

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2025-12-06T21:23:37.140
 Event type : PgtRgt
 : Uranus occs: geocentric, topocentric
 : Ring occs: geocentric, topocentric
 Gaia source ID : 63052563743457408
 2Mass ID (if available) : 03450032+1936403

ICRS Star Coord at Epoch: 03h 45m 00.32730s +19:36:40.41113s

RUWE (>1.4 is poor) : 1.00
 K magnitude : 14.516
 G magnitude : 16.695
 RP magnitude : 16.010
 BP magnitude : 17.212
 DUPflag : 0
 Distance (au) : 18.547
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -22.25
 Sun-Target sep (deg) : 163.79
 Sun-Moon sep (deg) : 43.55
 B (ring opening deg) : 69.44
 PA of pole (deg) : -80.87

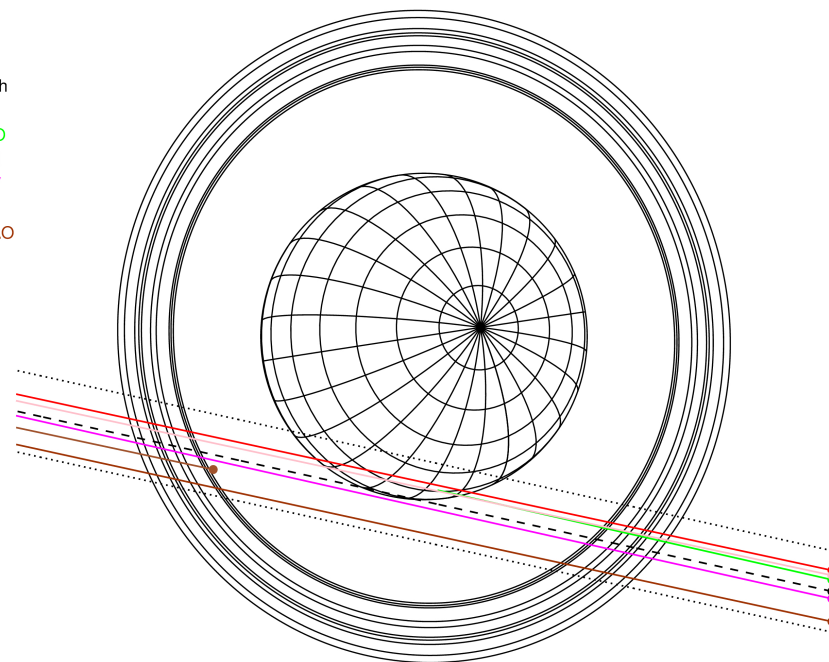
#	a(km)	ring
1	41837.2	6
2	42235.0	5
3	42571.2	4
4	44718.5	alpha
5	45661.1	beta
6	47176.1	eta
7	47626.3	gamma
8	48300.3	delta
9	50026.7	lambda
10	51149.4	epsilon



Uranus 2025-12-06T21:23:37 K14.52 G16.69 PgtRgt
 2025-12-06T21:23:37.1400 ex: 03 45 00.3273 s: +19 36 40.4111 C/A 1.870° PA 347.54 deg v_sky -22.25 km/s D 18.55 AU
 Credit: Styled after SORA/Lucky Star

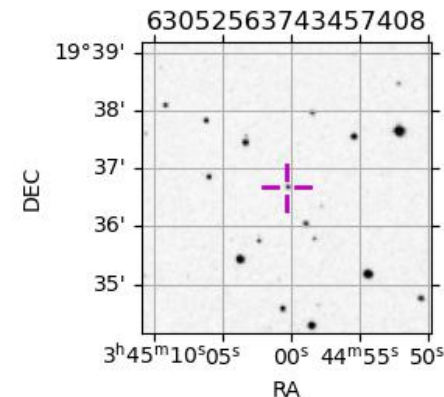
Uranus 2025-12-06T21:23:37 K14.52 G16.69 PgtRgt

