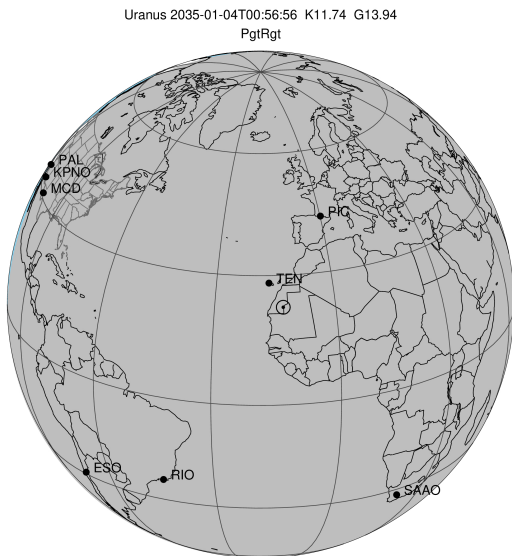


target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2035-01-04T00:56:56.410
 Event type : PgtRgt
 : Uranus occs: geocentric, topocentric
 : Ring occs: geocentric, topocentric
 Gaia source ID : 3382629625728559360
 2Mass ID (if available) : 06341088+2332212

Uranus 2035-01-04T00:56:56 K11.74 G13.94 PgtRgt

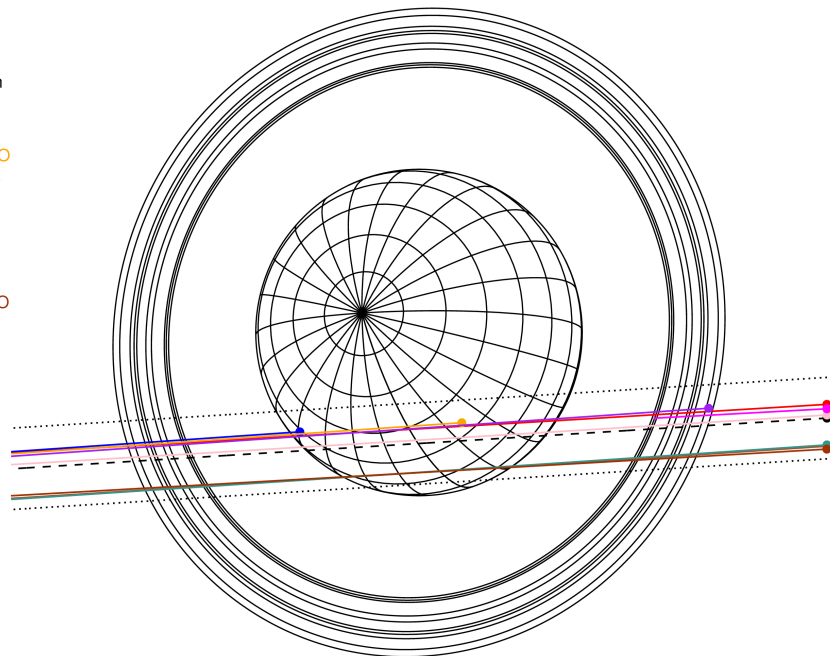
ICRS Star Coord at Epoch: 06h 34m 10.88274s +23:32:21.17825s

RUWE (>1.4 is poor) : 1.07
 K magnitude : 11.739
 G magnitude : 13.936
 RP magnitude : 13.235
 BP magnitude : 14.494
 DUPflag : 0
 Distance (au) : 17.909
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -23.26
 Sun-Target sep (deg) : 174.83
 Sun-Moon sep (deg) : 123.94
 B (ring opening deg) : 68.32
 PA of pole (deg) : 71.16



2035-01-04T00:56:56.4100 α: 06 34 10.8827 δ: +23 32 21.178 C/A 1.328° PA 3.56 deg v_sky -23.26 km/s D 17.91 AU
 Credit: Styled after SORA/Lucky Star

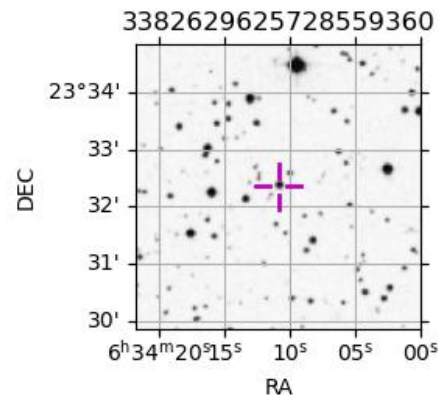
Earth
 PIC
 PAL
 KPNO
 MCD
 TEN
 KAV
 RIO
 ESO
 SAAO



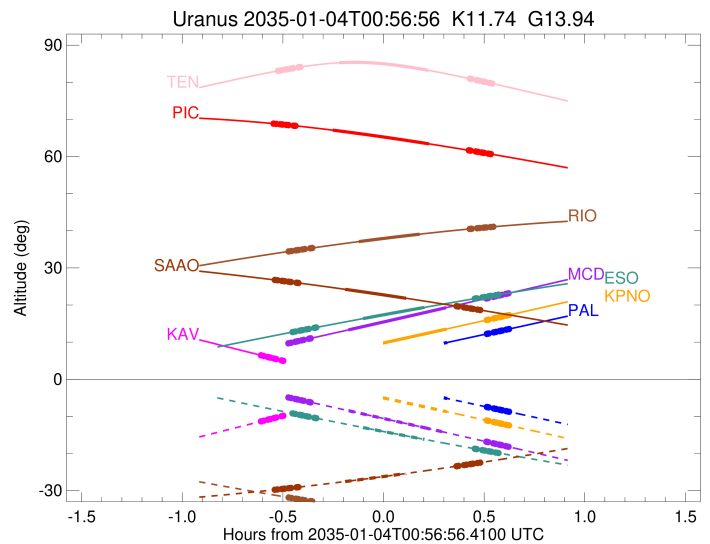
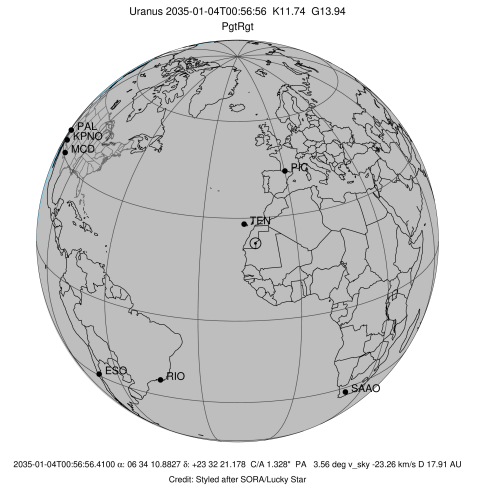
#	a(km)	ring
1	41837.2	6
2	42235.0	5
3	42571.2	4
4	44718.5	alpha
5	45661.1	beta
6	47176.1	eta
7	47626.3	gamma
8	48300.3	delta
9	50026.7	lambda
10	51149.4	epsilon

