

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2034-01-18T04:28:43.930
 Event type : PgtRgt
 : Uranus occs: geocentric, topocentric
 : Ring occs: geocentric, topocentric
 Gaia source ID : 3425436293456105728
 2Mass ID (if available) : 06112309+2341205

ICRS Star Coord at Epoch: 06h 11m 23.10154s +23:41:20.43009s

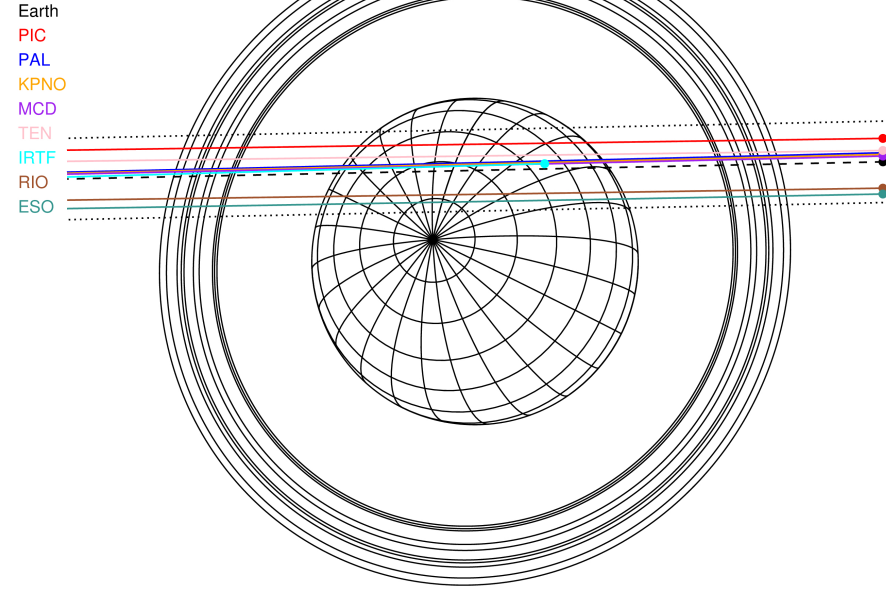
RUWE (>1.4 is poor) : 1.23
 K magnitude : 10.613
 G magnitude : 13.484
 RP magnitude : 12.620
 BP magnitude : 14.262
 DUPflag : 0
 Distance (au) : 18.054
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -20.61
 Sun-Target sep (deg) : 154.94
 Sun-Moon sep (deg) : 174.27
 B (ring opening deg) : 73.08
 PA of pole (deg) : 62.62

#	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



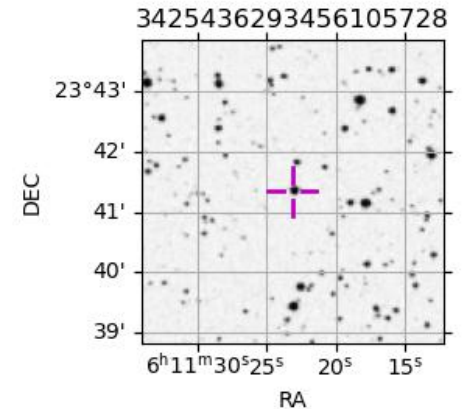
2034-01-18T04:28:43.9300 ra: 06 11 23.1015 s: +23 41 20.4300 C/A 1.096° PA 181.20 deg v_sky -20.61 km/s D 18.05 AU
 Credit: Styled after SORA/Lucky Star

Uranus 2034-01-18T04:28:43 K10.61 G13.48 PgtRgt

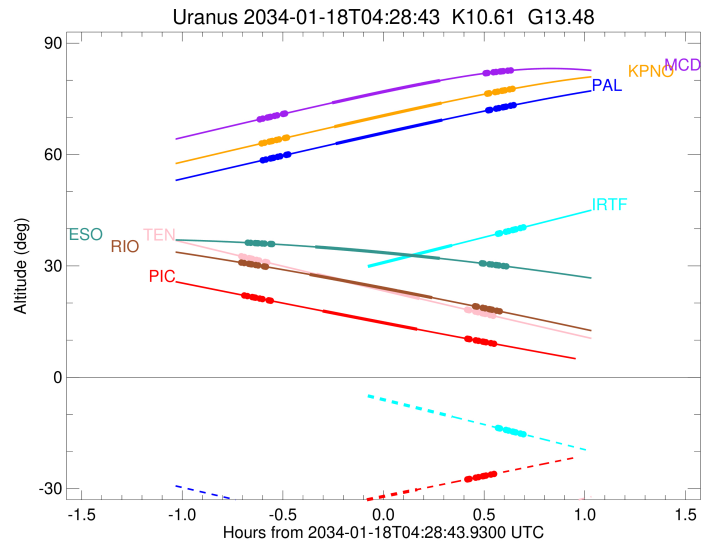
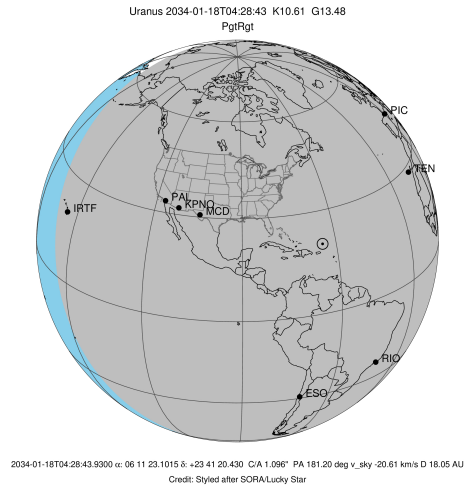


Observable events with sun below -5 deg and altitude above 5 deg unblocked by planet

