

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2034-01-11T01:07:27.810
 Event type : PgtRgt
 : Uranus occs: geocentric, topocentric
 : Ring occs: geocentric, topocentric
 Gaia source ID : 3425445226988259456
 2Mass ID (if available) : 06123643+2340564

Uranus 2034-01-11T01:07:27 K14.76 G16.62 PgtRgt

ICRS Star Coord at Epoch: 06h 12m 36.43280s +23:40:56.42869s

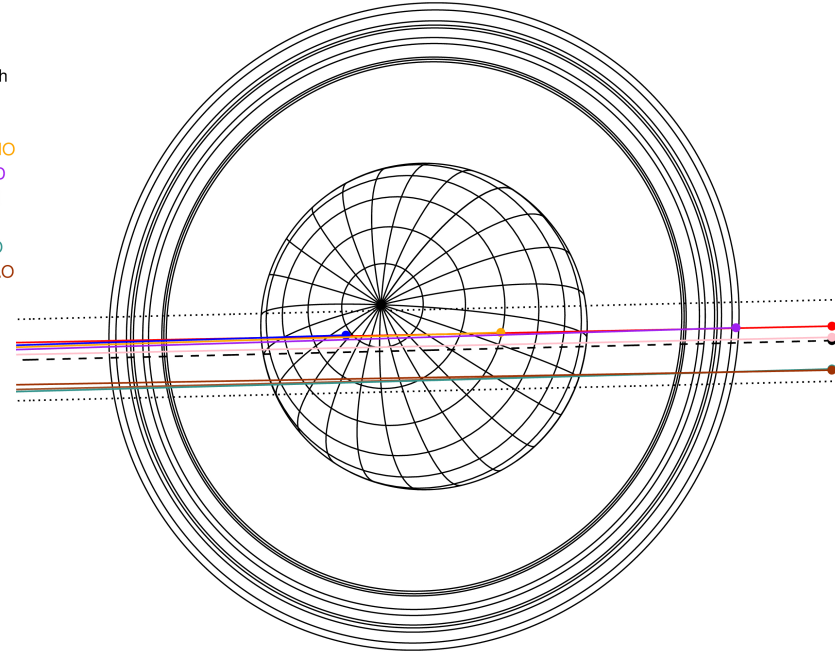
RUWE (>1.4 is poor) : 0.98
 K magnitude : 14.755
 G magnitude : 16.618
 RP magnitude : 15.937
 BP magnitude : 17.127
 DUPflag : 0
 Distance (au) : 18.010
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -22.02
 Sun-Target sep (deg) : 162.49
 Sun-Moon sep (deg) : 91.18
 B (ring opening deg) : 72.83
 PA of pole (deg) : 63.18

Uranus 2034-01-11T01:07:27 K14.76 G16.62
 PgtRgt



2034-01-11T01:07:27.8100 α: 06 12 36.4328 δ: +23 40 56.429 C/A 0.278° PA 1.38 deg v_sky -22.02 km/s D 18.01 AU
 Credit: Styled after SORA/Lucky Star

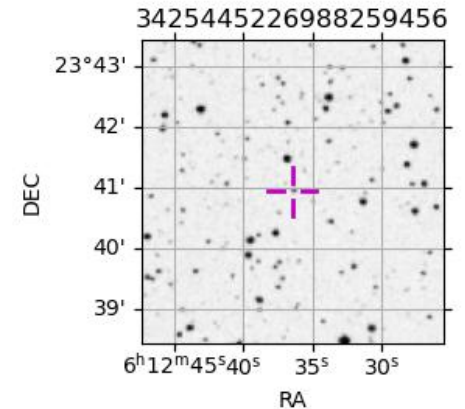
Earth
 PIC
 PAL
 KPNO
 MCD
 TEN
 RIO
 ESO
 SAAO



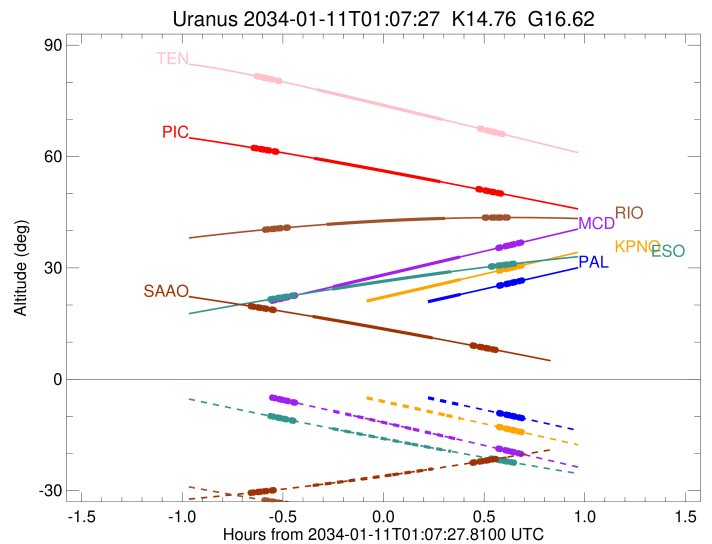
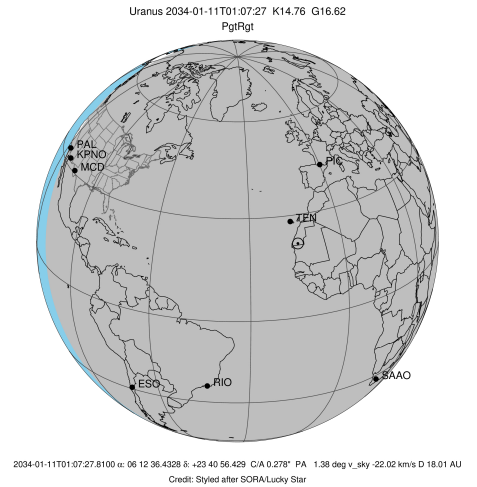
#	a(km)	ring
1	41837.2	6
2	42235.0	5
3	42571.2	4
4	44718.5	alpha
5	45661.1	beta
6	47176.1	eta
7	47626.3	gamma
8	48300.3	delta
9	50026.7	lambda
10	51149.4	epsilon

