

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2035-12-24T20:44:49.630
 Event type : XRgt
 : No Uranus occs
 : Ring occs: geocentric, topocentric
 Gaia source ID : 3380087657922226432
 2Mass ID (if available) : 06562919+2311320

ICRS Star Coord at Epoch: 06h 56m 29.20620s +23:11:31.90276s

RUWE (>1.4 is poor) : 1.03
 K magnitude : 12.860
 G magnitude : 16.429
 RP magnitude : 15.251
 BP magnitude : 17.861
 DUPflag : 0
 Distance (au) : 17.860
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -22.84
 Sun-Target sep (deg) : 169.39
 Sun-Moon sep (deg) : 116.77
 B (ring opening deg) : 63.49
 PA of pole (deg) : 77.24

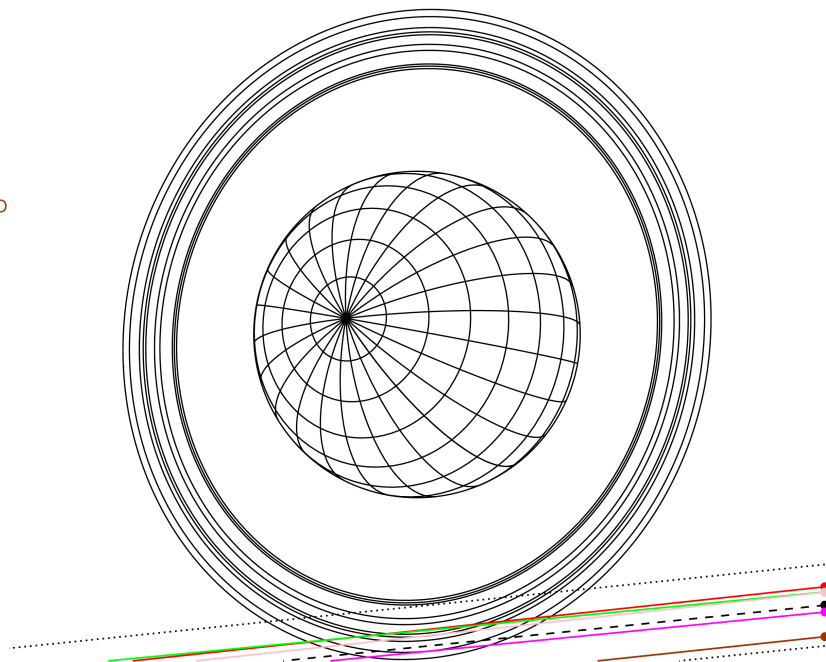
#	a(km)	ring
1	41837.2	6
2	42235.0	5
3	42571.2	4
4	44718.5	alpha
5	45661.1	beta
6	47176.1	eta
7	47626.3	gamma
8	48300.3	delta
9	50026.7	lambda
10	51149.4	epsilon



2035-12-24T20:44:49.630000: 06 56 29.2062 & +23 11 31.903 C/A 3.751'' PA 5.87 deg v_sky -22.84 km/s D 17.86 AU
 Credit: Styled after SORA/Lucky Star

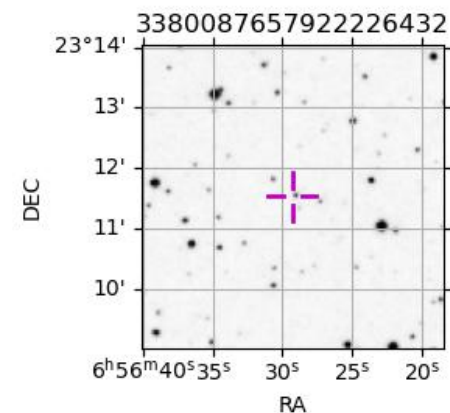
Uranus 2035-12-24T20:44:49 K12.86 G16.43 XRgt

