

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2034-08-31T05:04:57.690
 Event type : PgtRgt
 : Uranus occs: geocentric, topocentric
 : Ring occs: geocentric, topocentric
 Gaia source ID : 3379766256927460992
 2Mass ID (if available) : 06400224+2324336

Uranus 2034-08-31T05:04:57 K13.85 G16.02 PgtRgt

ICRS Star Coord at Epoch: 06h 40m 02.24536s +23:24:33.92782s

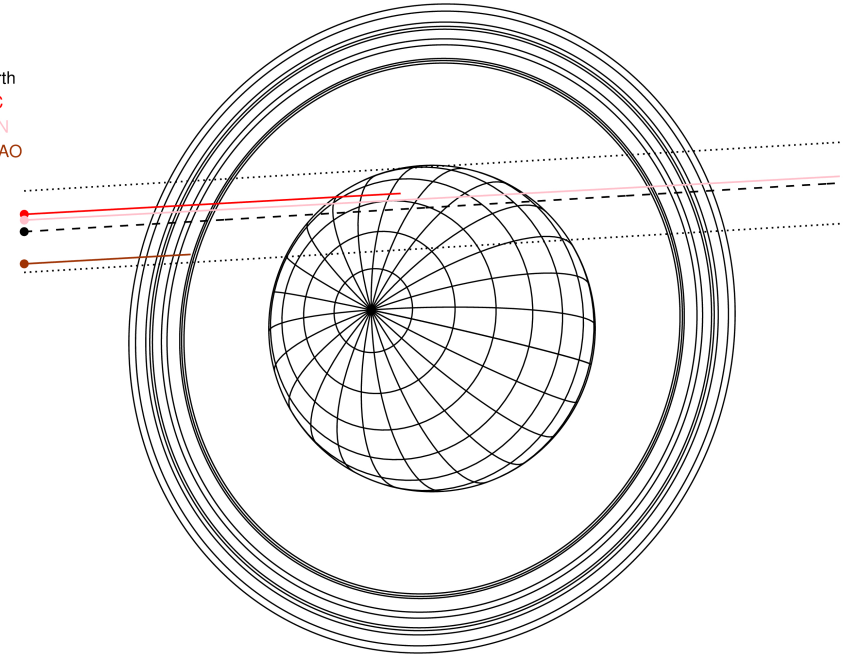
RUWE (>1.4 is poor) : 1.13
 K magnitude : 13.848
 G magnitude : 16.016
 RP magnitude : 14.846
 BP magnitude : 15.654
 DUPflag : 0
 Distance (au) : 19.422
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : 22.09
 Sun-Target sep (deg) : 58.24
 Sun-Moon sep (deg) : 102.09
 B (ring opening deg) : 67.09
 PA of pole (deg) : 73.05

#	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



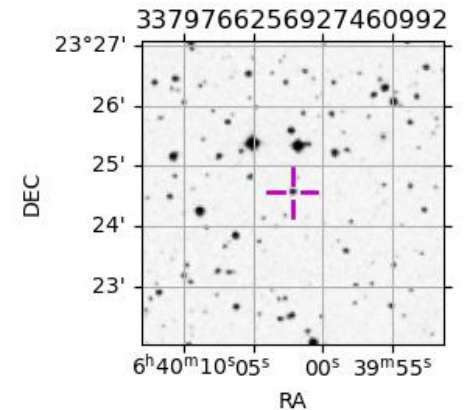
2034-08-31T05:04:57.6900 ex: 06 40 02.2454 8: +23 24 33.928 C/A 1.349° PA 183.41 deg v_sky +22.09 km/s D 19.42 AU
 Credit: Styled after SORA/Lucky Star

