# SOLAR FLARES

## JULY 1957

| Observatory | Date July 1957 | Time Observed Start UT | Time Observed End UT | Duration Min. | Importance | McMath Plage Region Number | Approx. Position Lat. Mer. Dist. | Time Max. Phase UT | Total Area Mill. | Rel. Area of Max. | Max. Int. Arb. | Provis. Ionospheric Effect |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TASHKENT | 01 | 0144 E | 0200 | 16D | 1& | 4047 | S13 E57 | 0148 | | | | S-SWF |
| KODAIKNL | 01 | 0346 | 0414 | 28 | 1& | 4039 | N14 W14 | 0352 | 156 | | | G-SWF |
| TASHKENT | 01 | 0436 | 0549 | 73 | 1& | 4039 | N12 W16 | 0455 | | | | |
| SIMEIZ | 01 | 0620 | 0633 | 13 | 1& | 4028 | N26 W90 | 0623 | 175 | | | |
| ONDREJOV | 01 | 1002 E | 1026 | 24D | 1& | 4030 | S25 W78 | 1007 | | | | S-SWF |
| CAPRI S | 01 | 1002 E | 1028 D | 26D | 1& | 4030 | S20 W80 | | 219 | | | |
| OTTAWA | 01 | 1207 | 1215 | 8 | 1 | 4046 | N15 E48 | 1210 | 118 | | | |
| CAPRI S | 01 | 1208 | 1216 | 8 | 1 | 4046 | N13 E51 | | 194 | | | |
| ONDREJOV | 01 | 1209 E | 1213 D | 4D | 1& | 4046 | N14 E49 | | | | | |
| CAPRI S | 01 | 1215 | 1250 D | 35D | 1 | 4039 | N09 W14 | | 194 | | | |
| ONDREJOV | 01 | 1219 E | 1224 | 5D | 1 | 4039 | N08 W14 | | | | | |
| * SAC PEAK | 01 | 1402 | 1442 | 40 | 1 | 4039 | N10 W19 | 1410 | 142 | 2 | 18 | |
| * ONDREJOV | 01 | 1415 E | 1435 | 20D | 1 | 4039 | N09 W15 | | | | | |
| OTTAWA | 01 | 1630 | 1707 | 37 | 1 | 4039 | N13 W21 | 1646 | 111 | | | |
| HAWAII | 01 | 1958 E | 2052 | 54D | 2 | 4039 | N11 W24 | 2008 | 350 | | | Slow S-SWF |
| MCMATH | 01 | 2000 E | 2037 D | 37D | 1& | 4039 | N12 W20 | | | | | |
| SAC PEAK | 01 | 2018 E | 2105 D | 36D | 1& | 4039 | N10 W29 | 2018 F | 202 | 4 | 23 | |
| HAWAII | 01 | 2222 | 2332 | 70 | 1 | 4044 | S31 E35 | 2236 | 180 | | | |
| * SAC PEAK | 01 | 2257 E | 2307 D | 10D | 1 | 4044 | S32 E42 | 2307 F | 117 | 9 | 16 | |
| KODAIKNL | 02 | 0544 | | | 1& | 4039 | N15 W34 | | 181 | | | |
| ONDREJOV | 02 | 0557 E | 0607 | 10D | 1 | 4039 | N11 W28 | | | | | |
| CAPRI S | 02 | 0710 | 0752 | 42 | 1 | 4044 | S27 E31 | | 194 | | | |
| ARCETRI | 02 | 0715 E | 0744 | 29D | 1& | 4044 | S30 E30 | | | | | S-SWF |
| ONDREJOV | 02 | 0724 E | 0738 | 14D | 1 | 4044 | S28 E32 | | | | | |
| ONDREJOV | 02 | 0750 | 0756 | 6 | 1 | 4039 | N09 W29 | | | | | |
| ARCETRI | 02 | 0815 E | 0847 D | 32D | 2 | 4039 | N09 W31 | | | | | |
| CAPRI S | 02 | 0823 E | 0842 D | 19D | 1 | 4039 | N09 W28 | | 170 | | | |
| ARCETRI | 02 | 0831 E | 0848 D | 17D | 2 | 4030 | S23 W90 | | | | | S-SWF |
| CAPRI S | 02 | 1014 | 1023 D | 9D | 1 | 4046 | N13 E37 | | 160 | | | |
| CAPRI S | 02 | 1024 E | 1053 | 29D | 1 | 4039 | N07 W35 | | 117 | | | |
| UCCLE | 02 | 1031 E | 1041 D | 10D | 2 | 4041 | S12 W11 | | | | | |
| HAWAII | 02 | 2100 | 2110 | 10 | 1 | 4043 | S12 W14 | 2104 | 112 | | | |
| MCMATH | 02 | 2100 E | 2115 D | 15D | 1 | 4043 | S12 W05 | | | | | |
| * HAWAII | 02 | 2130 | 2156 | 26 | 1 | 4039 | N11 W32 | 2134 | 156 | | | |
| HAWAII | 03 | 0008 | 0028 | 20 | 1 | 4039 | N10 W40 | 0014 | 185 | | | |
| HAWAII | 03 | 0020 | 0027 | 7 | 1 | 4043 | S12 W14 | 0024 | 131 | | | |
| HAWAII | 03 | 0122 | 0132 | 10 | 1 | 4041 | S11 W17 | 0126 | 112 | | | |
| MEUDON | 03 | 0714 | 1030 D | 196D | 3 | 4039 | N14 W45 | | | | | |
| SCHAUINSLAND | 03 | 0720 E | | | 2& | 4039 | N15 W37 | | | | | S-SWF |
| ONDREJOV | 03 | 0720 | 0820 | 60 | 2& | 4039 | N14 W40 | 0741 | | | | |
| CAPRI S | 03 | 0722 | 1109 | 227 | 3& | 4039 | N13 W40 | | 1312 | | | |
| CRIMEA | 03 | 0725 | 0830 | 65 | 2& | 4039 | N14 W38 | 0735 | | | | |
| UCCLE | 03 | 0806 E | | | 3 | 4039 | N10 W37 | 0900 | | | | |
| TACHKENT | 03 | 0815 E | 0930 D | 75D | 3 | 4039 | N10 W40 | 0847 | | | | |
| KHARKOV | 03 | 0827 E | 1107 D | 160D | 2& | 4039 | N11 W39 | | | | | S-SWF |
| CRIMEA | 03 | 0832 | 0956 | 84 | 2 | 4039 | N11 W44 | 0840 | | | | |
| ONDREJOV | 03 | 0832 E | 1112 | 160D | 2& | 4039 | N09 W42 | | | | | |
| R O HERST | 03 | 0958 E | 1145 | 107D | 1& | 4039 | N09 W40 | 0958 | 160 | | | |
| ONDREJOV | 03 | 1300 E | 1308 | 8D | 1 | 4048 | N16 E61 | | | | | |
| SAC PEAK | 03 | 1625 | 1650 | 25 | 1 | 4043 | S10 W21 | 1630 | 130 | 9 | 25 | |
| ONDREJOV | 03 | 1629 E | 1642 | 13D | 1 | 4043 | S10 W22 | | | | | |
| ONDREJOV | 03 | 1728 E | 1740 | 12D | 1 | 4047 | S29 E16 | 1729 | | | | G-SWF |
| * HAWAII | 03 | 1920 | 1932 | 12 | 1 | 4046 | N14 E27 | 1922 | 156 | | | |
| SAC PEAK | 03 | 2213 | 2300 | 47 | 1 | 4046 | N14 E24 | 2233 | 150 | 4 | 28 | |
| HAWAII | 03 | 2214 | 2244 | 30 | 1 | 4046 | N12 E22 | 2218 | 146 | | | |
| HAWAII | 03 | 2230 | 2244 | 14 | 2 | 4046 | N13 E25 | 2234 | 306 | | | |
| HAWAII | 04 | 0030 | 0040 | 10 | 2 | 4046 | N14 E25 | 0032 | 369 | | | |
| ONDREJOV | 04 | 0437 E | 0444 | 7D | 1 | 4046 | N15 E19 | | | | | |
| ONDREJOV | 04 | 0542 E | 0553 | 11D | 1 | 4046 | N15 E21 | | | | | |
| SIMEIZ | 04 | 0617 | 0630 | 13 | 1 | 4045 | S20 E02 | 0619 | 260 | | | |
| SIMEIZ | 04 | 0650 | 0655 | 5 | 1 | 4043 | S17 W28 | 0652 | 170 | | | |
| SIMEIZ | 04 | 0659 | 0710 | 11 | 1& | 4051 | S17 E60 | 0705 | 300 | | | |
| CAPRI S | 04 | 0713 | 0744 | 31 | 1 | 4046 | N11 W04 | | 146 | | | Slow S-SWF |
| ONDREJOV | 04 | 0715 E | 0747 | 32D | 1& | 4046 | N09 W00 | 0720 | | | | |
| SIMEIZ | 04 | 0748 | 0800 | 12 | 1 | 4045 | S15 E00 | 0753 | 300 | | | |
| SIMEIZ | 04 | 0859 | 0939 | 40 | 2 | 4043 | S18 W28 | 0901 | 960 | | | |
| ONDREJOV | 04 | 0956 E | 0959 | 3D | 1 | 4043 | S11 W32 | | | | | |

Capri S. = Anacapri (Swedish).
Kodaiknl = Kodaikanal.
Krasnya = Krasnaya Pakhra.
RO Edin = Royal Observatory, Edinburgh.
RO Herst = Greenwich Royal Observatory, Herstmonceux.
Sac Peak = Sacramento Peak.
Schauins = Schauinsland.
USNRL = United States Naval Research Laboratory.

E = less than.
D = greater than.
U = uncertain.
F = Approximate.
& = plus.

