

PART B  
SOLAR - GEOPHYSICAL DATA

ISSUED  
JULY 1961

U. S. DEPARTMENT OF COMMERCE  
NATIONAL BUREAU OF STANDARDS  
CENTRAL RADIO PROPAGATION LABORATORY  
BOULDER, COLORADO

## SOLAR - GEOPHYSICAL DATA

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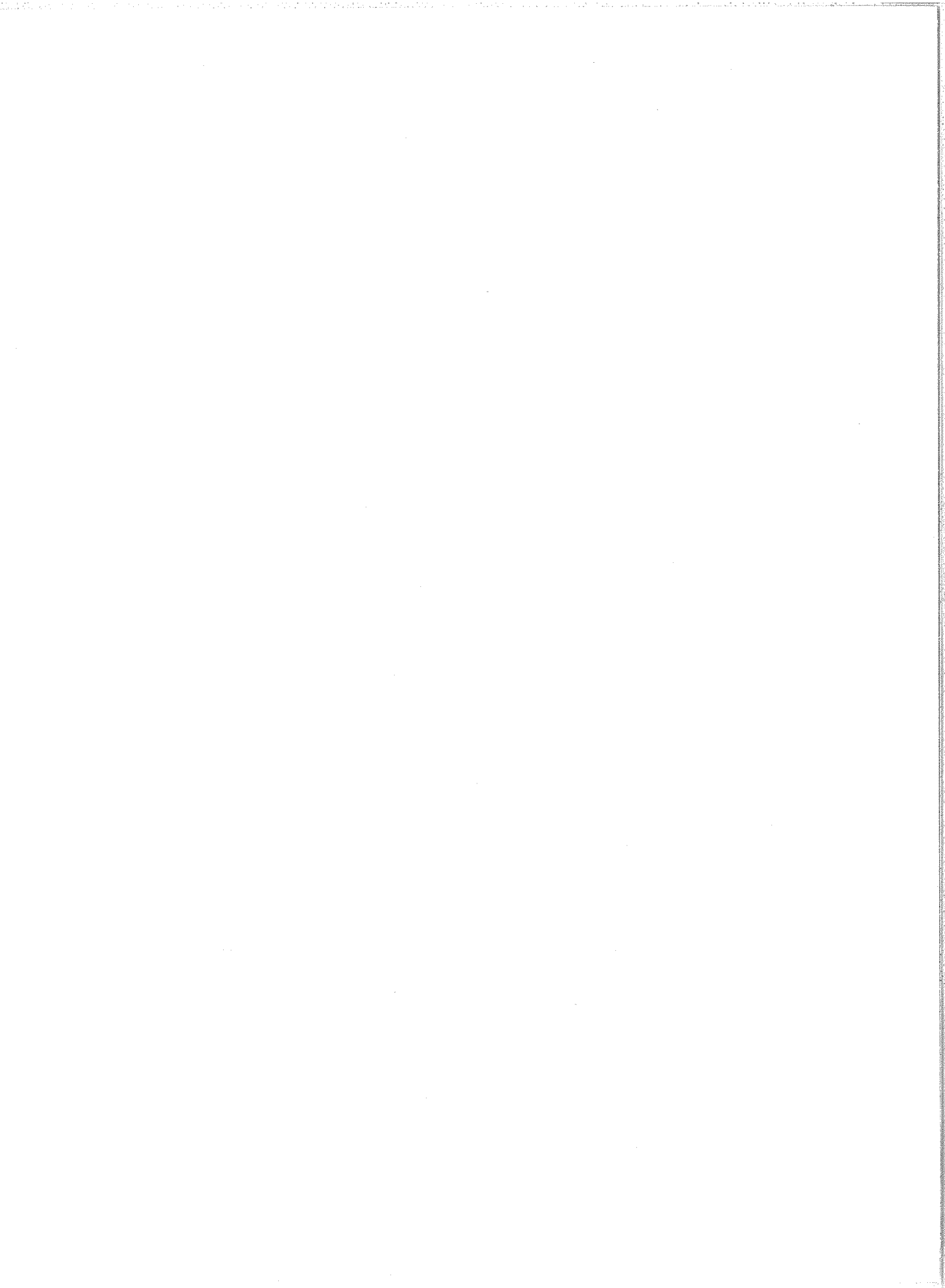
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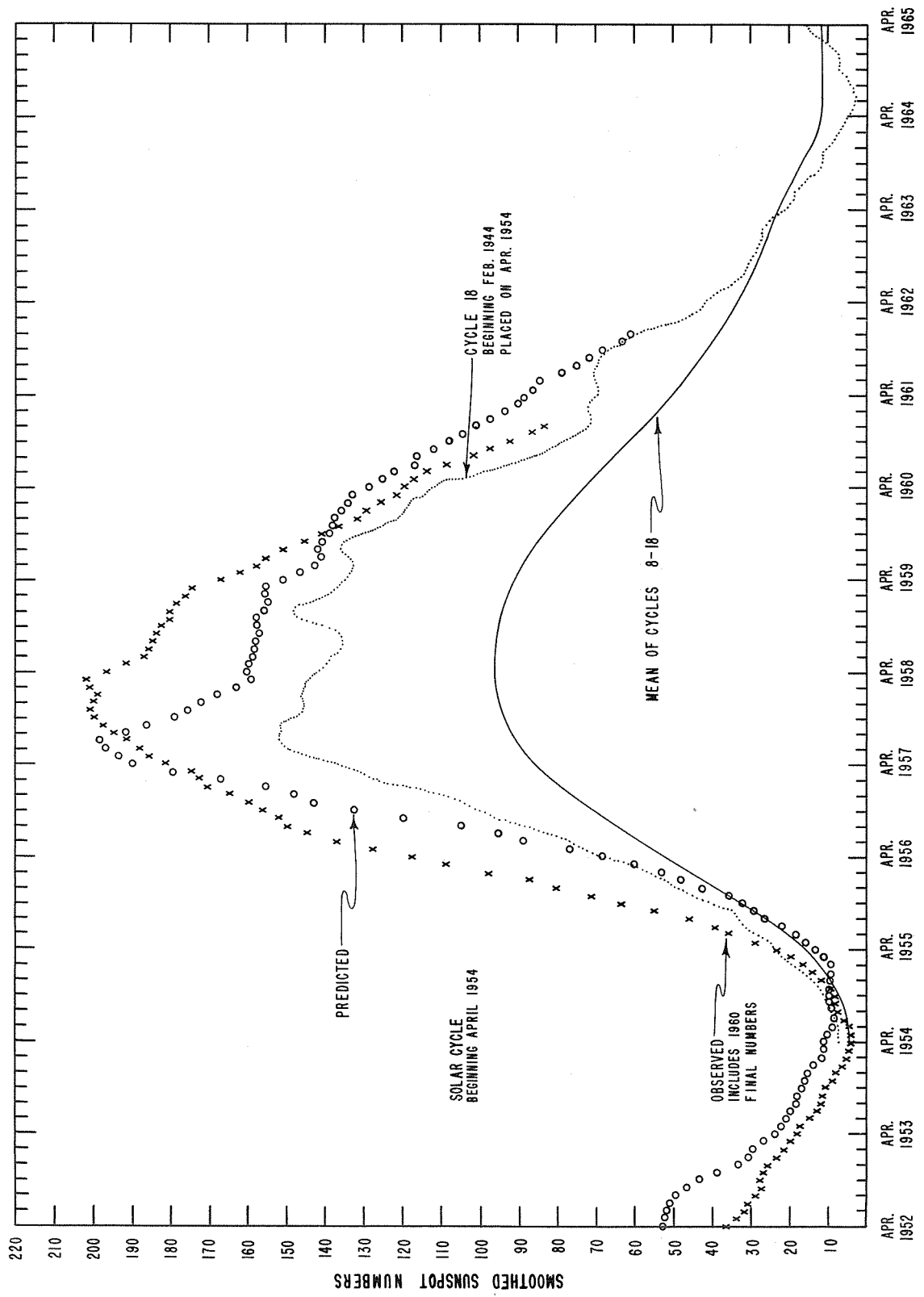


The descriptive text was published separately, November 1960.

## DAILY SOLAR INDICES

| May<br>1961 | American Relative<br>Sunspot Numbers<br>R <sub>A</sub> ' |
|-------------|--|
| 1           | 86   |
| 2           | 67   |
| 3           | 70   |
| 4           | 51   |
| 5           | 34   |
| 6           | 23   |
| 7           | 29   |
| 8           | 26   |
| 9           | 36   |
| 10          | 31   |
| 11          | 38   |
| 12          | 45   |
| 13          | 33   |
| 14          | 30   |
| 15          | 28   |
| 16          | 23   |
| 17          | 24   |
| 18          | 39   |
| 19          | 47   |
| 20          | 63   |
| 21          | 48   |
| 22          | 67   |
| 23          | 60   |
| 24          | 52   |
| 25          | 52   |
| 26          | 36   |
| 27          | 28   |
| 28          | 23   |
| 29          | 28   |
| 30          | 28   |
| 31          | 23   |
| Mean:       | 40.9   |

| June<br>1961 | Zürich Provisional<br>Relative Sunspot<br>Numbers<br>R <sub>Z</sub> | Daily Values Solar<br>Flux at 2800 Mc,<br>Ottawa, Canada<br>Flux |
|--------------|---|--|
| 1            | 30  | 86   |
| 2            | 42  | 88   |
| 3            | 48  | 92   |
| 4            | 62  | 89   |
| 5            | 55  | 86   |
| 6            | 49  | 88   |
| 7            | 40  | 89   |
| 8            | 45  | 91   |
| 9            | 58  | 100  |
| 10           | 77  | 102  |
| 11           | 82  | 110  |
| 12           | 72  | 108  |
| 13           | 75  | 114  |
| 14           | 80  | 123  |
| 15           | 123   | 129  |
| 16           | 128   | 132  |
| 17           | 128   | 137  |
| 18           | 128   | 136  |
| 19           | 112   | 131  |
| 20           | 116   | 131  |
| 21           | 128   | 132  |
| 22           | 123   | 134  |
| 23           | 96  | 135  |
| 24           | 96  | 117  |
| 25           | 72  | 111  |
| 26           | 56  | 108  |
| 27           | 51  | 99   |
| 28           | 38  | 95   |
| 29           | 59  | 102  |
| 30           | 63  | 103  |
| Mean:        | 77.7  | 109.9  |



## CALCIUM PLAGE AND SUNSPOT REGIONS

JUNE 1961

| CMP<br>June<br>1961 | Lat | McMath<br>Plage<br>Number | Return<br>of<br>Region | Calcium Plage Data |       |                | Sunspot Data       |       |            |
|---------------------|-----|---------------------------|------------------------|--------------------|-------|----------------|--------------------|-------|------------|
|                     |     |                           |                        | CMP Values<br>Area | Int.  | History, Age   | CMP Values<br>Area | Count | History    |
| 03.0                | S12 | 6131                      | New                    | 1100               | 3     | <i>l-l</i> 1   | 30                 | 3     | <i>l-d</i> |
| 03.9                | S05 | 6132                      | 6107                   | 600                | 2     | <i>l-l</i> 2   |                    |       |            |
| 04.3                | S11 | 6136                      | New                    | (400)              | (3)   | <i>b-l</i> 1   |                    |       |            |
| 06.1                | N11 | 6133                      | 6104                   | 2200               | 3     | <i>l-l</i> 4   |                    |       |            |
| 06.6                | S04 | 6134                      | New                    | 2400               | 3     | <i>l-l</i> 1   | 220                | 5     | <i>l-l</i> |
| 08.4                | N04 | 6135                      | 6106                   | 2900               | 3     | <i>l-l</i> 2   | 80                 | 1     | <i>l-l</i> |
| 09.1                | N19 | 6137                      | *                      | 800                | 2     | <i>l-d</i> 2,3 |                    |       |            |
| 10.1                | N15 | 6145                      | ****                   | (800)              | (3)   | <i>b-l</i> 1   |                    |       |            |
| 10.8                | S09 | 6141                      | ***                    | 1200               | 2     | <i>l-l</i> 3,5 |                    |       |            |
| 12.9                | S10 | 6142                      | 6112                   | 1000               | 1     | <i>l-l</i> 5   |                    |       |            |
| 13.3                | N04 | 6138                      | 6120                   | 1300               | 2     | <i>l-l</i> 2   |                    |       |            |
| 13.4                | N20 | 6139                      | New                    | 1500               | 2.5   | <i>l-l</i> 1   |                    |       |            |
| 15.2                | S13 | 6143                      | 6116                   | 1800               | 2     | <i>l-l</i> 5   | 70                 | 2     | <i>b-l</i> |
| 15.6                | N08 | 6140                      | **                     | 5400               | 3     | <i>l-l</i> 4   | 790                | 12    | <i>l-l</i> |
| 17.6                | S14 | 6144                      | New                    | 4600               | 3.5   | <i>l-l</i> 1   | 720                | 24    | <i>l-l</i> |
| 19.8                | N14 | 6151                      | +                      | 600                | 3     | <i>b-l</i> 1   | 70                 | 7     | <i>b-l</i> |
| 21.2                | N20 | 6147                      | 6122                   | 1400               | 2     | <i>l-l</i> 2   |                    |       |            |
| 21.6                | S08 | 6146                      | New                    | 2300               | 3     | <i>l-l</i> 1   | 190                | 1     | <i>l-l</i> |
| 22.4                | N22 | 6148                      | 6122                   | 2700               | 3     | <i>l-l</i> 2   | (70)               | (2)   | <i>l-d</i> |
| 22.6                | S14 | 6154                      | 6124                   | 2100               | 2.5   | <i>l-l</i> 3,5 | (10)               | (1)   | <i>b-d</i> |
| 23.0                | N09 | 6149                      | 6125                   | 5400               | 3     | <i>l-l</i> 3   | 290                | 5     | <i>l-l</i> |
| 24.1                | S12 | 6150                      | 6124                   | 1700               | 2.5   | <i>l-l</i> 3,5 |                    |       |            |
| 24.9                | S17 | 6152                      | 6124                   | 1200               | 2     | <i>l-l</i> 3,5 |                    |       |            |
| 25.0                | N15 | 6153                      | 6126                   | 1800               | 1.5   | <i>l-l</i> 4   |                    |       |            |
| 27.5                | N17 | 6160                      | New                    | (500)              | (1.5) | <i>b-l</i> 1   |                    |       |            |
| 29.0                | N05 | 6155                      | New                    | 2500               | 3.5   | <i>l-l</i> 1   | 190                | 8     | <i>b-l</i> |
| 29.7                | S11 | 6159                      | 6131                   | 500                | 1.5   | <i>l-d</i> 2   |                    |       |            |

COMMERCE - STANDARDS - BOULDER

\* 6105, 6109

\*\* 6114 resurgence

\*\*\* 6108, 6113

\*\*\*\* New in position of 6137

+ New in position of 6119.

PROVISIONAL CORONAL LINE EMISSION INDICES

JUNE 1961

| CMP<br>June<br>1961 | North East Quadrant<br>(observed 7 days earlier) |                |                | South East Quadrant<br>(observed 7 days earlier) |                |                | South West Quadrant<br>(observed 7 days later) |                |                | North West Quadrant<br>(observed 7 days later) |                |                |
|---------------------|--|----------------|----------------|--|----------------|----------------|--|----------------|----------------|--|----------------|----------------|
|                     | G <sub>6</sub>                                   | G <sub>1</sub> | R <sub>1</sub> | G <sub>6</sub>                                   | G <sub>1</sub> | R <sub>1</sub> | G <sub>6</sub>                                 | G <sub>1</sub> | R <sub>1</sub> | G <sub>6</sub>                                 | G <sub>1</sub> | R <sub>1</sub> |
| 1                   | x  | x              | x              | x  | x              | x              | 20   | 31             | 12             | 27   | 56             | 12             |
| 2                   | x  | x              | x              | x  | x              | x              | 58   | 50             | x              | 26   | 34             | x              |
| 3                   | x  | x              | x              | x  | x              | x              | 42   | 87             | 27             | 21   | 28             | 7              |
| 4                   | x  | x              | x              | x  | x              | x              | x  | x              | x              | x  | x              | x              |
| 5                   | 17   | 21             | 20             | 9  | 17             | 17             | x  | x              | x              | x  | x              | x              |
| 6                   | x  | x              | x              | x  | x              | x              | 29a  | 56a            | x              | x  | x              | x              |
| 7                   | 50   | 61             | 48a            | 26   | 72             | 19a            | 18   | 28             | x              | 57   | 98             | x              |
| 8                   | x  | x              | x              | x  | x              | x              | 15   | 20             | x              | 41   | 48             | x              |
| 9                   | x  | x              | x              | x  | x              | x              | 36a  | 48a            | 36a            | 98a  | 7a             | 8a             |
| 10                  | x  | x              | x              | x  | x              | x              | 23   | 25             | 6              | 39   | 50             | 3              |
| 11                  | x  | x              | x              | x  | x              | x              | 47   | 87             | 13             | 45   | 59             | 12             |
| 12                  | x  | x              | x              | x  | x              | x              | x  | x              | x              | x  | x              | x              |
| 13                  | x  | x              | x              | x  | x              | x              | x  | x              | x              | x  | x              | x              |
| 14                  | 50   | 70             | 48             | 42   | 73             | 16             | x  | x              | x              | x  | x              | x              |
| 15                  | 52   | 64             | 48             | 48   | 92             | 40             | x  | x              | x              | x  | x              | x              |
| 16                  | 46   | 56             | x              | 71   | 126            | x              | x  | x              | x              | x  | x              | x              |
| 17                  | 45   | 56             | 13             | 80   | 179            | 26             | x  | x              | 36a            | x  | x              | 16a            |
| 18                  | x  | x              | x              | x  | x              | x              | 61   | 106            | 26             | 66   | 100            | 20             |
| 19                  | x  | x              | x              | x  | x              | x              | x  | x              | x              | x  | x              | x              |
| 20                  | 44a  | 50a            | x              | 60a  | 101a           | x              | x  | x              | x              | x  | x              | x              |
| 21                  | 54   | 81             | x              | 75   | 120            | x              | x  | x              | x              | x  | x              | x              |
| 22                  | 61   | 90             | x              | 61   | 118            | x              | 44   | 73             | 8              | 68   | 95             | 9              |
| 23                  | 112a   | 160a           | x              | 78a  | 106a           | x              | x  | x              | 15a            | x  | x              | 25a            |
| 24                  | 52   | 73             | 20             | 42   | 59             | 7              | 34   | 48             | 7a             | 58   | 78             | 13a            |
| 25                  | 62   | 134            | 44             | 40   | 82             | 16             | 29   | 39             | 9              | 42   | 67             | 22             |
| 26                  | x  | x              | x              | x  | x              | x              | x  | x              | 11a            | x  | x              | 19a            |
| 27                  | x  | x              | x              | x  | x              | x              | 20   | 31             | 13             | 59   | 84             | 22             |
| 28                  | x  | x              | x              | x  | x              | x              | x  | x              | x              | x  | x              | x              |
| 29                  | x  | x              | x              | x  | x              | x              | 14   | 25             | x              | 26   | 39             | x              |
| 30                  | x  | x              | x              | x  | x              | x              | 17   | 25             | x              | 31   | 39             | x              |

x = no observations. a = index computed from low weight data. \* = yellow line observed. STANDARD - BOULDER