Earth
 PIC
 TEN
 SAAO

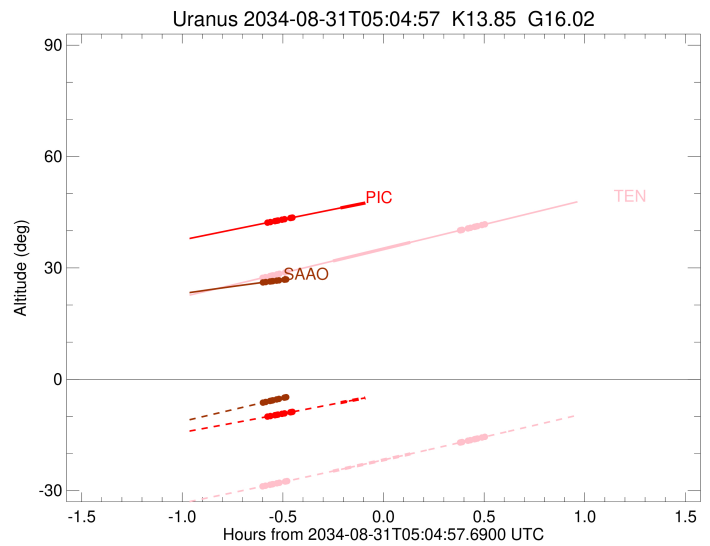
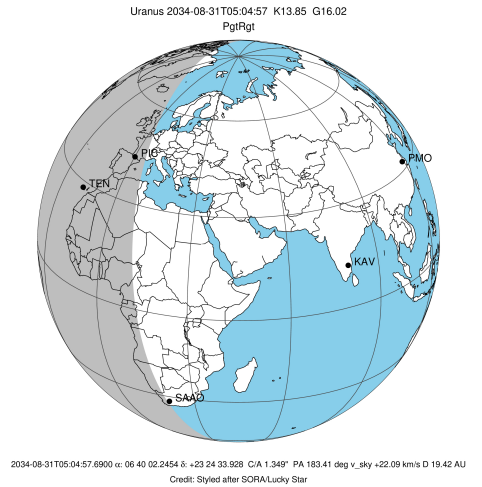


Observable events with sun below -5 deg and altitude above 5 deg unblocked by planet

Obs	Location	lat	Elon	Rings I	Planet	Rings E	Observed Events Interval	OCode
PIC	Pic du Midi	42.9	0.1	+++++++	+		AUG 31 04:30 - AUG 31 04:52	PinRin
PAL	Palomar Mt (200")	33.4	243.1					PnnRnn
PMO	Purple Mtn Obs. Nanki	32.1	118.8					PnnRnn
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	+++++++	+ +	+++++++	AUG 31 04:28 - AUG 31 05:34	PieRie
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					PnnRnn
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	+++++++			AUG 31 04:28 - AUG 31 04:33	PnnRin
MSO	Mt. Stromlo Observato	-35.3	149.0					PnnRnn

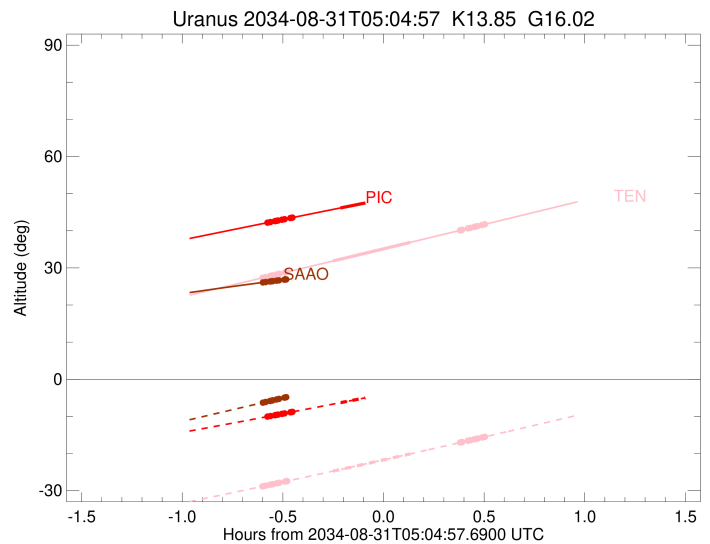
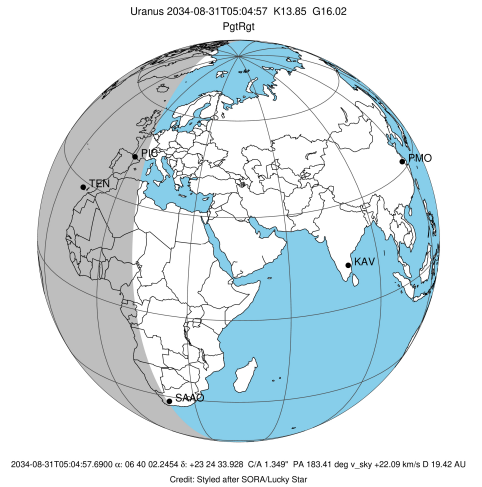


