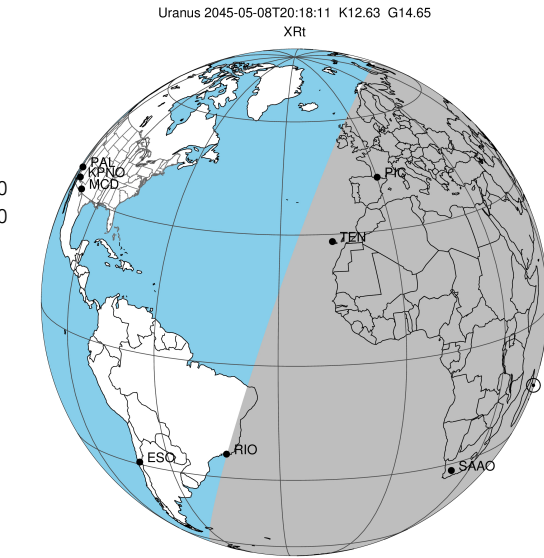


target : Uranus  
 target radius (km) : 25559.00  
 C/A epoch : 2045-05-08T20:18:11.200  
 Event type : XRT  
 : No Uranus occs  
 : Ring occs: topocentric, not geocentric  
 Gaia source ID : 618000065378086144  
 2Mass ID (if available) : 09390137+1449275

ICRS Star Coord at Epoch: 09h 39m 01.30820s +14:49:28.15061s

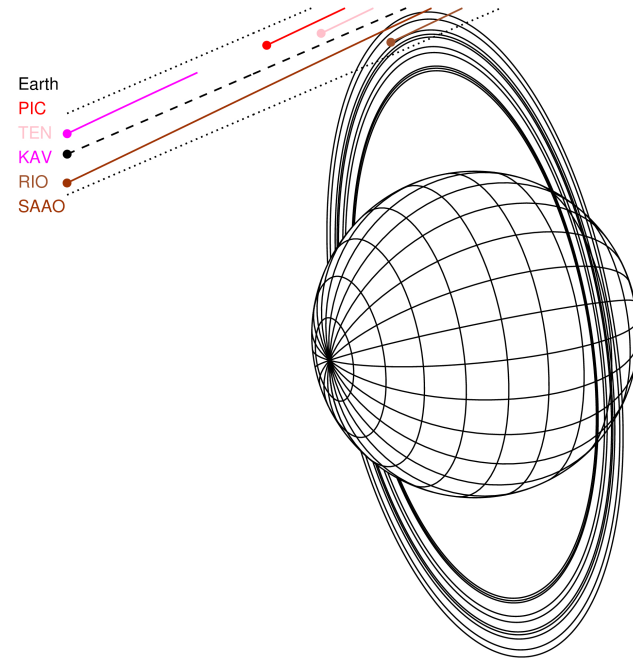
RUWE (>1.4 is poor) : 0.98  
 K magnitude : 12.633  
 G magnitude : 14.647  
 RP magnitude : 13.999  
 BP magnitude : 15.133  
 DUPflag : 0  
 Distance (au) : 18.257  
 f0 (km) : 0.000  
 g0 (km) : 0.000  
 skyplane vel. (km/s) : 4.54  
 Sun-Target sep (deg) : 94.13  
 Sun-Moon sep (deg) : 172.89  
 B (ring opening deg) : 25.14  
 PA of pole (deg) : 100.07

#	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



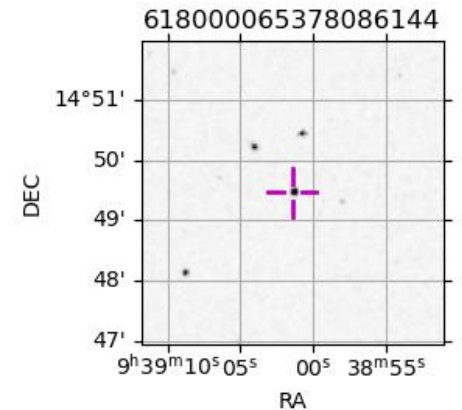
2045-05-08T20:18:11.2000 ra: 09 39 01.3082 s: +14 49 28.151 C/A 3.904° PA 205.64 deg v\_sky + 4.54 km/s D 18.26 AU  
 Credit: Styled after SORA/Lucky Star

