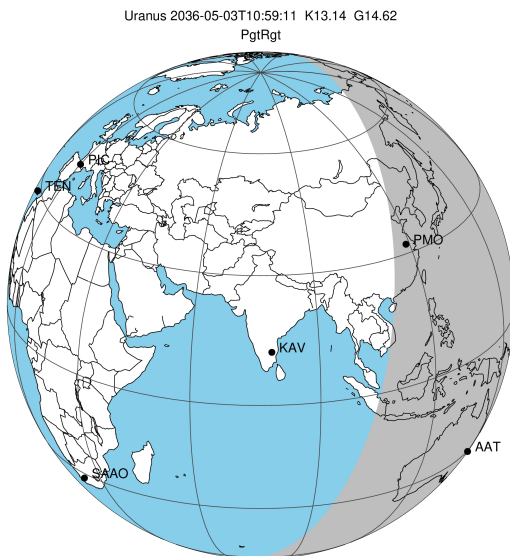


target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2036-05-03T10:59:11.580
 Event type : PgtRgt
 : Uranus occs: geocentric, topocentric
 : Ring occs: geocentric, topocentric
 Gaia source ID : 3379578618399020160
 2Mass ID (if available) : 06494048+2319307

ICRS Star Coord at Epoch: 06h 49m 40.48616s +23:19:30.44417s

RUWE (>1.4 is poor) : 1.01
 K magnitude : 13.137
 G magnitude : 14.623
 RP magnitude : 14.116
 BP magnitude : 14.958
 DUPflag : 0
 Distance (au) : 19.316
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : 22.10
 Sun-Target sep (deg) : 58.30
 Sun-Moon sep (deg) : 34.49
 B (ring opening deg) : 64.98
 PA of pole (deg) : 75.53

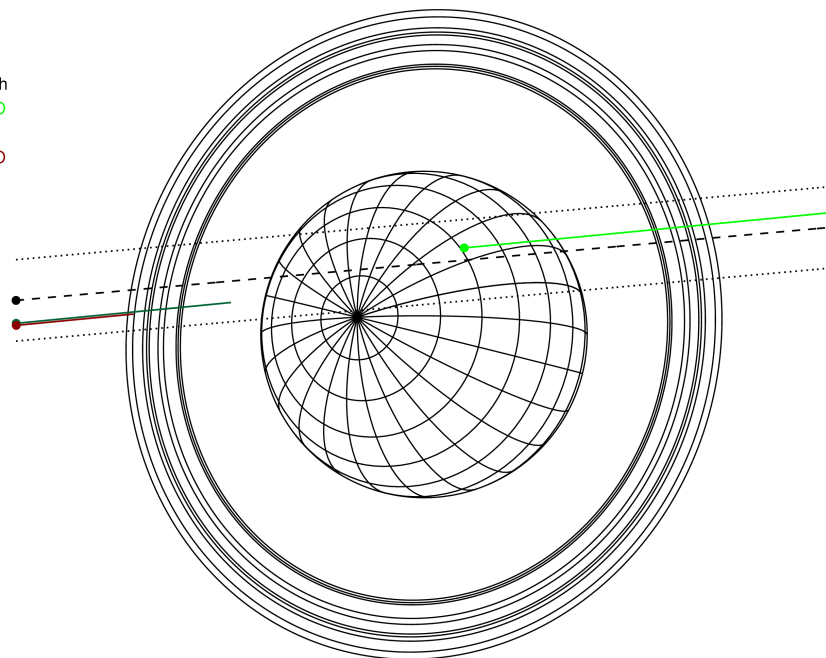
#	a(km)	ring
1	41837.2	6
2	42235.0	5
3	42571.2	4
4	44718.5	alpha
5	45661.1	beta
6	47176.1	eta
7	47626.3	gamma
8	48300.3	delta
9	50026.7	lambda
10	51149.4	epsilon



2036-05-03T10:59:11.5800 ex: 06 49 40.4862 s: +23 19 30.444 C/A 0.795° PA 185.13 deg v_sky +22.10 km/s D 19.32 AU
 Credit: Styled after SORA/Lucky Star