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 04 00:23 - JAN 04 01:28	PieRie
PAL	Palomar Mt (200")	33.4	243.1		+	+++++	JAN 04 01:15 - JAN 04 01:34	PneRne
PMO	Purple Mtn Obs. Nanki	32.1	118.8					PnnRnn
KPNO	Kitt Peak Natl Obs	32.0	248.4		+	+++++	JAN 04 01:15 - JAN 04 01:34	PneRne
MCD	McDonald Obs. 2.7m	30.7	256.0	+++++	+ +	+++++	JAN 04 00:29 - JAN 04 01:33	PieRie
TEN	Teide Obs./Tenerife	28.3	343.5	+++++	+ +	+++++	JAN 04 00:25 - JAN 04 01:29	PieRie
IRTF	Mauna Kea/IRTF	19.8	204.5					PnnRnn
KAV	Kavalur Observatory	12.6	78.8	+++++			JAN 04 00:20 - JAN 04 00:26	PnnRin
RIO	Rio de Janeiro	-22.9	316.8	+++++	+ +	+++++	JAN 04 00:28 - JAN 04 01:29	PieRie
ESO	European Southern Obs	-29.3	289.3	+++++	+ +	+++++	JAN 04 00:29 - JAN 04 01:30	PieRie
AAT	Siding Spring (AAT)	-31.3	149.1					PnnRnn
SAAO	So. Afr. Astro. Obs.	-32.4	20.8	+++++	+ +	+++++	JAN 04 00:24 - JAN 04 01:25	PieRie
MSO	Mt. Stromlo Observato	-35.3	149.0					PnnRnn

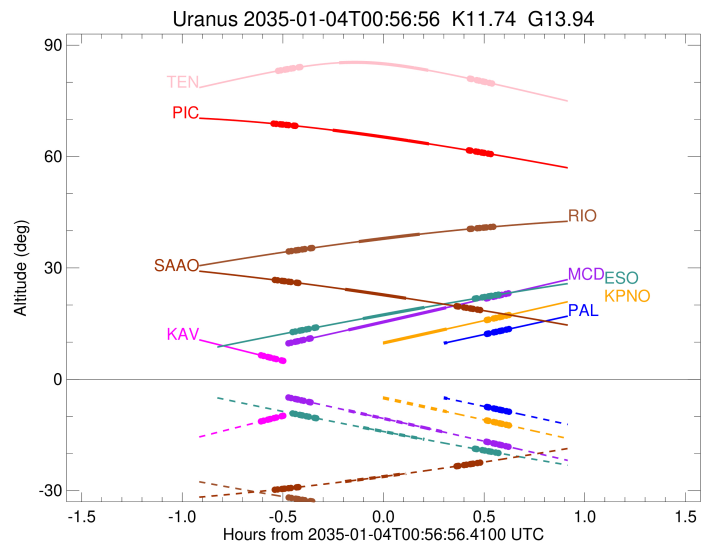
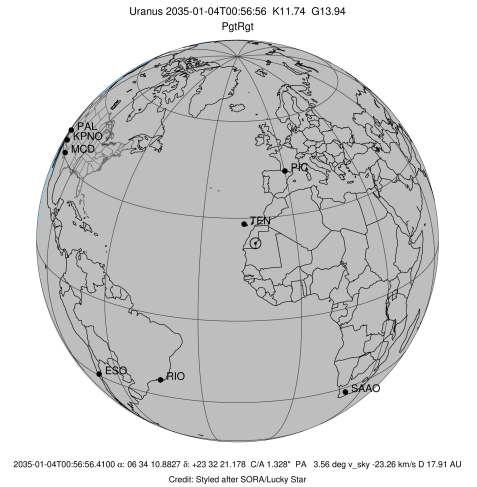


target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2035-01-04T00:56:00.520
 Event type : PgtRgt
 : Uranus occs: geocentric, topocentric
 : Ring occs: geocentric, topocentric
 Observer code : PIC
 Location : Pic du Midi
 Latitude (deg) : 42.93656
 E. Longitude (deg) : 0.14231
 Altitude (km) : 2.890
 Gaia source ID : 3382629625728559360
 2Mass ID (if available) : 06341088+2332212
 ICRS Star Coord at Epoch: 06h 34m 10.88274s +23:32:21.17825s
 RUWE (>1.4 is poor) : 1.07
 K magnitude : 11.739
 G magnitude : 13.936
 RP magnitude : 13.235
 BP magnitude : 14.494
 DUPflag : 0
 Distance (au) : 17.909
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -23.26
 Sun-Target sep (deg) : 174.83
 Sun-Moon sep (deg) : 124.74
 B (ring opening deg) : 68.32
 PA of pole (deg) : 71.16
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 1.160
 C/A sky separation (km) : 15060.8
 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_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	2035-01-04T00:23:58.152		68.88	-69.58	51411.89	-23.96		
lambda	I	2035-01-04T00:24:55.935		68.80	-69.54	50026.71	-23.94		
delta	I	2035-01-04T00:26:08.184		68.69	-69.49	48300.35	-23.85		
gamma	I	2035-01-04T00:26:36.548		68.65	-69.46	47624.43	-23.81		
eta	I	2035-01-04T00:26:55.386		68.62	-69.45	47176.12	-23.78		
beta	I	2035-01-04T00:27:59.578		68.52	-69.40	45652.30	-23.69		
alpha	I	2035-01-04T00:28:39.405		68.46	-69.36	44705.36	-23.63		
4	I	2035-01-04T00:30:10.808		68.32	-69.28	42548.91	-23.45		
5	I	2035-01-04T00:30:24.101		68.30	-69.27	42241.50	-23.45		
6	I	2035-01-04T00:30:41.336		68.27	-69.25	41832.35	-23.39		
Uranus	I	2035-01-04T00:41:49.835		67.10	-68.52	25085.14		-20.94	-21.84
Uranus	E	2035-01-04T01:10:29.108		63.42	-65.71	25418.63		11.10	11.62
6	E	2035-01-04T01:22:22.187		61.67	-64.23	41812.24	23.36		
5	E	2035-01-04T01:22:42.227		61.62	-64.19	42283.61	23.42		
4	E	2035-01-04T01:22:53.803		61.59	-64.16	42561.56	23.43		
alpha	E	2035-01-04T01:24:26.765		61.36	-63.96	44748.58	23.60		
beta	E	2035-01-04T01:25:05.025		61.26	-63.87	45656.72	23.66		
eta	E	2035-01-04T01:26:09.142		61.09	-63.73	47176.12	23.76		
gamma	E	2035-01-04T01:26:28.269		61.05	-63.69	47630.74	23.78		
delta	E	2035-01-04T01:26:56.404		60.97	-63.62	48300.35	23.82		
lambda	E	2035-01-04T01:28:08.748		60.79	-63.46	50026.71	23.91		
epsilon	E	2035-01-04T01:28:39.263		60.71	-63.39	50756.78	23.93		

