

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2035-01-20T13:56:43.110
 Event type : PgtRgt
 : Uranus occs: geocentric, topocentric
 : Ring occs: geocentric, topocentric
 Gaia source ID : 3382597739890877312
 2Mass ID (if available) : 06311226+2334467A

Uranus 2035-01-20T13:56:43 K14.78 G16.87 PgtRgt

ICRS Star Coord at Epoch: 06h 31m 12.25279s +23:34:46.52659s

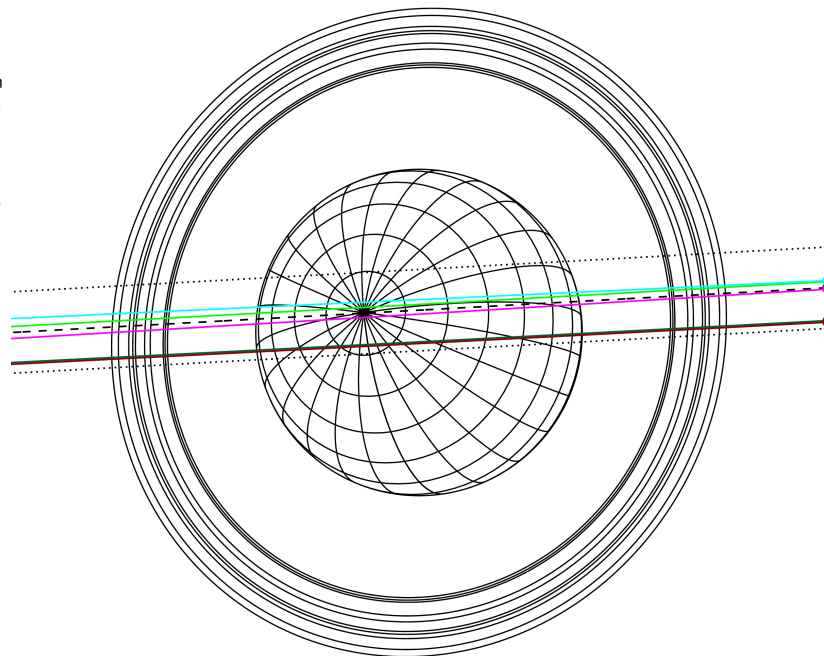
RUWE (>1.4 is poor) : 1.41
 K magnitude : 14.778
 G magnitude : 16.873
 RP magnitude : 16.244
 BP magnitude : 17.133
 DUPflag : 0
 Distance (au) : 17.974
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -21.06
 Sun-Target sep (deg) : 157.30
 Sun-Moon sep (deg) : 22.87
 B (ring opening deg) : 68.95
 PA of pole (deg) : 70.18

Uranus 2035-01-20T13:56:43 K14.78 G16.87
 PgtRgt



2035-01-20T13:56:43.1100 α: 06 31 12.2528 δ: +23 34 46.527 C/A 0.275° PA 183.13 deg v_sky -21.06 km/s D 17.97 AU
 Credit: Styled after SORA/Lucky Star

