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

GEOPHYSICAL OBSERVATORY REPORT

VOL. 10

No. 4

APRIL

1962



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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

J. M. RAYNER - Director

This Report was prepared in the Geophysical Branch;

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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 OBSERVATORIESGNANGARA 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) D 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. Cocke, 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

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

Bar fluxmeter magnetograph H, D, Z components
Recording speed : 5 mm/minute

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

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 OBSERVATORIESTOOLANGI 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 NMAGNETIC K-INDICES - APRIL 1962

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	3	5	4	4	3	3	3	3	28
2	2	3	1	1	1	3	6	6	23
3	6	4	5	2	2	3	4	5	31
4	3	4	5	4	3	2	3	6	30
5	6	5	2	1	1	0	0	0	15
6	2	4	5	4	3	4	6	6	34
7	7	6	6	5	6	6	8	8	52
8	7	7	4	4	4	8	6	6	46
9	6	4	4	2	3	3	5	5	32
10	3	4	3	5	5	5	7	7	39
11	6	7	4	5	4	4	4	6	40
12	6	5	2	3	2	3	5	6	32
13	5	3	2	1	1	3	5	5	25
14	5	2	0	0	0	0	3	5	15
15	2	5	1	0	1	4	3	2	18
16	4	4	2	1	3	4	4	5	27
17	4	5	3	2	1	3	3	4	25
18	3	5	3	4	4	3	5	4	31
19	4	4	3	1	1	2	0	4	19
20	5	3	2	2	1	3	3	4	23
21	3	3	3	1	1	4	5	7	27
22	7	5	5	5	4	5	6	6	43
23	5	5	4	4	3	3	2	3	29
24	3	1	1	0	2	3	3	1	14
25	3	2	2	3	4	4	6	5	29
26	3	4	5	3	3	2	1	6	27
27	4	4	4	2	2	2	6	5	29
28	4	5	4	3	3	4	6	6	35
29	4	3	2	2	3	2	5	5	26
30	3	2	2	1	1	3	6	4	22

PRELIMINARY MONTHLY MEAN VALUES

Based on 10 selected quiet days

1962	H	D	Z
	Y	Y	Y
April	18323	60 26.4W	-48663

W I L K E SMAGNETIC K-INDICES - APRIL 1962

Range for lower limit of K=9 is 2500 gammas

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

PRELIMINARY MONTHLY MEAN VALUES

Based on 10 selected quiet days

1962	H	D	Z
	Y		Y
April	9239	84 50.8W	-64926

MACQUARIE ISLANDMAGNETIC K-INDICES - APRIL 1962

Range for lower limit of K=9 is 1500 gammas

<u>Day</u>	<u>K-Indices</u>								<u>K-Sum</u>
1	2	3	4	4	4	1	1	1	20
2	1	1	0	0	1	1	2	2	08
3	2	2	4	0	0	3	2	1	14
4	1	2	6	5	2	0	0	1	17
5	2	1	0	4	3	0	0	0	10
6	1	3	4	6	4	4	5	4	31
7	4	5	6	7	6	7	4	4	43
8	3	4	4	5	6	7	3	3	35
9	3	2	3	1	5	3	1	1	19
10	2	2	3	7	7	6	5	4	36
11	4	3	3	7	7	5	2	2	33
12	3	3	0	1	3	2	2	1	15
13	2	1	0	1	0	1	1	1	07
14	0	0	0	0	0	0	0	0	00
15	1	1	0	0	0	4	3	1	10
16	2	2	0	1	3	2	1	1	12
17	1	3	0	1	2	2	1	0	10
18	0	2	3	5	5	3	2	1	21
19	1	2	1	0	1	0	0	0	05
20	1	1	0	1	0	2	1	2	08
21	2	1	1	0	0	6	5	3	18
22	4	3	5	6	5	6	4	4	37
23	2	3	3	5	4	3	0	0	20
24	0	0	0	0	3	0	1	0	04
25	0	0	2	5	2	4	2	2	17
26	1	3	6	4	4	1	0	0	19
27	1	2	3	4	4	5	1	0	20
28	0	2	3	2	3	4	1	0	15
29	1	1	2	3	5	4	2	1	19
30	0	0	1	2	1	2	1	1	08

