

UNIVERSITETET I BERGEN  
JORDSKJELVSTASJONEN  
(Seismological Observatory)

23 DEC 1968

Seismological Bulletin  
Bergen, Norway  
1964—1965

By  
ANDERS SØRNES and EIRIK SUNDVOR

BERGEN — NORWAY 1968

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Latitude: 60° 23' 13.3" N  
 Longitude: 05° 19' 33.4" E  
 Elevation: 22 meters  
 Foundation: Green schist

The station comprises a three-component (Z, NS, EW) short period system with Willmore seismometers and ink recording. The free period of the seismometer is 1 sec and of the galvanometer 0.1 sec. The magnification is kept about 20000.

The recordings have been punched on cards according to the codes given by the International Seismological Centre in Edinburgh. This bulletin is a reproduction of a print-out of the cards sent us from the Centre in Edinburgh. Capital letters are used only, and pP for example is indicated by \*PP.

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| YEAR | MTH | DY | HR | P/PKP<br>M S | S/SKS<br>M S | SUPP. 1<br>PHASE M S | SUPP. 2<br>PHASE M S | SUPP. 3<br>PHASE M S | LOG<br>A/T |
|------|-----|----|----|--------------|--------------|----------------------|----------------------|----------------------|------------|
| JAN  | 01  | 17 |    | 137          | 59.8         |                      |                      |                      |            |
| JAN  | 02  | 05 |    | 112          | 31.3         |                      |                      |                      |            |
| JAN  | 06  | 23 |    | 156          | 15.4         |                      |                      |                      |            |
| JAN  | 09  | 13 |    | 143          | 08.7         |                      |                      |                      |            |
| JAN  | 09  | 14 |    | 127          | 44.7         |                      |                      |                      |            |
| JAN  | 09  | 18 |    | 143          | 06.5         |                      | PCP 43 42            |                      |            |
| JAN  | 10  | 05 |    | 102          | 17.1         |                      | PCP 02 43            |                      |            |
| JAN  | 10  | 17 |    | 108          | 40.9         |                      |                      |                      |            |
| JAN  | 15  | 21 |    | 148          | 28.7         |                      | I 27 41              |                      |            |
| JAN  | 17  | 03 |    | 105          | 06.6         |                      |                      |                      |            |
| JAN  | 17  | 03 |    | 133          | 24.6         |                      |                      |                      |            |
| JAN  | 18  | 12 |    | 117          | 05.3         |                      | PP 20 03             | I 47 40              |            |
| JAN  | 19  | 09 |    | 122          | 23.2         |                      |                      |                      |            |
| JAN  | 21  | 12 |    | D159         | 33.1         |                      | I 59 41              | I 60 11              | I 60 52    |
| JAN  | 22  | 16 |    | 109          | 54.9         |                      |                      |                      |            |
| JAN  | 25  | 17 |    | 142          | 31.0         |                      | I 43 30              | I 44 04              | I 47 10    |
| JAN  | 25  | 19 |    | 137          | 33.1         |                      |                      |                      |            |
| JAN  | 28  | 14 |    | C117         | 31.4         | 23 57                |                      |                      |            |
| JAN  | 28  | 14 |    | 157          | 27.3         | 65 10                | PCP 58 10            | PP 59 32             | PPP 60 45  |
| JAN  | 31  | 14 |    | 119          | 06.0         |                      |                      |                      |            |
| FEB  | 06  | 13 |    | D117         | 55.0         | 26 30                | PP 20 19             | I 24 12              | LQ 34 28   |
| FEB  | 08  | 11 |    | D128         | 37.1         |                      | PCP 29 06            |                      |            |
| FEB  | 12  | 14 |    | 130          | 24.5         |                      |                      |                      |            |
| FEB  | 13  | 14 |    | 101          | 48.3         |                      |                      |                      |            |
| FEB  | 16  | 00 |    | 125          | 12.7         |                      |                      |                      |            |
| FEB  | 20  | 10 |    | 104          | 53.2         |                      |                      |                      |            |
| FEB  | 21  | 09 |    | 142          | 01.1         |                      |                      |                      |            |
| FEB  | 22  | 09 |    | 110          | 25.7         |                      |                      |                      |            |
| FEB  | 23  | 22 |    | 146          | 20.1         |                      | PP 47 01             |                      |            |
| FEB  | 27  | 15 |    | 122          | 00.0         |                      | PCP 22 19            | PP 24 42             |            |
| FEB  | 28  | 12 |    | 140          | 44.9         |                      | UP 41 08             |                      |            |
| FEB  | 28  | 19 |    | 127          | 18.3         |                      | I 27 26              | I 27 54              | I 28 19    |
| MAR  | 02  | 16 |    | 101          | 21.0         |                      |                      |                      |            |
| MAR  | 04  | 13 |    | 103          | 41.0         |                      |                      |                      |            |
| MAR  | 05  | 14 |    | 119          | 30.9         |                      | I 19 43              |                      |            |
| MAR  | 05  | 15 |    | C137         | 48.6         |                      | I 38 07              |                      |            |
| MAR  | 05  | 16 |    | C140         | 33.9         |                      |                      |                      |            |
| MAR  | 08  | 12 |    | 109          | 28.9         |                      |                      |                      |            |
| MAR  | 09  | 08 |    | D108         | 01.5         |                      | I 08 45              |                      |            |
| MAR  | 09  | 08 |    | C118         | 31.5         |                      | I 18 35              |                      |            |
| MAR  | 10  | 16 |    | 149          | 01.5         |                      |                      |                      |            |
| MAR  | 10  | 16 |    | 150          | 51.6         |                      |                      |                      |            |
| MAR  | 12  | 07 |    | D134         | 11.9         |                      |                      |                      |            |
| MAR  | 14  | 02 |    | 140          | 33.3         | 43 19                |                      |                      |            |
| MAR  | 15  | 22 |    | D135         | 55.0         | 40 34                |                      |                      |            |
| MAR  | 16  | 01 |    | 115          | 16.8         |                      |                      |                      |            |
| MAR  | 16  | 01 |    | 159          | 03.9         |                      |                      |                      |            |
| MAR  | 16  | 08 |    | 155          | 35.0         |                      | PCP 56 00            | PP 58 02             |            |
| MAR  | 18  | 04 |    | 147          | 20.5         |                      | *PP 48 55            | PP 49 37             |            |
| MAR  | 19  | 13 |    | 150          | 36.1         |                      |                      |                      |            |
| MAR  | 19  | 15 |    | C132         | 28.7         |                      |                      |                      |            |
| MAR  | 21  | 16 |    | 146          | 51.6         |                      | I 47 09              |                      |            |
| MAR  | 23  | 03 |    | 134          | 05.0         |                      | I 34 12              |                      |            |
| MAR  | 27  | 20 |    | 140          | 42.5         |                      |                      |                      |            |
| MAR  | 28  | 03 |    | 145          | 59.2         |                      |                      |                      |            |

