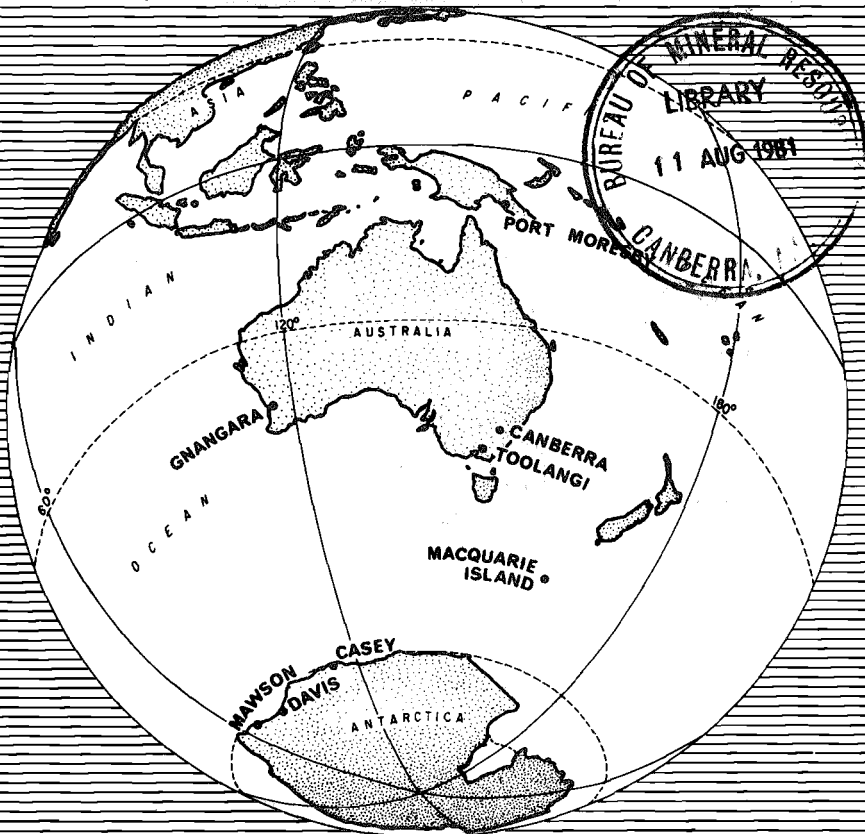


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BT
**GEOPHYSICAL
OBSERVATORY REPORT**



MAGNETIC OBSERVATORIES

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VOLUME 29 NO 3

MARCH 1981

copy 2 OF MINERAL RESOURCES, GEOLOGY & GEOPHYSICS

DEPARTMENT OF NATIONAL DEVELOPMENT AND ENERGY

MINISTER: Senator The Hon. J.L. Carrick

SECRETARY: A. Woods

BUREAU OF MINERAL RESOURCES, GEOLOGY & GEOPHYSICS

DIRECTOR: R.W.R. Rutland

THIS REPORT WAS PREPARED IN THE GEOPHYSICAL BRANCH

ACTING ASSISTANT DIRECTOR: J.C. Dooley

SUPERVISING GEOPHYSICIST: P.M. McGregor

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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 International convention. 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 & SEISMOLOGY SUBSECTION
BUREAU OF MINERAL RESOURCES
P.O. BOX 378
CANBERRA CITY, 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°
GNANGARA	P.J. Gregson	31°47'S	115°57'E	-43.3°	185.8°
CANBERRA	R.S. Smith	35°19'S	149°22'E	-44.0°	224.7°
*TOOLANGI	R.S. Smith	37°32'S	145°28'E	-46.7°	220.8°
MACQUARIE I	W.J. Williams	54°30'S	158°57'E	-61.1°	243.1°
MAWSON	A.S. Marks	67°36'S	62°53'E	-73.1°	102.9°
DAVIS	R. Morris	68°35'S	77°58'E	-76.7°	119.9°
CASEY	E. Davis	66°17'S	110°32'E	-77.8°	179.1°

MAGNETOGRAPHS

OBSERVATORY	TYPE	NOMINAL SCALE VALUES					
		NORMAL			SENSITIVE		
		D	H	Z	D	H	Z
PORT MORESBY	La Cour	0.5	3	4			
GNANGARA	Eschenhagen	1	3	6			
TOOLANGI	La Cour	1	5	5			
MACQUARIE I	La Cour	2.5	20	21			
MAWSON	La Cour	2.5	21	22	1	10	10
CANBERRA	Elsec digital	D	F	I			
			0.1nT				

Scale values are in minutes of arc/mm (D) and nT/mm (H,Z)

MAGNETOMETERS

Absolute data are based on observations made with QHM'S BMZ's declinometers and proton precession magnetometers.