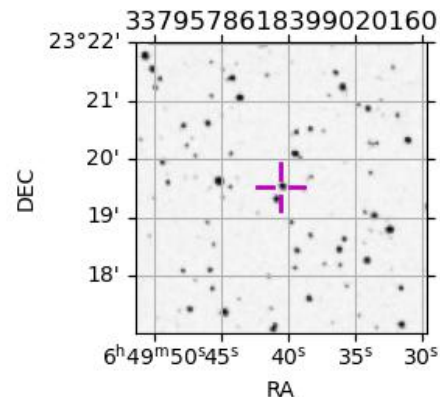
Uranus 2036-05-03T10:59:11 K13.14 G14.62 PgtRgt

Earth
 PMO
 AAT
 MSO

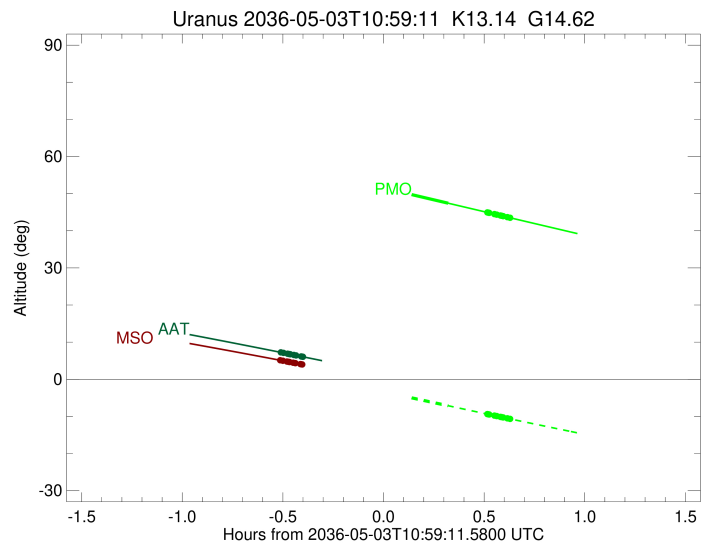
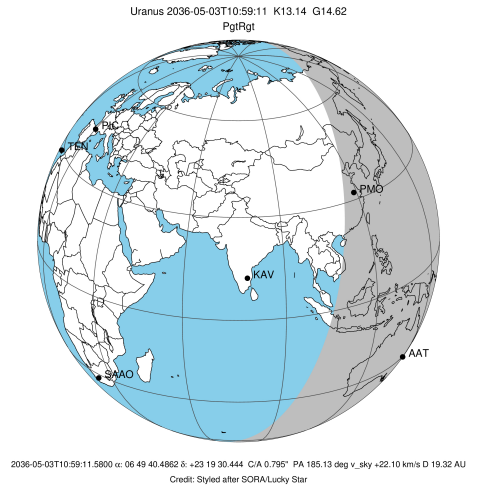


Observable events with sun below -5 deg and altitude above 5 deg unblocked by planet

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		+	+++++++	MAY 03 11:18 - MAY 03 11:37	PneRne
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					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	+++++++			MAY 03 10:28 - MAY 03 10:35	PnnRin
SAAO	So. Afr. Astro. Obs.	-32.4	20.8					PnnRnn
MSO	Mt. Stromlo Observato	-35.3	149.0	+			MAY 03 10:28 - MAY 03 10:28	PnnRin

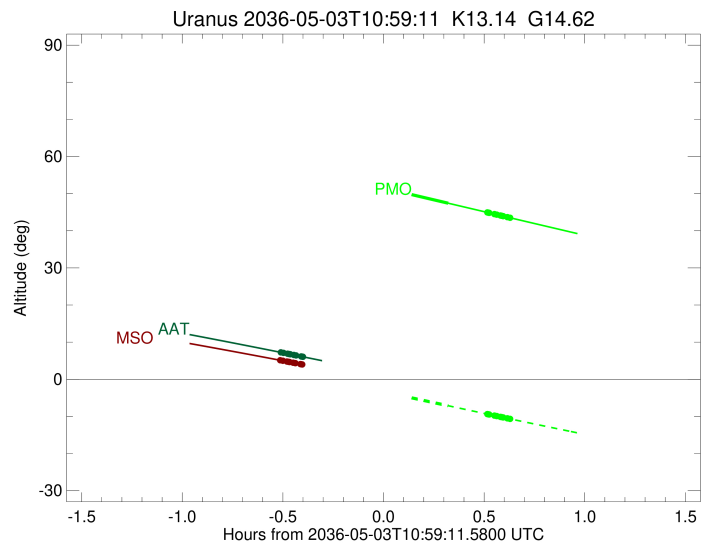
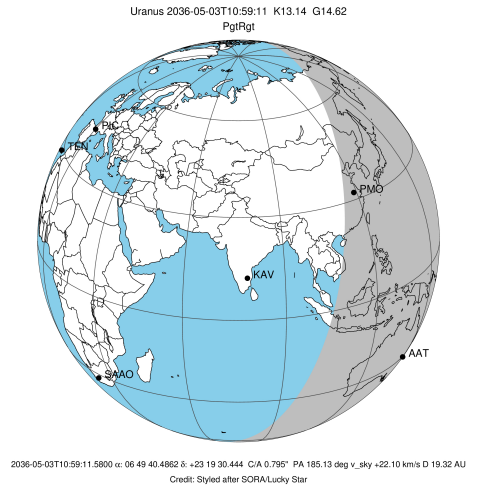


