

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2035-10-19T10:38:01.340
 Event type : XRgt
 : No Uranus occs
 : Ring occs: geocentric, topocentric
 Gaia source ID : 3368434552655595776
 2Mass ID (if available) : 07032818+2300086

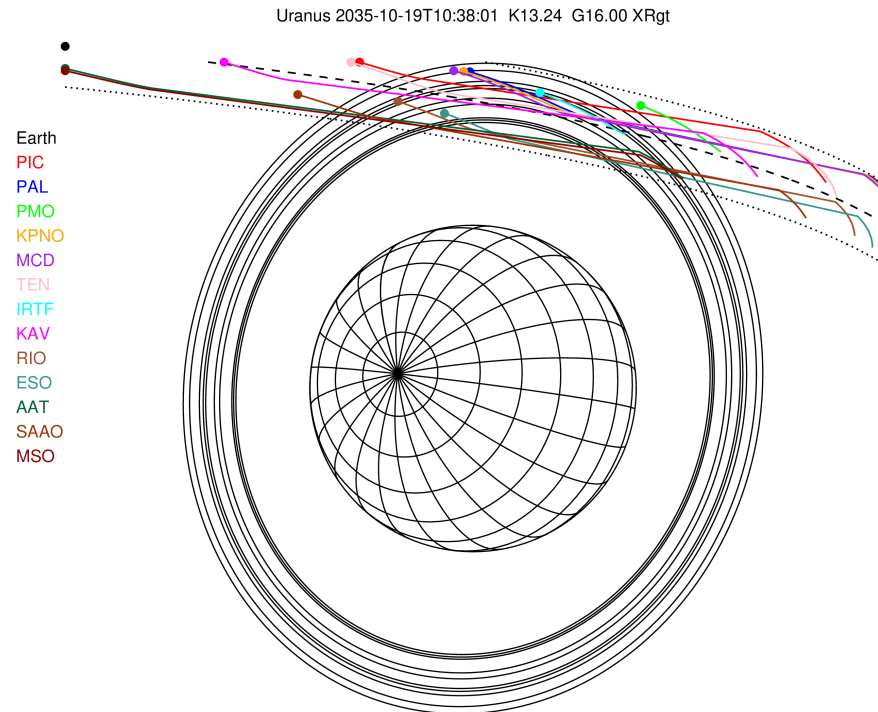
ICRS Star Coord at Epoch: 07h 03m 28.19847s +23:00:08.04718s

RUWE (>1.4 is poor) : 0.99
 K magnitude : 13.239
 G magnitude : 15.996
 RP magnitude : 15.123
 BP magnitude : 16.795
 DUPflag : 0
 Distance (au) : 18.627
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : 0.91
 Sun-Target sep (deg) : 100.80
 Sun-Moon sep (deg) : 48.57
 B (ring opening deg) : 61.96
 PA of pole (deg) : 78.93

#	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

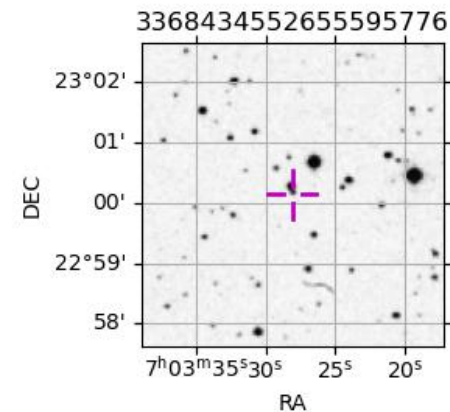


2035-10-19T10:38:01.3400 ra: 07 03 28.1985 s: +23 00 08.047 C/A 3.2311 PA 172.01 deg v_sky + 0.90 km/s D 18.63 AU
 Credit: Styled after SORA/Lucky Star



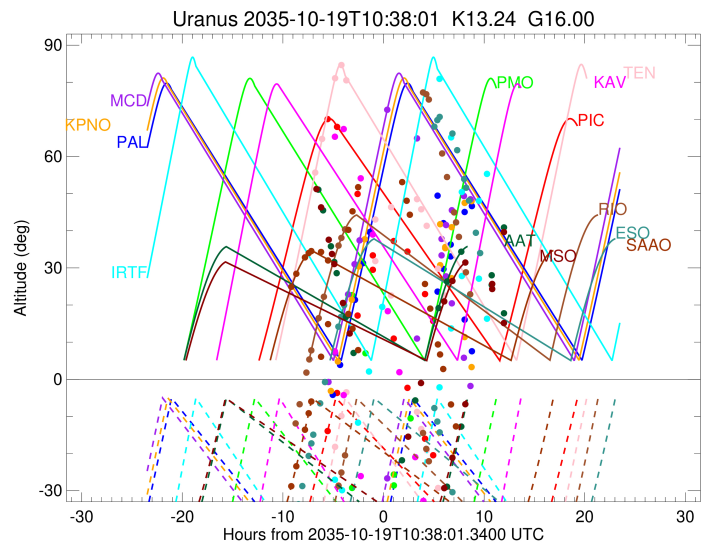
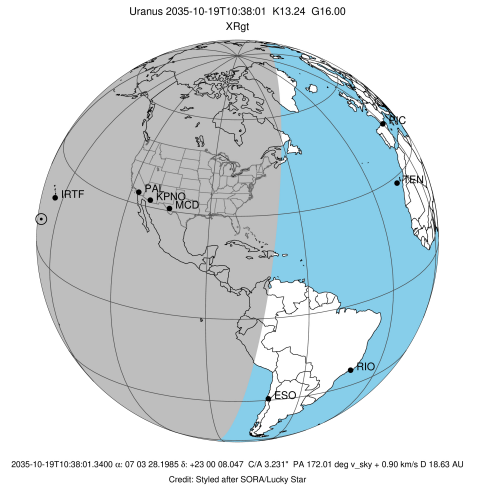
Observable events with sun below -5 deg and altitude above 5 deg unblocked by planet

