

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2043-04-01T09:05:58.840
 Event type : PgtRgt
 : Uranus occs: geocentric, topocentric
 : Ring occs: geocentric, topocentric
 Gaia source ID : 611977387358100352
 2Mass ID (if available) : 09020960+1737156

Uranus 2043-04-01T09:05:58 K12.91 G14.37 PgtRgt

ICRS Star Coord at Epoch: 09h 02m 09.57858s +17:37:15.18875s

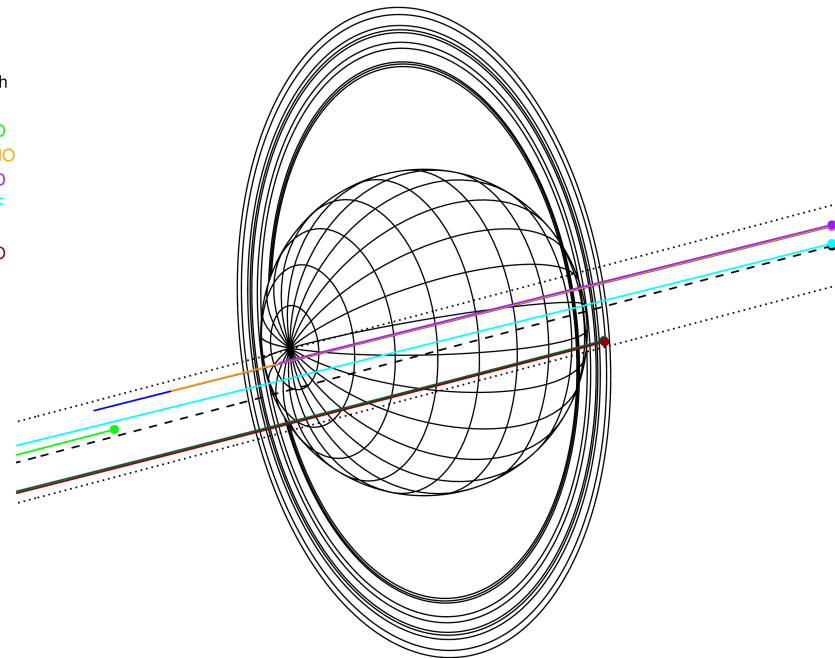
RUWE (>1.4 is poor) : 0.98
 K magnitude : 12.913
 G magnitude : 14.373
 RP magnitude : 13.872
 BP magnitude : 14.713
 DUPflag : 0
 Distance (au) : 17.885
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -9.15
 Sun-Target sep (deg) : 121.92
 Sun-Moon sep (deg) : 132.02
 B (ring opening deg) : 34.30
 PA of pole (deg) : 96.65

#	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



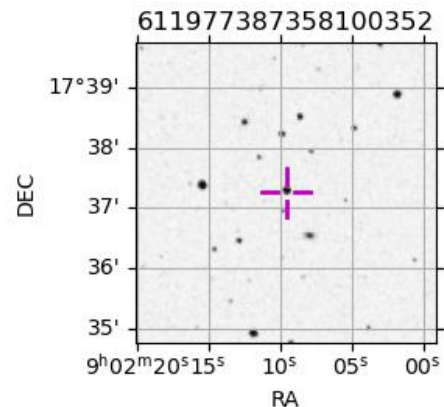
2043-04-01T09:05:58.8400 α: 09 02 09.5786 δ: +17 37 15.189 C/A 0.257° PA 14.87 deg v_sky - 9.15 km/s D 17.89 AU
 Credit: Styled after SORA/Lucky Star

