

Copy 2

NON-LENDING COPY

~~NOT TO BE REMOVED~~

~~FROM LIBRARY~~

COMMONWEALTH OF AUSTRALIA

DEPARTMENT OF NATIONAL DEVELOPMENT

BUREAU OF MINERAL RESOURCES,

GEOLOGY AND GEOPHYSICS



GEOPHYSICAL OBSERVATORY REPORT

VOL. 10

Nº. 11

NOVEMBER

1962

BMR
S550
.389.5
AUS.8
copy 2

*under the authority of Senator The Hon. W. H. Spooner,
Minister for National Development*

DEPARTMENT OF NATIONAL DEVELOPMENT

Minister - SENATOR The HON. W. H. SPOONER

Secretary - H. G. RAGGATT

BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

J. M. RAYNER - Director

This Report was prepared in the Geophysical Branch;

L. S. PRIOR - Acting Chief Geophysicist

J. C. DOOLEY - Supervising Geophysicist

C O N T E N T S

	Page
Contributing Observatories	
Geomagnetic Data:	
Mawson	5
Wilkes	6
Macquarie Island	7
Toolangi	8
Gnangara	10
Port Moresby	12

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 OBSERVATORIES

GNANGARA MAGNETIC OBSERVATORY

P.M. McGregor, Observer in Charge

Geographic Latitude $31^{\circ}47'S$ Longitude $115^{\circ}57'E$
Geomagnetic Latitude -43.2° Longitude 185.8°

Instruments

Askania magnetometer No. 508810

Askania earthinductor No. 5111079

La Cour QHMs No. 291, 292, 293

La Cour BMZ No. 120

Eschenhagen D, H & Z recording variometers

Sensitivity : D 1.07 min/mm
H 2.2 Y/mm
Z 5.0 Y/mm

Recording speed : 20 mm/hour

Askania (Eschenhagen type) H variometer with visual recorder

Sensitivity : 3 Y/mm

Recording speed : 20 mm/hour

La Cour rapid run variometers are being installed

MACQUARIE ISLAND MAGNETIC OBSERVATORY

R.J.S. Cooke, Observer in Charge

Geographic Latitude $54^{\circ}30'S$ Longitude $158^{\circ}57'E$
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

Normal sensitivity: D 0.9 min/mm
H 12.5 Y/mm
Z 14.1 Y/mm

Recording speed : 15 mm/hour

Low sensitivity : D 2.3 min/mm

H 63 Y/mm

Z 59 Y/mm

Recording speed : 15 mm/hour

CONTRIBUTING OBSERVATORIES

MAWSON MAGNETIC OBSERVATORY

J.C. Branson, 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

Normal sensitivity: D 0.9 min/mm
H 9.4 Y/mm
Z 10.0 Y/mm

Recording speed : 15 mm/hour

Low sensitivity : D 2.4 min/mm
H 51
Z 50

Recording speed : 15 mm/hour

Bar fluxmeter magnetograph H, D, Z components

Recording speed : 5 mm/minute

PORT MORESBY MAGNETIC OBSERVATORY

J.A. Brooks, Observer in Charge

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

Instruments

La Cour QHMs Nos. 187, 188, 189

La Cour BMZ No. 68

Askania declinometer No. 580333

Askania earthinductor No. 5111081

La Cour D, H & Z recording variometers

Standard instrument : Sensitivity : D 0.9 min/mm
H 5.6 Y/mm
Z 7.2 Y/mm

Recording speed : 15 mm/hour

Rapid-run instrument: Sensitivity : D 0.6 min/mm
H 1.8 Y/mm
Z 3.0 Y/mm

Recording speed : 180 mm/hour

CONTRIBUTING OBSERVATORIES

TOOLANGI MAGNETIC OBSERVATORY

C.A. van der Waal, 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 QMHs 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 Y/mm
		Z 4.4 Y/mm
Recording speed	:	15 mm/hour

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
La Cour QMHs Nos. 492, 493, 494
La Cour BMZ No. 236
Ruska D, H & Z recording variometers

Standard instrument : Sensitivity	:	D 10.6 min/mm
		H 24 Y/mm
		Z 24 Y/mm
Recording speed	:	20 mm/hour
Rapid-run instrument: Sensitivity	:	D 1.3 min/mm
		H 5.3 Y/mm
		Z 6.3 Y/mm
Recording speed	:	240 mm/hour