# SOLAR FLARES

JUNE 1961

| OBSERVATORY | DATE | OBSERVED TIME |        |                | MAX. PHASE | LOCATION     |            | MATH. PLAGE REGION | DURA-TION MINUTES | IM-PORTANCE | OBS. COND. | TIME U T | MEASUREMENTS        |                     |                           | PROVISIONAL IONOSPHERIC EFFECT |
|-------------|------|---------------|--------|----------------|------------|--------------|------------|--------------------|-------------------|-------------|------------|----------|---------------------|---------------------|---------------------------|--------------------------------|
|             |      | START         | END    | UNIVERSAL TIME |            | APPROX. LAT. | MER. DIST. |                    |                   |             |            |          | MEAS. AREA Sq. Deg. | CORR. AREA Sq. Deg. | MAX. WIDTH H <sub>g</sub> |                                |
| WENDEL      | 01   | 1105 E        | 1116 D |                |            | S06 E71      | 6134       | 11 D               | 1                 |             |            |          | 3.00                |                     |                           |                                |
| { KODAIKNL  | 02   | 0440 E        | 0448 D | 0446           |            | S07 E67      | 6134       | 8 D                | 1+                |             |            | 0448     |                     | 1.30                |                           |                                |
| { KODAIKNL  | 02   | 0440 E        | 0448 D | 0446           |            | S07 E67      | 6134       | 8 D                | 1+                |             |            | 0446     | 2.60                | 1.80                | 1.80                      |                                |
| { KODAIKNL  | 02   | 0440 E        | 0448 D | 0446           |            | S07 E67      | 6134       | 8 D                | 1+                |             |            | 0440     | 1.80                | 1.60                | 1.60                      |                                |
| { STOCKHOLM | 02   | 0904          | 0937 D |                |            | S04 E61      | 6134       | 33 D               | 1                 |             |            | 0925     |                     | 3.60                |                           |                                |
| { KODAIKNL  | 03   | 0220 E        | 0237 D | 0223           |            | S07 E55      | 6134       | 17 D               | 1                 |             |            | 0220     |                     | 1.40                |                           |                                |
| { KODAIKNL  | 03   | 0220 E        | 0237 D | 0223           |            | S07 E55      | 6134       | 17 D               | 1                 |             |            | 0223     |                     | 1.52                |                           |                                |
| { KODAIKNL  | 03   | 0220 E        | 0237 D | 0223           |            | S07 E55      | 6134       | 17 D               | 1                 |             |            | 0226     |                     | 1.36                |                           |                                |
| { KODAIKNL  | 03   | 0220 E        | 0237 D | 0223           |            | S07 E55      | 6134       | 17 D               | 1                 |             |            | 0228     |                     | 1.28                |                           |                                |
| { KODAIKNL  | 03   | 0220 E        | 0237 D | 0223           |            | S07 E55      | 6134       | 17 D               | 1                 |             |            | 0237     |                     | 1.12                |                           |                                |
| LOCARNO     | 05   | 0955          | 1030   |                |            | N02 E36      | 6135       | 35                 | 1                 |             |            |          |                     |                     |                           |                                |
| LOCARNO     | 05   | 0957          | 1100   |                |            | N13 E08      | 6133       | 63                 | 1                 |             |            |          |                     |                     |                           |                                |
| SAC PEAK    | 05   | 1520          | 1604   | 1538           |            | N01 E33      | 6135       | 44                 | 1                 |             |            |          |                     |                     |                           |                                |
| { ZURICH    | 05   | 1523          | 1550   |                |            | N01 E33      | 6135       | 27                 | 1+                |             |            | 1523     | 2.17                | 2.29                | S-SWF                     |                                |
| { CAPRI S   | 05   | 1524 E        | 1546 D |                |            | N03 E33      | 6135       | 22 D               | 1                 |             |            | 1534     | 1.70                | 3.00                |                           |                                |
| { SAC PEAK  | 05   | 2132          | 2232   | 2154           |            | N01 E31      | 6135       | 60                 | 1                 |             |            | 2154     | 3.61                | 2.10                | 30                        |                                |
| { SAC PEAK  | 05   | 2138          | 2225   | 2154           |            | N01 E29      | 6135       | 47                 | 1                 |             |            | 2154     | 2.10                | 2.10                |                           |                                |
| { MCMATH    | 05   | 2140 E        | 2206   | 2140           |            | N03 E33      | 6135       | 26 D               | 1                 |             |            | 2140     | 1.00                | 1.20                |                           |                                |
| { HUANCAYO  | 05   | 2140 E        | 2206   | 2152           |            | N03 E33      | 6135       | 26 D               | 1                 |             |            | 2152     | 1.80                | 2.10                | 2.40                      |                                |
| { HUANCAYO  | 05   | 2140 E        | 2206   | 2152           |            | N03 E33      | 6135       | 26 D               | 1                 |             |            | 2152     | 1.80                | 2.10                | 3.10                      |                                |
| ZURICH      | 06   | 1246 E        | 1308   |                |            | N00 E20      | 6135       | 22 D               | 1                 |             |            | 1246     |                     | 2.00                |                           |                                |
| CAPRI S     | 07   | 0830 E        | 0916   |                |            | N02 E11      | 6135       | 46 D               | 1                 |             |            | 0900     | 2.50                | 2.50                |                           |                                |
| MEUDON      | 07   | 0831          | 0945   | 0852           |            | N03 E07      | 6135       | 74                 | 2                 |             |            |          | 10.00               | 10.00               |                           |                                |
| LOCARNO     | 07   | 0845 E        | 0915 D |                |            | N02 E13      | 6135       | 30 D               | 2+                |             |            |          |                     |                     |                           |                                |
| STOCKHOLM   | 07   | 0850 E        | 0919   |                |            | S02 E08      | 6135       | 29 D               | 2                 |             |            | 0910     | 8.20                | 8.60                | S-SWF                     |                                |
| R O HERST   | 07   | 0852 E        | 0915   | 0852 U         |            | N02 E10      | 6135       | 23 D               | 1                 |             |            | 0852     | 2.50                | 2.60                |                           |                                |
| WENDEL      | 07   | 1057 E        | 1116 D |                |            | N02 E10      | 6135       | 19 D               | 1                 |             |            |          |                     | 3.00                |                           |                                |
| WENDEL      | 09   | 0550 E        | 0603   |                |            | N02 W17      | 6135       | 13 D               | 1                 |             |            |          |                     | 3.00                |                           |                                |
| SAC PEAK    | 09   | 1254 E        | 1348   | 1258 U         |            | N00 W20      | 6135       | 54 D               | 1                 |             |            |          |                     | 3.36                |                           |                                |
| WENDEL      | 09   | 1340 E        | 1426 D |                |            | N01 E78      | 6140       | 46 D               | 1+                |             |            |          |                     | 5.00                |                           |                                |
| WENDEL      | 09   | 1405 E        | 1405   |                |            | N02 W22      | 6135       | 2                  | 2                 |             |            |          |                     |                     |                           |                                |
| SAC PEAK    | 09   | 1436          | 1508   | 1440           |            | N01 E76      | 6140       | 32                 | 1                 |             |            |          |                     | 1.73                |                           |                                |
| WENDEL      | 09   | 1436          | 1524   |                |            | N02 E79      | 6140       | 48                 | 2                 |             |            |          |                     | 3.98                |                           |                                |
| WENDEL      | 09   | 1511          | 1526   |                |            | N01 W23      | 6135       | 15                 | 1                 |             |            |          |                     | 8.00                |                           |                                |
| { HUANCAYO  | 09   | 1710 E        | 1719 D | 1711           |            | N01 E82      | 6140       | 9 D                | 1                 |             |            | 1711     | 1.00                | 4.70                | 3.70                      |                                |
| { WENDEL    | 09   | 1712          | 1734 D |                |            | N02 E78      | 6140       | 22 D               | 1                 |             |            |          |                     | 4.00                |                           |                                |
| { HUANCAYO  | 09   | 1750          | 1756   | 1752           |            | N01 E82      | 6140       | 6                  | 1                 |             |            | 1752     | .60                 | 2.90                | 2.80                      |                                |
| { HUANCAYO  | 09   | 1940          | 2000   | 1942           |            | N01 E76      | 6140       | 20                 | 1                 |             |            |          |                     | 3.07                | 16                        |                                |
| SAC PEAK    | 09   | 2100          | 2110   | 2103           |            | N01 E82      | 6140       | 11                 | 1+                |             |            | 2103     | 1.70                | 8.00                |                           |                                |
| { HUANCAYO  | 09   | 2102          | 2116   | 2106           |            | N01 E76      | 6140       | 14                 | 1                 |             |            |          |                     | 3.07                |                           |                                |
| { SAC PEAK  | 09   | 2106 E        | 2114   | 2106           |            | N01 E85      | 6140       | 8 D                | 1                 |             |            | 2106     | 1.30                | 3.07                | 17                        |                                |
| { HAWAII    | 09   | 2248          | 2306   | 2254           |            | N01 E76      | 6140       | 18                 | 2                 |             |            |          |                     | .40                 | 2.20                      |                                |
| { SAC PEAK  | 09   | 2248          | 2306   | 2254           |            | N01 E76      | 6140       | 18                 | 2                 |             |            |          |                     | 2.74                | 6.31                      |                                |
| MCMATH      | 10   | 1509          | 1526   | 1514           |            | N01 W36      | 6135       | 17                 | 1+                |             |            | 1514     |                     | 3.50                |                           |                                |
| LOCARNO     | 11   | 0925 E        | 1110 D |                |            | N01 W45      | 6135       | 105 D              | 2                 |             |            |          |                     |                     |                           |                                |

# SOLAR FLARES

JUNE 1961

| OBSERVATORY  | DATE | OBSERVED TIME |        | LOCATION     |            | DURA-TION - MINUTES | IM-POR-TANCE | OBS. COND. | MEASUREMENTS          |                       |                  | PROVISIONAL IONOSPHERIC EFFECT |
|--|------|---------------|--------|--------------|------------|---------------------|--------------|------------|-----------------------|-----------------------|------------------|--------------------------------|
|  |      | START         | END    | APPROX. LAT. | MER. DIST. |                     |              |            | MEAS. AREA - Sq. Deg. | CORR. AREA - Sq. Deg. | MAX. WIDTH - Hrs |                                |
| ARCETRI<br>ARCETRI<br>WENDEL<br>CAPRI S<br>MEUDON<br>MCMATH<br>CAPRI S<br>LOCARNO<br>HUANCAYO<br>LOCKHEED  | 11   | 0942          | 1054 D | S00 W48      |            | 72 D                | 1            | 2          |                       |                       |                  |                                |
|  | 11   | 0956          | 1022 D | N04 E61      |            | 26 D                | 1            | 2          |                       |                       |                  |                                |
|  | 11   | 0959 E        | 1012 D | N01 W48      |            | 13 D                | 1+           |            |                       | 5.00                  |                  |                                |
|  | 11   | 1009 E        | 1120 D | N02 W45      |            | 71 D                | 1            |            |                       | 3.40                  |                  |                                |
|  | 11   | 1106 E        | 1155 D | N02 W48      |            | 49 D                | 1            |            |                       |                       |                  |                                |
|  | 11   | 1502          | 1612   | N02 W50      |            | 70 D                | 2+           |            |                       |                       |                  |                                |
|  | 11   | 1503          | 1600 D | N03 W48      |            | 57 D                | 2            |            |                       | 8.00                  |                  |                                |
|  | 11   | 1510          | 1620   | N01 W48      |            | 70 D                | 2            |            |                       | 6.70                  |                  |                                |
|  | 11   | 1600 E        | 1608   | N02 W50      |            | 8 D                 | 1            |            |                       | 10.00                 |                  |                                |
|  | 11   | 2010          | 2017   | S10 E90      |            | 7                   | 1            |            |                       | 2.70                  | 2.10             | 10                             |
|  | 11   | 2010          | 2017   | S10 E90      |            | 7                   | 1            |            |                       | .40                   |                  |                                |
| ONDREJOV<br>ONDREJOV<br>LOCARNO<br>MEUDON<br>STOCKHOLM<br>WENDEL<br>WENDEL   | 12   | 0457 E        | 0531 D | N02 E47      |            | 34 D                | 1            |            |                       |                       |                  |                                |
|  | 12   | 0600 E        | 0715 D | N00 W58      |            | 75 D                | 1            |            |                       | 2.20                  |                  |                                |
|  | 12   | 0635 E        | 0655 D | N00 W55      |            | 20 D                | 1            |            |                       | 2.10                  |                  |                                |
|  | 12   | 0906          | 0913   | N04 E48      |            | 7                   | 1            |            |                       |                       |                  |                                |
|  | 12   | 0913          | 0925 D | S02 E44      |            | 12 D                | 1            |            |                       | 3.10                  |                  |                                |
|  | 12   | 1114 E        | 1121 D | N03 E44      |            | 7 D                 | 1            |            |                       | 3.00                  |                  |                                |
| MEUDON<br>LOCARNO<br>CAPRI S<br>LOCARNO<br>ZURICH<br>LOCKHEED<br>HUANCAYO<br>LOCKHEED<br>LOCKHEED  | 12   | 1144          | 1158   | N02 W58      |            | 14                  | 1            |            |                       | 4.00                  |                  |                                |
|  | 12   | 1146          | 1208   | N26 E20      |            | 22                  | 1            |            |                       | 4.00                  |                  |                                |
|  | 14   | 0924          | 0946   | N00 E15      |            | 22                  | 1            |            |                       | 3.00                  |                  |                                |
|  | 14   | 0929          | 1005   | N01 E10      |            | 36                  | 1+           |            |                       | 2.00                  |                  |                                |
|  | 14   | 0934 E        | 0957   | N01 E11      |            | 23 D                | 1            |            |                       | 2.30                  |                  |                                |
|  | 14   | 1610          | 1700   | N02 E07      |            | 50                  | 2            |            |                       |                       |                  |                                |
|  | 14   | 1613 E        | 1650 D | N04 E08      |            | 37 D                | 1            |            |                       | 2.00                  |                  |                                |
|  | 14   | 1632 E        | 1653   | N02 E06      |            | 21 D                | 1            |            |                       | 4.00                  |                  |                                |
|  | 14   | 1633 E        | 1651   | N02 E08      |            | 18 D                | 1            |            |                       | 2.00                  |                  |                                |
|  | 14   | 1642 E        | 1646   | N02 E07      |            | 4 D                 | 1            |            |                       | 2.50                  | 2.10             | 30                             |
| ARCETRI<br>ARCETRI<br>ZURICH<br>MEUDON<br>LOCKHEED<br>LOCKHEED<br>MCMATH<br>SAC PEAK<br>ZURICH<br>HUANCAYO<br>LOCARNO<br>ZURICH<br>MEUDON<br>LOCARNO<br>SAC PEAK<br>WENDEL<br>ZURICH | 14   | 1940          | 2004   | N02 W90      |            | 24                  | 1            |            |                       | .40                   |                  |                                |
|  | 14   | 2103          | 2113   | N02 W90      |            | 10                  | 1            |            |                       | .40                   |                  |                                |
|  | 14   | 2354          | 0013   | S09 E90      |            | 19                  | 2            |            |                       | 1.90                  |                  |                                |
|  | 15   | 0831 E        | 0842 D | S08 E38      |            | 11 D                | 1            |            |                       | 2.10                  |                  |                                |
|  | 15   | 0904 E        | 0909 D | N05 W02      |            | 5 D                 | 1            |            |                       | 2.50                  |                  |                                |
|  | 15   | 1000          | 1023   | S09 E36      |            | 23                  | 1            |            |                       | 5.00                  |                  |                                |
|  | 15   | 1000 E        | 1025 D | S08 E38      |            | 25 D                | 1            |            |                       |                       |                  |                                |
|  | 15   | 1622          | 1705   | N05 W03      |            | 43                  | 1            |            |                       | 5.00                  |                  |                                |
|  | 15   | 1629          | 1727   | N04 W06      |            | 58                  | 1+           |            |                       | 3.30                  |                  |                                |
|  | 15   | 1629          | 1727   | N04 W06      |            | 58                  | 1+           |            |                       | 3.30                  |                  |                                |
| MCMATH<br>SAC PEAK<br>ZURICH<br>HUANCAYO<br>LOCARNO<br>ZURICH<br>MEUDON<br>LOCARNO<br>SAC PEAK<br>WENDEL<br>ZURICH   | 15   | 1630          | 1723   | N05 W06      |            | 53                  | 2            |            |                       | 3.30                  |                  |                                |
|  | 15   | 1630 U        | 1736 U | N05 W08      |            | 66 U                | 3            |            |                       | 3.96                  |                  |                                |
|  | 15   | 1632          | 1730   | N05 W08      |            | 58                  | 2            |            |                       | 9.00                  |                  |                                |
|  | 15   | 1636          | 1720   | N04 W10      |            | 44                  | 2+           |            |                       | 6.00                  |                  |                                |
|  | 15   | 1638          | 1707   | N05 W04      |            | 29                  | 1            |            |                       | 6.00                  |                  |                                |
|  | 15   | 1702          | 1730   | S10 E29      |            | 28                  | 1+           |            |                       | 3.70                  | 4.20             |                                |
|  | 15   | 1704          | 1710   | S08 E30      |            | 6                   | 1            |            |                       |                       |                  |                                |
|  | 15   | 1710          | 1715   | N01 W01      |            | 5                   | 1            |            |                       | 3.00                  |                  |                                |
|  | 15   | 1717          | 1730 D | N06 W07      |            | 13 D                | 1+           |            |                       | 3.00                  |                  |                                |
|  | 15   | 1718 E        | 1728 U | N02 W07      |            | 10 D                | 1            |            |                       | 4.00                  |                  |                                |
| MEUDON<br>LOCARNO<br>SAC PEAK<br>WENDEL<br>ZURICH  | 15   | 1718          | 1730   | N02 W06      |            | 12                  | 1            |            |                       | 4.00                  |                  |                                |
|  | 15   | 1752          | 1806   | N01 W09      |            | 14                  | 1            |            |                       | 1.00                  |                  |                                |
|  | 15   | 1752          | 1806   | N01 W09      |            | 14                  | 1            |            |                       | 1.00                  |                  |                                |
|  | 15   | 1752          | 1806   | N01 W09      |            | 14                  | 1            |            |                       | 1.00                  |                  |                                |
|  | 15   | 1752          | 1806   | N01 W09      |            | 14                  | 1            |            |                       | 1.00                  |                  |                                |
|  | 15   | 1752          | 1806   | N01 W09      |            | 14                  | 1            |            |                       | 1.00                  |                  |                                |
|  | 15   | 1752          | 1806   | N01 W09      |            | 14                  | 1            |            |                       | 1.00                  |                  |                                |
|  | 15   | 1752          | 1806   | N01 W09      |            | 14                  | 1            |            |                       | 1.00                  |                  |                                |
|  | 15   | 1752          | 1806   | N01 W09      |            | 14                  | 1            |            |                       | 1.00                  |                  |                                |
|  | 15   | 1752          | 1806   | N01 W09      |            | 14                  | 1            |            |                       | 1.00                  |                  |                                |

# SOLAR FLARES

JUNE 1961

| OBSERVATORY | DATE | OBSERVED UNIVERSAL TIME |        |            | LOCATION     |            |                 | DURA-TION - MINUTES | IM-PORTANCE | OBS. COND. | MEASUREMENTS |                     |                     | PROVISIONAL IONOSPHERIC EFFECT |
|-------------|------|-------------------------|--------|------------|--------------|------------|-----------------|---------------------|-------------|------------|--------------|---------------------|---------------------|--------------------------------|
|             |      | START                   | END    | MAX. PHASE | APPROX. LAT. | MER. DIST. | MAGNETH. REGION |                     |             |            | TIME U-T     | MEAS. AREA Sq. Deg. | CORR. AREA Sq. Deg. |                                |
| LOCKHEED    | 15   | 2354                    | 0013   | 2358       | N22          | E90        | 6148            | 19                  | 1           | 2          | 2358         | 0.70                | 3.50                | 20                             |
| MEUDON      | 16   | 0458                    | 0510   | 0501       | N02          | W13        | 6140            | 12                  | 1           | 3          | 0828         | 0.50                | 3.00                |                                |
| ARCETRI     | 16   | 0825 E                  | 0838 D |            | N21          | E89        | 6148            | 13                  | 1           | 3          | 0828         | 0.53                | 2.30                |                                |
| ARCETRI     | 16   | 0825 E                  | 0855 D |            | N13          | W88        | 6145            | 30                  | 1           | 3          | 0842         |                     | 3.00                |                                |
| ZURICH      | 16   | 0842                    | 0850   |            | S06          | E21        | 6144            | 8                   | 1           | 3          | 0914         | 1.00                | 4.20                |                                |
| ARCETRI     | 16   | 0858 E                  | 0914 D |            | N23          | E86        | 6148            | 16                  | 1           | 3          | 0903         | 1.00                | 4.20                |                                |
| ARCETRI     | 16   | 0903 E                  | 0917 D |            | N13          | W87        | 6145            | 14                  | 1           | 3          |              |                     | 3.00                |                                |
| WENDEL      | 16   | 0948                    | 1007 D |            | S12          | W11        | 6143            | 19                  | 1           |            |              |                     | 4.00                |                                |
| WENDEL      | 16   | 1343                    | 1414 D |            | S10          | E23        | 6144            | 31                  | 1           |            |              |                     | 3.00                |                                |
| ZURICH      | 17   | 0723                    | 0738   |            | N03          | W29        | 6140            | 15                  | 1           | 3          | 0723         |                     | 3.00                |                                |
| ZURICH      | 17   | 0828                    | 0842   |            | S02          | W27        | 6140            | 14                  | 1           | 3          | 0828         |                     | 2.00                |                                |
| LOCARNO     | 17   | 1305                    | 1320   |            | S07          | W68        | 6142            | 15                  | 1           | 3          |              |                     | 3.00                |                                |
| WENDEL      | 17   | 1514 E                  | 1622 D |            | S06          | W76        | 6142            | 68                  | 1           | 2          | 1925         | 1.40                | 3.00                | 20                             |
| LOCKHEED    | 17   | 1635                    | 2336   | 2212       | S05          | W73        | 6142            | 421                 | 1           | 2          | 1925         | 1.40                | 3.00                | 20                             |
| LOCKHEED    | 17   | 1635                    | 2336   | 2129       | S05          | W73        | 6142            | 421                 | 1           | 2          | 1925         | 1.40                | 3.00                | 20                             |
| LOCKHEED    | 17   | 1635                    | 2336   | 2038       | S05          | W73        | 6142            | 421                 | 1           | 2          | 1925         | 1.40                | 3.00                | 20                             |
| LOCKHEED    | 17   | 1635                    | 2336   | 1925       | S05          | W73        | 6142            | 421                 | 1           | 2          | 1925         | 1.40                | 3.00                | 20                             |
| LOCKHEED    | 17   | 1635                    | 2336   | 1852       | S05          | W73        | 6142            | 421                 | 1           | 2          | 1925         | 1.40                | 3.00                | 20                             |
| LOCKHEED    | 17   | 1635                    | 2336   | 1805       | S05          | W73        | 6142            | 421                 | 1           | 2          | 1925         | 1.40                | 3.00                | 20                             |
| LOCKHEED    | 17   | 1635                    | 2336   | 1732       | S05          | W73        | 6142            | 421                 | 1           | 2          | 1925         | 1.40                | 3.00                | 20                             |
| LOCKHEED    | 17   | 1635                    | 2336   | 1649       | S05          | W73        | 6142            | 421                 | 1           | 2          | 1925         | 1.40                | 3.00                | 20                             |
| WENDEL      | 17   | 1636 E                  | 1659 D |            | S06          | W77        | 6142            | 23                  | 1           | 2          | 1925         | 1.40                | 4.00                | 20                             |
| WENDEL      | 18   | 0724                    | 0733 D |            | N10          | E70        | 6149            | 9                   | 1           | 3          | 0728         |                     | 4.00                | 2.60                           |
| ONDREJOV    | 18   | 0725                    | 0733   |            | N14          | E66        | 6148            | 8                   | 1           |            |              |                     | 3.00                |                                |
| WENDEL      | 18   | 0812                    | 0836   |            | S06          | W85        | 6142            | 24                  | 1           |            |              |                     | 3.00                |                                |
| WENDEL      | 18   | 0852                    | 0920 D |            | S07          | W86        | 6142            | 28                  | 1           |            |              |                     | 3.00                |                                |
| WENDEL      | 18   | 0945 E                  | 1034 D |            | S06          | W87        | 6142            | 49                  | 1           |            |              |                     | 12.00               |                                |
| WENDEL      | 18   | 1319                    | 1351   |            | S11          | E42        | 6146            | 32                  | 2           | 2          | 1322         |                     | 2.00                |                                |
| ZURICH      | 18   | 1322 E                  | 1341   |            | S09          | E38        | 6146            | 19                  | 1           | 3          | 1326         |                     | 4.00                | 1.80                           |
| ONDREJOV    | 18   | 1325 E                  | 1331   |            | S09          | E38        | 6146            | 6                   | 1           | 3          |              |                     | 2.00                |                                |
| ZURICH      | 19   | 0752                    | 0821   |            | N14          | E06        | 6151            | 29                  | 1           | 3          | 0752         |                     | 3.00                |                                |
| WENDEL      | 19   | 0752                    | 0825 D |            | N13          | E18        | 6147            | 33                  | 1           | 3          |              |                     | 4.00                |                                |
| WENDEL      | 19   | 0756 E                  | 0825 D |            | N10          | W42        | 6140            | 29                  | 1           | 3          |              |                     | 3.00                |                                |
| WENDEL      | 19   | 0919 E                  | 0949 D |            | N10          | W43        | 6140            | 30                  | 1           | 3          |              |                     | 3.00                |                                |
| WENDEL      | 19   | 1118                    | 1152   |            | S12          | W52        | 6143            | 34                  | 1           | 3          |              |                     | 4.00                |                                |
| AROSA       | 20   | 0728                    | 0743   |            | N13          | E45        | 6149            | 15                  | 1           | 3          | 0729         |                     | 3.00                |                                |
| ZURICH      | 20   | 0729 E                  | 0745   |            | N14          | E45        | 6149            | 16                  | 1           | 3          | 1011         | 3.00                | 3.10                |                                |
| ARCETRI     | 20   | 1001 E                  | 1011 D |            | N12          | W07        | 6151            | 10                  | 1           | 3          |              |                     | 3.00                |                                |
| ONDREJOV    | 21   | 0429 E                  | 0436   |            | N14          | W17        | 6151            | 7                   | 1           | 3          | 0430         |                     | 2.20                |                                |
| ONDREJOV    | 22   | 0951                    | 1007   | 0958       | N12          | W37        | 6151            | 16                  | 1+          | 3          | 0958         |                     | 4.10                |                                |
| WENDEL      | 22   | 0954                    | 1012 D |            | N10          | W38        | 6151            | 18                  | 1           | 3          |              |                     | 3.00                |                                |
| ONDREJOV    | 22   | 1108 E                  | 1115 D |            | N13          | W40        | 6151            | 7                   | 1           | 3          | 1111         |                     | 2.80                |                                |
| ONDREJOV    | 22   | 1150 E                  | 1233   |            | N22          | E03        | 6148            | 43                  | 1           | 3          | 1156         |                     | 2.70                |                                |
| LOCARNO     | 23   | 1000                    | 1130   |            | N12          | W53        | 6151            | 90                  | 1           | 3          |              |                     |                     |                                |

