

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2034-11-22T12:06:04.060
 Event type : XRgt
 : No Uranus occs
 : Ring occs: geocentric, topocentric
 Gaia source ID : 3379757529557776128
 2Mass ID (if available) : 06412625+2325159

ICRS Star Coord at Epoch: 06h 41m 26.25601s +23:25:15.80578s

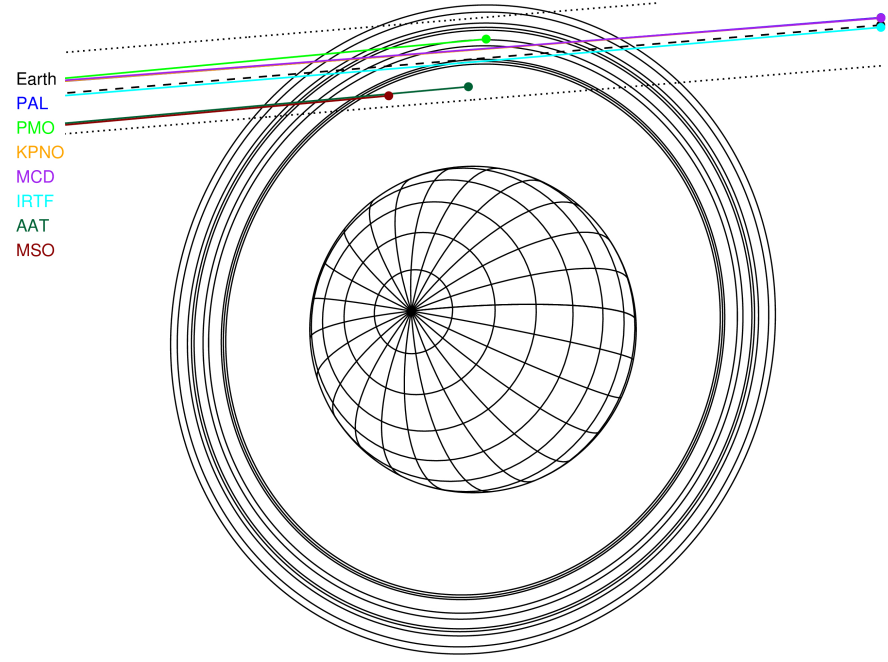
RUWE (>1.4 is poor) : 1.05
 K magnitude : 13.513
 G magnitude : 15.993
 RP magnitude : 15.249
 BP magnitude : 16.596
 DUPflag : 0
 Distance (au) : 18.125
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -16.49
 Sun-Target sep (deg) : 140.27
 Sun-Moon sep (deg) : 87.83
 B (ring opening deg) : 66.78
 PA of pole (deg) : 73.38

#	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



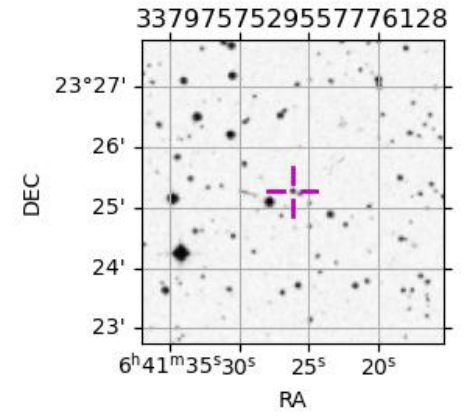
2034-11-22T12:06:04.0600 α: 06 41 26.2560 C/A 3.220° PA 184.77 deg v_sky -16.49 km/s D 18.13 AU
 Credit: Styled after SORA/Lucky Star