Earth
 PIC
 PMO
 TEN
 KAV
 SAAO

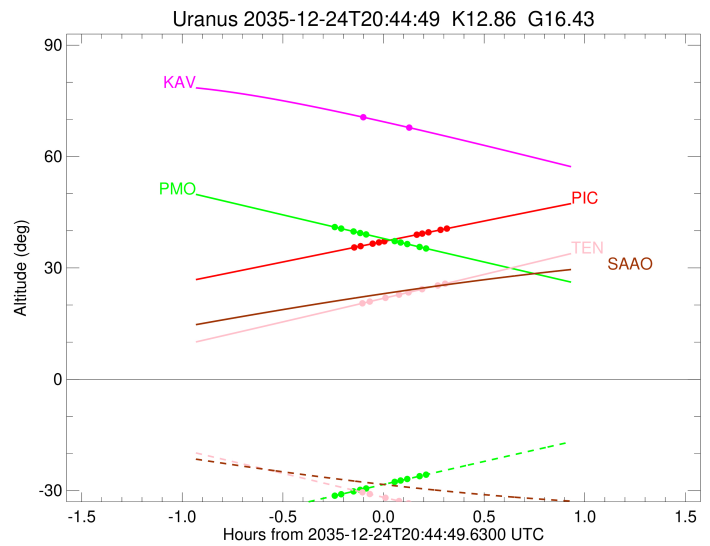
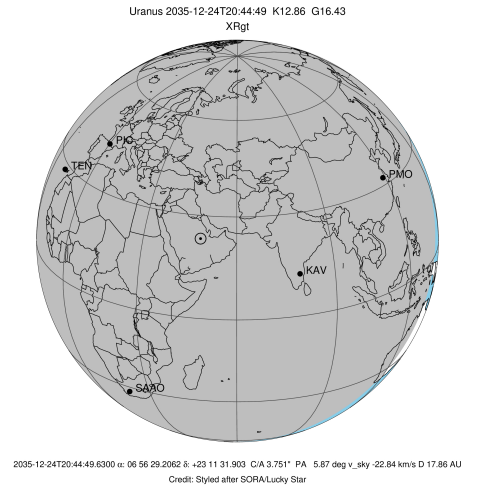


Observable events with sun below -5 deg and altitude above 5 deg unblocked by planet

Obs	Location	lat	Elon	Rings I	Planet	Rings E	Observed Events Interval	OEcode
PIC	Pic du Midi	42.9	0.1	+++++		+++++	DEC 24 20:36 - DEC 24 21:03	PnnRie
PAL	Palomar Mt (200")	33.4	243.1					PnnRnn
PMO	Purple Mtn Obs. Nanki	32.1	118.8	+++++		+++++	DEC 24 20:30 - DEC 24 20:57	PnnRie
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	++++		++++	DEC 24 20:39 - DEC 24 21:03	PnnRie
IRTF	Mauna Kea/IRTF	19.8	204.5					PnnRnn
KAV	Kavalur Observatory	12.6	78.8	+		+	DEC 24 20:39 - DEC 24 20:52	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 : 2035-12-24T20:47:50.480
 Event type : XRgt
 : No Uranus occs
 : Ring occs: geocentric, topocentric
 Observer code : PIC
 Location : Pic du Midi
 Latitude (deg) : 42.93656
 E. Longitude (deg) : 0.14231
 Altitude (km) : 2.890
 Gaia source ID : 3380087657922226432
 2Mass ID (if available) : 06562919+2311320
 ICRS Star Coord at Epoch: 06h 56m 29.20620s +23:11:31.90276s
 RUWE (>1.4 is poor) : 1.03
 K magnitude : 12.860
 G magnitude : 16.429
 RP magnitude : 15.251
 BP magnitude : 17.861
 DUPflag : 0
 Distance (au) : 17.860
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -22.84
 Sun-Target sep (deg) : 169.39
 Sun-Moon sep (deg) : 117.00
 B (ring opening deg) : 63.49
 PA of pole (deg) : 77.24
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 3.560
 C/A sky separation (km) : 46107.6
 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_itr93_040916.bsp
 earth_720101_070426.bpc
 earth_200101_990628_predict.bpc
 pg3f0000r.bsp
 pg490000r.bsp
 naif0012.tls
 earth_flat_IAU.spk



