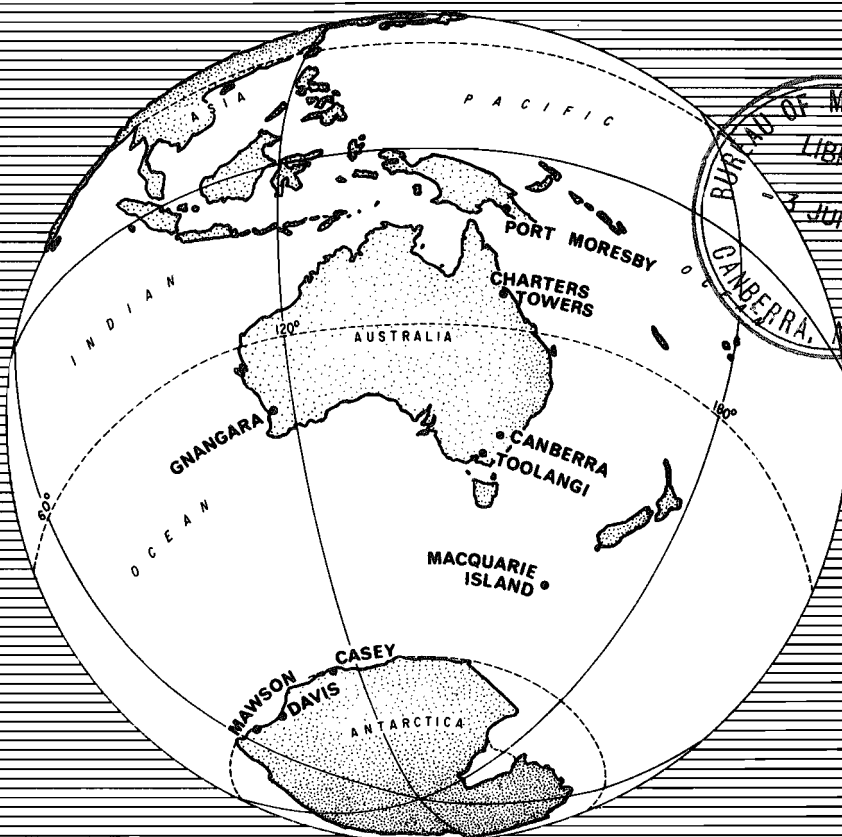


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GEOPHYSICAL OBSERVATORY REPORT



MAGNETIC OBSERVATORIES

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VOLUME 34 No. 10

OCTOBER 1986

BUREAU OF MINERAL RESOURCES, GEOLOGY & GEOPHYSICS

DEPARTMENT OF RESOURCES AND ENERGY

Minister: Senator The Hon. Gareth J. EVANS

BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

DIRECTOR: R W R Rutland

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section Division of Geophysics**

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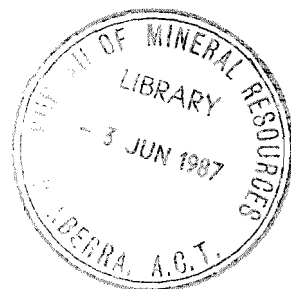
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The observers at Casey and Davis, and Macquarie Island are officers of the Antarctic Division (Department of Science and Technology) and their contributions are gratefully acknowledged: they and the BMR geophysicist of Mawson are members of the Australian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



CONTRIBUTING OBSERVATORIES

OBSERVATORY	OBSERVER IN CHARGE	GEOGRAPHIC		GEOMAGNETIC	
		LAT	LONG	LAT	LONG
PORT MORESBY	I.D.RIPPER	9° 25' S	147° 09' E	-18.2°	219.6°
CHARTERS TOWERS	J.M.MILICAN	20° 05' S	146° 15' E	-28.8°	220.2°
GNANGARA	P.J.GREGSON	31° 47' S	115° 57' E	-42.9°	187.8°
CANBERRA	P.A.HOPGOOD	35° 19' S	149° 22' E	-43.5°	226.4°
MACQUARIE I	R.LACHAL	54° 30' S	158° 57' E	-60.6°	244.6°
MAWSON	R.HUTCHINSON	67° 36' S	62° 53' E	-73.3°	105.9°
DAVIS	R.G.MCLOUGHLIN	68° 35' S	77° 58' E	-76.9°	123.5°
CASEY	B.MARTIN	66° 17' S	110° 32' E	-77.5°	182.4°

