

target : Saturn  
 target radius (km) : 60268.00  
 C/A epoch : 2024-08-06T17:12:21.220  
 Event type : PgtRgt  
 : Saturn occs: geocentric, topocentric  
 : Ring occs: geocentric, topocentric  
 Gaia source ID : 2631163146681256448  
 2Mass ID (if available) : 23185954-0643009

ICRS Star Coord at Epoch: 23h 18m 59.47990s -06:43:01.47198s

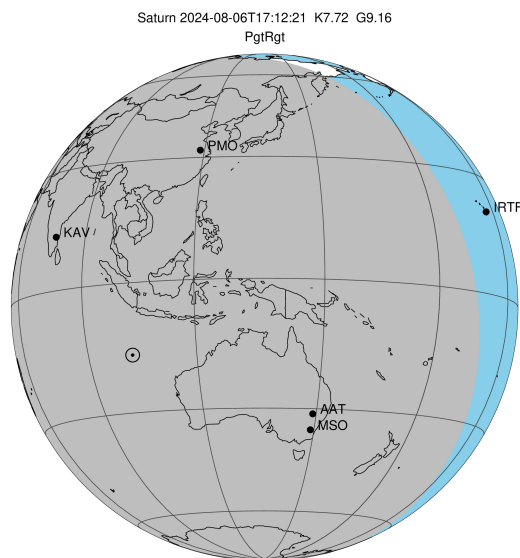
RUWE (>1.4 is poor) : 5.25  
 K magnitude : 7.716  
 G magnitude : 9.161  
 RP magnitude : 8.444  
 BP magnitude : 9.089  
 DUPflag : 0  
 Distance (au) : 8.814  
 f0 (km) : 0.000  
 g0 (km) : 0.000  
 skyplane vel. (km/s) : -15.13  
 Sun-Target sep (deg) : 146.38  
 Sun-Moon sep (deg) : 171.74  
 B (ring opening deg) : 2.59  
 PA of pole (deg) : 5.04

# a(km) ring

- 1 74490.6 C (IER)
- 2 91984.7 B (IER)
- 3 117571.2 B (OER)
- 4 122050.4 A (IER)
- 5 133423.3 Encke (IEG)
- 6 133744.9 Encke (OEG)
- 7 136774.4 A (OER)
- 8 140461.0 F ring

Observable events with sun below -5 deg and altitude above 5 deg unblocked by planet

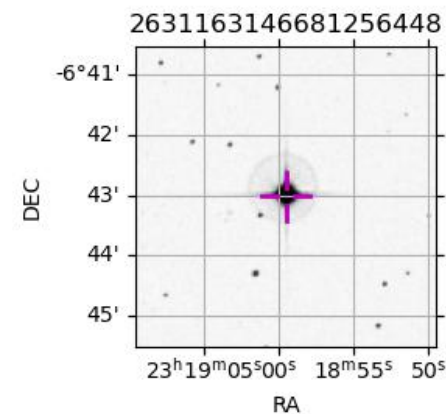
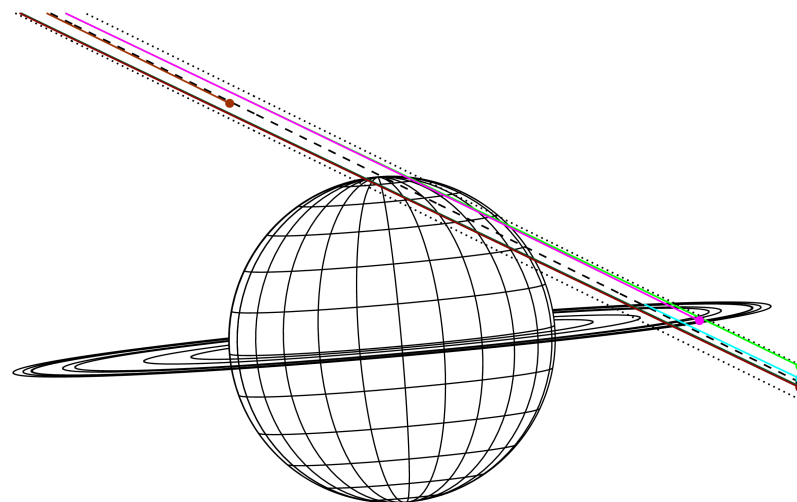
| Obs  | Location       | lat   | Elon  | Rings I | Planet | Rings E | Observed Events Interval    | OEcode |
|------|----------------|-------|-------|---------|--------|---------|-----------------------------|--------|
| PIC  | Pic du Midi    | 42.9  | 0.1   |         |        |         |                             | PnnRnn |
| PAL  | Palomar Mt (20 | 33.4  | 243.1 |         |        |         |                             | PnnRnn |
| PMO  | Purple Mtn Obs | 32.1  | 118.8 | +       | +      | +       | AUG 06 15:22 - AUG 06 17:34 | PieRie |
| KPNO | Kitt Peak Natl | 32.0  | 248.4 |         |        |         |                             | PnnRnn |
| MCD  | McDonald Obs.  | 30.7  | 256.0 |         |        |         |                             | PnnRnn |
| TEN  | Teide Obs./Ten | 28.3  | 343.5 |         |        |         |                             | PnnRnn |
| IRTF | Mauna Kea/IRTF | 19.8  | 204.5 | +       | +      | +       | AUG 06 15:22 - AUG 06 15:40 | PnnRie |
| KAV  | Kavalur Observ | 12.6  | 78.8  | +       | +      | +       | AUG 06 15:30 - AUG 06 17:40 | PieRie |
| RIO  | Rio de Janeiro | -22.9 | 316.8 |         |        |         |                             | PnnRnn |
| ESO  | European South | -29.3 | 289.3 |         |        |         |                             | PnnRnn |
| AAT  | Siding Spring  | -31.3 | 149.1 | +       | +      | +       | AUG 06 15:34 - AUG 06 17:50 | PieRie |
| SAAO | So. Afr. Astro | -32.4 | 20.8  |         |        |         |                             | PnnRnn |
| MSO  | Mt. Stromlo Ob | -35.3 | 149.0 | +       | +      | +       | AUG 06 15:34 - AUG 06 17:50 | PieRie |



