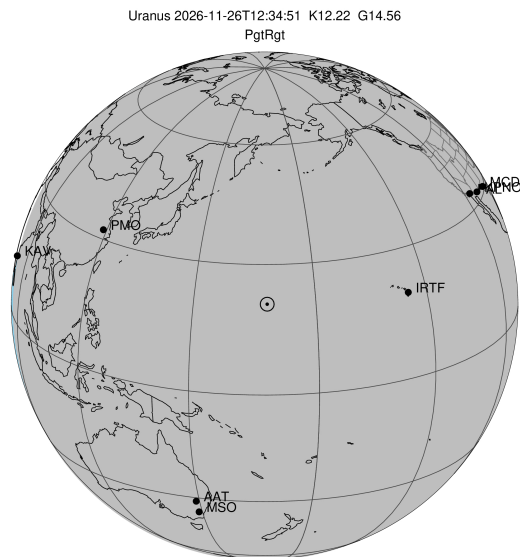


target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2026-11-26T12:34:51.820
 Event type : PgtRgt
 : Uranus occs: geocentric, topocentric
 : Ring occs: geocentric, topocentric
 Gaia source ID : 52127094657066752
 2Mass ID (if available) : 04050374+2039397

ICRS Star Coord at Epoch: 04h 05m 03.75798s +20:39:39.75754s

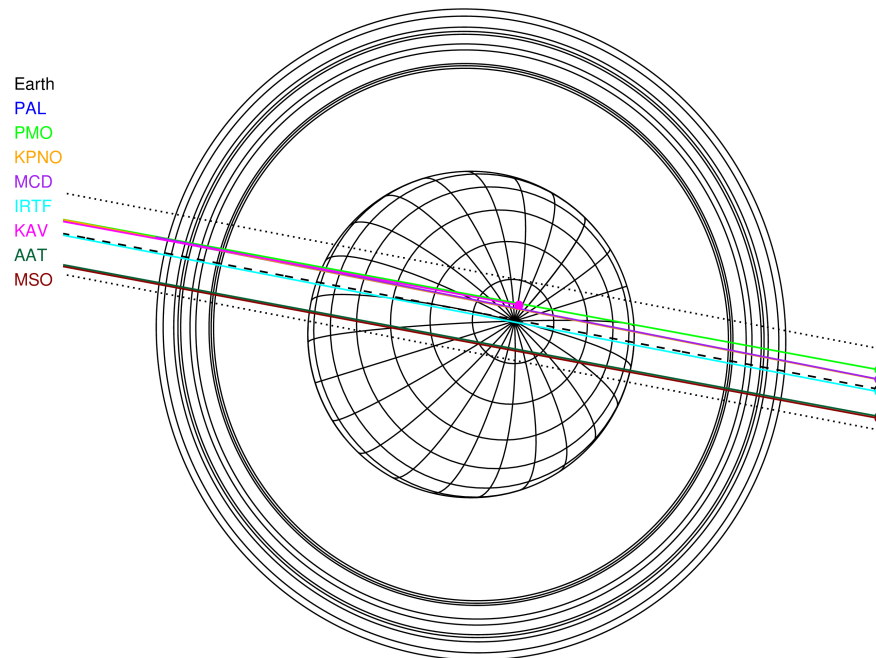
RUWE (>1.4 is poor) : 7.41
 K magnitude : 12.221
 G magnitude : 14.560
 RP magnitude : 13.762
 BP magnitude : 15.078
 DUPflag : 0
 Distance (au) : 18.444
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -23.44
 Sun-Target sep (deg) : 179.36
 Sun-Moon sep (deg) : 27.73
 B (ring opening deg) : 73.79
 PA of pole (deg) : -72.85

| # | a(km) | ring |
|----|---------|---------|
| 1 | 41837.2 | 6 |
| 2 | 42235.0 | 5 |
| 3 | 42571.2 | 4 |
| 4 | 44718.5 | alpha |
| 5 | 45661.1 | beta |
| 6 | 47176.1 | eta |
| 7 | 47626.3 | gamma |
| 8 | 48300.3 | delta |
| 9 | 50026.7 | lambda |
| 10 | 51149.4 | epsilon |



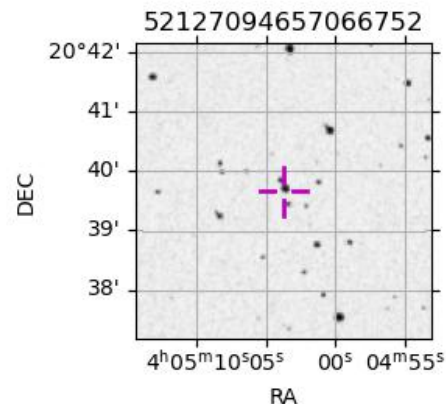
2026-11-26T12:34:51.8200 cc: 04 05 03.7580 s: +20 39 39.758 C/A 0.269° PA 169.19 deg v_sky -23.44 km/s D 18.44 AU
 Credit: Styled after SORA/Lucky Star

Uranus 2026-11-26T12:34:51 K12.22 G14.56 PgtRgt

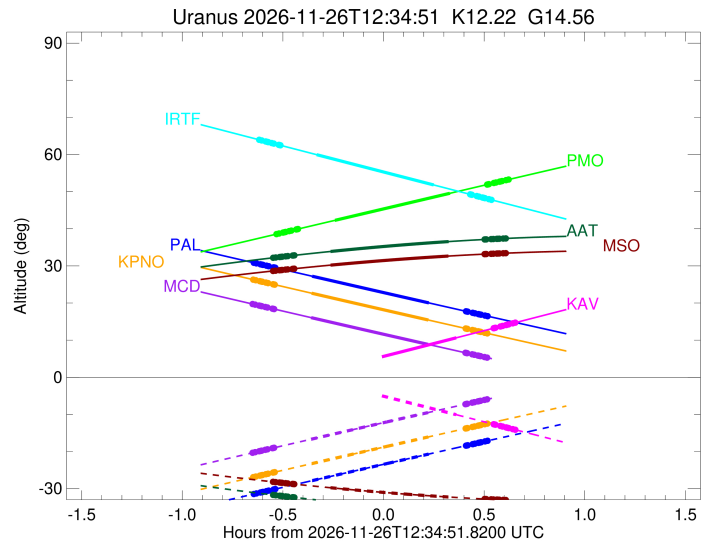
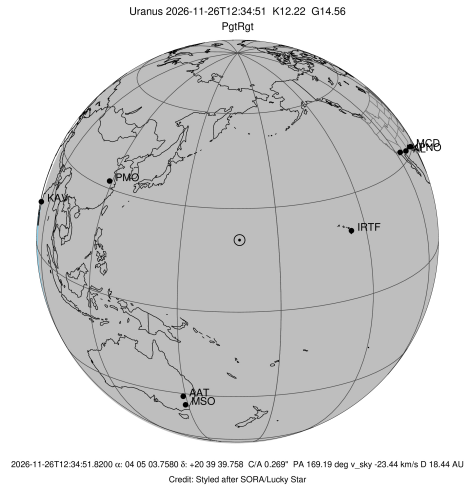