Obs	Location	lat	Elon	Rings I	Planet	Rings E	Observed Events Interval	OEcode
PIC	Pic du Midi	42.9	0.1	+			OCT 19 04:50 - OCT 19 04:50	PnnRin
PAL	Palomar Mt (200")	33.4	243.1	+++			OCT 19 07:48 - OCT 19 09:17	PnnRin
PMO	Purple Mtn Obs. Nanki	32.1	118.8					PnnRnn
KPNO	Kitt Peak Natl Obs	32.0	248.4	+++			OCT 19 07:29 - OCT 19 08:47	PnnRin
MCD	McDonald Obs. 2.7m	30.7	256.0	+++++			OCT 19 05:50 - OCT 19 11:05	PnnRin
TEN	Teide Obs./Tenerife	28.3	343.5	++++			OCT 19 03:40 - OCT 19 06:28	PnnRin
IRTF	Mauna Kea/IRTF	19.8	204.5	+			OCT 19 10:34 - OCT 19 10:34	PnnRin
KAV	Kavalur Observatory	12.6	78.8					PnnRnn
RIO	Rio de Janeiro	-22.9	316.8	+++++			OCT 19 03:15 - OCT 19 06:48	PnnRin
ESO	European Southern Obs	-29.3	289.3	+++			OCT 19 06:07 - OCT 19 06:42	PnnRin
AAT	Siding Spring (AAT)	-31.3	149.1			+++	OCT 19 16:04 - OCT 19 18:19	PnnRne
SAAO	So. Afr. Astro. Obs.	-32.4	20.8	+++++			OCT 19 01:21 - OCT 19 03:28	PnnRin
MSO	Mt. Stromlo Observato	-35.3	149.0			+++	OCT 19 16:38 - OCT 19 18:44	PnnRne



```

target                : Uranus
target radius (km)   : 25559.00
C/A epoch            : 2035-10-19T10:11:28.260
Event type           : XRgt
: No Uranus occs
: Ring occs: geocentric, topocentric
Observer code        : PIC
Location             : Pic du Midi
Latitude (deg)       : 42.93656
E. Longitude (deg)   : 0.14231
Altitude (km)        : 2.890
Gaia source ID       : 3368434552655595776
2Mass ID (if available) : 07032818+2300086
ICRS Star Coord at Epoch: 07h 03m 28.19847s +23:00:08.04718s
RUWE (>1.4 is poor) : 0.99
K magnitude           : 13.239
G magnitude           : 15.996
RP magnitude          : 15.123
BP magnitude          : 16.795
DUPflag              : 0
Distance (au)        : 18.627
f0 (km)              : 0.000
g0 (km)              : 0.000
skyplane vel. (km/s) : 0.91
Sun-Target sep (deg) : 100.80
Sun-Moon sep (deg)   : 49.33
B (ring opening deg) : 61.96
PA of pole (deg)     : 78.93
Pole direction: RA (deg): 257.31100
Dec (deg): -15.17500
C/A sky separation (") : 3.507
C/A sky separation (km) : 47374.9
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
  
```

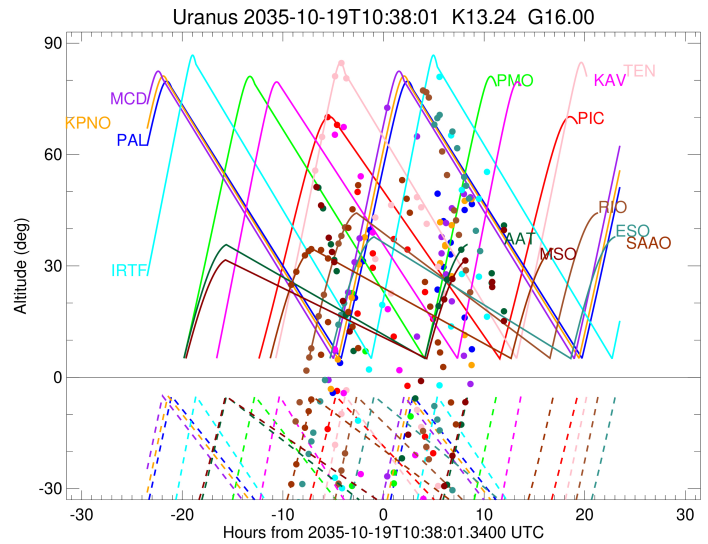
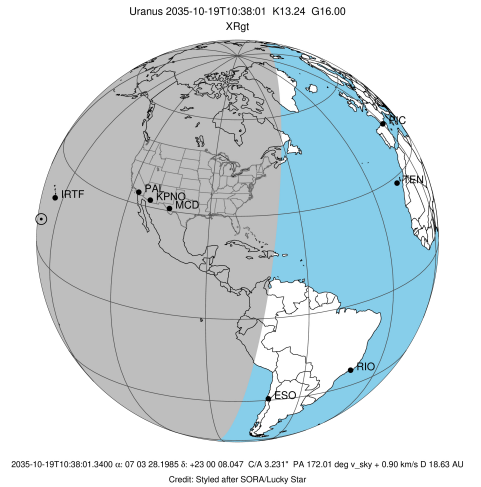


Ring	I/E	UTC	b? alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2035-10-19T04:50:53.960	69.58	-16.52	51477.60	-0.39		
lambda	I	2035-10-19T06:01:56.894	67.91	-3.54x	50026.71	-0.30		
delta	I	2035-10-19T08:04:56.496	49.66	17.39x	48300.35	-0.17		
gamma	I	2035-10-19T09:37:21.731	32.81	29.82x	47628.11	-0.07		

No planet occultations

gamma	E	2035-10-19T11:36:29.476	11.42	37.21x	47628.81	0.08		
delta	E	2035-10-19T12:59:36.672	-2.12x	34.49x	48300.35	0.19		
lambda	E	2035-10-19T14:44:55.255	-15.95x	23.05x	50026.71	0.35		
epsilon	E	2035-10-19T15:49:25.875	-21.53x	13.23x	51551.35	0.44		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2035-10-19T13:13:45.860
 Event type : XRgt
 : No Uranus occs
 : Ring occs: geocentric, topocentric
 Observer code : PAL
 Location : Palomar Mt (200")
 Latitude (deg) : 33.35622
 E. Longitude (deg) : 243.13601
 Altitude (km) : 1.706
 Gaia source ID : 3368434552655595776
 2Mass ID (if available) : 07032818+2300086
 ICRS Star Coord at Epoch: 07h 03m 28.19847s +23:00:08.04718s
 RUWE (>1.4 is poor) : 0.99
 K magnitude : 13.239
 G magnitude : 15.996
 RP magnitude : 15.123
 BP magnitude : 16.795
 DUPflag : 0
 Distance (au) : 18.625
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : 0.91
 Sun-Target sep (deg) : 100.80
 Sun-Moon sep (deg) : 48.88
 B (ring opening deg) : 61.96
 PA of pole (deg) : 78.93
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 3.404
 C/A sky separation (km) : 45977.3
 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



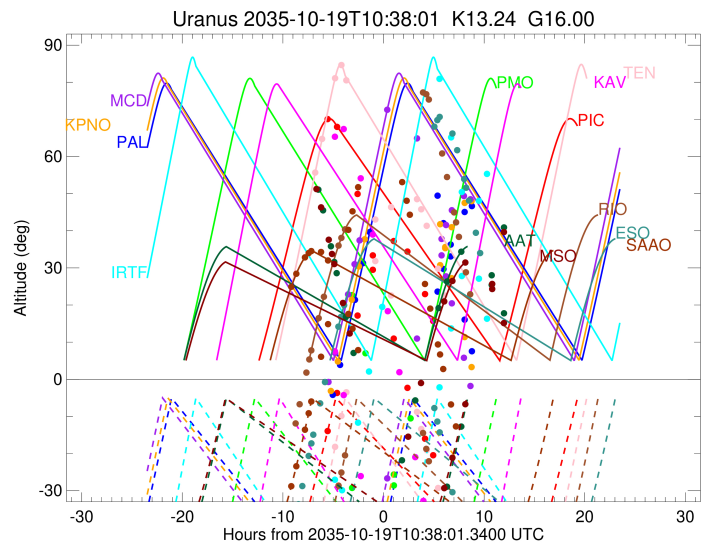
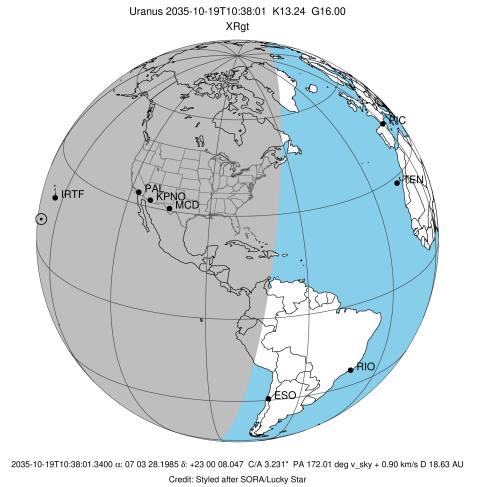
Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2035-10-19T05:23:37.157	-6.33x	-52.36	51508.17	-0.50			
lambda	I	2035-10-19T06:19:45.504	3.99x	-61.36	50026.71	-0.39			
delta	I	2035-10-19T07:48:48.405	21.59	-66.47	48300.35	-0.26			
gamma	I	2035-10-19T08:36:53.367	31.48	-62.46	47628.77	-0.21			
eta	I	2035-10-19T09:17:35.001	39.97	-56.50	47176.12	-0.17			