Uranus 2045-05-08T20:18:11 K12.63 G14.65 XRT



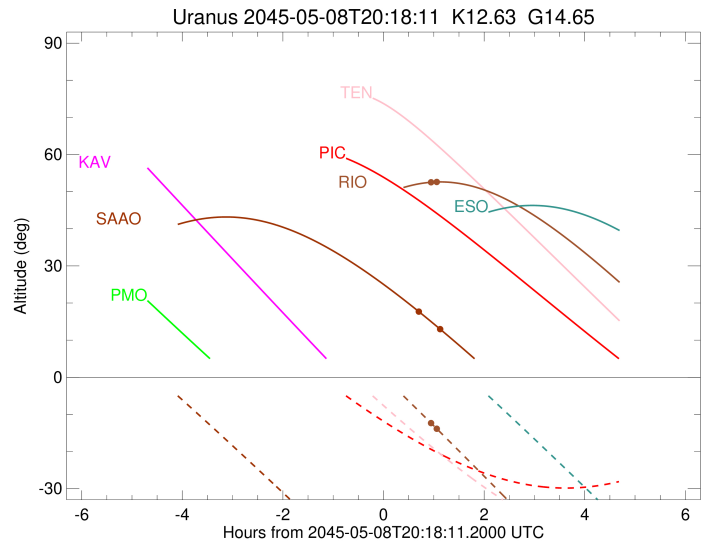
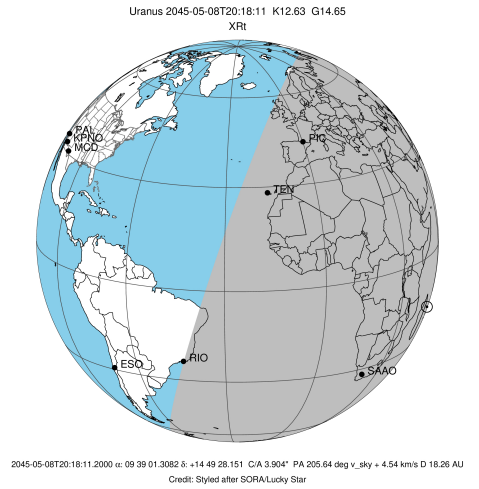
Observable events with sun below -5 deg and altitude above 5 deg unblocked by planet

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			++	MAY 08 21:14 - MAY 08 21:22	PnnRne
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	+		+	MAY 08 20:57 - MAY 08 21:27	PnnRie
MSO	Mt. Stromlo Observato	-35.3	149.0					PnnRnn



```

target                : Uranus
target radius (km)   : 25559.00
C/A epoch            : 2045-05-08T20:12:01.010
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       : 618000065378086144
2Mass ID (if available) : 09390137+1449275
ICRS Star Coord at Epoch: 09h 39m 01.30820s +14:49:28.15061s
RUWE (>1.4 is poor) : 0.98
K magnitude           : 12.633
G magnitude           : 14.647
RP magnitude          : 13.999
BP magnitude          : 15.133
DUPflag              : 0
Distance (au)         : 18.257
f0 (km)               : 0.000
g0 (km)               : 0.000
skyplane vel. (km/s) : 4.54
Sun-Target sep (deg) : 94.13
Sun-Moon sep (deg)   : 172.93
B (ring opening deg) : 25.14
PA of pole (deg)     : 100.07
Pole direction: RA (deg): 257.31100
Dec (deg): -15.17500
C/A sky separation (") : 3.551
C/A sky separation (km) : 47020.3
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
  
