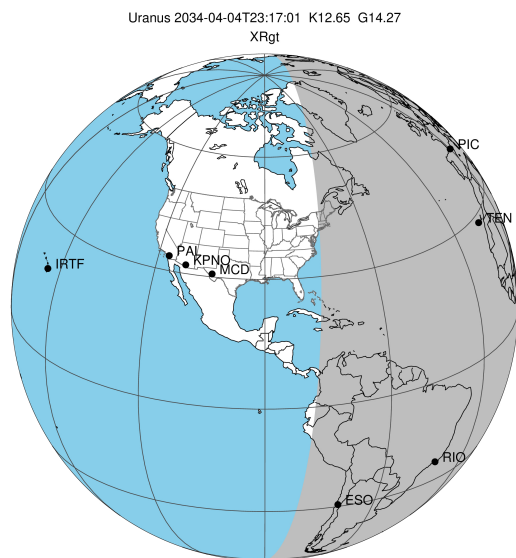


target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2034-04-04T23:17:01.010
 Event type : XRgt
 : No Uranus occs
 : Ring occs: geocentric, topocentric
 Gaia source ID : 3425396367439782144
 2Mass ID (if available) : 06080198+2341463

ICRS Star Coord at Epoch: 06h 08m 01.97830s +23:41:46.51060s

RUWE (>1.4 is poor) : 0.95
 K magnitude : 12.651
 G magnitude : 14.270
 RP magnitude : 13.704
 BP magnitude : 14.657
 DUPflag : 0
 Distance (au) : 19.135
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : 13.04
 Sun-Target sep (deg) : 77.06
 Sun-Moon sep (deg) : 115.60
 B (ring opening deg) : 73.75
 PA of pole (deg) : 61.04

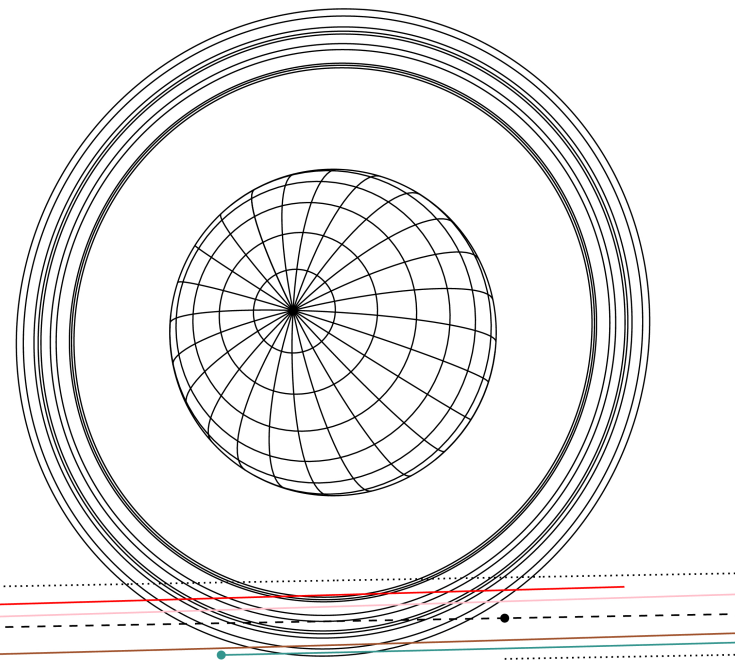
#	a(km)	ring
1	41837.2	6
2	42235.0	5
3	42571.2	4
4	44718.5	alpha
5	45661.1	beta
6	47176.1	eta
7	47626.3	gamma
8	48300.3	delta
9	50026.7	lambda
10	51149.4	epsilon



2034-04-04T23:17:01.0100 α: 06 08 01.9783 β: +23 41 46.511 C/A 3.251'' PA 1.02 deg v_sky +13.04 km/s D 19.13 AU
 Credit: Styled after SORA/Lucky Star

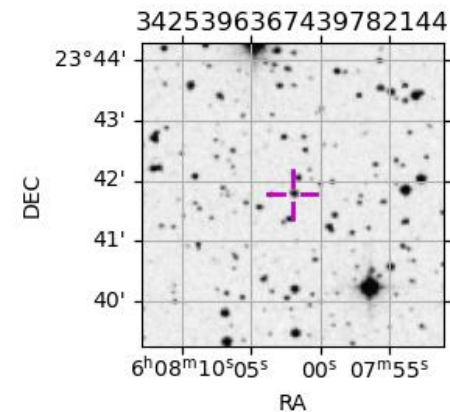
Uranus 2034-04-04T23:17:01 K12.65 G14.27 XRgt

