

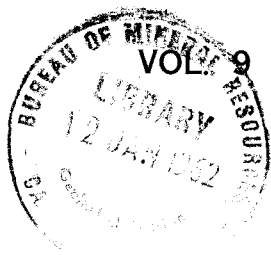
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COMMONWEALTH OF AUSTRALIA
DEPARTMENT OF NATIONAL DEVELOPMENT
BUREAU OF MINERAL RESOURCES,
GEOLOGY AND GEOPHYSICS

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GEOPHYSICAL OBSERVATORY REPORT



No. 9

SEPTEMBER

1961

*Issued under the authority of Senator The Hon. W. H. Spooner,
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;

R. F. THYER - Chief Geophysicist

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C O N T E N T S

	Page
Contributing Observatories	2
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 & Geophysicist,
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°47'S	Longitude	115°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 P.J. Milne, 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

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 OBSERVATORIESMAWSON MAGNETIC OBSERVATORY R.J. Hollingsworth, 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 0.8 min/mm
 H 9.9 Y/mm
 Z 10.3 Y/mm

Recording speed : 15 mm/hour

Low sensitivity : D 2.4 min/mm
 H 52 Y/mm
 Z 51 Y/mm

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 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 W.M. Burch, 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
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Rapid-run instrument: Sensitivity	:	D 1.3 min/mm
		H 5.3 Y/mm
		Z 6.3 Y/mm

Recording speed	:	240 mm/hour
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M A W S O NMAGNETIC K-INDICES - SEPTEMBER 1961

Range for lower limit of K=9 is 1500 gammas

<u>Day</u>	<u>K-Indices</u>								<u>K-Sum</u>
1	5	5	6	5	3	4	6	7	41
2	4	4	5	5	3	3	5	6	35
3	5	5	5	4	3	3	3	2	30
4	2	3	3	2	2	1	2	5	20
5	5	5	3	2	2	3	3	6	29
6	3	4	2	2	1	1	1	1	15
7	3	3	1	1	1	2	1	1	13
8	2	1	1	1	1	1	3	5	15
9	3	3	3	4	2	2	4	4	25
10	4	3	1	1	2	3	3	3	20
11	2	3	3	2	3	4	7	5	29
12	4	6	6	3	3	2	4	6	34
13	4	5	3	2	2	3	5	6	30
14	4	5	4	4	5	3	5	6	36
15	4	2	3	4	3	2	2	4	24
16	3	3	2	1	3	4	4	5	25
17	6	5	5	2	2	4	4	3	31
18	3	5	1	2	3	4	2	1	21
19	2	4	1	1	1	1	4	4	18
20	4	5	3	3	3	4	6	3	31
21	2	1	2	1	1	1	3	3	14
22	2	2	1	1	2	1	5	4	18
23	1	1	0	0	0	1	1	2	06
24	2	2	3	5	5	7	6	6	36
25	4	7	6	3	4	3	5	6	38
26	5	6	3	4	5	7	6	6	42
27	6	5	5	5	5	5	5	6	42
28	3	3	2	1	1	1	3	6	20
29	4	3	2	2	3	4	4	3	25
30	3	5	4	3	2	1	6	9	33

PRELIMINARY MONTHLY MEAN VALUES

Based on 10 selected quiet days

1961	H	D	Z
	γ	°	γ
September	18 335	60 17.0W	-48695

W I L K E SMAGNETIC K-INDICES - SEPTEMBER 1961

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	4	2	3	3	5	27
2	3	4	3	3	2	2	1	2	20
3	2	3	3	2	2	2	2	2	18
4	2	3	3	2	1	0	1	1	13
5	3	3	3	1	2	2	1	2	17
6	2	3	2	2	1	1	1	1	13
7	3	3	3	1	0	1	0	1	12
8	2	2	3	1	1	0	1	1	11
9	3	3	4	2	1	1	1	2	17
10	3	3	2	1	2	1	2	2	16
11	1	4	4	3	2	3	3	4	24
12	3	3	4	3	2	1	2	2	20
13	2	3	3	1	1	2	2	2	16
14	3	4	3	3	4	1	2	3	23
15	2	3	4	2	2	1	0	1	15
16	2	2	2	2	2	2	1	2	15
17	4	3	3	2	1	2	2	1	18
18	2	3	3	2	3	2	1	1	17
19	2	3	2	2	1	0	1	1	12
20	3	3	2	2	1	2	2	1	16
21	2	2	3	2	0	0	0	1	10
22	2	3	3	1	1	1	2	2	15
23	2	3	3	1	0	0	0	2	11
24	3	3	4	4	4	4	4	3	29
25	3	4	4	3	3	2	2	2	23
26	3	4	4	3	3	3	3	3	26
27	4	3	4	3	3	2	2	2	23
28	3	3	3	2	0	0	2	3	16
29	3	2	3	2	2	2	1	2	17
30	3	3	3	2	2	1	2	7	23

