

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2025-09-24T05:51:52.930
 Event type : PgtRgt
 : Uranus occs: geocentric, topocentric
 : Ring occs: geocentric, topocentric
 Gaia source ID : 51314521203330432
 2Mass ID (if available) : 03552904+2008356

ICRS Star Coord at Epoch: 03h 55m 29.06224s +20:08:35.50156s

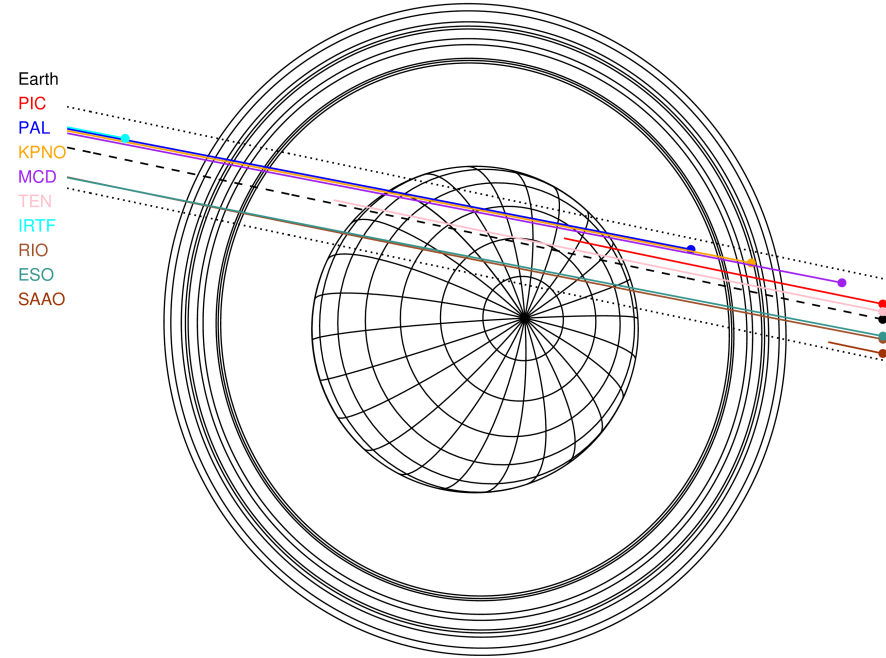
RUWE (>1.4 is poor) : 0.96
 K magnitude : 14.960
 G magnitude : 16.864
 RP magnitude : 16.214
 BP magnitude : 17.363
 DUPflag : 0
 Distance (au) : 18.985
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -8.63
 Sun-Target sep (deg) : 120.13
 Sun-Moon sep (deg) : 146.93
 B (ring opening deg) : 71.75
 PA of pole (deg) : -77.17

#	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



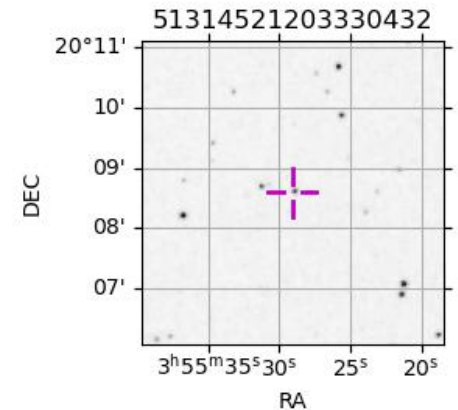
2025-09-24T05:51:52.9300 α: 03 55 29.0622 s: +20 08 35.502 C/A 1.072° PA 168.09 deg v_sky - 8.62 km/s D 18.98 AU
 Credit: Styled after SORA/Lucky Star

Uranus 2025-09-24T05:51:52 K14.96 G16.86 PgtRgt

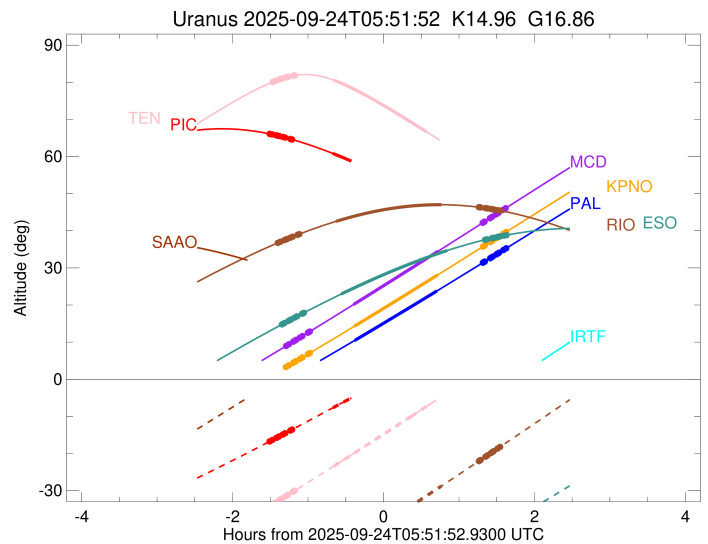
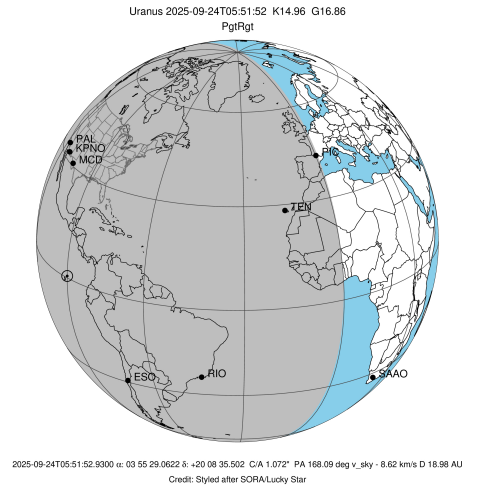


