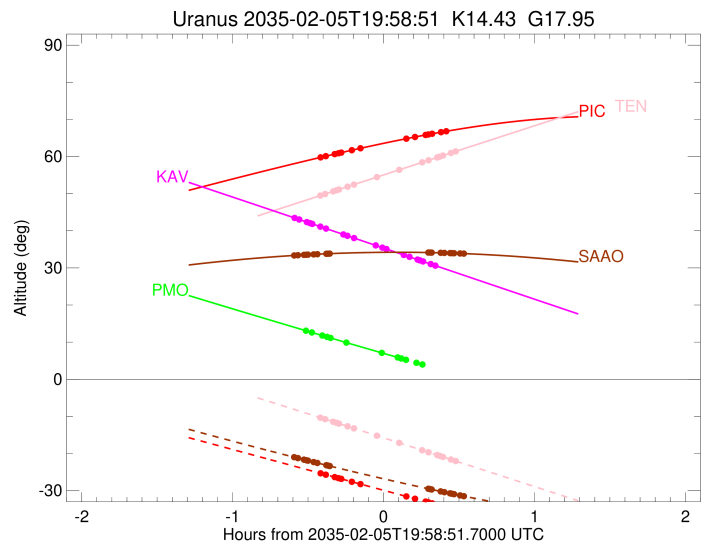
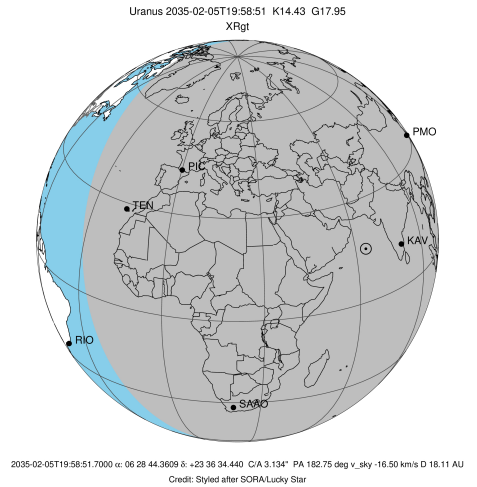


target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2035-02-05T20:00:47.990
 Event type : XRgt
 : No Uranus occs
 : Ring occs: geocentric, topocentric
 Observer code : PIC
 Location : Pic du Midi
 Latitude (deg) : 42.93656
 E. Longitude (deg) : 0.14231
 Altitude (km) : 2.890
 Gaia source ID : 3383340043381821568
 2Mass ID (if available) : 062884437+2336345
 ICRS Star Coord at Epoch: 06h 28m 44.36091s +23:36:34.43955s
 RUWE (>1.4 is poor) : 1.03
 K magnitude : 14.426
 G magnitude : 17.949
 RP magnitude : 16.866
 BP magnitude : 19.148
 DUPflag : 0
 Distance (au) : 18.114
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -16.50
 Sun-Target sep (deg) : 140.23
 Sun-Moon sep (deg) : 168.70
 B (ring opening deg) : 69.47
 PA of pole (deg) : 69.35
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 3.290
 C/A sky separation (km) : 43217.3
 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



