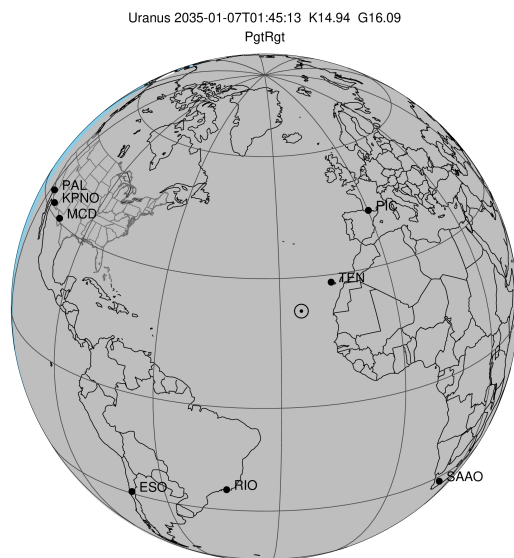


target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2035-01-07T01:45:13.750
 Event type : PgtRgt
 : Uranus occs: geocentric, topocentric
 : Ring occs: geocentric, topocentric
 Gaia source ID : 3382633263561546752
 2Mass ID (if available) : 06333696+2332528

ICRS Star Coord at Epoch: 06h 33m 36.96006s +23:32:52.81801s

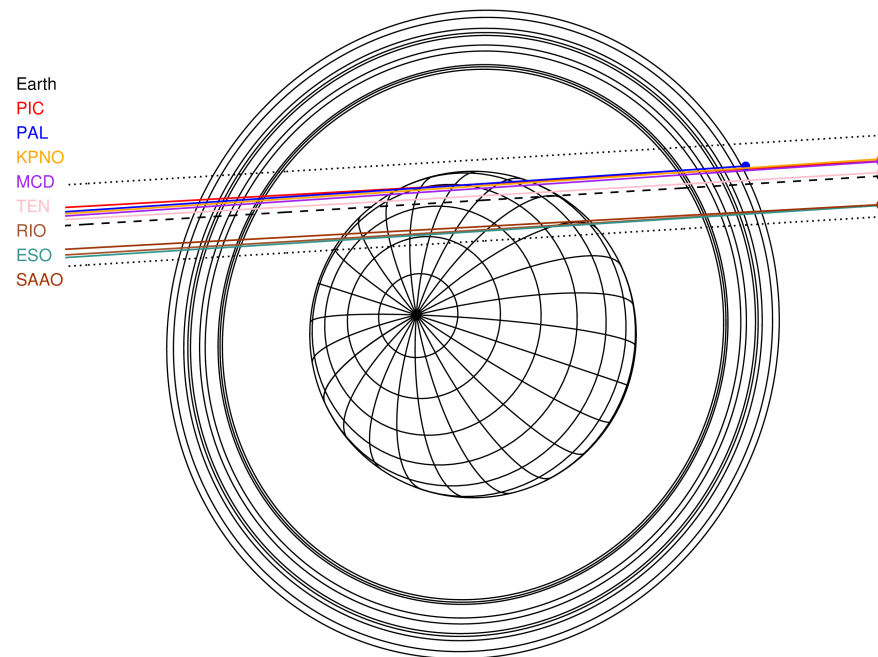
RUWE (>1.4 is poor) : 0.97
 K magnitude : 14.937
 G magnitude : 16.090
 RP magnitude : 15.669
 BP magnitude : 16.362
 DUPflag : 0
 Distance (au) : 17.914
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -23.07
 Sun-Target sep (deg) : 171.61
 Sun-Moon sep (deg) : 159.48
 B (ring opening deg) : 68.44
 PA of pole (deg) : 70.97

#	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



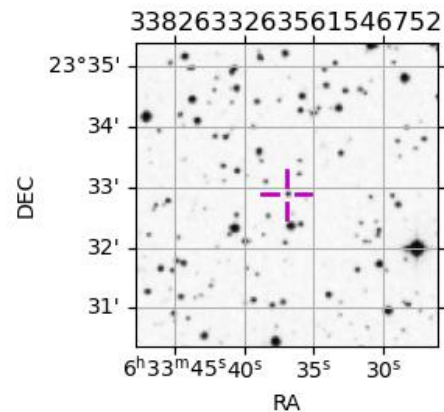
2035-01-07T01:45:13.7500 α: 06 33 36.9601 δ: +23 32 52.818 C/A 1.616° PA 183.48 deg v_sky -23.07 km/s D 17.91 AU
 Credit: Styled after SORA/Lucky Star

Uranus 2035-01-07T01:45:13 K14.94 G16.09 PgtRgt



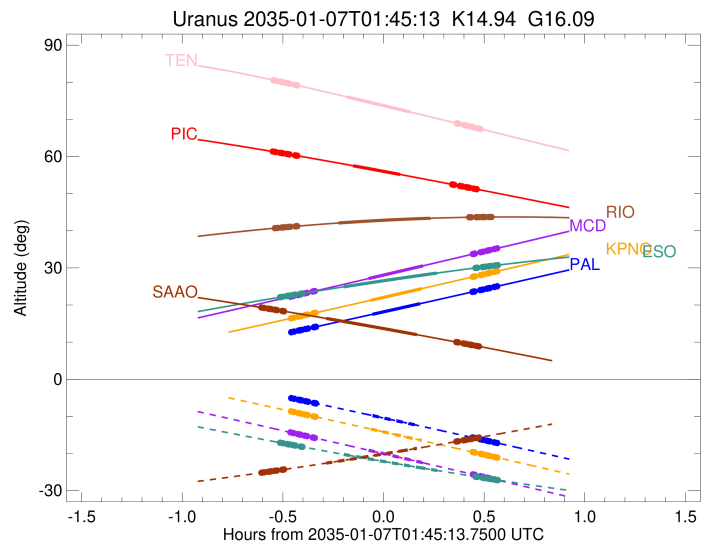
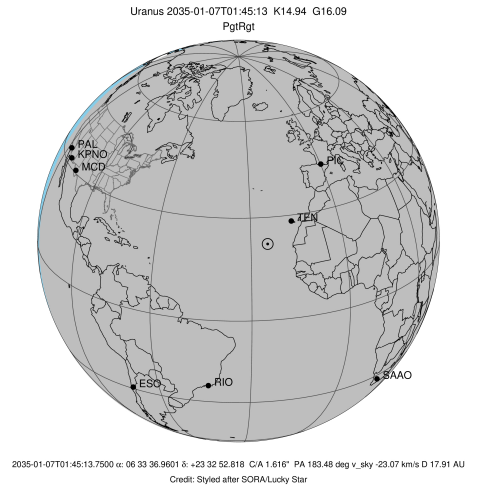
Observable events with sun below -5 deg and altitude above 5 deg unblocked by planet

Obs	Location	lat	Elon	Rings I	Planet	Rings E	Observed Events Interval	OEcode
PIC	Pic du Midi	42.9	0.1	+++++	+ +	+++++	JAN 07 01:11 - JAN 07 02:12	PieRie
PAL	Palomar Mt (200")	33.4	243.1	+++++	+ +	+++++	JAN 07 01:17 - JAN 07 02:18	PieRie
PNO	Purple Mtn Obs. Nanki	32.1	118.8					PnnRnn
KPNO	Kitt Peak Natl Obs	32.0	248.4	+++++	+ +	+++++	JAN 07 01:17 - JAN 07 02:19	PieRie
MCD	McDonald Obs. 2.7m	30.7	256.0	+++++	+ +	+++++	JAN 07 01:17 - JAN 07 02:18	PieRie
TEN	Teide Obs./Tenerife	28.3	343.5	+++++	+ +	+++++	JAN 07 01:12 - JAN 07 02:14	PieRie
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	+++++	+ +	+++++	JAN 07 01:12 - JAN 07 02:17	PieRie
ESO	European Southern Obs	-29.3	289.3	+++++	+ +	+++++	JAN 07 01:14 - JAN 07 02:19	PieRie
AAT	Siding Spring (AAT)	-31.3	149.1					PnnRnn
SAAO	So. Afr. Astro. Obs.	-32.4	20.8	+++++	+ +	+++++	JAN 07 01:08 - JAN 07 02:13	PieRie
MSO	Mt. Stromlo Observato	-35.3	149.0					PnnRnn



```

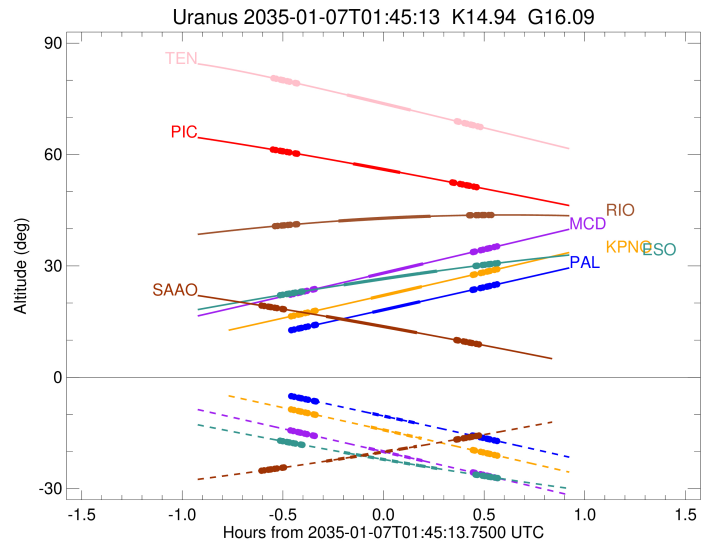
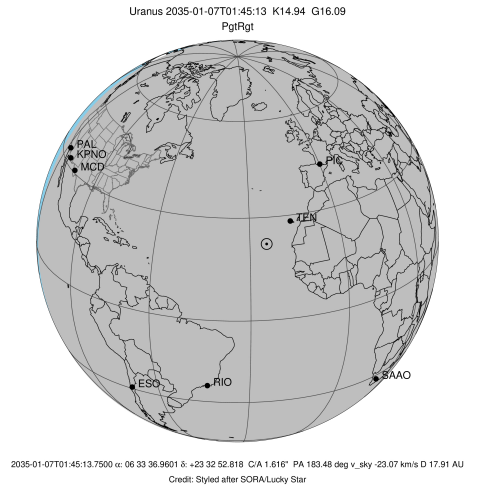
target                : Uranus
target radius (km)   : 25559.00
C/A epoch            : 2035-01-07T01:43:24.580
Event type          : PgtRgt
: Uranus occs: geocentric, topocentric
: Ring occs: geocentric, topocentric
Observer code       : PIC
Location            : Pic du Midi
Latitude (deg)      : 42.93656
E. Longitude (deg)  : 0.14231
Altitude (km)       : 2.890
Gaia source ID      : 3382633263561546752
