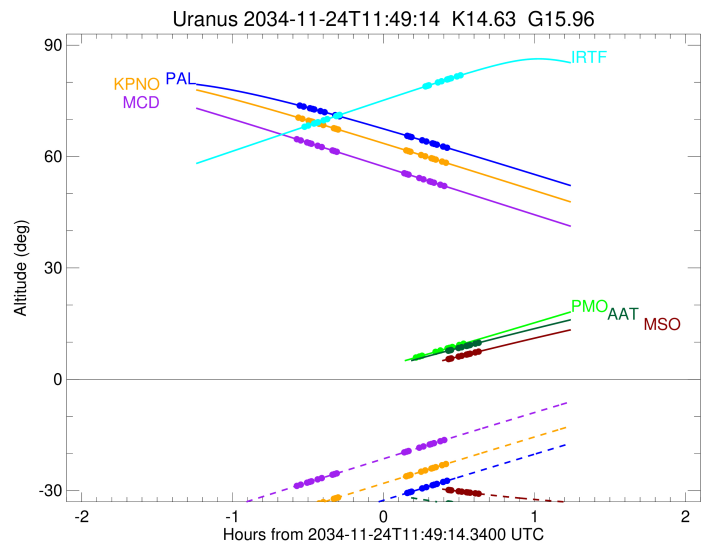
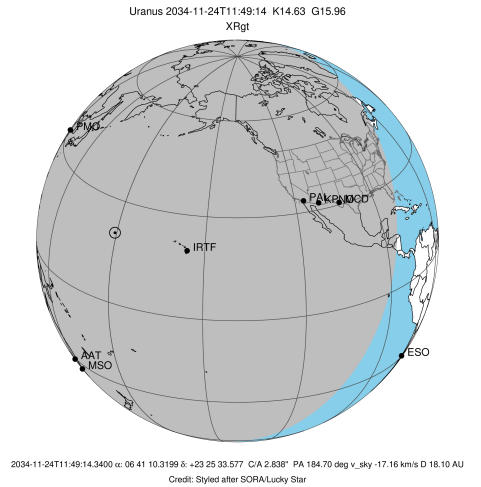


target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2034-11-24T11:47:09.860
 Event type : XRgt
 : No Uranus occs
 : Ring occs: geocentric, topocentric
 Observer code : PAL
 Location : Palomar Mt (200")
 Latitude (deg) : 33.35622
 E. Longitude (deg) : 243.13601
 Altitude (km) : 1.706
 Gaia source ID : 3379769040070151424
 2Mass ID (if available) : 06411031+2325336
 ICRS Star Coord at Epoch: 06h 41m 10.31993s +23:25:33.57674s
 RUWE (>1.4 is poor) : 0.91
 K magnitude : 14.634
 G magnitude : 15.965
 RP magnitude : 15.555
 BP magnitude : 16.218
 DUPflag : 0
 Distance (au) : 18.104
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -17.16
 Sun-Target sep (deg) : 142.34
 Sun-Moon sep (deg) : 59.43
 B (ring opening deg) : 66.83
 PA of pole (deg) : 73.30
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 2.937
 C/A sky separation (km) : 38564.6
 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



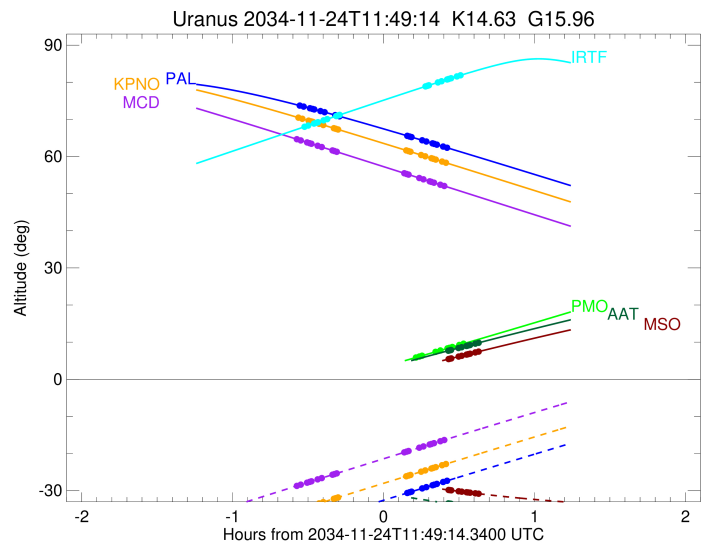
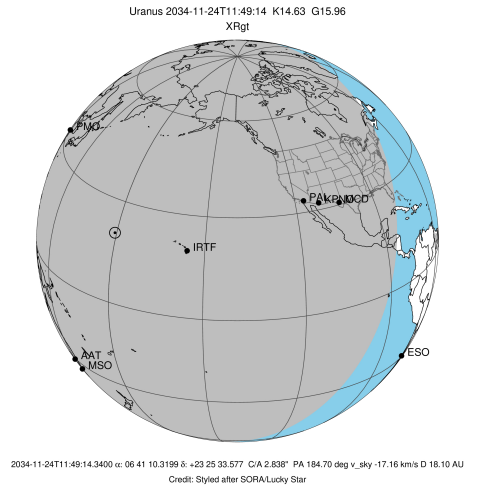
b: ring blocked by planet x: target alt < 5.0 deg or sun > -5.0 deg

