

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2040-04-18T15:46:35.610
 Event type : XRgt
 : No Uranus occs
 : Ring occs: geocentric, topocentric
 Gaia source ID : 670905506891207680
 2Mass ID (if available) : 08041693+2057291

ICRS Star Coord at Epoch: 08h 04m 16.95143s +20:57:28.88153s

RUWE (>1.4 is poor) : 0.99
 K magnitude : 13.297
 G magnitude : 14.558
 RP magnitude : 14.115
 BP magnitude : 14.839
 DUPflag : 0
 Distance (au) : 18.546
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : 6.46
 Sun-Target sep (deg) : 90.15
 Sun-Moon sep (deg) : 10.53
 B (ring opening deg) : 48.12
 PA of pole (deg) : 89.58

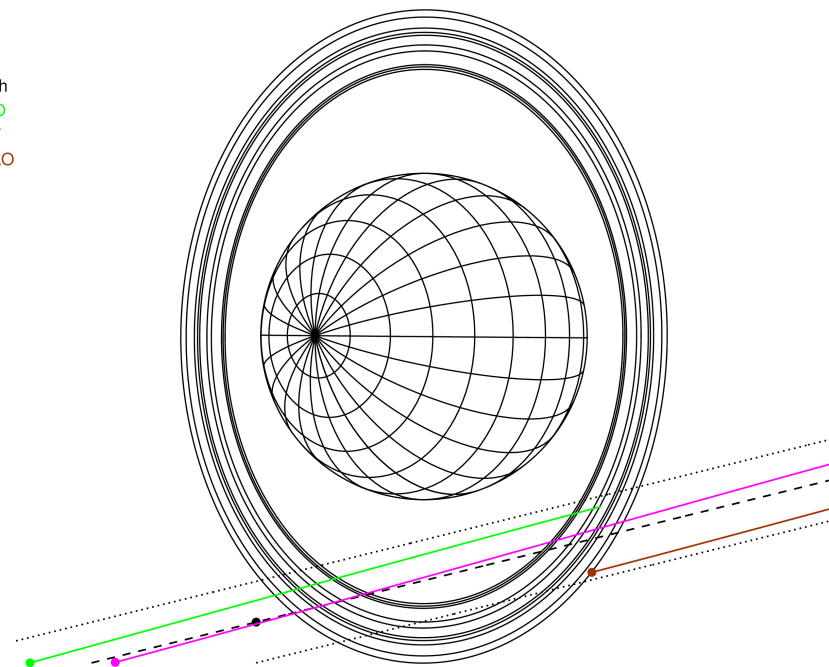
#	a(km)	ring
1	41837.2	6
2	42235.0	5
3	42571.2	4
4	44718.5	alpha
5	45661.1	beta
6	47176.1	eta
7	47626.3	gamma
8	48300.3	delta
9	50026.7	lambda
10	51149.4	epsilon



2040-04-18T15:46:35.6100 α: 08 04 16.9514 δ: +20 57 28.882 C/A 2.742" PA 13.76 deg v_sky + 6.47 km/s D 18.55 AU
 Credit: Styled after SORA/Lucky Star

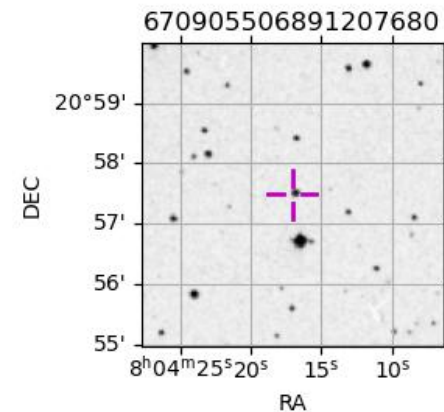
Uranus 2040-04-18T15:46:35 K13.30 G14.56 XRgt