PRELIMINARY MONTHLY MEAN VALUES

Based on 10 selected quiet days

1962	H	D	Z
	Y	'	Y
April	13211	25 56.1E	-64340

T O O L A N G IMAGNETIC K-INDICES - APRIL 1962

Range for lower limit of K=9 is 500 gammas

<u>Day</u>	<u>K-Indices</u>				<u>K-Sum</u>			
1	2	3	4	3	3	1	0	17
2	1	1	1	1	1	1	2	11
3	2	2	4	2	1	2	2	16
4	2	2	3	4	1	1	1	17
5	2	1	1	2	0	0	0	07
6	2	3	3	4	3	2	4	25
7	4	4	5	5	5	4	3	34
8	4	3	3	3	4	6	3	28
9	3	2	2	1	3	3	2	17
10	2	2	2	4	5	4	4	25
11	3	3	3	4	4	4	2	25
12	3	2	1	1	2	2	1	14
13	1	2	0	0	0	1	1	07
14	1	1	0	0	0	0	0	02
15	2	2	2	1	2	3	3	18
16	3	-	1	1	2	1	1	--
17	2	2	1	1	1	1	1	10
18	2	3	3	3	3	2	3	21
19	2	2	2	0	0	0	0	07
20	2	2	0	0	0	1	1	09
21	2	2	3	2	1	5	4	21
22	3	3	3	3	3	4	2	24
23	3	3	3	3	2	2	1	17
24	1	1	1	0	2	1	3	09
25	0	0	1	3	2	2	3	13
26	2	3	4	3	3	1	0	18
27	2	2	2	3	4	3	2	19
28	1	2	2	1	1	3	1	12
29	2	1	0	0	3	1	2	10
30	1	0	0	1	1	3	2	09

TOOLANGIPRELIMINARY MONTHLY MEAN VALUES

Based on 10 selected quiet days

1962	H	D	Z
	Y	°	Y
April	22619	10 22.1E	-56401

PRINCIPAL MAGNETIC STORMS - APRIL 1962

date	storm time		sudden			act-iv-ity	max. activity						
			commencements				0 to 9						
	begin	end	type	amplitudes			3-hr			Ranges			
				D	H		Z	day	per.	K	D	H	Z
06	h m	d h	...	..	..	ms	08	6	6	24	124	66	

SUDDEN COMMENCEMENTS AND OTHER PHENOMENA - APRIL 1962

Day	Time h m	Type	Sense of Movement			Remarks
			H	D	Z	
02	13 40	pt B				
05	15 29	pt B				
09	13 28	bp C	+	-	+	
09	14 07	bp A	+	+	+	
13	14 20	pt A				
14	15 35	pt C				
16	12 48	pt B				
18	13 46	bp B	+	-	+	
20	23 56	ssc C	+	-	+	
21	17 03	bp A	+	+	+	
24	13 07	bp C	+	+	+	
25	10 30	bp B		-		
26	07 36	bp B	+			
27	09 01	bp B	+	-	+	
28	15 00	bp B	+	+		
29	13 10	bp B	+	-	+	
29	19 23	b A	+	+	+	

G N A N G A R AMAGNETIC K-INDICES - APRIL 1962

Range for lower limit of K=9 is 350 gammas

<u>Day</u>	<u>K-Indices</u>								<u>K-Sum</u>
1	2	2	4	3	3	1	2	2	19
2	1	1	1	1	2	1	3	4	14
3	3	2	4	3	1	3	2	2	19
4	2	2	3	3	1	1	0	2	14
5	2	2	1	1	1	0	0	1	08
6	1	2	3	4	3	2	4	4	23
7	4	4	4	5	6	5	3	4	35
8	3	3	2	2	4	6	4	4	28
9	3	2	3	1	3	3	2	1	18
10	2	2	2	5	6	4	3	3	27
11	4	4	4	4	5	4	2	2	29
12	3	2	1	1	2	3	2	2	16
13	1	1	1	0	1	2	1	1	08
14	1	1	0	0	0	0	0	0	02
15	1	1	2	0	2	3	2	3	14
16	3	2	1	0	2	2	2	2	14
17	2	2	1	1	1	1	1	1	10
18	0	1	2	3	3	2	4	2	17
19	2	3	3	1	0	0	0	1	10
20	2	2	1	1	0	2	2	4	14
21	3	2	3	2	1	5	4	3	23
22	3	2	3	3	4	4	3	4	26
23	2	2	2	3	3	2	2	1	17
24	1	1	1	0	2	1	3	0	09
25	0	1	2	3	2	4	4	2	18
26	2	3	3	3	3	2	1	2	19
27	1	1	1	2	3	3	4	2	17
28	1	1	2	1	2	3	2	2	14
29	1	1	1	1	4	2	3	2	15
30	0	0	0	1	0	4	3	2	10

