

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2036-04-25T11:05:11.560
 Event type : PgtRgt
 : Uranus occs: geocentric, topocentric
 : Ring occs: geocentric, topocentric
 Gaia source ID : 3379588956382420224
 2Mass ID (if available) : 06482748+2320582

ICRS Star Coord at Epoch: 06h 48m 27.51165s +23:20:58.22862s

RUWE (>1.4 is poor) : 3.45
 K magnitude : 11.498
 G magnitude : 12.737
 RP magnitude : 12.289
 BP magnitude : 13.021
 DUPflag : 0
 Distance (au) : 19.197
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : 18.65
 Sun-Target sep (deg) : 65.79
 Sun-Moon sep (deg) : 77.59
 B (ring opening deg) : 65.24
 PA of pole (deg) : 75.21

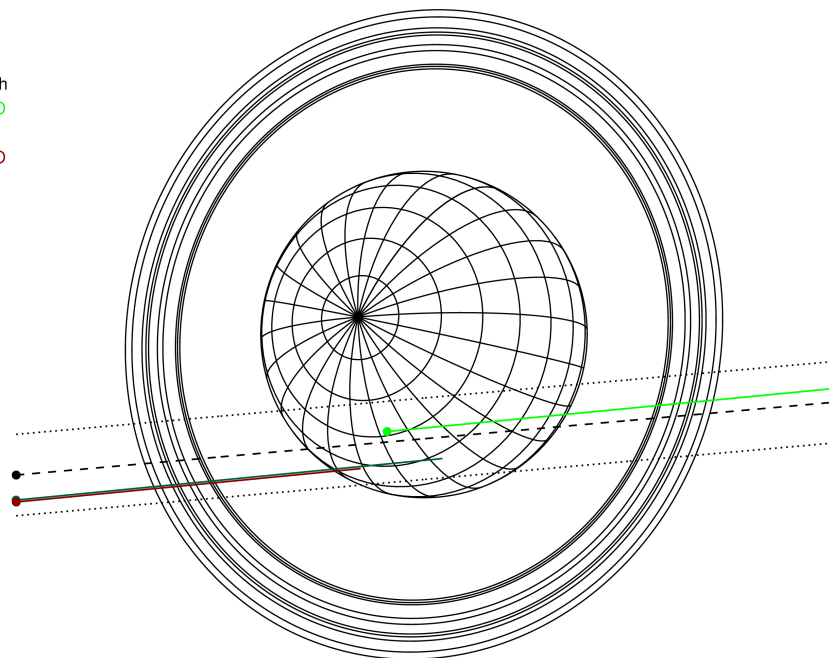
| # | a(km) | ring |
|----|---------|---------|
| 1 | 41837.2 | 6 |
| 2 | 42235.0 | 5 |
| 3 | 42571.2 | 4 |
| 4 | 44718.5 | alpha |
| 5 | 45661.1 | beta |
| 6 | 47176.1 | eta |
| 7 | 47626.3 | gamma |
| 8 | 48300.3 | delta |
| 9 | 50026.7 | lambda |
| 10 | 51149.4 | epsilon |



2036-04-25T11:05:11.5600 α: 06 48 27.5116 δ: +23 20 58.229 C/A 1.160° PA 5.09 deg v_sky +18.65 km/s D 19.20 AU
 Credit: Styled after SORA/Lucky Star

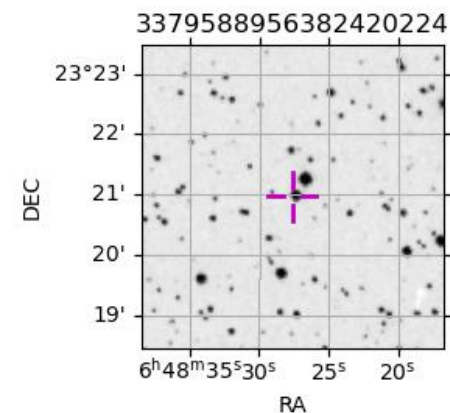
Uranus 2036-04-25T11:05:11 K11.50 G12.74 PgtRgt