M A W S O N

MAGNETIC K-INDICES - NOVEMBER 1962

Range for lower limit of K=9 is 1500 gammas

<u>Day</u>	<u>K-Indices</u>								<u>K-Sum</u>
1	5	4	3	2	2	2	4	6	28
2	3	3	1	2	4	3	6	6	28
3	4	3	3	4	4	4	6	7	35
4	5	4	3	4	4	6	5	6	37
5	3	4	4	4	2	1	2	4	24
6	4	5	4	3	4	5	8	7	40
7	5	5	2	4	4	2	2	5	29
8	4	4	3	3	4	3	5	4	30
9	5	3	2	1	1	1	0	6	19
10	5	4	3	1	1	1	3	5	23
11	3	4	4	3	4	5	5	5	33
12	4	4	2	1	0	3	2	5	21
13	5	1	1	1	1	2	3	4	18
14	3	3	2	1	3	3	7	4	26
15	3	5	6	5	6	4	6	7	42
16	5	5	5	4	5	5	7	6	42
17	5	5	2	3	3	3	0	2	23
18	2	1	1	1	0	1	3	4	13
19	2	1	0	1	2	2	6	5	19
20	3	3	3	2	1	3	1	4	20
21	4	4	5	5	4	6	5	6	39
22	4	6	6	5	6	6	6	7	46
23	5	5	5	5	5	4	6	5	40
24	3	3	4	4	4	4	4	5	31
25	4	5	4	4	4	5	5	5	36
26	5	4	3	3	3	3	3	3	27
27	5	5	3	2	3	5	5	5	33
28	5	4	3	3	2	3	3	4	27
29	3	2	2	3	4	3	6	3	26
30	7	7	6	4	5	3	3	6	41

PRELIMINARY MONTHLY MEAN VALUES

Based on 10 selected quiet days

1962	H	D	Z
	Y	°	Y
November	18334	60 39.5W	-48629

W I L K E S

MAGNETIC K-INDICES - NOVEMBER 1962

Range for lower limit of K=9 is 2500 gammas

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

PRELIMINARY MONTHLY MEAN VALUES

Based on 10 selected quiet days

1962	H	D	Z
	Y	°	Y
November	9251	84 54.5W	-64896

MACQUARIE ISLAND

MAGNETIC K-INDICES - NOVEMBER 1962

Range for lower limit of K=9 is 1500 gammas

<u>Day</u>	<u>K-Indices</u>								<u>K-Sum</u>
1	1	1	2	4	3	2	1	1	15
2	2	1	1	4	6	4	1	3	22
3	3	2	3	6	5	5	2	1	27
4	2	3	3	6	5	6	2	2	29
5	1	2	5	4	1	0	0	1	14
6	2	5	3	3	4	5	4	3	29
7	3	3	1	6	6	2	1	1	23
8	2	2	1	4	5	3	1	1	19
9	1	1	0	0	0	0	1	2	05
10	1	1	1	0	0	1	2	1	07
11	1	2	3	6	6	5	1	1	25
12	1	1	0	0	0	0	1	1	04
13	1	0	0	0	0	0	0	1	02
14	1	0	0	1	1	3	3	2	11
15	1	5	4	7	7	5	4	3	36
16	5	4	5	6	6	6	4	2	38
17	3	2	1	3	3	3	0	0	15
18	0	0	0	0	0	0	0	0	00
19	1	0	0	1	1	0	1	1	05
20	0	3	2	1	0	0	0	0	06
21	2	3	4	5	5	4	3	2	28
22	4	5	6	6	6	6	3	3	39
23	3	4	5	7	5	5	2	2	33
24	2	2	5	6	6	4	2	2	29
25	3	3	4	6	6	3	2	1	28
26	2	2	1	3	4	2	1	1	16
27	2	2	2	1	3	2	1	1	14
28	1	2	2	4	3	3	1	0	16
29	1	1	2	5	4	2	3	2	20
30	4	6	5	6	6	3	2	2	34