2Mass ID (if available) : 06333696+2332528
ICRS Star Coord at Epoch: 06h 33m 36.96006s +23:32:52.81801s
RUWE (>1.4 is poor) : 0.97
K magnitude         : 14.937
G magnitude         : 16.090
RP magnitude        : 15.669
BP magnitude        : 16.362
DUPflag            : 0
Distance (au)       : 17.914
f0 (km)            : 0.000
g0 (km)            : 0.000
skyplane vel. (km/s) : -23.07
Sun-Target sep (deg) : 171.61
Sun-Moon sep (deg)  : 160.14
B (ring opening deg) : 68.44
PA of pole (deg)    : 70.97
Pole direction: RA (deg): 257.31100
Dec (deg): -15.17500
C/A sky separation (") : 1.806
C/A sky separation (km) : 23464.9
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_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	2035-01-07T01:11:56.454		61.39	-65.40	51550.21	-22.11		
lambda	I	2035-01-07T01:13:05.684		61.21	-65.26	50026.71	-21.91		
delta	I	2035-01-07T01:14:24.883		61.01	-65.11	48300.35	-21.68		
gamma	I	2035-01-07T01:14:56.267		60.93	-65.04	47621.52	-21.58		
eta	I	2035-01-07T01:15:16.939		60.87	-65.00	47176.12	-21.51		
beta	I	2035-01-07T01:16:27.507		60.69	-64.86	45667.47	-21.27		
alpha	I	2035-01-07T01:17:13.668		60.57	-64.77	44687.08	-21.08		
4	I	2035-01-07T01:18:54.391		60.31	-64.56	42584.70	-20.68		
5	I	2035-01-07T01:19:13.580		60.26	-64.52	42180.88	-20.55		
6	I	2035-01-07T01:19:28.918		60.22	-64.49	41864.99	-20.51		
Uranus	I	2035-01-07T01:36:10.773		57.52	-62.26	25558.82		-0.39	-0.41
Uranus	E	2035-01-07T01:50:10.711		55.17	-60.22	25308.54		14.86	15.53
6	E	2035-01-07T02:05:43.911		52.48	-57.80	41857.37	20.47		
5	E	2035-01-07T02:06:00.339		52.43	-57.75	42199.62	20.51		
4	E	2035-01-07T02:06:20.363		52.37	-57.70	42606.16	20.64		
alpha	E	2035-01-07T02:08:01.580		52.08	-57.43	44720.78	21.04		
beta	E	2035-01-07T02:08:46.522		51.95	-57.31	45675.16	21.23		
eta	E	2035-01-07T02:09:56.829		51.74	-57.12	47176.12	21.47		
gamma	E	2035-01-07T02:10:17.782		51.68	-57.06	47626.60	21.53		
delta	E	2035-01-07T02:10:48.998		51.59	-56.98	48300.35	21.63		
lambda	E	2035-01-07T02:12:08.375		51.35	-56.76	50026.71	21.86		
epsilon	E	2035-01-07T02:12:51.408		51.23	-56.65	50970.02	22.06		

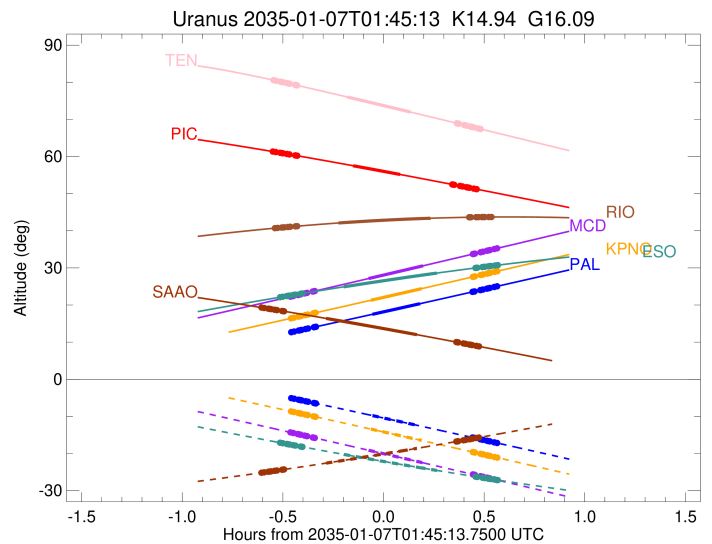
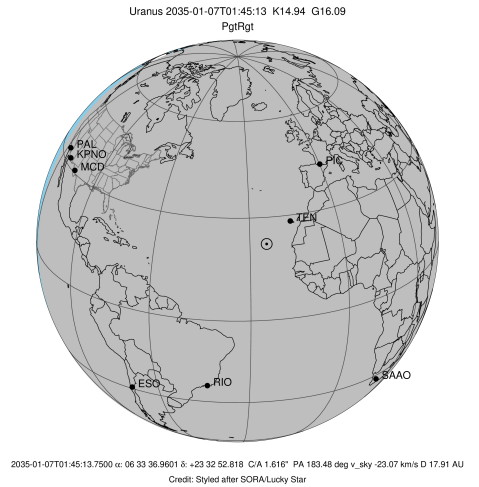
```

target                : Uranus
target radius (km)   : 25559.00
C/A epoch            : 2035-01-07T01:49:16.930
Event type           : PgtRgt
: Uranus occs: geocentric, topocentric
: 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       : 3382633263561546752
2Mass ID (if available) : 06333696+2332528
ICRS Star Coord at Epoch: 06h 33m 36.96006s +23:32:52.81801s
RUWE (>1.4 is poor) : 0.97
K magnitude          : 14.937
G magnitude           : 16.090