Uranus 2034-11-22T12:06:04 K13.51 G15.99 XRgt



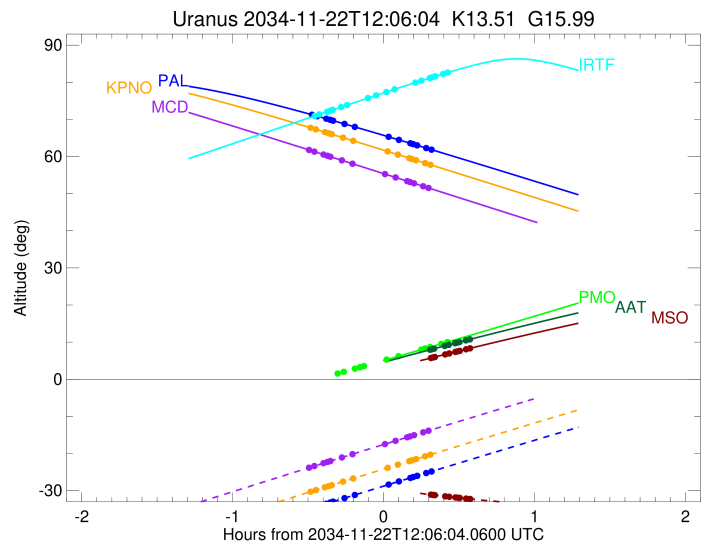
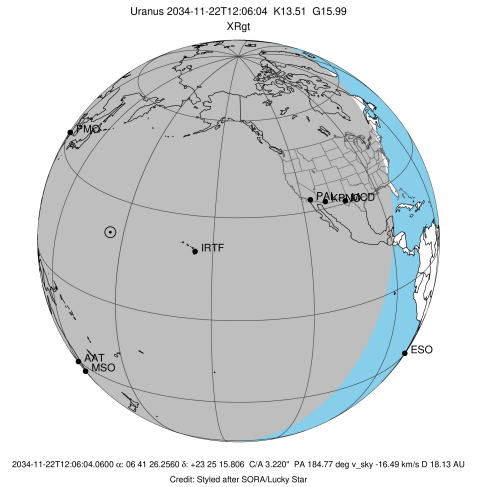
Observable events with sun below -5 deg and altitude above 5 deg unblocked by planet

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	++++++		++++++	NOV 22 11:37 - NOV 22 12:24	PnnRie
PMO	Purple Mtn Obs. Nanki	32.1	118.8	+		+++++	NOV 22 12:07 - NOV 22 12:30	PnnRie
KPNO	Kitt Peak Natl Obs	32.0	248.4	++++++		++++++	NOV 22 11:37 - NOV 22 12:24	PnnRie
MCD	McDonald Obs. 2.7m	30.7	256.0	++++++		++++++	NOV 22 11:36 - NOV 22 12:23	PnnRie
TEN	Teide Obs./Tenerife	28.3	343.5					PnnRnn
IRTF	Mauna Kea/IRTF	19.8	204.5	++++++		++++++	NOV 22 11:38 - NOV 22 12:31	PnnRie
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			++++++	NOV 22 12:24 - NOV 22 12:39	PnnRne
SAAO	So. Afr. Astro. Obs.	-32.4	20.8					PnnRnn
MSO	Mt. Stromlo Observato	-35.3	149.0			++++++	NOV 22 12:24 - NOV 22 12:39	PnnRne



```

target                : Uranus
target radius (km)    : 25559.00
C/A epoch             : 2034-11-22T12:03:41.060
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        : 3379757529557776128
2Mass ID (if available) : 06412625+2325159
ICRS Star Coord at Epoch: 06h 41m 26.25601s +23:25:15.80578s
RUWE (>1.4 is poor)  : 1.05
K magnitude           : 13.513
G magnitude           : 15.993
RP magnitude          : 15.249
BP magnitude          : 16.596
DUPflag               : 0
Distance (au)         : 18.125
f0 (km)               : 0.000
g0 (km)               : 0.000
skyplane vel. (km/s)  : -16.49
Sun-Target sep (deg)  : 140.27
Sun-Moon sep (deg)    : 88.74
B (ring opening deg)  : 66.78
PA of pole (deg)      : 73.38
Pole direction: RA (deg): 257.31100
Dec (deg): -15.17500
C/A sky separation (") : 3.322
C/A sky separation (km) : 43669.3
NAIF SPICE kernels    : RAJobs_U111+rgf15.spk
URKALLvl1.spk
ural111.bsp
IAU_URANUS_for_RINGFIT.tpc
vgr2.ural111.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
  
