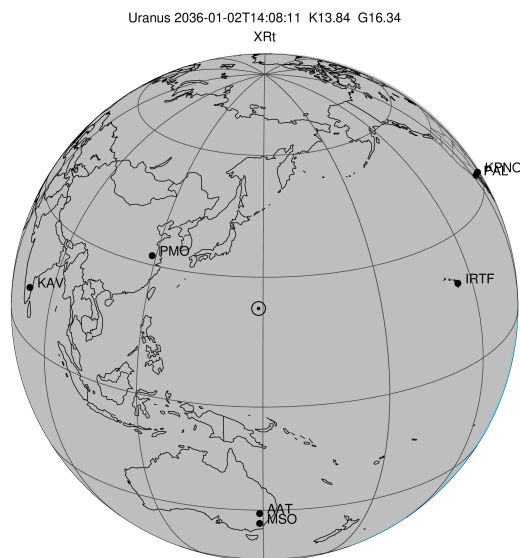


target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2036-01-02T14:08:11.770
 Event type : XRT
 : No Uranus occs
 : Ring occs: topocentric, not geocentric
 Gaia source ID : 3380275670115105792
 2Mass ID (if available) : 06545193+2313551

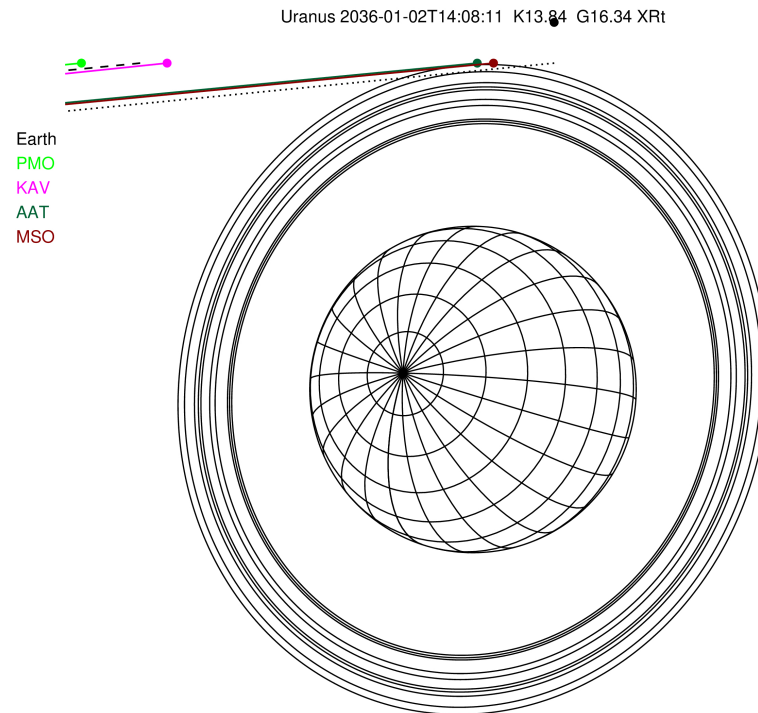
ICRS Star Coord at Epoch: 06h 54m 51.92414s +23:13:54.91425s

RUWE (>1.4 is poor) : 0.99
 K magnitude : 13.837
 G magnitude : 16.336
 RP magnitude : 15.517
 BP magnitude : 17.062
 DUPflag : 0
 Distance (au) : 17.843
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -23.35
 Sun-Target sep (deg) : 178.61
 Sun-Moon sep (deg) : 138.27
 B (ring opening deg) : 63.84
 PA of pole (deg) : 76.83

| # | 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 |

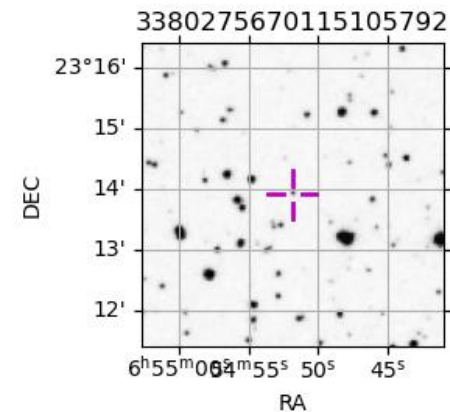


2036-01-02T14:08:11.7700 ra: 06 54 51.9241 s: +23 13 54.914 C/A 4.334 PA 185.62 deg v_sky -23.35 km/s D 17.84 AU
 Credit: Styled after SORA/Lucky Star