PRELIMINARY MONTHLY MEAN VALUES

Based on 10 selected quiet days

1962	H	D	Z
	Y	°	Y
November	13205	26 02.3E	-64312

T O O L A N G I

MAGNETIC K-INDICES - NOVEMBER 1962

Range for lower limit of K=9 is 500 gammas

<u>Day</u>	<u>K-Indices</u>				<u>K-Indices</u>				<u>K-Sum</u>
1	1	1	1	3	2	2	2	2	14
2	2	2	1	2	3	1	1	3	15
3	2	1	2	4	2	3	2	2	18
4	2	2	2	4	3	3	3	3	22
5	1	1	4	1	1	0	0	2	10
6	3	4	4	2	2	4	4	3	26
7	3	3	1	4	3	1	2	1	18
8	2	2	1	3	3	2	1	1	15
9	1	1	1	0	0	0	1	1	05
10	1	1	1	0	1	0	1	1	06
11	1	2	3	3	3	4	2	2	20
12	1	1	1	0	0	0	2	1	06
13	1	1	1	1	0	2	1	2	09
14	1	1	0	0	1	2	4	2	11
15	2	3	3	4	5	3	4	4	28
16	4	3	3	3	4	3	2	2	24
17	2	2	1	2	3	2	1	0	13
18	1	0	0	0	0	0	1	1	03
19	0	0	0	1	1	1	1	1	05
20	1	2	3	1	1	1	0	1	10
21	2	3	4	3	5	3	2	2	24
22	3	3	4	4	4	3	3	3	27
23	2	3	2	4	3	2	1	2	19
24	1	3	4	4	4	2	3	2	23
25	2	3	4	4	4	3	1	1	22
26	2	2	2	2	3	2	1	0	14
27	2	2	2	1	2	2	1	1	13
28	1	2	2	3	1	2	1	0	12
29	2	1	3	3	2	2	3	2	18
30	4	4	4	3	4	2	1	1	23

T O O L A N G I

PRELIMINARY MONTHLY MEAN VALUES

Based on 10 selected quiet days

1962	H	D	Z
	Y	'	Y
November	22610	10 23.7E	-56395

PRINCIPAL MAGNETIC STORMS - NOVEMBER 1962

NIL

SUDDEN COMMENCEMENTS AND OTHER PHENOMENA - NOVEMBER 1962

<u>Day</u>	<u>Time</u> h m	<u>Type</u>	<u>Sense of Movement</u>		
			<u>H</u>	<u>D</u>	<u>Z</u>
01	09 22	bp B		-	
01	14 08	bp B	+	+	
02	11 59	pt B			
03	09 59	pt B			
03	10 20	bp B	+	-	+
04	09 04	pt B			
04	09 31	bp B	+	-	+
04	10 55	bp B	+	-	+
04	14 58	bp B	+	+	+
06	13 25	pt B			
06	14 51	bp B	+		+
07	10 05	bp B		-	
08	10 27	bp B	+	-	+
11	09 32	bp C	-		
11	14 55	bp B	+	+	
14	15 23	pt B			
18	11 08	pt B			
19	10 21	pt B			
19	12 17	pt B			
21	11 28	pt B			
23	10 23	bp B	+	-	+
25	12 01	pt B			
28	10 37	pt C			

G N A N G A R A

MAGNETIC K-INDICES - NOVEMBER 1962

Range for lower limit of K=9 is 350 gammas

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

G N A N G A R A

PRELIMINARY MONTHLY MEAN VALUES

Based on 5 selected quiet days

1962	H Y	D °	Z Y
November	23947	2 52.7W	-53499

PRINCIPAL MAGNETIC STORMS - NOVEMBER 1962

date	storm time		sudden commencements			act-iv-ity	max. activity			Ranges		
			type	amplitudes			0 to 9					
	begin	end		D	H		Z	day	3-hr per.	K	D	H
	h m	d h		D	H	Z						
06	02..	0716	..	..	..	.. m	06	6, 7, 8	5	13	60	74
15	05..	1700	..	..	..	.. m	15	4, 5, 8	5	19	81	132
21	02..	2520	..	..	..	.. m	16	1				
							22	4	5	17	84	95
							23	4				
							24	4				
29	06..	3023	..	..	..	.. m	30	1	5	23	77	132

SUDDEN COMMENCEMENTS AND OTHER PHENOMENA - NOVEMBER 1962

<u>Day</u>	<u>Time</u> h m	<u>Type</u>	Sense of Movement		
			H	D	Z
02	12 00	pt B			
02	14 20	pt B			
04	14 33	pt B			
04	15 07	bps A	+	+	+
11	14 57	bps A	+	+	+
12	18 38	bps B	+	+	+
19	11 00	pt B			
19	12 17	pt B			

P O R T M O R E S B Y

MAGNETIC K-INDICES - NOVEMBER 1962

Range for lower limit of K=9 is 300 gammas

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

P O R T M O R E S B Y

PRELIMINARY MONTHLY MEAN VALUES

Based on 10 selected quiet days

1962	H	D	Z
	Y	°	Y
November	36390	06 04.9E	-22911

PRINCIPAL MAGNETIC STORMS - NOVEMBER 1962

NIL

SUDDEN COMMENCEMENTS AND OTHER PHENOMENA - NOVEMBER 1962

<u>Day</u>	<u>Time</u> h m	<u>Type</u>	<u>Sense of Movement</u>		
			<u>H</u>	<u>D</u>	<u>Z</u>
01	14 10	bps B	+	0	+
02	12 44	bp B	+	(+)	+
03	10 33	bps C	+	-	+
03	15 20	bp B	+	0	+
04	09 32	bps B	+	0	+
04	14 55	bp B	+	(+)	+
05	Nil				
06	14 52	bps B	+	0	+
06	20 32	pg A			
07	10 17	bp B	+	0	+
07	11 56	bp B	+	0	+
08	10 27	bps B	+	0	+
08	14 01	bp	+	?	+
11	14 51	bp(s) B	+	+	+
23	10 25	bp B	+	-	+
24	07 55	bp B	+	0	+
24	11 34	bp B	+	0	+
29	06 15	bps B	+	+	+
30	13 25	bp B	+	?	+

