

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

203 Collins Street,  
MELBOURNE.                      VIC.

SEISMOLOGICAL BULLETIN.

MACQUARIE ISLAND



Latitude: 54° 29' 55" S.

Longitude: 158° 57' 22" E.

Height: 14M.

Foundation: Weathered Basaltic Lava.

Instruments: Wood-Anderson, two components  
 Period: 1 sec.  
 Damping: 0.85  
 Magnification: 2200

Grenet Vertical.

Period: Seismometer 1.4 sec., galvanometer 0.8 sec.

| Date             | Phase  | Time<br>(G.M.T.) | Per.     | Amplitude      |                |                | △  | Remarks         |
|------------------|--------|------------------|----------|----------------|----------------|----------------|----|-----------------|
|                  |        |                  |          | A <sub>N</sub> | A <sub>E</sub> | A <sub>Z</sub> |    |                 |
| 1959<br>DECEMBER |        | h. m. s.         | s.       |                |                |                | km |                 |
| 1                | iP     | NEZ              | 15 01 47 |                |                | -              |    | USCGS: 63S 154E |
|                  | iX     | Z                | 01 53    |                |                |                |    |                 |
|                  | iX     | Z                | 02 11    |                |                |                |    |                 |
|                  | iX     | Z                | 02 27    |                |                |                |    |                 |
|                  | e(S)   | NE               | 03(25)   |                |                |                |    |                 |
|                  | iX     | NE               | 04 27    |                |                |                |    |                 |
|                  | iX     | N                | 05 04    |                |                |                |    |                 |
|                  | iX     | E                | 05 14    |                |                |                |    |                 |
|                  | iX     | N                | 05 25    |                |                |                |    |                 |
|                  | iX     | NE               | 05 51    |                |                |                |    |                 |
| 2                | eP     | Z                | 09 44 18 |                |                |                |    | USCGS: 1S 123E  |
|                  | ipP    | Z                | 44 27    |                |                |                |    |                 |
|                  | iX     | Z                | 44 29    |                |                |                |    |                 |
|                  | iPcP   | Z                | 44 46    |                |                |                |    |                 |
| 10               | eL     | NEZ              | 03 01 .. |                |                |                |    |                 |
| 14               | iP     | Z                | 18 09 06 |                |                | +              |    | USCGS: 5N 126E  |
|                  | iPcP   | Z                | 09 35    |                |                |                |    |                 |
|                  | iX     | Z                | 09 39    |                |                |                |    |                 |
|                  | ipP    | Z                | 09 46    |                |                |                |    |                 |
|                  | eS     | NE               | 17 42    |                |                |                |    |                 |
| 14               | iP     | Z                | 21 59 34 |                |                | -              |    | USCGS: 1N 125E  |
|                  | ipP    | Z                | 59 45    |                |                |                |    |                 |
| 14               | iP     | Z                | 23 32 46 |                |                | -              |    | USCGS: 59½S 31W |
|                  | ipP    | Z                | 32 54    |                |                |                |    |                 |
|                  | iX     | N                | 33 20    |                |                |                |    |                 |
|                  | i(PcP) | Z                | 33 25    |                |                |                |    |                 |
|                  | iX     | Z                | 33 42    |                |                |                |    |                 |
|                  | eS     | NE               | 41 34    |                |                |                |    |                 |
|                  | eL     | E                | 48½..    |                |                |                |    |                 |
|                  | eM     | N                | 24 00 .. |                |                |                |    |                 |
| 25               | eP     | Z                | 10 31 42 |                |                |                |    | USCGS: 25½S 67W |

