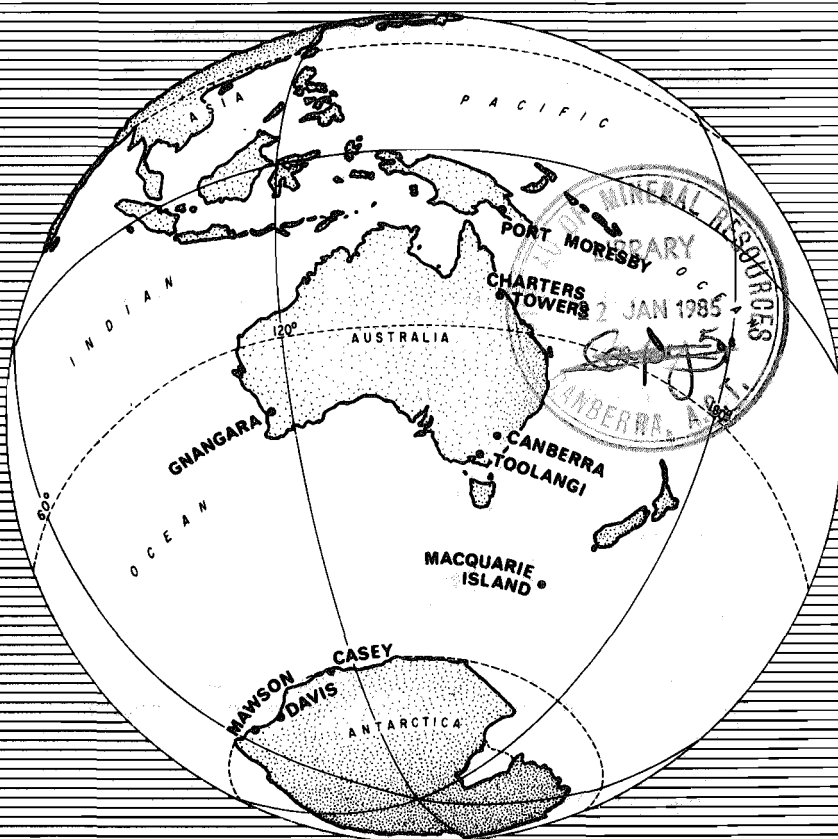


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GEOPHYSICAL OBSERVATORY REPORT



MAGNETIC OBSERVATORIES

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VOLUME 32 NO. 7

JULY 1984

DEPARTMENT OF MINERAL RESOURCES, GEOLOGY & GEOPHYSICS

DEPARTMENT OF RESOURCES AND ENERGY

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The observers at Casey and Davis are officers of the Antarctic Division (Department of Science and Technology) and their contributions are gratefully acknowledged: they and the BMR geophysicists at Macquarie Island and Mawson are members of the Australian National Antarctic Research Expeditions (ANARE).

The data from the Port Moresby geophysical observatory are contributed by the Geological Survey of Papua New Guinea.

The terminology used in this report is that accepted by IAGA. The units of field intensity, nanotesla (nT), are those of the SI system. All times are in Universal Time. Should further information be required, apply to:

GEOMAGNETISM SECTION
BUREAU OF MINERAL RESOURCES
G.P.O. BOX 378
CANBERRA A.C.T. 2601

CONTRIBUTING OBSERVATORIES

OBSERVATORY	OBSERVER IN CHARGE	GEOGRAPHIC		GEOMAGNETIC	
		LAT	LONG	LAT	LONG
PORT MORESBY	I.D. Ripper	9°25'S	147°09'E	-18.6°	217.9°
CHARTERS TOWERS	J.M. Millican	20°05'S	146°15'E	-29.3°	218.4°
GNANGARA	P.J. Gregson	31°47'S	115°57'E	-43.3°	185.8°
CANBERRA	P.A. Hopgood	35°19'S	149°22'E	-44.0°	224.7°
*TOOLANGI	P.A. Hopgood	37°32'S	145°28'E	-46.7°	220.8°
MACQUARIE I	W.D. Prohasky	54°30'S	158°57'E	-61.1°	243.1°
MAWSON	P.G. Crosthwaite	67°36'S	62°53'E	-73.1°	102.9°
DAVIS	P.F.B. Williams	68°35'S	77°58'E	-76.7°	119.9°
CASEY	B.J. Whitely	66°17'S	110°32'E	-77.8°	179.1°

