

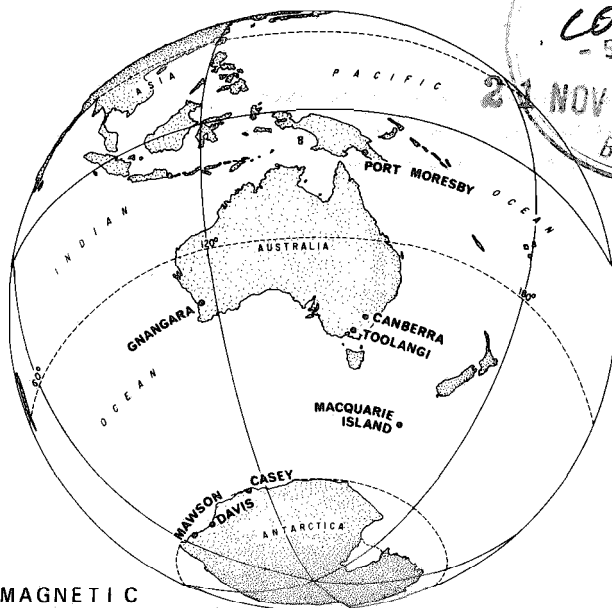
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BUREAU OF MINERAL RESOURCES.  
GEOLOGY & GEOPHYSICS

# GEOPHYSICAL OBSERVATORY REPORT

064494



MAGNETIC  
OBSERVATORIES

Volume 27, No.1  
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DEPARTMENT OF NATIONAL DEVELOPMENT

MINISTER: The Hon. K.E. Newman, M.P.

SECRETARY: A. Woods

BUREAU OF MINERAL RESOURCES, GEOLOGY & GEOPHYSICS

DIRECTOR: L.C. Noakes

THIS REPORT WAS PREPARED IN THE GEOPHYSICAL BRANCH

ASSISTANT DIRECTOR: N.G. Chamberlain

SUPERVISING GEOPHYSICIST: P.M. McGregor

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The observers at Casey and Davis are physicists of the Antarctic Division (Department of Science and the Environment) 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:

GEOPHYSICAL OBSERVATORY SUBSECTION  
BUREAU OF MINERAL RESOURCES  
P.O. BOX 378  
CANBERRA CITY, A.C.T. 2601

# CONTRIBUTING OBSERVATORIES

| OBSERVATORY  | OBSERVER<br>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 | -43.5°      | 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  | K.D. Wake-Dyster      | 54°30'S    | 158°57'E | -61.1°      | 243.1° |
| MAWSON       | M.J. Sexton           | 67°36'S    | 62°53'E  | -73.1°      | 102.9° |
| DAVIS        | J. Morrissey          | 68°35'S    | 77°58'E  | -76.7°      | 119.9° |
| CASEY        | J. Hudsworth          | 66°17'S    | 110°32'E | -77.6°      | 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.

# CANBERRA MAGNETIC OBSERVATORY

The Canberra Magnetic Observatory (CNB) was established during 1978. Regular reporting of preliminary monthly mean values will commence from January 1979; K-Indices and other data will be published later.

Canberra Observatory will replace the Toolangi Magnetic Observatory from 1 July 1979 when absolute observations will no longer be made at Toolangi; variation recordings will be made there for several years more.

# PORT MORESBY

MAGNETIC K-INDICES - JANUARY 1979

Range for lower limit of K = 9 is 300 nT

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

GNANGARA

MAGNETIC K-INDICES - JANUARY 1979

Range for lower limit of K = 9 is 450\* nT

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

\* The Lower limit of K = 9 was changed from 350 to 450 nT on 1 January 1979 in accordance with an IAGA instruction.