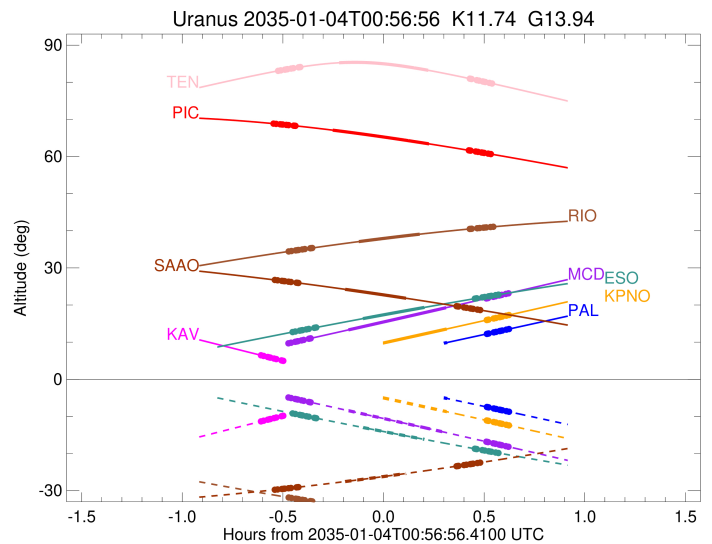
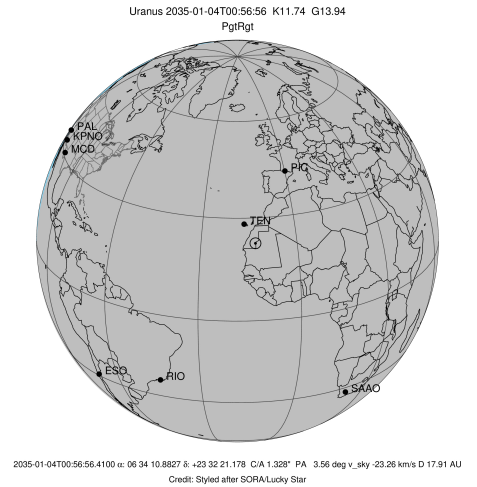
target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2035-01-04T01:00:49.070
 Event type : PgtRgt
 : Uranus occs: geocentric, topocentric
 : Ring occs: geocentric, topocentric
 Observer code : PAL
 Location : Palomar Mt (200")
 Latitude (deg) : 33.35622
 E. Longitude (deg) : 243.13601
 Altitude (km) : 1.706
 Gaia source ID : 3382629625728559360
 2Mass ID (if available) : 06341088+2332212
 ICRS Star Coord at Epoch: 06h 34m 10.88274s +23:32:21.17825s
 RUWE (>1.4 is poor) : 1.07
 K magnitude : 11.739
 G magnitude : 13.936
 RP magnitude : 13.235
 BP magnitude : 14.494
 DUPflag : 0
 Distance (au) : 17.909
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -23.26
 Sun-Target sep (deg) : 174.83
 Sun-Moon sep (deg) : 123.62
 B (ring opening deg) : 68.32
 PA of pole (deg) : 71.16
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 1.096
 C/A sky separation (km) : 14239.0
 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_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	2035-01-04T00:28:01.973		0.78x	3.72x	51419.70	-23.64		
lambda	I	2035-01-04T00:29:00.861		0.96x	3.55x	50026.71	-23.63		
delta	I	2035-01-04T00:30:14.045		1.19x	3.33x	48300.35	-23.55		
gamma	I	2035-01-04T00:30:42.772		1.28x	3.24x	47624.29	-23.52		
eta	I	2035-01-04T00:31:01.837		1.34x	3.18x	47176.12	-23.50		
beta	I	2035-01-04T00:32:06.782		1.54x	2.99x	45652.80	-23.41		
alpha	I	2035-01-04T00:32:47.125		1.67x	2.86x	44704.49	-23.36		
4	I	2035-01-04T00:34:19.442		1.95x	2.58x	42550.07	-23.21		
5	I	2035-01-04T00:34:33.000		2.00x	2.54x	42239.14	-23.21		
6	I	2035-01-04T00:34:50.256		2.05x	2.49x	41833.61	-23.15		
Uranus	I	2035-01-04T00:45:59.856		4.15x	0.44x	25074.32		-21.19	-22.10
Uranus	E	2035-01-04T01:15:54.588		9.90	-5.19	25404.97		11.64	12.18
6	E	2035-01-04T01:27:45.161		12.22	-7.47	41812.66	23.24		
5	E	2035-01-04T01:28:05.253		12.29	-7.53	42282.86	23.30		
4	E	2035-01-04T01:28:16.948		12.33	-7.57	42562.07	23.30		
alpha	E	2035-01-04T01:29:50.413		12.63	-7.87	44748.42	23.46		
beta	E	2035-01-04T01:30:28.924		12.76	-7.99	45656.91	23.51		
eta	E	2035-01-04T01:31:33.448		12.97	-8.20	47176.12	23.60		
gamma	E	2035-01-04T01:31:52.703		13.04	-8.27	47630.72	23.62		
delta	E	2035-01-04T01:32:21.031		13.13	-8.36	48300.35	23.66		
lambda	E	2035-01-04T01:33:33.885		13.37	-8.59	50026.71	23.74		
epsilon	E	2035-01-04T01:34:04.657		13.47	-8.69	50757.58	23.75		