| Date<br>1960 | Phase  | Time<br>(G.M.T.) | Per.                   | Amplitude      |                |                | $\Delta$ | Remarks                                       |
|--------------|--------|------------------|------------------------|----------------|----------------|----------------|----------|-----------------------------------------------|
|              |        |                  |                        | A <sub>N</sub> | A <sub>E</sub> | A <sub>Z</sub> |          |                                               |
| JANUARY      |        | h. m. s.         | s.                     |                |                |                | km       |                                               |
| 16           | iP     | Z                | 07 00 48               |                |                | -              |          | USCGS: 59 $\frac{1}{2}$ S 149 $\frac{1}{2}$ E |
|              | e(S)   | NE               | 02 11                  |                |                |                |          |                                               |
|              | eM     | E                | 03 ..                  |                |                |                |          |                                               |
| 23           | iP     | Z                | 18 06 21               |                |                |                |          | USCGS: 4S 127 $\frac{1}{2}$ E                 |
|              | iX     | Z                | 06 46                  |                |                |                |          |                                               |
|              | i(PcP) | Z                | 06 53                  |                |                |                |          |                                               |
| 24           | iX     | Z                | 04 29 45               |                |                |                |          | USCGS: 15 $\frac{1}{2}$ S 179W                |
|              | eL     | NE               | 45 ..                  |                |                |                |          |                                               |
| FEBRUARY     |        |                  |                        |                |                |                |          |                                               |
| 3            | iP     | Z                | 02 25 51               |                |                |                |          | USCGS: 37S 179E                               |
|              | iX     | Z                | 25 56                  |                |                |                |          |                                               |
|              | ipP    | Z                | 26 01                  |                |                |                |          |                                               |
| 4            | iP     | Z                | 03 55 28               |                |                |                |          | USCGS: 4 $\frac{1}{2}$ S 153 $\frac{1}{2}$ E  |
|              | ipP    | Z                | 55 38                  |                |                |                |          |                                               |
|              | iX     | Z                | 55 56                  |                |                |                |          |                                               |
|              | iX     | Z                | 56 07                  |                |                |                |          |                                               |
|              | iX     | Z                | 56 15                  |                |                |                |          |                                               |
|              | iX     | Z                | 56 18                  |                |                |                |          |                                               |
|              | i(PcP) | Z                | 56 51                  |                |                |                |          |                                               |
|              | iS     | N                | 04 02 42               |                |                |                |          |                                               |
|              | iX     | NE               | 03 25                  |                |                |                |          |                                               |
|              | iX     | N                | 03 39                  |                |                |                |          |                                               |
| eG           | NE     | 08 ..            |                        |                |                |                |          |                                               |
| 7            | iP     | Z                | 10 17 46               |                |                | +              |          | USCGS: 5N 123E h = 600km                      |
| 10           | iP     | Z                | 00 05 35               |                |                |                |          | USCGS: 4S 128E                                |
|              | iX     | Z                | 05 37                  |                |                |                |          |                                               |
|              | iX     | Z                | 05 43                  |                |                |                |          |                                               |
|              | iX     | Z                | 05 47                  |                |                |                |          |                                               |
|              | iX     | Z                | 05 51                  |                |                |                |          |                                               |
|              | iPcP   | Z                | 06 27                  |                |                |                |          |                                               |
|              | iX     | Z                | 06 41                  |                |                |                |          |                                               |
|              | iPP    | Z                | 07 41                  |                |                |                |          |                                               |
|              | iX     | Z                | 07 53                  |                |                |                |          |                                               |
|              | iX     | Z                | 08 16                  |                |                |                |          |                                               |
|              | eL     | NE               | 24 ..                  |                |                |                |          |                                               |
| 21           | iP     | Z                | 00 50 32               |                |                | -              |          | USCGS: 42S 173E h = 60km                      |
|              | i(PP)  | Z                | 50 41                  |                |                |                |          |                                               |
|              | i(PPP) | Z                | 50 50                  |                |                |                |          |                                               |
| 24           | iP     | Z                | 21 45 40               |                |                | -              |          | USCGS: 7 $\frac{1}{2}$ S 156E                 |
| MARCH        |        |                  |                        |                |                |                |          |                                               |
| 4            | iP     | Z                | 04 05 51               |                |                |                |          | USCGS: 31N 129E h = 100km                     |
| 5            | i(P)   | Z                | 13 59 41               |                |                |                |          | USCGS: 1N 129E                                |
|              | iX     | Z                | 59 45                  |                |                |                |          |                                               |
|              | eL     | E                | 14 15 $\frac{1}{2}$ .. |                |                |                |          |                                               |
|              | eLM    | E                | 23 $\frac{1}{2}$ ..    |                |                |                |          |                                               |