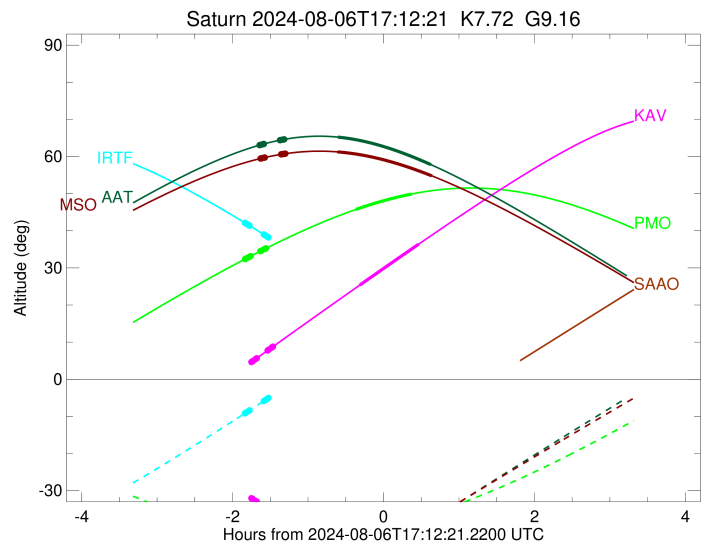
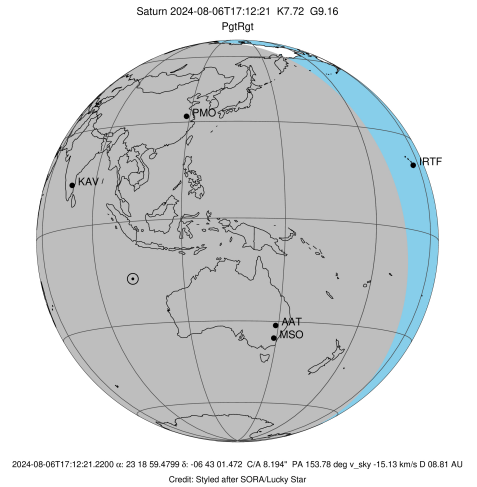
2024-08-06T17:12:21.2200 at: 23 18 59.4799 s: -06 43 01.472 C/A 8.194° PA 153.78 deg v\_sky -15.13 km/s D 08.81 AU  
 Credit: Styled after SORA/Lucky Star

Saturn 2024-08-06T17:12:21 K7.72 G9.16 PgtRgt

Earth  
 PMO  
 IRTF  
 KAV  
 AAT  
 SAAO  
 MSO

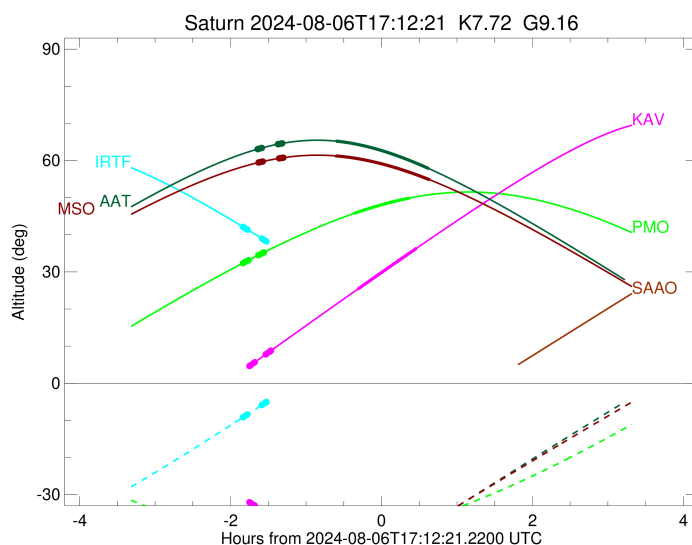
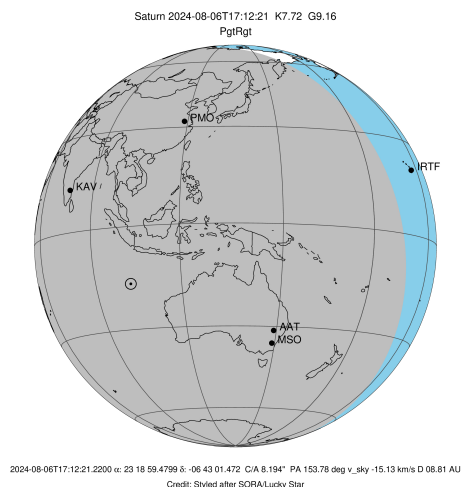


