

# CLEVELAND



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## SEISMOLOGICAL OBSERVATORY JOHN CARROLL UNIVERSITY, CLEVELAND 18, OHIO, U. S. A.

41° 29' 27.90" North, 81° 31' 52.22" West, h = 326 m.

Seismographs: Two Sprengnether long-period horizontal, one Benioff vertical.

Two Sprengnether short-period horizontal.

### JANUARY, 1961, BULLETIN

| <u>Date</u> | <u>Phase</u>                     | <u>Component</u> | <u>G. M. C. T.</u>                                  | <u>Remarks</u>  |
|-------------|----------------------------------|------------------|---|---|
| 5           | iP                               | Z                | 14 <sup>h</sup> 16 <sup>m</sup> 43.5 <sup>s</sup> c | USCGS: 51.6°N, 176.3°W<br>H = 14 <sup>h</sup> 06 <sup>m</sup> 25.9 <sup>s</sup><br>h = 37 km  |
| 10          | iP<br>iS                         | Z<br>E           | 14 34 05.0 c<br>14 43 41                            | USCGS: 49.9°N, 156.2°E<br>H = 14 <sup>h</sup> 22 <sup>m</sup> 18.2 <sup>s</sup><br>h = 29 km  |
| 11          | eP<br>eS                         | Z<br>E           | 12 09 49.2 d<br>12 17 45                            | USCGS: 51.8°N, 171.0°W<br>H = 11 <sup>h</sup> 59 <sup>m</sup> 55.0 <sup>s</sup><br>h = 47 km  |
| 16          | iS <sub>c</sub> P <sub>c</sub> S | E                | 07 44 00  | USCGS: 36.0°N, 141.1°E<br>H = 07 <sup>h</sup> 20 <sup>m</sup> 18.6 <sup>s</sup><br>h = 131 km |
| 16          | iS                               | E                | 12 36 49  | USCGS: 36.2°N, 141.7°E<br>H = 12 <sup>h</sup> 12 <sup>m</sup> 34.4 <sup>s</sup><br>h = 105 km |
| 19          | iP                               | n                | 17 34 05.6  | USCGS: 49.7°N, 155.8°E<br>H = 17 <sup>h</sup> 22 <sup>m</sup> 16.9 <sup>s</sup><br>h = 31 km  |
| 22          | ePS                              | E                | 03 53 32  | USCGS: 11.9°S, 166.2°E<br>H = 03 <sup>h</sup> 24 <sup>m</sup> 04.5 <sup>s</sup><br>h = 25 km  |
| 26          | iS P S<br>iPS <sub>c</sub>       | E<br>E           | 16 39 06<br>16 43 04                                | USCGS: 21.4°S, 169.5°E<br>H = 16 <sup>h</sup> 13 <sup>m</sup> 25.1 <sup>s</sup><br>h = 119 km |
| 31          | iP<br>iS                         | e<br>E           | 00 57 21.2<br>01 04 07                              | USCGS: 55.8°N, 153.9°W<br>H = 00 <sup>h</sup> 48 <sup>m</sup> 36.5 <sup>s</sup><br>h = 26 km  |