target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2034-08-31T05:02:23.340
 Event type : PgtRgt
 : Uranus occs: geocentric, topocentric
 : Ring occs: geocentric, topocentric
 Observer code : PIC
 Location : Pic du Midi
 Latitude (deg) : 42.93656
 E. Longitude (deg) : 0.14231
 Altitude (km) : 2.890
 Gaia source ID : 3379766256927460992
 2Mass ID (if available) : 06400224+2324336
 ICRS Star Coord at Epoch: 06h 40m 02.24536s +23:24:33.92782s
 RUWE (>1.4 is poor) : 1.13
 K magnitude : 13.848
 G magnitude : 16.016
 RP magnitude : 14.846
 BP magnitude : 15.654
 DUPflag : 0
 Distance (au) : 19.422
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : 22.09
 Sun-Target sep (deg) : 58.24
 Sun-Moon sep (deg) : 102.93
 B (ring opening deg) : 67.09
 PA of pole (deg) : 73.05
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 1.518
 C/A sky separation (km) : 21389.4
 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



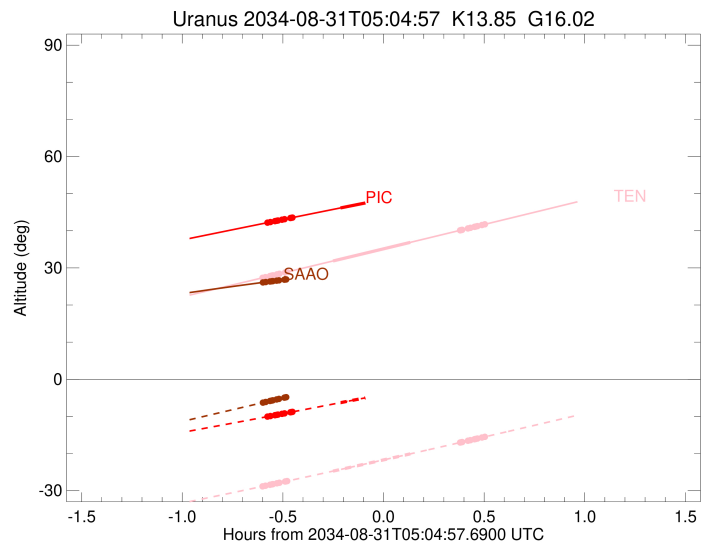
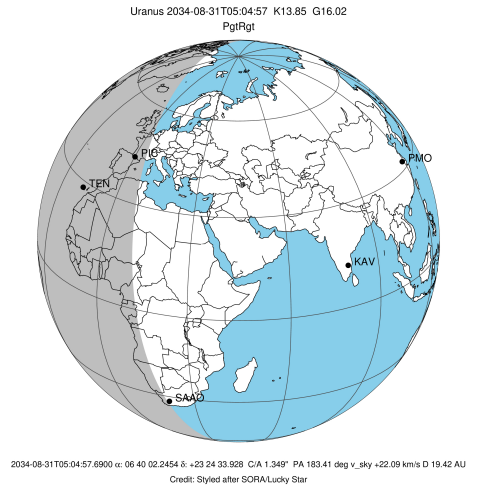
Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2034-08-31T04:30:14.793		42.17	-10.08	51310.36	-21.29		
lambda	I	2034-08-31T04:31:15.052		42.35	-9.91	50026.71	-21.24		
delta	I	2034-08-31T04:32:36.669		42.60	-9.68	48300.35	-21.06		
gamma	I	2034-08-31T04:33:08.932		42.70	-9.58	47622.11	-20.98		
eta	I	2034-08-31T04:33:30.212		42.76	-9.52	47176.12	-20.93		
beta	I	2034-08-31T04:34:42.374		42.98	-9.32	45674.03	-20.74		
alpha	I	2034-08-31T04:35:29.961		43.13	-9.18	44686.28	-20.61		
4	I	2034-08-31T04:37:11.000		43.44	-8.89	42614.53	-20.29		
5	I	2034-08-31T04:37:32.174		43.50	-8.83	42184.50	-20.19		
6	I	2034-08-31T04:37:48.210		43.55	-8.79	41858.12	-20.16		
Uranus	I	2034-08-31T04:52:09.812		46.16	-6.30	25245.46		17.93	18.72
Uranus	E	2034-08-31T05:13:01.724		49.90	-2.62x	25533.41		-5.00	-5.24
6	E	2034-08-31T05:28:38.822		52.66	0.17x	41860.10	20.10		
5	E	2034-08-31T05:28:55.873		52.71	0.22x	42204.17	20.13		
4	E	2034-08-31T05:29:12.971		52.76	0.28x	42561.84	20.23		
alpha	E	2034-08-31T05:30:59.151		53.06	0.59x	44726.85	20.54		
beta	E	2034-08-31T05:31:43.584		53.19	0.73x	45641.18	20.67		
eta	E	2034-08-31T05:32:57.535		53.41	0.95x	47176.12	20.86		
gamma	E	2034-08-31T05:33:19.336		53.47	1.01x	47631.39	20.91		