Earth
 PMO
 KAV
 SAAO



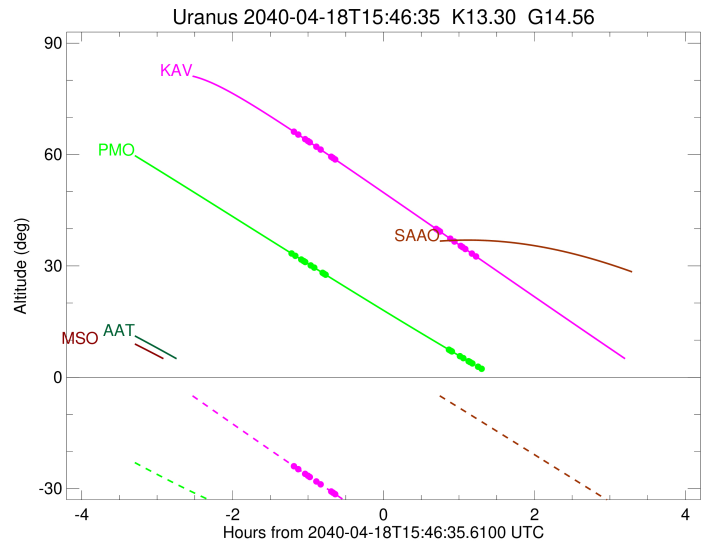
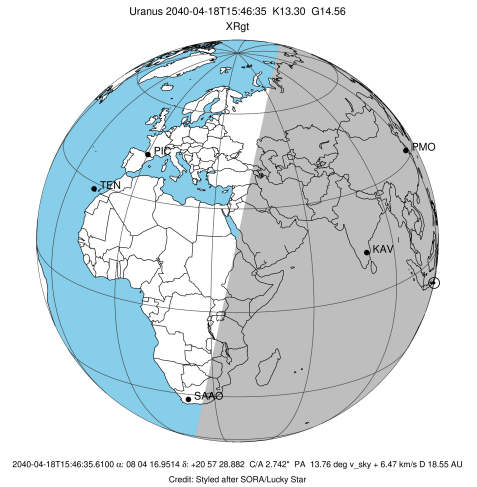
Observable events with sun below -5 deg and altitude above 5 deg unblocked by planet

Obs	Location	lat	Elon	Rings I	Planet	Rings E	Observed Events Interval	OEcode
PIC	Pic du Midi	42.9	0.1					PnnRnn
PAL	Palomar Mt (200")	33.4	243.1					PnnRnn
PMO	Purple Mtn Obs. Nanki	32.1	118.8	+++++		+++++	APR 18 14:33 - APR 18 16:50	PnnRie
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					PnnRnn
IRTF	Mauna Kea/IRTF	19.8	204.5					PnnRnn
KAV	Kavalur Observatory	12.6	78.8	+++++		+++++	APR 18 14:35 - APR 18 16:58	PnnRie
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					PnnRnn
MSO	Mt. Stromlo Observato	-35.3	149.0					PnnRnn



670905506891207680

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2040-04-18T16:00:05.530
 Event type : XRgt
 : No Uranus occs
 : 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 : 670905506891207680
 2Mass ID (if available) : 08041693+2057291
 ICRS Star Coord at Epoch: 08h 04m 16.95143s +20:57:28.88153s
 RUWE (>1.4 is poor) : 0.99
 K magnitude : 13.297
 G magnitude : 14.558
 RP magnitude : 14.115
 BP magnitude : 14.839
 DUPflag : 0
 Distance (au) : 18.546
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : 6.46
 Sun-Target sep (deg) : 90.15
 Sun-Moon sep (deg) : 11.06
 B (ring opening deg) : 48.12
 PA of pole (deg) : 89.58
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 2.448
 C/A sky separation (km) : 32930.1
 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

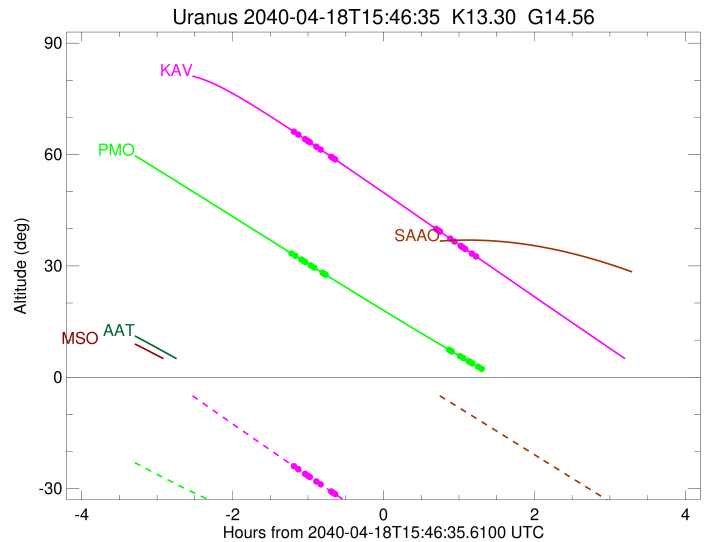
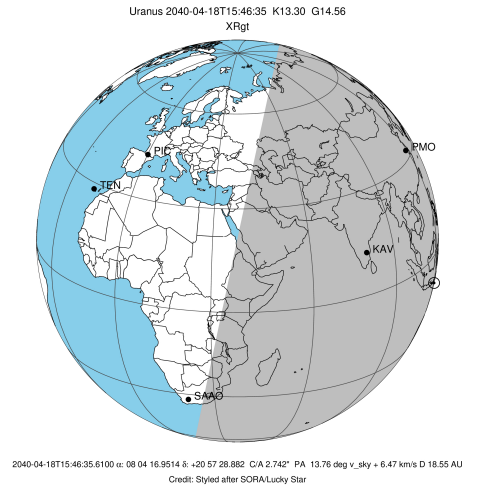


Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2040-04-18T14:33:19.161		33.39	-41.79	51234.57	-6.26		
lambda	I	2040-04-18T14:36:32.601		32.70	-42.13	50026.71	-6.19		
delta	I	2040-04-18T14:41:15.521		31.70	-42.61	48300.35	-6.01		
gamma	I	2040-04-18T14:43:09.107		31.30	-42.80	47621.81	-5.94		
eta	I	2040-04-18T14:44:24.539		31.04	-42.92	47176.12	-5.88		
beta	I	2040-04-18T14:48:50.035		30.10	-43.33	45641.35	-5.68		
alpha	I	2040-04-18T14:51:34.910		29.52	-43.58	44711.19	-5.54		
4	I	2040-04-18T14:58:21.521		28.09	-44.16	42529.44	-5.17		
5	I	2040-04-18T14:59:32.754		27.84	-44.26	42174.30	-5.11		
6	I	2040-04-18T15:00:42.052		27.60	-44.35	41807.32	-5.03		

No planet occultations

6	E	2040-04-18T16:38:31.882		7.45	-46.11	41857.53	5.19		
5	E	2040-04-18T16:40:01.109		7.15	-46.04	42269.56	5.28		
4	E	2040-04-18T16:40:49.708		6.99	-46.00	42544.00	5.34		
alpha	E	2040-04-18T16:47:11.654		5.72	-45.67	44684.75	5.75		
beta	E	2040-04-18T16:49:59.867		5.16	-45.50	45656.11	5.91		
eta	E	2040-04-18T16:54:11.717		4.33x	-45.24	47176.12	6.13		
gamma	E	2040-04-18T16:55:25.212		4.09x	-45.16	47629.18	6.19		
delta	E	2040-04-18T16:57:12.794		3.74x	-45.04	48300.35	6.28		
lambda	E	2040-04-18T17:01:43.171		2.85x	-44.72	50026.71	6.49		
epsilon	E	2040-04-18T17:03:33.275		2.49x	-44.59	50745.04	6.57		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2040-04-18T16:00:34.810
 Event type : XRgt
 : No Uranus occs
 : 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 : 670905506891207680
 2Mass ID (if available) : 08041693+2057291
 ICRS Star Coord at Epoch: 08h 04m 16.95143s +20:57:28.88153s
 RUWE (>1.4 is poor) : 0.99
 K magnitude : 13.297
 G magnitude : 14.558
 RP magnitude : 14.115
 BP magnitude : 14.839
 DUPflag : 0
 Distance (au) : 18.546
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : 6.46
 Sun-Target sep (deg) : 90.15
 Sun-Moon sep (deg) : 11.19
 B (ring opening deg) : 48.12
 PA of pole (deg) : 89.58
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 2.701
 C/A sky separation (km) : 36335.4
 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	2040-04-18T14:35:17.601		66.17	-23.94	51195.24	-5.47		
lambda	I	2040-04-18T14:38:52.077		65.37	-24.77	50026.71	-5.38		
delta	I	2040-04-18T14:44:20.152		64.13	-26.03	48300.35	-5.14		
gamma	I	2040-04-18T14:46:33.358		63.63	-26.54	47622.17	-5.04		
eta	I	2040-04-18T14:48:02.503		63.29	-26.89	47176.12	-4.97		
beta	I	2040-04-18T14:53:20.248		62.08	-28.10	45641.08	-4.69		
alpha	I	2040-04-18T14:56:42.437		61.31	-28.87	44706.91	-4.50		
4	I	2040-04-18T15:05:16.374		59.35	-30.83	42527.28	-3.96		
5	I	2040-04-18T15:06:46.250		59.00	-31.17	42183.14	-3.88		
6	I	2040-04-18T15:08:20.080		58.64	-31.52	41812.52	-3.75		

No planet occultations

6	E	2040-04-18T16:28:17.481		40.01	-48.86	41851.75	3.84		
5	E	2040-04-18T16:30:13.965		39.55	-49.25	42258.81	3.97		
4	E	2040-04-18T16:31:19.708		39.30	-49.47	42539.20	4.06		
alpha	E	2040-04-18T16:39:28.067		37.39	-51.09	44684.63	4.64		
beta	E	2040-04-18T16:42:54.361		36.59	-51.77	45653.94	4.85		
eta	E	2040-04-18T16:47:58.277		35.40	-52.74	47176.12	5.14		
gamma	E	2040-04-18T16:49:25.570		35.06	-53.02	47628.72	5.22		
delta	E	2040-04-18T16:51:32.748		34.56	-53.42	48300.35	5.34		
lambda	E	2040-04-18T16:56:48.389		33.33	-54.41	50026.71	5.60		
epsilon	E	2040-04-18T16:58:56.397		32.83	-54.80	50749.63	5.70		