

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2030-10-23T07:27:33.880
 Event type : XRgt
 : No Uranus occs
 : Ring occs: geocentric, topocentric
 Gaia source ID : 3416308216640847104
 2Mass ID (if available) : 05255851+2317271

ICRS Star Coord at Epoch: 05h 25m 58.52390s +23:17:27.24882s

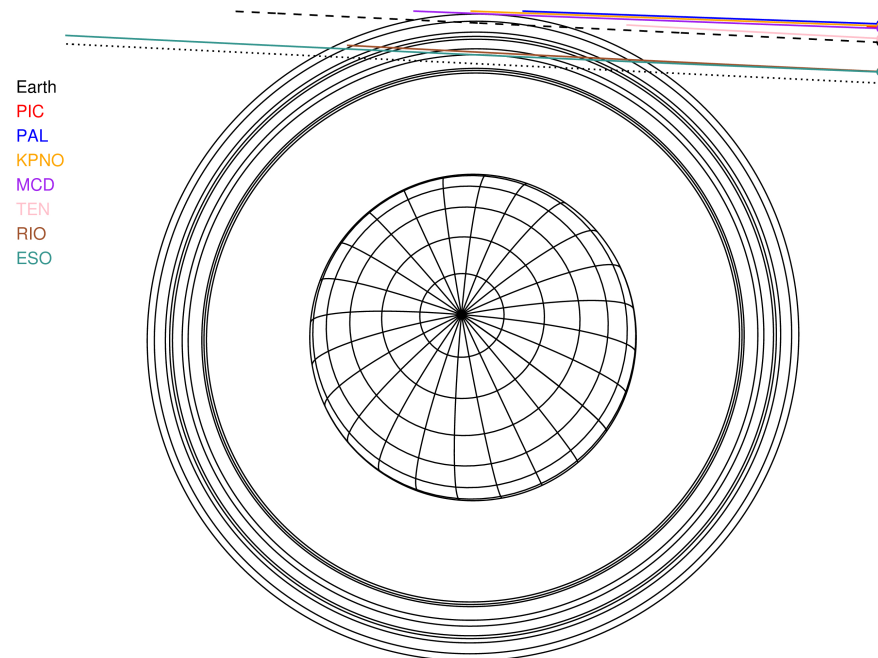
RUWE (>1.4 is poor) : 0.96
 K magnitude : 12.907
 G magnitude : 15.302
 RP magnitude : 14.510
 BP magnitude : 15.944
 DUPflag : 0
 Distance (au) : 18.545
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -11.72
 Sun-Target sep (deg) : 127.32
 Sun-Moon sep (deg) : 80.72
 B (ring opening deg) : 80.98
 PA of pole (deg) : 26.67

#	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



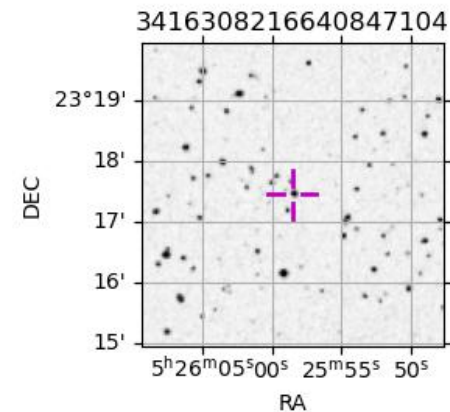
2030-10-23T07:27:33.8800 ra: 05 25 58.5239 s: +23 17 27.249 C/A 3.667 PA 177.24 deg v_sky -11.72 km/s D 18.55 AU
 Credit: Styled after SORA/Lucky Star