# SOLAR FLARES

JUNE 1961

| OBSERVATORY   | DATE<br>JUNE 1961 | OBSERVED UNIVERSAL TIME |      | MAX. PHASE | LOCATION     |            | MAGNITUDE | DURATION<br>MINUTES | IM. POR. TANCE | OBS. COND. | TIME<br>—<br>U.T. | MEASUREMENTS           |                        | PROVISIONAL IONOSPHERIC EFFECT |                  |
|---|-------------------|-------------------------|------|------------|--------------|------------|-----------|---------------------|----------------|------------|-------------------|------------------------|------------------------|--------------------------------|------------------|
|   |                   | START                   | END  |            | APPROX. LAT. | MER. DIST. |           |                     |                |            |                   | MEAS. AREA<br>Sq. Deg. | COBR. AREA<br>Sq. Deg. |                                | MAX. WIDTH<br>Hr |
| MEUDON<br>WENDEL<br>ARCETRI<br>ONDREJOV<br>WENDEL<br>ONDREJOV<br>CAPRI S<br>MEUDON<br>ZURICH<br>LOCARNO<br>ONDREJOV<br>WENDEL<br>WENDEL | 23                | 1107                    | 1125 | 1115       | N12          | W53        | 6151      | 18                  | 1              |            |                   | 5.00                   |                        |                                |                  |
|   | 23                | 1107                    | 1133 |            | N11          | W54        | 6151      | 26                  | D              |            |                   |                        | 5.00                   |                                |                  |
|   | 23                | 1114                    | E    |            | N13          | W54        | 6151      | 2                   |                |            |                   |                        | 5.60                   | 4.20                           |                  |
|   | 23                | 1115                    | E    |            | N13          | W52        | 6151      | 28                  | D              |            |                   |                        | 8.00                   |                                |                  |
|   | 23                | 1122                    | E    |            | N12          | W50        | 6151      | 23                  | D              |            |                   |                        | 3.00                   |                                |                  |
|   | 23                | 1137                    | E    |            | N11          | E03        | 6149      | 12                  | D              |            |                   |                        | 10.00                  | 2.40                           |                  |
|   | 23                | 1143                    | E    |            | N22          | W10        | 6148      | 72                  | D              | 1+         |                   |                        | 2.80                   |                                |                  |
|   | 23                | 1152                    | E    |            | N23          | W09        | 6148      | 74                  | D              | 2          |                   |                        | 6.00                   |                                |                  |
|   | 23                | 1200                    | E    |            | N22          | W08        | 6148      | 32                  | D              | 1          |                   |                        | 3.00                   |                                |                  |
|   | 23                | 1200                    | E    |            | N23          | W05        | 6148      | 60                  | U              | 1          |                   |                        | 3.00                   |                                |                  |
| KODAIKNI<br>WENDEL<br>WENDEL<br>WENDEL<br>WENDEL<br>WENDEL<br>CAPRI S<br>WENDEL<br>WENDEL<br>WENDEL<br>WENDEL                           | 24                | 0242                    | E    | N15        | W60          | 6151       | 5         | D                   | 1              |            |                   | 3.80                   |                        |                                |                  |
|   | 24                | 0527                    | E    | N12        | W59          | 6151       | 36        | D                   | 1+             |            |                   | 6.00                   |                        |                                |                  |
|   | 24                | 0620                    | E    | N14        | W05          | 6149       | 19        | D                   | 1              |            |                   | 3.00                   |                        |                                |                  |
|   | 24                | 0720                    | E    | N12        | W59          | 6151       | 26        | D                   | 1              |            |                   | 4.00                   |                        |                                |                  |
|   | 24                | 0758                    | E    | N12        | W60          | 6151       | 20        | D                   | 1              |            |                   | 3.00                   |                        |                                |                  |
|   | 24                | 1032                    | E    | N11        | W64          | 6151       | 16        | D                   | 1              |            |                   | 3.00                   |                        |                                |                  |
|   | 24                | 1034                    | E    | N12        | W63          | 6151       | 17        | D                   | 1              |            |                   | 2.00                   |                        |                                |                  |
|   | 24                | 0242                    | E    | N15        | W60          | 6151       | 5         | D                   | 1              |            |                   | 1.90                   |                        |                                |                  |
|   | 24                | 0603                    | D    | N12        | W59          | 6151       | 36        | D                   | 1+             |            |                   | 3.00                   |                        |                                |                  |
|   | 24                | 0639                    | D    | N14        | W05          | 6149       | 19        | D                   | 1              |            |                   | 3.00                   |                        |                                |                  |
| MEUDON<br>ONDREJOV<br>WENDEL<br>CAPRI S<br>LOCARNO<br>WENDEL<br>WENDEL<br>WENDEL<br>WENDEL<br>WENDEL<br>WENDEL                          | 25                | 1250                    | D    | 1300       | S17          | W48        | 6154      | 28                  | D              | 1          |                   | 3.00                   |                        |                                |                  |
|   | 25                | 1253                    | D    |            | N22          | W33        | 6148      | 40                  | D              | 1          |                   | 3.00                   |                        |                                |                  |
|   | 25                | 1343                    | D    |            | N22          | W32        | 6148      | 50                  | D              | 1          |                   |                        | 2.70                   |                                |                  |
|   | 25                | 1254                    | E    |            | N21          | W37        | 6148      | 8                   | D              | 1+         |                   |                        | 5.00                   |                                |                  |
|   | 25                | 1256                    | E    |            | N20          | W33        | 6148      | 33                  | D              | 1          |                   |                        | 2.30                   |                                |                  |
|   | 26                | 0947                    | E    |            | N14          | W36        | 6149      | 48                  | D              | 2          |                   |                        | 7.00                   |                                |                  |
|   | 26                | 0950                    | E    |            | N16          | W35        | 6149      | 62                  | D              | 2+         |                   |                        | 14.00                  |                                |                  |
|   | 26                | 0951                    | E    |            | N12          | W37        | 6149      | 19                  | D              | 2          |                   |                        | 7.00                   |                                |                  |
|   | 26                | 0952                    | E    |            | N15          | W37        | 6149      | 40                  | D              | 1          |                   |                        | 1.70                   |                                |                  |
|   | 26                | 0715                    | E    |            | N06          | E15        | 6155      | 45                  | U              | 1          |                   |                        | 3.00                   |                                |                  |
| ARCETRI<br>LOCARNO<br>SAC PEAK<br>WENDEL<br>ZURICH<br>SAC PEAK<br>CAPRI S<br>WENDEL<br>WENDEL<br>WENDEL<br>WENDEL                       | 27                | 0719                    | E    | N06        | E16          | 6155       | 36        | D                   | 1              |            |                   | 2.10                   |                        |                                |                  |
|   | 28                | 0859                    | E    | N16        | W90          | 6149       | 5         | D                   | 1              |            |                   | 4.00                   |                        |                                |                  |
|   | 28                | 1000                    | E    | N23        | W78          | 6148       | 20        | D                   | 1              |            |                   | 4.00                   |                        |                                |                  |
|   | 28                | 1652                    | E    | S09        | W90          | 6146       | 14        | D                   | 1              |            |                   | 3.30                   |                        |                                |                  |
|   | 29                | 0700                    | E    | N08        | W12          | 6155       | 20        | D                   | 1              |            |                   | 3.00                   |                        |                                |                  |
|   | 29                | 1315                    | E    | N13        | W74          | 6149       | 15        | D                   | 1              |            |                   | 2.00                   |                        |                                |                  |
|   | 29                | 1316                    | E    | N23        | W75          | 6148       | 19        | D                   | 1              |            |                   | 1.07                   |                        |                                |                  |
|   | 29                | 1317                    | E    | N13        | W75          | 6149       | 9         | D                   | 1              |            |                   | 1.00                   |                        |                                |                  |
|   | 30                | 0419                    | E    | N08        | W23          | 6155       | 45        | D                   | 2              |            |                   | 8.00                   |                        |                                |                  |
|   | 30                | 0510                    | E    | N08        | W26          | 6155       | 22        | D                   | 1              |            |                   | 3.00                   |                        |                                |                  |
| WENDEL<br>WENDEL<br>WENDEL<br>WENDEL  | 30                | 0512                    | E    | N12        | E86          | 6164       | 26        | D                   | 1              |            |                   | 3.00                   |                        |                                |                  |
|   | 30                | 0547                    | E    | N07        | W26          | 6155       | 80        | D                   | 2              |            |                   | 10.00                  |                        |                                |                  |
|   | 30                | 0512                    | E    | N12        | E86          | 6164       | 26        | D                   | 1              |            |                   | 3.00                   |                        |                                |                  |
|   | 30                | 0547                    | E    | N07        | W26          | 6155       | 80        | D                   | 2              |            |                   | 10.00                  |                        |                                |                  |

# SOLAR FLARES

JUNE 1961

| OBSERVATORY                                    | DATE         | OBSERVED UNIVERSAL TIME |        | LOCATION     |         |                         | DURA-<br>TION<br>--<br>MINUTES | IM-<br>POR-<br>TANCE | OBS.<br>COND. | TIME<br>--<br>UT | MEASUREMENTS              |                           |                     | PROVISIONAL<br>IONOSPHERIC<br>EFFECT |
|--|--------------|-------------------------|--------|--------------|---------|-------------------------|--------------------------------|----------------------|---------------|------------------|---------------------------|---------------------------|---------------------|--------------------------------------|
|  |              | START                   | END    | MAX<br>PHASE | APPROX. | MATH<br>PLACE<br>REGION |                                |                      |               |                  | MEAS.<br>AREA<br>Sq. Deg. | CORR.<br>AREA<br>Sq. Deg. | MAX.<br>WIDTH<br>Hr |                                      |
| ZURICH<br>{<br>WENDEL<br>{<br>ZURICH<br>WENDEL | JUNE<br>1961 |                         |        |              |         |                         |                                |                      |               |                  |                           |                           |                     |                                      |
|  | 30           | 0634 E                  | 0640   |              | N06 W23 | 6155                    | 6 D                            | 1                    | 3             | 0634             | 2.00                      | 2.00                      |                     |                                      |
|  | 30           | 0744                    | 0818 D |              | N07 W27 | 6155                    | 34 D                           | 1                    | 3             | 0745             | 3.00                      | 3.00                      |                     |                                      |
|  | 30           | 0745                    | 0748   |              | N06 W27 | 6155                    | 3                              | 1                    |               |                  | 2.00                      | 2.00                      |                     |                                      |
|  | 30           | 1347                    | 1416 D |              | N08 W30 | 6155                    | 29 D                           | 1                    |               |                  | 3.00                      | 3.00                      |                     |                                      |

COMMERCE - STANDARDS - BOULDER

E = LESS THAN  
D = GREATER THAN  
U = APPROXIMATE  
□ = NOT REPORTED

CAPRI G ANACAPRI - GERMAN  
CAPRI S ANACAPRI - SWEDISH  
GOOD HOPE ROYAL OBSERVATORY, CAPE OF GOOD HOPE  
KIEV\* KIEV UNIVERSITY  
KODATKNAL KODAIKANAL  
KRASNAYA KRASNAYA PAKHRA  
LOCKHEED LOS ANGELES

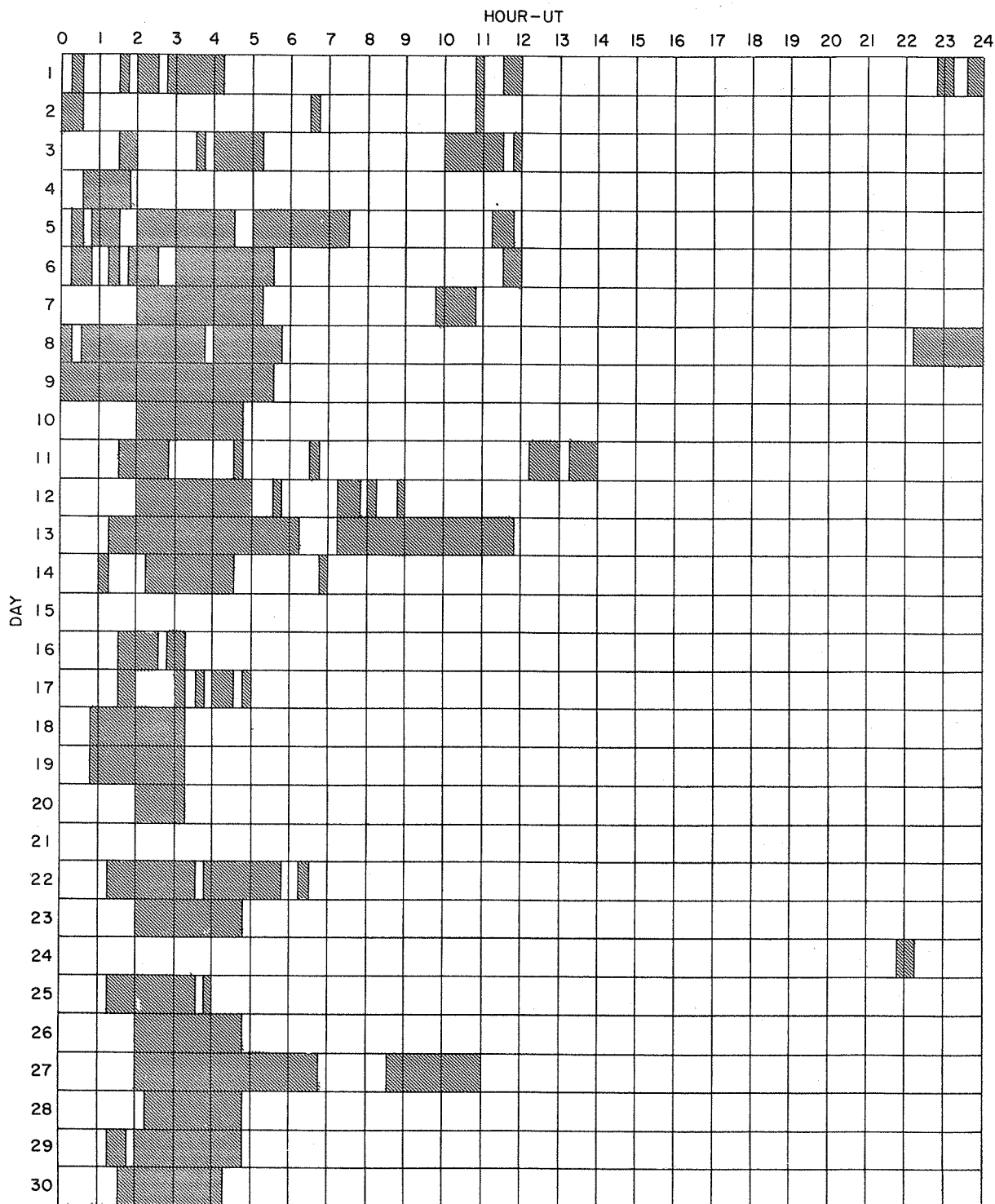
MC MATH - HULBERT  
MOSGOW - GAISH  
ROYAL GREENWICH OBSERVATORY,  
HERSTMONGEUX  
SAC PEAK SACRAMENTO PEAK  
SCHAUNISLAND SCHAUNISLAND  
WENDELSTEIN WENDELSTEIN

ALL VALUES IN THE MAXIMUM INTENSITY COLUMN FOR SAC PEAK ARE ARBITRARY UNITS (0-40) AND FOR LOCKHEED ARE ARBITRARY UNITS (10-40), NOT PERCENT OF CONTINUOUS SPECTRUM.

SEE DESCRIPTIVE TEXT PUBLISHED NOVEMBER 1960 FOR DEFINITION OF CORRECTED AREA VALUES LISTED FOR CLIMAX, LOCKHEED, HAWAII AND SACRAMENTO PEAK.

