

target : Uranus  
 target radius (km) : 25559.00  
 C/A epoch : 2034-03-23T16:34:32.110  
 Event type : XRgt  
 : No Uranus occs  
 : Ring occs: geocentric, topocentric  
 Gaia source ID : 3426149047570848896  
 2Mass ID (if available) : 06070603+2342015

ICRS Star Coord at Epoch: 06h 07m 06.04297s +23:42:01.53778s

RUWE (>1.4 is poor) : 1.05  
 K magnitude : 14.182  
 G magnitude : 16.568  
 RP magnitude : 15.816  
 BP magnitude : 17.164  
 DUPflag : 0  
 Distance (au) : 18.929  
 f0 (km) : 0.000  
 g0 (km) : 0.000  
 skyplane vel. (km/s) : 6.91  
 Sun-Target sep (deg) : 88.98  
 Sun-Moon sep (deg) : 43.69  
 B (ring opening deg) : 73.93  
 PA of pole (deg) : 60.58

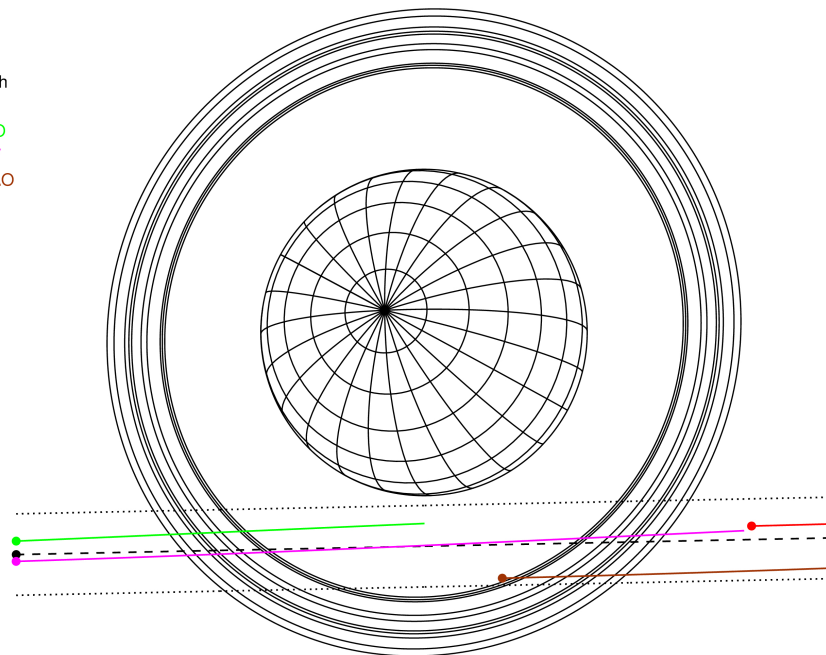
#	a(km)	ring
1	41837.2	6
2	42235.0	5
3	42571.2	4
4	44718.5	alpha
5	45661.1	beta
6	47176.1	eta
7	47626.3	gamma
8	48300.3	delta
9	50026.7	lambda
10	51149.4	epsilon



2034-03-23T16:34:32.1100 a: 06 07 06.0430 s: +23 42 01.538 C/A 2.430° PA 1.17 deg v\_sky + 6.91 km/s D 18.93 AU  
 Credit: Styled after SORA/Lucky Star

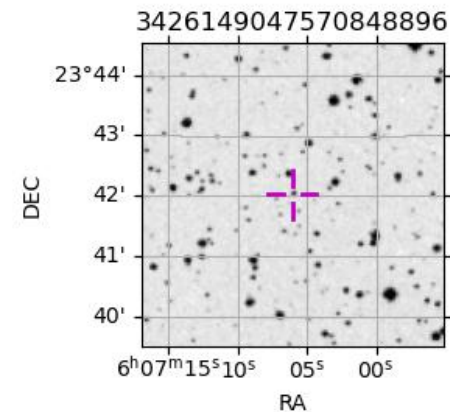
Uranus 2034-03-23T16:34:32 K14.18 G16.57 XRgt