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## FEBRUARY 1961, BULLETIN

| <u>Date</u> | <u>Phase</u>                           | <u>Component</u> | <u>G. M. C. T.</u>                                |   | <u>Remarks</u>   |
|-------------|--|------------------|---|---|--|
| 4           | iP                                     | Z                | 01 <sup>h</sup> 23 <sup>m</sup> 01.8 <sup>s</sup> | d | USCGS: 18.3°S, 69.3°W<br>H = 01 <sup>h</sup> 15 <sup>m</sup> 05.0 <sup>s</sup><br>h = 178 km |
| 5           | iP<br>eSR <sub>1</sub>                 | Z<br>E           | 15 45 10.1<br>15 52 44                            | d | USCGS: 8.0°N, 82.8°W<br>H = 15 <sup>h</sup> 38 <sup>m</sup> 34.0 <sup>s</sup><br>h = 49 km   |
| 6           | eP <sub>1</sub> <sup>1</sup>           | Z                | 22 03 58.3  | c | USCGS: 6.8°S, 155.3°E<br>H = 21 <sup>h</sup> 45 <sup>m</sup> 13.5 <sup>s</sup><br>h = 59 km  |
| 8           | iP<br>iS                               | Z<br>n           | 08 12 33.8<br>08 19 13.8                          | d | USCGS: 10.6°S, 71.0°W<br>H = 08 <sup>h</sup> 04 <sup>m</sup> 13.8 <sup>s</sup><br>h = 669 km |
| 9           | ePR <sub>1</sub><br>iPS <sub>1</sub>   | Z<br>E           | 02 27 51.8<br>02 37 25                            | d | USCGS: 28.2°S, 177.4°W<br>H = 02 <sup>h</sup> 08 <sup>m</sup> 15.9 <sup>s</sup><br>h = 37 km |
| 12          | iP<br>iS <sub>c</sub> P <sub>c</sub> S | Z<br>N           | 22 06 14.9<br>22 16 32                            | c | USCGS: 43.7°N, 147.6°E<br>H = 21 <sup>h</sup> 53 <sup>m</sup> 43.5 <sup>s</sup><br>h = 45 km |
| 12          | eP<br>eS <sub>c</sub> P <sub>c</sub> S | Z<br>e           | 23 39 04.9<br>23 49 23                            | c | USCGS: 44.0°N, 147.7°E<br>H = 23 <sup>h</sup> 26 <sup>m</sup> 34.5 <sup>s</sup><br>h = 23 km |
| 13          | eSR <sub>1</sub>                       | E                | 07 18 38  |   | USCGS: 17.0°S, 173.7°W<br>H = 06 <sup>h</sup> 45 <sup>m</sup> 25.0 <sup>s</sup><br>h = 43 km |
| 13          | iP                                     | Z                | 16 39 54.7  | c | USCGS: 43.7°N, 149.6°E<br>H = 16 <sup>h</sup> 27 <sup>m</sup> 20.9 <sup>s</sup><br>h = 25 km |
| 14          | iP                                     | Z                | 03 34 35.6  | d | USCGS: 43.8°N, 147.9°E<br>H = 03 <sup>h</sup> 22 <sup>m</sup> 00.7 <sup>s</sup><br>h = 20 km |
| 15          | iP<br>iS <sub>c</sub> P <sub>c</sub> S | Z<br>E           | 10 57 46.8<br>11 08 08                            | d | USCGS: 43.7°N, 147.4°E<br>H = 10 <sup>h</sup> 45 <sup>m</sup> 15.9 <sup>s</sup><br>h = 69 km |
| 26          | eP<br>iPR <sub>1</sub>                 | Z<br>e           | 18 24 40.8<br>18 28 59.2                          | d | USCGS: 31.4°N, 131.2°E<br>H = 18 <sup>h</sup> 10 <sup>m</sup> 48.7 <sup>s</sup><br>h = 54 km |

## FEBRUARY, 1961, BULLETIN

(Continued)

| <u>Date</u> | <u>Phase</u> | <u>Component</u> | <u>G. M. C. T.</u>                                  | <u>Remarks</u>  |
|-------------|--------------|------------------|---|---|
| 27          | iP           | Z                | 01 <sup>h</sup> 14 <sup>m</sup> 36.2 <sup>s</sup> d | USCGS: 6.7°N, 73.0°W<br>H = 01 <sup>h</sup> 07 <sup>m</sup> 51.3 <sup>s</sup><br>h = 200 km |
| 27          | iP           | n                | 10 41 55.7  | USCGS: 38.7°S, 72.4°W<br>H = 10 <sup>h</sup> 29 <sup>m</sup> 48.3 <sup>s</sup><br>h = 57 km |

