

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2029-08-19T15:45:48.530
 Event type : PRgt
 : Uranus occs: not geocentric or topocentric
 : Ring occs: geocentric, topocentric
 Gaia source ID : 3418379215512270720
 2Mass ID (if available) : 05060971+2252253

ICRS Star Coord at Epoch: 05h 06m 09.74036s +22:52:24.46341s

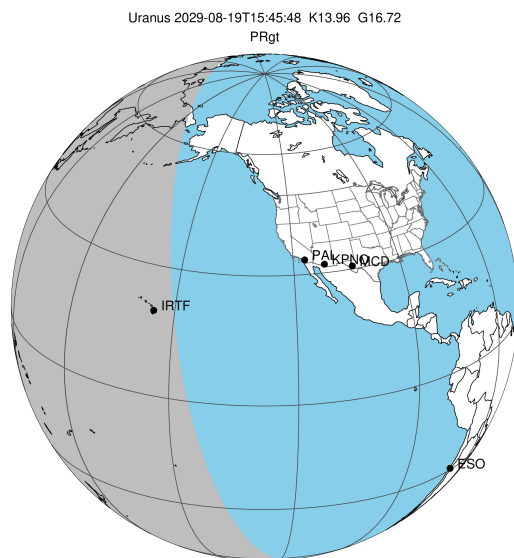
RUWE (>1.4 is poor) : 0.97
 K magnitude : 13.960
 G magnitude : 16.719
 RP magnitude : 15.870
 BP magnitude : 17.443
 DUPflag : 0
 Distance (au) : 19.586
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : 17.03
 Sun-Target sep (deg) : 68.92
 Sun-Moon sep (deg) : 164.40
 B (ring opening deg) : 82.27
 PA of pole (deg) : -5.54

a(km) ring

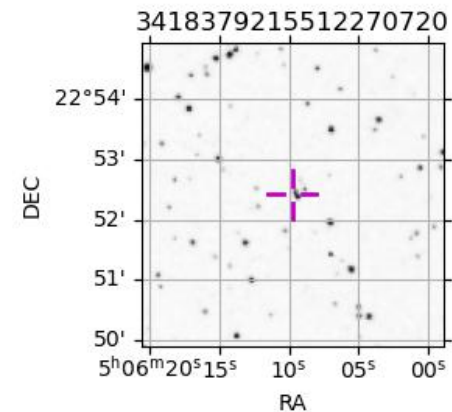
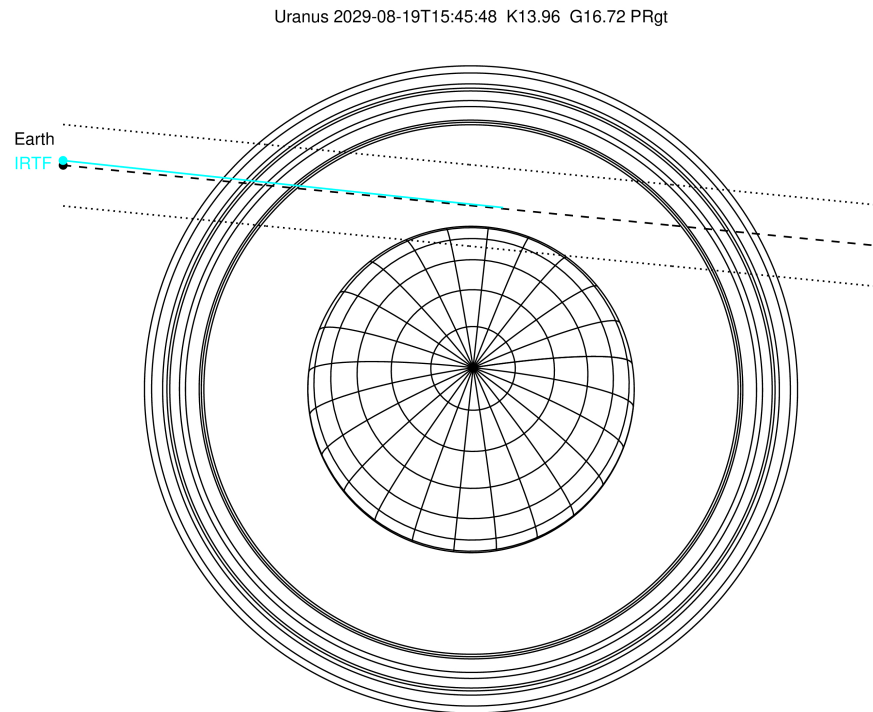
- 1 41837.2 6
- 2 42235.0 5
- 3 42571.2 4
- 4 44718.5 alpha
- 5 45661.1 beta
- 6 47176.1 eta
- 7 47626.3 gamma
- 8 48300.3 delta
- 9 50026.7 lambda
- 10 51149.4 epsilon

