

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2032-04-01T13:19:27.490
 Event type : PgtRgt
 : Uranus occs: geocentric, topocentric
 : Ring occs: geocentric, topocentric
 Gaia source ID : 3416184208048040064
 2Mass ID (if available) : 05301674+2325200

ICRS Star Coord at Epoch: 05h 30m 16.75189s +23:25:19.99318s

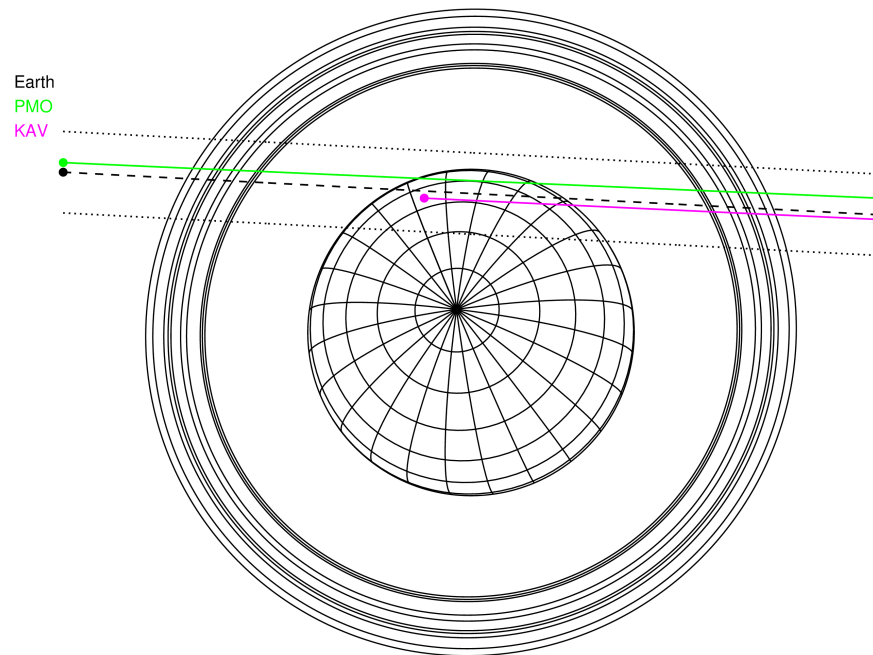
RUWE (>1.4 is poor) : 1.10
 K magnitude : 14.291
 G magnitude : 16.883
 RP magnitude : 16.057
 BP magnitude : 17.602
 DUPflag : 0
 Distance (au) : 19.365
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : 15.89
 Sun-Target sep (deg) : 71.26
 Sun-Moon sep (deg) : 173.77
 B (ring opening deg) : 80.38
 PA of pole (deg) : 31.95

#	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



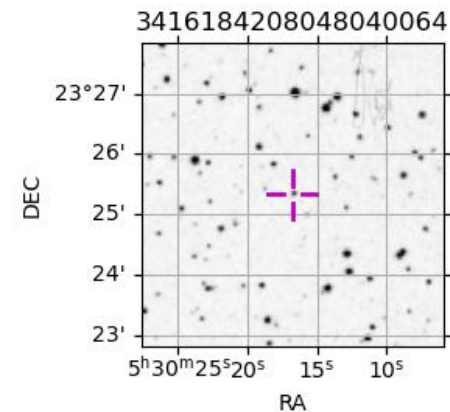
2032-04-01T13:19:27.4900 ex: 05 30 16.75189 s: +23 25 19.993 C/A 1.554" PA 177.01 deg v_sky +15.89 km/s D 19.36 AU
 Credit: Styled after SORA/Lucky Star

