

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2035-01-23T04:08:08.470
 Event type : PgtRgt
 : Uranus occs: geocentric, topocentric
 : Ring occs: geocentric, topocentric
 Gaia source ID : 3382598495805156224
 2Mass ID (if available) : 06304634+2335046

ICRS Star Coord at Epoch: 06h 30m 46.34381s +23:35:04.62320s

RUWE (>1.4 is poor) : 0.98
 K magnitude : 12.095
 G magnitude : 14.800
 RP magnitude : 13.996
 BP magnitude : 15.485
 DUPflag : 0
 Distance (au) : 17.991
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -20.48
 Sun-Target sep (deg) : 154.57
 Sun-Moon sep (deg) : 16.82
 B (ring opening deg) : 69.05
 PA of pole (deg) : 70.04

a(km) ring

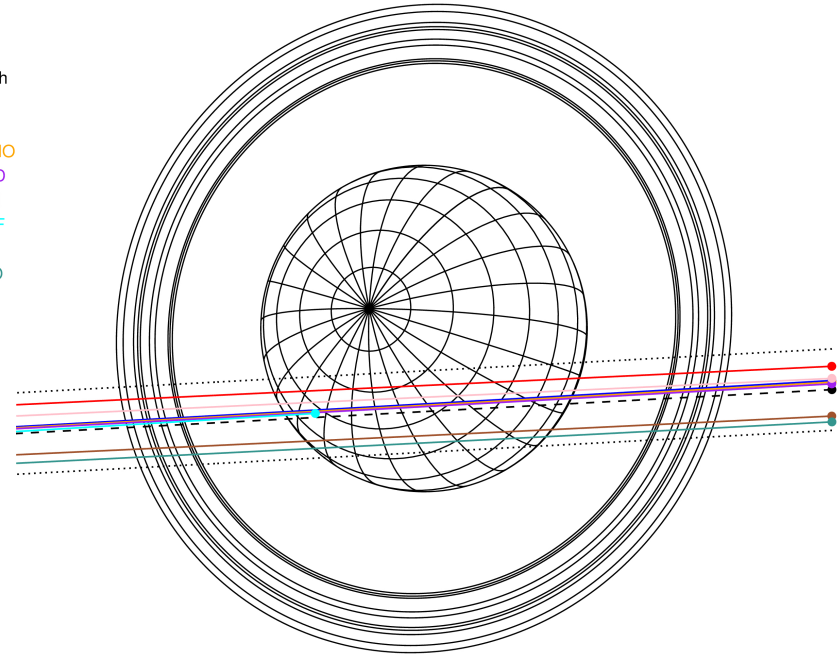
- 1 41837.2 6
- 2 42235.0 5
- 3 42571.2 4
- 4 44718.5 alpha
- 5 45661.1 beta
- 6 47176.1 eta
- 7 47626.3 gamma
- 8 48300.3 delta
- 9 50026.7 lambda
- 10 51149.4 epsilon



2035-01-23T04:08:08.4700 α: 06 30 46.3438 δ: +23 35 04.623 C/A 0.989° PA 3.08 deg v_sky -20.48 km/s D 17.99 AU
 Credit: Styled after SORA/Lucky Star

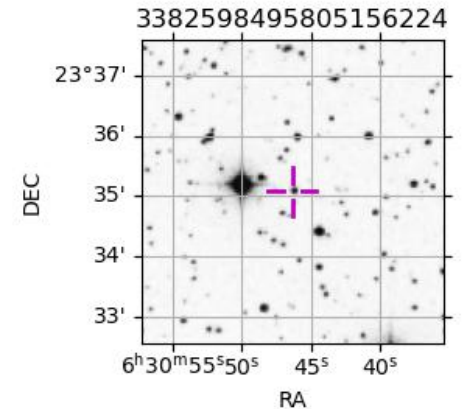
Uranus 2035-01-23T04:08:08 K12.10 G14.80 PgtRgt

Earth
 PIC
 PAL
 KPNO
 MCD
 TEN
 IRTF
 RIO
 ESO

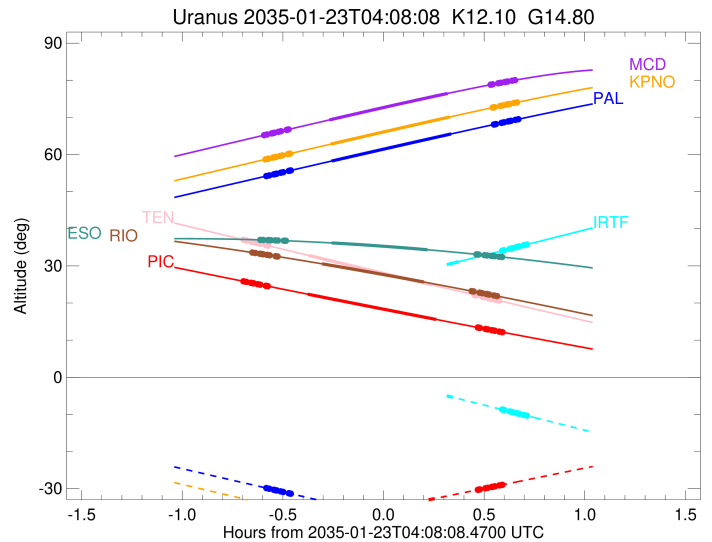
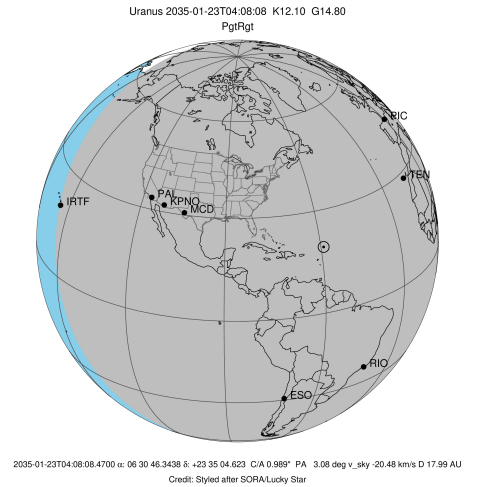


