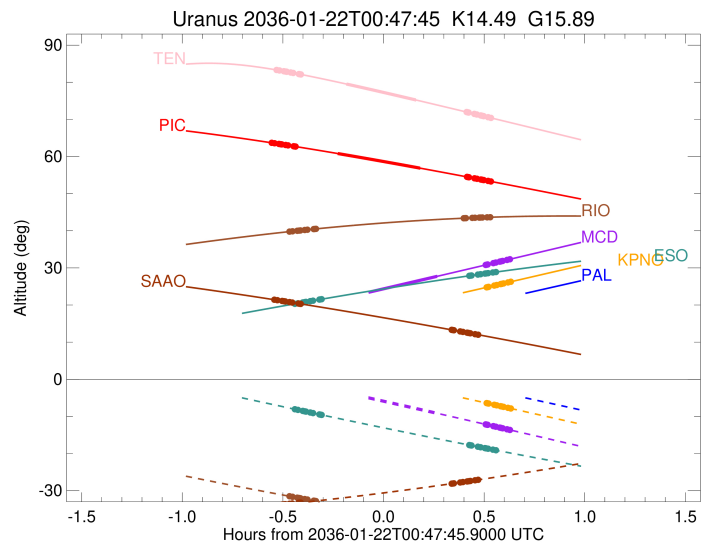
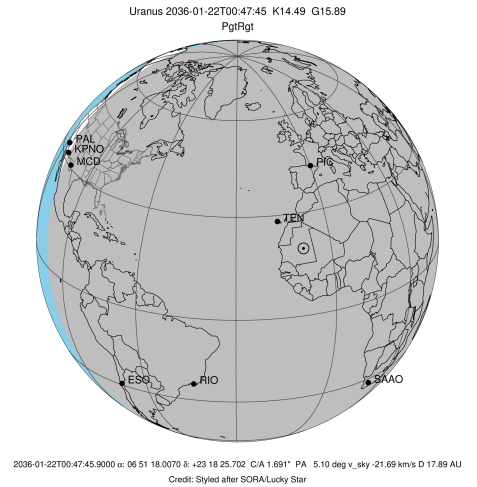


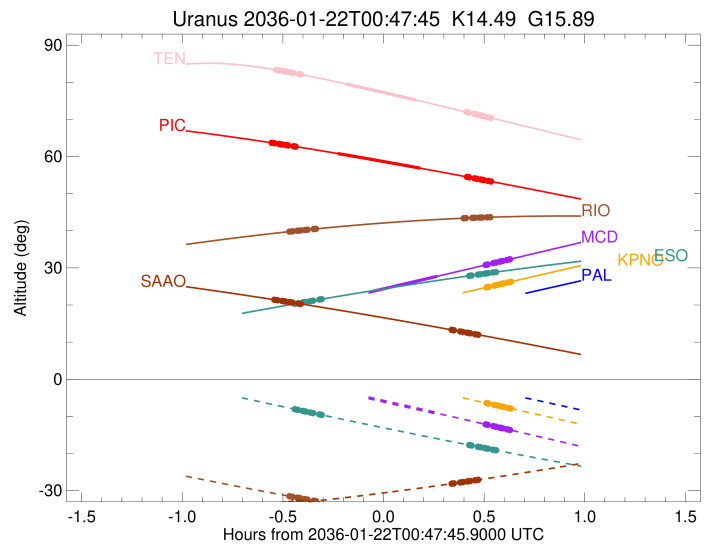
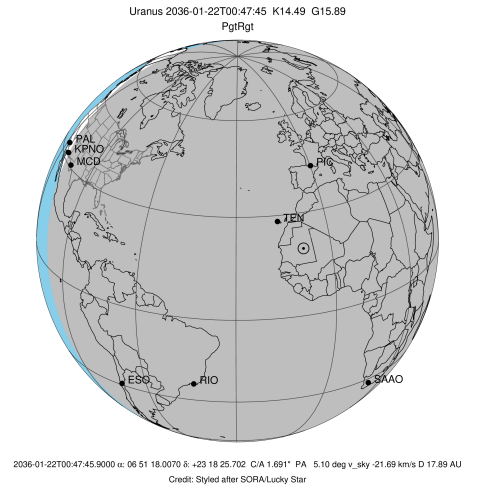