target : Saturn  
 target radius (km) : 60268.00  
 C/A epoch : 2024-08-06T17:12:39.170  
 Event type : PgtRgt  
 : Saturn occs: geocentric, topocentric  
 : Ring occs: geocentric, topocentric  
 Observer code : PMO  
 Location : Purple Mtn Obs. Nanking  
 Latitude (deg) : 32.06667  
 E. Longitude (deg) : 118.82089  
 Altitude (km) : 0.364  
 Gaia source ID : 2631163146681256448  
 2Mass ID (if available) : 23185954-0643009  
 ICRS Star Coord at Epoch: 23h 18m 59.47990s -06:43:01.47198s  
 RUWE (>1.4 is poor) : 5.25  
 K magnitude : 7.716  
 G magnitude : 9.161  
 RP magnitude : 8.444  
 BP magnitude : 9.089  
 DUPflag : 0  
 Distance (au) : 8.814  
 f0 (km) : 0.000  
 g0 (km) : 0.000  
 skyplane vel. (km/s) : -15.13  
 Sun-Target sep (deg) : 146.38  
 Sun-Moon sep (deg) : 171.84  
 B (ring opening deg) : 2.59  
 PA of pole (deg) : 5.04  
 Pole direction: RA (deg): 40.60000  
 Dec (deg): 83.50000  
 C/A sky separation (") : 8.860  
 C/A sky separation (km) : 56637.7  
 NAIF SPICE kernels : RAJobs\_U111+rgf15.spk  
 URKALLvl.spk  
 Saturn\_ring\_plane.tf  
 sat378.bsp  
 sat286.bsp  
 vgr1.sat286.bsp  
 vgr2.sat286.bsp  
 HST1081HSPephemUTC.bsp  
 pfb10000r.bsp  
 cassini.bsp  
 earthstns\_itrf93\_040916.bsp  
 earth\_200101\_990628\_predict.bpc  
 earth\_720101\_070426.bpc  
 cpck28Mar2008.tpc  
 pck.sat440.tpc  
 IAU\_SATURN\_for\_RINGFIT.tpc  
 naif0012.tls  
 earth\_flat\_IAU.spk