# INTERVALS OF NO FLARE PATROL OBSERVATIONS

JUNE 1961



COMMERCE - STANDARDS - BOULDER

Stations Include:

Arcetri  
Hawaii  
Huancayo

Kodaikanal  
Lockheed  
McMath-Hulbert

Meudon  
Ondrejov  
Sacramento Peak

Royal Greenwich Observatory  
Herstmonceux  
Wendelstein

SUBFLARES

Noted as follows: Date-Universal Time - Coordinates

MAY 1961

|            |           |         |           |           |         |            |           |         |
|------------|-----------|---------|-----------|-----------|---------|------------|-----------|---------|
| * MCMATH   | 01 1505 E | N03 W20 | LOCKHEED  | 10 2354   | N06 E19 | LOCKHEED   | 20 1727   | N03 W42 |
| * LOCKHEED | 01 1549   | N05 W20 | LOCKHEED  | 10 2354   | N06 E19 | MCMATH     | 20 1728 E | N04 W40 |
| * LOCKHEED | 01 1620   | N04 W19 | MEUDON    | 11 0521   | N09 W13 | LOCKHEED   | 20 1949   | N08 W20 |
| LOCKHEED   | 01 1823   | N05 W21 | MCMATH    | 11 1314   | N05 E12 | LOCKHEED   | 20 2014   | N15 E68 |
| SAC PEAK   | 01 1823   | N04 W20 | MCMATH    | 11 1317   | N11 E15 | MCMATH     | 20 2017 E | N12 E66 |
| SAC PEAK   | 01 2012   | N02 W19 | SAC PEAK  | 11 1404   | N09 E08 | LOCKHEED   | 20 2030   | N03 W45 |
| MCMATH     | 01 2015   | N03 W19 | MCMATH    | 11 1405   | N09 E08 | LOCKHEED   | 20 2030   | N03 W45 |
| LOCKHEED   | 01 2016   | N03 W20 | SAC PEAK  | 11 1534   | N04 E10 | LOCKHEED   | 20 2240   | N03 W45 |
| HAWAII     | 02 0048 E | N06 W39 | SAC PEAK  | 11 1658   | N04 E08 | MEUDON     | 21 1545   | N20 E55 |
| CAPRI S    | 02 0909 E | N03 W21 | HAWAII    | 11 1744 E | N06 E08 | SAC PEAK   | 21 1550   | N19 E55 |
| ARCETRI    | 02 0915 E | N04 W26 | LOCKHEED  | 11 1757   | N09 E06 | LOCKHEED   | 21 1550   | N15 E52 |
| MCMATH     | 02 1423   | N04 W30 | LOCKHEED  | 11 1803   | N05 E10 | CAPRI S    | 21 1556 E | N15 E55 |
| HUANCAYO   | 02 1430   | N03 W23 | LOCKHEED  | 11 1927   | N05 E10 | LOCKHEED   | 21 1605   | N16 E26 |
| HUANCAYO   | 02 1735   | N03 W26 | LOCKHEED  | 11 2128   | N07 E10 | SAC PEAK   | 21 1838   | S19 E80 |
| * HAWAII   | 02 1840 E | N04 W32 | SAC PEAK  | 11 2156   | N04 E09 | LOCKHEED   | 21 1910   | N17 E51 |
| LOCKHEED   | 02 1914   | N04 W34 | LOCKHEED  | 11 2158   | N06 E10 | LOCKHEED   | 21 1921   | N04 W56 |
| HAWAII     | 02 1916   | N04 W32 | LOCKHEED  | 11 2158   | N06 E10 | LOCKHEED   | 21 2019   | N04 W56 |
| LOCKHEED   | 02 1958   | N02 W32 | * MEUDON  | 12 0653   | N02 E01 | LOCKHEED   | 21 2116   | N20 E51 |
| LOCKHEED   | 02 1958   | N02 W32 | ARCETRI   | 12 0915 E | N02 W01 | LOCKHEED   | 21 2118   | N03 W57 |
| SAC PEAK   | 02 2102   | N03 W34 | * MEUDON  | 12 0940   | N02 E00 | LOCKHEED   | 21 2208   | N03 W57 |
| LOCKHEED   | 02 2105   | N02 W32 | * ARCETRI | 12 0950 E | N02 W01 | LOCKHEED   | 21 2328   | N03 W57 |
| LOCKHEED   | 02 2320   | N02 W32 | * MEUDON  | 12 1025   | N05 E00 | LOCKHEED   | 21 2328   | N03 W57 |
| LOCKHEED   | 03 0108 E | N05 W38 | MCMATH    | 12 1220 E | N02 W02 | CAPRI S    | 22 0954 E | N02 W59 |
| HUANCAYO   | 03 1305 E | N03 W40 | * MCMATH  | 12 1243   | N04 W03 | MCMATH     | 22 1235   | N16 E42 |
| SAC PEAK   | 03 1408   | N10 W10 | SAC PEAK  | 12 1354   | N04 W04 | MCMATH     | 22 1249   | N16 E42 |
| * MEUDON   | 04 1305   | N04 W58 | MCMATH    | 12 1355   | N05 W05 | MCMATH     | 22 1319   | N16 E42 |
| * MCMATH   | 04 1309   | N04 W57 | MCMATH    | 12 1645   | N04 W02 | * MCMATH   | 22 1716 E | N16 E40 |
| * SAC PEAK | 04 1402   | N12 W20 | MEUDON    | 12 1658   | N04 W07 | LOCKHEED   | 22 2230   | N18 E36 |
| * MEUDON   | 04 1408   | N12 W23 | SAC PEAK  | 12 1702   | N03 W07 | LOCKHEED   | 22 2300   | N06 E55 |
| * MCMATH   | 04 1408   | N12 W23 | LOCKHEED  | 12 1758   | N03 W04 | LOCKHEED   | 23 2110   | N15 E23 |
| * SAC PEAK | 04 1408   | N12 W22 | * MCMATH  | 12 1822   | S15 E90 | LOCKHEED   | 23 2201   | N16 E23 |
| * ARCETRI  | 04 1416 E | N12 W24 | LOCKHEED  | 12 1828   | N05 E80 | LOCKHEED   | 23 2203   | S12 E48 |
| SAC PEAK   | 04 1542   | S12 W50 | LOCKHEED  | 12 1851   | N07 W06 | MEUDON     | 24 0606   | N20 E20 |
| SAC PEAK   | 04 2004   | N14 W61 | LOCKHEED  | 12 1948   | N10 E00 | LOCKHEED   | 24 1744   | S12 W68 |
| LOCKHEED   | 04 2048   | S14 W60 | MCMATH    | 12 1949 E | N08 E02 | LOCKHEED   | 24 1810   | N06 E31 |
| MCMATH     | 04 2201   | N08 W70 | LOCKHEED  | 12 2011   | N06 W04 | LOCKHEED   | 24 1815   | S12 W68 |
| SAC PEAK   | 04 2202   | N06 W68 | LOCKHEED  | 12 2018   | N06 W08 | LOCKHEED   | 24 1815   | S12 W68 |
| WENDEL     | 05 0633 E | N13 W28 | LOCKHEED  | 12 2042   | N05 W04 | LOCKHEED   | 24 1926   | N16 E11 |
| WENDEL     | 05 0659 E | S13 W58 | LOCKHEED  | 12 2121   | N07 W09 | LOCKHEED   | 24 2022   | N06 E30 |
| WENDEL     | 05 0659 E | S15 W65 | LOCKHEED  | 12 2205   | N09 W23 | LOCKHEED   | 24 2022   | N06 E30 |
| * CAPRI S  | 05 0815 E | N10 W30 | SAC PEAK  | 12 2206   | N09 W34 | LOCKHEED   | 24 2108   | N05 E30 |
| * ONDREJOV | 05 0815 E | N10 W30 | LOCKHEED  | 12 2238   | N09 W24 | LOCKHEED   | 24 2200   | N05 E30 |
| * ARCETRI  | 05 0815 E | N12 W34 | LOCKHEED  | 12 2240   | N06 W08 | LOCKHEED   | 24 2318   | N05 E30 |
| * MCMATH   | 05 1158   | S13 W70 | LOCKHEED  | 12 2248   | N04 W10 | LOCKHEED   | 25 0007   | N05 E30 |
| * MEUDON   | 05 1200   | S13 W70 | LOCKHEED  | 12 2309   | N07 W10 | LOCKHEED   | 25 0104   | N05 E30 |
| WENDEL     | 05 1353 E | N03 W76 | LOCKHEED  | 12 2348   | N06 W10 | WENDEL     | 25 1414 E | N02 E11 |
| MCMATH     | 05 1537   | N03 W88 | LOCKHEED  | 12 2358   | N05 W11 | * MCMATH   | 25 1504   | N03 E20 |
| LOCKHEED   | 05 2041   | N05 W80 | SAC PEAK  | 13 1244 U | N08 W43 | * SAC PEAK | 25 1522   | N06 E18 |
| HAWAII     | 05 2110 E | N06 W90 | MEUDON    | 13 1250   | N15 W30 | MCMATH     | 25 1631   | N07 E42 |
| MCMATH     | 05 2112 E | N05 W90 | SAC PEAK  | 13 1852   | N07 W19 | WENDEL     | 25 1729 E | N17 W02 |
| LOCKHEED   | 05 2231   | N04 W80 | LOCKHEED  | 13 1856   | N06 W19 | LOCKHEED   | 26 2339   | N17 W17 |
| LOCKHEED   | 06 2225   | N06 W90 | LOCKHEED  | 13 1912   | N07 E70 | HAWAII     | 26 2344 E | N20 W17 |
| LOCKHEED   | 07 2140   | N15 E68 | SAC PEAK  | 13 2016   | N06 W20 | LOCKHEED   | 27 1840   | N19 W31 |
| HAWAII     | 07 2144 E | N11 E68 | LOCKHEED  | 13 2019   | N08 W19 | MCMATH     | 28 1412   | N04 W27 |
| ONDREJOV   | 08 0654 E | N12 E50 | LOCKHEED  | 14 1510   | N04 W29 | SAC PEAK   | 28 1414 E | N03 W28 |
| MEUDON     | 08 1957   | N05 E55 | LOCKHEED  | 14 1823   | N07 W26 | SAC PEAK   | 28 1582   | S10 W24 |
| MCMATH     | 08 1600   | N08 E49 | LOCKHEED  | 14 2111   | N06 W36 | MCMATH     | 28 1554   | S09 W24 |
| SAC PEAK   | 08 1600   | N08 E50 | LOCKHEED  | 14 2200   | N06 W36 | SAC PEAK   | 28 1904   | N04 W25 |
| LOCKHEED   | 08 1602   | N09 E48 | LOCKHEED  | 14 2217   | N06 W36 | MCMATH     | 28 1906   | N05 W25 |
| LOCKHEED   | 08 2210   | N02 E49 | LOCKHEED  | 15 0008   | N06 W36 | MCMATH     | 28 2024   | N05 W25 |
| ARCETRI    | 09 0830 E | N06 E41 | LOCKHEED  | 15 0028   | N06 W36 | SAC PEAK   | 28 2028 E | N04 W25 |
| * SAC PEAK | 09 1518   | N08 E12 | LOCKHEED  | 15 0038   | N06 W37 | SAC PEAK   | 28 2340   | N04 W28 |
| * SAC PEAK | 09 1957   | N14 E32 | SAC PEAK  | 15 1247   | S12 E39 | SAC PEAK   | 29 1426   | N05 W37 |
| * HAWAII   | 09 2250   | N10 E40 | SAC PEAK  | 15 1642   | N03 W44 | MCMATH     | 29 1458   | N05 W36 |
| MEUDON     | 10 0833   | N10 E30 | MCMATH    | 15 1938   | S12 E50 | LOCKHEED   | 29 1928   | N04 W39 |
| ARCETRI    | 10 0850 E | N10 E30 | LOCKHEED  | 15 1938   | S10 E50 | MCMATH     | 29 1930   | N05 W39 |
| MEUDON     | 10 1400   | N05 E27 | SAC PEAK  | 15 2000   | N03 W44 | LOCKHEED   | 29 2321   | N05 W42 |
| MCMATH     | 10 1408   | N04 E27 | LOCKHEED  | 15 2007   | N05 W43 | SAC PEAK   | 30 0007   | N05 W42 |
| MCMATH     | 10 1505   | N04 E23 | MCMATH    | 15 2012   | N04 W43 | LOCKHEED   | 30 2003   | N06 W53 |
| SAC PEAK   | 10 1515 E | N04 E22 | SAC PEAK  | 17 1506   | N14 E80 | SAC PEAK   | 30 2120   | N07 W59 |
| LOCKHEED   | 10 1755   | N06 E23 | SAC PEAK  | 17 1738   | N13 E82 | LOCKHEED   | 30 2121   | N06 W59 |
| LOCKHEED   | 10 1815   | N06 E24 | STOCKHOLM | 18 0922 E | S12 E12 | LOCKHEED   | 30 2332   | N06 W60 |
| LOCKHEED   | 10 1825   | N05 E20 | STOCKHOLM | 18 0931 E | S02 W10 | WENDEL     | 31 1043 E | N06 W65 |
| MCMATH     | 10 1858   | N04 E20 | HAWAII    | 18 1846 E | N03 W11 | MCMATH     | 31 1415   | N05 W62 |
| SAC PEAK   | 10 1858   | N03 E20 | HAWAII    | 18 2224   | N03 W13 | WENDEL     | 31 1600 E | S12 E28 |
| HAWAII     | 10 1858   | N03 E21 | WENDEL    | 19 1312 E | N03 W22 |            |           |         |
| LOCKHEED   | 10 1858   | N05 E20 | HAWAII    | 19 2026 E | N02 W29 |            |           |         |
| * LOCKHEED | 10 2027   | N10 E22 | MCMATH    | 19 2042   | N03 W30 |            |           |         |
| * LOCKHEED | 10 2027   | N10 E22 | MCMATH    | 19 2139   | N03 W29 |            |           |         |
| * LOCKHEED | 10 2211   | N02 E25 | LOCKHEED  | 19 2250   | N02 W31 |            |           |         |
| * HAWAII   | 10 2242 E | N05 E20 |           |           |         |            |           |         |

COMMERCIAL - STANDARD - BOLLER

\*Rated as flare of importance  $\geq 1$  by other observatories (see CRPL-F 202 Part B for May 1961)

# SOLAR FLARES

MARCH 1961

| OBSERVATORY            | DATE<br>MAR<br>1961 | OBSERVED<br>UNIVERSAL TIME |        | LOCATION        |               | DURA-<br>TION<br>—<br>MINUTES | IM-<br>POR-<br>TANCE | OBS.<br>COND. | TIME<br>—<br>UT | MEASUREMENTS              |                           | MAX.<br>WIDTH<br>H <sub>g</sub> | MAX.<br>INT.<br>% | PROVISIONAL<br>IONOSPHERIC<br>EFFECT |
|------------------------|---------------------|----------------------------|--------|-----------------|---------------|-------------------------------|----------------------|---------------|-----------------|---------------------------|---------------------------|---------------------------------|-------------------|--------------------------------------|
|                        |                     | START                      | END    | APPROX.<br>LAT. | MER.<br>DIST. |                               |                      |               |                 | MEAS.<br>AREA<br>Sq. Deg. | CORR.<br>AREA<br>Sq. Deg. |                                 |                   |                                      |
| { GOOD HOPE<br>SIMEIZ  | 05                  | 0658                       | 0717   | N22 W33         | 6043          | 19                            | 1                    |               | 0703            | 1.90                      | 2.60                      |                                 | 60                |                                      |
|                        | 05                  | 0658 E                     | 0720   | N20 W36         | 6043          | 22 D                          | 1                    | 2             | 0703            | 2.70                      |                           |                                 |                   |                                      |
| VOROSHILOV             | 13                  | 2347                       | 2353   | N05 E75         | 6059          | 6                             | 1+                   | 1             |                 | .72                       |                           |                                 | 85                |                                      |
| KYOTO                  | 18                  | 0107                       | 0124 D | N05 E17         | 6059          | 17 D                          | 1                    |               | 0107            | 2.06                      |                           |                                 | 120               |                                      |
| { ALMA-ATA<br>NIZAMIAH | 18                  | 0551                       | 0611   | N05 E14         | 6059          | 20                            | 1                    | 1             | 0600            | 2.73                      |                           |                                 | 51                |                                      |
|                        | 18                  | 0559 E                     | 0616 D | N09 E10         | 6059          | 17 D                          | 1                    | 1             | 0602            | 2.43                      | 2.57                      | 1.50                            |                   |                                      |
| PIRCULI                | 19                  | 0630 E                     | 0657   | N05 E01         | 6059          | 27 D                          | 1                    | 2             | 0631            | 1.83                      | 1.90                      |                                 | 71                |                                      |
| PIRCULI                | 21                  | 0850 E                     | 0914 D | N18 E75         | 6066          | 24 D                          | 1                    | 2             | 0858            | 1.09                      | 5.59                      |                                 | 52                |                                      |
| TASHKENT               | 22                  | 0400                       | 0417   | N16 E58         | 6065          | 17                            | 1                    | 2             | 0406            | 3.38                      | 8.05                      |                                 | 85                |                                      |
| MITAKA                 | 23                  | 0249 E                     | 0253   | N10 E37         | 6065          | 4 D                           | 1                    | 2             | 0249            | 2.01                      | 2.65                      | 1.96                            | 98                |                                      |
| ALMA-ATA               | 23                  | 0447                       | 0459   | N10 W20         | 6059          | 12                            | 1                    | 1             | 0451            | 2.48                      |                           |                                 | 52                |                                      |
| { BUCHAREST<br>PIRCULI | 24                  | 0810 E                     | 0931 D | N09 E22         | 6065          | 81 D                          | 1                    | 1             | 0903            | 4.56                      | 5.34                      |                                 | 64                |                                      |
|                        | 24                  | 0858                       | 0915   | N12 E22         | 6065          | 17                            | 1                    | 1             |                 |                           |                           |                                 |                   |                                      |
| GOOD HOPE              | 25                  | 1207                       | 1220   | S12 E86         | 6069          | 13                            | 1                    |               | 1211            | 1.20                      |                           |                                 |                   |                                      |
| GOOD HOPE              | 25                  | 1404                       | 1419   | S12 E86         | 6069          | 15                            | 1                    |               | 1406            | 1.10                      |                           |                                 |                   |                                      |
| GOOD HOPE              | 26                  | 1015                       | 1104   | S14 E75         | 6069          | 49                            | 2+                   |               | 1038            | 3.80                      |                           |                                 |                   |                                      |
| { NIZAMIAH<br>KHARKOV  | 26                  | 1020 E                     | 1036 D | S15 E72         | 6069          | 16 D                          | 3                    | 1             | 1020            | 5.77                      | 17.59                     | 2.90                            |                   |                                      |
|                        | 26                  | 1024 E                     | 1140   | S17 E76         | 6069          | 76 D                          | 3                    | 2             | 1035            | 24.20                     | 62.00                     | 4.10                            |                   |                                      |
| { R O HERST<br>KIEV    | 26                  | 1025 U                     | 1115   | S13 E70         | 6069          | 90 U                          | 1                    | 3             | 1035            | 1.10                      | 3.30                      |                                 |                   |                                      |
|                        | 26                  | 1053 E                     | 1130 D | S16 E74         | 6069          | 37 D                          | 2                    | 1             | 1053            | 10.31                     |                           |                                 | 90                | S-SWF                                |
| ALMA-ATA               | 27                  | 0557                       | 0600 D | N11 W17         | 6065          | 3 D                           | 1                    | 1             | 0600            | 2.01                      |                           |                                 | 52                |                                      |
| GOOD HOPE              | 28                  | 1417                       | 1447   | S23 W52         | 6064          | 30                            | 1                    |               | 1421            | 2.40                      | 3.90                      |                                 |                   |                                      |
| MITAKA                 | 29                  | 0129                       | 0141 D | S13 E35         | 6069          | 12 D                          | 1                    | 1             | 0133            | 1.51                      | 1.96                      | 2.07                            | 149               |                                      |
| KRASNYA                | 29                  | 0652 E                     | 0704 D | S09 E68         | 6074          | 12 D                          | 1                    | 1             |                 | 1.80                      |                           |                                 | 85                |                                      |
| VOROSHILOV             | 29                  | 2303 E                     | 2314   | S12 E24         | 6069          | 11 D                          | 1                    | 2             | 2306            | 2.69                      |                           |                                 | 78                |                                      |
| MITAKA                 | 30                  | 0601                       | 0613   | S11 E18         | 6069          | 12                            | 1                    | 1             | 0605            | 2.31                      | 2.45                      | 3.27                            | 134               |                                      |
| { ABASTUMANI<br>KYOTO  | 30                  | 0601 E                     | 0621 D | S13 E20         | 6069          | 20 D                          | 1                    | 2             | 0605            | 2.70                      | 2.90                      |                                 | 68                |                                      |
|                        | 30                  | 0605                       | 0625 D | S14 E20         | 6069          | 20 D                          | 1                    | 1             | 0605            | 2.48                      |                           |                                 | 100               |                                      |
| VOROSHILOV             | 31                  | 0303 E                     | 0335 D | S15 E44         | 6074          | 32 D                          | 1+                   | 1             |                 | 4.22                      |                           |                                 | 77                |                                      |

COMMERCE - STANISLAVS - BOLDER

These flare reports are addenda to the March 1961 flares published in CRPL - F 200 Part B, April 1961.

- E = LESS THAN
  - D = GREATER THAN
  - U = APPROXIMATE
  - = NOT REPORTED
- |            |                                      |                              |
|------------|--------------------------------------|------------------------------|
| CAPRI G    | ANACAPRI - GERMAN                    | MCMATH - HULBERT             |
| CAPRI S    | ANACAPRI - SWEDISH                   | MOSCOW - GAISH               |
| GOOD HOPE  | ROYAL OBSERVATORY, CAPE OF GOOD HOPE | ROYAL GREENWICH OBSERVATORY, |
| KIEV*      | KIEV UNIVERSITY                      | HERSTINGOUEUX                |
| KODAIKANAL | KODAIKANAL                           | SACRAMENTO PEAK              |
| KRASNYA    | KRASNYA PAKHRA                       | SCHAULINS                    |
| LOCKHEED   | LOS ANGELES                          | WENDELSTEIN                  |

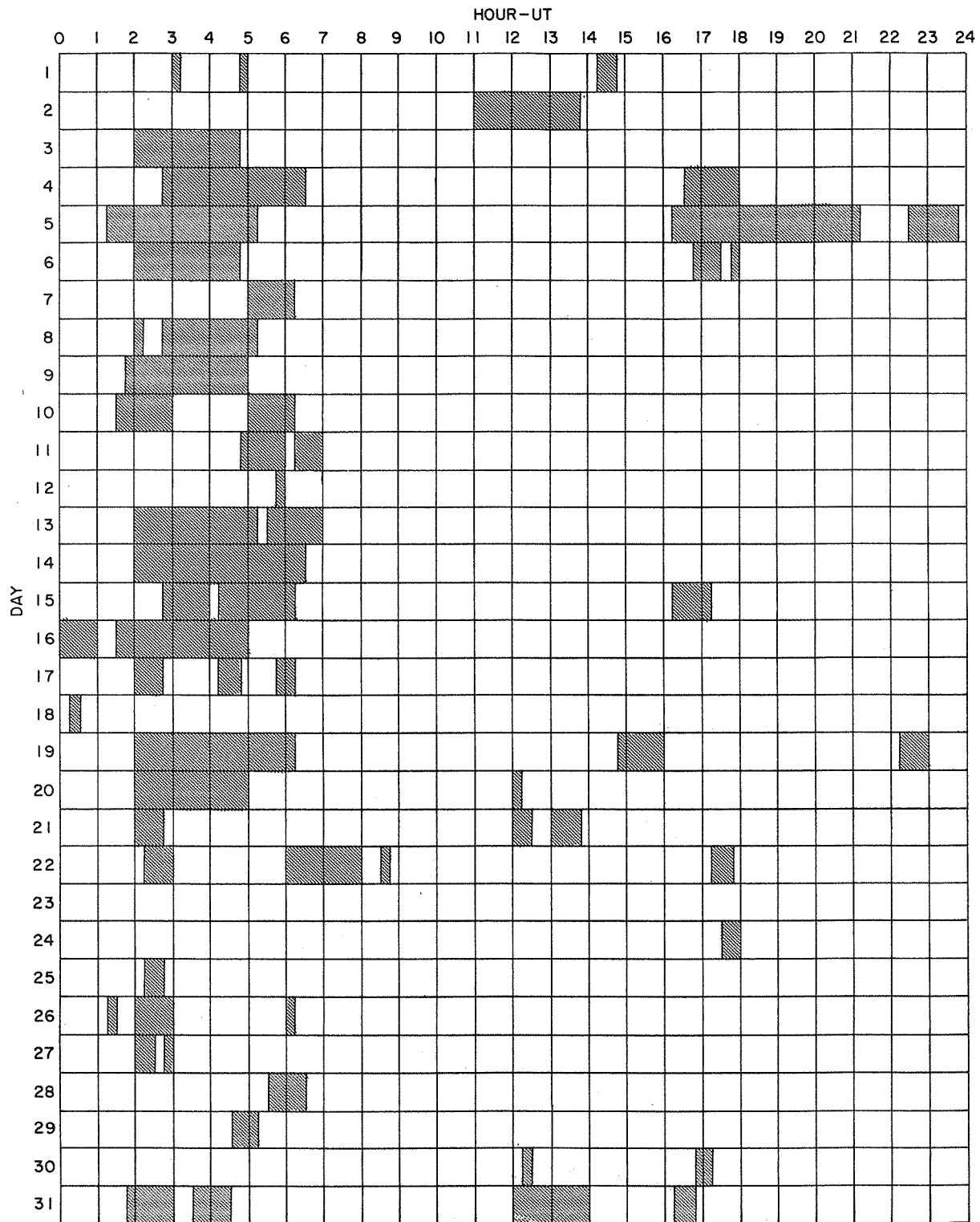
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SEE DESCRIPTIVE TEXT PUBLISHED NOVEMBER 1960 FOR DEFINITION OF CORRECTED AREA VALUES LISTED FOR CLIMAX, HAWAII, LOCKHEED AND SACRAMENTO PEAK.