No planet occultations

eta	E	2035-10-19T15:59:08.389	49.75	23.36x	47176.12	0.19			
gamma	E	2035-10-19T16:34:58.176	42.23	29.56x	47630.38	0.23			
delta	E	2035-10-19T17:17:48.776	33.28	36.16x	48300.35	0.29			
lambda	E	2035-10-19T18:41:15.176	16.19	45.02x	50026.71	0.40			
epsilon	E	2035-10-19T19:38:07.224	5.03	46.67x	51534.76	0.48			

```

target                : Uranus
target radius (km)    : 25559.00
C/A epoch             : 2035-10-19T13:04:08.040
Event type            : XRgt
: No Uranus occs
: Ring occs: geocentric, topocentric
Observer code         : KPNO
Location              : Kitt Peak Natl Obs
Latitude (deg)        : 31.96333
E. Longitude (deg)    : 248.40000
Altitude (km)         : 2.120
Gaia source ID        : 3368434552655595776
2Mass ID (if available) : 07032818+23000086
ICRS Star Coord at Epoch: 07h 03m 28.19847s +23:00:08.04718s
RUWE (>1.4 is poor)  : 0.99
K magnitude           : 13.239
G magnitude           : 15.996
RP magnitude          : 15.123
BP magnitude          : 16.795
DUPflag               : 0
Distance (au)         : 18.625
f0 (km)               : 0.000
g0 (km)               : 0.000
skyplane vel. (km/s) : 0.91
Sun-Target sep (deg) : 100.80
Sun-Moon sep (deg)   : 48.95
B (ring opening deg) : 61.96
PA of pole (deg)     : 78.93
Pole direction: RA (deg): 257.31100
Dec (deg): -15.17500
C/A sky separation (") : 3.382
C/A sky separation (km) : 45678.1
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
    
```

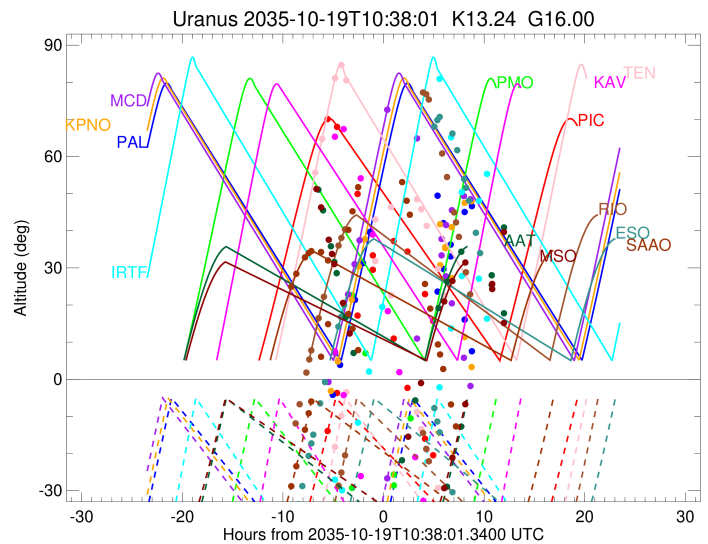
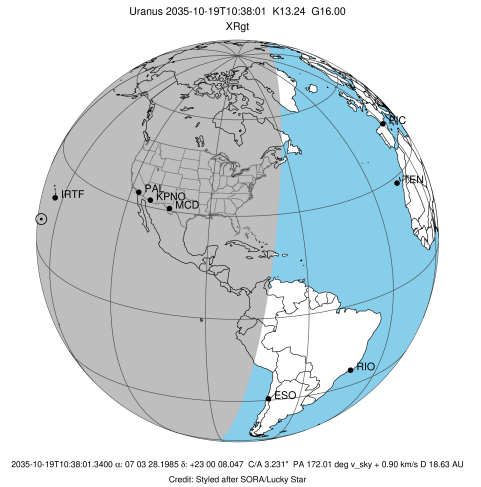


Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2035-10-19T05:12:38.477	-5.27x	-54.89	51506.05	-0.51			
lambda	I	2035-10-19T06:06:28.800	4.90x	-63.47	50026.71	-0.41			
delta	I	2035-10-19T07:29:35.499	21.61	-67.76	48300.35	-0.29			
gamma	I	2035-10-19T08:12:39.215	30.59	-63.97	47628.63	-0.23			
eta	I	2035-10-19T08:47:39.153	37.98	-58.82	47176.12	-0.20			

No planet occultations

eta	E	2035-10-19T16:14:40.913	42.01	30.54x	47176.12	0.23			
gamma	E	2035-10-19T16:45:32.553	35.47	35.51x	47630.38	0.27			
delta	E	2035-10-19T17:23:55.165	27.40	40.86x	48300.35	0.32			
lambda	E	2035-10-19T18:41:30.325	11.49	47.49x	50026.71	0.43			
epsilon	E	2035-10-19T19:35:43.034	0.88x	47.67x	51535.11	0.50			

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2035-10-19T12:48:42.620
 Event type : XRgt
 : No Uranus occs
 : Ring occs: geocentric, topocentric
 Observer code : MCD
 Location : McDonald Obs. 2.7m
 Latitude (deg) : 30.67158
 E. Longitude (deg) : 255.97844
 Altitude (km) : 2.075
 Gaia source ID : 3368434552655595776
 2Mass ID (if available) : 07032818+2300086
 ICRS Star Coord at Epoch: 07h 03m 28.19847s +23:00:08.04718s
 RUWE (>1.4 is poor) : 0.99
 K magnitude : 13.239
 G magnitude : 15.996
 RP magnitude : 15.123
 BP magnitude : 16.795
 DUPflag : 0
 Distance (au) : 18.625
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : 0.91
 Sun-Target sep (deg) : 100.80
 Sun-Moon sep (deg) : 49.05
 B (ring opening deg) : 61.96
 PA of pole (deg) : 78.93
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 3.357
 C/A sky separation (km) : 45345.9
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk
 URKALLvl.spk
 ural11.bsp
 IAU_URANUS_for_RINGFIT.tpc
 vgr2.ural11.bsp
 ural161.bsp
 vgr2.ural161.bsp
 peph.ural160.bsp
 earthstns_itr93_040916.bsp
 earth_720101_070426.bpc
 earth_200101_990628_predict.bpc
 pg3f0000r.bsp
 pg490000r.bsp
 naif0012.tls
 earth_flat_IAU.spk