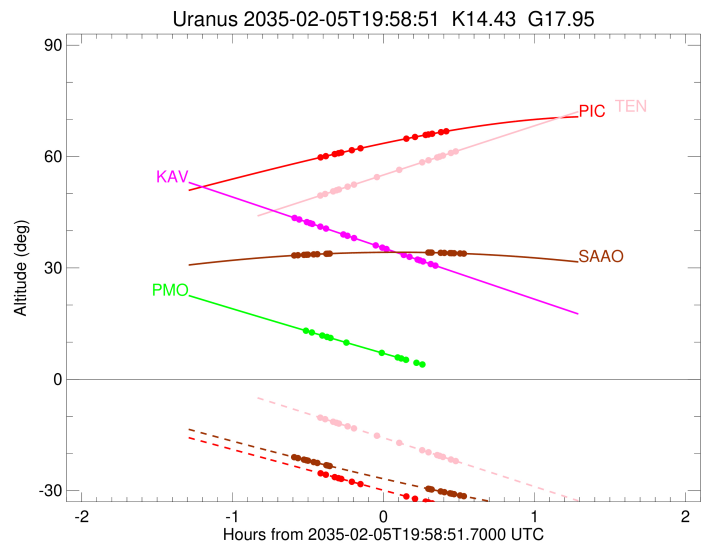
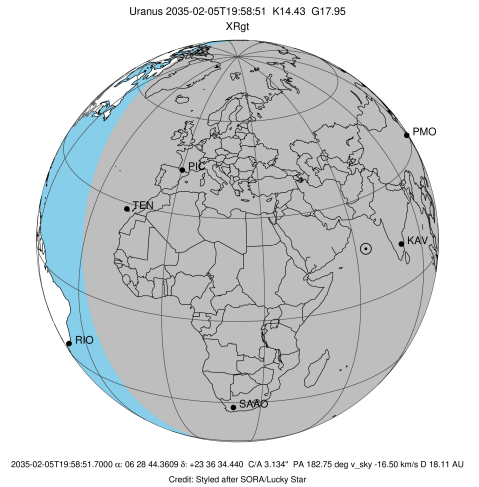
b: ring blocked by planet x: target alt < 5.0 deg or sun > -5.0 deg

Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2035-02-05T19:33:11.764		59.67	-25.21	51532.98	-9.49		
lambda	I	2035-02-05T19:35:57.835		60.11	-25.72	50026.71	-8.68		
delta	I	2035-02-05T19:39:29.572		60.66	-26.37	48300.35	-7.61		
gamma	I	2035-02-05T19:41:01.749		60.90	-26.65	47622.33	-7.10		
eta	I	2035-02-05T19:42:06.229		61.07	-26.84	47176.12	-6.74		
beta	I	2035-02-05T19:46:19.420		61.71	-27.62	45661.04	-5.21		
alpha	I	2035-02-05T19:49:53.898		62.25	-28.27	44693.05	-3.79		

No planet occultations

alpha	E	2035-02-05T20:07:45.003		64.78	-31.53	44686.05	3.79		
beta	E	2035-02-05T20:11:22.865		65.27	-32.19	45672.30	5.22		
eta	E	2035-02-05T20:15:33.808		65.80	-32.95	47176.12	6.74		
gamma	E	2035-02-05T20:16:38.056		65.94	-33.14	47620.98	7.11		
delta	E	2035-02-05T20:18:10.359		66.13	-33.42	48300.35	7.61		
lambda	E	2035-02-05T20:21:41.930		66.56	-34.05	50026.71	8.69		
epsilon	E	2035-02-05T20:24:17.455		66.86	-34.52	51434.93	9.50		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2035-02-05T19:53:10.440
 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 : 3383340043381821568
 2Mass ID (if available) : 06284437+2336345
 ICRS Star Coord at Epoch: 06h 28m 44.36091s +23:36:34.43955s
 RUWE (>1.4 is poor) : 1.03
 K magnitude : 14.426
 G magnitude : 17.949
 RP magnitude : 16.866
 BP magnitude : 19.148
 DUPflag : 0
 Distance (au) : 18.114
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -16.50
 Sun-Target sep (deg) : 140.23
 Sun-Moon sep (deg) : 167.71
 B (ring opening deg) : 69.47
 PA of pole (deg) : 69.35
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 3.398
 C/A sky separation (km) : 44645.1
 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_itrfr93_040916.bsp
 earth_720101_070426.bpc
 earth_200101_990628_predict.bpc
 pg3f0000r.bsp
 pg490000r.bsp
 naif0012.tls
 earth_flat_IAU.spk