target : Uranus  
 target radius (km) : 25559.00  
 C/A epoch : 2036-01-22T00:46:14.600  
 Event type : PgtRgt  
 : Uranus occs: geocentric, topocentric  
 : Ring occs: geocentric, topocentric  
 Observer code : PIC  
 Location : Pic du Midi  
 Latitude (deg) : 42.93656  
 E. Longitude (deg) : 0.14231  
 Altitude (km) : 2.890  
 Gaia source ID : 3380323125209334016  
 2Mass ID (if available) : 06511800+2318257  
 ICRS Star Coord at Epoch: 06h 51m 18.00702s +23:18:25.70208s  
 RUWE (>1.4 is poor) : 1.03  
 K magnitude : 14.488  
 G magnitude : 15.891  
 RP magnitude : 15.395  
 BP magnitude : 16.219  
 DUPflag : 0  
 Distance (au) : 17.891  
 f0 (km) : 0.000  
 g0 (km) : 0.000  
 skyplane vel. (km/s) : -21.69  
 Sun-Target sep (deg) : 160.70  
 Sun-Moon sep (deg) : 130.07  
 B (ring opening deg) : 64.62  
 PA of pole (deg) : 75.93  
 Pole direction: RA (deg): 257.31100  
 Dec (deg): -15.17500  
 C/A sky separation (") : 1.501  
 C/A sky separation (km) : 19476.2  
 NAIF SPICE kernels : RAJobs\_U111+rgf15.spk  
 URKALLvl.spk  
 ura111.bsp  
 IAU\_URANUS\_for\_RINGFIT.tpc  
 vgr2.ura111.bsp  
 ura161.bsp  
 vgr2.ura161.bsp  
 peph.ura160.bsp  
 earthstns\_itrfr93\_040916.bsp  
 earth\_720101\_070426.bpc  
 earth\_200101\_990628\_predict.bpc  
 pg3f0000r.bsp  
 pg490000r.bsp  
 naif0012.tls  
 earth\_flat\_IAU.spk



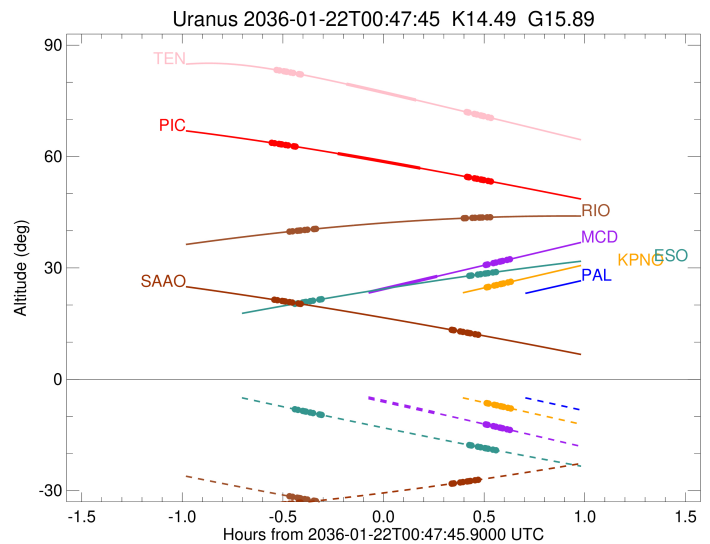
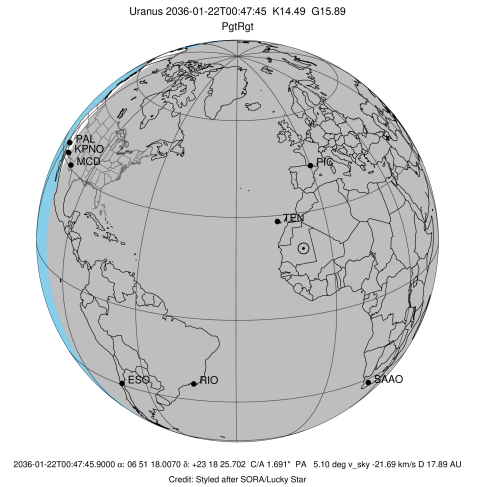
Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2036-01-22T00:14:41.435		63.66	-67.05	50825.58	-22.27		
lambda	I	2036-01-22T00:15:17.433		63.58	-67.05	50026.71	-22.16		
delta	I	2036-01-22T00:16:35.597		63.39	-67.03	48300.35	-22.01		
gamma	I	2036-01-22T00:17:06.483		63.32	-67.03	47621.52	-21.95		
eta	I	2036-01-22T00:17:26.798		63.27	-67.02	47176.12	-21.90		
beta	I	2036-01-22T00:18:37.198		63.11	-67.01	45641.06	-21.74		
alpha	I	2036-01-22T00:19:18.156		63.01	-67.00	44751.85	-21.64		
4	I	2036-01-22T00:20:57.795		62.77	-66.97	42605.25	-21.36		
5	I	2036-01-22T00:21:18.606		62.72	-66.96	42178.12	-21.33		
6	I	2036-01-22T00:21:33.583		62.68	-66.95	41843.59	-21.25		
Uranus	I	2036-01-22T00:34:06.253		60.81	-66.54	25210.35		-21.40	-22.32
Uranus	E	2036-01-22T00:58:43.538		56.87	-64.93	25494.69		8.94	9.36
6	E	2036-01-22T01:12:37.626		54.52	-63.61	41798.83	21.21		
5	E	2036-01-22T01:13:01.327		54.45	-63.57	42313.90	21.29		
4	E	2036-01-22T01:13:11.612		54.42	-63.56	42527.20	21.32		
alpha	E	2036-01-22T01:14:52.038		54.14	-63.38	44693.11	21.60		
beta	E	2036-01-22T01:15:37.450		54.01	-63.30	45673.85	21.70		
eta	E	2036-01-22T01:16:46.493		53.81	-63.17	47176.12	21.85		
gamma	E	2036-01-22T01:17:07.296		53.75	-63.14	47631.18	21.90		
delta	E	2036-01-22T01:17:37.811		53.66	-63.08	48300.35	21.96		
lambda	E	2036-01-22T01:18:56.163		53.44	-62.94	50026.71	22.11		
epsilon	E	2036-01-22T01:20:04.956		53.24	-62.81	51551.52	22.21		

