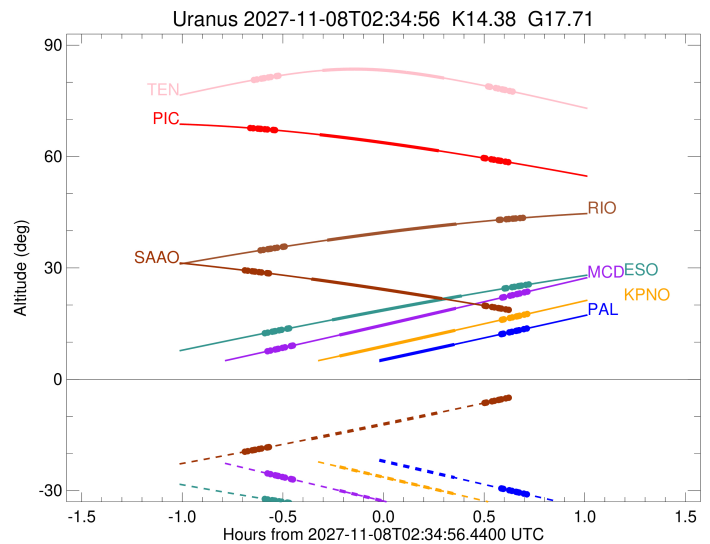
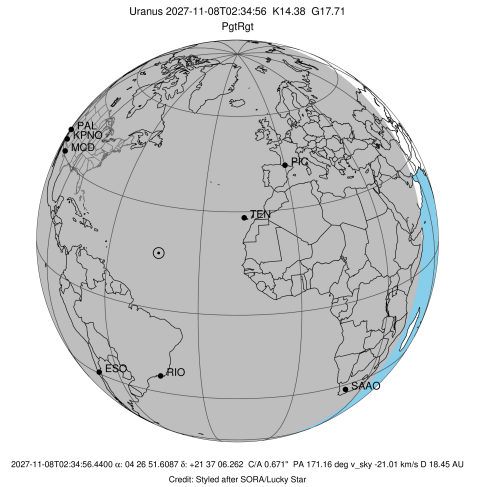
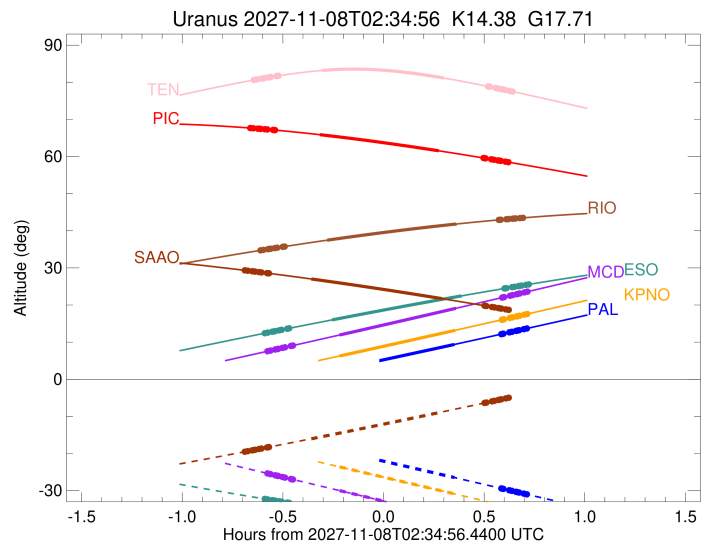
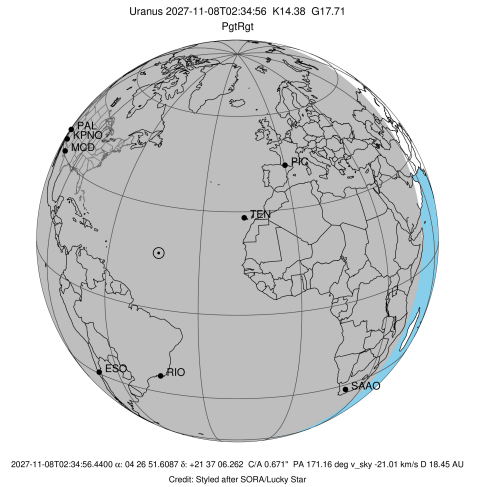


target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2027-11-08T02:33:29.910
 Event type : PgtRgt
 : Uranus occs: geocentric, topocentric
 : Ring occs: geocentric, topocentric
 Observer code : PIC
 Location : Pic du Midi
 Latitude (deg) : 42.93656
 E. Longitude (deg) : 0.14231
 Altitude (km) : 2.890
 Gaia source ID : 145389869947809536
 2Mass ID (if available) : 04265161+2137065
 ICRS Star Coord at Epoch: 04h 26m 51.60871s +21:37:06.26151s
 RUWE (>1.4 is poor) : 1.07
 K magnitude : 14.383
 G magnitude : 17.713
 RP magnitude : 16.768
 BP magnitude : 18.672
 DUPflag : 0
 Distance (au) : 18.454
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -21.01
 Sun-Target sep (deg) : 156.63
 Sun-Moon sep (deg) : 94.95
 B (ring opening deg) : 78.07
 PA of pole (deg) : -59.11
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 0.826
 C/A sky separation (km) : 11051.3
 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



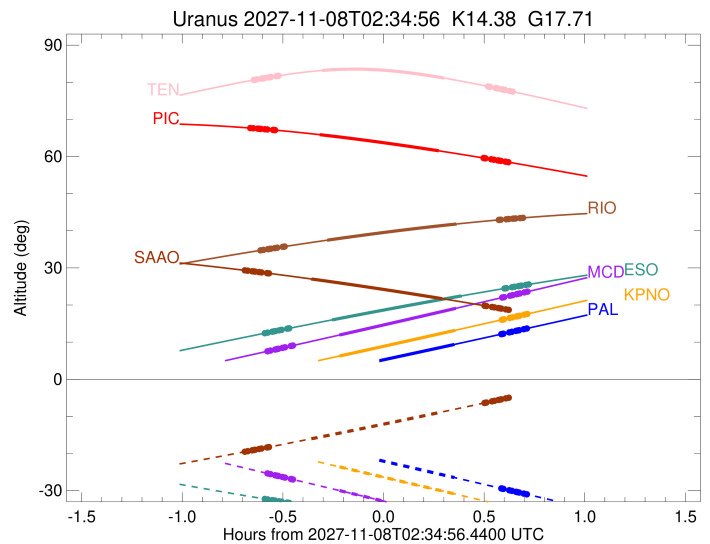
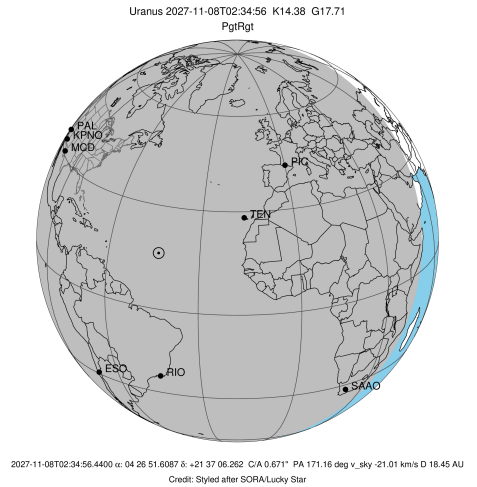
Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2027-11-08T01:55:02.539		67.69	-51.55	51377.85	-21.14		
lambda	I	2027-11-08T01:56:06.597		67.61	-51.39	50026.71	-21.08		
delta	I	2027-11-08T01:57:28.581		67.51	-51.18	48300.35	-21.04		
gamma	I	2027-11-08T01:58:00.445		67.47	-51.09	47630.29	-21.02		
eta	I	2027-11-08T01:58:22.058		67.45	-51.04	47176.12	-21.01		
beta	I	2027-11-08T01:59:35.171		67.36	-50.85	45641.17	-20.96		
alpha	I	2027-11-08T02:00:19.527		67.30	-50.73	44712.80	-20.93		
4	I	2027-11-08T02:02:03.327		67.16	-50.46	42541.04	-20.87		
5	I	2027-11-08T02:02:18.041		67.14	-50.42	42228.40	-20.86		
6	I	2027-11-08T02:02:35.991		67.12	-50.37	41869.90	-20.84		
Uranus	I	2027-11-08T02:15:57.829		65.89	-48.23	25027.91		11.60	12.14
Uranus	E	2027-11-08T02:51:24.692		61.54	-42.24	25459.50		-4.93	-5.16
6	E	2027-11-08T03:04:44.680		59.61	-39.90	41823.26	20.83		
5	E	2027-11-08T03:05:07.059		59.55	-39.83	42281.42	20.84		
4	E	2027-11-08T03:05:22.793		59.51	-39.79	42614.42	20.85		
alpha	E	2027-11-08T03:07:02.966		59.26	-39.49	44707.25	20.92		
beta	E	2027-11-08T03:07:49.488		59.15	-39.35	45679.74	20.95		