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## MARCH, 1961, BULLETIN

| <u>Date</u> | <u>Phase</u>                         | <u>Component</u> | <u>G. M. C. T.</u>                                |   | <u>Remarks</u>  |
|-------------|--------------------------------------|------------------|---|---|---|
| 4           | iP                                   | Z                | 10 <sup>h</sup> 29 <sup>m</sup> 53.5 <sup>s</sup> | d | USCGS: 20.4°S, 67.6°W<br>H = 10 <sup>h</sup> 19 <sup>m</sup> 33.7 <sup>s</sup><br>h = 109 km  |
| 7           | ePR <sub>1</sub><br>ePS <sub>1</sub> | Z<br>N           | 10 29 47.4<br>10 39 15                            | c | USCGS: 28.2°S, 175.7°W<br>H = 10 <sup>h</sup> 10 <sup>m</sup> 38.9 <sup>s</sup><br>h = 43 km  |
| 11          | iP                                   | Z                | 01 43 29.1  | c | USCGS: 48.7°N, 154.6°E<br>H = 01 <sup>h</sup> 31 <sup>m</sup> 34.4 <sup>s</sup><br>h = 26 km  |
| 13          | eP<br>eS                             | e<br>N           | 08 10 00.3<br>08 15 16                            |   | USCGS: 19.2°N, 107.3°W<br>H = 08 <sup>h</sup> 03 <sup>m</sup> 43.9 <sup>s</sup><br>h = 49 km  |
| 18          | iP <sub>1</sub> <sup>1</sup>         | e                | 15 14 11.9  |   | USCGS: 49.9°S, 163.3°E<br>H = 14 <sup>h</sup> 54 <sup>m</sup> 59.3 <sup>s</sup><br>h = 38 km  |
| 20          | iP                                   | n                | 06 22 30.3  |   | USCGS: 11.5°N, 86.3°W<br>H = 06 <sup>h</sup> 16 <sup>m</sup> 23.9 <sup>s</sup><br>h = 122 km  |
| 20          | eSKS                                 | E                | 16 17 24  |   | USCGS: 18.4°S, 175.2°W<br>H = 15 <sup>h</sup> 53 <sup>m</sup> 09.9 <sup>s</sup><br>h = 175 km |
| 28          | eP <sub>1</sub> <sup>1</sup>         | e                | 09 55 07  |   | USCGS: 0.2°N, 123.6°E<br>H = 09 <sup>h</sup> 35 <sup>m</sup> 55.4 <sup>s</sup><br>h = 83 km   |
| 28          | iP                                   | Z                | 12 39 25.7  | c | USCGS: 51.7°N, 176.2°W<br>H = 12 <sup>h</sup> 29 <sup>m</sup> 12.7 <sup>s</sup><br>h = 60 km  |
| 28          | iP                                   | Z                | 21 12 26.9  | d | USCGS: 8.7°S, 121.9°E<br>H = 20 <sup>h</sup> 54 <sup>m</sup> 40.3 <sup>s</sup><br>h = 76 km   |
| 30          | iS                                   | E                | 07 54 08  |   | USCGS: 22.0°N, 107.8°W<br>H = 07 <sup>h</sup> 42 <sup>m</sup> 59.4 <sup>s</sup><br>h = 20 km  |

