

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2032-08-13T04:00:53.790
 Event type : PgtRgt
 : Uranus occs: geocentric, topocentric
 : Ring occs: geocentric, topocentric
 Gaia source ID : 3424867158750309888
 2Mass ID (if available) : 05595229+2336516

Uranus 2032-08-13T04:00:53 K14.12 G16.89 PgtRgt

ICRS Star Coord at Epoch: 05h 59m 52.30432s +23:36:51.69447s

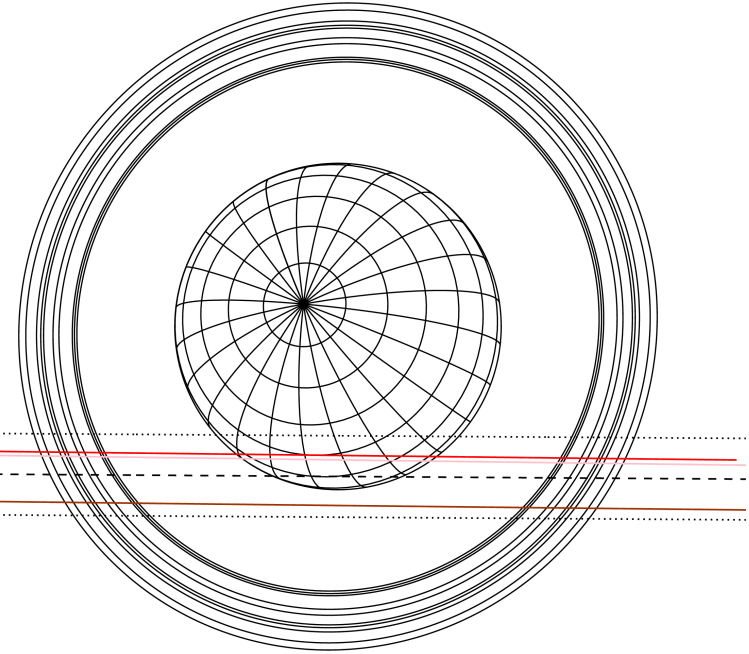
RUWE (>1.4 is poor) : 0.97
 K magnitude : 14.123
 G magnitude : 16.892
 RP magnitude : 16.044
 BP magnitude : 17.653
 DUPflag : 0
 Distance (au) : 19.671
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : 25.28
 Sun-Target sep (deg) : 50.55
 Sun-Moon sep (deg) : 127.02
 B (ring opening deg) : 75.39
 PA of pole (deg) : 56.99

Uranus 2032-08-13T04:00:53 K14.12 G16.89
 PgtRgt



2032-08-13T04:00:53.7900 ex: 05 59 52.3043 s: +23 36 51.694 C/A 1.641" PA 359.62 deg v_sky +25.28 km/s D 19.67 AU
 Credit: Styled after SORA/Lucky Star