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MOSCOW | 04 | 1142 E | 1156 D | 14D | 2 | 4048 | N11 E39 | | | | | |
| MOSCOW | 04 | 1154 E | | | 2 | 4047 | S10 E43 | | | | | |
| MCMATH | 04 | 1200 E | 1225 D | 25D | 1 | 4044 | S26 E09 | | | | | |
| OTTAWA | 04 | 1202 | 1230 | 28 | 1 | 4044 | S27 E06 | 1204 | 96 | | | S-SWF |
| CAPRI S | 04 | 1203 | 1221 | 18 | 1 | 4044 | S29 E08 | | 112 | | | |
| ONDREJOV | 04 | 1207 E | 1216 | 9D | 1 | 4044 | S29 E07 | | | | | |
| ONDREJOV | 04 | 1425 E | 1439 | 14D | 1& | 4046 | N09 E05 | | | | | |
| SAC PEAK | 04 | 1425 | 1445 | 20 | 1 | 4046 | N09 W05 | 1428 | 131 | 3 | 22 | S-SWF |
| CAPRI S | 04 | 1427 E | 1447 | 20D | 1 | 4046 | N08 W08 | | 102 | | | |
| MCMATH | 04 | 1430 E | 1507 D | 37D | 1 | 4046 | N08 W04 | | | | | |
| SIMEIZ | 05 | 0624 | 0641 | 17 | 1 | 4045 | S19 W14 | 0627 | 175 | | | |
| SIMEIZ | 05 | 0652 | 0656 | 4 | 1 | 4041 | S18 W42 | 0653 | 87 | | | |
| OTTAWA | 05 | 1231 | 1253 | 22 | 1& | 4043 | S09 W44 | 1238 | 140 | | | |
| CAPRI S | 05 | 1236 | 1255 | 19 | 1 | 4043 | S11 W46 | | 253 | | | |
| ONDREJOV | 05 | 1239 E | 1252 | 13D | 1 | 4043 | S12 W47 | 1241 | | | | |
| TORTOSA | 05 | 1242 E | 1253 D | 11D | 2 | 4043 | S10 W45 | | | | | |
| MCMATH | 05 | 1242 E | 1253 D | 11D | 2 | 4043 | S10 W45 | | | | | |
| MCMATH | 05 | 1720 E | 1805 D | 45D | 1 | 4043 | S10 W45 | | | | | G-SWF |
| SAC PEAK | 05 | 2317 | 2400 D | 43D | 2 | 4046 | N16 W15 | 2357 | 360 | 1 | 20 | |
| SIMEIZ | 06 | 0610 | 0615 | 5 | 1 | 4043 | S15 W27 | 0610 | 175 | | | |
| ONDREJOV | 06 | 0618 E | 0629 | 11D | 1 | 4043 | S10 W58 | | | | | |
| CAPRI S | 06 | 0620 E | 0642 | 22D | 1 | 4043 | S10 W59 | | 131 | | | |
| SIMEIZ | 06 | 0742 | 0750 | 8 | 1& | 4043 | S15 W28 | 0743 | 305 | | | |
| *ONDREJOV | 06 | 1053 E | 1102 | 9D | 1 | 4048 | N12 E17 | 1056 | | | | |
| OTTAWA | 06 | 1259 | 1339 | 40 | 1 | 4046 | N12 W32 | | 98 | | | |
| ONDREJOV | 07 | 1013 E | 1027 | 14D | 1 | 4043 | S12 W70 | | | | | |
| ONDREJOV | 07 | 1158 | 1234 | 36 | 1& | 4046 | N09 W46 | 1205 | | | | |
| SCHAUINS | 07 | 1202 E | 1236 | 34D | 1& | 4046 | N11 W45 | | | | | |
| SAC PEAK | 07 | 1302 | 1405 | 63 | 1 | 4044 | S28 W36 | 1325 | 135 | 3 | 21 | Slow S-SWF |
| ONDREJOV | 07 | 1303 E | 1348 | 45D | 2 | 4044 | S28 W33 | 1314 | | | | |
| MCMATH | 07 | 1306 E | 1355 D | 49D | 1 | 4044 | S25 W30 | | | | | |
| SCHAUINS | 07 | 1329 E | 1400 | 31D | 1& | 4046 | N28 W33 | | | | | |
| * ONDREJOV | 07 | 1413 E | 1417 | 4D | 1 | 4046 | N10 W46 | | | | | |
| ONDREJOV | 07 | 1710 E | 1719 D | 9D | 1 | 4046 | N09 W48 | | | | | |
| * HAWAII | 07 | 2004 | 2018 | 14 | 1 | 4046 | N13 W36 | 2008 | 170 | | | S-SWF |
| HAWAII | 07 | 2050 | 2058 | 8 | 1 | 4046 | N10 W50 | 2052 | 199 | | | |
| HAWAII | 07 | 2050 | 2300 | 130 | 2 | 4048 | N14 W03 | 2154 | 296 | | | Slow S-SWF |
| ABASTUMANI | 08 | 0521 | | | 2& | 4046 | N13 W41 | 0539 F | | | | S-SWF |
| CANBERRA | 08 | 0529 | 0552 | 23 | 1& | 4046 | N13 W40 | | | | | |
| ONDREJOV | 08 | 0537 E | 0620 | 43D | 2 | 4046 | N14 W40 | | | | | |
| CAPRI S | 08 | 0608 | 0634 | 26 | 1 | 4046 | N12 W48 | | 165 | | | G-SWF |
| ONDREJOV | 08 | 0624 | 0635 | 11 | 1 | 4046 | N14 W45 | 0628 | | | | |
| ONDREJOV | 08 | 0925 E | 0936 D | 11D | 1& | 4046 | N09 W55 | | | | | |
| CAPRI S | 08 | 0929 | 1008 | 39 | 1& | 4046 | N12 W61 | | 248 | | | S-SWF |
| HAWAII | 08 | 1854 | 1910 | 16 | 1 | 4044 | S30 W42 | 1856 | 330 | | | |
| MCMATH | 08 | 1950 E | 2015 D | 25D | 2 | 4044 | S25 W42 | | | | | Slow S-SWF |
| HAWAII | 09 | 0044 | 0106 | 22 | 1 | 4048 | N14 W17 | 0046 | 175 | | | Slow S-SWF |
| SIMEIZ | 09 | 0640 | 0656 | 16 | 1 | 4051 | S17 W17 | 0648 | 175 | | | |
| SIMEIZ | 09 | 0750 | 0803 | 13 | 1 | 4048 | N07 W32 | 0752 | 120 | | | |
| SIMEIZ | 09 | 0819 | 0830 | 11 | 1 | 4051 | S15 W14 | 0820 | 300 | | | |
| CAPRI S | 09 | 1013E | 1044 | 31D | 1 | 4044 | S30 W50 | | 165 | | | |
| HAWAII | 09 | 2252 E | 2300 | 8D | 1 | 4048 | N14 W28 | 2254 | 219 | | | Slow S-SWF |
| SAC PEAK | 09 | 2253 | 2300 | 7 | 1 | 4048 | N13 W28 | 2255 | 146 | 6 | 15 | |
| CAPRI S | 10 | 1243 E | 1313 | 30D | 1 | 4052 | S11 E14 | | 126 | | | |
| USNRL | 10 | 1412 | 1515 | 63 | 2 | 4044 | S27 W80 | 1424 | | | | G-SWF |
| SAC PEAK | 10 | 1415 | 1437 D | 22D | 2 | 4044 | S29 W80 | 1425 | 285 | 5 | 18 | |
| R O HERST | 10 | 1418 | 1445 | 27 | 1& | 4044 | S29 W78 | 1428 | 151 | | | |
| R O EDIN | 10 | 1421 | 1435 | 14 | 1 | 4044 | S30 W71 | 1427 | 802 | | | |
| CAPRI S | 10 | 1425 E | 1455 D | 30D | 1 | 4044 | S26 W75 | | 219 | | | |
| MCMATH | 10 | 1425 E | 1455 D | 30D | 1 | 4044 | S28 W64 | | | | | |
| * OTTAWA | 12 | 1511 | | | 1 | 4051 | S10 W36 | | 153 | | | |