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## APRIL, 1961, BULLETIN

| <u>Date</u> | <u>Phase</u>     | <u>Component</u> | <u>G. M. C. T.</u>                                  | <u>Remarks</u>   |
|-------------|------------------|------------------|---|--|
| 12          | iP               | Z                | 22 <sup>h</sup> 26 <sup>m</sup> 25.9 <sup>s</sup> c | USCGS: 13.1°N, 88.9°W<br>H = 22 <sup>h</sup> 20 <sup>m</sup> 33.6 <sup>s</sup><br>h = 122 km |
|             | iPR <sub>1</sub> | N                | 22 27 17  |  |
|             | eS <sub>1</sub>  | N                | 22 31 13  |  |
| 23          | iP               | Z                | 09 14 02.6 c  | USCGS: 44.6°N, 150.2°E<br>H = 09 <sup>h</sup> 01 <sup>m</sup> 41.8 <sup>s</sup><br>h = 44 km |
|             | iS               | E                | 09 24 13  |  |
| 26          | iP               | e                | 07 51 32.0  | USCGS: 44.6°N, 149.9°E<br>H = 07 <sup>h</sup> 38 <sup>m</sup> 54.1 <sup>s</sup><br>h = 20 km |
|             | iS               | E                | 08 01 30  |  |
| 29          | iP               | Z                | 09 26 22.5 c  | USCGS: 40.6°N, 127.5°W<br>H = 09 <sup>h</sup> 19 <sup>m</sup> 28.3 <sup>s</sup><br>h = 26 km |
|             | iS               | E                | 09 31 50  |  |

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## MAY, 1961, BULLETIN

| <u>Date</u> | <u>Phase</u> | <u>Component</u> | <u>G. M. C. T.</u>                                | <u>Remarks</u>   |
|-------------|--------------|------------------|---|--|
| 7           | i            | n                | 04 <sup>h</sup> 51 <sup>m</sup> 11.3 <sup>s</sup> |  |
| 8           | iP           | Z                | 19 34 24.8 d                                      | USCGS: 24.3°S, 69.7°W<br>H = 19 <sup>h</sup> 23 <sup>m</sup> 35.4 <sup>s</sup><br>h = 48 km  |
| 11          | iS           | E                | 09 00 27  | USCGS: 37.2°S, 73.6°W<br>H = 08 <sup>h</sup> 38 <sup>m</sup> 27.1 <sup>s</sup><br>h = 47 km  |
| 14          | eP<br>eS     | E<br>E           | 19 38 32<br>19 43 55                              | USCGS: 40.8°N, 127.4°W<br>H = 19 <sup>h</sup> 31 <sup>m</sup> 34.4 <sup>s</sup><br>h = 45 km |
| 17          | iS           | E                | 19 48 57  | USCGS: 52.0°N, 173.9°E<br>H = 19 <sup>h</sup> 29 <sup>m</sup> 19.3 <sup>s</sup><br>h = 21 km |
| 22          | iS<br>iPS    | N<br>E           | 17 59 23<br>18 00 33                              | USCGS: 22.8°S, 176.1°W<br>H = 17 <sup>h</sup> 32 <sup>m</sup> 21.6 <sup>s</sup><br>h = 35 km |
| 23          | iP<br>iS     | Z<br>N           | 02 57 19.6<br>03 07 16                            | USCGS: 36.4°N, 28.3°E<br>H = 02 <sup>h</sup> 45 <sup>m</sup> 16.0 <sup>s</sup><br>h = 49 km  |
| 23          | iP           | N                | 03 47 02  | USCGS: 9.8°N, 84.0°W<br>H = 03 <sup>h</sup> 40 <sup>m</sup> 26.1 <sup>s</sup><br>h = 136 km  |
| 23          | iP           | Z                | 16 50 48.5 c                                      | USCGS: 12.6°N, 87.3°W<br>H = 16 <sup>h</sup> 44 <sup>m</sup> 59.4 <sup>s</sup><br>h = 138 km |
| 31          | iS           | N                | 14 28 27  | USCGS: 29.8°N, 114.0°W<br>H = 14 <sup>h</sup> 17 <sup>m</sup> 43.8 <sup>s</sup><br>h = 74 km |