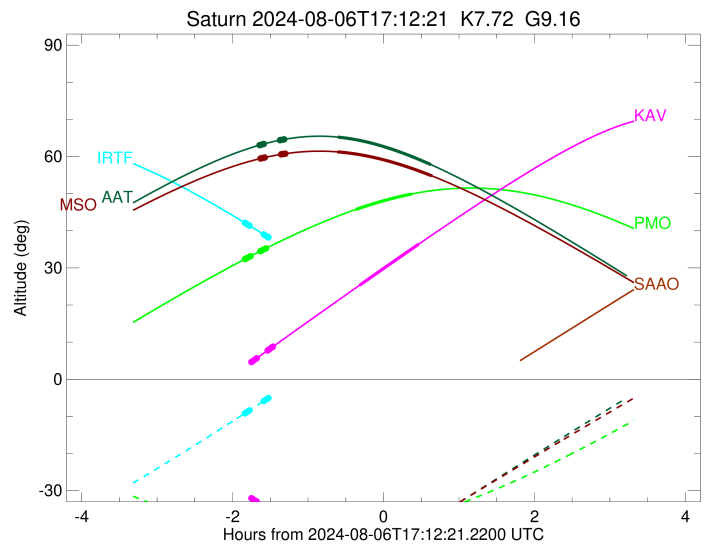
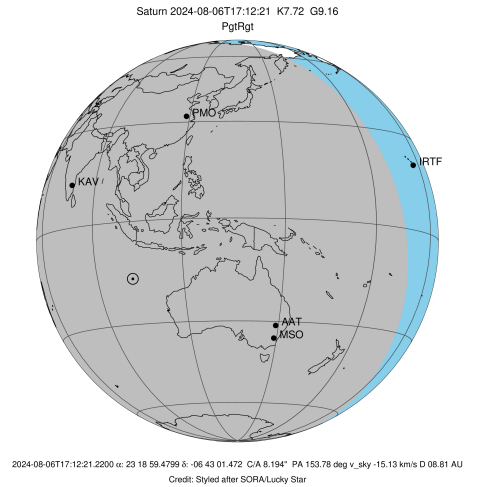
| Ring        | I/E | UTC                     | b? | alt   | alt-sun | radius    | r-dot   | lat-geo | lat-geodetic |
|-------------|-----|-------------------------|----|-------|---------|-----------|---------|---------|--------------|
| F ring      | I   | 2024-08-06T15:22:24.550 |    | 32.40 | -40.31  | 140461.00 | -108.39 |         |              |
| A (OER)     | I   | 2024-08-06T15:22:59.334 |    | 32.51 | -40.34  | 136774.41 | -103.50 |         |              |
| Encke (OEG) | I   | 2024-08-06T15:23:29.248 |    | 32.60 | -40.37  | 133744.89 | -98.98  |         |              |
| Encke (IEG) | I   | 2024-08-06T15:23:32.505 |    | 32.61 | -40.37  | 133423.31 | -98.47  |         |              |
| A (IER)     | I   | 2024-08-06T15:25:42.967 |    | 32.99 | -40.49  | 122050.38 | -74.81  |         |              |
| B (OER)     | I   | 2024-08-06T15:26:49.087 |    | 33.18 | -40.55  | 117571.16 | -60.38  |         |              |
| Saturn      | I   | 2024-08-06T16:50:26.931 |    | 45.75 | -40.75  | 60263.30  |         | 39.30   | 44.91        |
| Saturn      | E   | 2024-08-06T17:34:49.005 |    | 49.91 | -37.65  | 60256.72  |         | 79.01   | 80.86        |
| B (OER)     | E   | 2024-08-06T15:34:31.393 |    | 34.52 | -40.91  | 117571.17 | 60.41   |         |              |
| A (IER)     | E   | 2024-08-06T15:35:37.507 |    | 34.71 | -40.95  | 122050.38 | 74.84   |         |              |
| Encke (IEG) | E   | 2024-08-06T15:37:47.952 |    | 35.08 | -41.04  | 133423.32 | 98.50   |         |              |
| Encke (OEG) | E   | 2024-08-06T15:37:51.208 |    | 35.09 | -41.04  | 133744.89 | 99.01   |         |              |
| A (OER)     | E   | 2024-08-06T15:38:21.117 |    | 35.17 | -41.06  | 136774.41 | 103.54  |         |              |
| F ring      | E   | 2024-08-06T15:38:55.894 |    | 35.27 | -41.08  | 140461.00 | 108.43  |         |              |

target : Saturn  
 target radius (km) : 60268.00  
 C/A epoch : 2024-08-06T17:06:10.250  
 Event type : PgtRgt  
 : Saturn occs: geocentric, topocentric  
 : Ring occs: geocentric, topocentric  
 Observer code : IRTF  
 Location : Mauna Kea/IRTF  
 Latitude (deg) : 19.82622  
 E. Longitude (deg) : 204.52800  
 Altitude (km) : 4.168  
 Gaia source ID : 2631163146681256448  
 2Mass ID (if available) : 23185954-0643009  
 ICRS Star Coord at Epoch: 23h 18m 59.47990s -06:43:01.47198s  
 RUWE (>1.4 is poor) : 5.25  
 K magnitude : 7.716  
 G magnitude : 9.161  
 RP magnitude : 8.444  
 BP magnitude : 9.089  
 DUPflag : 0  
 Distance (au) : 8.814  
 f0 (km) : 0.000  
 g0 (km) : 0.000  
 skyplane vel. (km/s) : -15.13  
 Sun-Target sep (deg) : 146.38  
 Sun-Moon sep (deg) : 172.63  
 B (ring opening deg) : 2.59  
 PA of pole (deg) : 5.04  
 Pole direction: RA (deg): 40.60000  
 Dec (deg): 83.50000  
 C/A sky separation (") : 8.152  
 C/A sky separation (km) : 52112.7  
 NAIF SPICE kernels : RAJobs\_U111+rgf15.spk  
 URKALLvl.spk  
 Saturn\_ring\_plane.tf  
 sat378.bsp  
 sat286.bsp  
 vgr1.sat286.bsp  
 vgr2.sat286.bsp  
 HST1081HSPephemUTC.bsp  
 pfb10000r.bsp  
 cassini.bsp  
 earthstns\_itrf93\_040916.bsp  
 earth\_200101\_990628\_predict.bpc  
 earth\_720101\_070426.bpc  
 cpck28Mar2008.tpc  
 pck.sat440.tpc  
 IAU\_SATURN\_for\_RINGFIT.tpc  
 naif0012.tls  
 earth\_flat\_IAU.spk