Earth
 PIC
 TEN
 RIO
 ESO

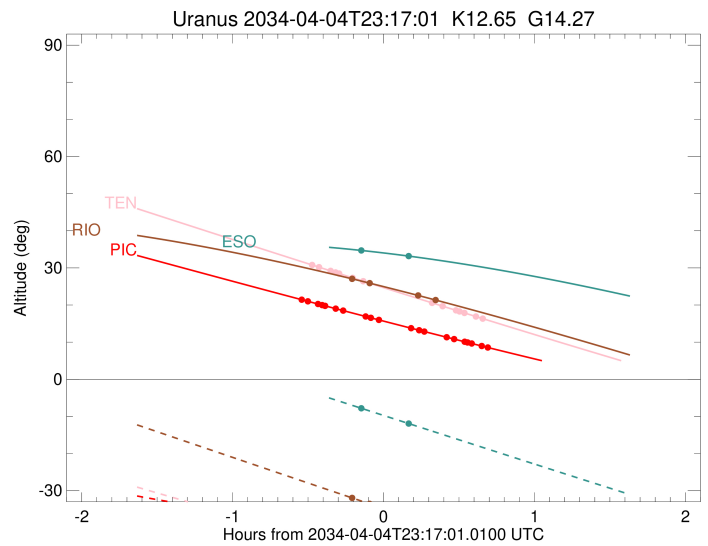
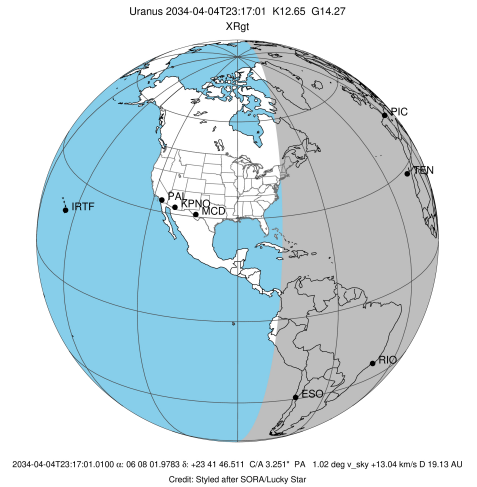


Observable events with sun below -5 deg and altitude above 5 deg unblocked by planet

Obs	Location	lat	Elon	Rings I	Planet	Rings E	Observed Events Interval	OEcode
PIC	Pic du Midi	42.9	0.1	+++++++		+++++++	APR 04 22:45 - APR 04 23:58	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					PnnRnn
TEN	Teide Obs./Tenerife	28.3	343.5	+++++++		+++++++	APR 04 22:49 - APR 04 23:56	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	++		++	APR 04 23:05 - APR 04 23:37	PnnRie
ESO	European Southern Obs	-29.3	289.3	+		+	APR 04 23:10 - APR 04 23:26	PnnRie
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 : 2034-04-04T23:23:25.870
 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 : 3425396367439782144
 2Mass ID (if available) : 06080198+2341463
 ICRS Star Coord at Epoch: 06h 08m 01.97830s +23:41:46.51060s
 RUWE (>1.4 is poor) : 0.95
 K magnitude : 12.651
 G magnitude : 14.270
 RP magnitude : 13.704
 BP magnitude : 14.657
 DUPflag : 0
 Distance (au) : 19.135
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : 13.04
 Sun-Target sep (deg) : 77.06
 Sun-Moon sep (deg) : 116.11
 B (ring opening deg) : 73.75
 PA of pole (deg) : 61.04
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 2.961
 C/A sky separation (km) : 41093.6
 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