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)
MACQUARIE ISLAND	MCQ	Photo-electronic magnetograph			(D1/0.1)
MAWSON	MAW	Photo-electronic magnetograph			(D1/0.1)

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.

NEW MAGNETIC OBSERVATORY AT LEARMONTH, NW AUSTRALIA

A new magnetic observatory is scheduled to come into operation in 1986 at Learmonth on North-West Cape, Western Australia, overlooking Exmouth Gulf. The geographic co-ordinates are: latitude 22° 13' south; longitude 114° 06' east. The 3 letter code for the Observatory is LRM.

The new observatory is a joint project between the Bureau of Mineral Resources, Geology and Geophysics (BMR) of the Australian Department of Resources and Energy, and the Ionospheric Prediction Service (IPS) of the Australian Department of Science.

The observatory will be situated within the area of the Learmonth Solar Observatory which is jointly operated by the Australian Department of Science and the United States Air Force.

An EDA 3-Axis fluxgate magnetometer will be used to measure variations in X, Y and Z which will be recorded digitally each minute. Absolute observations of D, I and F will be performed semi-weekly using a fluxgate theodolite and a proton precession magnetometer.

The data will be reduced by the BMR and published in the Geophysical Observatory Report.

PORT MORESBY

MAGNETIC K-INDICES - OCTOBER 1986

Range for lower limit of K=9 is 300nT

DAY	K-INDICES		K-SUM
01	1133	4322	19
02	1113	4433	20
03	2211	1223	14
04	2111	2233	15
05	3333	3322	22
06	2342	1312	18
07	1112	1212	11
08	2113	2313	16
09	1121	2222	13
10	1122	1122	12
11	2111	2222	13
12	2111	2111	10
13	1123	4354	23
14	3453	4222	25
15	2244	3222	21
16	2222	2122	15
17	2222	1122	14
18	2223	3333	21
19	3434	4222	24
20	2113	2322	16
21	2223	3222	18
22	1121	1111	09
23	1111	1121	09
24	2112	2201	11
25	1111	2112	10
26	2111	1112	10
27	2134	3322	20
28	3312	1132	16
29	3233	2122	18
30	3333	2233	22
31	2222	1111	12

Mean of K-Sum is 16.0

Frequency of K-Indices

K :	0	1	2	3	4	5	6	7	8	9	-
f :	1	82	98	51	14	2	0	0	0	0	0

GNANGARA

MAGNETIC K-INDICES - OCTOBER 1986

Range for lower limit of K=9 is 450nT

DAY	K-INDICES		K-SUM
01	1003	3211	11
02	1213	3432	19
03	3221	1113	14
04	2111	2232	14
05	3224	4332	23
06	2342	1211	16
07	1101	1111	07
08	1112	3311	13
09	1110	2222	11
10	0010	0012	04
11	2111	3222	14
12	2000	1001	04
13	0013	4365	22
14	4444	5232	28
15	3134	4332	23
16	1122	2112	12
17	2201	2123	13
18	2112	3434	20
19	3323	5332	24
20	2122	3343	20
21	3222	3232	19
22	3223	0011	12
23	0000	2221	07
24	0000	0201	03
25	0011	1012	06
26	1000	0002	03
27	2233	3442	23
28	3302	1022	13
29	4223	2233	21
30	2333	3334	24
31	2011	1222	11