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| 1964   |  |    |       |      |       |   |           |   |         |           |         | 2 |           |
| MTH    | DY   | HR | P/PKP |      | S/SKS |   | SUPP. 1   |   | SUPP. 2 |           | SUPP. 3 |   | LOG       |
|        |  |    | M     | S    | M     | S | PHASE     | M | S       | PHASE     | M       | S | A/T       |
| MAR 28 | 05   |    | 145   | 55.9 |       |   |           |   |         |           |         |   |           |
| MAR 28 | 07   |    | 120   | 24.6 |       |   | I 20 31   |   |         | PCP 21 09 |         |   |           |
| MAR 28 | 07   |    | 140   | 45.4 |       |   | PCP 41 26 |   |         |           |         |   |           |
| MAR 28 | 09   |    | 111   | 21.0 |       |   |           |   |         |           |         |   |           |
| MAR 28 | 09   |    | 116   | 16.3 |       |   |           |   |         |           |         |   |           |
| MAR 28 | 09   |    | 123   | 54.9 |       |   |           |   |         |           |         |   |           |
| MAR 28 | 10   |    | 145   | 53.2 |       |   | I 46 01   |   |         | I 46 10   |         |   | PCP 46 31 |
| MAR 28 | 12   |    | 100   | 08.9 |       |   |           |   |         |           |         |   |           |
| MAR 28 | 12   |    | 131   | 11.5 |       |   | PCP 31 48 |   |         | PP 33 31  |         |   | PPP 35 00 |
| MAR 28 | 14   |    | 112   | 19.6 |       |   |           |   |         |           |         |   |           |
| MAR 28 | 14   |    | 157   | 27.3 | 65 10 |   | PCP 58 10 |   |         | PP 59 32  |         |   | PPP 60 45 |
| MAR 28 | 20   |    | 139   | 01.3 |       |   | PCP 39 40 |   |         | PP 40 12  |         |   |           |
| MAR 29 | 01   |    | 119   | 32.6 |       |   | PCP 20 13 |   |         |           |         |   |           |
| MAR 29 | 04   |    | 122   | 07.5 |       |   |           |   |         |           |         |   |           |
| MAR 29 | 06   |    | 115   | 08.1 |       |   | PCP 15 43 |   |         |           |         |   |           |
| MAR 29 | 08   |    | C103  | 10.6 |       |   |           |   |         |           |         |   |           |
| MAR 29 | 09   |    | 125   | 56.1 |       |   |           |   |         |           |         |   |           |
| MAR 29 | 10   |    | 117   | 58.3 |       |   |           |   |         |           |         |   |           |
| MAR 29 | 16   |    | 150   | 55.3 |       |   |           |   |         |           |         |   |           |
| MAR 30 | 02   |    | C128  | 26.4 |       |   | PCP 28 56 |   |         |           |         |   |           |
| MAR 30 | 07   |    | 119   | 28.0 |       |   |           |   |         |           |         |   |           |
| MAR 30 | 13   |    | 113   | 58.9 |       |   |           |   |         |           |         |   |           |
| MAR 30 | 15   |    | 117   | 52.8 |       |   |           |   |         |           |         |   |           |
| MAR 30 | 16   |    | 119   | 51.4 |       |   |           |   |         |           |         |   |           |
| MAR 31 | 00   |    | C125  | 24.1 |       |   |           |   |         |           |         |   |           |
| MAR 31 | 04   |    | 130   | 09.9 |       |   |           |   |         |           |         |   |           |
| APR 01 | 19   |    | 114   | 35.1 |       |   |           |   |         |           |         |   |           |
| APR 02 | 01   |    | 124   | 26.1 |       |   |           |   |         |           |         |   |           |
| APR 02 | 10   |    | 108   | 16.0 |       |   |           |   |         |           |         |   |           |
| APR 02 | 11   |    | 151   | 14.2 |       |   |           |   |         |           |         |   |           |
| APR 03 | 04   |    | 125   | 23.2 |       |   |           |   |         |           |         |   |           |
| APR 03 | 14   |    | 120   | 11.0 |       |   |           |   |         |           |         |   |           |
| APR 03 | 22   |    | 143   | 11.9 |       |   | I 43 24   |   |         |           |         |   |           |
| APR 04 | 04   |    | 144   | 49.8 |       |   |           |   |         |           |         |   |           |
| APR 04 | 05   |    | 103   | 51.7 |       |   |           |   |         |           |         |   |           |
| APR 04 | 08   |    | 150   | 51.5 |       |   |           |   |         |           |         |   |           |
| APR 04 | 09   |    | 121   | 14.5 |       |   | PCP 21 49 |   |         |           |         |   |           |
| APR 04 | 17   |    | 156   | 32.6 |       |   | PCP 57 05 |   |         |           |         |   |           |
| APR 04 | 18   |    | 110   | 05.7 |       |   | I 10 41   |   |         |           |         |   |           |
| APR 05 | 01   |    | 132   | 36.8 |       |   | PCP 33 13 |   |         |           |         |   |           |
| APR 05 | 01   |    | 152   | 06.7 |       |   |           |   |         |           |         |   |           |
| APR 05 | 13   |    | 106   | 42.8 |       |   |           |   |         |           |         |   |           |
| APR 05 | 19   |    | 138   | 24.7 |       |   |           |   |         |           |         |   |           |
| APR 07 | 19   |    | 138   | 50.7 |       |   |           |   |         |           |         |   |           |
| APR 08 | 02   |    | 115   | 12.1 |       |   |           |   |         |           |         |   |           |
| APR 08 | 11   |    | 109   | 21.7 |       |   | PCP 09 41 |   |         |           |         |   |           |
| APR 08 | 14   |    | 118   | 15.8 |       |   | PP 19 12  |   |         | PPP 19 32 |         |   |           |
| APR 09 | 06   |    | 107   | 24.6 |       |   |           |   |         |           |         |   |           |
| APR 10 | 01   |    | DI18  | 08.2 |       |   | I 18 14   |   |         |           |         |   |           |
| APR 10 | 21   |    | C154  | 11.4 |       |   | PCP 54 58 |   |         |           |         |   |           |
| APR 11 | 01   |    | 123   | 41.7 |       |   | I 23 44   |   |         |           |         |   |           |
| APR 11 | 16   |    | 105   | 40.2 |       |   | PP 06 32  |   |         | PPP 06 57 |         |   |           |
| APR 12 | 01   |    | DI34  | 53.0 |       |   |           |   |         |           |         |   |           |
| APR 13 | 08   |    | C134  | 02.5 | 38 04 |   | PP 34 18  |   |         | PPP 34 41 |         |   | I 39 50   |
| APR 13 | 21   |    | DI35  | 49.8 |       |   | I 35 58   |   |         |           |         |   |           |