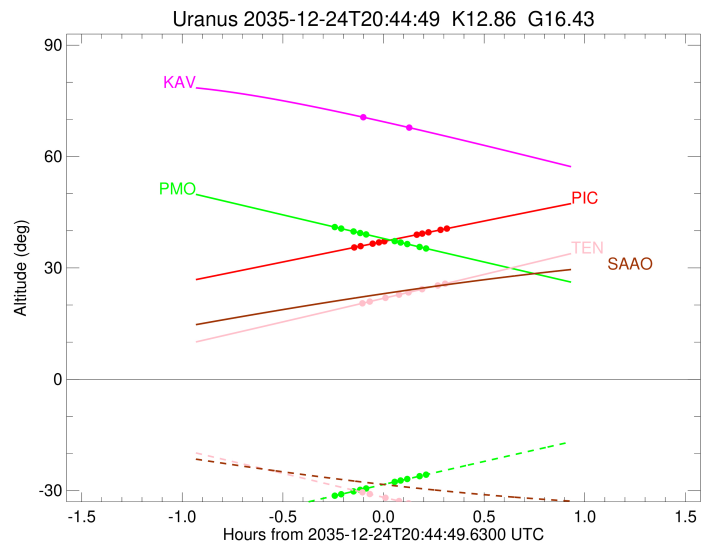
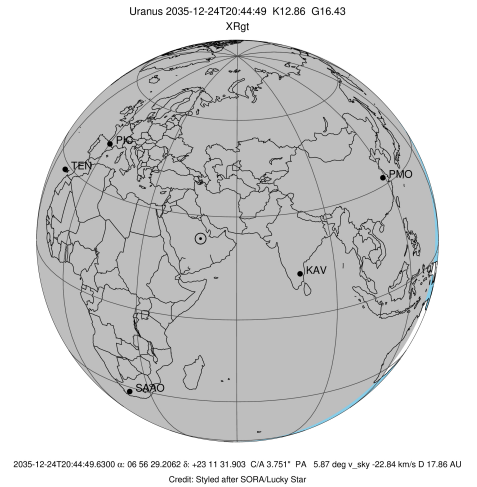
b: ring blocked by planet x: target alt < 5.0 deg or sun > -5.0 deg

Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2035-12-24T20:36:37.033		35.61	-44.22	50846.25	-10.29		
lambda	I	2035-12-24T20:38:01.460		35.86	-44.48	50026.71	-9.24		
delta	I	2035-12-24T20:41:37.818		36.53	-45.13	48300.35	-6.67		
gamma	I	2035-12-24T20:43:31.886		36.88	-45.47	47621.68	-5.22		
eta	I	2035-12-24T20:45:09.257		37.18	-45.77	47176.12	-3.93		

No planet occultations

eta	E	2035-12-24T20:54:41.262		38.93	-47.48	47176.12	3.93		
gamma	E	2035-12-24T20:56:18.850		39.23	-47.78	47623.15	5.22		
delta	E	2035-12-24T20:58:12.540		39.58	-48.12	48300.35	6.68		
lambda	E	2035-12-24T21:01:48.642		40.24	-48.76	50026.71	9.25		
epsilon	E	2035-12-24T21:03:41.891		40.59	-49.10	51145.43	10.31		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2035-12-24T20:41:52.750
 Event type : XRgt
 : No Uranus occs
 : Ring occs: geocentric, topocentric
 Observer code : PMO
 Location : Purple Mtn Obs. Nanking
 Latitude (deg) : 32.06667
 E. Longitude (deg) : 118.82089
 Altitude (km) : 0.364
 Gaia source ID : 3380087657922226432
 2Mass ID (if available) : 06562919+2311320
 ICRS Star Coord at Epoch: 06h 56m 29.20620s +23:11:31.90276s
 RUWE (>1.4 is poor) : 1.03
 K magnitude : 12.860
 G magnitude : 16.429
 RP magnitude : 15.251
 BP magnitude : 17.861
 DUPflag : 0
 Distance (au) : 17.860
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -22.84
 Sun-Target sep (deg) : 169.39
 Sun-Moon sep (deg) : 117.58
 B (ring opening deg) : 63.49
 PA of pole (deg) : 77.24
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 3.572
 C/A sky separation (km) : 46265.3
 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_itr93_040916.bsp
 earth_720101_070426.bpc
 earth_200101_990628_predict.bpc
 pg3f0000r.bsp
 pg490000r.bsp
 naif0012.tls
 earth_flat_IAU.spk