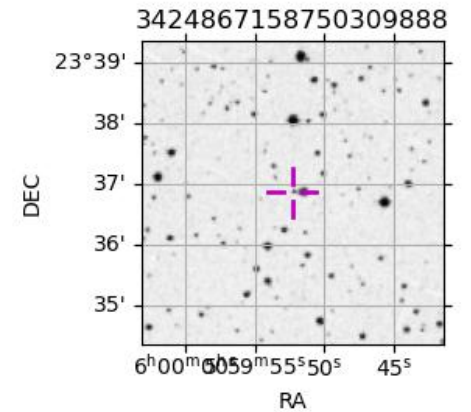
Earth
 PIC
 TEN
 SAAO



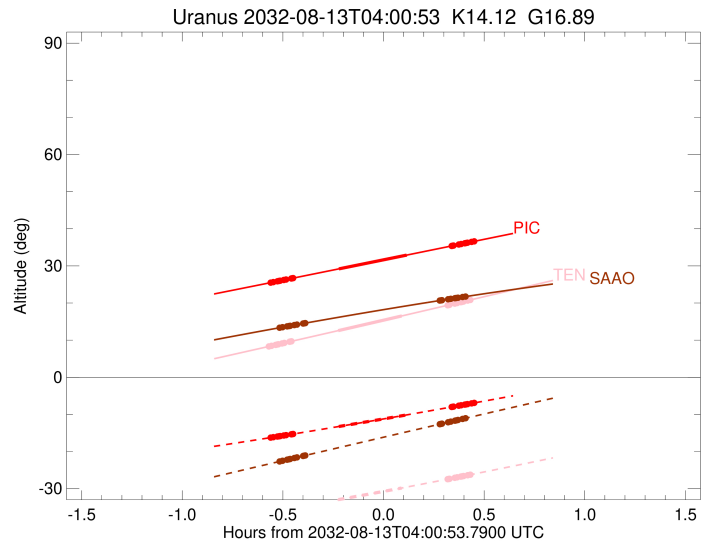
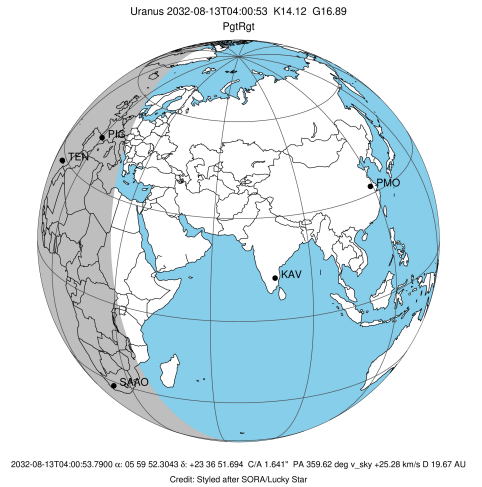
#	a(km)	ring
1	41837.2	6
2	42235.0	5
3	42571.2	4
4	44718.5	alpha
5	45661.1	beta
6	47176.1	eta
7	47626.3	gamma
8	48300.3	delta
9	50026.7	lambda
10	51149.4	epsilon

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	+++++	+ +	+++++	AUG 13 03:27 - AUG 13 04:28	PieRie
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 13 03:26 - AUG 13 04:26	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 13 03:29 - AUG 13 04:25	PnnRie
MSO	Mt. Stromlo Observato	-35.3	149.0					PnnRnn

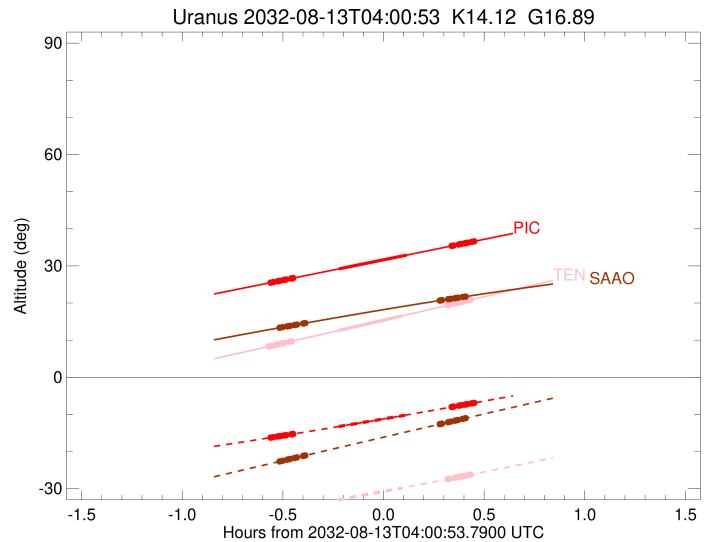
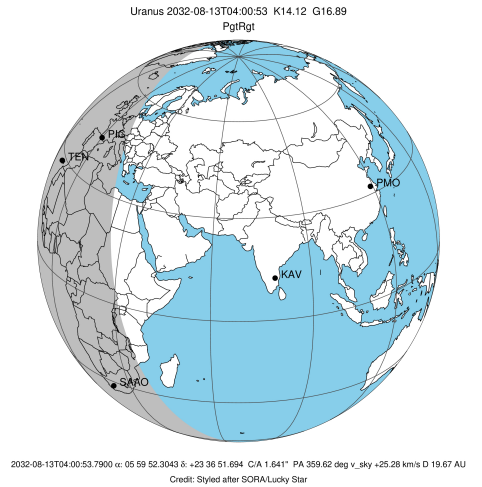


