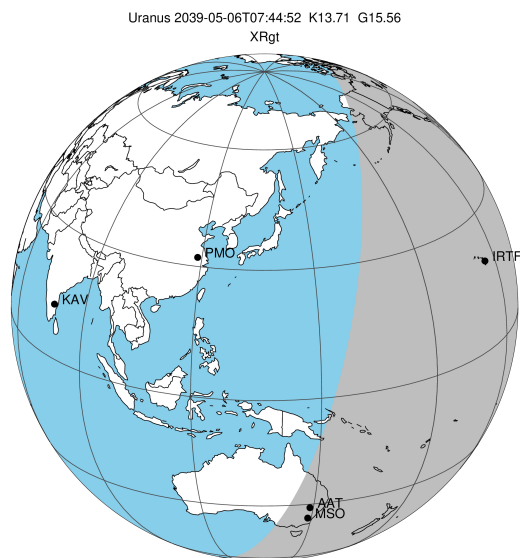


target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2039-05-06T07:44:52.340
 Event type : XRgt
 : No Uranus occs
 : Ring occs: geocentric, topocentric
 Gaia source ID : 674540354893125248
 2Mass ID (if available) : 07464239+2142238

ICRS Star Coord at Epoch: 07h 46m 42.35935s +21:42:23.81195s

RUWE (>1.4 is poor) : 0.96
 K magnitude : 13.711
 G magnitude : 15.559
 RP magnitude : 14.945
 BP magnitude : 16.001
 DUPflag : 0
 Distance (au) : 18.957
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : 16.93
 Sun-Target sep (deg) : 69.53
 Sun-Moon sep (deg) : 80.31
 B (ring opening deg) : 52.19
 PA of pole (deg) : 86.94

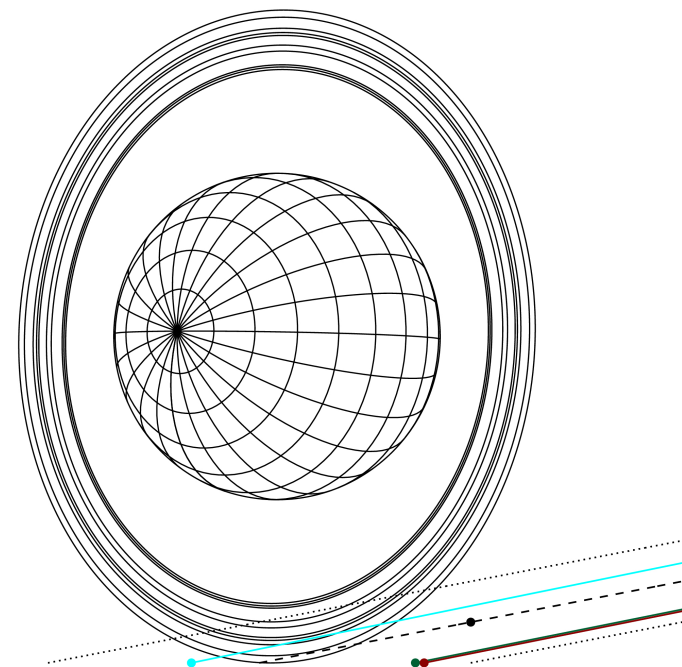
#	a(km)	ring
1	41837.2	6
2	42235.0	5
3	42571.2	4
4	44718.5	alpha
5	45661.1	beta
6	47176.1	eta
7	47626.3	gamma
8	48300.3	delta
9	50026.7	lambda
10	51149.4	epsilon



2039-05-06T07:44:52.3400 cr: 07 46 42.3594 s: +21 42 23.812 C/A 3.603° PA 10.91 deg v_sky +16.93 km/s D 18.96 AU
 Credit: Styled after SORA/Lucky Star