Uranus 2032-04-01T13:19:27 K14.29 G16.88 PgtRgt

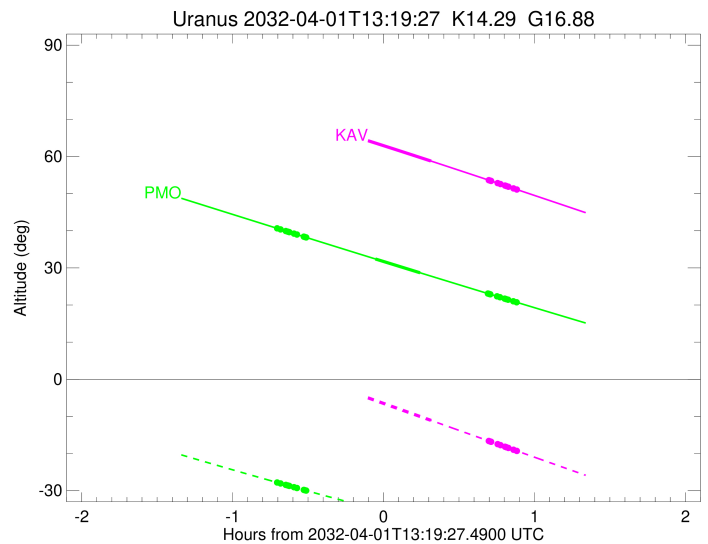
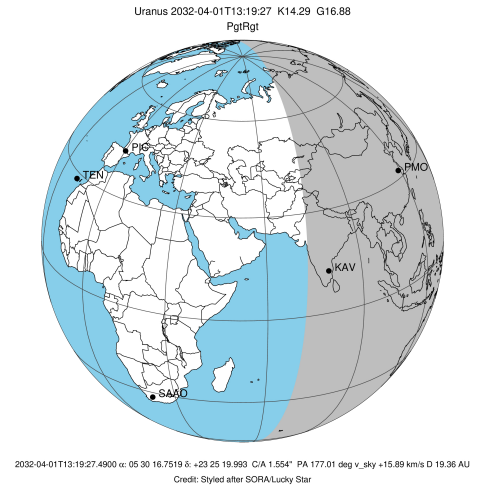


Observable events with sun below -5 deg and altitude above 5 deg unblocked by planet

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 01 12:36 - APR 01 14:12	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 01 13:38 - APR 01 14:12	PneRne
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

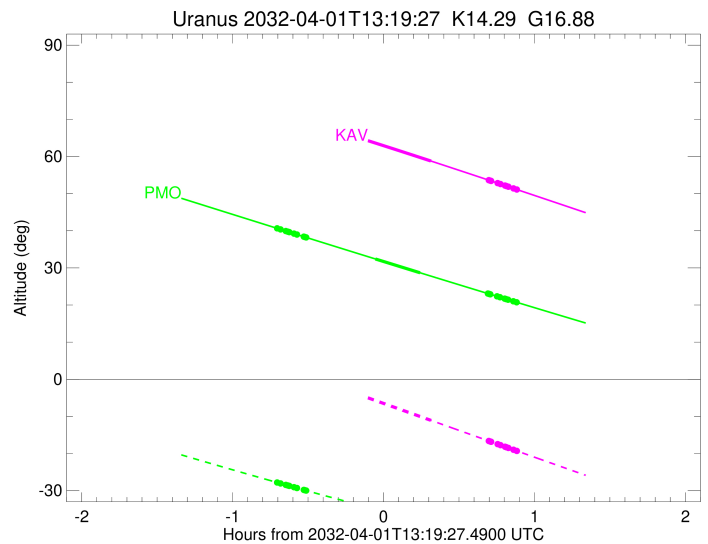
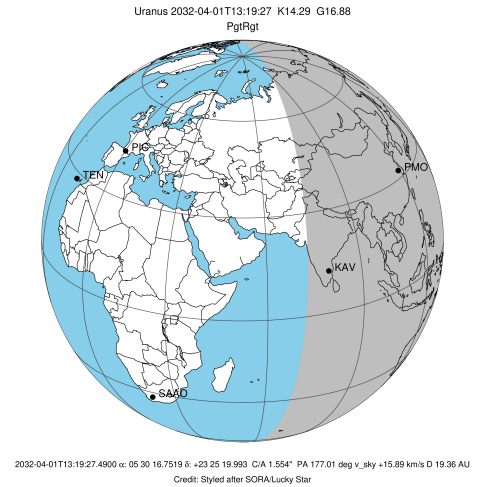


