

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2047-11-02T14:14:18.870
 Event type : XRgt
 : No Uranus occs
 : Ring occs: geocentric, topocentric
 Gaia source ID : 3869177230551162240
 2Mass ID (if available) : 10455120+0839178

ICRS Star Coord at Epoch: 10h 45m 51.16894s +08:39:16.26133s

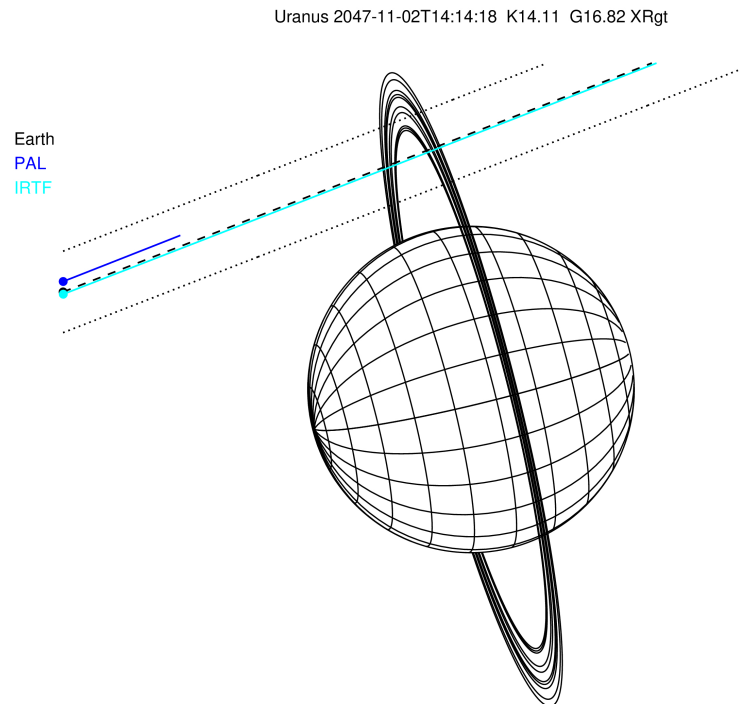
RUWE (>1.4 is poor) : 1.08
 K magnitude : 14.111
 G magnitude : 16.818
 RP magnitude : 15.969
 BP magnitude : 17.585
 DUPflag : 0
 Distance (au) : 18.782
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : 21.82
 Sun-Target sep (deg) : 59.80
 Sun-Moon sep (deg) : 121.29
 B (ring opening deg) : 7.85
 PA of pole (deg) : 104.26

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

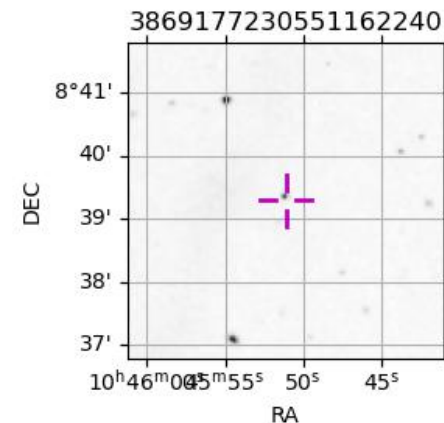


2047-11-02T14:14:18.8700 ex: 10 45 51.1689 s: +08 39 16.261 C/A 2.743° PA 201.24 deg v_sky +21.82 km/s D 18.78 AU
 Credit: Styled after SORA/Lucky Star

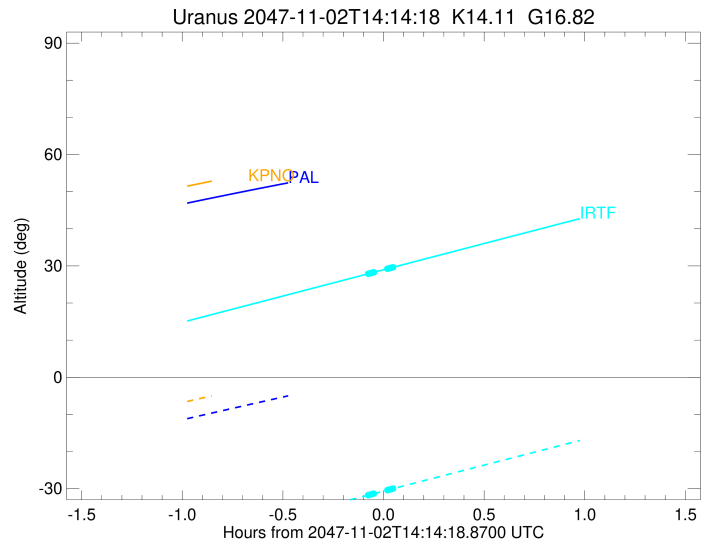
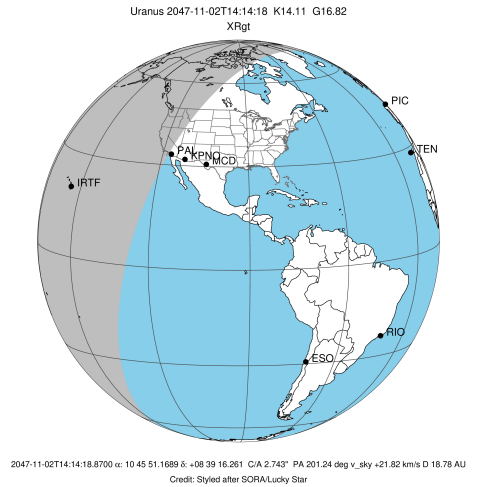