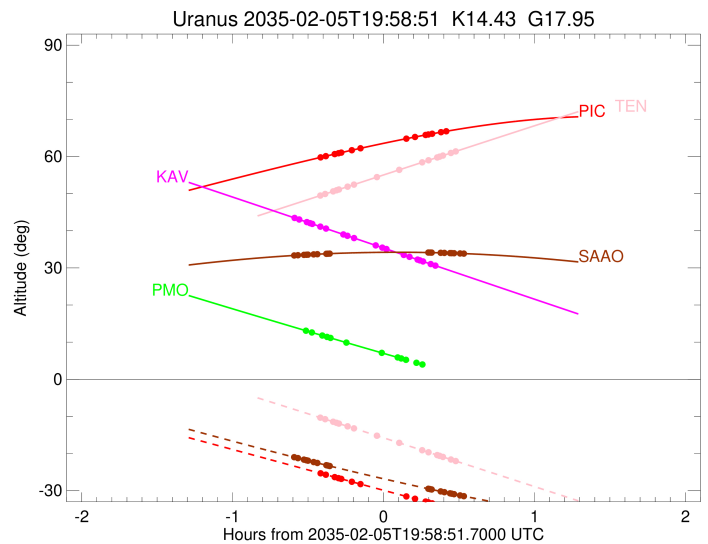
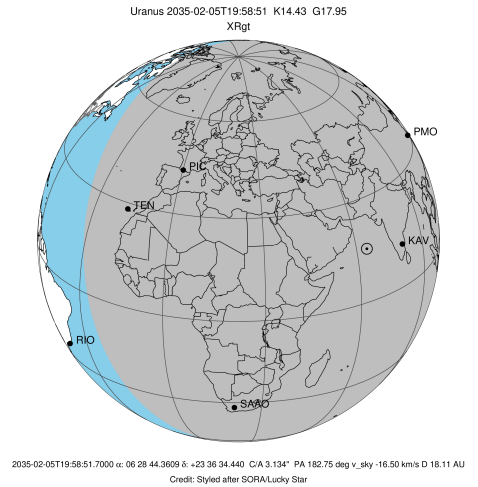
Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2035-02-05T19:27:16.460		13.23	-44.37	51538.33	-8.50		
lambda	I	2035-02-05T19:30:24.865		12.60	-43.71	50026.71	-7.57		
delta	I	2035-02-05T19:34:34.063		11.77	-42.84	48300.35	-6.26		
gamma	I	2035-02-05T19:36:28.143		11.39	-42.44	47622.08	-5.62		
eta	I	2035-02-05T19:37:50.995		11.12	-42.15	47176.12	-5.14		
beta	I	2035-02-05T19:44:11.329		9.86	-40.82	45663.56	-2.78		

No planet occultations

beta	E	2035-02-05T19:58:08.577		7.12	-37.87	45669.72	2.78		
eta	E	2035-02-05T20:04:27.686		5.89	-36.53	47176.12	5.12		
gamma	E	2035-02-05T20:05:50.622		5.62	-36.23	47620.96	5.60		
delta	E	2035-02-05T20:07:45.339		5.25	-35.83	48300.35	6.24		
lambda	E	2035-02-05T20:11:55.676		4.44x	-34.94	50026.71	7.53		
epsilon	E	2035-02-05T20:14:54.939		3.87x	-34.31	51452.97	8.45		

```

target                : Uranus
target radius (km)   : 25559.00
C/A epoch            : 2035-02-05T20:02:35.690
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      : 3383340043381821568
2Mass ID (if available) : 06284437+2336345
ICRS Star Coord at Epoch: 06h 28m 44.36091s +23:36:34.43955s
RUWE (>1.4 is poor) : 1.03
K magnitude          : 14.426
G magnitude          : 17.949
RP magnitude         : 16.866
BP magnitude         : 19.148
DUPflag             : 0
Distance (au)       : 18.114
f0 (km)             : 0.000
g0 (km)             : 0.000
skyplane vel. (km/s) : -16.50
Sun-Target sep (deg) : 140.23
Sun-Moon sep (deg)  : 168.83
B (ring opening deg) : 69.47
PA of pole (deg)    : 69.35
Pole direction: RA (deg): 257.31100
Dec (deg): -15.17500
C/A sky separation (") : 3.188
C/A sky separation (km) : 41884.5
NAIF SPICE kernels  : RAJobs_U111+rgf15.spk
URKALLvl1.spk
urall11.bsp
IAU_URANUS_for_RINGFIT.tpc
vgr2.urall11.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
  
