

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2032-12-23T01:11:32.720
 Event type : Xrt
 : No Uranus occs
 : Ring occs: topocentric, not geocentric
 Gaia source ID : 3424835101113362688
 2Mass ID (if available) : 05555654+2339010

ICRS Star Coord at Epoch: 05h 55m 56.53752s +23:39:00.93046s

RUWE (>1.4 is poor) : 1.07
 K magnitude : 11.239
 G magnitude : 15.274
 RP magnitude : 14.172
 BP magnitude : 16.529
 DUPflag : 0
 Distance (au) : 18.036
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -23.40
 Sun-Target sep (deg) : 177.77
 Sun-Moon sep (deg) : 72.70
 B (ring opening deg) : 76.12
 PA of pole (deg) : 54.49

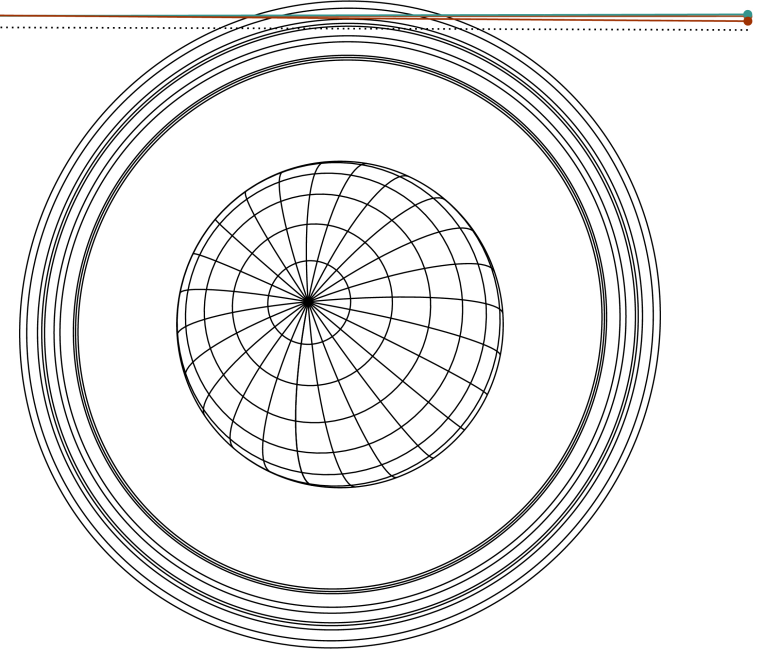
#	a(km)	ring
1	41837.2	6
2	42235.0	5
3	42571.2	4
4	44718.5	alpha
5	45661.1	beta
6	47176.1	eta
7	47626.3	gamma
8	48300.3	delta
9	50026.7	lambda
10	51149.4	epsilon



2032-12-23T01:11:32.7200 ra: 05 55 56.5375 s: +23 39 00.930 C/A 4.0377 PA 179.80 deg v_sky -23.40 km/s D 18.04 AU
 Credit: Styled after SORA/Lucky Star

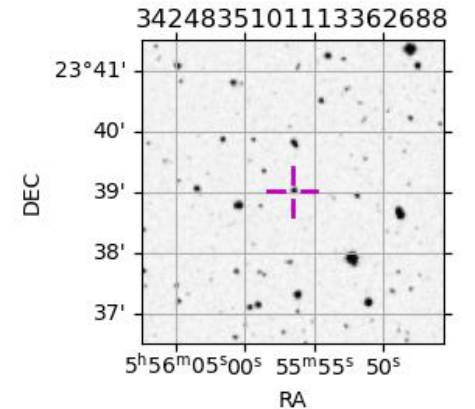
Uranus 2032-12-23T01:11:32 K11.24 G15.27 Xrt

