

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2034-12-31T08:03:39.820
 Event type : XRgt
 : No Uranus occs
 : Ring occs: geocentric, topocentric
 Gaia source ID : 3382447106797521152
 2Mass ID (if available) : 06345262+2331504

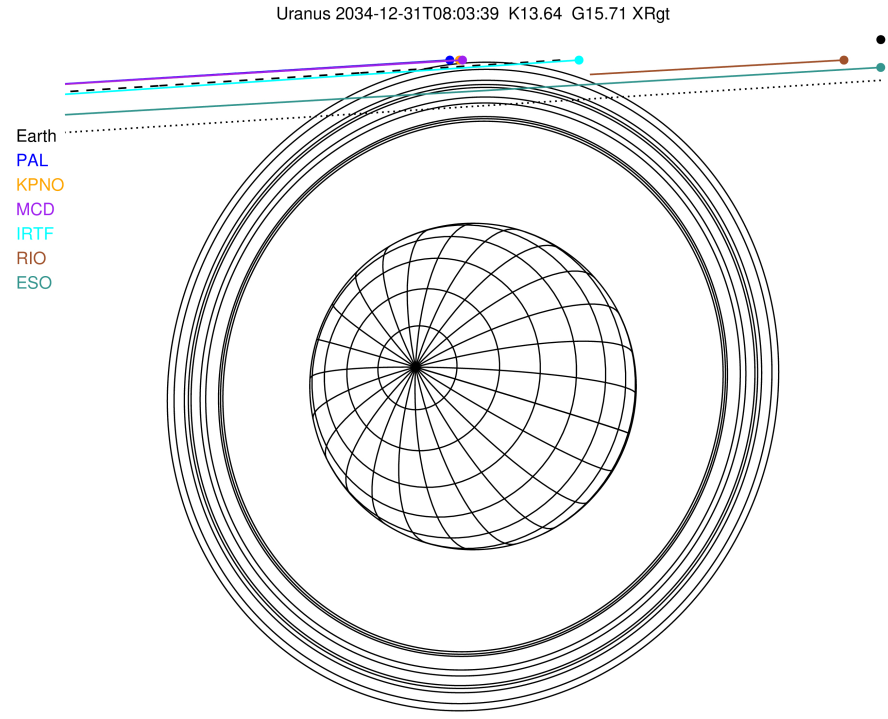
ICRS Star Coord at Epoch: 06h 34m 52.61321s +23:31:50.19053s

RUWE (>1.4 is poor) : 0.91
 K magnitude : 13.639
 G magnitude : 15.710
 RP magnitude : 15.049
 BP magnitude : 16.218
 DUPflag : 0
 Distance (au) : 17.906
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -23.36
 Sun-Target sep (deg) : 178.73
 Sun-Moon sep (deg) : 78.80
 B (ring opening deg) : 68.18
 PA of pole (deg) : 71.37

#	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

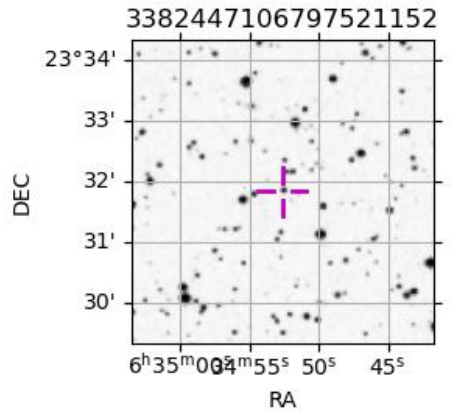


2034-12-31T08:03:39.8200 ra: 06 34 52.6132 s: +23 31 50.191 C/A 3.869° PA 183.66 deg v_sky -23.36 km/s D 17.91 AU
 Credit: Styled after SORA/Lucky Star