Earth  
 PIC  
 PMO  
 KAV  
 SAAO

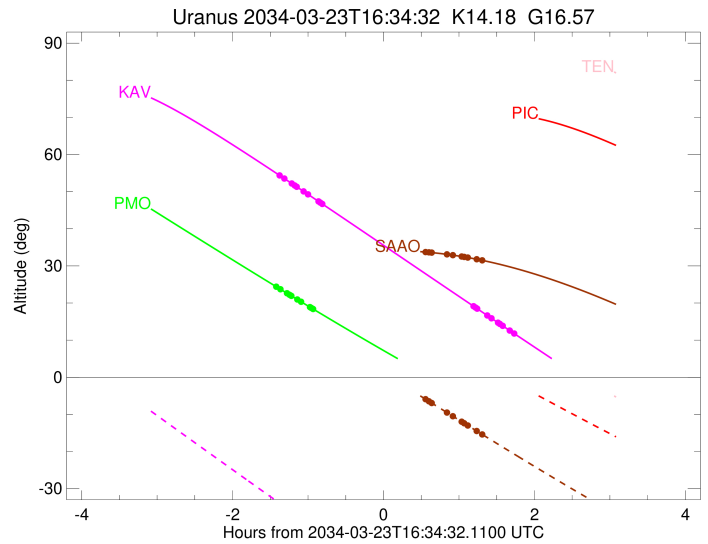
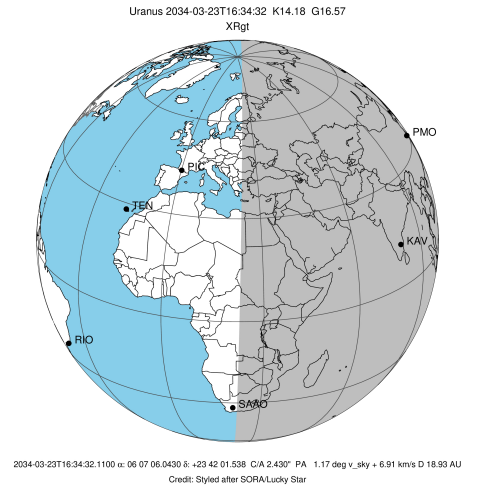


Observable events with sun below -5 deg and altitude above 5 deg unblocked by planet

Obs	Location	lat	Elon	Rings I	Planet	Rings E	Observed Events Interval	OEncode
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	+++++			MAR 23 15:10 - MAR 23 15:38	PnnRin
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	+++++		+++++	MAR 23 15:13 - MAR 23 18:19	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			+++++	MAR 23 17:07 - MAR 23 17:53	PnnRne
MSO	Mt. Stromlo Observato	-35.3	149.0					PnnRnn



target : Uranus  
 target radius (km) : 25559.00  
 C/A epoch : 2034-03-23T16:48:46.080  
 Event type : XRgt  
 : No Uranus occs  
 : Ring occs: geocentric, topocentric  
 Observer code : PMO  
 Location : Purple Mtn Obs. Nanking  
 Latitude (deg) : 32.06667  
 E. Longitude (deg) : 118.82089  
 Altitude (km) : 0.364  
 Gaia source ID : 3426149047570848896  
 2Mass ID (if available) : 06070603+2342015  
 ICRS Star Coord at Epoch: 06h 07m 06.04297s +23:42:01.53778s  
 RUWE (>1.4 is poor) : 1.05  
 K magnitude : 14.182  
 G magnitude : 16.568  
 RP magnitude : 15.816  
 BP magnitude : 17.164  
 DUPflag : 0  
 Distance (au) : 18.930  
 f0 (km) : 0.000  
 g0 (km) : 0.000  
 skyplane vel. (km/s) : 6.91  
 Sun-Target sep (deg) : 88.98  
 Sun-Moon sep (deg) : 44.41  
 B (ring opening deg) : 73.93  
 PA of pole (deg) : 60.58  
 Pole direction: RA (deg): 257.31100  
 Dec (deg): -15.17500  
 C/A sky separation (") : 2.177  
 C/A sky separation (km) : 29887.8  
 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