Mean of K-Sum is 14.6

Frequency of K-Indices

K :	0	1	2	3	4	5	6	7	8	9	-
f :	41	61	72	52	18	3	1	0	0	0	0

CANBERRA

MAGNETIC K-INDICES - OCTOBER 1986

Range for lower limit of K=9 is 450nT

DAY	K-INDICES		K-SUM
01	0013	3111	10
02	1214	4432	21
03	2221	0112	11
04	1111	1122	10
05	2224	5322	22
06	2351	1201	15
07	0112	0101	06
08	1112	2311	12
09	1120	1211	09
10	0020	0010	03
11	1001	2111	07
12	1010	1000	03
13	0112	3365	21
14	3443	4221	23
15	2144	3222	20
16	1212	1111	10
17	1201	2112	10
18	1112	3422	16
19	2333	5221	21
20	2122	3323	18
21	2222	2122	15
22	1112	1010	07
23	1010	1120	06
24	1000	0201	04
25	0111	1012	07
26	0010	1112	06
27	3233	3432	23
28	2211	0022	10
29	2233	2122	17
30	3333	2223	21
31	1221	1101	09

Mean of K-Sum is 12.6

Frequency of K-Indices

K :	0	1	2	3	4	5	6	7	8	9	-
f :	41	89	72	30	11	4	1	0	0	0	0

MAWSON

MAGNETIC K-INDICES - OCTOBER 1986

Range for lower limit of K=9 is 1500 nT

DAY	K-INDICES		K-SUM
01	2232	3214	19
02	5433	4565	35
03	3441	2226	24
04	5442	2243	26
05	6642	3575	38
06	3553	2235	28
07	2332	1225	20
08	2112	2325	18
09	3331	1265	24
10	1211	0025	12
11	2111	2112	11
12	4200	0001	07
13	2212	3465	25
14	4554	3276	36
15	2344	3365	30
16	2322	1154	20
17	5433	0035	23
18	2312	3665	28
19	4544	4463	34
20	3333	3376	31
21	4433	3356	31
22	5543	1124	25
23	3311	1155	20
24	1111	1214	12
25	2121	0105	12
26	3111	1114	13
27	3533	4545	32
28	5522	1126	24
29	6643	2247	34
30	5533	2566	35
31	2411	2233	18

Mean of K-Sum is 24.0

Frequency of K-Indices

K :	0	1	2	3	4	5	6	7	8	9	-
f :	11	45	51	50	33	36	18	4	0	0	0

OCTOBER 1986

PRINCIPAL MAGNETIC STORMS

OBSERVATORY	Commencement			SSC-amplitude			Max. 3hr K-index		Ranges			UT End		
	day	hr	min	type	D(')	H(nT)	Z(nT)	day (3hr-period)	K	D(')	H(nT)	Z(nT)	day	hr
Port Moresby								NIL						
Charters Towers	13	11	..	...	..	..	..	13 (7)	5	12.3	122	52	14	15
Gnangara	13	09	..	...	..	..	..	13 (7)	6	25	140	110	14	21
Canberra	13	14	57	ssc	+0.3	+21	+ 3	13 (7)	6	24.5	138	60	14	14

OCTOBER 1986
PRELIMINARY MONTHLY MEAN VALUES

OBSERVATORY	H	D	Z	F
	nT	deg min	nT	nT
PORT MORESBY	35934	06° 35.0' E	-23714	43055
CHARTERS TOWERS	31779	07° 44.5' E	-38272	49745
GNANGARA	23238	03° 14.6' W	-53796	58600
CANBERRA	23696	12° 23.6' E	-53709	58704
MACQUARIE ISLAND	12594	29° 20' E	-63578	64811
MAWSON	18478	63° 51.5' W	-46256	49810
DAVIS	16579	76° 58' W	-52224	54792
CASEY	9621	91° 12' W	-64056	64775

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			NIL			
CANBERRA	13	ssc B	14 57	+21	+2	+3

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