RP magnitude         : 15.669
BP magnitude         : 16.362
DUPflag              : 0
Distance (au)        : 17.914
f0 (km)              : 0.000
g0 (km)              : 0.000
skyplane vel. (km/s) : -23.07
Sun-Target sep (deg) : 171.61
Sun-Moon sep (deg)   : 158.97
B (ring opening deg) : 68.44
PA of pole (deg)     : 70.97
Pole direction: RA (deg): 257.31100
Dec (deg): -15.17500
C/A sky separation (") : 1.805
C/A sky separation (km) : 23451.0
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
  
```



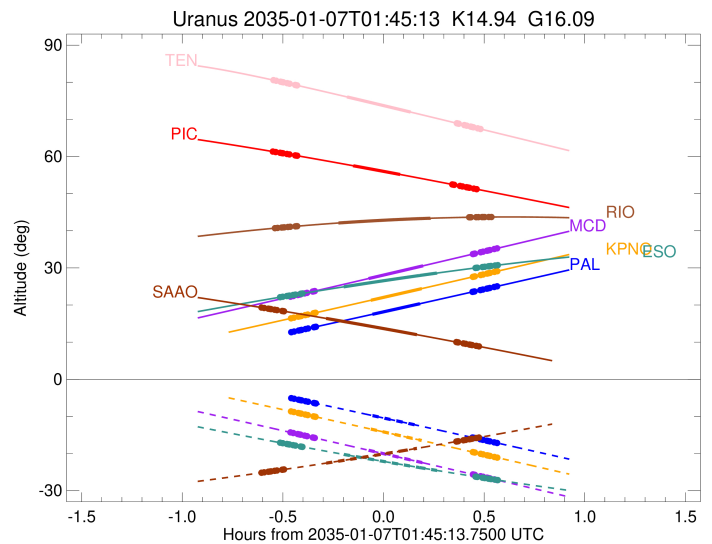
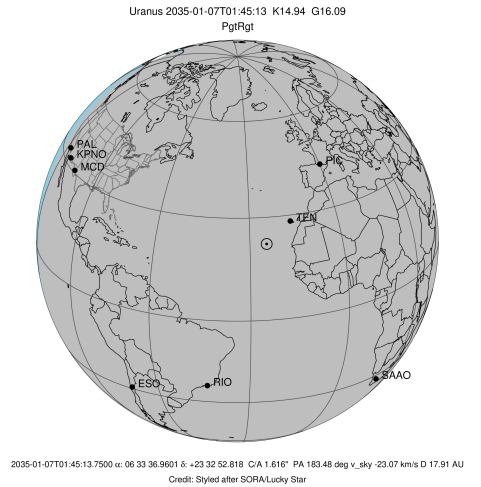
Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2035-01-07T01:17:25.784		12.63	-5.03	51550.82	-21.82		
lambda	I	2035-01-07T01:18:35.956		12.86	-5.26	50026.71	-21.63		
delta	I	2035-01-07T01:19:56.191		13.12	-5.51	48300.35	-21.40		
gamma	I	2035-01-07T01:20:27.984		13.23	-5.61	47621.50	-21.30		
eta	I	2035-01-07T01:20:48.922		13.29	-5.68	47176.12	-21.24		
beta	I	2035-01-07T01:22:00.388		13.53	-5.91	45667.65	-21.00		
alpha	I	2035-01-07T01:22:47.155		13.68	-6.06	44686.96	-20.82		
4	I	2035-01-07T01:24:29.124		14.02	-6.39	42585.11	-20.42		
5	I	2035-01-07T01:24:48.603		14.09	-6.45	42180.32	-20.30		
6	I	2035-01-07T01:25:04.091		14.14	-6.50	41865.29	-20.25		
Uranus	I	2035-01-07T01:41:57.480		17.51	-9.79	25558.94		-0.20	-0.21
Uranus	E	2035-01-07T01:56:07.530		20.36	-12.58	25302.78		15.04	15.72
6	E	2035-01-07T02:11:46.836		23.54	-15.70	41857.00	20.32		
5	E	2035-01-07T02:12:03.438		23.60	-15.75	42200.34	20.36		
4	E	2035-01-07T02:12:23.550		23.66	-15.82	42605.87	20.49		
alpha	E	2035-01-07T02:14:05.524		24.01	-16.16	44721.11	20.89		
beta	E	2035-01-07T02:14:50.758		24.17	-16.31	45675.01	21.08		
eta	E	2035-01-07T02:16:01.559		24.41	-16.55	47176.12	21.32		
gamma	E	2035-01-07T02:16:22.658		24.48	-16.62	47626.65	21.39		
delta	E	2035-01-07T02:16:54.084		24.59	-16.72	48300.35	21.49		
lambda	E	2035-01-07T02:18:13.991		24.86	-16.99	50026.71	21.72		
epsilon	E	2035-01-07T02:18:57.142		25.01	-17.14	50966.42	21.92		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2035-01-07T01:49:15.450
 Event type : PgtRgt
 : Uranus occs: geocentric, topocentric
 : 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 : 3382633263561546752
 2Mass ID (if available) : 06333696+2332528
 ICRS Star Coord at Epoch: 06h 33m 36.96006s +23:32:52.81801s
 RUWE (>1.4 is poor) : 0.97
 K magnitude : 14.937
 G magnitude : 16.090
 RP magnitude : 15.669
 BP magnitude : 16.362
 DUPflag : 0
 Distance (au) : 17.914
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -23.07
 Sun-Target sep (deg) : 171.61
 Sun-Moon sep (deg) : 158.98
 B (ring opening deg) : 68.44
 PA of pole (deg) : 70.97
