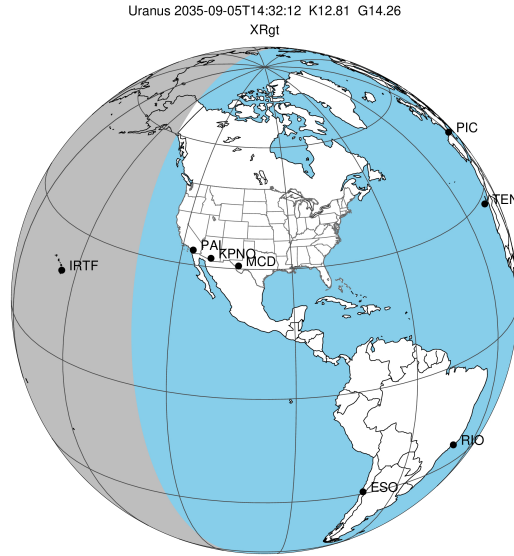


target : Uranus  
 target radius (km) : 25559.00  
 C/A epoch : 2035-09-05T14:32:12.120  
 Event type : XRgt  
 : No Uranus occs  
 : Ring occs: geocentric, topocentric  
 Gaia source ID : 3380108960960018944  
 2Mass ID (if available) : 06593673+2304353

ICRS Star Coord at Epoch: 06h 59m 36.73315s +23:04:35.20492s

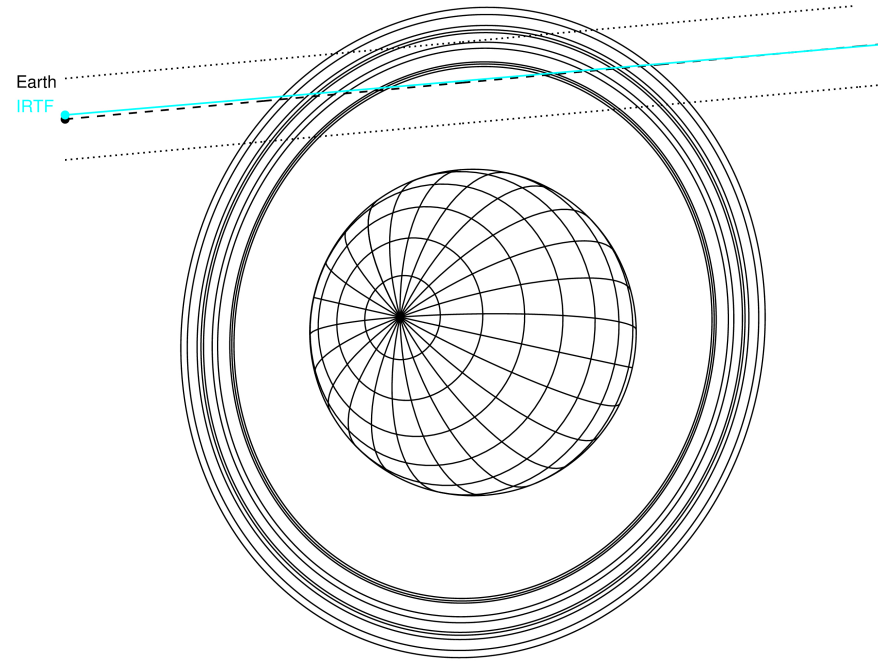
RUWE (>1.4 is poor) : 0.93  
 K magnitude : 12.815  
 G magnitude : 14.256  
 RP magnitude : 13.737  
 BP magnitude : 14.611  
 DUPflag : 0  
 Distance (au) : 19.351  
 f0 (km) : 0.000  
 g0 (km) : 0.000  
 skyplane vel. (km/s) : 21.91  
 Sun-Target sep (deg) : 58.70  
 Sun-Moon sep (deg) : 102.97  
 B (ring opening deg) : 62.81  
 PA of pole (deg) : 78.07

| #  | 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 |



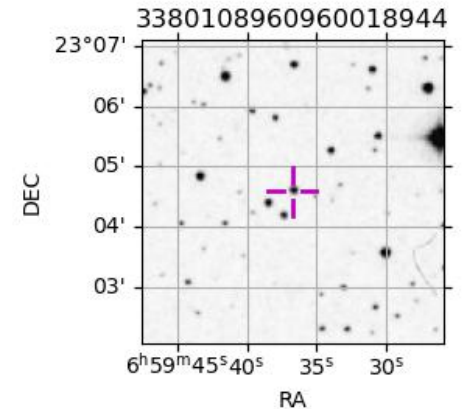
2035-09-05T14:32:12.1200 ex: 06 59 36.7332 s: +23 04 35.205 C/A 2.791" PA 185.25 deg v\_sky +21.91 km/s D 19.35 AU  
 Credit: Styled after SORA/Lucky Star