INTERVALS OF NO FLARE PATROL OBSERVATIONS

MARCH 1961



COMMERCE - STANDARDS - BOULDER

Stations Include:

- |                    |                 |                |                             |             |
|--------------------|-----------------|----------------|-----------------------------|-------------|
| Abastumani         | Good Hope       | Kyoto          | Ondrejov                    | Simeiz      |
| Alma Ata           | Hawaii          | Lockheed       | Ottawa                      | Tashkent    |
| Anacapri (Swedish) | Huancayo        | McMath-Hulbert | Pirculi                     | Uccle       |
| Arcetri            | Kharkov         | Meudon         | Royal Greenwich Observatory | Voroshilov  |
| Bucharest          | Kiev GAO        | Mitaka         | Herstmonceux                | Wendelstein |
| Climax             | Krasnaya Pakhra | Moscow - Gaish | Sacramento Peak             |             |

IONOSPHERIC EFFECTS OF SOLAR FLARES

(SHORT-WAVE RADIO FADEOUTS)

MAY 1961

| 1961<br>May | Start<br>UT | End<br>UT | Type       | Wide<br>Spread<br>Index | Importance | Observation Stations                           | Known<br>Flare, UT<br>CRPL-F 202 |
|-------------|-------------|-----------|------------|-------------------------|------------|--|----------------------------------|
| 1           | 1623        | 1710      | S-SWF      | 5                       | 2          | BE, IA, <u>MC</u> , PR, PU                     | 1619                             |
| 2           | 1807        | 1840      | Slow S-SWF | 5                       | 1+         | AD, AN, <u>BE</u> , FM, HU, MC, PR             | 1725                             |
| 4           | 2205        | 2245      | Slow S-SWF | 5                       | 1+         | AD, AN, <u>BE</u> , FM, HU, <u>MC</u> , OK, PR | 2145                             |
| 12          | 0557        | 0655      | Slow S-SWF | 1                       | 2          | <u>OK</u>                                      | 0551                             |
| 24          | 0423        | 0458      | Slow S-SWF | 1                       | 1+         | <u>OK</u>                                      | 0451E                            |

IONOSPHERIC EFFECTS OF SOLAR FLARES

( Sudden Cosmic Noise Absorption  
Sudden Enhancements Of Atmospherics  
Solar Noise Bursts At 18 Mc. )

MAY 1961

| May<br>1961 | CLASS |     |       | DEFINITENESS | TIME<br>(UNIVERSAL TIME) END |        |       | PERCENT<br>ABSORPTION<br>SCWA | REMARKS   |
|-------------|-------|-----|-------|--------------|------------------------------|--------|-------|-------------------------------|---|
|             | SCWA  | SEA | Burst |              | BEGIN                        | (MAX.) |       |                               |   |
| + * 1       | 1     | 1+  |       | 4            | 1625                         | 1628   | 1650  | 15                            | <u>BO</u> , <u>MC</u>                                   |
|             |       |     |       | 5            | 1625                         |        | 1655  |                               | A3, A5, A9, <u>BO</u>                                   |
| + * 2       | 1     | 1   |       | 5            | 1806                         | 1818   | 1834  | 20                            | <u>BO</u> , <u>HA</u> , <u>MC</u>                       |
|             |       |     |       | 5            | 1815                         | 1822   | 1850  |                               | A3, A5, A9, <u>BO</u>                                   |
| + * 4       | 2     | 2   | 2     | 5            | 2202                         |        | 2205  | 50                            | <u>BO</u> , <u>HA</u> , <u>MC</u>                       |
|             |       |     |       | 5            | 2203                         | 2225   | 2308  |                               | A1, A3, A5, A6, <u>HA</u>                               |
|             |       |     |       | 5            | 2205                         | 2220   | 2300U |                               | <u>BO</u> , <u>HA</u> , <u>MC</u>                       |
|             |       |     |       | 5            | 2209                         |        | 2212  |                               | <u>BO</u> , <u>HA</u> , <u>MC</u>                       |
|             |       |     |       | 5            | 1330                         |        | 0141  |                               | <u>BO</u> , <u>HA</u> , <u>MC</u> (intermittent bursts) |
| * 5         |       | 2   |       | 4            | 2236                         | 2248   | 2335  |                               | A3, A5, A6  |
| 6           |       | 2   |       | 4            | 1618                         |        | 1626  |                               | <u>BO</u> , <u>MC</u> (group of bursts)                 |
| 6           |       | 2   |       | 5            | 2208                         |        | 2217  |                               | <u>BO</u> , <u>HA</u> , <u>MC</u> (group of bursts)     |
| 9           |       | 1   |       | 4            | 1551                         |        | 1621  |                               | <u>BO</u> , <u>MC</u> (group of bursts)                 |
| 11          |       | 1   |       | 4            | 1759                         |        | 1802  |                               | <u>BO</u> , <u>MC</u>                                   |
| 12          |       | 1+  |       | 1            | 0405                         | 0412   |       |                               | <u>All</u>  |
| { 12        |       | 2   |       | 1            | 0600                         | 0607   |       |                               | <u>All</u>  |
|             |       |     |       | 1            | 0616                         | 0629   | 0700  |                               | <u>All</u>  |
| 12          |       | 2+  |       | 4            | 1647                         |        | 1650  |                               | <u>BO</u> , <u>MC</u>                                   |
| 12          |       | 1   |       | 5            | 1850                         |        | 1852  |                               | <u>BO</u> , <u>HA</u> , <u>MC</u>                       |
| 12          |       | 1   |       | 4            | 2100                         |        | 2102  |                               | <u>BO</u> , <u>MC</u>                                   |
| 12          |       | 1   |       | 5            | 2305                         |        | 2314  |                               | <u>BO</u> , <u>HA</u> (group of bursts)                 |
| 12          |       | 2   |       | 5            | 2348                         |        | 2352  |                               | <u>BO</u> , <u>HA</u> , <u>MC</u>                       |
| 12          |       | 2   |       | 5            | 2359                         |        | 0004  |                               | <u>BO</u> , <u>HA</u>                                   |
| 20          |       | 1   |       | 4            | 1753                         |        | 1755  |                               | <u>BO</u> , <u>MC</u>                                   |
| 20          |       | 1   |       | 4            | 1808                         |        | 1813  |                               | <u>BO</u> , <u>MC</u> (group of bursts)                 |
| 20          |       | 1   |       | 4            | 1948                         |        | 1951  |                               | <u>BO</u> , <u>MC</u>                                   |
| 22          |       | 1   |       | 4            | 1602                         |        | 1607  |                               | <u>BO</u> , <u>MC</u> (group of bursts)                 |
| 22          |       | 1   |       | 4            | 1634                         |        | 1637  |                               | <u>BO</u> , <u>MC</u>                                   |
| 22          |       | 1   |       | 4            | 1711                         |        | 1714  |                               | <u>BO</u> , <u>MC</u>                                   |
| 22          |       | 1   |       | 4            | 1852                         |        | 1854  |                               | <u>BO</u> , <u>MC</u>                                   |
| 22          |       | 1   |       | 5            | 2147                         |        | 2153  |                               | <u>BO</u> , <u>HA</u> , <u>MC</u> (group of bursts)     |
| 22          |       | 2   |       | 5            | 2308                         |        | 2311  |                               | <u>BO</u> , <u>HA</u> , <u>MC</u>                       |
| 25          |       | 2+  |       | 1            | 0712                         | 0725   | 0755  |                               | <u>All</u>  |
| 25          |       | 2+  |       | 1            | 0826                         | 0840U  |       |                               | <u>All</u>  |

COMMERCE - STANDARDS - BOULDER

\* = Sudden Enhancement of Signal from 18 kc (NBA Panama Canal Zone) observed by A5.  
+ = Sudden Phase Anomaly of 18 kc (NBA) at Boulder, Colorado.

IVa

**SOLAR RADIO EMISSION  
OUTSTANDING OCCURRENCES**

JUNE 1961

OTTAWA

2800 MC

| 1961   | TYPE              | START UT | DURATION<br>HRS: MINS | MAXIMUM |              |              | REMARKS  |
|--------|-------------------|----------|-----------------------|---------|--------------|--------------|----------|
|        |                   |          |                       | TIME UT | PEAK<br>FLUX | NEAR<br>FLUX |          |
| June 5 | 1 Simple 1        | 1320     | 6.5                   | 1321.5  | 3            | 1.8          |          |
| 5      | 6 Complex         | 1520     | 12.5                  | 1528    | 15           | 6            |          |
|        | 4 Post Increase   |          | 1 12                  |         | 4            | 2            |          |
| 5      | 3 Simple 3 A      | 2138.5   | 1 10                  | Indet.  | 4            | 2.5          |          |
|        | 1 Simple 1 f      | 2148     | 7.5                   | 2154    | 6            | 3            |          |
| 6      | 1 Simple 1        | 1238.5   | 5.5                   | 1239.5  | 4            | 2            |          |
| 9      | 1 Simple 1 f      | 1250.3   | 10.3                  | 1253    | 4            | 2            |          |
| 9      | 3 Simple 3        | 1301     | 1 10                  | Indet.  | 3            | 2            |          |
| 9      | 1 Simple 1        | 1510     | 2.7                   | 1511.1  | 4            | 2            |          |
| 10     | 1 Simple 1 f      | 1836     | 5.3                   | 1837.3  | 2            | 1            |          |
| 11     | 6 Complex f       | 1500     | 27                    | 1507    | 365          | 77           |          |
|        | 4 Post Increase   |          | 1 21                  |         | 10           | 5            |          |
| 12     | 1 Simple 1        | 1145     | 1                     | 1145.5  | 4            | 2.6          |          |
| 14     | 3 Simple 3 A      | 1611     | 40                    | Indet.  | 2            | 1.5          |          |
|        | 1 Simple 1 f      | 1612     | 6                     | 1614.5  | 6            | 4            |          |
|        | 2 Simple 2 f      | 1627     | 8                     | 1629.5  | 30           | 15           |          |
| 14     | 1 Simple 1        | 2046.5   | 1.5                   | 2047    | 6            | 4            |          |
| 14     | 1 Simple 1        | 2257     | 2                     | 2258.2  | 4            | 2            |          |
| 14     | 2 Simple 2        | 2332     | 3                     | 2333.5  | 30           | 15           |          |
| 15     | 3 Simple 3 f A    | 1630     | 55                    | Indet.  | 5            | 3            |          |
|        | 2 Simple 2 f      | 1638     | 9                     | 1642    | 185          | 48           |          |
|        | 2 Simple 2 f      | 1717.5   | 6                     | 1718.5  | 95           | 11           |          |
| 15     | 2 Simple 2        | 2203.5   | 0.5                   | 2203.7  | 95           | 5            |          |
| 19     | 1 Simple 1        | 1425     | 1                     | 1425.7  | 2            | 1.5          |          |
| 19     | 1 Simple 1        | 2006.5   | 0.7                   | 2006.8  | 1.4          | 0.7          |          |
| 19     | 1 Simple 1        | 2045     | 2                     | 2046    | 2.4          | 1.2          |          |
| 21     | 1 Simple 1        | 1319     | 1.5                   | 1319.7  | 3            | 2            |          |
| 21     | 1 Simple 1        | 1844.2   | 1.2                   | 1844.7  | 3            | 2            |          |
| 22     | 2 Simple 2 f      | 1107.4   | 1.3                   | 1107.7  | 19           | 8            |          |
| 22     | 3 Simple 3        | 1135     | 3 10                  | Indet.  | 5            | 3.5          | Doubtful |
| 22     | 3 Simple 3        | 2006     | 29                    | Indet.  | 4            | 3            |          |
| 23     | 6 Complex f       | 1401.3   | 2.7                   | 1402.2  | 38           | 11           |          |
|        | 4 Post Increase A |          | 1 06                  |         | 3            | 1.5          |          |
|        | 1 Simple 1        | 1405     | 3                     | 1405.8  | 5            | 2.5          |          |
| 23     | 3 Simple 3 A      | 1938     | 2 17                  | Indet.  | 3            | 2            |          |
|        | 2 Simple 2        | 1949     | 3                     | 1949.7  | 36           | 5            |          |
| 23     | 2 Simple 2 f      | 2319.8   | 0.9                   | 2320.4  | 30           | 13           |          |
| 24     | 2 Simple 2 f      | 2120.7   | 3.8                   | 2121.7  | 8            | 4            |          |
| 29     | 2 Simple 2 f      | 1316     | 11                    | 1318    | 50           | 8            |          |
| 30     | 3 Simple 3        | 1635     | 3 20                  | Indet.  | 3.5          | 2            |          |

COMMERCE - STANDARDS - BOULDER

HOURS OF OBSERVATION: APRIL, MAY, JUNE 1961

## OBSERVING PERIOD:

April 1200 UT - 2325 UT (approx.)  
 May 1110 UT - 2335 UT (approx.)  
 June 1050 UT - 2410 UT (approx.)

with the following exceptions:

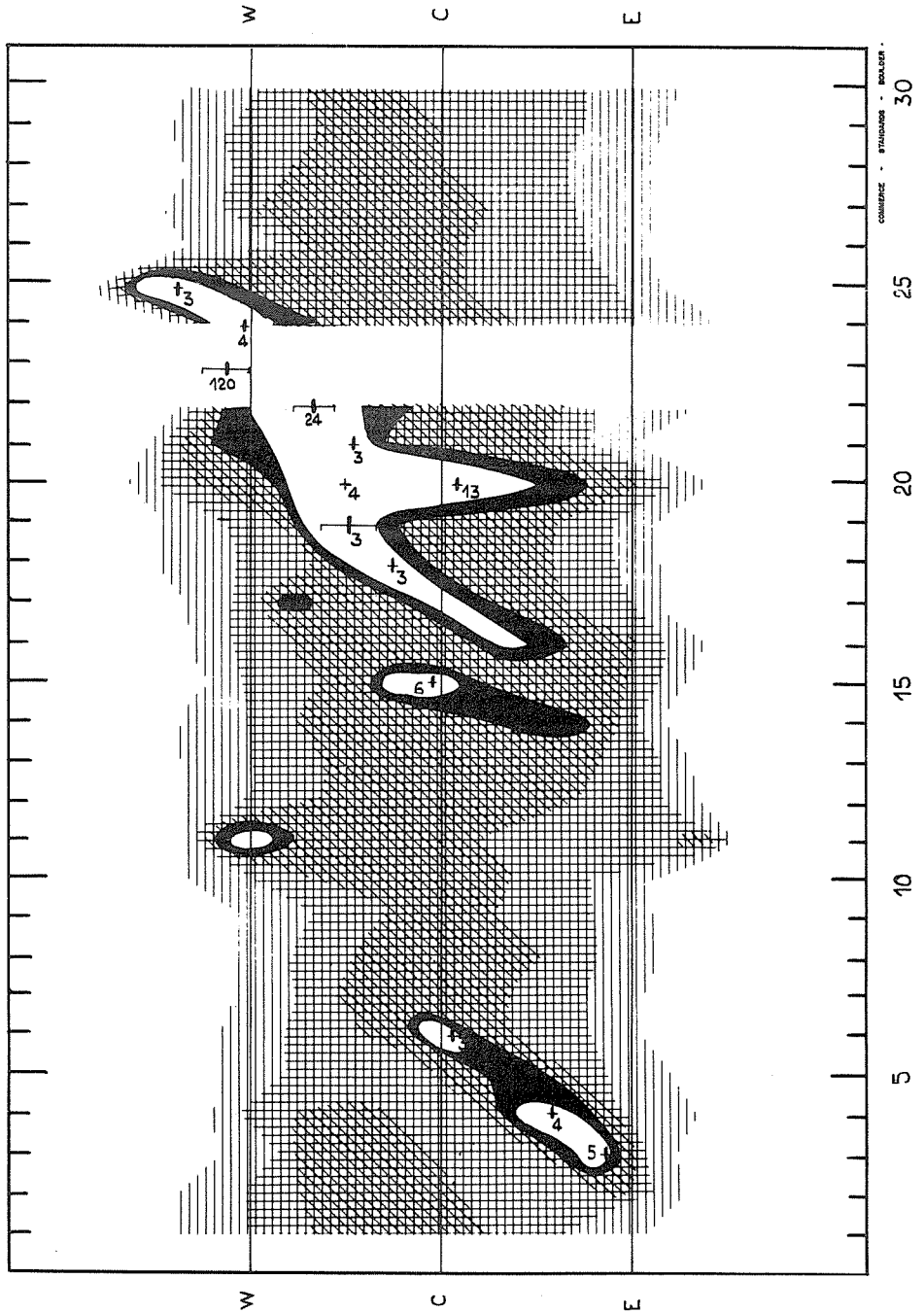
- (1) Observations commenced: May 1 - 1155  
                                   May 12 - 1145
- (2) Observations ended: June 1 - 2315  
                                   June 4 - 2320  
                                   June 13 - 2300
- (3) Interference obscured portions of the records on 41 days during this quarter.