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 1.780
 C/A sky separation (km) : 23133.6
 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



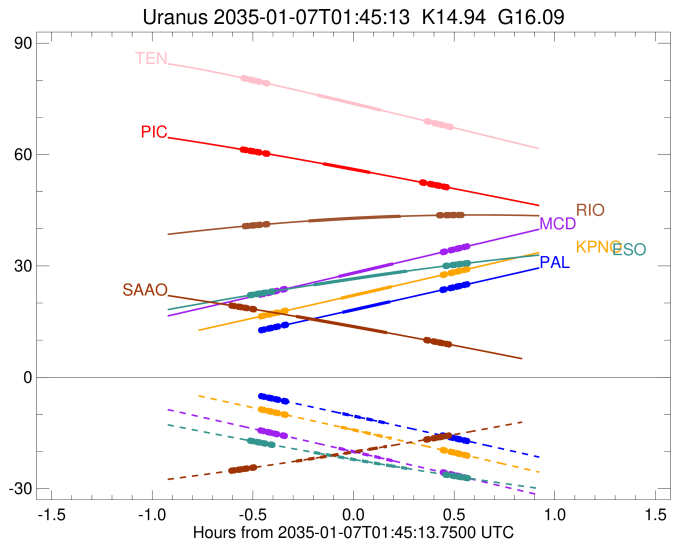
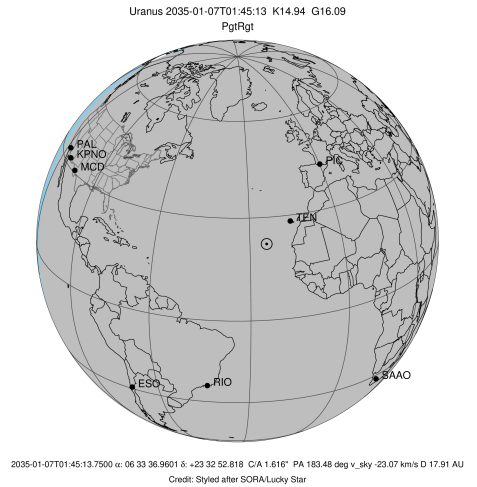
Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2035-01-07T01:17:21.372		16.36	-8.60	51550.38	-21.93		
lambda	I	2035-01-07T01:18:31.152		16.60	-8.83	50026.71	-21.75		
delta	I	2035-01-07T01:19:50.935		16.87	-9.09	48300.35	-21.53		
gamma	I	2035-01-07T01:20:22.540		16.97	-9.20	47621.52	-21.43		
eta	I	2035-01-07T01:20:43.353		17.04	-9.27	47176.12	-21.37		
beta	I	2035-01-07T01:21:54.377		17.28	-9.50	45667.49	-21.14		
alpha	I	2035-01-07T01:22:40.818		17.44	-9.66	44687.06	-20.96		
4	I	2035-01-07T01:24:22.079		17.79	-9.99	42584.71	-20.58		
5	I	2035-01-07T01:24:41.362		17.85	-10.06	42180.86	-20.45		
6	I	2035-01-07T01:24:56.769		17.90	-10.11	41865.00	-20.41		
Uranus	I	2035-01-07T01:41:26.420		21.28	-13.41	25558.17		-0.84	-0.88
Uranus	E	2035-01-07T01:56:36.041		24.41	-16.49	25287.30		15.50	16.20
6	E	2035-01-07T02:11:52.728		27.59	-19.61	41856.65	20.48		
5	E	2035-01-07T02:12:09.248		27.64	-19.67	42200.99	20.52		
4	E	2035-01-07T02:12:29.155		27.71	-19.74	42605.61	20.65		
alpha	E	2035-01-07T02:14:10.426		28.06	-20.08	44721.40	21.04		
beta	E	2035-01-07T02:14:55.339		28.22	-20.24	45674.90	21.22		
eta	E	2035-01-07T02:16:05.702		28.47	-20.48	47176.12	21.45		
gamma	E	2035-01-07T02:16:26.675		28.54	-20.55	47626.69	21.52		
delta	E	2035-01-07T02:16:57.914		28.65	-20.66	48300.35	21.61		
lambda	E	2035-01-07T02:18:17.372		28.92	-20.93	50026.71	21.84		
epsilon	E	2035-01-07T02:19:00.179		29.07	-21.08	50963.93	22.03		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2035-01-07T01:49:07.890
 Event type : PgtRgt
 : Uranus occs: geocentric, topocentric
 : 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 : 3382633263561546752
 2Mass ID (if available) : 06333696+2332528
 ICRS Star Coord at Epoch: 06h 33m 36.96006s +23:32:52.81801s
 RUWE (>1.4 is poor) : 0.97
 K magnitude : 14.937
 G magnitude : 16.090
 RP magnitude : 15.669
 BP magnitude : 16.362
 DUPflag : 0
 Distance (au) : 17.914
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -23.07
 Sun-Target sep (deg) : 171.61
 Sun-Moon sep (deg) : 159.02
 B (ring opening deg) : 68.44
 PA of pole (deg) : 70.97
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 1.751
 C/A sky separation (km) : 22748.4
 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



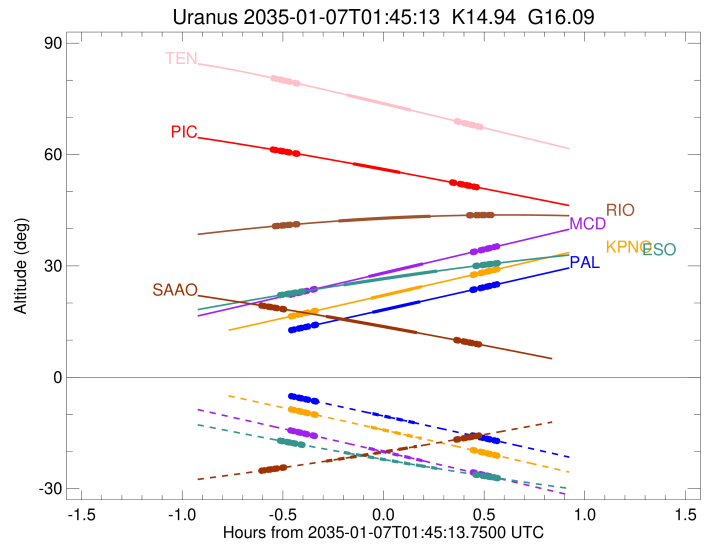
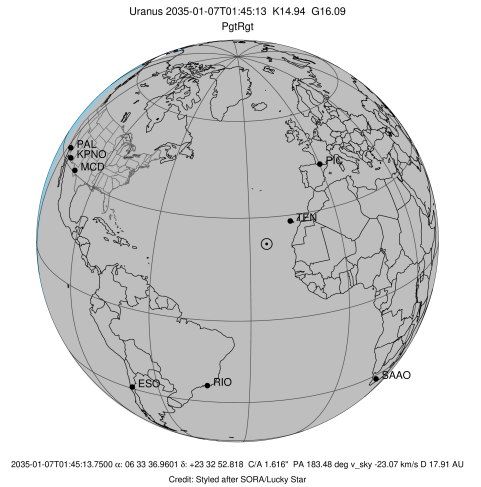
Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2035-01-07T01:17:11.100		22.18	-14.25	51549.81	-22.08		
