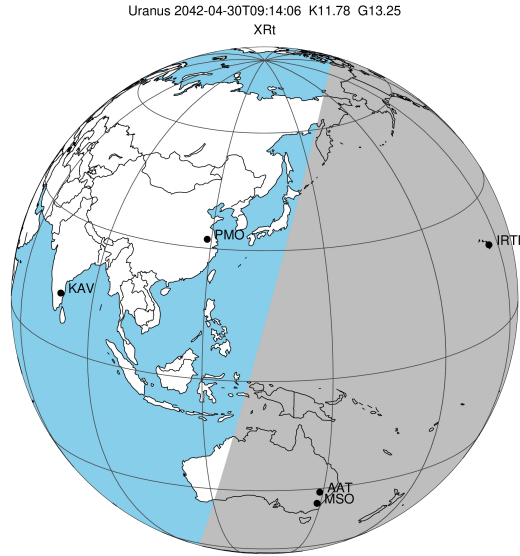


target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2042-04-30T09:14:06.060
 Event type : XRT
 : No Uranus occs
 : Ring occs: topocentric, not geocentric
 Gaia source ID : 660986400180144000
 2Mass ID (if available) : 08425287+1851491

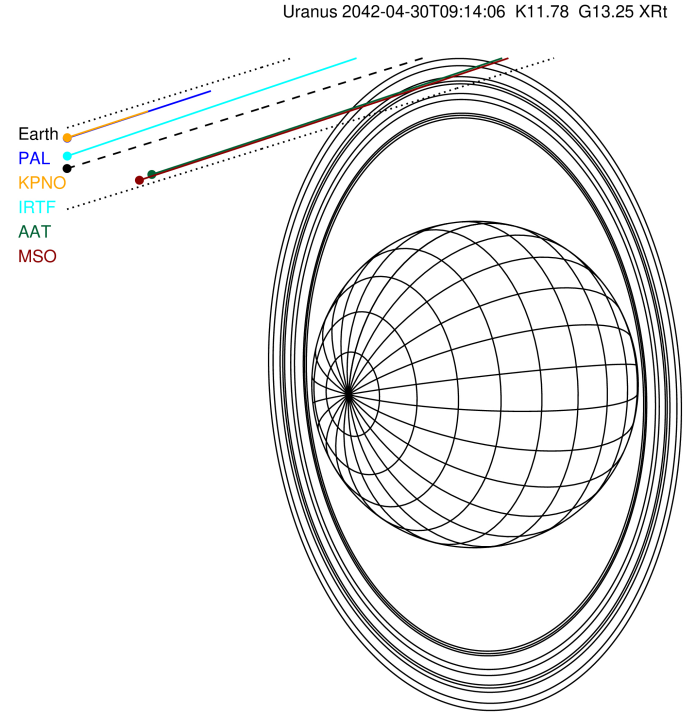
ICRS Star Coord at Epoch: 08h 42m 52.83346s +18:51:48.47152s

RUWE (>1.4 is poor) : 0.99
 K magnitude : 11.783
 G magnitude : 13.250
 RP magnitude : 12.726
 BP magnitude : 13.612
 DUPflag : 1
 Distance (au) : 18.472
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : 7.36
 Sun-Target sep (deg) : 88.54
 Sun-Moon sep (deg) : 38.03
 B (ring opening deg) : 38.98
 PA of pole (deg) : 94.55

#	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

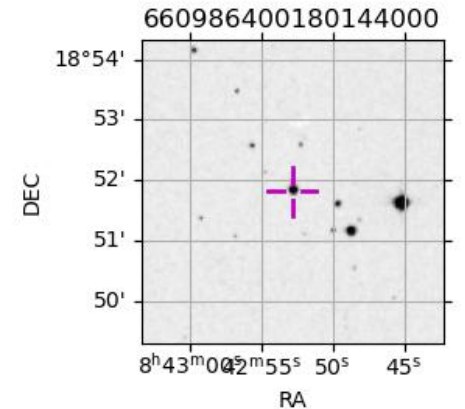


2042-04-30T09:14:06.0600 ra: 08 42 52.8335 s: +18 51 48.472 C/A 3.844° PA 197.26 deg v_sky + 7.36 km/s D 18.47 AU
 Credit: Styled after SORA/Lucky Star

