

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2032-04-07T13:38:59.470
 Event type : PgtRgt
 : Uranus occs: geocentric, topocentric
 : Ring occs: geocentric, topocentric
 Gaia source ID : 3416173560826039040
 2Mass ID (if available) : 05310306+2325511

ICRS Star Coord at Epoch: 05h 31m 03.07247s +23:25:50.95962s

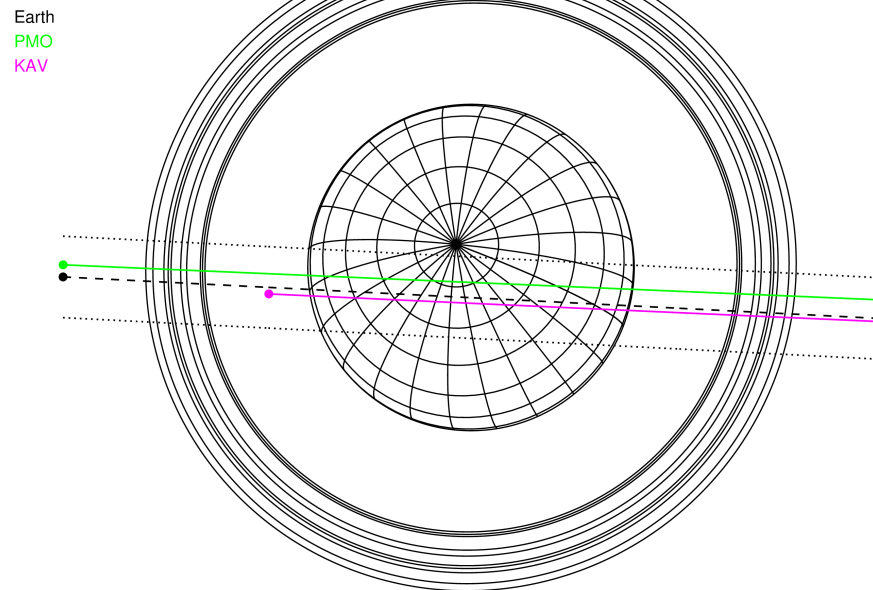
RUWE (>1.4 is poor) : 0.94
 K magnitude : 14.839
 G magnitude : 18.607
 RP magnitude : 17.552
 BP magnitude : 19.836
 DUPflag : 0
 Distance (au) : 19.459
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : 18.68
 Sun-Target sep (deg) : 65.51
 Sun-Moon sep (deg) : 99.75
 B (ring opening deg) : 80.28
 PA of pole (deg) : 32.88
 # 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



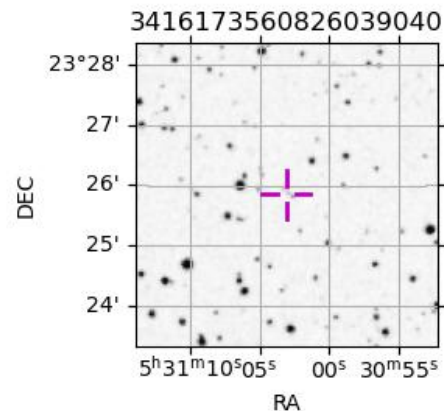
2032-04-07T13:38:59.4700 ex: 05 31 03.0725 s: +23 25 50.960 C/A 0.329° PA 357.08 deg v_sky +18.68 km/s D 19.46 AU
 Credit: Styled after SORA/Lucky Star

Uranus 2032-04-07T13:38:59 K14.84 G18.61 PgtRgt

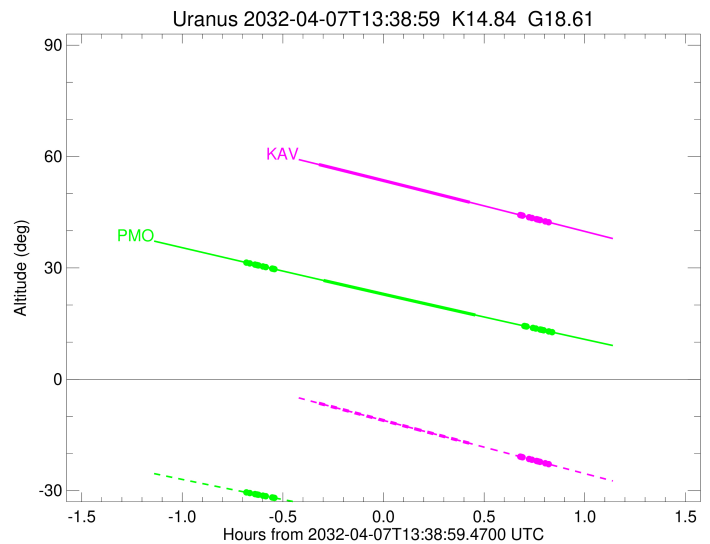
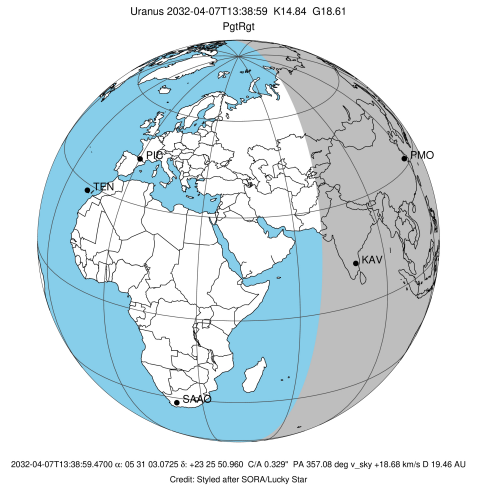