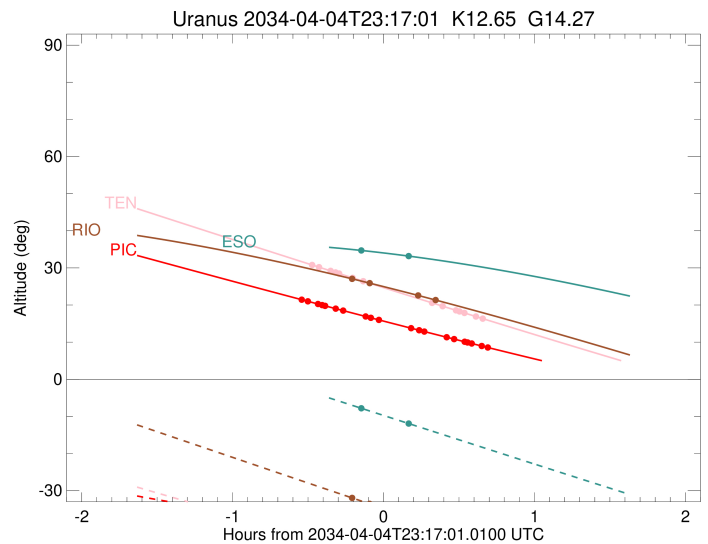
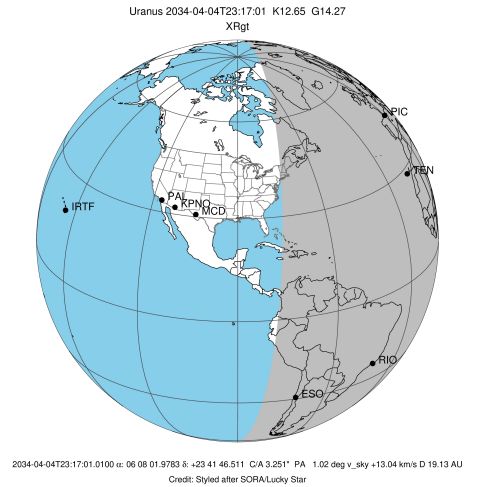


Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2034-04-04T22:45:13.925		21.31	-38.21	50824.72	-7.77		
lambda	I	2034-04-04T22:46:59.024		20.99	-38.35	50026.71	-7.47		
delta	I	2034-04-04T22:51:00.167		20.27	-38.64	48300.35	-6.84		
gamma	I	2034-04-04T22:52:41.281		19.97	-38.76	47622.82	-6.56		
eta	I	2034-04-04T22:53:50.444		19.77	-38.84	47176.12	-6.36		
beta	I	2034-04-04T22:58:00.633		19.02	-39.12	45680.65	-5.59		
alpha	I	2034-04-04T23:01:03.763		18.48	-39.31	44713.01	-4.98		
4	I	2034-04-04T23:10:14.668		16.86	-39.84	42531.27	-2.89		
5	I	2034-04-04T23:11:37.188		16.62	-39.91	42311.12	-2.55		
6	I	2034-04-04T23:15:44.241		15.89	-40.12	41807.74	-1.53		

No planet occultations

6	E	2034-04-04T23:27:30.497		13.84	-40.61	41815.39	1.53		
5	E	2034-04-04T23:31:26.424		13.16	-40.75	42296.23	2.55		
4	E	2034-04-04T23:32:54.623		12.91	-40.79	42526.01	2.90		
alpha	E	2034-04-04T23:42:08.928		11.32	-41.03	44737.56	5.01		
beta	E	2034-04-04T23:45:05.164		10.82	-41.09	45677.54	5.62		
eta	E	2034-04-04T23:49:14.207		10.12	-41.15	47176.12	6.41		
gamma	E	2034-04-04T23:50:22.540		9.92	-41.17	47621.02	6.61		
delta	E	2034-04-04T23:52:03.070		9.64	-41.19	48300.35	6.90		
lambda	E	2034-04-04T23:56:01.977		8.97	-41.22	50026.71	7.54		
epsilon	E	2034-04-04T23:58:43.019		8.52	-41.23	51273.16	7.85		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2034-04-04T23:24:35.710
 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 : 3425396367439782144
 2Mass ID (if available) : 06080198+2341463
 ICRS Star Coord at Epoch: 06h 08m 01.97830s +23:41:46.51060s
 RUWE (>1.4 is poor) : 0.95
 K magnitude : 12.651
 G magnitude : 14.270
 RP magnitude : 13.704
 BP magnitude : 14.657
 DUPflag : 0
 Distance (au) : 19.135
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : 13.04
 Sun-Target sep (deg) : 77.06
 Sun-Moon sep (deg) : 116.28
 B (ring opening deg) : 73.75
 PA of pole (deg) : 61.04
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 3.092
 C/A sky separation (km) : 42911.3
 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



