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



GEOPHYSICAL OBSERVATORY REPORT

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Minister for National Development*

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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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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.,
Australia.

CONTRIBUTING OBSERVATORIESWATHEROO MAGNETIC OBSERVATORY A.F. TILLOTT, Observer-in-Charge.

Geographic Latitude	30°19'S	Longitude 115°53'E
Geomagnetic Latitude	-41.8°	Longitude 185.6°

Instruments

Magnetic Equipment - Askania pattern Magnetometer No.508810
 La Cour pattern BMZ No.120.
 Askania Earth Inductor No.5111079.
 Eschenhagen pattern D,H,Z, recording
 variometers, normal sensitivity,
 20mm/hour recorder.
 La Cour pattern D,H,Z, recording
 variometers, normal sensitivity,
 quick run (180mm/hour) recorder.
 Askania Eschenhagen type H variometer
 with visual recorder 20mm/hour.

Ionospheric Equipment - C.S.I.R.O. pattern 1-16Mc/s
 Sweep time 2 minutes.

GNANGARA MAGNETIC OBSERVATORY A.F. TILLOTT, Observer-in-Charge.

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

Instruments

Magnetic Equipment - Magnetometer D.T.M. C.I.W. No.7.
 La Cour pattern QHMs Nos.291,292,293.
 La Cour pattern BMZ No.121.
 La Cour pattern D,H,Z, recording
 variometers, normal sensitivity,
 15mm/hour recorder.

TOOLANGI MAGNETIC OBSERVATORY I.B. EVERINGHAM, Observer-in-Charge.

Geographic Latitude	37°32'S	Longitude 145°28'E
Geomagnetic Latitude	-46.7°	Longitude 220.8°

Instruments

Ruska pattern Magnetometer No.4813.
 La Cour pattern QHMs Nos.288,289,290.
 Schulze Earth Inductor No.49.
 La Cour pattern BMZ No.119.
 La Cour pattern D,H,Z, recording variometers, normal sensitivity
 15mm/hour recorder.

CONTRIBUTING OBSERVATORIESMACQUARIE ISLAND MAGNETIC OBSERVATORY

J. R. CLEARY,
Observer-in-Charge.

Geographic Latitude	54°30'S	Longitude	158°57'E
Geomagnetic Latitude	-61°	Longitude	243°

Instruments

La Cour pattern QHMs Nos. 177, 178, 179.
 La Cour pattern BMZ No. 64.
 Kew pattern Magnetometer No. 158.
 La Cour pattern D, H, Z, recording variometers, low sensitivity
 15mm/hour recorder.

MAWSON MAGNETIC OBSERVATORY

J. D. PINN,
Observer-in-Charge.

Geographic Latitude	67°35.7'S	Longitude	62°54.0'E
Geomagnetic Latitude	-73.1°	Longitude	103.4°

Instruments

La Cour pattern QHMs Nos. 300, 301, 302.
 La Cour pattern BMZ No. 62.
 Elliott Magnetometer.
 La Cour pattern D, H, Z, recording variometers, low sensitivity
 15mm/hour recorder.

MAGNETIC K-INDICES FOR APRIL - WATHEROO

Range for lower limit of K=9 is 350 gammas

<u>Day</u>	<u>K-Indices</u>								<u>K-Sum</u>
1	3	4	3	2	3	3	4	4	26
2	4	4	3	4	4	3	3	3	28
3	3	3	2	2	1	2	3	3	19
4	3	3	3	3	4	4	4	4	28
5	3	3	3	3	3	3	3	2	23
6	3	3	3	3	2	5	4	3	26
7	3	3	2	3	3	3	3	2	22
8	3	2	2	2	1	2	2	3	17
9	2	2	1	1	0	2	3	3	14
10	1	1	1	1	1	1	1	2	09
11	3	2	2	2	2	1	2	3	17
12	1	1	1	1	0	1	1	2	08
13	2	1	2	1	1	1	2	1	11
14	1	2	1	4	3	3	4	3	21
15	4	3	3	3	2	1	3	2	21
16	4	3	3	4	4	4	5	4	31
17	5	4	(3)	4	5	5	6	5	37
18	5	4	3	4	4	3	4	4	31
19	3	3	3	4	3	3	3	3	25
20	1	3	3	2	3	3	2	3	20
21	2	2	2	3	3	3	2	3	20
22	1	2	3	3	1	1	1	1	13
23	0	0	1	2	3	3	2	3	14
24	2	1	1	2	1	2	1	2	12
25	3	3	2	1	1	1	0	0	11
26	0	1	2	1	2	4	4	3	17
27	3	2	2	1	1	2	4	2	17
28	3	2	3	3	3	3	3	4	24
29	3	4	3	3	5	5	3	3	29
30	3	3	3	3	3	4	3	3	25