Observable events with sun below -5 deg and altitude above 5 deg unblocked by planet

Obs	Location	lat	Elon	Rings I	Planet	Rings E	Observed Events Interval	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 07 12:58 - APR 07 14:29	PieRie
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 07 13:19 - APR 07 14:28	PieRne
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

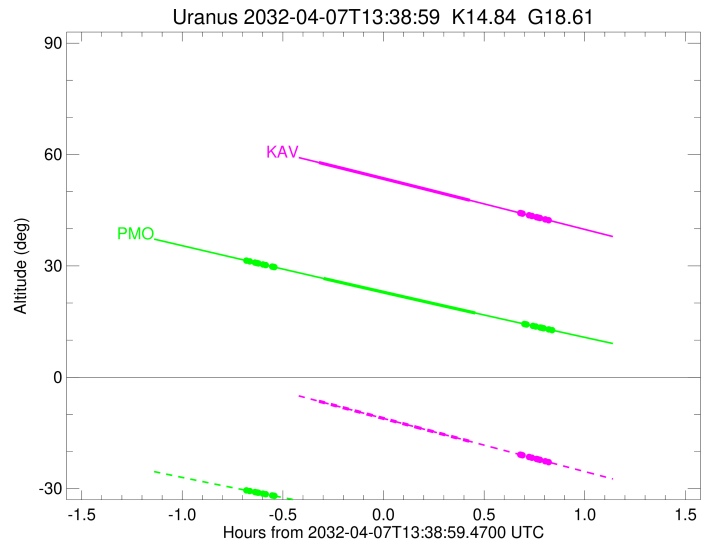
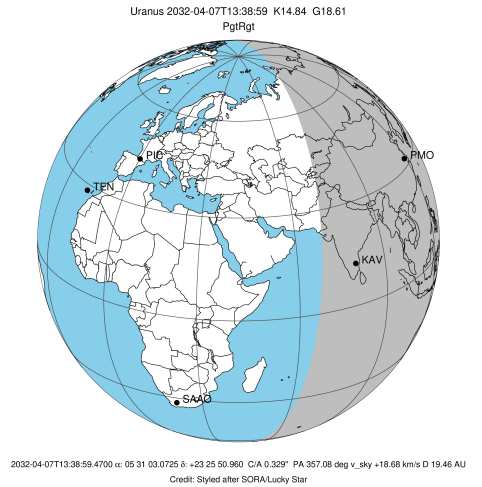