Earth
 PAL
 PMO
 KPNO
 MCD
 IRTF
 AAT
 MSO

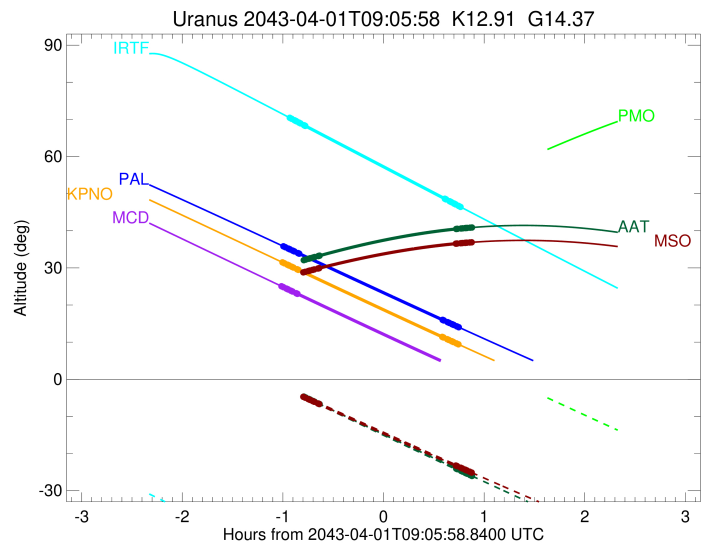
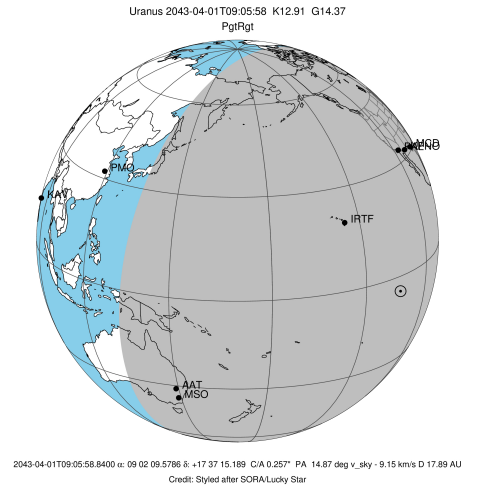


Observable events with sun below -5 deg and altitude above 5 deg unblocked by planet

Obs	Location	lat	Elon	Rings I	Planet	Rings E	Observed Events Interval	OEcode
PIC	Pic du Midi	42.9	0.1					PnnRnn
PAL	Palomar Mt (200")	33.4	243.1	+++++	+ +	+++++	APR 01 08:06 - APR 01 09:51	PieRie
PMO	Purple Mtn Obs. Nanki	32.1	118.8					PnnRnn
KPNO	Kitt Peak Natl Obs	32.0	248.4	+++++	+ +	+++++	APR 01 08:06 - APR 01 09:51	PieRie
MCD	McDonald Obs. 2.7m	30.7	256.0	+++++	+		APR 01 08:05 - APR 01 08:11	PinRin
TEN	Teide Obs./Tenerife	28.3	343.5					PnnRnn
IRTF	Mauna Kea/IRTF	19.8	204.5	+++++	+ +	+++++	APR 01 08:10 - APR 01 09:52	PieRie
KAV	Kavalur Observatory	12.6	78.8					PnnRnn
RIO	Rio de Janeiro	-22.9	316.8					PnnRnn
ESO	European Southern Obs	-29.3	289.3					PnnRnn
AAT	Siding Spring (AAT)	-31.3	149.1	+++++	+ +	+++++	APR 01 08:21 - APR 01 09:59	PieRie
SAAO	So. Afr. Astro. Obs.	-32.4	20.8					PnnRnn
MSO	Mt. Stromlo Observato	-35.3	149.0	+++++	+ +	+++++	APR 01 08:21 - APR 01 09:58	PieRie

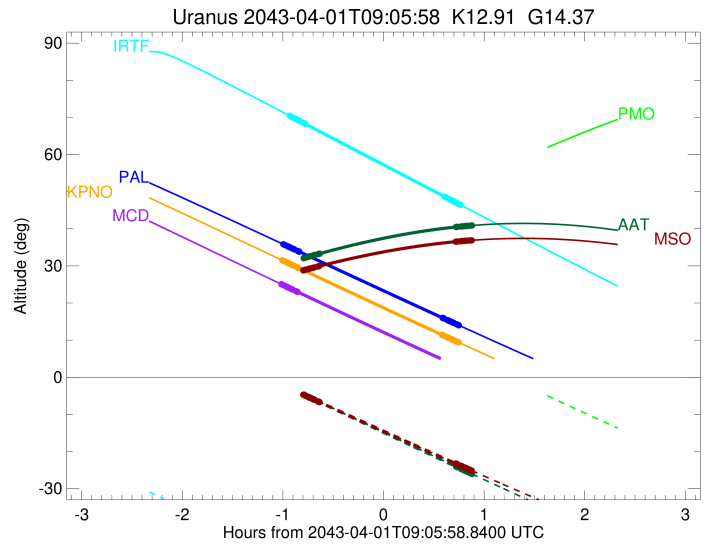
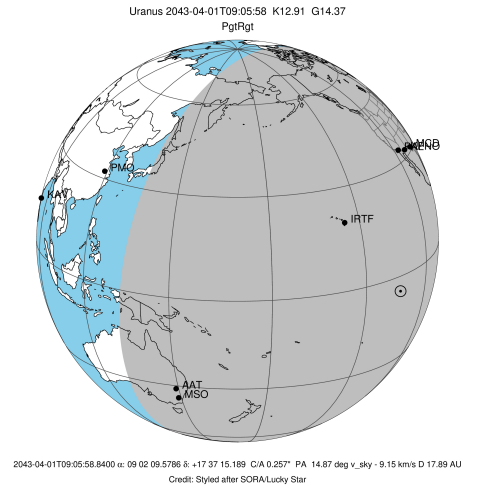