| Ring | I/E | UTC | b? | alt | alt-sun | radius | r-dot | lat-geo | lat-geodetic |
|---------|-----|-------------------------|----|-------|---------|----------|--------|---------|--------------|
| epsilon | I | 2034-11-24T11:15:48.678 | | 73.75 | -39.58 | 51265.72 | -12.16 | | |
| lambda | I | 2034-11-24T11:17:31.479 | | 73.45 | -39.22 | 50026.71 | -11.84 | | |
| delta | I | 2034-11-24T11:20:01.614 | | 73.00 | -38.70 | 48300.35 | -11.15 | | |
| gamma | I | 2034-11-24T11:21:03.015 | | 72.82 | -38.49 | 47624.90 | -10.85 | | |
| eta | I | 2034-11-24T11:21:44.791 | | 72.69 | -38.34 | 47176.12 | -10.64 | | |
| beta | I | 2034-11-24T11:24:11.256 | | 72.25 | -37.83 | 45675.45 | -9.84 | | |
| alpha | I | 2034-11-24T11:25:50.582 | | 71.94 | -37.48 | 44725.67 | -9.27 | | |
| 4 | I | 2034-11-24T11:30:03.949 | | 71.16 | -36.60 | 42584.20 | -7.58 | | |
| 5 | I | 2034-11-24T11:30:48.672 | | 71.02 | -36.45 | 42251.93 | -7.32 | | |
| 6 | I | 2034-11-24T11:31:48.949 | | 70.83 | -36.24 | 41825.66 | -6.83 | | |

No planet occultations

| | | | | | | | | | |
|---------|---|-------------------------|--|-------|--------|----------|-------|--|--|
| 6 | E | 2034-11-24T11:58:32.318 | | 65.60 | -30.66 | 41801.14 | 6.82 | | |
| 5 | E | 2034-11-24T11:59:43.646 | | 65.37 | -30.42 | 42302.85 | 7.32 | | |
| 4 | E | 2034-11-24T12:00:17.047 | | 65.25 | -30.30 | 42548.11 | 7.58 | | |
| alpha | E | 2034-11-24T12:04:38.408 | | 64.37 | -29.39 | 44750.57 | 9.26 | | |
| beta | E | 2034-11-24T12:06:13.616 | | 64.05 | -29.06 | 45655.17 | 9.83 | | |
| eta | E | 2034-11-24T12:08:42.211 | | 63.55 | -28.55 | 47176.12 | 10.62 | | |
| gamma | E | 2034-11-24T12:09:24.568 | | 63.41 | -28.40 | 47630.63 | 10.84 | | |
| delta | E | 2034-11-24T12:10:25.523 | | 63.20 | -28.19 | 48300.35 | 11.14 | | |
| lambda | E | 2034-11-24T12:12:55.872 | | 62.69 | -27.67 | 50026.71 | 11.82 | | |
| epsilon | E | 2034-11-24T12:13:59.431 | | 62.47 | -27.45 | 50786.41 | 12.14 | | |

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2034-11-24T11:55:02.960
 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 : 3379769040070151424
 2Mass ID (if available) : 06411031+2325336
 ICRS Star Coord at Epoch: 06h 41m 10.31993s +23:25:33.57674s
 RUWE (>1.4 is poor) : 0.91
 K magnitude : 14.634
 G magnitude : 15.965
 RP magnitude : 15.555
 BP magnitude : 16.218
 DUPflag : 0
 Distance (au) : 18.104
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -17.16
 Sun-Target sep (deg) : 142.34
 Sun-Moon sep (deg) : 58.06
 B (ring opening deg) : 66.83
 PA of pole (deg) : 73.30
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 3.056
 C/A sky separation (km) : 40131.7
 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_itr93_040916.bsp
 earth_720101_070426.bpc
 earth_200101_990628_predict.bpc
 pg3f0000r.bsp
 pg490000r.bsp
 naif0012.tls
 earth_flat_IAU.spk

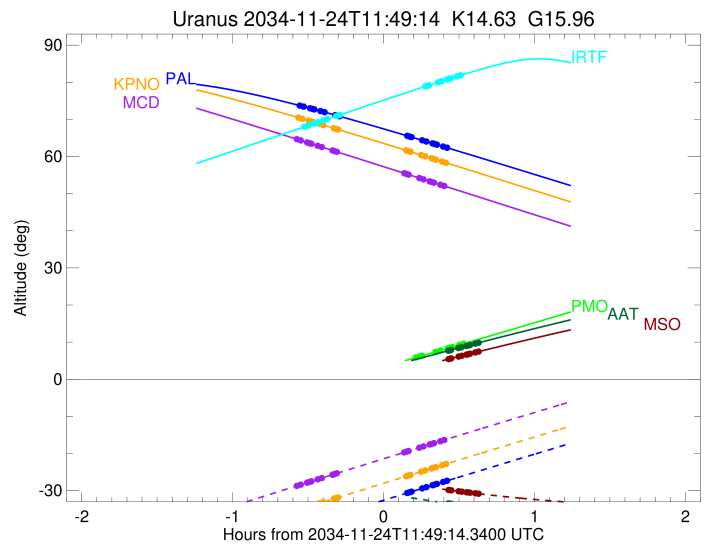
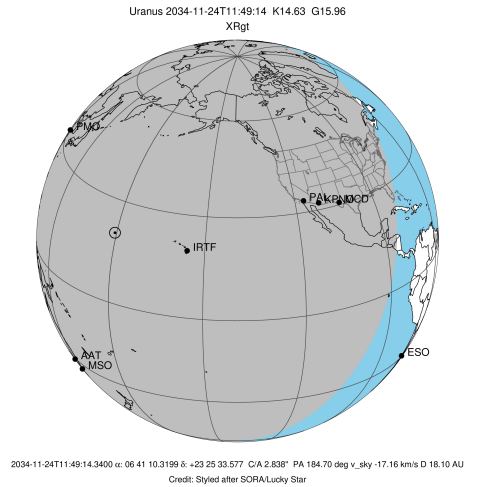