lambda	I	2035-01-07T01:18:20.387		22.42	-14.49	50026.71	-21.90		
delta	I	2035-01-07T01:19:39.605		22.70	-14.76	48300.35	-21.68		
gamma	I	2035-01-07T01:20:10.975		22.81	-14.87	47621.54	-21.59		
eta	I	2035-01-07T01:20:31.632		22.88	-14.94	47176.12	-21.53		
beta	I	2035-01-07T01:21:42.108		23.12	-15.18	45667.30	-21.31		
alpha	I	2035-01-07T01:22:28.148		23.28	-15.33	44687.20	-21.14		
4	I	2035-01-07T01:24:08.539		23.63	-15.68	42584.23	-20.77		
5	I	2035-01-07T01:24:27.581		23.70	-15.74	42181.53	-20.65		
6	I	2035-01-07T01:24:42.888		23.75	-15.80	41864.63	-20.61		
Uranus	I	2035-01-07T01:40:46.292		27.13	-19.12	25556.14		-1.56	-1.64
Uranus	E	2035-01-07T01:57:01.570		30.57	-22.51	25269.99		16.01	16.73
6	E	2035-01-07T02:11:53.463		33.73	-25.63	41856.24	20.68		
5	E	2035-01-07T02:12:09.883		33.78	-25.68	42201.77	20.72		
4	E	2035-01-07T02:12:29.544		33.85	-25.75	42605.30	20.84		
alpha	E	2035-01-07T02:14:09.959		34.21	-26.11	44721.73	21.21		
beta	E	2035-01-07T02:14:54.483		34.37	-26.26	45674.76	21.39		
eta	E	2035-01-07T02:16:04.307		34.62	-26.51	47176.12	21.61		
gamma	E	2035-01-07T02:16:25.126		34.69	-26.58	47626.74	21.68		
delta	E	2035-01-07T02:16:56.136		34.80	-26.69	48300.35	21.77		
lambda	E	2035-01-07T02:18:15.041		35.08	-26.97	50026.71	21.99		
epsilon	E	2035-01-07T02:18:57.430		35.23	-27.12	50960.99	22.17		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2035-01-07T01:44:01.220
 Event type : PgtRgt
 : Uranus occs: geocentric, topocentric
 : 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 : 3382633263561546752
 2Mass ID (if available) : 06333696+2332528
 ICRS Star Coord at Epoch: 06h 33m 36.96006s +23:32:52.81801s
 RUWE (>1.4 is poor) : 0.97
 K magnitude : 14.937
 G magnitude : 16.090
 RP magnitude : 15.669
 BP magnitude : 16.362
 DUPflag : 0
 Distance (au) : 17.914
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -23.07
 Sun-Target sep (deg) : 171.61
 Sun-Moon sep (deg) : 160.01
 B (ring opening deg) : 68.44
 PA of pole (deg) : 70.97
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 1.663
 C/A sky separation (km) : 21610.9
 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



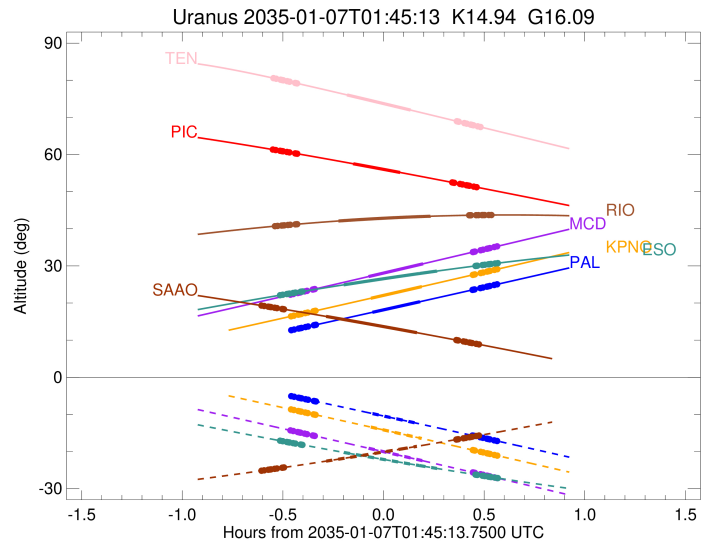
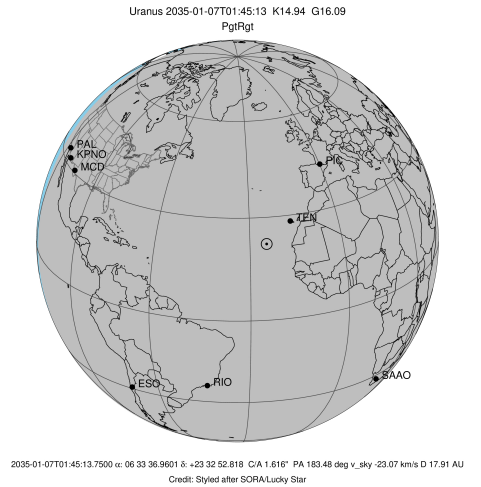
Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2035-01-07T01:12:08.546		80.63	-84.28	51547.35	-22.65		
lambda	I	2035-01-07T01:13:15.946		80.41	-84.27	50026.71	-22.48		
delta	I	2035-01-07T01:14:33.057		80.16	-84.25	48300.35	-22.29		
gamma	I	2035-01-07T01:15:03.564		80.06	-84.23	47621.63	-22.21		
eta	I	2035-01-07T01:15:23.652		79.99	-84.22	47176.12	-22.15		
beta	I	2035-01-07T01:16:32.152		79.76	-84.18	45666.58	-21.95		
