

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2043-01-02T21:44:14.730
 Event type : PtRgt
 : Uranus occs: topocentric, not geocentric
 : Ring occs: geocentric, topocentric
 Gaia source ID : 631924070178833664
 2Mass ID (if available) : 09150763+1640508

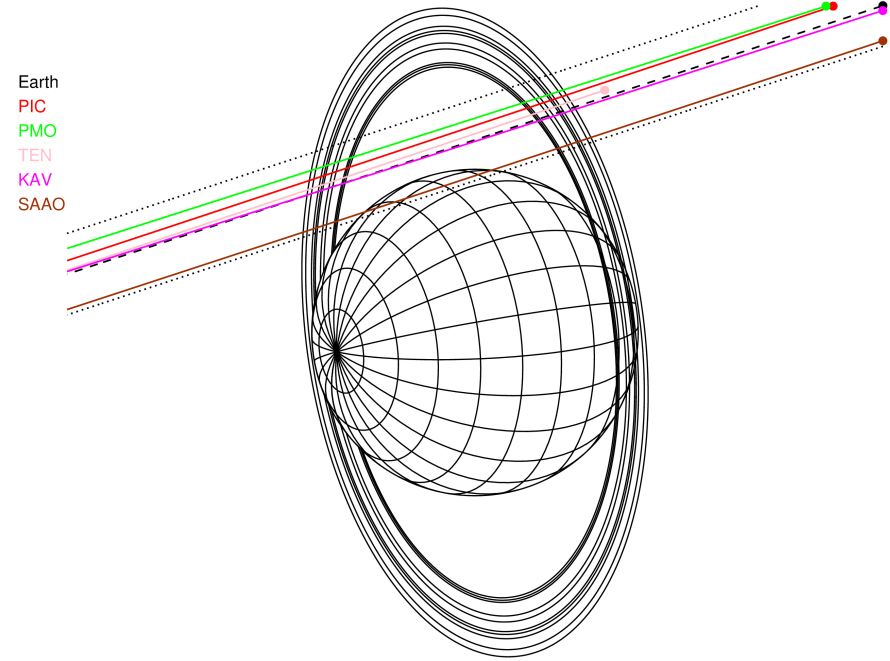
ICRS Star Coord at Epoch: 09h 15m 07.63995s +16:40:50.66123s
 RUWE (>1.4 is poor) : 0.98
 K magnitude : 14.622
 G magnitude : 16.998
 RP magnitude : 16.246
 BP magnitude : 17.645
 DUPflag : 0
 Distance (au) : 17.623
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -17.95
 Sun-Target sep (deg) : 145.67
 Sun-Moon sep (deg) : 51.87
 B (ring opening deg) : 31.11
 PA of pole (deg) : 97.95

| # | 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 |



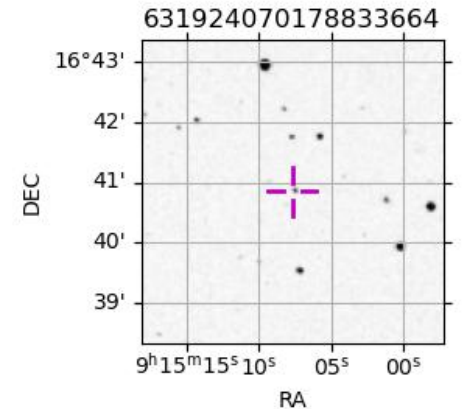
2043-01-02T21:44:14.7300 ra: 09 15 07.6400 s: +16 40 50.661 C/A 2.254" PA 198.22 deg v_sky -17.95 km/s D 17.62 AU
 Credit: Styled after SORA/Lucky Star

