

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2034-09-16T05:42:43.820
 Event type : XRgt
 : No Uranus occs
 : Ring occs: geocentric, topocentric
 Gaia source ID : 3379776049456705280
 2Mass ID (if available) : 06421583+2322476

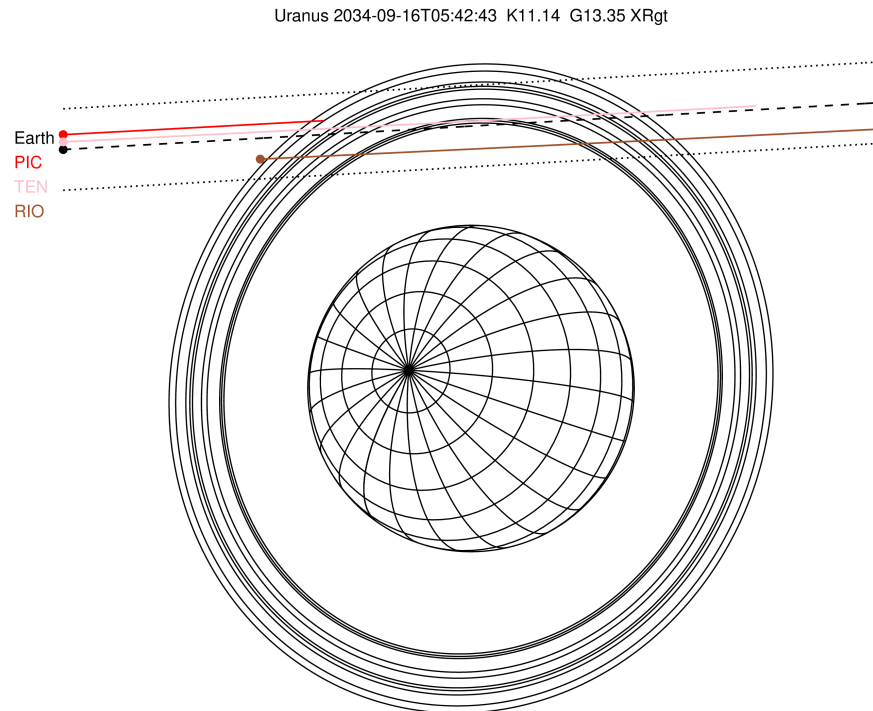
ICRS Star Coord at Epoch: 06h 42m 15.81282s +23:22:46.79970s

RUWE (>1.4 is poor) : 0.96
 K magnitude : 11.143
 G magnitude : 13.351
 RP magnitude : 12.645
 BP magnitude : 13.916
 DUPflag : 0
 Distance (au) : 19.172
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : 14.98
 Sun-Target sep (deg) : 73.28
 Sun-Moon sep (deg) : 113.58
 B (ring opening deg) : 66.61
 PA of pole (deg) : 73.68

#	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

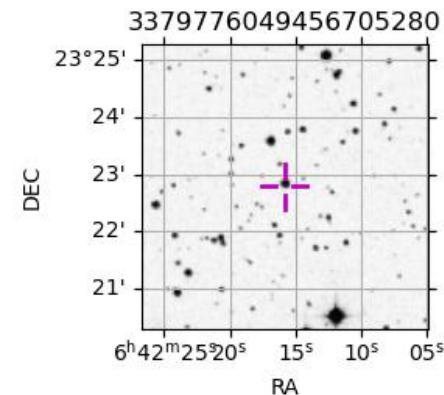


2034-09-16T05:42:43.8200 ex: 06 42 15.8128 s: +23 22 46.800 C/A 2.954" PA 183.29 deg v_sky +14.98 km/s D 19.17 AU
 Credit: Styled after SORA/Lucky Star