target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2043-04-01T08:58:24.300
 Event type : PgtRgt
 : Uranus occs: geocentric, topocentric
 : Ring occs: geocentric, topocentric
 Observer code : PAL
 Location : Palomar Mt (200")
 Latitude (deg) : 33.35622
 E. Longitude (deg) : 243.13601
 Altitude (km) : 1.706
 Gaia source ID : 611977387358100352
 2Mass ID (if available) : 09020960+1737156
 ICRS Star Coord at Epoch: 09h 02m 09.57858s +17:37:15.18875s
 RUWE (>1.4 is poor) : 0.98
 K magnitude : 12.913
 G magnitude : 14.373
 RP magnitude : 13.872
 BP magnitude : 14.713
 DUPflag : 0
 Distance (au) : 17.885
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -9.15
 Sun-Target sep (deg) : 121.92
 Sun-Moon sep (deg) : 132.63
 B (ring opening deg) : 34.30
 PA of pole (deg) : 96.65
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 0.055
 C/A sky separation (km) : 719.3
 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



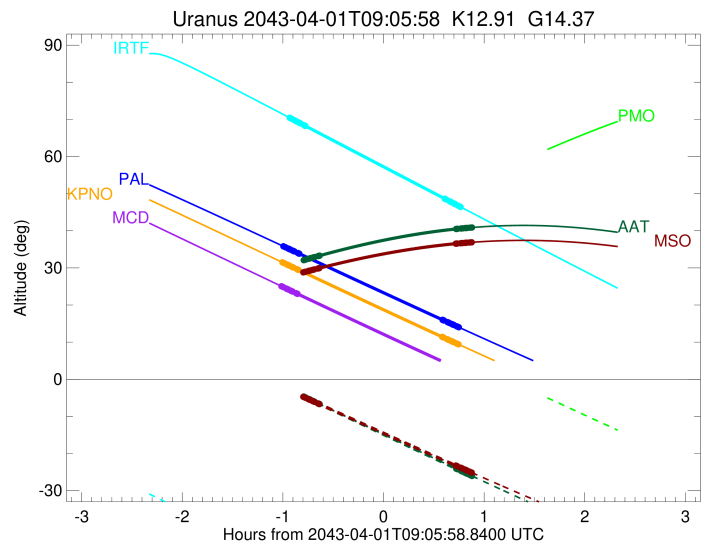
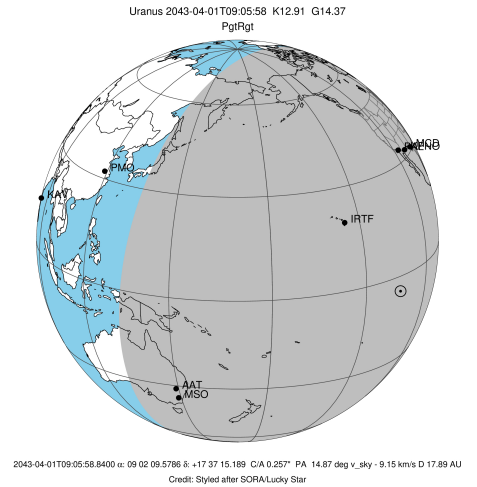
Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2043-04-01T08:06:44.950		35.72	-52.10	50744.37	-16.46		
lambda	I	2043-04-01T08:07:28.549		35.57	-52.08	50026.71	-16.46		
delta	I	2043-04-01T08:09:13.460		35.20	-52.03	48300.35	-16.45		
gamma	I	2043-04-01T08:09:54.506		35.06	-52.02	47625.11	-16.45		
eta	I	2043-04-01T08:10:21.803		34.96	-52.00	47176.12	-16.45		
beta	I	2043-04-01T08:11:53.900		34.64	-51.96	45661.49	-16.44		
alpha	I	2043-04-01T08:12:49.630		34.45	-51.93	44746.13	-16.44		
4	I	2043-04-01T08:14:58.790	b	33.99	-51.86	42616.54	-16.43		
5	I	2043-04-01T08:15:15.356	b	33.94	-51.85	42312.79	-16.41		
6	I	2043-04-01T08:15:43.667	b	33.84	-51.83	41824.15	-16.40		