Observable events with sun below -5 deg and altitude above 5 deg unblocked by planet

Obs	Location	lat	Elon	Rings I	Planet	Rings E	Observed Events Interval	OCode
PIC	Pic du Midi	42.9	0.1	+++++	+		SEP 24 04:21 - SEP 24 05:11	PinRin
PAL	Palomar Mt (200")	33.4	243.1		+ +	+++++	SEP 24 05:28 - SEP 24 07:29	PieRne
PNO	Purple Mtn Obs. Nanki	32.1	118.8					PnnRnn
KPNO	Kitt Peak Natl Obs	32.0	248.4	+++++	+ +	+++++	SEP 24 04:45 - SEP 24 07:29	PieRie
MCD	McDonald Obs. 2.7m	30.7	256.0	+++++	+ +	+++++	SEP 24 04:34 - SEP 24 07:29	PieRie
TEN	Teide Obs./Tenerife	28.3	343.5	+++++	+ +		SEP 24 04:23 - SEP 24 06:26	PieRin
IRTF	Mauna Kea/IRTF	19.8	204.5					PnnRnn
KAV	Kavalur Observatory	12.6	78.8					PnnRnn
RIO	Rio de Janeiro	-22.9	316.8	+++++	+ +	+++++	SEP 24 04:27 - SEP 24 07:24	PieRie
ESO	European Southern Obs	-29.3	289.3	+++++	+ +	+++++	SEP 24 04:31 - SEP 24 07:29	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

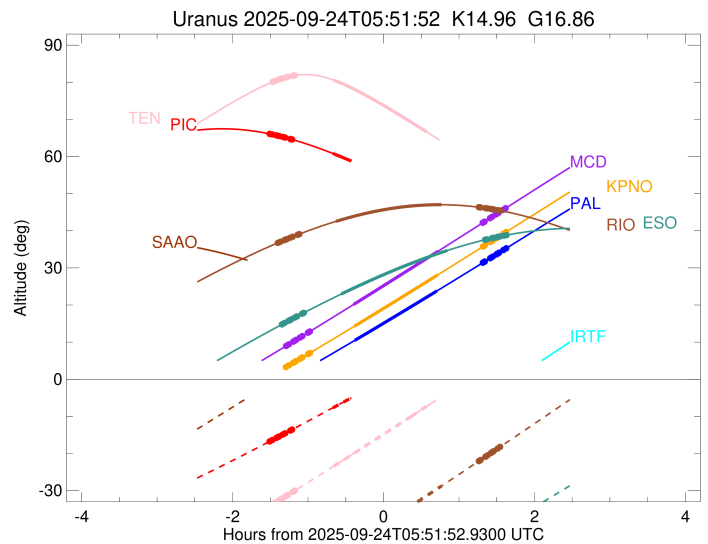
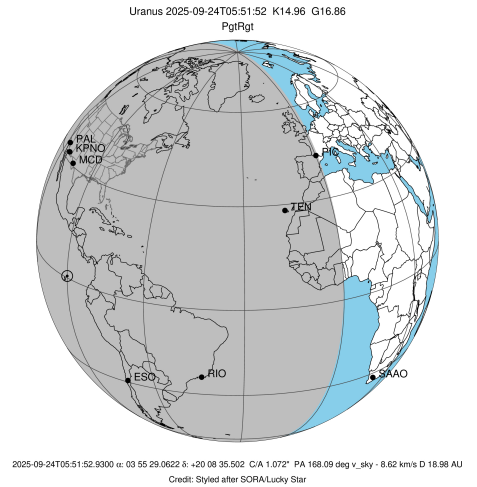


target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2025-09-24T05:46:18.060
 Event type : PgtRgt
 : Uranus occs: geocentric, topocentric
 : Ring occs: geocentric, topocentric
 Observer code : PIC
 Location : Pic du Midi
 Latitude (deg) : 42.93656
 E. Longitude (deg) : 0.14231
 Altitude (km) : 2.890
 Gaia source ID : 51314521203330432
 2Mass ID (if available) : 03552904+2008356
 ICRS Star Coord at Epoch: 03h 55m 29.06224s +20:08:35.50156s
 RUWE (>1.4 is poor) : 0.96
 K magnitude : 14.960
 G magnitude : 16.864
 RP magnitude : 16.214
 BP magnitude : 17.363
 DUPflag : 0
 Distance (au) : 18.985
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -8.63
 Sun-Target sep (deg) : 120.13
 Sun-Moon sep (deg) : 147.66
 B (ring opening deg) : 71.75
 PA of pole (deg) : -77.17
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 1.224
 C/A sky separation (km) : 16847.1
 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