Earth
 PMO
 AAT
 MSO

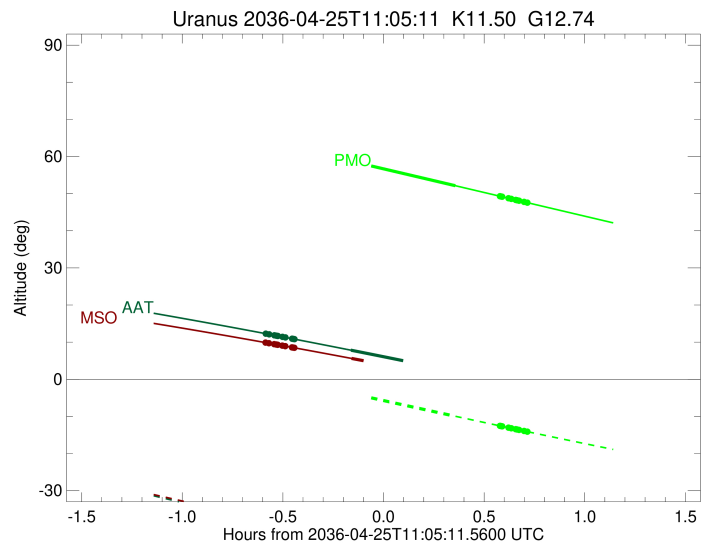
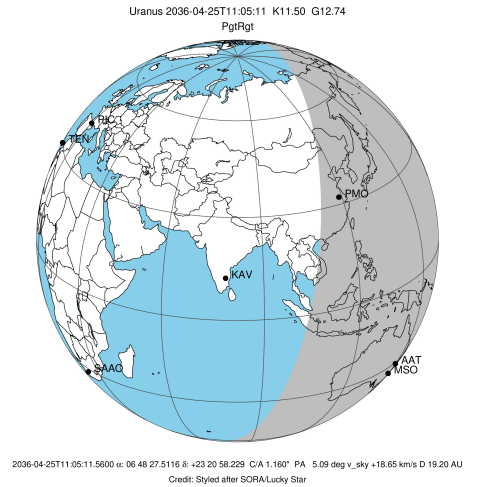


Observable events with sun below -5 deg and altitude above 5 deg unblocked by planet

| 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 | | + | +++++++ | APR 25 11:26 - APR 25 11:48 | PneRne |
| 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 | | | | | PnnRnn |
| 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 | +++++++ | + | | APR 25 10:30 - APR 25 10:55 | PinRin |
| SAAO | So. Afr. Astro. Obs. | -32.4 | 20.8 | | | | | PnnRnn |
| MSO | Mt. Stromlo Observato | -35.3 | 149.0 | +++++++ | + | | APR 25 10:30 - APR 25 10:55 | PinRin |

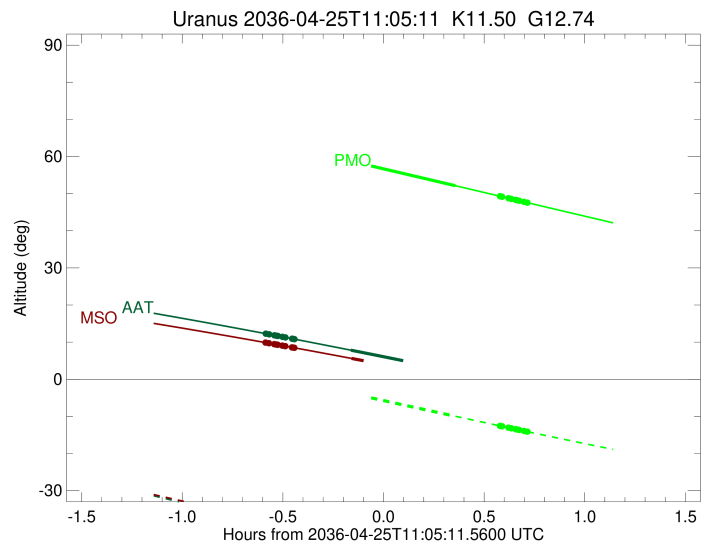
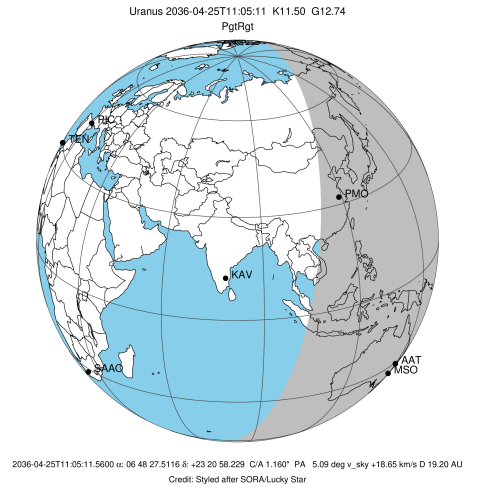