Obs	Location	lat	Elon	Rings I	Planet	Rings E	Observed Events Interval	OEcode
PIC	Pic du Midi	42.9	0.1	+++++	+ +	+++++	JAN 18 03:47 - JAN 18 05:01	PieRie
PAL	Palomar Mt (200")	33.4	243.1	+++++	+ +	+++++	JAN 18 03:52 - JAN 18 05:07	PieRie
PNO	Purple Mtn Obs. Nanki	32.1	118.8					PnnRnn
KPNO	Kitt Peak Natl Obs	32.0	248.4	+++++	+ +	+++++	JAN 18 03:52 - JAN 18 05:07	PieRie
MCD	McDonald Obs. 2.7m	30.7	256.0	+++++	+ +	+++++	JAN 18 03:51 - JAN 18 05:06	PieRie
TEN	Teide Obs./Tenerife	28.3	343.5	+++++	+ +	+++++	JAN 18 03:46 - JAN 18 05:01	PieRie
IRTF	Mauna Kea/IRTF	19.8	204.5		+	+++++	JAN 18 04:49 - JAN 18 05:10	PneRne
KAV	Kavalur Observatory	12.6	78.8					PnnRnn
RIO	Rio de Janeiro	-22.9	316.8	+++++	+ +	+++++	JAN 18 03:46 - JAN 18 05:03	PieRie
ESO	European Southern Obs	-29.3	289.3	+++++	+ +	+++++	JAN 18 03:48 - JAN 18 05:05	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

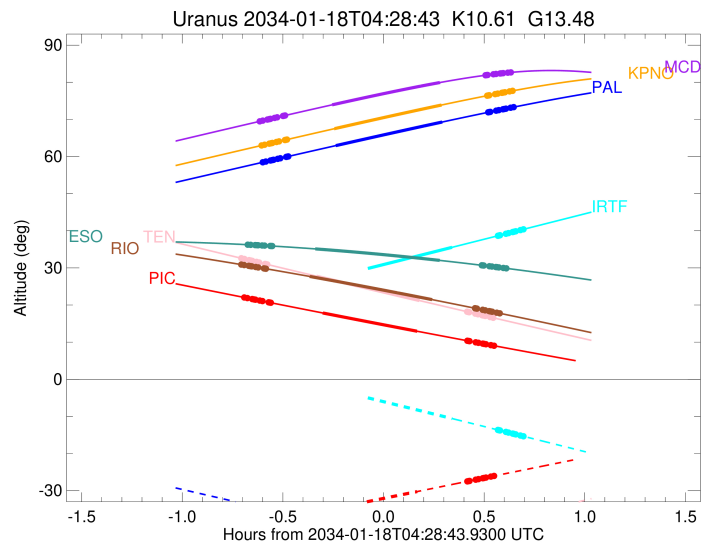
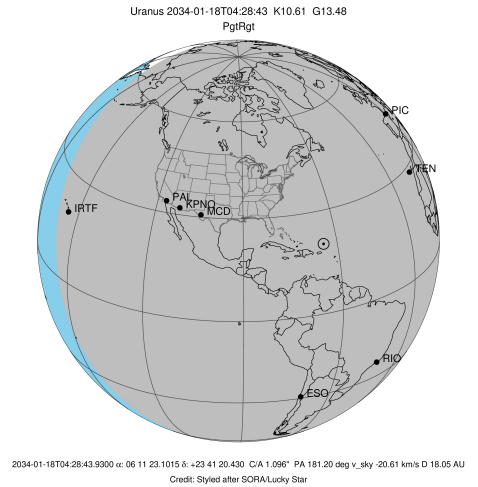


target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2034-01-18T04:24:55.880
 Event type : PgtRgt
 : Uranus occs: geocentric, topocentric
 : Ring occs: geocentric, topocentric
 Observer code : PIC
 Location : Pic du Midi
 Latitude (deg) : 42.93656
 E. Longitude (deg) : 0.14231
 Altitude (km) : 2.890
 Gaia source ID : 3425436293456105728
 2Mass ID (if available) : 06112309+2341205
 ICRS Star Coord at Epoch: 06h 11m 23.10154s +23:41:20.43009s
 RUWE (>1.4 is poor) : 1.23
 K magnitude : 10.613
 G magnitude : 13.484
 RP magnitude : 12.620
 BP magnitude : 14.262
 DUPflag : 0
 Distance (au) : 18.053
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -20.61
 Sun-Target sep (deg) : 154.94
 Sun-Moon sep (deg) : 175.09
 B (ring opening deg) : 73.08
 PA of pole (deg) : 62.62
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 1.402
 C/A sky separation (km) : 18357.8
 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