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## JULY 1957

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SIMEIZ | 13 | 0720 | 0810 | 50 | 1 | 4066 | S13 E90 | 0723 | 120 | | | |
| SIMEIZ | 13 | 0729 | 0739 | 10 | 1 | 4063 | S21 E44 | 0731 | 300 | | | |
| SIMEIZ | 13 | 0810 | 0840 | 30 | 2 | 4063 | S23 E38 | 0813 | 700 | | | |
| SIMEIZ | 13 | 0812 | 0840 | 28 | 1 | 4063 | S27 E37 | 0816 | 175 | | | |
| ONDREJOV | 13 | 1212 E | 1221 | 9D | 1 | 4061 | S34 E15 | | | | | |
| OTTAWA | 13 | 1339 | 1347 | 8 | 1 | 4065 | N20 E74 | 1342 | 192 | | | |
| CAPRI S | 14 | 0710 E | 0731 D | 21D | 1 | 4065 | N25 E86 | | 117 | | | |
| ATHENS | 14 | 0712 | 0723 | 11 | 2 | 4048 | N24 W85 | | | | | |
| ATHENS | 14 | 0742 | 0803 | 21 | 2 | 4067 | S36 E59 | | | | | S-SWF |
| ABASTUMANI | 14 | 0743 E | | | 2 | 4067 | S34 E47 | | | | | |
| CAPRI S | 14 | 1203 | 1225 | 22 | 1 | 4065 | N25 E85 | | 117 | | | |
| MCMATH | 14 | 1223 E | 1235 D | 12D | 1& | 4065 | N21 E63 | | | | | S-SWF |
| CAPRI S | 14 | 1338 | 1347 | 9 | 1 | 4065 | N25 E83 | | 107 | | | |
| MCMATH | 14 | 1340 E | 1403 D | 23D | 1& | 4065 | N21 E63 | | | | | |
| ONDREJOV | 14 | 1442 E | 1453 D | 11D | 1 | 4065 | N24 E83 | | | | | |
| CAPRI S | 14 | 1442 | 1454 | 12 | 1 | 4065 | N25 E83 | | 107 | | | |
| MCMATH | 14 | 1447 E | 1502 D | 15D | 1& | 4065 | N21 E63 | | | | | |
| ATHENS | 15 | 0617 | 0625 | 8 | 2 | 4065 | N28 E79 | | | | | |
| SIMEIZ | 15 | 0737 | 0754 | 17 | 2 | 4067 | S18 E61 | 0741 | 786 | | | |
| SIMEIZ | 16 | 0715 | 0740 | 25 | 1& | 4067 | S38 E65 | 0719 | 611 | | | |
| CAPRI S | 16 | 0732 | 0809 | 37 | 1& | 4065 | N30 E76 | | 233 | | | S-SWF |
| KRASNYA | 16 | 0734 | 0803 | 29 | 2 | | N33 E84 | | | | | |
| R O HERST | 16 | 0744 E | 0810 | 26D | 1& | 4073 | N31 E82 | 0744 | 175 | | | |
| USNRL | 16 | 1740 | | | 2 | 4061 | S29 W30 | | | | | |
| SAC PEAK | 16 | 1742 | 1947 F | 125F | 1& | 4061 | S33 W30 | 1800 | 180 | 7 | 30 | Slow S-SWF |
| HAWAII | 16 | 1742 | 1952 | 130 | 1 | 4061 | S38 W21 | 1818 | 199 | | | |
| MCMATH | 16 | 1743 E | 1957 D | 134D | 1& | 4061 | S32 W30 | | | | | |
| * HAWAII | 16 | 1818 | 1830 | 12 | 1 | 4067 | S38 E25 | 1820 | 199 | | | S-SWF |
| HAWAII | 17 | 0112 | 0148 | 36 | 2 | 4065 | N11 E30 | 0116 | 296 | | | S-SWF |
| ONDREJOV | 17 | 0546 E | 0555 | 9D | 1 | 4067 | S38 E21 | | | | | |
| UCCLE | 17 | 0553 | 0612 | 19 | 2 | 4065 | N25 E57 | | | | | |
| SIMEIZ | 17 | 0623 | 0645 | 22 | 1& | 4067 | S39 E40 | 0632 | 200 | | | |
| ONDREJOV | 17 | 0625 E | 0640 | 15D | 1 | 4065 | N29 E57 | | | | | |
| UCCLE | 17 | 0630 | 0644 | 14 | 2 | 4065 | N31 E63 | | | | | |
| SIMEIZ | 17 | 0656 | 0713 | 17 | 1& | 4063 | S16 E10 | 0703 | 611 | | | |
| UCCLE | 17 | 0704 | 0712 | 8 | 2 | 4070 | S14 E50 | | | | | |
| CAPRI S | 17 | 0833 | 0844 | 11 | 1 | 4067 | S35 E19 | | 160 | | | |
| CAPRI S | 17 | 1217 | 1238 | 21 | 1 | 4067 | S34 E14 | | 219 | | | G-SWF |
| OTTAWA | 17 | 1218 | 1235 | 17 | 2 | 4067 | S36 E20 | 1220 | 176 | | | |
| * MCMATH | 17 | 1303 E | 1347 D | 44D | 1 | 4070 | S21 E56 | | | | | |
| MCMATH | 17 | 1835 E | 1850 D | 15D | 1 | 4065 | N20 E30 | | | | | |
| HAWAII | 17 | 1838 | 1846 D | 8D | 1 | 4065 | N11 E20 | 1838 | 117 | | | Slow S-SWF |
| ONDREJOV | 18 | 0535 E | 0544 | 9D | 1& | 4067 | S38 E12 | 0538 | | | | |
| CAPRI S | 18 | 0732 | 0742 | 10 | 1 | 4067 | S38 E08 | | 126 | | | |
| ONDREJOV | 18 | 0733 E | 0737 D | 4D | 1& | 4067 | S38 E10 | | | | | |
| SIMEIZ | 18 | 0816 | 0825 | 9 | 1 | | N09 W75 | 0819 | 134 | | | |
| * CAPRI S | 18 | 1108 | 1121 | 13 | 1 | 4067 | S38 E05 | | 126 | | | |
| ONDREJOV | 18 | 1250 E | 1313 | 23D | 1& | 4065 | N24 E25 | | | | | S-SWF |
| MCMATH | 18 | 1257 E | 1315 D | 18D | 1 | 4065 | N22 E23 | | | | | |
| HAWAII | 18 | 2234 | 0030 | 116 | 2 | 4070 | S22 E26 | 2306 | 486 | | | |
| SAC PEAK | 18 | 2328 E | 2412 D | 44D | 2 | 4070 | S23 E30 | 2328 E | 400 | 4 | 20 | |
| SIMEIZ | 19 | 0610 | 0650 | 40 | 1 | 4067 | S40 E30 | 0624 | 262 | | | |
| SIMEIZ | 19 | 0613 | 0710 | 57 | 1& | 4067 | S38 E22 | 0630 | 349 | | | |
| SIMEIZ | 19 | 0620 | 0710 | 50 | 1 | 4067 | S43 E26 | 0630 | 175 | | | |
| CAPRI S | 19 | 0827 E | 0832 D | 5D | 1 | 4061 | S27 W66 | | 190 | | | |
| ABASTUMANI | 20 | 0642 | 0701 | 19 | 2 | 4065 | N27 E00 | | | | | |
| ABASTUMANI | 20 | 0708 | 0747 | 39 | 2 | 4075 | N12 E85 | | | | | Slow S-SWF |
| SIMEIZ | 20 | 0828 | 0834 | 6 | 1 | 4067 | S36 W01 | 0831 | 100 | | | |
| SIMEIZ | 20 | 0830 | 0845 | 15 | 1 | 4065 | N23 E21 | 0831 | 600 | | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| R O HERST | 20 | 1405 | 1500 | 55 | 1 | 4073 | N30 E21 | 1410 | 87 | | | S-SWF |
| CAPRI S | 20 | 1406 | 1503 | 57 | 1 | 4065 | N30 E21 | | 117 | | | |
| MCMATH | 20 | 1409 E | 1514 D | 5D | 1& | 4065 | N22 W02 | | | | | |
| KANZELHOHE | 20 | 1418 E | 1428 D | 10D | 2& | 4076 | N28 E22 | | | | | |
| HAWAII | 20 | 2212 | 2234 | 22 | 1 | 4073 | N29 E21 | 2216 | 136 | | | |
| HAWAII | 21 | 0002 | 0100 | 58 | 2 | 4073 | N28 E17 | 0022 | 258 | | | |
| ONDREJOV | 21 | 0633 | 0737 | 64 | 2 | 4065 | N30 E14 | 0659 | | | | S-SWF |
| CAPRI S | 21 | 0637 E | 0725 D | 48D | 2 | 4065 | N30 E10 | | 360 | | | |
| UTRECHT | 21 | 0712 E | 0721 | 9D | 2& | 4073 | N28 E26 | | | | | |
| ONDREJOV | 21 | 0726 E | 0737 | 11D | 1 | 4075 | N13 E70 | | | | | |
| ONDREJOV | 21 | 0748 | 0758 | 10 | 1& | 4075 | N13 E70 | 0751 | | | | |
| CAPRI S | 21 | 1203 | 1313 | 70 | 2 | 4073 | N30 E25 | | 350 | | | |
| ONDREJOV | 21 | 1205 | 1233 D | 28D | 1 | 4073 | N31 E24 | | | | | |
| KHARKOV | 21 | 1227 E | 1249 | 22D | 2 | 4073 | N29 E27 | | | | | |
| CAPRI S | 21 | 1240 E | 1327 D | 47D | 1 | 4075 | N13 E61 | | 107 | | | |
| KHARKOV | 21 | 1249 E | | | 2 | 4075 | N08 E66 | | | | | |
| ONDREJOV | 21 | 1250 E | 1302 D | 12D | 1 | 4075 | N13 E68 | | | | | |
| SAC PEAK | 21 | 1320 | 1440 | 80 | 2 | 4065 | N30 E10 | 1338 | 382 | 4 | 30 | |
| CAPRI S | 21 | 1321 | 1424 | 63 | 2 | 4065 | N30 E07 | | 282 | | | |
| ONDREJOV | 21 | 1322 | 1401 D | 39D | 2 | 4073 | N30 E10 | 1339 | | | | |
| KHARKOV | 21 | 1324 E | 1438 | 74D | 3 | 4073 | N28 E16 | | | | | |
| * MCMATH | 21 | 1330 E | 1410 D | 40D | 2 | 4065 | N22 W13 | | | | | S-SWF |
| * CAPRI S | 21 | 1407 | 1459 D | 52D | 1 | 4075 | N13 E60 | | 233 | | | S-SWF |
| SAC PEAK | 21 | 1740 | 1752 | 12 | 1 | 4065 | N21 W12 | 1745 | 108 | 6 | 22 | |
| HAWAII | 21 | 1816 | 1838 | 22 | 1 | 4073 | N29 E10 | 1822 | 180 | | | |
| SAC PEAK | 21 | 1817 | 1850 F | 32F | 1 | 4065 | N30 E11 | 1825 | 110 | 6 | 18 | |
| * HAWAII | 21 | 1920 | 1954 | 34 | 1 | 4075 | N10 E63 | 1932 | 224 | | | |
| * HAWAII | 21 | 1924 | 2018 | 54 | 2 | 4070 | S25 E14 | 1940 | 364 | | | |
| HAWAII | 21 | 1948 | 2050 | 62 | 2 | 4073 | N30 E08 | 2006 | 296 | | | |
| SAC PEAK | 21 | 2002 E | 2010 D | 8D | 1 | 4065 | N30 E10 | 2005 | 167 | 5 | 18 | G-SWF |
| HAWAII | 21 | 2032 | 2050 | 18 | 1 | 4075 | N10 E63 | 2034 | 306 | | | |
| HAWAII | 21 | 2134 | 2258 | 84 | 1& | 4073 | N30 E08 | 2144 | 194 | | | S-SWF |
| SAC PEAK | 21 | 2135 | 2255 F | 80F | 1& | 4065 | N31 E08 | 2143 | 222 | 3 | 18 | |
| KRASNYA | 22 | 0614 | 0640 | 26 | 2 | 4065 | N30 E03 | 0627 | | | | |
| ONDREJOV | 22 | 0616 E | 0700 | 44D | 2 | 4065 | N28 E03 | 0622 | | | | S-SWF |
| ONDREJOV | 22 | 0619 | 0624 | 5 | 1 | 4065 | N30 W07 | | | | | |
| ONDREJOV | 22 | 0623 E | 0628 | 5D | 1& | 4075 | N10 E52 | | | | | |
| UCCLE | 22 | 0624 | 0658 | 34 | 2 | 4065 | N30 W02 | | | | | |
| UCCLE | 22 | 0626 | 0636 | 10 | 2 | 4073 | N30 E25 | | | | | |
| SIMEIZ | 22 | 0630 | 0650 | 20 | 1 | | S23 E44 | | 221 | | | |
| SIMEIZ | 22 | 0630 | 0700 | 30 | 1 | 4071 | S39 W15 | | 221 | | | |
| ONDREJOV | 22 | 0720 E | 0752 D | 32D | 1& | 4066 | S10 W34 | | | | | |
| ONDREJOV | 22 | 0745 E | 0800 D | 15D | 1& | 4073 | N32 E26 | | | | | |
| CAPRI S | 22 | 1202 E | 1225 | 23D | 1 | 4070 | S22 E01 | | 112 | | | G-SWF |
| R O EDIN | 22 | 1300 E | 1505 | 125D | 1& | 4070 | S21 E09 | 1316 | 549 | | | |
| CAPRI S | 22 | 1305 E | 1425 | 80D | 2 | 4070 | S25 E06 | | 437 | | | S-SWF |
| R O HERST | 22 | 1309 E | 1317 D | 8D | 1 | 4070 | S22 E08 | 1315 U | 156 | | | |
| MEUDON | 22 | 1310 E | 1415 | 65D | 2 | 4070 | S22 E08 | | | | | |
| CAPRI S | 22 | 1332 E | 1339 | 7D | 1 | 4065 | N20 W23 | | 102 | | | |
| SAC PEAK | 22 | 1431 E | 1500 | 29D | 2U | 4070 | S23 E05 | 1431 E | 270 | 7 | 12 | |
| * R O EDIN | 22 | 1527 | 1539 D | 12D | 1 | 4070 | S22 W01 | | 165 | | | |
| SAC PEAK | 22 | 1648 | 1750 E | 62E | 1 | 4073 | N30 E17 | 1655 | 125 | 5 | 16 | |
| HAWAII | 22 | 1824 | 1832 | 8 | 1 | 4070 | S23 W02 | 1826 | 160 | | | |
| HAWAII | 22 | 2224 | 2236 | 12 | 1 | 4070 | S23 W04 | 2228 | 160 | | | |
| HAWAII | 22 | 2236 | 2240 | 4 | 1 | 4065 | N21 W27 | 2238 | 156 | | | |
| HAWAII | 22 | 2306 | 2322 D | 16D | 1 | 4070 | S23 W04 | 2308 | 185 | | | |
| HAWAII | 22 | 2310 | 2322 | 12 | 1 | 4073 | N30 W05 | 2316 | 190 | | | |
| HAWAII | 22 | 2338 | 0010 | 32 | 2& | 4073 | N31 W05 | 2344 | 608 | | | S-SWF |
| SIMEIZ | 23 | | | | | 4065 | N12 W20 | | | | | |
| HAWAII | 23 | 0040 | 0048 | 8 | 1 | 4073 | N32 E18 | 0044 | 160 | | | |
| SIMEIZ | 23 | 0820 | 0850 | 30 | 1& | 4065 | N16 W19 | 0822 | 524 | | | S-SWF |
| CAPRI S | 23 | 0850 E | 0942 | 52D | 1 | 4071 | S26 W04 | | 117 | | | S-SWF |
| CAPRI S | 23 | 0911 E | 0927 | 16D | 1 | 4075 | N15 E41 | | 141 | | | |
| USNRL | 23 | 1259 | | | 2 | 4070 | S25 E06 | | | | | |
| CAPRI S | 23 | 1340 | 1421 | 41 | 1 | 4075 | N15 E39 | | 126 | | | |
| MT WILSON | 23 | 1712 | 1842 D | 90D | 2 | 4070 | S25 W25 | | | | | |
| USNRL | 23 | 1805 | | | 2& | 4070 | S35 W22 | | | | | |

