

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2039-02-13T19:05:10.190
 Event type : XRT
 : No Uranus occs
 : Ring occs: topocentric, not geocentric
 Gaia source ID : 674483283367786496
 2Mass ID (if available) : 07482664+2139293

ICRS Star Coord at Epoch: 07h 48m 26.64111s +21:39:29.03011s

RUWE (>1.4 is poor) : 0.99
 K magnitude : 12.892
 G magnitude : 14.181
 RP magnitude : 13.737
 BP magnitude : 14.466
 DUPflag : 0
 Distance (au) : 17.773
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -19.46
 Sun-Target sep (deg) : 150.67
 Sun-Moon sep (deg) : 88.91
 B (ring opening deg) : 51.79
 PA of pole (deg) : 87.19

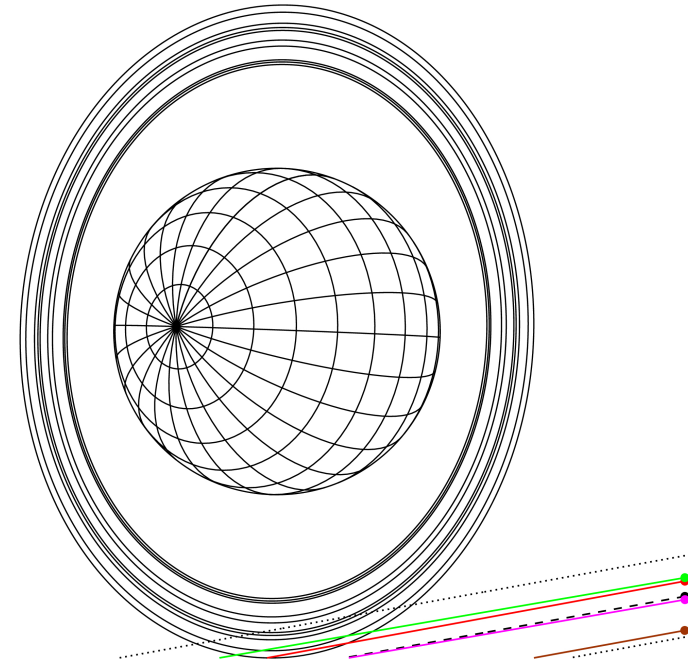
#	a(km)	ring
1	41837.2	6
2	42235.0	5
3	42571.2	4
4	44718.5	alpha
5	45661.1	beta
6	47176.1	eta
7	47626.3	gamma
8	48300.3	delta
9	50026.7	lambda
10	51149.4	epsilon



2039-02-13T19:05:10.1900 α: 07 48 26.64111 s; +21 39 29.030 C/A 4.041° PA 10.24 deg v_sky -19.46 km/s D 17.77 AU
 Credit: Styled after SORA/Lucky Star

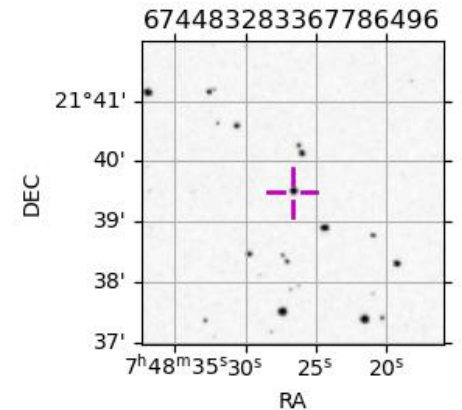
Uranus 2039-02-13T19:05:10 K12.89 G14.18 XRT

Earth
 PIC
 PMO
 KAV
 SAAO

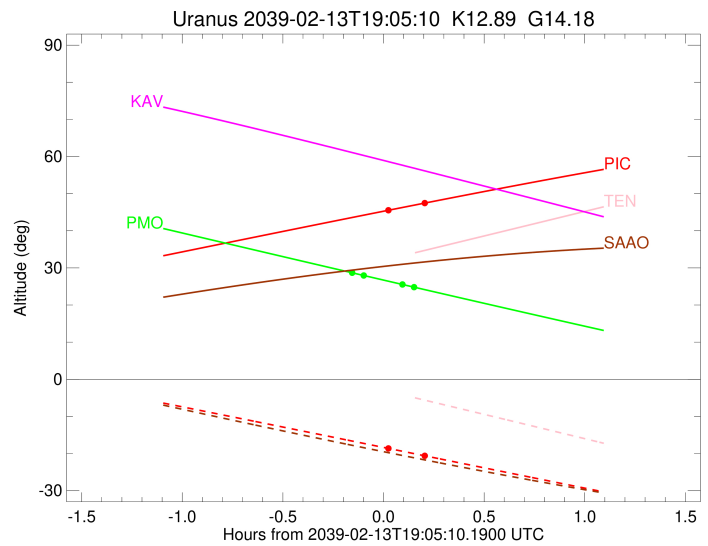
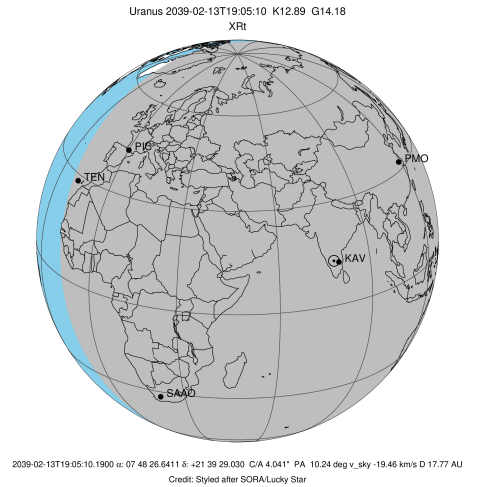