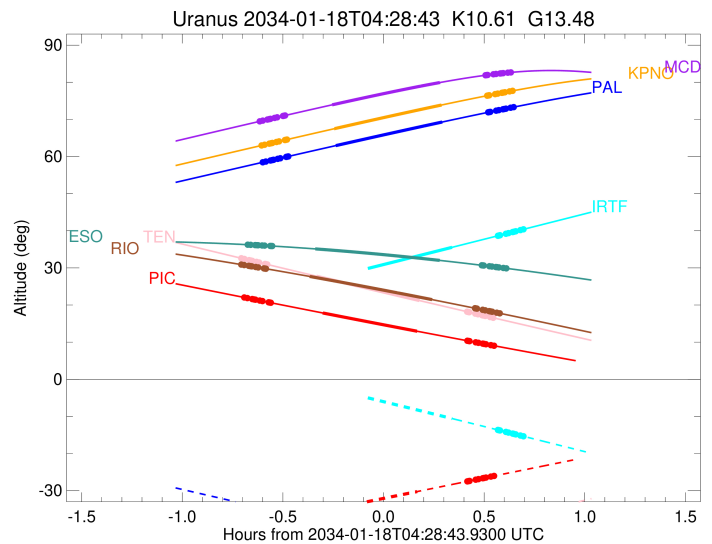
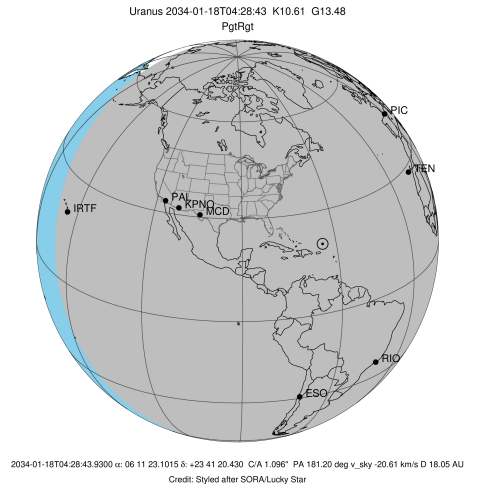
Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2034-01-18T03:47:19.650		22.02	-39.67	51026.20	-19.87		
lambda	I	2034-01-18T03:48:09.874		21.87	-39.52	50026.71	-19.87		
delta	I	2034-01-18T03:49:37.016		21.60	-39.25	48300.35	-19.75		
gamma	I	2034-01-18T03:50:11.000		21.50	-39.15	47629.95	-19.70		
eta	I	2034-01-18T03:50:34.057		21.43	-39.08	47176.12	-19.67		
beta	I	2034-01-18T03:51:51.190		21.20	-38.84	45664.47	-19.55		
alpha	I	2034-01-18T03:52:41.149		21.05	-38.69	44687.46	-19.46		
4	I	2034-01-18T03:54:31.873		20.72	-38.36	42549.54	-19.24		
5	I	2034-01-18T03:54:44.177		20.69	-38.32	42313.89	-19.22		
6	I	2034-01-18T03:55:11.027		20.61	-38.24	41797.28	-19.16		
Uranus	I	2034-01-18T04:10:36.243		17.86	-35.42	25518.13		-4.54	-4.76
Uranus	E	2034-01-18T04:38:45.406		12.94	-30.25	25077.58		15.99	16.71
6	E	2034-01-18T04:53:45.226		10.37	-27.50	41872.94	19.07		
5	E	2034-01-18T04:54:02.089		10.33	-27.45	42198.16	19.13		
4	E	2034-01-18T04:54:20.017		10.27	-27.39	42553.36	19.14		
alpha	E	2034-01-18T04:56:14.498		9.95	-27.04	44749.14	19.36		
beta	E	2034-01-18T04:57:02.054		9.82	-26.90	45673.63	19.44		
eta	E	2034-01-18T04:58:19.105		9.60	-26.66	47176.12	19.56		
gamma	E	2034-01-18T04:58:41.829		9.54	-26.60	47620.96	19.59		
delta	E	2034-01-18T04:59:16.464		9.44	-26.49	48300.35	19.64		
lambda	E	2034-01-18T05:00:44.108		9.19	-26.22	50026.71	19.75		
epsilon	E	2034-01-18T05:01:31.908		9.06	-26.08	50972.28	19.75		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2034-01-18T04:30:36.420
 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 : 3425436293456105728
 2Mass ID (if available) : 06112309+2341205
 ICRS Star Coord at Epoch: 06h 11m 23.10154s +23:41:20.43009s
 RUWE (>1.4 is poor) : 1.23
 K magnitude : 10.613
 G magnitude : 13.484
 RP magnitude : 12.620
 BP magnitude : 14.262
 DUPflag : 0
 Distance (au) : 18.054
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -20.61
 Sun-Target sep (deg) : 154.94
 Sun-Moon sep (deg) : 174.38
 B (ring opening deg) : 73.08
 PA of pole (deg) : 62.62
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 1.180
 C/A sky separation (km) : 15456.8
 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