Uranus	I	2043-04-01T08:12:51.944		34.44	-51.93	25378.78		-54.69	-55.91
Uranus	E	2043-04-01T09:44:22.196		15.35	-43.72	25376.20		55.27	56.49
6	E	2043-04-01T09:41:15.702	b	15.99	-44.14	41851.75	16.11		
5	E	2043-04-01T09:41:33.338	b	15.93	-44.11	42158.04	16.12		
4	E	2043-04-01T09:41:54.031	b	15.86	-44.06	42525.93	16.13		
alpha	E	2043-04-01T09:44:07.847	b	15.40	-43.76	44690.24	16.13		
beta	E	2043-04-01T09:45:08.094		15.20	-43.62	45661.45	16.13		
eta	E	2043-04-01T09:46:42.010		14.87	-43.40	47176.12	16.12		
gamma	E	2043-04-01T09:47:10.012		14.78	-43.34	47627.59	16.12		
delta	E	2043-04-01T09:47:51.745		14.63	-43.24	48300.35	16.12		
lambda	E	2043-04-01T09:49:38.859		14.27	-42.99	50026.71	16.11		
epsilon	E	2043-04-01T09:51:13.713		13.94	-42.77	51555.03	16.11		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2043-04-01T08:58:01.730
 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 : 611977387358100352
 2Mass ID (if available) : 09020960+1737156
 ICRS Star Coord at Epoch: 09h 02m 09.57858s +17:37:15.18875s
 RUWE (>1.4 is poor) : 0.98
 K magnitude : 12.913
 G magnitude : 14.373
 RP magnitude : 13.872
 BP magnitude : 14.713
 DUPflag : 0
 Distance (au) : 17.885
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -9.15
 Sun-Target sep (deg) : 121.92
 Sun-Moon sep (deg) : 132.60
 B (ring opening deg) : 34.30
 PA of pole (deg) : 96.65
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 0.060
 C/A sky separation (km) : 783.9
 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_itrff93_040916.bsp
 earth_720101_070426.bpc
 earth_200101_990628_predict.bpc
 pg3f0000r.bsp
 pg490000r.bsp
 naif0012.tls
 earth_flat_IAU.spk