target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2032-04-07T13:43:50.030
 Event type : PgtRgt
 : Uranus occs: geocentric, topocentric
 : Ring occs: geocentric, topocentric
 Observer code : PMO
 Location : Purple Mtn Obs. Nanking
 Latitude (deg) : 32.06667
 E. Longitude (deg) : 118.82089
 Altitude (km) : 0.364
 Gaia source ID : 3416173560826039040
 2Mass ID (if available) : 05310306+2325511
 ICRS Star Coord at Epoch: 05h 31m 03.07247s +23:25:50.95962s
 RUWE (>1.4 is poor) : 0.94
 K magnitude : 14.839
 G magnitude : 18.607
 RP magnitude : 17.552
 BP magnitude : 19.836
 DUPflag : 0
 Distance (au) : 19.459
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : 18.68
 Sun-Target sep (deg) : 65.51
 Sun-Moon sep (deg) : 99.99
 B (ring opening deg) : 80.28
 PA of pole (deg) : 32.88
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 0.166
 C/A sky separation (km) : 2336.4
 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	2032-04-07T12:58:02.933		31.44	-30.46	51241.70	-18.56		
lambda	I	2032-04-07T12:59:08.359		31.21	-30.66	50026.71	-18.57		
delta	I	2032-04-07T13:00:41.318		30.88	-30.93	48300.35	-18.57		
gamma	I	2032-04-07T13:01:17.632		30.76	-31.04	47625.92	-18.57		
eta	I	2032-04-07T13:01:41.851		30.67	-31.11	47176.12	-18.57		
beta	I	2032-04-07T13:03:02.594		30.39	-31.35	45676.66	-18.57		
alpha	I	2032-04-07T13:03:52.352		30.22	-31.50	44751.23	-18.57		
4	I	2032-04-07T13:05:52.066		29.80	-31.85	42527.08	-18.57		
5	I	2032-04-07T13:06:07.754		29.75	-31.89	42241.03	-18.57		
6	I	2032-04-07T13:06:27.019		29.68	-31.95	41879.55	-18.57		
Uranus	I	2032-04-07T13:21:07.445		26.62	-34.48	25412.54		4.85	5.08
Uranus	E	2032-04-07T14:06:23.935		17.30	-41.53	25313.09		-6.31	-6.61
6	E	2032-04-07T14:20:56.172		14.36	-43.49	41795.67	18.72		
5	E	2032-04-07T14:21:18.573		14.29	-43.54	42219.70	18.72		
4	E	2032-04-07T14:21:39.945		14.22	-43.59	42613.99	18.72		
alpha	E	2032-04-07T14:23:30.591		13.85	-43.82	44686.95	18.73		
beta	E	2032-04-07T14:24:21.760		13.67	-43.93	45647.04	18.74		
eta	E	2032-04-07T14:25:43.375		13.40	-44.10	47176.12	18.74		
gamma	E	2032-04-07T14:26:07.441		13.32	-44.15	47627.15	18.74		
delta	E	2032-04-07T14:26:43.359		13.20	-44.22	48300.35	18.74		
lambda	E	2032-04-07T14:28:15.448		12.89	-44.41	50026.71	18.75		
epsilon	E	2032-04-07T14:29:08.146		12.72	-44.52	51014.83	18.75		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2032-04-07T13:42:22.170
 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 : 3416173560826039040
 2Mass ID (if available) : 05310306+2325511
 ICRS Star Coord at Epoch: 05h 31m 03.07247s +23:25:50.95962s
 RUWE (>1.4 is poor) : 0.94
 K magnitude : 14.839
 G magnitude : 18.607
 RP magnitude : 17.552
 BP magnitude : 19.836
 DUPflag : 0
 Distance (au) : 19.459
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : 18.68
 Sun-Target sep (deg) : 65.51
 Sun-Moon sep (deg) : 100.44
 B (ring opening deg) : 80.28
 PA of pole (deg) : 32.88
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 0.397
 C/A sky separation (km) : 5598.4
 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_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	2032-04-07T12:56:08.411		63.04	-0.76x	51217.39	-18.21		
lambda	I	2032-04-07T12:57:13.740		62.80	-1.02x	50026.71	-18.22		
delta	I	2032-04-07T12:58:48.492		62.46	-1.40x	48300.35	-18.22		
gamma	I	2032-04-07T12:59:25.500		62.32	-1.55x	47626.26	-18.21		
eta	I	2032-04-07T12:59:50.217		62.23	-1.65x	47176.12	-18.21		
beta	I	2032-04-07T13:01:12.532		61.93	-1.98x	45677.51	-18.20		
alpha	I	2032-04-07T13:02:03.333		61.75	-2.19x	44751.78	-18.20		
4	I	2032-04-07T13:04:05.627		61.30	-2.68x	42526.45	-18.18		
5	I	2032-04-07T13:04:21.921		61.24	-2.75x	42235.02	-18.18		
6	I	2032-04-07T13:04:41.297		61.17	-2.82x	41879.74	-18.18		
Uranus	I	2032-04-07T13:19:44.359		57.84	-6.46	25470.86		3.76	3.94
Uranus	E	2032-04-07T14:04:44.396		47.68	-17.27	25237.09		-7.24	-7.58
6	E	2032-04-07T14:19:43.231		44.25	-20.84	41796.53	18.29		
5	E	2032-04-07T14:20:05.731		44.17	-20.93	42213.39	18.29		
4	E	2032-04-07T14:20:27.887		44.08	-21.02	42612.65	18.30		
alpha	E	2032-04-07T14:22:21.210		43.65	-21.46	44687.99	18.32		
beta	E	2032-04-07T14:23:13.529		43.45	-21.67	45648.15	18.33		
eta	E	2032-04-07T14:24:36.898		43.13	-22.00	47176.12	18.34		
gamma	E	2032-04-07T14:25:01.512		43.04	-22.10	47627.52	18.34		
delta	E	2032-04-07T14:25:38.192		42.90	-22.24	48300.35	18.35		
lambda	E	2032-04-07T14:27:12.264		42.54	-22.62	50026.71	18.36		
epsilon	E	2032-04-07T14:28:04.702		42.34	-22.82	50989.50	18.35		