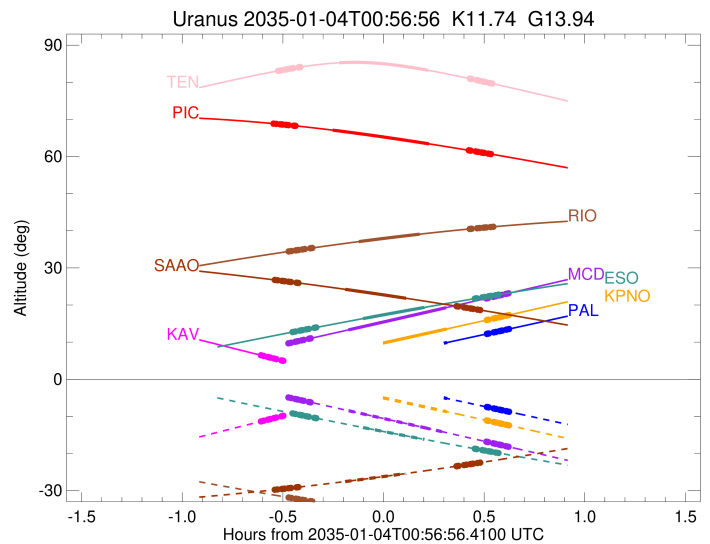
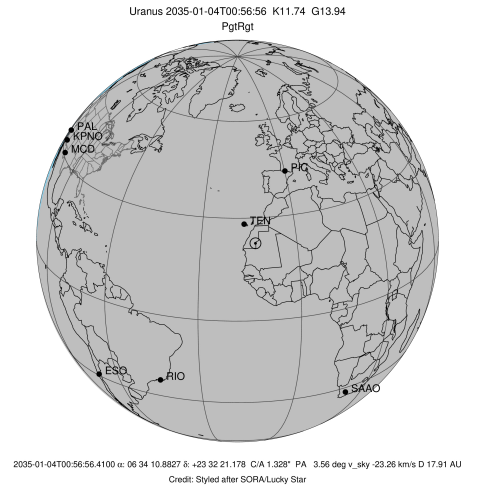
```

target                : Uranus
target radius (km)    : 25559.00
C/A epoch             : 2035-01-04T01:00:53.350
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        : 3382629625728559360
2Mass ID (if available) : 06341088+2332212
ICRS Star Coord at Epoch: 06h 34m 10.88274s +23:32:21.17825s
RUWE (>1.4 is poor)  : 1.07
K magnitude           : 11.739
G magnitude           : 13.936
RP magnitude          : 13.235
BP magnitude          : 14.494
DUPflag              : 0
Distance (au)         : 17.909
f0 (km)               : 0.000
g0 (km)               : 0.000
skyplane vel. (km/s)  : -23.26
Sun-Target sep (deg)  : 174.83
Sun-Moon sep (deg)    : 123.65
B (ring opening deg)  : 68.32
PA of pole (deg)      : 71.16
Pole direction: RA (deg): 257.31100
Dec (deg): -15.17500
C/A sky separation (") : 1.121
C/A sky separation (km) : 14559.8
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_itrf93_040916.bsp
earth_720101_070426.bpc
earth_200101_990628_predict.bpc
pg3f0000r.bsp
pg490000r.bsp
naif0012.tls
earth_flat_IAU.spk
    
```



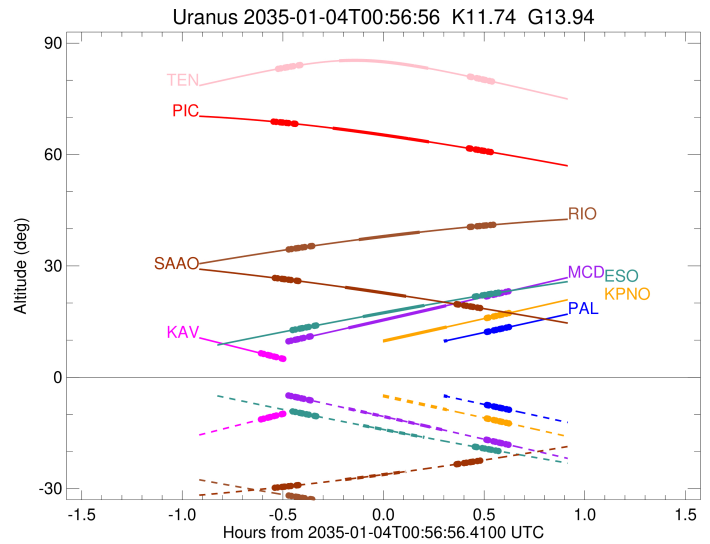
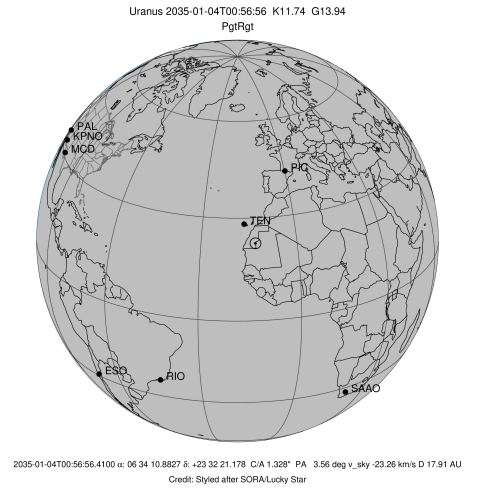
Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2035-01-04T00:28:13.828		4.17x	0.47x	51417.71	-23.63		
lambda	I	2035-01-04T00:29:12.664		4.36x	0.28x	50026.71	-23.61		
delta	I	2035-01-04T00:30:25.897		4.60x	0.05x	48300.35	-23.53		
gamma	I	2035-01-04T00:30:54.645		4.69x	-0.04x	47624.33	-23.50		
eta	I	2035-01-04T00:31:13.728		4.75x	-0.10x	47176.12	-23.48		
beta	I	2035-01-04T00:32:18.740		4.96x	-0.30x	45652.66	-23.39		
alpha	I	2035-01-04T00:32:59.113		5.09	-0.43x	44704.72	-23.34		
4	I	2035-01-04T00:34:31.574		5.39	-0.72x	42549.75	-23.18		
5	I	2035-01-04T00:34:45.117		5.43	-0.77x	42239.79	-23.17		
6	I	2035-01-04T00:35:02.442		5.49	-0.82x	41833.26	-23.12		
Uranus	I	2035-01-04T00:46:14.995		7.68	-2.96x	25077.48		-21.12	-22.03
Uranus	E	2035-01-04T01:15:48.371		13.55	-8.73	25412.01		11.37	11.89
6	E	2035-01-04T01:27:42.783		15.95	-11.10	41812.37	23.21		
5	E	2035-01-04T01:28:02.942		16.02	-11.16	42283.39	23.27		
4	E	2035-01-04T01:28:14.613		16.06	-11.20	42561.71	23.27		
alpha	E	2035-01-04T01:29:48.217		16.38	-11.51	44748.54	23.43		
beta	E	2035-01-04T01:30:26.758		16.51	-11.64	45656.76	23.49		
eta	E	2035-01-04T01:31:31.346		16.73	-11.86	47176.12	23.58		
gamma	E	2035-01-04T01:31:50.617		16.79	-11.92	47630.74	23.60		
delta	E	2035-01-04T01:32:18.964		16.89	-12.02	48300.35	23.64		
lambda	E	2035-01-04T01:33:31.861		17.13	-12.26	50026.71	23.72		
epsilon	E	2035-01-04T01:34:02.618		17.24	-12.36	50756.89	23.74		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2035-01-04T01:00:54.360
 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 : 3382629625728559360
 2Mass ID (if available) : 06341088+2332212
 ICRS Star Coord at Epoch: 06h 34m 10.88274s +23:32:21.17825s
 RUWE (>1.4 is poor) : 1.07
 K magnitude : 11.739
 G magnitude : 13.936
 RP magnitude : 13.235
 BP magnitude : 14.494
 DUPflag : 0
 Distance (au) : 17.909
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -23.26
 Sun-Target sep (deg) : 174.83
 Sun-Moon sep (deg) : 123.72
 B (ring opening deg) : 68.32
 PA of pole (deg) : 71.16
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 1.152
 C/A sky separation (km) : 14963.1
 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