| Ring | I/E | UTC | b? | alt | alt-sun | radius | r-dot | lat-geo | lat-geodetic |
|---------|-----|-------------------------|--------|--------|----------|--------|-------|---------|--------------|
| epsilon | I | 2034-11-24T11:24:32.348 | -1.31x | -30.01 | 51240.75 | -11.08 | | | |
| lambda | I | 2034-11-24T11:26:23.071 | -0.96x | -30.40 | 50026.71 | -10.73 | | | |
| delta | I | 2034-11-24T11:29:09.955 | -0.44x | -30.99 | 48300.35 | -9.95 | | | |
| gamma | I | 2034-11-24T11:30:18.997 | -0.22x | -31.23 | 47625.29 | -9.60 | | | |
| eta | I | 2034-11-24T11:31:06.375 | -0.08x | -31.40 | 47176.12 | -9.36 | | | |
| beta | I | 2034-11-24T11:33:55.192 | 0.45x | -31.99 | 45674.20 | -8.42 | | | |
| alpha | I | 2034-11-24T11:35:52.259 | 0.82x | -32.41 | 44728.69 | -7.73 | | | |
| 4 | I | 2034-11-24T11:41:15.088 | 1.84x | -33.54 | 42578.87 | -5.53 | | | |
| 5 | I | 2034-11-24T11:42:14.440 | 2.03x | -33.75 | 42261.75 | -5.15 | | | |
| 6 | I | 2034-11-24T11:43:47.100 | 2.33x | -34.08 | 41820.02 | -4.41 | | | |

No planet occultations

| | | | | | | | | | |
|---------|---|-------------------------|------|--------|----------|-------|--|--|--|
| 6 | E | 2034-11-24T12:01:55.598 | 5.82 | -37.92 | 41803.94 | 4.41 | | | |
| 5 | E | 2034-11-24T12:03:39.230 | 6.16 | -38.29 | 42298.20 | 5.16 | | | |
| 4 | E | 2034-11-24T12:04:26.950 | 6.31 | -38.46 | 42551.88 | 5.54 | | | |
| alpha | E | 2034-11-24T12:09:56.631 | 7.39 | -39.62 | 44749.77 | 7.76 | | | |
| beta | E | 2034-11-24T12:11:48.941 | 7.76 | -40.02 | 45656.30 | 8.45 | | | |
| eta | E | 2034-11-24T12:14:38.976 | 8.31 | -40.62 | 47176.12 | 9.40 | | | |
| gamma | E | 2034-11-24T12:15:26.654 | 8.47 | -40.79 | 47630.48 | 9.65 | | | |
| delta | E | 2034-11-24T12:16:34.798 | 8.69 | -41.03 | 48300.35 | 10.00 | | | |
| lambda | E | 2034-11-24T12:19:20.734 | 9.24 | -41.62 | 50026.71 | 10.79 | | | |
| epsilon | E | 2034-11-24T12:20:30.772 | 9.47 | -41.87 | 50793.37 | 11.16 | | | |

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2034-11-24T11:46:40.480
 Event type : XRgt
 : No Uranus occs
 : Ring occs: geocentric, topocentric
 Observer code : KPNO
 Location : Kitt Peak Natl Obs
 Latitude (deg) : 31.96333
 E. Longitude (deg) : 248.40000
 Altitude (km) : 2.120
 Gaia source ID : 3379769040070151424
 2Mass ID (if available) : 06411031+2325336
 ICRS Star Coord at Epoch: 06h 41m 10.31993s +23:25:33.57674s
 RUWE (>1.4 is poor) : 0.91
 K magnitude : 14.634
 G magnitude : 15.965
 RP magnitude : 15.555
 BP magnitude : 16.218
 DUPflag : 0
 Distance (au) : 18.104
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -17.16
 Sun-Target sep (deg) : 142.34
 Sun-Moon sep (deg) : 59.45
 B (ring opening deg) : 66.83
 PA of pole (deg) : 73.30
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 2.935
 C/A sky separation (km) : 38537.7
 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_itrff93_040916.bsp
 earth_720101_070426.bpc
 earth_200101_990628_predict.bpc
 pg3f0000r.bsp
 pg490000r.bsp
 naif0012.tls
 earth_flat_IAU.spk