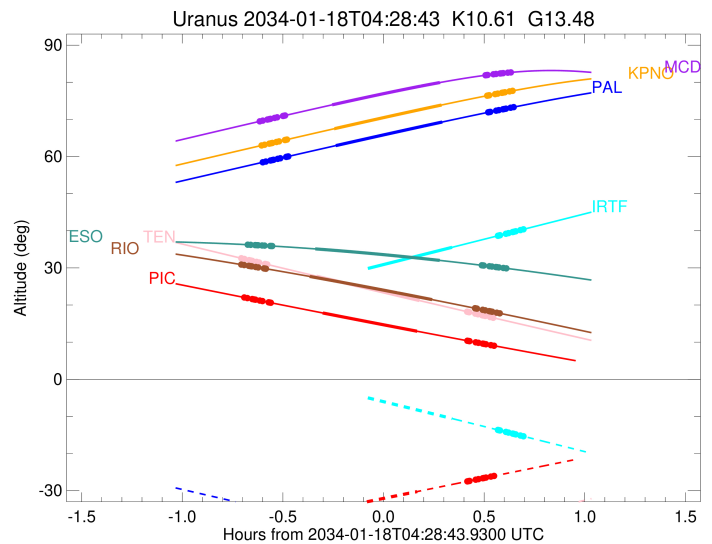
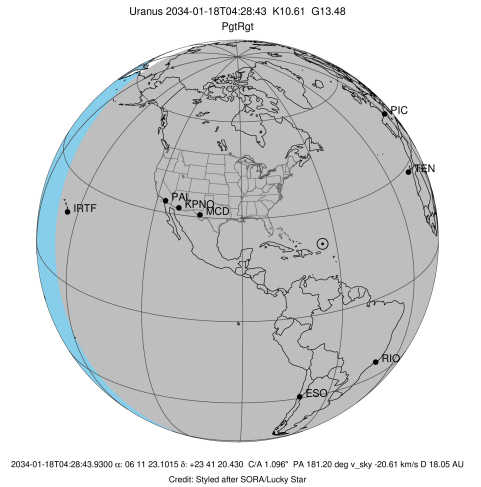
Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2034-01-18T03:52:49.772		58.47	-34.70	51046.17	-20.58		
lambda	I	2034-01-18T03:53:39.232		58.64	-34.87	50026.71	-20.59		
delta	I	2034-01-18T03:55:03.240		58.93	-35.17	48300.35	-20.51		
gamma	I	2034-01-18T03:55:35.943		59.05	-35.28	47630.16	-20.47		
eta	I	2034-01-18T03:55:58.131		59.12	-35.36	47176.12	-20.45		
beta	I	2034-01-18T03:57:12.282		59.38	-35.62	45663.28	-20.37		
alpha	I	2034-01-18T03:58:00.155		59.55	-35.78	44686.68	-20.31		
4	I	2034-01-18T03:59:45.894		59.91	-36.15	42552.19	-20.16		
5	I	2034-01-18T03:59:57.791		59.95	-36.19	42312.74	-20.15		
6	I	2034-01-18T04:00:23.367		60.04	-36.28	41796.40	-20.11		
Uranus	I	2034-01-18T04:14:30.978		62.94	-39.24	25468.82		-6.77	-7.09
Uranus	E	2034-01-18T04:46:15.427		69.30	-45.87	25037.04		16.69	17.43
6	E	2034-01-18T04:59:58.597		71.92	-48.72	41874.77	20.14		
5	E	2034-01-18T05:00:14.191		71.97	-48.78	42192.30	20.18		
4	E	2034-01-18T05:00:31.704		72.02	-48.84	42556.89	20.19		
alpha	E	2034-01-18T05:02:20.338		72.36	-49.22	44750.20	20.34		
beta	E	2034-01-18T05:03:05.491		72.50	-49.37	45672.37	20.41		
eta	E	2034-01-18T05:04:19.041		72.72	-49.63	47176.12	20.49		
gamma	E	2034-01-18T05:04:40.740		72.79	-49.70	47620.97	20.51		
delta	E	2034-01-18T05:05:13.831		72.89	-49.82	48300.35	20.55		
lambda	E	2034-01-18T05:06:37.677		73.15	-50.11	50026.71	20.63		
epsilon	E	2034-01-18T05:07:24.708		73.29	-50.27	50997.99	20.62		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2034-01-18T04:30:15.430
 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 : 3425436293456105728
 2Mass ID (if available) : 06112309+2341205
 ICRS Star Coord at Epoch: 06h 11m 23.10154s +23:41:20.43009s
 RUWE (>1.4 is poor) : 1.23
 K magnitude : 10.613
 G magnitude : 13.484
 RP magnitude : 12.620
 BP magnitude : 14.262
 DUPflag : 0
 Distance (au) : 18.054
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -20.61
 Sun-Target sep (deg) : 154.94
 Sun-Moon sep (deg) : 174.38
 B (ring opening deg) : 73.08
 PA of pole (deg) : 62.62
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 1.164
 C/A sky separation (km) : 15243.1
 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



