

target : Uranus  
 target radius (km) : 25559.00  
 C/A epoch : 2031-11-08T08:12:35.440  
 Event type : XRT  
 : No Uranus occs  
 : Ring occs: topocentric, not geocentric  
 Gaia source ID : 3428375111940560384  
 2Mass ID (if available) : 05434142+2331530

ICRS Star Coord at Epoch: 05h 43m 41.43295s +23:31:52.81830s

RUWE (>1.4 is poor) : 3.13  
 K magnitude : 14.729  
 G magnitude : 18.554  
 RP magnitude : 17.190  
 BP magnitude : 19.449  
 DUPflag : 0  
 Distance (au) : 18.335  
 f0 (km) : 0.000  
 g0 (km) : 0.000  
 skyplane vel. (km/s) : -16.13  
 Sun-Target sep (deg) : 139.01  
 Sun-Moon sep (deg) : 60.67  
 B (ring opening deg) : 78.35  
 PA of pole (deg) : 45.71

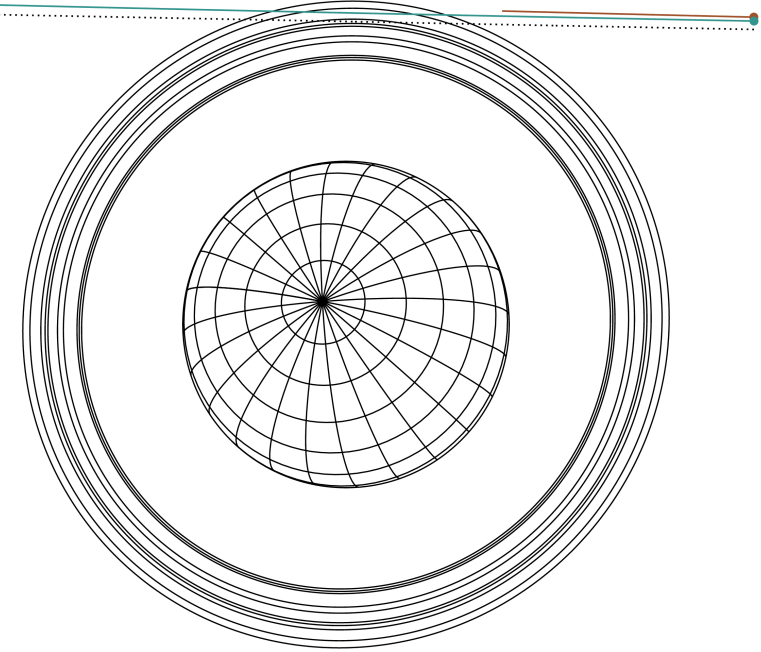
#	a(km)	ring
1	41837.2	6
2	42235.0	5
3	42571.2	4
4	44718.5	alpha
5	45661.1	beta
6	47176.1	eta
7	47626.3	gamma
8	48300.3	delta
9	50026.7	lambda
10	51149.4	epsilon



2031-11-08T08:12:35.4400 ra: 05 43 41.43300 ra: +23 31 52.818 C/A 4.055° PA 178.88 deg v\_sky -16.13 km/s D 18.33 AU  
 Credit: Styled after SORA/Lucky Star

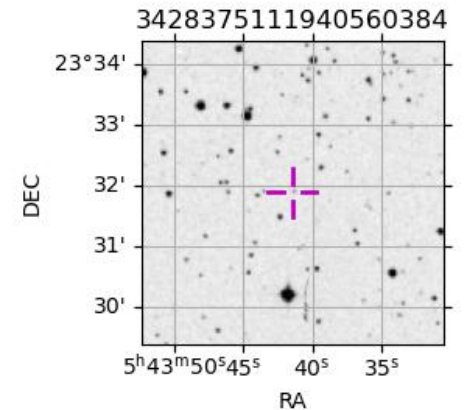
Uranus 2031-11-08T08:12:35 K14.73 G18.55 XRT

Earth  
 RIO  
 ESO



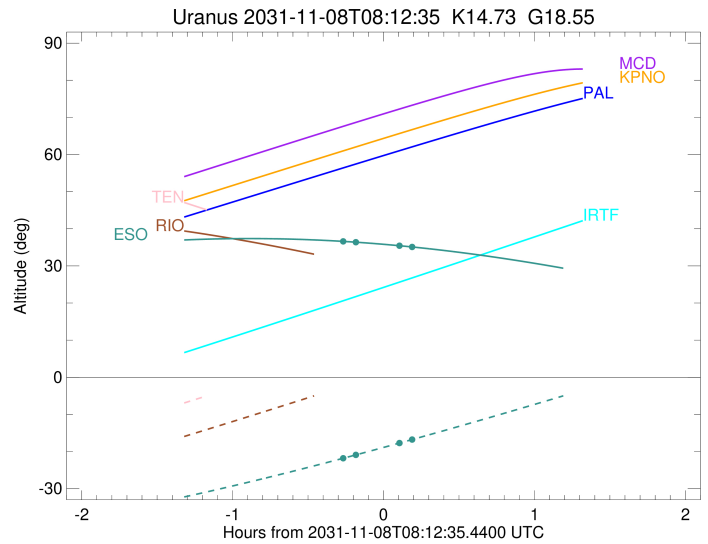
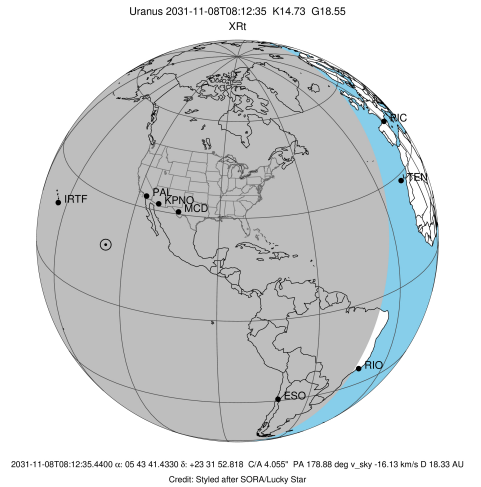
Observable events with sun below -5 deg and altitude above 5 deg unblocked by planet

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					PnnRnn
ESO	European Southern Obs	-29.3	289.3	++		++	NOV 08 07:58 - NOV 08 08:22	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            : 2031-11-08T08:11:17.230
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      : 3428375111940560384
2Mass ID (if available) : 05434142+2331530
ICRS Star Coord at Epoch: 05h 43m 41.43295s +23:31:52.81830s
RUWE (>1.4 is poor) : 3.13
K magnitude         : 14.729
G magnitude         : 18.554
RP magnitude        : 17.190
BP magnitude        : 19.449
DUPflag            : 0
Distance (au)       : 18.335
f0 (km)            : 0.000
g0 (km)            : 0.000
skyplane vel. (km/s) : -16.13
Sun-Target sep (deg) : 139.01
Sun-Moon sep (deg)  : 61.02
B (ring opening deg) : 78.35
PA of pole (deg)    : 45.71
Pole direction: RA (deg): 257.31100
Dec (deg): -15.17500
C/A sky separation (") : 3.669
C/A sky separation (km) : 48793.9
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_itrf93_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	2031-11-08T07:58:12.553		36.54	-21.52	50744.51	-3.98		
lambda	I	2031-11-08T08:01:41.108		36.38	-20.90	50026.71	-2.88		

No planet occultations

lambda	E	2031-11-08T08:18:51.171		35.44	-17.74	50026.71	2.88		
epsilon	E	2031-11-08T08:22:28.030		35.21	-17.06	50777.66	3.98		