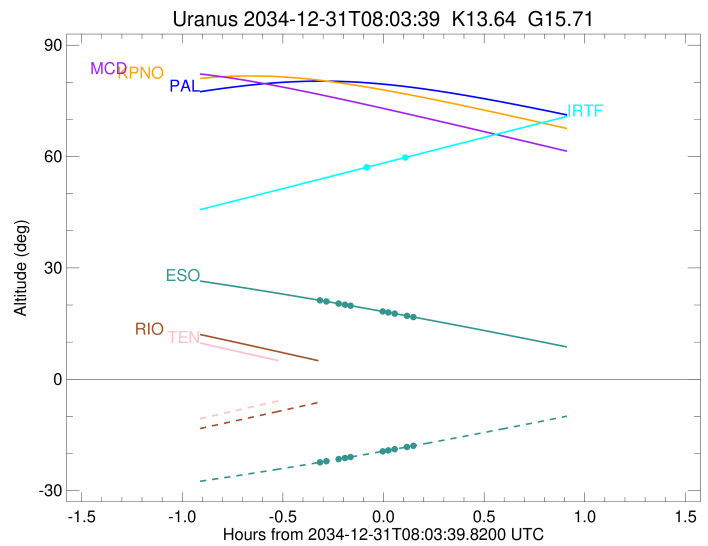
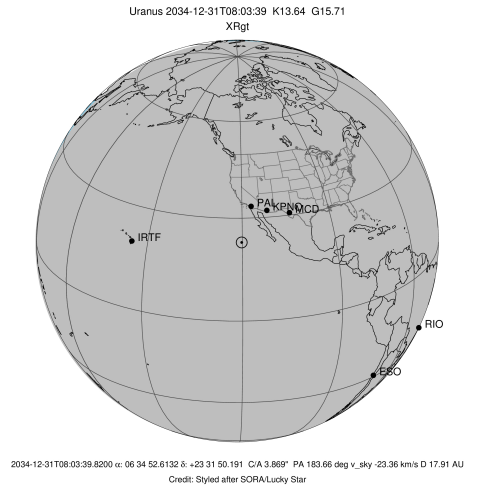
Observable events with sun below -5 deg and altitude above 5 deg unblocked by planet

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	+		+	DEC 31 07:57 - DEC 31 08:10	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	+++++		+++++	DEC 31 07:44 - DEC 31 08:12	PnnRie
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            : 2034-12-31T08:06:07.150
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      : 3382447106797521152
2Mass ID (if available) : 06345262+2331504
ICRS Star Coord at Epoch: 06h 34m 52.61321s +23:31:50.19053s
RUWE (>1.4 is poor) : 0.91
K magnitude         : 13.639
G magnitude         : 15.710
RP magnitude        : 15.049
BP magnitude        : 16.218
DUPflag            : 0
Distance (au)       : 17.906
f0 (km)            : 0.000
g0 (km)            : 0.000
skyplane vel. (km/s) : -23.36
Sun-Target sep (deg) : 178.73
Sun-Moon sep (deg)  : 79.67
B (ring opening deg) : 68.18
PA of pole (deg)    : 71.37
Pole direction: RA (deg): 257.31100
Dec (deg): -15.17500
C/A sky separation (") : 3.842
C/A sky separation (km) : 49888.9
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
    