PRELIMINARY MONTHLY MEAN VALUES

Based on 10 selected quiet days

1961	H	D	Z
	Y	°	Y
September	09 241	84 33.1W	-64941

MACQUARIE ISLANDMAGNETIC K-INDICES - SEPTEMBER 1961

Range for lower limit of K=9 is 1500 gammas

<u>Day</u>	<u>K-Indices</u>								<u>K-Sum</u>
1	3	4	4	8	5	5	4	4	37
2	2	2	3	6	4	4	1	1	23
3	2	4	4	4	2	2	2	2	22
4	1	1	2	5	3	0	0	0	12
5	1	2	3	4	5	4	2	2	23
6	1	3	0	2	2	0	0	0	08
7	0	1	1	0	1	0	0	0	03
8	0	1	0	2	1	0	0	0	04
9	1	2	4	5	2	1	0	0	15
10	1	1	0	2	2	2	1	1	10
11	1	1	1	5	5	5	4	5	27
12	3	5	5	5	5	1	1	1	26
13	1	2	1	1	1	3	2	2	13
14	2	4	5	5	7	2	3	3	31
15	2	1	3	6	4	1	0	0	17
16	0	2	1	3	5	2	1	2	16
17	3	4	3	4	3	2	2	0	21
18	2	2	1	0	3	4	0	0	12
19	0	2	0	0	2	0	0	0	04
20	0	2	3	3	3	4	2	1	18
21	1	0	1	1	1	0	0	0	04
22	1	1	1	2	5	1	1	0	12
23	0	0	0	0	0	0	0	0	00
24	2	2	3	8	7	6	5	4	37
25	5	6	7	5	6	4	2	3	38
26	2	3	3	5	5	5	2	2	27
27	3	4	5	8	7	4	2	1	34
28	3	1	1	1	0	0	0	2	08
29	1	1	2	3	2	3	2	0	14
30	2	2	2	4	5	0	2	7	24

PRELIMINARY MONTHLY MEAN VALUES

Based on 10 selected quiet days

1961	H	D	Z
	Y	°	Y
September	13 235	25 51.1E	-64377

T O O L A N G IMAGNETIC K-INDICES - SEPTEMBER 1961

Range for lower limit of K=9 is 500 gammas

<u>Day</u>	<u>K-Indices</u>								<u>K-Sum</u>
1	3	4	4	5	3	3	4	4	30
2	2	2	2	5	3	2	1	1	18
3	2	3	3	3	2	2	2	1	18
4	1	1	2	3	1	0	0	1	09
5	2	2	2	2	3	2	2	2	17
6	1	2	1	1	1	0	1	1	08
7	0	1	2	1	1	1	1	1	08
8	2	2	1	1	0	1	2	1	10
9	2	2	3	3	2	2	1	1	16
10	2	2	1	1	1	2	2	2	13
11	2	2	2	4	3	3	4	4	24
12	2	3	4	4	3	1	1	2	20
13	2	2	2	1	0	3	2	2	14
14	2	4	3	3	5	2	3	3	25
15	2	2	2	3	3	0	1	1	14
16	1	2	2	2	3	1	3	3	17
17	2	3	3	2	1	2	1	1	15
18	1	1	2	0	2	3	1	1	11
19	0	1	1	1	1	1	1	1	07
20	1	1	2	2	2	2	2	1	13
21	1	0	1	1	0	0	1	1	05
22	1	2	1	2	3	2	2	2	15
23	1	1	0	0	0	0	0	1	03
24	2	2	3	5	6	5	3	4	30
25	4	4	5	4	5	3	1	1	27
26	2	2	3	4	3	3	2	2	21
27	2	3	4	5	5	3	1	1	24
28	2	3	2	0	0	0	2	3	12
29	2	2	1	2	1	3	2	2	15
30	1	1	1	2	4	0	2	6	17

T O O L A N G IPRELIMINARY MONTHLY MEAN VALUES

Based on 10 selected quiet days

1961	H	D	Z
	Y	°	Y
September	22 635	10 20.4E	-56401

PRINCIPAL MAGNETIC STORMS - SEPTEMBER 1961

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	Z							
24	0545	2516	sc		+9		ms	24	5	6	25	168	56
		Oct.						Oct.					
30	2108	0114	sc*	+12*	+53	(+6)	ms	01	2	7	43	330	180

SUDDEN COMMENCEMENTS AND OTHER PHENOMENA - SEPTEMBER 1961

Day	Time h m	Type	Sense of Movement			Remarks
			H	D	Z	
04	10 51	bp B	+	-	+	
08	10 35	pt B				
09	08 00	sc C	-	+		
10	11 20	pt B				
11	10 20	pt B				
14	11 50	bp A	+	-	+	
16	10 10	pt B				
16	13 31	bp B	+	-	+	
17	11 13	pt B				
18	04 45	pt B				
18	13 46	pt B				
24	05 45	ssc B	+	-	+	
27	11 44	bs A	+	-	+	
30	12 35	bps B	+	-	+	
30	21 08	ssc* A	+	+	+	

