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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

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Secretary - H. G. RAGGATT

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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 & Geophysics,  
203 Collins Street,  
MELBOURNE, C.1.,  
A U S T R A L I A.

CONTRIBUTING OBSERVATORIESWATHEROO MAGNETIC OBSERVATORY P.M. McGregor, 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.

Hourly values of ionospheric characteristics and other ionospheric data for Watheroo are included in a separate publication.

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

Magnetic Equipment - Magnetometer D.T.M. C.I.W. No.7  
 La Cour pattern QHMs Nos.291,292,293.  
 La Cour pattern BMZ No.120.  
 La Cour pattern D,H,Z, recording  
 variometers, normal sensitivity,  
 15mm/hour recorder.

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 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 OBSERVATORIES

MACQUARIE ISLAND MAGNETIC OBSERVATORY A. Turpie,  
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, B.G. Cook, Observer-in-Charge

Geographic Latitude 67°36'.3S Longitude 62°52'.6E  
Geomagnetic Latitude -73°.2 Longitude 103°.1

These co-ordinates are based on the latest data available

Instruments

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

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 pattern QHMs Nos.187,188,189.  
La Cour pattern BMZ No.68.  
La Cour pattern D,H,Z, recording variometers, normal  
sensitivity, 15mm/hour recorder.

MAGNETIC K-INDICES FOR NOVEMBER - WATHEROO

Range for lower limit of K=9 is 350 gammas

<u>Day</u>	<u>K-Indices</u>				<u>K-Sum</u>				
1	2	2	3	2	3	3	2	2	19
2	2	0	1	2	4	4	4	3	20
3	3	5	3	1	3	2	3	2	22
4	2	2	2	2	3	1	2	3	17
5	2	1	2	0	0	1	0	1	07
6	1	2	1	1	1	1	1	1	09
7	2	2	1	2	2	2	1	2	14
8	1	1	1	1	0	2	0	1	07
9	1	2	1	2	1	1	1	2	11
10	3	2	3	5	1	3	3	3	23
11	5	4	3	2	1	2	2	2	21
12	2	2	1	3	4	3	3	3	21
13	2	2	2	2	0	1	1	1	11
14	1	1	1	1	0	1	0	1	06
15	2	3	3	2	1	0	1	2	14
16	2	3	3	2	3	2	1	1	17
17	2	3	3	2	2	2	1	1	16
18	1	2	2	1	1	2	2	3	14
19	2	2	1	2	2	2	0	1	12
20	0	1	1	1	1	1	1	1	07
21	3	3	2	2	1	2	1	2	16
22	2	1	2	1	1	0	0	2	09
23	2	2	2	3	4	2	1	2	18
24	1	1	1	2	2	1	2	2	12
25	1	1	2	2	3	4	4	3	20
26	2	1	3	1	2	3	3	2	17
27	2	3	3	2	2	3	3	2	20
28	3	3	5	4	4	3	3	3	28
29	2	3	3	4	3	2	0	3	20
30	1	1	1	1	1	1	1	1	08

PRELIMINARY MEAN VALUES OF THE MAGNETIC ELEMENTS FOR NOVEMBER

WATHEROO - Declination 2° 41. 'O west  
Horizontal Intensity 24877 gamma  
Vertical Intensity -52304 gamma

SOLAR FLARE EFFECT

<u>Day</u>	<u>Began</u> h m	<u>K</u> <u>K'</u>
14	00 37	1 1 Confirmed by ionospheric observations

MAGNETIC K-INDICES FOR NOVEMBER - TOOLANGI

Range for lower limit of K=9 is 500 gammas

<u>Day</u>	<u>K-Indices</u>								<u>K-Sum</u>
1	1	2	2	3	2	3	2	2	17
2	1	1	2	2	4	4	3	3	20
3	3	5	2	2	3	3	2	2	22
4	2	3	2	2	4	1	2	2	18
5	1	1	2	1	1	2	0	0	08
6	0	1	1	0	1	2	1	1	07
7	1	2	2	2	3	2	1	1	14
8	1	2	2	1	0	2	-1	1	10
9	1	2	1	1	1	2	1	1	10
10	1	2	3	5	1	3	3	3	21
11	4	4	3	2	1	2	1	2	19
12	2	2	2	3	3	3	2	2	19
13	2	3	2	2	0	1	1	1	12
14	2	1	1	1	1	1	1	2	10
15	2	2	3	2	2	0	1	2	14
16	3	5	3	3	3	3	2	1	23
17	2	3	2	3	3	2	1	1	17
18	0	2	3	1	2	2	2	3	15
19	2	2	2	1	2	2	0	0	11
20	1	1	1	2	1	1	1	0	08
21	1	1	2	2	2	1	1	1	11
22	2	2	2	2	1	0	0	1	10
23	3	3	3	3	3	3	2	2	22
24	2	2	2	3	3	1	3	3	19
25	2	3	3	2	3	5	4	3	25
26	3	3	3	2	3	3	2	2	21
27	2	3	3	3	3	3	2	2	21
28	3	4	5	4	4	3	2	3	28
29	3	4	3	3	3	3	1	2	22
30	2	2	2	1	2	1	2	1	13