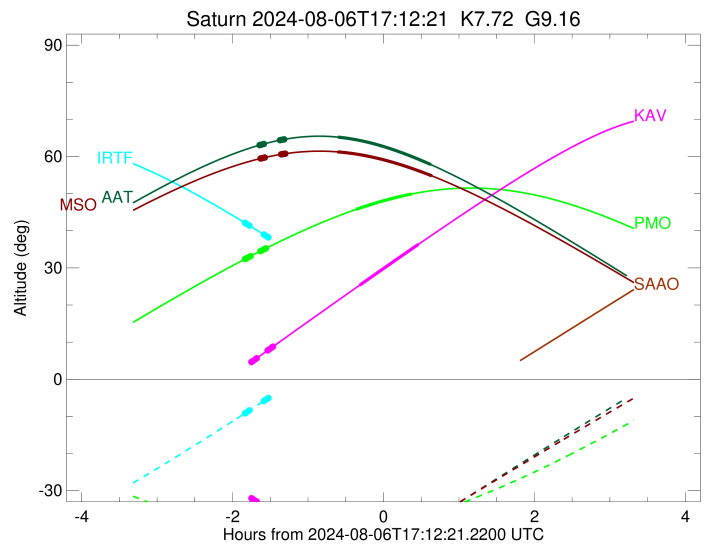
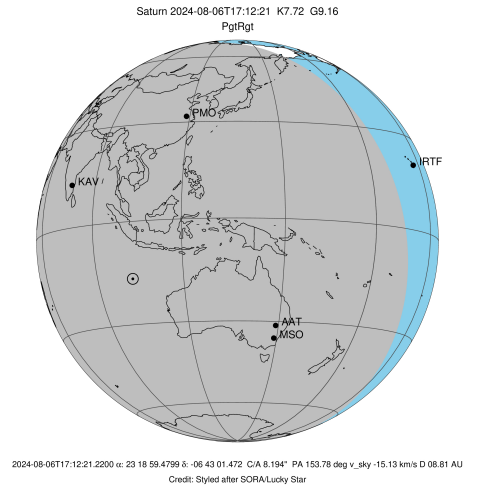
| Ring        | I/E | UTC                     | b? | alt   | alt-sun | radius    | r-dot   | lat-geo | lat-geodetic |
|-------------|-----|-------------------------|----|-------|---------|-----------|---------|---------|--------------|
| F ring      | I   | 2024-08-06T15:22:20.775 |    | 42.10 | -9.14   | 140461.00 | -119.90 |         |              |
| A (OER)     | I   | 2024-08-06T15:22:51.993 |    | 41.99 | -9.03   | 136774.40 | -116.22 |         |              |
| Encke (OEG) | I   | 2024-08-06T15:23:18.434 |    | 41.90 | -8.93   | 133744.88 | -112.87 |         |              |
| Encke (IEG) | I   | 2024-08-06T15:23:21.288 |    | 41.89 | -8.92   | 133423.30 | -112.50 |         |              |
| A (IER)     | I   | 2024-08-06T15:25:09.976 |    | 41.52 | -8.52   | 122050.39 | -96.03  |         |              |
| B (OER)     | I   | 2024-08-06T15:25:58.842 |    | 41.35 | -8.34   | 117571.17 | -87.11  |         |              |
| Saturn      | I   | 2024-08-06T16:33:12.430 |    | 26.77 | 6.71x   | 60265.24  |         | 29.07   | 34.19        |
| Saturn      | E   | 2024-08-06T17:39:12.828 |    | 11.72 | 21.86x  | 60256.31  |         | 87.29   | 87.76        |
| B (OER)     | E   | 2024-08-06T15:37:15.997 |    | 38.98 | -5.85   | 117571.16 | 87.11   |         |              |
| A (IER)     | E   | 2024-08-06T15:38:04.873 |    | 38.81 | -5.67   | 122050.38 | 96.03   |         |              |
| Encke (IEG) | E   | 2024-08-06T15:39:53.590 |    | 38.43 | -5.27   | 133423.31 | 112.48  |         |              |
| Encke (OEG) | E   | 2024-08-06T15:39:56.444 |    | 38.42 | -5.26   | 133744.88 | 112.85  |         |              |
| A (OER)     | E   | 2024-08-06T15:40:22.894 |    | 38.32 | -5.16   | 136774.40 | 116.20  |         |              |
| F ring      | E   | 2024-08-06T15:40:54.122 |    | 38.21 | -5.05   | 140461.01 | 119.87  |         |              |