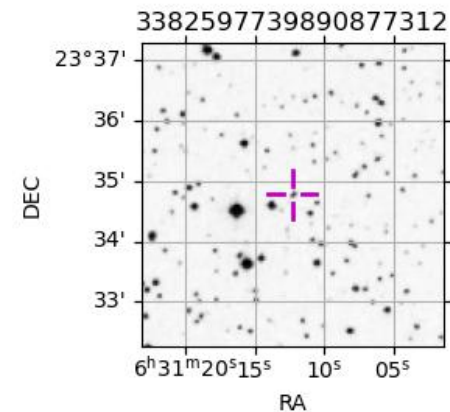
Earth
 PMO
 IRTF
 KAV
 AAT
 MSO



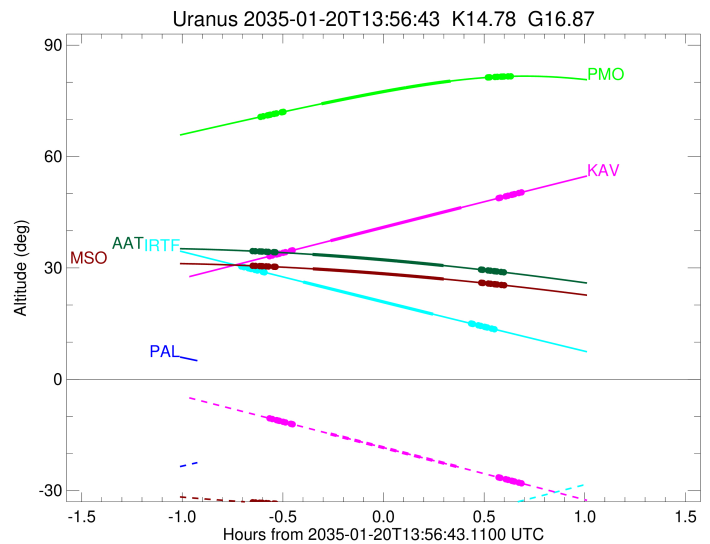
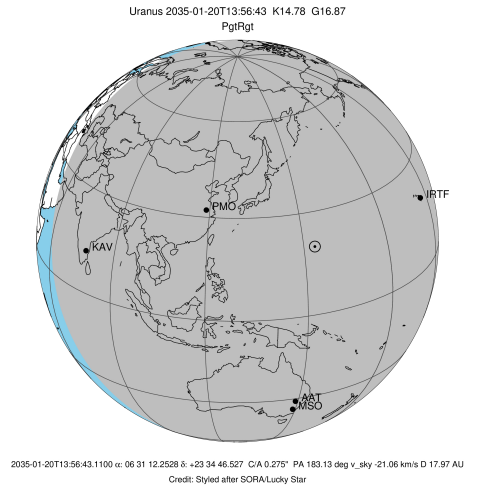
| # | a(km) | ring |
|----|---------|---------|
| 1 | 41837.2 | 6 |
| 2 | 42235.0 | 5 |
| 3 | 42571.2 | 4 |
| 4 | 44718.5 | alpha |
| 5 | 45661.1 | beta |
| 6 | 47176.1 | eta |
| 7 | 47626.3 | gamma |
| 8 | 48300.3 | delta |
| 9 | 50026.7 | lambda |
| 10 | 51149.4 | epsilon |

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 | +++++ | + + | +++++ | JAN 20 13:19 - JAN 20 14:34 | PieRie |
| 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 | +++++ | + + | +++++ | JAN 20 13:14 - JAN 20 14:29 | PieRie |
| KAV | Kavalur Observatory | 12.6 | 78.8 | +++++ | + + | +++++ | JAN 20 13:22 - JAN 20 14:37 | PieRie |
| 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 | +++++ | + + | +++++ | JAN 20 13:17 - JAN 20 14:32 | PieRie |
| SAAO | So. Afr. Astro. Obs. | -32.4 | 20.8 | | | | | PnnRnn |
| MSO | Mt. Stromlo Observato | -35.3 | 149.0 | +++++ | + + | +++++ | JAN 20 13:17 - JAN 20 14:32 | PieRie |

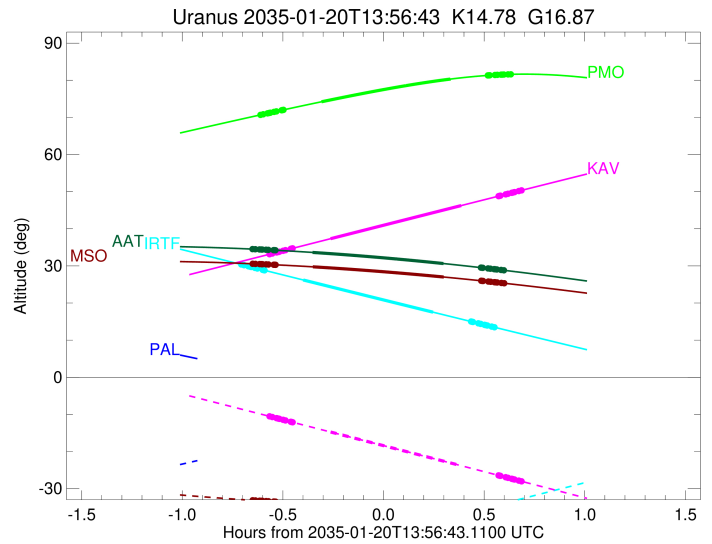
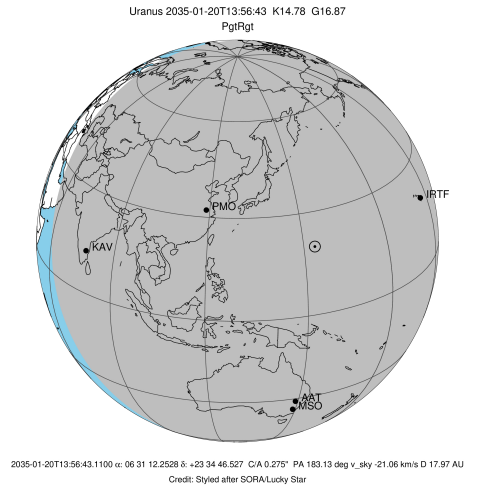