Observable events with sun below -5 deg and altitude above 5 deg unblocked by planet

Obs	Location	lat	Elon	Rings I	Planet	Rings E	Observed Events Interval	OEcode
PIC	Pic du Midi	42.9	0.1	+++++	+ +	+++++	JAN 23 03:26 - JAN 23 04:43	PieRie
PAL	Palomar Mt (200")	33.4	243.1	+++++	+ +	+++++	JAN 23 03:33 - JAN 23 04:48	PieRie
PMO	Purple Mtn Obs. Nanki	32.1	118.8					PnnRnn
KPNO	Kitt Peak Natl Obs	32.0	248.4	+++++	+ +	+++++	JAN 23 03:32 - JAN 23 04:47	PieRie
MCD	McDonald Obs. 2.7m	30.7	256.0	+++++	+ +	+++++	JAN 23 03:32 - JAN 23 04:47	PieRie
TEN	Teide Obs./Tenerife	28.3	343.5	+++++	+ +	+++++	JAN 23 03:26 - JAN 23 04:42	PieRie
IRTF	Mauna Kea/IRTF	19.8	204.5		+	+++++	JAN 23 04:30 - JAN 23 04:50	PneRne
KAV	Kavalur Observatory	12.6	78.8					PnnRnn
RIO	Rio de Janeiro	-22.9	316.8	+++++	+ +	+++++	JAN 23 03:28 - JAN 23 04:41	PieRie
ESO	European Southern Obs	-29.3	289.3	+++++	+ +	+++++	JAN 23 03:31 - JAN 23 04:43	PieRie
AAT	Siding Spring (AAT)	-31.3	149.1					PnnRnn
SAAO	So. Afr. Astro. Obs.	-32.4	20.8					PnnRnn
MSO	Mt. Stromlo Observato	-35.3	149.0					PnnRnn

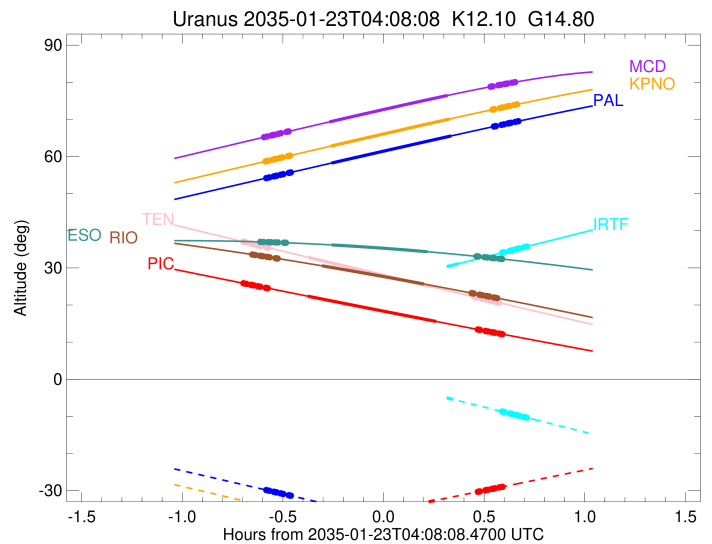
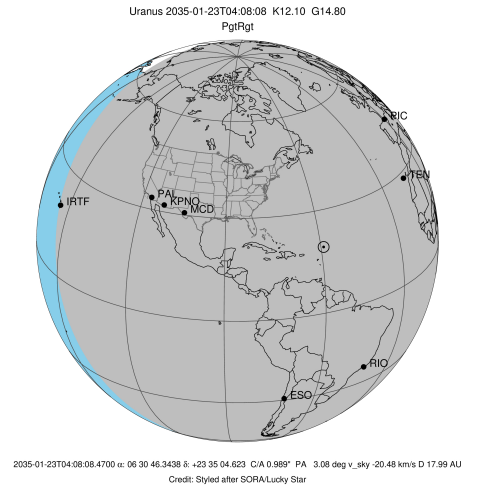


target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2035-01-23T04:04:34.750
 Event type : PgtRgt
 : Uranus occs: geocentric, topocentric
 : Ring occs: geocentric, topocentric
 Observer code : PIC
 Location : Pic du Midi
 Latitude (deg) : 42.93656
 E. Longitude (deg) : 0.14231
 Altitude (km) : 2.890
 Gaia source ID : 3382598495805156224
 2Mass ID (if available) : 06304634+2335046
 ICRS Star Coord at Epoch: 06h 30m 46.34381s +23:35:04.62320s
 RUWE (>1.4 is poor) : 0.98
 K magnitude : 12.095
 G magnitude : 14.800
 RP magnitude : 13.996
 BP magnitude : 15.485
 DUPflag : 0
 Distance (au) : 17.991
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -20.48
 Sun-Target sep (deg) : 154.57
 Sun-Moon sep (deg) : 16.45
 B (ring opening deg) : 69.05
 PA of pole (deg) : 70.04
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 0.684
 C/A sky separation (km) : 8921.3
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk
 URKALLvl.spk
 ura111.bsp
 IAU_URANUS_for_RINGFIT.tpc
 vgr2.ura111.bsp
 ura161.bsp
 vgr2.ura161.bsp
 peph.ura160.bsp
 earthstns_itr93_040916.bsp
 earth_720101_070426.bpc
 earth_200101_990628_predict.bpc
 pg3f0000r.bsp
 pg490000r.bsp
 naif0012.tls
 earth_flat_IAU.spk