Earth
 PIC
 PMO
 TEN
 KAV
 RIO
 SAAO

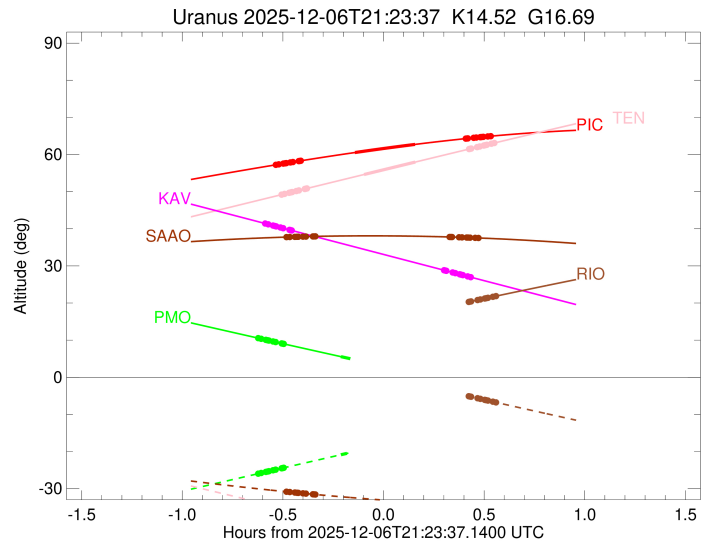
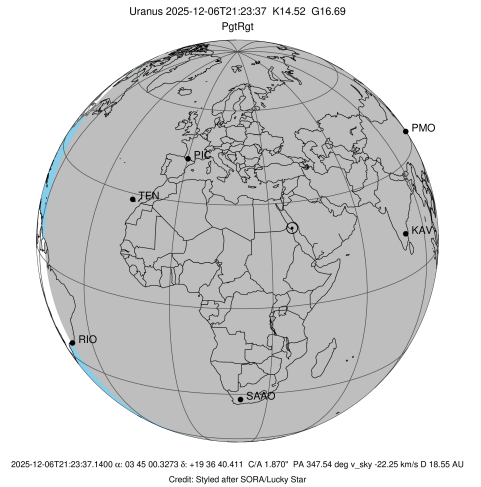


Observable events with sun below -5 deg and altitude above 5 deg unblocked by planet

Obs	Location	lat	Elon	Rings I	Planet	Rings E	Observed Events Interval	OEcode
PIC	Pic du Midi	42.9	0.1	+++++	+ +	+++++	DEC 06 20:51 - DEC 06 21:55	PieRie
PAL	Palomar Mt (200")	33.4	243.1					PnnRnn
PMO	Purple Mtn Obs. Nanki	32.1	118.8	+++++	+		DEC 06 20:46 - DEC 06 21:10	PinRin
KPNO	Kitt Peak Natl Obs	32.0	248.4					PnnRnn
MCD	McDonald Obs. 2.7m	30.7	256.0					PnnRnn
TEN	Teide Obs./Tenerife	28.3	343.5	+++++	+ +	+++++	DEC 06 20:53 - DEC 06 21:56	PieRie
IRTF	Mauna Kea/IRTF	19.8	204.5					PnnRnn
KAV	Kavalur Observatory	12.6	78.8	+++++		+++++	DEC 06 20:48 - DEC 06 21:49	PnnRie
RIO	Rio de Janeiro	-22.9	316.8			+++++	DEC 06 21:49 - DEC 06 21:57	PnnRne
ESO	European Southern Obs	-29.3	289.3					PnnRnn
AAT	Siding Spring (AAT)	-31.3	149.1					PnnRnn
SAAO	So. Afr. Astro. Obs.	-32.4	20.8	+++++		+++++	DEC 06 20:54 - DEC 06 21:52	PnnRie
MSO	Mt. Stromlo Observato	-35.3	149.0					PnnRnn

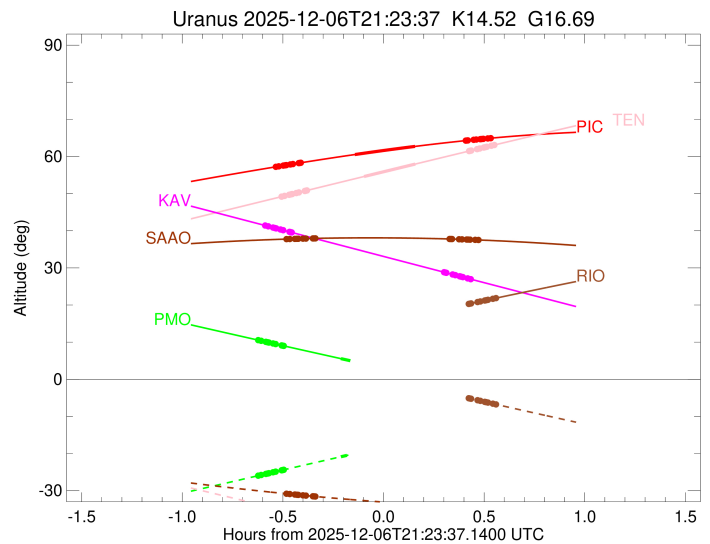
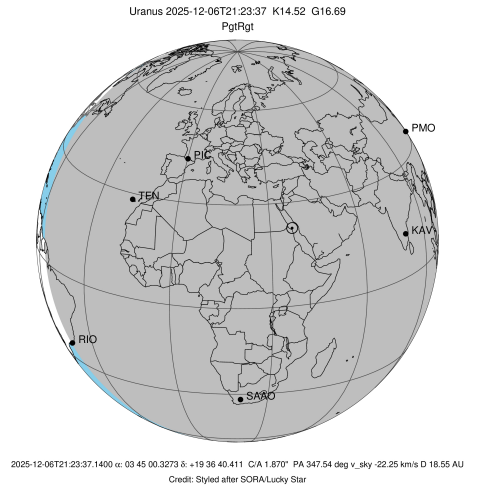