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

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

PORT MORESBY

MAGNETIC K-INDICES - MARCH 1981

Range for lower limit of K = 9 is 300 nT

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

GNANGARAMAGNETIC K-INDICES - MARCH 1981Range for lower limit of K = 9 is 450 nT

<u>Day</u>	<u>K-Indices</u>								<u>K-Sum</u>
01	2	1	3	4	5	4	3	5	27
02	4	2	4	5	4	2	2	1	24
03	1	1	1	1	0	2	2	2	10
04	2	2	3	2	2	2	1	2	16
05	2	5	5	6	6	7	6	5	42
06	3	3	3	2	3	1	2	2	19
07	3	2	2	4	4	5	5	2	27
08	3	2	2	3	3	2	2	1	18
09	1	0	1	1	2	1	1	1	08
10	2	2	1	3	3	2	2	1	16
11	2	1	2	2	2	2	2	1	14
12	1	1	2	2	2	2	3	4	17
13	3	3	3	3	4	4	4	4	28
14	3	5	5	6	5	4	3	3	34
15	3	4	3	2	3	3	3	2	23
16	3	2	2	2	2	2	2	4	19
17	4	2	2	2	4	3	3	3	23
18	3	2	2	3	3	4	3	3	23
19	2	1	2	1	1	3	4	2	16
20	3	2	2	2	3	3	1	0	16
21	1	1	2	2	0	0	3	3	12
22	1	1	1	1	0	0	0	1	05
23	1	1	3	3	1	1	0	0	10
24	1	0	1	1	0	1	2	0	06
25	2	2	4	2	5	5	3	4	27
26	4	3	2	3	5	3	3	2	25
27	3	2	2	2	3	3	3	3	21
28	2	2	2	2	3	3	3	4	21
29	3	2	3	3	3	4	2	1	21
30	3	1	1	1	3	3	3	3	18
31	5	3	2	3	3	3	4	4	27

CANBERRA

MAGNETIC K-INDICES - MARCH 1981

Range for lower limit of K = 9 is 450 nT

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

TOOLANGIMAGNETIC K-INDICES - MARCH 1981Range for lower limit of K = 9 is 500 nT

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

MACQUARIE ISLAND

MAGNETIC K-INDICES - MARCH 1981

Range for lower limit of K = 9 is 1500 nT

<u>Day</u>	<u>K-Indices</u>								<u>K-Sum</u>
01	1	1	4	6	6	5	3	4	30
02	2	2	5	5	6	2	1	1	24
03	0	0	0	0	0	2	1	0	03
04	1	2	4	5	0	0	0	0	12
05	1	5	6	7	8	7	6	3	43
06	1	1	1	0	1	0	0	1	05
07	2	0	2	6	6	6	6	1	29
08	1	1	2	5	5	1	0	0	15
09	0	0	0	2	2	0	0	0	04
10	0	1	1	6	5	3	0	0	16
11	0	0	1	4	2	0	0	0	07
12	0	0	0	3	3	2	0	1	09
13	1	1	1	3	5	6	4	3	24
14	2	4	3	8	7	5	4	2	35
15	2	2	2	2	5	5	3	2	23
16	2	2	2	1	3	2	1	1	14
17	2	2	1	1	5	3	2	1	17
18	1	1	5	5	5	4	4	0	25
19	0	0	0	2	0	5	4	1	12
20	0	1	3	3	5	5	0	0	17
21	0	0	1	0	0	0	3	0	04
22	0	0	0	0	0	0	0	0	00
23	0	0	0	5	3	0	0	0	08
24	0	0	0	0	0	0	0	0	00
25	0	2	5	2	6	5	4	3	27
26	-	-	-	-	-	-	-	-	--
27	1	2	2	2	5	5	2	2	21
28	0	2	0	2	5	5	1	1	16
29	1	2	5	6	4	5	3	1	27
30	1	1	1	4	4	5	4	2	22
31	3	4	2	3	5	4	4	2	27