target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2036-04-25T11:08:04.730
 Event type : PgtRgt
 : Uranus occs: geocentric, topocentric
 : Ring occs: geocentric, topocentric
 Observer code : PMO
 Location : Purple Mtn Obs. Nanking
 Latitude (deg) : 32.06667
 E. Longitude (deg) : 118.82089
 Altitude (km) : 0.364
 Gaia source ID : 3379588956382420224
 2Mass ID (if available) : 06482748+2320582
 ICRS Star Coord at Epoch: 06h 48m 27.51165s +23:20:58.22862s
 RUWE (>1.4 is poor) : 3.45
 K magnitude : 11.498
 G magnitude : 12.737
 RP magnitude : 12.289
 BP magnitude : 13.021
 DUPflag : 0
 Distance (au) : 19.197
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : 18.65
 Sun-Target sep (deg) : 65.79
 Sun-Moon sep (deg) : 78.47
 B (ring opening deg) : 65.24
 PA of pole (deg) : 75.21
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 1.047
 C/A sky separation (km) : 14580.3
 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



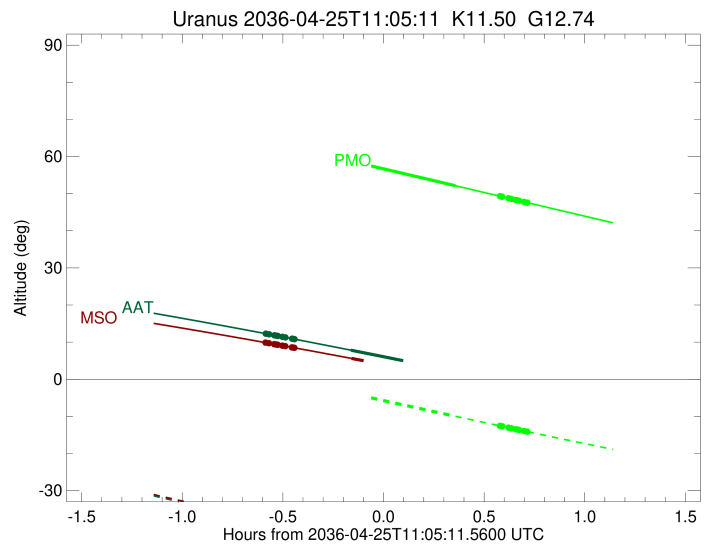
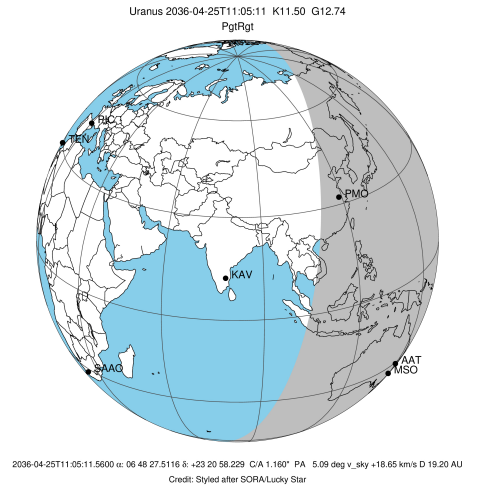
| Ring | I/E | UTC | b? | alt | alt-sun | radius | r-dot | lat-geo | lat-geodetic |
|---------|-----|-------------------------|----|-------|---------|----------|--------|---------|--------------|
| epsilon | I | 2036-04-25T10:26:36.950 | | 64.79 | 2.09x | 50910.39 | -19.11 | | |
| lambda | I | 2036-04-25T10:27:23.320 | | 64.63 | 1.93x | 50026.71 | -19.04 | | |
| delta | I | 2036-04-25T10:28:54.134 | | 64.31 | 1.62x | 48300.35 | -18.98 | | |
| gamma | I | 2036-04-25T10:29:29.919 | | 64.19 | 1.49x | 47621.73 | -18.95 | | |
| eta | I | 2036-04-25T10:29:53.447 | | 64.11 | 1.41x | 47176.12 | -18.93 | | |
| beta | I | 2036-04-25T10:31:14.431 | | 63.83 | 1.14x | 45644.33 | -18.86 | | |
| alpha | I | 2036-04-25T10:32:01.637 | | 63.66 | 0.98x | 44752.00 | -18.82 | | |
| 4 | I | 2036-04-25T10:33:57.193 | | 63.26 | 0.58x | 42595.15 | -18.71 | | |
| 5 | I | 2036-04-25T10:34:18.453 | | 63.19 | 0.51x | 42204.98 | -18.67 | | |
| 6 | I | 2036-04-25T10:34:38.913 | | 63.12 | 0.44x | 41820.83 | -18.67 | | |
| Uranus | I | 2036-04-25T10:49:10.149 | | 60.07 | -2.51x | 25399.55 | | 13.80 | 14.43 |
| Uranus | E | 2036-04-25T11:26:38.282 | | 52.14 | -9.97 | 25109.12 | | -23.83 | -24.83 |
| 6 | E | 2036-04-25T11:39:54.631 | | 49.31 | -12.55 | 41875.43 | 18.76 | | |
| 5 | E | 2036-04-25T11:40:12.984 | | 49.25 | -12.61 | 42208.75 | 18.76 | | |
| 4 | E | 2036-04-25T11:40:32.586 | | 49.18 | -12.67 | 42578.03 | 18.80 | | |
| alpha | E | 2036-04-25T11:42:25.309 | | 48.78 | -13.03 | 44688.96 | 18.92 | | |
| beta | E | 2036-04-25T11:43:17.589 | | 48.59 | -13.20 | 45681.17 | 18.97 | | |
| eta | E | 2036-04-25T11:44:36.171 | | 48.31 | -13.45 | 47176.12 | 19.04 | | |
| gamma | E | 2036-04-25T11:45:00.082 | | 48.23 | -13.53 | 47631.56 | 19.06 | | |
| delta | E | 2036-04-25T11:45:35.148 | | 48.11 | -13.64 | 48300.35 | 19.09 | | |
| lambda | E | 2036-04-25T11:47:05.429 | | 47.79 | -13.92 | 50026.71 | 19.16 | | |
| epsilon | E | 2036-04-25T11:48:23.705 | | 47.51 | -14.17 | 51528.34 | 19.23 | | |

