

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2034-01-15T19:10:51.630
 Event type : XRgt
 : No Uranus occs
 : Ring occs: geocentric, topocentric
 Gaia source ID : 3425426226052968576
 2Mass ID (if available) : 06114704+2341085

ICRS Star Coord at Epoch: 06h 11m 47.04749s +23:41:08.63361s

RUWE (>1.4 is poor) : 0.97
 K magnitude : 11.590
 G magnitude : 14.782
 RP magnitude : 13.828
 BP magnitude : 15.656
 DUPflag : 0
 Distance (au) : 18.037
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -21.14
 Sun-Target sep (deg) : 157.46
 Sun-Moon sep (deg) : 147.61
 B (ring opening deg) : 73.00
 PA of pole (deg) : 62.81

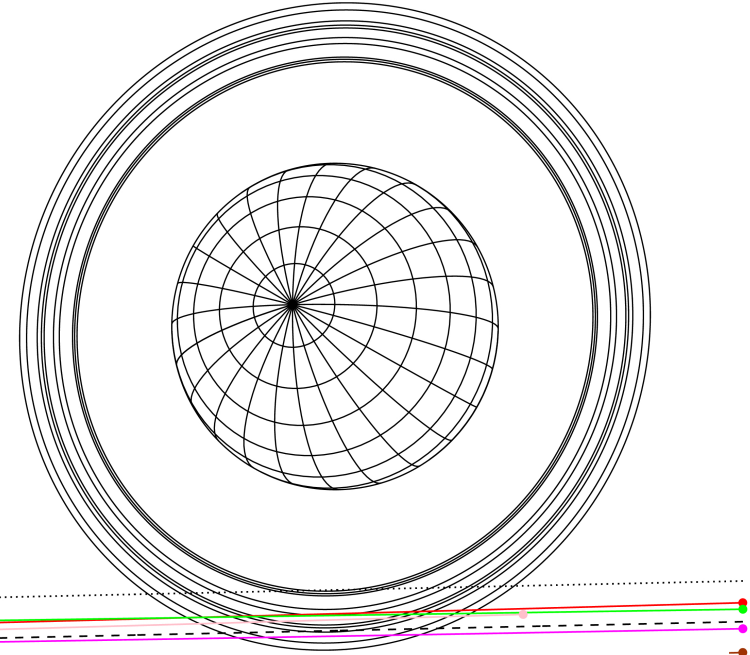
| # | a(km) | ring |
|----|---------|---------|
| 1 | 41837.2 | 6 |
| 2 | 42235.0 | 5 |
| 3 | 42571.2 | 4 |
| 4 | 44718.5 | alpha |
| 5 | 45661.1 | beta |
| 6 | 47176.1 | eta |
| 7 | 47626.3 | gamma |
| 8 | 48300.3 | delta |
| 9 | 50026.7 | lambda |
| 10 | 51149.4 | epsilon |



2034-01-15T19:10:51.6300 a: 06 11 47.0475 & +23 41 08.634 C/A 3.633° PA 1.26 deg v_sky -21.14 km/s D 18.04 AU
 Credit: Styled after SORA/Lucky Star

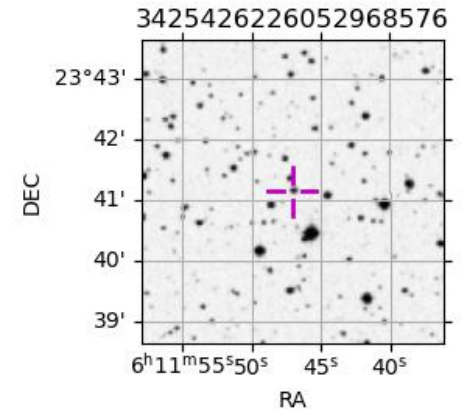
Uranus 2034-01-15T19:10:51 K11.59 G14.78 XRgt