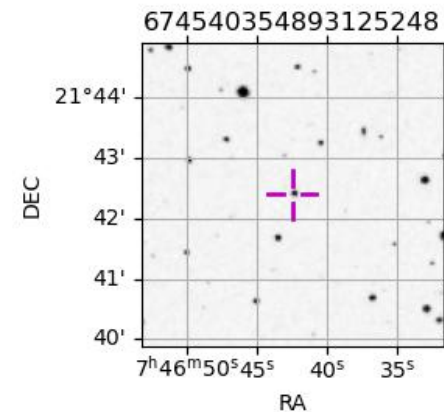
Earth
 IRTF
 AAT
 MSO

Uranus 2039-05-06T07:44:52 K13.71 G15.56 XRgt



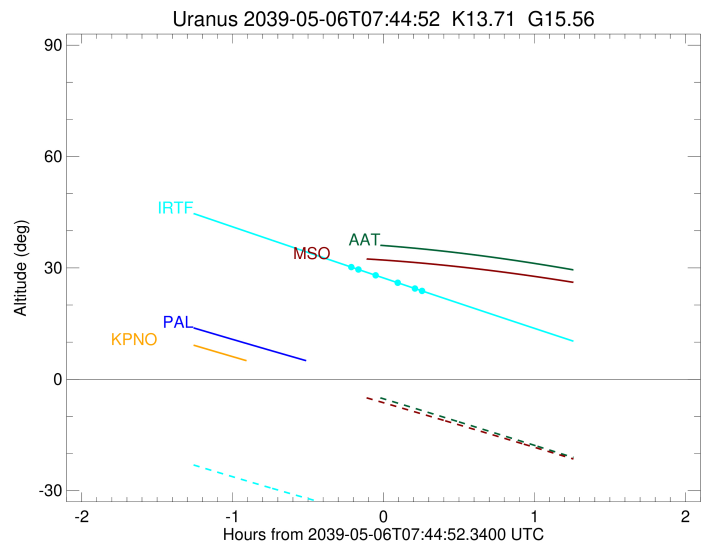
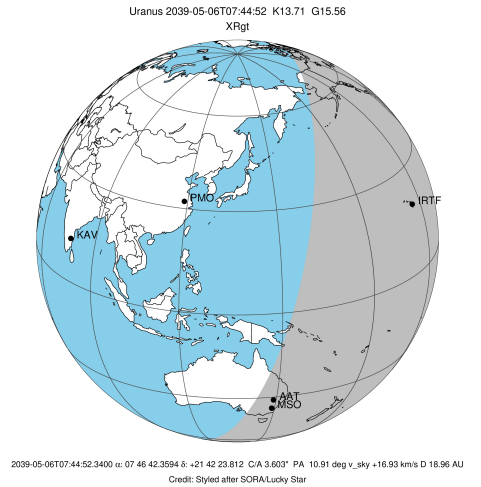
Observable events with sun below -5 deg and altitude above 5 deg unblocked by planet

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	+++		+++	MAY 06 07:32 - MAY 06 07:59	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					PnnRnn
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            : 2039-05-06T07:50:33.280
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      : 674540354893125248
2Mass ID (if available) : 07464239+2142238
ICRS Star Coord at Epoch: 07h 46m 42.35935s +21:42:23.81195s
RUWE (>1.4 is poor) : 0.96
K magnitude         : 13.711
G magnitude         : 15.559
RP magnitude        : 14.945
BP magnitude        : 16.001
DUPflag            : 0
Distance (au)       : 18.957
f0 (km)             : 0.000
g0 (km)             : 0.000
skyplane vel. (km/s) : 16.93
Sun-Target sep (deg) : 69.53
Sun-Moon sep (deg)  : 80.63
B (ring opening deg) : 52.19
PA of pole (deg)    : 86.94
Pole direction: RA (deg): 257.31100
Dec (deg): -15.17500
C/A sky separation (") : 3.448
C/A sky separation (km) : 47407.0
NAIF SPICE kernels  : RAJobs_U111+rgf15.spk
URKALLvl.spk
urall1.bsp
IAU_URANUS_for_RINGFIT.tpc
vgr2.urall1.bsp
ural161.bsp
vgr2.ural161.bsp
peph.ural160.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	2039-05-06T07:32:49.861	30.04	-35.52	50840.11	-7.02		
lambda	I	2039-05-06T07:34:56.597	29.56	-35.90	50026.71	-5.91		
delta	I	2039-05-06T07:41:51.267	27.98	-37.15	48300.35	-2.35		

No planet occultations

delta	E	2039-05-06T07:50:25.660	26.02	-38.66	48300.35	2.35		
lambda	E	2039-05-06T07:57:19.509	24.45	-39.85	50026.71	5.93		
epsilon	E	2039-05-06T07:59:59.080	23.85	-40.30	51074.93	7.04		