```



```

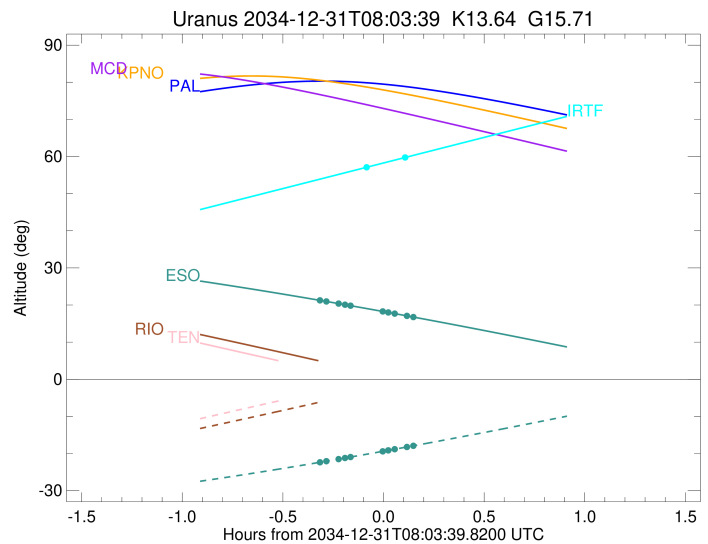
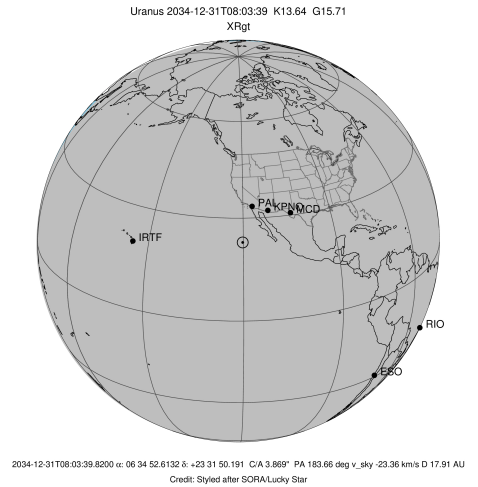
b: ring blocked by planet  x: target alt < 5.0 deg or sun > -5.0 deg
Ring      I/E      UTC      b? alt  alt-sun  radius  r-dot  lat-geo lat-geodetic
-----
epsilon   I  2034-12-31T07:57:47.203  56.91 -55.71  51397.55  -4.77
    
```

No planet occultations

```

epsilon   E  2034-12-31T08:10:29.086  59.83 -58.63  51260.94  4.78
    
```

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2034-12-31T08:00:13.670
 Event type : XRgt
 : No Uranus occs
 : Ring occs: geocentric, topocentric
 Observer code : ESO
 Location : European Southern Obs. (3.6m)
 Latitude (deg) : -29.26097
 E. Longitude (deg) : 289.26831
 Altitude (km) : 2.400
 Gaia source ID : 3382447106797521152
 2Mass ID (if available) : 06345262+2331504
 ICRS Star Coord at Epoch: 06h 34m 52.61321s +23:31:50.19053s
 RUWE (>1.4 is poor) : 0.91
 K magnitude : 13.639
 G magnitude : 15.710
 RP magnitude : 15.049
 BP magnitude : 16.218
 DUPflag : 0
 Distance (au) : 17.906
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -23.36
 Sun-Target sep (deg) : 178.73
 Sun-Moon sep (deg) : 78.96
 B (ring opening deg) : 68.18
 PA of pole (deg) : 71.37
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 3.555
 C/A sky separation (km) : 46163.3
 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



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	2034-12-31T07:44:14.076		21.33	-22.44	51469.45	-10.57		
lambda	I	2034-12-31T07:46:39.554		20.95	-22.07	50026.71	-9.13		
delta	I	2034-12-31T07:50:18.737		20.38	-21.50	48300.35	-6.57		
gamma	I	2034-12-31T07:52:14.702		20.08	-21.20	47621.84	-5.12		
eta	I	2034-12-31T07:53:54.323		19.81	-20.94	47176.12	-3.82		

No planet occultations

eta	E	2034-12-31T08:03:22.149		18.28	-19.43	47176.12	3.82		
gamma	E	2034-12-31T08:05:02.137		18.01	-19.16	47623.37	5.12		
delta	E	2034-12-31T08:06:57.906		17.69	-18.84	48300.35	6.57		
lambda	E	2034-12-31T08:10:37.356		17.08	-18.24	50026.71	9.12		
epsilon	E	2034-12-31T08:12:34.336		16.76	-17.92	51167.41	10.55		