PIC
 PMO
 TEN
 KAV
 SAAO

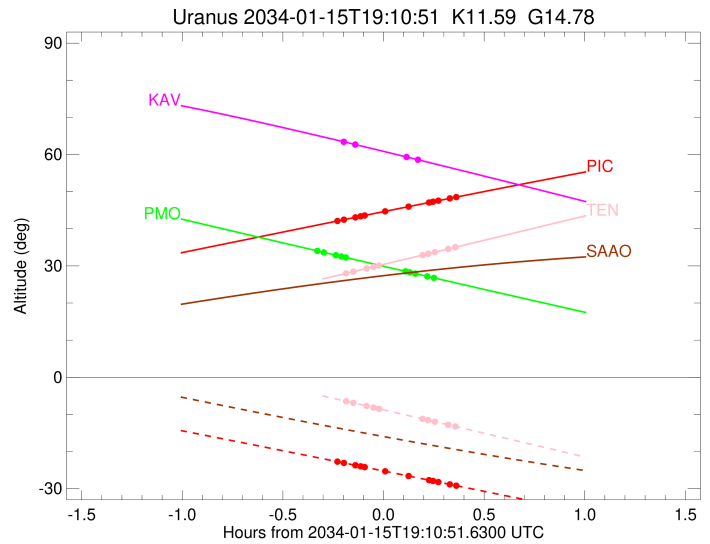
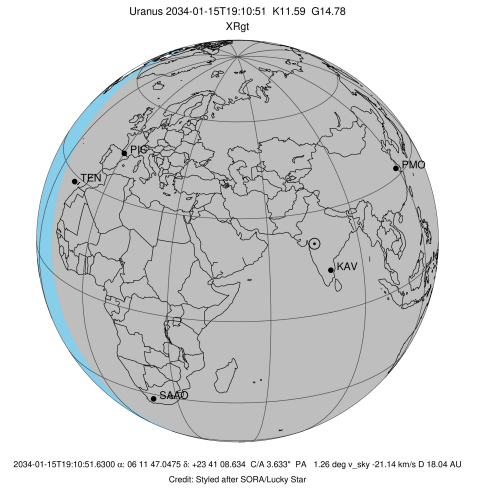


Observable events with sun below -5 deg and altitude above 5 deg unblocked by planet

| Obs | Location | lat | Elon | Rings I | Planet | Rings E | Observed Events Interval | OEcode |
|------|-----------------------|-------|-------|---------|--------|---------|-----------------------------|--------|
| PIC | Pic du Midi | 42.9 | 0.1 | +++++ | | +++++ | JAN 15 18:56 - JAN 15 19:33 | PnnRie |
| PAL | Palomar Mt (200") | 33.4 | 243.1 | | | | | PnnRnn |
| PMO | Purple Mtn Obs. Nanki | 32.1 | 118.8 | +++++ | | +++++ | JAN 15 18:50 - JAN 15 19:26 | PnnRie |
| 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 | +++++ | | +++++ | JAN 15 18:59 - JAN 15 19:32 | PnnRie |
| IRTF | Mauna Kea/IRTF | 19.8 | 204.5 | | | | | PnnRnn |
| KAV | Kavalur Observatory | 12.6 | 78.8 | ++ | | ++ | JAN 15 18:58 - JAN 15 19:22 | PnnRie |
| 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 : 2034-01-15T19:13:33.650
 Event type : XRgt
 : No Uranus occs
 : Ring occs: geocentric, topocentric
 Observer code : PIC
 Location : Pic du Midi
 Latitude (deg) : 42.93656
 E. Longitude (deg) : 0.14231
 Altitude (km) : 2.890
 Gaia source ID : 3425426226052968576
 2Mass ID (if available) : 06114704+2341085
 ICRS Star Coord at Epoch: 06h 11m 47.04749s +23:41:08.63361s
 RUWE (>1.4 is poor) : 0.97
 K magnitude : 11.590
 G magnitude : 14.782
 RP magnitude : 13.828
 BP magnitude : 15.656
 DUPflag : 0
 Distance (au) : 18.037
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -21.14
 Sun-Target sep (deg) : 157.46
 Sun-Moon sep (deg) : 147.56
 B (ring opening deg) : 73.00
 PA of pole (deg) : 62.81
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 3.438
 C/A sky separation (km) : 44974.7
 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_itrfr93_040916.bsp
 earth_720101_070426.bpc
 earth_200101_990628_predict.bpc
 pg3f0000r.bsp
 pg490000r.bsp
 naif0012.tls
 earth_flat_IAU.spk