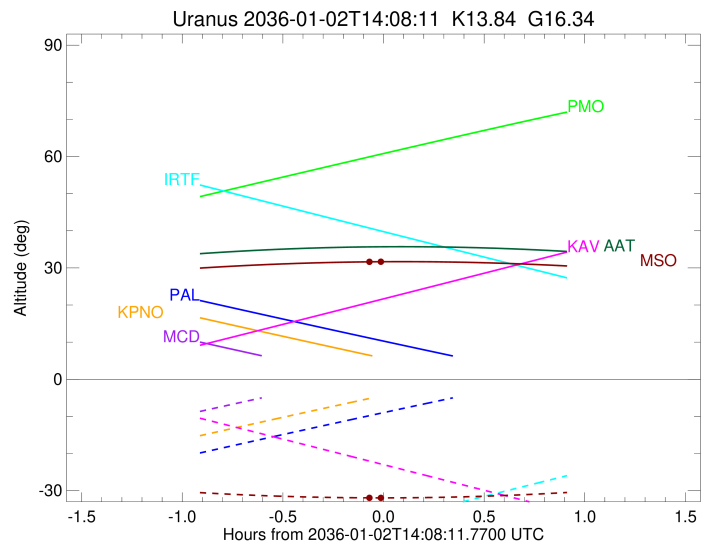
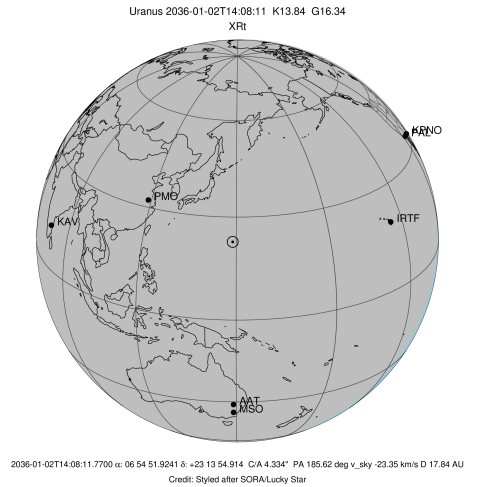


Observable events with sun below -5 deg and altitude above 5 deg unblocked by planet

| 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 | | | | | PnnRnn |
| 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 | + | | | + JAN 02 14:03 - JAN 02 14:08 | PnnRie |



target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2036-01-02T14:07:50.700
 Event type : XRt
 : No Uranus occs
 : Ring occs: topocentric, not geocentric
 Observer code : MSO
 Location : Mt. Stromlo Observatory
 Latitude (deg) : -35.32000
 E. Longitude (deg) : 149.00833
 Altitude (km) : 0.770
 Gaia source ID : 3380275670115105792
 2Mass ID (if available) : 06545193+2313551
 ICRS Star Coord at Epoch: 06h 54m 51.92414s +23:13:54.91425s
 RUWE (>1.4 is poor) : 0.99
 K magnitude : 13.837
 G magnitude : 16.336
 RP magnitude : 15.517
 BP magnitude : 17.062
 DUPflag : 0
 Distance (au) : 17.843
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -23.35
 Sun-Target sep (deg) : 178.61
 Sun-Moon sep (deg) : 138.53
 B (ring opening deg) : 63.84
 PA of pole (deg) : 76.83
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 3.907
 C/A sky separation (km) : 50565.6
 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_itrf93_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 | 2036-01-02T14:03:32.515 | | 31.63 | -31.94 | 51205.45 | -1.94 | | |
| No planet occultations | | | | | | | | | |
| epsilon | E | 2036-01-02T14:08:22.556 | | 31.67 | -31.95 | 51266.58 | 1.96 | | |