target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2025-12-06T21:24:16.170
 Event type : PgtRgt
 : Uranus occs: geocentric, topocentric
 : Ring occs: geocentric, topocentric
 Observer code : PIC
 Location : Pic du Midi
 Latitude (deg) : 42.93656
 E. Longitude (deg) : 0.14231
 Altitude (km) : 2.890
 Gaia source ID : 63052563743457408
 2Mass ID (if available) : 03450032+1936403
 ICRS Star Coord at Epoch: 03h 45m 00.32730s +19:36:40.41113s
 RUWE (>1.4 is poor) : 1.00
 K magnitude : 14.516
 G magnitude : 16.695
 RP magnitude : 16.010
 BP magnitude : 17.212
 DUPflag : 0
 Distance (au) : 18.547
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -22.25
 Sun-Target sep (deg) : 163.79
 Sun-Moon sep (deg) : 44.24
 B (ring opening deg) : 69.44
 PA of pole (deg) : -80.87
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 1.660
 C/A sky separation (km) : 22332.8
 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



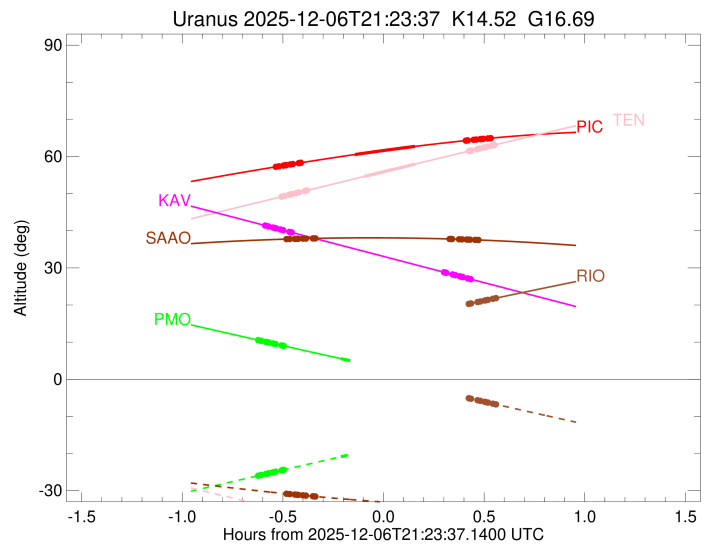
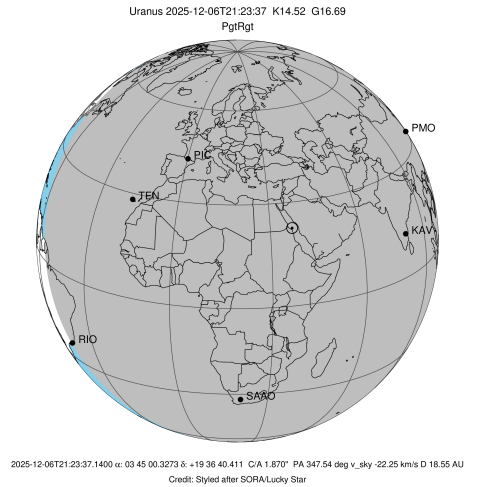
Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2025-12-06T20:51:46.869		57.27	-47.94	50827.97	-21.45		
lambda	I	2025-12-06T20:52:24.392		57.36	-48.05	50026.71	-21.31		
delta	I	2025-12-06T20:53:45.770		57.56	-48.29	48300.35	-21.11		
gamma	I	2025-12-06T20:54:17.972		57.64	-48.39	47621.80	-21.03		
eta	I	2025-12-06T20:54:39.194		57.69	-48.45	47176.12	-20.97		
beta	I	2025-12-06T20:55:52.326		57.87	-48.67	45649.11	-20.76		
alpha	I	2025-12-06T20:56:38.820		57.98	-48.80	44689.90	-20.62		
4	I	2025-12-06T20:58:24.626		58.24	-49.11	42529.57	-20.24		
5	I	2025-12-06T20:58:37.685		58.27	-49.15	42264.23	-20.17		
6	I	2025-12-06T20:58:56.921		58.32	-49.21	41864.98	-20.12		
Uranus	I	2025-12-06T21:15:05.884		60.54	-52.04	25549.40		2.71	2.84
Uranus	E	2025-12-06T21:32:59.568		62.73	-55.09	25261.36		-15.42	-16.11
6	E	2025-12-06T21:48:10.118		64.29	-57.58	41854.64	20.14		
5	E	2025-12-06T21:48:24.976		64.32	-57.62	42155.04	20.19		
4	E	2025-12-06T21:48:45.259		64.35	-57.68	42573.62	20.26		
alpha	E	2025-12-06T21:50:31.148		64.51	-57.96	44748.47	20.64		
beta	E	2025-12-06T21:51:16.397		64.58	-58.08	45681.13	20.79		
eta	E	2025-12-06T21:52:27.936		64.68	-58.27	47176.12	21.00		
gamma	E	2025-12-06T21:52:49.577		64.71	-58.33	47631.13	21.05		
delta	E	2025-12-06T21:53:21.298		64.76	-58.41	48300.35	21.14		
lambda	E	2025-12-06T21:54:42.578		64.87	-58.62	50026.71	21.34		
epsilon	E	2025-12-06T21:55:53.359		64.97	-58.81	51542.67	21.47		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2025-12-06T21:19:15.540
 Event type : PgtRgt
 : Uranus occs: geocentric, topocentric
 : Ring occs: geocentric, topocentric
 Observer code : PMO
 Location : Purple Mtn Obs. Nanking
 Latitude (deg) : 32.06667
 E. Longitude (deg) : 118.82089
 Altitude (km) : 0.364
 Gaia source ID : 63052563743457408
 2Mass ID (if available) : 03450032+1936403
 ICRS Star Coord at Epoch: 03h 45m 00.32730s +19:36:40.41113s
 RUWE (>1.4 is poor) : 1.00
 K magnitude : 14.516
 G magnitude : 16.695
 RP magnitude : 16.010
 BP magnitude : 17.212
 DUPflag : 0
 Distance (au) : 18.547
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -22.25
 Sun-Target sep (deg) : 163.79
 Sun-Moon sep (deg) : 42.87
 B (ring opening deg) : 69.44
 PA of pole (deg) : -80.87
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 1.709
 C/A sky separation (km) : 22994.8
 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