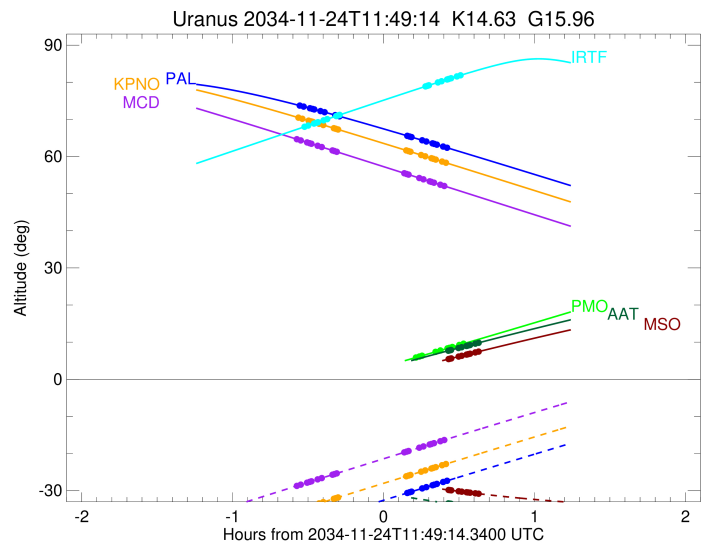
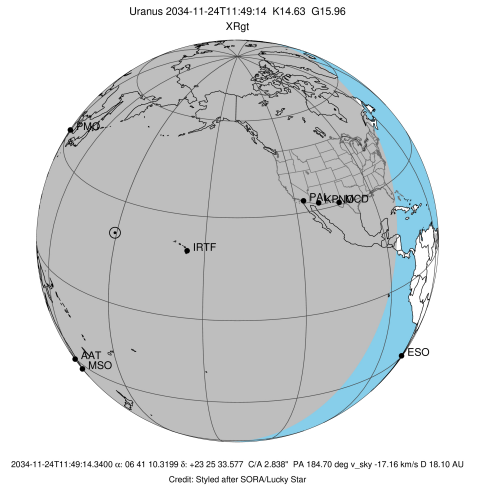


| Ring | I/E | UTC | b? | alt | alt-sun | radius | r-dot | lat-geo | lat-geodetic |
|---------|-----|-------------------------|----|-------|---------|----------|--------|---------|--------------|
| epsilon | I | 2034-11-24T11:15:16.881 | | 70.51 | -35.20 | 51266.34 | -12.16 | | |
| lambda | I | 2034-11-24T11:16:59.655 | | 70.16 | -34.84 | 50026.71 | -11.84 | | |
| delta | I | 2034-11-24T11:19:29.654 | | 69.66 | -34.31 | 48300.35 | -11.16 | | |
| gamma | I | 2034-11-24T11:20:30.990 | | 69.46 | -34.10 | 47624.89 | -10.86 | | |
| eta | I | 2034-11-24T11:21:12.715 | | 69.32 | -33.95 | 47176.12 | -10.65 | | |
| beta | I | 2034-11-24T11:23:38.974 | | 68.82 | -33.43 | 45675.48 | -9.85 | | |
| alpha | I | 2034-11-24T11:25:18.137 | | 68.49 | -33.08 | 44725.60 | -9.29 | | |
| 4 | I | 2034-11-24T11:29:30.837 | | 67.63 | -32.19 | 42584.30 | -7.61 | | |
| 5 | I | 2034-11-24T11:30:15.446 | | 67.48 | -32.04 | 42251.74 | -7.35 | | |
| 6 | I | 2034-11-24T11:31:15.436 | | 67.27 | -31.82 | 41825.77 | -6.86 | | |

No planet occultations

| | | | | | | | | | |
|---------|---|-------------------------|--|-------|--------|----------|-------|--|--|
| 6 | E | 2034-11-24T11:58:07.569 | | 61.68 | -26.17 | 41801.11 | 6.85 | | |
| 5 | E | 2034-11-24T11:59:18.638 | | 61.43 | -25.92 | 42302.90 | 7.34 | | |
| 4 | E | 2034-11-24T11:59:51.920 | | 61.32 | -25.80 | 42548.07 | 7.60 | | |
| alpha | E | 2034-11-24T12:04:12.701 | | 60.40 | -24.89 | 44750.57 | 9.28 | | |
| beta | E | 2034-11-24T12:05:47.775 | | 60.07 | -24.56 | 45655.15 | 9.84 | | |
| eta | E | 2034-11-24T12:08:16.223 | | 59.55 | -24.04 | 47176.12 | 10.63 | | |
| gamma | E | 2034-11-24T12:08:58.548 | | 59.40 | -23.90 | 47630.63 | 10.84 | | |
| delta | E | 2034-11-24T12:09:59.465 | | 59.18 | -23.68 | 48300.35 | 11.14 | | |
| lambda | E | 2034-11-24T12:12:29.746 | | 58.65 | -23.16 | 50026.71 | 11.82 | | |
| epsilon | E | 2034-11-24T12:13:33.285 | | 58.43 | -22.94 | 50786.37 | 12.14 | | |

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2034-11-24T11:46:01.170
 Event type : XRgt
 : No Uranus occs
 : Ring occs: geocentric, topocentric
 Observer code : MCD
 Location : McDonald Obs. 2.7m
 Latitude (deg) : 30.67158
 E. Longitude (deg) : 255.97844
 Altitude (km) : 2.075
 Gaia source ID : 3379769040070151424
 2Mass ID (if available) : 06411031+2325336
 ICRS Star Coord at Epoch: 06h 41m 10.31993s +23:25:33.57674s
 RUWE (>1.4 is poor) : 0.91
 K magnitude : 14.634
 G magnitude : 15.965
 RP magnitude : 15.555
 BP magnitude : 16.218
 DUPflag : 0
 Distance (au) : 18.104
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -17.16
 Sun-Target sep (deg) : 142.34
 Sun-Moon sep (deg) : 59.45
 B (ring opening deg) : 66.83
 PA of pole (deg) : 73.30
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 2.940
 C/A sky separation (km) : 38601.3
 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