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 11 00:28 - JAN 11 01:42	PieRie
PAL	Palomar Mt (200")	33.4	243.1		+	+++++	JAN 11 01:30 - JAN 11 01:48	PneRne
PNO	Purple Mtn Obs. Nanki	32.1	118.8					PnnRnn
KPNO	Kitt Peak Natl Obs	32.0	248.4		+	+++++	JAN 11 01:30 - JAN 11 01:48	PneRne
MCD	McDonald Obs. 2.7m	30.7	256.0	+++++	+ +	+++++	JAN 11 00:35 - JAN 11 01:48	PieRie
TEN	Teide Obs./Tenerife	28.3	343.5	+++++	+ +	+++++	JAN 11 00:29 - JAN 11 01:43	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 11 00:32 - JAN 11 01:44	PieRie
ESO	European Southern Obs	-29.3	289.3	+++++	+ +	+++++	JAN 11 00:33 - JAN 11 01:46	PieRie
AAT	Siding Spring (AAT)	-31.3	149.1					PnnRnn
SAAO	So. Afr. Astro. Obs.	-32.4	20.8	+++++	+ +	+++++	JAN 11 00:27 - JAN 11 01:40	PieRie
MSO	Mt. Stromlo Observato	-35.3	149.0					PnnRnn

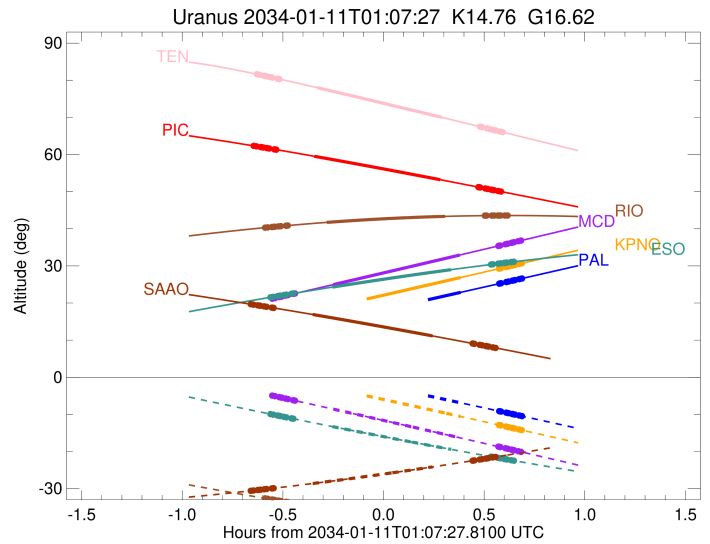
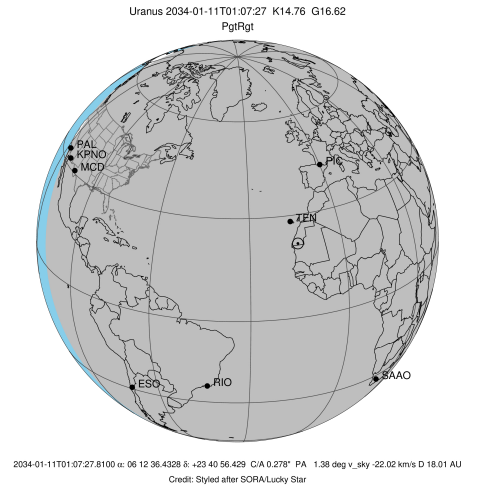


target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2034-01-11T01:05:33.820
 Event type : PgtRgt
 : Uranus occs: geocentric, topocentric
 : Ring occs: geocentric, topocentric
 Observer code : PIC
 Location : Pic du Midi
 Latitude (deg) : 42.93656
 E. Longitude (deg) : 0.14231
 Altitude (km) : 2.890
 Gaia source ID : 3425445226988259456
 2Mass ID (if available) : 06123643+2340564
 ICRS Star Coord at Epoch: 06h 12m 36.43280s +23:40:56.42869s
 RUWE (>1.4 is poor) : 0.98
 K magnitude : 14.755
 G magnitude : 16.618
 RP magnitude : 15.937
 BP magnitude : 17.127
 DUPflag : 0
 Distance (au) : 18.010
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -22.02
 Sun-Target sep (deg) : 162.49
 Sun-Moon sep (deg) : 91.94
 B (ring opening deg) : 72.83
 PA of pole (deg) : 63.18
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 0.097
 C/A sky separation (km) : 1267.8
 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	2034-01-11T00:28:48.099		62.32	-68.59	51114.67	-23.14		
lambda	I	2034-01-11T00:29:35.118		62.21	-68.55	50026.71	-23.14		
delta	I	2034-01-11T00:30:49.734		62.02	-68.50	48300.35	-23.14		
gamma	I	2034-01-11T00:31:18.681		61.95	-68.47	47630.65	-23.13		
eta	I	2034-01-11T00:31:38.328		61.90	-68.46	47176.12	-23.13		
beta	I	2034-01-11T00:32:43.846		61.73	-68.40	45660.68	-23.13		
alpha	I	2034-01-11T00:33:25.908		61.63	-68.36	44685.53	-23.13		
4	I	2034-01-11T00:34:58.349		61.39	-68.28	42555.87	-23.13		
5	I	2034-01-11T00:35:08.502		61.36	-68.27	42310.87	-23.13		
6	I	2034-01-11T00:35:30.648		61.31	-68.25	41795.63	-23.12		
Uranus	I	2034-01-11T00:46:49.596		59.53	-67.49	25118.29		-15.51	-16.20
Uranus	E	2034-01-11T01:24:20.890		53.23	-63.60	25161.92		14.68	15.34
6	E	2034-01-11T01:35:46.976		51.22	-62.08	41878.28	23.07		
5	E	2034-01-11T01:35:58.963		51.18	-62.06	42157.79	23.07		
4	E	2034-01-11T01:36:17.256		51.13	-62.01	42588.98	23.07		
alpha	E	2034-01-11T01:37:51.336		50.85	-61.80	44751.04	23.07		
beta	E	2034-01-11T01:38:30.657		50.74	-61.71	45660.51	23.07		
eta	E	2034-01-11T01:39:36.367		50.54	-61.55	47176.12	23.07		
gamma	E	2034-01-11T01:39:55.696		50.48	-61.51	47622.04	23.07		
delta	E	2034-01-11T01:40:25.099		50.40	-61.44	48300.35	23.07		
lambda	E	2034-01-11T01:41:39.934		50.17	-61.26	50026.71	23.07		
epsilon	E	2034-01-11T01:42:30.672		50.02	-61.14	51197.18	23.07		