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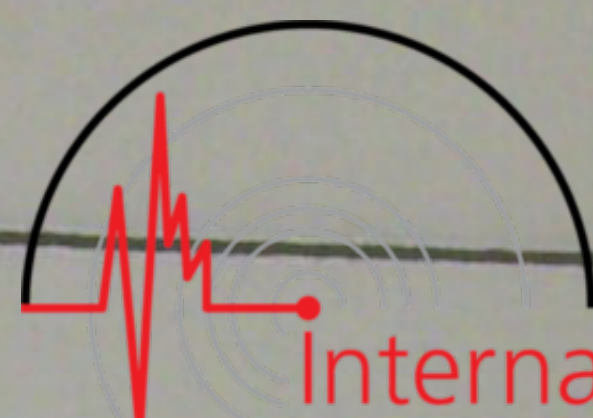
| Date<br>1960   | Phase  |     | Time<br>(G.M.T.) | Per. | Amplitude      |                |                | $\Delta$ | Remarks                                                 |
|----------------|--------|-----|------------------|------|----------------|----------------|----------------|----------|---------------------------------------------------------|
|                |        |     |                  |      | A <sub>N</sub> | A <sub>E</sub> | A <sub>Z</sub> |          |                                                         |
| MARCH (cont'd) |        |     | h. m. s.         | s.   |                |                |                | km       |                                                         |
| 8              | eL     | NE  | 11 57 ..         |      |                |                |                |          | USCGS: 65S 179 $\frac{1}{2}$ E                          |
| 8              | iP     | Z   | 16 40 40         |      | -              | -              | +              |          | USCGS: 16 $\frac{1}{2}$ S 168 $\frac{1}{2}$ E h = 250km |
|                | ipP    | N Z | 41 32            |      |                |                |                |          |                                                         |
|                | iX     | Z   | 41 52            |      |                |                |                |          |                                                         |
|                | i(SP)  | Z   | 42 07            |      |                |                |                |          |                                                         |
|                | iPP    | Z   | 42 17            |      |                |                |                |          |                                                         |
|                | iX     | Z   | 42 25            |      |                |                |                |          |                                                         |
|                | i(PcP) | EZ  | 42 48            |      |                |                |                |          |                                                         |
|                | iS     | NEZ | 46 16            |      |                |                |                |          |                                                         |
|                | isS    | E   | 48 04            |      |                |                |                |          |                                                         |
| 19             | iP     | Z   | 19 25 09         |      |                |                |                |          | USCGS: 3S 138E                                          |
| 22             | iP     | NEZ | 02 33 05         |      |                |                |                |          | USCGS: 61 $\frac{1}{2}$ S 154E                          |
|                | iX     | Z   | 33 07            |      |                |                |                |          |                                                         |
|                | iX     | Z   | 33 13            |      |                |                |                |          |                                                         |
|                | iS     | NE  | 34 34            |      |                |                |                |          |                                                         |
|                | eL     | N   | 34 39            |      |                |                |                |          |                                                         |
| 22             | eL     | NE  | 13 52 ..         |      |                |                |                |          | USCGS: 60 $\frac{1}{2}$ S 153E                          |
| 27             | eP     | Z   | 23 32 33         |      |                |                |                |          | USCGS: 37 $\frac{1}{2}$ S 177E                          |
|                | iX     | Z   | 32 37            |      |                |                |                |          |                                                         |
|                | iX     | Z   | 32 40            |      |                |                |                |          |                                                         |
| 29             | eP     | NEZ | 06 38 20         |      |                |                |                |          | USCGS: 17S 167E                                         |
|                | iX     | Z   | 38 25            |      |                |                |                |          |                                                         |
|                | eL     | E   | 47 ..            |      |                |                |                |          |                                                         |
|                | M      | N   | 51.7             |      |                |                |                |          |                                                         |
| APRIL          |        |     |                  |      |                |                |                |          |                                                         |
| 24             | iP     | EZ  | 03 31 46         |      |                |                |                |          | USCGS: 6S 113 $\frac{1}{2}$ E h = 600km                 |
|                | iPcP   | Z   | 32 23            |      |                |                |                |          |                                                         |
|                | epP    | Z   | 33 45            |      |                |                |                |          |                                                         |
|                | ePP    | Z   | 34 19            |      |                |                |                |          |                                                         |
| MAY            |        |     |                  |      |                |                |                |          |                                                         |
| 2              | iP     | Z   | 12 20 55         |      |                |                |                |          | USCGS: 0 121.5E                                         |
|                | iX     | Z   | 21 02            |      |                |                |                |          |                                                         |
| 20             | iP     | Z   | 11 18 22         |      |                |                |                |          | USCGS: 28S 167 $\frac{1}{2}$ E                          |
|                | ePP    | Z   | 19.2             |      |                |                |                |          |                                                         |
|                | eX     | NE  | 24.5             |      |                |                |                |          |                                                         |
|                | eLr    | E   | 25.4             |      |                |                |                |          |                                                         |
| 21             | iP     | Z   | 10 14 58         |      |                |                |                |          | USCGS: 37 $\frac{1}{2}$ S 73 $\frac{1}{2}$ W            |
|                | eS     | NE  | 24.5             |      |                |                |                |          |                                                         |
|                | eL     | NE  | 38.5             |      |                |                |                |          |                                                         |
| 22             | eL     | NE  | 11 09.5          |      |                |                |                |          | USCGS: 37 $\frac{1}{2}$ S 73W                           |
| 22             | iP     | NEZ | 19 23 11         |      |                |                |                |          | USCGS: 38S 73 $\frac{1}{2}$ W                           |
|                | iS     | NE  | 33 20            |      |                |                |                |          |                                                         |
|                | iL     | NE  | 47 26            |      |                |                |                |          |                                                         |
| 24             | iP     | N Z | 14 49 46         |      |                |                |                |          | USCGS: 44 $\frac{1}{2}$ S 167 $\frac{1}{2}$ E           |
|                | eL     | NE  | 52.3             |      |                |                |                |          |                                                         |