Earth
 RIO
 ESO
 SAAO

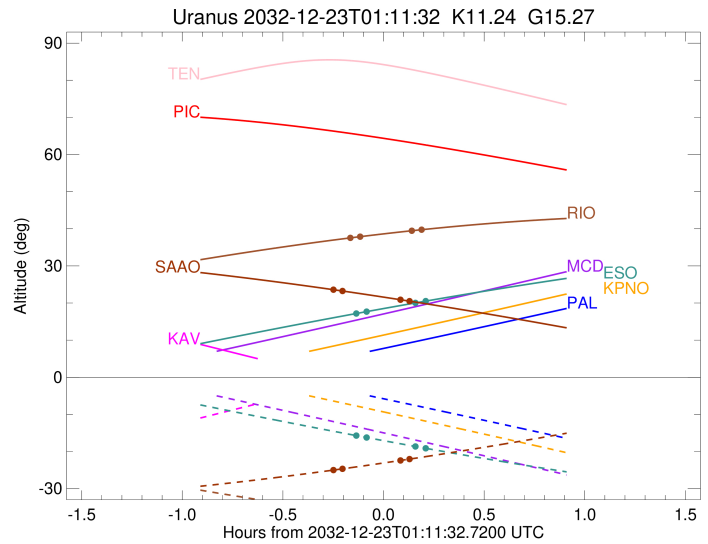
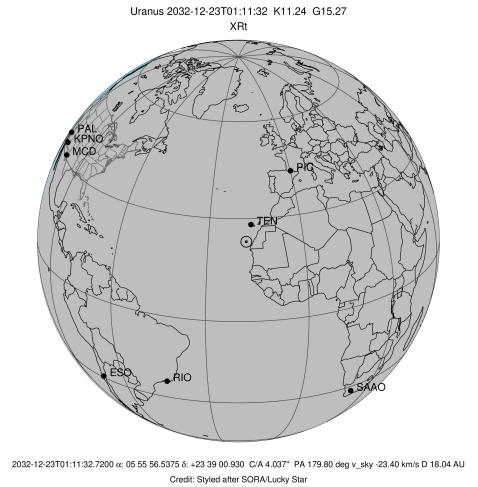


Observable events with sun below -5 deg and altitude above 5 deg unblocked by planet

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					PnnRnn
KAV	Kavalur Observatory	12.6	78.8					PnnRnn
RIO	Rio de Janeiro	-22.9	316.8	++		++	DEC 23 01:00 - DEC 23 01:23	PnnRie
ESO	European Southern Obs	-29.3	289.3	++		++	DEC 23 01:02 - DEC 23 01:25	PnnRie
AAT	Siding Spring (AAT)	-31.3	149.1					PnnRnn
SAAO	So. Afr. Astro. Obs.	-32.4	20.8	++		++	DEC 23 00:55 - DEC 23 01:20	PnnRie
MSO	Mt. Stromlo Observato	-35.3	149.0					PnnRnn



target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2032-12-23T01:13:13.520
 Event type : XRt
 : No Uranus occs
 : Ring occs: topocentric, not geocentric
 Observer code : RIO
 Location : Rio de Janeiro
 Latitude (deg) : -22.89506
 E. Longitude (deg) : 316.77708
 Altitude (km) : 0.033
 Gaia source ID : 3424835101113362688
 2Mass ID (if available) : 05555654+2339010
 ICRS Star Coord at Epoch: 05h 55m 56.53752s +23:39:00.93046s
 RUWE (>1.4 is poor) : 1.07
 K magnitude : 11.239
 G magnitude : 15.274
 RP magnitude : 14.172
 BP magnitude : 16.529
 DUPflag : 0
 Distance (au) : 18.036
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -23.40
 Sun-Target sep (deg) : 177.77
 Sun-Moon sep (deg) : 73.32
 B (ring opening deg) : 76.12
 PA of pole (deg) : 54.49
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 3.691
 C/A sky separation (km) : 48277.1
 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_itrf93_040916.bsp
 earth_720101_070426.bpc
 earth_200101_990628_predict.bpc
 pg3f0000r.bsp
 pg490000r.bsp
 naif0012.tls
 earth_flat_IAU.spk