P O R T M O R E S B Y

RAPID-RUN MAGNETOGRAMS - pc

NOVEMBER - 1962

Day	Whole phenomenon			Special intervals				
	Time of		Quality	Time of		Quality	Largest oscillation	
	begin	end		begin	end		period	range
02	1659	23..	C					
04	1525	22..	B	1717		B		
05	1530	21..	C					
06	1604		B					
07	0000	05..	C					
07	1850	2110	C					
08	19(20)	2048	B					
09	1815	24(00)	B					
10	Record confused							
11	1457	21..	B					
13	1850	21..	B					
16	1645	23..	B					
17	0230	0615	C					
17	1330	2140	B					
18	0240	07..	B					
18	1400	2140	B					
21	1847	22(00)	B					
22	17..	2400	B					
23	0000	08..	B					
24	1805	24..	C					
25	15..	2400	B					
26	0000	02..	C					
26	15(50)	23..	B					
27	1948	23(00)	B					
28	1750	20..	C					
29	1910	21..	B					
30	1835	2040	B					
30	2111	2400	C					

P O R T M O R E S B Y

RAPID-RUN MAGNETOGRAMS - pt

NOVEMBER 1962

Day	Whole phenomenon			Individual series of oscillations				
	Time of		Quality	Time of		Quality	Largest oscillation	
	begin	end		begin	end		period	range
01	0859	09(29)	B	0922		B		
01	1408	1432	B					
01	1541		B					
01	18(15)	1920	B	1822	1827	AR	60	2
02	1059	1154	B	1059		B		
				1118		A	60	2
				1122		A	60	3
02	1329	1410	B					
03	1000	1118	B	1017		B		
				1033		B		
03	1300	1329	B					
03	1500	1610	B	1520		B		
				1547		B		
03	1715	1734	B					
03	2105		B					
04	0855	1013	B	0932		B		
				0948		B		
04	1455	1515	B					
06	1447	1512	B					
07	1159	13(10)	B	1211		B		
				1219		B		
				1229		B		
				1238		B		
07	1356	1427	B	1400		B		
				1406		B		
08	0930	0943	B					
08	1028	1033	A				40	5
08	1553	1645	B					
09	1255	1308	B					
10	Record confused							
11	0510	0514	B					
11	0932	1015	B	1004		B		
11	1130	1233	B					
11	1403	1412	B					
12	1711	1848	B	1840		B		
13	1521	1730	B					
14	1044	12(00)	B					
14	15(00)	1650	B					

P O R T M O R E S B Y

RAPID-RUN MAGNETOGRAMS - pt

NOVEMBER 1962 - CONTND.

Day	Whole phenomenon			Individual series of oscillations				
	Time of		Quality	Time of		Quality	Largest oscillation	
	begin	end		begin	end		period	range
16	0459	0524	B					
16	0705	0855	B	0705		B		
				0734		B		
				0747		B		
				0754		B		
				0805		B		
				0837		B		
16	1345	1640	B					
17	0008	0144	B					
17	0719	07(30)	B					
18	1111	1148	B					
19	1021	13(13)	B					
19	1553	1617	B					
19	2000	21..	B					
20	0651	0733	B					
21	1122	13(00)	B	1205		B		
				1216		B		
22	1522	1605	B					
23	1024	1055	B					
23	1217	1314	B					
23	1626	1710	B					
23	1950	24..	B					
24	0755	0808	B					
24	1355	1505	B	1412		B		
				1429		B		
				1454		B		
				1503		B		
25	1200	1236	B	1212		A	40	2
				1225		A	60	2
				1234		A	40	2
26	1128	1139	B					
26	1224	1317	B	1236		B		
26	1405	1542	B	1429		B		
				1520		B		
				1528		B		
				1538		B		

P O R T M O R E S B Y

RAPID-RUN MAGNETOGRAMS - pt

NOVEMBER - 1962 CONTND.

Day	Whole phenomenon			Individual series of oscillations				
	Time of		Quality	Time of		Quality	Largest oscillation	
	begin	end		begin	end		period	range
27	1205		B					
27	1301	1401	B	1351		B		
27	1615	1750	B					
28	1035	1145	B					
28	16..	1750	B	1632		B		
				1646		B		
				1655		B		
				1712		B		
29	1012	1022	A				60	4
29	1826	1849	B					
30	1315	1415	B					