| Date<br>1960     | Phase                       | Time<br>(G.M.T.)                             | Per. | Amplitude      |                |                | $\Delta$ | Remarks                                       |
|------------------|-----------------------------|----------------------------------------------|------|----------------|----------------|----------------|----------|-----------------------------------------------|
|                  |                             |                                              |      | A <sub>N</sub> | A <sub>E</sub> | A <sub>Z</sub> |          |                                               |
| <u>JUNE</u>      |                             | h. m. s.                                     | s.   |                |                |                | km       |                                               |
| 4                | iP<br>iS                    | NEZ<br>NE                                    |      |                |                |                |          |                                               |
|                  |                             | 06 22 16<br>22 33                            |      |                |                |                |          |                                               |
| 6                | iP<br>eS<br>eX<br>eSS<br>eL | NEZ<br>NE<br>NE<br>E<br>NE                   |      |                |                |                |          | USCGS: 45 $\frac{1}{2}$ S 73 $\frac{1}{2}$ W  |
|                  |                             | 06 07 06<br>16 20<br>17 20<br>22 05<br>26 48 |      |                |                |                |          |                                               |
| 11               | iP                          | Z                                            |      |                |                |                |          | USCGS: 9S 152 $\frac{1}{2}$ E                 |
| 11               | iP<br>eL                    | Z<br>NE                                      |      |                |                |                |          | USCGS: 9 $\frac{1}{2}$ S 152 $\frac{1}{2}$ E  |
|                  |                             | 16 46 07<br>17 01.5                          |      |                |                |                |          |                                               |
| 15               | eL                          | NE                                           |      |                |                |                |          |                                               |
|                  |                             | 23 48 ..                                     |      |                |                |                |          |                                               |
| 20               | iP<br>eL                    | Z<br>NE                                      |      |                |                |                |          | USCGS: 38S 73 $\frac{1}{2}$ W                 |
|                  |                             | 02 13 15<br>38 ..                            |      |                |                |                |          |                                               |
| 20               | eL                          | EZ                                           |      |                |                |                |          | USCGS: 39 $\frac{1}{2}$ S 73W                 |
|                  |                             | 13 37 ..                                     |      |                |                |                |          |                                               |
| 22               | iP                          | NEZ                                          |      |                |                |                |          |                                               |
|                  |                             | 13 00 26                                     |      |                |                |                |          |                                               |
| <u>JULY</u>      |                             |                                              |      |                |                |                |          |                                               |
| 9                | iP<br>iS                    | NEZ<br>NEZ                                   |      |                |                |                |          |                                               |
|                  |                             | 18 35 07<br>35 22                            |      |                |                |                |          |                                               |
| 11               | eL                          | NE                                           |      |                |                |                |          | USCGS: 54S 140 $\frac{1}{2}$ E                |
|                  |                             | 07 38.3                                      |      |                |                |                |          |                                               |
| 29               | eP<br>eL                    | Z<br>NE                                      |      |                |                |                |          | USCGS: 19 $\frac{1}{2}$ S 170 $\frac{1}{2}$ E |
|                  |                             | 00 31 06<br>42.5                             |      |                |                |                |          |                                               |
| <u>AUGUST</u>    |                             |                                              |      |                |                |                |          |                                               |
| 2                | iP                          | Z                                            |      |                |                |                |          | USCGS: 22.2S 171.5E h = 108km                 |
|                  |                             | 05 13 57                                     |      |                |                |                |          |                                               |
| 9                | eL                          | NE                                           |      |                |                |                |          | USCGS: 24.5S 177.1W h = 186km                 |
|                  |                             | 16 05.5                                      |      |                |                |                |          |                                               |
| 23               | iP                          | NEZ                                          |      |                |                |                |          |                                               |
|                  |                             | 01 03 10                                     |      |                |                |                |          |                                               |
| <u>SEPTEMBER</u> |                             |                                              |      |                |                |                |          |                                               |
| 1                | iP                          | Z                                            |      |                |                |                |          | USCGS: 16.1S 179.6W h = 183km                 |
|                  |                             | 20 09 58                                     |      |                |                |                |          |                                               |
| 3                | iP<br>ipP<br>eS             | NEZ<br>NEZ<br>E                              |      |                |                |                |          | USCGS: 6.1S 154.5E                            |
|                  |                             | 12 49 36<br>50 59<br>56 ..                   |      |                |                |                |          |                                               |
| <u>OCTOBER</u>   |                             |                                              |      |                |                |                |          |                                               |
| 5                | iP                          | NEZ                                          |      |                |                |                |          |                                               |
|                  |                             | 23 12 31                                     |      |                |                |                |          |                                               |



