

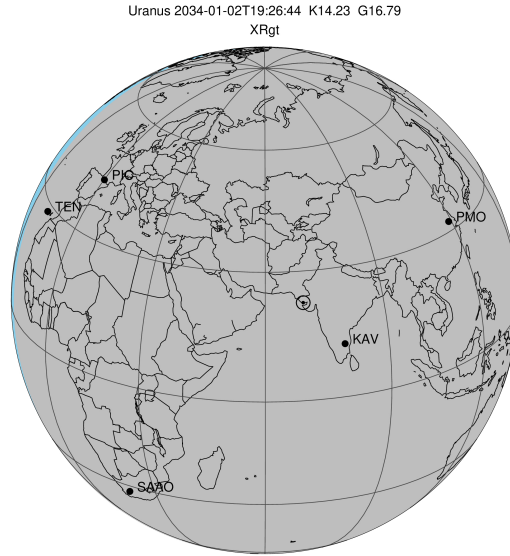
target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2034-01-02T19:26:44.440
 Event type : XRgt
 : No Uranus occs
 : Ring occs: geocentric, topocentric
 Gaia source ID : 3425260302876051328
 2Mass ID (if available) : 06140606+2340290

ICRS Star Coord at Epoch: 06h 14m 06.06847s +23:40:28.95368s

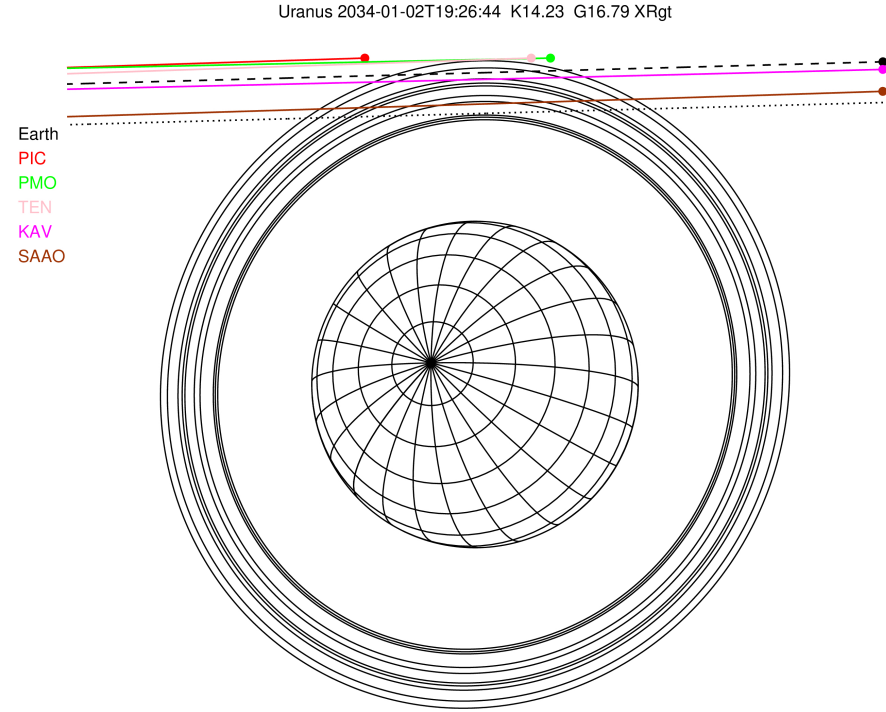
RUWE (>1.4 is poor) : 1.02
 K magnitude : 14.235
 G magnitude : 16.786
 RP magnitude : 15.936
 BP magnitude : 17.537
 DUPflag : 0
 Distance (au) : 17.980
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -23.04
 Sun-Target sep (deg) : 171.23
 Sun-Moon sep (deg) : 18.37
 B (ring opening deg) : 72.53
 PA of pole (deg) : 63.84

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

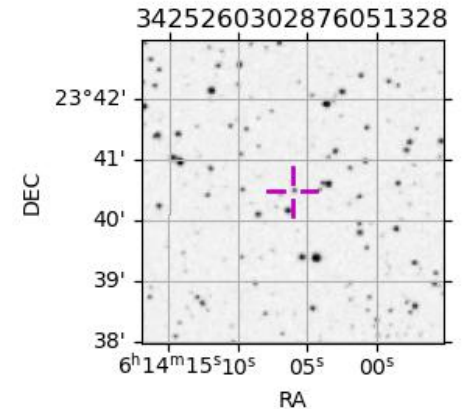


2034-01-02T19:26:44.4400 ra: 06 14 06.0685 s: +23 40 28.954 C/A 3.748" PA 181.56 deg v_sky -23.04 km/s D 17.98 AU
 Credit: Styled after SORA/Lucky Star