target : Uranus  
 target radius (km) : 25559.00  
 C/A epoch : 2036-01-22T00:51:57.160  
 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 : 3380323125209334016  
 2Mass ID (if available) : 06511800+2318257  
 ICRS Star Coord at Epoch: 06h 51m 18.00702s +23:18:25.70208s  
 RUWE (>1.4 is poor) : 1.03  
 K magnitude : 14.488  
 G magnitude : 15.891  
 RP magnitude : 15.395  
 BP magnitude : 16.219  
 DUPflag : 0  
 Distance (au) : 17.891  
 f0 (km) : 0.000  
 g0 (km) : 0.000  
 skyplane vel. (km/s) : -21.69  
 Sun-Target sep (deg) : 160.70  
 Sun-Moon sep (deg) : 129.00  
 B (ring opening deg) : 64.62  
 PA of pole (deg) : 75.93  
 Pole direction: RA (deg): 257.31100  
 Dec (deg): -15.17500  
 C/A sky separation (") : 1.526  
 C/A sky separation (km) : 19797.9  
 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



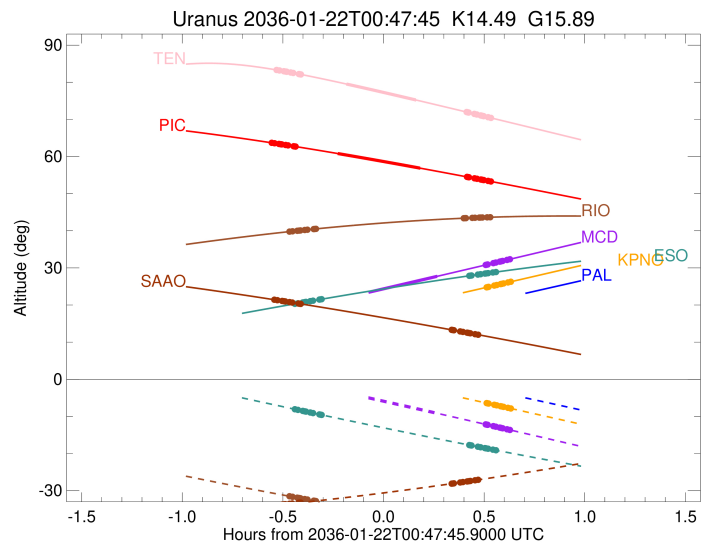
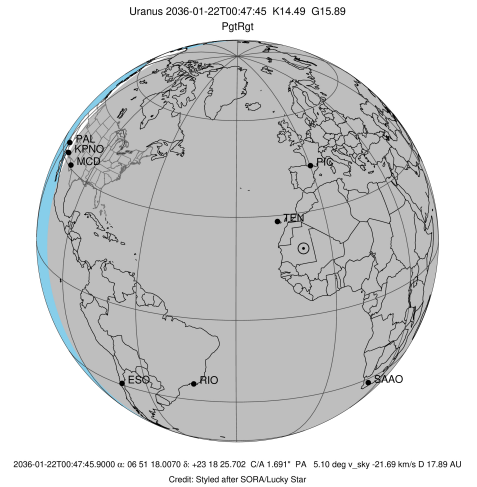
Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2036-01-22T00:20:09.264		12.84	4.97x	50824.92	-21.90		
lambda	I	2036-01-22T00:20:45.846		12.96	4.86x	50026.71	-21.79		
delta	I	2036-01-22T00:22:05.352		13.23	4.61x	48300.35	-21.64		
gamma	I	2036-01-22T00:22:36.772		13.33	4.51x	47621.51	-21.57		
eta	I	2036-01-22T00:22:57.438		13.40	4.44x	47176.12	-21.53		
beta	I	2036-01-22T00:24:09.067		13.64	4.21x	45641.06	-21.37		
alpha	I	2036-01-22T00:24:50.746		13.78	4.08x	44751.86	-21.27		
4	I	2036-01-22T00:26:32.162		14.12	3.76x	42605.28	-20.98		
5	I	2036-01-22T00:26:53.352		14.19	3.69x	42178.08	-20.95		
6	I	2036-01-22T00:27:08.598		14.24	3.64x	41843.62	-20.87		
Uranus	I	2036-01-22T00:39:59.259		16.85	1.18x	25214.23	-21.27	-22.18	
Uranus	E	2036-01-22T01:04:15.765		21.82	-3.58x	25504.37	8.23	8.62	
6	E	2036-01-22T01:18:29.057		24.76	-6.41	41798.49	20.95		
5	E	2036-01-22T01:18:53.069		24.84	-6.49	42313.60	21.03		
4	E	2036-01-22T01:19:03.488		24.88	-6.53	42527.41	21.06		
alpha	E	2036-01-22T01:20:45.109		25.23	-6.87	44693.53	21.35		
beta	E	2036-01-22T01:21:30.998		25.39	-7.02	45673.57	21.46		
eta	E	2036-01-22T01:22:40.802		25.63	-7.25	47176.12	21.62		
gamma	E	2036-01-22T01:23:01.823		25.71	-7.33	47631.15	21.67		
delta	E	2036-01-22T01:23:32.658		25.81	-7.43	48300.35	21.73		
lambda	E	2036-01-22T01:24:51.801		26.09	-7.69	50026.71	21.89		
epsilon	E	2036-01-22T01:26:01.216		26.33	-7.93	51550.50	22.00		