```



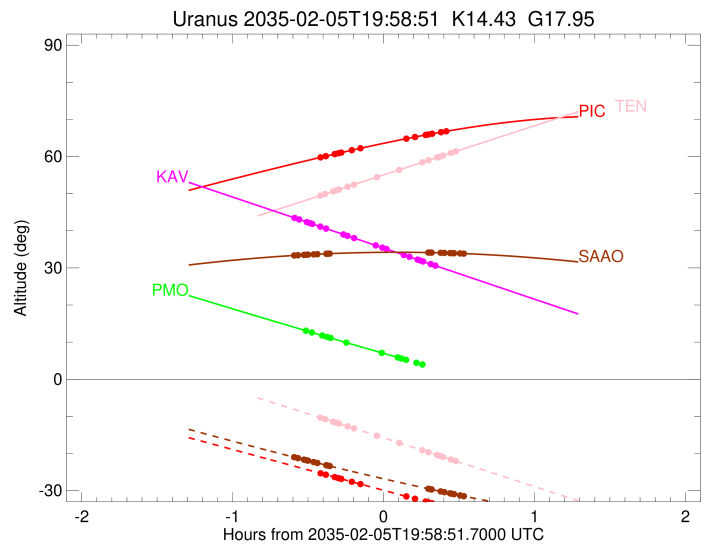
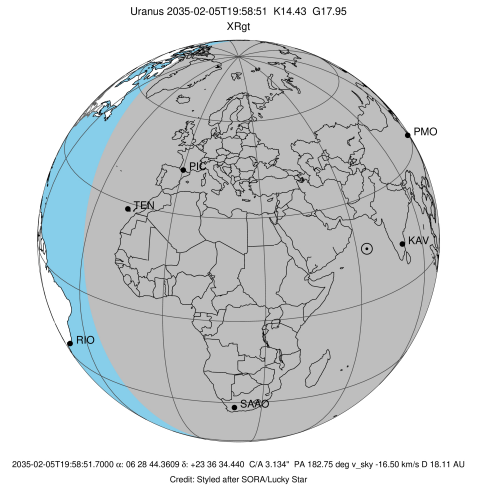
Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2035-02-05T19:33:09.046		49.36	-10.21	51526.71	-10.18		
lambda	I	2035-02-05T19:35:41.907		49.92	-10.76	50026.71	-9.48		
delta	I	2035-02-05T19:38:53.073		50.62	-11.45	48300.35	-8.57		
gamma	I	2035-02-05T19:40:14.139		50.92	-11.74	47622.55	-8.15		
eta	I	2035-02-05T19:41:09.915		51.13	-11.94	47176.12	-7.86		
beta	I	2035-02-05T19:44:38.434		51.89	-12.69	45659.34	-6.68		
alpha	I	2035-02-05T19:47:13.814		52.46	-13.25	44695.63	-5.71		
4	I	2035-02-05T19:56:26.769		54.50	-15.25	42563.55	-1.91		