MAWSONMAGNETIC K-INDICES - MARCH 1981Range for lower limit of K = 9 is 1500 nT

<u>Day</u>	<u>K-Indices</u>								<u>K-Sum</u>
01	5	5	6	6	4	5	4	7	42
02	5	5	6	7	5	3	4	4	39
03	4	3	2	1	1	3	5	6	25
04	4	5	5	4	3	2	2	3	28
05	3	5	7	8	6	6	6	6	47
06	5	4	4	3	3	1	1	3	24
07	4	3	4	5	4	4	6	3	33
08	3	4	4	4	3	3	2	1	24
09	3	2	2	2	1	0	1	3	14
10	3	4	3	3	3	4	4	1	25
11	3	3	3	3	3	3	2	1	21
12	3	2	3	3	4	3	4	6	28
13	6	3	3	3	3	6	5	8	37
14	3	5	5	7	5	4	5	2	36
15	4	6	6	3	3	4	6	6	38
16	4	5	4	3	2	2	5	7	32
17	7	3	3	2	3	3	6	6	33
18	6	5	6	3	4	4	4	3	35
19	4	3	3	3	1	4	6	3	27
20	3	3	3	3	3	2	2	2	21
21	2	2	3	2	0	0	5	6	20
22	2	4	2	1	1	1	2	4	17
23	1	2	2	2	2	1	0	1	11
24	2	2	2	1	0	1	2	2	12
25	3	4	6	3	5	5	6	5	37
26	4	5	5	3	5	5	4	6	37
27	5	5	5	3	4	3	6	5	36
28	4	4	4	3	3	3	6	7	34
29	5	5	6	4	4	5	5	2	36
30	5	4	4	3	3	4	5	6	34
31	7	6	4	3	2	4	6	5	37

MARCH 1981
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	01	07	36	ssc	+0.7	+32	+28	01(5)	5	7	120	60	02	00
	02	06	54	ssc*	+0.5*	+18	+16	02(3,4,5)	5	5	90	80	02	18
	05	05	35	ssc*	+1.9*	+64	+54	02(4,5,6)	6	15	290	150	08	15
	12	18	24	ssc*	+0.5*	+14	+12	14(4,5)	6	9	210	80	16	06
GNANGARA	05	05	35	ssc	+5.6	+46	+44	05(6)	7	29	250	280	07	20
	12	18	25	ssc	+3.2	+22	+17	14(4)	6	30	150	200	16	02
TOOLANGI	01	07	36	ssc	+1.2	+44	+6	1(4)	5	15	110	40	02	01
	02	06	54	ssc*	+1.4*	+46*	+5	2(3,4,5)	5	19	130	50	02	18
	05	05	35	ssc*	+4.7	+104*	+13	5(5,6)	7	43	260	140	06	15
	12	18	24	ssc	-1.0	+16	+3	14(4)	7	36	200	70	15	09

MARCH 1981

PRELIMINARY MONTHLY MEAN VALUES

OBSERVATORY	H	D		Z	F
	nT	o	'	nT	nT
PORT MORESBY	35966	06	29.9E	-23671	43057
GNANGARA	23369	03	19.0W	-53671	56536
CANBERRA	23780	12	10.2E	-53773	58796
MACQUARIE I	12684	28	36.4E	-63747	64997
MAWSON	18434	63	13.9W	-46728	50233
DAVIS		not available			
CASEY		not available			

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	01	ssc B	0736	+32	+7	+28
	02	ssc*B	0654	+18	+5*	+16
	05	ssc*A	0535	+64	+20*	+54
	12	ssc*B	1824	+14	+5*	+12
GNANGARA	01	ssc B	0736	+31	+29	+23
	05	ssc B	0535	+46	+40	+44
	12	ssc B	1825	+17	+22	+17
TOOLANGI	01	ssc B	0736	+44	+8	+6
	02	ssc*A	0654	+46*	+9*	+5
	05	ssc*A	0535	+104*	+30*	+13
	12	ssc B	1824	+16	-6	+3

R79/1632 (7) (a) Cat. No. 81 1359 5