MAGNETOGRAPHS

OBSERVATORY	CODE	TYPE	ELEMENT/SCALE		VALUE
PORT MORESBY	PMG	La Cour (A)	H/3	D/5	Z/4
CHARTERS TOWERS	CTA	EDA/ELSEC digital (D1/1)			
GNANGARA	GNA	Eschenhagen (A)	H/3	D/7	Z/6
CANBERRA	CNB	Elsec digital (D1/0.1)			
TOOLANGI	TOO	La Cour (A)	H/5	D/6	Z/5
MACQUARIE I	MCQ	La Cour (A)	H/20	D/9	Z/21
MAWSON	MAW	La Cour (A)	H/21	D/13	Z/22

Scale values are in nT/mm

A = analogue, 20 mm/hr

D1/0.1,1 = digital, 1 min readings, 0.1 or 1 nT resolution

MAGNETOMETERS

Absolute data are based on observations made with QHM's BMZ's, fluxgate-theodolites, declinometers and proton precession magnetometers.

Errors in preliminary values obtained from magnetograms are not likely to exceed 5 nT or 0.5 minutes.

* Toolangi Observatory is only a variation observatory, since 1 July 1979.

TOOLANGI-CESSATION OF K-INDICES

Since mid-1979 the digital magnetic observatory established near Canberra in 1978 has replaced Toolangi as the reference observatory for south-eastern Australia. The scaling of K-Indices at both observatories has continued in order to define the variation differences between the two locations.

Having now accomplished this, the scaling of K-Indices at Toolangi will cease at the end of September 1984. A LaCour magnetograph will continue to record magnetic variations at Toolangi. Absolute observations will be made approximately annually.

PORT MORESBY

MAGNETIC K-INDICES - JULY 1984

Range for lower limit of K = 9 is 300 nT

<u>Day</u>	<u>K-Indices</u>								<u>K-Sum</u>
01	2	3	2	2	2	2	3	2	18
02	3	2	2	2	2	2	2	2	17
03	3	3	2	2	3	2	2	1	18
04	1	3	3	1	2	1	2	4	17
05	3	2	3	2	1	2	1	3	17
06	3	3	2	2	3	2	2	1	18
07	2	2	2	2	2	2	2	2	16
08	2	2	3	2	2	2	1	2	16
09	1	2	3	2	2	2	1	1	14
10	1	2	1	3	3	2	3	2	17
11	1	1	2	0	2	3	2	4	15
12	5	3	2	2	2	1	1	1	17
13	2	4	6	4	6	4	3	4	33
14	5	4	5	5	5	3	2	2	31
15	3	3	4	3	3	3	3	3	25
16	3	4	4	5	2	3	2	3	26
17	3	5	5	5	4	3	2	3	30
18	2	2	2	3	4	3	3	2	21
19	3	4	3	3	4	1	1	3	22
20	2	2	3	2	2	2	1	3	17
21	3	2	2	2	1	1	1	2	14
22	2	4	2	2	1	2	1	2	16
23	2	2	2	1	1	3	2	2	15
24	3	3	3	3	1	1	1	2	17
25	2	2	2	2	3	1	2	2	16
26	2	2	1	2	1	0	1	2	11
27	2	2	2	2	3	3	2	1	17
28	2	3	4	3	4	2	2	1	21
29	2	2	2	2	3	4	2	2	19
30	2	1	2	2	3	2	2	1	15
31	1	1	1	2	4	3	2	3	17