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|--------|--|----|-------|------|-------|---|---------|---|---------|-----------|---------|---|-----------|
| 1964   |  |    |       |      |       |   |         |   |         |           |         | 3 |           |
| MTH    | DY   | HR | P/PKP |      | S/SKS |   | SUPP. 1 |   | SUPP. 2 |           | SUPP. 3 |   | LOG       |
|        |  |    | M     | S    | M     | S | PHASE   | M | S       | PHASE     | M       | S | A/T       |
| APR 15 | 15   |    | DI41  | 07.9 |       |   |         |   |         | PCP 41 47 |         |   |           |
| APR 16 | 06   |    | 132   | 49.0 |       |   |         |   |         | PCP 33 04 |         |   |           |
| APR 16 | 19   |    | 137   | 18.0 |       |   |         |   |         | I 37 27   |         |   |           |
| APR 17 | 04   |    | 159   | 52.1 |       |   |         |   |         | I 59 54   |         |   |           |
| APR 18 | 05   |    | 138   | 59.3 |       |   |         |   |         | I 39 02   |         |   | PCP 39 19 |
| APR 20 | 12   |    | C106  | 23.4 |       |   |         |   |         | I 06 32   |         |   |           |
| APR 21 | 05   |    | DI11  | 17.3 |       |   |         |   |         | I 11 31   |         |   |           |
| APR 22 | 09   |    | DI51  | 37.0 |       |   |         |   |         | PP 52 09  |         |   | PPP 52 13 |
| APR 22 | 20   |    | DI19  | 25.6 |       |   |         |   |         |           |         |   |           |
| APR 23 | 04   |    | 102   | 18.2 |       |   |         |   |         |           |         |   |           |
| APR 25 | 18   |    | C150  | 32.1 |       |   |         |   |         |           |         |   |           |
| APR 28 | 04   |    | 126   | 20.5 |       |   |         |   |         | I 26 23   |         |   | I 26 38   |
| APR 29 | 17   |    | 105   | 18.5 |       |   |         |   |         |           |         |   | I 26 54   |
| MAY 01 | 06   |    | 111   | 45.1 |       |   |         |   |         | I 11 50   |         |   |           |
| MAY 02 | 16   |    | 122   | 14.9 |       |   |         |   |         | I 22 19   |         |   | PCP 22 35 |
| MAY 05 | 08   |    | DI13  | 02.8 |       |   |         |   |         |           |         |   |           |
| MAY 07 | 05   |    | C156  | 29.2 |       |   |         |   |         | PCP 56 45 |         |   |           |
| MAY 07 | 08   |    | DI09  | 39.8 |       |   |         |   |         | PCP 09 53 |         |   |           |
| MAY 07 | 11   |    | 122   | 32.8 |       |   |         |   |         | PCP 22 38 |         |   |           |
| MAY 07 | 20   |    | 124   | 15.6 |       |   |         |   |         | PCP 24 28 |         |   |           |
| MAY 12 | 18   |    | C127  | 07.2 |       |   |         |   |         |           |         |   |           |
| MAY 13 | 05   |    | 145   | 20.8 |       |   |         |   |         | I 45 52   |         |   | I 45 59   |
| MAY 16 | 06   |    | 108   | 42.6 |       |   |         |   |         | I 10 21   |         |   |           |
| MAY 16 | 09   |    | C102  | 20.0 |       |   |         |   |         |           |         |   |           |
| MAY 17 | 19   |    | 133   | 25.9 |       |   |         |   |         |           |         |   |           |