Uranus 2043-01-02T21:44:14 K14.62 G17.00 PtRgt



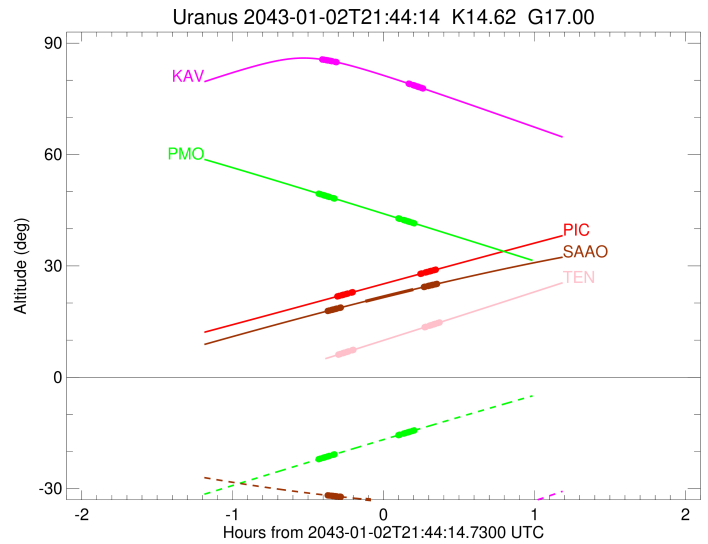
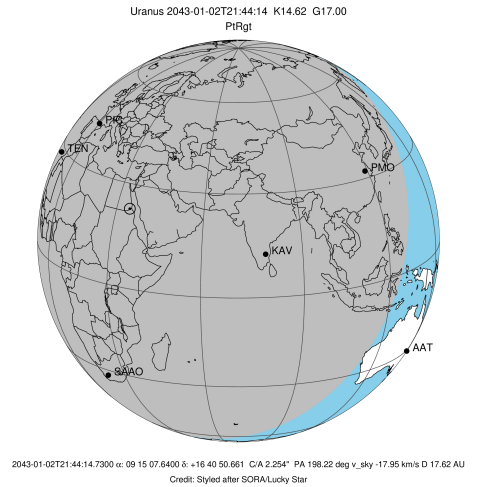
Observable events with sun below -5 deg and altitude above 5 deg unblocked by planet

| Obs | Location | lat | Elon | Rings I | Planet | Rings E | Observed Events Interval | OEncode |
|------|-----------------------|-------|-------|---------|--------|---------|-----------------------------|---------|
| PIC | Pic du Midi | 42.9 | 0.1 | +++++ | | +++++ | JAN 02 21:25 - JAN 02 22:05 | PnnRie |
| PAL | Palomar Mt (200") | 33.4 | 243.1 | | | | | PnnRnn |
| PMO | Purple Mtn Obs. Nanki | 32.1 | 118.8 | +++++ | | +++++ | JAN 02 21:18 - JAN 02 21:56 | 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 02 21:26 - JAN 02 22:06 | PnnRie |
| IRTF | Mauna Kea/IRTF | 19.8 | 204.5 | | | | | PnnRnn |
| KAV | Kavalur Observatory | 12.6 | 78.8 | +++++ | | +++++ | JAN 02 21:19 - JAN 02 21:59 | 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 | +++++ | + + | +++++ | JAN 02 21:21 - JAN 02 22:05 | PieRie |
| MSO | Mt. Stromlo Observato | -35.3 | 149.0 | | | | | PnnRnn |



```

target                : Uranus
target radius (km)   : 25559.00
C/A epoch            : 2043-01-02T21:49:15.650
Event type          : PtRgt
: Uranus occs: topocentric, not geocentric
: 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      : 631924070178833664
2Mass ID (if available) : 09150763+1640508
ICRS Star Coord at Epoch: 09h 15m 07.63995s +16:40:50.66123s
RUWE (>1.4 is poor) : 0.98
K magnitude          : 14.622
G magnitude          : 16.998
RP magnitude         : 16.246
BP magnitude         : 17.645
DUPflag             : 0
Distance (au)       : 17.623
f0 (km)              : 0.000
g0 (km)              : 0.000
skyplane vel. (km/s) : -17.95
Sun-Target sep (deg) : 145.67
Sun-Moon sep (deg)  : 52.64
B (ring opening deg) : 31.11
PA of pole (deg)    : 97.95
Pole direction: RA (deg): 257.31100
Dec (deg): -15.17500
C/A sky separation (") : 2.407
C/A sky separation (km) : 30761.5
NAIF SPICE kernels  : RAJobs_U111+rgf15.spk
URKALLvl1.spk
urall11.bsp
IAU_URANUS_for_RINGFIT.tpc
vgr2.urall11.bsp
ural61.bsp
vgr2.ural61.bsp
peph.ural60.bsp
earthstns_itrf93_040916.bsp
earth_720101_070426.bpc
earth_200101_990628_predict.bpc
pg3f0000r.bsp
pg490000r.bsp
naif0012.tls
earth_flat_IAU.spk
  