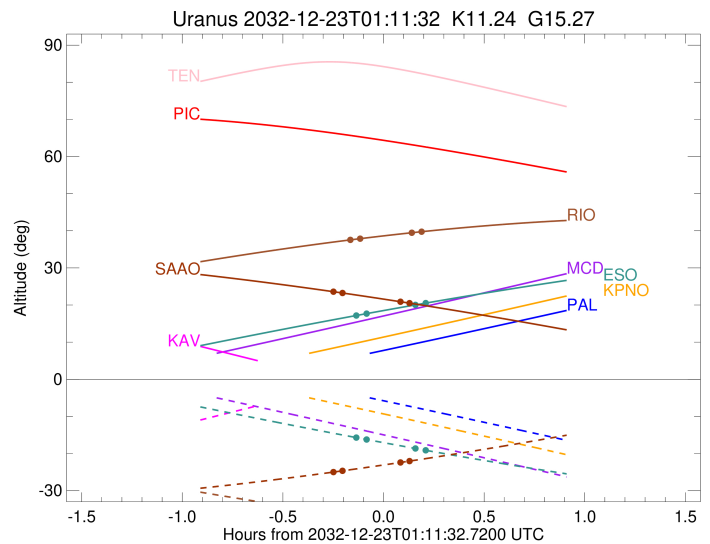
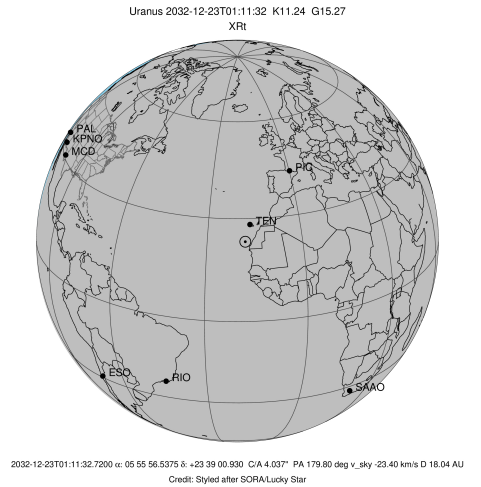
Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2032-12-23T01:00:54.834		37.46	-36.52	51504.07	-7.90		
lambda	I	2032-12-23T01:04:37.696		37.88	-36.97	50026.71	-5.41		

No planet occultations

lambda	E	2032-12-23T01:19:56.684		39.47	-38.69	50026.71	5.42		
epsilon	E	2032-12-23T01:23:45.334		39.83	-39.09	51550.49	7.90		