eta	E	2027-11-08T03:09:00.823		58.96	-39.14	47176.12	20.99		
gamma	E	2027-11-08T03:09:22.017		58.91	-39.08	47621.10	21.00		
delta	E	2027-11-08T03:09:54.346		58.83	-38.98	48300.35	21.02		
lambda	E	2027-11-08T03:11:16.402		58.62	-38.74	50026.71	21.06		
epsilon	E	2027-11-08T03:12:06.409		58.49	-38.59	51080.36	21.12		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2027-11-08T02:38:44.270
 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 : 145389869947809536
 2Mass ID (if available) : 04265161+2137065
 ICRS Star Coord at Epoch: 04h 26m 51.60871s +21:37:06.26151s
 RUWE (>1.4 is poor) : 1.07
 K magnitude : 14.383
 G magnitude : 17.713
 RP magnitude : 16.768
 BP magnitude : 18.672
 DUPflag : 0
 Distance (au) : 18.454
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -21.01
 Sun-Target sep (deg) : 156.63
 Sun-Moon sep (deg) : 94.29
 B (ring opening deg) : 78.07
 PA of pole (deg) : -59.11
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 0.984
 C/A sky separation (km) : 13173.2
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk
 URKALLvl.spk
 ural11.bsp
 IAU_URANUS_for_RINGFIT.tpc
 vgr2.ural11.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



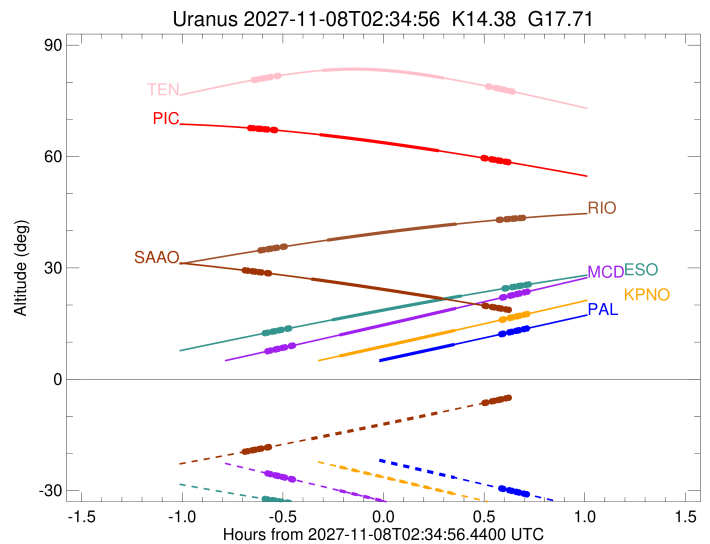
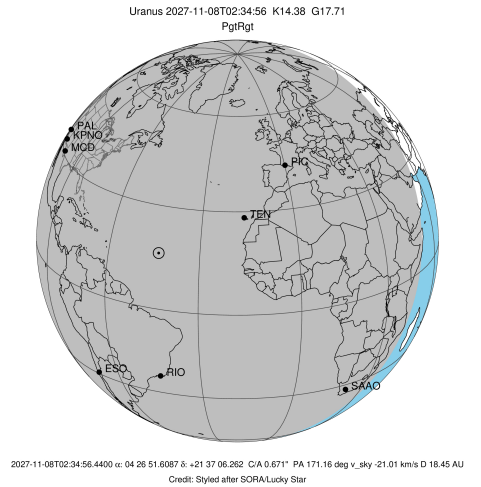
Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2027-11-08T01:59:55.046	-1.42x	-14.81	51393.68	-20.46			
lambda	I	2027-11-08T02:01:02.034	-1.22x	-15.04	50026.71	-20.39			
delta	I	2027-11-08T02:02:26.826	-0.95x	-15.33	48300.35	-20.33			
gamma	I	2027-11-08T02:02:59.809	-0.85x	-15.44	47630.11	-20.31			
eta	I	2027-11-08T02:03:22.172	-0.78x	-15.52	47176.12	-20.29			
beta	I	2027-11-08T02:04:37.884	-0.54x	-15.78	45641.32	-20.23			
alpha	I	2027-11-08T02:05:23.943	-0.40x	-15.94	44710.98	-20.19			
4	I	2027-11-08T02:07:11.425	-0.06x	-16.31	42543.03	-20.10			
5	I	2027-11-08T02:07:26.582	-0.01x	-16.36	42233.04	-20.09			
6	I	2027-11-08T02:07:45.400	0.05x	-16.42	41871.43	-20.07			
Uranus	I	2027-11-08T02:21:48.559	2.71x	-19.33	25007.80			11.83	12.37
Uranus	E	2027-11-08T02:56:05.691	9.38	-26.48	25494.48			-3.96	-4.15
6	E	2027-11-08T03:10:02.934	12.15	-29.40	41825.17	20.18			
5	E	2027-11-08T03:10:26.047	12.23	-29.48	42284.41	20.20			
4	E	2027-11-08T03:10:42.175	12.28	-29.54	42615.00	20.21			
