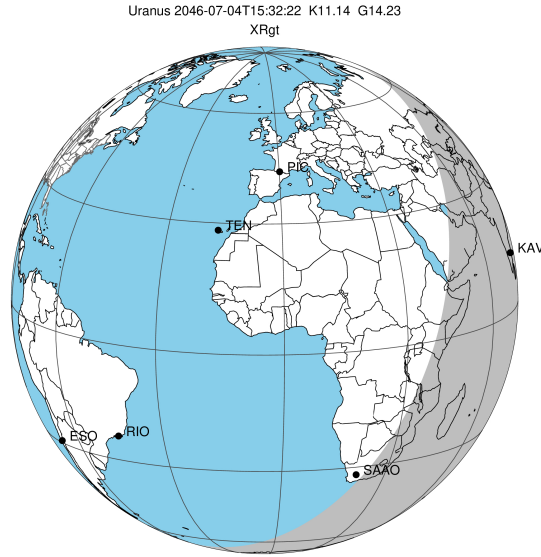


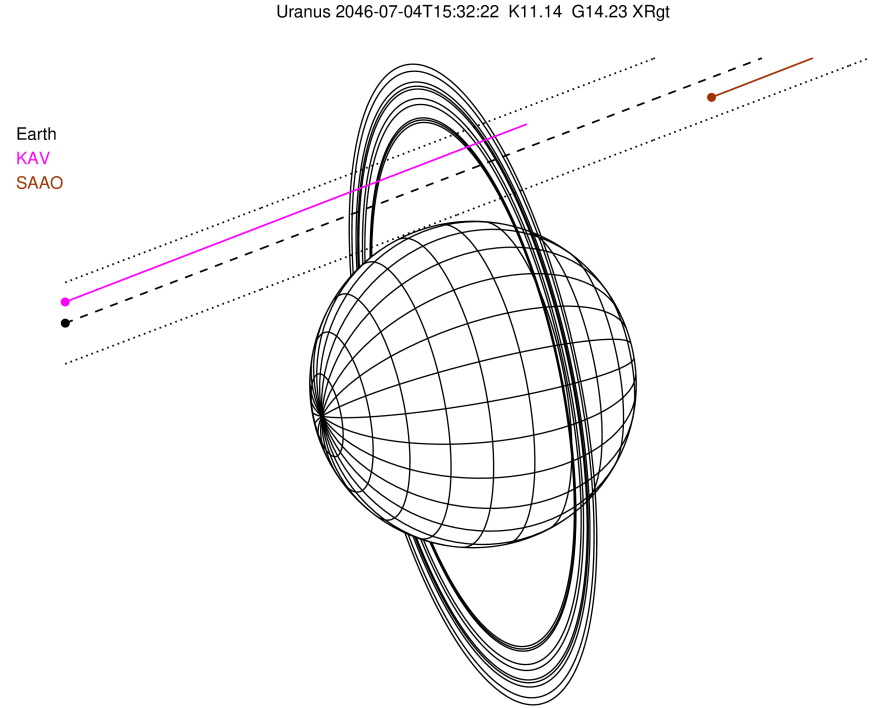
target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2046-07-04T15:32:22.910
 Event type : XRgt
 : No Uranus occs
 : Ring occs: geocentric, topocentric
 Gaia source ID : 3881462039608451072
 2Mass ID (if available) : 10031467+1242396

ICRS Star Coord at Epoch: 10h 03m 14.52579s +12:42:39.83021s
 RUWE (>1.4 is poor) : 1.31
 K magnitude : 11.137
 G magnitude : 14.226
 RP magnitude : 13.239
 BP magnitude : 15.215
 DUPflag : 0
 Distance (au) : 19.017
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : 27.37
 Sun-Target sep (deg) : 46.20
 Sun-Moon sep (deg) : 38.66
 B (ring opening deg) : 18.97
 PA of pole (deg) : 101.90

#	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

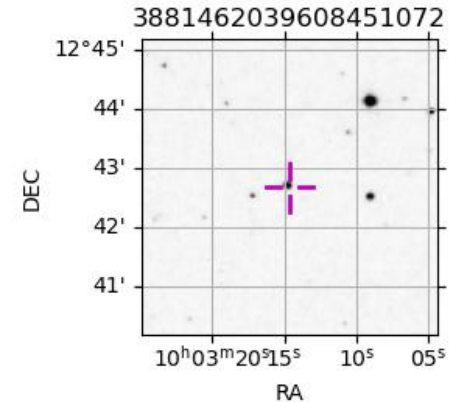


2046-07-04T15:32:22.9100 ex: 10 03 14.5258 8: +12 42 39.830 C/A 2.306° PA 200.83 deg v_sky +27.37 km/s D 19.02 AU
 Credit: Styled after SORA/Lucky Star