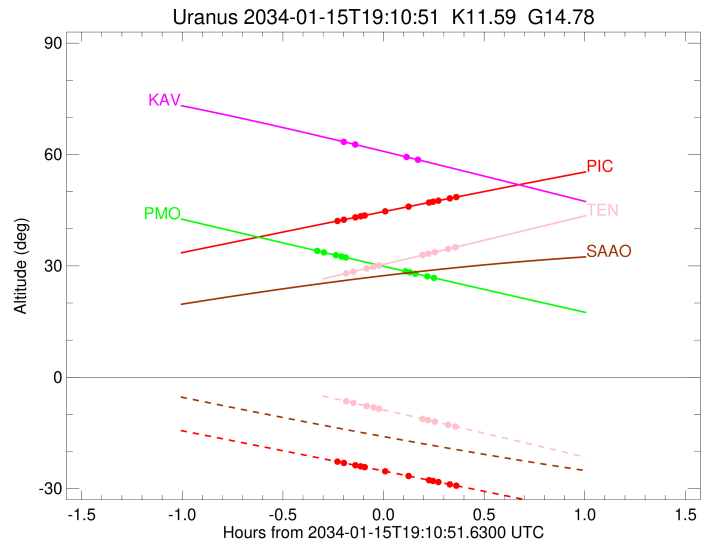
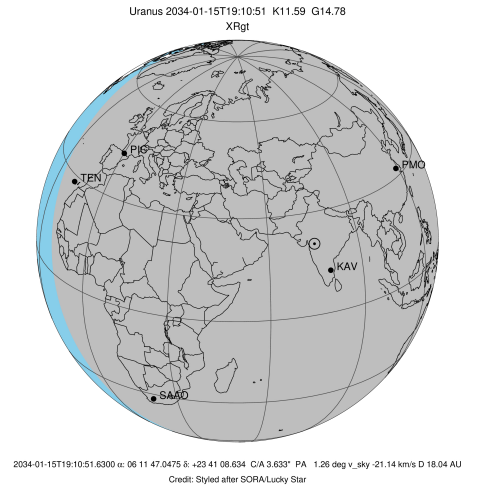


| Ring | I/E | UTC | b? | alt | alt-sun | radius | r-dot | lat-geo | lat-geodetic |
|---------|-----|-------------------------|----|-------|---------|----------|--------|---------|--------------|
| epsilon | I | 2034-01-15T18:56:33.971 | | 41.99 | -22.63 | 51507.37 | -10.48 | | |
| lambda | I | 2034-01-15T18:59:04.589 | | 42.45 | -23.09 | 50026.71 | -9.24 | | |
| delta | I | 2034-01-15T19:02:30.553 | | 43.08 | -23.71 | 48300.35 | -7.49 | | |
| gamma | I | 2034-01-15T19:04:05.492 | | 43.37 | -24.00 | 47630.04 | -6.62 | | |
| eta | I | 2034-01-15T19:05:17.737 | | 43.59 | -24.22 | 47176.12 | -5.94 | | |
| beta | I | 2034-01-15T19:11:37.759 | | 44.75 | -25.38 | 45641.10 | -2.07 | | |