target : Uranus  
 target radius (km) : 25559.00  
 C/A epoch : 2036-01-22T00:51:51.700  
 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 : 3380323125209334016  
 2Mass ID (if available) : 06511800+2318257  
 ICRS Star Coord at Epoch: 06h 51m 18.00702s +23:18:25.70208s  
 RUWE (>1.4 is poor) : 1.03  
 K magnitude : 14.488  
 G magnitude : 15.891  
 RP magnitude : 15.395  
 BP magnitude : 16.219  
 DUPflag : 0  
 Distance (au) : 17.891  
 f0 (km) : 0.000  
 g0 (km) : 0.000  
 skyplane vel. (km/s) : -21.69  
 Sun-Target sep (deg) : 160.70  
 Sun-Moon sep (deg) : 129.07  
 B (ring opening deg) : 64.62  
 PA of pole (deg) : 75.93  
 Pole direction: RA (deg): 257.31100  
 Dec (deg): -15.17500  
 C/A sky separation (") : 1.555  
 C/A sky separation (km) : 20183.9  
 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\_itrf93\_040916.bsp  
 earth\_720101\_070426.bpc  
 earth\_200101\_990628\_predict.bpc  
 pg3f0000r.bsp  
 pg490000r.bsp  
 naif0012.tls  
 earth\_flat\_IAU.spk