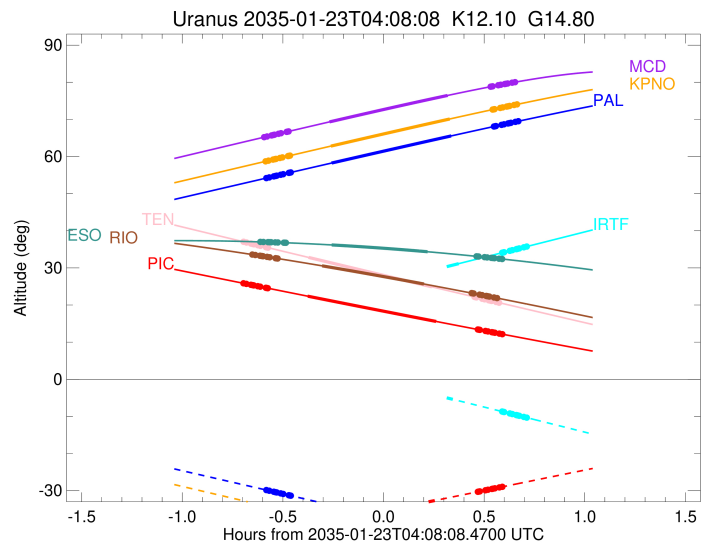
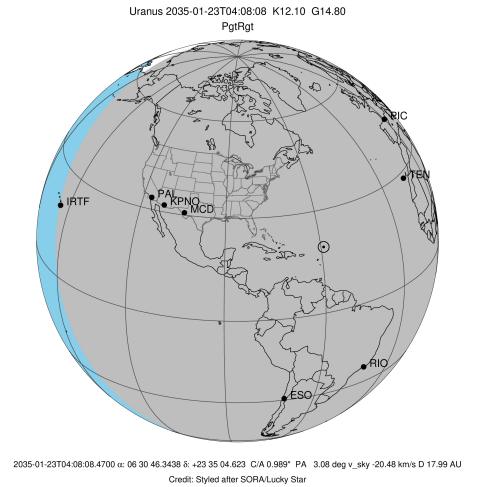
Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2035-01-23T03:26:16.819		25.87	-43.04	51293.99	-21.44		
lambda	I	2035-01-23T03:27:15.886		25.69	-42.86	50026.71	-21.45		
delta	I	2035-01-23T03:28:36.441		25.45	-42.62	48300.35	-21.42		
gamma	I	2035-01-23T03:29:07.900		25.35	-42.53	47626.81	-21.40		
eta	I	2035-01-23T03:29:28.960		25.29	-42.47	47176.12	-21.40		
beta	I	2035-01-23T03:30:40.658		25.07	-42.25	45644.25	-21.36		
alpha	I	2035-01-23T03:31:23.483		24.94	-42.13	44725.02	-21.35		
4	I	2035-01-23T03:33:06.569		24.63	-41.82	42528.44	-21.29		
5	I	2035-01-23T03:33:16.983		24.60	-41.79	42293.99	-21.29		
6	I	2035-01-23T03:33:39.911		24.53	-41.72	41804.27	-21.26		
Uranus	I	2035-01-23T03:45:33.911		22.38	-39.58	25049.19		-20.94	-21.84
Uranus	E	2035-01-23T04:23:49.647		15.58	-32.60	25285.05		15.08	15.76
6	E	2035-01-23T04:36:16.876		13.41	-30.31	41855.91	21.16		
5	E	2035-01-23T04:36:33.331		13.36	-30.26	42203.75	21.18		
4	E	2035-01-23T04:36:51.566		13.31	-30.20	42604.09	21.19		
alpha	E	2035-01-23T04:38:31.730		13.02	-29.90	44725.58	21.23		
beta	E	2035-01-23T04:39:16.167		12.89	-29.76	45672.54	21.25		
eta	E	2035-01-23T04:40:26.937		12.69	-29.55	47176.12	21.28		
gamma	E	2035-01-23T04:40:48.160		12.62	-29.48	47627.72	21.28		
delta	E	2035-01-23T04:41:19.757		12.53	-29.38	48300.35	21.29		
lambda	E	2035-01-23T04:42:40.788		12.30	-29.14	50026.71	21.32		
epsilon	E	2035-01-23T04:43:20.734		12.19	-29.01	50878.46	21.31		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2035-01-23T04:10:21.270
 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 : 3382598495805156224
 2Mass ID (if available) : 06304634+2335046
 ICRS Star Coord at Epoch: 06h 30m 46.34381s +23:35:04.62320s
 RUWE (>1.4 is poor) : 0.98
 K magnitude : 12.095
 G magnitude : 14.800
 RP magnitude : 13.996
 BP magnitude : 15.485
 DUPflag : 0
 Distance (au) : 17.991
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -20.48
 Sun-Target sep (deg) : 154.57
 Sun-Moon sep (deg) : 17.54
 B (ring opening deg) : 69.05
 PA of pole (deg) : 70.04
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 0.904
 C/A sky separation (km) : 11798.9
 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