TOOLANG1

MAGNETIC K-INDICES - JANUARY 1979

Range for lower limit of K = 9.1s 500 nT

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



MACQUARIE ISLAND

MAGNETIC K-INDICES - JANUARY 1979

Range for lower limit of K = 9 is 1500 nT

| <u>Day</u> | <u>K-Indices</u> |   |   |   |   |   |   |   | <u>K-Sum</u> |
|------------|------------------|---|---|---|---|---|---|---|--------------|
| 01         | 2                | 4 | 2 | 1 | 4 | 2 | 1 | 3 | 19           |
| 02         | 2                | 2 | 1 | 5 | 5 | 5 | 5 | 3 | 28           |
| 03         | 3                | 3 | 3 | 7 | 5 | 5 | 4 | 3 | 33           |
| 04         | 5                | 5 | 5 | 5 | 5 | 7 | 8 | 4 | 44           |
| 05         | 4                | 6 | 3 | 5 | 2 | 6 | 3 | 2 | 31           |
| 06         | 3                | 2 | 3 | 6 | 6 | 6 | 4 | 2 | 32           |
| 07         | 2                | 1 | 2 | 6 | 7 | 6 | 7 | 4 | 35           |
| 08         | 3                | 2 | 3 | 1 | 1 | 2 | 3 | 2 | 17           |
| 09         | 3                | 5 | 4 | 3 | 4 | 3 | 3 | 2 | 27           |
| 10         | 2                | 2 | 1 | 0 | 0 | 0 | 1 | 2 | 08           |
| 11         | 1                | 2 | 2 | 2 | 2 | 0 | 0 | 0 | 09           |
| 12         | 2                | 2 | 3 | 2 | 4 | 2 | 1 | 3 | 19           |
| 13         | 2                | 1 | 0 | 3 | 3 | 1 | 1 | 1 | 12           |
| 14         | 1                | 2 | 3 | 4 | 5 | 4 | 1 | 1 | 21           |
| 15         | 2                | 3 | 4 | 6 | 5 | 4 | 4 | 3 | 31           |
| 16         | 3                | 4 | 3 | 3 | 5 | 3 | 1 | 2 | 24           |
| 17         | 0                | 1 | 1 | 1 | 4 | 4 | 2 | 2 | 15           |
| 18         | 2                | 1 | 1 | 4 | 3 | 5 | 2 | 2 | 20           |
| 19         | 4                | 6 | 3 | 3 | 3 | 4 | 2 | 2 | 27           |
| 20         | 2                | 3 | 3 | 5 | 4 | 5 | 3 | 2 | 27           |
| 21         | 2                | 2 | 2 | 5 | 4 | 3 | 2 | 1 | 21           |
| 22         | 1                | 2 | 2 | 2 | 6 | 1 | 5 | 4 | 23           |
| 23         | 2                | 2 | 3 | 6 | 6 | 6 | 6 | 5 | 36           |
| 24         | 4                | 3 | 3 | 7 | 5 | 3 | 2 | 2 | 29           |
| 25         | 4                | 5 | 4 | 5 | 6 | 6 | 5 | 3 | 38           |
| 26         | 4                | 5 | 4 | 6 | 5 | 6 | 6 | 4 | 40           |
| 27         | 3                | 5 | 4 | 4 | 3 | 5 | 3 | 4 | 31           |
| 28         | 3                | 3 | 3 | 5 | 3 | 3 | 4 | 2 | 26           |
| 29         | 3                | 3 | 3 | 2 | 7 | 4 | 2 | 2 | 26           |
| 30         | 3                | 2 | 3 | 3 | 6 | 3 | 2 | 3 | 25           |
| 31         | 3                | 2 | 2 | 4 | 4 | 3 | 2 | 3 | 23           |