PRELIMINARY MEAN VALUES OF THE MAGNETIC ELEMENTS FOR NOVEMBER

TOOLANGI - Declination                    10° 10. '9 east  
Horizontal Intensity                    22714            gamma  
Vertical Intensity                       -56424           gamma

MAGNETIC K-INDICES FOR NOVEMBER - MAWSON

Range for lower limit of K=9 is 1500 gammas

<u>Day</u>	<u>K-Indices</u>								<u>K-Sum</u>
1	3	3	3	3	2	3	3	4	24
2	3	4	2	3	5	6	6	4	33
3	5	5	5	3	4	4	4	5	35
4	4	5	3	4	4	1	5	4	30
5	3	3	3	1	1	2	3	4	20
6	3	3	2	1	1	2	3	4	19
7	4	4	3	4	4	4	3	4	30
8	4	4	2	2	2	1	3	3	21
9	3	5	4	1	0	0	1	1	15
10	3	4	4	5	2	3	3	3	27
11	6	7	6	3	3	3	3	3	34
12	3	4	3	4	4	2	5	4	29
13	5	5	4	3	2	3	2	3	27
14	4	4	2	1	2	2	2	4	21
15	4	4	4	2	3	1	1	2	21
16	4	5	4	4	4	4	2	4	31
17	4	5	5	3	4	4	5	5	35
18	4	4	3	4	4	4	4	5	32
19	4	4	3	2	4	4	2	3	26
20	4	4	2	2	3	3	2	3	23
21	4	3	2	4	3	4	2	3	25
22	4	4	3	3	3	2	2	3	24
23	3	4	3	4	4	3	3	3	27
24	3	3	4	5	5	4	5	3	32
25	4	5	3	3	5	5	4	4	33
26	4	4	3	3	4	4	5	4	31
27	3	5	3	3	4	4	5	4	31
28	4	6	6	5	5	3	3	4	36
29	5	5	4	5	4	4	1	4	32
30	3	3	3	2	2	1	1	2	17

PRELIMINARY MEAN VALUES OF THE MAGNETIC ELEMENTS FOR NOVEMBER

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

MACQUARIE ISLAND - Magnetic K-Indices for October  
and November will be published  
when available.



PRINCIPAL MAGNETIC STORMS AT WATHEROO DURING NOVEMBER

date	storm time		sudden commencements			act-iv-ity	max. activity 0 to 9			Ranges		
	begin	end	type	amplitudes			day	3-hr per.	K	D	H	Z
	h m	d h		D	H							

n i l

SDEN COMMENCEMENTS AND OTHER PHENOMENA AT WATHEROO DURING NOVEMBER

<u>Day</u>	<u>Time</u> h m	<u>Type</u>	Sense of Movement			<u>Remarks</u>
			H	D	Z	
02	17 11	bps B	+	-	-	
11	02 04	si B				
28	01 09	ssc <sup>x</sup> A	-x	-x	-x	

PRINCIPAL MAGNETIC STORMS AT TOOLANGI DURING NOVEMBER

date	storm time		sudden commencements			act-iv-ity	max. activity 0 to 9			Ranges		
	begin	end	type	amplitudes			day	3-hr per.	K	D	H	Z
	h m	d h		D	H							

n i l

SUDDEN COMMENCEMENTS AND OTHER PHENOMENA AT TOOLANGI DURING NOVEMBER

<u>Day</u>	<u>Time</u> h m	<u>Type</u>	Sense of Movement			<u>Remarks</u>
			H	D	Z	
11	01 29	si B	+	+		
28	01 10	ssc B	+	+		

PRINCIPAL MAGNETIC STORMS AT PORT MORESBY

date	storm time		sudden commencements			act-iv-ity	max. activity 0 to 9			Ranges			
	begin	end	type	amplitudes			3-hr. per.	K	D	H	Z		
	h m	d h		D	H							Z	
Oct													
22	0315	2324	ssc <sup>x</sup>	+2 <sup>x</sup>	+48 <sup>x</sup>	+52 <sup>x</sup>	m				10	278	117
24	0730	2509	ssc	+1	+37	+23	m				5	201	100
Nov													
28	0109	2912	ssc	..	+18	+12	m				9	101	74

SUDDEN COMMENCEMENTS AND OTHER PHENOMENA AT PORT MORESBY  
DURING NOVEMBER

Day	Time h m	Type	Sense of Movement			Remarks
			H	D	Z	
28	01 09	ssc B	+	+	+	
30	12 36	pt C				
<u>No record</u> :						
	3rd	21 - 24h	GMT			
	13th	04 - 24h	GMT			
	14th	04 - 06h	GMT			