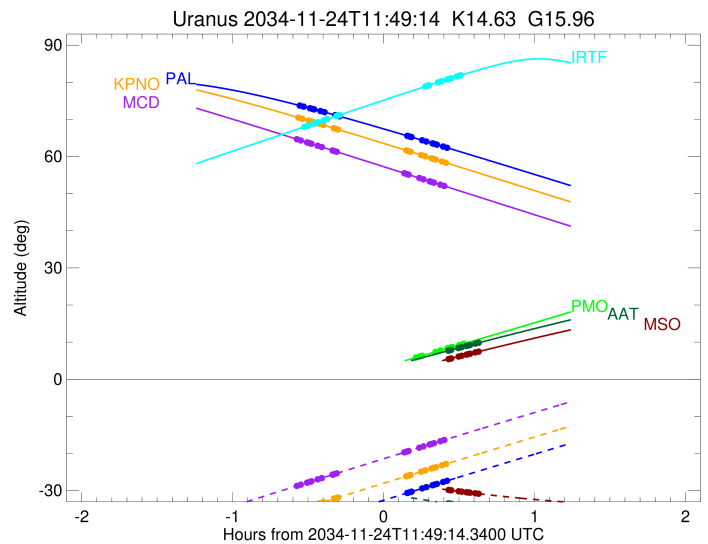
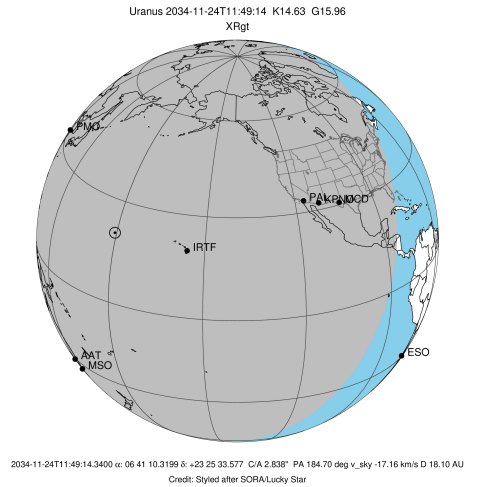
| Ring | I/E | UTC | b? | alt | alt-sun | radius | r-dot | lat-geo | lat-geodetic |
|---------|-----|-------------------------|----|-------|---------|----------|--------|---------|--------------|
| epsilon | I | 2034-11-24T11:14:39.324 | | 64.70 | -28.75 | 51265.97 | -12.13 | | |
| lambda | I | 2034-11-24T11:16:22.409 | | 64.33 | -28.39 | 50026.71 | -11.80 | | |
| delta | I | 2034-11-24T11:18:52.968 | | 63.80 | -27.85 | 48300.35 | -11.12 | | |
| gamma | I | 2034-11-24T11:19:54.559 | | 63.58 | -27.63 | 47624.90 | -10.82 | | |
| eta | I | 2034-11-24T11:20:36.468 | | 63.43 | -27.49 | 47176.12 | -10.60 | | |
| beta | I | 2034-11-24T11:23:03.449 | | 62.91 | -26.96 | 45675.46 | -9.80 | | |
| alpha | I | 2034-11-24T11:24:43.174 | | 62.55 | -26.61 | 44725.67 | -9.23 | | |
| 4 | I | 2034-11-24T11:28:57.824 | | 61.64 | -25.71 | 42584.18 | -7.54 | | |
| 5 | I | 2034-11-24T11:29:42.822 | | 61.48 | -25.55 | 42251.97 | -7.27 | | |
| 6 | I | 2034-11-24T11:30:43.528 | | 61.26 | -25.34 | 41825.64 | -6.78 | | |

No planet occultations

| | | | | | | | | | |
|---------|---|-------------------------|--|-------|--------|----------|-------|--|--|
| 6 | E | 2034-11-24T11:57:20.758 | | 55.53 | -19.72 | 41801.22 | 6.77 | | |
| 5 | E | 2034-11-24T11:58:32.588 | | 55.27 | -19.47 | 42302.70 | 7.26 | | |
| 4 | E | 2034-11-24T11:59:06.250 | | 55.15 | -19.35 | 42548.24 | 7.53 | | |
| alpha | E | 2034-11-24T12:03:29.101 | | 54.21 | -18.43 | 44750.53 | 9.21 | | |
| beta | E | 2034-11-24T12:05:04.779 | | 53.86 | -18.10 | 45655.22 | 9.78 | | |
| eta | E | 2034-11-24T12:07:34.030 | | 53.33 | -17.58 | 47176.12 | 10.58 | | |
| gamma | E | 2034-11-24T12:08:16.564 | | 53.17 | -17.43 | 47630.62 | 10.79 | | |
| delta | E | 2034-11-24T12:09:17.770 | | 52.95 | -17.22 | 48300.35 | 11.09 | | |
| lambda | E | 2034-11-24T12:11:48.708 | | 52.41 | -16.69 | 50026.71 | 11.77 | | |
| epsilon | E | 2034-11-24T12:12:52.545 | | 52.18 | -16.47 | 50786.87 | 12.09 | | |


```

target                : Uranus
target radius (km)   : 25559.00
C/A epoch            : 2034-11-24T11:50:44.530
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      : 3379769040070151424
2Mass ID (if available) : 06411031+2325336
ICRS Star Coord at Epoch: 06h 41m 10.31993s +23:25:33.57674s
RUWE (>1.4 is poor) : 0.91
K magnitude         : 14.634
G magnitude         : 15.965
RP magnitude        : 15.555
BP magnitude        : 16.218
DUPflag            : 0
Distance (au)       : 18.104
f0 (km)             : 0.000
g0 (km)             : 0.000
skyplane vel. (km/s) : -17.16
Sun-Target sep (deg) : 142.34
Sun-Moon sep (deg)  : 59.17
B (ring opening deg) : 66.83
PA of pole (deg)    : 73.30
Pole direction: RA (deg): 257.31100
Dec (deg): -15.17500
C/A sky separation (") : 2.794
C/A sky separation (km) : 36685.9
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_itr93_040916.bsp
earth_720101_070426.bpc
earth_200101_990628_predict.bpc
pg3f0000r.bsp
pg490000r.bsp
naif0012.tls
earth_flat_IAU.spk
    
```