SOLAR RADIO EMISSION  
INTERFEROMETRIC OBSERVATIONS

Narçay

JUNE 1961

169 Mc



IVc

**SOLAR RADIO EMISSION  
OUTSTANDING OCCURRENCES**

JUNE 1961

BOULDER

108 Mc.

| June 1961 | Type | Start UT | Time of Maximum UT | Duration Minutes | Intensity | June 1961 | Type | Start UT | Time of Maximum UT | Duration Minutes | Intensity |
|-----------|------|----------|--------------------|------------------|-----------|-----------|------|----------|--------------------|------------------|-----------|
| 1         | 2    | 1342.5   | 1344.5             | 1.7              | 3         | 15        | 9b   | 1700.0   | 1708.0             | 109              | 2         |
| 1         | 2    | 1350.5   | 1352.3             | 1.8              | 3         | 15        | 8    | 2108.9   | 2111.2             | 4.3              | 3         |
| 1         | 3    | 1425.1   | 1426.1             | 1.0              | 3         | 15        | 3    | 2206.6   | 2208.0             | 2.0              | 3         |
| 1         | 3    | 1615.0   | 1615.9             | 1.1              | 3         | 15        | 3    | 2210.0   | 2211.5             | 1.5              | 3         |
| 2         | 3    | 1454.4   | 1455.4             | 1.5              | 2         | 16        | 3    | 0046.0   | 0047.0             | 1.5              | 3         |
| 4         | 3    | 1522.3   | 1522.5             | 1.9              | 3         | 17        | 2    | 0107.7   | 0108.0             | 3.0              | 3         |
| 5         | 3    | 0151.0   | 0152.0             | 3.0              | 3         | 17        | 3    | 0200.0   | 0200.5             | 1.5              | 3         |
| 5         | 3    | 1314.3   | 1314.3             | 1.2              | 3         | 18        | 3    | 1630.0   | 1630.5             | 0.7              | 3         |
| 5         | 8    | 1629.0   | 1631.0             | 4.0              | 3         | 18        | 3    | 1645.6   | 1646.0             | 0.7              | 3         |
| 7         | 3    | 1246.5   | 1248.0             | 2.5              | 3         | 19        | 3    | 1439.0   | 1439.0             | 2.5              | 2         |
| 8         | 3    | 1246.5   | 1247.0             | 1.2              | 3         | 20        | 6    | 1136     | 1205               | 189 D            | 1         |
| 9         | 8    | 1247.3   | 1248.5             | 3.5              | 3         | 21        | 2    | 1351.1   | 1351.1             | 1.8              | 3         |
| 11        | 9a   | 1505.0   | 1506.0             | 4.5              | 3         | 22        | 3    | 1937.4   | 1937.5             | 0.6              | 3         |
| 11        | 9b   | 1509.5   | 1513.0             | 20               | 3         | 23        | 7    | 0008     | 0122               | 111              | 2         |
| 13        | 3    | 1446.5   | 1447.2             | 1.0              | 2         | 23        | 6    | 1137     | 1240               | 620 D            | 2         |
| 14        | 3    | 1618.8   | 1620.0             | 2.0              | 3         | 28        | 3    | 1432.0   | 1433.0             | 1.0              | 2         |
| 14        | 8    | 1633.0   | 1634.2             | 4.5              | 2         | 29        | 8    | 1317.0   | 1318.0             | 5.0              | 3         |
| 14        | 8    | 1640.8   | 1643.0             | 3.5              | 2         | 29        | 3    | 1325.2   | 1325.5             | 1.8              | 2         |
| 15        | 3    | 1330.0   | 1331.0             | 1.5              | 3         | 30        | 3    | 0119.0   | 0119.9             | 1.5              | 3         |
| 15        | 3    | 1407.2   | 1409.0             | 2.2              | 2         |           |      |          |                    |                  |           |
| 15        | 2    | 1457.8   | 1500.0             | 3.5              | 3         |           |      |          |                    |                  |           |
| 15        | 3    | 1556.6   | 1558.0             | 2.0              | 3         |           |      |          |                    |                  |           |
| 15        | 2    | 1638.7   | 1640.5             | 2.8              | 2         |           |      |          |                    |                  |           |
| 15        | 8    | 1643.0   | 1645.0             | 3.5              | 3         |           |      |          |                    |                  |           |
| 15        | 9a   | 1651.7   | 1653.5             | 4.3              | 3         |           |      |          |                    |                  |           |

COMMERCE - STANDARDS - BOULDER

· NOMINAL TIMES OF OBSERVATION

JUNE 1961

BOULDER

108 MC

| June 1961 | U. T.      |             | June 1961 | U. T.      |             |
|-----------|------------|-------------|-----------|------------|-------------|
| 1         | 1138-1217; | I 2020-0200 | 14        | 1135-1504; | I 1735-0035 |
|           | 1337-0200  |             |           | 1525-0206  |             |
| 2         | 1138-0201  | I 1138-0201 | 15        | 1135-0207  |             |
| 3         | 1138-1630; | I 2253-0202 | 16        | 1136-0208  |             |
|           | 2253-0202  |             | 17        | 1136-0208  | I 2140-0208 |
| 4         | 1137-1653; |             | 18        | 1136-0209  |             |
|           | 1725-0202  |             | 19        | 1136-0209  | I 1840-0209 |
| 5         | 1137-0202  | I 1700-0202 | 20        | 1136-0209  |             |
| 6         | 1137-0203  | I 1700-2330 | 21        | 1136-0209  |             |
| 7         | 1136-0204  | I 1900-0204 | 22        | 1136-0209  |             |
| 8         | 1136-0204  | I 1920-0204 | 23        | 1136-0210  |             |
| 9         | 1136-1843  |             | 24        | 1137-0210  | I 1755-0010 |
| 10        | 1136-0205  | I 1715-0100 | 25        | 1137-0210  | I 1935-2045 |
| 11        | 1136-0206  | I 2040-0100 | 26        | 1137-1700  |             |
| 12        | 1136-1600; |             | 27        | 1840-0210  | I 1840-0210 |
|           | 1645-0206  |             | 28        | 1138-0210  | I 1138-0015 |
| 13        | 1135-0206  | I 1850-0206 | 29        | 1139-0210  | I 2130-0020 |
|           |            |             | 30        | 1139-0210  | I 1139-0210 |

COMMERCE - STANDARDS - BOULDER

Note: Throughout May and June 1961 heavy thunderstorm activity has interfered with the records. Therefore many of the minor bursts are questionable, but all events that might be solar associated are listed.

**SOLAR RADIO EMISSION  
SPECTRUM OBSERVATIONS**

JUNE 1961

OWENS VALLEY, CALIFORNIA

540-975 Mc

| Date<br>1961 | Observing Hours            | Important Bursts   |   |   | Frequency<br>Range<br>Mcs   | Remarks   |
|--------------|----------------------------|--|---|---|---|---|
|              |                            | Type   | Times<br>U.T.   | Int.  |   |   |
| June 1       | 1606-1925                  |  |   |   |   | No activity   |
| June 1       | 2052-2247.5                |  |   |   |   | No activity   |
| June 1       | 2254.5-2405                |  |   |   |   | No activity   |
| June 2       | 1606-1847.5                |  |   |   |   | No activity   |
| June 2       | 1606-1847.5<br>1853.5-2405 |  |   |   |   | No activity<br>No activity, obscured 2250-2405  |
| June 3       | 1610.5-2402                |  |   |   |   | No activity, obscured 1617-1634   |
| June 4       | 1630-2404                  |  |   |   |   | No activity, obscured 2334  |
| June 5       | 1640-2258                  | IIIb<br>IIIg<br>IIIb<br>IIIb<br>IIIb   | 2149<br>2149<br>2149.5 pair<br>2150<br>2150<br>2150.25                                    | 1<br>1-<br>2<br>1<br>1<br>1-                | 900-625<br>650-575<br>775-700<br>525-675<br>675-540<br>650-575                                  | 2.5 seconds duration fast<br>0.5 seconds duration fast<br>1 second duration fast<br>Reverse drift, 1 second duration<br>1 second duration fast<br>0.5 second duration fast  |
| June 7       | 1634-2401                  |  |   |   |   | No activity, obscured 1350-2401   |
| June 8       | 1609.5-2211.5<br>2215-2401 |  |   |   |   | No activity, obscured 1350-2401<br>No activity, obscured 1415-1505; 1901-2401   |
| June 9       | 1607-2401                  |  |   |   |   | No activity   |
| June 12      | 1612-2401                  |  |   |   |   | No activity, obscured 1612-1735; 2020.5-2023;<br>2026-2030.5  |
| June 13      | 1609-1908                  |  |   |   |   | No activity, obscured 1609-1612; 1709-1722;<br>1816-1845  |
| June 13      | 1911.5-1229<br>2305-2401   |  |   |   |   | No activity<br>No activity  |
| June 14      | 1608-2129                  | IIIg<br>IIIb<br>IIIg   | 1629.5<br>1629.5<br>1731  | 1-<br>1-<br>1                               | 880-850<br>780-750<br>960-540   | 0.5 to 1 second duration<br>0.25 seconds duration<br>0.25 seconds duration, shifts 20 to 300 Mcs  |
| June 15      | 1625-2400                  | IIIg<br>IIIg<br>Cont<br>IIIg<br>IIIg<br>IIIg<br>IIIg<br>IIIb<br>IIIb<br>IIIb | 1703<br>1705<br>1719-19.5<br>1721-21.5<br>1740-40.5<br>1812.5<br>2105<br>2106.5<br>2107.5 | 1-<br>1<br>3<br>1<br>3<br>1-<br>1<br>1<br>2 | 960-540<br>900-540<br>900-540<br>650-540<br>950-540<br>960-780<br>950-800<br>900-540<br>850-540 | 0.5 seconds, very fast, shifts 25 to 500+ Mcs<br>1 second, very fast<br>Fast III structure below 700 Mcs,<br>0.25 to 1 second duration, very fast shift<br>Shift 200 Mcs or less, fast shift<br>0.25 second duration, pair, very fast drift<br>1 second duration<br>0.25 second duration, very fast shift or drift<br>1 second duration, fast |
| June 16      | 1625-2032<br>2038-2401.5   | IIIg   | 1746.5  | 3   | 575-875   | 0.5 second duration, pair, reversed drift<br>No activity  |
| June 17      | 1612-2132<br>2133-2240     |  |   |   |   | No activity<br>No activity  |
| June 18      | 1638-2402                  |  |   |   |   | No activity   |
| June 19      | 1608-1914<br>1918-2404     | IIIg   | 1652.5-52.75  | 1   | 750-575   | 0.5 seconds duration, 2 patches III's<br>No activity  |
| June 20      | 1614-2342.5                |  |   |   |   | No activity   |
| June 21      | 1610-2401                  |  |   |   |   | No activity   |
| June 22      | 1610-2401                  |  |   |   |   | No activity   |
| June 23      | 1611-2404                  | IIIb<br>IIIg<br>IIIb<br>IIIg<br>IIIb   | 1715<br>1716<br>1837<br>1908<br>2316.5<br>2325  | 1-<br>2<br>1-<br>1-<br>2<br>1-              | 675-550<br>625-540<br>730-540<br>675-580<br>775-675<br>770-800                                  | 1 second duration<br>0.5 seconds duration, fast<br>0.5 seconds duration<br>0.5 seconds duration<br>0.5 seconds duration, bursts drift approx 25<br>mcs., approx. 20 normal, 3 reverse<br>Very weak 1 second duration  |
| June 24      | 1610-2109<br>2116-2408     |  |   |   |   | No activity<br>No activity  |
| June 25      | 1632.5-2227                | IIIg   | 1721  | 1-  | 675-550   | 0.5 seconds duration, 3 normal, 1 reversed drift  |
| June 26      | 1627-2322                  |  |   |   |   | No activity   |
| June 27      | 1612-1949                  |  |   |   |   | No activity.  |

## SOLAR RADIO EMISSION SPECTRUM OBSERVATIONS

JANUARY - MARCH 1961

Fort Davis

25-580 2100-3900 Mc

| Date<br>1961 | Observing Hours        | Important Bursts   |   |  | Frequency<br>Range<br>Mc/s  | Remarks  |
|--------------|------------------------|--|---|--|---|--|
|              |                        | Type   | Times<br>U.T.   | Int.   |   |  |
| Jan. 1       | 1420-2350              |  |   |  |   |  |
| Jan. 2       | 1420-2350              |  |   |  |   |  |
| Jan. 3       | 1420-2350              | IIIG   | 1724-1725   | 2  | 580-100   | Weak I throughout day  |
| Jan. 4       | 1420-1620<br>1656-2350 | Uncl<br>IIIG   | 1712.5-1714<br>1727-1728  | 1<br>3   | 270-100<br>580-90   | Uncl: 1712.5 has harmonic, Weak I<br>throughout day                      |
| Jan. 5       | 1420-2355              |  |   |  |   | Weak I throughout day  |
| Jan. 6       | 1420-2355              |  |   |  |   | Weak I throughout day  |
| Jan. 7       | 1420-2355              | I  | 1420-2350   | 1  | 450-125   |  |
| Jan. 8       | 1420-2355              | IIIG   | 1718-1720   | 2  | 350-60  |  |
| Jan. 9       | 1420-2355              | I  | ~ 2045-2350   | 1  | 450-150   |  |
| Jan. 10      | 1420-2400              |  |   |  |   |  |
| Jan. 11      | 1420-2400              |  |   |  |   |  |
| Jan. 12      | 1420-2400              |  |   |  |   |  |
| Jan. 13      | 1420-2400              |  |   |  |   |  |
| Jan. 14      | 1420-2400              |  |   |  |   |  |
| Jan. 15      | 1420-2400              |  |   |  |   |  |
| Jan. 16      | 1420-2400              |  |   |  |   |  |
| Jan. 17      | 1420-2400              |  |   |  |   |  |
| Jan. 18      | 1420-2400              | Uncl   | 1841-1845   | 2  | 65-25   |  |
| Jan. 19      | 1420-2400              |  |   |  |   |  |
| Jan. 20      | 1420-2400              |  |   |  |   |  |
| Jan. 21      | 1420-2400              |  |   |  |   |  |
| Jan. 22      | 1420-2400              |  |   |  |   |  |
| Jan. 23      | 1420-2400              |  |   |  |   |  |
| Jan. 24      | 1420-2400              |  |   |  |   |  |
| Jan. 25      | 1400-2400              |  |   |  |   |  |
| Jan. 26      | 1400-2400              | I<br>IIIG  | ~ 1600-2400<br>1848-1853  | 1<br>3   | 280-100<br>450-25   |  |
| Jan. 27      | 1400-2400              | IIIG<br>IIIG<br>IIIG   | 1421-1425<br>1731-1732<br>1738-1740   | 2<br>2<br>3  | 580-25<br>400-25<br>500-25  |  |
| Jan. 28      | 1400-2400              | IIIG<br>IIIG<br>IIIG<br>IIIG<br>IIIG<br>IIIG<br>IIIG<br>IIIG<br>IIIG                   | 1656-1702<br>1920-1922<br>2046-2052<br>2053-2057<br>2121-2124<br>2247-2249<br>2344-2350<br>2352-2354  | 2<br>3<br>2<br>2<br>3<br>3+<br>2<br>2                        | 450-25<br>500-25<br>580-25<br>400-25<br>500-25<br>500-25<br>580-50<br>500-100                                 |  |
| Jan. 29      | 1400-2400              | IIIG<br>IIIG<br>IIIG<br>I<br>IIIG<br>I<br>IIIG<br>IIIG<br>IIIG<br>IIIG<br>IIIG<br>IIIG | 1433-1435<br>1446-1448<br>1450-1454<br>1520-1626<br>1846-1851<br>~ 1856-2400<br>2042-2043<br>2131-2138<br>2147-2152<br>2154-2155<br>2326-2332 | 2<br>3<br>3<br>1<br>3+<br>1<br>1<br>1-3+<br>1-3+<br>1<br>1-2 | 560-190<br>350-25<br>580-25<br>500-110<br>500-25<br>350-125<br>330-40<br>580-25<br>580-25<br>180-50<br>450-50 | Weak I throughout day<br><br>1520-1626: I drifts from 500 to<br>110 Mc/s |

# SOLAR RADIO EMISSION SPECTRUM OBSERVATIONS

IVf

Fort Davis

JANUARY-MARCH 1961

25-580, 2100-3900 Mc

| Date<br>1961 | Observing Hours        | Important Bursts |                        |        | Frequency<br>Range<br>Mcs | Remarks                            |
|--------------|------------------------|------------------|------------------------|--------|---------------------------|------------------------------------|
|              |                        | Type             | Times<br>U.T.          | Int.   |                           |                                    |
| Jan. 30      | 1400-2400              | I                | 1406-~1440             | 1      | 250-100                   | 1400-1530 Antenna not tracking sun |
|              |                        | IIIG             | 1424-1425              | 3      | 580-25                    |                                    |
|              |                        | II               | 1426.1-1430            | 2      | 400-100                   |                                    |
|              |                        | IIIG             | 1426.4-1429            | 2-3+   | 400-25                    |                                    |
|              |                        | I                | 1530-2400              | 1      | 250-75                    |                                    |
|              |                        | IIIG             | 2003-2005              | 3+     | 580-25                    |                                    |
|              |                        | II               | 2005.8-2013            | 2      | 350-80                    |                                    |
|              |                        | III              | 2009-2012              | 2-3    | 580-25                    |                                    |
|              |                        | Jan. 31          | 1400-2400              | I      | 1406-~1540                |                                    |
| IIIG         | 1512-1515              |                  |                        | 2-3+   | 3000-100                  |                                    |
| II           | 1516.9-1519            |                  |                        | 2      | 260-80                    |                                    |
| IIIG         | 2128-2130              |                  |                        | 1      | 250-60                    |                                    |
| IIIG         | 2134-2135              |                  |                        | 3      | 580-25                    |                                    |
| Feb. 1       | 1400-2400              | I                | ~2220-2254             | 1      | 180-50                    |                                    |
| Feb. 2       | 1400-2400              |                  |                        |        |                           |                                    |
| Feb. 3       | 1400-2400              |                  |                        |        |                           |                                    |
| Feb. 4       | 1400-2206<br>2237-2400 |                  |                        |        |                           |                                    |
| Feb. 5       | 1400-2400              |                  |                        |        |                           |                                    |
| Feb. 6       | 1400-2400              |                  |                        |        |                           |                                    |
| Feb. 7       | 1400-2400              |                  |                        |        |                           |                                    |
| Feb. 8       | 1400-2400              |                  |                        |        |                           |                                    |
| Feb. 9       | 1400-2400              |                  |                        |        |                           | Weak I throughout day              |
| Feb. 10      | 1400-2400              | I                | 1400-~1625             | 1      | 300-50                    | Weak I throughout day              |
| Feb. 11      | 1400-2400              |                  |                        |        |                           |                                    |
| Feb. 12      | 1400-2400              | I                | ~1930-~2100            | 1-     | 330-100                   |                                    |
| Feb. 13      | 1400-2400              |                  |                        |        |                           |                                    |
| Feb. 14      | 1400-2400              |                  |                        |        |                           |                                    |
| Feb. 15      | 1400-2400              |                  |                        |        |                           |                                    |
| Feb. 16      | 1400-2400              |                  |                        |        |                           |                                    |
| Feb. 17      | 1400-2400              |                  |                        |        |                           |                                    |
| Feb. 18      | 1400-2400              |                  |                        |        |                           |                                    |
| Feb. 19      | 1400-2400              |                  |                        |        |                           |                                    |
| Feb. 20      | 1400-2400              |                  |                        |        |                           |                                    |
| Feb. 21      | 1350-2400              | IIIG<br>Uncl     | 1820-1822<br>2316-2318 | 2<br>1 | 400-25<br>75-50           |                                    |
| Feb. 22      | 1350-2400              |                  |                        |        |                           |                                    |
| Feb. 23      | 1350-2400              |                  |                        |        |                           |                                    |
| Feb. 24      | 1350-2400              |                  |                        |        |                           |                                    |
| Feb. 25      | 1350-2400              |                  |                        |        |                           |                                    |
| Feb. 26      | 1350-2400              |                  |                        |        |                           |                                    |
| Feb. 27      | 1350-2400              |                  |                        |        |                           |                                    |
| Feb. 28      | 1350-2400              |                  |                        |        |                           |                                    |
| Mar. 1       | 1350-2400              |                  |                        |        |                           |                                    |
| Mar. 2       | 1350-2400              |                  |                        |        |                           |                                    |
| Mar. 3       | 1350-2400              |                  |                        |        |                           |                                    |



IVg

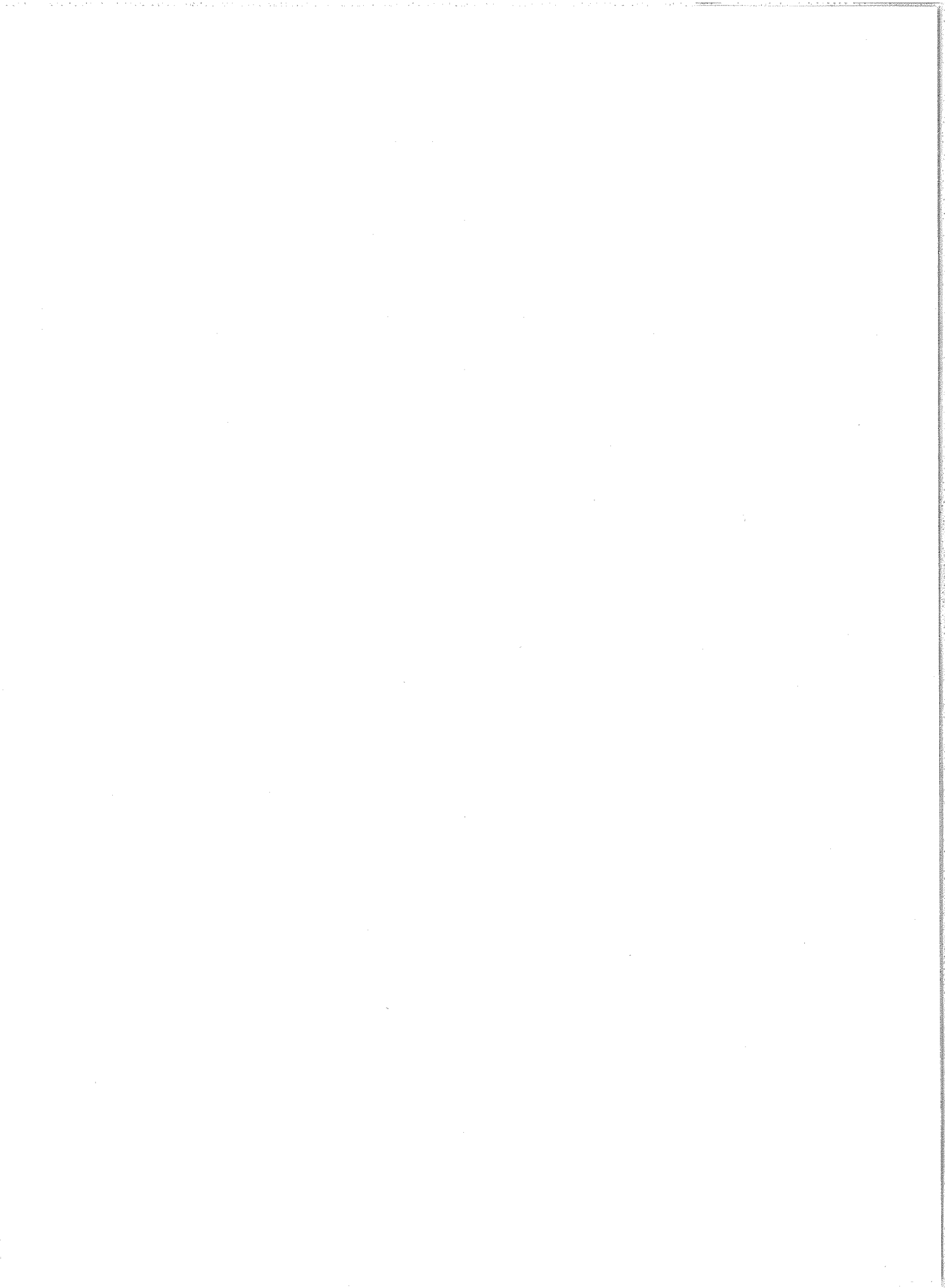
# SOLAR RADIO EMISSION SPECTRUM OBSERVATIONS