| MAY 19 | 06   |    | 113   | 21.6 |       |   |         |   |         |           |         |   |           |
| MAY 20 | 05   |    | 113   | 18.8 |       |   |         |   |         | I 13 23   |         |   |           |
| MAY 22 | 13   |    | 102   | 53.9 |       |   |         |   |         |           |         |   |           |
| MAY 23 | 11   |    | DI34  | 17.0 |       |   |         |   |         |           |         |   |           |
| MAY 24 | 10   |    | 143   | 28.2 |       |   |         |   |         | I 43 36   |         |   |           |
| MAY 26 | 11   |    | 117   | 08.2 |       |   |         |   |         | I 18 16   |         |   | I 21 18   |
| MAY 29 | 10   |    | 128   | 27.9 |       |   |         |   |         |           |         |   | I 28 07   |
| MAY 30 | 14   |    | C142  | 36.6 |       |   |         |   |         |           |         |   |           |
| MAY 31 | 00   |    | DI51  | 55.5 |       |   |         |   |         |           |         |   |           |
| JUN 05 | 18   |    | 108   | 45.5 |       |   |         |   |         | I 09 16   |         |   |           |
| JUN 05 | 22   |    | 117   | 04.6 |       |   |         |   |         | I 17 08   |         |   | PCP 17 44 |
| JUN 10 | 15   |    | 148   | 53.2 |       |   |         |   |         | I 49 16   |         |   |           |
| JUN 12 | 18   |    | 130   | 50.4 |       |   |         |   |         |           |         |   |           |
| JUN 13 | 08   |    | 139   | 15.5 |       |   |         |   |         | I 40 54   |         |   |           |
| JUN 14 | 12   |    | DI21  | 48.3 |       |   |         |   |         | PP 22 47  |         |   | PPP 23 00 |
| JUN 16 | 04   |    | 128   | 20.1 |       |   |         |   |         | I 28 26   |         |   | I 28 28   |
| JUN 23 | 01   |    | DI37  | 53.0 | 47 10 |   |         |   |         | PCP 38 09 |         |   | PP 40 44  |
| JUL 02 | 01   |    | 128   | 54.8 |       |   |         |   |         |           |         |   | PPP 42 34 |
| JUL 05 | 23   |    | 147   | 20.7 |       |   |         |   |         | PCP 47 43 |         |   |           |
| JUL 06 | 07   |    | DI34  | 24.4 | 44 37 |   |         |   |         | PCP 34 33 |         |   | I 50 44   |
| JUL 06 | 10   |    | 122   | 07.6 |       |   |         |   |         | I 22 43   |         |   |           |
| JUL 07 | 07   |    | C157  | 41.2 |       |   |         |   |         |           |         |   |           |
| JUL 09 | 16   |    | 158   | 54.7 |       |   |         |   |         | I 62 15   |         |   |           |
| JUL 11 | 17   |    | 147   | 31.6 | 49 56 |   |         |   |         | PPP 47 53 |         |   |           |
| JUL 12 | 01   |    | 157   | 10.9 |       |   |         |   |         |           |         |   |           |
| JUL 14 | 05   |    | 134   | 47.9 |       |   |         |   |         | I 35 24   |         |   |           |
| JUL 17 | 02   |    | 139   | 38.7 |       |   |         |   |         | PP 40 30  |         |   | PPP 40 42 |
| JUL 17 | 04   |    | 152   | 03.0 |       |   |         |   |         | I 53 11   |         |   | PCP 43 01 |
| JUL 18 | 03   |    | 145   | 57.8 |       |   |         |   |         |           |         |   |           |
| JUL 19 | 06   |    | 107   | 43.2 |       |   |         |   |         | PP 09 24  |         |   | PPP 09 54 |