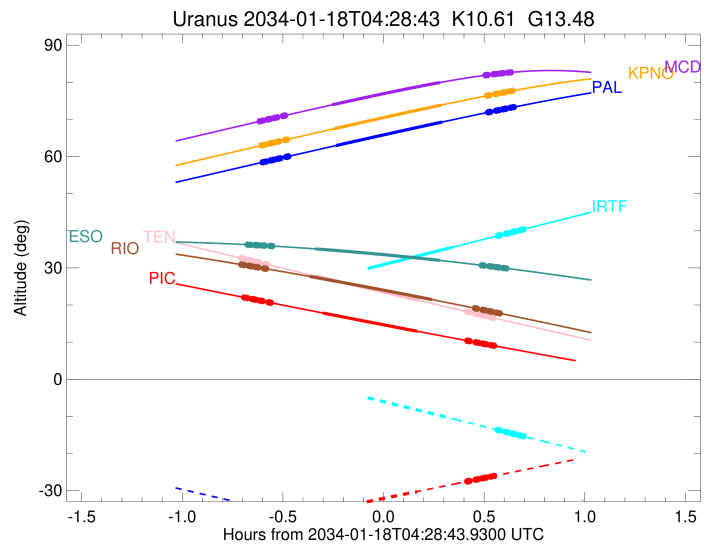
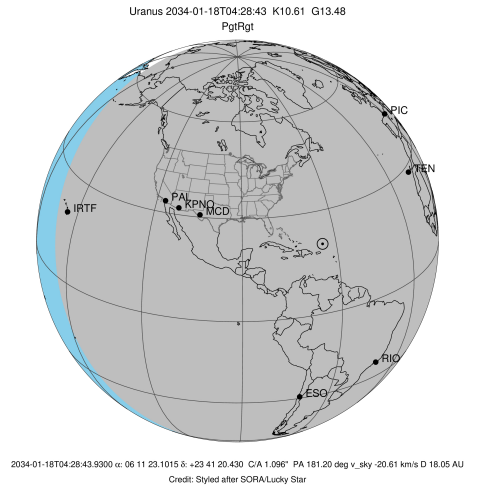
Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2034-01-18T03:52:28.264		63.01	-39.00	51048.13	-20.64		
lambda	I	2034-01-18T03:53:17.691		63.18	-39.18	50026.71	-20.64		
delta	I	2034-01-18T03:54:41.473		63.47	-39.48	48300.35	-20.57		
gamma	I	2034-01-18T03:55:14.086		63.58	-39.59	47630.18	-20.53		
eta	I	2034-01-18T03:55:36.213		63.66	-39.67	47176.12	-20.51		
beta	I	2034-01-18T03:56:50.155		63.92	-39.93	45663.17	-20.43		
alpha	I	2034-01-18T03:57:37.883		64.09	-40.10	44686.62	-20.37		
4	I	2034-01-18T03:59:23.278		64.45	-40.47	42552.44	-20.22		
5	I	2034-01-18T03:59:35.151		64.49	-40.51	42312.61	-20.22		
6	I	2034-01-18T04:00:00.639		64.58	-40.60	41796.33	-20.17		
Uranus	I	2034-01-18T04:14:03.484		67.49	-43.59	25464.33		-6.94	-7.26
Uranus	E	2034-01-18T04:46:01.442		73.88	-50.36	25035.39		16.72	17.46
6	E	2034-01-18T04:59:40.511		76.40	-53.24	41874.87	20.20		
5	E	2034-01-18T04:59:56.038		76.45	-53.30	42191.97	20.24		
4	E	2034-01-18T05:00:13.530		76.50	-53.36	42557.10	20.25		
alpha	E	2034-01-18T05:02:01.860		76.82	-53.74	44750.25	20.40		
beta	E	2034-01-18T05:02:46.890		76.95	-53.89	45672.30	20.46		
eta	E	2034-01-18T05:04:00.264		77.16	-54.15	47176.12	20.54		
gamma	E	2034-01-18T05:04:21.911		77.22	-54.23	47620.97	20.56		
delta	E	2034-01-18T05:04:54.925		77.31	-54.34	48300.35	20.60		
lambda	E	2034-01-18T05:06:18.584		77.55	-54.63	50026.71	20.67		
epsilon	E	2034-01-18T05:07:05.585		77.68	-54.80	50999.43	20.67		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2034-01-18T04:29:42.450
 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 : 3425436293456105728
 2Mass ID (if available) : 06112309+2341205
 ICRS Star Coord at Epoch: 06h 11m 23.10154s +23:41:20.43009s
 RUWE (>1.4 is poor) : 1.23
 K magnitude : 10.613
 G magnitude : 13.484
 RP magnitude : 12.620
 BP magnitude : 14.262
 DUPflag : 0
 Distance (au) : 18.054
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -20.61
 Sun-Target sep (deg) : 154.94
 Sun-Moon sep (deg) : 174.40
 B (ring opening deg) : 73.08
 PA of pole (deg) : 62.62
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 1.149
 C/A sky separation (km) : 15040.1
 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



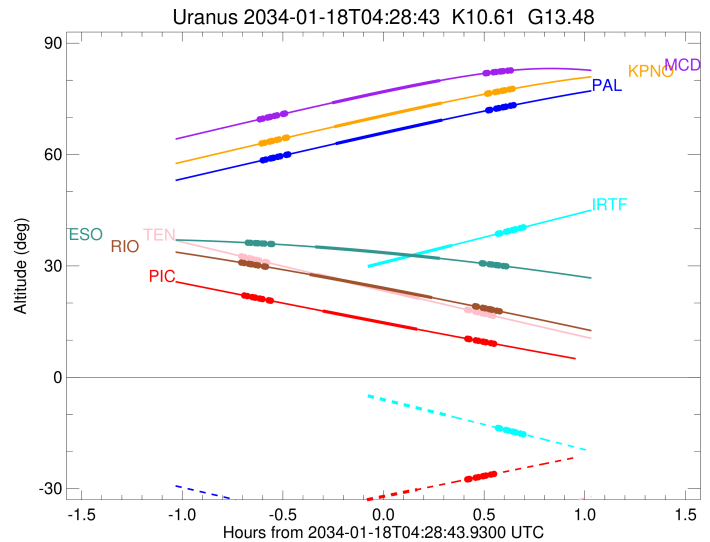
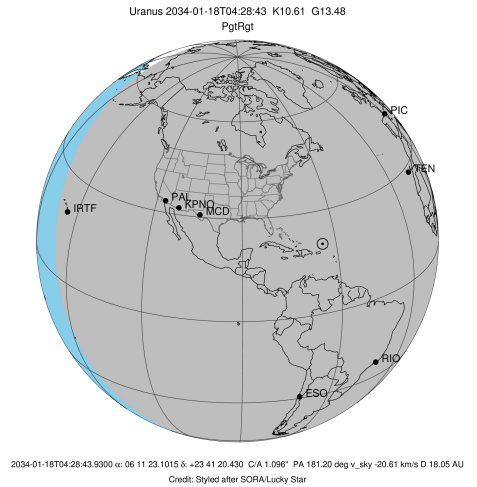
Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2034-01-18T03:51:55.166		69.50	-45.36	51050.14	-20.69		
lambda	I	2034-01-18T03:52:44.559		69.67	-45.54	50026.71	-20.70		
delta	I	2034-01-18T03:54:08.111		69.96	-45.84	48300.35	-20.62		
gamma	I	2034-01-18T03:54:40.632		70.08	-45.96	47630.20	-20.59		
eta	I	2034-01-18T03:55:02.696		70.15	-46.04	47176.12	-20.57		
beta	I	2034-01-18T03:56:16.430		70.41	-46.30	45663.06	-20.49		
alpha	I	2034-01-18T03:57:04.011		70.57	-46.47	44686.55	-20.43		
4	I	2034-01-18T03:58:49.063		70.94	-46.85	42552.69	-20.29		
5	I	2034-01-18T03:59:00.912		70.98	-46.89	42312.49	-20.28		
6	I	2034-01-18T03:59:26.313		71.07	-46.98	41796.26	-20.24		
Uranus	I	2034-01-18T04:13:24.588		73.93	-49.99	25459.87		-7.10	-7.43
Uranus	E	2034-01-18T04:45:34.927		79.94	-56.87	25033.99		16.74	17.49
6	E	2034-01-18T04:59:10.221		81.90	-59.74	41874.96	20.25		
5	E	2034-01-18T04:59:25.688		81.93	-59.80	42191.68	20.29		
4	E	2034-01-18T04:59:43.160		81.96	-59.86	42557.29	20.30		
alpha	E	2034-01-18T05:01:31.212		82.17	-60.24	44750.30	20.45		
beta	E	2034-01-18T05:02:16.130		82.25	-60.40	45672.23	20.51		
eta	E	2034-01-18T05:03:29.343		82.37	-60.65	47176.12	20.58		
gamma	E	2034-01-18T05:03:50.944		82.41	-60.73	47620.98	20.61		
delta	E	2034-01-18T05:04:23.888		82.46	-60.84	48300.35	20.64		
lambda	E	2034-01-18T05:05:47.378		82.59	-61.14	50026.71	20.72		
epsilon	E	2034-01-18T05:06:34.349		82.65	-61.30	51000.67	20.71		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2034-01-18T04:24:18.300
 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 : 3425436293456105728
 2Mass ID (if available) : 06112309+2341205
 ICRS Star Coord at Epoch: 06h 11m 23.10154s +23:41:20.43009s
 RUWE (>1.4 is poor) : 1.23
 K magnitude : 10.613
 G magnitude : 13.484
 RP magnitude : 12.620
 BP magnitude : 14.262
 DUPflag : 0
 Distance (au) : 18.053
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -20.61
 Sun-Target sep (deg) : 154.94
 Sun-Moon sep (deg) : 174.88
 B (ring opening deg) : 73.08
 PA of pole (deg) : 62.62
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 1.262
 C/A sky separation (km) : 16520.0
 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