| Date<br>1960     | Phase | Time<br>(G.M.T.) | Per.     | Amplitude      |                |                | $\Delta$ | Remarks                      |
|------------------|-------|------------------|----------|----------------|----------------|----------------|----------|------------------------------|
|                  |       |                  |          | A <sub>N</sub> | A <sub>E</sub> | A <sub>Z</sub> |          |                              |
| OCTOBER (cont'd) |       | h. m. s.         | s.       |                |                |                | km       |                              |
| 7                | iP    | NEZ              | 15 27 38 |                |                |                |          | USCGS: 7.4S 130.7E h = 45km  |
|                  | iPP   | Z                | 27 55    |                |                |                |          |                              |
|                  | eS    | NE               | 35 ..    |                |                |                |          |                              |
|                  | eL    | NE               | 42 ..    |                |                |                |          |                              |
| 22               | iP    | Z                | 08 29 53 |                |                |                |          | USCGS: 10.3S 161.2E          |
| 29               | iP    | Z                | 09 45 48 |                |                |                |          | USCGS: 15.8S 172.9W h = 99km |
| NOVEMBER         |       |                  |          |                |                |                |          |                              |
| 1                | iP    | Z                | 08 57 49 |                |                |                |          | USCGS: 38.4S 74.4W h = 97km  |
| 2                | iP    | NEZ              | 17 22 55 |                |                |                |          | USCGS: 10.9S 164.9E h = 25km |
|                  | eS    | N                | 29 26    |                |                |                |          |                              |
|                  | eL    | NE               | 36 ..    |                |                |                |          |                              |



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LOCAL DISTURBANCES HAVE BEEN RECORDED AT THE FOLLOWING TIMES :

1959 DEC. 3rd 10h 14m, 3rd 11 17, 4th 14 27

1960 JAN. 2nd 08 27, 3rd 19 09, 4th 19 38, 7th 13 07,  
9th 02 03, 13th 17 42, 14th 16 32

FEB. 11th 00 50

MAR. 13th 13 16, 29th 04 48

APRL. 12th 15 14, 15th 07 13, 17th 19 53

JUNE 9th 07 49, 9th 15 25

JULY 2nd 14 42, 14th 17 49, 25th 01 15

AUG. 1st 09 58, 10th 03 02, 15th 06 30, 22nd 13 05

SEPT. 8th 09 21, 8th 12 05, 11th 01 27, 12th 12 35  
15th 16 02, 27th 16 02

OCT. 15th 21 37

L.S. PRIOR  
A/CHIEF GEOPHYSICIST