JANUARY-MARCH 1961

Fort Davis

25-580, 2100-3900 Mc

| Date<br>1961 | Observing Hours                                   | Important Bursts |                                       |             | Frequency<br>Range<br>Mcs | Remarks                          |
|--------------|---|------------------|---------------------------------------|-------------|---------------------------|----------------------------------|
|              |   | Type             | Times<br>U.T.                         | Int.        |                           |                                  |
| Mar. 4       | 1350-2400   |                  |                                       |             |                           |                                  |
| Mar. 5       | 1335-2400   |                  |                                       |             |                           |                                  |
| Mar. 6       | 1335-2400   |                  |                                       |             |                           |                                  |
| Mar. 7       | 1335-2400   |                  |                                       |             |                           |                                  |
| Mar. 8       | 1335-2400   |                  |                                       |             |                           |                                  |
| Mar. 9       | 1335-2400   |                  |                                       |             |                           |                                  |
| Mar. 10      | 1335-2400   |                  |                                       |             |                           | 1821: Reverse Slope 180-125 Mc/s |
| Mar. 11      | 1335-2400   |                  |                                       |             |                           | Weak I 1335- 1800                |
| Mar. 12      | 1335-1617<br>1620-2400                            | I                | 1620-1710                             | 1           | 250-100                   | Weak I throughout day            |
| Mar. 13      | 1335-2400   |                  |                                       |             |                           |                                  |
| Mar. 14      | 1335-2400   |                  |                                       |             |                           |                                  |
| Mar. 15      | 1335-2400   |                  |                                       |             |                           |                                  |
| Mar. 16      | 1335-2400   | IIIG             | 1642-1644                             | 2           | 450-30                    |                                  |
| Mar. 17      | 1335-2400   |                  |                                       |             |                           |                                  |
| Mar. 18      | 1335-2400   | IIIG<br>II       | 1739-1743<br>{1749-1754<br>(1757-1800 | 3<br>1<br>2 | 450-25<br>115-70<br>80-25 |                                  |
| Mar. 19      | 1335-2400   | IIIG             | 2315-2317                             | 3           | 500-90                    |                                  |
| Mar. 20      | 1320-2400   |                  |                                       |             |                           |                                  |
| Mar. 21      | 1320-2400   |                  |                                       |             |                           |                                  |
| Mar. 22      | 1320-2400   |                  |                                       |             |                           | Weak I throughout day            |
| Mar. 23      | 0000-0032<br>1320-2209<br>2220-2400               | I                | 1320- <del>20</del> 2040              | 1-3         | 400-25                    |                                  |
| Mar. 24      | 0000-0045<br>1320-2400                            | I                | 1320-2400                             | 1-2         | 400-50                    | 1645: Reverse Slopes 90-50 Mc/s  |
| Mar. 25      | 0000-0045<br>1320-2400                            | I<br>IIIG        | 0000-0045<br>1431-1435                | 1<br>2      | 150-50<br>350-25          | Weak I throughout day            |
| Mar. 26      | 0000-0045<br>1320-2400                            | IIIG<br>IIIG     | 1640-1654<br>2221-2223                | 1-2<br>1    | 150-25<br>150-50          | Weak I throughout day            |
| Mar. 27      | 0000-0050<br>1320-2258<br>2306-2400               | IIIG<br>IIIG     | 0009-0020<br>0029-0040                | 1-2<br>1-2  | 250-50<br>280-50          |                                  |
| Mar. 28      | 0000-0050<br>1320-2400                            |                  |                                       |             |                           |                                  |
| Mar. 29      | 0000-0050<br>~1408-1424<br>1429-1552<br>1602-2400 |                  |                                       |             |                           |                                  |
| Mar. 30      | 0000-0050<br>1320-2400                            | I                | ~ 1800-2400                           | 1-2         | 300-50                    |                                  |
| Mar. 31      | 0000-0050<br>1320-2400                            | I                | 0000-0042                             | 1           | 250-150                   | Weak I throughout day            |



COSMIC RAY INDICES  
(Climax Neutron Monitor)

MAY 1961

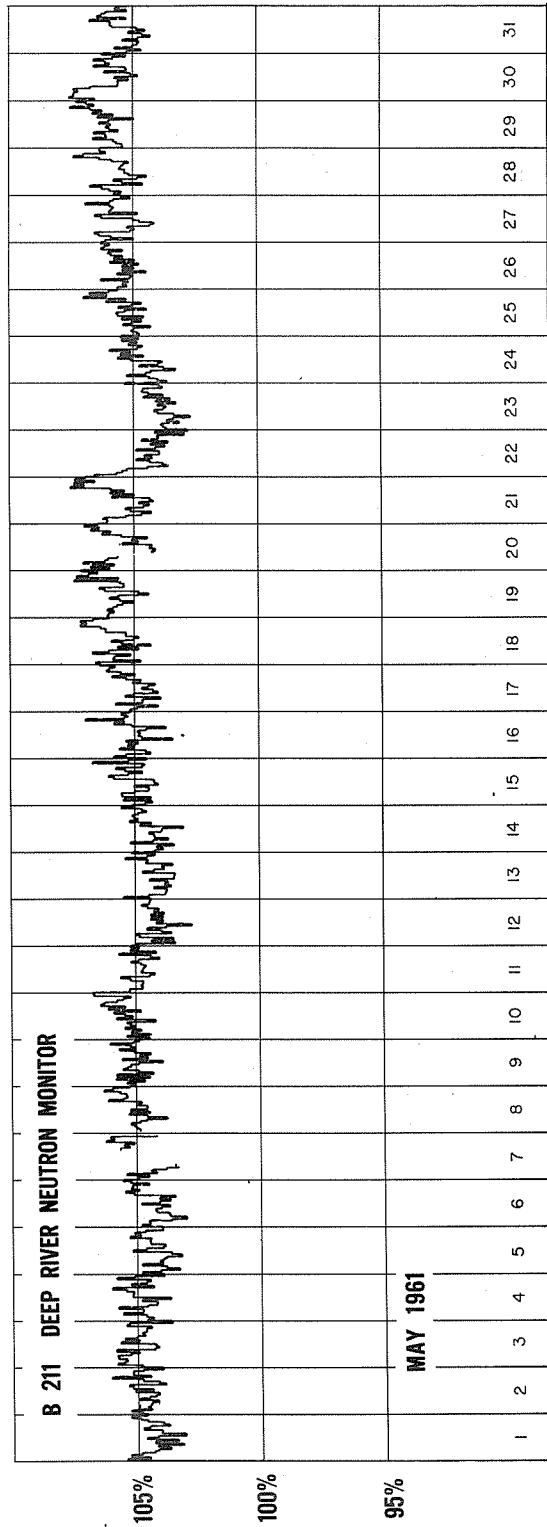
| May<br>1961 | Daily<br>average<br>counts/hr. | May<br>1961 | Daily<br>average<br>counts/hr. |
|-------------|--------------------------------|-------------|--------------------------------|
| 1 *         | 2986.7 (28)                    | 17          | 3005.4                         |
| 2           | 2989.8                         | 18 *        | 3011.8 (38)                    |
| 3           | 3003.8                         | 19          | 3016.5                         |
| 4           | 3015.6                         | 20          | 3009.7                         |
| 5           | 3001.1                         | 21          | 3006.2                         |
| 6           | 3018.6                         | 22          | 2956.8                         |
| 7           | 3009.9                         | 23          | 2943.2                         |
| 8           | 3005.4                         | 24          | 2967.5                         |
| 9           | 3001.9                         | 25 *        | 3000.9 (34)                    |
| 10          | 3016.4                         | 26          | 2999.0                         |
| 11          | 3014.3                         | 27          | 3001.8                         |
| 12          | 3007.5                         | 28          | 3009.5                         |
| 13          | 3014.8                         | 29          | 3018.8                         |
| 14          | 3010.0                         | 30          | 3020.7                         |
| 15          | 3015.5                         | 31          | 3014.9                         |
| 16          | 3007.4                         |             |                                |

COMMERCE - STANDARDS - BOULDER

\*Less than 40 section hours.

COSMIC RAY INDICES

(Pressure Corrected Hourly Totals)



COMMERCE - STANDARDS - BOULDER

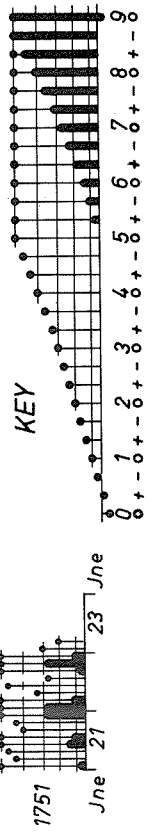
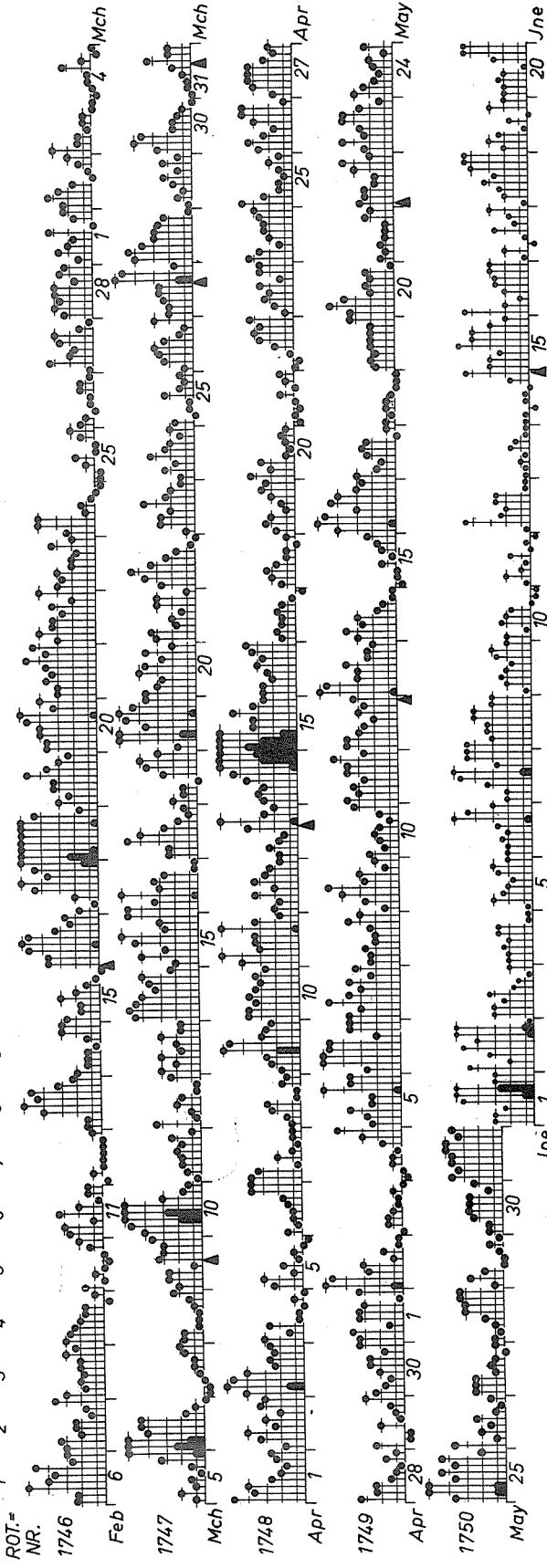
GEOMAGNETIC ACTIVITY INDICES

MAY 1961

| May<br>1961 | C    | Values Kp               |    |    |    |    |    |    |    | Sum   | Ap | Final<br>Selected<br>Days |
|-------------|------|-------------------------|----|----|----|----|----|----|----|-------|----|---------------------------|
|             |      | Three hour Gr. interval |    |    |    |    |    |    |    |       |    |                           |
|             |      | 1                       | 2  | 3  | 4  | 5  | 6  | 7  | 8  |       |    |                           |
| 1           | 0.9  | 3+                      | 4- | 1+ | 3+ | 3+ | 3o | 1- | 3+ | 22o   | 15 | Five<br>Quiet             |
| 2           | 0.9  | 6-                      | 5- | 3- | 3o | 1o | 2- | 1- | 1- | 20o   | 19 |                           |
| 3           | 0.0  | 0+                      | 1+ | 1+ | 1o | 1- | 1- | 1o | 0+ | 7-    | 4  |                           |
| 4           | 0.6  | 0o                      | 0+ | 1o | 1o | 1- | 2- | 3o | 4+ | 12o   | 8  | 3                         |
| 5           | 1.1  | 2+                      | 3- | 4- | 2+ | 2+ | 5+ | 4- | 4- | 26o   | 20 | 15                        |
| 6           | 1.2  | 3-                      | 5o | 5o | 5- | 5- | 2o | 4- | 4- | 31+   | 30 | 18                        |
| 7           | 0.9  | 4-                      | 3o | 5- | 4- | 3o | 4- | 2+ | 3+ | 27+   | 20 | 21                        |
| 8           | 0.7  | 2+                      | 2+ | 3- | 2o | 2o | 2+ | 4- | 3o | 20+   | 11 | 29                        |
| 9           | 0.8  | 1+                      | 3- | 4o | 5- | 3- | 3o | 1+ | 2o | 22-   | 15 |                           |
| 10          | 0.5  | 2+                      | 1+ | 2- | 2o | 2- | 1o | 2- | 3+ | 15o   | 8  |                           |
| 11          | 1.0  | 4-                      | 3o | 3+ | 3- | 4- | 4- | 4+ | 3- | 27o   | 19 | Five<br>Disturbed         |
| 12          | 0.8  | 4-                      | 4- | 3o | 3- | 2o | 3o | 3- | 3+ | 24o   | 15 |                           |
| 13          | 1.1  | 5+                      | 5- | 3o | 3o | 4- | 2+ | 2+ | 2o | 26+   | 22 |                           |
| 14          | 0.5  | 3o                      | 4- | 3- | 3o | 2- | 1+ | 1- | 1- | 17-   | 10 | 6                         |
| 15          | 0.2  | 0o                      | 0+ | 0+ | 1+ | 1- | 1+ | 2- | 2+ | 8o    | 4  | 7                         |
| 16          | 1.3  | 4o                      | 5+ | 5- | 3o | 4+ | 4o | 3o | 3- | 31o   | 28 | 16                        |
| 17          | 0.5  | 3o                      | 2- | 1+ | 2+ | 3- | 2+ | 0+ | 1o | 15-   | 8  | 25                        |
| 18          | 0.0  | 1o                      | 1- | 1o | 1o | 1- | 0+ | 0+ | 0+ | 5+    | 3  | 31                        |
| 19          | 0.6  | 2-                      | 2o | 2- | 2o | 2o | 2o | 2o | 3+ | 17-   | 8  |                           |
| 20          | 0.9  | 3+                      | 4+ | 4- | 2o | 2+ | 2o | 2+ | 1- | 21-   | 13 |                           |
| 21          | 0.3  | 1+                      | 1o | 1+ | 1o | 1o | 1o | 2+ | 2o | 11o   | 5  | Ten<br>Quiet              |
| 22          | 0.7  | 3-                      | 2+ | 2+ | 2- | 2- | 3o | 4- | 2o | 19+   | 11 |                           |
| 23          | 0.9  | 2+                      | 4- | 2+ | 3- | 4- | 4- | 3- | 1+ | 22+   | 14 |                           |
| 24          | 0.5  | 3o                      | 2+ | 2- | 1+ | 2- | 2o | 1o | 2+ | 15+   | 8  | 3                         |
| 25          | 1.3  | 4-                      | 6- | 6- | 4- | 4+ | 4- | 4+ | 2o | 33o   | 34 | 10                        |
| 26          | 0.3  | 4-                      | 1o | 2o | 1+ | 2+ | 1o | 1- | 1+ | 13+   | 7  | 15                        |
| 27          | 0.3  | 2+                      | 2+ | 2+ | 1o | 1+ | 1o | 0+ | 1o | 12-   | 6  | 17                        |
| 28          | 0.8  | 1o                      | 1- | 1o | 2- | 3o | 3o | 3+ | 3+ | 17o   | 10 | 18                        |
| 29          | 0.1  | 1o                      | 3- | 2- | 0+ | 0+ | 1- | 1+ | 1- | 9-    | 5  | 21                        |
| 30          | 0.6  | 1+                      | 1+ | 2+ | 3- | 3- | 3- | 1+ | 2+ | 17-   | 9  | 24                        |
| 31          | 1.1  | 4-                      | 3+ | 4- | 4- | 4o | 4o | 3+ | 4- | 29+   | 22 | 26                        |
|             |      |                         |    |    |    |    |    |    |    |       |    | 27                        |
|             |      |                         |    |    |    |    |    |    |    |       |    | 29                        |
| Mean:       | 0.69 |                         |    |    |    |    |    |    |    | Mean: | 13 |                           |

DAYS IN SOLAR ROTATION INTERVAL

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27



▲ = sudden commencement  
**PLANETARY MAGNETIC THREE-HOUR-RANGE INDICES**  
 KP till 1961 May 31  
 (Ks from Wingst and Göttingen till June 23)