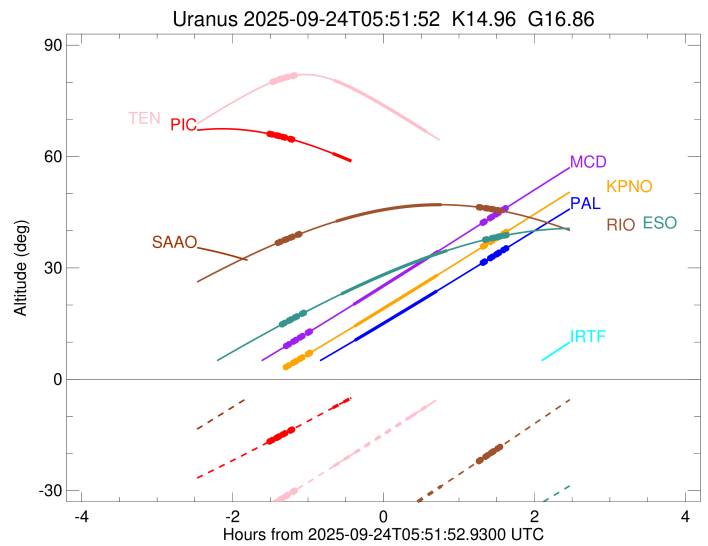
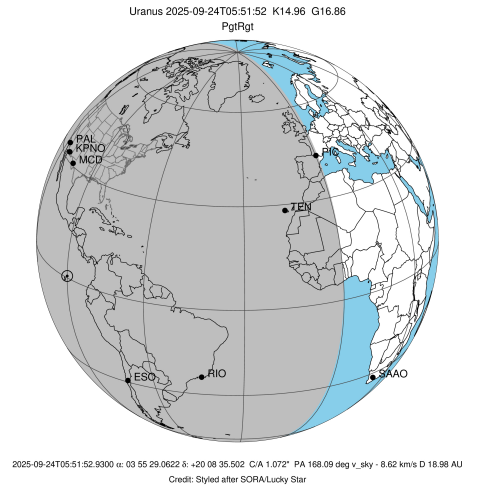
Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2025-09-24T04:21:07.713		66.12	-16.78	51270.49	-8.83		
lambda	I	2025-09-24T04:23:29.228		65.95	-16.36	50026.71	-8.78		
delta	I	2025-09-24T04:26:46.417		65.70	-15.78	48300.35	-8.73		
gamma	I	2025-09-24T04:28:03.177		65.59	-15.55	47630.62	-8.72		
eta	I	2025-09-24T04:28:55.358		65.52	-15.40	47176.12	-8.70		
beta	I	2025-09-24T04:31:47.867		65.28	-14.89	45678.06	-8.66		
alpha	I	2025-09-24T04:33:34.513		65.12	-14.57	44752.43	-8.63		
4	I	2025-09-24T04:37:48.792		64.73	-13.81	42571.50	-8.55		
5	I	2025-09-24T04:38:38.145		64.65	-13.66	42155.00	-8.54		
6	I	2025-09-24T04:39:13.302		64.60	-13.56	41863.85	-8.53		
Uranus	I	2025-09-24T05:11:39.467		60.81	-7.69	25077.66		17.37	18.14
Uranus	E	2025-09-24T06:21:58.628		49.86	5.19x	25470.81		-7.26	-7.60
6	E	2025-09-24T06:55:56.091		43.91	11.35x	41844.33	8.48		
5	E	2025-09-24T06:56:50.210		43.74	11.51x	42292.50	8.49		
4	E	2025-09-24T06:57:19.062		43.66	11.60x	42537.56	8.50		
alpha	E	2025-09-24T07:01:31.425		42.90	12.35x	44694.30	8.58		
beta	E	2025-09-24T07:03:23.073		42.57	12.68x	45656.56	8.61		
eta	E	2025-09-24T07:06:19.263		42.04	13.21x	47176.12	8.65		
gamma	E	2025-09-24T07:07:11.145		41.88	13.36x	47625.09	8.66		
delta	E	2025-09-24T07:08:29.048		41.65	13.59x	48300.35	8.68		
lambda	E	2025-09-24T07:11:47.571		41.05	14.18x	50026.71	8.72		
epsilon	E	2025-09-24T07:14:12.846		40.61	14.61x	51294.72	8.76		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2025-09-24T06:01:16.770
 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 : 51314521203330432
 2Mass ID (if available) : 03552904+2008356
 ICRS Star Coord at Epoch: 03h 55m 29.06224s +20:08:35.50156s
 RUWE (>1.4 is poor) : 0.96
 K magnitude : 14.960
 G magnitude : 16.864
 RP magnitude : 16.214
 BP magnitude : 17.363
 DUPflag : 0
 Distance (au) : 18.985
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -8.63
 Sun-Target sep (deg) : 120.13
 Sun-Moon sep (deg) : 146.47
 B (ring opening deg) : 71.75
 PA of pole (deg) : -77.17
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 1.363
 C/A sky separation (km) : 18772.4
 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