target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2035-01-20T13:57:31.850
 Event type : PgtRgt
 : Uranus occs: geocentric, topocentric
 : Ring occs: geocentric, topocentric
 Observer code : PMO
 Location : Purple Mtn Obs. Nanking
 Latitude (deg) : 32.06667
 E. Longitude (deg) : 118.82089
 Altitude (km) : 0.364
 Gaia source ID : 3382597739890877312
 2Mass ID (if available) : 06311226+2334467A
 ICRS Star Coord at Epoch: 06h 31m 12.25279s +23:34:46.52659s
 RUWE (>1.4 is poor) : 1.41
 K magnitude : 14.778
 G magnitude : 16.873
 RP magnitude : 16.244
 BP magnitude : 17.133
 DUPflag : 0
 Distance (au) : 17.974
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -21.06
 Sun-Target sep (deg) : 157.30
 Sun-Moon sep (deg) : 23.14
 B (ring opening deg) : 68.95
 PA of pole (deg) : 70.18
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 0.337
 C/A sky separation (km) : 4392.6
 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_itrff93_040916.bsp
 earth_720101_070426.bpc
 earth_200101_990628_predict.bpc
 pg3f0000r.bsp
 pg490000r.bsp
 naif0012.tls
 earth_flat_IAU.spk



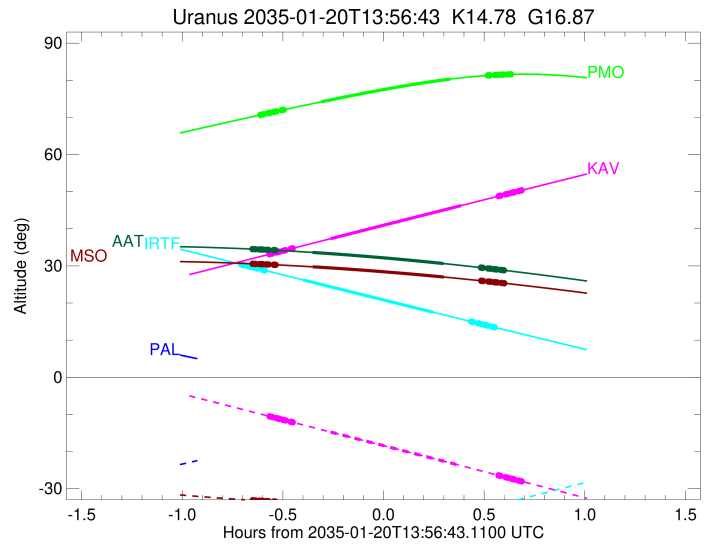
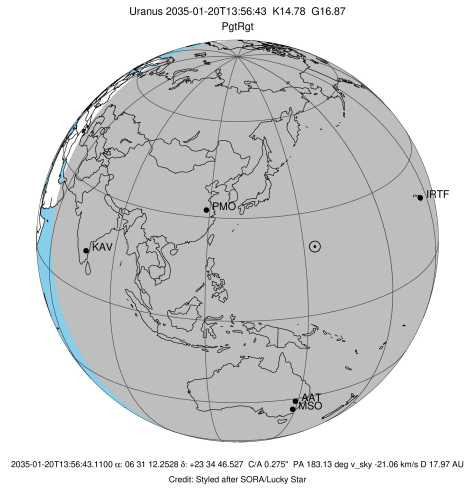
| Ring | I/E | UTC | b? | alt | alt-sun | radius | r-dot | lat-geo | lat-geodetic |
|---------|-----|-------------------------|----|-------|---------|----------|--------|---------|--------------|
| epsilon | I | 2035-01-20T13:19:51.662 | | 70.65 | -49.07 | 51410.14 | -22.67 | | |
| lambda | I | 2035-01-20T13:20:52.737 | | 70.85 | -49.29 | 50026.71 | -22.65 | | |
| delta | I | 2035-01-20T13:22:08.970 | | 71.10 | -49.56 | 48300.35 | -22.64 | | |