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|------|-----|----|----|--------------|--------------|----------------------|----------------------|----------------------|--------------|
| 1964 | JUL | 21 | 04 | 108 12.6     |              |                      |                      |                      |              |
|      | JUL | 21 | 10 | 104 09.6     |              |                      |                      |                      |              |
|      | JUL | 23 | 19 | 117 58.1     |              |                      |                      |                      |              |
|      | JUL | 24 | 07 | 102 02.9     |              | PCP 02 27            |                      |                      |              |
|      | JUL | 24 | 08 | 123 49.2     |              | I 24 04              | PCP 24 10            | PP 26 25             |              |
|      | JUL | 24 | 09 | 128 12.5     |              |                      |                      |                      |              |
|      | JUL | 24 | 12 | 120 37.9     |              | I 20 43              |                      |                      |              |
|      | JUL | 24 | 12 | 147 10.6     |              |                      |                      |                      |              |
|      | JUL | 24 | 13 | 136 29.0     |              | PCP 36 49            |                      |                      |              |
|      | JUL | 24 | 14 | 137 09.6     |              |                      |                      |                      |              |
|      | JUL | 24 | 16 | 145 38.3     |              | PCP 46 02            |                      |                      |              |
|      | JUL | 24 | 17 | 113 58.5     |              | PCP 14 17            | I 17 11              |                      |              |
|      | JUL | 24 | 19 | 101 14.6     |              | I 01 18              | PCP 01 32            |                      |              |
|      | JUL | 24 | 19 | 103 14.6     |              | PCP 61 30            |                      |                      |              |
|      | JUL | 24 | 19 | 106 25.5     |              |                      |                      |                      |              |
|      | JUL | 27 | 23 | 111 47.8     |              |                      |                      |                      |              |
|      | JUL | 31 | 04 | 116 26.5     |              | PCP 16 45            |                      |                      |              |
|      | AUG | 03 | 07 | 157 05.1     |              | I 57 17              |                      |                      |              |
|      | AUG | 03 | 19 | 108 05       |              | I 08 54              |                      |                      |              |
|      | AUG | 04 | 17 | 135 32.2     |              |                      |                      |                      |              |
|      | AUG | 05 | 11 | 125 29.7     |              | I 25 38              |                      |                      |              |
|      | AUG | 08 | 15 | 111 46.2     |              | I 11 51              |                      |                      |              |
|      | AUG | 12 | 07 | 102 37.3     |              | I 02 42              |                      |                      |              |
|      | AUG | 12 | 19 | 134 12.4     |              |                      |                      |                      |              |
|      | AUG | 13 | 00 | 149 20.8     |              | I 50 48              |                      |                      |              |
|      | AUG | 13 | 00 | 159 29.2     |              | I 59 42              |                      |                      |              |
|      | AUG | 16 | 21 | 135 46.6     |              | I 35 59              |                      |                      |              |
|      | AUG | 17 | 09 | 111 45.0     |              | PP 12 07             |                      |                      |              |
|      | AUG | 17 | 12 | 102 32.9     |              |                      |                      |                      |              |
|      | AUG | 17 | 15 | 118 07.4     | 20 10        |                      |                      |                      |              |
|      | AUG | 17 | 22 | 152 17       |              |                      |                      |                      |              |
|      | AUG | 19 | 09 | 141 23.6     |              | I 41 28              |                      |                      |              |
|      | AUG | 19 | 15 | 128 01.2     |              | I 28 30              |                      |                      |              |
|      | AUG | 20 | 03 | 159 24.6     |              | I 59 38              | I 59 50              |                      |              |
|      | AUG | 20 | 05 | 148 00.0     |              |                      |                      |                      |              |
|      | AUG | 20 | 11 | 116 01.5     |              | I 16 07              |                      |                      |              |
|      | AUG | 21 | 08 | 107 32.4     |              | I 07 39              |                      |                      |              |
|      | AUG | 25 | 13 | 154 29.3     | 61 19        | PP 55 53             | PPP 56 20            | PCP 56 44            |              |
|      | AUG | 26 | 03 | 123 27.6     |              | I 23 36              | PP 23 53             |                      |              |
|      | AUG | 27 | 12 | 107 04.6     |              | I 07 09              |                      |                      |              |
|      | AUG | 27 | 13 | 105 18.8     |              | I 05 27              |                      |                      |              |
|      | AUG | 27 | 13 | 115 53.3     |              |                      |                      |                      |              |
|      | AUG | 27 | 13 | 125 54.3     |              | I 26 01              | I 26 06              | I 26 12              |              |
|      | SEP | 01 | 13 | 133 18.1     |              | I 33 20              | PCP 33 44            |                      |              |
|      | SEP | 01 | 17 | 127 44.8     |              | I 27 58              | PCP 28 02            |                      |              |
|      | SEP | 01 | 21 | 100 57.6     |              |                      |                      |                      |              |
|      | SEP | 04 | 03 | 138 49.9     |              |                      |                      |                      |              |
|      | SEP | 04 | 03 | 145 42.8     |              | PCP 46 37            |                      |                      |              |
|      | SEP | 12 | 22 | 145 26       |              |                      |                      |                      |              |
|      | SEP | 15 | 15 | 141 46.8     |              | PCP 41 52            | PP 44 55             |                      |              |
|      | SEP | 17 | 15 | 107 40.7     |              | I 07 43              |                      |                      |              |
|      | SEP | 23 | 05 | 110 33.3     |              |                      |                      |                      |              |
|      | SEP | 25 | 23 | 146 51.1     |              |                      |                      |                      |              |
|      | SEP | 26 | 00 | 155 47.0     |              | PCP 56 44            |                      |                      |              |
|      | OCT | 02 | 01 | 109 03       |              |                      |                      |                      |              |