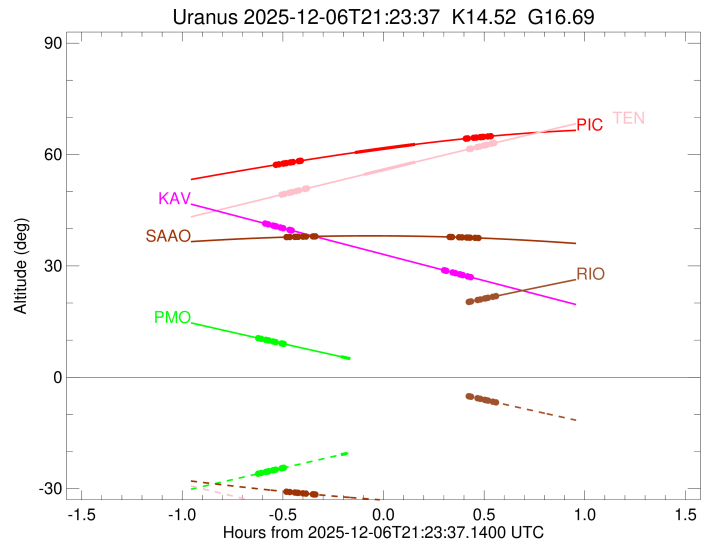
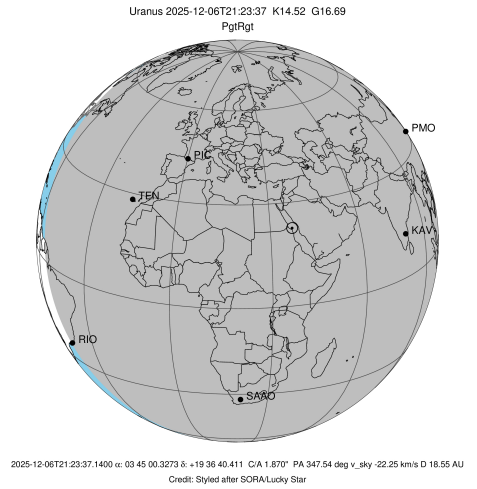
Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2025-12-06T20:46:31.586		10.49	-25.92	50834.31	-21.04		
lambda	I	2025-12-06T20:47:10.149		10.36	-25.78	50026.71	-20.90		
delta	I	2025-12-06T20:48:33.181		10.08	-25.49	48300.35	-20.68		
gamma	I	2025-12-06T20:49:06.055		9.96	-25.38	47621.87	-20.59		
eta	I	2025-12-06T20:49:27.733		9.89	-25.31	47176.12	-20.53		
beta	I	2025-12-06T20:50:42.446		9.64	-25.05	45649.56	-20.31		
alpha	I	2025-12-06T20:51:29.987		9.48	-24.88	44690.42	-20.16		
4	I	2025-12-06T20:53:18.385		9.11	-24.51	42529.06	-19.75		
5	I	2025-12-06T20:53:31.867		9.06	-24.46	42262.02	-19.68		
6	I	2025-12-06T20:53:51.447		9.00	-24.39	41865.93	-19.62		
Uranus	I	2025-12-06T21:10:53.916		5.56	-20.88	25556.53		1.38	1.44
Uranus	E	2025-12-06T21:27:08.813		2.33x	-17.55	25284.97		-14.77	-15.44
6	E	2025-12-06T21:43:12.040	-0.82x	-14.29	41855.00	19.54			
5	E	2025-12-06T21:43:27.339	-0.87x	-14.24	42154.99	19.60			
4	E	2025-12-06T21:43:48.218	-0.94x	-14.17	42573.23	19.67			
alpha	E	2025-12-06T21:45:37.224	-1.29x	-13.81	44748.35	20.07			
beta	E	2025-12-06T21:46:23.762	-1.44x	-13.65	45681.12	20.22			
eta	E	2025-12-06T21:47:37.289	-1.68x	-13.40	47176.12	20.44			
gamma	E	2025-12-06T21:47:59.521	-1.75x	-13.33	47631.12	20.50			
delta	E	2025-12-06T21:48:32.102	-1.85x	-13.22	48300.35	20.58			
lambda	E	2025-12-06T21:49:55.547	-2.12x	-12.94	50026.71	20.79			
epsilon	E	2025-12-06T21:51:08.154	-2.36x	-12.70	51542.23	20.93			