| gamma | I | 2035-01-20T13:22:38.805 | | 71.20 | -49.66 | 47624.86 | -22.64 | | |
| eta | I | 2035-01-20T13:22:58.627 | | 71.27 | -49.73 | 47176.12 | -22.64 | | |
| beta | I | 2035-01-20T13:24:06.115 | | 71.49 | -49.97 | 45649.73 | -22.63 | | |
| alpha | I | 2035-01-20T13:24:47.420 | | 71.62 | -50.11 | 44711.27 | -22.62 | | |
| 4 | I | 2035-01-20T13:26:23.552 | | 71.94 | -50.45 | 42538.93 | -22.62 | | |
| 5 | I | 2035-01-20T13:26:35.087 | | 71.98 | -50.49 | 42264.57 | -22.60 | | |
| 6 | I | 2035-01-20T13:26:54.750 | | 72.04 | -50.56 | 41819.42 | -22.60 | | |
| Uranus | I | 2035-01-20T13:38:15.070 | | 74.22 | -52.94 | 25197.57 | | -17.52 | -18.30 |
| Uranus | E | 2035-01-20T14:16:42.643 | | 80.33 | -60.90 | 25073.89 | | 20.49 | 21.38 |
| 6 | E | 2035-01-20T14:27:51.167 | | 81.31 | -63.15 | 41862.85 | 22.61 | | |
| 5 | E | 2035-01-20T14:28:05.555 | | 81.33 | -63.20 | 42190.15 | 22.61 | | |
| 4 | E | 2035-01-20T14:28:23.542 | | 81.35 | -63.26 | 42609.49 | 22.63 | | |
| alpha | E | 2035-01-20T14:29:56.807 | | 81.43 | -63.57 | 44718.95 | 22.63 | | |
| beta | E | 2035-01-20T14:30:38.860 | | 81.46 | -63.71 | 45675.56 | 22.64 | | |
| eta | E | 2035-01-20T14:31:45.170 | | 81.51 | -63.93 | 47176.12 | 22.65 | | |
| gamma | E | 2035-01-20T14:32:05.063 | | 81.53 | -63.99 | 47626.68 | 22.65 | | |
| delta | E | 2035-01-20T14:32:34.802 | | 81.54 | -64.09 | 48300.35 | 22.65 | | |
| lambda | E | 2035-01-20T14:33:50.996 | | 81.59 | -64.34 | 50026.71 | 22.66 | | |
| epsilon | E | 2035-01-20T14:34:31.412 | | 81.60 | -64.47 | 50942.65 | 22.68 | | |