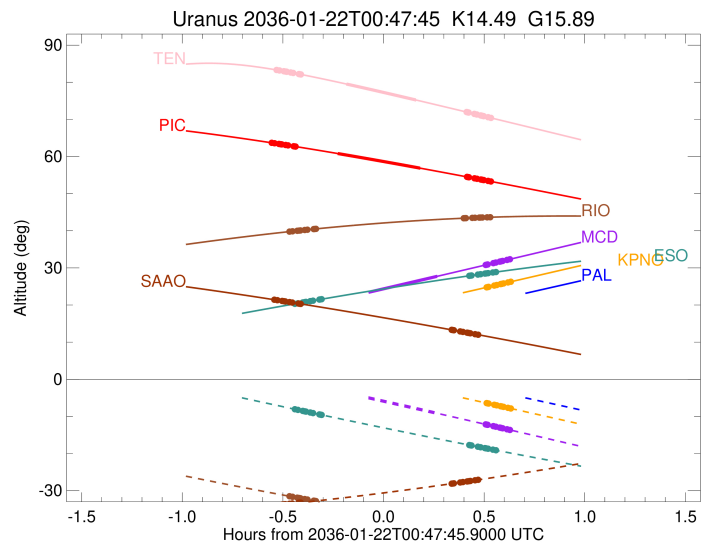
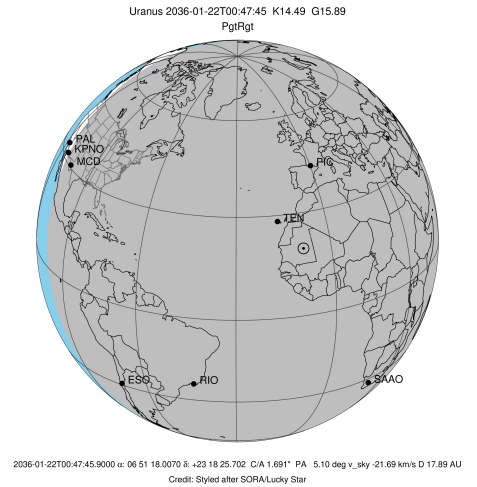
Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2036-01-22T00:20:16.349		18.63	-0.39x	50827.02	-21.87		
lambda	I	2036-01-22T00:20:53.074		18.75	-0.51x	50026.71	-21.76		
delta	I	2036-01-22T00:22:12.700		19.03	-0.77x	48300.35	-21.60		
gamma	I	2036-01-22T00:22:44.173		19.14	-0.88x	47621.53	-21.53		
eta	I	2036-01-22T00:23:04.879		19.21	-0.95x	47176.12	-21.49		
beta	I	2036-01-22T00:24:16.658		19.46	-1.18x	45641.06	-21.32		
alpha	I	2036-01-22T00:24:58.439		19.60	-1.32x	44751.80	-21.21		
4	I	2036-01-22T00:26:40.164		19.95	-1.66x	42604.96	-20.91		
5	I	2036-01-22T00:27:01.378		20.03	-1.73x	42178.69	-20.88		
6	I	2036-01-22T00:27:16.733		20.08	-1.78x	41843.16	-20.79		
Uranus	I	2036-01-22T00:40:17.718		22.80	-4.39x	25224.92		-20.92	-21.82
Uranus	E	2036-01-22T01:03:46.783		27.73	-9.17	25511.43		7.68	8.04
6	E	2036-01-22T01:18:11.868		30.79	-12.14	41798.31	20.87		
5	E	2036-01-22T01:18:35.973		30.87	-12.23	42313.43	20.96		
4	E	2036-01-22T01:18:46.433		30.91	-12.26	42527.53	20.99		
alpha	E	2036-01-22T01:20:28.365		31.27	-12.62	44693.75	21.30		
beta	E	2036-01-22T01:21:14.353		31.43	-12.77	45673.42	21.41		
eta	E	2036-01-22T01:22:24.318		31.68	-13.02	47176.12	21.58		
gamma	E	2036-01-22T01:22:45.380		31.76	-13.09	47631.13	21.63		
delta	E	2036-01-22T01:23:16.274		31.87	-13.20	48300.35	21.70		
lambda	E	2036-01-22T01:24:35.546		32.15	-13.47	50026.71	21.86		
epsilon	E	2036-01-22T01:25:45.032		32.39	-13.71	51550.00	21.97		

target : Uranus  
 target radius (km) : 25559.00  
 C/A epoch : 2036-01-22T00:46:54.300  
 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 : 3380323125209334016  
 2Mass ID (if available) : 06511800+2318257  
 ICRS Star Coord at Epoch: 06h 51m 18.00702s +23:18:25.70208s  
 RUWE (>1.4 is poor) : 1.03  
 K magnitude : 14.488  
 G magnitude : 15.891  
 RP magnitude : 15.395  
 BP magnitude : 16.219  
 DUPflag : 0  
 Distance (au) : 17.891  
 f0 (km) : 0.000  
 g0 (km) : 0.000  
 skyplane vel. (km/s) : -21.69  
 Sun-Target sep (deg) : 160.70  
 Sun-Moon sep (deg) : 130.06  
 B (ring opening deg) : 64.62  
 PA of pole (deg) : 75.93  
 Pole direction: RA (deg): 257.31100  
 Dec (deg): -15.17500  
 C/A sky separation (") : 1.644  
 C/A sky separation (km) : 21329.8  
 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	2036-01-22T00:16:08.270		83.28	-73.78	50835.37	-21.97		
lambda	I	2036-01-22T00:16:45.228		83.19	-73.90	50026.71	-21.84		
delta	I	2036-01-22T00:18:04.596		82.98	-74.15	48300.35	-21.66		
gamma	I	2036-01-22T00:18:35.989		82.89	-74.25	47621.62	-21.58		
eta	I	2036-01-22T00:18:56.658		82.83	-74.32	47176.12	-21.53		
beta	I	2036-01-22T00:20:08.348		82.63	-74.55	45641.08	-21.31		
alpha	I	2036-01-22T00:20:50.129		82.51	-74.68	44751.53	-21.21		
4	I	2036-01-22T00:22:32.070		82.22	-75.01	42603.73	-20.86		
5	I	2036-01-22T00:22:53.169		82.16	-75.07	42181.01	-20.82		
6	I	2036-01-22T00:23:08.791		82.11	-75.12	41841.46	-20.72		
Uranus	I	2036-01-22T00:36:41.030		79.54	-77.56	25264.22		-19.57	-20.42
Uranus	E	2036-01-22T00:57:29.830		75.22	-80.53	25528.89		6.10	6.38
6	E	2036-01-22T01:12:30.832		71.99	-81.60	41797.93	20.70		
5	E	2036-01-22T01:12:55.149		71.90	-81.61	42313.04	20.80		
4	E	2036-01-22T01:13:05.704		71.87	-81.62	42527.80	20.84		
alpha	E	2036-01-22T01:14:48.316		71.49	-81.65	44694.22	21.18		
beta	E	2036-01-22T01:15:34.506		71.33	-81.66	45673.11	21.31		
eta	E	2036-01-22T01:16:44.784		71.07	-81.67	47176.12	21.50		
gamma	E	2036-01-22T01:17:05.920		71.00	-81.67	47631.09	21.55		
delta	E	2036-01-22T01:17:36.918		70.88	-81.67	48300.35	21.63		
lambda	E	2036-01-22T01:18:56.400		70.59	-81.66	50026.71	21.81		
epsilon	E	2036-01-22T01:20:05.965		70.34	-81.65	51548.94	21.94		