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| YEAR | MTH | DY | HR | P/PKP<br>M S | S/SKS<br>M S | SUPP. 1<br>PHASE M S | SUPP. 2<br>PHASE M S | SURP. 3<br>PHASE M S | LOG<br>S A/T |
|------|-----|----|----|--------------|--------------|----------------------|----------------------|----------------------|--------------|
| 1964 | OCT | 05 | 03 | 146 26.6     |              |                      |                      |                      |              |
|      | OCT | 06 | 14 | 136 43.6     |              |                      | I 36 50              |                      |              |
|      | OCT | 06 | 18 | 127 37.6     | 29 37        |                      |                      |                      |              |
|      | OCT | 13 | 02 | 132 11.9     |              |                      |                      |                      |              |
|      | OCT | 13 | 23 | 110 53       |              |                      | I 11 23              |                      |              |
|      | OCT | 15 | 20 | 138 10.5     |              |                      | PCP 38 35            |                      |              |
|      | OCT | 16 | 07 | 110 59.3     |              |                      | I 11 03              | PCP 11 19            | I 12 22      |
|      | OCT | 16 | 07 | 133 03.2     |              |                      | I 33 05              | I 33 18              |              |
|      | OCT | 16 | 07 | 148 40.0     |              |                      | I 48 45              |                      |              |
|      | OCT | 16 | 08 | 129 47.1     |              |                      | I 29 54              | PCP 30 01            | I 30 25      |
|      | OCT | 16 | 08 | 134 19.3     |              |                      | I 34 24              | I 34 30              |              |
|      | OCT | 16 | 09 | 129 37.0     |              |                      | I 29 50              | PCP 29 53            | I 30 41      |
|      | OCT | 16 | 10 | 105 52.0     |              |                      | I 05 57              | I 06 05              |              |
|      | OCT | 16 | 11 | 102 19.3     |              |                      |                      |                      |              |
|      | OCT | 16 | 12 | 115 25.2     |              |                      | I 15 30              |                      |              |
|      | OCT | 16 | 12 | 148 46.9     |              |                      | I 48 53              |                      |              |
|      | OCT | 18 | 12 | 149 53.7     |              |                      | I 49 59              |                      |              |
|      | OCT | 18 | 13 | 128 18.6     |              |                      |                      |                      |              |
|      | OCT | 21 | 23 | 119 59.8     |              |                      | I 20 11              |                      |              |
|      | OCT | 23 | 02 | 106 02.1     |              |                      | I 06 10              |                      |              |
|      | OCT | 23 | 21 | 117 43.3     |              |                      |                      |                      |              |
|      | OCT | 25 | 23 | 104 25.8     |              |                      | I 04 33              |                      |              |
|      | OCT | 27 | 19 | 149 30       | 52 19        |                      | LR 54 03             |                      |              |
|      | NOV | 03 | 00 | 140 04.7     |              |                      |                      |                      |              |
|      | NOV | 08 | 10 | 141 26       |              |                      | I 41 28              |                      |              |
|      | NOV | 15 | 01 | 105 40       |              |                      |                      |                      |              |
|      | NOV | 15 | 06 | 140 22       |              |                      | I 40 25              | I 40 31              |              |
|      | NOV | 16 | 05 | 133 39       |              |                      |                      |                      |              |
|      | NOV | 16 | 06 | 107 42       |              |                      | PP 09 18             |                      |              |
|      | NOV | 16 | 12 | 149 37.7     |              |                      | I 49 42              |                      |              |
|      | NOV | 17 | 11 | 121 36       |              |                      |                      |                      |              |
|      | NOV | 20 | 23 | 144 27.9     |              |                      | I 44 40              | PCP 44 48            |              |
|      | NOV | 21 | 22 | 134 45       | 35 06        |                      |                      |                      |              |
|      | NOV | 30 | 04 | 114 27       |              |                      |                      |                      |              |
|      | NOV | 30 | 12 | 140 08.4     |              |                      | PCP 40 12            | I 40 18              |              |
|      | DEC | 01 | 12 | 106 50       |              |                      |                      |                      |              |
|      | DEC | 10 | 15 | 122 30.3     |              |                      | E 22 40              | I 22 43              | PCP 22 45    |
|      | DEC | 22 | 04 | 145 05.5     |              |                      | E 45 13              | I 45 25              | I 45 56      |
|      | DEC | 22 | 08 | 111 52       |              |                      | E 12 20              | I 12 35              | E 13 27      |
|      | DEC | 24 | 01 | 116 55       |              |                      | E 17 26              | E 17 39              |              |
|      | DEC | 26 | 14 | 141 03.6     |              |                      | I 41 13              | PCP 41 34            | E 42 10      |
|      | DEC | 28 | 16 | 134 31       |              |                      | I 34 39              | PP 37 17             |              |
|      | DEC | 30 | 15 | 139 13.8     |              |                      |                      |                      |              |