```

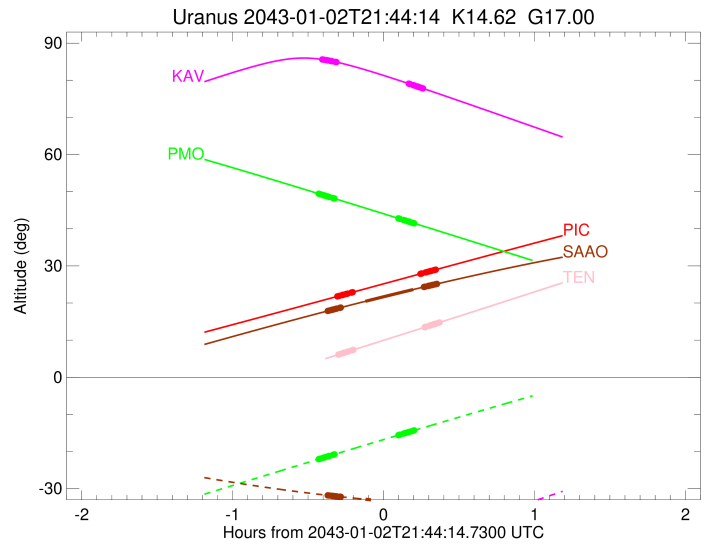
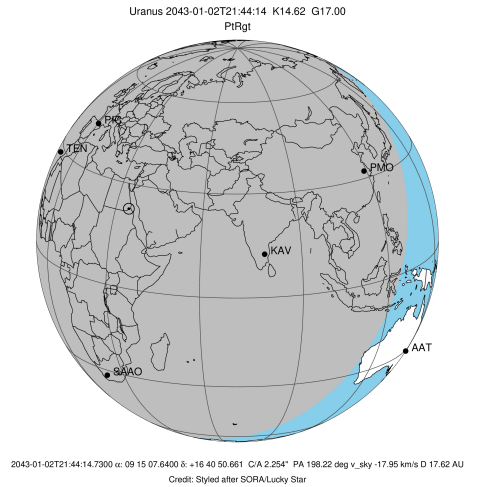


| Ring | I/E | UTC | b? | alt | alt-sun | radius | r-dot | lat-geo | lat-geodetic |
|---------|-----|-------------------------|----|-------|---------|----------|--------|---------|--------------|
| epsilon | I | 2043-01-02T21:25:40.894 | | 21.74 | -51.83 | 51536.51 | -27.55 | | |
| lambda | I | 2043-01-02T21:26:36.273 | | 21.91 | -51.99 | 50026.71 | -27.02 | | |
| delta | I | 2043-01-02T21:27:40.912 | | 22.11 | -52.18 | 48300.35 | -26.39 | | |
| gamma | I | 2043-01-02T21:28:06.601 | | 22.19 | -52.26 | 47625.88 | -26.12 | | |
| eta | I | 2043-01-02T21:28:23.881 | | 22.24 | -52.31 | 47176.12 | -25.93 | | |
| beta | I | 2043-01-02T21:29:23.507 | | 22.43 | -52.48 | 45647.01 | -25.23 | | |
| alpha | I | 2043-01-02T21:30:00.357 | | 22.54 | -52.58 | 44720.80 | -24.80 | | |
| 4 | I | 2043-01-02T21:31:29.403 | | 22.81 | -52.84 | 42578.90 | -23.56 | | |
| 5 | I | 2043-01-02T21:31:45.162 | | 22.86 | -52.89 | 42235.64 | -23.41 | | |
| 6 | I | 2043-01-02T21:32:04.478 | | 22.92 | -52.94 | 41794.94 | -23.04 | | |

No planet occultations

| | | | | | | | | | |
|---------|---|-------------------------|--|-------|--------|----------|-------|--|--|
| 6 | E | 2043-01-02T21:58:56.381 | | 27.87 | -57.45 | 41836.56 | 23.10 | | |
| 5 | E | 2043-01-02T21:59:14.066 | | 27.92 | -57.49 | 42315.01 | 23.47 | | |
| 4 | E | 2043-01-02T21:59:29.440 | | 27.97 | -57.53 | 42616.34 | 23.62 | | |
| alpha | E | 2043-01-02T22:00:55.742 | | 28.23 | -57.77 | 44752.27 | 24.87 | | |
| beta | E | 2043-01-02T22:01:31.802 | | 28.34 | -57.86 | 45647.84 | 25.31 | | |
| eta | E | 2043-01-02T22:02:31.480 | | 28.52 | -58.02 | 47176.12 | 26.01 | | |
| gamma | E | 2043-01-02T22:02:48.526 | | 28.58 | -58.07 | 47621.08 | 26.20 | | |
| delta | E | 2043-01-02T22:03:14.318 | | 28.66 | -58.14 | 48300.35 | 26.47 | | |
| lambda | E | 2043-01-02T22:04:18.751 | | 28.85 | -58.31 | 50026.71 | 27.11 | | |
| epsilon | E | 2043-01-02T22:05:00.316 | | 28.98 | -58.42 | 51161.22 | 27.65 | | |