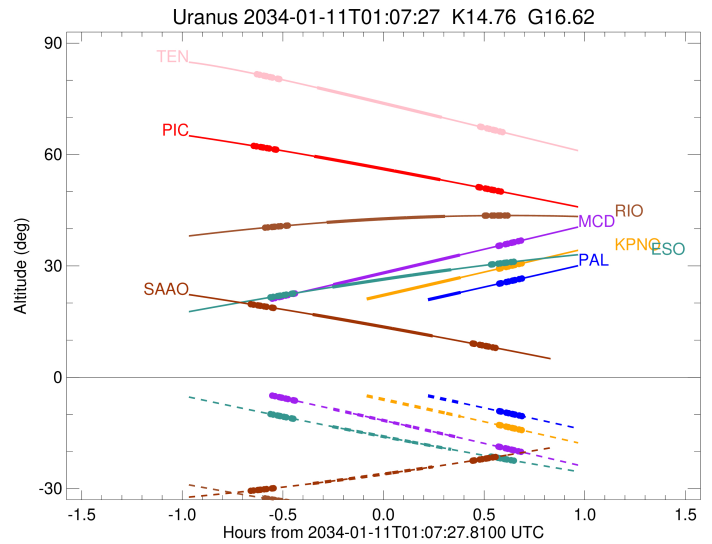
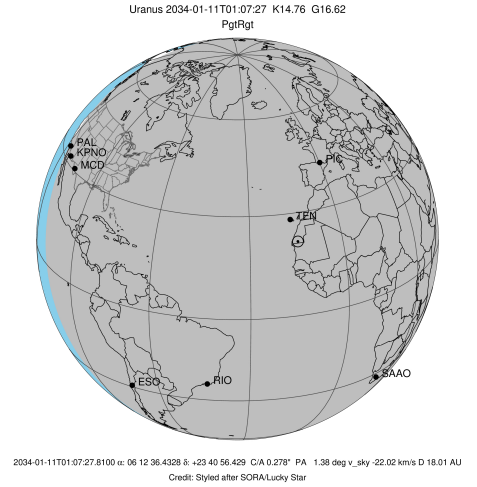
target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2034-01-11T01:11:30.890
 Event type : PgtRgt
 : Uranus occs: geocentric, topocentric
 : Ring occs: geocentric, topocentric
 Observer code : PAL
 Location : Palomar Mt (200")
 Latitude (deg) : 33.35622
 E. Longitude (deg) : 243.13601
 Altitude (km) : 1.706
 Gaia source ID : 3425445226988259456
 2Mass ID (if available) : 06123643+2340564
 ICRS Star Coord at Epoch: 06h 12m 36.43280s +23:40:56.42869s
 RUWE (>1.4 is poor) : 0.98
 K magnitude : 14.755
 G magnitude : 16.618
 RP magnitude : 15.937
 BP magnitude : 17.127
 DUPflag : 0
 Distance (au) : 18.010
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -22.02
 Sun-Target sep (deg) : 162.49
 Sun-Moon sep (deg) : 91.44
 B (ring opening deg) : 72.83
 PA of pole (deg) : 63.18
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 0.075
 C/A sky separation (km) : 981.1
 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_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	2034-01-11T00:34:16.873		11.63	3.73x	51108.35	-22.81		
lambda	I	2034-01-11T00:35:04.296		11.78	3.59x	50026.71	-22.81		
delta	I	2034-01-11T00:36:19.982		12.03	3.36x	48300.35	-22.81		
gamma	I	2034-01-11T00:36:49.344		12.13	3.27x	47630.61	-22.81		
eta	I	2034-01-11T00:37:09.268		12.19	3.21x	47176.12	-22.81		
beta	I	2034-01-11T00:38:15.698		12.41	3.00x	45661.01	-22.81		
alpha	I	2034-01-11T00:38:58.356		12.55	2.87x	44685.66	-22.81		
4	I	2034-01-11T00:40:32.116		12.86	2.59x	42555.15	-22.82		
5	I	2034-01-11T00:40:42.371		12.89	2.55x	42311.30	-22.81		
6	I	2034-01-11T00:41:04.835		12.97	2.48x	41795.79	-22.81		
Uranus	I	2034-01-11T00:52:33.063		15.24	0.36x	25127.28		-15.34	-16.03
Uranus	E	2034-01-11T01:30:28.746		22.87	-6.88	25161.64		14.69	15.35
6	E	2034-01-11T01:41:59.882		25.22	-9.13	41878.24	22.91		
5	E	2034-01-11T01:42:11.949		25.26	-9.17	42157.72	22.91		
4	E	2034-01-11T01:42:30.380		25.33	-9.23	42589.13	22.92		
alpha	E	2034-01-11T01:44:05.080		25.65	-9.54	44751.00	22.92		
beta	E	2034-01-11T01:44:44.657		25.79	-9.67	45660.43	22.92		
eta	E	2034-01-11T01:45:50.795		26.01	-9.89	47176.12	22.92		
gamma	E	2034-01-11T01:46:10.249		26.08	-9.95	47622.05	22.92		
delta	E	2034-01-11T01:46:39.838		26.18	-10.05	48300.35	22.92		
lambda	E	2034-01-11T01:47:55.140		26.44	-10.30	50026.71	22.93		
epsilon	E	2034-01-11T01:48:46.274		26.61	-10.47	51199.14	22.93		