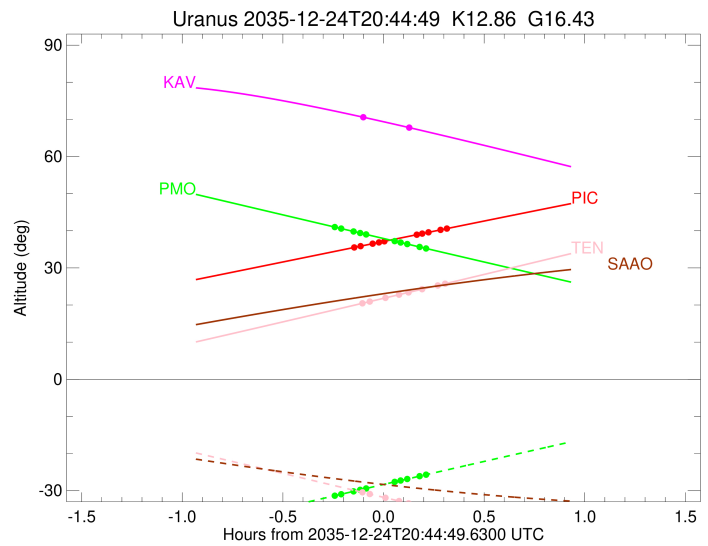
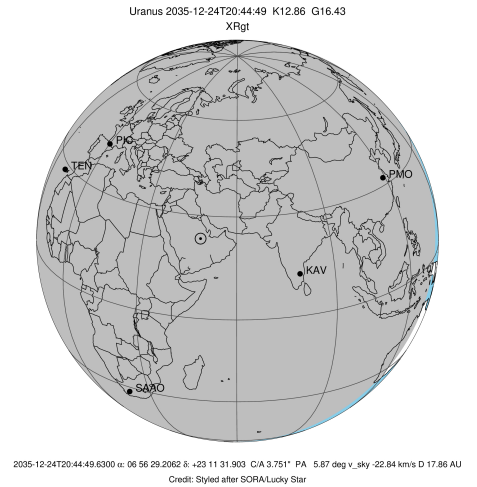


Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2035-12-24T20:30:48.594		40.89	-31.26	50850.58	-10.17		
lambda	I	2035-12-24T20:32:14.648		40.59	-30.96	50026.71	-9.09		
delta	I	2035-12-24T20:35:56.406		39.80	-30.19	48300.35	-6.43		
gamma	I	2035-12-24T20:37:56.222		39.38	-29.77	47621.75	-4.89		
eta	I	2035-12-24T20:39:42.902		39.00	-29.40	47176.12	-3.46		

No planet occultations

eta	E	2035-12-24T20:48:05.645		37.23	-27.66	47176.12	3.46		
gamma	E	2035-12-24T20:49:52.672		36.85	-27.29	47623.13	4.88		
delta	E	2035-12-24T20:51:52.303		36.43	-26.87	48300.35	6.43		
lambda	E	2035-12-24T20:55:34.318		35.65	-26.11	50026.71	9.08		
epsilon	E	2035-12-24T20:57:29.585		35.24	-25.71	51146.89	10.16		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2035-12-24T20:48:44.180
 Event type : XRgt
 : No Uranus occs
 : Ring occs: geocentric, topocentric
 Observer code : TEN
 Location : Teide Obs./Tenerife
 Latitude (deg) : 28.30050
 E. Longitude (deg) : 343.48909
 Altitude (km) : 2.395
 Gaia source ID : 3380087657922226432
 2Mass ID (if available) : 06562919+2311320
 ICRS Star Coord at Epoch: 06h 56m 29.20620s +23:11:31.90276s
 RUWE (>1.4 is poor) : 1.03
 K magnitude : 12.860
 G magnitude : 16.429
 RP magnitude : 15.251
 BP magnitude : 17.861
 DUPflag : 0
 Distance (au) : 17.860
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -22.84
 Sun-Target sep (deg) : 169.39
 Sun-Moon sep (deg) : 116.72
 B (ring opening deg) : 63.49
 PA of pole (deg) : 77.24
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 3.634
 C/A sky separation (km) : 47072.6
 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