Observable events with sun below -5 deg and altitude above 5 deg unblocked by planet

| 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 (200") | 33.4 | 243.1 | +++++ | + + | +++++ | NOV 26 11:56 - NOV 26 13:05 | PieRie |
| PMO | Purple Mtn Obs. Nanki | 32.1 | 118.8 | +++++ | + + | +++++ | NOV 26 12:02 - NOV 26 13:11 | PieRie |
| KPNO | Kitt Peak Natl Obs | 32.0 | 248.4 | +++++ | + + | +++++ | NOV 26 11:55 - NOV 26 13:05 | PieRie |
| MCD | McDonald Obs. 2.7m | 30.7 | 256.0 | +++++ | + + | +++++ | NOV 26 11:55 - NOV 26 13:05 | PieRie |
| TEN | Teide Obs./Tenerife | 28.3 | 343.5 | | | | | PnnRnn |
| IRTF | Mauna Kea/IRTF | 19.8 | 204.5 | +++++ | + + | +++++ | NOV 26 11:57 - NOV 26 13:06 | PieRie |
| KAV | Kavalur Observatory | 12.6 | 78.8 | | + | +++++ | NOV 26 12:56 - NOV 26 13:13 | PneRne |
| RIO | Rio de Janeiro | -22.9 | 316.8 | | | | | PnnRnn |
| ESO | European Southern Obs | -29.3 | 289.3 | | | | | PnnRnn |
| AAT | Siding Spring (AAT) | -31.3 | 149.1 | +++++ | + + | +++++ | NOV 26 12:01 - NOV 26 13:11 | PieRie |
| SAAO | So. Afr. Astro. Obs. | -32.4 | 20.8 | | | | | PnnRnn |
| MSO | Mt. Stromlo Observato | -35.3 | 149.0 | +++++ | + + | +++++ | NOV 26 12:01 - NOV 26 13:11 | PieRie |

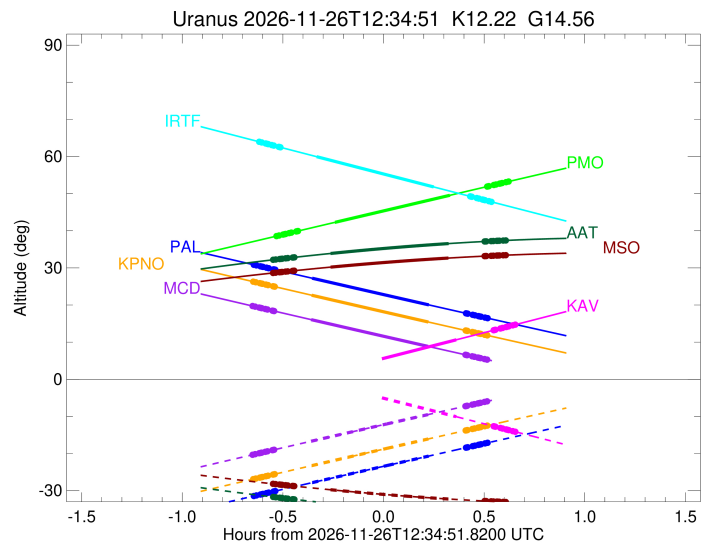
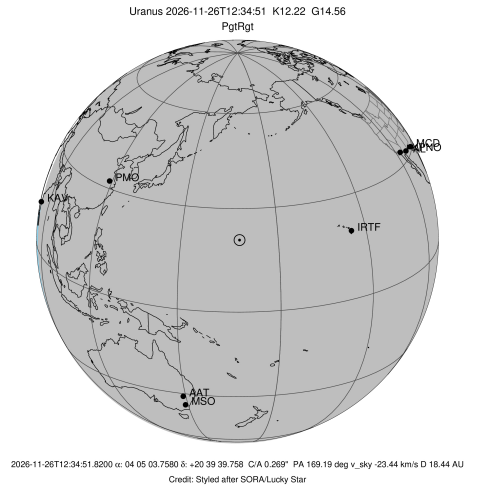


target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2026-11-26T12:30:53.270
 Event type : PgtRgt
 : Uranus occs: geocentric, topocentric
 : Ring occs: geocentric, topocentric
 Observer code : PAL
 Location : Palomar Mt (200")
 Latitude (deg) : 33.35622
 E. Longitude (deg) : 243.13601
 Altitude (km) : 1.706
 Gaia source ID : 52127094657066752
 2Mass ID (if available) : 04050374+2039397
 ICRS Star Coord at Epoch: 04h 05m 03.75798s +20:39:39.75754s
 RUWE (>1.4 is poor) : 7.41
 K magnitude : 12.221
 G magnitude : 14.560
 RP magnitude : 13.762
 BP magnitude : 15.078
 DUPflag : 0
 Distance (au) : 18.444
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -23.44
 Sun-Target sep (deg) : 179.36
 Sun-Moon sep (deg) : 27.08
 B (ring opening deg) : 73.79
 PA of pole (deg) : -72.85
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 0.397
 C/A sky separation (km) : 5314.3
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk
 URKALLvl.spk
 ura111.bsp
 IAU_URANUS_for_RINGFIT.tpc
 vgr2.ura111.bsp
 ura161.bsp
 vgr2.ura161.bsp
 peph.ura160.bsp
 earthstns_itr93_040916.bsp
 earth_720101_070426.bpc
 earth_200101_990628_predict.bpc
 pg3f0000r.bsp
 pg490000r.bsp
 naif0012.tls
 earth_flat_IAU.spk