alpha	I	2035-01-07T01:17:16.765		79.61	-84.15	44687.72	-21.79		
4	I	2035-01-07T01:18:54.138		79.28	-84.06	42582.47	-21.46		
5	I	2035-01-07T01:19:12.357		79.22	-84.04	42184.01	-21.35		
6	I	2035-01-07T01:19:27.331		79.17	-84.03	41863.27	-21.32		
Uranus	I	2035-01-07T01:34:20.879		76.06	-82.36	25543.66		-3.62	-3.79
Uranus	E	2035-01-07T01:53:16.180		71.99	-79.05	25229.48		17.15	17.91
6	E	2035-01-07T02:07:06.474		68.96	-76.29	41855.32	21.29		
5	E	2035-01-07T02:07:22.549		68.91	-76.23	42203.52	21.32		
4	E	2035-01-07T02:07:41.525		68.84	-76.17	42604.59	21.43		
alpha	E	2035-01-07T02:09:19.350		68.48	-75.83	44722.44	21.76		
beta	E	2035-01-07T02:10:02.721		68.32	-75.68	45674.45	21.92		
eta	E	2035-01-07T02:11:10.917		68.07	-75.45	47176.12	22.12		
gamma	E	2035-01-07T02:11:31.268		68.00	-75.38	47626.84	22.17		
delta	E	2035-01-07T02:12:01.586		67.88	-75.27	48300.35	22.26		
lambda	E	2035-01-07T02:13:18.814		67.60	-75.01	50026.71	22.45		
epsilon	E	2035-01-07T02:14:00.082		67.45	-74.86	50955.09	22.62		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2035-01-07T01:45:41.890
 Event type : PgtRgt
 : Uranus occs: geocentric, topocentric
 : 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 : 3382633263561546752
 2Mass ID (if available) : 06333696+2332528
 ICRS Star Coord at Epoch: 06h 33m 36.96006s +23:32:52.81801s
 RUWE (>1.4 is poor) : 0.97
 K magnitude : 14.937
 G magnitude : 16.090
 RP magnitude : 15.669
 BP magnitude : 16.362
 DUPflag : 0
 Distance (au) : 17.914
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -23.07
 Sun-Target sep (deg) : 171.61
 Sun-Moon sep (deg) : 159.44
 B (ring opening deg) : 68.44
 PA of pole (deg) : 70.97
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 1.252
 C/A sky separation (km) : 16266.7
 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_itrf93_040916.bsp
 earth_720101_070426.bpc
 earth_200101_990628_predict.bpc
 pg3f0000r.bsp
 pg490000r.bsp
 naif0012.tls
 earth_flat_IAU.spk



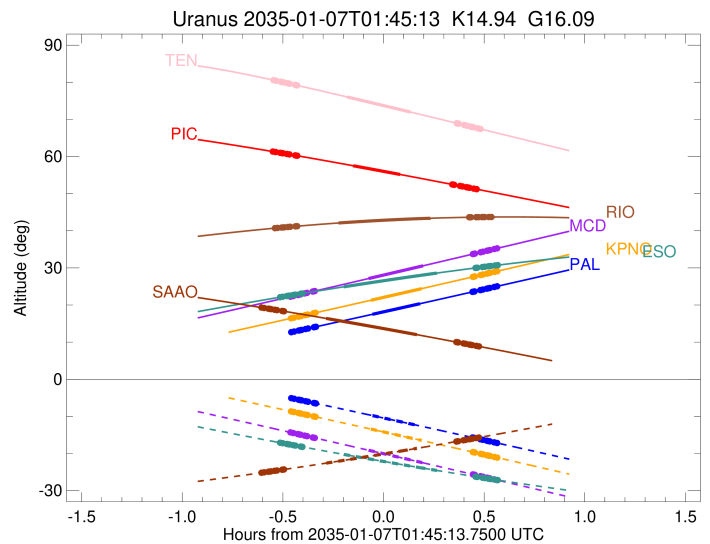
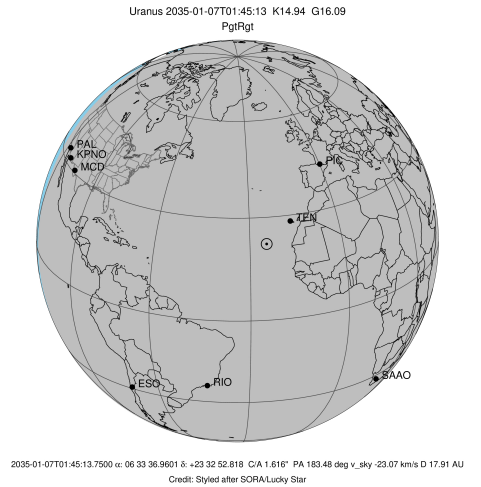
Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2035-01-07T01:12:35.494		40.68	-37.96	51536.10	-23.71		
lambda	I	2035-01-07T01:13:39.322		40.77	-38.09	50026.71	-23.61		
delta	I	2035-01-07T01:14:52.612		40.87	-38.24	48300.35	-23.50		
gamma	I	2035-01-07T01:15:21.503		40.91	-38.29	47621.97	-23.46		
eta	I	2035-01-07T01:15:40.522		40.94	-38.33	47176.12	-23.43		
beta	I	2035-01-07T01:16:45.246		41.02	-38.46	45664.08	-23.32		
alpha	I	2035-01-07T01:17:26.937		41.08	-38.54	44689.83	-23.24		
4	I	2035-01-07T01:18:58.245		41.20	-38.71	42576.28	-23.06		
5	I	2035-01-07T01:19:14.509		41.22	-38.75	42193.20	-23.00		