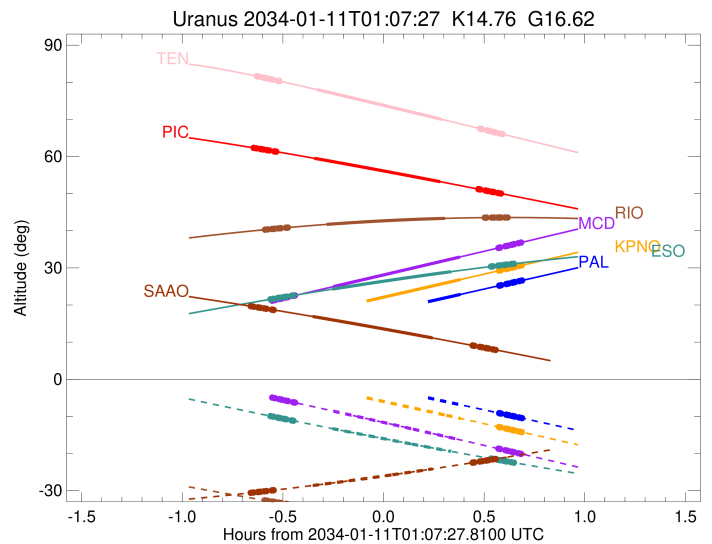
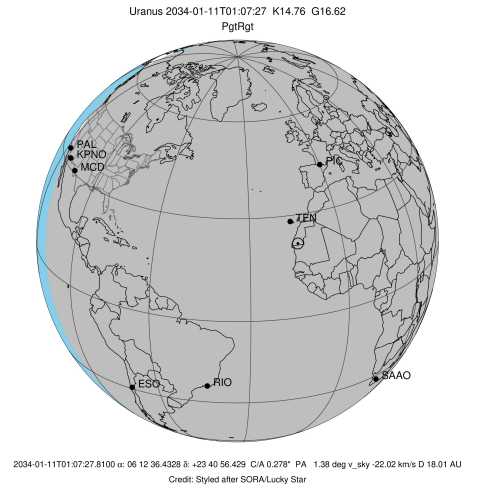
```

target                : Uranus
target radius (km)   : 25559.00
C/A epoch            : 2034-01-11T01:11:30.010
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       : 3425445226988259456
2Mass ID (if available) : 06123643+2340564
ICRS Star Coord at Epoch: 06h 12m 36.43280s +23:40:56.42869s
RUWE (>1.4 is poor) : 0.98
K magnitude           : 14.755
G magnitude           : 16.618
RP magnitude          : 15.937
BP magnitude          : 17.127
DUPflag              : 0
Distance (au)         : 18.010
f0 (km)               : 0.000
g0 (km)               : 0.000
skyplane vel. (km/s) : -22.02
Sun-Target sep (deg) : 162.49
Sun-Moon sep (deg)   : 91.50
B (ring opening deg) : 72.83
PA of pole (deg)     : 63.18
Pole direction: RA (deg): 257.31100
Dec (deg): -15.17500
C/A sky separation (") : 0.100
C/A sky separation (km) : 1300.7
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
    
```