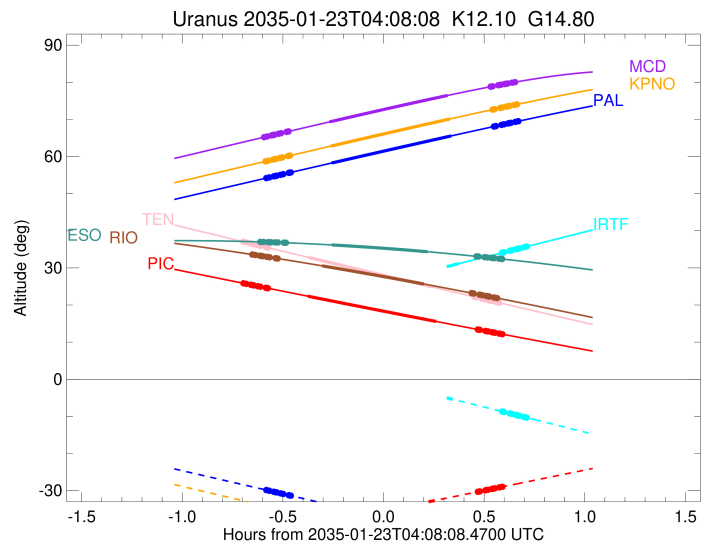
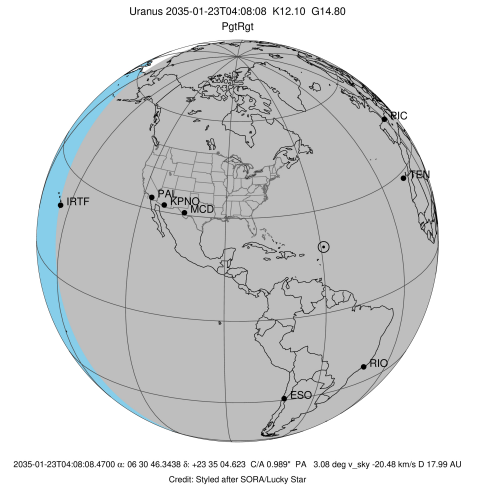
Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2035-01-23T03:33:07.587		54.18	-29.83	51275.33	-21.39		
lambda	I	2035-01-23T03:34:05.898		54.38	-30.03	50026.71	-21.40		
delta	I	2035-01-23T03:35:26.663		54.66	-30.31	48300.35	-21.35		
gamma	I	2035-01-23T03:35:58.210		54.77	-30.42	47627.09	-21.33		
eta	I	2035-01-23T03:36:19.357		54.85	-30.49	47176.12	-21.32		
beta	I	2035-01-23T03:37:31.371		55.10	-30.74	45643.66	-21.27		
alpha	I	2035-01-23T03:38:14.279		55.24	-30.89	44726.92	-21.24		
4	I	2035-01-23T03:39:58.085		55.61	-31.25	42527.61	-21.15		
5	I	2035-01-23T03:40:08.410		55.64	-31.29	42297.24	-21.14		
6	I	2035-01-23T03:40:31.714		55.72	-31.37	41802.65	-21.11		
Uranus	I	2035-01-23T03:52:39.373		58.25	-33.90	25052.29		-20.87	-21.77
Uranus	E	2035-01-23T04:28:18.875		65.55	-41.36	25352.52		13.03	13.62
6	E	2035-01-23T04:41:04.703		68.09	-44.02	41852.78	21.15		
5	E	2035-01-23T04:41:21.605		68.15	-44.08	42209.72	21.19		
4	E	2035-01-23T04:41:39.454		68.21	-44.14	42601.53	21.19		
alpha	E	2035-01-23T04:43:19.716		68.53	-44.49	44728.06	21.29		
beta	E	2035-01-23T04:44:03.872		68.68	-44.64	45671.28	21.32		
eta	E	2035-01-23T04:45:14.434		68.91	-44.89	47176.12	21.37		
gamma	E	2035-01-23T04:45:35.579		68.98	-44.96	47628.08	21.38		
delta	E	2035-01-23T04:46:07.006		69.08	-45.07	48300.35	21.40		
lambda	E	2035-01-23T04:47:27.579		69.34	-45.35	50026.71	21.45		
epsilon	E	2035-01-23T04:48:06.359		69.46	-45.49	50858.95	21.44		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2035-01-23T04:10:01.800
 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 : 3382598495805156224
 2Mass ID (if available) : 06304634+2335046
 ICRS Star Coord at Epoch: 06h 30m 46.34381s +23:35:04.62320s
 RUWE (>1.4 is poor) : 0.98
 K magnitude : 12.095
 G magnitude : 14.800
 RP magnitude : 13.996
 BP magnitude : 15.485
 DUPflag : 0
 Distance (au) : 17.991
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -20.48
 Sun-Target sep (deg) : 154.57
 Sun-Moon sep (deg) : 17.48
 B (ring opening deg) : 69.05
 PA of pole (deg) : 70.04
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 0.921
 C/A sky separation (km) : 12014.6
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk
 URKALLvl.spk
 ura111.bsp
 IAU_URANUS_for_RINGFIT.tpc
 vgr2.ura111.bsp
 ura161.bsp
 vgr2.ura161.bsp
 peph.ura160.bsp
 earthstns_itr93_040916.bsp
 earth_720101_070426.bpc
 earth_200101_990628_predict.bpc
 pg3f0000r.bsp
 pg490000r.bsp
 naif0012.tls
 earth_flat_IAU.spk