No planet occultations

| | | | | | | | | | |
|---------|---|-------------------------|--|-------|--------|----------|-------|--|--|
| beta | E | 2034-01-15T19:18:04.723 | | 45.92 | -26.55 | 45641.69 | 2.07 | | |
| eta | E | 2034-01-15T19:24:24.303 | | 47.07 | -27.71 | 47176.12 | 5.95 | | |
| gamma | E | 2034-01-15T19:25:36.055 | | 47.28 | -27.93 | 47627.23 | 6.63 | | |
| delta | E | 2034-01-15T19:27:11.316 | | 47.57 | -28.22 | 48300.35 | 7.50 | | |
| lambda | E | 2034-01-15T19:30:37.011 | | 48.19 | -28.85 | 50026.71 | 9.26 | | |
| epsilon | E | 2034-01-15T19:33:07.253 | | 48.64 | -29.31 | 51505.94 | 10.49 | | |

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2034-01-15T19:07:13.110
 Event type : XRgt
 : No Uranus occs
 : 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 : 3425426226052968576
 2Mass ID (if available) : 06114704+2341085
 ICRS Star Coord at Epoch: 06h 11m 47.04749s +23:41:08.63361s
 RUWE (>1.4 is poor) : 0.97
 K magnitude : 11.590
 G magnitude : 14.782
 RP magnitude : 13.828
 BP magnitude : 15.656
 DUPflag : 0
 Distance (au) : 18.037
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -21.14
 Sun-Target sep (deg) : 157.46
 Sun-Moon sep (deg) : 148.49
 B (ring opening deg) : 73.00
 PA of pole (deg) : 62.81
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 3.459
 C/A sky separation (km) : 45248.0
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk
 URKALLvl1.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

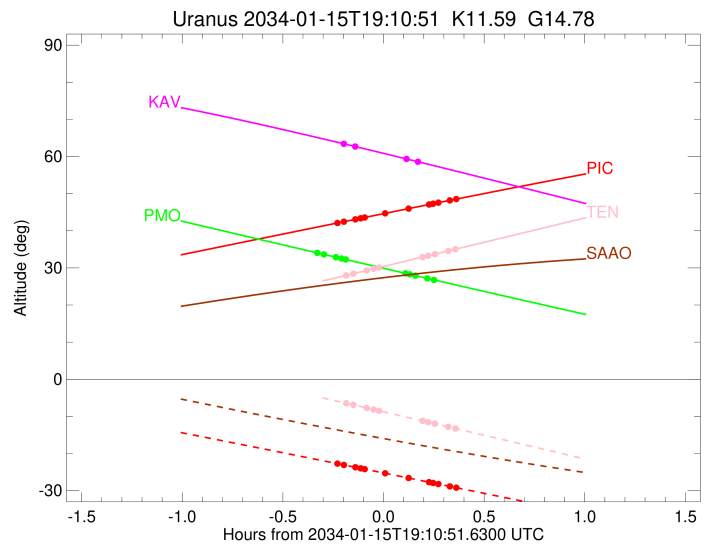
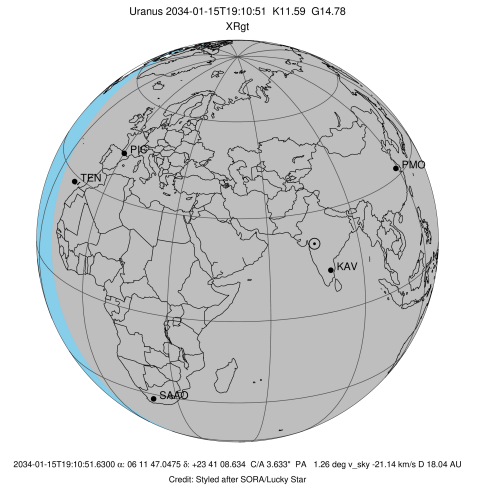