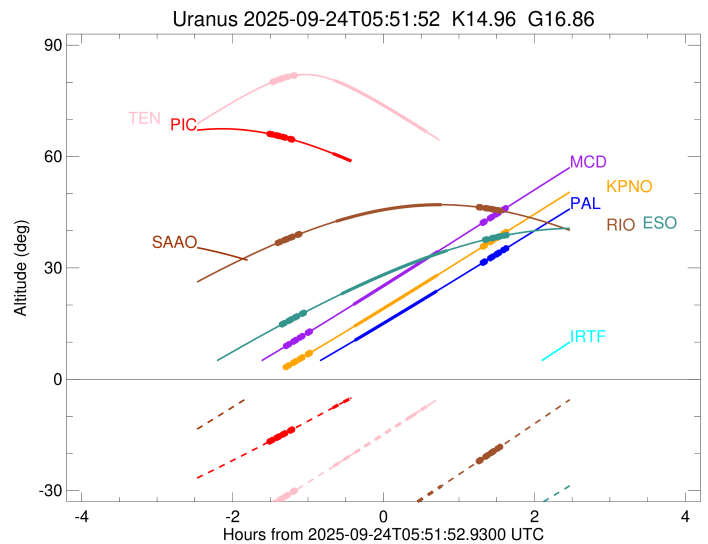
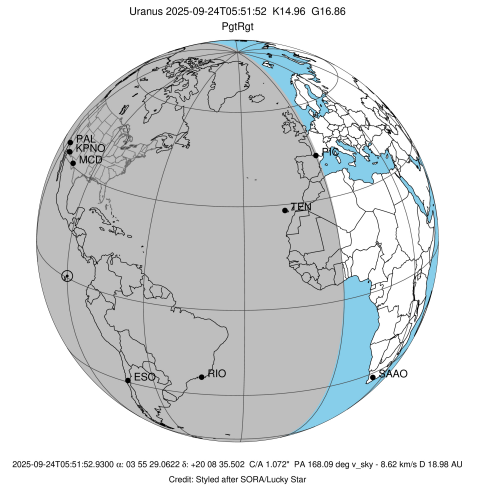
Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2025-09-24T04:33:47.411	-0.35x	-35.60	51290.27	-8.25			
lambda	I	2025-09-24T04:36:21.345	0.14x	-36.08	50026.71	-8.19			
delta	I	2025-09-24T04:39:52.582	0.82x	-36.73	48300.35	-8.15			
gamma	I	2025-09-24T04:41:14.826	1.08x	-36.99	47630.78	-8.13			
eta	I	2025-09-24T04:42:10.783	1.26x	-37.16	47176.12	-8.12			
beta	I	2025-09-24T04:45:15.710	1.85x	-37.72	45678.66	-8.07			
alpha	I	2025-09-24T04:47:10.263	2.22x	-38.07	44752.34	-8.04			
4	I	2025-09-24T04:51:43.831	3.11x	-38.89	42568.69	-7.95			
5	I	2025-09-24T04:52:36.524	3.28x	-39.05	42155.49	-7.94			
6	I	2025-09-24T04:53:14.029	3.40x	-39.16	41865.89	-7.93			
Uranus	I	2025-09-24T05:28:59.322	10.46	-45.26	25119.70			16.55	17.29
Uranus	E	2025-09-24T06:34:25.302	23.80	-54.00	25502.50			-5.80	-6.07
6	E	2025-09-24T07:10:51.942	31.39	-56.74	41845.71	8.19			
5	E	2025-09-24T07:11:47.573	31.58	-56.78	42290.65	8.20			
4	E	2025-09-24T07:12:17.534	31.69	-56.80	42536.61	8.21			
alpha	E	2025-09-24T07:16:38.401	32.60	-56.98	44695.00	8.32			
beta	E	2025-09-24T07:18:33.408	33.00	-57.05	45657.10	8.36			
eta	E	2025-09-24T07:21:34.485	33.63	-57.15	47176.12	8.42			
gamma	E	2025-09-24T07:22:27.761	33.82	-57.18	47625.23	8.44			
delta	E	2025-09-24T07:23:47.652	34.10	-57.22	48300.35	8.46			
lambda	E	2025-09-24T07:27:10.940	34.81	-57.30	50026.71	8.52			
epsilon	E	2025-09-24T07:29:40.341	35.33	-57.35	51302.72	8.59			

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2025-09-24T06:01:24.260
 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 : 51314521203330432
 2Mass ID (if available) : 03552904+2008356
 ICRS Star Coord at Epoch: 03h 55m 29.06224s +20:08:35.50156s
 RUWE (>1.4 is poor) : 0.96
 K magnitude : 14.960
 G magnitude : 16.864
 RP magnitude : 16.214
 BP magnitude : 17.363
 DUPflag : 0
 Distance (au) : 18.985
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -8.63
 Sun-Target sep (deg) : 120.13
 Sun-Moon sep (deg) : 146.50
 B (ring opening deg) : 71.75
 PA of pole (deg) : -77.17
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 1.342
 C/A sky separation (km) : 18481.7
 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