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2043-01-02T21:41:07.370
 Event type : PtRgt
 : Uranus occs: topocentric, not geocentric
 : 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 : 631924070178833664
 2Mass ID (if available) : 09150763+1640508
 ICRS Star Coord at Epoch: 09h 15m 07.63995s +16:40:50.66123s
 RUWE (>1.4 is poor) : 0.98
 K magnitude : 14.622
 G magnitude : 16.998
 RP magnitude : 16.246
 BP magnitude : 17.645
 DUPflag : 0
 Distance (au) : 17.623
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -17.95
 Sun-Target sep (deg) : 145.67
 Sun-Moon sep (deg) : 52.09
 B (ring opening deg) : 31.11
 PA of pole (deg) : 97.95
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 2.502
 C/A sky separation (km) : 31975.2
 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



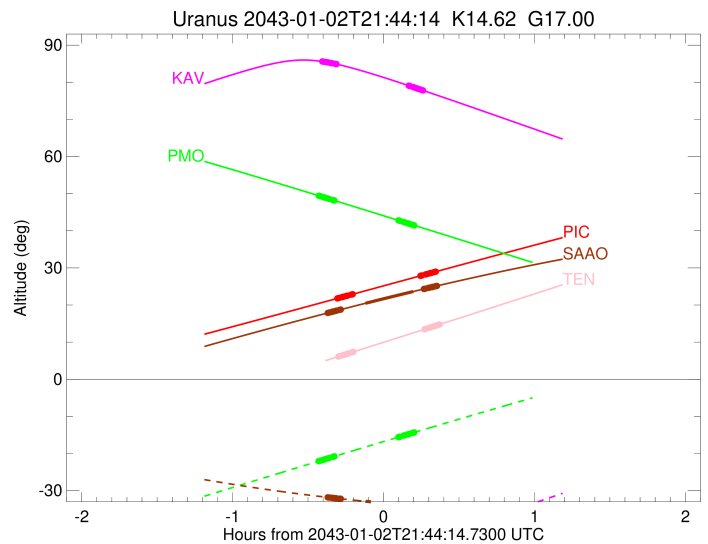
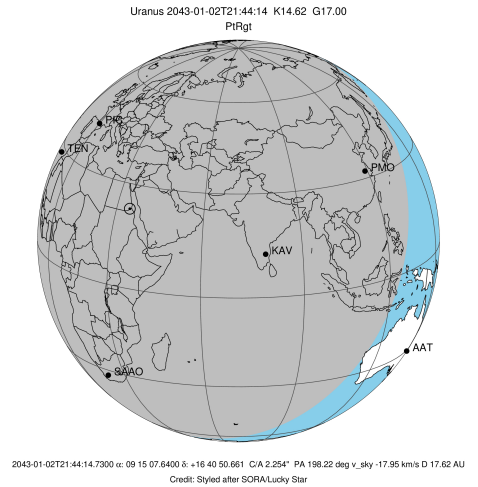
| Ring | I/E | UTC | b? | alt | alt-sun | radius | r-dot | lat-geo | lat-geodetic |
|---------|-----|-------------------------|----|-------|---------|----------|--------|---------|--------------|
| epsilon | I | 2043-01-02T21:18:15.715 | | 49.50 | -22.11 | 51539.20 | -27.19 | | |
| lambda | I | 2043-01-02T21:19:11.998 | | 49.30 | -21.91 | 50026.71 | -26.59 | | |
| delta | I | 2043-01-02T21:20:17.767 | | 49.07 | -21.69 | 48300.35 | -25.89 | | |
| gamma | I | 2043-01-02T21:20:43.976 | | 48.98 | -21.60 | 47625.73 | -25.58 | | |
| eta | I | 2043-01-02T21:21:01.619 | | 48.92 | -21.54 | 47176.12 | -25.38 | | |
| beta | I | 2043-01-02T21:22:02.692 | | 48.71 | -21.33 | 45646.60 | -24.59 | | |
| alpha | I | 2043-01-02T21:22:40.500 | | 48.58 | -21.20 | 44721.85 | -24.09 | | |
| 4 | I | 2043-01-02T21:24:12.551 | | 48.26 | -20.88 | 42580.48 | -22.69 | | |
| 5 | I | 2043-01-02T21:24:28.741 | | 48.20 | -20.83 | 42238.55 | -22.51 | | |
| 6 | I | 2043-01-02T21:24:49.051 | | 48.13 | -20.76 | 41795.12 | -22.09 | | |