alpha	E	2027-11-08T03:12:25.332	12.62	-29.90	44705.88	20.31			
beta	E	2027-11-08T03:13:13.273	12.78	-30.06	45679.40	20.36			
eta	E	2027-11-08T03:14:26.661	13.03	-30.32	47176.12	20.42			
gamma	E	2027-11-08T03:14:48.442	13.10	-30.39	47621.06	20.44			
delta	E	2027-11-08T03:15:21.662	13.21	-30.51	48300.35	20.46			
lambda	E	2027-11-08T03:16:45.911	13.49	-30.80	50026.71	20.52			
epsilon	E	2027-11-08T03:17:37.925	13.67	-30.99	51094.97	20.60			

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2027-11-08T02:38:52.390
 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 : 145389869947809536
 2Mass ID (if available) : 04265161+2137065
 ICRS Star Coord at Epoch: 04h 26m 51.60871s +21:37:06.26151s
 RUWE (>1.4 is poor) : 1.07
 K magnitude : 14.383
 G magnitude : 17.713
 RP magnitude : 16.768
 BP magnitude : 18.672
 DUPflag : 0
 Distance (au) : 18.454
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -21.01
 Sun-Target sep (deg) : 156.63
 Sun-Moon sep (deg) : 94.35
 B (ring opening deg) : 78.07
 PA of pole (deg) : -59.11
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 0.963
 C/A sky separation (km) : 12894.1
 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



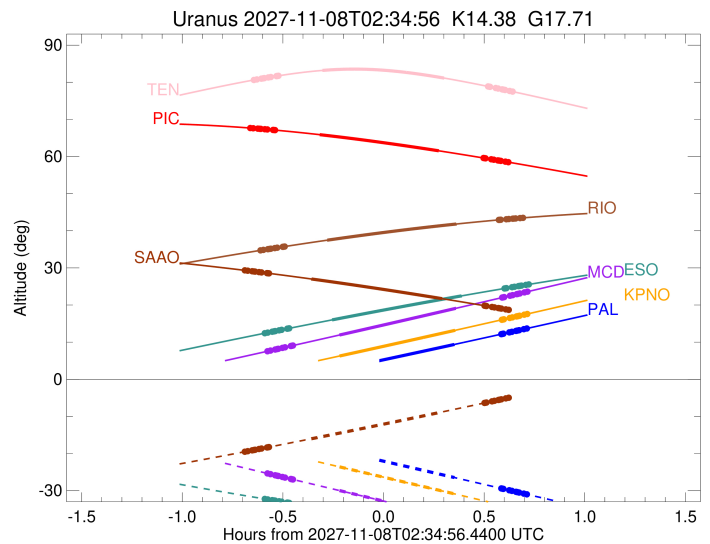
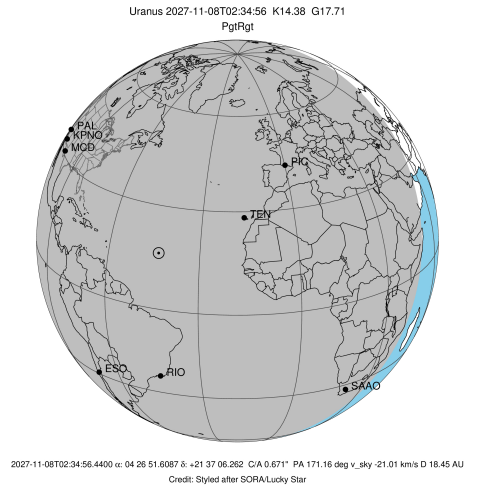
Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2027-11-08T02:00:03.255		2.00x	-19.00	51391.98	-20.52		
lambda	I	2027-11-08T02:01:09.950		2.21x	-19.23	50026.71	-20.45		
delta	I	2027-11-08T02:02:34.469		2.48x	-19.53	48300.35	-20.40		
gamma	I	2027-11-08T02:03:07.342		2.59x	-19.65	47630.13	-20.38		
eta	I	2027-11-08T02:03:29.630		2.66x	-19.72	47176.12	-20.36		
beta	I	2027-11-08T02:04:45.081		2.91x	-19.99	45641.30	-20.31		
alpha	I	2027-11-08T02:05:30.966		3.06x	-20.15	44711.18	-20.27		
4	I	2027-11-08T02:07:18.069		3.41x	-20.53	42542.80	-20.18		
5	I	2027-11-08T02:07:33.180		3.46x	-20.58	42232.52	-20.17		
6	I	2027-11-08T02:07:51.904		3.52x	-20.65	41871.26	-20.15		
Uranus	I	2027-11-08T02:21:50.119		6.27	-23.60	25009.69		11.81	12.35
Uranus	E	2027-11-08T02:56:19.691		13.19	-30.92	25489.69		-4.11	-4.30
6	E	2027-11-08T03:10:11.923		16.02	-33.87	41824.87	20.26		
5	E	2027-11-08T03:10:34.940		16.10	-33.95	42283.94	20.28		
4	E	2027-11-08T03:10:51.020		16.15	-34.00	42614.92	20.29		