6	I	2035-01-07T01:19:28.991		41.24	-38.77	41858.24	-22.99		
Uranus	I	2035-01-07T01:31:49.043		42.10	-40.12	25446.70		-9.85	-10.31
Uranus	E	2035-01-07T01:59:15.338		43.38	-42.57	25099.46		20.46	21.35
6	E	2035-01-07T02:10:46.490		43.64	-43.35	41849.45	23.00		
5	E	2035-01-07T02:11:02.123		43.64	-43.37	42214.62	23.01		
4	E	2035-01-07T02:11:18.929		43.65	-43.38	42599.81	23.07		
alpha	E	2035-01-07T02:12:50.590		43.67	-43.47	44726.99	23.25		
beta	E	2035-01-07T02:13:30.962		43.67	-43.51	45672.34	23.34		
eta	E	2035-01-07T02:14:35.266		43.69	-43.58	47176.12	23.44		
gamma	E	2035-01-07T02:14:54.509		43.69	-43.59	47627.50	23.47		
delta	E	2035-01-07T02:15:23.149		43.69	-43.62	48300.35	23.52		
lambda	E	2035-01-07T02:16:36.395		43.70	-43.69	50026.71	23.62		
epsilon	E	2035-01-07T02:17:13.962		43.71	-43.72	50915.01	23.72		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2035-01-07T01:47:25.820
 Event type : PgtRgt
 : Uranus occs: geocentric, topocentric
 : 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 : 3382633263561546752
 2Mass ID (if available) : 06333696+2332528
 ICRS Star Coord at Epoch: 06h 33m 36.96006s +23:32:52.81801s
 RUWE (>1.4 is poor) : 0.97
 K magnitude : 14.937
 G magnitude : 16.090
 RP magnitude : 15.669
 BP magnitude : 16.362
 DUPflag : 0
 Distance (au) : 17.914
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -23.07
 Sun-Target sep (deg) : 171.61
 Sun-Moon sep (deg) : 159.06
 B (ring opening deg) : 68.44
 PA of pole (deg) : 70.97
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 1.236
 C/A sky separation (km) : 16058.1
 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_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	2035-01-07T01:14:07.694		22.07	-17.04	51535.93	-23.62		
lambda	I	2035-01-07T01:15:11.746		22.23	-17.22	50026.71	-23.52		
delta	I	2035-01-07T01:16:25.291		22.42	-17.43	48300.35	-23.42		
gamma	I	2035-01-07T01:16:54.279		22.49	-17.51	47621.98	-23.38		
eta	I	2035-01-07T01:17:13.361		22.54	-17.57	47176.12	-23.35		
beta	I	2035-01-07T01:18:18.295		22.70	-17.75	45664.04	-23.25		
alpha	I	2035-01-07T01:19:00.110		22.80	-17.87	44689.87	-23.17		
4	I	2035-01-07T01:20:31.685		23.03	-18.12	42576.17	-23.00		
5	I	2035-01-07T01:20:47.982		23.07	-18.17	42193.36	-22.94		
6	I	2035-01-07T01:21:02.512		23.11	-18.21	41858.15	-22.93		
Uranus	I	2035-01-07T01:33:22.350		24.90	-20.24	25443.57		-9.99	-10.45
Uranus	E	2035-01-07T02:01:09.550		28.61	-24.56	25095.51		20.56	21.44
6	E	2035-01-07T02:12:39.667		29.99	-26.23	41849.10	22.98		
5	E	2035-01-07T02:12:55.359		30.02	-26.27	42215.27	22.99		
4	E	2035-01-07T02:13:12.134		30.05	-26.31	42599.51	23.05		