# SOLAR FLARES

## JULY 1957

| Observatory | Date July 1957 | Time Observed Start UT | Time Observed End UT | Duration Min. | Importance | McMath Plage Region Number | Approx. Position Lat. Mer. Dist. | Time Max. Phase UT | Total Area Mill. | Rel. Area of Max. | Max. Int. Arb. | Provis. Ionospheric Effect |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HAWAII | 24 | 0036 E | 0106 | 30D | 1 | 4070 | S23 W10 | 0040 | 170 | | | |
| SIMEIZ | 24 | 0629 | 0700 | 31 | 1& | 4065 | N21 W15 | 0633 | 349 | | | |
| CAPRI S | 24 | 0632 E | 0710 D | 38D | 1 | 4070 | S23 W21 | | 141 | | | |
| SIMEIZ | 24 | 0720 | 0733 | 13 | 1 | 4065 | N23 W15 | 0721 | 175 | | | |
| SIMEIZ | 24 | 0724 | 0805 | 41 | 1 | 4065 | N28 W33 | 0742 | 436 | | | |
| SIMEIZ | 24 | 0845 | 0910 | 25 | 2 | 4065 | N23 W14 | 0849 | 611 | | | |
| OTTAWA | 24 | 1239 | 1315 | 36 | 1& | 4065 | N22 W50 | 1242 | 188 | | | |
| CAPRI S | 24 | 1240 | 1310 | 30 | 1 | 4065 | N23 W52 | | 199 | | | |
| OTTAWA | 24 | 1438 | | | 2 | 4070 | S31 W22 | 1447 | 203 | | | |
| CAPRI S | 24 | 1440 | 1516 | 36 | 1 | 4070 | S22 W29 | | 122 | | | S-SWF |
| MCMATH | 24 | 1445 E | 1510 D | 25D | 1 | 4070 | S25 W25 | | | | | |
| MCMATH | 24 | 1740 E | 1930 D | 110D | 1 | 4070 | S25 W30 | | | | | |
| HAWAII | 24 | 1816 E | 2014 | 118D | 3 | 4070 | S24 W22 | 1828 | 1120 | | | S-SWF |
| HAWAII | 24 | 2324 | 2344 | 20 | 1 | 4065 | N18 W60 | 2328 | 306 | | | G-SWF |
| CAPRI S | 25 | 0700 E | 0738 D | 38D | 2 | 4065 | N31 W36 | | 350 | | | S-SWF |
| CAPRI S | 25 | 0802 E | 0920 D | 78D | 1 | 4073 | N31 W16 | | 122 | | | Slow S-SWF |
| OTTAWA | 25 | 1103 | 1152 | 49 | 1& | 4075 | N15 E09 | 1106 | 140 | | | |
| CAPRI S | 25 | 1225 E | 1313 D | 48D | 1 | 4073 | N32 W21 | | 112 | | | |
| * OTTAWA | 25 | 1246 | 1302 | 16 | 1 | 4075 | N10 E09 | 1250 | 95 | | | Slow S-SWF |
| OTTAWA | 25 | 1255 | 1320 | 25 | 1& | 4073 | N32 W22 | 1259 | 109 | | | |
| * OTTAWA | 25 | 1401 | 1426 | 25 | 1 | 4073 | N31 W20 | 1403 | 101 | | | |
| OTTAWA | 26 | 1417 | 1424 | 7 | 1 | 4082 | S28 E72 | 1419 | 202 | | | |
| CAPRI S | 26 | 1417 E | 1430 | 13D | 1 | 4082 | S30 E83 | | 165 | | | |
| HAWAII | 26 | 2132 | 2152 | 20 | 1 | 4075 | N11 W05 | 2146 | 204 | | | |
| HAWAII | 26 | 2226 | 2234 | 8 | 1 | 4075 | N20 W05 | 2226 | 160 | | | |
| CAPRI S | 27 | 0602 | 0629 | 27 | 1 | 4073 | N32 W42 | | 107 | | | |
| CAPRI S | 27 | 0631 | 0741 | 70 | 1 | 4075 | N10 W18 | | 170 | | | |
| CAPRI S | 27 | 0653 | 0808 | 75 | 2 | 4070 | S21 W61 | | 267 | | | |
| CRIMEA | 27 | 0655 | 0810 | 75 | 2 | 4070 | S37 W63 | | | | | S-SWF |
| NAPLES | 27 | 0706 E | 0800 | 54D | 2& | 4070 | S13 W43 | | | | | |
| UTRECHT | 27 | 0706 E | 0800 | 54D | 2& | 4070 | S13 W43 | | | | | |
| ARCETRI | 27 | 0708 | 0804 D | 56D | 2 | 4070 | S21 W60 | | | | | |
| SIMEIZ | 27 | 0819 | 0828 | 9 | 1 | 4067 | S32 W86 | 0820 | 131 | | | |
| * SAC PEAK | 27 | 1332 | 1342 | 10 | 1 | 4075 | N21 W11 | 1338 | 155 | 2 | 16 | G-SWF |
| CAPRI S | 27 | 1512 | 1547 D | 35D | 1 | 4075 | N22 W15 | | 112 | | | |
| CAPRI S | 27 | 1539 E | 1553 D | 14D | 1 | 4065 | N29 W70 | | 219 | | | |
| SAC PEAK | 27 | 2130 | 2135 D | 5D | 1 | 4075 | N09 W22 | 2135 D | 185 | 3 | 17 | |
| MCMATH | 27 | 2138 E | 2150 D | 12D | 1& | 4075 | N15 W20 | | | | | |
| MITAKA | 28 | 0027 E | 0052 D | 25D | 1 | 4075 | N11 W22 | 0046 | 198 | | | |
| MITAKA | 28 | 0027 E | 0056 D | 29D | 1& | 4075 | N11 W25 | 0039 | 301 | | | |
| SIMEIZ | 28 | 0705 | 0820 | 75 | 2 | 4081 | N10 E26 | 0712 | 873 | | | |
| CAPRI S | 28 | 1033 | 1105 D | 32D | 1 | 4082 | S28 E60 | | 141 | | | S-SWF |
| * KHARKOV | 28 | 1127 E | 1146 D | 19D | 2 | 4070 | S22 W72 | 1127 | | | | |
| OTTAWA | 28 | 1346 | 1453 | 7 | 3 | 4070 | S24 W75 | 1405 | 815 | | | |
| USNRL | 28 | 1347 | 1500 | 73 | 2 | 4070 | S21 W80 | 1400 | | | | |
| SAC PEAK | 28 | 1350 | 1432 | 42 | 1& | 4070 | S26 W90 | 1405 | 215 | 6 | 18 | |
| CAPRI S | 28 | 1359 E | 1413 D | 14D | 1 | 4070 | S23 W90 | | | | | |
| * OTTAWA | 28 | 1413 | | | 1 | 4065 | N33 W66 | | 179 | | | G-SWF |
| OTTAWA | 28 | 1508 | 1515 | 7 | 1 | 4083 | N26 E80 | 1510 | 169 | | | |
| ABASTUMANI | 29 | 0508 E | | | 2 | 4065 | N28 W86 | | | | | S-SWF |
| * ONDREJOV | 29 | 1424 E | 1431 D | 7D | 1& | 4081 | N10 E16 | | | | | |
| * MCMATH | 29 | 1425 E | | | 1 | 4081 | N15 E20 | | | | | |
| * HAWAII | 29 | 2122 | 2128 | 6 | 1 | 4075 | N11 W56 | 2124 | 238 | | | |
| SAC PEAK | 29 | 2325 | 2350 | 25 | 1 | 4075 | N14 W38 | 2330 | 135 | 9 | 15 | |
| HAWAII | 29 | 2328 | 2358 | 30 | 2 | 4075 | N18 W38 | 2332 | 360 | | | |
| SIMEIZ | 30 | 0710 | 0735 | 25 | 1 | 4084 | N15 E72 | 0725 | 131 | | | |
| SIMEIZ | 30 | 0820 | 0900 | 40 | 1 | | S31 E58 | 0822 | 349 | | | |
| * OTTAWA | 30 | 1417 | | | 1 | 4083 | N26 E61 | | 134 | | | |
| MCMATH | 30 | 1758 E | 1852 D | 54D | 1 | 4083 | N24 E60 | | | | | |
| MITAKA | 30 | 2315 E | 2327 | 12D | 1 | 4083 | N27 E60 | | 179 | | | |
| SAC PEAK | 30 | 2317 | 2337 D | 20D | 1 | 4083 | N25 E62 | 2320 | 148 | 4 | 20 | |
| * CAPRI S | 31 | 1033 | 1054 | 21 | 1 | 4075 | N15 W60 | | 165 | | | |
| OTTAWA | 31 | 1305 | 1310 | 5 | 1 | 4075 | N17 W74 | 1307 | 113 | | | |
| ONDREJOV | 31 | 1500 E | 1507 | 7D | 1 | 4082 | S31 E27 | 1502 | | | | |
| ONDREJOV | 31 | 1558 E | 1606 | 8D | 1 | 4082 | S31 E27 | 1559 | | | | |
| ONDREJOV | 31 | 1637 E | 1645 D | 8D | 1 | 4082 | S31 E27 | | | | | |
| HAWAII | 31 | 2224 | 2236 | 12 | 1& | 4088 | S23 E28 | 2230 | 393 | | | |

* Rated as importance 1- by other observatory(ies).

# SOLAR FLARES

Subflares noted as follows (Date, time (UT), coordinates):

S. Peak: unmarked  McMath: ++
Capri-S: +  Mitaka: *

July 01, 1205E (N12,E40)++
01, 1340 (S23,W85)
01, 1341E (S19,W85)+
01, 1402 (S17,E28)
01, 1420E (N10,W16)+
01, 2300 (N10,W26)
02, 0725 (N09,W27)+
02, 1433 (N14,E74)
02, 1440 (N10,W34)
02, 1513 (N10,W34)
02, 2132E (N12,W35)++
02, 2352 (N10,W40)
02, 2400 (S12,W15)
03, 1255 (N15,E32)+
03, 1255E (N14,E32)
03, 1255 (N13,E56)
03, 1355 (S29,E26)
03, 1350 (S10,W21)
03, 1400 (S10,W21)
03, 1410 (N07,E08)
03, 1410 (S10,W21)
03, 1417 (N11,E08)+
03, 1825E (S28,E13)
03, 1918 (N14,E27)
03, 2125 (S09,W24)
03, 2143 (N13,E26)
04, 1345E (S12,W31)
04, 1738 (N14,W58)
04, 1823 (N09,W07)
04, 1848 (N14,E40)
04, 2040E (S13,W33)
05, 1705 (S12,W47)
05, 1745 (N28,E80)
05, 1945E (N33,E89)
06, 0116E (N14,W18)*
06, 0133E (N15,W05)*
06, 1050 (N11,E21)+
06, 1125 (S10,W58)+
06, 1228 (N09,W32)+
06, 1410 (S24,E90)
06, 1827F (S11,W61)
06, 2150 (S30,W31)
07, 1410 (N11,W47)
07, 1440E (N20,W35)++
07, 1927 (N12,W50)
07, 2005 (N14,W36)
07, 2055F (N10,W49)
07, 2145F (N14,W01)
09, 1410 (N12,W78)

July 09, 1410 (N10,W80)+
09, 1518 (N15,W60)
09, 1520 (N12,W63)+
09, 1540 (N27,W56)
09, 1542 (N09,W82)
09, 1644E (N08,E70)++
09, 1746 (S30,W56)
09, 1903 (N09,W80)
09, 2047 (N16,W28)
09, 2135E (N13,W63)
10, 0948 (S11,W02)+
10, 1323E (S12,E14)
10, 1559 (S11,W10)+
10, 1559 (S11,E12)+
10, 1605E (S16,E16)
10, 1605E (S11,W12)
11, 1511E (S32,E40)+
11, 1516E (S14,E45)
12, 1510 (S10,W38)
12, 1702 (S17,W47)
14, 0914E (N25,E85)+
14, 1250 (N25,E83)+
14, 1630 (N25,E80)
14, 1655 (N27,E78)
15, 0706E (S31,W11)+
15, 1143 (S33,W14)+
15, 2308E (S35,W22)
16, 0838 (S32,E30)+
16, 1323 (N26,W85)
16, 1437 (N18,E43)
16, 1453 (S35,W31)
16, 1547 (N32,E76)
16, 1550 (S18,E12)
16, 1817 (S36,E27)
16, 2140 (S38,E26)
16, 2155E (S37,E39)
17, 1018 (N14,E13)+
17, 1230E (S21,E56)++
17, 1255 (N27,E36)
17, 1259E (N20,E40)++
17, 1313 (S26,W23)
17, 1328E (N20,E40)++
17, 1331E (S21,E56)++
17, 1635 (N28,E58)
17, 1915E (S21,E56)++
17, 2035 (N27,E34)
17, 2117 (S09,E27)
17, 2117 (S42,E42)
18, 1248 (N29,E24)+

