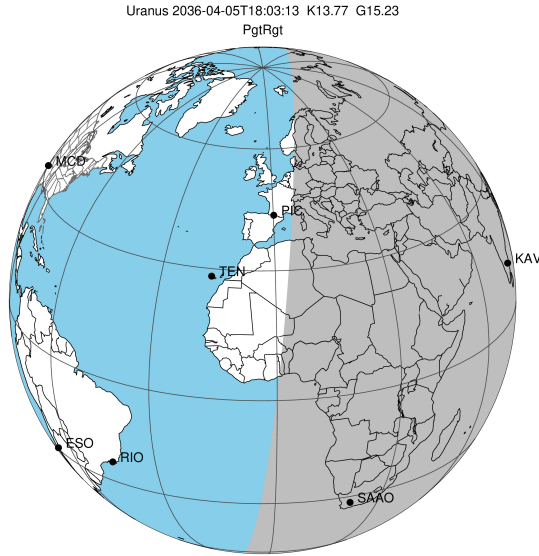


target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2036-04-05T18:03:13.680
 Event type : PgtRgt
 : Uranus occs: geocentric, topocentric
 : Ring occs: geocentric, topocentric
 Gaia source ID : 3379627340507544704
 2Mass ID (if available) : 06462256+2323351

ICRS Star Coord at Epoch: 06h 46m 22.55322s +23:23:34.81211s

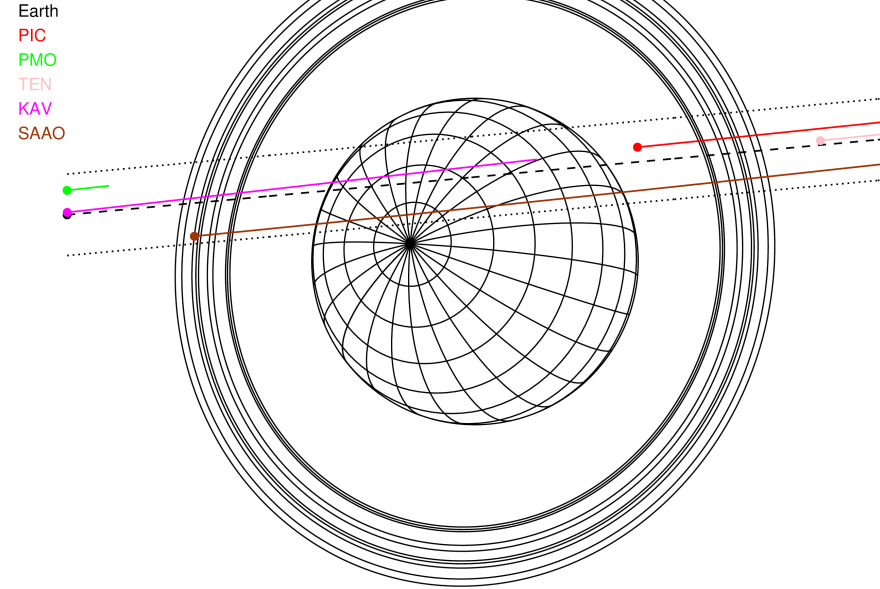
RUWE (>1.4 is poor) : 0.99
 K magnitude : 13.771
 G magnitude : 15.226
 RP magnitude : 14.718
 BP magnitude : 15.568
 DUPflag : 0
 Distance (au) : 18.878
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : 9.24
 Sun-Target sep (deg) : 84.60
 Sun-Moon sep (deg) : 28.52
 B (ring opening deg) : 65.69
 PA of pole (deg) : 74.64

#	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



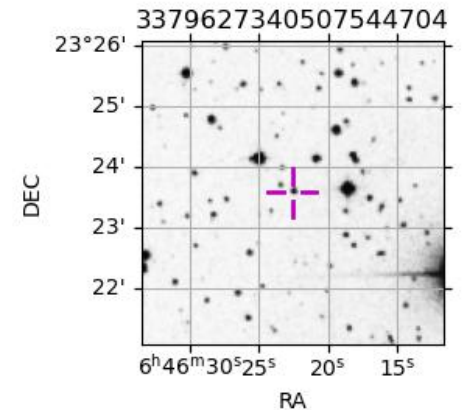
2036-04-05T18:03:13.6800 cr: 06 46 22.5532 s: +23 23 34.812 C/A 0.972° PA 185.30 deg v_sky + 9.24 km/s D 18.88 AU
 Credit: Styled after SORA/Lucky Star