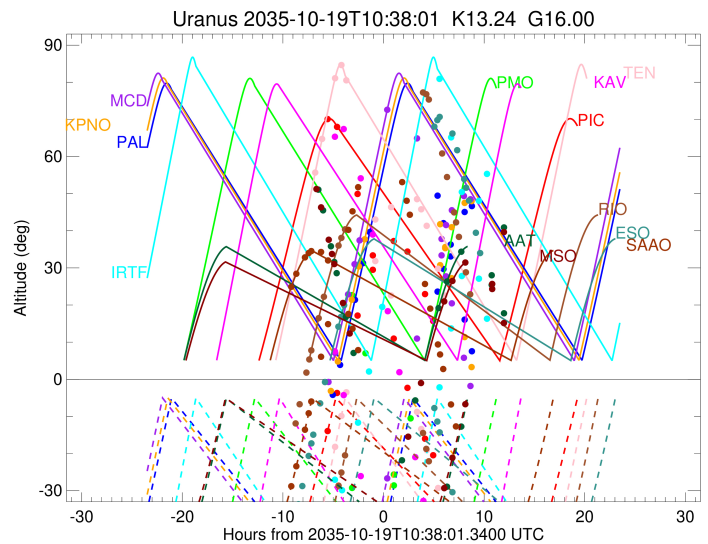
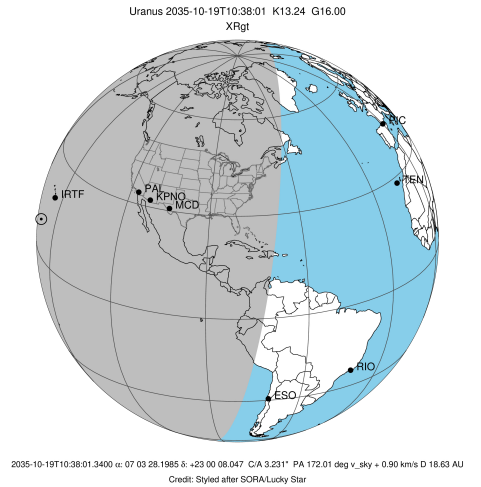


Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2035-10-19T04:58:58.890	-2.83x	-58.57	51503.31	-0.53			
lambda	I	2035-10-19T05:50:25.214	7.18	-66.28	50026.71	-0.43			
delta	I	2035-10-19T07:07:42.334	23.04	-68.53	48300.35	-0.32			
gamma	I	2035-10-19T07:46:14.836	31.18	-64.46	47628.46	-0.27			
eta	I	2035-10-19T08:16:32.796	37.65	-59.75	47176.12	-0.23			
beta	I	2035-10-19T11:05:01.206	73.54	-25.68	45654.83	-0.08			

No planet occultations

beta	E	2035-10-19T13:53:53.255	65.70	10.17x	45657.29	0.08			
eta	E	2035-10-19T16:23:18.861	33.59	37.65x	47176.12	0.26			
gamma	E	2035-10-19T16:50:15.200	27.86	41.47x	47630.37	0.30			
delta	E	2035-10-19T17:24:47.379	20.61	45.46x	48300.35	0.35			
lambda	E	2035-10-19T18:36:55.395	5.90	49.37x	50026.71	0.45			
epsilon	E	2035-10-19T19:28:32.752	-4.08x	47.79x	51535.88	0.53			

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2035-10-19T10:12:58.250
 Event type : XRgt
 : No Uranus occs
 : Ring occs: geocentric, topocentric
 Observer code : TEN
 Location : Teide Obs./Tenerife
 Latitude (deg) : 28.30050
 E. Longitude (deg) : 343.48909
 Altitude (km) : 2.395
 Gaia source ID : 3368434552655595776
 2Mass ID (if available) : 07032818+2300086
 ICRS Star Coord at Epoch: 07h 03m 28.19847s +23:00:08.04718s
 RUWE (>1.4 is poor) : 0.99
 K magnitude : 13.239
 G magnitude : 15.996
 RP magnitude : 15.123
 BP magnitude : 16.795
 DUPflag : 0
 Distance (au) : 18.627
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : 0.91
 Sun-Target sep (deg) : 100.80
 Sun-Moon sep (deg) : 49.49
 B (ring opening deg) : 61.96
 PA of pole (deg) : 78.93
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 3.366
 C/A sky separation (km) : 45472.6
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk
 URKALLvl.spk
 ural11.bsp
 IAU_URANUS_for_RINGFIT.tpc
 vgr2.ural11.bsp
 ural61.bsp
 vgr2.ural61.bsp
 peph.ural60.bsp
 earthstns_itr93_040916.bsp
 earth_720101_070426.bpc
 earth_200101_990628_predict.bpc
 pg3f0000r.bsp
 pg490000r.bsp
 naif0012.tls
 earth_flat_IAU.spk



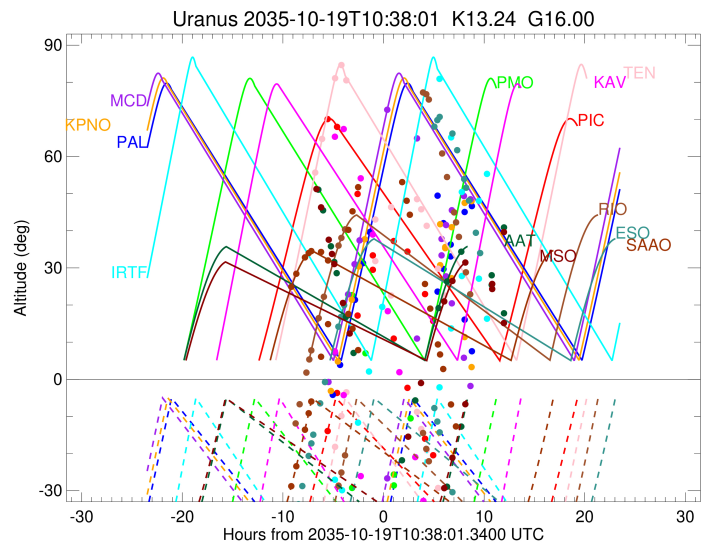
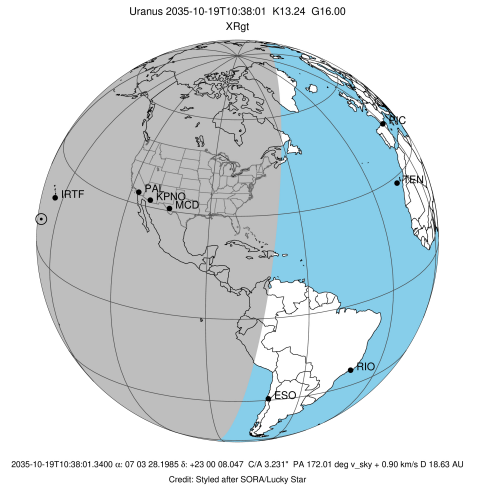
Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2035-10-19T03:40:23.377		53.40	-46.31	51470.74	-0.51		
lambda	I	2035-10-19T04:32:22.981		64.88	-35.11	50026.71	-0.42		
delta	I	2035-10-19T05:50:05.351		81.24	-18.02	48300.35	-0.32		
gamma	I	2035-10-19T06:28:02.111		84.59	-9.68	47627.28	-0.27		
eta	I	2035-10-19T06:57:27.759		80.32	-3.26x	47176.12	-0.24		
beta	I	2035-10-19T09:58:28.354		41.00	33.51x	45650.42	-0.04		