G N A N G A R APRELIMINARY MONTHLY MEAN VALUES

Based on 5 selected quiet days

1962	H	D	Z
	Y	°	Y
April	23944	2 53.0W	-53483

PRINCIPAL MAGNETIC STORMS - APRIL 1962

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	
				D	H								Z
06	h m	d h		Y	Y	Y					Y	Y	Y
06	03..	0820	...	..	..	ms	7	5	6	19	107	132	
10	09..	1119	...	..	..	ms	10	5	6	17	106	82	
20	2356	2222	ssc*	4*	13	16*	m	21	6	5	17	105	97

SUDDEN COMMENCEMENTS AND OTHER PHENOMENA - APRIL 1962

Day	Time h m	Type	Sense of Movement			Remarks
			H	D	Z	
02	13 20	pt B				
03	15 59	pt B				
04	18 06	pt B				
05	15 18	pt B				
09	14 06	bps A	+	+	+	
13	14 15	pt B				
15	15 45	pt B				
20	23 56	ssc* A	+	+*	+*	
21	17 00	bps A	+	-	-	
24	18 17	bp B	+	+	+	
25	13 30	ssc B	+	+	+	
26	04 14	ssc C	+	..	+	
28	14 00	pt A				
29	13 10	pt B				
29	19 20	bp B	+	+	+	
30	16 57	pt B				

P O R T M O R E S B YMAGNETIC K-INDICES - APRIL 1962

Range for lower limit of K=9 is 300 gammas

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

PRELIMINARY MONTHLY MEAN VALUES

Based on 10 selected quiet days

1962	H	D	Z
	Y	Y	Y
March	36422	06 04.5E	-22875
April	404	04.4	878

P O R T M O R E S B YPRINCIPAL MAGNETIC STORMS - APRIL 1962

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

NIL STORMS

SUDDEN COMMENCEMENTS AND OTHER PHENOMENA - APRIL 1962

Day	Time h m	Type	Sense of Movement			Remarks
			H	D	Z	
01	13 00	bp B	+	(?)	+	
08	12 00	bp B	+	-	+	
09	14 05	bp B	+	+	+	
10	14 20	bp B	+	+	+	
13	14 32	bp f	+	0	+	
20	23 58	ssc A	+	?	+	
21	17 00	bp A	+	(+)	+	
23	No record 1430 - 2400					
24	13 11	bp C	+	+	+	
24	18 20	bp C	+	+	+	
25	13 29	si B	+	(?)	+	
27	14 25	bp B	+	(?)	+	
28	14 26	bp B	+	+	+	
29	13 07	bp B	+	-	+	
29	19 25	bp C	+	+	+	

RAPID-RUN MAGNETOGRAMS - pcAPRIL - 1962

Day	Whole phenomenon			Individual series of oscillations					Remarks	
	Time of		Quality	Time of		Quality	Largest oscillation			
	begin	end		begin	end		period	range		
01	19(00)	22(50)	C	Small oscillations				Y		
03	1725	2205	B	2100	2110	A	60s	2		
				2114	2205	B				
04	0247	0440	C	Selected from disturbed period.						
04	20(35)	2225	C							
06	1730	2156	C							
06	2245		C	Selected from disturbed period.						
07		0650								
07	1714	1935	C							
07	2017	2332	B	Selected from disturbed period.						
08	0520	1100	C							
08	1925	2240	B							
10	1856	23(40)	B	Selected from disturbed period.						
11	0049	08(20)	C							
11	1820	24(00)	B							
12	0216	07(30)	C	Selected from disturbed period.						
16	1814	2035	C							
25	0147	0410	B							
25	1811	2327	C	1910	1956	B				
26	00..	0414	B							
28	19(50)	2320	C							
29	02..	07..	C							

