

1954/21

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

RECORDS 1954, No. 21

STATEMENT OF
MAGNETIC SURVEYS
IN
AUSTRALIA
AND
SUB-ANTARCTIC ISLANDS,
1951-1953

(AS SUBMITTED TO I.U.G.G.)

by

L. S. PRIOR

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ABSTRACT

This report summarises the activities of the Geophysical Section of the Bureau of Mineral Resources, Geology and Geophysics of the Department of National Development in so far as the magnetic secular variation at stations under its control is concerned. It is a continuation of previous reports submitted to the International Union of Geodesy and Geophysics, the last of which covered activities during the years 1948-51.

ABSOLUTE FIELD OBSERVATIONS

A programme has been drawn up for the re-occupation and/or establishment of some 500 absolute magnetic field stations throughout Australia and its dependencies. During 1952, part of this programme was carried out and the stations re-occupied or established are listed in Appendix 1. Of the 48 stations at which observations were made 29 were in Tasmania and the remaining 19 selected around the border of the Australian mainland. In Tasmania, 18 completely new stations were established, the remainder being proximate or close re-occupations of previous C.I.W. stations. On the continent 7 new stations were created while 12 were exact or close re-occupations of stations previously established by C.I.W. or North Australian Surveys.

It is intended to commence a re-survey of Victoria shortly when it is expected that between 30 and 40 stations will be either established or re-occupied. The survey will then be extended through New South Wales and Queensland. Consideration is also being given to a re-survey of C.I.W. stations on the Canning Stock Route in Western Australia.

MAGNETIC MAPS OF AUSTRALIA

As a result of the above survey an isogonic map of Australia for epoch 1955.5 was prepared. The main points to note about this map, when compared with the previous one produced for epoch 1950.5 are:-

- (i) That the declination over Tasmania is from two-thirds to three-quarters of a degree more easterly than would have been expected from the 1950.5 map.
- (ii) The annual rate of change of declination over the south-eastern part of Australia shows an increased positive or easterly value.
- (iii) The annual rate of change of declination over the north-western part of the mainland now shows a small negative or westerly value instead of the small positive value shown in previous years.

Magnetic maps of Tasmania for declination, horizontal intensity and inclination are in course of preparation.

MAGNETIC OBSERVATORIES

Magnetic observatories at Watheroo (Lat. $30^{\circ}19'S$, Long. $115^{\circ}53'E$.) and Toolangi (Lat. $37^{\circ}32'S$, Long. $145^{\circ}28'E$.) have been maintained and all observations carried out to ensure adequate base line and temperature control of variometers. Intercomparisons of absolute equipment at these observatories have been made with C.I.W. Magnetometer No.18 and with QHM's on world circuit.

Magnetic observatories at Heard Island (Lat. $53^{\circ}02'S$, Long. $73^{\circ}22'E$.) and Macquarie Island (Lat. $54^{\circ}30'S$, Long. $158^{\circ}57'E$.) have been established on a full-time basis and since March 1952 continuous recording of the earth's magnetic field and requisite instrumental control have been maintained.

An observer has accompanied the Australian National Antarctic Research Expedition to the Antarctic continent and he will set-up an absolute magnetic field station during the ship's stay in Antarctic waters. Provision has been made for declination observations to be determined with a compass-theodolite by a member of the party during sledging trips to be undertaken in the next year. A search will also be made for a site suitable for the establishment of a magnetic observatory.

A site suitable for the establishment of a magnetic observatory in New Guinea has been found about eight miles south-east of Port Moresby. Negotiations are now taking place for the acquisition of the land and it is hoped to commence regular absolute observations during 1954.

Since September 1952 the Department of National Development has been issuing each month the "Geophysical Observatory Report" containing magnetic disturbance indices and preliminary mean monthly values of the magnetic elements reported from the observatories under its control. The report is distributed to 100 collaborating observatories and institutions.

In Appendix 2 are listed:-

Provisional Values of the Magnetic Elements for Watheroo 1951-52-53.
" " " " " " Toolangi 1951-52-53.
Absolute observations made at Heard Island 1951-52.
" " " " Isles de Kerguelen 1952.
Final Values of the Magnetic Elements at Heard Island 1952.
Provisional Values of the Magnetic Elements at Heard Island 1953.
Final Values of Declination at Macquarie Island 1952.
Provisional Values Horizontal Intensity and Vertical Intensity at Macquarie Island 1952.
Provisional Values of the Magnetic Elements at Macquarie Island 1953.