PRELIMINARY MEAN VALUES OF THE MAGNETIC ELEMENTS FOR APRIL

WATHEROO - Declination 2° 40. '4 east.
 Horizontal Intensity 24850 gamma.
 Vertical Intensity -52277 gamma.

SOLAR FLARE EFFECT

<u>Day</u>	<u>Began</u> h m	<u>K</u> <u>K'</u>	
2	05 00	4 3	Confirmed by ionospheric observations.

MAGNETIC K-INDICES FOR APRIL - TOOLANGI

Range for lower limit of K=9 is 500 gammas

<u>Day</u>	<u>K-Indices</u>						<u>K-Sum</u>
1	4	3	3	2	3	3	23
2	3	4	5	4	4	3	29
3	3	3	3	2	2	2	20
4	2	3	3	3	4	4	27
5	2	3	3	4	3	3	24
6	3	2	3	3	2	3	23
7	4	3	3	3	3	2	24
8	3	4	2	1	1	2	17
9	1	2	2	1	0	1	13
10	2	2	1	1	0	1	10
11	3	3	2	3	2	2	20
12	2	2	2	1	0	1	13
13	2	2	2	0	1	1	12
14	2	2	3	4	3	3	24
15	3	3	4	4	2	2	25
16	3	2	3	4	4	3	26
17	4	4	4	4	4	4	32
18	5	4	4	5	5	4	36
19	4	3	3	4	3	4	28
20	3	3	3	2	3	3	23
21	3	2	3	2	3	2	21
22	2	2	2	3	1	1	16
23	2	2	1	3	3	3	20
24	3	4	2	2	2	3	22
25	4	3	1	2	2	1	15
26	1	1	1	1	2	3	15
27	2	3	2	1	2	1	16
28	3	3	3	3	4	3	25
29	3	4	3	3	5	4	30
30	3	4	3	3	3	4	26

PRELIMINARY MEAN VALUES OF THE MAGNETIC ELEMENTS FOR APRIL

TOOLANGI - Declination 10° 09.'8 east.
 Horizontal Intensity 22697 gammas.
 Vertical Intensity -56430 gammas.

SOLAR FLARE EFFECT

<u>Day</u>	<u>Began</u> h m	<u>Ended</u> h m	<u>K</u>	<u>K'</u>	
2	04 59	05 10	4	4	Confirmed by ionospheric observations.

MAGNETIC K-INDICES FOR APRIL - MACQUARIE ISLAND

Range for lower limit of K=9 is 1500 gammas

<u>Day</u>	<u>K-Indices</u>				<u>K-Indices</u>				<u>K-Sum</u>
1	4	4	4	3	6	5	4	3	33
2	3	4	5	5	5	4	3	3	32
3	4	4	4	4	4	3	2	2	27
4	4	3	6	6	6	5	7	4	41
5	5	5	4	6	5	5	3	2	35
6	3	3	4	5	4	6	4	3	32
7	3	5	4	5	4	4	3	2	30
8	3	4	1	3	1	3	2	2	19
9	2	3	1	1	0	2	2	2	13
10	1	1	1	0	0	0	1	2	06
11	2	1	1	2	1	1	1	2	11
12	-	-	-	-	-	1	2	2	-
13	2	1	1	1	0	0	1	1	07
14	1	3	1	4	5	5	4	2	25
15	3	-	-	-	-	3	3	2	-
16	4	4	6	6	4	5	5	4	38
17	4	5	5	6	6	7	6	4	43
18	5	4	7	6	6	5	5	6	44
19	3	3	3	6	5	6	4	4	34
20	3	4	5	5	5	3	3	3	31
21	3	3	4	3	5	5	2	3	28
22	2	3	3	5	1	1	1	1	17
23	0	1	0	2	5	5	3	2	18
24	3	4	4	5	4	5	2	2	29
25	3	3	3	4	2	0	0	0	15
26	1	0	0	1	0	3	3	2	10
27	1	2	1	0	2	2	4	3	15
28	3	3	4	5	5	6	4	3	33
29	5	5	6	5	5	6	4	4	40
30	3	4	5	6	5	6	4	4	37

PRELIMINARY MEAN VALUES OF THE MAGNETIC ELEMENTS FOR APRIL

MACQUARIE ISLAND - Declination 25° 12. '9 east.
Horizontal Intensity 13286 gamma.
Vertical Intensity -64482 gamma.

