

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2036-11-24T07:25:30.440
 Event type : XRgt
 : No Uranus occs
 : Ring occs: geocentric, topocentric
 Gaia source ID : 866236736863091072
 2Mass ID (if available) : 07211660+2233416

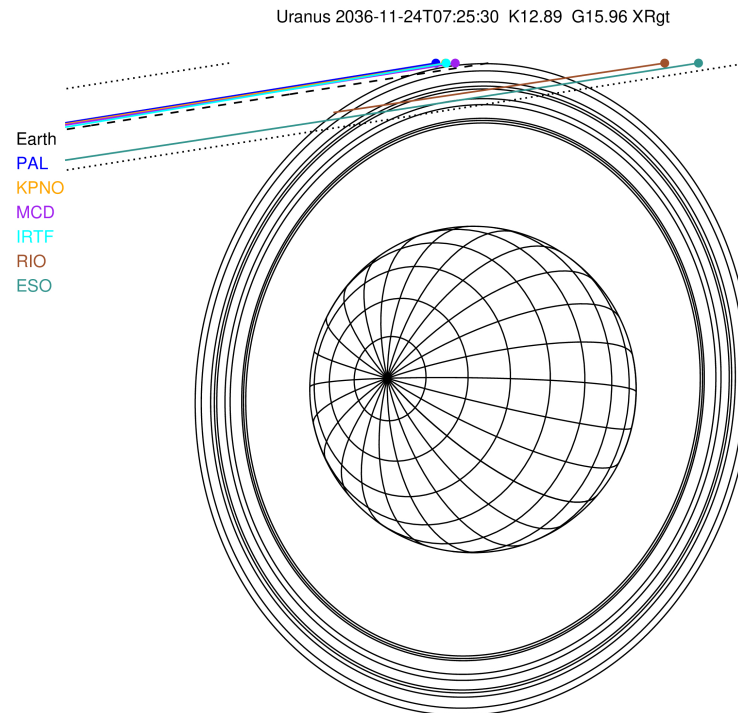
ICRS Star Coord at Epoch: 07h 21m 16.57649s +22:33:40.95611s

RUWE (>1.4 is poor) : 1.37
 K magnitude : 12.894
 G magnitude : 15.961
 RP magnitude : 14.977
 BP magnitude : 16.927
 DUPflag : 0
 Distance (au) : 18.080
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -14.00
 Sun-Target sep (deg) : 133.39
 Sun-Moon sep (deg) : 154.17
 B (ring opening deg) : 57.98
 PA of pole (deg) : 82.55

#	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

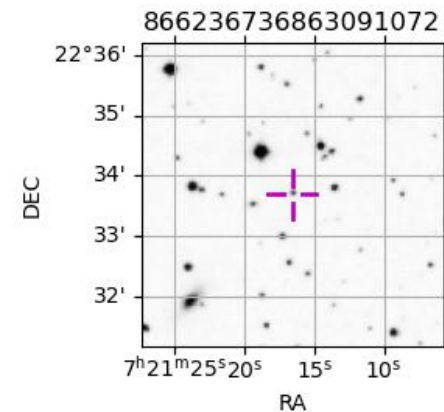


2036-11-24T07:25:30.4400 ra: 07 21 16.5765 s: +22 33 40.956 C/A 3.834" PA 188.93 deg v_sky -14.00 km/s D 18.08 AU
 Credit: Styled after SORA/Lucky Star