No planet occultations

| | | | | | | | | | |
|---------|---|-------------------------|--|-------|--------|----------|-------|--|--|
| 6 | E | 2043-01-02T21:50:11.314 | | 42.80 | -15.58 | 41834.47 | 22.06 | | |
| 5 | E | 2043-01-02T21:50:30.014 | | 42.73 | -15.52 | 42314.61 | 22.47 | | |
| 4 | E | 2043-01-02T21:50:45.883 | | 42.68 | -15.47 | 42616.50 | 22.65 | | |
| alpha | E | 2043-01-02T21:52:15.512 | | 42.36 | -15.17 | 44752.38 | 24.05 | | |
| beta | E | 2043-01-02T21:52:52.707 | | 42.23 | -15.04 | 45647.22 | 24.55 | | |
| eta | E | 2043-01-02T21:53:54.137 | | 42.01 | -14.83 | 47176.12 | 25.33 | | |
| gamma | E | 2043-01-02T21:54:11.632 | | 41.95 | -14.78 | 47621.04 | 25.54 | | |
| delta | E | 2043-01-02T21:54:38.077 | | 41.86 | -14.69 | 48300.35 | 25.84 | | |
| lambda | E | 2043-01-02T21:55:43.986 | | 41.63 | -14.46 | 50026.71 | 26.54 | | |
| epsilon | E | 2043-01-02T21:56:26.931 | | 41.47 | -14.32 | 51175.44 | 27.13 | | |

```

target                : Uranus
target radius (km)   : 25559.00
C/A epoch            : 2043-01-02T21:50:09.090
Event type           : PtRgt
: Uranus occs: topocentric, not geocentric
: 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       : 631924070178833664
2Mass ID (if available) : 09150763+1640508
ICRS Star Coord at Epoch: 09h 15m 07.63995s +16:40:50.66123s
RUWE (>1.4 is poor) : 0.98
K magnitude           : 14.622
G magnitude           : 16.998
RP magnitude          : 16.246
BP magnitude          : 17.645
DUPflag               : 0
Distance (au)         : 17.623
f0 (km)               : 0.000
g0 (km)               : 0.000
skyplane vel. (km/s) : -17.95
Sun-Target sep (deg) : 145.67
Sun-Moon sep (deg)   : 52.53
B (ring opening deg) : 31.11
PA of pole (deg)     : 97.95
Pole direction: RA (deg): 257.31100
Dec (deg): -15.17500
C/A sky separation (") : 2.309
C/A sky separation (km) : 29509.4
NAIF SPICE kernels   : RAJobs_U111+rgf15.spk
URKALLvl1.spk
urall1.bsp
IAU_URANUS_for_RINGFIT.tpc
vgr2.urall1.bsp
ural61.bsp
vgr2.ural61.bsp
peph.ural60.bsp
earthstns_itrfr93_040916.bsp
earth_720101_070426.bpc
earth_200101_990628_predict.bpc
pg3f0000r.bsp
pg490000r.bsp
naif0012.tls
earth_flat_IAU.spk
  
```

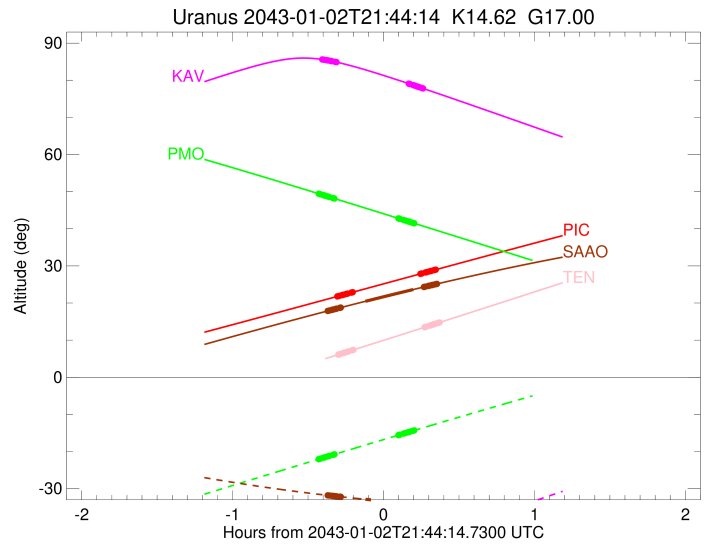
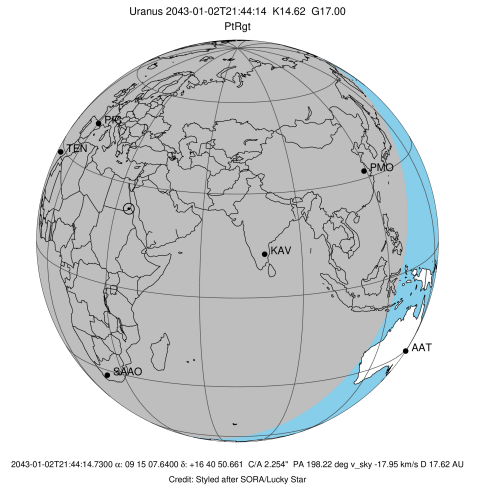