MAWSON

MAGNETIC K-INDICES - JANUARY 1979

Range for lower limit of K = 9 is 1500 nT

| Day | K-Indices |   |   |   |   |   |   |   | K-Sum |
|-----|-----------|---|---|---|---|---|---|---|-------|
| 01  | 4         | 5 | 4 | 3 | 4 | 2 | 2 | 5 | 29    |
| 02  | 5         | 4 | 4 | 4 | 5 | 6 | 6 | 5 | 39    |
| 03  | 6         | 6 | 4 | 5 | 4 | 4 | 5 | 4 | 38    |
| 04  | 5         | 5 | 6 | 5 | 5 | 5 | 8 | 5 | 44    |
| 05  | 5         | 6 | 5 | 4 | 3 | 5 | 4 | 4 | 36    |
| 06  | 6         | 4 | 4 | 4 | 5 | 5 | 4 | 3 | 35    |
| 07  | 3         | 3 | 4 | 4 | 5 | 7 | 7 | 6 | 39    |
| 08  | 5         | 4 | 3 | 2 | 2 | 3 | 4 | 4 | 27    |
| 09  | 5         | 5 | 5 | 3 | 4 | 3 | 3 | 3 | 31    |
| 10  | 4         | 4 | 3 | 2 | 3 | 2 | 4 | 3 | 25    |
| 11  | 4         | 4 | 3 | 4 | 3 | 2 | 2 | 2 | 24    |
| 12  | 3         | 5 | 4 | 3 | 4 | 3 | 3 | 5 | 30    |
| 13  | 4         | 2 | 3 | 2 | 3 | 2 | 2 | 2 | 20    |
| 14  | 3         | 3 | 5 | 5 | 5 | 3 | 2 | 2 | 28    |
| 15  | 3         | 4 | 4 | 5 | 6 | 4 | 5 | 4 | 35    |
| 16  | 6         | 5 | 4 | 3 | 4 | 3 | 2 | 3 | 30    |
| 17  | 3         | 3 | 2 | 3 | 4 | 4 | 5 | 4 | 28    |
| 18  | 5         | 5 | 3 | 4 | 5 | 3 | 3 | 3 | 31    |
| 19  | 5         | 6 | 5 | 4 | 4 | 3 | 3 | 5 | 35    |
| 20  | 5         | 5 | 3 | 4 | 4 | 4 | 3 | 3 | 31    |
| 21  | 5         | 4 | 3 | 5 | 4 | 4 | 2 | 3 | 30    |
| 22  | 3         | 3 | 3 | 3 | 4 | 3 | 7 | 6 | 32    |
| 23  | 4         | 3 | 4 | 5 | 6 | 4 | 7 | 5 | 38    |
| 24  | 6         | 5 | 4 | 4 | 3 | 3 | 3 | 4 | 32    |
| 25  | 7         | 7 | 5 | 5 | 7 | 6 | 6 | 4 | 47    |
| 26  | 5         | 5 | 6 | 4 | 4 | 6 | 7 | 6 | 43    |
| 27  | 5         | 6 | 6 | 4 | 4 | 5 | 7 | 5 | 42    |
| 28  | 4         | 5 | 5 | 5 | 4 | 3 | 6 | 4 | 36    |
| 29  | 6         | 6 | 5 | 3 | 4 | 4 | 4 | 5 | 37    |
| 30  | 6         | 5 | 5 | 4 | 4 | 3 | 4 | 6 | 37    |
| 31  | 5         | 5 | 4 | 3 | 4 | 3 | 3 | 5 | 32    |

JANUARY 1979  
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 | 06           | 01 | 26  | ...  | ..             | ..    | ..    | 07             | (4,5,6,7)   | 5      | 10   | 110   | 80    | 08 | 11  |
| GNANGARA     | 06           | 01 | 27  | ssc* | -2.2           | -6*   | -6*   | 07             | (8)         | 6      | 18   | 110   | 120   | 08 | 12  |
| TOOLANGI     | 02           | 11 | 00  | ...  | ..             | ..    | ..    | 04             | (5,7)       | 5      | 17   | 150   | 70    | 05 | 06  |
|              | 06           | 01 | 28  | ssc  | +2             | +4    | ..    | 06             | (5)         | 5      | 20   | 130   | 50    | 08 | 00  |
|              |              |    |     |      |                |       |       | 07             | (6,7)       | 5      |      |       |       |    |     |
|              | 09           | 03 | 39  | ssc* | -7             | +90*  | +10   | 09             | (2,3)       | 5      | 7    | 120   | 60    | 09 | 16  |
|              | 23           | 09 | ..  | ...  | ..             | ..    | ..    | 23<br>25       | (4)<br>(5)  | 5<br>5 | 20   | 150   | 50    | 28 | 00  |

JANUARY 1979  
PRELIMINARY MONTHLY MEAN VALUES

| OBSERVATORY  | H     | D        | Z      | F     |
|--------------|-------|----------|--------|-------|
|              | nT    | o e      | nT     | nT    |
| PORT MORESBY | 35997 | 06 25.4E | -23572 | 43028 |
| GNANGARA     | 23459 | 03 16.3W | -53613 | 58521 |
| CANBERRA     | 23882 | 12 02.8E | -53767 | 58832 |
| TOOLANGI     | 22080 | 11 01.4E | -56308 | 60482 |
| MACQUARIE I  | 12768 | 28 14.9E | -63827 | 65092 |
| MAWSON       | 18446 | 62 53.5W | -46928 | 50423 |
| DAVIS        | 16937 | 75 43.7W | -52993 | 55634 |
| CASEY        | 9516  | 88 51.4W | -64463 | 65162 |

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 | 06  | ssc A            | 2330 | +17                                   | 0     | +12   |
|              | 09  | ssc* A           | 0340 | +48*                                  | +8*   | +46*  |
| GNANGARA     | 06  | ssc* B           | 0127 | -6*                                   | -15*  | -6*   |
|              | 09  | ssc* A           | 0340 | +12                                   | -55*  | -28*  |
| TOOLANGI     | 06  | ssc B            | 0128 | +4                                    | +13   | ..    |
|              | 09  | ssc* A           | 0339 | +90                                   | -43*  | +10   |