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2036-04-25T11:10:09.730
 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 : 3379588956382420224
 2Mass ID (if available) : 06482748+2320582
 ICRS Star Coord at Epoch: 06h 48m 27.51165s +23:20:58.22862s
 RUWE (>1.4 is poor) : 3.45
 K magnitude : 11.498
 G magnitude : 12.737
 RP magnitude : 12.289
 BP magnitude : 13.021
 DUPflag : 0
 Distance (au) : 19.197
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : 18.65
 Sun-Target sep (deg) : 65.79
 Sun-Moon sep (deg) : 77.85
 B (ring opening deg) : 65.24
 PA of pole (deg) : 75.21
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 1.409
 C/A sky separation (km) : 19614.1
 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 | 2036-04-25T10:30:16.547 | | 12.25 | -38.56 | 50947.03 | -18.56 | | |
| lambda | I | 2036-04-25T10:31:06.369 | | 12.11 | -38.74 | 50026.71 | -18.44 | | |
| delta | I | 2036-04-25T10:32:40.288 | | 11.84 | -39.07 | 48300.35 | -18.32 | | |
| gamma | I | 2036-04-25T10:33:17.366 | | 11.73 | -39.20 | 47622.08 | -18.27 | | |
| eta | I | 2036-04-25T10:33:41.804 | | 11.66 | -39.29 | 47176.12 | -18.23 | | |
| beta | I | 2036-04-25T10:35:05.978 | | 11.42 | -39.58 | 45645.80 | -18.10 | | |
| alpha | I | 2036-04-25T10:35:55.375 | | 11.28 | -39.76 | 44751.06 | -18.01 | | |
| 4 | I | 2036-04-25T10:37:56.032 | | 10.93 | -40.18 | 42600.04 | -17.80 | | |
| 5 | I | 2036-04-25T10:38:19.232 | | 10.86 | -40.27 | 42195.29 | -17.73 | | |
| 6 | I | 2036-04-25T10:38:39.840 | | 10.80 | -40.34 | 41826.28 | -17.71 | | |
| Uranus | I | 2036-04-25T10:55:28.604 | | 7.83 | -43.88 | 25504.62 | | 7.98 | 8.35 |
| Uranus | E | 2036-04-25T11:24:23.566 | | 2.53x | -49.88 | 25200.08 | | -21.10 | -22.00 |
| 6 | E | 2036-04-25T11:39:31.117 | | -0.33x | -52.95 | 41877.56 | 17.83 | | |
| 5 | E | 2036-04-25T11:39:49.869 | | -0.39x | -53.01 | 42199.08 | 17.85 | | |
| 4 | E | 2036-04-25T11:40:11.210 | | -0.46x | -53.08 | 42583.76 | 17.92 | | |
| alpha | E | 2036-04-25T11:42:08.911 | | -0.83x | -53.48 | 44691.20 | 18.14 | | |
| beta | E | 2036-04-25T11:43:03.253 | | -1.00x | -53.66 | 45680.84 | 18.23 | | |
| eta | E | 2036-04-25T11:44:24.874 | | -1.26x | -53.93 | 47176.12 | 18.37 | | |
| gamma | E | 2036-04-25T11:44:49.642 | | -1.34x | -54.01 | 47631.48 | 18.40 | | |
| delta | E | 2036-04-25T11:45:25.930 | | -1.46x | -54.13 | 48300.35 | 18.46 | | |
| lambda | E | 2036-04-25T11:46:59.121 | | -1.76x | -54.44 | 50026.71 | 18.59 | | |
| epsilon | E | 2036-04-25T11:48:20.376 | | -2.02x | -54.71 | 51541.41 | 18.71 | | |

