	4	2	25

PRELIMINARY MEAN VALUES OF THE MAGNETIC ELEMENTS FOR MAY

MACQUARIE ISLAND - Declination, Horizontal Intensity, Vertical Intensity } Will be published when available

MAGNETIC K-INDICES FOR MAY - MAWSON

Range for lower limit of K=9 is 1500 gammas

Day	K-Indices								K-Sum
1	2	5	3	3	4	3	4	5	29
2	5	5	3	1	1	1	2	5	23
3	3	3	2	1	1	2	3	6	21
4	4	2	2	3	3	4	4	4	26
5	6	4	3	4	4	2	2	4	29
6	1	1	0	0	0	0	0	1	03
7	2	1	2	1	0	3	2	3	14
8	4	6	6	5	3	2	2	2	30
9	3	4	3	3	3	3	3	5	27
10	5	4	5	3	3	3	3	2	28
11	5	4	5	4	5	5	6	6	40
12	7	7	7	7	6	9	6	6	54
13	4	4	4	4	4	3	6	6	35
14	5	3	2	2	3	3	2	2	22
15	4	4	3	5	5	7	7	7	42
16	7	7	7	5	3	2	2	6	39
17	4	3	4	4	3	4	2	4	28
18	5	5	6	4	2	5	5	6	38
19	5	5	3	3	3	3	5	5	32
20	4	3	4	2	2	3	7	4	29
21	4	4	4	2	2	3	3	6	28
22	6	5	4	2	3	3	4	4	31
23	5	4	4	3	3	3	4	5	31
24	6	4	5	5	4	3	5	7	39
25	6	4	6	5	4	3	4	5	37
26	5	3	1	1	1	2	5	4	22
27	4	3	3	-	-	-	-	-	-
28	-	-	2	0	2	0	0	3	-
29	3	1	0	0	1	1	0	2	08
30	1	1	1	0	1	2	1	3	10
31	3	4	3	2	4	3	6	7	32

PRELIMINARY MEAN VALUES OF THE MAGNETIC ELEMENTS FOR MAY

MAWSON - Declination, Horizontal Intensity, Vertical Intensity } Will be published when available

MAGNETIC K-INDICES FOR MAY - WILKES

Range for lower limit of K=9 is 2500 gammas

Day	K-Indices								K-Sum
1	2	3	2	1	3	0	2	2	15
2	3	3	3	0	0	0	1	2	12
3	3	2	2	1	1	0	2	3	14
4	2	3	3	2	2	1	1	3	17
5	4	4	3	3	2	1	1	0	18
6	1	2	1	0	0	0	0	1	05
7	2	2	2	0	0	2	1	2	11
8	2	4	4	3	3	1	2	3	22
9	3	4	4	2	2	2	2	2	21
10	2	4	4	3	1	2	2	1	19
11	3	4	4	3	3	5	5	6	33
12	7	7	7	5	5	6	5	3	45
13	4	4	5	3	3	3	4	5	31
14	3	4	3	3	2	2	2	2	21
15	3	3	4	3	3	5	5	4	30
16	4	4	3	2	2	2	1	3	21
17	3	3	4	2	2	3	2	2	21
18	3	4	3	2	1	4	4	3	24
19	3	4	3	2	2	1	2	2	19
20	3	3	2	2	1	2	3	2	18
21	3	3	2	0	1	0	1	3	13
22	3	3	3	2	3	3	2	2	21
23	2	3	3	2	0	2	1	2	15
24	3	3	4	3	2	3	2	5	25
25	3	4	3	2	1	2	3	2	20
26	2	2	1	1	0	2	2	2	12
27	2	2	1	0	1	0	0	0	06
28	1	2	0	0	0	0	0	0	03
29	0	0	1	1	0	0	0	1	03
30	0	1	0	0	0	0	0	0	01
31	2	2	2	2	2	2	3	2	17

PRELIMINARY MEAN VALUES OF THE MAGNETIC ELEMENTS FOR MAY

WILKES - Declination, Horizontal Intensity, Vertical Intensity } Will be published when available

PRINCIPAL MAGNETIC STORMS AT TOOLANGI DURING MAY

date	storm time begin	storm time end	sudden commencements type	amplitudes D	H	Z	activity	max. activity 0 to 9 day	3-hr per.	K	Ranges D	H	Z
	h m	d h		'	γ	γ					'	γ	γ
11	1836	1222	ssc	-1	+3	0	ms	12	1	7	25	410	70
24	0541	2510	ssc[x]	-1	+35[x]	+2[x]	m	24	3,4,8	5	25	110	60

SUDDEN COMMENCEMENTS AND OTHER PHENOMENA AT TOOLANGI DURING MAY

Day	Time h	m	Type		Sense of Movement H	D	Z	Remarks
04	20	21	ssc[x]	B	+	+[x]	+	
05	02	56	si	B	-			
05	13	17	bps	B	+		+	
07	21	31	ssc	C	+	+		
08	10	57	bs	B	+	-	+	
11	18	36	ssc	C	+	-		
12	00	28	si	B	-	-	-	
12	02	07	si	B	+	+	+	
12	16	41	bs	A	-	+	-	
17	11	59	bs	B	+	-	+	
18	04	04	si	B	-	+		
22	14	27	bs	B	+	-	+	
24	05	41	ssc[x]	A	+[x]	-	+[x]	

PRINCIPAL MAGNETIC STORMS AT GNANGARA DURING MAY

date	storm time begin	storm time end	sudden commencements type	amplitudes D	H	Z	activity	max. activity 0 to 9 day	3-hr per.	K	Ranges D	H	Z
	h m	d h		'	γ	γ					'	γ	γ
11	2331	1220	ssc	+8	+21	+28	m	12	1	6	22	151	103

SUDDEN COMMENCEMENTS AND OTHER PHENOMENA AT GNANGARA DURING MAY

Day	Time h	m	Type		Sense of Movement H	D	Z	Remarks
05	16	28	pt	B				
08	11	05	bs	B	-	-	-	
10	06	53	bps	B	+	+	+	
11	23	31	ssc	A	+	+	+	
15	17	12	bps	B	+	+	+	
15	22	37	bp	B	+	+	+	
20	19	30	b	A	+	+	+	
22	14	26	bps	B		-	-	
24	05	41	ssc[x]	B	+	+	+	

PRINCIPAL MAGNETIC STORMS AT PORT MORESBY DURING MAY

date	storm time begin	storm time end	sudden commencements type	amplitudes D	H	Z	activity	max. activity 0 to 9 day	3-hr per.	K	Ranges D	H	Z
	h m	d h		'	γ	γ					'	γ	γ
11	22..	1220	....				m				10	250	122
24	0541	2510	ssc		+13	+14	m				6	159	77

SUDDEN COMMENCEMENTS AND OTHER PHENOMENA AT PORT MORESBY DURING MAY

Day	Time h m	Type		Sense of Movement H	D	Z	Remarks
04	20 21	ssc	B	+	+	+	
08	10 58	bp	C	+	-	+	
17	11 59	bp	C	+		+	
22	14 26	bp	C	+		+	
24	05 41	ssc	B	+	-	+	

SOLAR FLARE EFFECT

Day	Began h m	K	K'
17	05 24		