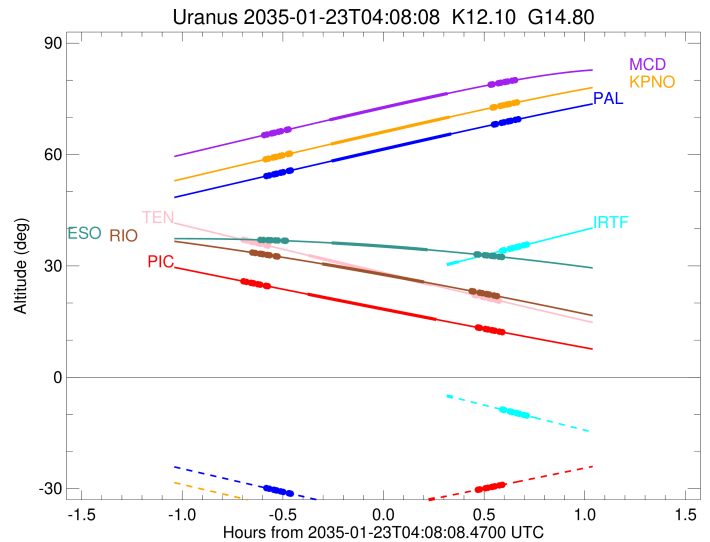
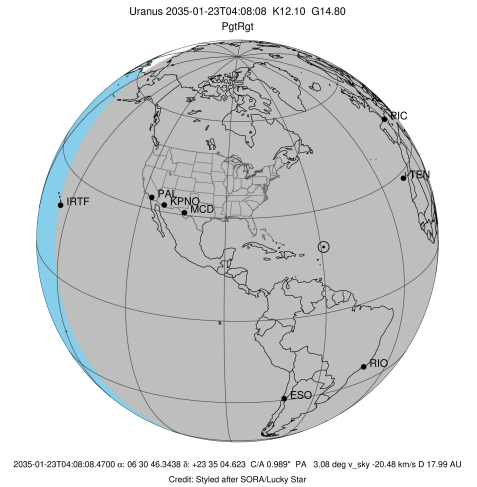
Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2035-01-23T03:32:53.602		58.69	-34.11	51273.43	-21.39		
lambda	I	2035-01-23T03:33:51.815		58.89	-34.32	50026.71	-21.40		
delta	I	2035-01-23T03:35:12.573		59.18	-34.60	48300.35	-21.35		
gamma	I	2035-01-23T03:35:44.118		59.29	-34.71	47627.12	-21.33		
eta	I	2035-01-23T03:36:05.267		59.36	-34.79	47176.12	-21.32		
beta	I	2035-01-23T03:37:17.288		59.62	-35.04	45643.61	-21.27		
alpha	I	2035-01-23T03:38:00.191		59.77	-35.20	44727.11	-21.24		
4	I	2035-01-23T03:39:44.036		60.13	-35.56	42527.54	-21.14		
5	I	2035-01-23T03:39:54.350		60.17	-35.60	42297.53	-21.13		
6	I	2035-01-23T03:40:17.683		60.25	-35.68	41802.50	-21.10		
Uranus	I	2035-01-23T03:52:26.577		62.81	-38.26	25053.21		-20.85	-21.75
Uranus	E	2035-01-23T04:27:53.132		70.12	-45.78	25356.99		12.88	13.47
6	E	2035-01-23T04:40:41.004		72.65	-48.49	41852.59	21.14		
5	E	2035-01-23T04:40:57.946		72.71	-48.55	42210.09	21.17		
4	E	2035-01-23T04:41:15.785		72.76	-48.61	42601.37	21.18		
alpha	E	2035-01-23T04:42:56.127		73.09	-48.96	44728.20	21.27		
beta	E	2035-01-23T04:43:40.298		73.23	-49.12	45671.21	21.30		
eta	E	2035-01-23T04:44:50.898		73.46	-49.37	47176.12	21.36		
gamma	E	2035-01-23T04:45:12.053		73.52	-49.44	47628.10	21.37		
delta	E	2035-01-23T04:45:43.492		73.62	-49.55	48300.35	21.39		
lambda	E	2035-01-23T04:47:04.093		73.88	-49.84	50026.71	21.44		
epsilon	E	2035-01-23T04:47:42.834		74.00	-49.97	50857.88	21.44		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2035-01-23T04:09:30.780
 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 : 3382598495805156224
 2Mass ID (if available) : 06304634+2335046
 ICRS Star Coord at Epoch: 06h 30m 46.34381s +23:35:04.62320s
 RUWE (>1.4 is poor) : 0.98
 K magnitude : 12.095
 G magnitude : 14.800
 RP magnitude : 13.996
 BP magnitude : 15.485
 DUPflag : 0
 Distance (au) : 17.991
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -20.48
 Sun-Target sep (deg) : 154.57
 Sun-Moon sep (deg) : 17.39
 B (ring opening deg) : 69.05
 PA of pole (deg) : 70.04
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 0.937
 C/A sky separation (km) : 12220.3
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk
 URKALLvl.spk
 ura111.bsp
 IAU_URANUS_for_RINGFIT.tpc
 vgr2.ura111.bsp
 ura161.bsp
 vgr2.ura161.bsp
 peph.ura160.bsp
 earthstns_itr93_040916.bsp
 earth_720101_070426.bpc
 earth_200101_990628_predict.bpc
 pg3f0000r.bsp
 pg490000r.bsp
 naif0012.tls
 earth_flat_IAU.spk



Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2035-01-23T03:32:28.290		65.20	-40.46	51271.47	-21.40		
lambda	I	2035-01-23T03:33:26.387		65.41	-40.67	50026.71	-21.41		
delta	I	2035-01-23T03:34:47.118		65.69	-40.96	48300.35	-21.36		
gamma	I	2035-01-23T03:35:18.653		65.80	-41.08	47627.14	-21.34		
eta	I	2035-01-23T03:35:39.798		65.88	-41.15	47176.12	-21.32		
beta	I	2035-01-23T03:36:51.809		66.13	-41.41	45643.56	-21.27		
alpha	I	2035-01-23T03:37:34.696		66.28	-41.56	44727.30	-21.24		
4	I	2035-01-23T03:39:18.555		66.65	-41.94	42527.47	-21.14		
5	I	2035-01-23T03:39:28.857		66.69	-41.97	42297.83	-21.13		
6	I	2035-01-23T03:39:52.213		66.77	-42.06	41802.36	-21.10		
Uranus	I	2035-01-23T03:52:02.179		69.33	-44.68	25054.23		-20.83	-21.73
Uranus	E	2035-01-23T04:27:15.909		76.46	-52.23	25361.09		12.75	13.33
6	E	2035-01-23T04:40:05.729		78.82	-54.96	41852.42	21.12		
5	E	2035-01-23T04:40:22.708		78.86	-55.02	42210.41	21.15		
4	E	2035-01-23T04:40:40.540		78.92	-55.09	42601.22	21.16		
alpha	E	2035-01-23T04:42:20.958		79.20	-55.44	44728.33	21.26		
beta	E	2035-01-23T04:43:05.146		79.33	-55.60	45671.14	21.29		
eta	E	2035-01-23T04:44:15.783		79.53	-55.85	47176.12	21.35		
gamma	E	2035-01-23T04:44:36.948		79.59	-55.92	47628.12	21.36		
delta	E	2035-01-23T04:45:08.398		79.67	-56.03	48300.35	21.38		
lambda	E	2035-01-23T04:46:29.028		79.89	-56.32	50026.71	21.44		
epsilon	E	2035-01-23T04:47:07.739		80.00	-56.45	50856.96	21.43		