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2036-04-25T11:09:58.610
 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 : 3379588956382420224
 2Mass ID (if available) : 06482748+2320582
 ICRS Star Coord at Epoch: 06h 48m 27.51165s +23:20:58.22862s
 RUWE (>1.4 is poor) : 3.45
 K magnitude : 11.498
 G magnitude : 12.737
 RP magnitude : 12.289
 BP magnitude : 13.021
 DUPflag : 0
 Distance (au) : 19.197
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : 18.65
 Sun-Target sep (deg) : 65.79
 Sun-Moon sep (deg) : 77.81
 B (ring opening deg) : 65.24
 PA of pole (deg) : 75.21
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 1.433
 C/A sky separation (km) : 19945.2
 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 | 2036-04-25T10:30:12.336 | | 9.85 | -37.85 | 50949.40 | -18.51 | | |
| lambda | I | 2036-04-25T10:31:02.417 | | 9.71 | -38.02 | 50026.71 | -18.39 | | |
| delta | I | 2036-04-25T10:32:36.603 | | 9.46 | -38.34 | 48300.35 | -18.26 | | |
| gamma | I | 2036-04-25T10:33:13.793 | | 9.36 | -38.46 | 47622.11 | -18.21 | | |
| eta | I | 2036-04-25T10:33:38.310 | | 9.29 | -38.54 | 47176.12 | -18.17 | | |
| beta | I | 2036-04-25T10:35:02.761 | | 9.06 | -38.82 | 45645.90 | -18.04 | | |
| alpha | I | 2036-04-25T10:35:52.347 | | 8.92 | -38.99 | 44750.98 | -17.94 | | |
| 4 | I | 2036-04-25T10:37:53.456 | | 8.59 | -39.39 | 42600.34 | -17.72 | | |
| 5 | I | 2036-04-25T10:38:16.808 | | 8.53 | -39.47 | 42194.69 | -17.65 | | |
| 6 | I | 2036-04-25T10:38:37.449 | | 8.47 | -39.54 | 41826.64 | -17.64 | | |
| Uranus | I | 2036-04-25T10:55:39.236 | | 5.61 | -42.92 | 25510.61 | | 7.52 | 7.88 |
| Uranus | E | 2036-04-25T11:23:50.405 | | 0.69x | -48.40 | 25209.01 | | -20.81 | -21.71 |
| 6 | E | 2036-04-25T11:39:09.612 | | -2.07x | -51.28 | 41877.68 | 17.74 | | |
| 5 | E | 2036-04-25T11:39:28.415 | | -2.13x | -51.34 | 42198.42 | 17.76 | | |
| 4 | E | 2036-04-25T11:39:49.907 | | -2.19x | -51.40 | 42584.16 | 17.84 | | |
| alpha | E | 2036-04-25T11:41:48.096 | | -2.55x | -51.77 | 44691.38 | 18.06 | | |
| beta | E | 2036-04-25T11:42:42.641 | | -2.72x | -51.93 | 45680.81 | 18.16 | | |
| eta | E | 2036-04-25T11:44:04.563 | | -2.97x | -52.19 | 47176.12 | 18.30 | | |
| gamma | E | 2036-04-25T11:44:29.416 | | -3.04x | -52.26 | 47631.47 | 18.34 | | |
| delta | E | 2036-04-25T11:45:05.828 | | -3.15x | -52.37 | 48300.35 | 18.40 | | |
| lambda | E | 2036-04-25T11:46:39.314 | | -3.44x | -52.66 | 50026.71 | 18.53 | | |
| epsilon | E | 2036-04-25T11:48:00.848 | | -3.69x | -52.90 | 51542.18 | 18.66 | | |