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2025-12-06T21:25:42.120
 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 : 63052563743457408
 2Mass ID (if available) : 03450032+1936403
 ICRS Star Coord at Epoch: 03h 45m 00.32730s +19:36:40.41113s
 RUWE (>1.4 is poor) : 1.00
 K magnitude : 14.516
 G magnitude : 16.695
 RP magnitude : 16.010
 BP magnitude : 17.212
 DUPflag : 0
 Distance (au) : 18.547
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -22.25
 Sun-Target sep (deg) : 163.79
 Sun-Moon sep (deg) : 44.44
 B (ring opening deg) : 69.44
 PA of pole (deg) : -80.87
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 1.727
 C/A sky separation (km) : 23226.5
 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_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	2025-12-06T20:53:29.804		49.25	-35.21	50832.46	-21.22		
lambda	I	2025-12-06T20:54:07.947		49.39	-35.35	50026.71	-21.08		
delta	I	2025-12-06T20:55:30.264		49.70	-35.65	48300.35	-20.86		
gamma	I	2025-12-06T20:56:02.857		49.82	-35.77	47621.86	-20.77		
eta	I	2025-12-06T20:56:24.350		49.89	-35.84	47176.12	-20.71		
beta	I	2025-12-06T20:57:38.436		50.17	-36.11	45649.45	-20.48		
alpha	I	2025-12-06T20:58:25.582		50.34	-36.28	44690.30	-20.32		
4	I	2025-12-06T21:00:13.084		50.74	-36.67	42529.16	-19.91		
5	I	2025-12-06T21:00:26.438		50.79	-36.72	42262.46	-19.83		
6	I	2025-12-06T21:00:45.890		50.86	-36.79	41865.74	-19.78		
Uranus	I	2025-12-06T21:17:49.340		54.62	-40.52	25557.07		1.21	1.27
Uranus	E	2025-12-06T21:33:07.000		57.98	-43.87	25302.37		-14.27	-14.92
6	E	2025-12-06T21:49:09.318		61.48	-47.40	41855.71	19.82		
5	E	2025-12-06T21:49:24.382		61.53	-47.45	42154.91	19.88		
4	E	2025-12-06T21:49:44.929		61.61	-47.53	42572.40	19.95		
alpha	E	2025-12-06T21:51:32.367		62.00	-47.92	44748.06	20.37		
beta	E	2025-12-06T21:52:18.213		62.16	-48.09	45681.07	20.53		
eta	E	2025-12-06T21:53:30.609		62.42	-48.36	47176.12	20.76		
gamma	E	2025-12-06T21:53:52.491		62.50	-48.44	47631.08	20.82		
delta	E	2025-12-06T21:54:24.558		62.62	-48.56	48300.35	20.92		
lambda	E	2025-12-06T21:55:46.659		62.92	-48.86	50026.71	21.13		
epsilon	E	2025-12-06T21:56:57.985		63.17	-49.12	51540.42	21.28		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2025-12-06T21:19:47.270
 Event type : PgtRgt
 : Uranus occs: geocentric, topocentric
 : Ring occs: geocentric, topocentric
 Observer code : KAV
 Location : Kavalur Observatory
 Latitude (deg) : 12.57556
 E. Longitude (deg) : 78.83167
 Altitude (km) : 0.722
 Gaia source ID : 63052563743457408
 2Mass ID (if available) : 03450032+1936403
 ICRS Star Coord at Epoch: 03h 45m 00.32730s +19:36:40.41113s
 RUWE (>1.4 is poor) : 1.00
 K magnitude : 14.516
 G magnitude : 16.695
 RP magnitude : 16.010
 BP magnitude : 17.212
 DUPflag : 0
 Distance (au) : 18.547
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -22.25
 Sun-Target sep (deg) : 163.79
 Sun-Moon sep (deg) : 43.34
 B (ring opening deg) : 69.44
 PA of pole (deg) : -80.87
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 1.943
 C/A sky separation (km) : 26136.1
 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_itrfr93_040916.bsp
 earth_720101_070426.bpc
 earth_200101_990628_predict.bpc
 pg3f0000r.bsp
 pg490000r.bsp
 naif0012.tls
 earth_flat_IAU.spk