alpha	E	2027-11-08T03:12:33.792		16.51	-34.37	44706.10	20.39		
beta	E	2027-11-08T03:13:21.548		16.67	-34.54	45679.46	20.43		
eta	E	2027-11-08T03:14:34.669		16.92	-34.80	47176.12	20.49		
gamma	E	2027-11-08T03:14:56.374		16.99	-34.87	47621.07	20.51		
delta	E	2027-11-08T03:15:29.478		17.11	-34.99	48300.35	20.53		
lambda	E	2027-11-08T03:16:53.442		17.39	-35.29	50026.71	20.59		
epsilon	E	2027-11-08T03:17:45.168		17.57	-35.47	51092.54	20.66		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2027-11-08T02:38:57.660
 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 : 145389869947809536
 2Mass ID (if available) : 04265161+2137065
 ICRS Star Coord at Epoch: 04h 26m 51.60871s +21:37:06.26151s
 RUWE (>1.4 is poor) : 1.07
 K magnitude : 14.383
 G magnitude : 17.713
 RP magnitude : 16.768
 BP magnitude : 18.672
 DUPflag : 0
 Distance (au) : 18.454
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -21.01
 Sun-Target sep (deg) : 156.63
 Sun-Moon sep (deg) : 94.44
 B (ring opening deg) : 78.07
 PA of pole (deg) : -59.11
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 0.936
 C/A sky separation (km) : 12524.5
 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



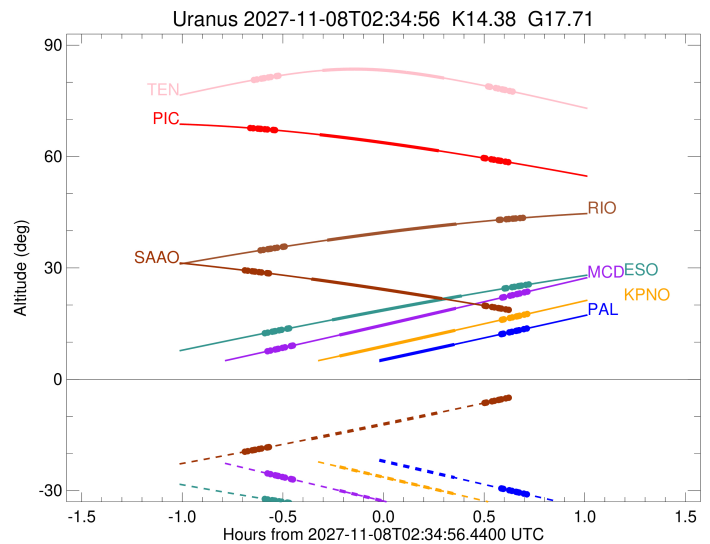
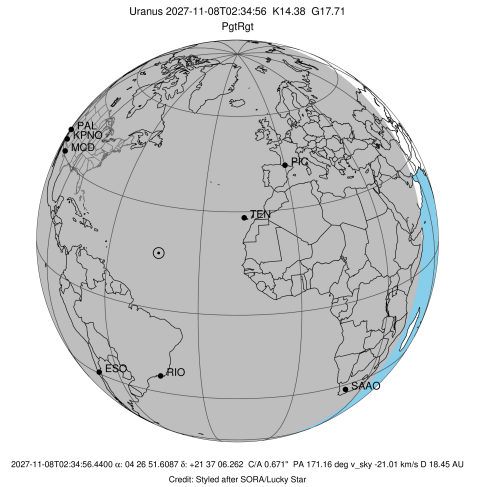
Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2027-11-08T02:00:09.512		7.51	-25.32	51389.69	-20.61		
lambda	I	2027-11-08T02:01:15.801		7.73	-25.56	50026.71	-20.54		
delta	I	2027-11-08T02:02:39.935		8.02	-25.86	48300.35	-20.49		
gamma	I	2027-11-08T02:03:12.652		8.13	-25.98	47630.16	-20.47		
eta	I	2027-11-08T02:03:34.836		8.20	-26.06	47176.12	-20.46		
beta	I	2027-11-08T02:04:49.923		8.46	-26.33	45641.28	-20.41		
alpha	I	2027-11-08T02:05:35.566		8.61	-26.49	44711.45	-20.37		
4	I	2027-11-08T02:07:22.142		8.97	-26.87	42542.50	-20.29		
5	I	2027-11-08T02:07:37.190		9.02	-26.93	42231.81	-20.28		
6	I	2027-11-08T02:07:55.786		9.08	-26.99	41871.04	-20.26		
Uranus	I	2027-11-08T02:21:47.398		11.91	-29.97	25012.45		11.78	12.32
Uranus	E	2027-11-08T02:56:32.075		19.11	-37.46	25483.22		-4.30	-4.50
6	E	2027-11-08T03:10:17.686		22.00	-40.42	41824.47	20.37		
5	E	2027-11-08T03:10:40.575		22.08	-40.50	42283.33	20.39		
4	E	2027-11-08T03:10:56.589		22.14	-40.56	42614.80	20.40		
alpha	E	2027-11-08T03:12:38.840		22.50	-40.92	44706.38	20.49		