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## JUNE, 1961, BULLETIN

| <u>Date</u> | <u>Phase</u>           | <u>Component</u> | <u>G. M. C. T.</u>                              |  |   |  | <u>Remarks</u>   |
|-------------|------------------------|------------------|---|--|---|--|--|
| 1           | ePS                    | E                | 23 <sup>h</sup> 57 <sup>m</sup> 10 <sup>s</sup> |  |   |  | USCGS: 10.6°N, 39.3°E<br>H = 23 <sup>h</sup> 29 <sup>m</sup> 21.1 <sup>s</sup><br>h = 51 km  |
| 7           | iP<br>iS               | Z<br>N           | 14 27 22.0<br>14 37 22                          |  | c |  | USCGS: 5.4°S, 11.6°W<br>H = 14 <sup>h</sup> 15 <sup>m</sup> 18.6 <sup>s</sup><br>h = 17 km   |
| 10          | iP<br>iS               | Z<br>E           | 08 59 20.5<br>09 05 17.3                        |  | c |  | USCGS: 8.1°N, 103.4°W<br>H = 08 <sup>h</sup> 52 <sup>m</sup> 01.1 <sup>s</sup><br>h = 25 km  |
| 10          | eP<br>eS               | Z<br>E           | 20 43 10.1<br>20 52 29.1                        |  | c |  | USCGS: 24.1°S, 112.1°W<br>H = 20 <sup>h</sup> 31 <sup>m</sup> 50.9 <sup>s</sup><br>h = 47 km |
| 11          | iP<br>iPR <sub>1</sub> | Z<br>N           | 05 24 14.3<br>05 28 18                          |  | c |  | USCGS: 27.9°N, 54.7°E<br>H = 05 <sup>h</sup> 10 <sup>m</sup> 27.7 <sup>s</sup><br>h = 44 km  |
| 16          | iP<br>iS               | Z<br>N           | 10 36 27.7<br>10 43 41                          |  | d |  | USCGS: 8.8°N, 73.4°W<br>H = 10 <sup>h</sup> 31 <sup>m</sup> 56.2 <sup>s</sup><br>h = 120 km  |
| 16          | i                      | Z                | 21 02 06.9                                      |  | c |  | Local  |
| 17          | iP                     | Z                | 15 13 23.3                                      |  | c |  | USCGS: 14.2°N, 92.2°W<br>H = 15 <sup>h</sup> 07 <sup>m</sup> 36.1 <sup>s</sup><br>h = 147 km |
| 21          | iP<br>eS?              | n<br>E           | 04 03 13.9<br>04 08 05                          |  |   |  | USCGS: 15.3°N, 87.3°W<br>H = 03 <sup>h</sup> 57 <sup>m</sup> 44.0 <sup>s</sup><br>h = 114 km |
| 21          | iP <sub>1</sub>        | n                | 20 44 23.4                                      |  |   |  | USCGS: 7.6°S, 110.0°E<br>H = 20 <sup>h</sup> 25 <sup>m</sup> 00.9 <sup>s</sup><br>h = 163 km |
| 23          | eP<br>eS               | Z<br>E           | 09 02 45.0<br>09 08 15                          |  | d |  | USCGS: 43.9°N, 128.9°W<br>H = 08 <sup>h</sup> 55 <sup>m</sup> 55.2 <sup>s</sup><br>h = 56 km |
| 26          | eS                     | E                | 15 06 54  |  |   |  | USCGS: 52.4°N, 174.5°E<br>H = 14 <sup>h</sup> 47 <sup>m</sup> 26.1 <sup>s</sup><br>h = 60 km |
| 29          | iSKS                   | E                | 09 48 28  |  |   |  | USCGS: 13.8°S, 166.0°E<br>H = 09 <sup>h</sup> 22 <sup>m</sup> 55.8 <sup>s</sup><br>h = 37 km |