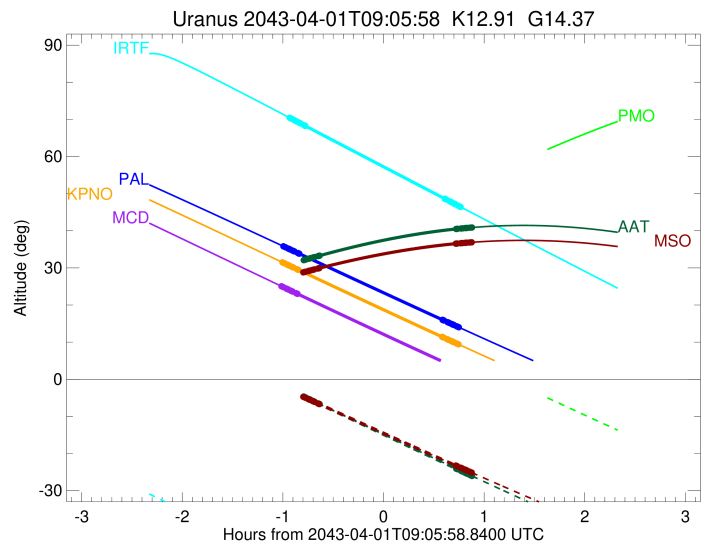
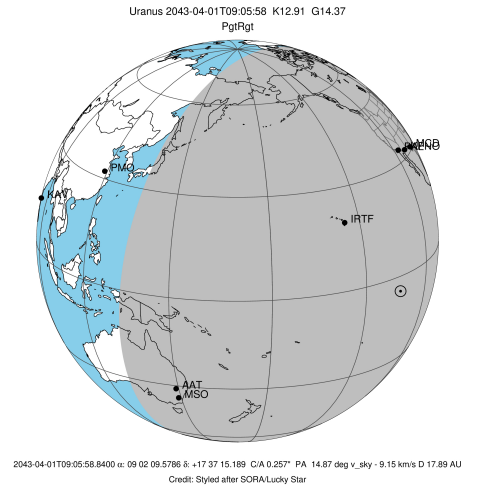
Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2043-04-01T08:06:11.563		31.39	-52.67	50744.40	-16.41		
lambda	I	2043-04-01T08:06:55.299		31.24	-52.63	50026.71	-16.41		
delta	I	2043-04-01T08:08:40.533		30.87	-52.53	48300.35	-16.40		
gamma	I	2043-04-01T08:09:21.705		30.72	-52.49	47625.12	-16.40		
eta	I	2043-04-01T08:09:49.087		30.62	-52.46	47176.12	-16.40		
beta	I	2043-04-01T08:11:21.470		30.29	-52.37	45661.52	-16.39		
alpha	I	2043-04-01T08:12:17.379		30.10	-52.31	44746.10	-16.39		
4	I	2043-04-01T08:14:26.938	b	29.64	-52.17	42616.54	-16.38		
5	I	2043-04-01T08:14:43.562	b	29.58	-52.15	42312.82	-16.36		
6	I	2043-04-01T08:15:11.954	b	29.48	-52.12	41824.21	-16.35		
Uranus	I	2043-04-01T08:12:20.488		30.09	-52.31	25378.94		-54.65	-55.88
Uranus	E	2043-04-01T09:44:09.524		10.76	-41.66	25376.12		55.29	56.51
6	E	2043-04-01T09:41:01.933	b	11.41	-42.15	41851.80	16.05		
5	E	2043-04-01T09:41:19.640	b	11.35	-42.10	42158.06	16.06		
4	E	2043-04-01T09:41:40.405	b	11.28	-42.05	42525.93	16.07		
alpha	E	2043-04-01T09:43:54.741	b	10.81	-41.70	44690.22	16.07		
beta	E	2043-04-01T09:44:55.224		10.60	-41.54	45661.48	16.06		
eta	E	2043-04-01T09:46:29.502		10.28	-41.29	47176.12	16.06		
gamma	E	2043-04-01T09:46:57.614		10.18	-41.22	47627.59	16.06		
delta	E	2043-04-01T09:47:39.508		10.04	-41.11	48300.35	16.06		
lambda	E	2043-04-01T09:49:27.039		9.67	-40.82	50026.71	16.05		
epsilon	E	2043-04-01T09:51:02.263		9.34	-40.57	51555.04	16.05		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2043-04-01T08:57:43.560
 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 : 611977387358100352
 2Mass ID (if available) : 09020960+1737156
 ICRS Star Coord at Epoch: 09h 02m 09.57858s +17:37:15.18875s
 RUWE (>1.4 is poor) : 0.98
 K magnitude : 12.913
 G magnitude : 14.373
 RP magnitude : 13.872
 BP magnitude : 14.713
 DUPflag : 0
 Distance (au) : 17.885
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -9.15
 Sun-Target sep (deg) : 121.92
 Sun-Moon sep (deg) : 132.53
 B (ring opening deg) : 34.30
 PA of pole (deg) : 96.65
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 0.071
 C/A sky separation (km) : 921.7
 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_itrff93_040916.bsp
 earth_720101_070426.bpc
 earth_200101_990628_predict.bpc
 pg3f0000r.bsp
 pg490000r.bsp
 naif0012.tls
 earth_flat_IAU.spk