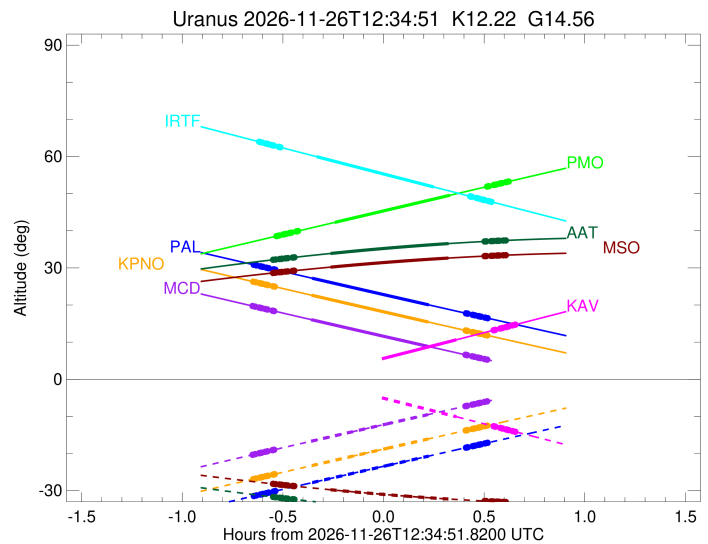
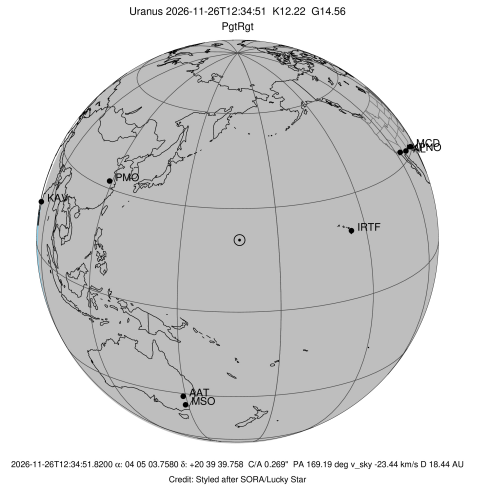
| Ring | I/E | UTC | b? | alt | alt-sun | radius | r-dot | lat-geo | lat-geodetic |
|---------|-----|-------------------------|----|-------|---------|----------|--------|---------|--------------|
| epsilon | I | 2026-11-26T11:56:02.054 | | 30.88 | -31.49 | 51406.69 | -24.23 | | |
| lambda | I | 2026-11-26T11:56:58.991 | | 30.68 | -31.29 | 50026.71 | -24.23 | | |
| delta | I | 2026-11-26T11:58:10.250 | | 30.43 | -31.05 | 48300.35 | -24.22 | | |
| gamma | I | 2026-11-26T11:58:38.046 | | 30.33 | -30.95 | 47627.22 | -24.21 | | |
| eta | I | 2026-11-26T11:58:56.676 | | 30.27 | -30.88 | 47176.12 | -24.21 | | |
| beta | I | 2026-11-26T12:00:00.031 | | 30.05 | -30.67 | 45642.00 | -24.20 | | |
| alpha | I | 2026-11-26T12:00:39.223 | | 29.91 | -30.53 | 44697.08 | -24.19 | | |
| 4 | I | 2026-11-26T12:02:05.691 | | 29.61 | -30.23 | 42605.72 | -24.17 | | |
| 5 | I | 2026-11-26T12:02:22.137 | | 29.56 | -30.17 | 42216.87 | -24.16 | | |
| 6 | I | 2026-11-26T12:02:39.124 | | 29.50 | -30.11 | 41795.28 | -24.16 | | |
| Uranus | I | 2026-11-26T12:13:34.677 | | 27.22 | -27.85 | 25058.85 | | 15.57 | 16.27 |
| Uranus | E | 2026-11-26T12:48:21.014 | | 20.04 | -20.69 | 25241.64 | | -12.28 | -12.84 |
| 6 | E | 2026-11-26T12:59:28.999 | | 17.76 | -18.42 | 41879.53 | 24.07 | | |
| 5 | E | 2026-11-26T12:59:43.414 | | 17.72 | -18.37 | 42232.43 | 24.07 | | |
| 4 | E | 2026-11-26T12:59:56.118 | | 17.67 | -18.33 | 42530.44 | 24.07 | | |
| alpha | E | 2026-11-26T13:01:27.482 | | 17.36 | -18.02 | 44732.99 | 24.09 | | |
| beta | E | 2026-11-26T13:02:06.859 | | 17.23 | -17.89 | 45678.31 | 24.10 | | |
| eta | E | 2026-11-26T13:03:08.974 | | 17.02 | -17.68 | 47176.12 | 24.11 | | |
| gamma | E | 2026-11-26T13:03:27.657 | | 16.95 | -17.61 | 47626.52 | 24.11 | | |
| delta | E | 2026-11-26T13:03:55.604 | | 16.86 | -17.52 | 48300.35 | 24.11 | | |
| lambda | E | 2026-11-26T13:05:07.187 | | 16.62 | -17.28 | 50026.71 | 24.12 | | |
| epsilon | E | 2026-11-26T13:05:40.447 | | 16.50 | -17.16 | 50829.05 | 24.11 | | |

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2026-11-26T12:37:27.380
 Event type : PgtRgt
 : Uranus 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 : 52127094657066752
 2Mass ID (if available) : 04050374+2039397
 ICRS Star Coord at Epoch: 04h 05m 03.75798s +20:39:39.75754s
 RUWE (>1.4 is poor) : 7.41
 K magnitude : 12.221
 G magnitude : 14.560
 RP magnitude : 13.762
 BP magnitude : 15.078
 DUPflag : 0
 Distance (au) : 18.444
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -23.44
 Sun-Target sep (deg) : 179.36
 Sun-Moon sep (deg) : 28.52
 B (ring opening deg) : 73.79
 PA of pole (deg) : -72.85
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 0.458
 C/A sky separation (km) : 6130.9
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk
 URKALLvl.spk
 ura111.bsp
 IAU_URANUS_for_RINGFIT.tpc
 vgr2.ura111.bsp
 ura161.bsp
 vgr2.ura161.bsp
 peph.ura160.bsp
 earthstns_itr93_040916.bsp
 earth_720101_070426.bpc
 earth_200101_990628_predict.bpc
 pg3f0000r.bsp
 pg490000r.bsp
 naif0012.tls
 earth_flat_IAU.spk



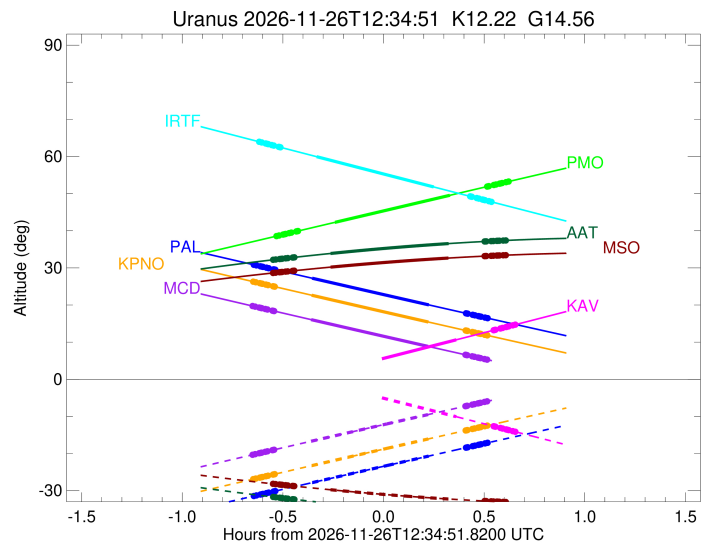
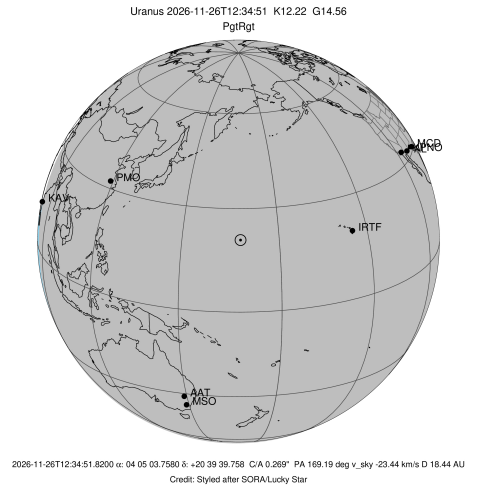
| Ring | I/E | UTC | b? | alt | alt-sun | radius | r-dot | lat-geo | lat-geodetic |
|---------|-----|-------------------------|----|-------|---------|----------|--------|---------|--------------|
| epsilon | I | 2026-11-26T12:02:47.634 | | 38.53 | -38.13 | 51398.22 | -24.20 | | |
| lambda | I | 2026-11-26T12:03:44.276 | | 38.73 | -38.33 | 50026.71 | -24.21 | | |
| delta | I | 2026-11-26T12:04:55.604 | | 38.98 | -38.58 | 48300.35 | -24.20 | | |
| gamma | I | 2026-11-26T12:05:23.420 | | 39.08 | -38.68 | 47627.37 | -24.19 | | |
| eta | I | 2026-11-26T12:05:42.075 | | 39.15 | -38.75 | 47176.12 | -24.19 | | |
| beta | I | 2026-11-26T12:06:45.498 | | 39.37 | -38.97 | 45641.84 | -24.17 | | |
| alpha | I | 2026-11-26T12:07:24.751 | | 39.51 | -39.11 | 44696.32 | -24.16 | | |
| 4 | I | 2026-11-26T12:08:51.324 | | 39.82 | -39.42 | 42604.83 | -24.14 | | |
| 5 | I | 2026-11-26T12:09:07.848 | | 39.88 | -39.48 | 42214.53 | -24.14 | | |
| 6 | I | 2026-11-26T12:09:24.723 | | 39.94 | -39.54 | 41795.50 | -24.13 | | |
| Uranus | I | 2026-11-26T12:20:21.281 | | 42.27 | -41.86 | 25047.37 | | 15.76 | 16.46 |
| Uranus | E | 2026-11-26T12:54:41.446 | | 49.57 | -49.14 | 25253.29 | | -12.04 | -12.59 |
| 6 | E | 2026-11-26T13:05:47.561 | | 51.92 | -51.49 | 41879.49 | 24.21 | | |
| 5 | E | 2026-11-26T13:06:01.870 | | 51.97 | -51.54 | 42231.72 | 24.21 | | |
| 4 | E | 2026-11-26T13:06:14.518 | | 52.01 | -51.58 | 42530.27 | 24.22 | | |
| alpha | E | 2026-11-26T13:07:45.305 | | 52.33 | -51.90 | 44732.76 | 24.25 | | |
| beta | E | 2026-11-26T13:08:24.429 | | 52.47 | -52.04 | 45678.23 | 24.26 | | |
| eta | E | 2026-11-26T13:09:26.125 | | 52.69 | -52.26 | 47176.12 | 24.27 | | |
| gamma | E | 2026-11-26T13:09:44.679 | | 52.75 | -52.32 | 47626.55 | 24.28 | | |
| delta | E | 2026-11-26T13:10:12.427 | | 52.85 | -52.42 | 48300.35 | 24.29 | | |
| lambda | E | 2026-11-26T13:11:23.490 | | 53.10 | -52.67 | 50026.71 | 24.30 | | |
| epsilon | E | 2026-11-26T13:11:56.447 | | 53.22 | -52.78 | 50827.72 | 24.29 | | |