CRPL RADIO PROPAGATION QUALITY FIGURES AND FORECASTS

MAY 1961

NORTH ATLANTIC

NORTH PACIFIC

| DATE                 | NORTH ATLANTIC 15-HOUR QUALITY FIGURES |          |          |          | SHORT-TERM FORECASTS ISSUED ABOUT ONE HOUR IN ADVANCE OF: | WHOLE DAY INDEX | GEO MAGNETIC K <sub>pr</sub> |          | ADVANCE FORECASTS (L-REPORTS) FOR WHOLE DAY, ISSUED IN ADVANCE BY: | WHOLE DAY INDEX | NORTH PACIFIC 12-HOURLY QUALITY FIGURES |          | SHORT-TERM FORECASTS ISSUED AT: | ADVANCE FORECASTS (M-REPORTS) FOR WHOLE DAY, ISSUED IN ADVANCE BY: |              | GEO MAGNETIC K <sub>SI</sub> |
|----------------------|--|----------|----------|----------|---|-----------------|------------------------------|----------|--|-----------------|---|----------|---------------------------------|--|--------------|------------------------------|
|                      | 00 TO 06                               | 06 TO 12 | 12 TO 18 | 18 TO 24 |   |                 | 00 06 12 18                  | 1-7 DAYS |  |                 | 1-3 DAYS                                | 1-7 DAYS |                                 | 1-3 DAYS   | 0700 TO 1900 |                              |
| MAY 1961             |  |          |          |          |   |                 |                              |          |  |                 |   |          |                                 |  |              |                              |
| 01                   | 6-                                     | 5+       | 6        | 6+       | 6   | 5               | 3                            | 2        | 5  | 6-              | 5                                       | 7        | 6                               | 6  | 6            | 3                            |
| 02                   | 5                                      | 5-       | 6        | 6        | 6   | 6               | (4)                          | 1        | 6  | 5+              | 6                                       | 7        | 6                               | 6  | 6            | (5)                          |
| 03                   | 7-                                     | 6-       | 6        | 7-       | 6   | 6               | 1                            | 2        | 6  | 6+              | 6                                       | 7        | 6                               | 7  | 1            | 2                            |
| 04                   | 7-                                     | 6+       | 6        | 6+       | 6   | 6               | 3                            | 3        | 6  | 6-              | 4                                       | 5        | 7                               | 7  | 3            | 3                            |
| 05                   | 7-                                     | 5-       | 6-       | 6-       | 5   | 5               | 3                            | 3        | 6  | 6-              | 4                                       | 5        | 7                               | 7  | 3            | 3                            |
| 06                   | 4+                                     | 2+       | 5-       | 6-       | 5   | 4               | 4                            | 4        | 4  | (4)             | 3                                       | 5        | 3                               | 6  | 6            | (5)                          |
| 07                   | 6-                                     | 4-       | 6-       | 6+       | 5   | 4               | 5                            | 6        | 4  | 5               | 4                                       | 5        | 7                               | 6  | 6            | (4)                          |
| 08                   | 6+                                     | 5+       | 6-       | 6        | 6   | 5               | 6                            | 6        | 5  | 6               | 6                                       | 6        | 7                               | 7  | 3            | 2                            |
| 09                   | 6+                                     | 5-       | 6-       | 6+       | 6   | 5               | 5                            | 6        | 6  | 6-              | 5                                       | 5        | 7                               | 7  | 6            | (4)                          |
| 10                   | 6                                      | 5+       | 6-       | 6+       | 6   | 5               | 5                            | 6        | 5  | 6-              | 6                                       | 5        | 7                               | 7  | 5            | 2                            |
| 11                   | 7-                                     | 5+       | 6-       | 6-       | 6   | 5               | 5                            | 6        | 5  | 6-              | 7                                       | 5        | 6                               | 7  | 6            | 3                            |
| 12                   | 5+                                     | 4-       | 5+       | 6+       | 6   | 4               | 5                            | 5        | 4  | 5               | 5                                       | 5        | 6                               | 5  | 5            | (4)                          |
| 13                   | 5+                                     | 4+       | 6-       | 7-       | 5   | 4               | 5                            | 6        | 4  | 4               | 5                                       | 6        | 6                               | 5  | 5            | (4)                          |
| 14                   | 6                                      | 5-       | 5+       | 6+       | 6   | 5               | 6                            | 6        | 5  | 6               | 6                                       | 6        | 6                               | 6  | 6            | 3                            |
| 15                   | 7-                                     | 5+       | 6        | 6+       | 6   | 5               | 6                            | 6        | 6  | 6               | 6                                       | 6        | 6                               | 6  | 6            | 0                            |
| 16                   | 6-                                     | 4        | 6-       | 6+       | 6   | 5               | 5                            | 6        | 6  | 6               | 6                                       | 5        | 5                               | 7  | 7            | (5)                          |
| 17                   | 6+                                     | 5+       | 6+       | 6+       | 5   | 4               | 6                            | 6        | 6  | 6               | 6                                       | 5        | 6                               | 7  | 7            | 2                            |
| 18                   | 7                                      | 5+       | 6+       | 6+       | 6   | 5               | 6                            | 6        | 6  | 6               | 6                                       | 6        | 6                               | 6  | 6            | 2                            |
| 19                   | 7-                                     | 6-       | 6+       | 7-       | 6   | 5               | 6                            | 6        | 6  | 6               | 6                                       | 6        | 6                               | 6  | 6            | 2                            |
| 20                   | 7-                                     | 6-       | 7-       | 6        | 6   | 5               | 6                            | 7        | 6  | 6               | 5                                       | 6        | 6                               | 6  | 6            | (4)                          |
| 21                   | 7                                      | 6+       | 6+       | 7-       | 6   | 6               | 7                            | 7        | 6  | 7-              | 7                                       | 6        | 6                               | 6  | 6            | 2                            |
| 22                   | 7                                      | 6-       | 6        | 7-       | 7   | 6               | 7                            | 6        | 6  | 6+              | 7                                       | 6        | 6                               | 6  | 6            | 2                            |
| 23                   | 7                                      | 6-       | 6-       | 6+       | 6   | 6               | 6                            | 6        | 6  | 6               | 6                                       | 6        | 6                               | 6  | 6            | 2                            |
| 24                   | 6                                      | 6-       | 6+       | 7-       | 6   | 5               | 6                            | 6        | 6  | 6               | 6                                       | 7        | 6                               | 6  | 6            | 2                            |
| 25                   | 6+                                     | 4+       | 6-       | 6-       | 6   | 5               | 6                            | 5        | 6  | 5+              | 4                                       | 5        | 6                               | 6  | 6            | (5)                          |
| 26                   | 6-                                     | 5+       | 6+       | 7-       | 5   | 5               | 6                            | 6        | 6  | 6               | 6                                       | 5        | 6                               | 6  | 6            | 2                            |
| 27                   | 7                                      | 6+       | 7-       | 6+       | 6   | 5               | 6                            | 7        | 6  | 6               | 6                                       | 6        | 6                               | 6  | 6            | 2                            |
| 28                   | 7                                      | 6+       | 6+       | 7-       | 7   | 6               | 7                            | 6        | 6  | 7-              | 6                                       | 6        | 6                               | 6  | 6            | 2                            |
| 29                   | 7-                                     | 6+       | 6        | 7-       | 6   | 5               | 6                            | 6        | 6  | 6+              | 6                                       | 6        | 6                               | 6  | 6            | 1                            |
| 30                   | 7                                      | 6+       | 6        | 7-       | 6   | 6               | 6                            | 6        | 6  | 7-              | 6                                       | 5        | 6                               | 6  | 6            | 2                            |
| 31                   | 7-                                     | 4-       | 5+       | 6-       | 7   | 6               | 5                            | 6        | 6  | 5               | 4                                       | 5        | 6                               | 6  | 6            | (4)                          |
| Score: Quiet Periods | P                                      | 13       | 17       | 17       | 16  | 14              | 15                           | 15       | 14   | 15              | 9                                       | 17       | 14                              | 10   | 20           |                              |
|                      | S                                      | 16       | 7        | 14       | 14  | 14              | 15                           | 15       | 16   | 15              | 14                                      | 10       | 14                              | 10   | 6            |                              |
|                      | U                                      | 1        | 0        | 0        | 0   | 0               | 0                            | 0        | 0  | 0               | 3                                       | 4        | 0                               | 2  | 0            |                              |
|                      | F                                      | 0        | 0        | 0        | 1   | 1               | 0                            | 0        | 0  | 0               | 0                                       | 0        | 0                               | 0  | 0            |                              |
| Disturbed Periods    | P                                      | 0        | 3        | 0        | 0   | 0               | 1                            | 0        | 1  | 0               | 1                                       | 0        | 0                               | 0  | 0            |                              |
|                      | S                                      | 1        | 2        | 0        | 0   | 0               | 0                            | 0        | 0  | 0               | 0                                       | 0        | 0                               | 0  | 0            |                              |
|                      | U                                      | 0        | 1        | 0        | 0   | 0               | 0                            | 0        | 0  | 0               | 0                                       | 0        | 0                               | 0  | 0            |                              |
|                      | F                                      | 0        | 1        | 0        | 0   | 0               | 0                            | 0        | 0  | 0               | 4                                       | 0        | 0                               | 3  | 3            |                              |

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( ) Represent disturbed values.  
All times are Universal Time (U.T.)

CRPL RADIO PROPAGATION QUALITY FIGURES AND FORECASTS

VIIb

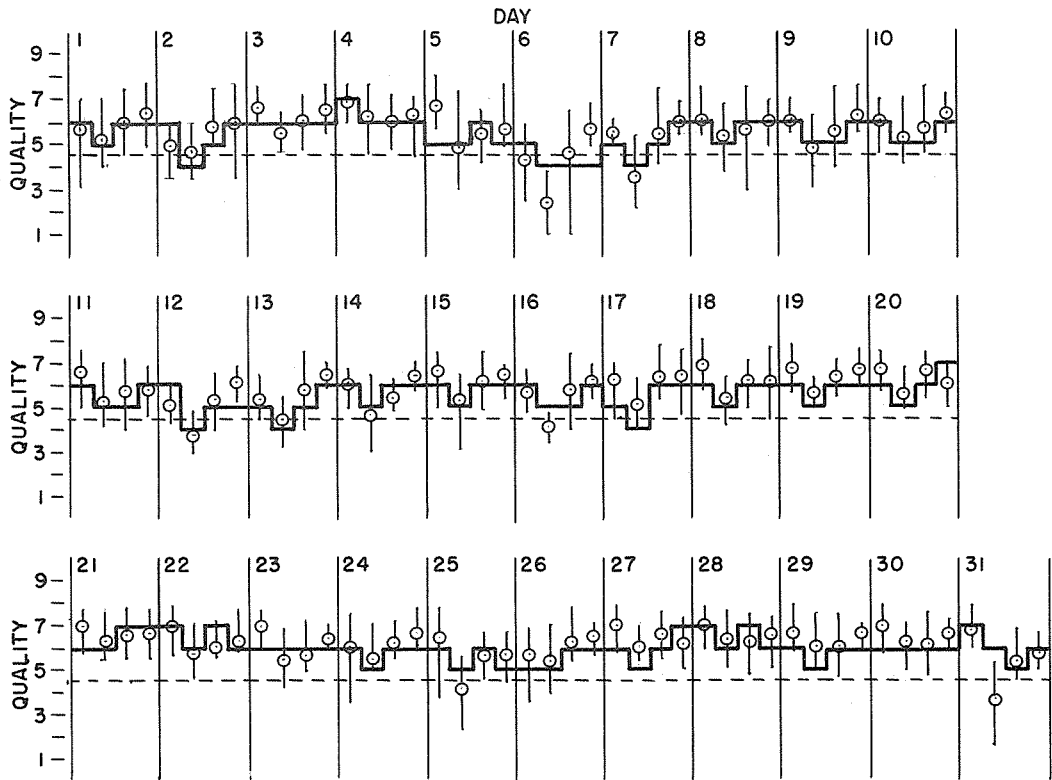
NORTH ATLANTIC

MAY 1961

— Short-term forecast

| Range of reports

o Quality figure

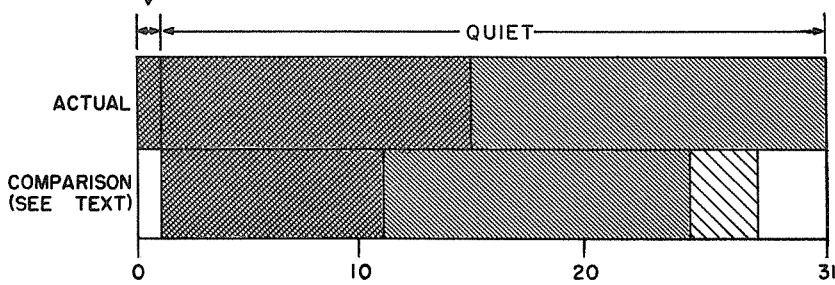


OUTCOME OF ADVANCED FORECASTS

FINAL ESTIMATE

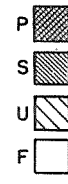
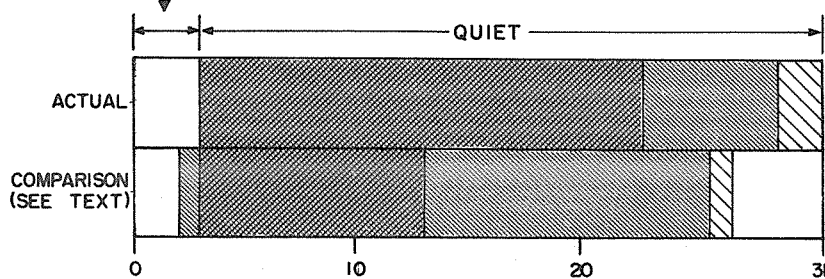
NORTH ATLANTIC

DISTURBED →



NORTH PACIFIC

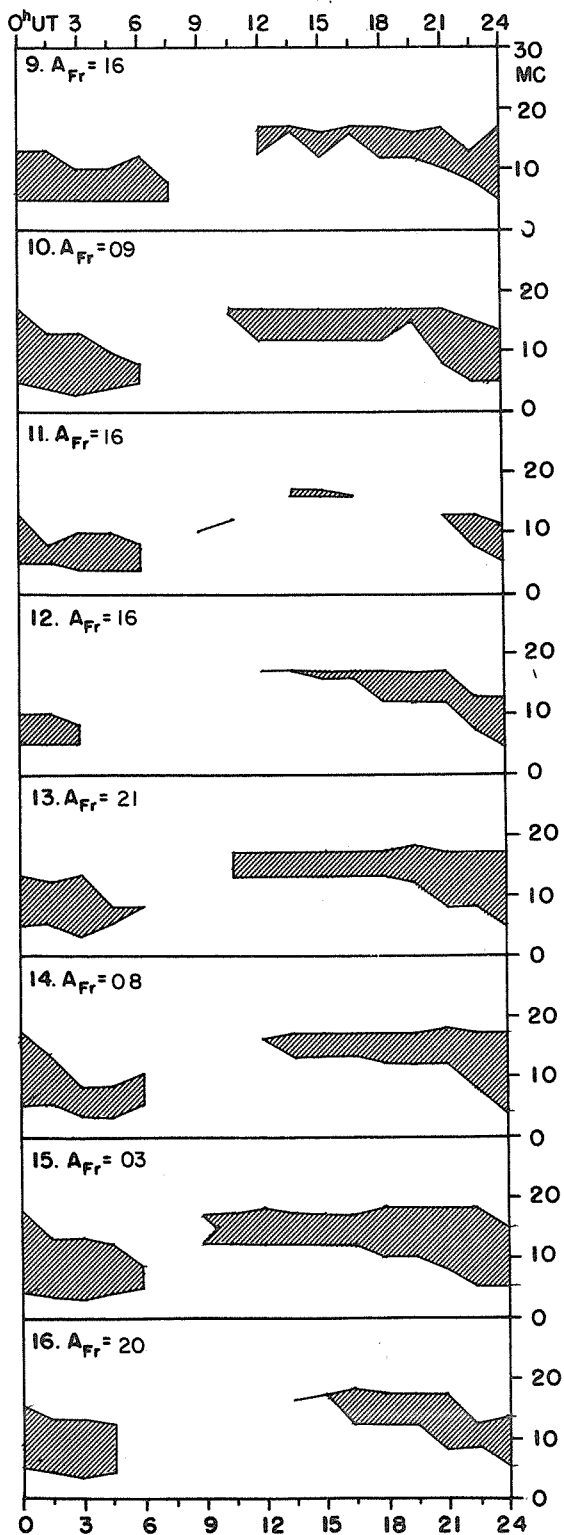
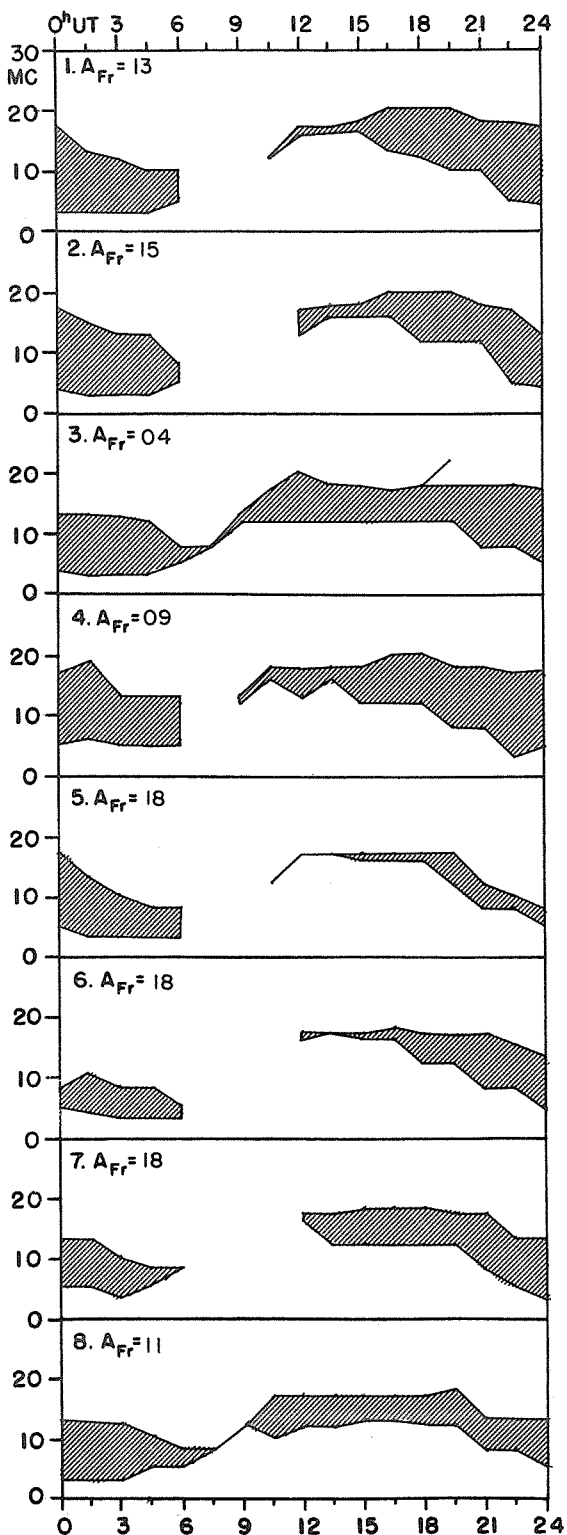
DISTURBED →





USEFUL FREQUENCY RANGES -- NORTH ATLANTIC PATH

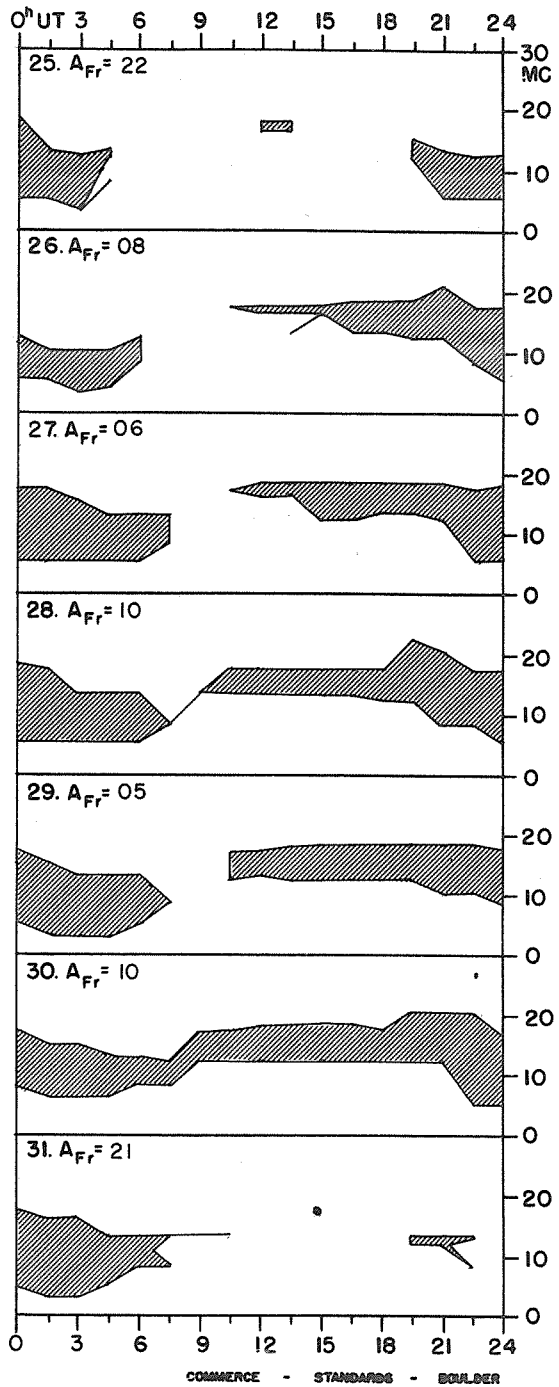
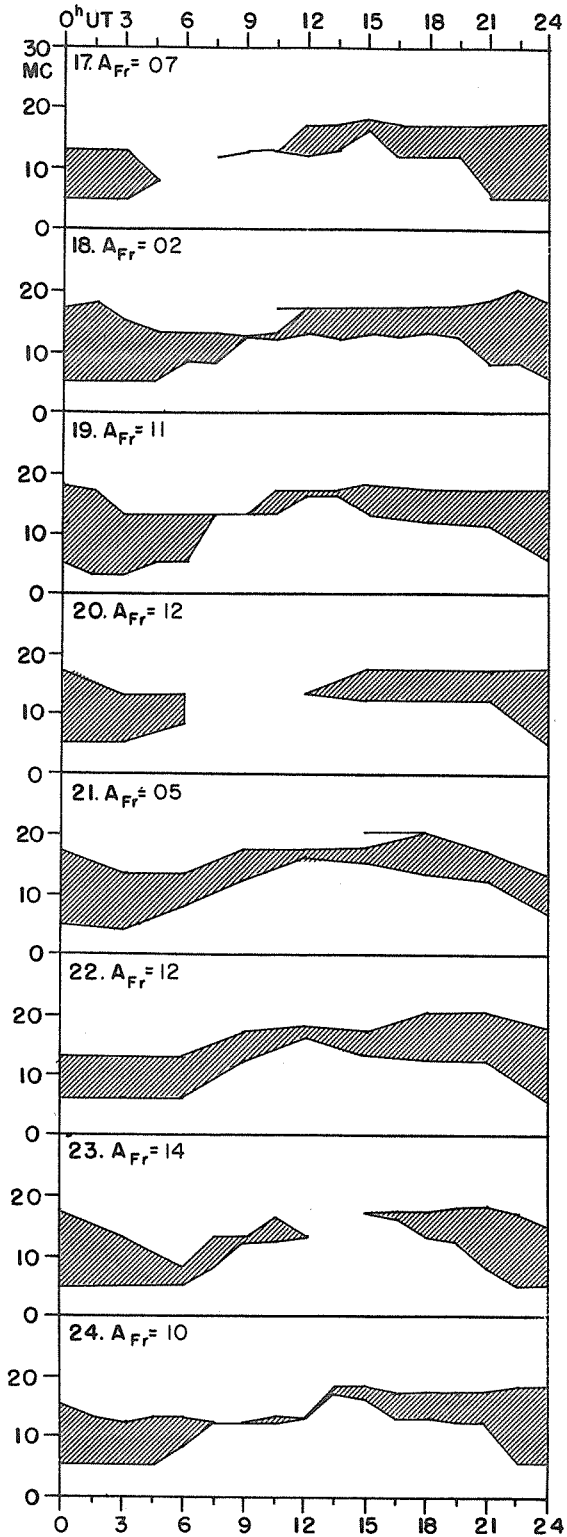
MAY 1961



USEFUL FREQUENCY RANGES -- NORTH ATLANTIC PATH

VII d

MAY 1961



0 3 6 9 12 15 18 21 24  
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## ALERT PERIODS AND SPECIAL WORLD INTERVALS

INTERNATIONAL WORLD DAY SERVICE

JUNE 1961

| Issued<br>June 1961<br>Day/Time UT | Advance Geophysical Alert             | No. | World-Wide Geophysical<br>Alert | Special World Interval |
|------------------------------------|---------------------------------------|-----|---------------------------------|------------------------|
| 01/1600                            |                                       | 122 | Magnetic Storm 31/01XXZ         |                        |
| 06/1920                            | McMath, Solar Flare 06/1240Z          |     |                                 |                        |
| 21/1405                            | Ft. Belvoir, Magnetic Storm *20/20XXZ |     |                                 |                        |
| 21/1600                            |                                       | 123 | Magnetic Storm 20/18XXZ         |                        |
| 29/1600                            |                                       | 124 | Magnetic Storm 29/0011Z         |                        |

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\*Later judged to have begun 2 hours previously.