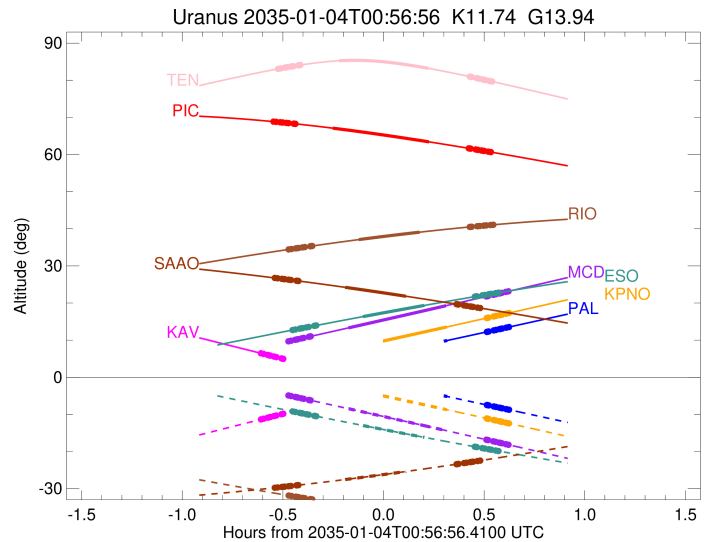
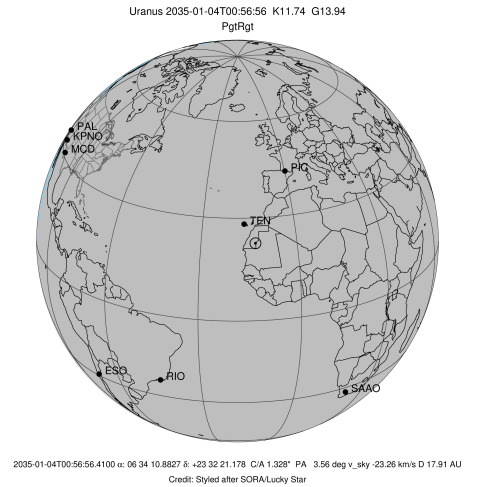
Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2035-01-04T00:28:25.172		9.65	-4.87x	51415.15	-23.62		
lambda	I	2035-01-04T00:29:23.920		9.85	-5.06	50026.71	-23.60		
delta	I	2035-01-04T00:30:37.194		10.09	-5.30	48300.35	-23.52		
gamma	I	2035-01-04T00:31:05.960		10.19	-5.40	47624.37	-23.48		
eta	I	2035-01-04T00:31:25.060		10.25	-5.46	47176.12	-23.46		
beta	I	2035-01-04T00:32:30.138		10.47	-5.68	45652.49	-23.36		
alpha	I	2035-01-04T00:33:10.536		10.61	-5.81	44705.02	-23.31		
4	I	2035-01-04T00:34:43.155		10.92	-6.12	42549.34	-23.14		
5	I	2035-01-04T00:34:56.674		10.96	-6.16	42240.62	-23.14		
6	I	2035-01-04T00:35:14.084		11.02	-6.22	41832.82	-23.08		
Uranus	I	2035-01-04T00:46:30.351		13.31	-8.47	25081.83		-21.02	-21.92
Uranus	E	2035-01-04T01:15:35.508		19.28	-14.36	25420.76		11.02	11.53
6	E	2035-01-04T01:27:34.760		21.77	-16.82	41812.02	23.16		
5	E	2035-01-04T01:27:55.000		21.84	-16.89	42284.03	23.23		
4	E	2035-01-04T01:28:06.640		21.88	-16.93	42561.26	23.23		
alpha	E	2035-01-04T01:29:40.401		22.21	-17.25	44748.69	23.41		
beta	E	2035-01-04T01:30:18.972		22.34	-17.38	45656.58	23.46		
eta	E	2035-01-04T01:31:23.627		22.57	-17.60	47176.12	23.56		
gamma	E	2035-01-04T01:31:42.913		22.63	-17.67	47630.76	23.59		
delta	E	2035-01-04T01:32:11.279		22.73	-17.77	48300.35	23.62		
lambda	E	2035-01-04T01:33:24.216		22.99	-18.02	50026.71	23.71		
epsilon	E	2035-01-04T01:33:54.950		23.09	-18.12	50756.06	23.73		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2035-01-04T00:56:49.940
 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 : 3382629625728559360
 2Mass ID (if available) : 06341088+2332212
 ICRS Star Coord at Epoch: 06h 34m 10.88274s +23:32:21.17825s
 RUWE (>1.4 is poor) : 1.07
 K magnitude : 11.739
 G magnitude : 13.936
 RP magnitude : 13.235
 BP magnitude : 14.494
 DUPflag : 0
 Distance (au) : 17.909
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -23.26
 Sun-Target sep (deg) : 174.83
 Sun-Moon sep (deg) : 124.70
 B (ring opening deg) : 68.32
 PA of pole (deg) : 71.16
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 1.295
 C/A sky separation (km) : 16822.0
 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	2035-01-04T00:25:21.513		83.05	-78.47	51400.79	-23.74		
lambda	I	2035-01-04T00:26:19.371		83.21	-78.66	50026.71	-23.71		
delta	I	2035-01-04T00:27:32.362		83.41	-78.90	48300.35	-23.59		
gamma	I	2035-01-04T00:28:01.031		83.49	-79.00	47624.62	-23.55		
eta	I	2035-01-04T00:28:20.092		83.54	-79.06	47176.12	-23.51		
beta	I	2035-01-04T00:29:25.089		83.70	-79.27	45651.57	-23.39		
alpha	I	2035-01-04T00:30:05.353		83.81	-79.40	44706.66	-23.32		
4	I	2035-01-04T00:31:38.197		84.03	-79.70	42547.20	-23.09		
5	I	2035-01-04T00:31:51.504		84.06	-79.74	42245.03	-23.09		
6	I	2035-01-04T00:32:09.249		84.11	-79.80	41830.46	-23.01		
Uranus	I	2035-01-04T00:43:42.237		85.26	-81.89	25109.80		-20.35	-21.22
Uranus	E	2035-01-04T01:10:17.380		83.23	-84.62	25457.21		9.43	9.87
6	E	2035-01-04T01:22:39.792		80.99	-83.97	41810.65	23.01		
5	E	2035-01-04T01:23:00.342		80.92	-83.93	42286.54	23.08		
4	E	2035-01-04T01:23:11.861		80.88	-83.91	42559.51	23.09		
alpha	E	2035-01-04T01:24:46.198		80.58	-83.74	44749.24	23.31		
beta	E	2035-01-04T01:25:24.864		80.45	-83.66	45655.88	23.39		
eta	E	2035-01-04T01:26:29.727		80.23	-83.53	47176.12	23.51		
gamma	E	2035-01-04T01:26:49.057		80.17	-83.49	47630.86	23.54		
delta	E	2035-01-04T01:27:17.468		80.08	-83.43	48300.35	23.59		
lambda	E	2035-01-04T01:28:30.476		79.83	-83.27	50026.71	23.70		
epsilon	E	2035-01-04T01:29:01.098		79.73	-83.20	50753.17	23.73		