target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2032-08-13T03:57:57.750
 Event type : PgtRgt
 : Uranus occs: geocentric, topocentric
 : Ring occs: geocentric, topocentric
 Observer code : PIC
 Location : Pic du Midi
 Latitude (deg) : 42.93656
 E. Longitude (deg) : 0.14231
 Altitude (km) : 2.890
 Gaia source ID : 3424867158750309888
 2Mass ID (if available) : 05595229+2336516
 ICRS Star Coord at Epoch: 05h 59m 52.30432s +23:36:51.69447s
 RUWE (>1.4 is poor) : 0.97
 K magnitude : 14.123
 G magnitude : 16.892
 RP magnitude : 16.044
 BP magnitude : 17.653
 DUPflag : 0
 Distance (au) : 19.671
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : 25.28
 Sun-Target sep (deg) : 50.55
 Sun-Moon sep (deg) : 127.03
 B (ring opening deg) : 75.39
 PA of pole (deg) : 56.99
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 1.415
 C/A sky separation (km) : 20190.9
 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_itrfr93_040916.bsp
 earth_720101_070426.bpc
 earth_200101_990628_predict.bpc
 pg3f0000r.bsp
 pg490000r.bsp
 naif0012.tls
 earth_flat_IAU.spk



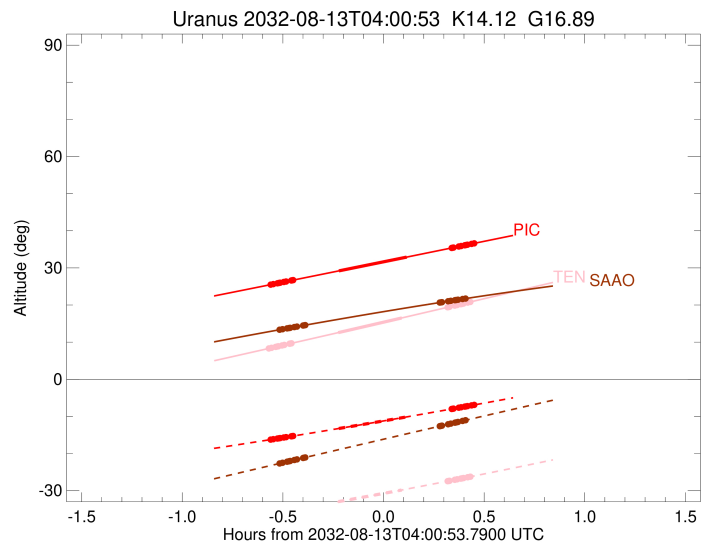
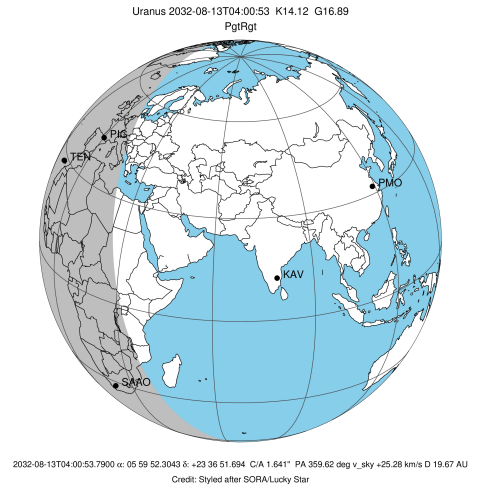
Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2032-08-13T03:27:12.243		25.48	-16.26	51231.84	-23.76		
lambda	I	2032-08-13T03:28:03.257		25.64	-16.14	50026.71	-23.57		
delta	I	2032-08-13T03:29:16.776		25.86	-15.96	48300.35	-23.39		
gamma	I	2032-08-13T03:29:45.536		25.95	-15.89	47628.58	-23.32		
eta	I	2032-08-13T03:30:04.959		26.01	-15.85	47176.12	-23.27		
beta	I	2032-08-13T03:31:10.250		26.20	-15.69	45663.25	-23.08		
alpha	I	2032-08-13T03:31:51.208		26.33	-15.59	44719.15	-22.95		
4	I	2032-08-13T03:33:26.841		26.62	-15.36	42536.48	-22.65		
5	I	2032-08-13T03:33:42.754		26.67	-15.32	42184.12	-22.57		
6	I	2032-08-13T03:33:56.295		26.71	-15.29	41875.12	-22.52		
Uranus	I	2032-08-13T03:47:35.416		29.20	-13.26	25553.87		1.38	1.44
Uranus	E	2032-08-13T04:07:49.322		32.91	-10.14	25080.84		-13.59	-14.21
6	E	2032-08-13T04:21:11.529		35.37	-8.00	41800.97	22.45		
5	E	2032-08-13T04:21:29.201		35.43	-7.96	42209.41	22.50		
4	E	2032-08-13T04:21:47.281		35.48	-7.91	42614.50	22.57		
alpha	E	2032-08-13T04:23:18.566		35.76	-7.66	44690.59	22.87		
beta	E	2032-08-13T04:24:00.185		35.89	-7.55	45643.89	23.00		