Observable events with sun below -5 deg and altitude above 5 deg unblocked by planet

| 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 | +++++ | | +++++ | NOV 02 14:09 - NOV 02 14:17 | PnnRie |
| 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 |



target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2047-11-02T14:09:59.620
 Event type : XRgt
 : No Uranus occs
 : 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 : 3869177230551162240
 2Mass ID (if available) : 10455120+0839178
 ICRS Star Coord at Epoch: 10h 45m 51.16894s +08:39:16.26133s
 RUWE (>1.4 is poor) : 1.08
 K magnitude : 14.111
 G magnitude : 16.818
 RP magnitude : 15.969
 BP magnitude : 17.585
 DUPflag : 0
 Distance (au) : 18.782
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : 21.82
 Sun-Target sep (deg) : 59.80
 Sun-Moon sep (deg) : 122.07
 B (ring opening deg) : 7.85
 PA of pole (deg) : 104.26
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 2.720
 C/A sky separation (km) : 37050.5
 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 | 2047-11-02T14:09:48.322 | | 27.89 | -31.73 | 50751.21 | -106.27 | | |
| lambda | I | 2047-11-02T14:09:55.187 | | 27.92 | -31.70 | 50026.71 | -104.60 | | |
| delta | I | 2047-11-02T14:10:12.079 | | 27.98 | -31.63 | 48300.35 | -99.69 | | |
| gamma | I | 2047-11-02T14:10:18.865 | | 28.01 | -31.61 | 47630.87 | -97.56 | | |
| eta | I | 2047-11-02T14:10:23.562 | | 28.03 | -31.59 | 47176.11 | -96.04 | | |
| beta | I | 2047-11-02T14:10:40.119 | | 28.09 | -31.53 | 45648.84 | -90.36 | | |
| alpha | I | 2047-11-02T14:10:50.520 | | 28.13 | -31.48 | 44714.97 | -86.69 | | |
| 4 | I | 2047-11-02T14:11:17.337 | | 28.24 | -31.38 | 42574.48 | -75.41 | | |
| 5 | I | 2047-11-02T14:11:22.268 | | 28.26 | -31.36 | 42281.74 | -73.95 | | |
| 6 | I | 2047-11-02T14:11:28.333 | | 28.28 | -31.34 | 41858.90 | -70.96 | | |

No planet occultations

| | | | | | | | | | |
|---------|---|-------------------------|--|-------|--------|----------|--------|--|--|
| 6 | E | 2047-11-02T14:15:29.465 | | 29.23 | -30.40 | 41879.54 | 70.98 | | |
| 5 | E | 2047-11-02T14:15:31.852 | | 29.24 | -30.39 | 42207.42 | 73.97 | | |
| 4 | E | 2047-11-02T14:15:38.547 | | 29.27 | -30.36 | 42611.11 | 75.42 | | |
| alpha | E | 2047-11-02T14:16:03.320 | | 29.36 | -30.26 | 44748.12 | 86.68 | | |
| beta | E | 2047-11-02T14:16:14.012 | | 29.41 | -30.22 | 45642.04 | 90.35 | | |
| eta | E | 2047-11-02T14:16:30.373 | | 29.47 | -30.16 | 47176.12 | 96.02 | | |
| gamma | E | 2047-11-02T14:16:35.010 | | 29.49 | -30.14 | 47624.77 | 97.53 | | |
| delta | E | 2047-11-02T14:16:41.863 | | 29.52 | -30.11 | 48300.35 | 99.65 | | |
| lambda | E | 2047-11-02T14:16:58.767 | | 29.58 | -30.05 | 50026.71 | 104.55 | | |
| epsilon | E | 2047-11-02T14:17:08.312 | | 29.62 | -30.01 | 51036.83 | 106.22 | | |