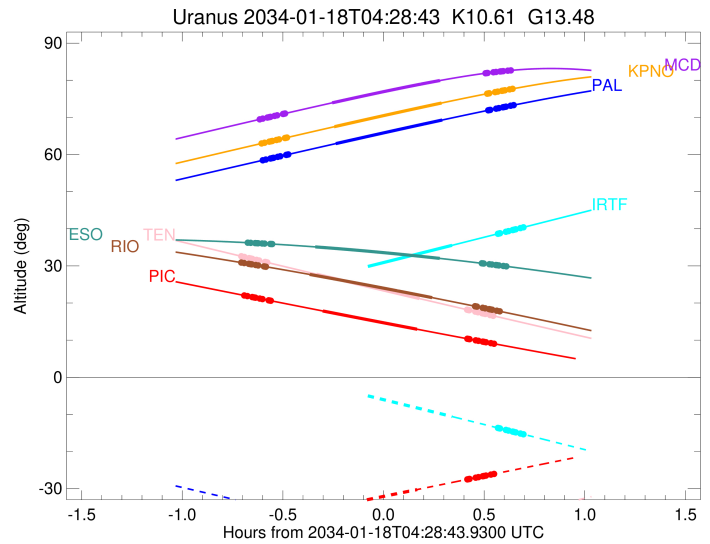
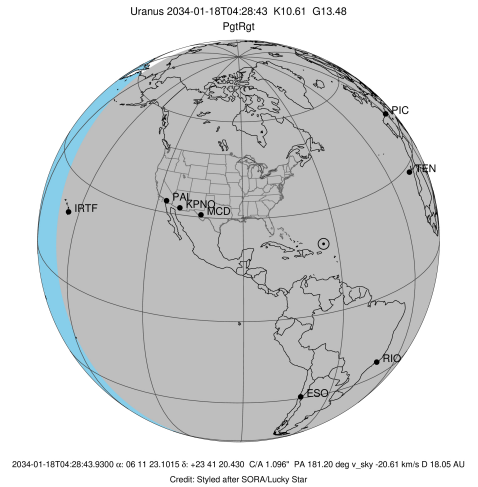
Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2034-01-18T03:46:26.272		32.58	-55.10	51041.63	-20.29		
lambda	I	2034-01-18T03:47:16.225		32.40	-54.92	50026.71	-20.29		
delta	I	2034-01-18T03:48:41.500		32.09	-54.60	48300.35	-20.20		
gamma	I	2034-01-18T03:49:14.719		31.97	-54.48	47630.11	-20.16		
eta	I	2034-01-18T03:49:37.259		31.89	-54.40	47176.12	-20.13		
beta	I	2034-01-18T03:50:52.619		31.62	-54.12	45663.57	-20.03		
alpha	I	2034-01-18T03:51:41.324		31.44	-53.94	44686.86	-19.96		
4	I	2034-01-18T03:53:29.027		31.05	-53.55	42551.50	-19.78		
5	I	2034-01-18T03:53:41.107		31.01	-53.50	42313.06	-19.77		
6	I	2034-01-18T03:54:07.187		30.92	-53.41	41796.61	-19.72		
Uranus	I	2034-01-18T04:08:42.641		27.77	-50.19	25485.35		-6.11	-6.40
Uranus	E	2034-01-18T04:39:27.486		21.20	-43.42	25050.00		16.47	17.20
6	E	2034-01-18T04:53:41.439		18.19	-40.28	41874.00	19.62		
5	E	2034-01-18T04:53:57.616		18.13	-40.23	42194.84	19.66		
4	E	2034-01-18T04:54:15.357		18.07	-40.16	42555.32	19.67		
alpha	E	2034-01-18T04:56:06.845		17.68	-39.75	44749.75	19.84		
beta	E	2034-01-18T04:56:53.188		17.52	-39.58	45672.94	19.91		
eta	E	2034-01-18T04:58:08.517		17.26	-39.31	47176.12	20.00		
gamma	E	2034-01-18T04:58:30.742		17.18	-39.22	47620.96	20.03		
delta	E	2034-01-18T04:59:04.630		17.06	-39.10	48300.35	20.07		
lambda	E	2034-01-18T05:00:30.465		16.76	-38.79	50026.71	20.16		
epsilon	E	2034-01-18T05:01:18.008		16.59	-38.61	50986.11	20.15		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2034-01-18T04:33:09.530
 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 : 3425436293456105728
 2Mass ID (if available) : 06112309+2341205
 ICRS Star Coord at Epoch: 06h 11m 23.10154s +23:41:20.43009s
 RUWE (>1.4 is poor) : 1.23
 K magnitude : 10.613
 G magnitude : 13.484
 RP magnitude : 12.620
 BP magnitude : 14.262
 DUPflag : 0
 Distance (au) : 18.054
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -20.61
 Sun-Target sep (deg) : 154.94
 Sun-Moon sep (deg) : 174.08
 B (ring opening deg) : 73.08
 PA of pole (deg) : 62.62
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 1.146
 C/A sky separation (km) : 14999.7
 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