No planet occultations

beta	E	2035-10-19T11:15:04.305		24.36	45.37x	45651.87	0.05		
eta	E	2035-10-19T13:57:03.135		-8.61x	48.61x	47176.12	0.28		
gamma	E	2035-10-19T14:22:27.353		-13.29x	45.86x	47629.70	0.32		
delta	E	2035-10-19T14:54:57.995		-18.95x	41.44x	48300.35	0.37		
lambda	E	2035-10-19T16:03:02.700		-29.22x	29.87x	50026.71	0.47		
epsilon	E	2035-10-19T16:52:53.686		-34.81x	20.18x	51546.73	0.54		

```

target                : Uranus
target radius (km)   : 25559.00
C/A epoch            : 2035-10-19T15:03:12.050
Event type          : XRgt
: No Uranus occs
: Ring occs: geocentric, topocentric
Observer code       : IRTF
Location            : Mauna Kea/IRTF
Latitude (deg)      : 19.82622
E. Longitude (deg)  : 204.52800
Altitude (km)       : 4.168
Gaia source ID      : 3368434552655595776
2Mass ID (if available) : 07032818+2300086
ICRS Star Coord at Epoch: 07h 03m 28.19847s +23:00:08.04717s
RUWE (>1.4 is poor) : 0.99
K magnitude         : 13.239
G magnitude         : 15.996
RP magnitude        : 15.123
BP magnitude        : 16.795
DUPflag            : 0
Distance (au)       : 18.624
f0 (km)            : 0.000
g0 (km)            : 0.000
skyplane vel. (km/s) : 0.91
Sun-Target sep (deg) : 100.80
Sun-Moon sep (deg)  : 48.24
B (ring opening deg) : 61.96
PA of pole (deg)    : 78.93
Pole direction: RA (deg): 257.31100
Dec (deg): -15.17500
C/A sky separation (") : 3.428
C/A sky separation (km) : 46308.6
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
  
```

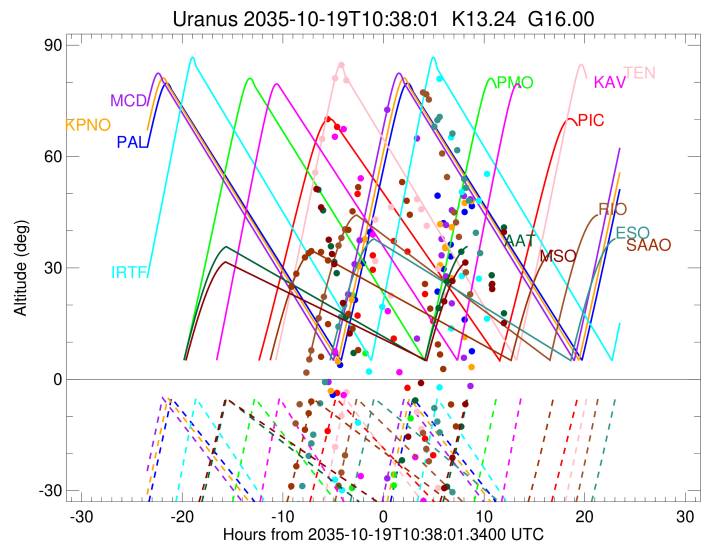
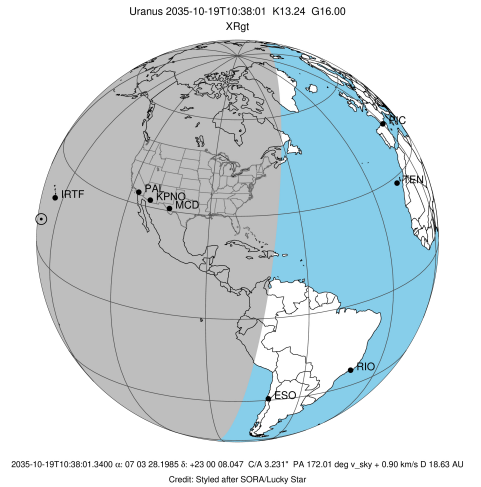


Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2035-10-19T05:36:48.929		-38.34x	-24.38	51503.65	-0.52		
lambda	I	2035-10-19T06:31:27.765		-29.78x	-37.24	50026.71	-0.39		
delta	I	2035-10-19T08:07:24.185		-11.46x	-59.59	48300.35	-0.22		
gamma	I	2035-10-19T09:13:06.585		2.42x	-73.79	47629.12	-0.13		
eta	I	2035-10-19T10:34:29.409		20.39	-78.22	47176.12	-0.06		

No planet occultations

eta	E	2035-10-19T16:08:32.869		81.67	-2.98x	47176.12	0.08		
gamma	E	2035-10-19T17:19:53.751		65.48	13.38x	47630.71	0.14		
delta	E	2035-10-19T18:23:48.614		50.73	27.54x	48300.35	0.21		
lambda	E	2035-10-19T20:06:25.116		27.26	47.94x	50026.71	0.35		
epsilon	E	2035-10-19T21:08:43.349		13.28	56.90x	51521.58	0.45		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2035-10-19T10:39:27.860
 Event type : XRgt
 : No Uranus occs
 : Ring occs: geocentric, topocentric
 Observer code : RIO
 Location : Rio de Janeiro
 Latitude (deg) : -22.89506
 E. Longitude (deg) : 316.77708
 Altitude (km) : 0.033
 Gaia source ID : 3368434552655595776
 2Mass ID (if available) : 07032818+2300086
 ICRS Star Coord at Epoch: 07h 03m 28.19847s +23:00:08.04718s
 RUWE (>1.4 is poor) : 0.99
 K magnitude : 13.239
 G magnitude : 15.996
 RP magnitude : 15.123
 BP magnitude : 16.795
 DUPflag : 0
 Distance (au) : 18.627
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : 0.91
 Sun-Target sep (deg) : 100.80
 Sun-Moon sep (deg) : 49.33
 B (ring opening deg) : 61.96
 PA of pole (deg) : 78.93
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 2.942
 C/A sky separation (km) : 39748.4
 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_itr93_040916.bsp
 earth_720101_070426.bpc
 earth_200101_990628_predict.bpc
 pg3f0000r.bsp
 pg490000r.bsp
 naif0012.tls
 earth_flat_IAU.spk