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JULY, 1961, BULLETIN

| <u>Date</u> | <u>Phase</u>     | <u>Component</u> | <u>G. M. C. T.</u> |                 |                 | <u>REMARKS</u>   |
|-------------|------------------|------------------|--------------------|-----------------|-----------------|--|
| 6           | iSKS             | E                | 22 <sup>h</sup>    | 35 <sup>m</sup> | 00 <sup>s</sup> | USCGS: 20.0°S, 169.0°E<br>H = 22 <sup>h</sup> 09 <sup>m</sup> 31.4 <sup>s</sup><br>h = 47 km   |
|             | ePS              | E                | 22                 | 39              | 12              |  |
| 17          | iP               | Z                | 01                 | 07              | 00.3            | c USCGS: 16.7°N, 97.7°W<br>H = 01 <sup>h</sup> 01 <sup>m</sup> 11.2 <sup>s</sup><br>h = 74 km  |
|             | eS               | N                | 01                 | 12              | 04.3            |  |
| 18          | eP               | Z                | 14                 | 17              | 39.2            | d USCGS: 29.9°N, 131.2°E<br>H = 14 <sup>h</sup> 03 <sup>m</sup> 36.5 <sup>s</sup><br>h = 21 km |
|             | iS               | E                | 14                 | 29              | 22.4            |  |
| 23          | iP               | E                | 14                 | 46              | 57              | USCGS: 6.9°N, 123.5°W<br>H = 14 <sup>h</sup> 38 <sup>m</sup> 03.5 <sup>s</sup><br>h = 89 km    |
|             | iS               | E                | 14                 | 54              | 13              |  |
| 23          | iPP              | E                | 22                 | 11              | 02              | USCGS: 18.3°S, 168.3°E<br>H = 21 <sup>h</sup> 51 <sup>m</sup> 07.5 <sup>s</sup><br>h = 44 km   |
|             | iSKS             | E                | 22                 | 16              | 41.8            |  |
| 28          | iP               | n                | 01                 | 13              | 22.4            | USCGS: 2.2°S, 77.1°W<br>H = 01 <sup>h</sup> 05 <sup>m</sup> 30.0 <sup>s</sup><br>h = 136 km    |
|             | iS               | E                | 01                 | 19              | 40.5            |  |
|             | iSR <sub>1</sub> | E                | 01                 | 23              | 07              |  |

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## AUGUST, 1961, BULLETIN

| <u>Date</u> | <u>Phase</u>               | <u>Component</u> | <u>G. M. C. T.</u>  |        | <u>Remarks</u>  |
|-------------|----------------------------|------------------|---|--------|---|
| 3           | iP<br>i (SR <sub>1</sub> ) | Z<br>n           | 03 <sup>h</sup> 14 <sup>m</sup> 33.0 <sup>s</sup><br>03 19 37.4 | d      | USCGS: 18.2°N, 66.2°W<br>H = 03 <sup>h</sup> 08 <sup>m</sup> 02.3 <sup>s</sup><br>h = 141 km  |
| 11          | iP<br>iS                   | z<br>E           | 16 04 11.9<br>16 14 30  | c      | USCGS: 42.9°N, 145.1°E<br>H = 15 <sup>h</sup> 51 <sup>m</sup> 35.4 <sup>s</sup><br>h = 71 km  |
| 17          | iP<br>iS                   | Z<br>Z           | 21 28 31.3<br>21 38 26.5  | d<br>c | USCGS: 46.3°N, 149.3°E<br>H = 21 <sup>h</sup> 16 <sup>m</sup> 30.0 <sup>s</sup><br>h = 186 km |
| 19          | iP<br>iS                   | n<br>n           | 05 18 12.1<br>05 24 53.3  |        | USCGS: 10.7°S, 71.0°W<br>H = 05 <sup>h</sup> 09 <sup>m</sup> 49.5 <sup>s</sup><br>h = 649 km  |
| 19          | eP<br>eS                   | Z<br>E           | 14 57 53.4<br>15 02 14.2  | d      | USCGS: 18.0°N, 68.8°W<br>H = 14 <sup>h</sup> 52 <sup>m</sup> 31.4 <sup>s</sup><br>h = 146 km  |
| 31          | iP<br>iS                   | n<br>n           | 01 57 00.7<br>02 03 42.9  |        | USCGS: 10.6°S, 70.9°W<br>H = 01 <sup>h</sup> 48 <sup>m</sup> 37.5 <sup>s</sup><br>h = 626 km  |