target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2036-05-03T11:01:48.600
 Event type : PgtRgt
 : Uranus occs: geocentric, topocentric
 : Ring occs: geocentric, topocentric
 Observer code : PMO
 Location : Purple Mtn Obs. Nanking
 Latitude (deg) : 32.06667
 E. Longitude (deg) : 118.82089
 Altitude (km) : 0.364
 Gaia source ID : 3379578618399020160
 2Mass ID (if available) : 06494048+2319307
 ICRS Star Coord at Epoch: 06h 49m 40.48616s +23:19:30.44417s
 RUWE (>1.4 is poor) : 1.01
 K magnitude : 13.137
 G magnitude : 14.623
 RP magnitude : 14.116
 BP magnitude : 14.958
 DUPflag : 0
 Distance (au) : 19.316
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : 22.10
 Sun-Target sep (deg) : 58.30
 Sun-Moon sep (deg) : 34.48
 B (ring opening deg) : 64.98
 PA of pole (deg) : 75.53
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 0.921
 C/A sky separation (km) : 12898.1
 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



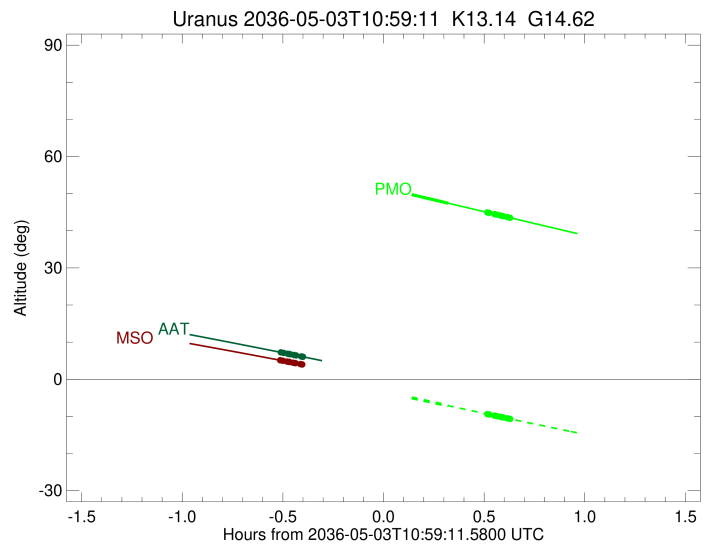
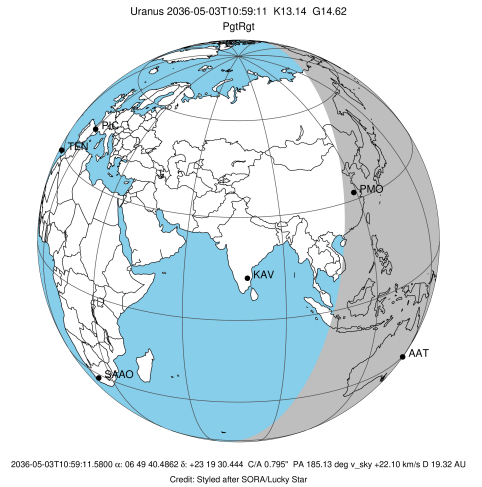
Ring	I/E	UTC	b? alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2036-05-03T10:28:03.492	58.14	2.90x	50751.65	-22.96		
lambda	I	2036-05-03T10:28:35.064	58.03	2.79x	50026.71	-22.95		
delta	I	2036-05-03T10:29:50.385	57.76	2.53x	48300.35	-22.89		
gamma	I	2036-05-03T10:30:20.073	57.66	2.43x	47621.18	-22.86		
eta	I	2036-05-03T10:30:39.546	57.59	2.37x	47176.12	-22.85		
beta	I	2036-05-03T10:31:46.700	57.35	2.14x	45642.10	-22.78		
alpha	I	2036-05-03T10:32:26.078	57.21	2.01x	44742.67	-22.74		
4	I	2036-05-03T10:34:03.370	56.87	1.68x	42550.58	-22.63		
5	I	2036-05-03T10:34:15.371	56.83	1.64x	42284.28	-22.64		
6	I	2036-05-03T10:34:37.158	56.75	1.57x	41795.00	-22.60		
Uranus	I	2036-05-03T10:45:21.558	54.47	-0.59x	25095.82		24.53	25.54
Uranus	E	2036-05-03T11:18:28.666	47.43	-7.13	25361.56		-15.60	-16.30
6	E	2036-05-03T11:30:09.898	44.94	-9.38	41868.52	22.68		
5	E	2036-05-03T11:30:25.574	44.89	-9.43	42231.96	22.73		
4	E	2036-05-03T11:30:40.671	44.83	-9.48	42564.48	22.72		
alpha	E	2036-05-03T11:32:14.195	44.50	-9.78	44685.20	22.83		
beta	E	2036-05-03T11:32:57.598	44.35	-9.92	45680.59	22.88		
eta	E	2036-05-03T11:34:02.805	44.12	-10.12	47176.12	22.95		
gamma	E	2036-05-03T11:34:22.637	44.05	-10.19	47631.40	22.97		
delta	E	2036-05-03T11:34:51.748	43.94	-10.28	48300.35	22.99		
lambda	E	2036-05-03T11:36:06.725	43.68	-10.52	50026.71	23.06		