beta	E	2027-11-08T03:13:26.344		22.66	-41.09	45679.53	20.53		
eta	E	2027-11-08T03:14:39.102		22.92	-41.36	47176.12	20.59		
gamma	E	2027-11-08T03:15:00.703		23.00	-41.43	47621.07	20.61		
delta	E	2027-11-08T03:15:33.650		23.11	-41.55	48300.35	20.63		
lambda	E	2027-11-08T03:16:57.225		23.41	-41.85	50026.71	20.68		
epsilon	E	2027-11-08T03:17:48.565		23.59	-42.03	51089.38	20.76		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2027-11-08T02:34:42.710
 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 : 145389869947809536
 2Mass ID (if available) : 04265161+2137065
 ICRS Star Coord at Epoch: 04h 26m 51.60871s +21:37:06.26151s
 RUWE (>1.4 is poor) : 1.07
 K magnitude : 14.383
 G magnitude : 17.713
 RP magnitude : 16.768
 BP magnitude : 18.672
 DUPflag : 0
 Distance (au) : 18.454
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -21.01
 Sun-Target sep (deg) : 156.63
 Sun-Moon sep (deg) : 95.05
 B (ring opening deg) : 78.07
 PA of pole (deg) : -59.11
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 0.717
 C/A sky separation (km) : 9601.8
 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



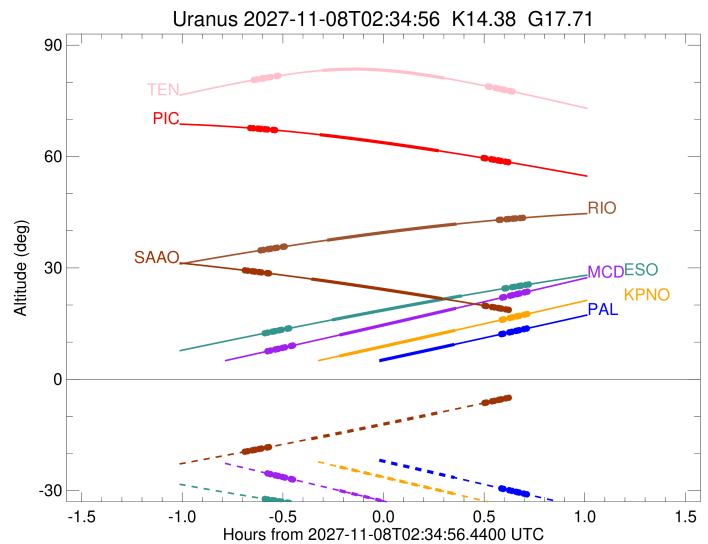
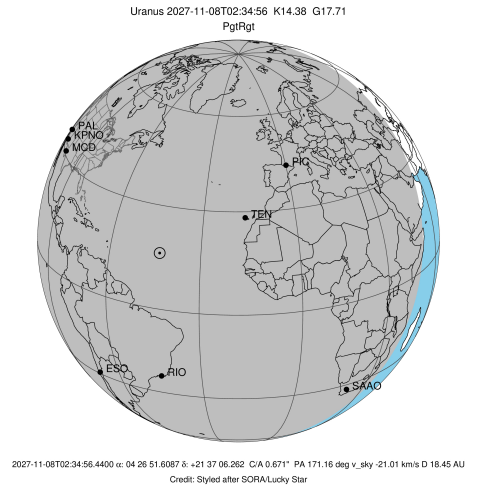
Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2027-11-08T01:56:08.240		80.60	-70.74	51368.73	-21.32		
lambda	I	2027-11-08T01:57:11.285		80.77	-70.55	50026.71	-21.28		
delta	I	2027-11-08T01:58:32.483		80.99	-70.30	48300.35	-21.25		
gamma	I	2027-11-08T01:59:04.026		81.07	-70.20	47630.39	-21.23		
eta	I	2027-11-08T01:59:25.425		81.12	-70.14	47176.12	-21.22		
beta	I	2027-11-08T02:00:37.775		81.31	-69.91	45641.12	-21.19		
alpha	I	2027-11-08T02:01:21.598		81.42	-69.77	44713.85	-21.17		
4	I	2027-11-08T02:03:04.306		81.67	-69.45	42539.93	-21.12		
5	I	2027-11-08T02:03:18.911		81.71	-69.40	42225.73	-21.11		
6	I	2027-11-08T02:03:36.544		81.75	-69.35	41868.96	-21.10		
Uranus	I	2027-11-08T02:16:42.847		83.19	-66.80	25044.95		11.40	11.93
Uranus	E	2027-11-08T02:53:01.866		81.13	-59.30	25430.38		-5.61	-5.88
6	E	2027-11-08T03:06:05.685		78.89	-56.51	41821.74	21.11		
5	E	2027-11-08T03:06:27.747		78.82	-56.43	42278.91	21.12		
4	E	2027-11-08T03:06:43.354		78.77	-56.38	42613.87	21.13		
alpha	E	2027-11-08T03:08:22.321		78.46	-56.02	44708.40	21.18		