AEROMAGNETIC SURVEYS

During the report period, approximately 24,000 sq.miles of the continent have been surveyed magnetically from the air. This area is made up of seven smaller areas ranging from 1,000 sq. miles to 9,000 sq. miles. Only changes in total force have been measured so far, but steps are being taken to develop a technique to determine three components of the field intensity during flight.

REPORTS ISSUED

"Geophysical Observatory Report" issued at monthly intervals.

Observations of Terrestrial Magnetism at Heard, Kerguelen and Macquarie Islands 1947-48 - N.G. Chamberlain.

A Provisional Isogonic Map of Australia and New Guinea - F.W. Wood and I.B. Everingham.

Magnetic Observations at Heard, Kerguelen and Macquarie Islands 1947-51 - F. Jacka (Australian National Antarctic Research Expedition).

REPORTS IN PREPARATION

Magnetic Results from Heard Island 1952 - L.N. Ingall.

Magnetic Results from Macquarie Island 1952 - P.M. McGregor.

APPENDIX 1

FIELD MAGNETIC OBSERVATIONS, 1952

Name of Station	Latitude	Longitude	Date	Declination		Horizontal Intensity		Inclination		Remarks
				L.M.T.	Value	L.M.T.	Value	L.M.T.	Value	
Hobart "E", Tasmania.	42 52.2S	147 19E	1952 March 7 " 8	h m	o ' "	h m	Gamma	h m	o ' "	New station. Proxi- mate reoccupation of C.I.W. station A,B, C & D only.
				11 05	+11 41.8	12 30	19425	16 58	-72 02.1	
				15 01	+11 46.8	14 34	19431			
Southport "A", Tasmania.	43 25.9	146 57	March 10	11 22	+13 17.9	12 06	18447	10 35	-72 55.6	Close reoccupation of C.I.W. station 1914, 1923
				14 31	+13 24.1	14 03	18472	15 17	-72 53.0	
Hastings Caves, Tasmania.	43 25.0	146 53	March 11 " 12	14 54	+11 24.2	12 05	18837	13 50	-72 37.5	New station. Estab- lished check on Southport which is disturbed.
				12 43	+11 18.9	15 26	18883	14 00	-72 37.2	
National Park, Tasmania.	42 41.7	146 44	March 18 " 19	14 28	+11 28.0	14 59	19376	11 00	-72 10.1	New station.
				17 24	+11 26.1	16 57	19386	09 32	-72 09.3	
Dee Bridge "B", Tasmania.	42 17.2	146 35	March 20	09 22	+13 48.4	09 53	20020	12 20	-71 09.8	Practical reoccupa- tion of C.I.W. station of 1914
				11 31	+13 53.0	11 03	20018	16 50	-71 06.9	
Derwent Bridge, Tasmania.	42 09.0	146 14	March 24	15 17	+11 27.1	15 52	19742	10 45	-71 41.3	New station.
				17 34	+11 20.5	17 08	19761	14 25	-71 43.0	
Gormanston, Tasmania.	42 04.2	145 37	March 27	14 03	+11 05.0	14 47	19789	10 26	-71 47.3	New station
				16 07	+11 04.2	15 42	19785	17 34	-71 46.6	

Name of Station	Latitude	Longitude	Date	Declination		Horizontal Intensity		Inclination		Remarks
				L.M.T.	Value	L.M.T.	Value	L.M.T.	Value	
Strahan "B", Tasmania.	o ' 42 19.6S	o ' 145 21E	1952 April 1	h m 13 19 15 39	o ' +11 08.5 +11 10.8	h m 13 47 14 58	Gammas 19662 19674	h m 17 12 17 25	o ' -71 51.7 -71 52.5	Proximate reoccupa- tion of C.I.W. station 1914.
Caveside, Tasmania.	41 36.5	146 25	April 3	13 42 16 07	+11 10.6 +11 17.3	14 20 15 35	20032 20053	11 29 17 12	-71 21.0 -71 18.5	New station.
Latrobe, Tasmania.	41 15.3	146 24	April 7	10 41 12 45	+11 25.4 +11 28.7	11 13 12 19	20316 20329	09 51 13 58	-71 06.9 -71 03.2	Proximate reoccupa- tion of C.I.W. station 1914 & 1923.
Guildford Junction,Tas.	41 25.6	145 41	April 10	13 47 15 20	+11 19.1 +11 15.1	14 27 15 40	20059 20093	11 32 15 54	-71 21.9 -71 20.3	New station.
Corinna, Tasmania.	41 39.5	145 04	April 11 " 12	17 11 11 01	+10 30.1 +10 30.3	11 29 15 57	19991 20026	 10 25 12 28	 -71 24.0 -71 23.6	New station.
Rockey Cape, Tasmania.	40 52.4	145 31	April 15 16	14 59 12 22	+10 35.4 +10 31.8	14 24 12 48	20574 20577	11 48 14 07	-70 46.2 -70 45.7	New station.
Marrawah, Tasmania.	40 54.6	144 38	April 17	14 10 16 21	+10 28.3 +10 24.8	14 44 15 52	20443 20440	13 26 16 53	-70 55.3 -70 53.4	New station.
Langford, Tasmania	41 35.9	147 06	April 21	13 26 15 30	+11 29.1 +11 29.0	14 00 15 04	20112 20121	11 53 16 02	-71 12.3 -71 12.7	Close reoccupation of C.I.W. station of 1913,1925 & 1936.