No planet occultations

4	E	2035-02-05T20:05:00.739		56.39	-17.11	42573.25	1.91		
alpha	E	2035-02-05T20:14:06.200		58.40	-19.09	44685.15	5.72		
beta	E	2035-02-05T20:16:44.815		58.99	-19.67	45673.76	6.69		
eta	E	2035-02-05T20:20:10.843		59.75	-20.42	47176.12	7.87		
gamma	E	2035-02-05T20:21:06.315		59.95	-20.62	47621.02	8.17		
delta	E	2035-02-05T20:22:27.392		60.25	-20.91	48300.35	8.59		
lambda	E	2035-02-05T20:25:38.096		60.95	-21.61	50026.71	9.50		
epsilon	E	2035-02-05T20:28:00.037		61.48	-22.13	51420.15	10.21		

```

target                : Uranus
target radius (km)   : 25559.00
C/A epoch            : 2035-02-05T19:53:17.440
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      : 3383340043381821568
2Mass ID (if available) : 06284437+2336345
ICRS Star Coord at Epoch: 06h 28m 44.36091s +23:36:34.43955s
RUWE (>1.4 is poor) : 1.03
K magnitude          : 14.426
G magnitude          : 17.949
RP magnitude         : 16.866
BP magnitude         : 19.148
DUPflag             : 0
Distance (au)       : 18.114
f0 (km)             : 0.000
g0 (km)             : 0.000
skyplane vel. (km/s) : -16.50
Sun-Target sep (deg) : 140.23
Sun-Moon sep (deg)  : 167.63
B (ring opening deg) : 69.47
PA of pole (deg)    : 69.35
Pole direction: RA (deg): 257.31100
Dec (deg): -15.17500
C/A sky separation (") : 3.136
C/A sky separation (km) : 41197.9
NAIF SPICE kernels  : RAJobs_U111+rgf15.spk
URKALLvl1.spk
urall11.bsp
IAU_URANUS_for_RINGFIT.tpc
vgr2.urall11.bsp
ural161.bsp
vgr2.ural161.bsp
peph.ural160.bsp
earthstns_itrf93_040916.bsp
earth_720101_070426.bpc
earth_200101_990628_predict.bpc
pg3f0000r.bsp
pg490000r.bsp
naif0012.tls
earth_flat_IAU.spk
  
```

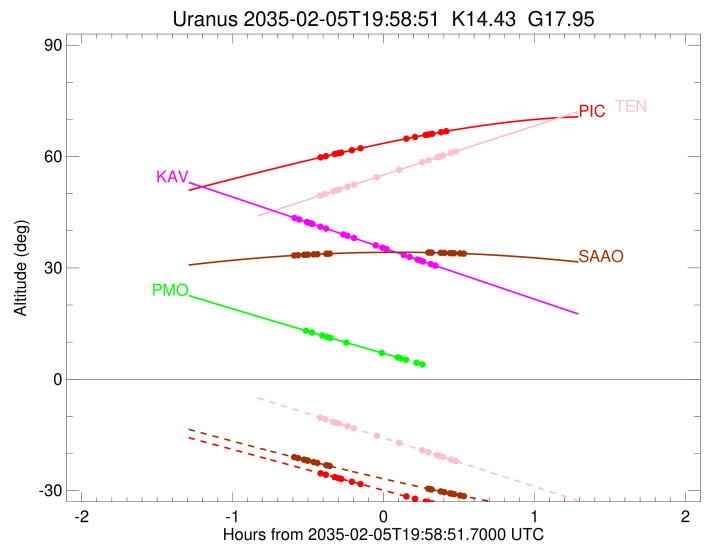
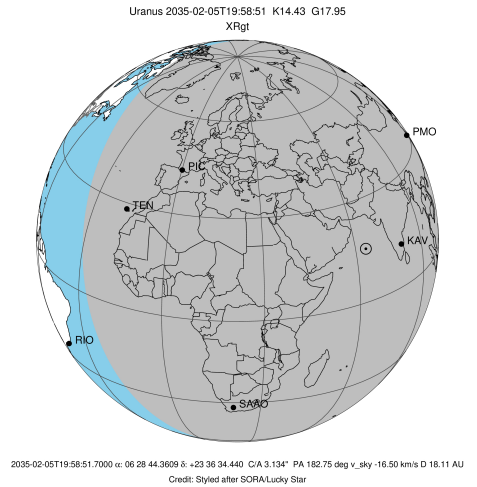


Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2035-02-05T19:22:56.447		43.59	-83.24	51520.70	-10.54		
lambda	I	2035-02-05T19:25:23.046		43.03	-82.72	50026.71	-9.88		
delta	I	2035-02-05T19:28:25.471		42.33	-82.06	48300.35	-9.03		
gamma	I	2035-02-05T19:29:42.085		42.04	-81.77	47622.73	-8.65		
eta	I	2035-02-05T19:30:34.516		41.84	-81.58	47176.12	-8.38		
beta	I	2035-02-05T19:33:47.608		41.10	-80.86	45658.26	-7.33		
alpha	I	2035-02-05T19:36:06.612		40.57	-80.33	44697.20	-6.49		
4	I	2035-02-05T19:43:01.405		38.99	-78.74	42558.27	-3.76		
5	I	2035-02-05T19:44:40.159		38.61	-78.36	42223.37	-3.01		
6	I	2035-02-05T19:47:13.049		38.02	-77.77	41842.62	-1.94		