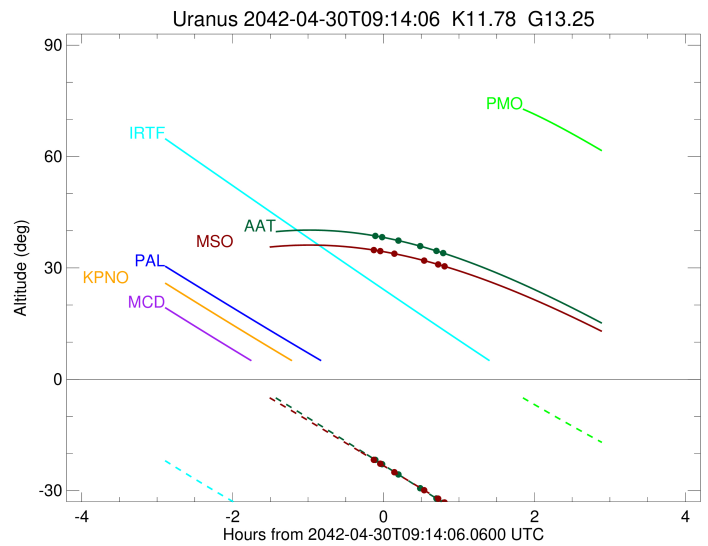
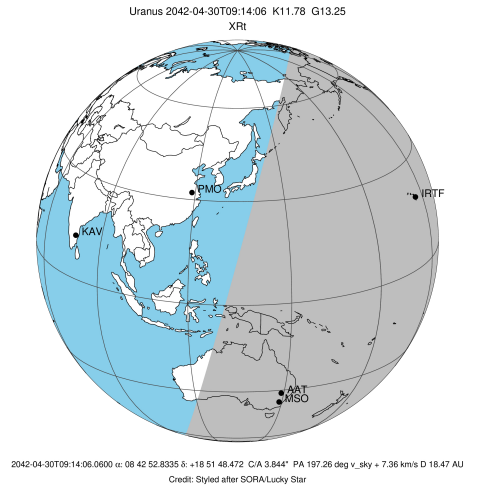


Observable events with sun below -5 deg and altitude above 5 deg unblocked by planet

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					PnnRnn
ESO	European Southern Obs	-29.3	289.3					PnnRnn
AAT	Siding Spring (AAT)	-31.3	149.1	+++		+++	APR 30 09:06 - APR 30 10:03	PnnRie
SAAO	So. Afr. Astro. Obs.	-32.4	20.8					PnnRnn
MSO	Mt. Stromlo Observato	-35.3	149.0	+++		+++	APR 30 09:05 - APR 30 10:04	PnnRie



target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2042-04-30T09:18:19.130
 Event type : XRt
 : No Uranus occs
 : Ring occs: topocentric, not geocentric
 Observer code : AAT
 Location : Siding Spring (AAT)
 Latitude (deg) : -31.27703
 E. Longitude (deg) : 149.06608
 Altitude (km) : 1.164
 Gaia source ID : 660986400180144000
 2Mass ID (if available) : 08425287+1851491
 ICRS Star Coord at Epoch: 08h 42m 52.83346s +18:51:48.47152s
 RUWE (>1.4 is poor) : 0.99
 K magnitude : 11.783
 G magnitude : 13.250
 RP magnitude : 12.726
 BP magnitude : 13.612
 DUPflag : 1
 Distance (au) : 18.472
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : 7.36
 Sun-Target sep (deg) : 88.54
 Sun-Moon sep (deg) : 38.13
 B (ring opening deg) : 38.98
 PA of pole (deg) : 94.55
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 3.517
 C/A sky separation (km) : 47116.2
 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