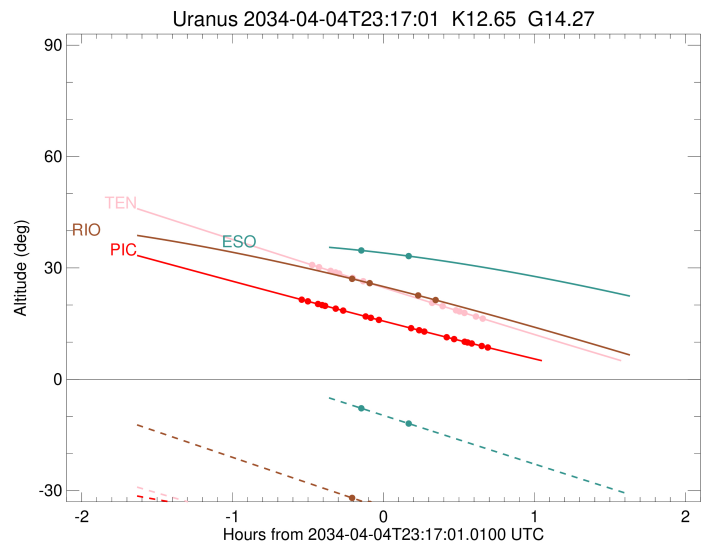
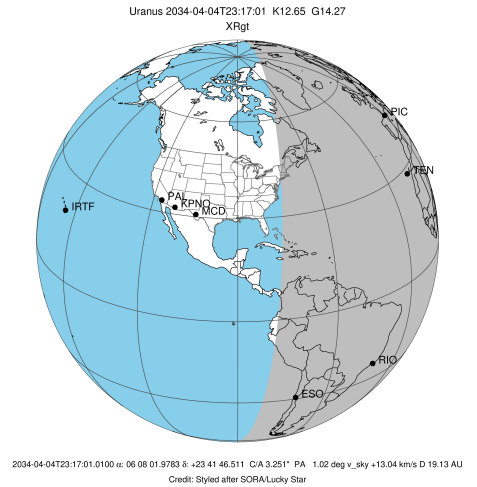
Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2034-04-04T22:49:25.075		30.62	-42.11	50841.65	-6.98		
lambda	I	2034-04-04T22:51:25.467		30.19	-42.45	50026.71	-6.61		
delta	I	2034-04-04T22:56:02.320		29.19	-43.21	48300.35	-5.84		
gamma	I	2034-04-04T22:58:01.951		28.76	-43.54	47622.48	-5.48		
eta	I	2034-04-04T22:59:25.272		28.46	-43.76	47176.12	-5.23		
beta	I	2034-04-04T23:04:42.785		27.33	-44.61	45681.06	-4.17		
alpha	I	2034-04-04T23:09:02.042		26.40	-45.29	44717.57	-3.25		

No planet occultations

alpha	E	2034-04-04T23:36:19.572		20.58	-49.22	44733.72	3.27		
beta	E	2034-04-04T23:40:31.677		19.69	-49.77	45678.69	4.20		
eta	E	2034-04-04T23:45:47.758		18.58	-50.42	47176.12	5.27		
gamma	E	2034-04-04T23:47:10.156		18.29	-50.59	47620.97	5.53		
delta	E	2034-04-04T23:49:09.061		17.87	-50.82	48300.35	5.90		
lambda	E	2034-04-04T23:53:43.306		16.91	-51.35	50026.71	6.68		
epsilon	E	2034-04-04T23:56:39.994		16.29	-51.68	51248.69	7.06		

```

target                : Uranus
target radius (km)   : 25559.00
C/A epoch            : 2034-04-04T23:23:24.230
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       : 3425396367439782144
2Mass ID (if available) : 06080198+2341463
ICRS Star Coord at Epoch: 06h 08m 01.97830s +23:41:46.51060s
RUWE (>1.4 is poor) : 0.95
K magnitude           : 12.651
G magnitude           : 14.270
RP magnitude          : 13.704
BP magnitude          : 14.657
DUPflag              : 0
Distance (au)         : 19.135
f0 (km)               : 0.000
g0 (km)               : 0.000
skyplane vel. (km/s) : 13.04
Sun-Target sep (deg) : 77.06
Sun-Moon sep (deg)   : 116.20
B (ring opening deg) : 73.75
PA of pole (deg)     : 61.04
Pole direction: RA (deg): 257.31100
Dec (deg): -15.17500
C/A sky separation (") : 3.527
C/A sky separation (km) : 48942.7
NAIF SPICE kernels   : RAJobs_U111+rgf15.spk
URKALLvl1.spk
urall1.bsp
IAU_URANUS_for_RINGFIT.tpc
vgr2.urall1.bsp
ural61.bsp
vgr2.ural61.bsp
peph.ural60.bsp
earthstns_itrf93_040916.bsp
earth_720101_070426.bpc
earth_200101_990628_predict.bpc
pg3f0000r.bsp
pg490000r.bsp
naif0012.tls
earth_flat_IAU.spk
  