Uranus 2036-04-05T18:03:13 K13.77 G15.23 PgtRgt

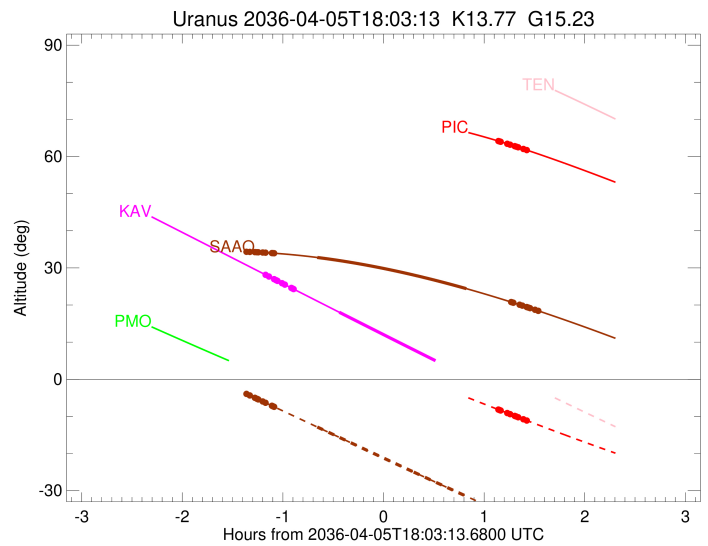
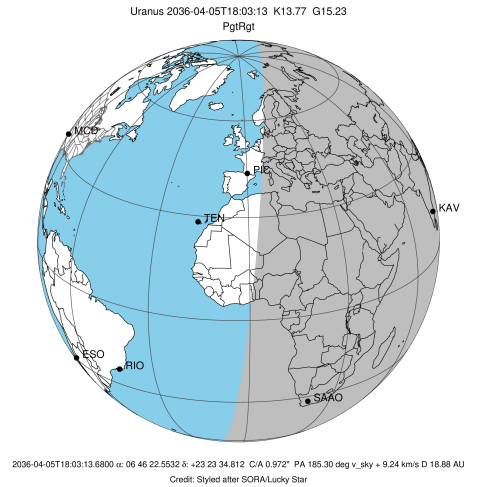


Observable events with sun below -5 deg and altitude above 5 deg unblocked by planet

Obs	Location	lat	Elon	Rings I	Planet	Rings E	Observed Events Interval	OEcode
PIC	Pic du Midi	42.9	0.1			+++++	APR 05 19:11 - APR 05 19:28	PnnRne
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					PnnRnn
IRTF	Mauna Kea/IRTF	19.8	204.5					PnnRnn
KAV	Kavalur Observatory	12.6	78.8	+++++	+		APR 05 16:53 - APR 05 17:36	PinRin
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	+++++	+	+++++	APR 05 16:46 - APR 05 19:35	PieRie
MSO	Mt. Stromlo Observato	-35.3	149.0					PnnRnn

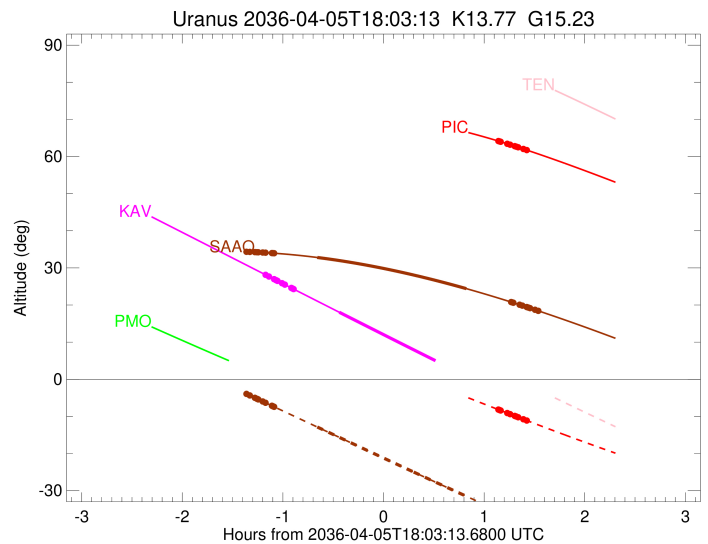
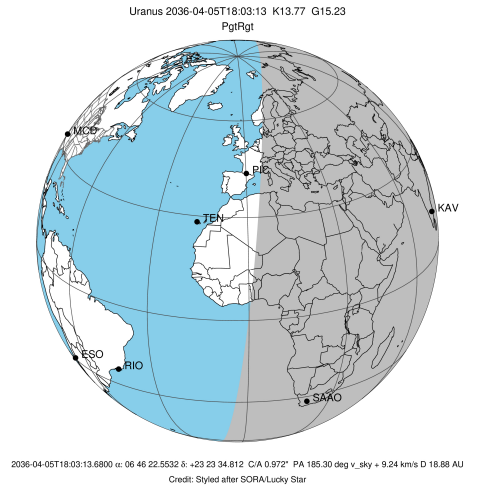