beta	E	2027-11-08T03:09:08.233		78.32	-55.86	45679.99	21.20		
eta	E	2027-11-08T03:10:18.713		78.10	-55.61	47176.12	21.24		
gamma	E	2027-11-08T03:10:39.665		78.03	-55.53	47621.15	21.24		
delta	E	2027-11-08T03:11:11.625		77.93	-55.42	48300.35	21.26		
lambda	E	2027-11-08T03:12:32.777		77.67	-55.12	50026.71	21.29		
epsilon	E	2027-11-08T03:13:21.667		77.51	-54.95	51067.91	21.34		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2027-11-08T02:37:20.820
 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 : 145389869947809536
 2Mass ID (if available) : 04265161+2137065
 ICRS Star Coord at Epoch: 04h 26m 51.60871s +21:37:06.26151s
 RUWE (>1.4 is poor) : 1.07
 K magnitude : 14.383
 G magnitude : 17.713
 RP magnitude : 16.768
 BP magnitude : 18.672
 DUPflag : 0
 Distance (au) : 18.454
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -21.01
 Sun-Target sep (deg) : 156.63
 Sun-Moon sep (deg) : 94.77
 B (ring opening deg) : 78.07
 PA of pole (deg) : -59.11
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 0.378
 C/A sky separation (km) : 5057.1
 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



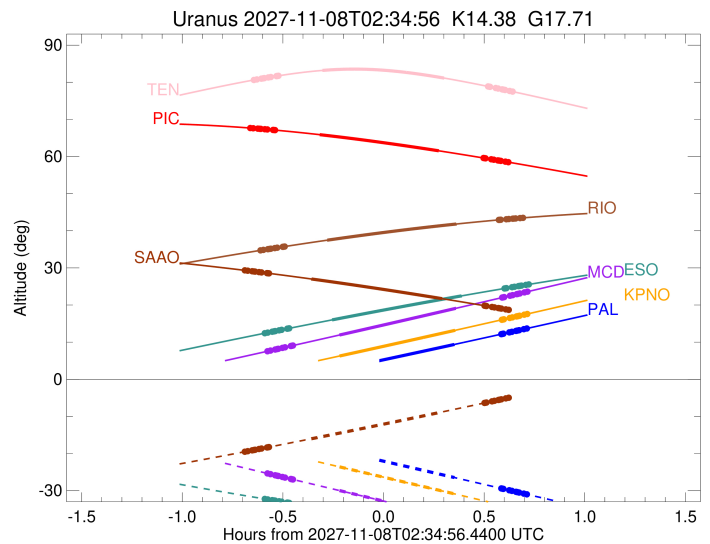
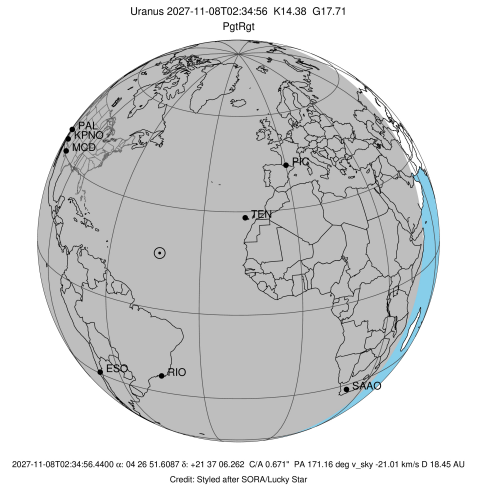
Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2027-11-08T01:58:07.598		34.70	-49.67	51337.99	-21.53		
lambda	I	2027-11-08T01:59:08.540		34.85	-49.73	50026.71	-21.51		
delta	I	2027-11-08T02:00:28.795		35.04	-49.80	48300.35	-21.51		
gamma	I	2027-11-08T02:00:59.933		35.12	-49.83	47630.69	-21.50		
eta	I	2027-11-08T02:01:21.073		35.17	-49.84	47176.12	-21.50		
beta	I	2027-11-08T02:02:32.449		35.34	-49.91	45641.06	-21.49		
alpha	I	2027-11-08T02:03:15.487		35.44	-49.94	44717.27	-21.49		
4	I	2027-11-08T02:04:56.907		35.68	-50.02	42536.63	-21.48		
5	I	2027-11-08T02:05:11.498		35.71	-50.03	42217.24	-21.47		
6	I	2027-11-08T02:05:28.528		35.75	-50.05	41865.71	-21.48		
Uranus	I	2027-11-08T02:18:10.281		37.47	-50.52	25116.96		10.54	11.03
Uranus	E	2027-11-08T02:56:40.586		41.82	-50.46	25331.83		-7.49	-7.84
6	E	2027-11-08T03:09:18.275		42.93	-49.96	41817.32	21.54		
5	E	2027-11-08T03:09:39.833		42.96	-49.94	42271.03	21.54		
4	E	2027-11-08T03:09:55.391		42.98	-49.93	42611.87	21.54		
alpha	E	2027-11-08T03:11:32.796		43.11	-49.85	44711.92	21.56		
beta	E	2027-11-08T03:12:17.793		43.16	-49.81	45680.62	21.56		