target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2032-04-01T13:24:35.190
 Event type : PgtRgt
 : Uranus occs: geocentric, topocentric
 : Ring occs: geocentric, topocentric
 Observer code : PMO
 Location : Purple Mtn Obs. Nanking
 Latitude (deg) : 32.06667
 E. Longitude (deg) : 118.82089
 Altitude (km) : 0.364
 Gaia source ID : 3416184208048040064
 2Mass ID (if available) : 05301674+2325200
 ICRS Star Coord at Epoch: 05h 30m 16.75189s +23:25:19.99318s
 RUWE (>1.4 is poor) : 1.10
 K magnitude : 14.291
 G magnitude : 16.883
 RP magnitude : 16.057
 BP magnitude : 17.602
 DUPflag : 0
 Distance (au) : 19.365
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : 15.89
 Sun-Target sep (deg) : 71.26
 Sun-Moon sep (deg) : 174.61
 B (ring opening deg) : 80.38
 PA of pole (deg) : 31.95
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 1.692
 C/A sky separation (km) : 23757.8
 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_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	2032-04-01T12:36:54.725		40.71	-27.76	51384.90	-13.95		
lambda	I	2032-04-01T12:38:32.779		40.37	-28.07	50026.71	-13.80		
delta	I	2032-04-01T12:40:38.555		39.92	-28.46	48300.35	-13.65		
gamma	I	2032-04-01T12:41:28.223		39.75	-28.62	47623.91	-13.59		
eta	I	2032-04-01T12:42:01.233		39.63	-28.72	47176.12	-13.54		
beta	I	2032-04-01T12:43:53.072		39.23	-29.08	45670.63	-13.38		
alpha	I	2032-04-01T12:45:02.345		38.99	-29.29	44745.39	-13.28		
4	I	2032-04-01T12:47:50.674		38.40	-29.82	42534.02	-13.00		
5	I	2032-04-01T12:48:11.160		38.32	-29.88	42270.19	-12.97		
6	I	2032-04-01T12:48:41.116		38.22	-29.98	41875.11	-12.90		
Uranus	I	2032-04-01T13:16:14.061		32.41	-34.98	25031.94		9.24	9.67
Uranus	E	2032-04-01T13:33:59.684		28.69	-38.03	25366.94		5.51	5.77
6	E	2032-04-01T14:00:54.227		23.10	-42.32	41806.10	13.01		
5	E	2032-04-01T14:01:31.308		22.97	-42.41	42289.63	13.09		
4	E	2032-04-01T14:01:55.689		22.89	-42.47	42608.92	13.12		
alpha	E	2032-04-01T14:04:32.455		22.35	-42.86	44688.38	13.40		
beta	E	2032-04-01T14:05:43.232		22.11	-43.04	45641.06	13.52		
eta	E	2032-04-01T14:07:36.098		21.72	-43.31	47176.12	13.68		
gamma	E	2032-04-01T14:08:08.723		21.61	-43.39	47623.29	13.73		
delta	E	2032-04-01T14:08:57.919		21.44	-43.51	48300.35	13.80		
lambda	E	2032-04-01T14:11:02.342		21.01	-43.81	50026.71	13.95		
epsilon	E	2032-04-01T14:12:32.153		20.71	-44.03	51284.46	14.11		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2032-04-01T13:22:15.840
 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 : 3416184208048040064
 2Mass ID (if available) : 05301674+2325200
 ICRS Star Coord at Epoch: 05h 30m 16.75189s +23:25:19.99318s
 RUWE (>1.4 is poor) : 1.10
 K magnitude : 14.291
 G magnitude : 16.883
 RP magnitude : 16.057
 BP magnitude : 17.602
 DUPflag : 0
 Distance (au) : 19.365
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : 15.89
 Sun-Target sep (deg) : 71.26
 Sun-Moon sep (deg) : 174.09
 B (ring opening deg) : 80.38
 PA of pole (deg) : 31.95
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 1.471
 C/A sky separation (km) : 20661.2
 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	2032-04-01T12:32:14.283		72.59	4.98x	51363.82	-14.22		
lambda	I	2032-04-01T12:33:48.859		72.30	4.59x	50026.71	-14.10		
delta	I	2032-04-01T12:35:51.757		71.91	4.09x	48300.35	-13.99		
gamma	I	2032-04-01T12:36:40.154		71.76	3.90x	47624.25	-13.95		
eta	I	2032-04-01T12:37:12.321		71.66	3.77x	47176.12	-13.92		
beta	I	2032-04-01T12:39:00.890		71.31	3.33x	45671.90	-13.80		
alpha	I	2032-04-01T12:40:07.976		71.09	3.05x	44746.88	-13.72		
4	I	2032-04-01T12:42:50.546		70.57	2.39x	42532.04	-13.53		
5	I	2032-04-01T12:43:10.578		70.50	2.31x	42264.15	-13.51		
6	I	2032-04-01T12:43:38.769		70.41	2.20x	41876.59	-13.45		
Uranus	I	2032-04-01T13:07:08.115		65.58	-3.51x	24989.61		9.62	10.07
Uranus	E	2032-04-01T13:38:19.132		58.79	-11.07	25493.96		3.19	3.34
6	E	2032-04-01T14:01:15.791		53.65	-16.61	41803.55	13.53		
5	E	2032-04-01T14:01:51.200		53.52	-16.75	42284.03	13.59		
4	E	2032-04-01T14:02:15.327		53.42	-16.85	42611.05	13.61		
alpha	E	2032-04-01T14:04:46.705		52.85	-17.46	44687.17	13.81		
beta	E	2032-04-01T14:05:55.551		52.59	-17.73	45641.09	13.89		
eta	E	2032-04-01T14:07:45.569		52.18	-18.17	47176.12	14.01		
gamma	E	2032-04-01T14:08:17.471		52.06	-18.30	47623.64	14.04		
delta	E	2032-04-01T14:09:05.572		51.88	-18.50	48300.35	14.09		
lambda	E	2032-04-01T14:11:07.582		51.42	-18.99	50026.71	14.20		
epsilon	E	2032-04-01T14:12:33.945		51.09	-19.33	51256.65	14.33		