July 18, 1256E (N27,E24)
18, 1427 (N32,E50)
18, 1500 (S20,E14)
18, 1508 (S10,E17)
18, 2025E (N20,E20)++
18, 2045E (N22,E13)
18, 2335 (N25,E33)
18, 2350 (S38,E00)
19, 1405E (N20,E10)++
20, 1806E (S32,W90)
20, 2034 (N10,E71)
20, 2130 (N10,E72)
20, 2157 (N29,E21)
21, 1055 (N13,E62)+
21, 1312E (N12,E67)
21, 1312E (N27,E26)
21, 1330 (N22,W14)
21, 1405 (N12,E65)
21, 1425 (S10,W27)
21, 1545 (N11,E63)
21, 1650 (S23,E11)
21, 1655 (S09,W29)
21, 1710 (N31,E32)
21, 1757 (N12,E64)
21, 1920 (N11,E62)
21, 1920 (S24,E17)
21, 2215E (N20,W15)
22, 0826 (S22,E02)+
22, 1029E (S14,W72)+
22, 1029E (S23,E07)+
22, 1230E (N30,W03)+
22, 1244 (S24,E08)+
22, 1431 (S14,W77)
22, 1515 (N13,W44)
22, 1520 (S23,W03)
22, 1535 (N20,W24)
22, 1540 (S13,W40)
22, 1545 (N31,E19)
22, 1655 (N21,W24)
22, 1707 (N14,W47)
23, 1105 (N33,W24)+
23, 1512 (S25,W14)
23, 1543 (N32,E06)
23, 1553 (N20,W37)
23, 1557 (N12,E90)
23, 1607 (N32,E07)
23, 1702 (S24,W15)
25, 0800E (N08,E06)+
25, 1118 (N10,E05)+

July 25, 1245 (N08,E07)+
25, 1401 (N31,W22)+
25, 1615E (S22,W35)
26, 1209 (N24,W72)+
26, 1214 (N11,W05)+
26, 1355 (N15,E13)
26, 1415 (S31,E82)
26, 1505 (S31,W50)
26, 1514 (S28,W51)+
26, 1557 (S21,W48)
26, 1622 (N12,W90)
26, 1835 (S33,E90)
26, 1840 (N32,W35)
26, 2113 (S24,W54)
27, 0611 (S19,W60)+
27, 1320 (S18,W58)
27, 1321E (S15,W60)+
27, 1334 (N21,W17)+
27, 1400 (N21,W11)
27, 1428 (N22,W12)
27, 1737 (S23,W63)
28, 0013E (N31,W52)*
28, 1125 (S22,W75)+
28, 1300 (N22,W22)
28, 1415 (N34,W74)
28, 1525 (N29,W85)
28, 1647 (N09,W29)
28, 1650 (N10,W35)
28, 1730 (S36,E66)
28, 2010E (N29,W85)
28, 2010E (N24,E85)
29, 1116 (S28,E30)+
29, 1310 (N09,W54)
29, 1323 (N09,W54)
29, 1325 (S32,E47)
29, 1420 (N12,E16)
29, 1532 (N13,W49)
29, 1615 (S27,E25)
29, 1737 (N15,W49)
29, 1800 (N10,W57)
29, 1800 (S23,E26)
29, 1912 (N10,W57)
29, 1920 (N10,E13)
29, 1927 (N09,W59)
29, 1930 (S31,E26)
29, 2017 (N10,W57)
29, 2118 (N09,W59)
29, 2205 (N10,W60)
29, 2243 (S32,E25)
30, 1418 (N24,E67)
30, 1426E (N24,E60)++
30, 1453 (N16,W59)
30, 1512 (N16,W59)
30, 2245E (N14,W67)

# SOLAR FLARES

## July 1957

| OBSERVATORY | DATE July 1957 | OBSERVED UNIVERSAL TIME | | | LOCATION | | | DURATION — MINUTES | IMPORTANCE | OBS. COND. | MEASUREMENTS | | | | | PROVISIONAL IONOSPHERIC EFFECT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | START | END | MAX. PHASE | APPROX. LAT. | APPROX. MER. DIST. | McMATH PLAGE REGION | | | | TIME — U T | MEAS. AREA Sq. Deg. | CORR. AREA Sq. Deg. | MAX. WIDTH Hα | MAX. INT. % | |
| TASHKENT | 01 | 0311 E | 0436 | 0315 U | N11 | E49 | 4046 | 85 D | 1 | | | 4.96 | | 2.70 | 190 | |
| TASHKENT | 01 | 0332 E | 0359 | | S11 | E16 | 4043 | 27 D | 1 | | | 5.31 | | 2.10 | 210 | |
| TASHKENT | 01 | 0408 E | 0452 | 0415 U | S19 | W76 | 4030 | 44 D | 1 | | | 1.42 | | 3.30 | 290 | Slow S-SWF |
| SIMEIZ | 01 | 0614 | 0620 | 0616 U | S30 | E55 | 4044 | 6 | 1 | | | 1.30 | | | 190 | |
| KIEV | 01 | 1101 E | | | N14 | E52 | 4046 | | 1 | | | 1.20 | | | 200 | |
| ZURICH | 01 | 1403 E | 1407 | | S18 | E27 | 4045 | 4 D | 1 | 3 | 1403 | | 1.00 | | | |
| ZURICH | 01 | 1410 E | 1438 | 1412 | N09 | W17 | 4039 | 28 D | 1 | 3 | 1412 | | 6.00 | | | |
| TASHKENT | 02 | 0514 | 0606 | 0521 U | S12 | E15 | 4045 | 52 | 1 | | | .71 | | 1.30 | 300 | |
| TASHKENT | 02 | 0556 E | 0612 | 0558 U | N09 | W26 | 4039 | 16 D | 1 | | | 3.89 | | 2.10 | 200 | |
| SIMEIZ | 02 | 0708 | 0740 | 0711 | S29 | E34 | 4044 | 32 | 1 | | | 3.60 | | 2.30 | 200 | S-SWF |
| NIZMIR | 02 | 0744 E | 0805 D | 0803 U | S31 | E29 | 4044 | 21 D | 1 | | | 2.70 | | | 240 | |
| SIMEIZ | 02 | 0750 | 0800 | 0751 | N10 | W34 | 4039 | 10 | 1 | | | 1.75 | | 2.00 | 200 | |
| SIMEIZ | 02 | 0822 E | 0826 D | 0824 U | N10 | W30 | 4039 | 4 | 1& | | | 6.00 | | | 220 | |
| SIMEIZ | 02 | 0829 E | 0830 D | | S25 | W90 | 4030 | 1 D | 1 | | | 1.20 | | | 200 | |
| SIMEIZ | 02 | 0839 E | 0929 D | 0918 U | N09 | W31 | 4039 | 50 D | 1& | | | 4.50 | | | 300 | |
| KIEV | 02 | 1018 E | 1025 D | 1019 U | N13 | E38 | 4046 | 7 D | 1 | | | 2.00 | | | 200 | |
| KIEV | 02 | 1027 E | 1032 D | | S10 | W17 | 4041 | 5 D | 2 | | | 2.55 | | | 300 | |
| KIEV | 02 | 1032 E | 1034 D | 1032 U | S14 | W15 | 4041 | 2 D | 1& | | | 3.10 | | | 230 | |
| KIEV | 02 | 1110 E | 1120 D | 1110 U | N11 | E41 | 4046 | 10 D | 1 | | | 1.10 | | | 210 | S-SWF |
| KIEV | 02 | 1132 E | 1135 D | | N12 | E39 | 4046 | 3 D | 1& | | | 2.04 | | 1.70 | | |
| KIEV | 02 | 1211 E | 1229 D | | N07 | E42 | 4046 | 18 D | 1 | | | 2.04 | | 1.82 | 120 | |
| SYDNEY | 02 | 2327 | 2338 | 2329 | N15 | E70 | | 11 | 1 | 3 | 2329 | 2.00 | 5.00 | | | |
| SYDNEY | 03 | 0007 | 0028 | 0014 | N10 | W40 | 4039 | 21 | 1 | 3 | 0014 | 2.00 | 2.00 | | | |
| SYDNEY | 03 | 0120 | 0131 | 0125 | S11 | W14 | 4043 | 11 | 1 | 3 | 0125 | 3.00 | 3.00 | | | |
| SYDNEY | 03 | 0254 | 0400 | 0321 | N14 | E65 | 4048 | 66 | 2 | 3 | 0321 | 3.00 | 5.00 | | | |
| ZURICH | 03 | 0728 | 0832 | 0740 | N13 | W41 | 4039 | 64 | 2 | 3 | 0740 | | 25.00 | 1.90 | | S-SWF |
| SIMEIZ | 03 | 0731 | 0742 | 0732 | S17 | E07 | 4045 | 11 | 1 | | | 1.75 | | | 160 | |
| ZURICH | 03 | 0836 E | 1005 | 0838 | N09 | W41 | 4039 | 89 D | 2 | 3 | 0838 | | 5.00 | 6.00 | | |
| KHARKOV | 03 | 0842 E | 1110 | 1050 U | N11 | W39 | 4039 | 148 D | 2 | | | 7.00 | | | | S-SWF |
| ZURICH | 03 | 1350 | 1355 | 1350 | S10 | W19 | 4043 | 5 | 1 | 3 | 1350 | | 1.00 | | | |
| SYDNEY | 04 | 0031 | 0042 | 0032 | N14 | E26 | 4046 | 11 | 1 | 2 | 0032 | 2.00 | 2.00 | | | |
| SYDNEY | 04 | 0427 | 0444 D | 0430 | S14 | W21 | 4043 | 17 | 1 | 2 | 0430 | 2.00 | 3.00 | | | |
| TASHKENT | 04 | 0427 | 0448 | 0431 U | S12 | W24 | 4043 | 21 | 1 | | | 3.19 | | 2.70 | 230 | |
| SIMEIZ | 04 | 0718 | 0743 | 0720 | N10 | W01 | 4046 | 25 | 1 | | | 3.00 | | 2.30 | 210 | S-SWF |
| ZURICH | 04 | 0732 E | 0737 | | N08 | W02 | 4046 | 5 D | 1 | 3 | 0732 | | 5.00 | 1.50 | | |
| MOSCOW | 04 | 1040 E | 1134 D | 1047 U | S13 | W25 | 4043 | 54 D | 1 | | | 2.55 | | 1.45 | 150 | |
| MOSCOW | 04 | 1134 E | 1154 D | | N12 | E39 | 4048 | 20 D | 3 | | | 22.93 | | 1.70 | 150 | |
| ABASTUMANI | 06 | 0549 | 0643 | 0619 | S11 | W55 | 4043 | 54 | 1& | | | 3.15 | | | 312 | |
| SIMEIZ | 06 | 0617 | 0638 | 0624 | S08 | W56 | 4043 | 21 | 1 | | | 1.30 | | 2.40 | 250 | |
| MOSCOW | 06 | 1031 E | 1036 D | | S13 | W85 | 4043 | 5 D | 1 | | | | | | | |
| MOSCOW | 06 | 1031 E | 1205 D | 1036 U | S19 | E69 | 4051 | 94 D | 1& | | | 4.08 | | 1.20 | 150 | |
| MOSCOW | 06 | 1207 E | 1213 D | | N05 | W32 | 4046 | 6 D | 1 | | | 1.53 | | 1.60 | 120 | |
| KIEV | 06 | 1240 E | 1301 D | 1250 U | N12 | W33 | 4046 | 21 D | 1 | | | 1.70 | | | 240 | |
| TASHKENT | 07 | 0458 E | 0512 | | N11 | W41 | 4046 | 14 D | 1 | | | 5.31 | | 1.60 | 230 | |
| MOSCOW | 07 | 0952 E | 1315 D | 1203 U | N13 | W42 | 4046 | 203 D | 2& | | | 15.00 | | 2.20 | | |
| MOSCOW | 07 | 0957 E | 1248 D | 1203 U | N26 | W40 | 4046 | 171 D | 2 | | | 7.64 | | 1.37 | | |
| ZURICH | 07 | 1022 E | 1034 | | S11 | W68 | 4043 | 12 D | 1 | 3 | 1024 | | 5.00 | 1.70 | | |
| ZURICH | 07 | 1022 E | 1038 | | N10 | W43 | 4046 | 16 D | 1 | 3 | 1025 | | 2.00 | | | |
| MOSCOW | 07 | 1138 E | 1155 D | | N31 | W44 | 4046 | 17 D | 1 | | | | | 1.60 | 120 | |
| | | | | | | | | | | | | | | PAGE | 1 | |

COMMERCE - STANDARDS - BOULDER

E - LESS THAN
D - GREATER THAN
U - APPROXIMATE
& - PLUS
- - MINUS

These flare reports are addenda to the July 1957 flares published in CRPL-F 156 Part B, August 1957.