eta	E	2027-11-08T03:13:27.105		43.25	-49.74	47176.12	21.57		
gamma	E	2027-11-08T03:13:47.740		43.28	-49.73	47621.32	21.58		
delta	E	2027-11-08T03:14:19.209		43.32	-49.70	48300.35	21.58		
lambda	E	2027-11-08T03:15:39.188		43.42	-49.62	50026.71	21.59		
epsilon	E	2027-11-08T03:16:25.702		43.47	-49.57	51031.05	21.61		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2027-11-08T02:38:52.210
 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 : 145389869947809536
 2Mass ID (if available) : 04265161+2137065
 ICRS Star Coord at Epoch: 04h 26m 51.60871s +21:37:06.26151s
 RUWE (>1.4 is poor) : 1.07
 K magnitude : 14.383
 G magnitude : 17.713
 RP magnitude : 16.768
 BP magnitude : 18.672
 DUPflag : 0
 Distance (au) : 18.454
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -21.01
 Sun-Target sep (deg) : 156.63
 Sun-Moon sep (deg) : 94.50
 B (ring opening deg) : 78.07
 PA of pole (deg) : -59.11
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 0.407
 C/A sky separation (km) : 5452.6
 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	2027-11-08T01:59:24.139		12.38	-32.22	51341.23	-21.35		
lambda	I	2027-11-08T02:00:25.754		12.57	-32.37	50026.71	-21.33		
delta	I	2027-11-08T02:01:46.697		12.81	-32.57	48300.35	-21.32		
gamma	I	2027-11-08T02:02:18.105		12.91	-32.64	47630.66	-21.32		
eta	I	2027-11-08T02:02:39.425		12.97	-32.70	47176.12	-21.32		
beta	I	2027-11-08T02:03:51.418		13.19	-32.87	45641.06	-21.31		
alpha	I	2027-11-08T02:04:34.845		13.32	-32.98	44716.92	-21.30		
4	I	2027-11-08T02:06:17.116		13.63	-33.22	42536.94	-21.29		
5	I	2027-11-08T02:06:31.811		13.67	-33.26	42218.08	-21.29		
6	I	2027-11-08T02:06:49.021		13.72	-33.30	41866.05	-21.29		
Uranus	I	2027-11-08T02:19:37.983		16.00	-35.08	25109.10		10.64	11.13
Uranus	E	2027-11-08T02:58:15.887		22.47	-39.68	25339.68		-7.36	-7.70
6	E	2027-11-08T03:10:59.635		24.46	-40.90	41817.62	21.39		
5	E	2027-11-08T03:11:21.349		24.51	-40.94	42271.59	21.39		
4	E	2027-11-08T03:11:36.996		24.55	-40.96	42612.02	21.39		
alpha	E	2027-11-08T03:13:15.048		24.80	-41.10	44711.68	21.41		
beta	E	2027-11-08T03:14:00.355		24.91	-41.17	45680.58	21.42		
eta	E	2027-11-08T03:15:10.127		25.09	-41.27	47176.12	21.43		
gamma	E	2027-11-08T03:15:30.897		25.14	-41.30	47621.30	21.44		