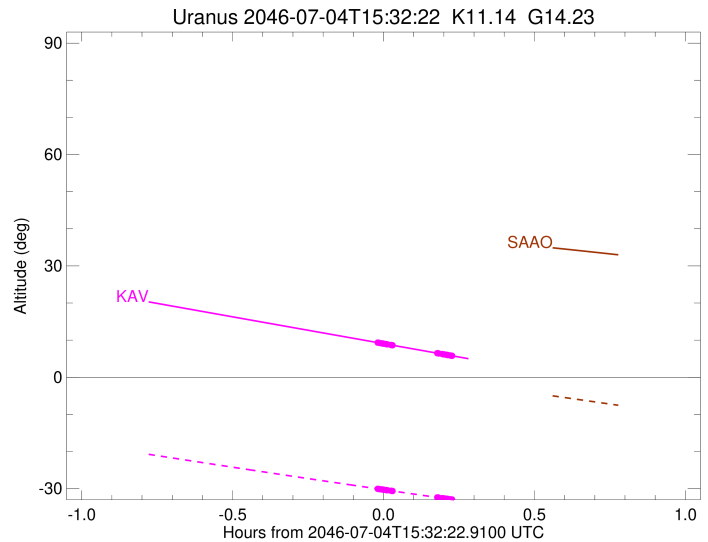
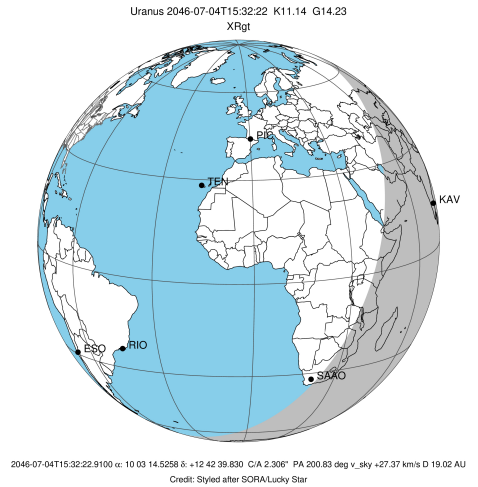


Observable events with sun below -5 deg and altitude above 5 deg unblocked by planet

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	+++++		+++++	JUL 04 15:31 - JUL 04 15:46	PnnRie
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 : 2046-07-04T15:35:33.380
 Event type : XRgt
 : No Uranus occs
 : Ring occs: geocentric, topocentric
 Observer code : KAV
 Location : Kavalur Observatory
 Latitude (deg) : 12.57556
 E. Longitude (deg) : 78.83167
 Altitude (km) : 0.722
 Gaia source ID : 3881462039608451072
 2Mass ID (if available) : 10031467+1242396
 ICRS Star Coord at Epoch: 10h 03m 14.52579s +12:42:39.83021s
 RUWE (>1.4 is poor) : 1.31
 K magnitude : 11.137
 G magnitude : 14.226
 RP magnitude : 13.239
 BP magnitude : 15.215
 DUPflag : 0
 Distance (au) : 19.017
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : 27.37
 Sun-Target sep (deg) : 46.20
 Sun-Moon sep (deg) : 39.39
 B (ring opening deg) : 18.97
 PA of pole (deg) : 101.90
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 2.540
 C/A sky separation (km) : 35028.5
 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_itr93_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	2046-07-04T15:31:19.646		9.31	-30.07	50849.12	-59.99		
lambda	I	2046-07-04T15:31:33.534		9.25	-30.12	50026.71	-58.74		
delta	I	2046-07-04T15:32:03.473		9.13	-30.22	48300.35	-56.54		
gamma	I	2046-07-04T15:32:15.519		9.09	-30.26	47624.86	-55.60		
eta	I	2046-07-04T15:32:23.639		9.05	-30.28	47176.12	-54.93		
beta	I	2046-07-04T15:32:52.090		8.94	-30.38	45645.00	-52.45		
alpha	I	2046-07-04T15:33:10.217		8.87	-30.44	44722.92	-50.85		
4	I	2046-07-04T15:33:54.039		8.69	-30.58	42574.15	-46.08		
5	I	2046-07-04T15:34:03.015		8.66	-30.61	42156.25	-44.95		
6	I	2046-07-04T15:34:08.455		8.63	-30.63	41872.97	-44.15		

No planet occultations

6	E	2046-07-04T15:43:04.079		6.49	-32.37	41832.02	44.19		
5	E	2046-07-04T15:43:13.388		6.45	-32.40	42216.16	44.99		
4	E	2046-07-04T15:43:18.558		6.43	-32.42	42530.70	46.12		
alpha	E	2046-07-04T15:44:04.814		6.25	-32.56	44752.15	50.90		
beta	E	2046-07-04T15:44:22.957		6.18	-32.62	45669.53	52.50		
eta	E	2046-07-04T15:44:50.864		6.06	-32.71	47176.12	54.99		
gamma	E	2046-07-04T15:44:59.090		6.03	-32.74	47631.21	55.66		
delta	E	2046-07-04T15:45:11.011		5.98	-32.78	48300.35	56.60		
lambda	E	2046-07-04T15:45:40.921		5.86	-32.87	50026.71	58.80		
epsilon	E	2046-07-04T15:46:04.532		5.77	-32.95	51433.98	60.06		