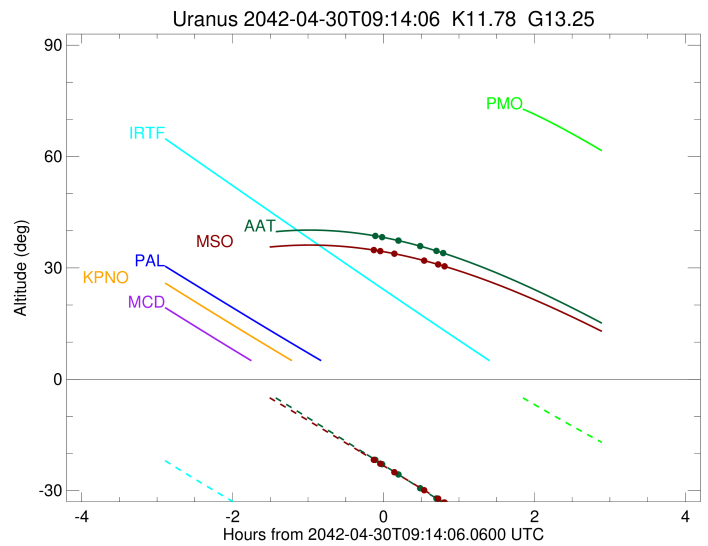
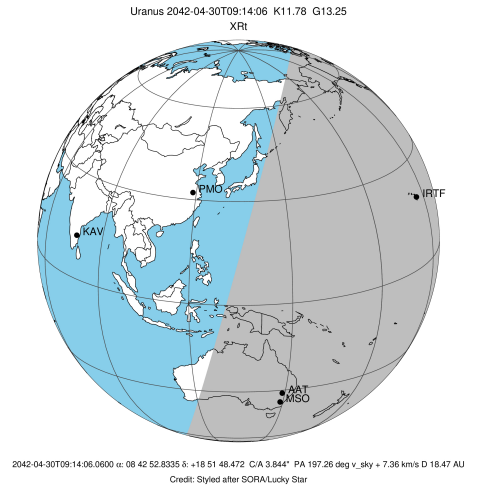


Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2042-04-30T09:06:15.782		38.69	-21.43	51476.85	-4.01		
lambda	I	2042-04-30T09:13:05.359		38.27	-22.89	50026.71	-3.10		
delta	I	2042-04-30T09:26:09.492		37.34	-25.69	48300.35	-1.27		

No planet occultations

delta	E	2042-04-30T09:43:05.350		35.88	-29.31	48300.35	1.27		
lambda	E	2042-04-30T09:56:06.203		34.58	-32.10	50026.71	3.12		
epsilon	E	2042-04-30T10:03:11.750		33.81	-33.62	51552.42	4.05		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2042-04-30T09:18:28.800
 Event type : XRt
 : No Uranus occs
 : Ring occs: topocentric, not geocentric
 Observer code : MSO
 Location : Mt. Stromlo Observatory
 Latitude (deg) : -35.32000
 E. Longitude (deg) : 149.00833
 Altitude (km) : 0.770
 Gaia source ID : 660986400180144000
 2Mass ID (if available) : 08425287+1851491
 ICRS Star Coord at Epoch: 08h 42m 52.83346s +18:51:48.47152s
 RUWE (>1.4 is poor) : 0.99
 K magnitude : 11.783
 G magnitude : 13.250
 RP magnitude : 12.726
 BP magnitude : 13.612
 DUPflag : 1
 Distance (au) : 18.472
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : 7.36
 Sun-Target sep (deg) : 88.54
 Sun-Moon sep (deg) : 38.11
 B (ring opening deg) : 38.98
 PA of pole (deg) : 94.55
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 3.495
 C/A sky separation (km) : 46828.6
 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	2042-04-30T09:05:09.590	34.87	-21.45	51473.21	-4.18		
lambda	I	2042-04-30T09:11:36.906	34.52	-22.77	50026.71	-3.32		
delta	I	2042-04-30T09:22:52.327	33.82	-25.07	48300.35	-1.76		

No planet occultations

delta	E	2042-04-30T09:46:17.318	31.98	-29.86	48300.35	1.77		
lambda	E	2042-04-30T09:57:29.580	30.94	-32.15	50026.71	3.34		
epsilon	E	2042-04-30T10:04:12.888	30.26	-33.52	51551.58	4.22		