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target                : Uranus
target radius (km)   : 25559.00
C/A epoch            : 2032-12-23T01:14:44.270
Event type          : XRt
: No Uranus occs
: Ring occs: topocentric, not geocentric
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      : 3424835101113362688
2Mass ID (if available) : 05555654+2339010
ICRS Star Coord at Epoch: 05h 55m 56.53752s +23:39:00.93046s
RUWE (>1.4 is poor) : 1.07
K magnitude          : 11.239
G magnitude          : 15.274
RP magnitude         : 14.172
BP magnitude         : 16.529
DUPflag             : 0
Distance (au)       : 18.036
f0 (km)             : 0.000
g0 (km)             : 0.000
skyplane vel. (km/s) : -23.40
Sun-Target sep (deg) : 177.77
Sun-Moon sep (deg)  : 73.14
B (ring opening deg) : 76.12
PA of pole (deg)    : 54.49
Pole direction: RA (deg): 257.31100
Dec (deg): -15.17500
C/A sky separation (") : 3.702
C/A sky separation (km) : 48424.2
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_itrf93_040916.bsp
earth_720101_070426.bpc
earth_200101_990628_predict.bpc
pg3f0000r.bsp
pg490000r.bsp
naif0012.tls
earth_flat_IAU.spk
  
```

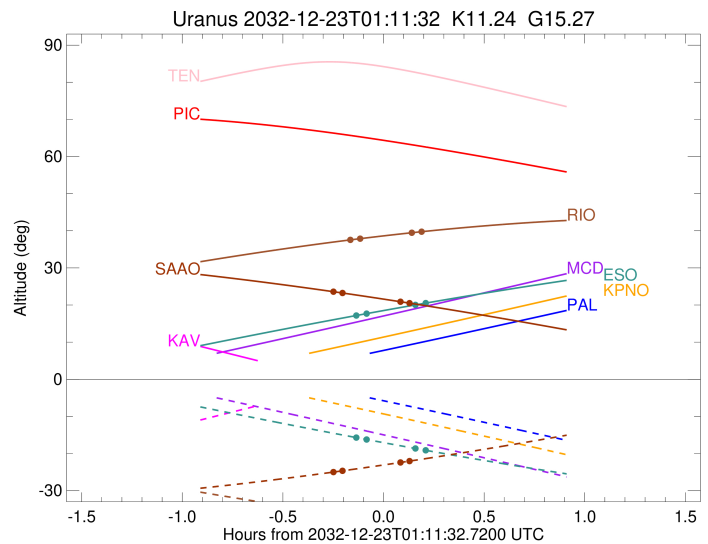
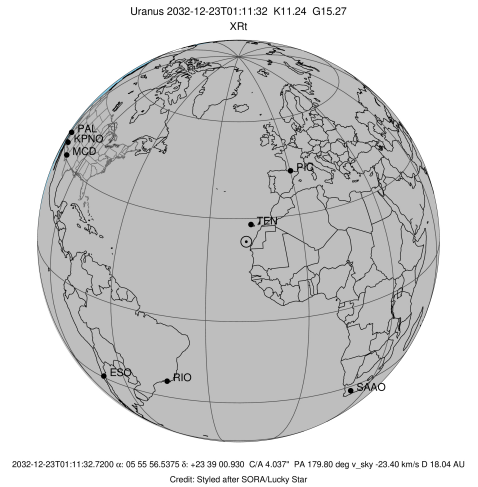


Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2032-12-23T01:02:39.401		17.05	-15.58	51506.35	-7.64		
lambda	I	2032-12-23T01:06:33.528		17.69	-16.24	50026.71	-5.05		

No planet occultations

lambda	E	2032-12-23T01:21:01.060		20.03	-18.63	50026.71	5.06		
epsilon	E	2032-12-23T01:25:00.809		20.66	-19.28	51550.91	7.65		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2032-12-23T01:08:53.520
 Event type : XRt
 : No Uranus occs
 : Ring occs: topocentric, not geocentric
 Observer code : SAAO
 Location : So. Afr. Astro. Obs. (Sutherland)
 Latitude (deg) : -32.37953
 E. Longitude (deg) : 20.81070
 Altitude (km) : 1.768
 Gaia source ID : 3424835101113362688
 2Mass ID (if available) : 05555654+2339010
 ICRS Star Coord at Epoch: 05h 55m 56.53752s +23:39:00.93046s
 RUWE (>1.4 is poor) : 1.07
 K magnitude : 11.239
 G magnitude : 15.274
 RP magnitude : 14.172
 BP magnitude : 16.529
 DUPflag : 0
 Distance (au) : 18.036
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -23.40
 Sun-Target sep (deg) : 177.77
 Sun-Moon sep (deg) : 72.86
 B (ring opening deg) : 76.12
 PA of pole (deg) : 54.49
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 3.667
 C/A sky separation (km) : 47967.3
 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	2032-12-23T00:55:55.457		23.68	-25.09	51498.86	-8.30		
lambda	I	2032-12-23T00:59:21.650		23.23	-24.66	50026.71	-6.04		

No planet occultations

lambda	E	2032-12-23T01:16:33.903		20.89	-22.42	50026.71	6.03		
epsilon	E	2032-12-23T01:20:06.479		20.39	-21.93	51549.71	8.29		