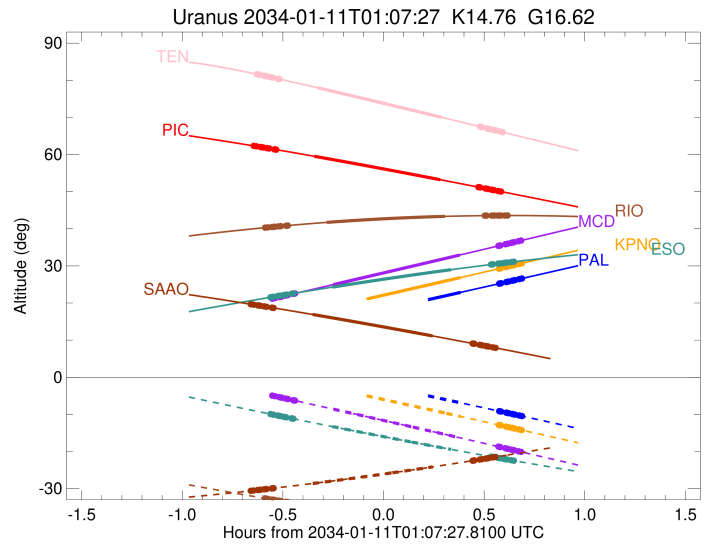
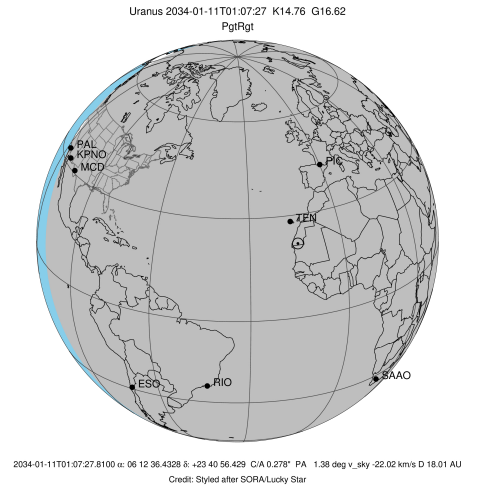
Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2034-01-11T00:34:20.416		15.35	0.43x	51110.90	-22.85		
lambda	I	2034-01-11T00:35:07.879		15.51	0.28x	50026.71	-22.84		
delta	I	2034-01-11T00:36:23.453		15.77	0.04x	48300.35	-22.84		
gamma	I	2034-01-11T00:36:52.770		15.87	-0.05x	47630.62	-22.84		
eta	I	2034-01-11T00:37:12.666		15.93	-0.11x	47176.12	-22.84		
beta	I	2034-01-11T00:38:19.004		16.16	-0.32x	45660.87	-22.85		
alpha	I	2034-01-11T00:39:01.597		16.30	-0.46x	44685.60	-22.84		
4	I	2034-01-11T00:40:35.205		16.62	-0.76x	42555.48	-22.85		
5	I	2034-01-11T00:40:45.462		16.65	-0.79x	42311.11	-22.84		
6	I	2034-01-11T00:41:07.888		16.73	-0.86x	41795.71	-22.84		
Uranus	I	2034-01-11T00:52:34.948		19.06	-3.08x	25122.01		-15.44	-16.13
Uranus	E	2034-01-11T01:30:25.603		26.86	-10.55	25167.52		14.57	15.23
6	E	2034-01-11T01:41:56.141		29.26	-12.87	41878.15	22.94		
5	E	2034-01-11T01:42:08.189		29.31	-12.91	42157.56	22.94		
4	E	2034-01-11T01:42:26.619		29.37	-12.97	42589.44	22.95		
alpha	E	2034-01-11T01:44:01.167		29.70	-13.29	44750.93	22.95		
beta	E	2034-01-11T01:44:40.683		29.84	-13.42	45660.28	22.95		
eta	E	2034-01-11T01:45:46.731		30.07	-13.65	47176.12	22.96		
gamma	E	2034-01-11T01:46:06.158		30.14	-13.71	47622.08	22.96		
delta	E	2034-01-11T01:46:35.703		30.24	-13.81	48300.35	22.96		
lambda	E	2034-01-11T01:47:50.895		30.50	-14.07	50026.71	22.96		
epsilon	E	2034-01-11T01:48:42.063		30.68	-14.24	51201.63	22.97		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2034-01-11T01:11:23.090
 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 : 3425445226988259456
 2Mass ID (if available) : 06123643+2340564
 ICRS Star Coord at Epoch: 06h 12m 36.43280s +23:40:56.42869s
 RUWE (>1.4 is poor) : 0.98
 K magnitude : 14.755
 G magnitude : 16.618
 RP magnitude : 15.937
 BP magnitude : 17.127
 DUPflag : 0
 Distance (au) : 18.010
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -22.02
 Sun-Target sep (deg) : 162.49
 Sun-Moon sep (deg) : 91.58
 B (ring opening deg) : 72.83
 PA of pole (deg) : 63.18
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 0.130
 C/A sky separation (km) : 1693.2
 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_itrf93_040916.bsp
 earth_720101_070426.bpc
 earth_200101_990628_predict.bpc