epsilon	E	2036-05-03T11:37:08.555	43.46	-10.71	51453.81	23.07		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2036-05-03T11:03:20.450
 Event type : PgtRgt
 : Uranus occs: geocentric, topocentric
 : Ring occs: geocentric, topocentric
 Observer code : AAT
 Location : Siding Spring (AAT)
 Latitude (deg) : -31.27703
 E. Longitude (deg) : 149.06608
 Altitude (km) : 1.164
 Gaia source ID : 3379578618399020160
 2Mass ID (if available) : 06494048+2319307
 ICRS Star Coord at Epoch: 06h 49m 40.48616s +23:19:30.44417s
 RUWE (>1.4 is poor) : 1.01
 K magnitude : 13.137
 G magnitude : 14.623
 RP magnitude : 14.116
 BP magnitude : 14.958
 DUPflag : 0
 Distance (au) : 19.316
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : 22.10
 Sun-Target sep (deg) : 58.30
 Sun-Moon sep (deg) : 33.78
 B (ring opening deg) : 64.98
 PA of pole (deg) : 75.53
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 0.564
 C/A sky separation (km) : 7904.3
 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	2036-05-03T10:28:52.564		7.19	-39.65	50761.98	-23.64		
lambda	I	2036-05-03T10:29:23.666		7.10	-39.76	50026.71	-23.64		
delta	I	2036-05-03T10:30:36.734		6.88	-40.02	48300.35	-23.62		
gamma	I	2036-05-03T10:31:05.504		6.79	-40.12	47621.04	-23.61		
eta	I	2036-05-03T10:31:24.354		6.74	-40.19	47176.12	-23.60		
beta	I	2036-05-03T10:32:29.329		6.54	-40.42	45641.49	-23.58		
alpha	I	2036-05-03T10:33:07.207		6.43	-40.56	44745.29	-23.56		
4	I	2036-05-03T10:34:40.834		6.14	-40.89	42555.72	-23.53		
5	I	2036-05-03T10:34:53.020		6.10	-40.93	42276.02	-23.54		
6	I	2036-05-03T10:35:13.461		6.04	-41.01	41795.93	-23.52		
Uranus	I	2036-05-03T10:45:17.791		4.19x	-43.15	25079.21		25.01	26.04
Uranus	E	2036-05-03T11:21:29.981		-2.66x	-50.77	25259.61		-19.40	-20.25
6	E	2036-05-03T11:32:08.851		-4.73x	-52.98	41871.84	23.64		
5	E	2036-05-03T11:32:23.406		-4.78x	-53.03	42222.18	23.66		
4	E	2036-05-03T11:32:38.545		-4.83x	-53.08	42569.97	23.65		
alpha	E	2036-05-03T11:34:08.421		-5.12x	-53.39	44686.15	23.69		
beta	E	2036-05-03T11:34:50.248		-5.26x	-53.54	45681.03	23.71		
eta	E	2036-05-03T11:35:53.200		-5.46x	-53.75	47176.12	23.74		
gamma	E	2036-05-03T11:36:12.381		-5.53x	-53.82	47631.52	23.75		
delta	E	2036-05-03T11:36:40.541		-5.62x	-53.91	48300.35	23.76		
lambda	E	2036-05-03T11:37:53.169		-5.86x	-54.16	50026.71	23.78		