target : Saturn  
 target radius (km) : 60268.00  
 C/A epoch : 2024-08-06T17:16:54.210  
 Event type : PgtRgt  
 : Ring occs: geocentric, topocentric  
 : Ring occs: geocentric, topocentric  
 Observer code : KAV  
 Location : Kavalur Observatory  
 Latitude (deg) : 12.57556  
 E. Longitude (deg) : 78.83167  
 Altitude (km) : 0.722  
 Gaia source ID : 2631163146681256448  
 2Mass ID (if available) : 23185954-0643009  
 ICRS Star Coord at Epoch: 23h 18m 59.47990s -06:43:01.47198s  
 RUWE (>1.4 is poor) : 5.25  
 K magnitude : 7.716  
 G magnitude : 9.161  
 RP magnitude : 8.444  
 BP magnitude : 9.089  
 DUPflag : 0  
 Distance (au) : 8.814  
 f0 (km) : 0.000  
 g0 (km) : 0.000  
 skyplane vel. (km/s) : -15.13  
 Sun-Target sep (deg) : 146.38  
 Sun-Moon sep (deg) : 171.23  
 B (ring opening deg) : 2.59  
 PA of pole (deg) : 5.04  
 Pole direction: RA (deg): 40.60000  
 Dec (deg): 83.50000  
 C/A sky separation (") : 8.802  
 C/A sky separation (km) : 56266.0  
 NAIF SPICE kernels : RAJobs\_U111+rgf15.spk  
 URKALLvl.spk  
 Saturn\_ring\_plane.tf  
 sat378.bsp  
 sat286.bsp  
 vgr1.sat286.bsp  
 vgr2.sat286.bsp  
 HST1081HSPephemUTC.bsp  
 pfb10000r.bsp  
 cassini.bsp  
 earthstns\_itrf93\_040916.bsp  
 earth\_200101\_990628\_predict.bpc  
 earth\_720101\_070426.bpc  
 cpck28Mar2008.tpc  
 pck.sat440.tpc  
 IAU\_SATURN\_for\_RINGFIT.tpc  
 naif0012.tls  
 earth\_flat\_IAU.spk



| Ring        | I/E | UTC                     | b?    | alt    | alt-sun   | radius  | r-dot | lat-geo | lat-geodetic |
|-------------|-----|-------------------------|-------|--------|-----------|---------|-------|---------|--------------|
| F ring      | I   | 2024-08-06T15:27:32.197 | 4.69x | -32.09 | 140460.99 | -111.33 |       |         |              |
| A (OER)     | I   | 2024-08-06T15:28:05.996 | 4.82x | -32.21 | 136774.40 | -106.74 |       |         |              |
| Encke (OEG) | I   | 2024-08-06T15:28:34.943 | 4.94x | -32.32 | 133744.88 | -102.51 |       |         |              |
| Encke (IEG) | I   | 2024-08-06T15:28:38.087 | 4.95x | -32.33 | 133423.31 | -102.04 |       |         |              |
| A (IER)     | I   | 2024-08-06T15:30:42.140 | 5.45  | -32.77 | 122050.38 | -80.33  |       |         |              |
| B (OER)     | I   | 2024-08-06T15:31:42.589 | 5.70  | -32.99 | 117571.16 | -67.60  |       |         |              |
| Saturn      | I   | 2024-08-06T16:53:26.192 | 25.35 | -49.09 | 60263.54  |         |       | 37.97   | 43.56        |
| Saturn      | E   | 2024-08-06T17:40:17.442 | 36.39 | -56.29 | 60256.66  |         |       | 79.71   | 81.45        |
| B (OER)     | E   | 2024-08-06T15:40:20.096 | 7.79  | -34.81 | 117571.17 | 67.65   |       |         |              |
| A (IER)     | E   | 2024-08-06T15:41:20.526 | 8.03  | -35.02 | 122050.39 | 80.38   |       |         |              |
| Encke (IEG) | E   | 2024-08-06T15:43:24.525 | 8.53  | -35.46 | 133423.31 | 102.10  |       |         |              |
| Encke (OEG) | E   | 2024-08-06T15:43:27.667 | 8.54  | -35.47 | 133744.88 | 102.58  |       |         |              |
| A (OER)     | E   | 2024-08-06T15:43:56.598 | 8.66  | -35.57 | 136774.40 | 106.81  |       |         |              |
| F ring      | E   | 2024-08-06T15:44:30.379 | 8.80  | -35.69 | 140461.01 | 111.41  |       |         |              |