 pg3f0000r.bsp
 pg490000r.bsp
 naif0012.tls
 earth_flat_IAU.spk



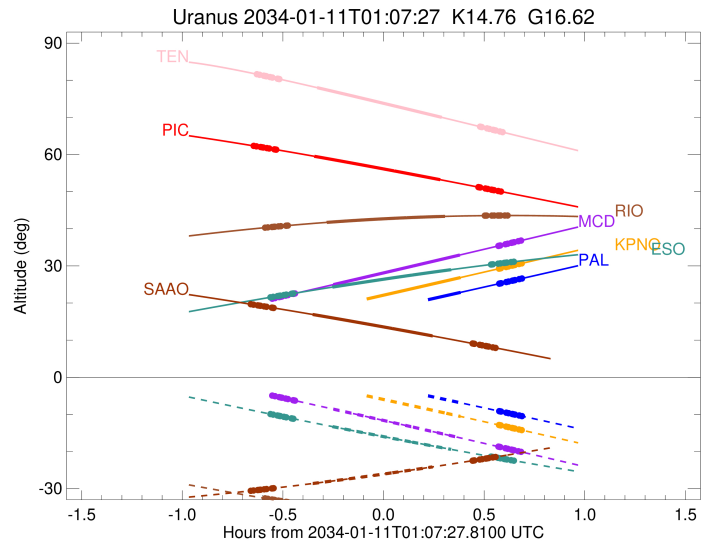
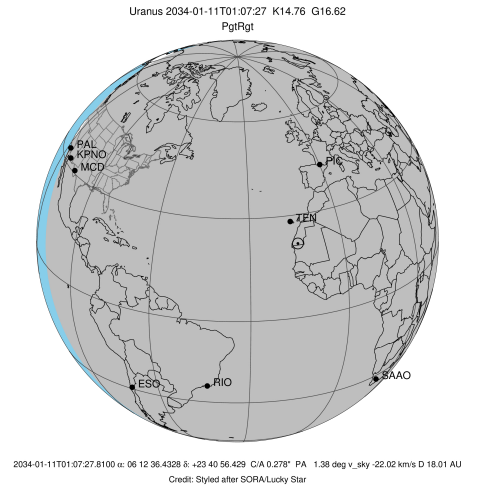
Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2034-01-11T00:34:19.804		21.17	-4.94x	51114.11	-22.90		
lambda	I	2034-01-11T00:35:07.306		21.33	-5.10	50026.71	-22.89		
delta	I	2034-01-11T00:36:22.719		21.59	-5.35	48300.35	-22.89		
gamma	I	2034-01-11T00:36:51.972		21.70	-5.45	47630.65	-22.89		
eta	I	2034-01-11T00:37:11.827		21.76	-5.52	47176.12	-22.89		
beta	I	2034-01-11T00:38:18.033		21.99	-5.74	45660.69	-22.89		
alpha	I	2034-01-11T00:39:00.533		22.14	-5.88	44685.53	-22.89		
4	I	2034-01-11T00:40:33.928		22.47	-6.19	42555.88	-22.90		
5	I	2034-01-11T00:40:44.186		22.50	-6.22	42310.86	-22.89		
6	I	2034-01-11T00:41:06.558		22.58	-6.30	41795.63	-22.89		
Uranus	I	2034-01-11T00:52:32.039		24.97	-8.59	25115.60		-15.56	-16.26
Uranus	E	2034-01-11T01:30:15.358		32.94	-16.31	25174.77		14.43	15.08
6	E	2034-01-11T01:41:45.077		35.39	-18.69	41878.04	22.99		
5	E	2034-01-11T01:41:57.099		35.43	-18.73	42157.37	22.99		
4	E	2034-01-11T01:42:15.525		35.50	-18.80	42589.81	23.00		
alpha	E	2034-01-11T01:43:49.869		35.83	-19.13	44750.84	22.99		
beta	E	2034-01-11T01:44:29.304		35.97	-19.26	45660.12	23.00		
eta	E	2034-01-11T01:45:35.232		36.21	-19.49	47176.12	23.00		
gamma	E	2034-01-11T01:45:54.622		36.28	-19.56	47622.10	23.00		
delta	E	2034-01-11T01:46:24.107		36.38	-19.66	48300.35	23.00		
lambda	E	2034-01-11T01:47:39.151		36.65	-19.92	50026.71	23.01		
epsilon	E	2034-01-11T01:48:30.348		36.83	-20.10	51204.62	23.01		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2034-01-11T01:06:14.200
 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 : 3425445226988259456
 2Mass ID (if available) : 06123643+2340564
 ICRS Star Coord at Epoch: 06h 12m 36.43280s +23:40:56.42869s
 RUWE (>1.4 is poor) : 0.98
 K magnitude : 14.755
 G magnitude : 16.618
 RP magnitude : 15.937
 BP magnitude : 17.127
 DUPflag : 0
 Distance (au) : 18.010
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -22.02
 Sun-Target sep (deg) : 162.49
 Sun-Moon sep (deg) : 92.06
 B (ring opening deg) : 72.83
 PA of pole (deg) : 63.18
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 0.237
 C/A sky separation (km) : 3092.0
 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