target : Uranus  
 target radius (km) : 25559.00  
 C/A epoch : 2036-01-22T00:48:29.470  
 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 : 3380323125209334016  
 2Mass ID (if available) : 06511800+2318257  
 ICRS Star Coord at Epoch: 06h 51m 18.00702s +23:18:25.70208s  
 RUWE (>1.4 is poor) : 1.03  
 K magnitude : 14.488  
 G magnitude : 15.891  
 RP magnitude : 15.395  
 BP magnitude : 16.219  
 DUPflag : 0  
 Distance (au) : 17.891  
 f0 (km) : 0.000  
 g0 (km) : 0.000  
 skyplane vel. (km/s) : -21.69  
 Sun-Target sep (deg) : 160.70  
 Sun-Moon sep (deg) : 129.58  
 B (ring opening deg) : 64.62  
 PA of pole (deg) : 75.93  
 Pole direction: RA (deg): 257.31100  
 Dec (deg): -15.17500  
 C/A sky separation (") : 2.055  
 C/A sky separation (km) : 26670.6  
 NAIF SPICE kernels : RAJobs\_U111+rgf15.spk  
 URKALLvl1.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

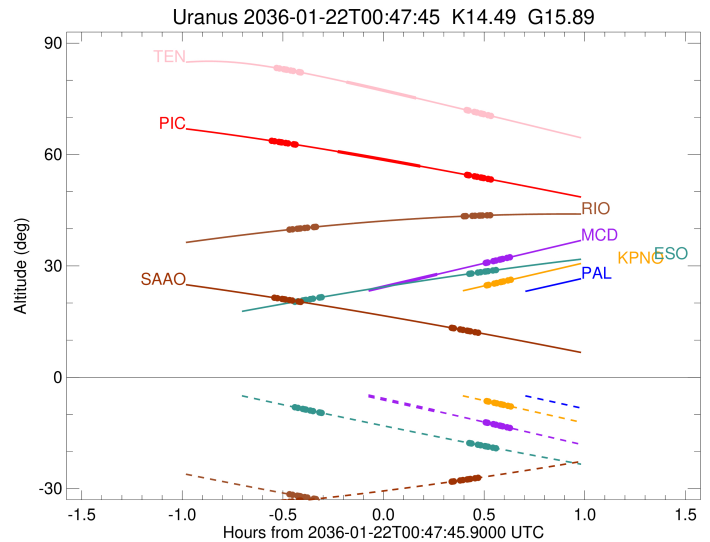
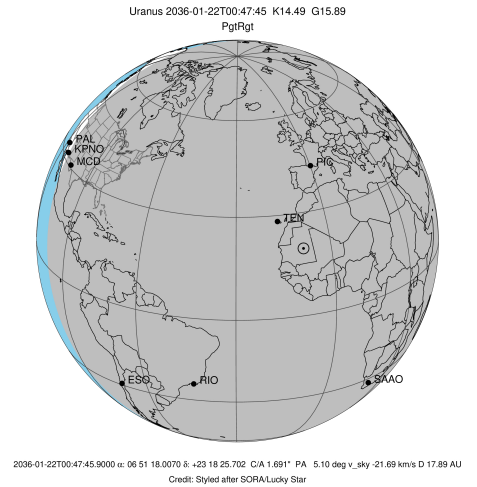


Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2036-01-22T00:19:58.113		39.80	-31.55	50867.52	-20.59		
lambda	I	2036-01-22T00:20:39.222		39.87	-31.67	50026.71	-20.38		
delta	I	2036-01-22T00:22:04.541		40.00	-31.90	48300.35	-20.08		
gamma	I	2036-01-22T00:22:38.436		40.06	-32.00	47621.99	-19.95		
eta	I	2036-01-22T00:23:00.837		40.09	-32.06	47176.12	-19.86		
beta	I	2036-01-22T00:24:18.816		40.21	-32.27	45641.40	-19.53		
alpha	I	2036-01-22T00:25:04.634		40.28	-32.40	44750.11	-19.31		
4	I	2036-01-22T00:26:57.668		40.46	-32.71	42598.58	-18.72		
5	I	2036-01-22T00:27:20.367		40.49	-32.77	42190.72	-18.64		
6	I	2036-01-22T00:27:38.852		40.52	-32.82	41834.83	-18.48		