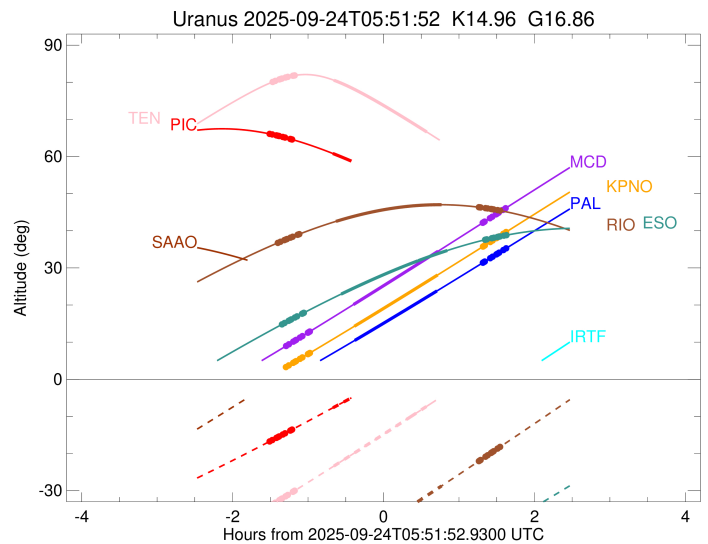
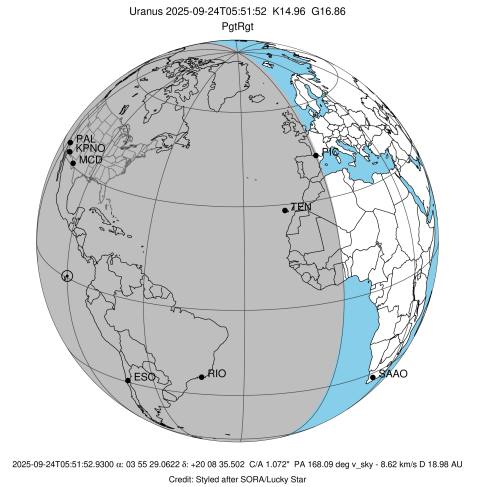
Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2025-09-24T04:34:03.083		3.23x	-40.21	51288.31	-8.30		
lambda	I	2025-09-24T04:36:35.776		3.74x	-40.68	50026.71	-8.25		
delta	I	2025-09-24T04:40:05.594		4.43x	-41.31	48300.35	-8.21		
gamma	I	2025-09-24T04:41:27.274		4.70x	-41.55	47630.77	-8.19		
eta	I	2025-09-24T04:42:22.838		4.89x	-41.72	47176.12	-8.18		
beta	I	2025-09-24T04:45:26.455		5.50	-42.27	45678.60	-8.13		
alpha	I	2025-09-24T04:47:20.156		5.88	-42.60	44752.36	-8.10		
4	I	2025-09-24T04:51:51.591		6.78	-43.40	42568.99	-8.01		
5	I	2025-09-24T04:52:43.910		6.96	-43.55	42155.42	-8.00		
6	I	2025-09-24T04:53:21.147		7.08	-43.66	41865.67	-7.99		
Uranus	I	2025-09-24T05:28:38.911		14.26	-49.42	25113.50		16.67	17.42
Uranus	E	2025-09-24T06:34:58.889		28.11	-57.16	25496.72		-6.09	-6.37
6	E	2025-09-24T07:10:56.498		35.74	-58.76	41845.36	8.25		
5	E	2025-09-24T07:11:51.797		35.94	-58.77	42291.13	8.26		
4	E	2025-09-24T07:12:21.498		36.04	-58.78	42536.85	8.28		
alpha	E	2025-09-24T07:16:40.332		36.96	-58.81	44694.81	8.38		
beta	E	2025-09-24T07:18:34.502		37.36	-58.81	45656.95	8.42		
eta	E	2025-09-24T07:21:34.316		38.00	-58.80	47176.12	8.48		
gamma	E	2025-09-24T07:22:27.219		38.19	-58.80	47625.19	8.50		
delta	E	2025-09-24T07:23:46.570		38.47	-58.79	48300.35	8.52		
lambda	E	2025-09-24T07:27:08.507		39.19	-58.75	50026.71	8.58		
epsilon	E	2025-09-24T07:29:36.658		39.71	-58.70	51300.24	8.64		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2025-09-24T06:01:18.330
 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 : 51314521203330432
 2Mass ID (if available) : 03552904+2008356
 ICRS Star Coord at Epoch: 03h 55m 29.06224s +20:08:35.50156s
 RUWE (>1.4 is poor) : 0.96
 K magnitude : 14.960
 G magnitude : 16.864
 RP magnitude : 16.214
 BP magnitude : 17.363
 DUPflag : 0
 Distance (au) : 18.985
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -8.63
 Sun-Target sep (deg) : 120.13
 Sun-Moon sep (deg) : 146.55
 B (ring opening deg) : 71.75
 PA of pole (deg) : -77.17
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 1.315
 C/A sky separation (km) : 18101.9
 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



