

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2039-02-19T20:08:10.720
 Event type : XRT
 : No Uranus occs
 : Ring occs: topocentric, not geocentric
 Gaia source ID : 674530562367671680
 2Mass ID (if available) : 07473359+2141504

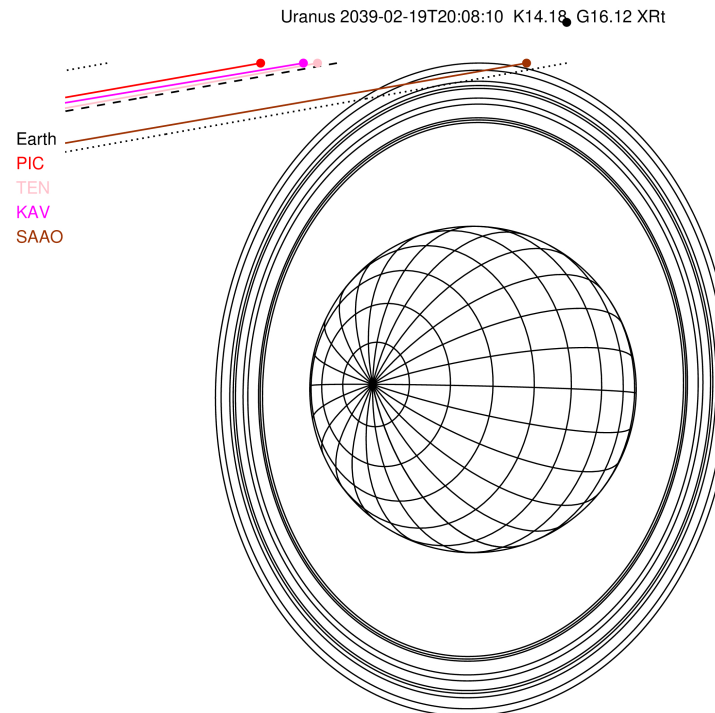
ICRS Star Coord at Epoch: 07h 47m 33.58829s +21:41:49.76719s

RUWE (>1.4 is poor) : 0.97
 K magnitude : 14.177
 G magnitude : 16.117
 RP magnitude : 15.476
 BP magnitude : 16.620
 DUPflag : 0
 Distance (au) : 17.827
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -17.71
 Sun-Target sep (deg) : 144.36
 Sun-Moon sep (deg) : 174.00
 B (ring opening deg) : 51.99
 PA of pole (deg) : 87.04

#	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

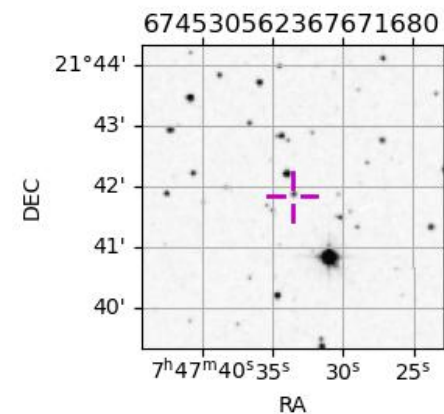


2039-02-19T20:08:10.7200 ra: 07 47 33.5883 s: +21 41 49.767 C/A 4.1877 PA 190.05 deg v_sky -17.71 km/s D 17.83 AU
 Credit: Styled after SORA/Lucky Star



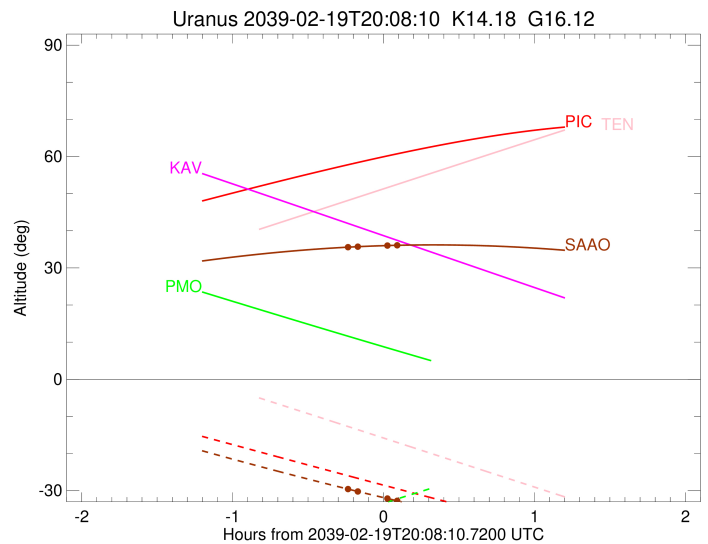
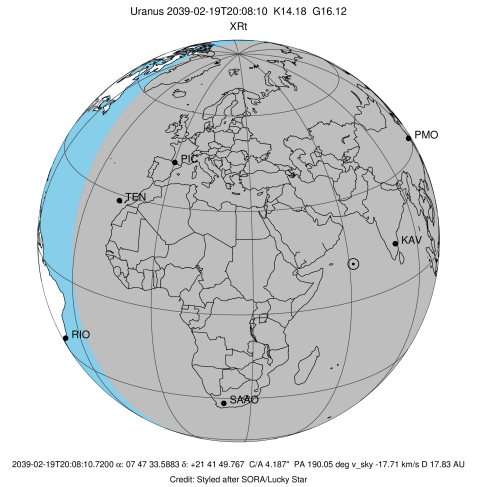
Observable events with sun below -5 deg and altitude above 5 deg unblocked by planet

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					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					PnnRnn
AAT	Siding Spring (AAT)	-31.3	149.1					PnnRnn
SAAO	So. Afr. Astro. Obs.	-32.4	20.8	++		++	FEB 19 19:55 - FEB 19 20:12	PnnRie
MSO	Mt. Stromlo Observato	-35.3	149.0					PnnRnn



```

target                : Uranus
target radius (km)   : 25559.00
C/A epoch            : 2039-02-19T20:07:36.990
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      : 674530562367671680
2Mass ID (if available) : 07473359+2141504
ICRS Star Coord at Epoch: 07h 47m 33.58829s +21:41:49.76719s
RUWE (>1.4 is poor) : 0.97
K magnitude         : 14.177
G magnitude         : 16.117
RP magnitude        : 15.476
BP magnitude        : 16.620
DUPflag            : 0
Distance (au)       : 17.827
f0 (km)             : 0.000
g0 (km)             : 0.000
skyplane vel. (km/s) : -17.71
Sun-Target sep (deg) : 144.36
Sun-Moon sep (deg)  : 174.24
B (ring opening deg) : 51.99
PA of pole (deg)    : 87.04
Pole direction: RA (deg): 257.31100
Dec (deg): -15.17500
C/A sky separation (") : 3.783
C/A sky separation (km) : 48912.8
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
    
```



Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2039-02-19T19:55:08.308		35.62	-29.76	50804.82	-5.24		
lambda	I	2039-02-19T19:58:01.872		35.72	-30.24	50026.71	-3.62		

No planet occultations

lambda	E	2039-02-19T20:09:40.224		36.02	-32.11	50026.71	3.62		
epsilon	E	2039-02-19T20:12:22.528		36.07	-32.54	50745.34	5.24		