Uranus 2030-10-23T07:27:33 K12.91 G15.30 XRgt

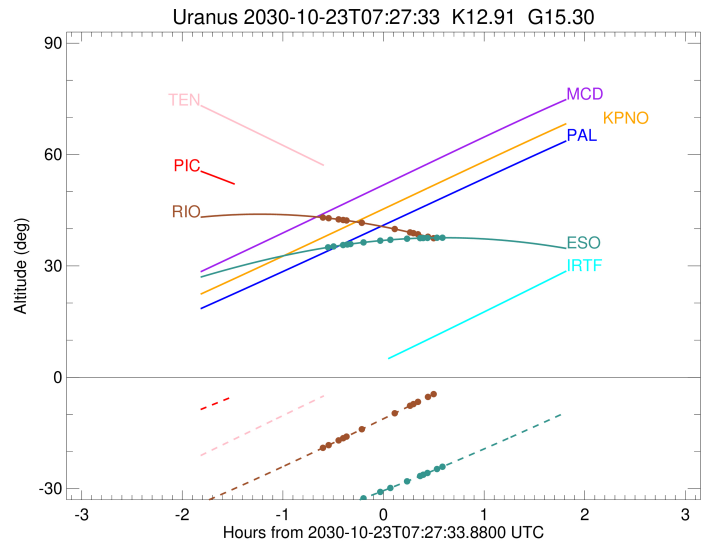
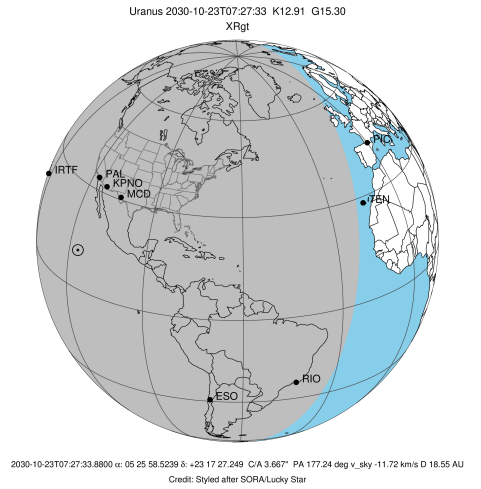


Observable events with sun below -5 deg and altitude above 5 deg unblocked by planet

Obs	Location	lat	Elon	Rings I	Planet	Rings E	Observed Events Interval	OEncode
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	+++++		+++++	OCT 23 06:50 - OCT 23 07:54	PnnRie
ESO	European Southern Obs	-29.3	289.3	+++++++		+++++++	OCT 23 06:53 - OCT 23 08:03	PnnRie
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 : 2030-10-23T07:25:06.760
 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 : 3416308216640847104
 2Mass ID (if available) : 05255851+2317271
 ICRS Star Coord at Epoch: 05h 25m 58.52390s +23:17:27.24882s
 RUWE (>1.4 is poor) : 0.96
 K magnitude : 12.907
 G magnitude : 15.302
 RP magnitude : 14.510
 BP magnitude : 15.944
 DUPflag : 0
 Distance (au) : 18.545
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -11.72
 Sun-Target sep (deg) : 127.32
 Sun-Moon sep (deg) : 81.29
 B (ring opening deg) : 80.98
 PA of pole (deg) : 26.67
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 3.321
 C/A sky separation (km) : 44672.8
 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

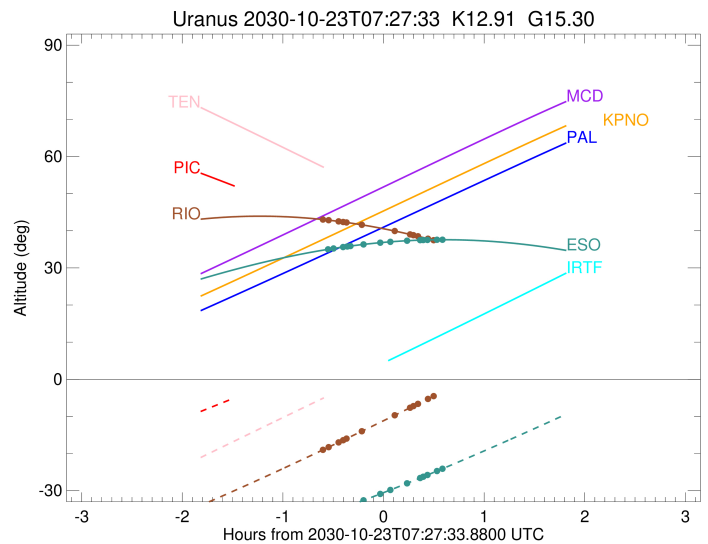
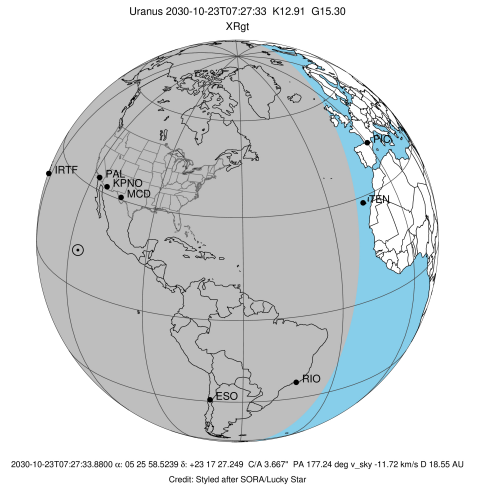


Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2030-10-23T06:50:35.910		43.07	-19.20	51462.68	-5.92		
lambda	I	2030-10-23T06:54:53.504		42.86	-18.28	50026.71	-5.27		
delta	I	2030-10-23T07:00:51.455		42.53	-16.99	48300.35	-4.36		
gamma	I	2030-10-23T07:03:33.085		42.36	-16.41	47631.54	-3.91		
eta	I	2030-10-23T07:05:34.773		42.24	-15.97	47176.12	-3.57		
beta	I	2030-10-23T07:14:55.697		41.58	-13.94	45645.71	-1.86		

No planet occultations

beta	E	2030-10-23T07:34:01.273		39.96	-9.75	45650.30	1.86		
eta	E	2030-10-23T07:43:20.157		39.03	-7.69	47176.12	3.57		
gamma	E	2030-10-23T07:45:21.571		38.82	-7.24	47630.07	3.91		
delta	E	2030-10-23T07:48:03.728		38.52	-6.64	48300.35	4.35		
lambda	E	2030-10-23T07:54:02.075		37.86	-5.31	50026.71	5.27		
epsilon	E	2030-10-23T07:58:32.216		37.34	-4.30x	51534.39	5.91		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2030-10-23T07:29:17.230
 Event type : XRgt
 : No Uranus occs
 : Ring occs: geocentric, topocentric
 Observer code : ESO
 Location : European Southern Obs. (3.6m)
 Latitude (deg) : -29.26097
 E. Longitude (deg) : 289.26831
 Altitude (km) : 2.400
 Gaia source ID : 3416308216640847104
 2Mass ID (if available) : 05255851+2317271
 ICRS Star Coord at Epoch: 05h 25m 58.52390s +23:17:27.24882s
 RUWE (>1.4 is poor) : 0.96
 K magnitude : 12.907
 G magnitude : 15.302
 RP magnitude : 14.510
 BP magnitude : 15.944
 DUPflag : 0
 Distance (au) : 18.545
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -11.72
 Sun-Target sep (deg) : 127.32
 Sun-Moon sep (deg) : 81.31
 B (ring opening deg) : 80.98
 PA of pole (deg) : 26.67
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 3.289
 C/A sky separation (km) : 44243.6
 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	2030-10-23T06:53:39.930		34.94	-36.24	51459.85	-6.08		
lambda	I	2030-10-23T06:57:49.062		35.24	-35.57	50026.71	-5.47		
delta	I	2030-10-23T07:03:30.839		35.62	-34.65	48300.35	-4.62		
gamma	I	2030-10-23T07:06:02.203		35.78	-34.23	47631.55	-4.21		
eta	I	2030-10-23T07:07:54.371		35.89	-33.92	47176.12	-3.90		
beta	I	2030-10-23T07:15:51.679		36.34	-32.58	45645.13	-2.49		
alpha	I	2030-10-23T07:25:17.930		36.78	-30.95	44748.48	-0.67		

No planet occultations

alpha	E	2030-10-23T07:32:00.845		37.04	-29.76	44750.04	0.67		
beta	E	2030-10-23T07:41:26.885		37.32	-28.06	45651.31	2.50		
eta	E	2030-10-23T07:49:21.005		37.48	-26.61	47176.12	3.91		
gamma	E	2030-10-23T07:51:12.552		37.50	-26.27	47629.95	4.22		
delta	E	2030-10-23T07:53:43.935		37.53	-25.80	48300.35	4.63		
lambda	E	2030-10-23T07:59:24.758		37.58	-24.73	50026.71	5.48		
epsilon	E	2030-10-23T08:03:44.855		37.59	-23.91	51531.29	6.10		