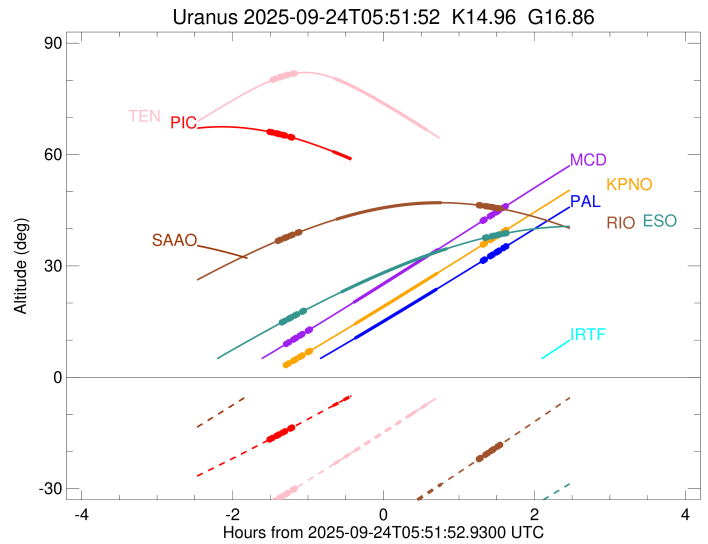
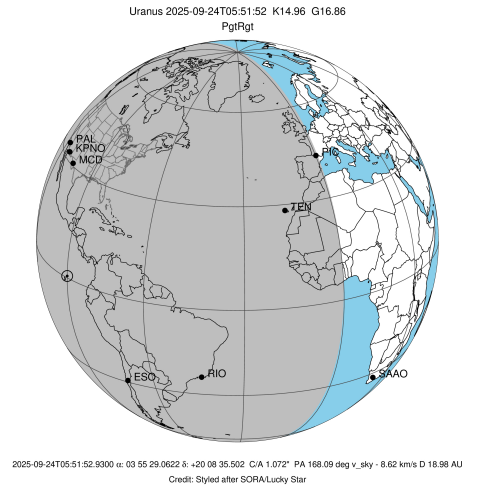
Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2025-09-24T04:34:11.756		8.92	-46.34	51285.67	-8.38		
lambda	I	2025-09-24T04:36:42.715		9.43	-46.78	50026.71	-8.33		
delta	I	2025-09-24T04:40:10.536		10.14	-47.36	48300.35	-8.29		
gamma	I	2025-09-24T04:41:31.424		10.42	-47.59	47630.74	-8.27		
eta	I	2025-09-24T04:42:26.440		10.61	-47.74	47176.12	-8.26		
beta	I	2025-09-24T04:45:28.229		11.24	-48.25	45678.52	-8.22		
alpha	I	2025-09-24T04:47:20.747		11.62	-48.56	44752.38	-8.18		
4	I	2025-09-24T04:51:49.239		12.55	-49.28	42569.40	-8.10		
5	I	2025-09-24T04:52:41.039		12.73	-49.42	42155.34	-8.09		
6	I	2025-09-24T04:53:17.906		12.86	-49.52	41865.38	-8.08		
Uranus	I	2025-09-24T05:27:59.769		20.12	-54.54	25105.75		16.83	17.57
Uranus	E	2025-09-24T06:35:24.170		34.51	-59.94	25489.07		-6.45	-6.76
6	E	2025-09-24T07:10:44.996		42.14	-59.62	41844.92	8.34		
5	E	2025-09-24T07:11:39.860		42.34	-59.58	42291.73	8.35		
4	E	2025-09-24T07:12:09.227		42.44	-59.56	42537.16	8.36		
alpha	E	2025-09-24T07:16:25.433		43.37	-59.35	44694.57	8.46		
beta	E	2025-09-24T07:18:18.520		43.77	-59.25	45656.76	8.50		
eta	E	2025-09-24T07:21:16.700		44.41	-59.08	47176.12	8.56		
gamma	E	2025-09-24T07:22:09.122		44.60	-59.03	47625.14	8.57		
delta	E	2025-09-24T07:23:27.774		44.89	-58.95	48300.35	8.60		
lambda	E	2025-09-24T07:26:47.967		45.61	-58.72	50026.71	8.65		
epsilon	E	2025-09-24T07:29:14.517		46.13	-58.55	51297.11	8.71		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2025-09-24T05:48:56.430
 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 : 51314521203330432
 2Mass ID (if available) : 03552904+2008356
 ICRS Star Coord at Epoch: 03h 55m 29.06224s +20:08:35.50156s
 RUWE (>1.4 is poor) : 0.96
 K magnitude : 14.960
 G magnitude : 16.864
 RP magnitude : 16.214
 BP magnitude : 17.363
 DUPflag : 0
 Distance (au) : 18.985
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -8.63
 Sun-Target sep (deg) : 120.13
 Sun-Moon sep (deg) : 147.59
 B (ring opening deg) : 71.75
 PA of pole (deg) : -77.17
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 1.115
 C/A sky separation (km) : 15352.6
 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