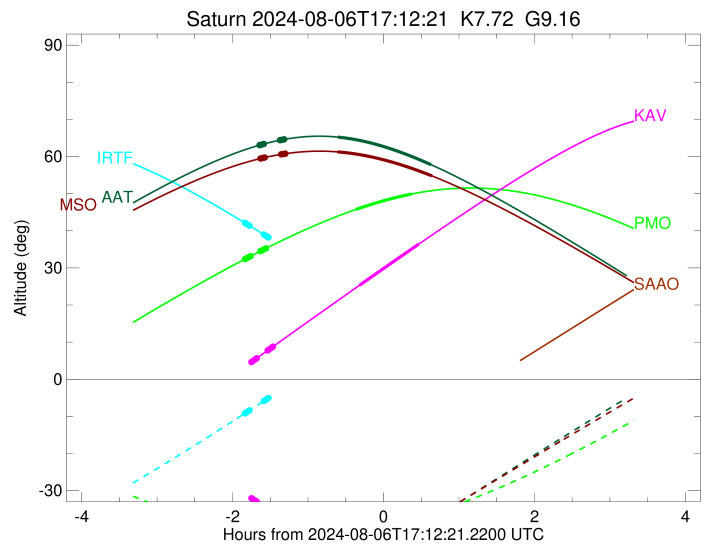
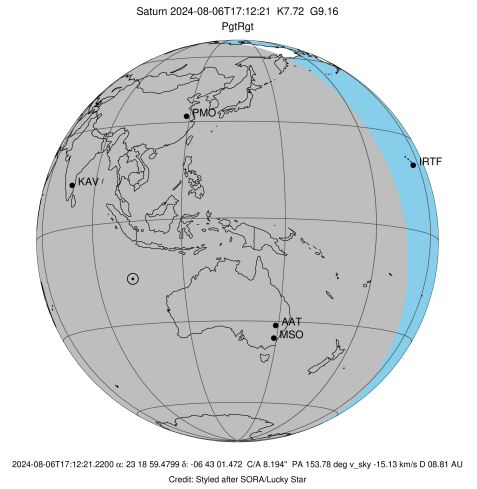
target : Saturn  
 target radius (km) : 60268.00  
 C/A epoch : 2024-08-06T17:13:04.430  
 Event type : PgtRgt  
 : Saturn occs: geocentric, topocentric  
 : Ring occs: geocentric, topocentric  
 Observer code : AAT  
 Location : Siding Spring (AAT)  
 Latitude (deg) : -31.27703  
 E. Longitude (deg) : 149.06608  
 Altitude (km) : 1.164  
 Gaia source ID : 2631163146681256448  
 2Mass ID (if available) : 23185954-0643009  
 ICRS Star Coord at Epoch: 23h 18m 59.47990s -06:43:01.47198s  
 RUWE (>1.4 is poor) : 5.25  
 K magnitude : 7.716  
 G magnitude : 9.161  
 RP magnitude : 8.444  
 BP magnitude : 9.089  
 DUPflag : 0  
 Distance (au) : 8.814  
 f0 (km) : 0.000  
 g0 (km) : 0.000  
 skyplane vel. (km/s) : -15.13  
 Sun-Target sep (deg) : 146.38  
 Sun-Moon sep (deg) : 171.84  
 B (ring opening deg) : 2.59  
 PA of pole (deg) : 5.04  
 Pole direction: RA (deg): 40.60000  
 Dec (deg): 83.50000  
 C/A sky separation (") : 7.738  
 C/A sky separation (km) : 49463.9  
 NAIF SPICE kernels : RAJobs\_U111+rgf15.spk  
 URKALLvl.spk  
 Saturn\_ring\_plane.tf  
 sat378.bsp  
 sat286.bsp  
 vgr1.sat286.bsp  
 vgr2.sat286.bsp  
 HST1081HSPephemUTC.bsp  
 pfb10000r.bsp  
 cassini.bsp  
 earthstns\_itrf93\_040916.bsp  
 earth\_200101\_990628\_predict.bpc  
 earth\_720101\_070426.bpc  
 cpck28Mar2008.tpc  
 pck.sat440.tpc  
 IAU\_SATURN\_for\_RINGFIT.tpc  
 naif0012.tls  
 earth\_flat\_IAU.spk



b: ring blocked by planet x: target alt < 5.0 deg or sun > -5.0 deg

| Ring        | I/E | UTC                     | b? | alt   | alt-sun | radius    | r-dot   | lat-geo | lat-geodetic |
|-------------|-----|-------------------------|----|-------|---------|-----------|---------|---------|--------------|
| F ring      | I   | 2024-08-06T15:34:02.168 |    | 63.09 | -65.82  | 140461.01 | -126.71 |         |              |
| A (OER)     | I   | 2024-08-06T15:34:31.625 |    | 63.14 | -65.73  | 136774.40 | -123.53 |         |              |
| Encke (OEG) | I   | 2024-08-06T15:34:56.434 |    | 63.18 | -65.66  | 133744.88 | -120.65 |         |              |
| Encke (IEG) | I   | 2024-08-06T15:34:59.103 |    | 63.18 | -65.65  | 133423.30 | -120.33 |         |              |
| A (IER)     | I   | 2024-08-06T15:36:39.130 |    | 63.34 | -65.35  | 122050.38 | -106.44 |         |              |
| B (OER)     | I   | 2024-08-06T15:37:22.674 |    | 63.40 | -65.22  | 117571.16 | -99.15  |         |              |
| Saturn      | I   | 2024-08-06T16:35:59.526 |    | 65.23 | -53.65  | 60265.99  |         | 24.57   | 29.23        |
| Saturn      | E   | 2024-08-06T17:50:09.234 |    | 57.80 | -37.98  | 60256.38  |         | 85.00   | 85.85        |
| B (OER)     | E   | 2024-08-06T15:50:03.941 |    | 64.41 | -62.84  | 117571.17 | 99.16   |         |              |
| A (IER)     | E   | 2024-08-06T15:50:47.486 |    | 64.46 | -62.70  | 122050.39 | 106.45  |         |              |
| Encke (IEG) | E   | 2024-08-06T15:52:27.518 |    | 64.56 | -62.38  | 133423.31 | 120.33  |         |              |
| Encke (OEG) | E   | 2024-08-06T15:52:30.187 |    | 64.57 | -62.37  | 133744.89 | 120.66  |         |              |
| A (OER)     | E   | 2024-08-06T15:52:54.997 |    | 64.59 | -62.29  | 136774.39 | 123.54  |         |              |
| F ring      | E   | 2024-08-06T15:53:24.456 |    | 64.62 | -62.20  | 140461.00 | 126.72  |         |              |