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

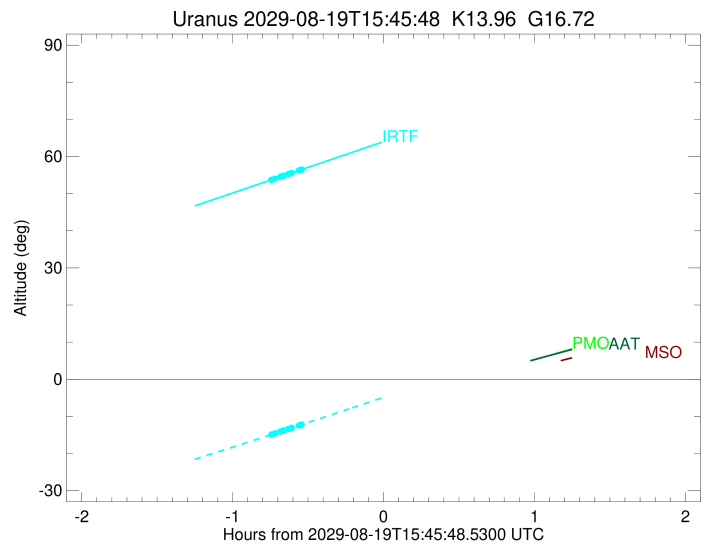
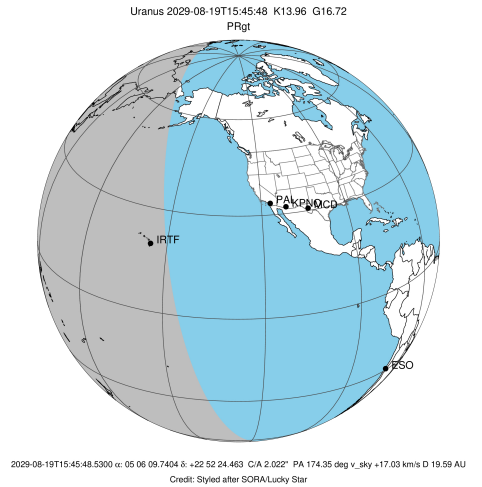
| Obs | Location | lat | Elon | Rings I | Planet | Rings E | Observed Events Interval | OEcode |
|------|-----------------------|-------|-------|---------|--------|---------|-----------------------------|--------|
| PIC | Pic du Midi | 42.9 | 0.1 | | | | | PnnRnn |
| PAL | Palomar Mt (200") | 33.4 | 243.1 | | | | | PnnRnn |
| PMO | Purple Mtn Obs. Nanki | 32.1 | 118.8 | | | | | PnnRnn |
| KPNO | Kitt Peak Natl Obs | 32.0 | 248.4 | | | | | PnnRnn |
| MCD | McDonald Obs. 2.7m | 30.7 | 256.0 | | | | | PnnRnn |
| TEN | Teide Obs./Tenerife | 28.3 | 343.5 | | | | | PnnRnn |
| IRTF | Mauna Kea/IRTF | 19.8 | 204.5 | +++++ | | | AUG 19 15:01 - AUG 19 15:13 | PnnRin |
| KAV | Kavalur Observatory | 12.6 | 78.8 | | | | | PnnRnn |
| 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 | | | | | PnnRnn |
| SAAO | So. Afr. Astro. Obs. | -32.4 | 20.8 | | | | | PnnRnn |
| MSO | Mt. Stromlo Observato | -35.3 | 149.0 | | | | | PnnRnn |



