

target : Uranus  
 target radius (km) : 25559.00  
 C/A epoch : 2027-10-10T06:13:36.950  
 Event type : XRgt  
 : No Uranus occs  
 : Ring occs: geocentric, topocentric  
 Gaia source ID : 144659450629862272  
 2Mass ID (if available) : 04303211+2144580

ICRS Star Coord at Epoch: 04h 30m 32.12253s +21:44:57.81032s

RUWE (>1.4 is poor) : 1.02  
 K magnitude : 11.774  
 G magnitude : 13.830  
 RP magnitude : 13.119  
 BP magnitude : 14.377  
 DUPflag : 0  
 Distance (au) : 18.755  
 f0 (km) : 0.000  
 g0 (km) : 0.000  
 skyplane vel. (km/s) : -11.62  
 Sun-Target sep (deg) : 127.04  
 Sun-Moon sep (deg) : 112.95  
 B (ring opening deg) : 78.72  
 PA of pole (deg) : -56.01

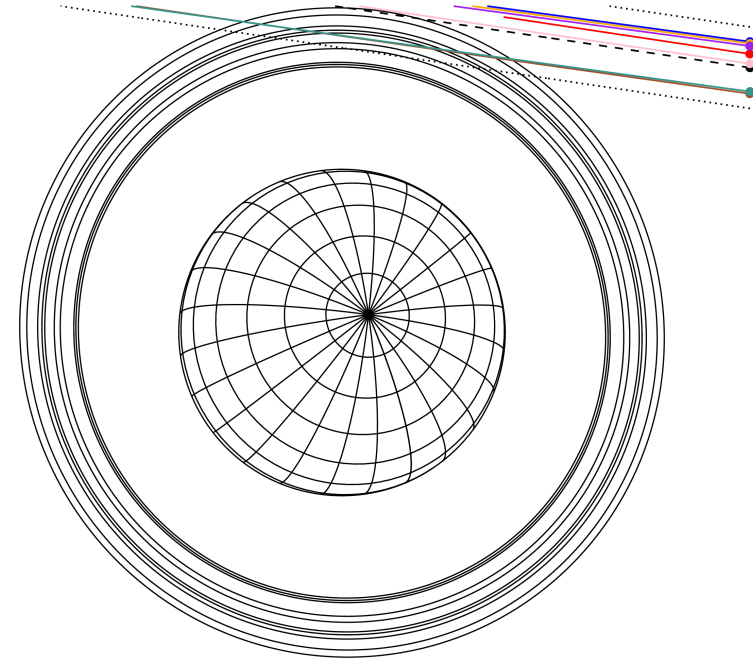
#	a(km)	ring
1	41837.2	6
2	42235.0	5
3	42571.2	4
4	44718.5	alpha
5	45661.1	beta
6	47176.1	eta
7	47626.3	gamma
8	48300.3	delta
9	50026.7	lambda
10	51149.4	epsilon



2027-10-10T06:13:36.9500 ra: 04 30 32.1225 s: +21 44 57.810 C/A 3.710° PA 171.56 deg v\_sky -11.62 km/s D 18.75 AU  
 Credit: Styled after SORA/Lucky Star

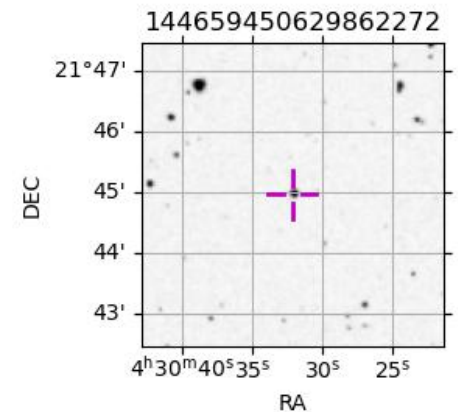
Uranus 2027-10-10T06:13:36 K11.77 G13.83 XRgt