| Ring | I/E | UTC | b? | alt | alt-sun | radius | r-dot | lat-geo | lat-geodetic |
|---------|-----|-------------------------|----|------|---------|----------|--------|---------|--------------|
| epsilon | I | 2043-01-02T21:26:06.462 | | 6.06 | -39.63 | 51532.83 | -28.02 | | |
| lambda | I | 2043-01-02T21:27:00.720 | | 6.26 | -39.83 | 50026.71 | -27.54 | | |
| delta | I | 2043-01-02T21:28:04.042 | | 6.48 | -40.06 | 48300.35 | -26.98 | | |
| gamma | I | 2043-01-02T21:28:29.147 | | 6.57 | -40.15 | 47626.05 | -26.74 | | |
| eta | I | 2043-01-02T21:28:46.025 | | 6.63 | -40.21 | 47176.12 | -26.57 | | |
| beta | I | 2043-01-02T21:29:44.090 | | 6.84 | -40.42 | 45647.53 | -25.95 | | |
| alpha | I | 2043-01-02T21:30:19.947 | | 6.97 | -40.55 | 44719.55 | -25.57 | | |
| 4 | I | 2043-01-02T21:31:45.977 | | 7.27 | -40.87 | 42577.08 | -24.48 | | |
| 5 | I | 2043-01-02T21:32:01.341 | | 7.33 | -40.92 | 42232.33 | -24.36 | | |
| 6 | I | 2043-01-02T21:32:19.673 | | 7.39 | -40.99 | 41794.81 | -24.02 | | |

No planet occultations

| | | | | | | | | | |
|---------|---|-------------------------|--|-------|--------|----------|-------|--|--|
| 6 | E | 2043-01-02T22:00:37.070 | | 13.48 | -47.19 | 41838.48 | 24.10 | | |
| 5 | E | 2043-01-02T22:00:53.867 | | 13.54 | -47.25 | 42315.21 | 24.44 | | |
| 4 | E | 2043-01-02T22:01:08.787 | | 13.59 | -47.31 | 42616.10 | 24.56 | | |
| alpha | E | 2043-01-02T22:02:32.087 | | 13.89 | -47.61 | 44752.11 | 25.66 | | |
| beta | E | 2043-01-02T22:03:07.106 | | 14.02 | -47.74 | 45648.43 | 26.05 | | |
| eta | E | 2043-01-02T22:04:05.166 | | 14.23 | -47.96 | 47176.12 | 26.68 | | |
| gamma | E | 2043-01-02T22:04:21.795 | | 14.29 | -48.02 | 47621.13 | 26.84 | | |
| delta | E | 2043-01-02T22:04:46.982 | | 14.38 | -48.11 | 48300.35 | 27.09 | | |
| lambda | E | 2043-01-02T22:05:50.042 | | 14.61 | -48.34 | 50026.71 | 27.66 | | |
| epsilon | E | 2043-01-02T22:06:30.351 | | 14.76 | -48.49 | 51148.28 | 28.15 | | |

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2043-01-02T21:43:09.460
 Event type : PtRgt
 : Uranus occs: topocentric, not geocentric
 : 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 : 631924070178833664
 2Mass ID (if available) : 09150763+1640508
 ICRS Star Coord at Epoch: 09h 15m 07.63995s +16:40:50.66123s
 RUWE (>1.4 is poor) : 0.98
 K magnitude : 14.622
 G magnitude : 16.998
 RP magnitude : 16.246
 BP magnitude : 17.645
 DUPflag : 0
 Distance (au) : 17.623
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -17.95
 Sun-Target sep (deg) : 145.67
 Sun-Moon sep (deg) : 52.50
 B (ring opening deg) : 31.11
 PA of pole (deg) : 97.95
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 2.230
 C/A sky separation (km) : 28506.6
 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_itr93_040916.bsp
 earth_720101_070426.bpc
 earth_200101_990628_predict.bpc
 pg3f0000r.bsp
 pg490000r.bsp
 naif0012.tls
 earth_flat_IAU.spk