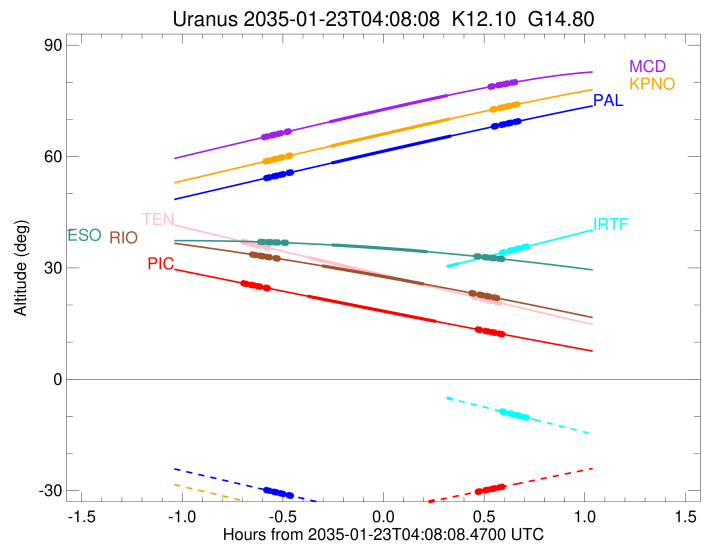
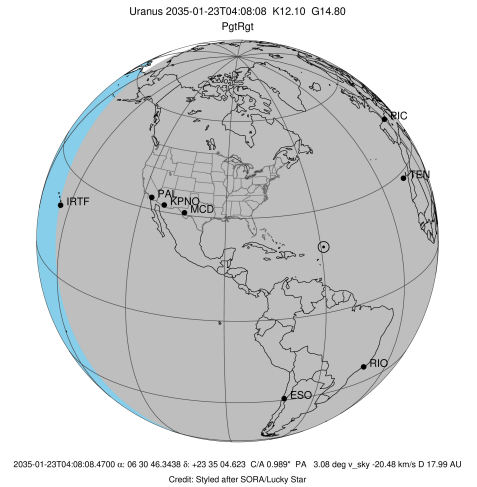
target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2035-01-23T04:04:02.780
 Event type : PgtRgt
 : Uranus occs: geocentric, topocentric
 : Ring occs: geocentric, topocentric
 Observer code : TEN
 Location : Teide Obs./Tenerife
 Latitude (deg) : 28.30050
 E. Longitude (deg) : 343.48909
 Altitude (km) : 2.395
 Gaia source ID : 3382598495805156224
 2Mass ID (if available) : 06304634+2335046
 ICRS Star Coord at Epoch: 06h 30m 46.34381s +23:35:04.62320s
 RUWE (>1.4 is poor) : 0.98
 K magnitude : 12.095
 G magnitude : 14.800
 RP magnitude : 13.996
 BP magnitude : 15.485
 DUPflag : 0
 Distance (au) : 17.991
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -20.48
 Sun-Target sep (deg) : 154.57
 Sun-Moon sep (deg) : 16.30
 B (ring opening deg) : 69.05
 PA of pole (deg) : 70.04
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 0.825
 C/A sky separation (km) : 10762.7
 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_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	2035-01-23T03:26:20.182		37.06	-59.43	51279.48	-21.40		
lambda	I	2035-01-23T03:27:18.655		36.84	-59.21	50026.71	-21.41		
delta	I	2035-01-23T03:28:39.363		36.55	-58.92	48300.35	-21.37		
gamma	I	2035-01-23T03:29:10.885		36.44	-58.81	47627.02	-21.35		
eta	I	2035-01-23T03:29:32.008		36.36	-58.73	47176.12	-21.34		
beta	I	2035-01-23T03:30:43.935		36.10	-58.47	45643.80	-21.30		
alpha	I	2035-01-23T03:31:26.814		35.94	-58.31	44726.46	-21.27		
4	I	2035-01-23T03:33:10.417		35.57	-57.94	42527.80	-21.19		
5	I	2035-01-23T03:33:20.760		35.53	-57.90	42296.43	-21.18		
6	I	2035-01-23T03:33:43.963		35.44	-57.81	41803.05	-21.15		
Uranus	I	2035-01-23T03:45:46.758		32.83	-55.18	25049.93		-20.93	-21.83
Uranus	E	2035-01-23T04:22:35.317		24.89	-47.08	25324.39		13.92	14.55
6	E	2035-01-23T04:35:17.168		22.19	-44.28	41854.18	21.04		
5	E	2035-01-23T04:35:33.960		22.13	-44.22	42207.04	21.07		
4	E	2035-01-23T04:35:52.080		22.06	-44.15	42602.70	21.08		
alpha	E	2035-01-23T04:37:32.842		21.70	-43.78	44726.95	21.15		
beta	E	2035-01-23T04:38:17.366		21.55	-43.62	45671.86	21.17		
eta	E	2035-01-23T04:39:28.408		21.30	-43.36	47176.12	21.21		
gamma	E	2035-01-23T04:39:49.705		21.22	-43.28	47627.91	21.22		
delta	E	2035-01-23T04:40:21.382		21.11	-43.16	48300.35	21.24		
lambda	E	2035-01-23T04:41:42.608		20.82	-42.86	50026.71	21.27		
epsilon	E	2035-01-23T04:42:22.133		20.68	-42.72	50867.79	21.26		