Name of Station	Latitude	Longitude	Date	Declination		Horizontal Intensity		Inclination		Remarks
				L.M.T.	Value	L.M.T.	Value	L.M.T.	Value	
Bridport, Tasmania.	° ' 41 01.4S	° ' 147 24E	1952 April 23	h m 11 42 15 50	° ' +11 35.4 +11 39.3	h m 14 09 15 20	Gammas 20638 20662	h m 10 58 16 29	° ' -70 41.0 -70 40.5	New Station.
Gladstone "B" Tasmania	40 58.1	148 00.7	April 25	09 55 11 45	+11 41.9 +11 43.0	10 25 11 32	20729 20727	09 03 13 32	-70 32.0 -70 32.0	Proximate reoccupa- tion $\frac{1}{4}$ mile east of C.I.W. station of 1914.
Scamander "C" Tasmania.	41 28.1	148 16	April 27 " 28	15 45 10 26	+12 00.7 +11 52.8	16 14 09 59	20431 20440	14 21 11 11	-70 52.9 -70 52.8	Practical reoccupa- tion of C.I.W. station of 1914.
Douglas River, Tasmania	41 47.3	148 15.6	April 29 May 1	16 56 11 37	+11 55.2 +11 48.2	10 22 11 14	20109 20102	16 00 13 07	-71 12.8 -71 13.3	New station.
Coles Bay, Tasmania.	42 08.6	148 19	May 3	10 36 14 52	+11 59.0 +12 00.8	11 07 14 20	20000 20042	15 46 16 59	-71 23.0 -71 22.3	New station.
Campbell Town, Tasmania	41 56.3	147 30	May 5	10 21 13 53	+11 44.6 +11 47.4	10 52 13 26	20013 20069	09 39 14 31	-71 30.2 -71 27.4	New station.
Conara Jnctn. Tasmania.	41 50.3	147 26	May 6	10 29 14 35	+12 23.1 +12 25.4	13 03 14 07	20381 20376	09 41 15 16	-71 02.3 -71 03.2	New station.
Oatlands "B" Tasmania	42 18.6	147 23	May 8	13 21 15 25	+11 36.2 +11 32.9	13 51 14 57	19671 19713	11 29 16 41	-71 42.5 -71 41.6	New station. Proximate reoccupa- tion of C.I.W. station of 1914.