```

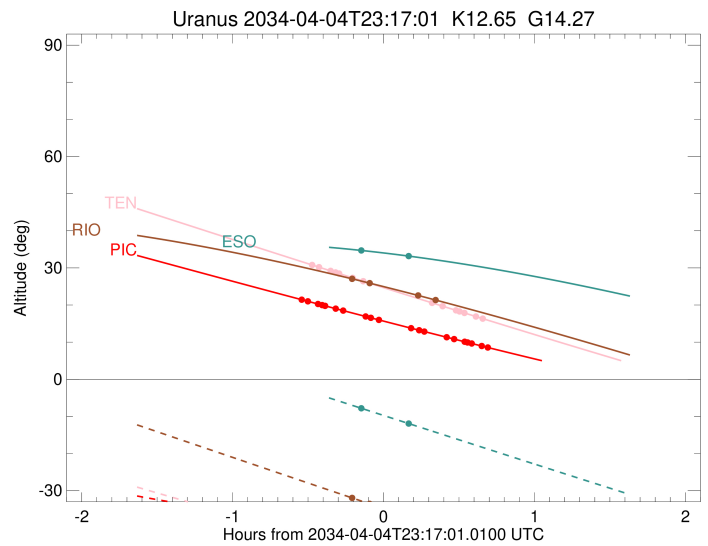
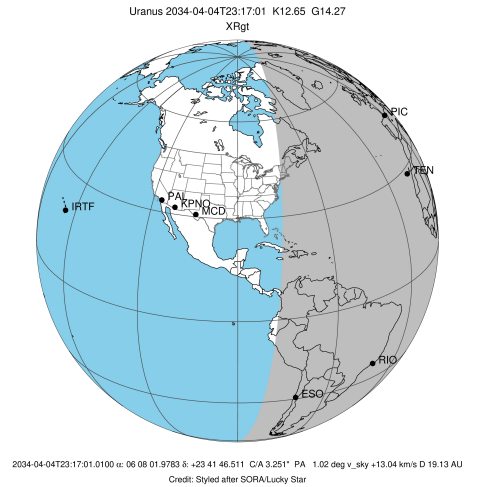


Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2034-04-04T23:05:42.991		26.86	-32.23	50935.00	-3.22		
lambda	I	2034-04-04T23:11:38.556		25.88	-33.59	50026.71	-1.97		

No planet occultations

lambda	E	2034-04-04T23:30:39.814		22.60	-37.91	50026.71	1.97		
epsilon	E	2034-04-04T23:37:32.749		21.38	-39.47	51124.80	3.23		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2034-04-04T23:19:55.150
 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 : 3425396367439782144
 2Mass ID (if available) : 06080198+2341463
 ICRS Star Coord at Epoch: 06h 08m 01.97830s +23:41:46.51060s
 RUWE (>1.4 is poor) : 0.95
 K magnitude : 12.651
 G magnitude : 14.270
 RP magnitude : 13.704
 BP magnitude : 14.657
 DUPflag : 0
 Distance (au) : 19.135
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : 13.04
 Sun-Target sep (deg) : 77.06
 Sun-Moon sep (deg) : 116.15
 B (ring opening deg) : 73.75
 PA of pole (deg) : 61.04
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 3.611
 C/A sky separation (km) : 50110.3
 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_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	2034-04-04T23:10:01.758	34.57	-8.22	50977.45	-1.61		
No planet occultations								
epsilon	E	2034-04-04T23:26:10.994	33.26	-11.75	51072.74	1.61		