| Ring | I/E | UTC | b? | alt | alt-sun | radius | r-dot | lat-geo | lat-geodetic |
|---------|-----|-------------------------|----|-------|---------|----------|--------|---------|--------------|
| epsilon | I | 2034-01-15T18:50:32.410 | | 34.17 | -53.57 | 51511.50 | -10.26 | | |
| lambda | I | 2034-01-15T18:53:07.182 | | 33.62 | -53.03 | 50026.71 | -8.98 | | |
| delta | I | 2034-01-15T18:56:40.858 | | 32.87 | -52.27 | 48300.35 | -7.15 | | |
| gamma | I | 2034-01-15T18:58:21.126 | | 32.52 | -51.92 | 47629.93 | -6.22 | | |
| eta | I | 2034-01-15T18:59:38.676 | | 32.25 | -51.65 | 47176.12 | -5.48 | | |

No planet occultations

| | | | | | | | | | |
|---------|---|-------------------------|--|-------|--------|----------|-------|--|--|
| eta | E | 2034-01-15T19:17:21.880 | | 28.54 | -47.90 | 47176.12 | 5.47 | | |
| gamma | E | 2034-01-15T19:18:39.117 | | 28.28 | -47.63 | 47627.27 | 6.21 | | |
| delta | E | 2034-01-15T19:20:19.988 | | 27.93 | -47.27 | 48300.35 | 7.13 | | |
| lambda | E | 2034-01-15T19:23:54.124 | | 27.18 | -46.52 | 50026.71 | 8.96 | | |
| epsilon | E | 2034-01-15T19:26:28.748 | | 26.65 | -45.97 | 51505.85 | 10.23 | | |

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2034-01-15T19:14:41.790
 Event type : XRgt
 : No Uranus occs
 : Ring occs: geocentric, topocentric
 Observer code : TEN
 Location : Teide Obs./Tenerife
 Latitude (deg) : 28.30050
 E. Longitude (deg) : 343.48909
 Altitude (km) : 2.395
 Gaia source ID : 3425426226052968576
 2Mass ID (if available) : 06114704+2341085
 ICRS Star Coord at Epoch: 06h 11m 47.04749s +23:41:08.63361s
 RUWE (>1.4 is poor) : 0.97
 K magnitude : 11.590
 G magnitude : 14.782
 RP magnitude : 13.828
 BP magnitude : 15.656
 DUPflag : 0
 Distance (au) : 18.037
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -21.14
 Sun-Target sep (deg) : 157.46
 Sun-Moon sep (deg) : 147.27
 B (ring opening deg) : 73.00
 PA of pole (deg) : 62.81
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 3.511
 C/A sky separation (km) : 45924.6
 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

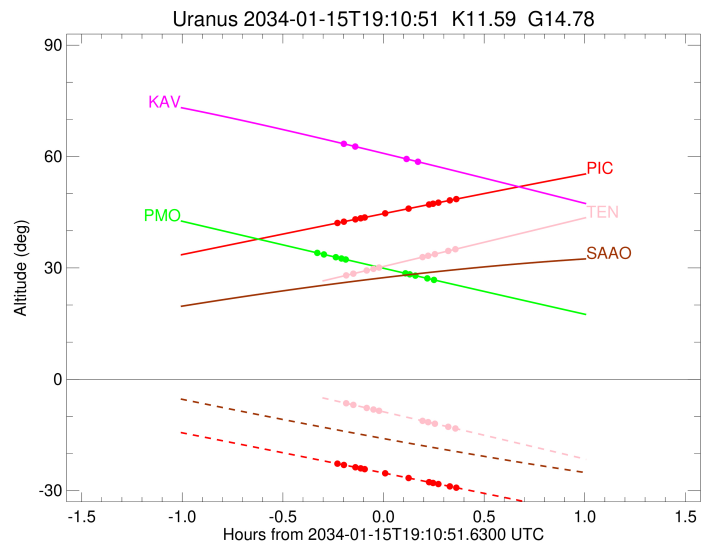
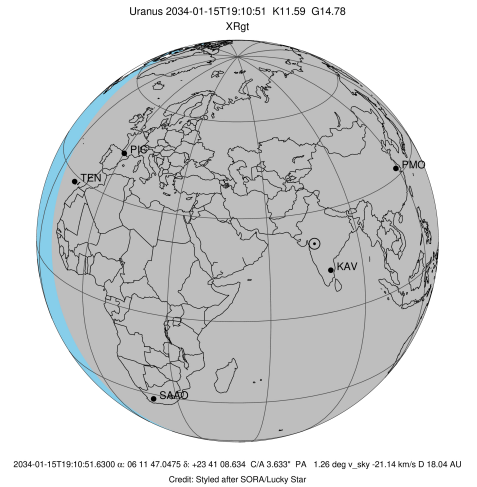