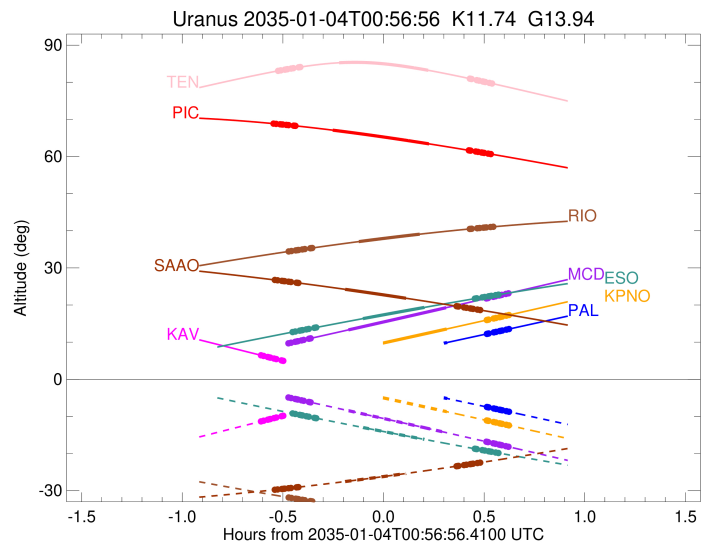
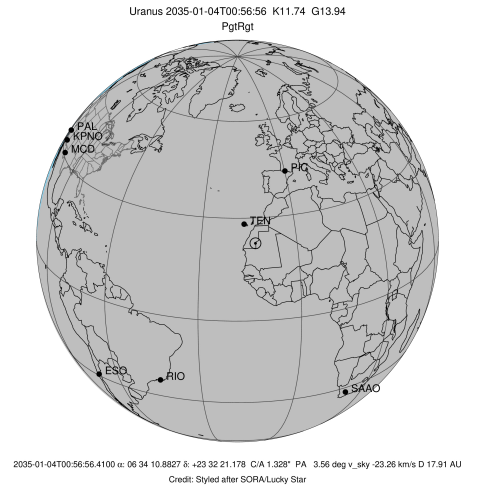
target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2035-01-04T00:52:40.360
 Event type : PgtRgt
 : Uranus occs: geocentric, topocentric
 : Ring occs: geocentric, topocentric
 Observer code : KAV
 Location : Kavalur Observatory
 Latitude (deg) : 12.57556
 E. Longitude (deg) : 78.83167
 Altitude (km) : 0.722
 Gaia source ID : 3382629625728559360
 2Mass ID (if available) : 06341088+2332212
 ICRS Star Coord at Epoch: 06h 34m 10.88274s +23:32:21.17825s
 RUWE (>1.4 is poor) : 1.07
 K magnitude : 11.739
 G magnitude : 13.936
 RP magnitude : 13.235
 BP magnitude : 14.494
 DUPflag : 0
 Distance (au) : 17.909
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -23.26
 Sun-Target sep (deg) : 174.83
 Sun-Moon sep (deg) : 124.42
 B (ring opening deg) : 68.32
 PA of pole (deg) : 71.16
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 1.186
 C/A sky separation (km) : 15404.7
 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_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	2035-01-04T00:20:14.168		6.50	-11.39	51408.13	-23.58		
lambda	I	2035-01-04T00:21:12.723		6.28	-11.16	50026.71	-23.56		
delta	I	2035-01-04T00:22:26.154		6.00	-10.89	48300.35	-23.46		
gamma	I	2035-01-04T00:22:54.985		5.90	-10.78	47624.49	-23.42		
eta	I	2035-01-04T00:23:14.140		5.82	-10.70	47176.12	-23.39		
beta	I	2035-01-04T00:24:19.423		5.58	-10.46	45652.06	-23.29		
alpha	I	2035-01-04T00:24:59.904		5.43	-10.30	44705.77	-23.23		
4	I	2035-01-04T00:26:32.938		5.08	-9.95	42548.38	-23.04		
5	I	2035-01-04T00:26:46.406		5.03	-9.90	42242.58	-23.04		
6	I	2035-01-04T00:27:04.019		4.96x	-9.83	41831.77	-22.98		
Uranus	I	2035-01-04T00:38:27.241		2.40x	-7.25	25090.68		-20.81	-21.70
Uranus	E	2035-01-04T01:07:12.675		-4.01x	-0.76x	25424.11		10.88	11.38
6	E	2035-01-04T01:19:23.627		-6.71x	1.96x	41812.08	22.87		
5	E	2035-01-04T01:19:44.114		-6.78x	2.04x	42283.91	22.94		
4	E	2035-01-04T01:19:55.911		-6.82x	2.08x	42561.35	22.94		
alpha	E	2035-01-04T01:21:30.839		-7.17x	2.44x	44748.64	23.12		
beta	E	2035-01-04T01:22:09.891		-7.32x	2.58x	45656.64	23.18		
eta	E	2035-01-04T01:23:15.339		-7.55x	2.83x	47176.12	23.27		
gamma	E	2035-01-04T01:23:34.861		-7.63x	2.90x	47630.75	23.30		
delta	E	2035-01-04T01:24:03.574		-7.73x	3.00x	48300.35	23.34		
lambda	E	2035-01-04T01:25:17.399		-8.00x	3.28x	50026.71	23.43		
epsilon	E	2035-01-04T01:25:48.523		-8.11x	3.39x	50756.47	23.45		