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2026-11-26T12:30:44.880
 Event type : PgtRgt
 : Uranus occs: geocentric, topocentric
 : Ring occs: geocentric, topocentric
 Observer code : KPNO
 Location : Kitt Peak Natl Obs
 Latitude (deg) : 31.96333
 E. Longitude (deg) : 248.40000
 Altitude (km) : 2.120
 Gaia source ID : 52127094657066752
 2Mass ID (if available) : 04050374+2039397
 ICRS Star Coord at Epoch: 04h 05m 03.75798s +20:39:39.75754s
 RUWE (>1.4 is poor) : 7.41
 K magnitude : 12.221
 G magnitude : 14.560
 RP magnitude : 13.762
 BP magnitude : 15.078
 DUPflag : 0
 Distance (au) : 18.444
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -23.44
 Sun-Target sep (deg) : 179.36
 Sun-Moon sep (deg) : 27.02
 B (ring opening deg) : 73.79
 PA of pole (deg) : -72.85
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 0.398
 C/A sky separation (km) : 5319.9
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk
 URKALLvl.spk
 ura111.bsp
 IAU_URANUS_for_RINGFIT.tpc
 vgr2.ura111.bsp
 ura161.bsp
 vgr2.ura161.bsp
 peph.ura160.bsp
 earthstns_itr93_040916.bsp
 earth_720101_070426.bpc
 earth_200101_990628_predict.bpc
 pg3f0000r.bsp
 pg490000r.bsp
 naif0012.tls
 earth_flat_IAU.spk



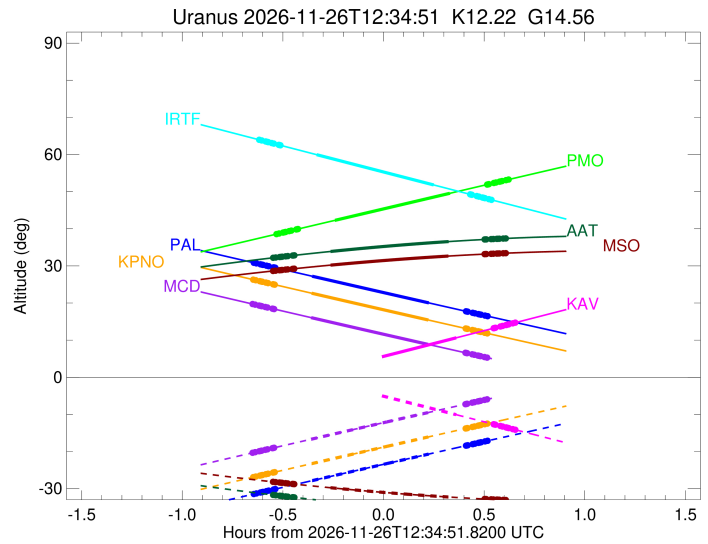
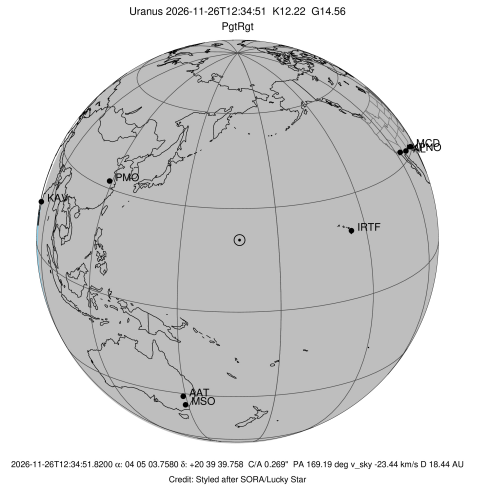
| Ring | I/E | UTC | b? | alt | alt-sun | radius | r-dot | lat-geo | lat-geodetic |
|---------|-----|-------------------------|----|-------|---------|----------|--------|---------|--------------|
| epsilon | I | 2026-11-26T11:55:50.938 | | 26.33 | -26.95 | 51406.81 | -24.20 | | |
| lambda | I | 2026-11-26T11:56:47.951 | | 26.13 | -26.75 | 50026.71 | -24.20 | | |
| delta | I | 2026-11-26T11:57:59.302 | | 25.88 | -26.50 | 48300.35 | -24.19 | | |
| gamma | I | 2026-11-26T11:58:27.132 | | 25.79 | -26.40 | 47627.22 | -24.18 | | |
| eta | I | 2026-11-26T11:58:45.787 | | 25.72 | -26.34 | 47176.12 | -24.18 | | |
| beta | I | 2026-11-26T11:59:49.222 | | 25.50 | -26.11 | 45642.00 | -24.17 | | |
| alpha | I | 2026-11-26T12:00:28.465 | | 25.36 | -25.98 | 44697.08 | -24.16 | | |
| 4 | I | 2026-11-26T12:01:55.045 | | 25.06 | -25.68 | 42605.74 | -24.14 | | |
| 5 | I | 2026-11-26T12:02:11.511 | | 25.00 | -25.62 | 42216.90 | -24.13 | | |
| 6 | I | 2026-11-26T12:02:28.522 | | 24.94 | -25.56 | 41795.28 | -24.13 | | |
| Uranus | I | 2026-11-26T12:13:24.950 | | 22.65 | -23.27 | 25058.93 | | 15.57 | 16.27 |
| Uranus | E | 2026-11-26T12:48:14.044 | | 15.42 | -16.07 | 25242.00 | | -12.27 | -12.83 |
| 6 | E | 2026-11-26T12:59:23.026 | | 13.14 | -13.79 | 41879.53 | 24.03 | | |
| 5 | E | 2026-11-26T12:59:37.461 | | 13.09 | -13.74 | 42232.39 | 24.04 | | |
| 4 | E | 2026-11-26T12:59:50.185 | | 13.04 | -13.70 | 42530.43 | 24.04 | | |
| alpha | E | 2026-11-26T13:01:21.683 | | 12.73 | -13.39 | 44732.97 | 24.05 | | |
| beta | E | 2026-11-26T13:02:01.119 | | 12.60 | -13.26 | 45678.31 | 24.06 | | |
| eta | E | 2026-11-26T13:03:03.326 | | 12.39 | -13.05 | 47176.12 | 24.07 | | |
| gamma | E | 2026-11-26T13:03:22.036 | | 12.32 | -12.98 | 47626.52 | 24.07 | | |
| delta | E | 2026-11-26T13:03:50.025 | | 12.23 | -12.89 | 48300.35 | 24.08 | | |
| lambda | E | 2026-11-26T13:05:01.714 | | 11.99 | -12.64 | 50026.71 | 24.09 | | |
| epsilon | E | 2026-11-26T13:05:35.018 | | 11.87 | -12.53 | 50828.91 | 24.08 | | |