# SOLAR FLARES

July 1957

| OBSERVATORY | DATE July 1957 | OBSERVED UNIVERSAL TIME START | END | MAX. PHASE | LOCATION APPROX. LAT. | MER. DIST. | McMATH PLAGE REGION | DURATION — MINUTES | IMPORTANCE | OBS. COND. | MEASUREMENTS TIME — U T | MEAS. AREA Sq. Deg. | CORR. AREA Sq. Deg. | MAX. WIDTH Hα | MAX. INT. % | PROVISIONAL IONOSPHERIC EFFECT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| KIEV* | 07 | 1159 E | 1228 D | | N08 | W45 | 4046 | 29 D | 1& | | | 1.15 | | | | |
| KIEV | 07 | 1206 | 1235 | 1215 U | N09 | W44 | 4046 | 29 | 2 | | | 4.90 | | | 370 | |
| MOSCOW | 07 | 1302 E | 1333 D | | S38 | W55 | 4044 | 31 D | 2 | | | 11.20 | | 2.70 | 160 | |
| KIEV* | 07 | 1301 E | 1313 D | | S33 | W31 | 4044 | 12 D | 1 | | | 1.97 | | | | |
| KIEV* | 07 | 1303 E | 1348 D | | S35 | W41 | 4044 | 45 D | 1& | | | 2.95 | | | | |
| KIEV | 07 | 1306 | 1326 D | 1308 U | S30 | W32 | 4044 | 20 D | 2 | | | 3.10 | | | 370 | Slow S-SWF |
| KIEV | 07 | 1306 | 1326 D | 1312 U | S29 | W38 | 4044 | 20 D | 2 | | | 4.70 | | | 370 | |
| MOSCOW | 07 | 1306 E | 1333 D | | S38 | W43 | 4044 | 27 D | 1& | | | 3.57 | | 2.70 | 150 | |
| KIEV* | 07 | 1314 E | 1343 D | | S32 | W39 | 4044 | 29 D | 1 | | | 1.58 | | | | |
| TASHKENT | 08 | 0411 E | 0445 | 0426 U | N10 | W53 | 4046 | 34 D | 1 | | | 5.31 | | 2.60 | 220 | S-SWF |
| TASHKENT | 08 | 0525 | 0643 D | 0537 U | N13 | W42 | 4046 | 78 D | 2& | | | 11.68 | | 4.50 | 560 | S-SWF |
| SIMEIZ | 08 | 0551 E | | | N15 | W41 | 4046 | | | | | 3.92 | | | 220 | |
| MOSCOW | 08 | 0915 E | 1153 D | | S30 | W38 | 4044 | 158 D | 1& | | | 11.21 | | 1.95 | 150 | |
| KHARKOV | 08 | 0915 | 1015 D | 0920 U | N12 | W57 | 4046 | 60 D | 2 | | | 6.00 | | | | |
| MOSCOW | 08 | 0917 E | 1148 D | | N11 | W50 | 4046 | 151 D | 1& | | | 9.17 | | 1.20 | 140 | S-SWF |
| ZURICH | 08 | 0938 E | 0942 | | N10 | W55 | 4046 | 4 D | 1 | 3 | 0938 | | 5.00 | 1.60 | | |
| TASHKENT | 09 | 0257 E | 0402 | 0344 U | N14 | W53 | 4046 | 65 D | 1 | | | 3.54 | | 3.00 | | |
| TASHKENT | 09 | 0512 | 0527 | 0514 U | N11 | W66 | 4046 | 15 | 1 | | | 2.12 | | 1.80 | | |
| ABASTUMANI | 09 | 0645 E | 0816 D | | N12 | E74 | 4059 | 91 D | 1& | | | 1.03 | | .60 | 175 | Slow S-SWF |
| SIMEIZ | 09 | 0724 | 0734 | 0727 | N11 | W74 | 4046 | 10 | 1 | | | 1.30 | | 2.40 | 140 | |
| NIZMIR | 09 | 0935 E | 0940 D | | N14 | W74 | 4046 | 5 D | 1 | | | 1.00 | | | 200 | |
| KHARKOV | 09 | 1006 | 1035 D | | S29 | W58 | 4044 | 29 D | 1 | | | 2.00 | | | | |
| MOSCOW | 09 | 1032 E | 1200 D | | N06 | W62 | 4046 | 88 D | 1 | | | 2.55 | | 2.40 | | |
| MOSCOW | 09 | 1036 E | 1200 D | 1059 U | N04 | E78 | 4059 | 84 D | 1& | | | 4.59 | | 2.30 | 140 | |
| MOSCOW | 09 | 1145 E | 1200 D | | S14 | E10 | 4051 | 15 D | 2 | | | 11.72 | | 1.90 | | |
| SYDNEY | 10 | 0131 | 0200 | 0135 | N11 | W82 | 4046 | 29 | 1 | 2 | 0135 | 1.00 | 4.00 | | | |
| TASHKENT | 10 | 0152 | 0240 | 0157 U | N25 | W59 | 4046 | 48 | 1 | | | 5.31 | | 1.70 | | |
| ABASTUMANI | 10 | 0600 E | 0725 | | N14 | W35 | 4048 | 85 D | 1& | | | 3.50 | | | 165 | |
| SIMEIZ | 10 | 0613 E | | | N14 | W37 | 4048 | | 1 | | | 2.24 | | 2.00 | | |
| ABASTUMANI | 10 | 0612 | 0725 | 0617 | N15 | W64 | 4046 | 73 | 1& | | | 4.40 | | 1.30 | | |
| SIMEIZ | 10 | 0615 E | | | N14 | W70 | 4046 | | 1 | | | 2.80 | | 2.00 | | |
| KIEV* | 10 | 1245 E | 1251 | | S13 | E14 | 4052 | 6 D | 1 | | | | | | | |
| KIEV | 10 | 1245 | 1317 | 1250 U | S13 | E14 | 4052 | 22 | 1& | | | 5.20 | | | 210 | |
| R O EDIN | 10 | 1421 | 1435 | 1427 | S30 | W71 | 4044 | 14 | 1 | | | 16.60 | | | | |
| ZURICH | 12 | 1345 E | 1409 D | | S33 | E26 | 4061 | 24 D | 1 | 3 | 1345 | | 4.00 | | | |
| ABASTUMANI | 13 | 0448 E | 0800 D | | S32 | E19 | 4061 | 192 D | 1 | | | 1.61 | | 1.40 | 225 | |
| SIMEIZ | 13 | 0703 E | 0719 D | 0712 U | N28 | E90 | 4065 | 16 D | 1& | | | 1.12 | | 4.10 | | |
| KHARKOV | 13 | 0901 E | 0923 D | 0927 U | N33 | E87 | 4065 | 22 D | 1 | | | | | | | |
| KIEV | 13 | 1210 | 1300 D | 1213 U | S35 | E14 | 4061 | 50 D | 1 | | | 1.60 | | | 230 | |
| ABASTUMANI | 14 | 0649 E | 0817 D | | S33 | E06 | 4061 | 88 D | 1& | | | 1.50 | | | 200 | |
| ABASTUMANI | 14 | 0653 | 0817 D | 0719 | N31 | E85 | 4065 | 84 D | 1& | | | 4.84 | | | 175 | |
| NIZMIR | 15 | 0708 E | 0716 D | 0710 U | S32 | W17 | 4061 | 8 D | 1 | | | 1.10 | | | 260 | |
| MOSCOW | 15 | 0713 E | 0727 D | | S36 | W11 | 4061 | 14 D | 1 | | | 1.02 | | 1.40 | | |
| KIEV | 15 | 1144 | 1200 | 1148 U | S34 | W16 | 4061 | 16 | 2 | | | 2.90 | | | 480 | |
| KIEV * | 15 | 1145 E | 1150 D | 1146 U | S33 | W14 | 4061 | 5 D | 1 | | | 1.14 | | | | |
| KIEV | 15 | 1147 | 1200 | 1151 U | S34 | W10 | 4061 | 13 | 1& | | | 2.20 | | | 280 | |
| NIZMIR | 16 | 0636 E | 0713 D | | N34 | E61 | 4065 | 37 D | 1& | | | 7.00 | | | 290 | |