delta	E	2034-08-31T05:33:51.274		53.56	1.11x	48300.35	20.98		
lambda	E	2034-08-31T05:35:13.200		53.80	1.36x	50026.71	21.16		
epsilon	E	2034-08-31T05:35:47.769		53.90	1.46x	50759.35	21.21		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2034-08-31T05:01:13.490
 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 : 3379766256927460992
 2Mass ID (if available) : 06400224+2324336
 ICRS Star Coord at Epoch: 06h 40m 02.24536s +23:24:33.92782s
 RUWE (>1.4 is poor) : 1.13
 K magnitude : 13.848
 G magnitude : 16.016
 RP magnitude : 14.846
 BP magnitude : 15.654
 DUPflag : 0
 Distance (au) : 19.422
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : 22.09
 Sun-Target sep (deg) : 58.24
 Sun-Moon sep (deg) : 102.82
 B (ring opening deg) : 67.09
 PA of pole (deg) : 73.05
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 1.444
 C/A sky separation (km) : 20344.1
 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	2034-08-31T04:28:46.823		27.30	-28.87	51318.00	-21.58		
lambda	I	2034-08-31T04:29:46.629		27.52	-28.68	50026.71	-21.53		
delta	I	2034-08-31T04:31:07.093		27.81	-28.42	48300.35	-21.37		
gamma	I	2034-08-31T04:31:38.881		27.92	-28.32	47622.03	-21.30		
eta	I	2034-08-31T04:31:59.836		27.99	-28.25	47176.12	-21.26		
beta	I	2034-08-31T04:33:10.841		28.25	-28.02	45674.40	-21.08		
alpha	I	2034-08-31T04:33:57.645		28.42	-27.87	44686.55	-20.96		
4	I	2034-08-31T04:35:36.904		28.77	-27.55	42614.16	-20.68		
5	I	2034-08-31T04:35:57.546		28.85	-27.48	42186.19	-20.59		
6	I	2034-08-31T04:36:13.400		28.91	-27.43	41857.11	-20.57		
Uranus	I	2034-08-31T04:49:53.640		31.86	-24.74	25213.03		18.88	19.71
Uranus	E	2034-08-31T05:12:57.114		36.88	-20.10	25514.95		-6.57	-6.88
6	E	2034-08-31T05:27:49.438		40.13	-17.04	41858.97	20.48		
5	E	2034-08-31T05:28:06.342		40.19	-16.98	42206.48	20.50		
4	E	2034-08-31T05:28:22.944		40.25	-16.92	42560.48	20.59		
alpha	E	2034-08-31T05:30:07.463		40.63	-16.56	44727.79	20.86		
beta	E	2034-08-31T05:30:51.165		40.79	-16.41	45641.12	20.98		
eta	E	2034-08-31T05:32:04.058		41.06	-16.16	47176.12	21.15		
gamma	E	2034-08-31T05:32:25.562		41.13	-16.08	47631.42	21.20		
delta	E	2034-08-31T05:32:57.072		41.25	-15.97	48300.35	21.26		
lambda	E	2034-08-31T05:34:17.965		41.54	-15.69	50026.71	21.42		