| Ring | I/E | UTC | b? | alt | alt-sun | radius | r-dot | lat-geo | lat-geodetic |
|---------|-----|-------------------------|----|-------|---------|----------|-------|---------|--------------|
| epsilon | I | 2034-01-15T18:59:06.479 | | 27.85 | -6.33 | 51514.59 | -9.64 | | |
| lambda | I | 2034-01-15T19:01:53.439 | | 28.45 | -6.91 | 50026.71 | -8.23 | | |
| delta | I | 2034-01-15T19:05:53.368 | | 29.31 | -7.74 | 48300.35 | -6.12 | | |
| gamma | I | 2034-01-15T19:07:54.210 | | 29.75 | -8.16 | 47629.75 | -4.97 | | |
| eta | I | 2034-01-15T19:09:35.537 | | 30.11 | -8.51 | 47176.12 | -3.98 | | |

No planet occultations

| | | | | | | | | | |
|---------|---|-------------------------|--|-------|--------|----------|------|--|--|
| eta | E | 2034-01-15T19:22:27.007 | | 32.89 | -11.19 | 47176.12 | 3.98 | | |
| gamma | E | 2034-01-15T19:24:07.806 | | 33.26 | -11.54 | 47627.64 | 4.98 | | |
| delta | E | 2034-01-15T19:26:08.919 | | 33.70 | -11.97 | 48300.35 | 6.13 | | |
| lambda | E | 2034-01-15T19:30:08.443 | | 34.56 | -12.81 | 50026.71 | 8.25 | | |
| epsilon | E | 2034-01-15T19:32:54.985 | | 35.17 | -13.39 | 51514.03 | 9.66 | | |

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2034-01-15T19:08:43.040
 Event type : XRgt
 : No Uranus occs
 : 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 : 3425426226052968576
 2Mass ID (if available) : 06114704+2341085
 ICRS Star Coord at Epoch: 06h 11m 47.04749s +23:41:08.63361s
 RUWE (>1.4 is poor) : 0.97
 K magnitude : 11.590
 G magnitude : 14.782
 RP magnitude : 13.828
 BP magnitude : 15.656
 DUPflag : 0
 Distance (au) : 18.037
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -21.14
 Sun-Target sep (deg) : 157.46
 Sun-Moon sep (deg) : 148.38
 B (ring opening deg) : 73.00
 PA of pole (deg) : 62.81
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 3.707
 C/A sky separation (km) : 48497.7
 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_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 | 2034-01-15T18:58:06.398 | | 63.63 | -81.44 | 51536.39 | -6.99 | | |
| lambda | I | 2034-01-15T19:02:28.822 | | 62.68 | -81.27 | 50026.71 | -4.53 | | |

No planet occultations

| | | | | | | | | | |
|---------|---|-------------------------|--|-------|--------|----------|------|--|--|
| lambda | E | 2034-01-15T19:17:41.212 | | 59.36 | -79.80 | 50026.71 | 4.53 | | |
| epsilon | E | 2034-01-15T19:22:03.424 | | 58.39 | -79.19 | 51533.22 | 6.98 | | |