Earth  
 PIC  
 PAL  
 KPNO  
 MCD  
 TEN  
 RIO  
 ESO



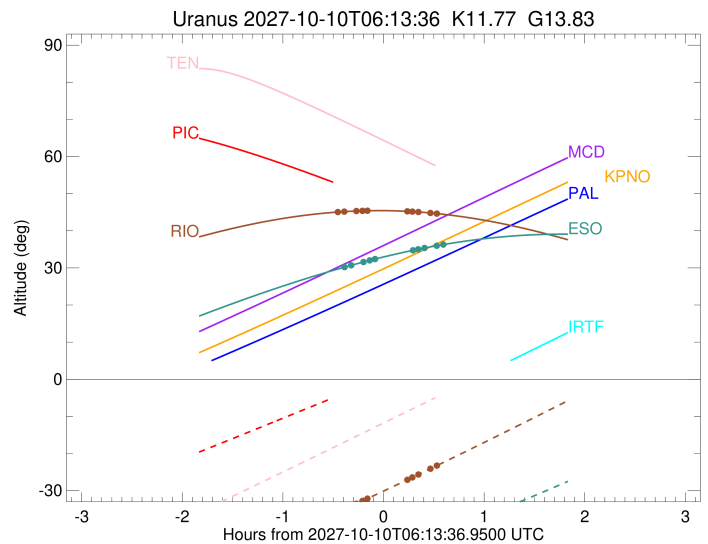
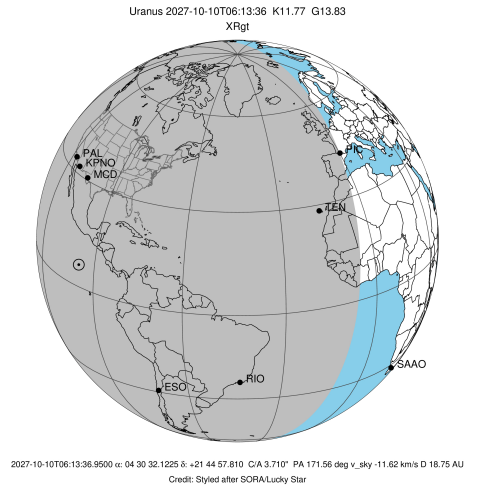
Observable events with sun below -5 deg and altitude above 5 deg unblocked by planet

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	+++++		+++++	OCT 10 05:45 - OCT 10 06:45	PnnRie
ESO	European Southern Obs	-29.3	289.3	+++++		+++++	OCT 10 05:49 - OCT 10 06:49	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



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target                : Uranus
target radius (km)   : 25559.00
C/A epoch            : 2027-10-10T06:14:42.710
Event type          : XRgt
: No Uranus occs
: Ring occs: geocentric, topocentric
Observer code       : RIO
Location            : Rio de Janeiro
Latitude (deg)      : -22.89506
E. Longitude (deg)  : 316.77708
Altitude (km)       : 0.033
Gaia source ID      : 144659450629862272
2Mass ID (if available) : 04303211+2144580
ICRS Star Coord at Epoch: 04h 30m 32.12253s +21:44:57.81032s
RUWE (>1.4 is poor) : 1.02
K magnitude         : 11.774
G magnitude         : 13.830
RP magnitude        : 13.119
BP magnitude        : 14.377
DUPflag            : 0
Distance (au)       : 18.755
f0 (km)             : 0.000
g0 (km)             : 0.000
skyplane vel. (km/s) : -11.62
Sun-Target sep (deg) : 127.04
Sun-Moon sep (deg)  : 113.57
B (ring opening deg) : 78.72
PA of pole (deg)    : -56.01
Pole direction: RA (deg): 257.31100
Dec (deg): -15.17500
C/A sky separation (") : 3.379
C/A sky separation (km) : 45962.3
NAIF SPICE kernels  : RAJobs_U111+rgf15.spk
URKALLvl1.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
  