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2026-11-26T12:30:37.230
 Event type : PgtRgt
 : Uranus occs: geocentric, topocentric
 : Ring occs: geocentric, topocentric
 Observer code : MCD
 Location : McDonald Obs. 2.7m
 Latitude (deg) : 30.67158
 E. Longitude (deg) : 255.97844
 Altitude (km) : 2.075
 Gaia source ID : 52127094657066752
 2Mass ID (if available) : 04050374+2039397
 ICRS Star Coord at Epoch: 04h 05m 03.75798s +20:39:39.75754s
 RUWE (>1.4 is poor) : 7.41
 K magnitude : 12.221
 G magnitude : 14.560
 RP magnitude : 13.762
 BP magnitude : 15.078
 DUPflag : 0
 Distance (au) : 18.444
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -23.44
 Sun-Target sep (deg) : 179.36
 Sun-Moon sep (deg) : 26.94
 B (ring opening deg) : 73.79
 PA of pole (deg) : -72.85
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 0.406
 C/A sky separation (km) : 5424.5
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk
 URKALLvl.spk
 ura111.bsp
 IAU_URANUS_for_RINGFIT.tpc
 vgr2.ura111.bsp
 ura161.bsp
 vgr2.ura161.bsp
 peph.ura160.bsp
 earthstns_itr93_040916.bsp
 earth_720101_070426.bpc
 earth_200101_990628_predict.bpc
 pg3f0000r.bsp
 pg490000r.bsp
 naif0012.tls
 earth_flat_IAU.spk



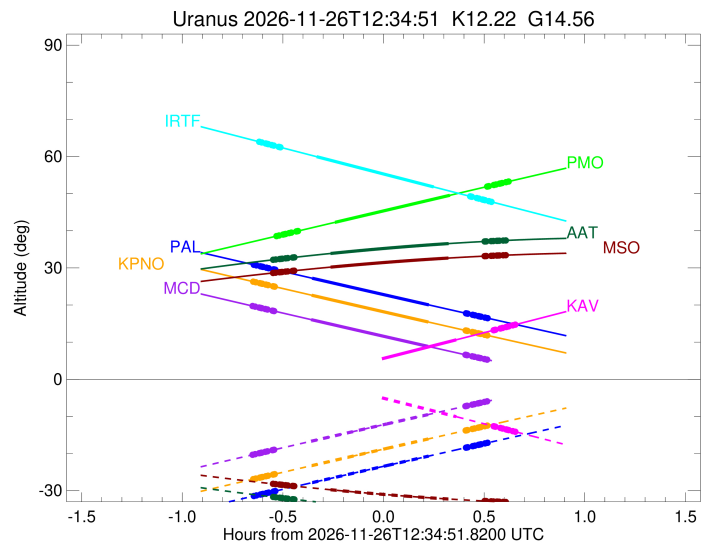
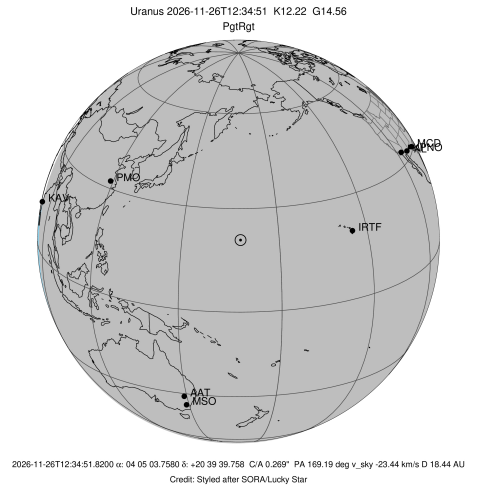
| Ring | I/E | UTC | b? | alt | alt-sun | radius | r-dot | lat-geo | lat-geodetic |
|---------|-----|-------------------------|----|-------|---------|----------|--------|---------|--------------|
| epsilon | I | 2026-11-26T11:55:39.560 | | 19.76 | -20.38 | 51406.35 | -24.14 | | |
| lambda | I | 2026-11-26T11:56:36.682 | | 19.56 | -20.18 | 50026.71 | -24.15 | | |
| delta | I | 2026-11-26T11:57:48.195 | | 19.31 | -19.93 | 48300.35 | -24.13 | | |
| gamma | I | 2026-11-26T11:58:16.088 | | 19.21 | -19.83 | 47627.23 | -24.13 | | |
| eta | I | 2026-11-26T11:58:34.786 | | 19.15 | -19.76 | 47176.12 | -24.12 | | |
| beta | I | 2026-11-26T11:59:38.368 | | 18.93 | -19.54 | 45641.99 | -24.11 | | |
| alpha | I | 2026-11-26T12:00:17.703 | | 18.79 | -19.40 | 44697.04 | -24.10 | | |
| 4 | I | 2026-11-26T12:01:44.487 | | 18.48 | -19.10 | 42605.68 | -24.08 | | |
| 5 | I | 2026-11-26T12:02:00.996 | | 18.43 | -19.04 | 42216.75 | -24.08 | | |
| 6 | I | 2026-11-26T12:02:18.039 | | 18.37 | -18.98 | 41795.29 | -24.07 | | |
| Uranus | I | 2026-11-26T12:13:16.143 | | 16.07 | -16.70 | 25057.91 | | 15.58 | 16.28 |
| Uranus | E | 2026-11-26T12:48:07.788 | | 8.87 | -9.52 | 25244.54 | | -12.22 | -12.78 |
| 6 | E | 2026-11-26T12:59:18.702 | | 6.59 | -7.25 | 41879.51 | 23.97 | | |
| 5 | E | 2026-11-26T12:59:33.167 | | 6.54 | -7.20 | 42232.14 | 23.97 | | |
| 4 | E | 2026-11-26T12:59:45.930 | | 6.50 | -7.15 | 42530.37 | 23.98 | | |
| alpha | E | 2026-11-26T13:01:17.657 | | 6.19 | -6.85 | 44732.88 | 23.99 | | |
| beta | E | 2026-11-26T13:01:57.193 | | 6.06 | -6.71 | 45678.28 | 24.00 | | |
| eta | E | 2026-11-26T13:02:59.556 | | 5.85 | -6.50 | 47176.12 | 24.01 | | |
| gamma | E | 2026-11-26T13:03:18.313 | | 5.78 | -6.44 | 47626.53 | 24.01 | | |
| delta | E | 2026-11-26T13:03:46.371 | | 5.69 | -6.35 | 48300.35 | 24.02 | | |
| lambda | E | 2026-11-26T13:04:58.236 | | 5.45 | -6.10 | 50026.71 | 24.03 | | |
| epsilon | E | 2026-11-26T13:05:31.594 | | 5.33 | -5.99 | 50828.26 | 24.02 | | |