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2035-01-20T13:52:11.020
 Event type : PgtRgt
 : Uranus occs: geocentric, topocentric
 : 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 : 3382597739890877312
 2Mass ID (if available) : 06311226+2334467A
 ICRS Star Coord at Epoch: 06h 31m 12.25279s +23:34:46.52659s
 RUWE (>1.4 is poor) : 1.41
 K magnitude : 14.778
 G magnitude : 16.873
 RP magnitude : 16.244
 BP magnitude : 17.133
 DUPflag : 0
 Distance (au) : 17.974
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -21.06
 Sun-Target sep (deg) : 157.30
 Sun-Moon sep (deg) : 23.87
 B (ring opening deg) : 68.95
 PA of pole (deg) : 70.18
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 0.394
 C/A sky separation (km) : 5138.3
 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_itrf93_040916.bsp
 earth_720101_070426.bpc
 earth_200101_990628_predict.bpc
 pg3f0000r.bsp
 pg490000r.bsp
 naif0012.tls
 earth_flat_IAU.spk



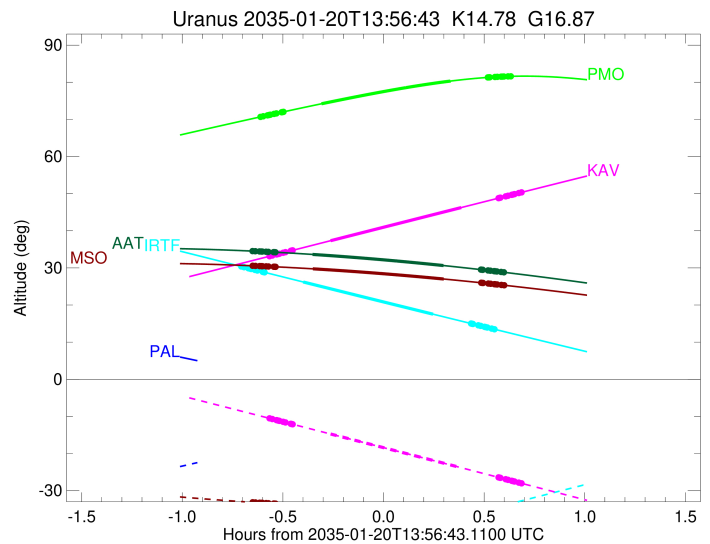
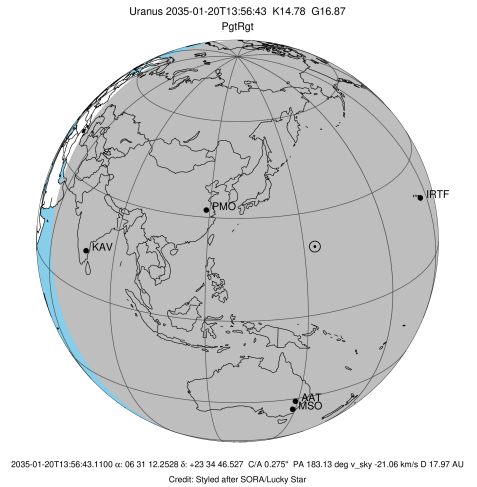
| Ring | I/E | UTC | b? | alt | alt-sun | radius | r-dot | lat-geo | lat-geodetic |
|---------|-----|-------------------------|----|-------|---------|----------|--------|---------|--------------|
| epsilon | I | 2035-01-20T13:14:08.180 | | 30.42 | -52.17 | 51412.08 | -22.44 | | |
| lambda | I | 2035-01-20T13:15:09.962 | | 30.19 | -51.93 | 50026.71 | -22.42 | | |
| delta | I | 2035-01-20T13:16:26.988 | | 29.90 | -51.63 | 48300.35 | -22.41 | | |
| gamma | I | 2035-01-20T13:16:57.140 | | 29.78 | -51.51 | 47624.82 | -22.40 | | |
| eta | I | 2035-01-20T13:17:17.171 | | 29.71 | -51.43 | 47176.12 | -22.40 | | |
| beta | I | 2035-01-20T13:18:25.382 | | 29.45 | -51.17 | 45649.87 | -22.39 | | |
| alpha | I | 2035-01-20T13:19:07.161 | | 29.29 | -51.01 | 44710.98 | -22.37 | | |
| 4 | I | 2035-01-20T13:20:44.351 | | 28.93 | -50.63 | 42539.23 | -22.36 | | |
| 5 | I | 2035-01-20T13:20:56.064 | | 28.88 | -50.58 | 42263.85 | -22.34 | | |
| 6 | I | 2035-01-20T13:21:15.907 | | 28.81 | -50.51 | 41819.80 | -22.35 | | |
| Uranus | I | 2035-01-20T13:32:46.505 | | 26.21 | -47.83 | 25207.46 | | -17.27 | -18.03 |
| Uranus | E | 2035-01-20T14:11:30.850 | | 17.53 | -38.83 | 25066.25 | | 20.67 | 21.56 |
| 6 | E | 2035-01-20T14:22:50.992 | | 15.01 | -36.21 | 41863.71 | 22.22 | | |
| 5 | E | 2035-01-20T14:23:05.516 | | 14.96 | -36.16 | 42188.47 | 22.21 | | |
| 4 | E | 2035-01-20T14:23:23.938 | | 14.89 | -36.08 | 42610.09 | 22.23 | | |
| alpha | E | 2035-01-20T14:24:58.797 | | 14.54 | -35.72 | 44718.12 | 22.24 | | |
| beta | E | 2035-01-20T14:25:41.649 | | 14.38 | -35.55 | 45675.90 | 22.25 | | |
| eta | E | 2035-01-20T14:26:49.125 | | 14.13 | -35.29 | 47176.12 | 22.25 | | |
| gamma | E | 2035-01-20T14:27:09.366 | | 14.06 | -35.22 | 47626.56 | 22.25 | | |
| delta | E | 2035-01-20T14:27:39.640 | | 13.95 | -35.10 | 48300.35 | 22.26 | | |
| lambda | E | 2035-01-20T14:28:57.192 | | 13.66 | -34.80 | 50026.71 | 22.26 | | |
| epsilon | E | 2035-01-20T14:29:38.680 | | 13.51 | -34.64 | 50950.47 | 22.28 | | |