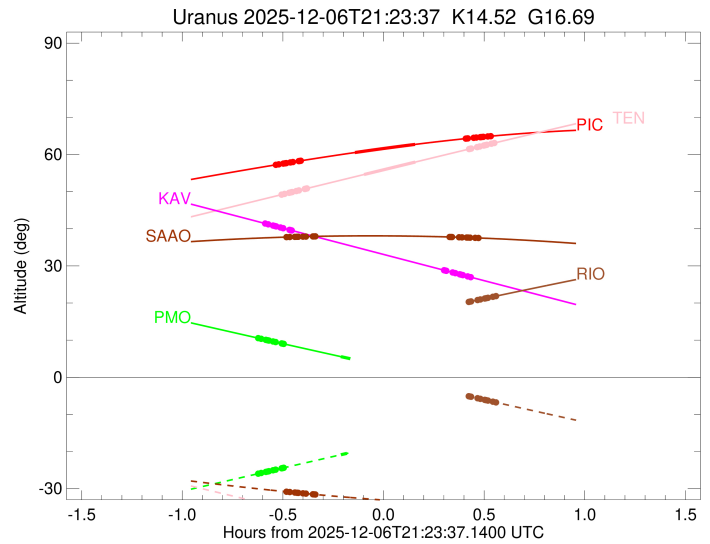
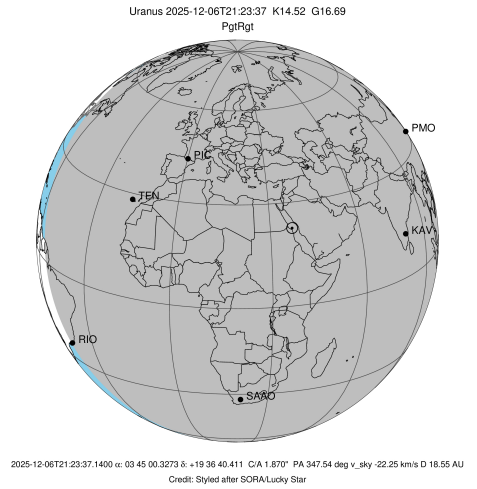


Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2025-12-06T20:48:35.403		41.36	-56.90	50852.34	-20.49		
lambda	I	2025-12-06T20:49:15.960		41.20	-56.75	50026.71	-20.29		
delta	I	2025-12-06T20:50:41.627		40.86	-56.43	48300.35	-20.00		
gamma	I	2025-12-06T20:51:15.634		40.73	-56.30	47622.11	-19.88		
eta	I	2025-12-06T20:51:38.114		40.64	-56.22	47176.12	-19.80		
beta	I	2025-12-06T20:52:55.711		40.34	-55.92	45650.90	-19.49		
alpha	I	2025-12-06T20:53:45.291		40.14	-55.74	44692.07	-19.28		
4	I	2025-12-06T20:55:39.281		39.69	-55.31	42527.76	-18.72		
5	I	2025-12-06T20:55:53.840		39.64	-55.25	42255.13	-18.62		
6	I	2025-12-06T20:56:14.087		39.56	-55.18	41868.66	-18.54		