Name of Station	Latitude	Longitude	Date	Declination		Horizontal Intensity		Inclination		Remarks
				L.M.T.	Value	L.M.T.	Value	L.M.T.	Value	
Interlaken, Tasmania	42 09.1S	147 10.2E	1952 May 10	h m	o ' "	h m	Gamma	h m	o ' "	New station.
				11 12	+11 37.2	11 50	19643	11 17	-71 48.0	
				12 56	+11 39.3	12 35	19648	14 39	-71 46.5	
Triabunna, Tasmania.	42 30.5	147 56	May 13	10 45	+12 17.5	11 18	19668	11 20	-71 48.4	New station.
				12 47	+12 22.0	12 21	19666	14 55	-71 48.3	
Sorrell, Tasmania.	42 47.2	147 34	May 14	14 24	+14 07.3	14 54	19352	09 36	-72 06.8	Close reoccupation of 1936 station.
				16 12	+14 05.7	15 50	19350	13 45	-72 07.6	
Stromlea, Tasmania.	43 10.6	147 45	May 16	13 16	+11 48.9	13 46	19444	11 30	-71 57.5	New station.
				15 08	+11 51.0	14 42	19456	15 52	-71 57.4	
Eaglehawk Nook, Tasmania.	43 01.2	147 56	May 17	12 57	+12 27.1	13 24	19368	11 19	-72 06.3	New station.
				14 35	+12 28.6	14 12	19375	15 18	-72 06.1	
Cox's Bight, Tasmania.	43 29.7	146 13	May 23	12 54	+11 35.7	13 24	18893	11 33	-72 40.1	New station.
Amberley, Queensland.	27 39.2	152 44	July 15	11 18	+09 41.8	13 46	29411	10 47	-57 27.9	New station.
				14 57	+09 43.5	14 36	29437	15 50	-57 21.2	
Brisbane, Queensland.	27 31.1	153 09	July 18	11 14	+09 46.8	13 41	29513	10 28	-57 02.6	Reoccupation of 1944 station.
				15 38	+09 49.5	15 04	29510	16 26	-57 03.9	
Garbutt, Q'ld. Townsville R.A.A.F.	19 16.0	146 45.8	July 22	09 42	+06 49.8	10 10	33696	13 45	-47 33.1	New station.
				11 20	+06 48.9	10 59	33719	16 30	-47 34.4	
Thursday Island "B"	10 35.0	142 13.2	July 24	12 59	+05 02.2	13 25	36552	11 31	-34 27.3	Proximate reoccupa- tion of C.I.W.station.
				15 06	+05 02.3	14 30	36552	16 10	-34 31.1	

Name of Station	Latitude	Longitude	Date	Declination		Horizontal Intensity		Inclination		Remarks
				L.M.T.	Value	L.M.T.	Value	L.M.T.	Value	
Cloncurry "A", Queensland.	o ' 20 41.8S	o ' 140 30E	1952 July 29	h m 12 18 15 47	o ' +05 08.4 +05 10.3	h m 14 10 15 18	Gammas 33265 33270	h m 10 14 11 26	o ' -50 21.6 -50 19.5	Reoccupation of Aust. Survey station of 1939.
Tennant Creek, N.T.	19 33.6	134 14	Aug. 1	11 42 14 26	+04 30.1 +04 32.1	13 26 14 06	33175 33180			Reoccupation of Nth. Aust. Survey station of 1945.
Darwin "A" N.T.	12 26.8	130 49.8	Aug. 8	14 04 15 34	+03 40.8 +03 40.4	14 26 15 12	36102 36996	15 03 15 52	-39 02.1 -39 02.6	Reoccupation of Nth. Aust. Survey station of 1945.
Wyndham, W.Aust.	15 29.5	128 07	Aug. 18	10 27 15 05	+03 19.5 +03 23.9	11 06	34899			New station.
Broome "B" W.Aust.	17 58.5	122 14	Aug. 21	09 20 11 03	+02 33.9 +02 31.9	09 47 10 38	33348 33330			Close reoccupation of Nth. Aust. Survey station of 1944.
Port Hedland, W. Aust.	20 18.7	118 35	Aug. 23	09 41 11 59	+01 28.6 +01 25.8	10 23 11 28	31754 31758			Close reoccupation of N.A.S. station of 1944.
Carnarvon "B" W. Aust.	24 52.6	113 39	Aug. 25	15 56 17 27	-00 57.9 -00 58.2	16 20 17 06	28167 28167			Close reoccupation of N.A.S. station 1944
Geraldton, W. Aust.	28 47.0	114 38	Aug. 26	15 39 17 41	-01 54.2 -01 55.5	16 09 17 14	25881 25882			Reoccupation of N.A.S. station of 1944.