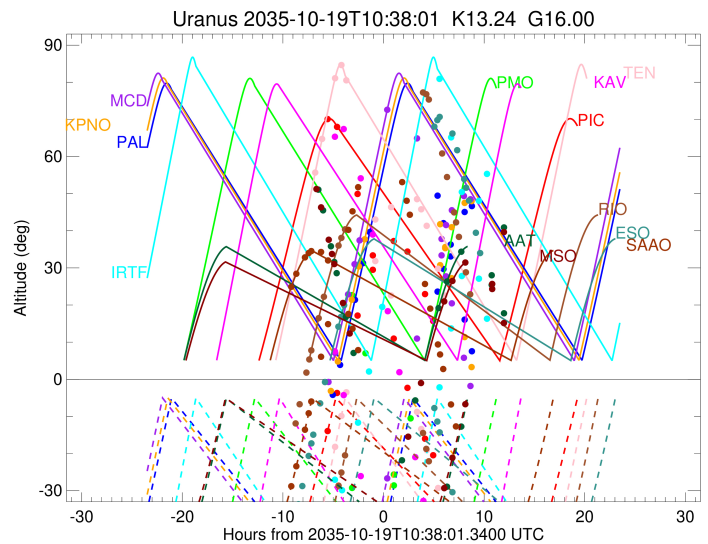
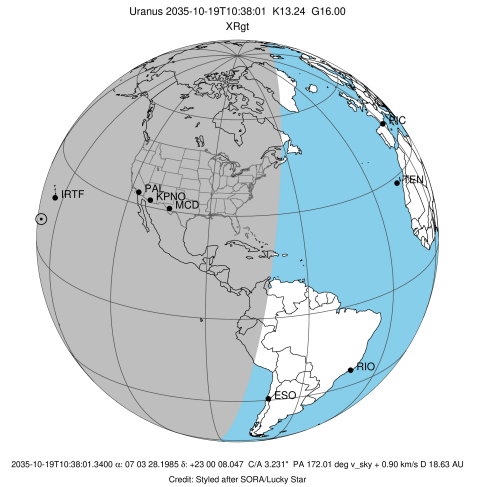


Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2035-10-19T01:48:18.935		-13.13x	-55.19	51439.91	-0.82		
lambda	I	2035-10-19T02:18:16.723		-6.66x	-57.02	50026.71	-0.75		
delta	I	2035-10-19T02:58:41.307		1.88x	-56.97	48300.35	-0.67		
gamma	I	2035-10-19T03:15:52.412		5.42	-56.06	47626.51	-0.64		
eta	I	2035-10-19T03:27:53.258		7.87	-55.14	47176.12	-0.61		
beta	I	2035-10-19T04:12:31.254		16.65	-49.96	45646.30	-0.53		
alpha	I	2035-10-19T04:42:22.290		22.18	-45.33	44744.73	-0.48		
4	I	2035-10-19T06:08:52.325		35.86	-28.90	42608.55	-0.34		
5	I	2035-10-19T06:31:23.612		38.59	-24.18	42167.00	-0.31		
6	I	2035-10-19T06:48:08.975		40.33	-20.60	41858.06	-0.29		

No planet occultations

6	E	2035-10-19T14:32:46.701		-14.28x	77.24x	41838.47	0.32		
5	E	2035-10-19T14:50:40.878		-18.20x	76.93x	42197.20	0.35		
4	E	2035-10-19T15:08:16.596		-22.09x	75.36x	42588.87	0.38		
alpha	E	2035-10-19T16:27:25.272		-39.83x	60.90x	44722.63	0.52		
beta	E	2035-10-19T16:56:17.123		-46.39x	54.58x	45661.16	0.56		
eta	E	2035-10-19T17:38:32.011		-56.04x	45.05x	47176.12	0.63		
gamma	E	2035-10-19T17:50:25.405		-58.76x	42.34x	47630.78	0.65		
delta	E	2035-10-19T18:07:24.505		-62.66x	38.44x	48300.35	0.67		
lambda	E	2035-10-19T18:48:55.595		-72.22x	28.89x	50026.71	0.72		
epsilon	E	2035-10-19T19:22:55.225		-80.06x	21.06x	51519.35	0.75		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2035-10-19T11:23:49.990
 Event type : XRgt
 : No Uranus occs
 : Ring occs: geocentric, topocentric
 Observer code : ESO
 Location : European Southern Obs. (3.6m)
 Latitude (deg) : -29.26097
 E. Longitude (deg) : 289.26831
 Altitude (km) : 2.400
 Gaia source ID : 3368434552655595776
 2Mass ID (if available) : 07032818+2300086
 ICRS Star Coord at Epoch: 07h 03m 28.19847s +23:00:08.04718s
 RUWE (>1.4 is poor) : 0.99
 K magnitude : 13.239
 G magnitude : 15.996
 RP magnitude : 15.123
 BP magnitude : 16.795
 DUPflag : 0
 Distance (au) : 18.626
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : 0.91
 Sun-Target sep (deg) : 100.80
 Sun-Moon sep (deg) : 49.12
 B (ring opening deg) : 61.96
 PA of pole (deg) : 78.93
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 2.900
 C/A sky separation (km) : 39180.5
 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_itr93_040916.bsp
 earth_720101_070426.bpc
 earth_200101_990628_predict.bpc
 pg3f0000r.bsp
 pg490000r.bsp
 naif0012.tls
 earth_flat_IAU.spk

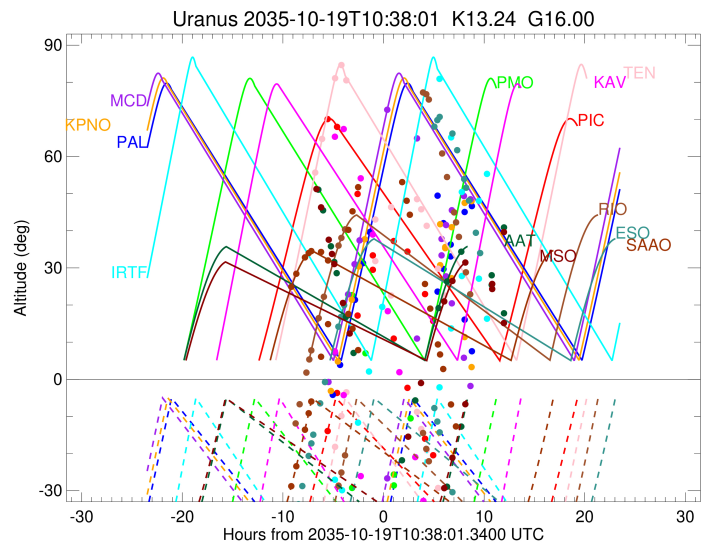
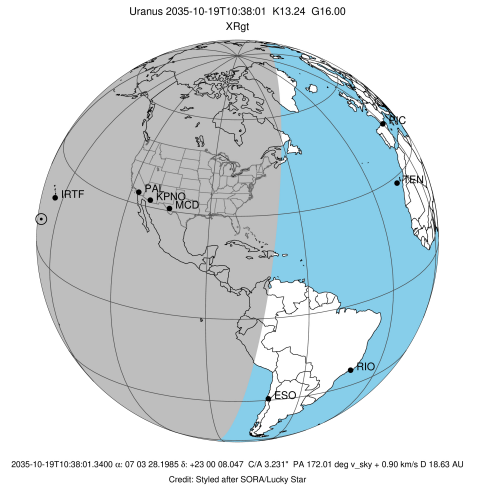


Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2035-10-19T02:05:40.965	-34.83x	-38.09	51441.12	-0.87			
lambda	I	2035-10-19T02:34:09.880	-28.70x	-42.34	50026.71	-0.80			
delta	I	2035-10-19T03:12:17.274	-20.58x	-46.96	48300.35	-0.71			
gamma	I	2035-10-19T03:28:24.997	-17.19x	-48.46	47626.60	-0.68			
eta	I	2035-10-19T03:39:40.118	-14.85x	-49.31	47176.12	-0.66			
beta	I	2035-10-19T04:21:15.562	-6.32x	-50.97	45646.66	-0.57			
alpha	I	2035-10-19T04:48:55.985	-0.80x	-50.67	44744.03	-0.52			
4	I	2035-10-19T06:07:59.080	14.00	-44.12	42607.34	-0.38			
5	I	2035-10-19T06:27:57.196	17.43	-41.41	42169.13	-0.35			
6	I	2035-10-19T06:42:59.357	19.91	-39.17	41856.16	-0.33			

No planet occultations

6	E	2035-10-19T15:40:05.565	-7.54x	67.93x	41833.92	0.36			
5	E	2035-10-19T15:57:01.907	-11.00x	69.66x	42204.63	0.38			
4	E	2035-10-19T16:12:47.143	-14.26x	70.66x	42584.75	0.41			
alpha	E	2035-10-19T17:28:42.698	-30.33x	66.26x	44720.04	0.53			
beta	E	2035-10-19T17:57:05.439	-36.46x	61.78x	45662.57	0.57			
eta	E	2035-10-19T18:38:42.877	-45.52x	54.01x	47176.12	0.64			
gamma	E	2035-10-19T18:50:29.064	-48.09x	51.66x	47630.94	0.65			
delta	E	2035-10-19T19:07:18.183	-51.77x	48.22x	48300.35	0.67			
lambda	E	2035-10-19T19:48:26.234	-60.78x	39.54x	50026.71	0.72			
epsilon	E	2035-10-19T20:21:53.006	-68.04x	32.33x	51511.64	0.76			

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2035-10-19T09:53:15.100
 Event type : XRgt
 : No Uranus occs
 : Ring occs: geocentric, topocentric
 Observer code : AAT
 Location : Siding Spring (AAT)
 Latitude (deg) : -31.27703
 E. Longitude (deg) : 149.06608
 Altitude (km) : 1.164
 Gaia source ID : 3368434552655595776
 2Mass ID (if available) : 07032818+2300086
 ICRS Star Coord at Epoch: 07h 03m 28.19847s +23:00:08.04718s
 RUWE (>1.4 is poor) : 0.99
 K magnitude : 13.239
 G magnitude : 15.996
 RP magnitude : 15.123
 BP magnitude : 16.795
 DUPflag : 0
 Distance (au) : 18.627
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : 0.91
 Sun-Target sep (deg) : 100.80
 Sun-Moon sep (deg) : 47.61
 B (ring opening deg) : 61.96
 PA of pole (deg) : 78.93
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 3.230
 C/A sky separation (km) : 43630.2
 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



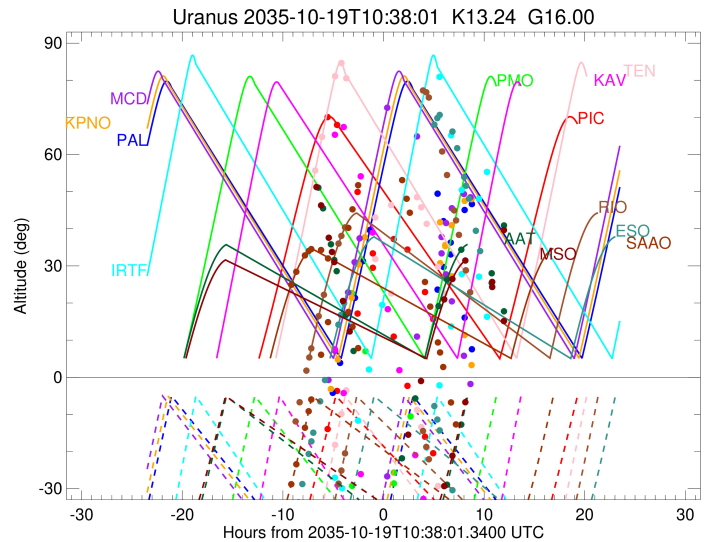
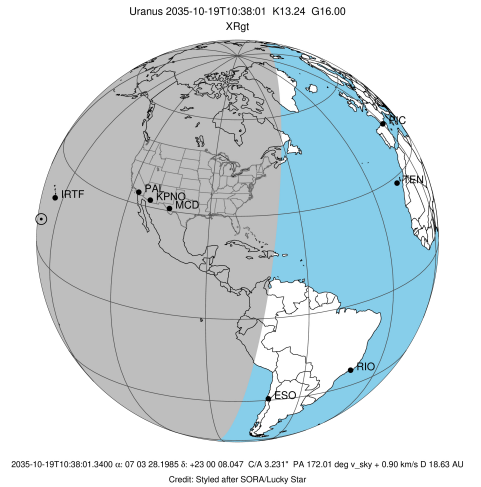
b: ring blocked by planet x: target alt < 5.0 deg or sun > -5.0 deg

Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2035-10-19T04:03:05.179	-45.87x	52.32x	51430.35	-0.69			
lambda	I	2035-10-19T04:38:05.524	-53.39x	45.42x	50026.71	-0.65			
delta	I	2035-10-19T05:24:57.877	-63.37x	35.73x	48300.35	-0.58			
gamma	I	2035-10-19T05:45:01.790	-67.57x	31.50x	47626.70	-0.54			
eta	I	2035-10-19T05:59:15.234	-70.48x	28.47x	47176.12	-0.51			
beta	I	2035-10-19T06:55:07.120	-80.27x	16.54x	45647.83	-0.40			
alpha	I	2035-10-19T07:39:11.864	-80.67x	7.14x	44740.83	-0.29			

No planet occultations

alpha	E	2035-10-19T12:27:17.159	-22.00x	-44.48	44724.37	0.19			
beta	E	2035-10-19T13:46:17.590	-5.95x	-48.85	45661.50	0.20			
eta	E	2035-10-19T16:04:33.374	18.90	-37.50	47176.12	0.16			
gamma	E	2035-10-19T16:55:27.777	26.16	-29.18	47631.09	0.14			
delta	E	2035-10-19T18:19:48.454	34.23	-13.18	48300.35	0.13			
lambda	E	2035-10-19T21:21:57.760	28.16	25.15x	50026.71	0.22			
epsilon	E	2035-10-19T22:53:36.829	14.98	44.43x	51483.12	0.32			