Mean of K-Sum is 18.8

Frequency of K-Indices

K:	0	1	2	3	4	5	6	7	8	9	-
f:	2	42	114	60	19	9	2	0	0	0	0

GNANGARA

MAGNETIC K-INDICES - JULY 1984

Range for lower limit of K = 9 is 450 nT

<u>Day</u>	<u>K-Indices</u>								<u>K-Sum</u>
01	2	2	2	2	0	3	5	3	19
02	3	2	2	2	1	2	3	2	17
03	4	2	2	2	3	2	2	2	19
04	2	1	1	1	2	2	2	2	13
05	4	3	3	2	1	1	2	2	18
06	1	1	2	1	3	1	1	1	11
07	2	2	1	1	1	2	2	2	13
08	1	3	2	2	2	2	1	1	14
09	2	1	2	1	1	2	1	1	11
10	1	2	2	2	4	2	3	1	17
11	1	0	0	0	2	4	3	3	13
12	4	3	3	2	1	0	1	1	15
13	2	3	6	4	6	4	5	4	34
14	5	4	4	4	4	5	3	3	32
15	3	3	4	3	3	3	4	4	27
16	3	3	3	5	2	3	4	4	27
17	4	5	5	5	4	4	3	3	33
18	3	2	2	2	4	4	4	2	23
19	3	3	4	3	2	2	3	2	22
20	3	2	3	2	1	2	2	3	18
21	2	2	2	2	1	0	1	3	13
22	1	3	2	2	1	2	1	1	13
23	2	1	2	1	1	3	2	1	13
24	3	3	2	3	1	2	1	1	16
25	1	2	2	2	3	0	4	2	16
26	3	1	1	1	1	0	1	1	09
27	3	1	1	1	3	2	3	2	16
28	2	3	3	2	5	4	2	1	22
29	1	1	1	2	3	4	3	1	16
30	2	1	2	1	4	3	2	0	15
31	0	1	1	2	3	3	2	4	16

Mean of K-Sum is 18.0

Frequency of K-Indices

K:	0	1	2	3	4	5	6	7	8	9	-
f:	10	62	82	54	29	9	2	0	0	0	0

CANBERRA

MAGNETIC K-INDICES - JULY 1984

Range for lower limit of K = 9 is 450 nT

<u>Day</u>	<u>K-Indices</u>								<u>K-Sum</u>
01	1	2	1	2	0	2	4	3	15
02	3	1	1	2	1	2	2	2	14
03	2	2	2	2	3	1	1	1	14
04	1	1	3	1	2	1	2	2	13
05	3	3	3	2	1	2	1	1	16
06	0	2	1	1	3	1	1	1	10
07	1	1	1	1	1	1	1	1	08
08	0	1	2	1	2	1	0	1	08
09	2	2	1	2	2	2	1	1	13
10	1	2	2	2	3	2	2	1	15
11	1	0	0	0	2	3	1	3	10
12	5	4	3	2	2	1	1	2	20
13	3	3	6	4	6	4	3	3	32
14	4	4	4	4	4	4	2	2	28
15	3	3	4	3	3	3	3	3	25
16	2	4	4	5	2	3	4	3	27
17	3	5	5	5	4	4	3	3	32
18	2	3	2	2	3	4	3	1	20
19	3	3	3	4	2	1	1	1	18
20	2	2	3	2	1	1	1	2	14
21	1	1	2	1	1	0	0	1	07
22	1	3	1	2	1	2	0	1	11
23	1	1	1	0	1	3	2	1	10
24	2	3	1	4	1	2	1	1	15
25	1	2	1	2	2	0	3	1	12
26	1	1	0	2	0	0	0	0	04
27	2	2	1	1	3	2	2	1	14
28	2	3	3	2	4	3	2	0	19
29	1	2	1	1	3	3	2	1	14
30	1	1	1	2	4	2	2	0	13
31	1	1	0	2	3	3	2	3	15