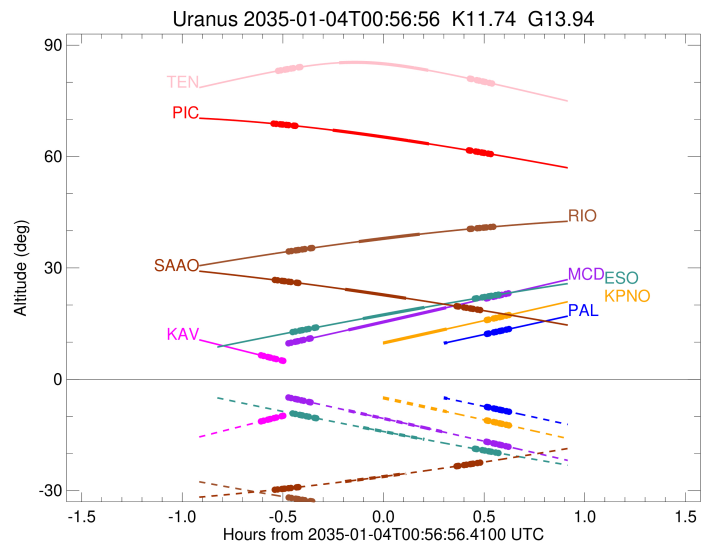
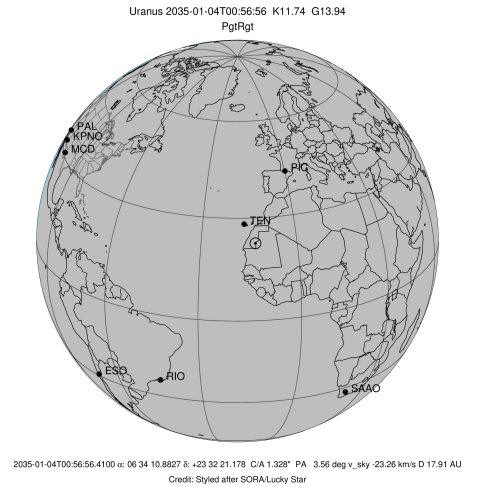
```

target                : Uranus
target radius (km)   : 25559.00
C/A epoch            : 2035-01-04T00:58:25.610
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      : 3382629625728559360
2Mass ID (if available) : 06341088+2332212
ICRS Star Coord at Epoch: 06h 34m 10.88274s +23:32:21.17825s
RUWE (>1.4 is poor) : 1.07
K magnitude          : 11.739
G magnitude          : 13.936
RP magnitude         : 13.235
BP magnitude         : 14.494
DUPflag             : 0
Distance (au)       : 17.909
f0 (km)             : 0.000
g0 (km)             : 0.000
skyplane vel. (km/s) : -23.26
Sun-Target sep (deg) : 174.83
Sun-Moon sep (deg)  : 124.20
B (ring opening deg) : 68.32
PA of pole (deg)    : 71.16
Pole direction: RA (deg): 257.31100
Dec (deg): -15.17500
C/A sky separation (") : 1.686
C/A sky separation (km) : 21899.2
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_itr93_040916.bsp
earth_720101_070426.bpc
earth_200101_990628_predict.bpc
pg3f0000r.bsp
pg490000r.bsp
naif0012.tls
earth_flat_IAU.spk
  