No planet occultations

6	E	2025-12-06T21:41:41.888		28.83	-44.78	41858.64	18.48		
5	E	2025-12-06T21:41:57.958		28.77	-44.72	42154.86	18.56		
4	E	2025-12-06T21:42:19.773		28.68	-44.64	42568.95	18.66		
alpha	E	2025-12-06T21:44:14.271		28.23	-44.20	44746.82	19.21		
beta	E	2025-12-06T21:45:02.860		28.04	-44.01	45680.86	19.42		
eta	E	2025-12-06T21:46:19.262		27.74	-43.72	47176.12	19.72		
gamma	E	2025-12-06T21:46:42.281		27.65	-43.63	47630.93	19.80		
delta	E	2025-12-06T21:47:15.987		27.52	-43.50	48300.35	19.92		
lambda	E	2025-12-06T21:48:42.031		27.18	-43.17	50026.71	20.20		
epsilon	E	2025-12-06T21:49:56.212		26.89	-42.89	51533.69	20.39		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2025-12-06T21:27:47.060
 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 : 63052563743457408
 2Mass ID (if available) : 03450032+1936403
 ICRS Star Coord at Epoch: 03h 45m 00.32730s +19:36:40.41113s
 RUWE (>1.4 is poor) : 1.00
 K magnitude : 14.516
 G magnitude : 16.695
 RP magnitude : 16.010
 BP magnitude : 17.212
 DUPflag : 0
 Distance (au) : 18.547
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -22.25
 Sun-Target sep (deg) : 163.79
 Sun-Moon sep (deg) : 44.42
 B (ring opening deg) : 69.44
 PA of pole (deg) : -80.87
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 2.027
 C/A sky separation (km) : 27260.9
 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



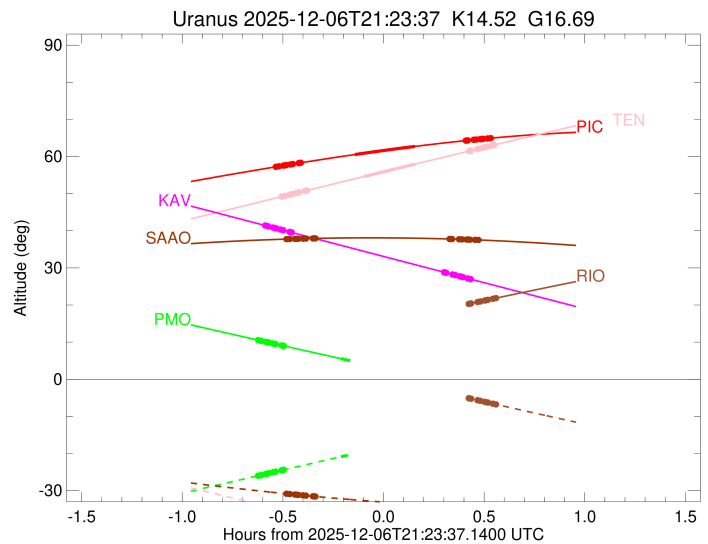
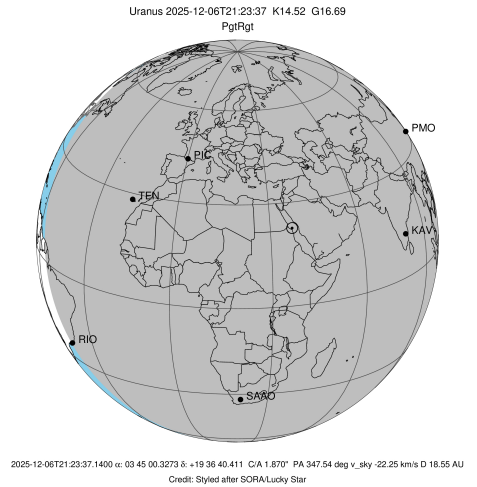
Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2025-12-06T20:56:53.002		9.81	5.82x	50856.87	-20.01		
lambda	I	2025-12-06T20:57:34.788		9.95	5.67x	50026.71	-19.80		
delta	I	2025-12-06T20:59:02.670		10.26	5.36x	48300.35	-19.48		
gamma	I	2025-12-06T20:59:37.594		10.38	5.24x	47622.17	-19.35		
eta	I	2025-12-06T21:00:00.699		10.46	5.15x	47176.12	-19.26		
beta	I	2025-12-06T21:01:20.520		10.73	4.87x	45651.26	-18.93		
alpha	I	2025-12-06T21:02:11.606		10.91	4.69x	44692.54	-18.70		
4	I	2025-12-06T21:04:09.430		11.31	4.27x	42527.47	-18.08		
5	I	2025-12-06T21:04:24.607		11.36	4.22x	42253.19	-17.97		
6	I	2025-12-06T21:04:45.463		11.43	4.14x	41869.37	-17.88		