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## SEPTEMBER, 1961, BULLETIN

| <u>Date</u> | <u>Phase</u>           | <u>Component</u> | <u>G. M. C. T.</u> |                                   | <u>Remarks</u>  |
|-------------|------------------------|------------------|--------------------|-----------------------------------|---|
| 1           | iPP                    | n                | 00 <sup>h</sup>    | 28 <sup>m</sup> 31.0 <sup>s</sup> | USCGS: 59.3°S, 27.3°W<br>H = 00 <sup>h</sup> 09 <sup>m</sup> 34.6 <sup>s</sup><br>h = 131 km      |
| 1           | iP<br>eS               | Z<br>N           | 18 56              | 35.5                              | c<br>USCGS: 13.5°N, 92.5°W<br>H = 18 <sup>h</sup> 50 <sup>m</sup> 35.4 <sup>s</sup><br>h = 37 km  |
| 3           | iP                     | Z                | 09 59              | 35.1                              | d<br>USCGS: 51.4°N, 178.1°W<br>H = 09 <sup>h</sup> 49 <sup>m</sup> 10.7 <sup>s</sup><br>h = 35 km |
| 5           | iP                     | Z                | 11 42              | 41.4                              | c<br>USCGS: 59.8°N, 150.6°W<br>H = 11 <sup>h</sup> 34 <sup>m</sup> 37.3 <sup>s</sup><br>h = 44 km |
| 7           | iP                     | e                | 04 59              | 02.8                              | d<br>USCGS: 51.8°N, 131.2°W<br>H = 04 <sup>h</sup> 52 <sup>m</sup> 10.3 <sup>s</sup><br>h = 54 km |
| 7           | eP<br>iPR <sub>1</sub> | Z<br>N           | 11 40<br>11 45     | 41.3<br>02                        | d<br>USCGS: 56.1°S, 27.3°W<br>H = 11 <sup>h</sup> 26 <sup>m</sup> 32.8 <sup>s</sup><br>h = 125 km |
| 10          | iP                     | Z                | 04 55              | 24.4                              | d<br>USCGS: 22.7°S, 63.1°W<br>H = 04 <sup>h</sup> 45 <sup>m</sup> 27.1 <sup>s</sup><br>h = 519 km |
| 19          | iP<br>iS               | Z<br>E           | 09 53<br>09 58     | 07.5<br>36.5                      | c<br>USCGS: 6.7°N, 82.4°W<br>H = 09 <sup>h</sup> 46 <sup>m</sup> 17.7 <sup>s</sup><br>h = 33 km   |
| 19          | iP<br>iS               | n<br>e           | 02 35<br>02 43     | 29.6<br>20.7                      | USCGS: 20.3°S, 63.2°W<br>H = 02 <sup>h</sup> 25 <sup>m</sup> 49.2 <sup>s</sup><br>h = 609 km      |
| 24          | iP                     | E                | 19 10              | 17                                | USCGS: 18.4°N, 98.6°W<br>H = 19 <sup>h</sup> 04 <sup>m</sup> 40.7 <sup>s</sup><br>h = 81 km       |
| 25          | iS                     | N                | 05 48              | 21                                | USCGS: 19.9°N, 155.3°W<br>H = 05 <sup>h</sup> 29 <sup>m</sup> 00.8 <sup>s</sup><br>h = 82 km      |
| 27          | iP                     | Z                | 19 36              | 48.7                              | USCGS: 52.2°N, 168.7°W<br>H = 19 <sup>h</sup> 27 <sup>m</sup> 00.7 <sup>s</sup><br>h = 22 km      |