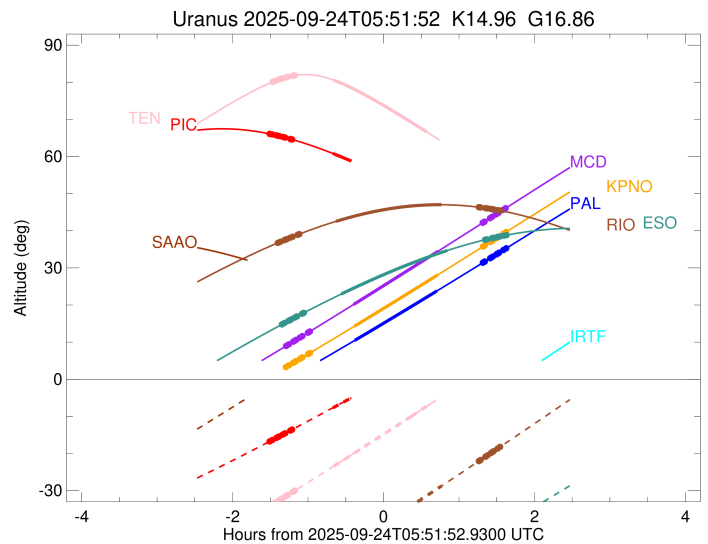
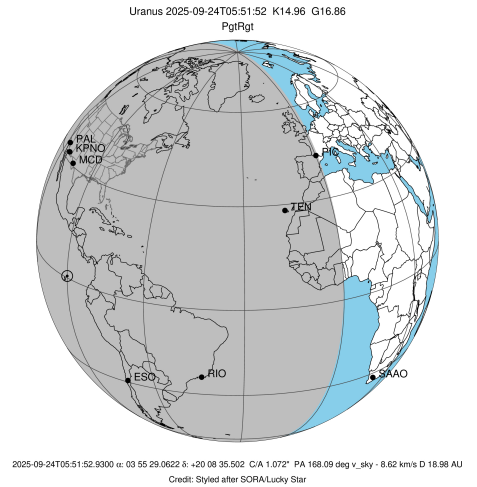
Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2025-09-24T04:23:33.926		80.07	-33.71	51260.37	-8.98		
lambda	I	2025-09-24T04:25:51.798		80.38	-33.24	50026.71	-8.94		
delta	I	2025-09-24T04:29:05.314		80.78	-32.57	48300.35	-8.90		
gamma	I	2025-09-24T04:30:20.596		80.92	-32.30	47630.53	-8.89		
eta	I	2025-09-24T04:31:11.737		81.01	-32.13	47176.12	-8.88		
beta	I	2025-09-24T04:34:00.764		81.30	-31.54	45677.72	-8.85		
alpha	I	2025-09-24T04:35:45.089		81.46	-31.17	44752.42	-8.82		
4	I	2025-09-24T04:39:53.417		81.77	-30.31	42573.01	-8.76		
5	I	2025-09-24T04:40:41.765		81.82	-30.14	42154.87	-8.75		
6	I	2025-09-24T04:41:16.244		81.85	-30.02	41862.70	-8.74		
Uranus	I	2025-09-24T05:12:22.695		80.56	-23.39	25058.63		17.73	18.52
Uranus	E	2025-09-24T06:26:23.125		66.60	-7.25	25437.08		-8.55	-8.95
6	E	2025-09-24T06:58:44.530		59.58	-0.12x	41842.50	8.74		
5	E	2025-09-24T06:59:37.606		59.39	0.07x	42294.85	8.74		
4	E	2025-09-24T07:00:05.537		59.28	0.17x	42538.89	8.75		
alpha	E	2025-09-24T07:04:10.651		58.39	1.07x	44693.36	8.82		
beta	E	2025-09-24T07:05:59.321		57.99	1.47x	45655.78	8.84		
eta	E	2025-09-24T07:08:51.026		57.36	2.10x	47176.12	8.87		
gamma	E	2025-09-24T07:09:41.569		57.18	2.29x	47624.90	8.88		
delta	E	2025-09-24T07:10:57.539		56.90	2.57x	48300.35	8.90		
lambda	E	2025-09-24T07:14:11.197		56.19	3.28x	50026.71	8.93		
epsilon	E	2025-09-24T07:16:31.503		55.67	3.79x	51281.25	8.97		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2025-09-24T05:55:48.400
 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 : 51314521203330432
 2Mass ID (if available) : 03552904+2008356
 ICRS Star Coord at Epoch: 03h 55m 29.06224s +20:08:35.50156s
 RUWE (>1.4 is poor) : 0.96
 K magnitude : 14.960
 G magnitude : 16.864
 RP magnitude : 16.214
 BP magnitude : 17.363
 DUPflag : 0
 Distance (au) : 18.985
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -8.63
 Sun-Target sep (deg) : 120.13
 Sun-Moon sep (deg) : 147.10
 B (ring opening deg) : 71.75
 PA of pole (deg) : -77.17
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 0.778
 C/A sky separation (km) : 10713.5
 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_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	2025-09-24T04:27:44.984		36.73	-55.81	51225.56	-9.14		
lambda	I	2025-09-24T04:29:56.368		37.04	-55.42	50026.71	-9.12		
delta	I	2025-09-24T04:33:05.764		37.49	-54.85	48300.35	-9.11		
gamma	I	2025-09-24T04:34:19.355		37.66	-54.62	47630.21	-9.10		
eta	I	2025-09-24T04:35:09.245		37.78	-54.47	47176.12	-9.10		
beta	I	2025-09-24T04:37:54.149		38.16	-53.96	45676.50	-9.09		
alpha	I	2025-09-24T04:39:35.502		38.39	-53.65	44752.18	-9.08		
4	I	2025-09-24T04:43:35.700		38.92	-52.89	42577.94	-9.05		
5	I	2025-09-24T04:44:22.926		39.02	-52.74	42155.06	-9.05		
6	I	2025-09-24T04:44:56.864		39.10	-52.64	41858.76	-9.05		