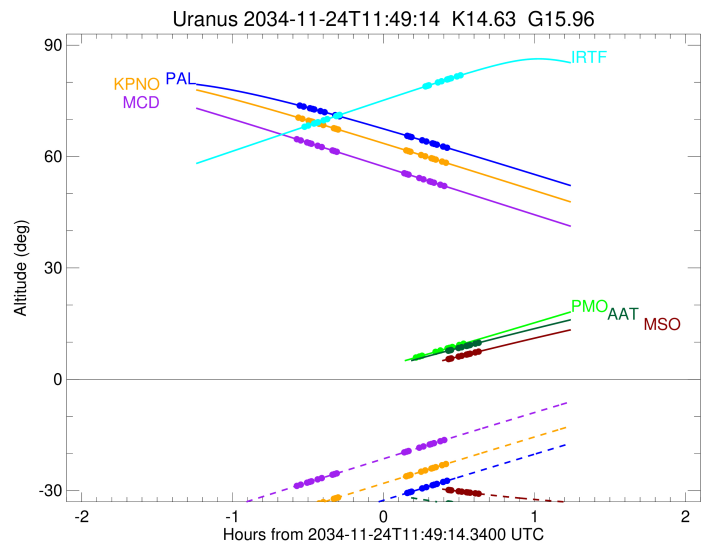
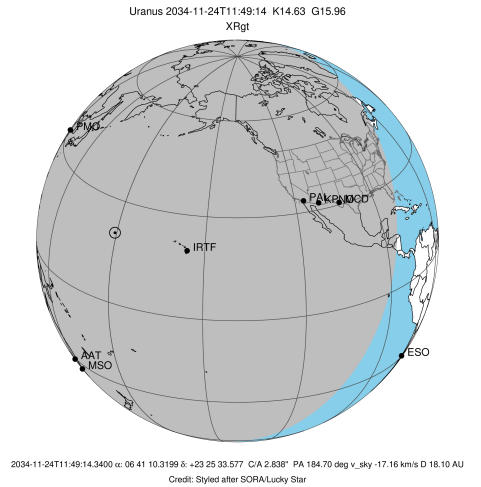
b: ring blocked by planet x: target alt < 5.0 deg or sun > -5.0 deg

| Ring | I/E | UTC | b? alt | alt-sun | radius | r-dot | lat-geo | lat-geodetic |
|---------|-----|-------------------------|--------|---------|----------|--------|---------|--------------|
| epsilon | I | 2034-11-24T11:17:41.341 | 67.98 | -73.75 | 51285.00 | -12.96 | | |
| lambda | I | 2034-11-24T11:19:19.033 | 68.35 | -73.37 | 50026.71 | -12.69 | | |
| delta | I | 2034-11-24T11:21:38.134 | 68.88 | -72.83 | 48300.35 | -12.12 | | |
| gamma | I | 2034-11-24T11:22:34.477 | 69.10 | -72.61 | 47624.60 | -11.87 | | |
| eta | I | 2034-11-24T11:23:12.548 | 69.24 | -72.46 | 47176.12 | -11.69 | | |
| beta | I | 2034-11-24T11:25:24.412 | 69.75 | -71.95 | 45676.40 | -11.04 | | |
| alpha | I | 2034-11-24T11:26:52.480 | 70.08 | -71.61 | 44723.17 | -10.58 | | |
| 4 | I | 2034-11-24T11:30:26.908 | 70.90 | -70.77 | 42588.21 | -9.28 | | |
| 5 | I | 2034-11-24T11:31:04.595 | 71.04 | -70.62 | 42244.23 | -9.09 | | |
| 6 | I | 2034-11-24T11:31:51.024 | 71.22 | -70.44 | 41829.97 | -8.73 | | |