MAGNETIC K-INDICES FOR APRIL - MAWSON

Range for lower limit of K=9 is 1500 gammas

<u>Day</u>	<u>K-Indices</u>								<u>K-Sum</u>
1	6	5	5	3	3	4	7	5	38
2	5	6	6	6	4	3	2	5	37
3	6	5	5	3	2	3	6	6	36
4	4	5	4	4	5	5	4	6	37
5	6	6	5	4	4	3	5	5	38
6	6	5	5	4	3	4	5	6	38
7	5	5	5	4	3	4	5	5	36
8	3	5	1	1	1	3	5	6	25
9	4	6	3	1	0	2	4	4	24
10	2	3	2	1	0	1	2	5	16
11	4	3	2	2	0	2	1	3	17
12	1	2	1	1	1	3	4	3	16
13	2	2	3	0	0	1	4	4	16
14	4	4	2	3	4	4	5	5	31
15	5	6	4	4	3	3	7	5	37
16	4	6	5	5	4	4	7	6	41
17	7	6	6	5	4	6	7	7	48
18	5	5	6	6	5	6	7	6	46
19	3	5	5	5	4	7	7	6	42
20	3	4	5	3	3	4	6	7	35
21	3	5	3	3	2	4	4	7	31
22	3	5	5	3	2	1	3	4	26
23	1	1	0	2	3	4	4	4	19
24	3	5	5	3	4	3	3	5	31
25	6	5	3	2	2	1	1	1	21
26	1	1	2	0	1	3	6	3	17
27	2	2	3	1	1	3	6	6	24
28	4	6	5	4	4	3	6	5	37
29	6	6	6	4	3	4	4	7	40
30	5	5	5	4	3	5	5	6	38

PRELIMINARY MEAN VALUES OF THE MAGNETIC ELEMENTS FOR APRIL

<u>MAWSON</u> - Declination	} Will be published when available
Horizontal Intensity	
Vertical Intensity	

PRINCIPAL MAGNETIC STORMS AT WATHEROO DURING APRIL

<u>Began at</u> d h m	<u>Ended at</u> d h	<u>Intensity</u>	<u>Maximum</u> <u>K-Index</u>
16 18 ..		m	6

SUDDEN COMMENCEMENTS AND OTHER PHENOMENA AT WATHEROO DURING APRIL

<u>Day</u>	<u>Time</u> h m	<u>Type</u>
27	00 09	bs
29	16 52	bp

PRINCIPAL MAGNETIC STORMS AT TOOLANGI DURING APRIL

<u>Began at</u> d h m	<u>Ended at</u> d h	<u>Intensity</u>	<u>Maximum</u> <u>K-Index</u>
N i l			

N i l

SUDDEN COMMENCEMENTS AND OTHER PHENOMENA AT TOOLANGI DURING APRIL

<u>Day</u>	<u>Time</u> h m	<u>Type</u>
4	12 57	si
26	12 49	si

PROVISIONAL SUMMARY OF AURORAE FOR APRIL

Reported by and published through the courtesy of the
Australian National Antarctic Research Expedition.

MACQUARIE ISLAND

<u>Day</u>	<u>Began</u>	<u>First Seen</u>	<u>Minimum Geomagnetic Latitude</u>		<u>Intensity and Form</u>	<u>Last Seen</u>	<u>Ended</u>
	h m	h m	Degrees	Time h m		h m	h m
1	09 30		59	17 00	1 C	18 00	
12	09 00		63	10 50	1 HA	11 00	
14	09 00		60	09 20	2 HA	09 30	
16	08 00		57	13 10	2 RA		19 10
17		07 50	61	09 40	1 HA	10 50	
19		09 30	60		1 PS	18 00	
20	07 50		59	12 10	1 F	17 50	
23	11 30		58	16 10	1 C	18 20	
26	11 10		65	12 00	1 RA	12 00	

21)
22)
24)
25)
27)

Aurorae seen but extensive observations not possible