target : Saturn  
 target radius (km) : 60268.00  
 C/A epoch : 2024-08-06T17:13:17.480  
 Event type : PgtRgt  
 : Saturn occs: geocentric, topocentric  
 : Ring occs: geocentric, topocentric  
 Observer code : MSO  
 Location : Mt. Stromlo Observatory  
 Latitude (deg) : -35.32000  
 E. Longitude (deg) : 149.00833  
 Altitude (km) : 0.770  
 Gaia source ID : 2631163146681256448  
 2Mass ID (if available) : 23185954-0643009  
 ICRS Star Coord at Epoch: 23h 18m 59.47990s -06:43:01.47198s  
 RUWE (>1.4 is poor) : 5.25  
 K magnitude : 7.716  
 G magnitude : 9.161  
 RP magnitude : 8.444  
 BP magnitude : 9.089  
 DUPflag : 0  
 Distance (au) : 8.814  
 f0 (km) : 0.000  
 g0 (km) : 0.000  
 skyplane vel. (km/s) : -15.13  
 Sun-Target sep (deg) : 146.38  
 Sun-Moon sep (deg) : 171.80  
 B (ring opening deg) : 2.59  
 PA of pole (deg) : 5.04  
 Pole direction: RA (deg): 40.60000  
 Dec (deg): 83.50000  
 C/A sky separation (") : 7.686  
 C/A sky separation (km) : 49129.8  
 NAIF SPICE kernels : RAJobs\_U111+rgf15.spk  
 URKALLvl.spk  
 Saturn\_ring\_plane.tf  
 sat378.bsp  
 sat286.bsp  
 vgr1.sat286.bsp  
 vgr2.sat286.bsp  
 HST1081HSPephemUTC.bsp  
 pfb10000r.bsp  
 cassini.bsp  
 earthstns\_itrf93\_040916.bsp  
 earth\_200101\_990628\_predict.bpc  
 earth\_720101\_070426.bpc  
 cpck28Mar2008.tpc  
 pck.sat440.tpc  
 IAU\_SATURN\_for\_RINGFIT.tpc  
 naif0012.tls  
 earth\_flat\_IAU.spk



b: ring blocked by planet x: target alt < 5.0 deg or sun > -5.0 deg

| Ring        | I/E | UTC                     | b? | alt   | alt-sun | radius    | r-dot   | lat-geo | lat-geodetic |
|-------------|-----|-------------------------|----|-------|---------|-----------|---------|---------|--------------|
| F ring      | I   | 2024-08-06T15:34:47.855 |    | 59.48 | -63.37  | 140461.00 | -127.55 |         |              |
| A (OER)     | I   | 2024-08-06T15:35:17.109 |    | 59.52 | -63.29  | 136774.40 | -124.44 |         |              |
| Encke (OEG) | I   | 2024-08-06T15:35:41.729 |    | 59.56 | -63.22  | 133744.90 | -121.62 |         |              |
| Encke (IEG) | I   | 2024-08-06T15:35:44.376 |    | 59.56 | -63.22  | 133423.31 | -121.31 |         |              |
| A (IER)     | I   | 2024-08-06T15:37:23.404 |    | 59.69 | -62.95  | 122050.38 | -107.77 |         |              |
| B (OER)     | I   | 2024-08-06T15:38:06.348 |    | 59.74 | -62.84  | 117571.16 | -100.69 |         |              |
| Saturn      | I   | 2024-08-06T16:35:39.563 |    | 61.26 | -52.52  | 60266.08  |         | 23.99   | 28.58        |
| Saturn      | E   | 2024-08-06T17:50:55.242 |    | 54.78 | -37.55  | 60256.40  |         | 84.55   | 85.48        |
| B (OER)     | E   | 2024-08-06T15:50:59.867 |    | 60.59 | -60.69  | 117571.17 | 100.71  |         |              |
| A (IER)     | E   | 2024-08-06T15:51:42.811 |    | 60.63 | -60.57  | 122050.38 | 107.78  |         |              |
| Encke (IEG) | E   | 2024-08-06T15:53:21.841 |    | 60.72 | -60.28  | 133423.31 | 121.31  |         |              |
| Encke (OEG) | E   | 2024-08-06T15:53:24.489 |    | 60.72 | -60.28  | 133744.89 | 121.63  |         |              |
| A (OER)     | E   | 2024-08-06T15:53:49.110 |    | 60.74 | -60.20  | 136774.40 | 124.44  |         |              |
| F ring      | E   | 2024-08-06T15:54:18.365 |    | 60.77 | -60.12  | 140461.00 | 127.55  |         |              |