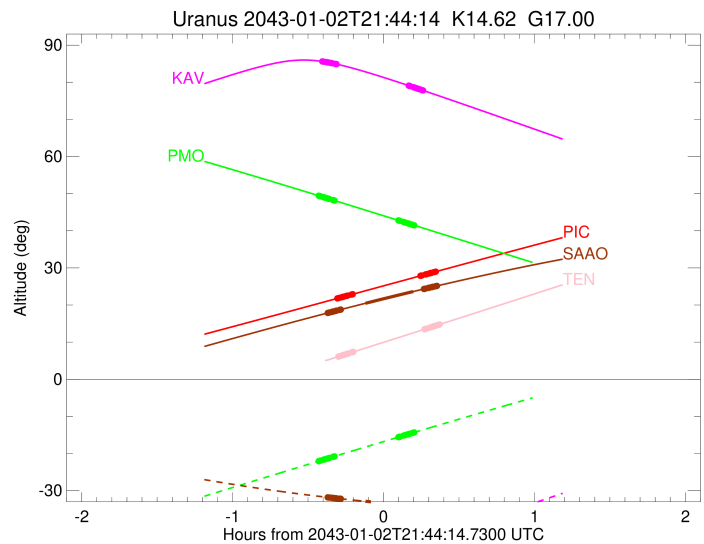
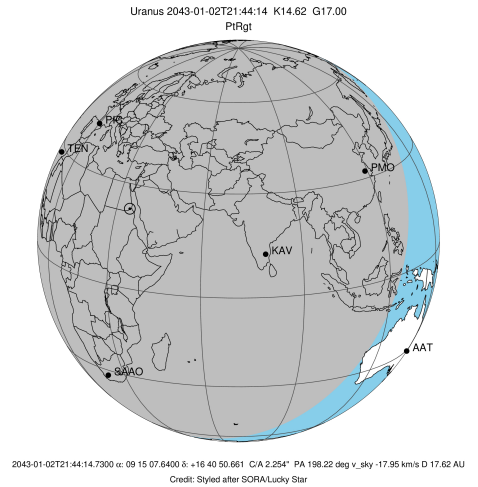


| Ring | I/E | UTC | b? | alt | alt-sun | radius | r-dot | lat-geo | lat-geodetic |
|---------|-----|-------------------------|----|-------|---------|----------|--------|---------|--------------|
| epsilon | I | 2043-01-02T21:19:41.689 | | 85.63 | -52.70 | 51528.24 | -29.22 | | |
| lambda | I | 2043-01-02T21:20:33.538 | | 85.54 | -52.50 | 50026.71 | -28.75 | | |
| delta | I | 2043-01-02T21:21:34.122 | | 85.43 | -52.27 | 48300.35 | -28.23 | | |
| gamma | I | 2043-01-02T21:21:58.097 | | 85.38 | -52.18 | 47626.24 | -28.00 | | |
| eta | I | 2043-01-02T21:22:14.215 | | 85.35 | -52.12 | 47176.12 | -27.85 | | |
| beta | I | 2043-01-02T21:23:09.530 | | 85.23 | -51.91 | 45648.10 | -27.27 | | |
| alpha | I | 2043-01-02T21:23:43.703 | | 85.15 | -51.78 | 44718.22 | -26.91 | | |
| 4 | I | 2043-01-02T21:25:05.206 | | 84.96 | -51.47 | 42575.19 | -25.90 | | |
| 5 | I | 2043-01-02T21:25:19.926 | | 84.92 | -51.42 | 42228.92 | -25.79 | | |
| 6 | I | 2043-01-02T21:25:37.001 | | 84.88 | -51.35 | 41794.75 | -25.48 | | |

No planet occultations

| | | | | | | | | | |
|---------|---|-------------------------|--|-------|--------|----------|-------|--|--|
| 6 | E | 2043-01-02T21:54:17.746 | | 79.09 | -44.80 | 41839.70 | 25.48 | | |
| 5 | E | 2043-01-02T21:54:33.548 | | 79.04 | -44.74 | 42315.25 | 25.79 | | |
| 4 | E | 2043-01-02T21:54:47.776 | | 78.98 | -44.68 | 42615.91 | 25.90 | | |
| alpha | E | 2043-01-02T21:56:06.991 | | 78.68 | -44.38 | 44751.99 | 26.91 | | |
| beta | E | 2043-01-02T21:56:40.438 | | 78.56 | -44.25 | 45648.79 | 27.26 | | |
| eta | E | 2043-01-02T21:57:35.979 | | 78.35 | -44.04 | 47176.12 | 27.84 | | |
| gamma | E | 2043-01-02T21:57:51.919 | | 78.28 | -43.98 | 47621.16 | 28.00 | | |
| delta | E | 2043-01-02T21:58:16.082 | | 78.19 | -43.88 | 48300.35 | 28.22 | | |
| lambda | E | 2043-01-02T21:59:16.684 | | 77.96 | -43.65 | 50026.71 | 28.74 | | |
| epsilon | E | 2043-01-02T21:59:55.241 | | 77.82 | -43.50 | 51140.94 | 29.21 | | |