Observable events with sun below -5 deg and altitude above 5 deg unblocked by planet

Obs	Location	lat	Elon	Rings I	Planet	Rings E	Observed Events Interval	OEcode
PIC	Pic du Midi	42.9	0.1	+		+	FEB 13 19:05 - FEB 13 19:18	PnnRie
PAL	Palomar Mt (200")	33.4	243.1					PnnRnn
PMO	Purple Mtn Obs. Nanki	32.1	118.8	++		++	FEB 13 18:54 - FEB 13 19:15	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					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					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 : 2039-02-13T19:08:22.790
 Event type : XRt
 : No Uranus occs
 : Ring occs: topocentric, not geocentric
 Observer code : PIC
 Location : Pic du Midi
 Latitude (deg) : 42.93656
 E. Longitude (deg) : 0.14231
 Altitude (km) : 2.890
 Gaia source ID : 674483283367786496
 2Mass ID (if available) : 07482664+2139293
 ICRS Star Coord at Epoch: 07h 48m 26.64111s +21:39:29.03011s
 RUWE (>1.4 is poor) : 0.99
 K magnitude : 12.892
 G magnitude : 14.181
 RP magnitude : 13.737
 BP magnitude : 14.466
 DUPflag : 0
 Distance (au) : 17.773
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -19.46
 Sun-Target sep (deg) : 150.67
 Sun-Moon sep (deg) : 89.61
 B (ring opening deg) : 51.79
 PA of pole (deg) : 87.19
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 3.879
 C/A sky separation (km) : 50003.1
 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

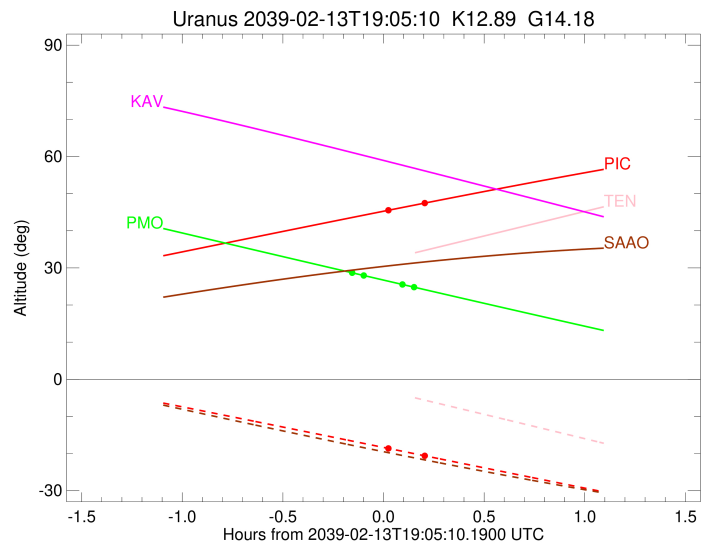
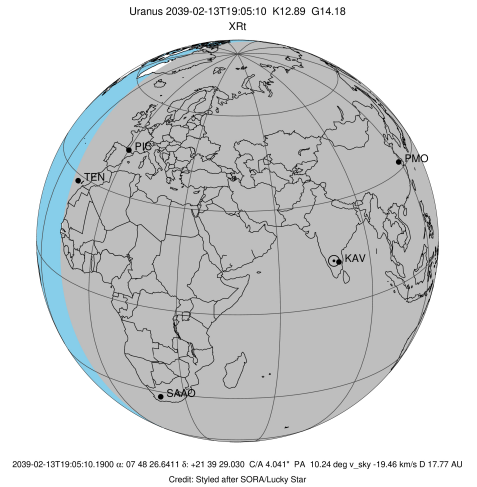


Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2039-02-13T19:05:09.448		45.26	-18.36	51555.93	-4.95		

No planet occultations

epsilon	E	2039-02-13T19:18:51.040		47.70	-20.87	51527.51	4.95		
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target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2039-02-13T19:01:36.080
 Event type : XRt
 : No Uranus occs
 : Ring occs: topocentric, not geocentric
 Observer code : PMO
 Location : Purple Mtn Obs. Nanking
 Latitude (deg) : 32.06667
 E. Longitude (deg) : 118.82089
 Altitude (km) : 0.364
 Gaia source ID : 674483283367786496
 2Mass ID (if available) : 07482664+2139293
 ICRS Star Coord at Epoch: 07h 48m 26.64111s +21:39:29.03011s
 RUWE (>1.4 is poor) : 0.99
 K magnitude : 12.892
 G magnitude : 14.181
 RP magnitude : 13.737
 BP magnitude : 14.466
 DUPflag : 0
 Distance (au) : 17.773
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -19.46
 Sun-Target sep (deg) : 150.67
 Sun-Moon sep (deg) : 89.34
 B (ring opening deg) : 51.79
 PA of pole (deg) : 87.19
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 3.789
 C/A sky separation (km) : 48842.0
 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	2039-02-13T18:54:53.213		28.88	-49.72	51552.69	-7.23		
lambda	I	2039-02-13T18:59:20.289		27.94	-48.82	50026.71	-4.17		

No planet occultations

lambda	E	2039-02-13T19:10:46.195		25.55	-46.49	50026.71	4.17		
epsilon	E	2039-02-13T19:15:07.606		24.64	-45.60	51509.33	7.22		