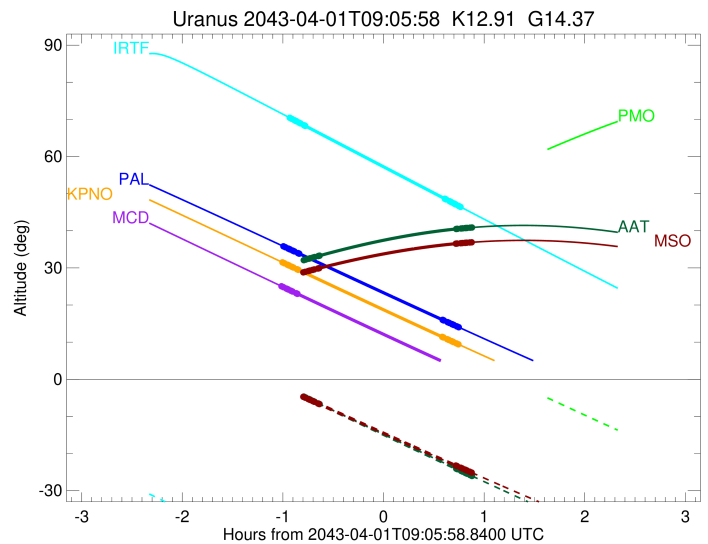
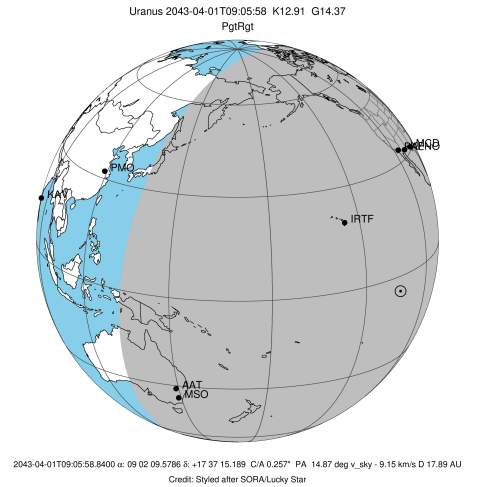
Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2043-04-01T08:05:35.777		24.96	-51.60	50744.49	-16.33		
lambda	I	2043-04-01T08:06:19.737		24.80	-51.52	50026.71	-16.33		
delta	I	2043-04-01T08:08:05.501		24.43	-51.35	48300.35	-16.32		
gamma	I	2043-04-01T08:08:46.881		24.28	-51.28	47625.13	-16.32		
eta	I	2043-04-01T08:09:14.402		24.18	-51.23	47176.12	-16.31		
beta	I	2043-04-01T08:10:47.251		23.85	-51.07	45661.59	-16.31		
alpha	I	2043-04-01T08:11:43.456		23.65	-50.97	44746.03	-16.30		
4	I	2043-04-01T08:13:53.663	b	23.18	-50.74	42616.53	-16.29		
5	I	2043-04-01T08:14:10.387	b	23.12	-50.71	42312.89	-16.28		
6	I	2043-04-01T08:14:38.904	b	23.02	-50.66	41824.37	-16.27		
Uranus	I	2043-04-01T08:11:48.391		23.63	-50.97	25379.29		-54.57	-55.80
Uranus	E	2043-04-01T09:44:06.250		4.18x	-37.40	25375.97		55.33	56.54
6	E	2043-04-01T09:40:56.783	b	4.83x	-37.95	41851.91	15.96		
5	E	2043-04-01T09:41:14.602	b	4.77x	-37.90	42158.12	15.97		
4	E	2043-04-01T09:41:35.470	b	4.70x	-37.84	42525.93	15.98		
alpha	E	2043-04-01T09:43:50.596	b	4.24x	-37.44	44690.17	15.97		
beta	E	2043-04-01T09:44:51.435		4.03x	-37.26	45661.52	15.97		
eta	E	2043-04-01T09:46:26.259		3.70x	-36.98	47176.12	15.97		
gamma	E	2043-04-01T09:46:54.535		3.61x	-36.89	47627.61	15.97		
delta	E	2043-04-01T09:47:36.674		3.46x	-36.77	48300.35	15.96		
lambda	E	2043-04-01T09:49:24.832		3.09x	-36.45	50026.71	15.96		
epsilon	E	2043-04-01T09:51:00.614		2.77x	-36.16	51555.07	15.95		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2043-04-01T09:00:31.150
 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 : 611977387358100352
 2Mass ID (if available) : 09020960+1737156
 ICRS Star Coord at Epoch: 09h 02m 09.57858s +17:37:15.18875s
 RUWE (>1.4 is poor) : 0.98
 K magnitude : 12.913
 G magnitude : 14.373
 RP magnitude : 13.872
 BP magnitude : 14.713
 DUPflag : 0
 Distance (au) : 17.885
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -9.15
 Sun-Target sep (deg) : 121.92
 Sun-Moon sep (deg) : 132.87
 B (ring opening deg) : 34.30
 PA of pole (deg) : 96.65
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 0.149
 C/A sky separation (km) : 1930.5
 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