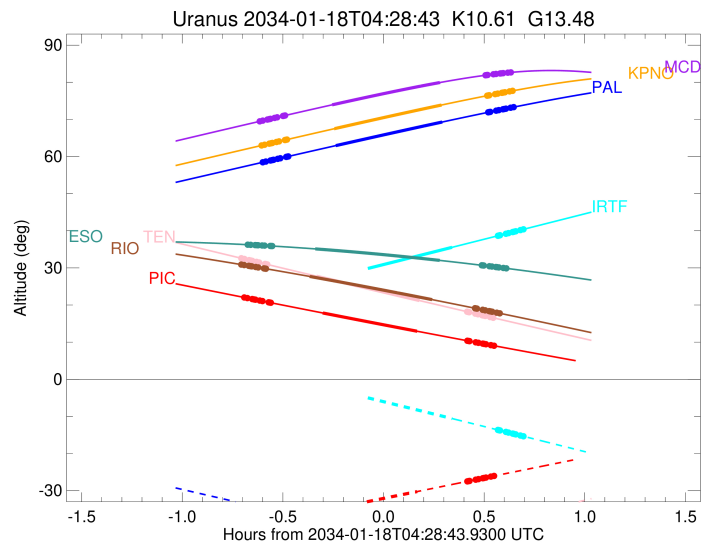
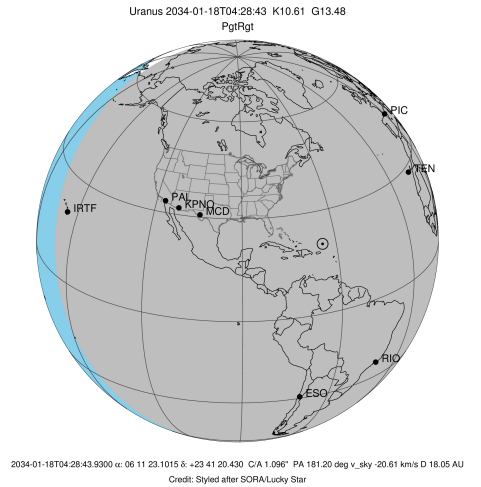
Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2034-01-18T03:54:57.704		23.29	1.38x	51048.23	-20.46		
lambda	I	2034-01-18T03:55:47.568		23.48	1.20x	50026.71	-20.47		
delta	I	2034-01-18T03:57:12.071		23.79	0.89x	48300.35	-20.39		
gamma	I	2034-01-18T03:57:44.959		23.92	0.78x	47630.19	-20.36		
eta	I	2034-01-18T03:58:07.271		24.00	0.69x	47176.12	-20.34		
beta	I	2034-01-18T03:59:21.826		24.28	0.42x	45663.15	-20.27		
alpha	I	2034-01-18T04:00:09.938		24.46	0.25x	44686.60	-20.21		
4	I	2034-01-18T04:01:56.158		24.86	-0.14x	42552.50	-20.07		
5	I	2034-01-18T04:02:08.125		24.90	-0.18x	42312.59	-20.06		
6	I	2034-01-18T04:02:33.806		25.00	-0.28x	41796.31	-20.02		
Uranus	I	2034-01-18T04:16:40.684		28.18	-3.37x	25461.54		-7.04	-7.37
Uranus	E	2034-01-18T04:49:11.589		35.55	-10.59	25032.81		16.76	17.51
6	E	2034-01-18T05:02:52.638		38.66	-13.65	41875.09	20.11		
5	E	2034-01-18T05:03:08.182		38.72	-13.71	42191.21	20.15		
4	E	2034-01-18T05:03:25.820		38.79	-13.78	42557.59	20.16		
alpha	E	2034-01-18T05:05:14.609		39.20	-14.19	44750.38	20.31		
beta	E	2034-01-18T05:05:59.824		39.37	-14.36	45672.12	20.37		
eta	E	2034-01-18T05:07:13.542		39.65	-14.63	47176.12	20.44		
gamma	E	2034-01-18T05:07:35.289		39.73	-14.71	47620.98	20.47		
delta	E	2034-01-18T05:08:08.455		39.86	-14.84	48300.35	20.50		
lambda	E	2034-01-18T05:09:32.504		40.18	-15.15	50026.71	20.58		
epsilon	E	2034-01-18T05:10:19.912		40.36	-15.33	51003.28	20.57		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2034-01-18T04:25:06.360
 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 : 3425436293456105728
 2Mass ID (if available) : 06112309+2341205
 ICRS Star Coord at Epoch: 06h 11m 23.10154s +23:41:20.43009s
 RUWE (>1.4 is poor) : 1.23
 K magnitude : 10.613
 G magnitude : 13.484
 RP magnitude : 12.620
 BP magnitude : 14.262
 DUPflag : 0
 Distance (au) : 18.053
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -20.61
 Sun-Target sep (deg) : 154.94
 Sun-Moon sep (deg) : 174.00
 B (ring opening deg) : 73.08
 PA of pole (deg) : 62.62
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 0.803
 C/A sky separation (km) : 10511.0
 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	2034-01-18T03:46:22.887		30.89	-45.45	51090.00	-21.18		
lambda	I	2034-01-18T03:47:13.021		30.76	-45.40	50026.71	-21.20		
delta	I	2034-01-18T03:48:34.536		30.55	-45.32	48300.35	-21.16		
gamma	I	2034-01-18T03:49:06.202		30.47	-45.28	47630.56	-21.14		
eta	I	2034-01-18T03:49:27.702		30.42	-45.26	47176.12	-21.13		
beta	I	2034-01-18T03:50:39.506		30.24	-45.19	45660.81	-21.09		
alpha	I	2034-01-18T03:51:25.630		30.12	-45.14	44685.47	-21.06		
4	I	2034-01-18T03:53:07.111		29.86	-45.03	42557.79	-20.99		
5	I	2034-01-18T03:53:18.881		29.83	-45.02	42309.40	-20.99		
6	I	2034-01-18T03:53:43.295		29.76	-44.99	41795.19	-20.97		