# SOLAR FLARES

July 1957

| OBSERVATORY | DATE July 1957 | OBSERVED UNIVERSAL TIME START | END | MAX. PHASE | LOCATION APPROX. LAT. | MER. DIST. | McMATH PLAGE REGION | DURATION — MINUTES | IMPORTANCE | OBS. COND. | MEASUREMENTS TIME — U T | MEAS. AREA Sq. Deg. | CORR. AREA Sq. Deg. | MAX. WIDTH Hα | MAX. INT. % | PROVISIONAL IONOSPHERIC EFFECT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SIMEIZ | 16 | 0733 E | 0816 D | | N32 | E85 | 4065 | 43 D | 1& | | | 2.62 | | 4.10 | 180 | |
| NIZMIR | 16 | 0734 E | 0810 D | 0757 U | N33 | E84 | 4065 | 36 D | 1& | | | 1.40 | | | 310 | Slow S-SWF |
| MOSCOW | 16 | 0747 E | 0845 D | | N30 | E80 | 4065 | 58 D | 1 | | | 1.53 | | 3.67 | 230 | |
| MOSCOW | 16 | 0809 E | 1045 D | | N26 | W75 | 4068 | 156 D | 1& | | | 2.04 | | 1.66 | 140 | |
| NIZMIR | 16 | 0836 E | 0851 D | 0842 U | S34 | E31 | 4067 | 15 D | 1 | | | 1.40 | | | 220 | |
| SIMEIZ | 16 | 0837 E | 0856 D | | S37 | E33 | 4067 | 19 D | 1 | | | 2.18 | | 2.00 | 140 | |
| MOSCOW | 16 | 1201 E | 1213 D | | S42 | E60 | 4071 | 12 D | 1 | | | 1.53 | | 3.01 | 130 | |
| SYDNEY | 17 | 0058 | 0108 | 0101 | N26 | E50 | 4065 | 10 | 1 | 3 | 0101 | 1.50 | 2.00 | | | |
| SYDNEY | 17 | 0112 | 0142 | 0117 | N12 | E31 | 4065 | 30 | 1 | 3 | 0117 | 4.00 | 5.00 | | | |
| SYDNEY | 17 | 0345 | 0356 | 0350 | N30 | E72 | 4065 | 11 | 1 | 3 | 0350 | 1.00 | 2.00 | | | |
| TASHKENT | 17 | 0546 E | 0556 | | S36 | E21 | 4067 | 10 D | 1 | | | 3.54 | | 2.60 | 180 | |
| NIZMIR | 17 | 0658 | 0713 | 0702 | S23 | E53 | 4070 | 15 | 1 | | | 2.40 | | | 300 | |
| ABASTUMANI | 17 | 0700 | 0755 D | 0702 | S20 | E53 | 4070 | 55 D | 1& | | | 5.24 | | | 260 | |
| NIZMIR | 17 | 0702 | 0717 | 0711 | S34 | W35 | 4061 | 15 | 1 | | | 4.45 | | | 200 | |
| NIZMIR | 17 | 0833 | 0838 | 0834 | S38 | E22 | 4067 | 5 | 1& | | | 2.00 | | | 330 | |
| MOSCOW | 17 | 0836 E | 1329 | | S39 | E22 | 4067 | 293 D | 1& | | | 5.10 | | 3.76 | | |
| KHARKOV | 17 | 1021 E | 1036 | | N10 | E15 | 4077 | 15 D | 1 | | | 3.00 | | | | |
| SYDNEY | 18 | 0039 | 0045 | 0040 | S48 | E39 | 4071 | 6 | 1 | 3 | 0040 | 1.00 | 2.00 | | | |
| SYDNEY | 18 | 0336 | 0413 | 0343 | N23 | E30 | 4065 | 37 | 1 | 1 | 0343 | 2.00 | 3.00 | | | |
| TASHKENT | 18 | 0340 | 0408 | 0345 U | N24 | E28 | 4065 | 28 | 1& | | | 7.43 | | 2.40 | 270 | |
| ABASTUMANI | 18 | 0500 E | 0800 | 0512 U | S37 | E12 | 4067 | 180 D | 2 | | | 2.18 | | 1.50 | 350 | |
| TASHKENT | 18 | 0541 E | 0550 D | | S35 | E09 | 4067 | 9 D | 1 | | | 4.25 | | 2.40 | 270 | |
| MOSCOW | 18 | 0732 E | 1056 | | S38 | E11 | 4067 | 204 D | 1& | | | 2.55 | | 4.38 | 200 | |
| NIZMIR | 18 | 0734 E | 0740 | 0734 U | S33 | E22 | 4067 | 6 D | 1 | | | 2.35 | | | 230 | |
| SIMEIZ | 18 | 0735 E | 0739 D | | S33 | E08 | 4067 | 4 D | 1 | | | 1.68 | | 2.40 | | |
| MOSCOW | 18 | 0852 E | 1134 D | 0916 U | S09 | E19 | 4066 | 162 D | 2& | | | 15.29 | | 3.20 | 150 | |
| KHARKOV | 18 | 0931 | 0948 D | | S32 | E05 | 4067 | 17 D | 1 | | | | | | | |
| MOSCOW | 18 | 0934 E | 1027 D | | S35 | E10 | 4067 | 53 D | 1 | | | 1.53 | | 3.01 | 130 | |
| KHARKOV | 18 | 1107 E | | | S38 | E04 | 4067 | | 1& | | | | | | | |
| KIEV * | 18 | 1249 E | 1259 D | 1251 U | N26 | E23 | 4065 | 10 D | 1& | | | 4.00 | | | | |
| KIEV | 18 | 1249 E | 1312 | 1252 U | N27 | E24 | 4065 | 23 D | 2- | | | 3.00 | | | 300 | G-SWF |
| MOSCOW | 18 | 1302 E | 1312 D | | N26 | E24 | 4065 | 10 D | 1 | | | 1.77 | | 3.27 | 200 | |
| SYDNEY | 18 | 2313 E | 0030 | | S22 | E25 | 4070 | 77 D | 1 | 3 | 2314 | 4.00 | 5.00 | | | |
| SIMEIZ | 19 | 0827 E | 0830 D | 0828 U | S32 | W68 | 4061 | 3 D | 1 | | | .87 | | 1.70 | 140 | |
| MOSCOW | 19 | 0849 E | 0909 | | N28 | E38 | 4065 | 20 D | 1 | | | 1.02 | | 2.18 | | |
| KIEV | 19 | 1130 E | 1138 | 1130 U | S42 | E24 | 4071 | 8 D | 1 | | | 2.20 | | | 210 | |
| KIEV | 19 | 1200 E | 1208 D | 1201 U | S37 | W05 | 4067 | 8 D | 1& | | | 3.20 | | | 230 | |
| KIEV | 19 | 1223 | 1240 | 1230 U | N29 | E37 | 4065 | 17 | 1 | | | 1.50 | | | 190 | |
| TASHKENT | 20 | 0412 | 0456 | 0415 U | N30 | E26 | 4065 | 44 | 1 | | | 4.25 | | 1.60 | | |
| ABASTUMANI | 20 | 0458 E | 0803 D | | N31 | E29 | 4065 | 185 D | 1& | | | 3.00 | | 1.60 | 156 | |
| SIMEIZ | 20 | 0645 | 0650 | 0646 | N28 | E02 | 4065 | 5 | 1 | | | 1.30 | | 2.00 | 180 | |
| NIZMIR | 20 | 0808 | 0827 | 0811 | N30 | E28 | 4065 | 19 | 1 | | | .60 | | | 320 | |
| MOSCOW | 20 | 0949 E | 1001 D | | N13 | E76 | 4075 | 12 D | 1 | | | 1.02 | | 3.78 | | |
| MOSCOW | 20 | 1042 E | 1046 D | | N32 | E25 | 4065 | 4 D | 1 | | | .51 | | 4.13 | | |
| MOSCOW | 20 | 1413 E | 1501 D | | N31 | E24 | 4065 | 48 D | 1& | | | 5.09 | | 3.11 | 270 | Slow S-SWF |
| TASHKENT | 21 | 0325 | 0355 | 0328 U | N31 | E17 | 4065 | 30 | 1& | | | 8.85 | | 3.20 | | |
| TASHKENT | 21 | 0329 E | 0357 | | N12 | E69 | 4075 | 28 D | 1 | | | 4.24 | | 3.30 | | |
| TASHKENT | 21 | 0337 E | 0351 D | | S24 | E19 | 4070 | 14 D | 1 | | | 3.89 | | 2.10 | | |
| SIMEIZ | 21 | 0633 | 0740 | 0658 U | N32 | E16 | 4065 | 67 | 2 | | | 4.36 | | 4.30 | 220 | |



COMMERCE - STANDARDS - BOULDER

# SOLAR FLARES

July 1957

| OBSERVATORY | DATE July 1957 | OBSERVED UNIVERSAL TIME START | END | MAX. PHASE | LOCATION APPROX. LAT. | MER. DIST. | McMATH PLAGE REGION | DURATION — MINUTES | IMPORTANCE | OBS. COND. | MEASUREMENTS TIME — U T | MEAS. AREA Sq. Deg. | CORR. AREA Sq. Deg. | MAX. WIDTH Hc | MAX. INT. % | PROVISIONAL IONOSPHERIC EFFECT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ABASTUMANI | 21 | 0633 | 0750 | 0700 | N32 | E14 | 4065 | 77 | 2& | | | 7.86 | | 1.50 | 557 | S-SWF |
| NIZMIR | 21 | 0636 E | 0718 | 0639 U | N30 | E18 | 4065 | 42 D | 1& | | | 2.60 | | | 340 | |
| MOSCOW | 21 | 0707 E | 0756 D | | N28 | E18 | 4065 | 49 D | 2& | | | 12.74 | | 2.90 | | |
| ABASTUMANI | 21 | 0722 | 0801 D | 0750 | N16 | E70 | 4075 | 39 D | 1& | | | 1.75 | | 1.70 | 388 | |
| NIZMIR | 21 | 0727 | 0803 | 0752 | N10 | E70 | 4075 | 36 | 1 | | | 2.20 | | | 250 | |
| MOSCOW | 21 | 0738 E | 1259 D | | N12 | E64 | 4075 | 321 D | 2 | | | 5.09 | | 4.54 | 170 | |
| SIMEIZ | 21 | 0748 | 0800 | 0751 | N12 | E70 | 4075 | 12 | 1& | | | 1.75 | | 4.30 | 190 | |
| MOSCOW | 21 | 0903 E | 1200 D | | N31 | E36 | 4073 | 177 D | 1 | | | 1.02 | | 1.00 | 150 | |
| MOSCOW | 21 | 1208 E | 1302 D | | N33 | E29 | 4073 | 54 D | 1& | | | 5.10 | | 3.03 | 150 | |
| CLIMAX | 21 | 1737 | 1750 | 1740 | N22 | W12 | 4065 | 13 | 1 | | 1740 | 3.80 | | | | |
| SYDNEY | 22 | 0128 | 0214 | 0149 | N22 | W19 | 4065 | 46 | 1 | 3 | 0149 | 2.00 | 2.00 | | | |
| TASHKENT | 22 | 0152 E | 0209 | | N24 | W19 | 4065 | 17 D | 1 | | | 2.12 | | 2.00 | 200 | |
| SYDNEY | 22 | 0201 | 0228 D | 0206 | N30 | E09 | 4073 | 27 D | 1 | 2 | 0206 | 3.00 | 3.00 | | | |
| TASHKENT | 22 | 0204 | 0229 | 0206 U | N31 | W01 | 4065 | 25 | 1& | | | 4.25 | | 2.80 | 420 | S-SWF |
| SYDNEY | 22 | 0209 | 0304 | 0213 | N10 | E55 | 4075 | 55 | 1 | 3 | 0213 | 2.00 | 4.00 | | | |
| TASHKENT | 22 | 0210 E | 0224 D | | N11 | E54 | 4075 | 14 D | 1 | | | 3.19 | | 2.30 | 240 | |
| SYDNEY | 22 | 0212 | 0252 | 0218 | N21 | W19 | 4065 | 40 | 1 | 3 | 0218 | 4.00 | 4.00 | | | |
| TASHKENT | 22 | 0245 | 0248 | | S09 | W33 | 4066 | 3 | 1 | | | 2.12 | | 3.70 | | |
| TASHKENT | 22 | 0505 | 0526 | 0509 U | N12 | E52 | 4075 | 21 | 1 | | | 5.31 | | 2.60 | 230 | |
| TASHKENT | 22 | 0603 | 0613 | | N21 | W21 | 4065 | 10 | 1 | | | 2.48 | | 2.40 | | |
| NIZMIR | 22 | 0606 E | 0709 | 0625 | N30 | E04 | 4065 | 63 D | 1& | | | 1.55 | | | 300 | |
| SIMEIZ | 22 | 0619 | 0625 | 0621 | N32 | W07 | 4065 | 6 | 1 | | | 1.75 | | 1.90 | 160 | S-SWF |
| SIMEIZ | 22 | 0620 | 0636 | 0622 U | N13 | E54 | 4075 | 16 | 1 | | | 2.62 | | | 190 | |
| TASHKENT | 22 | 0625 E | 0706 | 0629 U | N30 | W04 | 4065 | 41 D | 2 | | | 8.85 | | 3.40 | 540 | |
| SIMEIZ | 22 | 0717 | 0702 | 0625 | N30 | E03 | 4065 | 45 | 1& | | | 5.24 | | 2.50 | | |
| NIZMIR | 22 | 0751 E | 0818 | 0758 | N30 | E25 | 4073 | 27 D | 1 | | | 1.30 | | | 150 | |
| NIZMIR | 22 | 0824 | 0834 | 0826 | N30 | E04 | 4065 | 10 | 1 | | | 1.55 | | | 250 | |
| SIMEIZ | 22 | 0826 | 0840 | 0827 U | S24 | E03 | 4070 | 14 | 1 | | | 1.75 | | 2.20 | 170 | |
| MOSCOW | 22 | 0856 E | 1141 D | | N30 | E23 | 4073 | 165 D | 1 | | | 2.04 | | 3.67 | | |
| MOSCOW | 22 | 0943 E | 1127 D | | N23 | W25 | 4065 | 105 D | 1 | | | 1.02 | | 2.94 | | |
| NIZMIR | 22 | 0946 E | 1008 D | 0952 | N30 | E25 | 4073 | 22 D | 1 | | | 1.05 | | | 220 | |
| MOSCOW | 22 | 0952 E | 1149 D | | N15 | E51 | 4075 | 117 D | 3 | | | 35.67 | | 2.37 | 200 | |
| MOSCOW | 22 | 1011 E | 1022 D | | S06 | W38 | 4066 | 11 D | 1& | | | 4.59 | | 2.52 | | |
| MOSCOW | 22 | 1030 E | 1459 D | | S21 | E08 | 4070 | 269 D | 2& | | | 12.74 | | 3.18 | 300 | |
| MOSCOW | 22 | 1114 E | 1120 D | | N31 | E22 | 4073 | 6 D | 2 | | | 5.10 | | 4.12 | | |
| MOSCOW | 22 | 1129 E | | | N30 | W14 | 4065 | | 1& | | | 4.08 | | 2.01 | | |
| KIEV | 22 | 1207 E | 1217 D | 1209 U | S23 | W00 | 4070 | 10 D | 2& | | | 6.10 | | | 470 | |
| KHARKOV | 22 | 1212 E | 1220 | | S23 | W03 | 4070 | 8 D | 1 | | | 2.00 | | | | |
| NIZMIR | 22 | 1258 E | 1309 D | 1303 U | S21 | E07 | 4070 | 11 D | 3 | | | 3.15 | | | 300 | |
| R O EDIN | 22 | 1300 E | 1505 | 1316 | S21 | E09 | 4070 | 125 D | 1& | | | 11.40 | | 2.96 | | Slow S-SWF |
| MOSCOW | 22 | 1403 E | 1410 D | | N28 | E02 | 4065 | 7 D | 2& | | | 8.66 | | 4.50 | 180 | |
| R O EDIN | 22 | 1527 | 1539 D | | S22 | W01 | 4070 | 12 D | 1 | | | 3.30 | | 2.01 | | |
| ABASTUMANI | 23 | 0456 E | 0705 D | 0542 | N33 | E09 | 4073 | 129 D | 1& | | | 4.36 | | | 287 | |
| ABASTUMANI | 23 | 0616 | 0750 D | 0646 | S22 | W00 | 4070 | 84 D | 1 | | | 3.49 | | | 357 | |
| SIMEIZ | 23 | 0623 | 0632 | 0625 | S24 | W08 | 4070 | 9 | 1 | | | 1.30 | | | 140 | |
| SIMEIZ | 23 | 0624 | 0707 | 0633 U | N26 | E10 | 4073 | 43 | 1 | | | .87 | | 2.10 | 150 | |
| KHARKOV | 23 | 0642 E | 0647 | | N25 | W31 | 4065 | 5 D | 1 | | | | | | | |
| KHARKOV | 23 | 0646 E | 0700 | | S28 | W13 | 4070 | 14 D | 1 | | | | | | | |
| NIZMIR | 23 | 0709 E | 0740 | 0715 | S26 | W11 | 4070 | 31 D | 1 | | | .90 | | | 300 | |
| NIZMIR | 23 | 0709 E | 0722 | 0715 | S22 | E01 | 4070 | 13 D | 1 | | | 1.05 | | | 200 | |
| NIZMIR | 23 | 0748 E | 0753 D | | N31 | E09 | 4073 | 5 D | 1 | | | 1.30 | | | 280 | |
| MOSCOW | 23 | 0834 | 1140 D | 0859 U | S23 | W08 | 4070 | 186 D | 2 | | | 7.64 | | 2.99 | 350 | |