Uranus 2035-09-05T14:32:12 K12.81 G14.26 XRgt



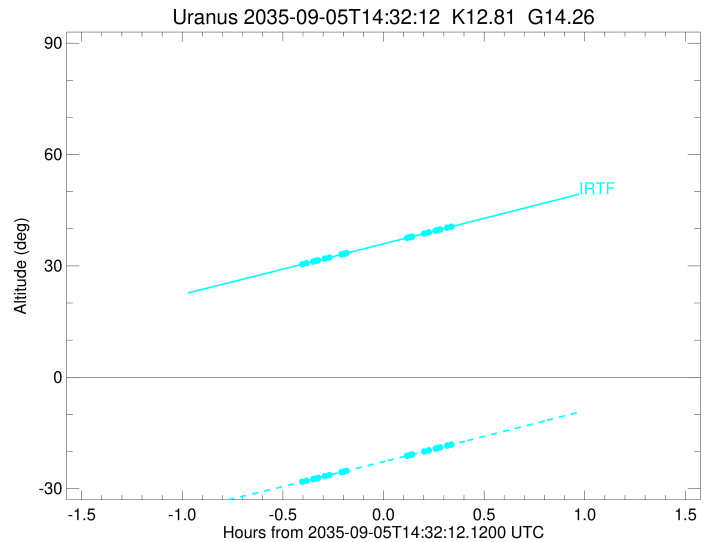
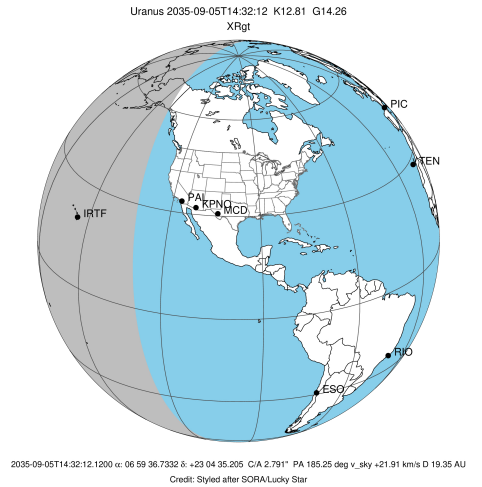
Observable events with sun below -5 deg and altitude above 5 deg unblocked by planet

| 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 |         |        |         |                             | PnnRnn |
| 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 | +++++   |        | +++++   | SEP 05 14:08 - SEP 05 14:52 | PnnRie |
| 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 |         |        |         |                             | 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            : 2035-09-05T14:28:24.600
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      : 3380108960960018944
2Mass ID (if available) : 06593673+2304353
ICRS Star Coord at Epoch: 06h 59m 36.73315s +23:04:35.20492s
RUWE (>1.4 is poor) : 0.93
K magnitude          : 12.815
G magnitude          : 14.256
RP magnitude         : 13.737
BP magnitude         : 14.611
DUPflag             : 0
Distance (au)       : 19.351
f0 (km)             : 0.000
g0 (km)             : 0.000
skyplane vel. (km/s) : 21.91
Sun-Target sep (deg) : 58.70
Sun-Moon sep (deg)  : 103.33
B (ring opening deg) : 62.81
PA of pole (deg)    : 78.07
Pole direction: RA (deg): 257.31100
Dec (deg): -15.17500
C/A sky separation (") : 2.807
C/A sky separation (km) : 39394.7
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
    
```



| Ring    | I/E | UTC                     | b? | alt   | alt-sun | radius   | r-dot  | lat-geo | lat-geodetic |
|---------|-----|-------------------------|----|-------|---------|----------|--------|---------|--------------|
| epsilon | I   | 2035-09-05T14:08:15.842 |    | 30.49 | -28.09  | 50931.13 | -15.25 |         |              |
| lambda  | I   | 2035-09-05T14:09:16.506 |    | 30.72 | -27.87  | 50026.71 | -14.69 |         |              |
| delta   | I   | 2035-09-05T14:11:17.902 |    | 31.18 | -27.42  | 48300.35 | -13.74 |         |              |
| gamma   | I   | 2035-09-05T14:12:08.123 |    | 31.37 | -27.23  | 47620.97 | -13.31 |         |              |
| eta     | I   | 2035-09-05T14:12:41.904 |    | 31.50 | -27.11  | 47176.12 | -13.02 |         |              |
| beta    | I   | 2035-09-05T14:14:44.266 |    | 31.96 | -26.65  | 45652.71 | -11.88 |         |              |
| alpha   | I   | 2035-09-05T14:16:04.883 |    | 32.27 | -26.35  | 44727.52 | -11.09 |         |              |
| 4       | I   | 2035-09-05T14:19:43.759 |    | 33.10 | -25.54  | 42566.44 | -8.65  |         |              |
| 5       | I   | 2035-09-05T14:20:22.320 |    | 33.24 | -25.39  | 42251.31 | -8.13  |         |              |
| 6       | I   | 2035-09-05T14:21:13.813 |    | 33.44 | -25.20  | 41847.14 | -7.55  |         |              |

No planet occultations

|         |   |                         |  |       |        |          |       |  |  |
|---------|---|-------------------------|--|-------|--------|----------|-------|--|--|
| 6       | E | 2035-09-05T14:39:14.775 |  | 37.55 | -21.14 | 41869.74 | 7.54  |  |  |
| 5       | E | 2035-09-05T14:39:56.695 |  | 37.71 | -20.99 | 42197.88 | 8.11  |  |  |
| 4       | E | 2035-09-05T14:40:44.481 |  | 37.89 | -20.80 | 42597.80 | 8.63  |  |  |
| alpha   | E | 2035-09-05T14:44:21.866 |  | 38.72 | -19.98 | 44750.39 | 11.07 |  |  |
| beta    | E | 2035-09-05T14:45:39.666 |  | 39.02 | -19.69 | 45641.18 | 11.85 |  |  |
| eta     | E | 2035-09-05T14:47:43.206 |  | 39.49 | -19.22 | 47176.12 | 12.98 |  |  |
| gamma   | E | 2035-09-05T14:48:17.313 |  | 39.62 | -19.09 | 47623.92 | 13.27 |  |  |
| delta   | E | 2035-09-05T14:49:07.473 |  | 39.81 | -18.90 | 48300.35 | 13.69 |  |  |
| lambda  | E | 2035-09-05T14:51:09.289 |  | 40.28 | -18.44 | 50026.71 | 14.63 |  |  |
| epsilon | E | 2035-09-05T14:52:43.660 |  | 40.64 | -18.08 | 51439.49 | 15.19 |  |  |