Name of Station	Latitude	Longitude	Date	Declination		Horizontal Intensity		Inclination		Remarks
				L.M.T.	Value	L.M.T.	Value	L.M.T.	Value	
Onslow, W. Aust.	o ' 21 36.4S	o ' 115 09E	1952 Aug. 27	h m 15 60	o ' +00 44.0	h m 16 17	Gammas 30285	h m o ' 16 56		New station.
				17 16	+00 43.1	16 56	30306			
Augusta "B", W. Aust.	34 19.2	115 09	Sept. 3	14 49	-03 52.6	15 21	21779			New station.
			" 4	17 06	-03 59.9	16 37	21787			
			" 4	10 25	-03 57.8	11 00	21777			
Mt. Yokine W. Aust.	31 53.1	115 50	Sept. 8	11 06	-03 05.2	11 32	23968			Reoccupation of N.A.S. station of 1944.
				14 28	-02 56.8	13 54	23934			
Esperance "B" W. Aust.	33 52.1	121 53	Sept. 11	10 48	-00 39.0	11 13	23230			Close reoccupation of N.A.S. station of 1944
				13 11	-00 35.3	12 44	23183			
Forrest, W. Aust.	30 51.0	128 06	Sept. 19	10 34	+02 25.5	14 35	25942			New station.
				15 57	+02 32.8	15 33	25943			
Tarcoola, S. Aust.	30 42.5	134 34	Sept. 22	11 01	+05 00.0	13 39	26436			New station.
				14 55	+05 06.0	14 32	26443			
Belair, S. Aust.	35 00.8	138 37	Sept. 26	11 14	+06 43.3	13 39	23815			Reoccupation of N.A.S. station of 1944.
				14 56	+06 44.5	14 34	23810			

APPENDIX 2

PROVISIONAL VALUES OF MAGNETIC ELEMENTS AT WATHEROO, 1951-53

Date	Declination West		Intensity	
			Horizontal	Vertical
1951	Degrees	Minutes	Gammas	Gammas
January	02	48.9	24849	-52088
February	02	48.8	24842	-52065
March	02	48.4	24840	-52067
April	02	49.0	24832	-52067
May	02	48.1	24832	-52085
June	02	49.3	24838	-52062
July	02	48.4	24836	-52059
August	02	48.4	24839	-52098
September	02	48.4	24819	-52126
October	02	48.6	24834	-52158
November	02	48.7	24853	-52110
December	02	48.4	24848	-52103
Annual Mean	02	48.6	24838	-52091

Date	Declination West		Intensity	
			Horizontal	Vertical
1952	Degrees	Minutes	Gammas	Gammas
January	02	48.5	24850	-52117
February	02	48.2	24844	-52112
March	02	48.0	24841	-52122
April	02	48.2	24833	-52103
May	02	47.6	24842	-52128
June	02	47.4	24841	-52121
July	02	47.3	24855	-52136
August	02	47.5	24848	-52113
September	02	47.2	24838	-52106
October	02	47.9	24846	-52108
November	02	47.4	24859	-52119
December	02	47.5	24858	-52129
Annual Mean	02	47.7	24846	-52118

Date	Declination West		Intensity	
			Horizontal	Vertical
1953	Degrees	Minutes	Gammas	Gammas
January	02	46.8	24854	-52112
February	02	47.0	24865	-52159
March	02	47.6	24848	-52133
April	02	46.8	24848	-52121
May	02	46.5	24841	-52131
June	02	46.9	24856	-52140
July	02	46.6	24850	-52146
August	02	46.1	24841	-52135
September	02	46.9	24837	-52152
October	02	47.0	24864	-52163
November	02	47.1	24867	-52184
December	02	46.9	24874	-52150
Annual Mean	02	46.9	24854	-52144

APPENDIX 2

PROVISIONAL VALUES OF MAGNETIC ELEMENTS AT TOOLANGI, 1951-53

Date	Declination East		Intensity	
			Horizontal	Vertical
1951	Degrees	Minutes	Gammas	Gammas
January	09	36.5	22825	-56374
February	09	37.3	22814	-56385
March	09	37.9	22807	-56391
April	09	38.4	22796	-56392
May	09	39.0	22796	-56401
June	09	39.3	22805	-56402
July	09	39.6	22803	-56410
August	09	39.9	22801	-56410
September	09	40.4	22783	-56415
October	09	40.6	22792	-56413
November	09	40.6	22801	-56411
December	09	40.9	22803	-56409
Annual Mean	09	39.2	22802	-56401

Date	Declination East		Intensity	
			Horizontal	Vertical
1952	Degrees	Minutes	Gammas	Gammas
January	09	41.3	22798	-56412
February	09	42.1	22790	-56413
March	09	42.9	22787	-56428
April	09	43.2	22778	-56429
May	09	43.7	22780	-56434
June	09	44.1	22787	-56426
July	09	44.9	22785	-56423
August	09	45.1	22788	-56422
September	09	45.4	22781	-56428
October	09	46.0	22784	-56427
November	09	46.4	22794	-56427
December	09	46.3	22794	-56431
Annual Mean	09	44.3	22787	-56425