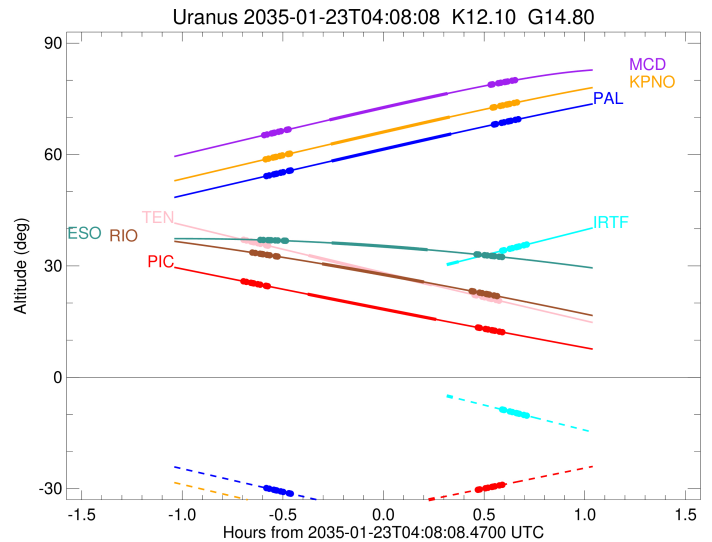
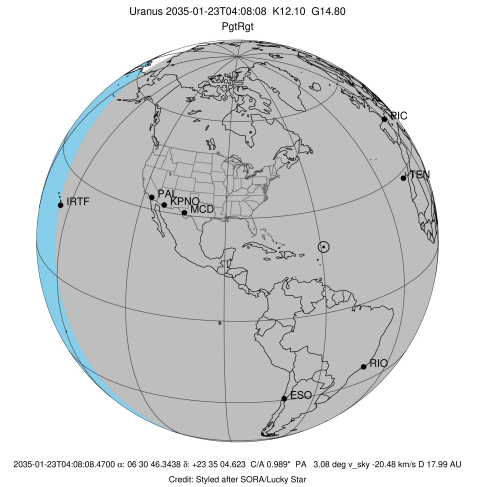
```

target                : Uranus
target radius (km)   : 25559.00
C/A epoch            : 2035-01-23T04:12:38.900
Event type           : PgtRgt
: Uranus occs: geocentric, topocentric
: Ring occs: geocentric, topocentric
Observer code        : IRTF
Location             : Mauna Kea/IRTF
Latitude (deg)       : 19.82622
E. Longitude (deg)   : 204.52800
Altitude (km)        : 4.168
Gaia source ID       : 3382598495805156224
2Mass ID (if available) : 06304634+2335046
ICRS Star Coord at Epoch: 06h 30m 46.34381s +23:35:04.62320s
RUWE (>1.4 is poor) : 0.98
K magnitude           : 12.095
G magnitude           : 14.800
RP magnitude          : 13.996
BP magnitude          : 15.485
DUPflag              : 0
Distance (au)         : 17.991
f0 (km)               : 0.000
g0 (km)               : 0.000
skyplane vel. (km/s) : -20.48
Sun-Target sep (deg) : 154.57
Sun-Moon sep (deg)   : 17.81
B (ring opening deg) : 69.05
PA of pole (deg)     : 70.04
Pole direction: RA (deg): 257.31100
Dec (deg): -15.17500
C/A sky separation (") : 0.938
C/A sky separation (km) : 12239.3
NAIF SPICE kernels   : RAJobs_U111+rgf15.spk
URKALLvl1.spk
urall11.bsp
IAU_URANUS_for_RINGFIT.tpc
vgr2.urall11.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
    
```