alpha	E	2035-01-07T02:14:43.922		30.23	-26.53	44727.26	23.22		
beta	E	2035-01-07T02:15:24.327		30.30	-26.62	45672.21	23.31		
eta	E	2035-01-07T02:16:28.722		30.43	-26.77	47176.12	23.41		
gamma	E	2035-01-07T02:16:47.993		30.46	-26.82	47627.54	23.44		
delta	E	2035-01-07T02:17:16.671		30.52	-26.88	48300.35	23.48		
lambda	E	2035-01-07T02:18:30.026		30.65	-27.05	50026.71	23.59		
epsilon	E	2035-01-07T02:19:07.548		30.72	-27.14	50912.59	23.68		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2035-01-07T01:41:48.830
 Event type : PgtRgt
 : Uranus occs: geocentric, topocentric
 : 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 : 3382633263561546752
 2Mass ID (if available) : 06333696+2332528
 ICRS Star Coord at Epoch: 06h 33m 36.96006s +23:32:52.81801s
 RUWE (>1.4 is poor) : 0.97
 K magnitude : 14.937
 G magnitude : 16.090
 RP magnitude : 15.669
 BP magnitude : 16.362
 DUPflag : 0
 Distance (au) : 17.914
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -23.07
 Sun-Target sep (deg) : 171.61
 Sun-Moon sep (deg) : 159.99
 B (ring opening deg) : 68.44
 PA of pole (deg) : 70.97
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 1.293
 C/A sky separation (km) : 16798.0
 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_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	2035-01-07T01:08:34.902		19.35	-25.21	51536.71	-23.48		
lambda	I	2035-01-07T01:09:39.381		19.20	-25.07	50026.71	-23.37		
delta	I	2035-01-07T01:10:53.418		19.01	-24.91	48300.35	-23.26		
gamma	I	2035-01-07T01:11:22.613		18.94	-24.85	47621.96	-23.21		
eta	I	2035-01-07T01:11:41.833		18.89	-24.81	47176.12	-23.18		
beta	I	2035-01-07T01:12:47.259		18.73	-24.66	45664.21	-23.07		
alpha	I	2035-01-07T01:13:29.434		18.63	-24.57	44689.70	-22.97		
4	I	2035-01-07T01:15:01.802		18.40	-24.37	42576.62	-22.79		
5	I	2035-01-07T01:15:18.305		18.36	-24.33	42192.66	-22.72		
6	I	2035-01-07T01:15:32.931		18.32	-24.30	41858.54	-22.70		
Uranus	I	2035-01-07T01:28:08.156		16.39	-22.58	25455.48		-9.45	-9.89
Uranus	E	2035-01-07T01:55:10.332		12.01	-18.61	25109.66		20.22	21.09
6	E	2035-01-07T02:06:57.393		10.02	-16.77	41850.23	22.63		
5	E	2035-01-07T02:07:13.179		9.98	-16.73	42213.14	22.64		
4	E	2035-01-07T02:07:30.366		9.93	-16.69	42600.47	22.71		
alpha	E	2035-01-07T02:09:03.414		9.66	-16.44	44726.39	22.89		
beta	E	2035-01-07T02:09:44.451		9.54	-16.33	45672.64	22.98		
eta	E	2035-01-07T02:10:49.717		9.35	-16.16	47176.12	23.09		
gamma	E	2035-01-07T02:11:09.245		9.30	-16.10	47627.41	23.12		
delta	E	2035-01-07T02:11:38.316		9.21	-16.03	48300.35	23.17		
lambda	E	2035-01-07T02:12:52.642		9.00	-15.83	50026.71	23.28		
epsilon	E	2035-01-07T02:13:30.989		8.89	-15.72	50920.47	23.39		