PORT MORESBY

RAPID-RUN MAGNETOGRAMS - pt

APRIL - 1962

Whole phenomenon				Individual series of oscillations					Remarks
Day	Time of		Quality	Time of		Quality	Largest oscillation		
	begin	end		begin	end		period	range	
02	1322		B	1322	-	C	110s	2.2	
				1350	-	A			
				1427	1436	B			
				1454	1502	A	110s	1.3	
02	1644	1817	B	1644	-	C			
				1713	-	C			
				1811	1817	B	80s	5	
03	2227	2231	A						
06	0414	-	B						
06	1337	1340	A				60s	2	
07	1436		B	1436	-	B			
				1448	-	B			
				1456	-	B			
				1508	-	B			
07	1949	2001	B						
08	1155	-	B	1155	-	B	70s	2.5	
				1203	1219	A			
				1230	-	B			
08	1543	-	B	1543	-	B			
				1555	-	B			
				1601	-	B			
				1608	-	B			
09	1332	1435	B	1332	-	B			
				1346	-	C			
				1409	-	A	55s	4	
10	1345	1430	B	1401	1404	B			
				1424	1427	B			
11	0909	0939	B	0909	-	B			
				0914	-	B			
11	1019	1023	B						
11	1111	1203	B	1111		B			
				1146		B			
				1200		B			
11	1326	1419	B	1356		A			
				1413		B			
11	1559	1604	A						
12	0954	1002	B				35s	4	
12	1237	1325	B	1302	-	B			
12	1425	1443	B						
12	1516	1528	A	1516	1519	A	40s	3.5	
				1524	1528	A			
				1915	-	B			
				1950	-	B	40s	3.8	
				2000	-	B			
13	No record 0045-0700								
13	1418	1504	B	1429	1437	B			
13	2055	2140	B	2059	-	B			
13	2355	-	B						

CONTND.

P O R T M O R E S B YRAPID-RUN MAGNETOGRAMS - ptAPRIL - 1962 CONTND.

Day	Whole phenomenon			Individual series of oscillations					Remarks
	Time begin	of end	Quality	Time begin	of end	Quality	Largest oscillation		
							period	range	
15	0232	0410	B	0331		B		Y	
15	1235	1355	B	0357		B			
15	1544	16(45)	B	1307	1317	B			
16	1223	1435	B	1327	1355	B			
				1610		B			
				1629		B			
				1250	1318	B			
				1322	1327	B			
				1350		B			
				1412		B			
				1430		B			
17	1425	1522	B	1432	1436	B			
18	0312	0349	B	1458		B			
18	1329	1428	B	0331		B			
				1350		B			
				1355		B			
18	1909	2034	B	1955	2005	B			
18	2054	2140	B	2136	2144	B			
19	1645		B						
20	0217		B	0217		B			
				0322		B			
20	0636	0647	B				100s	2	
20	1338	1348	A						
20	1452	1458	B						
20	1606	1610	B						
22	1045	1109	B	1045	1056	B			
22	1130	1240	B	1130	1134	B			
				1203	1207	B			
				1213	1223	B			
				1225	1227	B			
				1235	1240	B			
22	1505	1530	B	1505	-	B			
				1521	-	B			
22	1839	1842	B						
22	2058	2106	B						
24	1308	1338	B						
24	20..	2105	B						
25	1627	1720	B						
26	06..	0649	B	0604		B			
				0643		B			
27	1415	15(20)	B	1415	1420	B			
				1429	1432	B			
				1435	1442	B			
28	0546	0556	B						
28	1354	1544	B	1425		B			
29	1309	1430	B	1500	1508	A	50s	4	
				1309		B			
				1315		B			
				1337		B			
				1347		B			

CONTND.

P O R T M O R E S B YRAPID-RUN MAGNETOGRAMS - ptAPRIL - 1962 CONTND.

Day	Whole phenomenon			Individual series of oscillations					Remarks
	Time of		Quality	Time of		Quality	Largest oscillation		
	begin	end		begin	end		period	range	
29				1400		B			
29	1920	1954	B						
30	16(40)	1725	B	16(40)	1659	B			
				1711	1715	B			
				1723	1725	B			
30	1754	1808	B						
30	1857	2030	B						

N.B. pt's of category C omitted.