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2026-11-26T12:32:19.850
 Event type : PgtRgt
 : Uranus 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 : 52127094657066752
 2Mass ID (if available) : 04050374+2039397
 ICRS Star Coord at Epoch: 04h 05m 03.75798s +20:39:39.75754s
 RUWE (>1.4 is poor) : 7.41
 K magnitude : 12.221
 G magnitude : 14.560
 RP magnitude : 13.762
 BP magnitude : 15.078
 DUPflag : 0
 Distance (au) : 18.444
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -23.44
 Sun-Target sep (deg) : 179.36
 Sun-Moon sep (deg) : 27.62
 B (ring opening deg) : 73.79
 PA of pole (deg) : -72.85
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 0.238
 C/A sky separation (km) : 3187.0
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk
 URKALLvl.spk
 ura111.bsp
 IAU_URANUS_for_RINGFIT.tpc
 vgr2.ura111.bsp
 ura161.bsp
 vgr2.ura161.bsp
 peph.ura160.bsp
 earthstns_itr93_040916.bsp
 earth_720101_070426.bpc
 earth_200101_990628_predict.bpc
 pg3f0000r.bsp
 pg490000r.bsp
 naif0012.tls
 earth_flat_IAU.spk



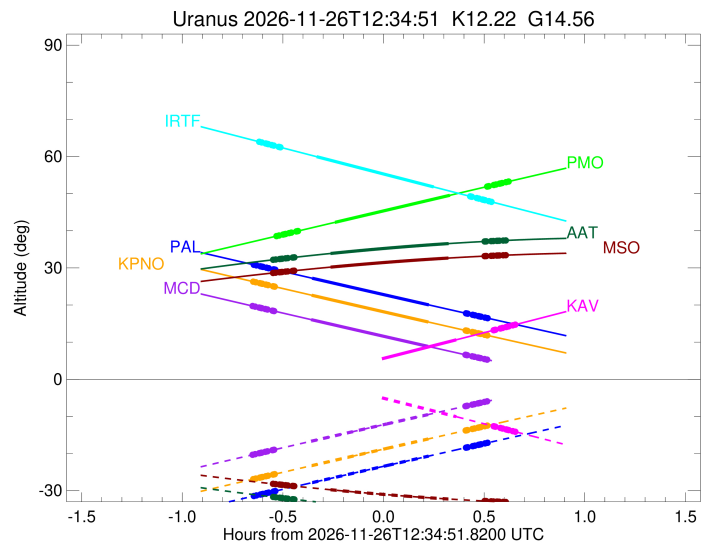
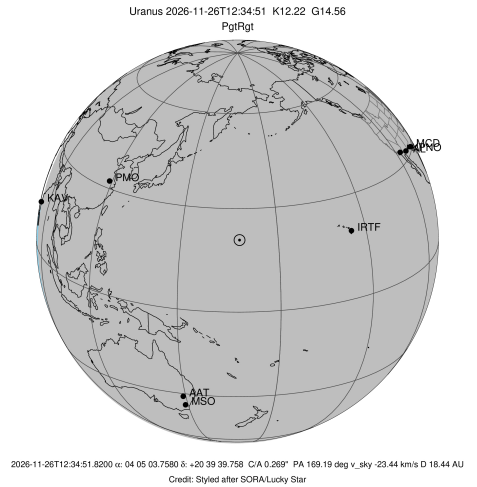
| Ring | I/E | UTC | b? | alt | alt-sun | radius | r-dot | lat-geo | lat-geodetic |
|---------|-----|-------------------------|----|-------|---------|----------|--------|---------|--------------|
| epsilon | I | 2026-11-26T11:57:38.021 | | 64.01 | -64.58 | 51418.56 | -24.54 | | |
| lambda | I | 2026-11-26T11:58:34.716 | | 63.79 | -64.36 | 50026.71 | -24.55 | | |
| delta | I | 2026-11-26T11:59:45.050 | | 63.52 | -64.08 | 48300.35 | -24.54 | | |
| gamma | I | 2026-11-26T12:00:12.486 | | 63.41 | -63.98 | 47627.01 | -24.54 | | |
| eta | I | 2026-11-26T12:00:30.860 | | 63.34 | -63.91 | 47176.12 | -24.54 | | |
| beta | I | 2026-11-26T12:01:33.345 | | 63.09 | -63.66 | 45642.28 | -24.53 | | |
| alpha | I | 2026-11-26T12:02:11.963 | | 62.94 | -63.51 | 44698.27 | -24.53 | | |
| 4 | I | 2026-11-26T12:03:37.188 | | 62.61 | -63.18 | 42607.07 | -24.52 | | |
| 5 | I | 2026-11-26T12:03:53.297 | | 62.55 | -63.12 | 42220.60 | -24.52 | | |
| 6 | I | 2026-11-26T12:04:10.239 | | 62.48 | -63.05 | 41795.01 | -24.52 | | |
| Uranus | I | 2026-11-26T12:14:54.903 | | 59.97 | -60.55 | 25084.76 | | 15.14 | 15.82 |
| Uranus | E | 2026-11-26T12:49:50.273 | | 51.81 | -52.42 | 25195.60 | | -13.17 | -13.77 |
| 6 | E | 2026-11-26T13:00:43.765 | | 49.27 | -49.90 | 41879.70 | 24.46 | | |
| 5 | E | 2026-11-26T13:00:58.077 | | 49.21 | -49.84 | 42236.80 | 24.46 | | |
| 4 | E | 2026-11-26T13:01:10.459 | | 49.16 | -49.79 | 42531.57 | 24.46 | | |
| alpha | E | 2026-11-26T13:02:40.432 | | 48.81 | -49.44 | 44734.55 | 24.47 | | |
| beta | E | 2026-11-26T13:03:19.166 | | 48.66 | -49.29 | 45678.82 | 24.47 | | |
| eta | E | 2026-11-26T13:04:20.327 | | 48.43 | -49.06 | 47176.12 | 24.47 | | |
| gamma | E | 2026-11-26T13:04:38.722 | | 48.36 | -48.99 | 47626.26 | 24.47 | | |
| delta | E | 2026-11-26T13:05:06.267 | | 48.25 | -48.88 | 48300.35 | 24.47 | | |
| lambda | E | 2026-11-26T13:06:16.805 | | 47.97 | -48.61 | 50026.71 | 24.48 | | |
| epsilon | E | 2026-11-26T13:06:50.062 | | 47.85 | -48.48 | 50840.71 | 24.47 | | |