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OCTOBER, 1961, BULLETIN

| <u>Date</u> | <u>Phase</u>     | <u>Component</u> | <u>G. M. C. T.</u>                                  | <u>Remarks</u>   |
|-------------|------------------|------------------|---|--|
| 12          | iPR <sub>1</sub> | Z                | 13 <sup>h</sup> 59 <sup>m</sup> 47.4 <sup>s</sup> d | USCGS: 19.1°N, 66.0°W<br>H = 13 <sup>h</sup> 53 <sup>m</sup> 41.3 <sup>s</sup><br>h = 63 km  |
| 18          | eP<br>iS         | N<br>E           | 17 03 56<br>17 13 58                                | USCGS: 36.7°S, 72.6°W<br>H = 16 <sup>h</sup> 52 <sup>m</sup> 00.2 <sup>s</sup><br>h = 67 km  |
| 28          | iP<br>iS         | Z<br>N           | 09 18 58.6 c<br>09 24 27.6                          | USCGS: 49.0°N, 128.7°W<br>H = 09 <sup>h</sup> 12 <sup>m</sup> 15.7 <sup>s</sup><br>h = 16 km |

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NOVEMBER, 1961, BULLETIN

| <u>Date</u> | <u>Phase</u> | <u>Component</u> | <u>G. M. C. T.</u>                                | <u>Remarks</u>   |
|-------------|--------------|------------------|---|--|
| 14          | iS           | E                | 04 <sup>h</sup> 54 <sup>m</sup> 39.5 <sup>s</sup> | USCGS: 7.3°N, 82.4°W<br>H = 04 <sup>h</sup> 42 <sup>m</sup> 26.5 <sup>s</sup><br>h = 29 km |
| 15          | iP           | Z                | 07 29 51.2 c                                      | USCGS: 43.1°N, 145.1°E   |
|             | iS           | N                | 07 40 12  | H = 07 <sup>h</sup> 17 <sup>m</sup> 12.4 <sup>s</sup><br>h = 43 km                         |
| 20          | eP           | Z                | 18 05 02.7 d                                      | USCGS: 31.3°N, 40.9°W  |
|             | iS           | E                | 18 10 31  | H = 17 <sup>h</sup> 58 <sup>m</sup> 17.5 <sup>s</sup><br>h = 44 km                         |

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DECEMBER, 1961, BULLETIN

| <u>Date</u> | <u>Phase</u> | <u>Component</u> | <u>G. M. C. T.</u>                                  | <u>Remarks</u>  |
|-------------|--------------|------------------|---|---|
| 9           | iP           | Z                | 11 <sup>h</sup> 30 <sup>m</sup> 44.6 <sup>s</sup> d | USCGS: 43.7°S, 75.2°W<br>H = 11 <sup>h</sup> 18 <sup>m</sup> 08.9 <sup>s</sup><br>h = 34 km               |
| 10          | iP           | Z                | 19 04 39.9 c  | Project Gnome<br>32° 15' 49" N<br>103° 51' 57" W<br>H = 19 <sup>h</sup> 00 <sup>m</sup> 00.0 <sup>s</sup> |
| 20          | iP<br>iS     | n<br>N           | 13 32 30.0<br>13 38 28                              | USCGS: 4.6°N, 75.6°W<br>H = 13 <sup>h</sup> 25 <sup>m</sup> 34.4 <sup>s</sup><br>h = 176 km               |
| 30          | iP<br>iS     | n<br>n           | 00 50 01.2<br>00 58 42.8                            | USCGS: 53.3°N, 177.7°E<br>H = 00 <sup>h</sup> 39 <sup>m</sup> 24.1 <sup>s</sup><br>h = 52 km              |
| 31          | iL           | z                | 16 43 26.4  | USCGS: 44.4°N, 100.5°W<br>H = 16 <sup>h</sup> 35 <sup>m</sup> 58.7 <sup>s</sup><br>h = 16 km              |

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