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| YEAR | MTH | DY | HR | P/PKP<br>M S | S/SKS<br>M S | SUPP. 1<br>PHASE M S | SUPP. 2<br>PHASE M S | SUPP. 3<br>PHASE M S | LOG<br>A/T |
|------|-----|----|----|--------------|--------------|----------------------|----------------------|----------------------|------------|
| 1965 | JUN | 09 | 16 | 114          | 25.5         |                      |                      |                      |            |
|      | JUN | 09 | 18 | 100          | 30.8         | 00 48                | E 00 41              |                      |            |
|      | JUN | 10 | 05 | 157          | 23.7         |                      |                      |                      |            |
|      | JUN | 10 | 20 | E39          | 11           |                      | I 40 22              |                      |            |
|      | JUN | 11 | 00 | 148          | 31.7         |                      | *PP 48 42            | PP 50 49             |            |
|      | JUN | 11 | 03 | 145          | 00.8         |                      | *PP 45 16            |                      |            |
|      | JUN | 11 | 03 | 152          | 14.          |                      | E 52 20              |                      |            |
|      | JUN | 11 | 03 | 155          | 51.0         |                      | I 55 57              |                      |            |
|      | JUN | 11 | 04 | 104          | 15.7         |                      |                      |                      |            |
|      | JUN | 11 | 04 | 112          | 04.0         |                      |                      |                      |            |
|      | JUN | 11 | 04 | 114          | 34.4         |                      |                      |                      |            |
|      | JUN | 11 | 04 | 156          | 13.1         |                      |                      |                      |            |
|      | JUN | 11 | 06 | 108          | 29.5         |                      |                      |                      |            |
|      | JUN | 11 | 08 | 152          | 19.3         |                      | I 52 25              |                      |            |
|      | JUN | 11 | 10 | E31          | 08           |                      |                      |                      |            |
|      | JUN | 11 | 10 | 152          | 29.8         |                      |                      |                      |            |
|      | JUN | 11 | 12 | E11          | 21           |                      |                      |                      |            |
|      | JUN | 11 | 20 | 155          | 40.3         |                      |                      |                      |            |
|      | JUN | 12 | 00 | 132          | 16.9         |                      |                      |                      |            |
|      | JUN | 12 | 03 |              |              |                      | E 21 13              |                      |            |
|      | JUN | 12 | 05 | E40          | 00           |                      |                      |                      |            |
|      | JUN | 12 | 05 | 152          | 19.1         |                      |                      |                      |            |
|      | JUN | 12 | 06 | E14          | 52           |                      |                      |                      |            |
|      | JUN | 12 | 06 | E57          | 04           |                      | E 58 47              |                      |            |
|      | JUN | 12 | 18 | 153          | 57.7         |                      |                      |                      |            |
|      | JUN | 12 | 18 | 157          | 04.1         |                      | *PP 57 17            |                      |            |
|      | JUN | 12 | 19 | E03          | 49           |                      |                      |                      |            |
|      | JUN | 12 | 22 | E28          | 08           |                      |                      |                      |            |
|      | JUN | 13 | 02 | 132          | 11.0         |                      | *PP 32 22            |                      |            |
|      | JUN | 13 | 07 | 117          | 39.4         |                      | *PP 17 49            | PCP 18 05            |            |
|      | JUN | 13 | 20 | E07          | 37           |                      |                      |                      |            |
|      | JUN | 14 | 13 | E27          | 00           |                      | I 27 04              |                      |            |
|      | JUN | 15 | 01 | 156          | 33.0         |                      | *PP 56 45            |                      |            |
|      | JUN | 15 | 04 | E57          | 23           |                      | *PP 57 32            |                      |            |
|      | JUN | 15 | 13 | 103          | 31.2         |                      |                      |                      |            |
|      | JUN | 15 | 13 | E11          | 29           |                      | I 11 42              |                      |            |
|      | JUN | 17 | 11 | E11          | 33           |                      |                      |                      |            |
|      | JUN | 19 | 13 | E00          | 50           |                      |                      |                      |            |
|      | JUN | 20 | 02 | 108          | 41.4         |                      |                      |                      |            |
|      | JUN | 21 | 00 | E29          | 42           |                      | E 29 53              |                      |            |
|      | JUN | 22 | 05 | E58          | 19           |                      |                      |                      |            |
|      | JUN | 23 | 00 | 101          | 34.8         |                      | I 01 44              |                      |            |
|      | JUN | 23 | 11 | E19          | 04           |                      |                      |                      |            |
|      | JUN | 23 | 11 | 119          | 34.4         |                      | I 19 51              |                      |            |
|      | JUN | 23 | 12 | E33          | 43           |                      |                      |                      |            |
|      | JUN | 29 | 04 | E33          | 34           |                      |                      |                      |            |
|      | JUL | 02 | 21 | 109          | 25.4         |                      | *PP 09 37            | PCP 09 48            |            |
|      | JUL | 03 | 02 | 127          | 07.9         |                      | *PP 27 17            | PP 27 43             |            |
|      | JUL | 05 | 01 |              |              |                      | PG 45 20             | I 45 24              | SG 45 33   |
|      | JUL | 05 | 08 | 136          | 59.0         |                      | I 37 03              | PP 37 34             | PPP 37 41  |
|      | JUL | 06 | 03 | 124          | 00.9         |                      | *PP 24 13            | PP 24 36             |            |
|      | JUL | 06 | 04 | 119          | 56.0         |                      | PCP 20 17            |                      |            |
|      | JUL | 06 | 05 | 109          | 23.2         |                      |                      |                      |            |
|      | JUL | 15 | 18 | 145          | 59.3         |                      |                      |                      |            |
|      | JUL | 17 | 13 | E18          | 51           |                      | I 18 55              | I 19 02              |            |