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2035-01-20T14:00:27.660
 Event type : PgtRgt
 : Uranus occs: geocentric, topocentric
 : 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 : 3382597739890877312
 2Mass ID (if available) : 06311226+2334467A
 ICRS Star Coord at Epoch: 06h 31m 12.25279s +23:34:46.52659s
 RUWE (>1.4 is poor) : 1.41
 K magnitude : 14.778
 G magnitude : 16.873
 RP magnitude : 16.244
 BP magnitude : 17.133
 DUPflag : 0
 Distance (au) : 17.974
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -21.06
 Sun-Target sep (deg) : 157.30
 Sun-Moon sep (deg) : 22.43
 B (ring opening deg) : 68.95
 PA of pole (deg) : 70.18
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 0.220
 C/A sky separation (km) : 2866.7
 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



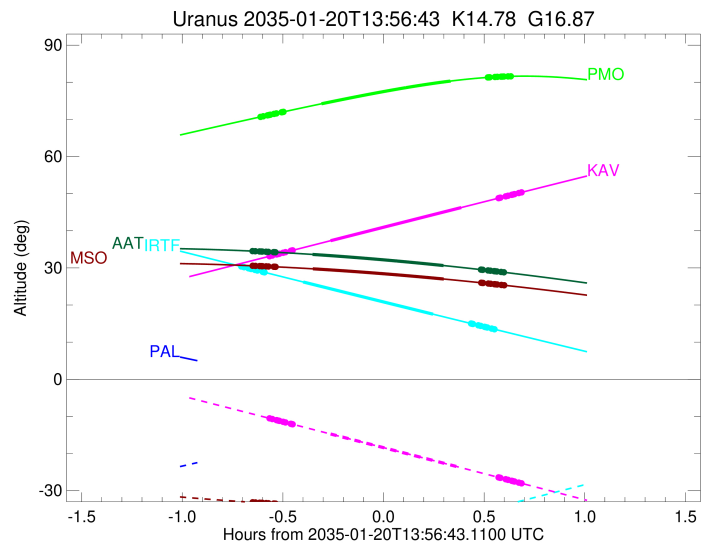
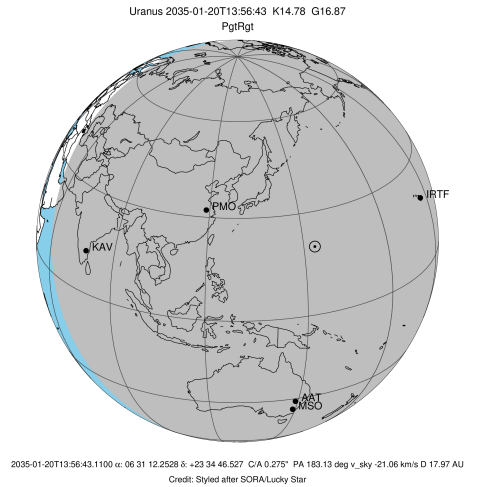
| Ring | I/E | UTC | b? | alt | alt-sun | radius | r-dot | lat-geo | lat-geodetic |
|---------|-----|-------------------------|----|-------|---------|----------|--------|---------|--------------|
| epsilon | I | 2035-01-20T13:22:34.023 | | 33.11 | -10.48 | 51402.23 | -22.56 | | |
| lambda | I | 2035-01-20T13:23:35.005 | | 33.34 | -10.72 | 50026.71 | -22.56 | | |
| delta | I | 2035-01-20T13:24:51.543 | | 33.63 | -11.02 | 48300.35 | -22.55 | | |
| gamma | I | 2035-01-20T13:25:21.486 | | 33.75 | -11.13 | 47625.00 | -22.55 | | |
| eta | I | 2035-01-20T13:25:41.389 | | 33.82 | -11.21 | 47176.12 | -22.55 | | |
| beta | I | 2035-01-20T13:26:49.141 | | 34.08 | -11.47 | 45649.26 | -22.55 | | |
| alpha | I | 2035-01-20T13:27:30.516 | | 34.24 | -11.63 | 44712.25 | -22.55 | | |
| 4 | I | 2035-01-20T13:29:07.032 | | 34.61 | -12.00 | 42537.95 | -22.55 | | |
| 5 | I | 2035-01-20T13:29:18.457 | | 34.65 | -12.05 | 42266.91 | -22.54 | | |
| 6 | I | 2035-01-20T13:29:38.326 | | 34.73 | -12.12 | 41818.19 | -22.54 | | |
| Uranus | I | 2035-01-20T13:40:56.259 | | 37.33 | -14.75 | 25172.65 | | -18.15 | -18.95 |
| Uranus | E | 2035-01-20T14:19:53.768 | | 46.25 | -23.83 | 25090.29 | | 20.12 | 20.99 |
| 6 | E | 2035-01-20T14:31:02.531 | | 48.79 | -26.44 | 41861.40 | 22.63 | | |
| 5 | E | 2035-01-20T14:31:17.109 | | 48.85 | -26.49 | 42192.96 | 22.63 | | |
| 4 | E | 2035-01-20T14:31:34.900 | | 48.92 | -26.56 | 42608.45 | 22.64 | | |
| alpha | E | 2035-01-20T14:33:08.237 | | 49.27 | -26.93 | 44720.29 | 22.64 | | |
| beta | E | 2035-01-20T14:33:50.198 | | 49.43 | -27.09 | 45675.01 | 22.65 | | |
| eta | E | 2035-01-20T14:34:56.518 | | 49.68 | -27.35 | 47176.12 | 22.65 | | |
| gamma | E | 2035-01-20T14:35:16.416 | | 49.76 | -27.43 | 47626.88 | 22.65 | | |
| delta | E | 2035-01-20T14:35:46.142 | | 49.87 | -27.54 | 48300.35 | 22.66 | | |
| lambda | E | 2035-01-20T14:37:02.331 | | 50.16 | -27.84 | 50026.71 | 22.66 | | |
| epsilon | E | 2035-01-20T14:37:42.209 | | 50.31 | -28.00 | 50930.45 | 22.67 | | |