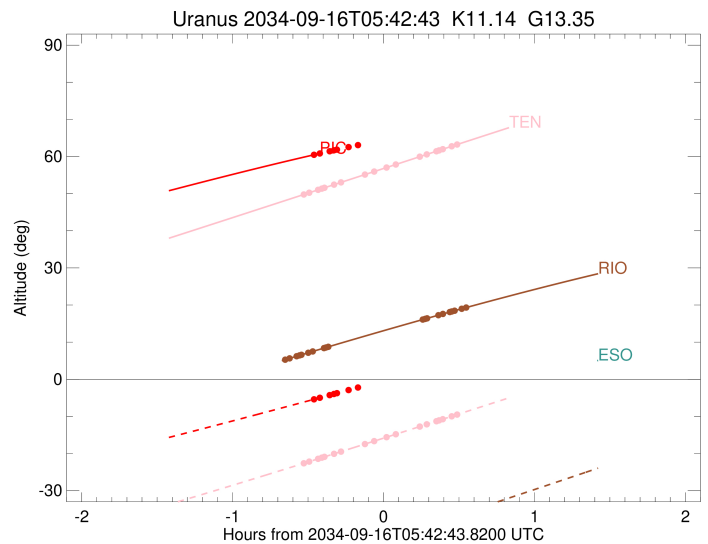
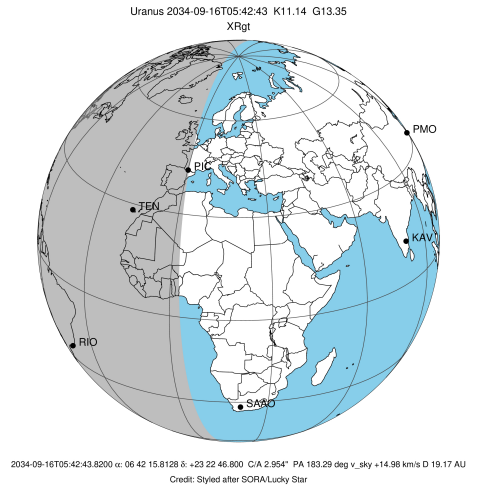


Observable events with sun below -5 deg and altitude above 5 deg unblocked by planet

Obs	Location	lat	Elon	Rings I	Planet	Rings E	Observed Events Interval	OEcode
PIC	Pic du Midi	42.9	0.1	+			SEP 16 05:15 - SEP 16 05:15	PnnRin
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	+++++		+++++	SEP 16 05:11 - SEP 16 06:11	PnnRie
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	+++++		+++++	SEP 16 05:03 - SEP 16 06:14	PnnRie
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 : 2034-09-16T05:40:51.100
 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 : 3379776049456705280
 2Mass ID (if available) : 06421583+2322476
 ICRS Star Coord at Epoch: 06h 42m 15.81282s +23:22:46.79970s
 RUWE (>1.4 is poor) : 0.96
 K magnitude : 11.143
 G magnitude : 13.351
 RP magnitude : 12.645
 BP magnitude : 13.916
 DUPflag : 0
 Distance (au) : 19.172
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : 14.98
 Sun-Target sep (deg) : 73.28
 Sun-Moon sep (deg) : 114.23
 B (ring opening deg) : 66.61
 PA of pole (deg) : 73.68
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 3.103
 C/A sky separation (km) : 43151.3
 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



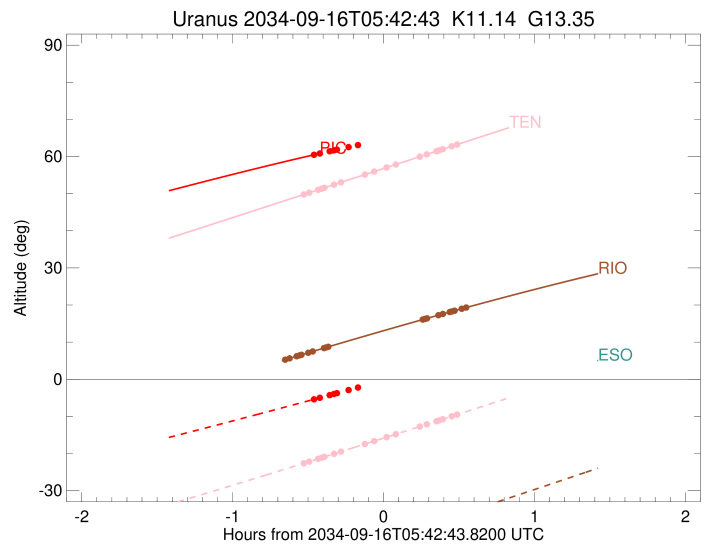
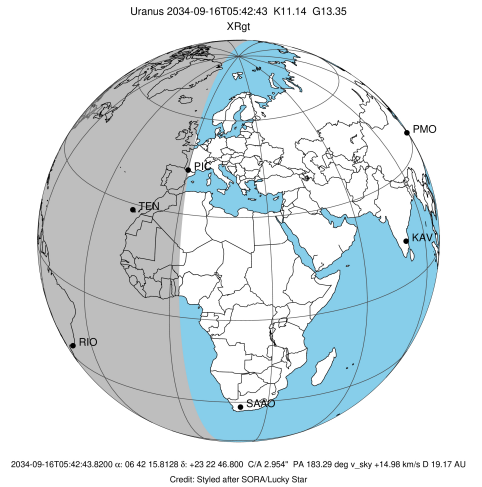
b: ring blocked by planet x: target alt < 5.0 deg or sun > -5.0 deg

Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2034-09-16T05:15:34.314		60.54	-5.32	50930.85	-8.14		
lambda	I	2034-09-16T05:17:27.078		60.83	-4.98x	50026.71	-7.81		
delta	I	2034-09-16T05:21:22.269		61.43	-4.27x	48300.35	-6.86		
gamma	I	2034-09-16T05:23:03.570		61.68	-3.96x	47627.72	-6.42		
eta	I	2034-09-16T05:24:15.736		61.86	-3.74x	47176.12	-6.09		
beta	I	2034-09-16T05:28:57.022		62.56	-2.89x	45648.99	-4.74		
alpha	I	2034-09-16T05:32:42.988		63.10	-2.20x	44704.33	-3.59		

No planet occultations

alpha	E	2034-09-16T05:54:00.532		65.94	1.70x	44719.37	3.58		
beta	E	2034-09-16T05:57:41.712		66.38	2.37x	45642.03	4.74		
eta	E	2034-09-16T06:02:24.786		66.93	3.24x	47176.12	6.08		
gamma	E	2034-09-16T06:03:37.627		67.06	3.46x	47631.03	6.41		
delta	E	2034-09-16T06:05:18.651		67.25	3.77x	48300.35	6.84		
lambda	E	2034-09-16T06:09:14.472		67.66	4.49x	50026.71	7.78		
epsilon	E	2034-09-16T06:10:44.754		67.81	4.77x	50744.64	8.11		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2034-09-16T05:39:06.470
 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 : 3379776049456705280
 2Mass ID (if available) : 06421583+2322476
 ICRS Star Coord at Epoch: 06h 42m 15.81282s +23:22:46.79970s
 RUWE (>1.4 is poor) : 0.96
 K magnitude : 11.143
 G magnitude : 13.351
 RP magnitude : 12.645
 BP magnitude : 13.916
 DUPflag : 0
 Distance (au) : 19.172
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : 14.98
 Sun-Target sep (deg) : 73.28
 Sun-Moon sep (deg) : 114.08
 B (ring opening deg) : 66.61
 PA of pole (deg) : 73.68
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 3.007
 C/A sky separation (km) : 41805.3
 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

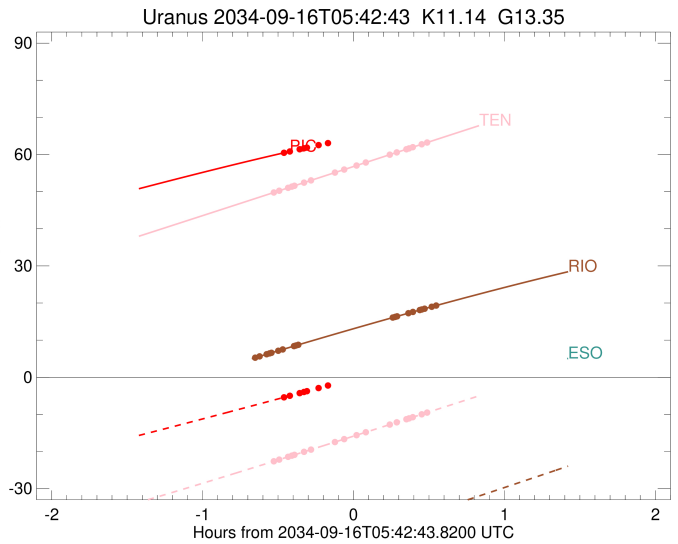
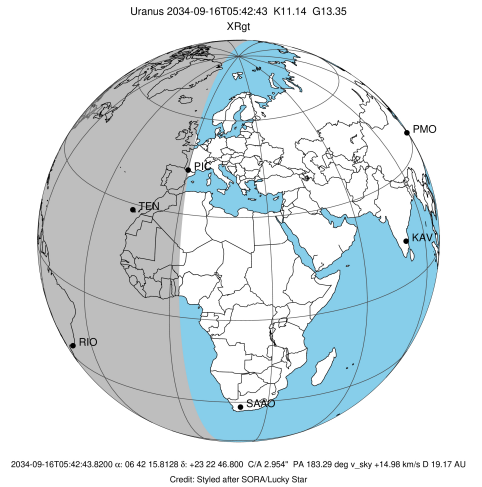


Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2034-09-16T05:11:28.135		49.87	-22.55	50947.04	-8.81		
lambda	I	2034-09-16T05:13:13.678		50.25	-22.18	50026.71	-8.53		
delta	I	2034-09-16T05:16:45.821		51.03	-21.43	48300.35	-7.73		
gamma	I	2034-09-16T05:18:14.981		51.36	-21.11	47627.40	-7.37		
eta	I	2034-09-16T05:19:17.368		51.59	-20.89	47176.12	-7.10		
beta	I	2034-09-16T05:23:09.124		52.44	-20.07	45650.38	-6.05		
alpha	I	2034-09-16T05:25:56.489		53.06	-19.47	44701.15	-5.25		
4	I	2034-09-16T05:35:23.164		55.15	-17.45	42581.70	-2.14		
5	I	2034-09-16T05:41:34.559		56.52	-16.11	42189.79	-0.17		

No planet occultations

5	E	2034-09-16T05:41:28.269		56.49	-16.14	42190.78	0.16		
4	E	2034-09-16T05:47:28.589		57.82	-14.84	42569.51	2.14		
alpha	E	2034-09-16T05:57:06.950		59.95	-12.75	44723.17	5.24		
beta	E	2034-09-16T05:59:49.732		60.55	-12.16	45641.55	6.03		
eta	E	2034-09-16T06:03:43.637		61.41	-11.31	47176.12	7.07		
gamma	E	2034-09-16T06:04:46.806		61.64	-11.09	47631.18	7.33		
delta	E	2034-09-16T06:06:15.854		61.97	-10.76	48300.35	7.69		
lambda	E	2034-09-16T06:09:49.057		62.76	-9.99	50026.71	8.49		
epsilon	E	2034-09-16T06:11:12.467		63.06	-9.69	50746.82	8.76		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2034-09-16T05:37:26.970
 Event type : XRgt
 : No Uranus occs
 : Ring occs: geocentric, topocentric
 Observer code : RIO
 Location : Rio de Janeiro
 Latitude (deg) : -22.89506
 E. Longitude (deg) : 316.77708
 Altitude (km) : 0.033
 Gaia source ID : 3379776049456705280
 2Mass ID (if available) : 06421583+2322476
 ICRS Star Coord at Epoch: 06h 42m 15.81282s +23:22:46.79970s
 RUWE (>1.4 is poor) : 0.96
 K magnitude : 11.143
 G magnitude : 13.351
 RP magnitude : 12.645
 BP magnitude : 13.916
 DUPflag : 0
 Distance (au) : 19.172
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : 14.98
 Sun-Target sep (deg) : 73.28
 Sun-Moon sep (deg) : 113.47
 B (ring opening deg) : 66.61
 PA of pole (deg) : 73.68
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 2.693
 C/A sky separation (km) : 37445.4
 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



Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2034-09-16T05:03:54.400		5.33	-51.36	50997.06	-10.70		
lambda	I	2034-09-16T05:05:25.464		5.64	-51.05	50026.71	-10.52		
delta	I	2034-09-16T05:08:13.641		6.21	-50.47	48300.35	-10.00		
gamma	I	2034-09-16T05:09:21.813		6.44	-50.23	47626.51	-9.77		
eta	I	2034-09-16T05:10:08.299		6.60	-50.07	47176.12	-9.61		
beta	I	2034-09-16T05:12:51.941		7.15	-49.50	45653.98	-9.00		
alpha	I	2034-09-16T05:14:40.757		7.51	-49.12	44695.14	-8.57		
4	I	2034-09-16T05:19:02.823		8.39	-48.19	42595.82	-7.39		
5	I	2034-09-16T05:20:02.079		8.59	-47.98	42162.48	-7.12		
6	I	2034-09-16T05:20:42.393		8.73	-47.84	41877.71	-6.90		

No planet occultations

6	E	2034-09-16T05:58:19.984	16.08	-39.67	41852.54	6.87
5	E	2034-09-16T05:59:12.441	16.25	-39.47	42218.48	7.08
4	E	2034-09-16T05:59:58.598	16.39	-39.30	42554.17	7.35
alpha	E	2034-09-16T06:04:32.661	17.26	-38.29	44730.73	8.52
beta	E	2034-09-16T06:06:17.100	17.58	-37.90	45641.06	8.93
eta	E	2034-09-16T06:09:03.241	18.10	-37.28	47176.12	9.53
gamma	E	2034-09-16T06:09:50.609	18.25	-37.11	47631.46	9.69
delta	E	2034-09-16T06:10:58.834	18.46	-36.86	48300.35	9.91
lambda	E	2034-09-16T06:13:48.490	18.99	-36.22	50026.71	10.43
epsilon	E	2034-09-16T06:14:58.016	19.20	-35.96	50758.52	10.60