Uranus	I	2025-09-24T05:14:00.876		42.53	-46.89	25031.35		18.24	19.04
Uranus	E	2025-09-24T06:38:03.341		47.02	-28.74	25328.89		-11.82	-12.37
6	E	2025-09-24T07:07:40.977		46.35	-22.06	41837.20	9.15		
5	E	2025-09-24T07:08:33.003		46.31	-21.86	42301.00	9.15		
4	E	2025-09-24T07:08:59.548		46.29	-21.76	42543.02	9.16		
alpha	E	2025-09-24T07:12:53.577		46.11	-20.88	44690.89	9.19		
beta	E	2025-09-24T07:14:37.874		46.02	-20.48	45653.61	9.20		
eta	E	2025-09-24T07:17:23.189		45.87	-19.86	47176.12	9.22		
gamma	E	2025-09-24T07:18:11.784		45.83	-19.67	47624.35	9.23		
delta	E	2025-09-24T07:19:25.027		45.76	-19.39	48300.35	9.23		
lambda	E	2025-09-24T07:22:31.826		45.57	-18.68	50026.71	9.25		
epsilon	E	2025-09-24T07:24:43.077		45.43	-18.18	51241.52	9.28		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2025-09-24T06:00:16.380
 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 : 51314521203330432
 2Mass ID (if available) : 03552904+2008356
 ICRS Star Coord at Epoch: 03h 55m 29.06224s +20:08:35.50156s
 RUWE (>1.4 is poor) : 0.96
 K magnitude : 14.960
 G magnitude : 16.864
 RP magnitude : 16.214
 BP magnitude : 17.363
 DUPflag : 0
 Distance (au) : 18.985
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -8.63
 Sun-Target sep (deg) : 120.13
 Sun-Moon sep (deg) : 146.71
 B (ring opening deg) : 71.75
 PA of pole (deg) : -77.17
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 0.802
 C/A sky separation (km) : 11040.8
 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_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	2025-09-24T04:31:01.765		14.76	-60.33	51229.25	-8.97		
lambda	I	2025-09-24T04:33:16.133		15.17	-60.34	50026.71	-8.95		
delta	I	2025-09-24T04:36:29.221		15.75	-60.34	48300.35	-8.94		
gamma	I	2025-09-24T04:37:44.239		15.98	-60.34	47630.24	-8.93		
eta	I	2025-09-24T04:38:35.101		16.13	-60.33	47176.12	-8.93		
beta	I	2025-09-24T04:41:23.184		16.63	-60.30	45676.63	-8.91		
alpha	I	2025-09-24T04:43:06.508		16.94	-60.28	44752.22	-8.90		
4	I	2025-09-24T04:47:11.409		17.66	-60.20	42577.45	-8.88		
5	I	2025-09-24T04:47:59.504		17.80	-60.18	42155.00	-8.88		
6	I	2025-09-24T04:48:34.028		17.90	-60.17	41859.16	-8.88		
Uranus	I	2025-09-24T05:18:12.670		22.94	-58.59	25031.97		18.23	19.03
Uranus	E	2025-09-24T06:42:40.252		34.70	-47.44	25333.79		-11.69	-12.23
6	E	2025-09-24T07:12:37.716		37.57	-42.06	41837.33	9.08		
5	E	2025-09-24T07:13:30.107		37.65	-41.90	42300.86	9.09		
4	E	2025-09-24T07:13:56.854		37.68	-41.81	42542.91	9.09		
alpha	E	2025-09-24T07:17:52.590		37.99	-41.07	44690.94	9.13		
beta	E	2025-09-24T07:19:37.599		38.12	-40.74	45653.65	9.14		
eta	E	2025-09-24T07:22:23.986		38.33	-40.21	47176.12	9.16		
gamma	E	2025-09-24T07:23:12.887		38.39	-40.06	47624.36	9.17		
delta	E	2025-09-24T07:24:26.578		38.47	-39.82	48300.35	9.18		
lambda	E	2025-09-24T07:27:34.472		38.69	-39.22	50026.71	9.20		
epsilon	E	2025-09-24T07:29:46.506		38.83	-38.79	51242.06	9.23		