```



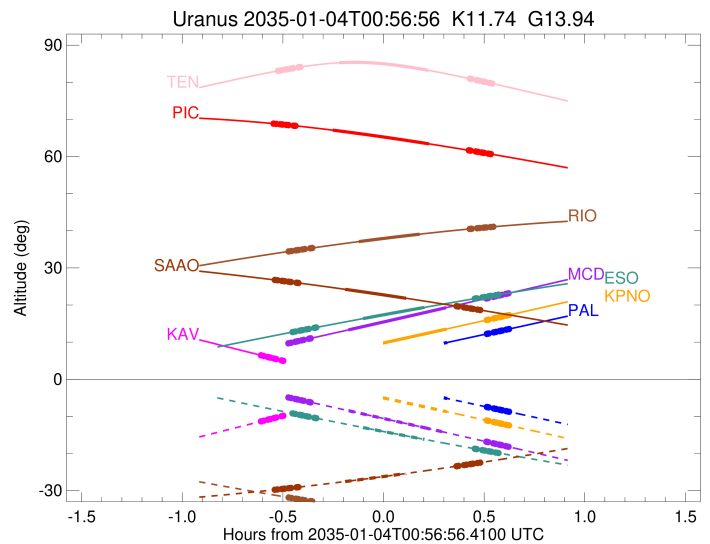
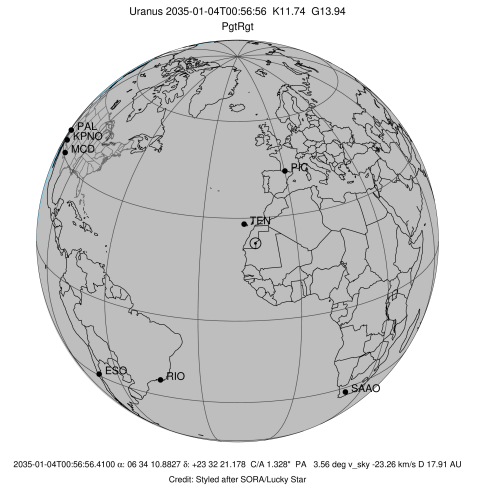
Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2035-01-04T00:28:31.006		34.41	-31.83	51365.70	-22.63		
lambda	I	2035-01-04T00:29:30.156		34.55	-31.98	50026.71	-22.57		
delta	I	2035-01-04T00:30:46.993		34.72	-32.17	48300.35	-22.37		
gamma	I	2035-01-04T00:31:17.236		34.78	-32.25	47625.21	-22.28		
eta	I	2035-01-04T00:31:37.418		34.83	-32.30	47176.12	-22.22		
beta	I	2035-01-04T00:32:46.429		34.98	-32.47	45649.50	-22.00		
alpha	I	2035-01-04T00:33:29.032		35.07	-32.58	44710.71	-21.87		
4	I	2035-01-04T00:35:08.818		35.29	-32.82	42542.32	-21.48		
5	I	2035-01-04T00:35:22.518		35.32	-32.86	42255.60	-21.46		
6	I	2035-01-04T00:35:42.397		35.36	-32.90	41824.83	-21.33		
Uranus	I	2035-01-04T00:49:35.007		37.09	-34.88	25238.91		-17.00	-17.76
Uranus	E	2035-01-04T01:07:41.856		39.08	-37.24	25547.66		3.13	3.28
6	E	2035-01-04T01:22:38.382		40.49	-38.98	41806.22	21.36		
5	E	2035-01-04T01:23:01.106		40.52	-39.02	42294.63	21.49		
4	E	2035-01-04T01:23:12.810		40.54	-39.04	42553.56	21.51		
alpha	E	2035-01-04T01:24:53.986		40.68	-39.23	44750.85	21.91		
beta	E	2035-01-04T01:25:34.913		40.74	-39.30	45653.46	22.04		
eta	E	2035-01-04T01:26:43.675		40.84	-39.42	47176.12	22.26		
gamma	E	2035-01-04T01:27:04.089		40.87	-39.46	47631.14	22.32		
delta	E	2035-01-04T01:27:34.013		40.91	-39.51	48300.35	22.41		
lambda	E	2035-01-04T01:28:50.711		41.01	-39.65	50026.71	22.61		
epsilon	E	2035-01-04T01:29:22.464		41.05	-39.70	50745.82	22.68		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2035-01-04T00:59:46.770
 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 : 3382629625728559360
 2Mass ID (if available) : 06341088+2332212
 ICRS Star Coord at Epoch: 06h 34m 10.88274s +23:32:21.17825s
 RUWE (>1.4 is poor) : 1.07
 K magnitude : 11.739
 G magnitude : 13.936
 RP magnitude : 13.235
 BP magnitude : 14.494
 DUPflag : 0
 Distance (au) : 17.909
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -23.26
 Sun-Target sep (deg) : 174.83
 Sun-Moon sep (deg) : 123.81
 B (ring opening deg) : 68.32
 PA of pole (deg) : 71.16
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 1.683
 C/A sky separation (km) : 21857.5
 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	2035-01-04T00:29:40.540		12.69	-9.17	51366.86	-22.50		
lambda	I	2035-01-04T00:30:40.101		12.87	-9.35	50026.71	-22.43		
delta	I	2035-01-04T00:31:57.400		13.09	-9.59	48300.35	-22.23		
gamma	I	2035-01-04T00:32:27.824		13.18	-9.68	47625.19	-22.15		
eta	I	2035-01-04T00:32:48.126		13.24	-9.75	47176.12	-22.09		
beta	I	2035-01-04T00:33:57.541		13.44	-9.96	45649.56	-21.88		
alpha	I	2035-01-04T00:34:40.400		13.57	-10.09	44710.59	-21.75		
4	I	2035-01-04T00:36:20.748		13.86	-10.39	42542.44	-21.36		
5	I	2035-01-04T00:36:34.542		13.90	-10.43	42255.31	-21.33		
6	I	2035-01-04T00:36:54.514		13.96	-10.50	41824.98	-21.21		
Uranus	I	2035-01-04T00:50:50.297		16.34	-13.00	25236.08		-17.08	-17.84
Uranus	E	2035-01-04T01:09:09.000		19.36	-16.19	25547.60		3.13	3.28
6	E	2035-01-04T01:24:08.547		21.72	-18.71	41806.17	21.27		
5	E	2035-01-04T01:24:31.378		21.77	-18.77	42294.72	21.39		
4	E	2035-01-04T01:24:43.126		21.80	-18.81	42553.49	21.42		
alpha	E	2035-01-04T01:26:24.752		22.06	-19.08	44750.87	21.81		
beta	E	2035-01-04T01:27:05.859		22.17	-19.20	45653.42	21.94		
eta	E	2035-01-04T01:28:14.928		22.34	-19.38	47176.12	22.16		
gamma	E	2035-01-04T01:28:35.432		22.39	-19.44	47631.15	22.22		
delta	E	2035-01-04T01:29:05.489		22.47	-19.52	48300.35	22.31		
lambda	E	2035-01-04T01:30:22.529		22.66	-19.73	50026.71	22.51		
epsilon	E	2035-01-04T01:30:54.420		22.74	-19.82	50745.74	22.58		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2035-01-04T00:54:22.590
 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 : 3382629625728559360
 2Mass ID (if available) : 06341088+2332212
 ICRS Star Coord at Epoch: 06h 34m 10.88274s +23:32:21.17825s
 RUWE (>1.4 is poor) : 1.07
 K magnitude : 11.739
 G magnitude : 13.936
 RP magnitude : 13.235
 BP magnitude : 14.494
 DUPflag : 0
 Distance (au) : 17.909
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -23.26
 Sun-Target sep (deg) : 174.83
 Sun-Moon sep (deg) : 124.49
 B (ring opening deg) : 68.32
 PA of pole (deg) : 71.16
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 1.687
 C/A sky separation (km) : 21909.0
 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_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	2035-01-04T00:24:23.116		26.77	-29.78	51363.39	-22.60		
lambda	I	2035-01-04T00:25:22.243		26.66	-29.68	50026.71	-22.53		
delta	I	2035-01-04T00:26:39.190		26.51	-29.56	48300.35	-22.33		
gamma	I	2035-01-04T00:27:09.477		26.46	-29.51	47625.25	-22.25		
eta	I	2035-01-04T00:27:29.691		26.42	-29.47	47176.12	-22.19		
beta	I	2035-01-04T00:28:38.817		26.28	-29.36	45649.40	-21.97		
alpha	I	2035-01-04T00:29:21.477		26.20	-29.28	44710.93	-21.83		
4	I	2035-01-04T00:31:01.459		26.01	-29.11	42542.09	-21.44		
5	I	2035-01-04T00:31:15.155		25.98	-29.09	42256.10	-21.42		
6	I	2035-01-04T00:31:35.107		25.94	-29.06	41824.56	-21.29		
Uranus	I	2035-01-04T00:45:30.500		24.23	-27.55	25242.54		-16.90	-17.65
Uranus	E	2035-01-04T01:03:40.458		21.82	-25.38	25546.72		3.25	3.41
6	E	2035-01-04T01:18:41.302		19.69	-23.42	41806.40	21.25		
5	E	2035-01-04T01:19:04.126		19.63	-23.37	42294.30	21.37		
4	E	2035-01-04T01:19:15.923		19.61	-23.35	42553.81	21.39		
alpha	E	2035-01-04T01:20:57.653		19.36	-23.12	44750.79	21.78		
beta	E	2035-01-04T01:21:38.821		19.26	-23.02	45653.57	21.92		
eta	E	2035-01-04T01:22:47.976		19.09	-22.87	47176.12	22.13		
gamma	E	2035-01-04T01:23:08.508		19.04	-22.82	47631.13	22.19		
delta	E	2035-01-04T01:23:38.609		18.96	-22.75	48300.35	22.27		
lambda	E	2035-01-04T01:24:55.763		18.77	-22.57	50026.71	22.47		
epsilon	E	2035-01-04T01:25:27.719		18.69	-22.50	50746.09	22.54		