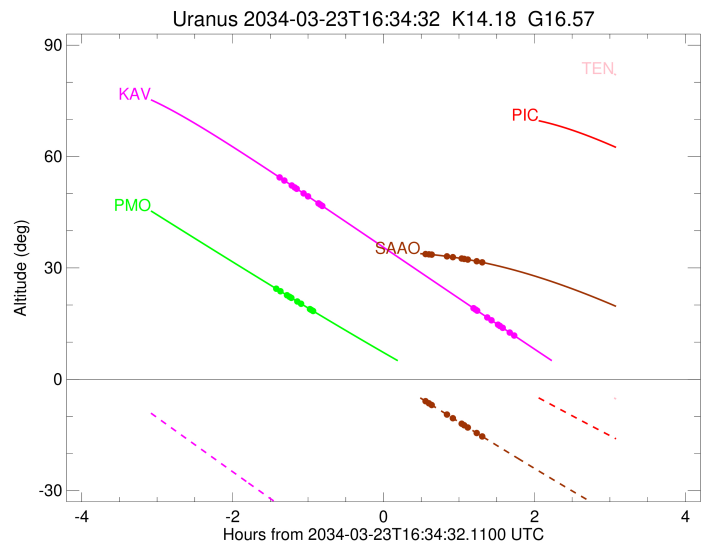
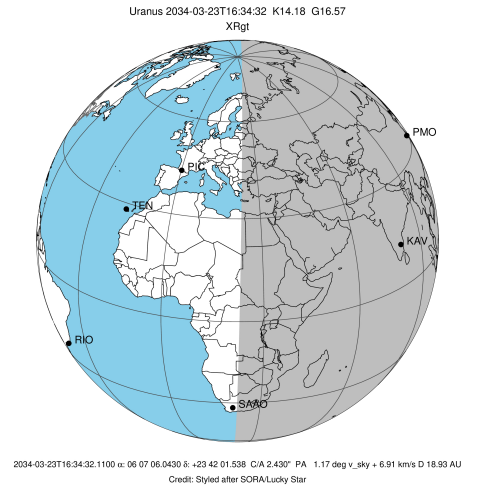


Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2034-03-23T15:10:16.274		24.19	-53.88	50822.29	-5.63		
lambda	I	2034-03-23T15:12:38.522		23.70	-54.10	50026.71	-5.57		
delta	I	2034-03-23T15:17:51.465		22.63	-54.56	48300.35	-5.46		
gamma	I	2034-03-23T15:19:56.081		22.20	-54.73	47622.74	-5.41		
eta	I	2034-03-23T15:21:18.826		21.92	-54.84	47176.12	-5.38		
beta	I	2034-03-23T15:25:59.720		20.95	-55.20	45680.80	-5.26		
alpha	I	2034-03-23T15:29:05.058		20.32	-55.42	44714.25	-5.18		
4	I	2034-03-23T15:36:15.505		18.86	-55.87	42531.02	-4.95		
5	I	2034-03-23T15:36:59.831		18.71	-55.91	42310.95	-4.92		
6	I	2034-03-23T15:38:42.846		18.36	-56.00	41806.55	-4.87		

No planet occultations

6	E	2034-03-23T17:52:37.385	-7.37x	-49.06	41865.05	5.07
5	E	2034-03-23T17:53:45.661	-7.57x	-48.90	42211.28	5.13
4	E	2034-03-23T17:54:54.260	-7.77x	-48.74	42549.69	5.16
alpha	E	2034-03-23T18:01:49.188	-8.98x	-47.74	44752.40	5.42
beta	E	2034-03-23T18:04:35.158	-9.46x	-47.33	45662.92	5.52
eta	E	2034-03-23T18:09:06.101	-10.24x	-46.65	47176.12	5.66
gamma	E	2034-03-23T18:10:24.816	-10.46x	-46.45	47623.03	5.70
delta	E	2034-03-23T18:12:23.119	-10.80x	-46.15	48300.35	5.75
lambda	E	2034-03-23T18:17:19.730	-11.64x	-45.38	50026.71	5.89
epsilon	E	2034-03-23T18:21:23.864	-12.32x	-44.73	51475.81	5.96