eta	E	2032-08-13T04:25:06.547		36.09	-7.37	47176.12	23.18		
gamma	E	2032-08-13T04:25:25.720		36.15	-7.32	47621.10	23.23		
delta	E	2032-08-13T04:25:54.911		36.24	-7.24	48300.35	23.30		
lambda	E	2032-08-13T04:27:08.715		36.47	-7.04	50026.71	23.47		
epsilon	E	2032-08-13T04:28:06.143		36.64	-6.88	51378.28	23.66		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2032-08-13T03:57:07.040
 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 : 3424867158750309888
 2Mass ID (if available) : 05595229+2336516
 ICRS Star Coord at Epoch: 05h 59m 52.30432s +23:36:51.69447s
 RUWE (>1.4 is poor) : 0.97
 K magnitude : 14.123
 G magnitude : 16.892
 RP magnitude : 16.044
 BP magnitude : 17.653
 DUPflag : 0
 Distance (au) : 19.671
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : 25.28
 Sun-Target sep (deg) : 50.55
 Sun-Moon sep (deg) : 126.73
 B (ring opening deg) : 75.39
 PA of pole (deg) : 56.99
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 1.464
 C/A sky separation (km) : 20889.1
 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	2032-08-13T03:26:39.880		8.30	-36.16	51237.28	-23.70		
lambda	I	2032-08-13T03:27:31.261		8.47	-36.03	50026.71	-23.50		
delta	I	2032-08-13T03:28:45.013		8.72	-35.85	48300.35	-23.31		
gamma	I	2032-08-13T03:29:13.882		8.82	-35.78	47628.51	-23.23		
eta	I	2032-08-13T03:29:33.377		8.89	-35.73	47176.12	-23.18		
beta	I	2032-08-13T03:30:38.964		9.11	-35.57	45662.93	-22.97		
alpha	I	2032-08-13T03:31:20.135		9.25	-35.46	44718.59	-22.83		
4	I	2032-08-13T03:32:56.279		9.58	-35.22	42537.00	-22.50		
5	I	2032-08-13T03:33:12.362		9.64	-35.18	42183.02	-22.42		
6	I	2032-08-13T03:33:25.970		9.68	-35.15	41874.76	-22.37		
Uranus	I	2032-08-13T03:47:24.174		12.57	-32.96	25557.53		0.74	0.77
Uranus	E	2032-08-13T04:06:18.273		16.51	-29.83	25099.46		-13.31	-13.92
6	E	2032-08-13T04:19:59.562		19.39	-27.46	41801.44	22.28		
5	E	2032-08-13T04:20:17.277		19.45	-27.41	42207.85	22.33		
4	E	2032-08-13T04:20:35.531		19.52	-27.35	42614.21	22.41		
alpha	E	2032-08-13T04:22:07.411		19.84	-27.08	44690.23	22.74		
beta	E	2032-08-13T04:22:49.278		19.99	-26.96	45643.70	22.87		
eta	E	2032-08-13T04:23:55.986		20.22	-26.76	47176.12	23.07		
gamma	E	2032-08-13T04:24:15.249		20.29	-26.70	47621.08	23.13		