Mean of K-Sum is 15.6

Frequency of K-Indices

K:	0	1	2	3	4	5	6	7	8	9	-
f:	20	83	69	48	21	5	2	0	0	0	0

TOOLANGI

MAGNETIC K-INDICES - JULY 1984

Range for lower limit of K = 9 is 500 nT

<u>Day</u>	<u>K-Indices</u>								<u>K-Sum</u>
01	1	2	1	2	0	3	4	2	15
02	3	2	1	2	1	2	2	2	15
03	2	2	1	2	3	2	2	1	15
04	1	1	2	2	2	2	2	2	14
05	3	2	3	2	1	1	1	1	14
06	1	2	1	1	3	1	1	1	11
07	1	1	1	1	1	1	2	2	10
08	1	2	3	1	2	1	1	1	12
09	1	2	2	2	2	2	1	0	12
10	0	1	2	2	4	2	2	1	14
11	0	0	0	0	1	3	2	3	09
12	4	3	2	1	1	0	0	1	12
13	2	4	6	4	6	4	3	3	32
14	4	4	4	4	4	4	2	2	28
15	3	3	4	3	3	3	3	3	25
16	2	3	4	5	1	3	4	3	25
17	3	5	5	5	4	4	3	2	31
18	2	2	1	3	3	4	3	2	20
19	3	3	3	4	3	0	2	1	19
20	2	2	3	3	1	1	1	3	16
21	2	1	2	1	1	0	1	1	09
22	1	3	1	3	1	2	0	0	11
23	1	1	1	1	2	3	2	1	12
24	1	3	2	4	0	2	1	0	13
25	1	2	2	2	3	0	3	1	14
26	2	0	1	2	0	0	0	0	05
27	2	1	1	1	3	2	2	2	14
28	2	3	3	2	4	3	2	0	19
29	1	2	1	2	3	3	2	1	15
30	1	1	1	2	4	2	2	0	13
31	0	0	0	2	3	3	2	3	13

Mean of K-Sum is 15.7

Frequency of K-Indices

K:	0	1	2	3	4	5	6	7	8	9	-
f:	26	70	75	49	22	4	2	0	0	0	0

MACQUARIE ISLAND

MAGNETIC K-INDICES - JULY 1984

Range for lower limit of K = 9 is 1500 nT

<u>Day</u>	<u>K-Indices</u>								<u>K-Sum</u>
01	0	1	1	3	0	3	3	3	14
02	2	2	1	2	2	2	2	2	15
03	2	2	2	3	5	3	2	1	20
04	1	2	2	3	3	2	2	2	17
05	3	2	4	3	2	1	0	1	16
06	1	2	1	1	4	1	0	1	11
07	2	0	0	1	2	1	1	1	08
08	1	2	3	3	3	2	1	1	16
09	2	2	4	4	4	1	0	0	17
10	0	1	2	3	5	2	2	1	16
11	0	0	0	0	3	6	2	3	14
12	4	2	3	3	1	0	1	1	15
13	2	5	6	6	8	6	5	3	41
14	6	6	5	5	6	6	4	3	41
15	4	4	4	6	6	5	4	4	37
16	4	3	4	7	3	4	3	4	32
17	4	5	4	7	6	7	4	2	39
18	2	3	1	4	6	4	4	3	27
19	3	4	3	4	4	2	1	2	23
20	1	2	4	6	2	2	2	2	21
21	2	1	4	1	0	0	0	1	09
22	1	2	0	3	1	2	1	0	10
23	2	1	0	2	3	3	3	1	15
24	2	2	3	5	2	1	0	0	15
25	1	1	1	5	5	0	2	1	16
26	3	2	1	3	1	0	0	1	11
27	2	1	2	2	5	2	2	3	19
28	2	5	5	4	6	6	1	1	30
29	1	1	1	2	4	5	3	2	19
30	2	1	2	4	6	4	1	0	20
31	0	1	2	3	4	2	1	3	16