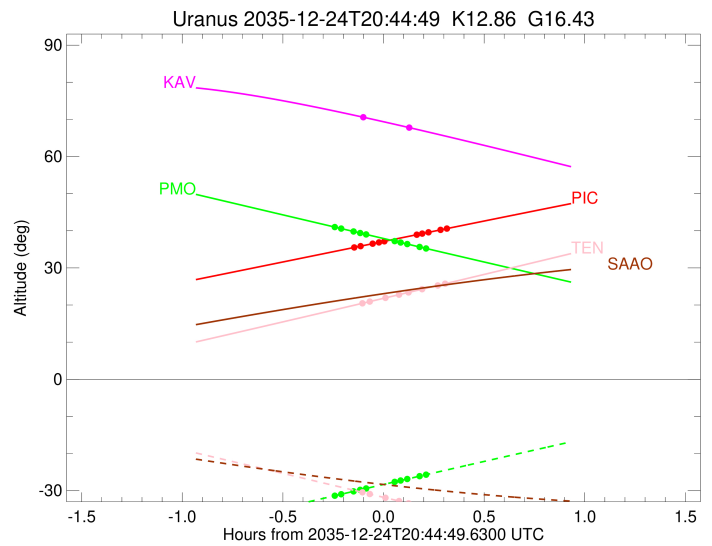
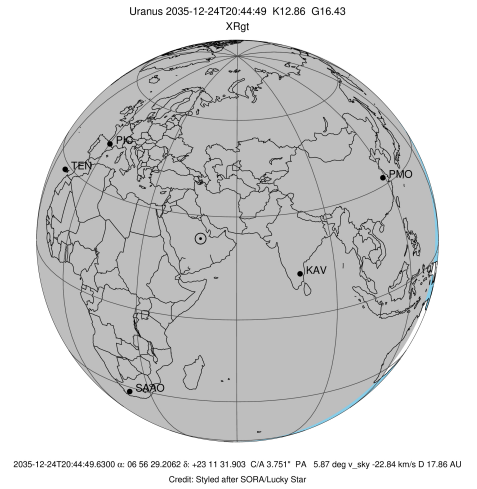
b: ring blocked by planet x: target alt < 5.0 deg or sun > -5.0 deg

Ring	I/E	UTC	b? alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2035-12-24T20:39:05.650	20.58	-30.56	50859.67	-9.08		
lambda	I	2035-12-24T20:40:44.966	20.93	-30.92	50026.71	-7.82		
delta	I	2035-12-24T20:45:27.632	21.94	-31.94	48300.35	-4.33		
gamma	I	2035-12-24T20:49:44.298	22.85	-32.86	47622.21	-0.93		

No planet occultations

gamma	E	2035-12-24T20:52:01.380	23.34	-33.36	47622.47	0.93		
delta	E	2035-12-24T20:56:17.633	24.25	-34.28	48300.35	4.34		
lambda	E	2035-12-24T21:00:59.955	25.26	-35.30	50026.71	7.83		
epsilon	E	2035-12-24T21:03:08.100	25.72	-35.77	51124.23	9.10		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2035-12-24T20:43:29.240
 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 : 3380087657922226432
 2Mass ID (if available) : 06562919+2311320
 ICRS Star Coord at Epoch: 06h 56m 29.20620s +23:11:31.90276s
 RUWE (>1.4 is poor) : 1.03
 K magnitude : 12.860
 G magnitude : 16.429
 RP magnitude : 15.251
 BP magnitude : 17.861
 DUPflag : 0
 Distance (au) : 17.860
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -22.84
 Sun-Target sep (deg) : 169.39
 Sun-Moon sep (deg) : 117.67
 B (ring opening deg) : 63.49
 PA of pole (deg) : 77.24
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 3.825
 C/A sky separation (km) : 49545.7
 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_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	2035-12-24T20:39:36.970	70.43	-60.55	50917.08	-4.87		

No planet occultations

epsilon	E	2035-12-24T20:52:09.777	67.86	-57.78	51057.62	4.87		
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