No planet occultations

6	E	2025-12-06T21:49:03.548		20.30	-5.11	41860.28	17.94		
5	E	2025-12-06T21:49:20.063		20.35	-5.17	42155.06	18.03		
4	E	2025-12-06T21:49:42.391		20.42	-5.25	42566.94	18.14		
alpha	E	2025-12-06T21:51:39.926		20.80	-5.65	44746.02	18.76		
beta	E	2025-12-06T21:52:29.658		20.96	-5.82	45680.69	18.99		
eta	E	2025-12-06T21:53:47.679		21.21	-6.08	47176.12	19.33		
gamma	E	2025-12-06T21:54:11.143		21.29	-6.16	47630.83	19.43		
delta	E	2025-12-06T21:54:45.489		21.40	-6.28	48300.35	19.56		
lambda	E	2025-12-06T21:56:13.026		21.68	-6.58	50026.71	19.88		
epsilon	E	2025-12-06T21:57:28.111		21.92	-6.83	51528.66	20.09		

```

target                : Uranus
target radius (km)   : 25559.00
C/A epoch            : 2025-12-06T21:24:15.620
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       : 63052563743457408
2Mass ID (if available) : 03450032+1936403
ICRS Star Coord at Epoch: 03h 45m 00.32730s +19:36:40.41113s
RUWE (>1.4 is poor) : 1.00
K magnitude           : 14.516
G magnitude           : 16.695
RP magnitude          : 16.010
BP magnitude          : 17.212
DUPflag               : 0
Distance (au)         : 18.547
f0 (km)               : 0.000
g0 (km)               : 0.000
skyplane vel. (km/s) : -22.25
Sun-Target sep (deg) : 163.79
Sun-Moon sep (deg)   : 44.17
B (ring opening deg) : 69.44
PA of pole (deg)     : -80.87
Pole direction: RA (deg): 257.31100
Dec (deg): -15.17500
C/A sky separation (") : 2.239
C/A sky separation (km) : 30114.9
NAIF SPICE kernels   : RAJobs_U111+rgf15.spk
URKALLvl1.spk
urall1.bsp
IAU_URANUS_for_RINGFIT.tpc
vgr2.urall1.bsp
ural61.bsp
vgr2.ural61.bsp
peph.ural60.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	2025-12-06T20:54:56.691		37.76	-30.86	50877.72	-19.31		
lambda	I	2025-12-06T20:55:41.169		37.78	-30.92	50026.71	-19.04		
delta	I	2025-12-06T20:57:12.802		37.82	-31.06	48300.35	-18.63		
gamma	I	2025-12-06T20:57:49.357		37.84	-31.11	47622.46	-18.46		
eta	I	2025-12-06T20:58:13.621		37.85	-31.15	47176.12	-18.33		
beta	I	2025-12-06T20:59:37.671		37.88	-31.27	45652.78	-17.89		
alpha	I	2025-12-06T21:00:31.790		37.90	-31.34	44694.55	-17.59		
4	I	2025-12-06T21:02:38.083		37.94	-31.52	42526.55	-16.77		
5	I	2025-12-06T21:02:54.898		37.95	-31.54	42245.52	-16.62		
6	I	2025-12-06T21:03:16.951		37.95	-31.58	41871.96	-16.49		

No planet occultations

6	E	2025-12-06T21:43:20.568		37.79	-34.17	41863.46	16.49		
5	E	2025-12-06T21:43:38.465		37.78	-34.18	42155.94	16.62		
4	E	2025-12-06T21:44:02.380		37.77	-34.20	42562.96	16.77		
alpha	E	2025-12-06T21:46:08.712		37.71	-34.29	44744.32	17.59		
beta	E	2025-12-06T21:47:01.681		37.69	-34.33	45680.26	17.89		
eta	E	2025-12-06T21:48:24.247		37.64	-34.38	47176.12	18.33		
gamma	E	2025-12-06T21:48:48.955		37.63	-34.40	47630.62	18.45		
delta	E	2025-12-06T21:49:25.074		37.61	-34.42	48300.35	18.63		
lambda	E	2025-12-06T21:50:56.721		37.56	-34.48	50026.71	19.04		
epsilon	E	2025-12-06T21:52:14.431		37.51	-34.53	51518.59	19.31		