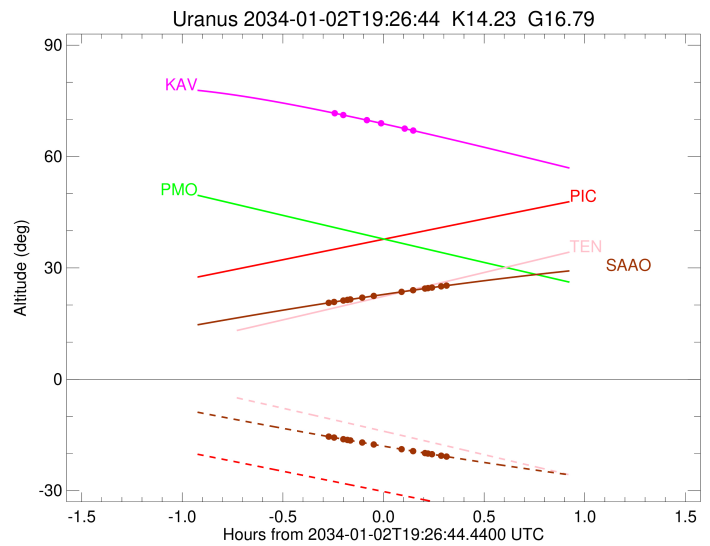
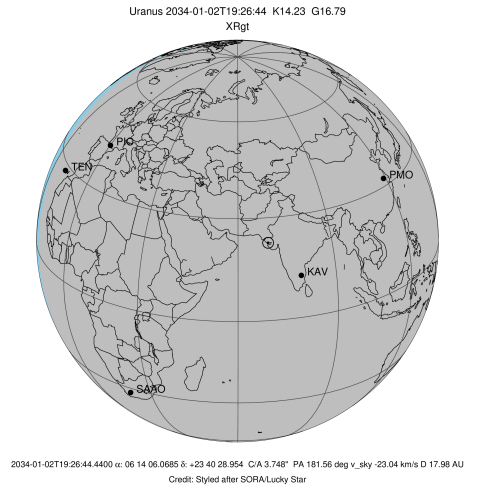


Observable events with sun below -5 deg and altitude above 5 deg unblocked by planet

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	+++		+++	JAN 02 19:13 - JAN 02 19:34	PnnRie
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	+++++++		+++++++	JAN 02 19:10 - JAN 02 19:45	PnnRie
MSO	Mt. Stromlo Observato	-35.3	149.0					PnnRnn



target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2034-01-02T19:25:10.530
 Event type : XRgt
 : No Uranus occs
 : Ring occs: geocentric, topocentric
 Observer code : KAV
 Location : Kavalur Observatory
 Latitude (deg) : 12.57556
 E. Longitude (deg) : 78.83167
 Altitude (km) : 0.722
 Gaia source ID : 3425260302876051328
 2Mass ID (if available) : 06140606+2340290
 ICRS Star Coord at Epoch: 06h 14m 06.06847s +23:40:28.95368s
 RUWE (>1.4 is poor) : 1.02
 K magnitude : 14.235
 G magnitude : 16.786
 RP magnitude : 15.936
 BP magnitude : 17.537
 DUPflag : 0
 Distance (au) : 17.980
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -23.04
 Sun-Target sep (deg) : 171.23
 Sun-Moon sep (deg) : 18.92
 B (ring opening deg) : 72.53
 PA of pole (deg) : 63.84
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 3.661
 C/A sky separation (km) : 47733.7
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk
 URKALLvl1.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