target : Uranus  
 target radius (km) : 25559.00  
 C/A epoch : 2034-03-23T16:49:30.900  
 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 : 3426149047570848896  
 2Mass ID (if available) : 06070603+2342015  
 ICRS Star Coord at Epoch: 06h 07m 06.04297s +23:42:01.53778s  
 RUWE (>1.4 is poor) : 1.05  
 K magnitude : 14.182  
 G magnitude : 16.568  
 RP magnitude : 15.816  
 BP magnitude : 17.164  
 DUPflag : 0  
 Distance (au) : 18.930  
 f0 (km) : 0.000  
 g0 (km) : 0.000  
 skyplane vel. (km/s) : 6.91  
 Sun-Target sep (deg) : 88.98  
 Sun-Moon sep (deg) : 44.68  
 B (ring opening deg) : 73.93  
 PA of pole (deg) : 60.58  
 Pole direction: RA (deg): 257.31100  
 Dec (deg): -15.17500  
 C/A sky separation (") : 2.428  
 C/A sky separation (km) : 33328.3  
 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



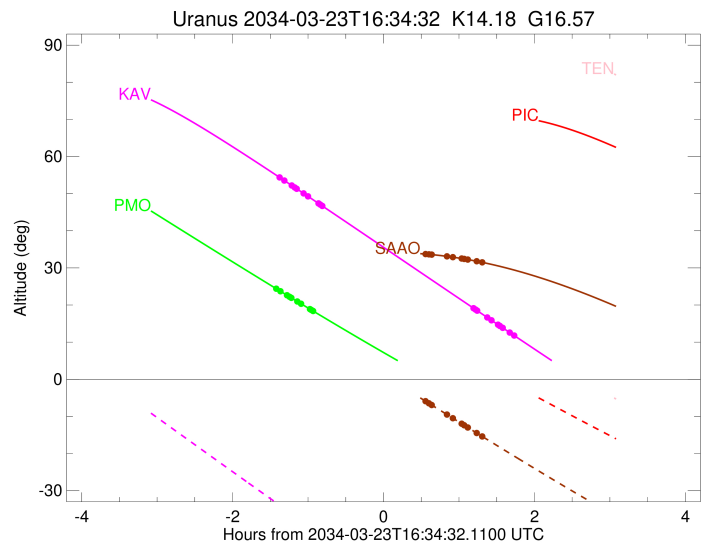
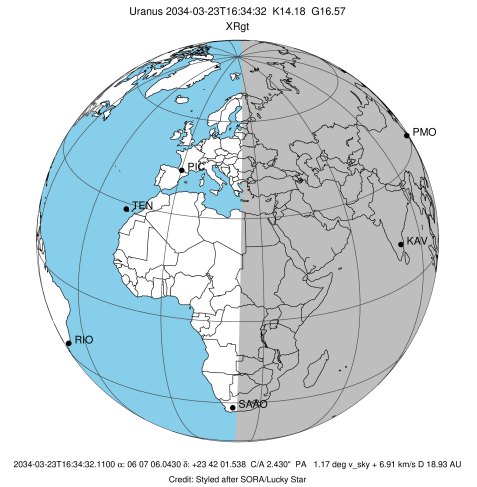
Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2034-03-23T15:12:59.869		54.14	-34.18	50844.08	-5.03		
lambda	I	2034-03-23T15:15:44.087		53.52	-34.83	50026.71	-4.95		
delta	I	2034-03-23T15:21:38.206		52.19	-36.25	48300.35	-4.80		
gamma	I	2034-03-23T15:24:00.339		51.65	-36.82	47622.37	-4.74		
eta	I	2034-03-23T15:25:34.951		51.30	-37.19	47176.12	-4.69		
beta	I	2034-03-23T15:30:58.770		50.08	-38.48	45681.13	-4.54		
alpha	I	2034-03-23T15:34:33.992		49.26	-39.34	44717.99	-4.42		
4	I	2034-03-23T15:43:06.577		47.32	-41.38	42528.75	-4.11		
5	I	2034-03-23T15:44:00.567		47.11	-41.59	42307.09	-4.07		
6	I	2034-03-23T15:46:03.696		46.65	-42.08	41810.59	-3.99		