No planet occultations

| | | | | | | | | |
|---------|---|-------------------------|-------|--------|----------|-------|--|--|
| 6 | E | 2034-11-24T12:05:48.192 | 78.86 | -62.50 | 41798.82 | 8.75 | | |
| 5 | E | 2034-11-24T12:06:45.447 | 79.07 | -62.28 | 42307.07 | 9.11 | | |
| 4 | E | 2034-11-24T12:07:11.808 | 79.17 | -62.18 | 42544.18 | 9.30 | | |
| alpha | E | 2034-11-24T12:10:53.579 | 79.97 | -61.32 | 44751.40 | 10.60 | | |
| beta | E | 2034-11-24T12:12:17.268 | 80.27 | -60.99 | 45653.66 | 11.06 | | |
| eta | E | 2034-11-24T12:14:30.826 | 80.75 | -60.47 | 47176.12 | 11.72 | | |
| gamma | E | 2034-11-24T12:15:09.344 | 80.89 | -60.32 | 47630.83 | 11.89 | | |
| delta | E | 2034-11-24T12:16:05.044 | 81.09 | -60.10 | 48300.35 | 12.14 | | |
| lambda | E | 2034-11-24T12:18:23.834 | 81.57 | -59.56 | 50026.71 | 12.72 | | |
| epsilon | E | 2034-11-24T12:19:22.212 | 81.78 | -59.34 | 50776.10 | 12.99 | | |

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2034-11-24T11:54:07.730
 Event type : XRgt
 : No Uranus occs
 : Ring occs: geocentric, topocentric
 Observer code : AAT
 Location : Siding Spring (AAT)
 Latitude (deg) : -31.27703
 E. Longitude (deg) : 149.06608
 Altitude (km) : 1.164
 Gaia source ID : 3379769040070151424
 2Mass ID (if available) : 06411031+2325336
 ICRS Star Coord at Epoch: 06h 41m 10.31993s +23:25:33.57674s
 RUWE (>1.4 is poor) : 0.91
 K magnitude : 14.634
 G magnitude : 15.965
 RP magnitude : 15.555
 BP magnitude : 16.218
 DUPflag : 0
 Distance (au) : 18.104
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -17.16
 Sun-Target sep (deg) : 142.34
 Sun-Moon sep (deg) : 58.06
 B (ring opening deg) : 66.83
 PA of pole (deg) : 73.30
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 2.509
 C/A sky separation (km) : 32949.4
 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

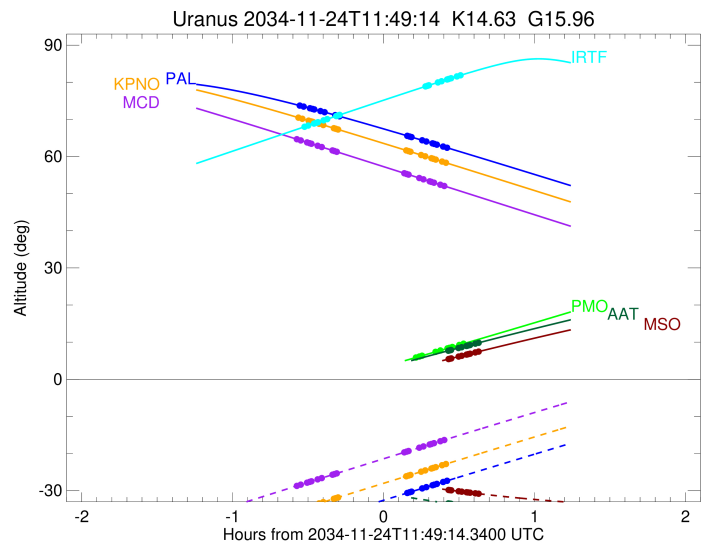
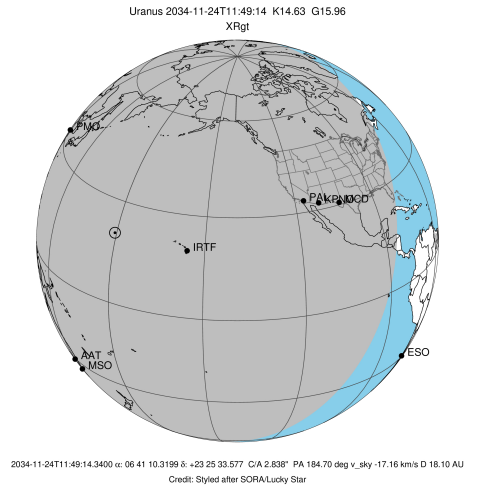


| Ring | I/E | UTC | b? | alt | alt-sun | radius | r-dot | lat-geo | lat-geodetic |
|---------|-----|-------------------------|--------|--------|----------|--------|-------|---------|--------------|
| epsilon | I | 2034-11-24T11:17:25.087 | -3.08x | -26.59 | 51320.82 | -14.03 | | | |
| lambda | I | 2034-11-24T11:18:57.662 | -2.78x | -26.81 | 50026.71 | -13.84 | | | |
| delta | I | 2034-11-24T11:21:04.194 | -2.38x | -27.10 | 48300.35 | -13.44 | | | |
| gamma | I | 2034-11-24T11:21:54.849 | -2.21x | -27.21 | 47624.05 | -13.26 | | | |
| eta | I | 2034-11-24T11:22:28.776 | -2.10x | -27.29 | 47176.12 | -13.14 | | | |
| beta | I | 2034-11-24T11:24:24.679 | -1.73x | -27.55 | 45677.89 | -12.70 | | | |
| alpha | I | 2034-11-24T11:25:41.018 | -1.49x | -27.72 | 44718.77 | -12.39 | | | |
| 4 | I | 2034-11-24T11:28:38.099 | -0.92x | -28.11 | 42594.37 | -11.55 | | | |
| 5 | I | 2034-11-24T11:29:10.053 | -0.82x | -28.18 | 42231.78 | -11.44 | | | |
| 6 | I | 2034-11-24T11:29:44.811 | -0.71x | -28.26 | 41836.81 | -11.22 | | | |