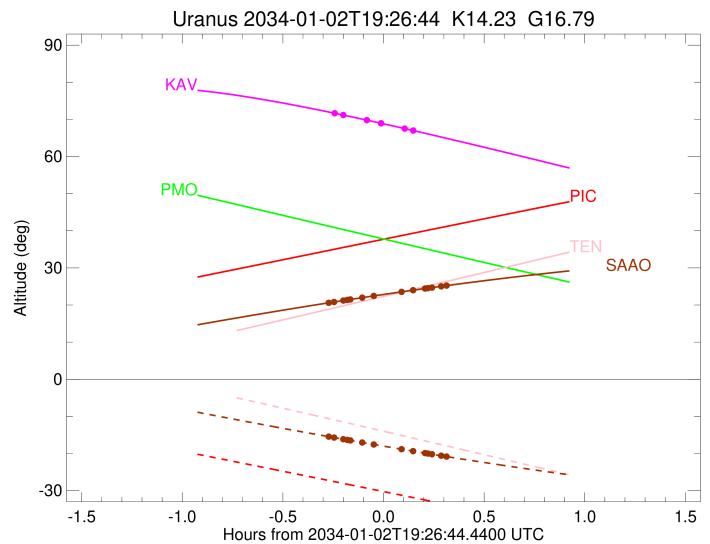
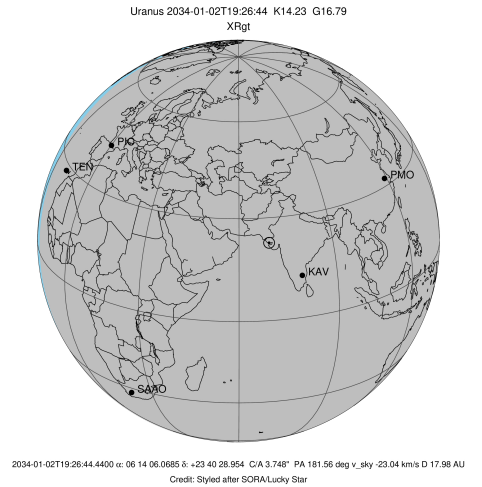
b: ring blocked by planet x: target alt < 5.0 deg or sun > -5.0 deg

Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2034-01-02T19:13:05.211		71.49	-78.15	50743.59	-7.60		
lambda	I	2034-01-02T19:14:46.806		71.17	-77.95	50026.71	-6.50		
delta	I	2034-01-02T19:21:56.457		69.77	-76.99	48300.35	-1.44		

No planet occultations

delta	E	2034-01-02T19:25:51.327		68.99	-76.41	48300.35	1.45		
lambda	E	2034-01-02T19:33:01.122		67.53	-75.25	50026.71	6.50		
epsilon	E	2034-01-02T19:34:52.520		67.15	-74.93	50818.09	7.59		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2034-01-02T19:29:10.620
 Event type : XRgt
 : No Uranus occs
 : Ring occs: geocentric, topocentric
 Observer code : SAAO
 Location : So. Afr. Astro. Obs. (Sutherland)
 Latitude (deg) : -32.37953
 E. Longitude (deg) : 20.81070
 Altitude (km) : 1.768
 Gaia source ID : 3425260302876051328
 2Mass ID (if available) : 06140606+2340290
 ICRS Star Coord at Epoch: 06h 14m 06.06847s +23:40:28.95368s
 RUWE (>1.4 is poor) : 1.02
 K magnitude : 14.235
 G magnitude : 16.786
 RP magnitude : 15.936
 BP magnitude : 17.537
 DUPflag : 0
 Distance (au) : 17.980
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -23.04
 Sun-Target sep (deg) : 171.23
 Sun-Moon sep (deg) : 17.83
 B (ring opening deg) : 72.53
 PA of pole (deg) : 63.84
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 3.364
 C/A sky separation (km) : 43868.3
 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	2034-01-02T19:10:59.199		20.68	-15.54	50751.68	-11.77		
lambda	I	2034-01-02T19:12:02.138		20.83	-15.71	50026.71	-11.23		
delta	I	2034-01-02T19:14:47.434		21.21	-16.15	48300.35	-9.63		
gamma	I	2034-01-02T19:16:00.611		21.38	-16.35	47623.67	-8.86		
eta	I	2034-01-02T19:16:52.769		21.50	-16.48	47176.12	-8.30		
beta	I	2034-01-02T19:20:23.297		21.98	-17.03	45681.20	-5.86		
alpha	I	2034-01-02T19:23:50.781		22.45	-17.57	44733.16	-3.28		

No planet occultations

alpha	E	2034-01-02T19:32:09.482		23.55	-18.84	44740.82	3.28		
beta	E	2034-01-02T19:35:34.336		23.99	-19.36	45678.29	5.87		
eta	E	2034-01-02T19:39:05.098		24.43	-19.88	47176.12	8.31		
gamma	E	2034-01-02T19:39:56.927		24.54	-20.01	47621.21	8.87		
delta	E	2034-01-02T19:41:10.302		24.69	-20.19	48300.35	9.64		
lambda	E	2034-01-02T19:43:55.388		25.03	-20.59	50026.71	11.25		
epsilon	E	2034-01-02T19:45:08.238		25.18	-20.76	50870.31	11.78		