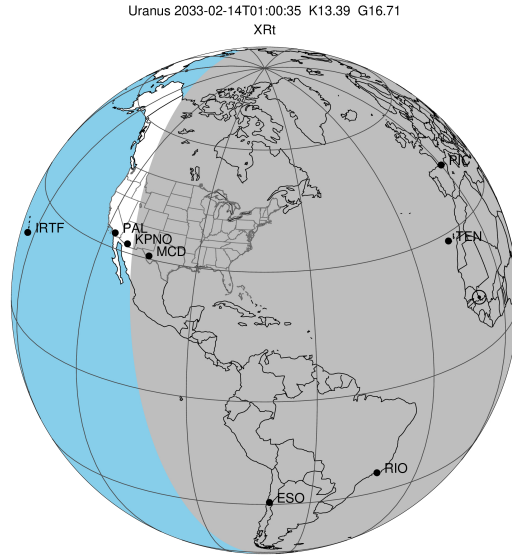


target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2033-02-14T01:00:35.010
 Event type : XRT
 : No Uranus occs
 : Ring occs: topocentric, not geocentric
 Gaia source ID : 3427682492633067264
 2Mass ID (if available) : 05481156+2337371

ICRS Star Coord at Epoch: 05h 48m 11.57091s +23:37:36.81984s

RUWE (>1.4 is poor) : 0.95
 K magnitude : 13.391
 G magnitude : 16.710
 RP magnitude : 15.684
 BP magnitude : 17.769
 DUPflag : 0
 Distance (au) : 18.466
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -9.47
 Sun-Target sep (deg) : 122.11
 Sun-Moon sep (deg) : 55.23
 B (ring opening deg) : 77.53
 PA of pole (deg) : 49.10

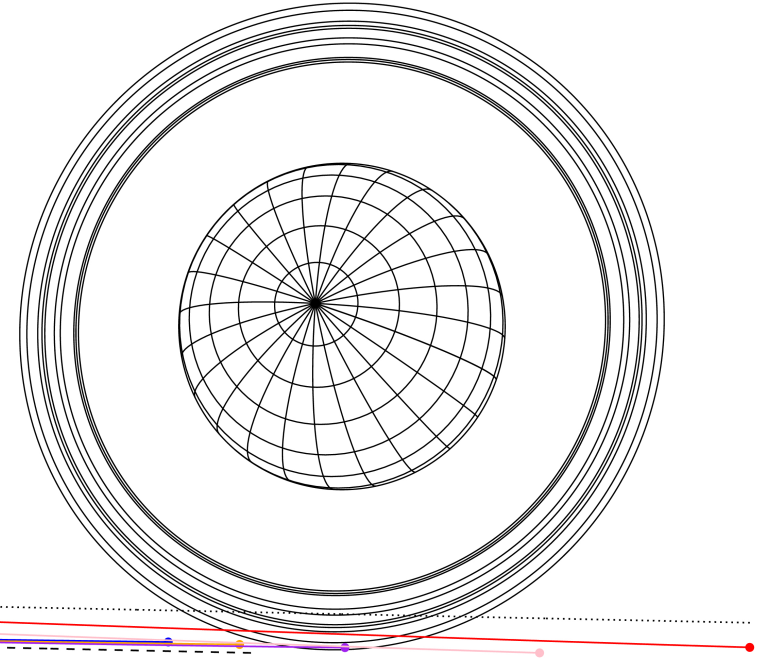
#	a(km)	ring
1	41837.2	6
2	42235.0	5
3	42571.2	4
4	44718.5	alpha
5	45661.1	beta
6	47176.1	eta
7	47626.3	gamma
8	48300.3	delta
9	50026.7	lambda
10	51149.4	epsilon



2033-02-14T01:00:35.0100 α: 05 48 11.57091 s; +23 37 36.820 C/A 3.832" PA 358.79 deg v_sky - 9.48 km/s D 18.47 AU
 Credit: Styled after SORA/Lucky Star

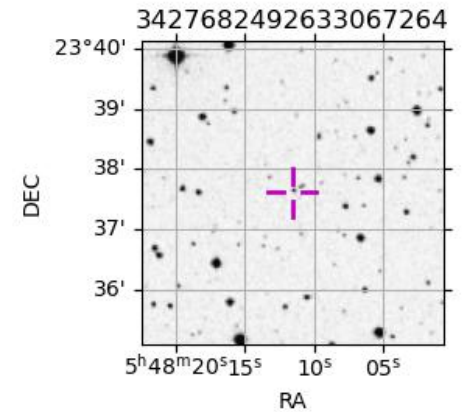
Uranus 2033-02-14T01:00:35 K13.39 G16.71 XRT