No planet occultations

| | | | | | | | | | |
|---------|---|-------------------------|------|--------|----------|-------|--|--|--|
| 6 | E | 2034-11-24T12:14:54.355 | 7.67 | -33.43 | 41796.24 | 11.27 | | | |
| 5 | E | 2034-11-24T12:15:39.900 | 7.80 | -33.51 | 42311.98 | 11.50 | | | |
| 4 | E | 2034-11-24T12:16:00.274 | 7.86 | -33.54 | 42538.57 | 11.61 | | | |
| alpha | E | 2034-11-24T12:19:04.148 | 8.41 | -33.83 | 44752.25 | 12.47 | | | |
| beta | E | 2034-11-24T12:20:15.717 | 8.62 | -33.94 | 45651.18 | 12.77 | | | |
| eta | E | 2034-11-24T12:22:12.899 | 8.97 | -34.12 | 47176.12 | 13.23 | | | |
| gamma | E | 2034-11-24T12:22:47.138 | 9.07 | -34.17 | 47631.13 | 13.35 | | | |
| delta | E | 2034-11-24T12:23:36.930 | 9.22 | -34.25 | 48300.35 | 13.53 | | | |
| lambda | E | 2034-11-24T12:25:42.589 | 9.59 | -34.43 | 50026.71 | 13.94 | | | |
| epsilon | E | 2034-11-24T12:26:34.954 | 9.74 | -34.51 | 50760.99 | 14.13 | | | |

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2034-11-24T11:53:52.230
 Event type : XRgt
 : No Uranus occs
 : Ring occs: geocentric, topocentric
 Observer code : MSO
 Location : Mt. Stromlo Observatory
 Latitude (deg) : -35.32000
 E. Longitude (deg) : 149.00833
 Altitude (km) : 0.770
 Gaia source ID : 3379769040070151424
 2Mass ID (if available) : 06411031+2325336
 ICRS Star Coord at Epoch: 06h 41m 10.31993s +23:25:33.57674s
 RUWE (>1.4 is poor) : 0.91
 K magnitude : 14.634
 G magnitude : 15.965
 RP magnitude : 15.555
 BP magnitude : 16.218
 DUPflag : 0
 Distance (au) : 18.104
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -17.16
 Sun-Target sep (deg) : 142.34
 Sun-Moon sep (deg) : 58.05
 B (ring opening deg) : 66.83
 PA of pole (deg) : 73.30
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 2.488
 C/A sky separation (km) : 32664.2
 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 | 2034-11-24T11:16:56.371 | -4.95x | -23.40 | 51323.68 | -14.11 | | | |
| lambda | I | 2034-11-24T11:18:28.572 | -4.66x | -23.60 | 50026.71 | -13.93 | | | |
| delta | I | 2034-11-24T11:20:34.225 | -4.28x | -23.87 | 48300.35 | -13.54 | | | |
| gamma | I | 2034-11-24T11:21:24.496 | -4.12x | -23.98 | 47624.01 | -13.37 | | | |
| eta | I | 2034-11-24T11:21:58.148 | -4.02x | -24.05 | 47176.12 | -13.25 | | | |
| beta | I | 2034-11-24T11:23:53.031 | -3.66x | -24.29 | 45677.99 | -12.82 | | | |
| alpha | I | 2034-11-24T11:25:08.657 | -3.43x | -24.45 | 44718.43 | -12.52 | | | |
| 4 | I | 2034-11-24T11:28:03.624 | -2.90x | -24.81 | 42594.80 | -11.71 | | | |
| 5 | I | 2034-11-24T11:28:35.287 | -2.80x | -24.87 | 42230.87 | -11.60 | | | |
| 6 | I | 2034-11-24T11:29:09.435 | -2.70x | -24.94 | 41837.30 | -11.38 | | | |

No planet occultations

| | | | | | | | | | |
|---------|---|-------------------------|------|--------|----------|-------|--|--|--|
| 6 | E | 2034-11-24T12:15:00.627 | 5.42 | -29.81 | 41796.12 | 11.44 | | | |
| 5 | E | 2034-11-24T12:15:45.575 | 5.55 | -29.88 | 42312.22 | 11.66 | | | |
| 4 | E | 2034-11-24T12:16:05.651 | 5.60 | -29.91 | 42538.24 | 11.77 | | | |
| alpha | E | 2034-11-24T12:19:07.451 | 6.12 | -30.17 | 44752.28 | 12.59 | | | |
| beta | E | 2034-11-24T12:20:18.317 | 6.32 | -30.27 | 45651.03 | 12.89 | | | |
| eta | E | 2034-11-24T12:22:14.507 | 6.65 | -30.44 | 47176.12 | 13.33 | | | |
| gamma | E | 2034-11-24T12:22:48.480 | 6.74 | -30.48 | 47631.15 | 13.45 | | | |
| delta | E | 2034-11-24T12:23:37.900 | 6.88 | -30.55 | 48300.35 | 13.63 | | | |
| lambda | E | 2034-11-24T12:25:42.714 | 7.23 | -30.72 | 50026.71 | 14.03 | | | |
| epsilon | E | 2034-11-24T12:26:34.701 | 7.37 | -30.79 | 50760.16 | 14.21 | | | |