G N A N G A R AMAGNETIC K-INDICES - SEPTEMBER 1961

Range for lower limit of K=9 is 350 gammas

<u>Day</u>	<u>K-Indices</u>				<u>K-Indices</u>				<u>K-Sum</u>
1	3	5	4	5	3	3	4	4	31
2	2	4	3	4	3	3	1	2	22
3	3	4	2	2	2	2	2	2	19
4	1	2	2	2	1	0	0	1	09
5	3	2	3	1	2	3	3	2	19
6	1	1	0	0	1	0	0	0	03
7	1	2	1	0	1	1	0	2	08
8	0	2	1	1	0	1	2	2	09
9	1	2	3	3	1	2	0	2	14
10	2	2	1	1	1	1	2	1	11
11	1	2	1	2	2	3	2	4	17
12	1	3	4	3	2	0	1	2	16
13	0	1	1	0	0	3	3	3	11
14	2	4	3	3	5	1	4	3	25
15	1	2	2	2	3	1	0	1	12
16	0	1	1	1	3	1	2	2	11
17	3	1	1	1	0	0	1	0	07
18	1	0	0	0	1	2	0	0	04
19	0	0	0	0	1	0	0	0	01
20	0	2	2	1	1	2	3	1	12
21	0	0	1	0	0	0	0	0	01
22	1	1	1	2	2	2	2	1	12
23	0	0	0	0	0	0	0	2	02
24	1	2	3	4	6	6	5	5	32
25	3	4	5	3	4	3	2	2	26
26	3	3	3	3	4	3	2	2	23
27	2	2	3	5	4	4	2	2	24
28	1	1	1	0	0	0	2	2	07
29	2	2	2	1	1	3	2	1	14
30	1	1	1	1	3	0	4	7	18

G N A N G A R APRELIMINARY MONTHLY MEAN VALUES

Based on 5 selected quiet days

1961	H	D	Z
	Y	°	Y
September	23 955	-2 53.6W	-53489

PRINCIPAL MAGNETIC STORMS - SEPTEMBER 1961

date	storm time		sudden commencements				act-iv-ity	max. activity 0 to 9			Ranges		
	begin	end	type	amplitudes				3-hr					
				D	H	Z		day	per.	K	D	H	Z
24	h m	d h					ms	24	5,6	6	25	120	148
		Oct.											
30	2108	0116	ssc*	+21*	+82	+106*	s	01	1	8	50	303	250

SUDDEN COMMENCEMENTS AND OTHER PHENOMENA - SEPTEMBER 1961

Day	Time h m	Type	Sense of Movement			Remarks
			H	D	Z	
08	19 05	pt				
11	16 40	pt				B
13	14 15	pt				B
22	15 50	pt				B
24	14 20	bps				A
29	16 23	bps	+	+	+	
30	18 48	ssc	+	+	+	B
30	21 08	ssc*	+	+	+	A

P O R T M O R E S B YMAGNETIC K-INDICES - SEPTEMBER 1961

Range for lower limit of K=9 is 300 gammas

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

PORT MORESBYPRINCIPAL MAGNETIC STORMS - SEPTEMBER 1961

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

SUDDEN COMMENCEMENTS AND OTHER PHENOMENA - SEPTEMBER 1961

Day	Time h m	Type	Sense of Movement			Remarks
			H	D	Z	
01	10 10	bps B	+	?	+	
04	10 50	bp B	+	-	+	
05	12 14	bp B	+	0?	+	
05	13 44	bp B	+	0?	+	
07	15 54	pt C				
08	19 18	pt A				
09	01 02	pt B				
09	23 04	pt C				
10	11 20	pt A				
10	14 17	pt B				
11	04 54	pt B				
11	07 46	pt C				
11	10 21	pt C				
11	16 42	pt B				
13	15 27	bp C	+	0	+	
13	15 53	ssc C	+	0?	+	
14	11 54	bp B	+	-	+	?
15	09 46	pt C				
16	04 24	pt B				
16	13 19	bp B	+	-	+	
17	11 14	pt C				
18	13 46	pt C				
19	16 57	pt C				
20	16 07	bs C	+	+	+	
22	11 05	pt C				
22	15 54	pt B				
24	10 30	bp A	+	-	+	
24	13 11	si C	-	-	-	
24	14 20	bps B	+	+	+	
24	17 12	bp? C	+	+	+	
25	12 01	bp B	+	-	+	
25	14 52	bps C	+	+	+	
26	10 00	pt C				
27	11 43	bs B	+	-	+	
29	16 25	bp B	+	(+)	+	
29	16 48	bs C	+	(+)	+	
30	10 02	pt C				
30	12 35	bp B	+	-	+	
30	18 47	ssc B	+	-	+	
30	21 09	ssc A	+	+	+	