No planet occultations

6	E	2035-02-05T19:55:48.049		36.05	-75.75	41851.63	1.93		
5	E	2035-02-05T19:58:07.464		35.52	-75.20	42197.57	3.00		
4	E	2035-02-05T19:59:59.235		35.09	-74.76	42577.41	3.76		
alpha	E	2035-02-05T20:06:48.068		33.53	-73.15	44684.97	6.47		
beta	E	2035-02-05T20:09:11.157		32.98	-72.58	45674.17	7.30		
eta	E	2035-02-05T20:12:22.964		32.24	-71.82	47176.12	8.34		
gamma	E	2035-02-05T20:13:15.453		32.04	-71.61	47621.04	8.61		
delta	E	2035-02-05T20:14:32.656		31.75	-71.31	48300.35	8.99		
lambda	E	2035-02-05T20:17:36.104		31.04	-70.58	50026.71	9.82		
epsilon	E	2035-02-05T20:19:53.644		30.52	-70.03	51416.93	10.47		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2035-02-05T19:58:41.190
 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 : 3383340043381821568
 2Mass ID (if available) : 06284437+2336345
 ICRS Star Coord at Epoch: 06h 28m 44.36091s +23:36:34.43955s
 RUWE (>1.4 is poor) : 1.03
 K magnitude : 14.426
 G magnitude : 17.949
 RP magnitude : 16.866
 BP magnitude : 19.148
 DUPflag : 0
 Distance (au) : 18.114
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -16.50
 Sun-Target sep (deg) : 140.23
 Sun-Moon sep (deg) : 167.95
 B (ring opening deg) : 69.47
 PA of pole (deg) : 69.35
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 2.726
 C/A sky separation (km) : 35816.6
 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_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	2035-02-05T19:22:55.828		33.34	-20.91	51491.37	-12.77		
lambda	I	2035-02-05T19:24:52.668		33.42	-21.25	50026.71	-12.35		
delta	I	2035-02-05T19:27:15.358		33.51	-21.65	48300.35	-11.84		
gamma	I	2035-02-05T19:28:13.036		33.55	-21.82	47623.55	-11.62		
eta	I	2035-02-05T19:28:51.781		33.57	-21.93	47176.12	-11.47		
beta	I	2035-02-05T19:31:07.819		33.65	-22.31	45653.95	-10.91		
alpha	I	2035-02-05T19:32:36.609		33.70	-22.56	44704.21	-10.49		
4	I	2035-02-05T19:36:13.408		33.81	-23.16	42544.82	-9.42		
5	I	2035-02-05T19:36:44.674		33.82	-23.25	42252.21	-9.20		
6	I	2035-02-05T19:37:31.676		33.84	-23.38	41825.44	-8.98		

No planet occultations

6	E	2035-02-05T20:16:43.844		34.13	-29.50	41866.83	8.98		
5	E	2035-02-05T20:17:17.409		34.13	-29.58	42174.04	9.20		
4	E	2035-02-05T20:18:01.489		34.12	-29.69	42592.38	9.41		
alpha	E	2035-02-05T20:21:31.430		34.06	-30.19	44684.85	10.48		
beta	E	2035-02-05T20:23:03.833		34.03	-30.41	45677.42	10.90		
eta	E	2035-02-05T20:25:17.846		33.99	-30.73	47176.12	11.46		
gamma	E	2035-02-05T20:25:56.427		33.97	-30.82	47621.34	11.61		
delta	E	2035-02-05T20:26:54.336		33.95	-30.95	48300.35	11.83		
lambda	E	2035-02-05T20:29:17.131		33.89	-31.28	50026.71	12.34		
epsilon	E	2035-02-05T20:31:03.839		33.85	-31.53	51361.60	12.76		