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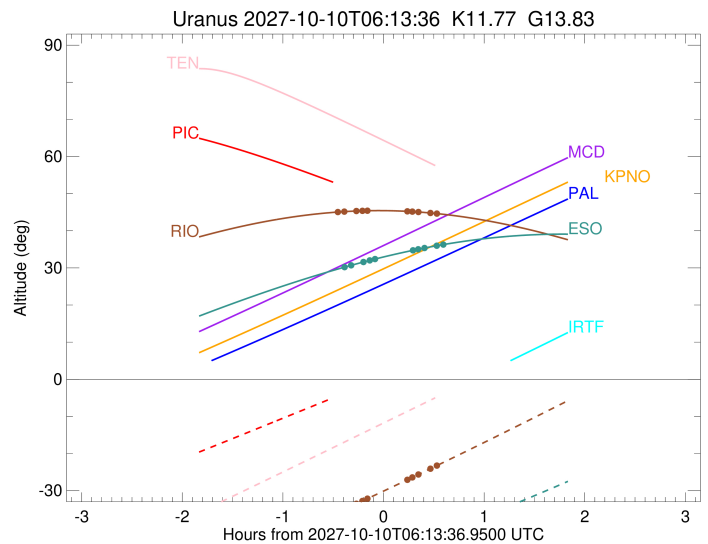
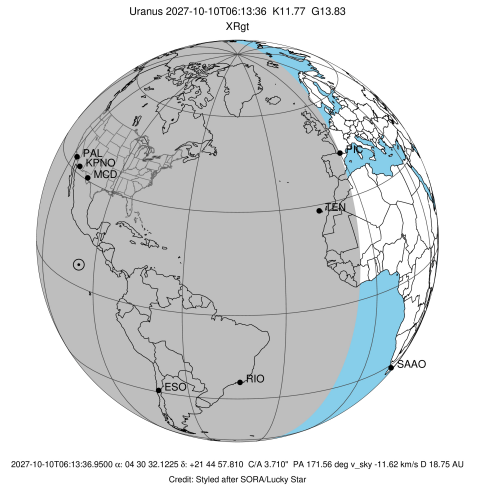


Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2027-10-10T05:45:24.451		45.01	-36.03	51476.54	-5.23		
lambda	I	2027-10-10T05:50:18.450		45.16	-35.02	50026.71	-4.57		
delta	I	2027-10-10T05:57:30.533		45.32	-33.52	48300.35	-3.40		
gamma	I	2027-10-10T06:01:10.478		45.37	-32.76	47621.46	-2.76		
eta	I	2027-10-10T06:04:08.651		45.41	-32.13	47176.12	-2.23		

No planet occultations

eta	E	2027-10-10T06:27:44.010		45.24	-27.10	47176.12	2.23		
gamma	E	2027-10-10T06:30:41.865		45.16	-26.46	47620.96	2.77		
delta	E	2027-10-10T06:34:21.779		45.06	-25.67	48300.35	3.41		
lambda	E	2027-10-10T06:41:33.312		44.80	-24.10	50026.71	4.57		
epsilon	E	2027-10-10T06:45:28.235		44.63	-23.25	51170.34	5.24		

target : Uranus  
 target radius (km) : 25559.00  
 C/A epoch : 2027-10-10T06:18:38.720  
 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 : 144659450629862272  
 2Mass ID (if available) : 04303211+2144580  
 ICRS Star Coord at Epoch: 04h 30m 32.12253s +21:44:57.81032s  
 RUWE (>1.4 is poor) : 1.02  
 K magnitude : 11.774  
 G magnitude : 13.830  
 RP magnitude : 13.119  
 BP magnitude : 14.377  
 DUPflag : 0  
 Distance (au) : 18.755  
 f0 (km) : 0.000  
 g0 (km) : 0.000  
 skyplane vel. (km/s) : -11.62  
 Sun-Target sep (deg) : 127.04  
 Sun-Moon sep (deg) : 113.58  
 B (ring opening deg) : 78.72  
 PA of pole (deg) : -56.01  
 Pole direction: RA (deg): 257.31100  
 Dec (deg): -15.17500  
 C/A sky separation (") : 3.386  
 C/A sky separation (km) : 46054.1  
 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\_itrff93\_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	2027-10-10T05:49:23.518	30.08	-49.55	51474.44	-5.15		
lambda	I	2027-10-10T05:54:22.402	30.70	-48.97	50026.71	-4.48		
delta	I	2027-10-10T06:01:44.990	31.59	-48.06	48300.35	-3.30		
gamma	I	2027-10-10T06:05:33.033	32.04	-47.57	47621.43	-2.65		
eta	I	2027-10-10T06:08:40.881	32.40	-47.16	47176.12	-2.09		

No planet occultations

eta	E	2027-10-10T06:31:04.462	34.72	-43.96	47176.12	2.09		
gamma	E	2027-10-10T06:34:11.671	35.01	-43.48	47620.96	2.66		
delta	E	2027-10-10T06:37:59.183	35.35	-42.89	48300.35	3.31		
lambda	E	2027-10-10T06:45:19.924	35.97	-41.72	50026.71	4.50		
epsilon	E	2027-10-10T06:49:18.191	36.28	-41.07	51169.95	5.18		