COMMERCE - STANDARDS - BOULDER

# SOLAR FLARES

July 1957

| OBSERVATORY | DATE July 1957 | OBSERVED UNIVERSAL TIME | | | LOCATION | | | DURATION — MINUTES | IMPORTANCE | OBS. COND. | MEASUREMENTS | | | | | PROVISIONAL IONOSPHERIC EFFECT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | START | END | MAX. PHASE | APPROX. LAT. | APPROX. MER. DIST. | McMATH PLAGE REGION | | | | TIME — U T | MEAS. AREA Sq. Deg. | CORR. AREA Sq. Deg. | MAX. WIDTH Hα | MAX. INT. % | |
| SIMEIZ | 23 | 0843 | 0900 | 0848 | S23 | W11 | 4070 | 17 | 1 | | | 1.30 | | | 150 | G-SWF |
| SIMEIZ | 23 | 0847 | 0911 | 0851 | S26 | W11 | 4070 | 24 | 1 | | | 1.30 | | | 160 | |
| NIZMIR | 23 | 0900 E | 0924 D | 0905 | S25 | W09 | 4070 | 24 D | 1& | | | 3.50 | | | 300 | |
| SIMEIZ | 23 | 0905 | 0923 | 0907 | N08 | E41 | 4075 | 18 | 1 | | | 3.49 | | | 170 | |
| NIZMIR | 23 | 0916 E | 0924 | 0919 | N13 | E39 | 4075 | 8 D | 1 | | | 1.70 | | | 240 | |
| MOSCOW | 23 | 1053 | 1157 D | | N33 | W16 | 4065 | 64 D | 1& | | | 7.13 | | 2.58 | 160 | |
| KIEV | 23 | 1215 E | 1232 | 1216 U | S27 | W13 | 4070 | 17 D | 1 | | | 1.80 | | | 190 | |
| SYDNEY | 24 | 0210 | 0226 D | 0216 | N23 | W37 | 4065 | 16 D | 1 | 3 | 0216 | 2.00 | 2.00 | | | |
| ABASTUMANI | 24 | 0505 E | 0800 D | | S23 | W11 | 4070 | 175 D | 1 | | | 2.65 | | | 265 | |
| ZURICH | 24 | 0849 | 0903 | 0852 | N32 | W06 | 4073 | 14 | 1 | 3 | 0852 | | 2.00 | 1.70 | | |
| NIZMIR | 24 | 0910 | 0951 | 0921 | N34 | W01 | 4073 | 41 | 1 | | | .55 | | 3.20 | | |
| MOSCOW | 24 | 0911 E | 1138 D | | N12 | W69 | 4077 | 147 D | 2 | | | 9.17 | | 2.16 | | |
| KHARKOV | 24 | 0915 | 1010 | | N34 | E10 | 4073 | 55 | 1 | | | | | | | |
| KHARKOV | 24 | 0948 E | 1100 D | | N10 | E33 | 4075 | 72 D | 1 | | | | | | | |
| MOSCOW | 24 | 0956 E | 1147 D | | N35 | W05 | 4073 | 111 D | 1& | | | 3.06 | | 2.30 | 160 | |
| MOSCOW | 24 | 1036 E | 1113 D | | S05 | W64 | 4066 | 37 D | 1 | | | 5.10 | | 1.94 | 130 | |
| KHARKOV | 24 | 1057 | 1202 | | N11 | E34 | 4075 | 65 | 1 | | | | | | | |
| MOSCOW | 24 | 1121 E | 1132 D | | N09 | E30 | 4075 | 11 D | 1 | | | 1.53 | | 2.26 | 160 | |
| SYDNEY | 24 | 2322 | 2349 D | 2329 | N21 | W58 | 4065 | 27 D | 2 | 3 | 2329 | 3.00 | 6.00 | | | |
| NIZMIR | 25 | 0650 E | 0721 | 0701 | N31 | W37 | 4065 | 31 D | 1 | | | 2.20 | | | 220 | |
| SIMEIZ | 25 | 0655 | 0755 | 0700 | N32 | W37 | 4065 | 60 | 1& | | | 7.50 | | 1.70 | 160 | S-SWF |
| TASHKENT | 25 | 0659 | 0720 D | 0702 U | N30 | W37 | 4065 | 21 D | 1& | | | 6.02 | | 2.30 | 330 | |
| NIZMIR | 25 | 0734 | 0839 D | 0805 U | N33 | W17 | 4073 | 65 D | 1 | | | 2.00 | | | 180 | |
| SIMEIZ | 25 | 0759 | 0836 | 0802 | N32 | W19 | 4073 | 37 | 1 | | | 1.75 | | | 150 | |
| MOSCOW | 25 | 0812 E | 0907 D | | N33 | W14 | 4073 | 55 D | 1& | | | 4.59 | | 2.30 | 200 | |
| NIZMIR | 26 | 0952 E | 1008 | 1007 | S25 | W50 | 4070 | 16 D | 1 | | | 1.30 | | | 200 | |
| SYDNEY | 27 | 0229 | 0310 | 0237 | S25 | W85 | 4070 | 41 | 1 | 3 | 0237 | 1.50 | | | | |
| SIMEIZ | 27 | 0633 E | 0742 D | | N18 | W11 | 4075 | 69 D | 1 | | | 3.49 | | 2.00 | 140 | |
| ABASTUMANI | 27 | 0655 E | 0801 D | 0700 U | S28 | W59 | 4070 | 66 D | 2 | | | 2.62 | | | 500 | S-SWF |
| ABASTUMANI | 28 | 0655 E | 0801 D | 0655 U | N17 | W11 | 4075 | 66 D | 2- | | | 4.36 | | | 516 | |
| MOSCOW | 28 | 0927 E | 1109 D | 1050 U | S32 | W66 | 4070 | 102 D | 1& | | | 5.10 | | 3.20 | 160 | |
| KHARKOV | 28 | 1033 E | 1103 | 1037 | S36 | E60 | 4082 | 30 D | 2 | | | 6.00 | | | | S-SWF |
| KIEV | 28 | 1240 E | 1302 | 1245 U | N15 | W18 | 4075 | 22 D | 1 | | | 2.20 | | | 220 | |
| KIEV | 28 | 1304 | 1307 D | 1305 U | N24 | W22 | 4075 | 3 D | 1 | | | 2.00 | | | 210 | |
| ABASTUMANI | 29 | 0508 E | 0805 D | 0559 U | S28 | E54 | 4082 | 177 D | 1& | | | 1.75 | | | 279 | Slow S-SWF |
| ABASTUMANI | 30 | 0525 E | 0757 | 0737 U | N20 | E70 | 4083 | 152 D | 1 | | | 5.24 | | 1.50 | 156 | |
| ABASTUMANI | 30 | 0525 E | 0727 | 0614 U | N17 | W65 | 4075 | 152 D | 1 | | | 3.93 | | 2.10 | 220 | |
| ABASTUMANI | 30 | 0646 | 0655 | 0647 U | S31 | E21 | 4082 | 9 | 1 | | | 1.75 | | 1.90 | 208 | |
| SIMEIZ | 30 | 0836 E | 0838 D | 0845 U | N09 | W68 | 4075 | 9 D | 1 | | | 1.75 | | 2.32 | 170 | |
| MOSCOW | 31 | 0849 E | 0925 D | 0903 U | N13 | W64 | 4075 | 36 D | 1& | | | 3.57 | | 2.15 | 170 | |
| KHARKOV | 31 | 0855 E | 1210 D | | N18 | W75 | 4075 | 195 D | 1 | | | 3.00 | | | | |
| KHARKOV | 31 | 0943 E | 1020 D | | N11 | W78 | 4075 | 27 D | 1 | | | 2.00 | | | | |
| KHARKOV | 31 | 1029 E | 1055 D | | N12 | W65 | 4075 | 26 D | 1 | | | 2.00 | | | | |
| KIEV | 31 | 1047 E | 1101 | 1047 U | N22 | W67 | 4075 | 14 D | 1 | | | 2.80 | | | 230 | |
| KIEV | 31 | 1150 | 1250 | 1157 U | N13 | W74 | 4075 | 60 | 1 | | | 2.10 | | | 280 | |
| KIEV | 31 | 1154 | 1157 | 1155 U | S33 | E26 | 4082 | 3 | 1 | | | 1.50 | | | 220 | |