```



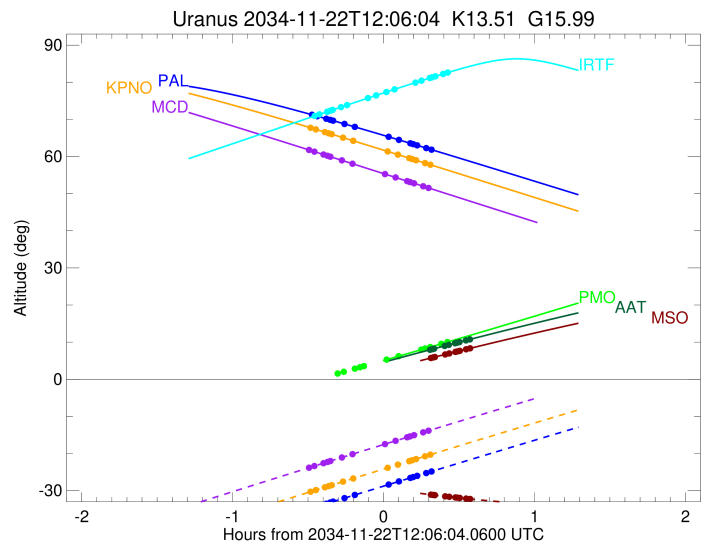
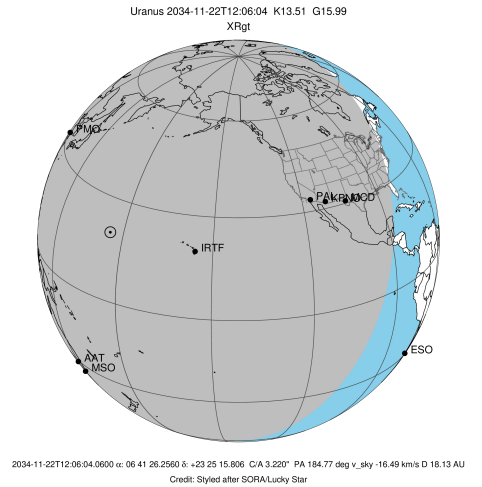
Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2034-11-22T11:37:36.118		71.26	-34.72	51176.50	-9.07		
lambda	I	2034-11-22T11:39:45.603		70.86	-34.27	50026.71	-8.55		
delta	I	2034-11-22T11:43:21.981		70.17	-33.52	48300.35	-7.38		
gamma	I	2034-11-22T11:44:56.800		69.87	-33.19	47626.41	-6.83		
eta	I	2034-11-22T11:46:04.767		69.65	-32.95	47176.12	-6.42		
beta	I	2034-11-22T11:50:35.684		68.78	-32.01	45669.60	-4.67		
alpha	I	2034-11-22T11:54:38.607		67.99	-31.17	44738.66	-2.99		

No planet occultations

alpha	E	2034-11-22T12:08:09.814		65.30	-28.36	44746.42	2.99		
beta	E	2034-11-22T12:12:08.727		64.50	-27.53	45659.44	4.66		
eta	E	2034-11-22T12:16:41.919		63.58	-26.59	47176.12	6.41		
gamma	E	2034-11-22T12:17:50.488		63.34	-26.35	47630.07	6.82		
delta	E	2034-11-22T12:19:24.873		63.02	-26.02	48300.35	7.37		
lambda	E	2034-11-22T12:23:01.516		62.29	-25.28	50026.71	8.54		
epsilon	E	2034-11-22T12:24:31.157		61.98	-24.97	50812.74	9.06		

```

target                : Uranus
target radius (km)   : 25559.00
C/A epoch            : 2034-11-22T12:12:12.210
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      : 3379757529557776128
2Mass ID (if available) : 06412625+2325159
ICRS Star Coord at Epoch: 06h 41m 26.25601s +23:25:15.80578s
RUWE (>1.4 is poor) : 1.05
K magnitude          : 13.513
G magnitude          : 15.993
RP magnitude         : 15.249
BP magnitude         : 16.596
DUPflag             : 0
Distance (au)       : 18.125
f0 (km)             : 0.000
g0 (km)             : 0.000
skyplane vel. (km/s) : -16.49
Sun-Target sep (deg) : 140.27
Sun-Moon sep (deg)  : 87.88
B (ring opening deg) : 66.78
PA of pole (deg)    : 73.38
Pole direction: RA (deg): 257.31100
Dec (deg): -15.17500
C/A sky separation (") : 3.430
C/A sky separation (km) : 45094.4
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_itrff93_040916.bsp
earth_720101_070426.bpc
earth_200101_990628_predict.bpc
pg3f0000r.bsp
pg490000r.bsp
naif0012.tls
earth_flat_IAU.spk
  
```

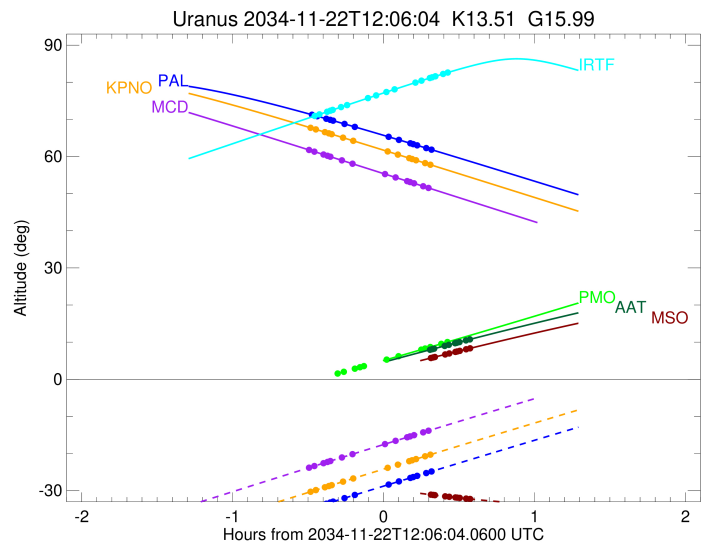
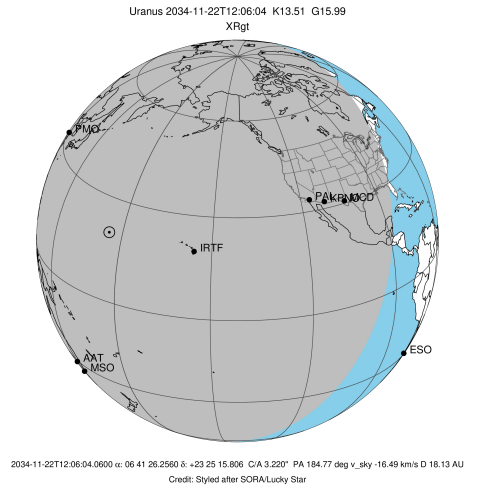


Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2034-11-22T11:47:52.489		1.55x	-34.89	51146.03	-7.87		
lambda	I	2034-11-22T11:50:19.143		2.02x	-35.40	50026.71	-7.26		
delta	I	2034-11-22T11:54:42.556		2.86x	-36.34	48300.35	-5.82		
gamma	I	2034-11-22T11:56:45.878		3.25x	-36.77	47626.98	-5.10		
eta	I	2034-11-22T11:58:19.609		3.55x	-37.10	47176.12	-4.52		
beta	I	2034-11-22T12:07:31.413		5.33	-39.05	45665.34	-0.88		

No planet occultations

beta	E	2034-11-22T12:11:48.813		6.16	-39.96	45663.36	0.88		
eta	E	2034-11-22T12:21:01.830		7.97	-41.92	47176.12	4.54		
gamma	E	2034-11-22T12:22:35.834		8.27	-42.25	47629.77	5.11		
delta	E	2034-11-22T12:24:38.200		8.68	-42.69	48300.35	5.84		
lambda	E	2034-11-22T12:29:00.535		9.54	-43.61	50026.71	7.30		
epsilon	E	2034-11-22T12:30:45.859		9.89	-43.99	50823.73	7.91		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2034-11-22T12:03:10.590
 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 : 3379757529557776128
 2Mass ID (if available) : 06412625+2325159
 ICRS Star Coord at Epoch: 06h 41m 26.25601s +23:25:15.80578s
 RUWE (>1.4 is poor) : 1.05
 K magnitude : 13.513
 G magnitude : 15.993
 RP magnitude : 15.249
 BP magnitude : 16.596
 DUPflag : 0
 Distance (au) : 18.125
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -16.49
 Sun-Target sep (deg) : 140.27
 Sun-Moon sep (deg) : 88.71
 B (ring opening deg) : 66.78
 PA of pole (deg) : 73.38
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 3.320
 C/A sky separation (km) : 43649.2
 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



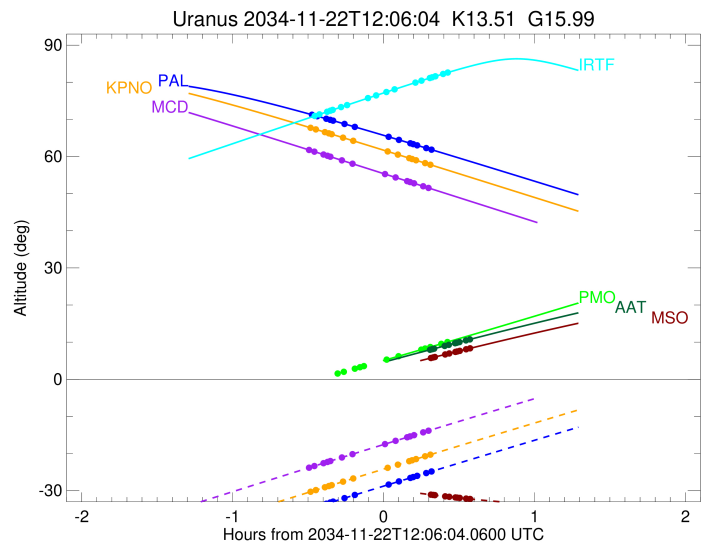
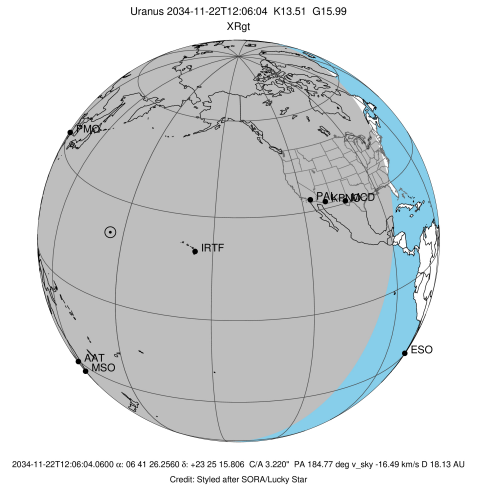
b: ring blocked by planet x: target alt < 5.0 deg or sun > -5.0 deg

Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2034-11-22T11:37:02.892		67.75	-30.31	51177.14	-9.08		
lambda	I	2034-11-22T11:39:12.301		67.31	-29.85	50026.71	-8.57		
delta	I	2034-11-22T11:42:48.332		66.57	-29.09	48300.35	-7.40		
gamma	I	2034-11-22T11:44:22.940		66.24	-28.76	47626.40	-6.85		
eta	I	2034-11-22T11:45:30.720		66.01	-28.52	47176.12	-6.44		
beta	I	2034-11-22T11:50:00.442		65.08	-27.57	45669.64	-4.70		
alpha	I	2034-11-22T11:54:00.852		64.24	-26.73	44738.56	-3.04		

No planet occultations

alpha	E	2034-11-22T12:07:47.052		61.36	-23.84	44746.46	3.04		
beta	E	2034-11-22T12:11:43.485		60.53	-23.02	45659.42	4.69		
eta	E	2034-11-22T12:16:15.548		59.57	-22.07	47176.12	6.43		
gamma	E	2034-11-22T12:17:23.951		59.33	-21.83	47630.07	6.84		
delta	E	2034-11-22T12:18:58.154		59.00	-21.51	48300.35	7.39		
lambda	E	2034-11-22T12:22:34.527		58.24	-20.76	50026.71	8.55		
epsilon	E	2034-11-22T12:24:04.094		57.92	-20.44	50812.70	9.07		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2034-11-22T12:02:30.140
 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 : 3379757529557776128
 2Mass ID (if available) : 06412625+2325159
 ICRS Star Coord at Epoch: 06h 41m 26.25601s +23:25:15.80578s
 RUWE (>1.4 is poor) : 1.05
 K magnitude : 13.513
 G magnitude : 15.993
 RP magnitude : 15.249
 BP magnitude : 16.596
 DUPflag : 0
 Distance (au) : 18.125
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -16.49
 Sun-Target sep (deg) : 140.27
 Sun-Moon sep (deg) : 88.66
 B (ring opening deg) : 66.78
 PA of pole (deg) : 73.38
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 3.326
 C/A sky separation (km) : 43721.7
 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

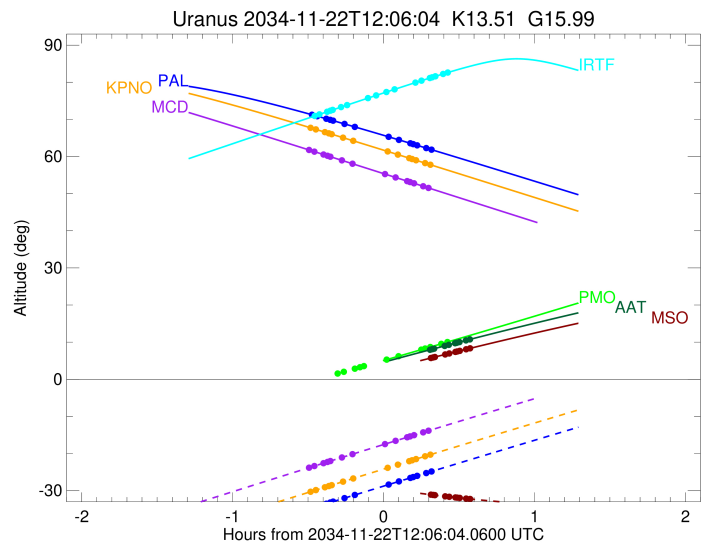
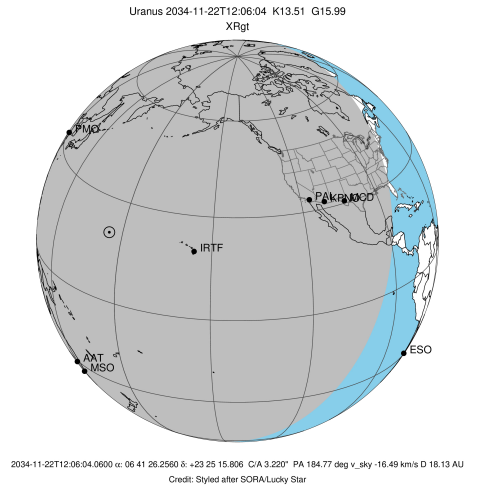


Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2034-11-22T11:36:27.120		61.78	-23.83	51176.40	-9.03		
lambda	I	2034-11-22T11:38:37.274		61.31	-23.37	50026.71	-8.51		
delta	I	2034-11-22T11:42:15.048		60.53	-22.60	48300.35	-7.33		
gamma	I	2034-11-22T11:43:50.626		60.19	-22.27	47626.42	-6.77		
eta	I	2034-11-22T11:44:59.216		59.95	-22.02	47176.12	-6.36		
beta	I	2034-11-22T11:49:33.698		58.96	-21.06	45669.55	-4.58		
alpha	I	2034-11-22T11:53:43.396		58.07	-20.18	44738.80	-2.86		

No planet occultations

alpha	E	2034-11-22T12:06:43.341		55.26	-17.45	44746.26	2.86		
beta	E	2034-11-22T12:10:49.108		54.38	-16.60	45659.55	4.58		
eta	E	2034-11-22T12:15:26.021		53.38	-15.63	47176.12	6.35		
gamma	E	2034-11-22T12:16:35.262		53.13	-15.39	47630.05	6.76		
delta	E	2034-11-22T12:18:10.474		52.79	-15.06	48300.35	7.31		
lambda	E	2034-11-22T12:21:48.697		52.00	-14.31	50026.71	8.49		
epsilon	E	2034-11-22T12:23:18.990		51.68	-14.00	50813.53	9.01		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2034-11-22T12:07:23.770
 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 : 3379757529557776128
 2Mass ID (if available) : 06412625+2325159
 ICRS Star Coord at Epoch: 06h 41m 26.25601s +23:25:15.80578s
 RUWE (>1.4 is poor) : 1.05
 K magnitude : 13.513
 G magnitude : 15.993
 RP magnitude : 15.249
 BP magnitude : 16.596
 DUPflag : 0
 Distance (au) : 18.125
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -16.49
 Sun-Target sep (deg) : 140.27
 Sun-Moon sep (deg) : 88.79
 B (ring opening deg) : 66.78
 PA of pole (deg) : 73.38
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 3.175
 C/A sky separation (km) : 41737.2
 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

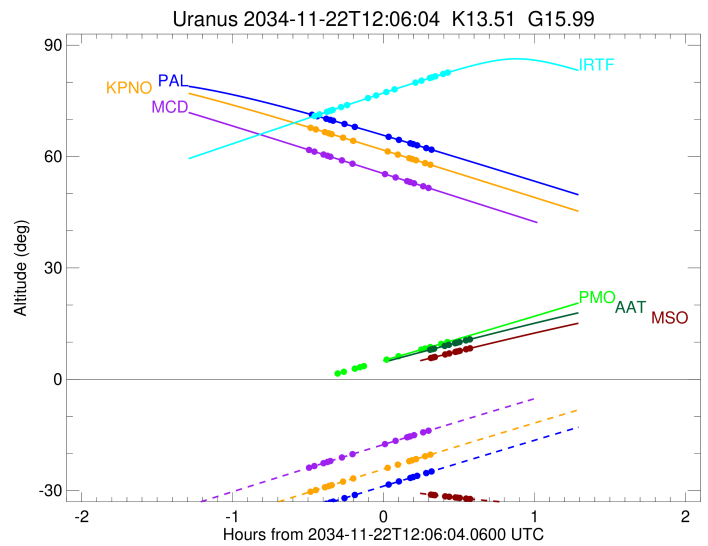
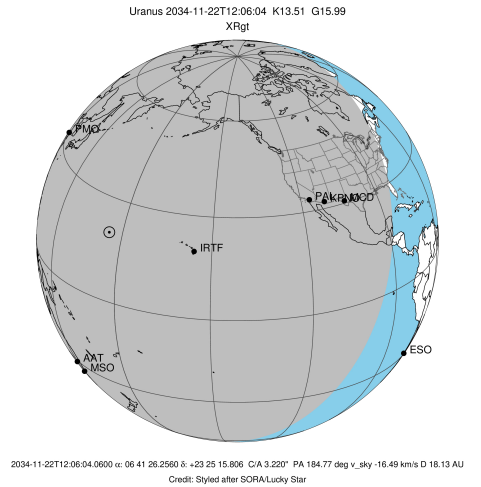


Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2034-11-22T11:38:39.407		70.92	-68.70	51203.09	-10.20		
lambda	I	2034-11-22T11:40:36.374		71.36	-68.25	50026.71	-9.79		
delta	I	2034-11-22T11:43:41.279		72.06	-67.53	48300.35	-8.87		
gamma	I	2034-11-22T11:44:59.139		72.36	-67.22	47625.93	-8.45		
eta	I	2034-11-22T11:45:53.317		72.57	-67.01	47176.12	-8.15		
beta	I	2034-11-22T11:49:11.929		73.32	-66.23	45671.84	-6.97		
alpha	I	2034-11-22T11:51:35.775		73.86	-65.67	44733.81	-6.07		
4	I	2034-11-22T12:00:02.812		75.77	-63.70	42567.27	-2.38		
5	I	2034-11-22T12:02:40.247		76.36	-63.08	42283.10	-1.21		

No planet occultations

5	E	2034-11-22T12:07:47.091		77.50	-61.88	42291.21	1.21		
4	E	2034-11-22T12:10:13.198		78.04	-61.31	42555.72	2.39		
alpha	E	2034-11-22T12:18:47.672		79.93	-59.31	44749.40	6.07		
beta	E	2034-11-22T12:21:07.222		80.43	-58.77	45656.71	6.98		
eta	E	2034-11-22T12:24:27.621		81.14	-57.99	47176.12	8.16		
gamma	E	2034-11-22T12:25:22.250		81.33	-57.77	47630.43	8.47		
delta	E	2034-11-22T12:26:39.458		81.60	-57.47	48300.35	8.88		
lambda	E	2034-11-22T12:29:44.042		82.24	-56.75	50026.71	9.81		
epsilon	E	2034-11-22T12:31:01.116		82.50	-56.45	50796.39	10.22		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2034-11-22T12:11:06.520
 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 : 3379757529557776128
 2Mass ID (if available) : 06412625+2325159
 ICRS Star Coord at Epoch: 06h 41m 26.25601s +23:25:15.80578s
 RUWE (>1.4 is poor) : 1.05
 K magnitude : 13.513
 G magnitude : 15.993
 RP magnitude : 15.249
 BP magnitude : 16.596
 DUPflag : 0
 Distance (au) : 18.125
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -16.49
 Sun-Target sep (deg) : 140.27
 Sun-Moon sep (deg) : 87.88
 B (ring opening deg) : 66.78
 PA of pole (deg) : 73.38
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 2.885
 C/A sky separation (km) : 37928.0
 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_itr93_040916.bsp
 earth_720101_070426.bpc
 earth_200101_990628_predict.bpc
 pg3f0000r.bsp
 pg490000r.bsp
 naif0012.tls
 earth_flat_IAU.spk

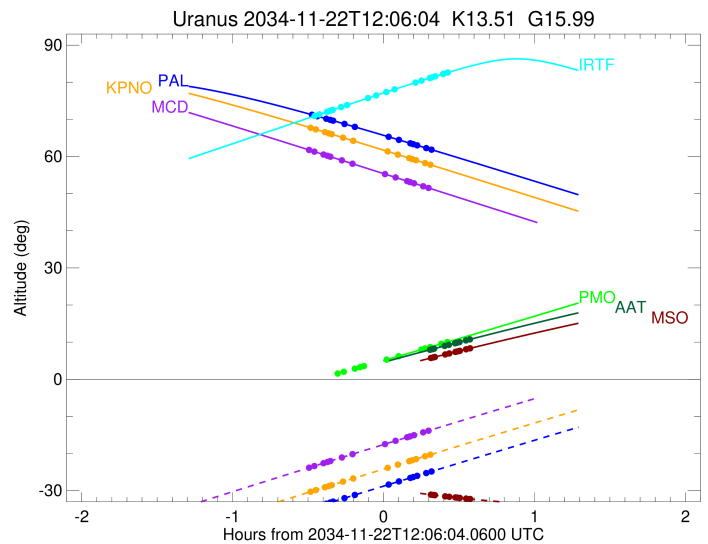
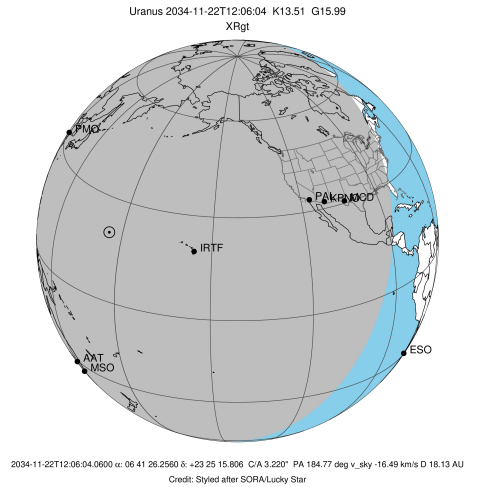


Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2034-11-22T11:37:23.582	-0.80x	-29.65	51249.20	-11.75			
lambda	I	2034-11-22T11:39:08.385	-0.47x	-29.87	50026.71	-11.47			
delta	I	2034-11-22T11:41:42.873	0.02x	-30.19	48300.35	-10.86			
gamma	I	2034-11-22T11:42:45.784	0.22x	-30.32	47625.17	-10.60			
eta	I	2034-11-22T11:43:28.533	0.36x	-30.41	47176.12	-10.41			
beta	I	2034-11-22T11:45:57.698	0.83x	-30.71	45674.61	-9.70			
alpha	I	2034-11-22T11:47:37.726	1.14x	-30.91	44727.68	-9.21			
4	I	2034-11-22T11:51:50.129	1.94x	-31.40	42581.19	-7.75			
5	I	2034-11-22T11:52:32.678	2.07x	-31.48	42257.30	-7.54			
6	I	2034-11-22T11:53:31.971	2.26x	-31.60	41822.83	-7.12			

No planet occultations

6	E	2034-11-22T12:24:24.602	7.92	-34.75	41798.25	7.14			
5	E	2034-11-22T12:25:34.337	8.12	-34.85	42308.23	7.57			
4	E	2034-11-22T12:26:05.329	8.22	-34.90	42543.00	7.78			
alpha	E	2034-11-22T12:30:24.503	8.98	-35.27	44751.63	9.25			
beta	E	2034-11-22T12:31:59.802	9.27	-35.40	45653.12	9.75			
eta	E	2034-11-22T12:34:30.261	9.71	-35.60	47176.12	10.47			
gamma	E	2034-11-22T12:35:13.304	9.83	-35.66	47630.90	10.66			
delta	E	2034-11-22T12:36:15.306	10.02	-35.74	48300.35	10.93			
lambda	E	2034-11-22T12:38:48.821	10.46	-35.93	50026.71	11.55			
epsilon	E	2034-11-22T12:39:52.800	10.65	-36.01	50773.37	11.83			

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2034-11-22T12:10:50.520
 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 : 3379757529557776128
 2Mass ID (if available) : 06412625+2325159
 ICRS Star Coord at Epoch: 06h 41m 26.25601s +23:25:15.80578s
 RUWE (>1.4 is poor) : 1.05
 K magnitude : 13.513
 G magnitude : 15.993
 RP magnitude : 15.249
 BP magnitude : 16.596
 DUPflag : 0
 Distance (au) : 18.125
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -16.49
 Sun-Target sep (deg) : 140.27
 Sun-Moon sep (deg) : 87.84
 B (ring opening deg) : 66.78
 PA of pole (deg) : 73.38
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 2.864
 C/A sky separation (km) : 37646.3
 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	2034-11-22T11:36:49.565	-2.78x	-26.28	51252.66	-11.86			
lambda	I	2034-11-22T11:38:33.665	-2.46x	-26.48	50026.71	-11.59			
delta	I	2034-11-22T11:41:06.457	-2.00x	-26.78	48300.35	-11.00			
gamma	I	2034-11-22T11:42:08.586	-1.81x	-26.89	47625.12	-10.74			
eta	I	2034-11-22T11:42:50.759	-1.68x	-26.97	47176.12	-10.55			
beta	I	2034-11-22T11:45:17.634	-1.24x	-27.25	45674.79	-9.87			
alpha	I	2034-11-22T11:46:55.902	-0.94x	-27.43	44727.27	-9.39			
4	I	2034-11-22T11:51:02.041	-0.20x	-27.88	42581.88	-7.99			
5	I	2034-11-22T11:51:43.535	-0.08x	-27.95	42256.06	-7.79			
6	I	2034-11-22T11:52:40.515	0.09x	-28.05	41823.52	-7.39			

No planet occultations

6	E	2034-11-22T12:24:45.921	5.70	-31.08	41797.97	7.41			
5	E	2034-11-22T12:25:53.357	5.89	-31.17	42308.72	7.82			
4	E	2034-11-22T12:26:23.287	5.98	-31.21	42542.47	8.02			
alpha	E	2034-11-22T12:30:36.243	6.69	-31.54	44751.72	9.44			
beta	E	2034-11-22T12:32:09.792	6.95	-31.65	45652.92	9.92			
eta	E	2034-11-22T12:34:37.993	7.36	-31.84	47176.12	10.61			
gamma	E	2034-11-22T12:35:20.469	7.48	-31.89	47630.92	10.80			
delta	E	2034-11-22T12:36:21.703	7.65	-31.96	48300.35	11.06			
lambda	E	2034-11-22T12:38:53.559	8.07	-32.14	50026.71	11.66			
epsilon	E	2034-11-22T12:39:56.828	8.25	-32.21	50772.14	11.94			