delta	E	2027-11-08T03:16:02.571		25.22	-41.34	48300.35	21.44		
lambda	E	2027-11-08T03:17:23.065		25.42	-41.45	50026.71	21.45		
epsilon	E	2027-11-08T03:18:09.985		25.54	-41.52	51033.42	21.48		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2027-11-08T02:32:50.410
 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 : 145389869947809536
 2Mass ID (if available) : 04265161+2137065
 ICRS Star Coord at Epoch: 04h 26m 51.60871s +21:37:06.26151s
 RUWE (>1.4 is poor) : 1.07
 K magnitude : 14.383
 G magnitude : 17.713
 RP magnitude : 16.768
 BP magnitude : 18.672
 DUPflag : 0
 Distance (au) : 18.454
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -21.01
 Sun-Target sep (deg) : 156.63
 Sun-Moon sep (deg) : 94.50
 B (ring opening deg) : 78.07
 PA of pole (deg) : -59.11
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 0.281
 C/A sky separation (km) : 3759.3
 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	2027-11-08T01:53:27.938		29.36	-19.54	51325.95	-21.59		
lambda	I	2027-11-08T01:54:28.165		29.24	-19.37	50026.71	-21.57		
delta	I	2027-11-08T01:55:48.210		29.10	-19.14	48300.35	-21.56		
gamma	I	2027-11-08T01:56:19.262		29.04	-19.05	47630.79	-21.56		
eta	I	2027-11-08T01:56:40.349		29.00	-18.99	47176.12	-21.56		
beta	I	2027-11-08T01:57:51.529		28.87	-18.78	45641.09	-21.55		
alpha	I	2027-11-08T01:58:34.394		28.78	-18.66	44718.52	-21.55		
4	I	2027-11-08T02:00:15.634		28.59	-18.36	42535.53	-21.54		
5	I	2027-11-08T02:00:30.269		28.56	-18.32	42214.23	-21.54		
6	I	2027-11-08T02:00:47.142		28.53	-18.27	41864.46	-21.54		
Uranus	I	2027-11-08T02:13:25.265		27.02	-16.03	25145.47		10.18	10.66
Uranus	E	2027-11-08T02:52:24.139		21.72	-8.81	25307.36		-7.89	-8.26
6	E	2027-11-08T03:05:01.585		19.82	-6.38	41816.44	21.49		
5	E	2027-11-08T03:05:23.178		19.77	-6.31	42269.34	21.48		
4	E	2027-11-08T03:05:38.829		19.73	-6.26	42611.39	21.48		
alpha	E	2027-11-08T03:07:16.565		19.47	-5.95	44712.64	21.49		
beta	E	2027-11-08T03:08:01.675		19.36	-5.80	45680.72	21.49		
eta	E	2027-11-08T03:09:11.218		19.18	-5.58	47176.12	21.50		
gamma	E	2027-11-08T03:09:31.929		19.13	-5.51	47621.36	21.50		
delta	E	2027-11-08T03:10:03.511		19.04	-5.41	48300.35	21.50		
lambda	E	2027-11-08T03:11:23.801		18.83	-5.15	50026.71	21.50		
epsilon	E	2027-11-08T03:12:10.183		18.71	-5.00x	51024.13	21.52		