epsilon	E	2036-05-03T11:38:54.214		-6.06x	-54.37	51479.13	23.79		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2036-05-03T11:03:11.240
 Event type : PgtRgt
 : Uranus occs: geocentric, topocentric
 : Ring occs: geocentric, topocentric
 Observer code : MSO
 Location : Mt. Stromlo Observatory
 Latitude (deg) : -35.32000
 E. Longitude (deg) : 149.00833
 Altitude (km) : 0.770
 Gaia source ID : 3379578618399020160
 2Mass ID (if available) : 06494048+2319307
 ICRS Star Coord at Epoch: 06h 49m 40.48616s +23:19:30.44417s
 RUWE (>1.4 is poor) : 1.01
 K magnitude : 13.137
 G magnitude : 14.623
 RP magnitude : 14.116
 BP magnitude : 14.958
 DUPflag : 0
 Distance (au) : 19.316
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : 22.10
 Sun-Target sep (deg) : 58.30
 Sun-Moon sep (deg) : 33.79
 B (ring opening deg) : 64.98
 PA of pole (deg) : 75.53
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 0.540
 C/A sky separation (km) : 7563.1
 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_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	2036-05-03T10:28:40.654		5.07	-39.11	50762.78	-23.67		
lambda	I	2036-05-03T10:29:11.747		4.98x	-39.21	50026.71	-23.67		
delta	I	2036-05-03T10:30:24.710		4.78x	-39.46	48300.35	-23.65		
gamma	I	2036-05-03T10:30:53.437		4.69x	-39.56	47621.04	-23.64		
eta	I	2036-05-03T10:31:12.258		4.64x	-39.62	47176.12	-23.64		
beta	I	2036-05-03T10:32:17.132		4.45x	-39.84	45641.46	-23.62		
alpha	I	2036-05-03T10:32:54.940		4.34x	-39.97	44745.45	-23.60		
4	I	2036-05-03T10:34:28.393		4.07x	-40.28	42556.06	-23.57		
5	I	2036-05-03T10:34:40.599		4.04x	-40.32	42275.46	-23.58		
6	I	2036-05-03T10:35:00.968		3.98x	-40.39	41796.01	-23.56		
Uranus	I	2036-05-03T10:45:03.741		2.22x	-42.41	25079.67		25.00	26.02
Uranus	E	2036-05-03T11:21:25.294		-4.35x	-49.62	25252.94		-19.63	-20.48
6	E	2036-05-03T11:32:01.214		-6.32x	-51.66	41872.05	23.68		
5	E	2036-05-03T11:32:15.712		-6.36x	-51.71	42221.50	23.70		
4	E	2036-05-03T11:32:30.870		-6.41x	-51.76	42570.36	23.69		
alpha	E	2036-05-03T11:34:00.599		-6.69x	-52.04	44686.23	23.72		
beta	E	2036-05-03T11:34:42.363		-6.82x	-52.18	45681.05	23.74		
eta	E	2036-05-03T11:35:45.229		-7.02x	-52.38	47176.12	23.77		
gamma	E	2036-05-03T11:36:04.385		-7.08x	-52.44	47631.52	23.78		
delta	E	2036-05-03T11:36:32.508		-7.17x	-52.53	48300.35	23.79		
lambda	E	2036-05-03T11:37:45.048		-7.40x	-52.76	50026.71	23.81		
epsilon	E	2036-05-03T11:38:46.094		-7.59x	-52.95	51480.81	23.81		