delta	E	2032-08-13T04:24:44.571		20.40	-26.61	48300.35	23.20		
lambda	E	2032-08-13T04:25:58.672		20.66	-26.39	50026.71	23.39		
epsilon	E	2032-08-13T04:26:56.535		20.86	-26.22	51383.76	23.59		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2032-08-13T03:58:09.590
 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 : 3424867158750309888
 2Mass ID (if available) : 05595229+2336516
 ICRS Star Coord at Epoch: 05h 59m 52.30432s +23:36:51.69447s
 RUWE (>1.4 is poor) : 0.97
 K magnitude : 14.123
 G magnitude : 16.892
 RP magnitude : 16.044
 BP magnitude : 17.653
 DUPflag : 0
 Distance (au) : 19.671
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : 25.28
 Sun-Target sep (deg) : 50.55
 Sun-Moon sep (deg) : 126.90
 B (ring opening deg) : 75.39
 PA of pole (deg) : 56.99
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 1.965
 C/A sky separation (km) : 28032.0
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk
 URKALLvl1.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	2032-08-13T03:29:48.465		13.33	-22.70	51300.06	-21.50		
lambda	I	2032-08-13T03:30:48.305		13.49	-22.49	50026.71	-21.16		
delta	I	2032-08-13T03:32:10.612		13.71	-22.20	48300.35	-20.79		
gamma	I	2032-08-13T03:32:43.095		13.80	-22.09	47627.62	-20.63		
eta	I	2032-08-13T03:33:05.037		13.86	-22.01	47176.12	-20.52		
beta	I	2032-08-13T03:34:19.684		14.06	-21.75	45659.12	-20.12		
alpha	I	2032-08-13T03:35:07.016		14.19	-21.58	44711.99	-19.84		
4	I	2032-08-13T03:36:58.098		14.49	-21.19	42543.95	-19.16		
5	I	2032-08-13T03:37:17.875		14.54	-21.12	42171.27	-18.99		
6	I	2032-08-13T03:37:33.716		14.58	-21.07	41869.61	-18.88		

No planet occultations

6	E	2032-08-13T04:17:38.555		20.66	-12.64	41807.08	18.84		
5	E	2032-08-13T04:17:58.416		20.71	-12.57	42192.72	18.94		
4	E	2032-08-13T04:18:20.285		20.76	-12.50	42610.33	19.11		
alpha	E	2032-08-13T04:20:06.995		21.01	-12.13	44687.18	19.78		
beta	E	2032-08-13T04:20:55.028		21.12	-11.96	45642.16	20.06		
eta	E	2032-08-13T04:22:10.738		21.30	-11.70	47176.12	20.46		
gamma	E	2032-08-13T04:22:32.426		21.35	-11.62	47620.96	20.56		
delta	E	2032-08-13T04:23:05.337		21.43	-11.51	48300.35	20.72		
lambda	E	2032-08-13T04:24:27.919		21.62	-11.22	50026.71	21.08		
epsilon	E	2032-08-13T04:25:34.205		21.77	-10.99	51433.15	21.43		