Mean of K-Sum is 20.0

Frequency of K-Indices

K:	0	1	2	3	4	5	6	7	8	9	-
f:	27	54	62	38	32	15	16	3	1	0	0

MAWSON

MAGNETIC K-INDICES - JULY 1984

Range for lower limit of K = 9 is 1500 nT

<u>Day</u>	<u>K-Indices</u>								<u>K-Sum</u>
01	4	3	4	3	2	3	7	6	32
02	6	5	4	3	3	3	4	4	32
03	7	4	4	4	3	5	4	6	37
04	4	4	5	3	3	2	6	5	32
05	6	5	5	5	2	2	3	3	31
06	5	6	4	3	3	2	5	6	34
07	3	2	3	3	2	2	3	5	23
08	5	5	5	4	3	2	2	6	32
09	4	5	4	4	3	3	3	5	31
10	3	5	3	4	3	3	4	3	28
11	4	2	1	1	2	3	5	6	24
12	6	7	4	3	2	1	5	6	34
13	5	7	6	5	5	4	6	7	45
14	7	6	6	5	4	6	7	6	47
15	6	6	6	5	3	3	6	8	43
16	5	6	5	5	3	3	6	7	40
17	5	8	7	5	4	5	7	7	48
18	4	6	4	4	4	5	6	5	38
19	6	6	6	4	3	2	6	5	38
20	3	5	5	3	3	2	2	7	30
21	5	3	4	3	2	2	1	6	26
22	4	6	4	2	2	2	3	3	26
23	5	4	4	2	2	2	3	3	25
24	5	4	3	3	2	1	4	4	26
25	4	5	3	3	4	1	7	5	32
26	5	5	3	2	1	0	5	4	25
27	6	4	4	2	3	2	6	4	31
28	4	6	6	4	3	3	4	4	34
29	3	3	4	3	3	6	6	4	32
30	5	5	2	4	3	2	2	5	28
31	4	3	2	2	2	3	2	8	26

Mean of K-Sum is 32.5

Frequency of K-Indices

K:	0	1	2	3	4	5	6	7	8	9	-
f:	1	7	35	57	50	45	37	13	3	0	0

JULY 1984
PRINCIPAL MAGNETIC STORMS

OBSERVATORY	COMMENCEMENT				SSC AMPLITUDES			MAX 3h INDEX K	RANGES				UT	END
	d	h	min	TYPE	D(')	H(nT)	Z(nT)	d (3h-PERIOD)	K	D(')	H(nT)	Z(nT)	d	h
PORT MORESBY	13	02	..	...	..	..	..	13 (3,5)	6	9	190	80	14	21
	17	04	..	...	..	..	..	17 (2,3,4)	5	8	140	70	17	18
CHARTERS TOWERS	13	02	..	...	..	..	..	13 (3)	7	13.2	169	42	17	17
	31	14	..	...	..	..	..	01(2,3)	6	9.5	189	41	02	16
GNANGARA	13	02	..	...	..	..	..	13(3,5)	6	28	170	160	14	22
	17	00	..	...	..	..	..	17(2,3,4)	5	15	130	80	17	23
	31	14	..	...	..	..	..	01(2,3,4,5) 02(5)	5	23	170	100	02	21
CANBERRA	13	06	..	...	..	..	..	13(3,5)	6	30.4	178	73	17	18
	31	21	..	...	..	..	..	01(1,3,4)	5	21.8	180	83	02	16

JULY 1984

PRELIMINARY MONTHLY MEAN VALUES

OBSERVATORY	H	D		Z	F
	nT	o	'	nT	nT
PORT MORESBY	35942	06	33.5E	-23713	43060
CHARTERS TOWERS	31784	07	42.0E	-38281	49755
GNANGARA	23269	03	19.1W	-53762	58582
CANBERRA	23713	12	18.3E	-53743	58742
MACQUARIE I	12630	29	03.6E	-63647	64888
MAWSON	18430	63	34.4W	-46393	49920
DAVIS	16570	76	40 W	-52407	54964
CASEY	9601	90	58 W		

The values are derived from magnetograms for selected quiet days except at Davis and Casey where they are derived from semi-weekly absolute measurements.

SUDDEN COMMENCEMENTS AND OTHER RAPID VARIATIONS

OBSERVATORY	DAY	TYPE AND QUALITY	TIME	SENSE AND AMPLITUDE OF CHIEF MOVEMENT		
				H(nT)	D(nT)	Z(nT)
PORT MORESBY			NIL			
CHARTERS TOWERS			NIL			
GNANGARA	11	ssc B	2307	+ 6	+19	+13
CANBERRA			NIL			

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