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2026-11-26T12:39:04.950
 Event type : PgtRgt
 : Uranus 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 : 52127094657066752
 2Mass ID (if available) : 04050374+2039397
 ICRS Star Coord at Epoch: 04h 05m 03.75798s +20:39:39.75754s
 RUWE (>1.4 is poor) : 7.41
 K magnitude : 12.221
 G magnitude : 14.560
 RP magnitude : 13.762
 BP magnitude : 15.078
 DUPflag : 0
 Distance (au) : 18.444
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -23.44
 Sun-Target sep (deg) : 179.36
 Sun-Moon sep (deg) : 28.54
 B (ring opening deg) : 73.79
 PA of pole (deg) : -72.85
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 0.440
 C/A sky separation (km) : 5880.0
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk
 URKALLvl.spk
 ura111.bsp
 IAU_URANUS_for_RINGFIT.tpc
 vgr2.ura111.bsp
 ura161.bsp
 vgr2.ura161.bsp
 peph.ura160.bsp
 earthstns_itr93_040916.bsp
 earth_720101_070426.bpc
 earth_200101_990628_predict.bpc
 pg3f0000r.bsp
 pg490000r.bsp
 naif0012.tls
 earth_flat_IAU.spk



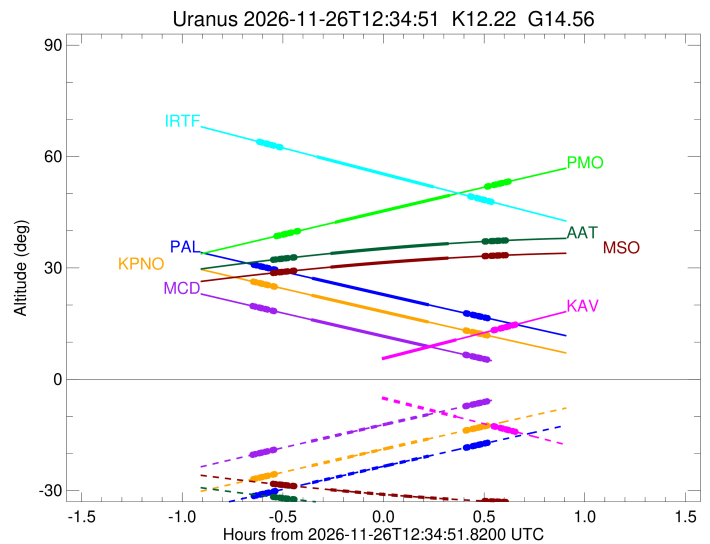
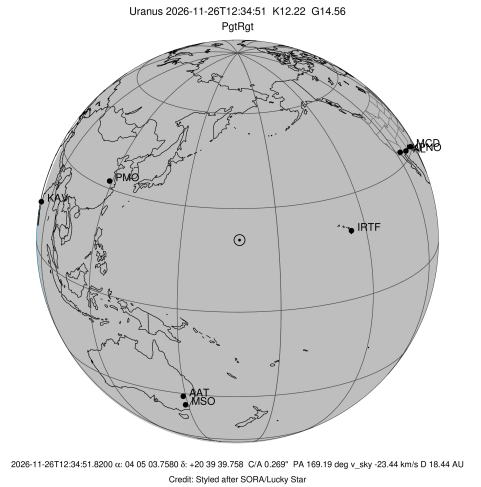
| Ring | I/E | UTC | b? | alt | alt-sun | radius | r-dot | lat-geo | lat-geodetic |
|---------|-----|-------------------------|--------|--------|----------|--------|-------|---------|--------------|
| epsilon | I | 2026-11-26T12:04:00.226 | -1.44x | 1.92x | 51399.77 | -23.94 | | | |
| lambda | I | 2026-11-26T12:04:57.556 | -1.22x | 1.70x | 50026.71 | -23.95 | | | |
| delta | I | 2026-11-26T12:06:09.665 | -0.95x | 1.43x | 48300.35 | -23.94 | | | |
| gamma | I | 2026-11-26T12:06:37.785 | -0.84x | 1.32x | 47627.34 | -23.93 | | | |
| eta | I | 2026-11-26T12:06:56.642 | -0.77x | 1.25x | 47176.12 | -23.93 | | | |
| beta | I | 2026-11-26T12:08:00.750 | -0.52x | 1.01x | 45641.87 | -23.92 | | | |
| alpha | I | 2026-11-26T12:08:40.421 | -0.37x | 0.86x | 44696.47 | -23.91 | | | |
| 4 | I | 2026-11-26T12:10:07.916 | -0.04x | 0.53x | 42605.01 | -23.89 | | | |
| 5 | I | 2026-11-26T12:10:24.603 | 0.02x | 0.46x | 42214.99 | -23.88 | | | |
| 6 | I | 2026-11-26T12:10:41.683 | 0.09x | 0.40x | 41795.46 | -23.88 | | | |
| Uranus | I | 2026-11-26T12:21:44.809 | 2.61x | -2.11x | 25049.79 | | | 15.72 | 16.42 |
| Uranus | E | 2026-11-26T12:56:32.244 | 10.62 | -10.08 | 25247.50 | | | -12.16 | -12.72 |
| 6 | E | 2026-11-26T13:07:43.826 | 13.22 | -12.66 | 41879.52 | 24.00 | | | |
| 5 | E | 2026-11-26T13:07:58.278 | 13.27 | -12.71 | 42232.27 | 24.00 | | | |
| 4 | E | 2026-11-26T13:08:11.024 | 13.32 | -12.76 | 42530.41 | 24.00 | | | |
| alpha | E | 2026-11-26T13:09:42.629 | 13.68 | -13.12 | 44732.95 | 24.03 | | | |
| beta | E | 2026-11-26T13:10:22.100 | 13.83 | -13.27 | 45678.30 | 24.04 | | | |
| eta | E | 2026-11-26T13:11:24.348 | 14.07 | -13.51 | 47176.12 | 24.06 | | | |
| gamma | E | 2026-11-26T13:11:43.068 | 14.14 | -13.58 | 47626.52 | 24.06 | | | |
| delta | E | 2026-11-26T13:12:11.068 | 14.25 | -13.69 | 48300.35 | 24.07 | | | |
| lambda | E | 2026-11-26T13:13:22.771 | 14.53 | -13.96 | 50026.71 | 24.08 | | | |
| epsilon | E | 2026-11-26T13:13:56.085 | 14.66 | -14.09 | 50829.17 | 24.08 | | | |

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2026-11-26T12:36:41.020
 Event type : PgtRgt
 : Uranus 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 : 52127094657066752
 2Mass ID (if available) : 04050374+2039397
 ICRS Star Coord at Epoch: 04h 05m 03.75798s +20:39:39.75754s
 RUWE (>1.4 is poor) : 7.41
 K magnitude : 12.221
 G magnitude : 14.560
 RP magnitude : 13.762
 BP magnitude : 15.078
 DUPflag : 0
 Distance (au) : 18.444
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -23.44
 Sun-Target sep (deg) : 179.36
 Sun-Moon sep (deg) : 28.47
 B (ring opening deg) : 73.79
 PA of pole (deg) : -72.85
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 0.072
 C/A sky separation (km) : 969.7
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk
 URKALLvl.spk
 ura111.bsp
 IAU_URANUS_for_RINGFIT.tpc
 vgr2.ura111.bsp
 ura161.bsp
 vgr2.ura161.bsp
 peph.ura160.bsp
 earthstns_itr93_040916.bsp
 earth_720101_070426.bpc
 earth_200101_990628_predict.bpc
 pg3f0000r.bsp
 pg490000r.bsp
 naif0012.tls
 earth_flat_IAU.spk