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2035-01-20T13:55:03.810
 Event type : PgtRgt
 : Uranus occs: geocentric, topocentric
 : 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 : 3382597739890877312
 2Mass ID (if available) : 06311226+2334467A
 ICRS Star Coord at Epoch: 06h 31m 12.25279s +23:34:46.52659s
 RUWE (>1.4 is poor) : 1.41
 K magnitude : 14.778
 G magnitude : 16.873
 RP magnitude : 16.244
 BP magnitude : 17.133
 DUPflag : 0
 Distance (au) : 17.974
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -21.06
 Sun-Target sep (deg) : 157.30
 Sun-Moon sep (deg) : 23.22
 B (ring opening deg) : 68.95
 PA of pole (deg) : 70.18
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 0.113
 C/A sky separation (km) : 1471.3
 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 | 2035-01-20T13:17:30.989 | | 34.53 | -37.01 | 51371.20 | -22.74 | | |
| lambda | I | 2035-01-20T13:18:30.092 | | 34.49 | -37.07 | 50026.71 | -22.75 | | |
| delta | I | 2035-01-20T13:19:45.988 | | 34.44 | -37.15 | 48300.35 | -22.75 | | |
| gamma | I | 2035-01-20T13:20:15.657 | | 34.41 | -37.18 | 47625.53 | -22.74 | | |
| eta | I | 2035-01-20T13:20:35.416 | | 34.40 | -37.20 | 47176.12 | -22.74 | | |
| beta | I | 2035-01-20T13:21:42.671 | | 34.35 | -37.26 | 45647.63 | -22.74 | | |
| alpha | I | 2035-01-20T13:22:23.453 | | 34.32 | -37.30 | 44715.83 | -22.74 | | |
| 4 | I | 2035-01-20T13:23:59.438 | | 34.24 | -37.39 | 42534.74 | -22.74 | | |
| 5 | I | 2035-01-20T13:24:10.294 | | 34.24 | -37.40 | 42274.97 | -22.73 | | |
| 6 | I | 2035-01-20T13:24:30.506 | | 34.22 | -37.42 | 41814.02 | -22.73 | | |
| Uranus | I | 2035-01-20T13:35:34.876 | | 33.63 | -37.97 | 25104.16 | | -19.80 | -20.66 |
| Uranus | E | 2035-01-20T14:14:35.480 | | 30.64 | -38.82 | 25145.58 | | 18.81 | 19.64 |
| 6 | E | 2035-01-20T14:25:47.363 | | 29.54 | -38.76 | 41857.93 | 22.68 | | |
| 5 | E | 2035-01-20T14:26:02.379 | | 29.51 | -38.75 | 42199.65 | 22.68 | | |
| 4 | E | 2035-01-20T14:26:19.695 | | 29.48 | -38.75 | 42605.84 | 22.69 | | |
| alpha | E | 2035-01-20T14:27:53.097 | | 29.32 | -38.73 | 44723.31 | 22.69 | | |
| beta | E | 2035-01-20T14:28:34.800 | | 29.25 | -38.72 | 45673.68 | 22.69 | | |
| eta | E | 2035-01-20T14:29:41.062 | | 29.13 | -38.70 | 47176.12 | 22.69 | | |
| gamma | E | 2035-01-20T14:30:00.946 | | 29.09 | -38.69 | 47627.32 | 22.69 | | |
| delta | E | 2035-01-20T14:30:30.606 | | 29.04 | -38.69 | 48300.35 | 22.69 | | |
| lambda | E | 2035-01-20T14:31:46.686 | | 28.91 | -38.66 | 50026.71 | 22.69 | | |
| epsilon | E | 2035-01-20T14:32:25.381 | | 28.84 | -38.65 | 50904.75 | 22.69 | | |