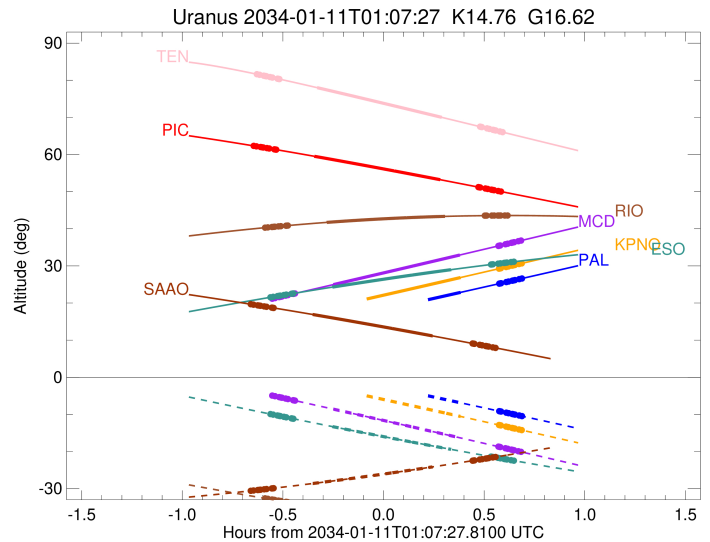
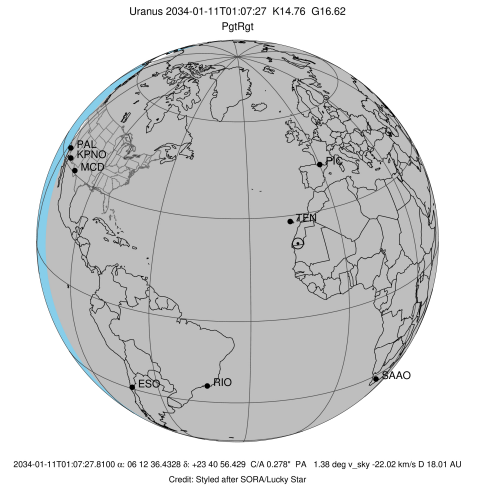
Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2034-01-11T00:29:44.259		81.63	-78.22	51128.77	-23.21		
lambda	I	2034-01-11T00:30:31.763		81.48	-78.37	50026.71	-23.20		
delta	I	2034-01-11T00:31:46.189		81.24	-78.60	48300.35	-23.19		
gamma	I	2034-01-11T00:32:15.060		81.15	-78.69	47630.76	-23.19		
eta	I	2034-01-11T00:32:34.664		81.08	-78.76	47176.12	-23.19		
beta	I	2034-01-11T00:33:40.059		80.87	-78.96	45659.90	-23.19		
alpha	I	2034-01-11T00:34:22.008		80.73	-79.09	44685.24	-23.18		
4	I	2034-01-11T00:35:54.164		80.43	-79.37	42557.68	-23.18		
5	I	2034-01-11T00:36:04.395		80.39	-79.40	42309.69	-23.17		
6	I	2034-01-11T00:36:26.458		80.32	-79.47	41795.30	-23.17		
Uranus	I	2034-01-11T00:47:43.537		78.01	-81.37	25091.25		-16.00	-16.72
Uranus	E	2034-01-11T01:24:50.242		70.02	-83.20	25197.35		13.98	14.62
6	E	2034-01-11T01:36:17.234		67.50	-81.87	41877.74	23.13		
5	E	2034-01-11T01:36:29.175		67.46	-81.84	42156.91	23.13		
4	E	2034-01-11T01:36:47.566		67.39	-81.80	42590.81	23.14		
alpha	E	2034-01-11T01:38:21.257		67.05	-81.57	44750.60	23.14		
beta	E	2034-01-11T01:39:00.432		66.90	-81.47	45659.68	23.14		
eta	E	2034-01-11T01:40:05.962		66.66	-81.30	47176.12	23.15		
gamma	E	2034-01-11T01:40:25.232		66.59	-81.25	47622.17	23.15		
delta	E	2034-01-11T01:40:54.529		66.49	-81.17	48300.35	23.15		
lambda	E	2034-01-11T01:42:09.100		66.21	-80.97	50026.71	23.15		
epsilon	E	2034-01-11T01:43:00.296		66.02	-80.84	51212.03	23.16		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2034-01-11T01:08:04.660
 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 : 3425445226988259456
 2Mass ID (if available) : 06123643+2340564
 ICRS Star Coord at Epoch: 06h 12m 36.43280s +23:40:56.42869s
 RUWE (>1.4 is poor) : 0.98
 K magnitude : 14.755
 G magnitude : 16.618
 RP magnitude : 15.937
 BP magnitude : 17.127
 DUPflag : 0
 Distance (au) : 18.010
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -22.02
 Sun-Target sep (deg) : 162.49
 Sun-Moon sep (deg) : 91.79
 B (ring opening deg) : 72.83
 PA of pole (deg) : 63.18
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 0.639
 C/A sky separation (km) : 8344.2
 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_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	2034-01-11T00:32:08.860		40.30	-32.62	51169.80	-22.96		
lambda	I	2034-01-11T00:32:58.738		40.37	-32.74	50026.71	-22.91		
delta	I	2034-01-11T00:34:14.132		40.48	-32.93	48300.35	-22.89		
gamma	I	2034-01-11T00:34:43.384		40.52	-33.01	47631.05	-22.88		
eta	I	2034-01-11T00:35:03.274		40.55	-33.06	47176.12	-22.87		
beta	I	2034-01-11T00:36:09.714		40.64	-33.23	45657.62	-22.84		
alpha	I	2034-01-11T00:36:52.249		40.70	-33.33	44684.71	-22.82		
4	I	2034-01-11T00:38:25.664		40.83	-33.57	42563.07	-22.79		
5	I	2034-01-11T00:38:36.412		40.84	-33.59	42305.50	-22.77		
6	I	2034-01-11T00:38:58.702		40.87	-33.65	41794.77	-22.76		
Uranus	I	2034-01-11T00:50:32.858		41.72	-35.33	25036.70		-16.96	-17.72
Uranus	E	2034-01-11T01:25:49.250		43.34	-39.81	25310.56		11.51	12.04
6	E	2034-01-11T01:37:41.048		43.54	-41.07	41875.70	22.77		
5	E	2034-01-11T01:37:53.203		43.54	-41.09	42155.21	22.78		
4	E	2034-01-11T01:38:12.269		43.55	-41.13	42595.91	22.80		
alpha	E	2034-01-11T01:39:46.960		43.56	-41.28	44749.01	22.84		
beta	E	2034-01-11T01:40:26.599		43.56	-41.35	45657.28	22.85		
eta	E	2034-01-11T01:41:33.029		43.57	-41.45	47176.12	22.88		
gamma	E	2034-01-11T01:41:52.538		43.57	-41.49	47622.59	22.89		
delta	E	2034-01-11T01:42:22.142		43.57	-41.53	48300.35	22.90		
lambda	E	2034-01-11T01:43:37.488		43.57	-41.65	50026.71	22.92		
epsilon	E	2034-01-11T01:44:31.037		43.57	-41.74	51254.72	22.97		