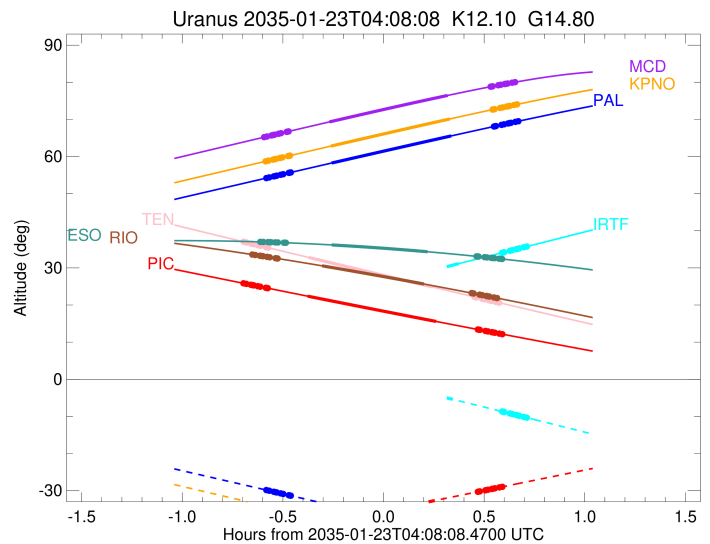
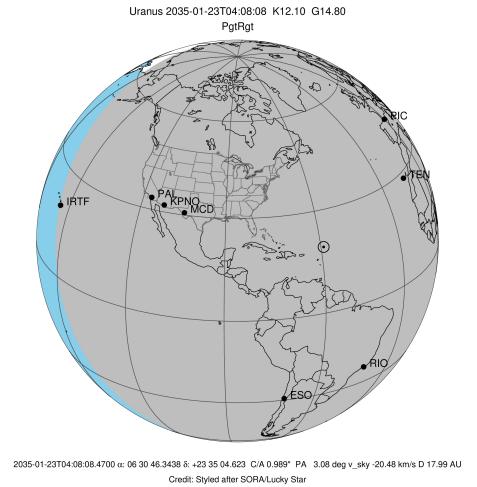
Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2035-01-23T03:35:11.144		18.69	6.37x	51273.45	-21.13		
lambda	I	2035-01-23T03:36:10.076		18.91	6.16x	50026.71	-21.14		
delta	I	2035-01-23T03:37:31.833		19.21	5.86x	48300.35	-21.09		
gamma	I	2035-01-23T03:38:03.768		19.33	5.75x	47627.12	-21.07		
eta	I	2035-01-23T03:38:25.180		19.41	5.67x	47176.12	-21.06		
beta	I	2035-01-23T03:39:38.096		19.68	5.41x	45643.61	-21.00		
alpha	I	2035-01-23T03:40:21.533		19.84	5.25x	44727.13	-20.97		
4	I	2035-01-23T03:42:06.681		20.23	4.87x	42527.53	-20.88		
5	I	2035-01-23T03:42:17.123		20.27	4.83x	42297.59	-20.87		
6	I	2035-01-23T03:42:40.754		20.36	4.75x	41802.48	-20.84		
Uranus	I	2035-01-23T03:54:59.578		23.12	2.06x	25053.71		-20.84	-21.74
Uranus	E	2035-01-23T04:30:33.983		31.15	-5.80	25364.60		12.63	13.21
6	E	2035-01-23T04:43:31.373		34.09	-8.69	41852.16	20.94		
5	E	2035-01-23T04:43:48.537		34.15	-8.76	42210.90	20.97		
4	E	2035-01-23T04:44:06.492		34.22	-8.83	42601.00	20.98		
alpha	E	2035-01-23T04:45:47.795		34.60	-9.20	44728.54	21.08		
beta	E	2035-01-23T04:46:32.344		34.77	-9.37	45671.03	21.11		
eta	E	2035-01-23T04:47:43.582		35.04	-9.64	47176.12	21.17		
gamma	E	2035-01-23T04:48:04.925		35.12	-9.72	47628.15	21.19		
delta	E	2035-01-23T04:48:36.637		35.24	-9.84	48300.35	21.21		
lambda	E	2035-01-23T04:49:57.933		35.55	-10.14	50026.71	21.26		
epsilon	E	2035-01-23T04:50:36.876		35.70	-10.29	50855.15	21.26		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2035-01-23T04:04:50.350
 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 : 3382598495805156224
 2Mass ID (if available) : 06304634+2335046
 ICRS Star Coord at Epoch: 06h 30m 46.34381s +23:35:04.62320s
 RUWE (>1.4 is poor) : 0.98
 K magnitude : 12.095
 G magnitude : 14.800
 RP magnitude : 13.996
 BP magnitude : 15.485
 DUPflag : 0
 Distance (au) : 17.991
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -20.48
 Sun-Target sep (deg) : 154.57
 Sun-Moon sep (deg) : 16.19
 B (ring opening deg) : 69.05
 PA of pole (deg) : 70.04
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 1.285
 C/A sky separation (km) : 16767.8
 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_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	2035-01-23T03:28:58.033		33.60	-47.33	51231.71	-20.79		
lambda	I	2035-01-23T03:29:55.913		33.47	-47.30	50026.71	-20.79		
delta	I	2035-01-23T03:31:19.163		33.27	-47.25	48300.35	-20.69		
gamma	I	2035-01-23T03:31:51.712		33.20	-47.23	47627.71	-20.64		
eta	I	2035-01-23T03:32:13.603		33.15	-47.21	47176.12	-20.61		
beta	I	2035-01-23T03:33:28.226		32.97	-47.16	45642.57	-20.51		
alpha	I	2035-01-23T03:34:12.504		32.87	-47.13	44731.03	-20.44		
4	I	2035-01-23T03:36:00.853		32.61	-47.06	42526.37	-20.25		
5	I	2035-01-23T03:36:11.358		32.58	-47.05	42303.49	-20.23		
6	I	2035-01-23T03:36:36.149		32.52	-47.03	41799.61	-20.17		
Uranus	I	2035-01-23T03:49:52.223		30.55	-46.33	25102.56		-19.74	-20.59
Uranus	E	2035-01-23T04:20:12.247		25.66	-43.90	25457.53		9.06	9.49
6	E	2035-01-23T04:34:24.835		23.21	-42.40	41847.96	20.10		
5	E	2035-01-23T04:34:43.326		23.16	-42.37	42218.85	20.16		
4	E	2035-01-23T04:35:01.478		23.11	-42.33	42597.39	20.17		
alpha	E	2035-01-23T04:36:46.932		22.80	-42.13	44731.58	20.36		
beta	E	2035-01-23T04:37:32.824		22.66	-42.05	45669.36	20.42		
eta	E	2035-01-23T04:38:46.474		22.44	-41.90	47176.12	20.52		
gamma	E	2035-01-23T04:39:08.505		22.38	-41.86	47628.58	20.55		
delta	E	2035-01-23T04:39:41.161		22.28	-41.80	48300.35	20.59		
lambda	E	2035-01-23T04:41:04.801		22.03	-41.63	50026.71	20.69		
epsilon	E	2035-01-23T04:41:43.768		21.92	-41.56	50833.63	20.69		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2035-01-23T04:06:46.530
 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 : 3382598495805156224
 2Mass ID (if available) : 06304634+2335046
 ICRS Star Coord at Epoch: 06h 30m 46.34381s +23:35:04.62320s
 RUWE (>1.4 is poor) : 0.98
 K magnitude : 12.095
 G magnitude : 14.800
 RP magnitude : 13.996
 BP magnitude : 15.485
 DUPflag : 0
 Distance (au) : 17.991
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -20.48
 Sun-Target sep (deg) : 154.57
 Sun-Moon sep (deg) : 16.55
 B (ring opening deg) : 69.05
 PA of pole (deg) : 70.04
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 1.372
 C/A sky separation (km) : 17897.1
 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	2035-01-23T03:31:22.204		37.01	-37.43	51223.49	-20.65		
lambda	I	2035-01-23T03:32:20.079		36.98	-37.52	50026.71	-20.64		
delta	I	2035-01-23T03:33:43.941		36.94	-37.64	48300.35	-20.53		
gamma	I	2035-01-23T03:34:16.740		36.93	-37.69	47627.82	-20.48		
eta	I	2035-01-23T03:34:38.814		36.92	-37.73	47176.12	-20.45		
beta	I	2035-01-23T03:35:54.089		36.88	-37.84	45642.39	-20.32		
alpha	I	2035-01-23T03:36:38.730		36.85	-37.90	44731.80	-20.25		
4	I	2035-01-23T03:38:28.227		36.79	-38.06	42526.22	-20.03		
5	I	2035-01-23T03:38:38.807		36.78	-38.07	42304.58	-20.01		
6	I	2035-01-23T03:39:03.954		36.77	-38.11	41799.09	-19.94		
Uranus	I	2035-01-23T03:52:41.796		36.19	-39.17	25121.87		-19.28	-20.13
Uranus	E	2035-01-23T04:21:16.074		34.35	-40.76	25482.10		7.88	8.25
6	E	2035-01-23T04:35:52.686		33.11	-41.21	41846.59	19.91		
5	E	2035-01-23T04:36:11.548		33.09	-41.22	42221.43	19.98		
4	E	2035-01-23T04:36:29.688		33.06	-41.22	42596.17	20.00		
alpha	E	2035-01-23T04:38:16.081		32.89	-41.26	44732.53	20.22		
beta	E	2035-01-23T04:39:02.219		32.82	-41.28	45668.81	20.29		
eta	E	2035-01-23T04:40:16.343		32.71	-41.30	47176.12	20.41		
gamma	E	2035-01-23T04:40:38.503		32.67	-41.30	47628.71	20.44		
delta	E	2035-01-23T04:41:11.324		32.62	-41.31	48300.35	20.49		
lambda	E	2035-01-23T04:42:35.354		32.48	-41.34	50026.71	20.60		
epsilon	E	2035-01-23T04:43:14.154		32.42	-41.34	50826.91	20.61		