epsilon	E	2034-08-31T05:34:52.258		41.67	-15.57	50762.27	21.46		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2034-08-31T05:03:32.830
 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 : 3379766256927460992
 2Mass ID (if available) : 06400224+2324336
 ICRS Star Coord at Epoch: 06h 40m 02.24536s +23:24:33.92782s
 RUWE (>1.4 is poor) : 1.13
 K magnitude : 13.848
 G magnitude : 16.016
 RP magnitude : 14.846
 BP magnitude : 15.654
 DUPflag : 0
 Distance (au) : 19.422
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : 22.09
 Sun-Target sep (deg) : 58.24
 Sun-Moon sep (deg) : 102.63
 B (ring opening deg) : 67.09
 PA of pole (deg) : 73.05
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 0.976
 C/A sky separation (km) : 13742.6
 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_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	2034-08-31T04:28:51.524		26.07	-6.32	51368.69	-22.50		
lambda	I	2034-08-31T04:29:51.119		26.19	-6.11	50026.71	-22.49		
delta	I	2034-08-31T04:31:07.987		26.34	-5.84	48300.35	-22.42		
gamma	I	2034-08-31T04:31:38.279		26.40	-5.74	47621.59	-22.39		
eta	I	2034-08-31T04:31:58.181		26.44	-5.67	47176.12	-22.37		
beta	I	2034-08-31T04:33:05.384		26.57	-5.43	45676.66	-22.30		
alpha	I	2034-08-31T04:33:49.601		26.65	-5.28	44688.84	-22.25		
4	I	2034-08-31T04:35:23.031		26.83	-4.95x	42610.97	-22.13		
5	I	2034-08-31T04:35:41.451		26.86	-4.89x	42198.15	-22.08		
6	I	2034-08-31T04:35:57.086		26.89	-4.83x	41850.12	-22.08		
Uranus	I	2034-08-31T04:47:27.476		28.15	-2.42x	25087.04		22.30	23.24
Uranus	E	2034-08-31T05:19:54.748		31.14	4.33x	25376.36		-13.53	-14.15
6	E	2034-08-31T05:32:14.339		32.05	6.86x	41852.43	22.02		
5	E	2034-08-31T05:32:30.936		32.07	6.92x	42219.52	22.02		
4	E	2034-08-31T05:32:45.459		32.08	6.97x	42553.30	22.07		
alpha	E	2034-08-31T05:34:23.882		32.19	7.30x	44732.80	22.19		
beta	E	2034-08-31T05:35:04.801		32.24	7.44x	45641.11	22.24		
eta	E	2034-08-31T05:36:13.758		32.31	7.68x	47176.12	22.31		
gamma	E	2034-08-31T05:36:34.165		32.33	7.75x	47631.55	22.33		
delta	E	2034-08-31T05:37:04.099		32.36	7.85x	48300.35	22.36		
lambda	E	2034-08-31T05:38:21.200		32.45	8.11x	50026.71	22.42		
epsilon	E	2034-08-31T05:38:54.869		32.48	8.23x	50782.17	22.43		