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2035-10-19T09:56:26.380
 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 : 3368434552655595776
 2Mass ID (if available) : 07032818+2300086
 ICRS Star Coord at Epoch: 07h 03m 28.19847s +23:00:08.04718s
 RUWE (>1.4 is poor) : 0.99
 K magnitude : 13.239
 G magnitude : 15.996
 RP magnitude : 15.123
 BP magnitude : 16.795
 DUPflag : 0
 Distance (au) : 18.627
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : 0.91
 Sun-Target sep (deg) : 100.80
 Sun-Moon sep (deg) : 48.84
 B (ring opening deg) : 61.96
 PA of pole (deg) : 78.93
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 3.028
 C/A sky separation (km) : 40901.4
 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_itr93_040916.bsp
 earth_720101_070426.bpc
 earth_200101_990628_predict.bpc
 pg3f0000r.bsp
 pg490000r.bsp
 naif0012.tls
 earth_flat_IAU.spk

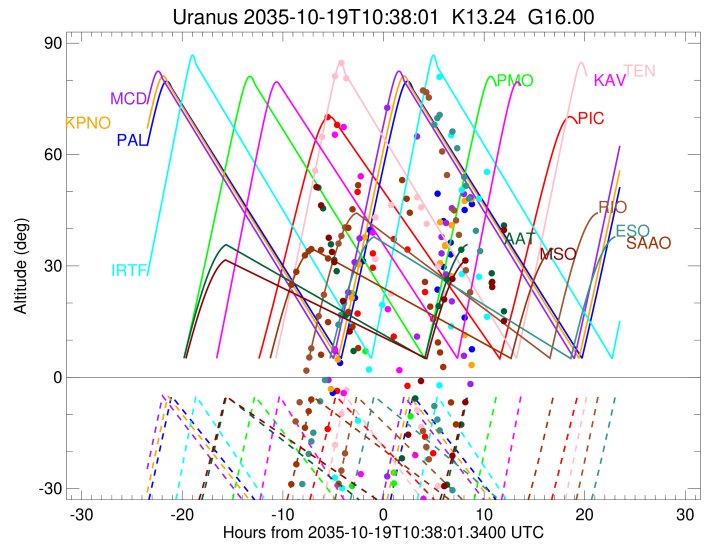
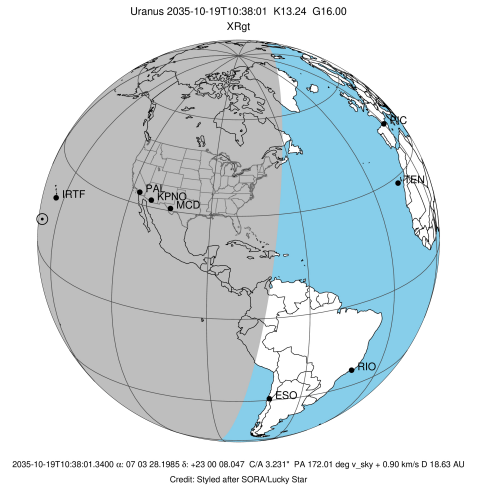


Ring	I/E	UTC	b? alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2035-10-19T01:21:51.840	24.10	-29.87	51408.73	-0.66		
lambda	I	2035-10-19T01:58:32.918	28.47	-23.36	50026.71	-0.60		
delta	I	2035-10-19T02:50:04.968	32.86	-13.49	48300.35	-0.52		
gamma	I	2035-10-19T03:12:21.233	34.02	-9.05	47625.86	-0.49		
eta	I	2035-10-19T03:27:59.872	34.54	-5.87	47176.12	-0.47		
beta	I	2035-10-19T04:27:01.111	34.23	6.36x	45644.70	-0.40		
alpha	I	2035-10-19T05:06:54.833	32.04	14.76x	44747.21	-0.35		
4	I	2035-10-19T07:06:30.824	17.88	39.86x	42610.82	-0.24		
5	I	2035-10-19T07:40:09.902	12.46	46.62x	42163.92	-0.21		
6	I	2035-10-19T08:05:46.354	8.04	51.55x	41860.31	-0.18		

No planet occultations

6	E	2035-10-19T12:28:39.051	-44.61x	53.26x	41844.09	0.22		
5	E	2035-10-19T12:52:14.907	-49.62x	48.82x	42189.36	0.27		
4	E	2035-10-19T13:15:16.757	-54.49x	44.29x	42592.84	0.31		
alpha	E	2035-10-19T14:44:58.452	-72.78x	25.74x	44724.25	0.48		
beta	E	2035-10-19T15:16:12.373	-78.02x	19.14x	45660.44	0.52		
eta	E	2035-10-19T16:02:01.394	-80.39x	9.47x	47176.12	0.58		
gamma	E	2035-10-19T16:14:59.932	-79.26x	6.75x	47630.73	0.59		
delta	E	2035-10-19T16:33:39.555	-76.69x	2.85x	48300.35	0.61		
lambda	E	2035-10-19T17:20:06.558	-68.10x	-6.70	50026.71	0.63		
epsilon	E	2035-10-19T17:59:19.605	-60.05x	-14.53	51517.69	0.64		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2035-10-19T09:53:34.060
 Event type : XRgt
 : No Uranus occs
 : Ring occs: geocentric, topocentric
 Observer code : MSO
 Location : Mt. Stromlo Observatory
 Latitude (deg) : -35.32000
 E. Longitude (deg) : 149.00833
 Altitude (km) : 0.770
 Gaia source ID : 3368434552655595776
 2Mass ID (if available) : 07032818+23000086
 ICRS Star Coord at Epoch: 07h 03m 28.19847s +23:00:08.04718s
 RUWE (>1.4 is poor) : 0.99
 K magnitude : 13.239
 G magnitude : 15.996
 RP magnitude : 15.123
 BP magnitude : 16.795
 DUPflag : 0
 Distance (au) : 18.627
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : 0.91
 Sun-Target sep (deg) : 100.80
 Sun-Moon sep (deg) : 47.63
 B (ring opening deg) : 61.96
 PA of pole (deg) : 78.93
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 3.197
 C/A sky separation (km) : 43187.6
 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	2035-10-19T03:51:54.554	-43.52x	52.31x	51425.49	-0.70		
lambda	I	2035-10-19T04:26:14.658	-50.54x	46.24x	50026.71	-0.66		
delta	I	2035-10-19T05:11:57.916	-59.75x	37.50x	48300.35	-0.60		
gamma	I	2035-10-19T05:31:19.906	-63.54x	33.66x	47626.57	-0.56		
eta	I	2035-10-19T05:44:57.026	-66.12x	30.94x	47176.12	-0.54		
beta	I	2035-10-19T06:37:14.890	-74.76x	20.32x	45647.30	-0.43		
alpha	I	2035-10-19T07:16:04.028	-77.79x	12.39x	44742.03	-0.34		

No planet occultations

alpha	E	2035-10-19T13:04:21.705	-15.65x	-43.62	44722.60	0.20		
beta	E	2035-10-19T14:20:27.847	-1.23x	-44.20	45662.31	0.20		
eta	E	2035-10-19T16:38:25.243	20.75	-29.60	47176.12	0.16		
gamma	E	2035-10-19T17:27:38.570	26.35	-21.37	47631.14	0.15		
delta	E	2035-10-19T18:44:07.262	31.39	-7.09	48300.35	0.15		
lambda	E	2035-10-19T21:25:03.039	24.45	25.44x	50026.71	0.23		
epsilon	E	2035-10-19T22:52:41.009	12.59	42.87x	51481.48	0.33		