No planet occultations

6	E	2034-03-23T17:46:06.055		19.15	-68.80	41860.83	4.15		
5	E	2034-03-23T17:47:32.370		18.82	-69.07	42220.77	4.23		
4	E	2034-03-23T17:48:51.994		18.51	-69.32	42545.08	4.28		
alpha	E	2034-03-23T17:57:06.015		16.64	-70.79	44752.04	4.63		
beta	E	2034-03-23T18:00:19.953		15.90	-71.34	45664.95	4.76		
eta	E	2034-03-23T18:05:31.871		14.72	-72.19	47176.12	4.94		
gamma	E	2034-03-23T18:07:01.813		14.37	-72.42	47622.65	4.99		
delta	E	2034-03-23T18:09:16.629		13.86	-72.76	48300.35	5.06		
lambda	E	2034-03-23T18:14:51.844		12.59	-73.56	50026.71	5.23		
epsilon	E	2034-03-23T18:19:21.433		11.57	-74.14	51455.02	5.34		

```

target                : Uranus
target radius (km)    : 25559.00
C/A epoch             : 2034-03-23T16:34:33.040
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        : 3426149047570848896
2Mass ID (if available) : 06070603+2342015
ICRS Star Coord at Epoch: 06h 07m 06.04297s +23:42:01.53778s
RUWE (>1.4 is poor) : 1.05
K magnitude           : 14.182
G magnitude           : 16.568
RP magnitude          : 15.816
BP magnitude          : 17.164
DUPflag              : 0
Distance (au)         : 18.929
f0 (km)               : 0.000
g0 (km)               : 0.000
skyplane vel. (km/s) : 6.91
Sun-Target sep (deg)  : 88.98
Sun-Moon sep (deg)   : 44.02
B (ring opening deg) : 73.93
PA of pole (deg)     : 60.58
Pole direction: RA (deg): 257.31100
Dec (deg): -15.17500
C/A sky separation (") : 2.822
C/A sky separation (km) : 38746.4
NAIF SPICE kernels    : RAJobs_U111+rgf15.spk
URKALLvl1.spk
urall11.bsp
IAU_URANUS_for_RINGFIT.tpc
vgr2.urall11.bsp
ural61.bsp
vgr2.ural61.bsp
peph.ural60.bsp
earthstns_itrfr93_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	2034-03-23T15:10:01.333		30.01	18.86x	50880.66	-4.30		
lambda	I	2034-03-23T15:13:23.997		30.30	18.17x	50026.71	-4.16		
delta	I	2034-03-23T15:20:31.631		30.88	16.70x	48300.35	-3.91		
gamma	I	2034-03-23T15:23:27.560		31.10	16.09x	47621.86	-3.80		
eta	I	2034-03-23T15:25:26.001		31.25	15.68x	47176.12	-3.73		
beta	I	2034-03-23T15:32:23.073		31.74	14.24x	45681.18	-3.44		
alpha	I	2034-03-23T15:37:10.087		32.05	13.24x	44724.35	-3.23		
4	I	2034-03-23T15:49:42.131		32.77	10.62x	42526.28	-2.60		
5	I	2034-03-23T15:51:12.124		32.85	10.31x	42296.78	-2.51		
6	I	2034-03-23T15:54:28.302		33.01	9.62x	41819.62	-2.35		

No planet occultations

6	E	2034-03-23T17:07:51.569		33.73	-5.88	41849.51	2.35		
5	E	2034-03-23T17:10:33.703		33.65	-6.45	42243.37	2.52		
4	E	2034-03-23T17:12:32.604		33.59	-6.87	42535.99	2.61		
alpha	E	2034-03-23T17:25:05.069		33.11	-9.52	44749.95	3.25		
beta	E	2034-03-23T17:29:38.379		32.90	-10.48	45669.17	3.46		
eta	E	2034-03-23T17:36:36.987		32.53	-11.95	47176.12	3.75		
gamma	E	2034-03-23T17:38:34.774		32.42	-12.37	47621.95	3.82		
delta	E	2034-03-23T17:41:29.634		32.25	-12.98	48300.35	3.93		
lambda	E	2034-03-23T17:48:34.542		31.80	-14.47	50026.71	4.19		
epsilon	E	2034-03-23T17:53:56.823		31.43	-15.59	51404.57	4.33		