Uranus	I	2034-01-18T04:06:43.107		27.70	-44.02	25358.43		-10.16	-10.63
Uranus	E	2034-01-18T04:43:13.537		21.46	-40.31	25024.99		16.89	17.65
6	E	2034-01-18T04:56:01.667		19.13	-38.71	41876.85	20.87		
5	E	2034-01-18T04:56:16.260		19.09	-38.68	42184.73	20.89		
4	E	2034-01-18T04:56:33.862		19.03	-38.64	42561.92	20.90		
alpha	E	2034-01-18T04:58:18.895		18.71	-38.41	44751.32	20.96		
beta	E	2034-01-18T04:59:02.600		18.58	-38.31	45670.55	20.99		
eta	E	2034-01-18T05:00:14.292		18.36	-38.15	47176.12	21.02		
gamma	E	2034-01-18T05:00:35.451		18.29	-38.11	47621.04	21.03		
delta	E	2034-01-18T05:01:07.738		18.19	-38.03	48300.35	21.05		
lambda	E	2034-01-18T05:02:29.695		17.94	-37.85	50026.71	21.08		
epsilon	E	2034-01-18T05:03:17.433		17.79	-37.74	51033.51	21.07		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2034-01-18T04:27:02.730
 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 : 3425436293456105728
 2Mass ID (if available) : 06112309+2341205
 ICRS Star Coord at Epoch: 06h 11m 23.10154s +23:41:20.43009s
 RUWE (>1.4 is poor) : 1.23
 K magnitude : 10.613
 G magnitude : 13.484
 RP magnitude : 12.620
 BP magnitude : 14.262
 DUPflag : 0
 Distance (au) : 18.054
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -20.61
 Sun-Target sep (deg) : 154.94
 Sun-Moon sep (deg) : 173.76
 B (ring opening deg) : 73.08
 PA of pole (deg) : 62.62
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 0.716
 C/A sky separation (km) : 9373.0
 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	2034-01-18T03:48:18.406		36.25	-37.96	51097.90	-21.35		
lambda	I	2034-01-18T03:49:08.535		36.21	-38.03	50026.71	-21.36		
delta	I	2034-01-18T03:50:29.413		36.14	-38.12	48300.35	-21.33		
gamma	I	2034-01-18T03:51:00.821		36.12	-38.16	47630.63	-21.32		
eta	I	2034-01-18T03:51:22.146		36.10	-38.18	47176.12	-21.31		
beta	I	2034-01-18T03:52:33.359		36.04	-38.26	45660.36	-21.28		
alpha	I	2034-01-18T03:53:19.059		36.00	-38.32	44685.30	-21.25		
4	I	2034-01-18T03:54:59.539		35.92	-38.43	42558.85	-21.20		
5	I	2034-01-18T03:55:11.263		35.91	-38.44	42308.63	-21.20		
6	I	2034-01-18T03:55:35.402		35.89	-38.47	41795.05	-21.18		
Uranus	I	2034-01-18T04:08:22.060		35.12	-39.21	25334.72		-10.75	-11.25
Uranus	E	2034-01-18T04:45:28.521		32.02	-40.34	25029.64		16.82	17.56
6	E	2034-01-18T04:58:04.044		30.70	-40.37	41877.31	21.13		
5	E	2034-01-18T04:58:18.348		30.68	-40.37	42182.83	21.15		
4	E	2034-01-18T04:58:35.914		30.64	-40.36	42563.29	21.15		
alpha	E	2034-01-18T05:00:19.659		30.45	-40.35	44751.56	21.20		
beta	E	2034-01-18T05:01:02.829		30.37	-40.35	45670.04	21.23		
eta	E	2034-01-18T05:02:13.754		30.24	-40.33	47176.12	21.25		
gamma	E	2034-01-18T05:02:34.686		30.20	-40.33	47621.07	21.26		
delta	E	2034-01-18T05:03:06.626		30.14	-40.32	48300.35	21.27		
lambda	E	2034-01-18T05:04:27.723		29.98	-40.31	50026.71	21.30		
epsilon	E	2034-01-18T05:05:15.445		29.89	-40.30	51043.63	21.29		