| Ring | I/E | UTC | b? | alt | alt-sun | radius | r-dot | lat-geo | lat-geodetic |
|---------|-----|-------------------------|----|-------|---------|----------|--------|---------|--------------|
| epsilon | I | 2026-11-26T12:01:46.678 | | 32.16 | -31.68 | 51441.02 | -24.54 | | |
| lambda | I | 2026-11-26T12:02:44.309 | | 32.27 | -31.79 | 50026.71 | -24.54 | | |
| delta | I | 2026-11-26T12:03:54.656 | | 32.39 | -31.91 | 48300.35 | -24.54 | | |
| gamma | I | 2026-11-26T12:04:22.111 | | 32.44 | -31.96 | 47626.57 | -24.54 | | |
| eta | I | 2026-11-26T12:04:40.466 | | 32.47 | -31.99 | 47176.12 | -24.54 | | |
| beta | I | 2026-11-26T12:05:42.911 | | 32.58 | -32.10 | 45642.95 | -24.54 | | |
| alpha | I | 2026-11-26T12:06:21.443 | | 32.64 | -32.17 | 44700.75 | -24.54 | | |
| 4 | I | 2026-11-26T12:07:46.592 | | 32.79 | -32.31 | 42609.50 | -24.54 | | |
| 5 | I | 2026-11-26T12:08:02.473 | | 32.82 | -32.34 | 42228.07 | -24.55 | | |
| 6 | I | 2026-11-26T12:08:19.794 | | 32.85 | -32.37 | 41794.75 | -24.54 | | |
| Uranus | I | 2026-11-26T12:19:04.931 | | 33.89 | -33.42 | 25149.98 | | 14.01 | 14.64 |
| Uranus | E | 2026-11-26T12:54:15.209 | | 36.55 | -36.14 | 25116.51 | | -14.60 | -15.26 |
| 6 | E | 2026-11-26T13:05:01.820 | | 37.12 | -36.74 | 41879.67 | 24.58 | | |
| 5 | E | 2026-11-26T13:05:16.318 | | 37.13 | -36.75 | 42245.20 | 24.58 | | |
| 4 | E | 2026-11-26T13:05:28.414 | | 37.14 | -36.76 | 42534.07 | 24.58 | | |
| alpha | E | 2026-11-26T13:06:58.009 | | 37.21 | -36.83 | 44737.44 | 24.58 | | |
| beta | E | 2026-11-26T13:07:36.480 | | 37.24 | -36.86 | 45679.66 | 24.58 | | |
| eta | E | 2026-11-26T13:08:37.331 | | 37.29 | -36.91 | 47176.12 | 24.58 | | |
| gamma | E | 2026-11-26T13:08:55.623 | | 37.30 | -36.92 | 47625.76 | 24.58 | | |
| delta | E | 2026-11-26T13:09:23.065 | | 37.32 | -36.94 | 48300.35 | 24.58 | | |
| lambda | E | 2026-11-26T13:10:33.291 | | 37.37 | -37.00 | 50026.71 | 24.58 | | |
| epsilon | E | 2026-11-26T13:11:07.390 | | 37.39 | -37.02 | 50865.00 | 24.59 | | |

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2026-11-26T12:36:40.110
 Event type : PgtRgt
 : Uranus 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 : 52127094657066752
 2Mass ID (if available) : 04050374+2039397
 ICRS Star Coord at Epoch: 04h 05m 03.75798s +20:39:39.75754s
 RUWE (>1.4 is poor) : 7.41
 K magnitude : 12.221
 G magnitude : 14.560
 RP magnitude : 13.762
 BP magnitude : 15.078
 DUPflag : 0
 Distance (au) : 18.444
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -23.44
 Sun-Target sep (deg) : 179.36
 Sun-Moon sep (deg) : 28.45
 B (ring opening deg) : 73.79
 PA of pole (deg) : -72.85
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 0.093
 C/A sky separation (km) : 1244.8
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk
 URKALLvl.spk
 ura111.bsp
 IAU_URANUS_for_RINGFIT.tpc
 vgr2.ura111.bsp
 ura161.bsp
 vgr2.ura161.bsp
 peph.ura160.bsp
 earthstns_itrff93_040916.bsp
 earth_720101_070426.bpc
 earth_200101_990628_predict.bpc
 pg3f0000r.bsp
 pg490000r.bsp
 naif0012.tls
 earth_flat_IAU.spk



| Ring | I/E | UTC | b? | alt | alt-sun | radius | r-dot | lat-geo | lat-geodetic |
|---------|-----|-------------------------|----|-------|---------|----------|--------|---------|--------------|
| epsilon | I | 2026-11-26T12:01:44.141 | | 28.62 | -28.15 | 51442.61 | -24.52 | | |
| lambda | I | 2026-11-26T12:02:41.882 | | 28.71 | -28.25 | 50026.71 | -24.52 | | |
| delta | I | 2026-11-26T12:03:52.284 | | 28.83 | -28.36 | 48300.35 | -24.52 | | |
| gamma | I | 2026-11-26T12:04:19.763 | | 28.87 | -28.41 | 47626.53 | -24.52 | | |
| eta | I | 2026-11-26T12:04:38.131 | | 28.90 | -28.44 | 47176.12 | -24.52 | | |
| beta | I | 2026-11-26T12:05:40.624 | | 29.00 | -28.54 | 45643.01 | -24.52 | | |
| alpha | I | 2026-11-26T12:06:19.183 | | 29.06 | -28.60 | 44700.93 | -24.52 | | |
| 4 | I | 2026-11-26T12:07:44.402 | | 29.19 | -28.73 | 42609.66 | -24.52 | | |
| 5 | I | 2026-11-26T12:08:00.280 | | 29.22 | -28.76 | 42228.61 | -24.53 | | |
| 6 | I | 2026-11-26T12:08:17.643 | | 29.25 | -28.79 | 41794.75 | -24.52 | | |
| Uranus | I | 2026-11-26T12:19:03.591 | | 30.21 | -29.76 | 25155.13 | | 13.92 | 14.55 |
| Uranus | E | 2026-11-26T12:54:14.357 | | 32.65 | -32.26 | 25112.12 | | -14.67 | -15.34 |
| 6 | E | 2026-11-26T13:05:01.463 | | 33.17 | -32.80 | 41879.65 | 24.55 | | |
| 5 | E | 2026-11-26T13:05:15.990 | | 33.18 | -32.81 | 42245.71 | 24.56 | | |
| 4 | E | 2026-11-26T13:05:28.084 | | 33.19 | -32.82 | 42534.23 | 24.56 | | |
| alpha | E | 2026-11-26T13:06:57.761 | | 33.26 | -32.89 | 44737.61 | 24.56 | | |
| beta | E | 2026-11-26T13:07:36.261 | | 33.28 | -32.91 | 45679.71 | 24.56 | | |
| eta | E | 2026-11-26T13:08:37.164 | | 33.32 | -32.96 | 47176.12 | 24.56 | | |
| gamma | E | 2026-11-26T13:08:55.470 | | 33.34 | -32.97 | 47625.73 | 24.56 | | |
| delta | E | 2026-11-26T13:09:22.938 | | 33.35 | -32.99 | 48300.35 | 24.56 | | |
| lambda | E | 2026-11-26T13:10:33.224 | | 33.40 | -33.04 | 50026.71 | 24.56 | | |
| epsilon | E | 2026-11-26T13:11:07.415 | | 33.42 | -33.06 | 50866.53 | 24.57 | | |