PIC
 PAL
 KPNO
 MCD
 TEN

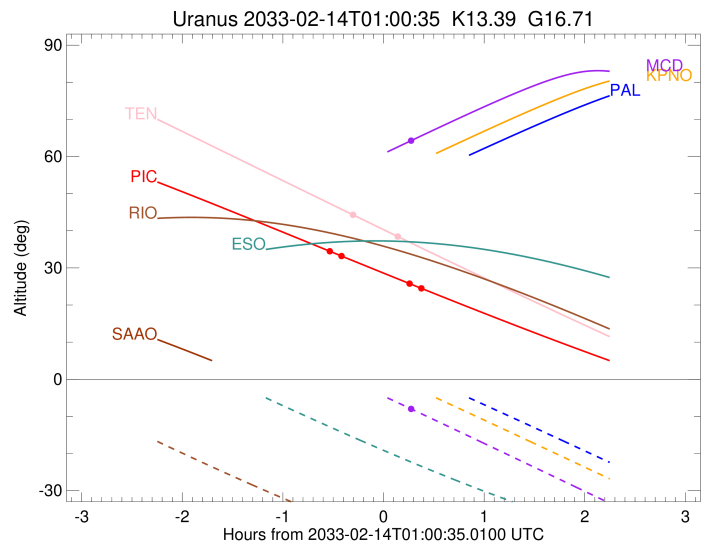
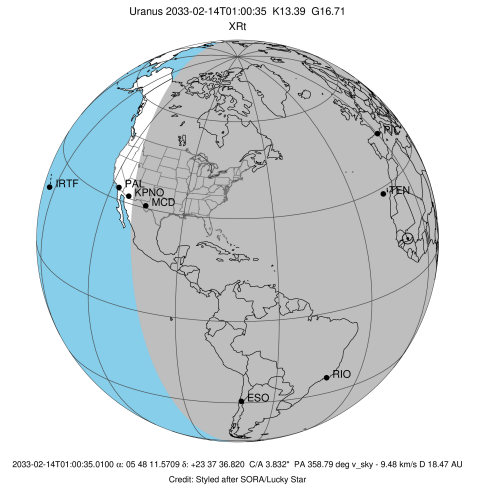


Observable events with sun below -5 deg and altitude above 5 deg unblocked by planet

Obs	Location	lat	Elon	Rings I	Planet	Rings E	Observed Events Interval	OEcode
PIC	Pic du Midi	42.9	0.1	++		++	FEB 14 00:29 - FEB 14 01:23	PnnRie
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			+	FEB 14 01:16 - FEB 14 01:16	PnnRne
TEN	Teide Obs./Tenerife	28.3	343.5	+		+	FEB 14 00:43 - FEB 14 01:09	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					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 : 2033-02-14T00:53:50.840
 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 : 3427682492633067264
 2Mass ID (if available) : 05481156+2337371
 ICRS Star Coord at Epoch: 05h 48m 11.57091s +23:37:36.81984s
 RUWE (>1.4 is poor) : 0.95
 K magnitude : 13.391
 G magnitude : 16.710
 RP magnitude : 15.684
 BP magnitude : 17.769
 DUPflag : 0
 Distance (au) : 18.466
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -9.47
 Sun-Target sep (deg) : 122.11
 Sun-Moon sep (deg) : 55.25
 B (ring opening deg) : 77.53
 PA of pole (deg) : 49.10
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 3.596
 C/A sky separation (km) : 48157.5
 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

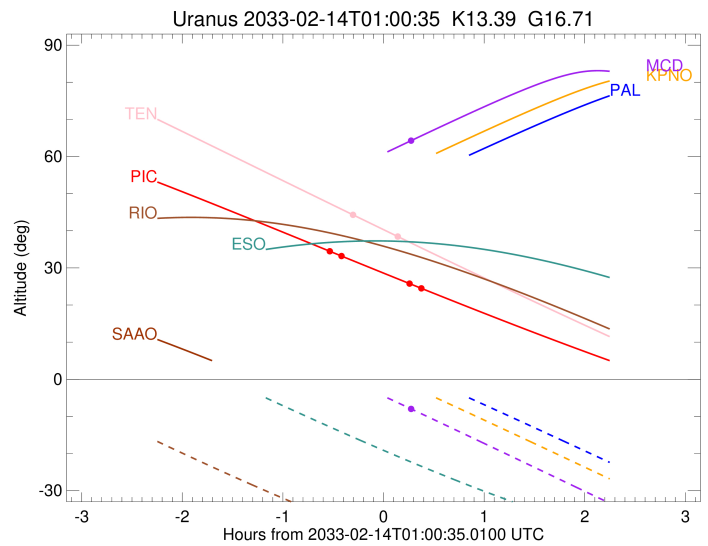
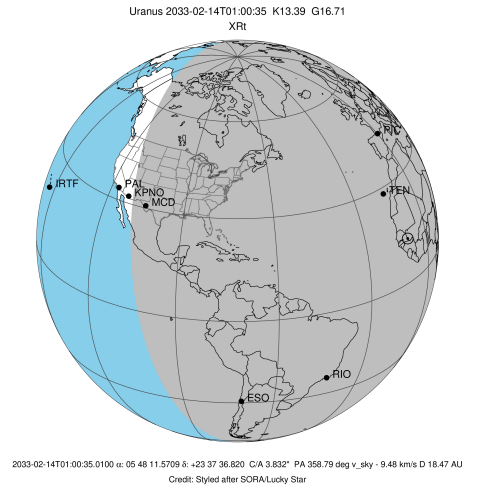


Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2033-02-14T00:29:34.286		34.29	-60.03	50981.47	-3.00		
lambda	I	2033-02-14T00:35:38.907		33.18	-59.85	50026.71	-2.30		

No planet occultations

lambda	E	2033-02-14T01:16:00.809		25.79	-57.30	50026.71	2.28		
epsilon	E	2033-02-14T01:23:31.855		24.43	-56.60	51230.25	2.98		

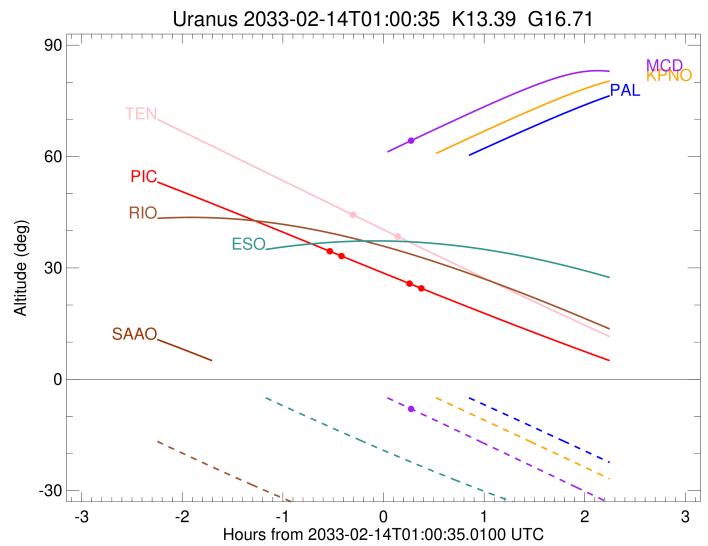
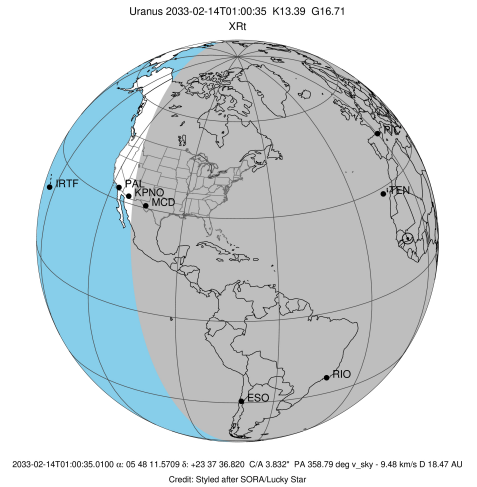
target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2033-02-14T01:04:43.690
 Event type : XRt
 : No Uranus occs
 : Ring occs: topocentric, not geocentric
 Observer code : MCD
 Location : McDonald Obs. 2.7m
 Latitude (deg) : 30.67158
 E. Longitude (deg) : 255.97844
 Altitude (km) : 2.075
 Gaia source ID : 3427682492633067264
 2Mass ID (if available) : 05481156+2337371
 ICRS Star Coord at Epoch: 05h 48m 11.57091s +23:37:36.81984s
 RUWE (>1.4 is poor) : 0.95
 K magnitude : 13.391
 G magnitude : 16.710
 RP magnitude : 15.684
 BP magnitude : 17.769
 DUPflag : 0
 Distance (au) : 18.466
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -9.47
 Sun-Target sep (deg) : 122.11
 Sun-Moon sep (deg) : 56.13
 B (ring opening deg) : 77.53
 PA of pole (deg) : 49.10
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 3.754
 C/A sky separation (km) : 50283.2
 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_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	2033-02-14T00:58:08.004		60.23	-4.00x	51051.52	-1.07		
No planet occultations									
epsilon	E	2033-02-14T01:16:41.986		64.21	-7.92	51138.83	1.07		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2033-02-14T00:53:43.590
 Event type : XRt
 : No Uranus occs
 : Ring occs: topocentric, not geocentric
 Observer code : TEN
 Location : Teide Obs./Tenerife
 Latitude (deg) : 28.30050
 E. Longitude (deg) : 343.48909
 Altitude (km) : 2.395
 Gaia source ID : 3427682492633067264
 2Mass ID (if available) : 05481156+2337371
 ICRS Star Coord at Epoch: 05h 48m 11.57091s +23:37:36.81984s
 RUWE (>1.4 is poor) : 0.95
 K magnitude : 13.391
 G magnitude : 16.710
 RP magnitude : 15.684
 BP magnitude : 17.769
 DUPflag : 0
 Distance (au) : 18.466
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -9.47
 Sun-Target sep (deg) : 122.11
 Sun-Moon sep (deg) : 55.35
 B (ring opening deg) : 77.53
 PA of pole (deg) : 49.10
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 3.739
 C/A sky separation (km) : 50071.4
 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



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	2033-02-14T00:43:46.054		44.00	-72.64	51044.99	-1.44		
No planet occultations									
epsilon	E	2033-02-14T01:09:05.664		38.45	-74.62	51163.31	1.44		