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2035-01-20T13:55:07.180
 Event type : PgtRgt
 : Uranus occs: geocentric, topocentric
 : 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 : 3382597739890877312
 2Mass ID (if available) : 06311226+2334467A
 ICRS Star Coord at Epoch: 06h 31m 12.25279s +23:34:46.52659s
 RUWE (>1.4 is poor) : 1.41
 K magnitude : 14.778
 G magnitude : 16.873
 RP magnitude : 16.244
 BP magnitude : 17.133
 DUPflag : 0
 Distance (au) : 17.974
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -21.06
 Sun-Target sep (deg) : 157.30
 Sun-Moon sep (deg) : 23.18
 B (ring opening deg) : 68.95
 PA of pole (deg) : 70.18
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 0.132
 C/A sky separation (km) : 1726.7
 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 | 2035-01-20T13:17:33.526 | | 30.58 | -33.13 | 51369.53 | -22.72 | | |
| lambda | I | 2035-01-20T13:18:32.614 | | 30.54 | -33.19 | 50026.71 | -22.72 | | |
| delta | I | 2035-01-20T13:19:48.586 | | 30.49 | -33.26 | 48300.35 | -22.72 | | |
| gamma | I | 2035-01-20T13:20:18.283 | | 30.47 | -33.29 | 47625.56 | -22.72 | | |
| eta | I | 2035-01-20T13:20:38.064 | | 30.46 | -33.30 | 47176.12 | -22.72 | | |
| beta | I | 2035-01-20T13:21:45.390 | | 30.41 | -33.36 | 45647.55 | -22.72 | | |
| alpha | I | 2035-01-20T13:22:26.202 | | 30.38 | -33.40 | 44716.02 | -22.72 | | |
| 4 | I | 2035-01-20T13:24:02.301 | | 30.32 | -33.48 | 42534.58 | -22.71 | | |
| 5 | I | 2035-01-20T13:24:13.144 | | 30.31 | -33.49 | 42275.38 | -22.71 | | |
| 6 | I | 2035-01-20T13:24:33.404 | | 30.29 | -33.51 | 41813.80 | -22.70 | | |
| Uranus | I | 2035-01-20T13:35:38.223 | | 29.75 | -34.01 | 25101.06 | | -19.87 | -20.73 |
| Uranus | E | 2035-01-20T14:14:39.183 | | 27.01 | -34.79 | 25149.70 | | 18.71 | 19.53 |
| 6 | E | 2035-01-20T14:25:52.260 | | 25.99 | -34.73 | 41857.69 | 22.66 | | |
| 5 | E | 2035-01-20T14:26:07.323 | | 25.97 | -34.73 | 42200.11 | 22.66 | | |
| 4 | E | 2035-01-20T14:26:24.627 | | 25.94 | -34.73 | 42605.66 | 22.67 | | |
| alpha | E | 2035-01-20T14:27:58.137 | | 25.79 | -34.71 | 44723.51 | 22.67 | | |
| beta | E | 2035-01-20T14:28:39.867 | | 25.72 | -34.70 | 45673.60 | 22.67 | | |
| eta | E | 2035-01-20T14:29:46.195 | | 25.62 | -34.68 | 47176.12 | 22.67 | | |
| gamma | E | 2035-01-20T14:30:06.099 | | 25.58 | -34.68 | 47627.35 | 22.67 | | |
| delta | E | 2035-01-20T14:30:35.785 | | 25.54 | -34.67 | 48300.35 | 22.67 | | |
| lambda | E | 2035-01-20T14:31:51.934 | | 25.41 | -34.65 | 50026.71 | 22.67 | | |
| epsilon | E | 2035-01-20T14:32:30.589 | | 25.35 | -34.64 | 50903.07 | 22.67 | | |