```



b: ring blocked by planet x: target alt < 5.0 deg or sun > -5.0 deg

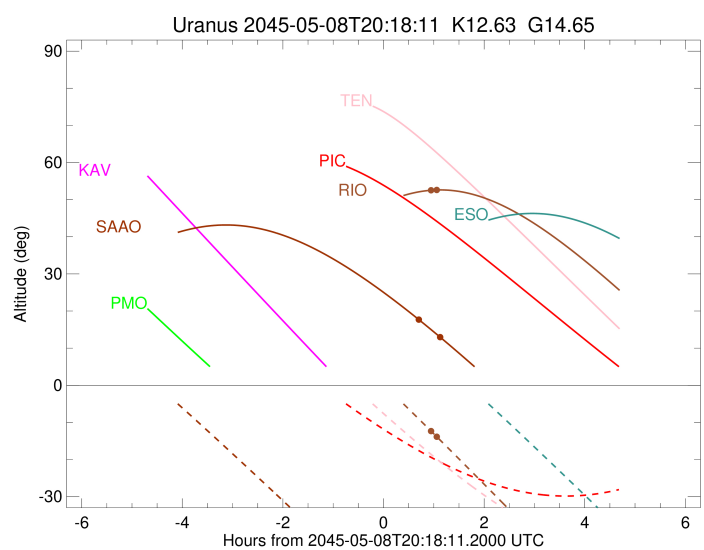
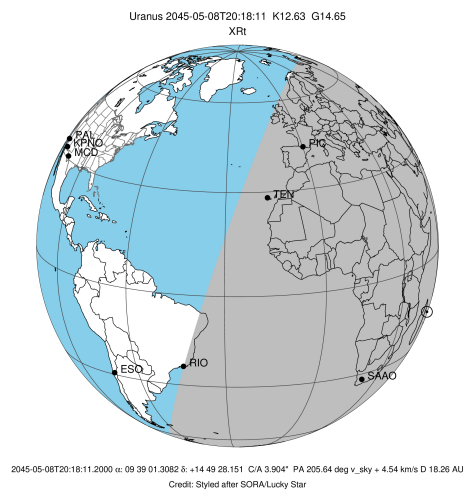
Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2045-05-08T20:22:03.920		49.48	-0.65x	51497.16	-3.21		
lambda	I	2045-05-08T20:30:43.763		50.25	-2.54x	50026.71	-2.40		

No planet occultations

lambda	E	2045-05-08T21:14:48.160		52.53	-12.32	50026.71	2.40		
epsilon	E	2045-05-08T21:22:20.947		52.62	-14.01	51285.60	3.22		

```

target                : Uranus
target radius (km)   : 25559.00
C/A epoch            : 2045-05-08T20:31:12.050
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      : 618000065378086144
2Mass ID (if available) : 09390137+1449275
ICRS Star Coord at Epoch: 09h 39m 01.30820s +14:49:28.15061s
RUWE (>1.4 is poor) : 0.98
K magnitude         : 12.633
G magnitude         : 14.647
RP magnitude        : 13.999
BP magnitude        : 15.133
DUPflag            : 0
Distance (au)       : 18.258
f0 (km)             : 0.000
g0 (km)             : 0.000
skyplane vel. (km/s) : 4.54
Sun-Target sep (deg) : 94.13
Sun-Moon sep (deg)  : 173.67
B (ring opening deg) : 25.14
PA of pole (deg)    : 100.07
Pole direction: RA (deg): 257.31100
Dec (deg): -15.17500
C/A sky separation (") : 3.708
C/A sky separation (km) : 49095.5
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
    
```



Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2045-05-08T20:57:22.716		18.22	-63.80	51458.67	-1.79		

No planet occultations

epsilon	E	2045-05-08T21:27:36.513		12.61	-69.06	51345.49	1.81		
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