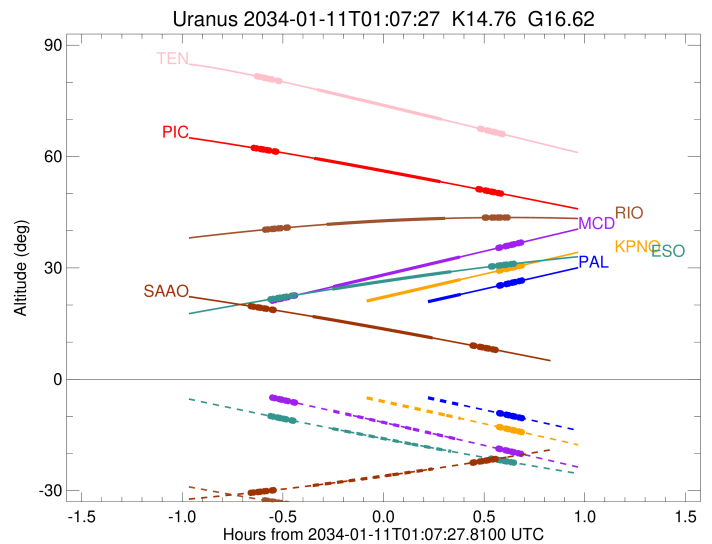
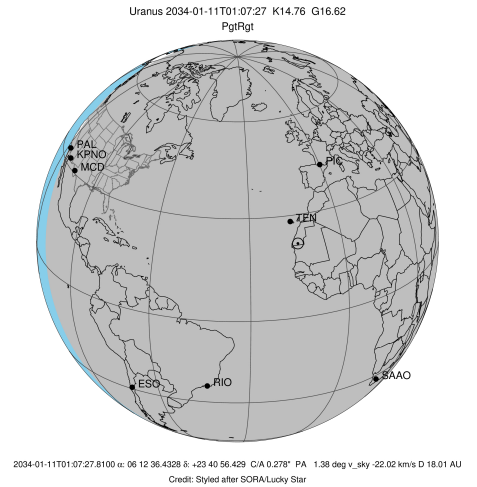
target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2034-01-11T01:09:50.230
 Event type : PgtRgt
 : Uranus occs: geocentric, topocentric
 : Ring occs: geocentric, topocentric
 Observer code : ESO
 Location : European Southern Obs. (3.6m)
 Latitude (deg) : -29.26097
 E. Longitude (deg) : 289.26831
 Altitude (km) : 2.400
 Gaia source ID : 3425445226988259456
 2Mass ID (if available) : 06123643+2340564
 ICRS Star Coord at Epoch: 06h 12m 36.43280s +23:40:56.42869s
 RUWE (>1.4 is poor) : 0.98
 K magnitude : 14.755
 G magnitude : 16.618
 RP magnitude : 15.937
 BP magnitude : 17.127
 DUPflag : 0
 Distance (au) : 18.010
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -22.02
 Sun-Target sep (deg) : 162.49
 Sun-Moon sep (deg) : 91.57
 B (ring opening deg) : 72.83
 PA of pole (deg) : 63.18
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 0.648
 C/A sky separation (km) : 8462.8
 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	2034-01-11T00:33:45.040		21.54	-9.91	51169.57	-22.82		
lambda	I	2034-01-11T00:34:35.200		21.67	-10.07	50026.71	-22.78		
delta	I	2034-01-11T00:35:51.035		21.86	-10.30	48300.35	-22.75		
gamma	I	2034-01-11T00:36:20.458		21.94	-10.39	47631.05	-22.74		
eta	I	2034-01-11T00:36:40.464		21.99	-10.45	47176.12	-22.74		
beta	I	2034-01-11T00:37:47.293		22.16	-10.66	45657.63	-22.71		
alpha	I	2034-01-11T00:38:30.077		22.26	-10.79	44684.71	-22.69		
4	I	2034-01-11T00:40:04.040		22.50	-11.08	42563.07	-22.66		
5	I	2034-01-11T00:40:14.850		22.53	-11.11	42305.50	-22.64		
6	I	2034-01-11T00:40:37.271		22.58	-11.18	41794.78	-22.63		
Uranus	I	2034-01-11T00:52:15.632		24.29	-13.29	25036.40		-16.97	-17.72
Uranus	E	2034-01-11T01:27:37.291		28.99	-19.43	25314.92		11.41	11.93
6	E	2034-01-11T01:39:32.529		30.38	-21.38	41875.58	22.69		
5	E	2034-01-11T01:39:44.734		30.40	-21.41	42155.17	22.69		
4	E	2034-01-11T01:40:03.890		30.44	-21.47	42596.13	22.72		
alpha	E	2034-01-11T01:41:38.924		30.61	-21.72	44748.93	22.75		
beta	E	2034-01-11T01:42:18.708		30.68	-21.83	45657.17	22.77		
eta	E	2034-01-11T01:43:25.387		30.81	-22.00	47176.12	22.80		
gamma	E	2034-01-11T01:43:44.967		30.84	-22.06	47622.61	22.81		
delta	E	2034-01-11T01:44:14.675		30.90	-22.13	48300.35	22.82		
lambda	E	2034-01-11T01:45:30.287		31.03	-22.34	50026.71	22.84		
epsilon	E	2034-01-11T01:46:24.116		31.13	-22.48	51256.90	22.89		


```

target                : Uranus
target radius (km)    : 25559.00
C/A epoch             : 2034-01-11T01:04:06.980
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        : 3425445226988259456
2Mass ID (if available) : 06123643+2340564
ICRS Star Coord at Epoch: 06h 12m 36.43280s +23:40:56.42869s
RUWE (>1.4 is poor)  : 0.98
K magnitude           : 14.755
G magnitude           : 16.618
RP magnitude          : 15.937
BP magnitude          : 17.127
DUPflag              : 0
Distance (au)         : 18.010
f0 (km)               : 0.000
g0 (km)               : 0.000
skyplane vel. (km/s)  : -22.02
Sun-Target sep (deg)  : 162.49
Sun-Moon sep (deg)    : 91.41
B (ring opening deg)  : 72.83
PA of pole (deg)      : 63.18
Pole direction: RA (deg): 257.31100
Dec (deg): -15.17500
C/A sky separation (") : 0.613
C/A sky separation (km) : 8000.8
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	2034-01-11T00:27:52.891		19.68	-30.59	51169.73	-22.85		
lambda	I	2034-01-11T00:28:42.989		19.56	-30.50	50026.71	-22.81		
delta	I	2034-01-11T00:29:58.719		19.37	-30.38	48300.35	-22.78		
gamma	I	2034-01-11T00:30:28.102		19.30	-30.33	47631.04	-22.77		
eta	I	2034-01-11T00:30:48.081		19.25	-30.29	47176.12	-22.77		
beta	I	2034-01-11T00:31:54.817		19.09	-30.18	45657.64	-22.74		
alpha	I	2034-01-11T00:32:37.542		18.98	-30.11	44684.71	-22.72		
4	I	2034-01-11T00:34:11.377		18.75	-29.94	42562.99	-22.69		
5	I	2034-01-11T00:34:22.167		18.73	-29.93	42305.57	-22.67		
6	I	2034-01-11T00:34:44.559		18.67	-29.89	41794.78	-22.66		
Uranus	I	2034-01-11T00:46:21.382		16.91	-28.62	25037.92		-16.94	-17.70
Uranus	E	2034-01-11T01:22:06.261		11.14	-24.14	25299.48		11.77	12.32
6	E	2034-01-11T01:34:02.687		9.10	-22.47	41875.95	22.57		
5	E	2034-01-11T01:34:14.943		9.06	-22.44	42155.33	22.58		
4	E	2034-01-11T01:34:34.139		9.01	-22.39	42595.35	22.60		
alpha	E	2034-01-11T01:36:09.733		8.73	-22.16	44749.22	22.63		
beta	E	2034-01-11T01:36:49.746		8.62	-22.07	45657.56	22.64		
eta	E	2034-01-11T01:37:56.794		8.42	-21.91	47176.12	22.67		
gamma	E	2034-01-11T01:38:16.488		8.37	-21.86	47622.53	22.67		
delta	E	2034-01-11T01:38:46.380		8.28	-21.79	48300.35	22.68		
lambda	E	2034-01-11T01:40:02.463		8.06	-21.60	50026.71	22.70		
epsilon	E	2034-01-11T01:40:56.317		7.90	-21.47	51249.58	22.74		