2029-08-19T15:45:48.5300 ex: 05 06 09.7404 s: +22 52 24.463 C/A 2.022" PA 174.35 deg v_sky +17.03 km/s D 19.59 AU
 Credit: Styled after SORA/Lucky Star



target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2029-08-19T15:43:13.200
 Event type : PRgt
 : Uranus occs: not geocentric or 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 : 3418379215512270720
 2Mass ID (if available) : 05060971+2252253
 ICRS Star Coord at Epoch: 05h 06m 09.74036s +22:52:24.46341s
 RUWE (>1.4 is poor) : 0.97
 K magnitude : 13.960
 G magnitude : 16.719
 RP magnitude : 15.870
 BP magnitude : 17.443
 DUPflag : 0
 Distance (au) : 19.586
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : 17.03
 Sun-Target sep (deg) : 68.92
 Sun-Moon sep (deg) : 165.03
 B (ring opening deg) : 82.27
 PA of pole (deg) : -5.54
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 2.032
 C/A sky separation (km) : 28862.4
 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



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 |
|---------|-----|-------------------------|--------|---------|----------|--------|---------|--------------|
| epsilon | I | 2029-08-19T15:01:16.471 | 53.73 | -14.88 | 51141.76 | -13.67 | | |
| lambda | I | 2029-08-19T15:02:38.064 | 54.04 | -14.58 | 50026.71 | -13.59 | | |
| delta | I | 2029-08-19T15:04:46.304 | 54.53 | -14.10 | 48300.35 | -13.33 | | |
| gamma | I | 2029-08-19T15:05:37.213 | 54.73 | -13.91 | 47624.53 | -13.22 | | |
| eta | I | 2029-08-19T15:06:11.232 | 54.86 | -13.79 | 47176.12 | -13.14 | | |
| beta | I | 2029-08-19T15:08:07.174 | 55.31 | -13.36 | 45667.91 | -12.87 | | |
| alpha | I | 2029-08-19T15:09:22.715 | 55.60 | -13.08 | 44702.54 | -12.66 | | |
| 4 | I | 2029-08-19T15:12:14.757 | 56.26 | -12.44 | 42564.37 | -12.19 | | |
| 5 | I | 2029-08-19T15:12:41.602 | 56.36 | -12.34 | 42238.45 | -12.11 | | |
| 6 | I | 2029-08-19T15:13:14.622 | 56.49 | -12.21 | 41842.50 | -11.99 | | |

No planet occultations

| | | | | | | | | |
|---------|---|-------------------------|-------|-------|----------|-------|--|--|
| 6 | E | 2029-08-19T16:13:19.206 | 70.35 | 1.41x | 41879.22 | 11.94 | | |
| 5 | E | 2029-08-19T16:13:56.161 | 70.49 | 1.55x | 42314.89 | 12.06 | | |
| 4 | E | 2029-08-19T16:14:20.656 | 70.58 | 1.64x | 42616.40 | 12.13 | | |
| alpha | E | 2029-08-19T16:17:08.533 | 71.22 | 2.29x | 44691.34 | 12.60 | | |
| beta | E | 2029-08-19T16:18:26.275 | 71.52 | 2.58x | 45678.46 | 12.80 | | |
| eta | E | 2029-08-19T16:20:22.035 | 71.96 | 3.03x | 47176.12 | 13.07 | | |
| gamma | E | 2029-08-19T16:20:56.783 | 72.10 | 3.16x | 47631.56 | 13.15 | | |
| delta | E | 2029-08-19T16:21:47.453 | 72.29 | 3.36x | 48300.35 | 13.25 | | |
| lambda | E | 2029-08-19T16:23:56.468 | 72.78 | 3.85x | 50026.71 | 13.51 | | |
| epsilon | E | 2029-08-19T16:24:51.280 | 72.99 | 4.06x | 50769.74 | 13.58 | | |