No planet occultations

6	E	2036-01-22T01:11:38.871		43.38	-39.36	41795.84	18.50		
5	E	2036-01-22T01:12:06.083		43.40	-39.42	42309.07	18.65		
4	E	2036-01-22T01:12:18.060		43.41	-39.44	42530.37	18.73		
alpha	E	2036-01-22T01:14:11.477		43.48	-39.69	44697.94	19.33		
beta	E	2036-01-22T01:15:01.642		43.51	-39.80	45670.69	19.54		
eta	E	2036-01-22T01:16:18.061		43.55	-39.96	47176.12	19.87		
gamma	E	2036-01-22T01:16:40.884		43.56	-40.01	47630.75	19.96		
delta	E	2036-01-22T01:17:14.313		43.58	-40.08	48300.35	20.09		
lambda	E	2036-01-22T01:18:39.565		43.62	-40.26	50026.71	20.40		
epsilon	E	2036-01-22T01:19:53.165		43.66	-40.42	51537.16	20.61		

target : Uranus  
 target radius (km) : 25559.00  
 C/A epoch : 2036-01-22T00:50:08.730  
 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 : 3380323125209334016  
 2Mass ID (if available) : 06511800+2318257  
 ICRS Star Coord at Epoch: 06h 51m 18.00702s +23:18:25.70208s  
 RUWE (>1.4 is poor) : 1.03  
 K magnitude : 14.488  
 G magnitude : 15.891  
 RP magnitude : 15.395  
 BP magnitude : 16.219  
 DUPflag : 0  
 Distance (au) : 17.891  
 f0 (km) : 0.000  
 g0 (km) : 0.000  
 skyplane vel. (km/s) : -21.69  
 Sun-Target sep (deg) : 160.70  
 Sun-Moon sep (deg) : 129.20  
 B (ring opening deg) : 64.62  
 PA of pole (deg) : 75.93  
 Pole direction: RA (deg): 257.31100  
 Dec (deg): -15.17500  
 C/A sky separation (") : 2.071  
 C/A sky separation (km) : 26875.7  
 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

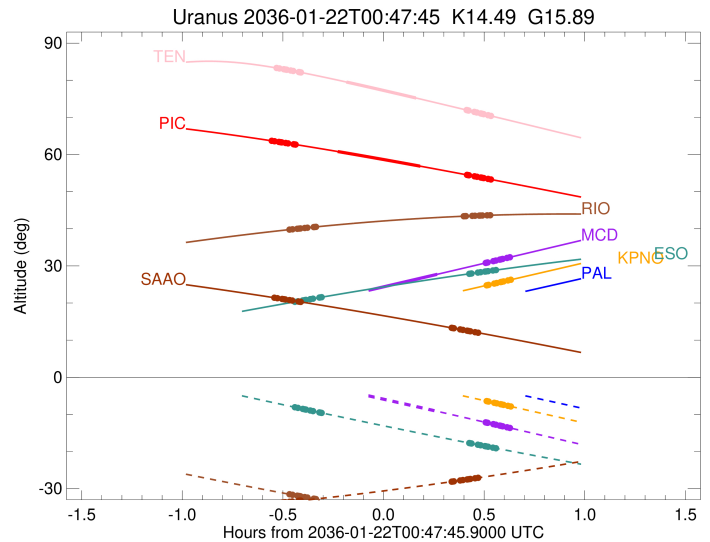
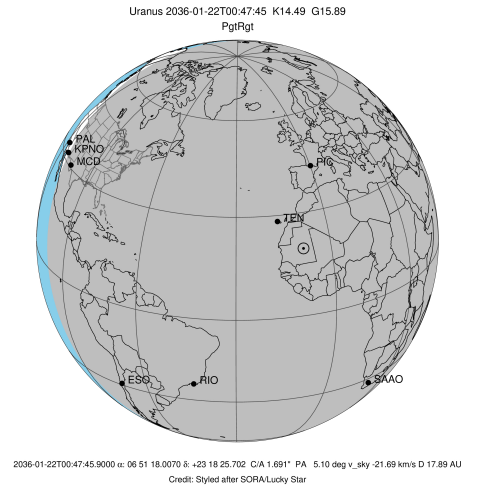


Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2036-01-22T00:21:35.073		20.36	-8.12	50868.07	-20.41		
lambda	I	2036-01-22T00:22:16.575		20.47	-8.25	50026.71	-20.20		
delta	I	2036-01-22T00:23:42.669		20.69	-8.53	48300.35	-19.89		
gamma	I	2036-01-22T00:24:16.879		20.78	-8.64	47622.00	-19.76		
eta	I	2036-01-22T00:24:39.492		20.84	-8.71	47176.12	-19.67		
beta	I	2036-01-22T00:25:58.223		21.05	-8.96	45641.41	-19.34		
alpha	I	2036-01-22T00:26:44.499		21.17	-9.11	44750.07	-19.12		
4	I	2036-01-22T00:28:38.723		21.47	-9.47	42598.45	-18.52		
5	I	2036-01-22T00:29:01.648		21.53	-9.55	42190.96	-18.44		
6	I	2036-01-22T00:29:20.362		21.57	-9.61	41834.68	-18.28		

No planet occultations

6	E	2036-01-22T01:13:17.916		27.86	-17.71	41795.75	18.32		
5	E	2036-01-22T01:13:45.387		27.92	-17.79	42308.77	18.48		
4	E	2036-01-22T01:13:57.498		27.95	-17.83	42530.56	18.56		
alpha	E	2036-01-22T01:15:51.933		28.20	-18.17	44698.19	19.16		
beta	E	2036-01-22T01:16:42.494		28.30	-18.31	45670.54	19.39		
eta	E	2036-01-22T01:17:59.527		28.47	-18.54	47176.12	19.72		
gamma	E	2036-01-22T01:18:22.523		28.52	-18.61	47630.72	19.81		
delta	E	2036-01-22T01:18:56.205		28.59	-18.71	48300.35	19.95		
lambda	E	2036-01-22T01:20:22.073		28.77	-18.96	50026.71	20.26		
epsilon	E	2036-01-22T01:21:36.131		28.92	-19.17	51536.17	20.47		

target : Uranus  
 target radius (km) : 25559.00  
 C/A epoch : 2036-01-22T00:44:26.030  
 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 : 3380323125209334016  
 2Mass ID (if available) : 06511800+2318257  
 ICRS Star Coord at Epoch: 06h 51m 18.00702s +23:18:25.70208s  
 RUWE (>1.4 is poor) : 1.03  
 K magnitude : 14.488  
 G magnitude : 15.891  
 RP magnitude : 15.395  
 BP magnitude : 16.219  
 DUPflag : 0  
 Distance (au) : 17.891  
 f0 (km) : 0.000  
 g0 (km) : 0.000  
 skyplane vel. (km/s) : -21.69  
 Sun-Target sep (deg) : 160.70  
 Sun-Moon sep (deg) : 129.82  
 B (ring opening deg) : 64.62  
 PA of pole (deg) : 75.93  
 Pole direction: RA (deg): 257.31100  
 Dec (deg): -15.17500  
 C/A sky separation (") : 2.015  
 C/A sky separation (km) : 26144.1  
 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	2036-01-22T00:15:27.616		21.39	-33.93	50865.68	-20.64		
lambda	I	2036-01-22T00:16:08.521		21.30	-33.87	50026.71	-20.44		
delta	I	2036-01-22T00:17:33.560		21.10	-33.74	48300.35	-20.15		
gamma	I	2036-01-22T00:18:07.326		21.02	-33.69	47621.97	-20.03		
eta	I	2036-01-22T00:18:29.634		20.96	-33.66	47176.12	-19.94		
beta	I	2036-01-22T00:19:47.254		20.78	-33.54	45641.37	-19.63		
alpha	I	2036-01-22T00:20:32.819		20.67	-33.47	44750.22	-19.42		
4	I	2036-01-22T00:22:25.094		20.40	-33.29	42598.95	-18.86		
5	I	2036-01-22T00:22:47.681		20.35	-33.25	42190.02	-18.79		
6	I	2036-01-22T00:23:05.946		20.30	-33.22	41835.29	-18.64		

No planet occultations

6	E	2036-01-22T01:08:03.159		13.32	-28.13	41796.07	18.58		
5	E	2036-01-22T01:08:30.251		13.24	-28.07	42309.74	18.73		
4	E	2036-01-22T01:08:42.138		13.21	-28.05	42529.95	18.81		
alpha	E	2036-01-22T01:10:35.212		12.90	-27.80	44697.39	19.36		
beta	E	2036-01-22T01:11:25.353		12.76	-27.69	45671.05	19.56		
eta	E	2036-01-22T01:12:41.715		12.55	-27.53	47176.12	19.87		
gamma	E	2036-01-22T01:13:04.545		12.48	-27.47	47630.80	19.96		
delta	E	2036-01-22T01:13:37.988		12.39	-27.40	48300.35	20.08		
lambda	E	2036-01-22T01:15:03.341		12.15	-27.21	50026.71	20.37		
epsilon	E	2036-01-22T01:16:17.192		11.95	-27.05	51539.26	20.56		