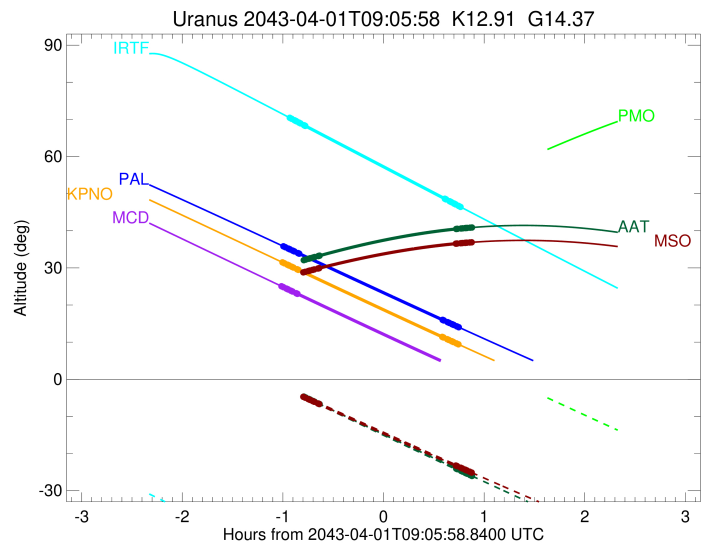
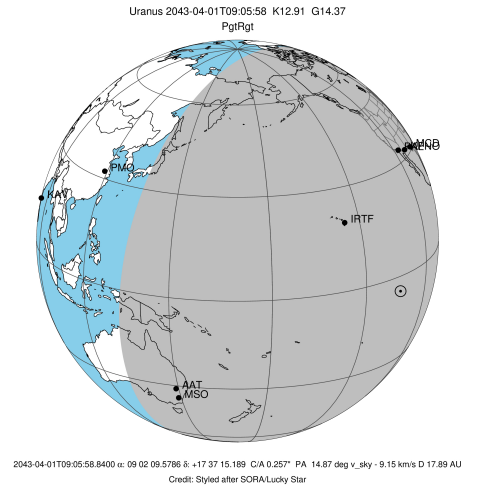
Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2043-04-01T08:10:32.328		70.33	-48.86	50743.54	-16.82		
lambda	I	2043-04-01T08:11:14.943		70.16	-49.00	50026.71	-16.82		
delta	I	2043-04-01T08:12:57.596		69.76	-49.34	48300.35	-16.81		
gamma	I	2043-04-01T08:13:37.773		69.60	-49.47	47624.82	-16.81		
eta	I	2043-04-01T08:14:04.463		69.50	-49.56	47176.12	-16.81		
beta	I	2043-04-01T08:15:34.616		69.14	-49.85	45660.30	-16.81		
alpha	I	2043-04-01T08:16:28.954	b	68.93	-50.03	44747.27	-16.80		
4	I	2043-04-01T08:18:35.559	b	68.43	-50.44	42616.55	-16.79		
5	I	2043-04-01T08:18:51.542	b	68.37	-50.49	42311.37	-16.78		
6	I	2043-04-01T08:19:19.561	b	68.26	-50.58	41821.56	-16.77		
Uranus	I	2043-04-01T08:16:11.825		69.00	-49.97	25374.82		-55.59	-56.80
Uranus	E	2043-04-01T09:45:09.075		48.02	-63.75	25381.69		54.03	55.26
6	E	2043-04-01T09:42:35.130	b	48.62	-63.51	41849.26	16.56		
5	E	2043-04-01T09:42:52.119	b	48.56	-63.53	42156.80	16.57		
4	E	2043-04-01T09:43:12.633	b	48.48	-63.57	42526.01	16.58		
alpha	E	2043-04-01T09:45:22.681		47.97	-63.77	44691.36	16.58		
beta	E	2043-04-01T09:46:21.184		47.74	-63.86	45660.32	16.58		
eta	E	2043-04-01T09:47:52.608		47.38	-64.00	47176.12	16.58		
gamma	E	2043-04-01T09:48:19.823		47.27	-64.04	47627.31	16.58		
delta	E	2043-04-01T09:49:00.421		47.11	-64.10	48300.35	16.58		
lambda	E	2043-04-01T09:50:44.573		46.70	-64.24	50026.71	16.57		
epsilon	E	2043-04-01T09:52:16.719		46.34	-64.36	51553.78	16.57		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2043-04-01T09:07:14.480
 Event type : PgtRgt
 : Uranus occs: geocentric, topocentric
 : Ring occs: geocentric, topocentric
 Observer code : AAT
 Location : Siding Spring (AAT)
 Latitude (deg) : -31.27703
 E. Longitude (deg) : 149.06608
 Altitude (km) : 1.164
 Gaia source ID : 611977387358100352
 2Mass ID (if available) : 09020960+1737156
 ICRS Star Coord at Epoch: 09h 02m 09.57858s +17:37:15.18875s
 RUWE (>1.4 is poor) : 0.98
 K magnitude : 12.913
 G magnitude : 14.373
 RP magnitude : 13.872
 BP magnitude : 14.713
 DUPflag : 0
 Distance (au) : 17.885
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -9.15
 Sun-Target sep (deg) : 121.92
 Sun-Moon sep (deg) : 132.43
 B (ring opening deg) : 34.30
 PA of pole (deg) : 96.65
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 0.641
 C/A sky separation (km) : 8320.3
 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	2043-04-01T08:18:53.184		32.15	-4.76x	50745.87	-16.50		
lambda	I	2043-04-01T08:19:36.779		32.24	-4.92x	50026.71	-16.49		
delta	I	2043-04-01T08:21:21.504		32.47	-5.29	48300.35	-16.48		
gamma	I	2043-04-01T08:22:02.552		32.56	-5.44	47624.17	-16.47		
eta	I	2043-04-01T08:22:29.761		32.61	-5.54	47176.12	-16.46		
beta	I	2043-04-01T08:24:01.965		32.81	-5.87	45657.60	-16.45		
alpha	I	2043-04-01T08:24:57.106		32.93	-6.06	44749.48	-16.44		
4	I	2043-04-01T08:27:07.257	b	33.20	-6.53	42615.88	-16.40		
5	I	2043-04-01T08:27:23.204	b	33.23	-6.58	42306.93	-16.38		
6	I	2043-04-01T08:27:52.619	b	33.29	-6.69	41815.88	-16.37		