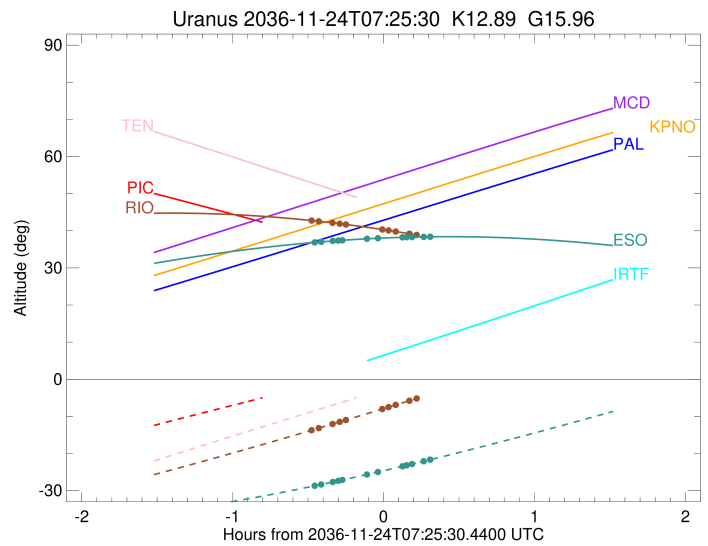
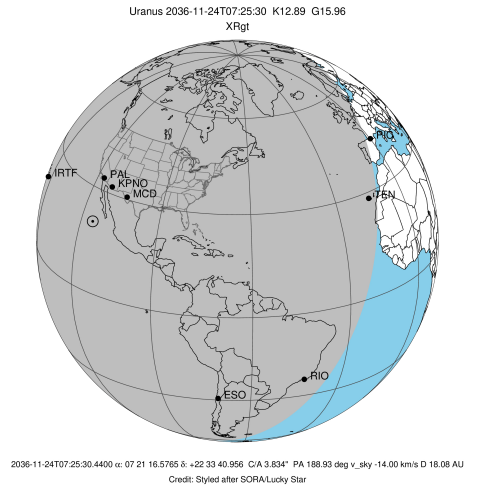


Observable events with sun below -5 deg and altitude above 5 deg unblocked by planet

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					PnnRnn
RIO	Rio de Janeiro	-22.9	316.8	+++++		+++++	NOV 24 06:57 - NOV 24 07:37	PnnRie
ESO	European Southern Obs	-29.3	289.3	+++++		+++++	NOV 24 06:59 - NOV 24 07:43	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 : 2036-11-24T07:21:50.020
 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 : 866236736863091072
 2Mass ID (if available) : 07211660+2233416
 ICRS Star Coord at Epoch: 07h 21m 16.57649s +22:33:40.95611s
 RUWE (>1.4 is poor) : 1.37
 K magnitude : 12.894
 G magnitude : 15.961
 RP magnitude : 14.977
 BP magnitude : 16.927
 DUPflag : 0
 Distance (au) : 18.080
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -14.00
 Sun-Target sep (deg) : 133.39
 Sun-Moon sep (deg) : 154.07
 B (ring opening deg) : 57.98
 PA of pole (deg) : 82.55
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 3.517
 C/A sky separation (km) : 46114.9
 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

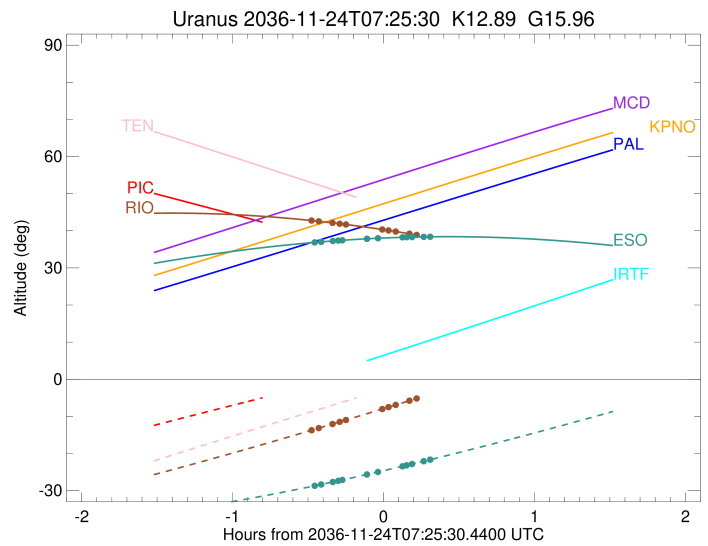
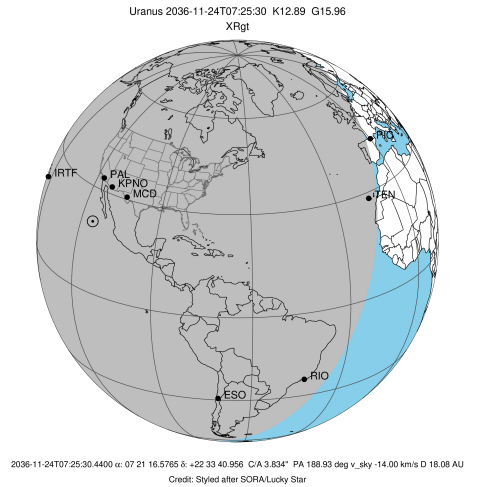


Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2036-11-24T06:57:56.202		42.68	-13.53	50745.86	-6.62		
lambda	I	2036-11-24T06:59:49.132		42.55	-13.15	50026.71	-6.09		
delta	I	2036-11-24T07:05:17.517		42.13	-12.05	48300.35	-4.39		
gamma	I	2036-11-24T07:08:09.482		41.89	-11.47	47627.32	-3.43		
eta	I	2036-11-24T07:10:39.953		41.68	-10.96	47176.12	-2.56		

No planet occultations

eta	E	2036-11-24T07:24:55.551		40.36	-8.03	47176.12	2.56		
gamma	E	2036-11-24T07:27:25.469		40.10	-7.52	47625.16	3.43		
delta	E	2036-11-24T07:30:18.183		39.80	-6.92	48300.35	4.39		
lambda	E	2036-11-24T07:35:46.876		39.21	-5.78	50026.71	6.09		
epsilon	E	2036-11-24T07:37:53.953		38.97	-5.34	50839.24	6.62		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2036-11-24T07:25:07.750
 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 : 866236736863091072
 2Mass ID (if available) : 07211660+2233416
 ICRS Star Coord at Epoch: 07h 21m 16.57649s +22:33:40.95611s
 RUWE (>1.4 is poor) : 1.37
 K magnitude : 12.894
 G magnitude : 15.961
 RP magnitude : 14.977
 BP magnitude : 16.927
 DUPflag : 0
 Distance (au) : 18.080
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -14.00
 Sun-Target sep (deg) : 133.39
 Sun-Moon sep (deg) : 154.39
 B (ring opening deg) : 57.98
 PA of pole (deg) : 82.55
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 3.440
 C/A sky separation (km) : 45105.8
 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	2036-11-24T06:59:04.830		36.92	-28.57	50748.09	-7.34		
lambda	I	2036-11-24T07:00:46.042		37.01	-28.33	50026.71	-6.89		
delta	I	2036-11-24T07:05:23.696		37.26	-27.67	48300.35	-5.52		
gamma	I	2036-11-24T07:07:33.700		37.36	-27.35	47627.74	-4.82		
eta	I	2036-11-24T07:09:12.904		37.44	-27.11	47176.12	-4.28		
beta	I	2036-11-24T07:18:52.487		37.84	-25.66	45678.67	-0.83		

No planet occultations

beta	E	2036-11-24T07:23:20.453		37.99	-24.97	45677.62	0.83		
eta	E	2036-11-24T07:33:00.771		38.23	-23.45	47176.12	4.28		
gamma	E	2036-11-24T07:34:39.272		38.27	-23.19	47624.70	4.83		
delta	E	2036-11-24T07:36:49.796		38.30	-22.84	48300.35	5.52		
lambda	E	2036-11-24T07:41:27.159		38.37	-22.08	50026.71	6.90		
epsilon	E	2036-11-24T07:43:22.438		38.38	-21.77	50853.09	7.35		