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2043-01-02T21:46:36.740
 Event type : PtRgt
 : Uranus occs: topocentric, not geocentric
 : Ring occs: geocentric, topocentric
 Observer code : SAAO
 Location : So. Afr. Astro. Obs. (Sutherland)
 Latitude (deg) : -32.37953
 E. Longitude (deg) : 20.81070
 Altitude (km) : 1.768
 Gaia source ID : 631924070178833664
 2Mass ID (if available) : 09150763+1640508
 ICRS Star Coord at Epoch: 09h 15m 07.63995s +16:40:50.66123s
 RUWE (>1.4 is poor) : 0.98
 K magnitude : 14.622
 G magnitude : 16.998
 RP magnitude : 16.246
 BP magnitude : 17.645
 DUPflag : 0
 Distance (au) : 17.623
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -17.95
 Sun-Target sep (deg) : 145.67
 Sun-Moon sep (deg) : 52.37
 B (ring opening deg) : 31.11
 PA of pole (deg) : 97.95
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 1.825
 C/A sky separation (km) : 23322.5
 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 | 2043-01-02T21:21:53.932 | | 17.83 | -31.80 | 51509.26 | -30.96 | | |
| lambda | I | 2043-01-02T21:22:42.092 | | 17.97 | -31.86 | 50026.71 | -30.66 | | |
| delta | I | 2043-01-02T21:23:38.690 | | 18.14 | -31.93 | 48300.35 | -30.34 | | |
| gamma | I | 2043-01-02T21:24:00.935 | | 18.20 | -31.96 | 47626.92 | -30.20 | | |
| eta | I | 2043-01-02T21:24:15.883 | | 18.25 | -31.98 | 47176.12 | -30.11 | | |
| beta | I | 2043-01-02T21:25:06.747 | | 18.40 | -32.04 | 45650.28 | -29.76 | | |
| alpha | I | 2043-01-02T21:25:38.225 | | 18.49 | -32.08 | 44713.51 | -29.55 | | |
| 4 | I | 2043-01-02T21:26:51.691 | | 18.70 | -32.17 | 42568.34 | -28.95 | | |
| 5 | I | 2043-01-02T21:27:05.514 | | 18.74 | -32.19 | 42216.79 | -28.92 | | |
| 6 | I | 2043-01-02T21:27:19.911 | | 18.79 | -32.20 | 41795.20 | -28.71 | | |
| Uranus | I | 2043-01-02T21:37:04.039 | | 20.47 | -32.87 | 25550.07 | | -11.81 | -12.35 |
| Uranus | E | 2043-01-02T21:56:03.609 | | 23.63 | -33.91 | 25509.81 | | 28.73 | 29.86 |
| 6 | E | 2043-01-02T22:00:19.202 | | 24.32 | -34.09 | 41846.62 | 28.79 | | |
| 5 | E | 2043-01-02T22:00:32.760 | | 24.36 | -34.10 | 42314.27 | 29.00 | | |
| 4 | E | 2043-01-02T22:00:45.843 | | 24.39 | -34.11 | 42614.10 | 29.03 | | |
| alpha | E | 2043-01-02T22:01:57.142 | | 24.58 | -34.16 | 44750.82 | 29.64 | | |
| beta | E | 2043-01-02T22:02:27.711 | | 24.67 | -34.18 | 45651.20 | 29.85 | | |
| eta | E | 2043-01-02T22:03:18.588 | | 24.80 | -34.21 | 47176.12 | 30.20 | | |
| gamma | E | 2043-01-02T22:03:33.307 | | 24.84 | -34.22 | 47621.40 | 30.30 | | |
| delta | E | 2043-01-02T22:03:55.666 | | 24.90 | -34.24 | 48300.35 | 30.44 | | |
| lambda | E | 2043-01-02T22:04:52.082 | | 25.05 | -34.27 | 50026.71 | 30.76 | | |
| epsilon | E | 2043-01-02T22:05:26.589 | | 25.14 | -34.29 | 51091.34 | 31.07 | | |