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| YEAR | MTH | DY | HR | P/PKP<br>M S | S/SKS<br>M S | SUPP. 1<br>PHASE M S | SUPP. 2<br>PHASE M S | SUPP. 3<br>PHASE M S | LOG<br>A/T |
|------|-----|----|----|--------------|--------------|----------------------|----------------------|----------------------|------------|
| 1965 | JUL | 18 | 22 | 126          | 18.6         |                      | PCP 26 36            | I 27 13              |            |
|      | JUL | 19 | 04 | E25          | 08           |                      |                      |                      |            |
|      | JUL | 21 | 18 | 103          | 16.7         |                      | PCP 03 39            |                      |            |
|      | JUL | 23 | 20 |              |              |                      | PG 30 36             | E 30 41              | SG 30 50   |
|      | JUL | 25 | 13 | 144          | 37.9         |                      | PCP 44 56            |                      |            |
|      | JUL | 25 | 21 | 157          | 43.9         |                      | *PP 57 54            |                      |            |
|      | JUL | 29 | 08 | 140          | 25.2         |                      | *PP 40 31            | PCP 40 46            |            |
|      | JUL | 31 | 17 | E18          | 06           |                      | I 18 18              |                      |            |
|      | AUG | 02 | 13 |              |              |                      | PKP2 41 13           |                      |            |
|      | AUG | 02 | 16 | E55          | 26           |                      |                      |                      |            |
|      | AUG | 04 | 09 | E05          | 58           |                      |                      |                      |            |
|      | AUG | 04 | 11 | 136          | 18.1         |                      |                      |                      |            |
|      | AUG | 05 | 00 | 126          | 36.3         |                      | I 26 41              |                      |            |
|      | AUG | 07 | 22 |              |              |                      | PG 44 14             | PN 44 15             | SG 44 27   |
|      | AUG | 08 | 15 | 101          | 04.8         |                      | E 01 13              |                      |            |
|      | AUG | 11 | 04 | E00          | 04           |                      | PKP 00 14            | PP 02 32             | PKS 03 42  |
|      | AUG | 11 | 20 | E11          | 46           |                      | PKP 11 53            | I 11 59              | PKS 15 16  |
|      | AUG | 11 | 20 | E33          | 07           |                      | PKS 36 42            |                      |            |
|      | AUG | 11 | 22 | E50          | 59           |                      | I 51 08              | I 51 17              | PKS 54 35  |
|      | AUG | 12 | 08 | E20          | 53           |                      | PKP 20 59            | PKS 24 26            |            |
|      | AUG | 12 | 13 | E15          | 56           |                      | I 16 09              |                      |            |
|      | AUG | 12 | 18 | 124          | 09.4         |                      | PKP 24 22            |                      |            |
|      | AUG | 13 | 13 |              |              |                      | PKS 03 15            |                      |            |
|      | AUG | 16 | 12 | E29          | 12           |                      | *PP 29 20            |                      |            |
|      | AUG | 16 | 12 | 146          | 53.2         |                      | PP 49 21             |                      |            |
|      | AUG | 23 | 14 | 114          | 13.4         |                      |                      |                      |            |
|      | AUG | 23 | 19 | 158          | 20.1         | 68 44                | I 58 24              | *PP 58 32            | PP 61 26   |
|      | AUG | 23 | 21 | 149          | 43.9         |                      | I 49 50              |                      |            |
|      | AUG | 25 | 05 | 103          | 42.9         |                      |                      |                      |            |
|      | AUG | 27 | 18 | 133          | 20.4         |                      | *PP 33 32            |                      |            |
|      | SEP | 01 | 04 | 139          | 11.7         |                      | E 39 16              |                      |            |
|      | SEP | 02 | 04 | 137          | 33.7         |                      | *PP 37 42            |                      |            |
|      | SEP | 04 | 10 | 131          | 03.6         |                      | I 31 06              | I 31 17              |            |
|      | SEP | 04 | 14 | 142          | 57.6         |                      | I 43 06              | I 43 18              | PCP 43 42  |
|      | SEP | 06 | 11 | 153          | 47.7         |                      |                      |                      |            |
|      | SEP | 08 | 11 | 127          | 01.6         |                      |                      |                      |            |
|      | SEP | 08 | 12 | E05          | 17           |                      | E 05 31              |                      |            |
|      | SEP | 09 | 10 | E14          | 55           |                      | E 15 06              |                      |            |
|      | SEP | 13 | 13 | E18          | 18           |                      | *PP 18 24            |                      |            |
|      | SEP | 16 | 14 | 103          | 31.8         |                      |                      |                      |            |
|      | SEP | 17 | 08 |              |              |                      | I 38 22              |                      |            |
|      | SEP | 17 | 11 | 126          | 25.7         |                      | E 26 39              |                      |            |
|      | SEP | 17 | 16 | 133          | 10.3         |                      | PCP 33 21            | *PP 33 34            |            |
|      | SEP | 21 | 01 | E50          | 17           |                      | PCP 50 28            |                      |            |
|      | SEP | 21 | 03 | 134          | 04.4         |                      | *PP 34 09            |                      |            |
|      | SEP | 22 | 22 | E19          | 53           |                      | *PP 20 06            |                      |            |
|      | SEP | 25 | 14 | 148          | 51.3         |                      | *PP 49 04            |                      |            |
|      | SEP | 25 | 15 | 105          | 11.9         |                      | *PP 05 26            |                      |            |
|      | SEP | 25 | 15 | 156          | 16.6         |                      |                      |                      |            |
|      | SEP | 28 | 05 | E26          | 20           |                      | PKP 26 27            |                      |            |
|      | SEP | 29 | 23 |              |              |                      | E 25 46              | I 25 55              |            |
|      | OCT | 01 | 09 | 103          | 13.7         |                      | I 03 17              | *PP 03 24            |            |
|      | OCT | 01 | 13 | E40          | 49           |                      | E 40 56              | SKP 43 36            |            |
|      | OCT | 01 | 21 | 113          | 34.7         | 14 01                | I 14 06              |                      |            |
|      | OCT | 07 | 03 | 148          | 52.3         |                      |                      |                      |            |