Uranus	I	2043-04-01T08:25:12.145		32.96	-6.12	25381.21		-54.14	-55.37
Uranus	E	2043-04-01T09:49:18.312		40.49	-24.06	25411.86		47.44	48.75
6	E	2043-04-01T09:49:20.711		40.49	-24.07	41842.56	16.40		
5	E	2043-04-01T09:49:37.597		40.50	-24.13	42154.99	16.42		
4	E	2043-04-01T09:49:59.303		40.52	-24.21	42527.00	16.44		
alpha	E	2043-04-01T09:52:10.077		40.62	-24.67	44694.72	16.47		
beta	E	2043-04-01T09:53:08.675		40.66	-24.87	45657.37	16.48		
eta	E	2043-04-01T09:54:40.814		40.72	-25.20	47176.12	16.50		
gamma	E	2043-04-01T09:55:08.106		40.74	-25.29	47626.56	16.51		
delta	E	2043-04-01T09:55:48.915		40.77	-25.44	48300.35	16.51		
lambda	E	2043-04-01T09:57:33.394		40.84	-25.80	50026.71	16.53		
epsilon	E	2043-04-01T09:59:05.231		40.89	-26.13	51545.62	16.54		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2043-04-01T09:06:58.200
 Event type : PgtRgt
 : Uranus occs: geocentric, topocentric
 : Ring occs: geocentric, topocentric
 Observer code : MSO
 Location : Mt. Stromlo Observatory
 Latitude (deg) : -35.32000
 E. Longitude (deg) : 149.00833
 Altitude (km) : 0.770
 Gaia source ID : 611977387358100352
 2Mass ID (if available) : 09020960+1737156
 ICRS Star Coord at Epoch: 09h 02m 09.57858s +17:37:15.18875s
 RUWE (>1.4 is poor) : 0.98
 K magnitude : 12.913
 G magnitude : 14.373
 RP magnitude : 13.872
 BP magnitude : 14.713
 DUPflag : 0
 Distance (au) : 17.885
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -9.15
 Sun-Target sep (deg) : 121.92
 Sun-Moon sep (deg) : 132.41
 B (ring opening deg) : 34.30
 PA of pole (deg) : 96.65
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 0.661
 C/A sky separation (km) : 8577.7
 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	2043-04-01T08:18:37.189		28.86	-4.82x	50746.09	-16.46		
lambda	I	2043-04-01T08:19:20.910		28.95	-4.97x	50026.71	-16.45		
delta	I	2043-04-01T08:21:05.907		29.16	-5.33	48300.35	-16.43		
gamma	I	2043-04-01T08:21:47.066		29.24	-5.47	47624.14	-16.43		
eta	I	2043-04-01T08:22:14.347		29.29	-5.56	47176.12	-16.42		
beta	I	2043-04-01T08:23:46.807		29.48	-5.88	45657.49	-16.40		
alpha	I	2043-04-01T08:24:42.087		29.58	-6.07	44749.56	-16.39		
4	I	2043-04-01T08:26:52.640	b	29.84	-6.51	42615.83	-16.35		
5	I	2043-04-01T08:27:08.620	b	29.87	-6.57	42306.71	-16.33		
6	I	2043-04-01T08:27:38.150	b	29.92	-6.67	41815.66	-16.32		
Uranus	I	2043-04-01T08:25:01.001		29.62	-6.13	25381.96		-53.97	-55.20
Uranus	E	2043-04-01T09:48:57.210		36.52	-23.21	25413.52		47.09	48.39
6	E	2043-04-01T09:49:08.576		36.53	-23.25	41842.29	16.35		
5	E	2043-04-01T09:49:25.511		36.54	-23.31	42154.95	16.37		
4	E	2043-04-01T09:49:47.324		36.56	-23.38	42527.07	16.39		
alpha	E	2043-04-01T09:51:58.487		36.65	-23.82	44694.87	16.42		
beta	E	2043-04-01T09:52:57.247		36.69	-24.01	45657.26	16.43		
eta	E	2043-04-01T09:54:29.664		36.75	-24.32	47176.12	16.45		
gamma	E	2043-04-01T09:54:57.033		36.76	-24.41	47626.53	16.46		
delta	E	2043-04-01T09:55:37.960		36.79	-24.55	48300.35	16.47		
lambda	E	2043-04-01T09:57:22.733		36.85	-24.90	50026.71	16.49		
epsilon	E	2043-04-01T09:58:54.793		36.90	-25.20	51545.15	16.50		