Date	Declination East		Intensity	
			Horizontal	Vertical
1953	Degrees	Minutes	Gammas	Gammas
January	09	46.8	22796	-56438
February	09	47.5	22798	-56426
March	09	48.0	22780	-56434
April	09	48.7	22780	-56434
May	09	49.0	22774	-56443
June	09	49.2	22779	-56427
July	09	49.5	22775	-56434
August	09	49.9	22774	-56439
September	09	50.3	22768	-56442
October	09	50.8	22774	-56429
November	09	51.1	22776	-56414
December	09	51.1	22791	-56431
Annual Mean	09	49.3	22780	-56433

APPENDIX 2

ABSOLUTE MAGNETIC OBSERVATIONS AT HEARD ISLAND AND THE
ISLES DE KERGUELEN

(i) HEARD ISLAND

1951-1952

Date	Declination West		Horizontal Intensity	Inclination	
1951	Degrees	Minutes	Gammas	Degrees	Minutes
27 July	49	40.3			
30 "				-69	34.5
31 "	49	43.9			
17 August				-68	33.9
18 "			18467		
4 October				-68	37.5
6 "	49	48.4	18460		
21 November	49	44.1	18462	-68	35.7
1952					
22 January	49	46.8	18483	-68	33.1

(ii) ISLES DE KERGUELEN

1952

Date	Declination West		Horizontal Intensity	Inclination	
1952	Degrees	Minutes	Gammas	Degrees	Minutes
5 March	48	34.0	18208		

APPENDIX 2

FINAL VALUES OF MAGNETIC ELEMENTS AT HEARD ISLAND 1952

Month	Declination West		Intensity	
			Horizontal	Vertical
	Degrees	Minutes	Gammas	Gammas
March	49	54.4	18450	-47077
April	49	57.4	18432	-47081
May	49	57.1	18445	-47088
June	49	56.0	18463	-47102
July	49	57.2	18467	-47109
August	49	58.3	18470	-47114
Sept.	49	59.8	18460	-47117
October	49	59.9	18466	-47120
November	50	00.1	18477	-47136
December	50	00.7	18478	-47142

PROVISIONAL VALUES OF MAGNETIC ELEMENTS AT HEARD ISLAND 1953

Month	Declination West		Intensity	
			Horizontal	Vertical
	Degrees	Minutes	Gammas	Gammas
January	50	01.4	18483	-47150
February	50	03.6	18470	-47151
March	50	06.3	18461	-47158
April	50	06.9	18472	-47172
May	50	07.6	18473	-47181
June	50	08.1	18482	-47189
July	50	09.4	18477	-47196
August	50	10.4	18476	-47205
September	50	12.1	18470	-47210
October	50	12.2	18479	-47213
November	50	12.2	18489	-47227
December	50	12.8	18496	-47231
Annual Mean	50	08.6	18477	-47190

APPENDIX 2

FINAL VALUES OF DECLINATION AND PROVISIONAL VALUES OF HORIZONTAL INTENSITY AND VERTICAL INTENSITY AT MACQUARIE ISLAND 1952

Month	Declination East Final		Intensity	
			Horizontal Provisional	Vertical Provisional
	Degrees	Minutes	Gammas	Gammas
April	24	02.9	13345	-64556
May	24	03.2	13336	-64557
June	24	03.9	13351	-64555
July	24	05.0	13355	-64544
August	24	05.2	13375	-64545
September	24	05.3	13346	-64548
October	24	05.6	13344	-64537
November	24	06.4	13354	-64532
December	24	08.0	13352	-64538

PROVISIONAL VALUES OF MAGNETIC ELEMENTS AT MACQUARIE ISLAND 1953

Month	Declination East		Intensity	
			Horizontal	Vertical
	Degrees	Minutes	Gammas	Gammas
January	24	08.0	13350	-64543
February	24	09.3	13348	-64540
March	24	11.1	13330	-64539
April	24	11.1	13345	-64534
May	24	12.9	13345	-64539
June	24	13.7	13360	-64535
July	24	15.4	13355	-64536
August	24	16.7	13345	-64536
September	24	17.1	13335	-64534
October	24	19.0	13332	-64536
November	24	20.4	13343	-64518
December	24	18.1	13367	-64513
Annual Mean	24	14.4	13346	-64534