target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2036-04-05T18:03:14.340
 Event type : PgtRgt
 : Uranus occs: geocentric, topocentric
 : Ring occs: geocentric, topocentric
 Observer code : PIC
 Location : Pic du Midi
 Latitude (deg) : 42.93656
 E. Longitude (deg) : 0.14231
 Altitude (km) : 2.890
 Gaia source ID : 3379627340507544704
 2Mass ID (if available) : 06462256+2323351
 ICRS Star Coord at Epoch: 06h 46m 22.55322s +23:23:34.81211s
 RUWE (>1.4 is poor) : 0.99
 K magnitude : 13.771
 G magnitude : 15.226
 RP magnitude : 14.718
 BP magnitude : 15.568
 DUPflag : 0
 Distance (au) : 18.878
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : 9.24
 Sun-Target sep (deg) : 84.60
 Sun-Moon sep (deg) : 28.98
 B (ring opening deg) : 65.69
 PA of pole (deg) : 74.64
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 1.118
 C/A sky separation (km) : 15307.1
 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



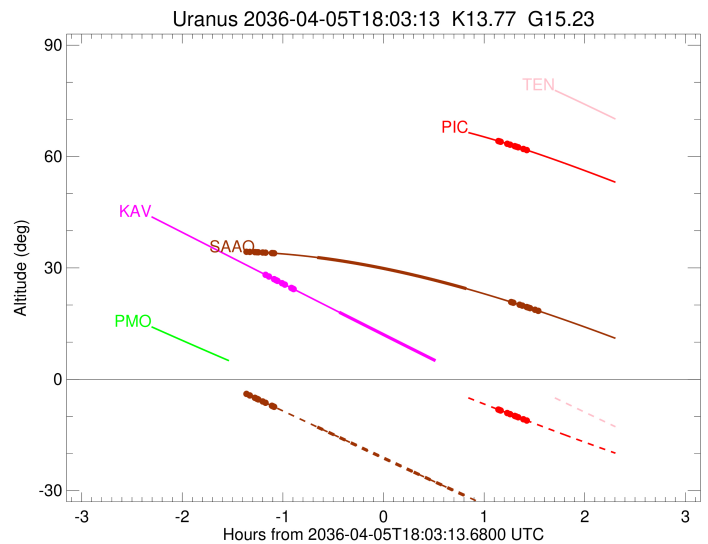
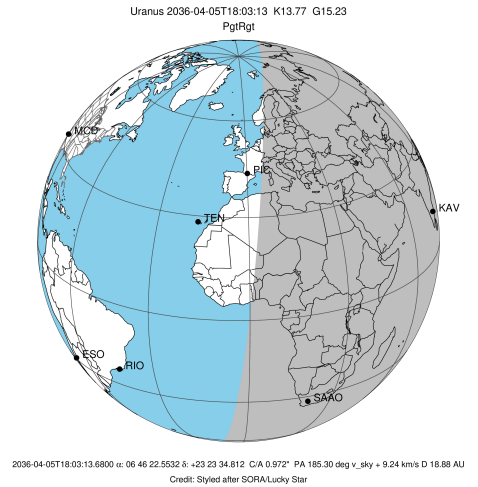
Ring	I/E	UTC	b? alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2036-04-05T16:41:17.042	65.99	19.14x	50869.99	-9.17		
lambda	I	2036-04-05T16:42:48.877	66.17	18.86x	50026.71	-9.17		
delta	I	2036-04-05T16:45:57.413	66.54	18.29x	48300.35	-9.14		
gamma	I	2036-04-05T16:47:11.745	66.69	18.07x	47621.63	-9.12		
eta	I	2036-04-05T16:48:00.605	66.78	17.92x	47176.12	-9.11		
beta	I	2036-04-05T16:50:48.912	67.09	17.41x	45644.64	-9.07		
alpha	I	2036-04-05T16:52:27.571	67.27	17.11x	44751.56	-9.05		
4	I	2036-04-05T16:56:26.589	67.69	16.38x	42601.42	-8.99		
5	I	2036-04-05T16:57:10.786	67.77	16.25x	42191.41	-8.98		
6	I	2036-04-05T16:57:53.278	67.84	16.12x	41829.58	-8.96		
Uranus	I	2036-04-05T17:25:57.953	70.00	10.98x	25112.34		23.22	24.19
Uranus	E	2036-04-05T18:41:09.400	67.84	-2.73x	25419.84		-12.59	-13.17
6	E	2036-04-05T19:11:37.678	64.18	-8.15	41814.02	9.03		
5	E	2036-04-05T19:12:34.013	64.05	-8.32	42312.80	9.04		
4	E	2036-04-05T19:12:57.278	64.00	-8.38	42526.14	9.05		
alpha	E	2036-04-05T19:16:57.526	63.44	-9.08	44698.36	9.12		
beta	E	2036-04-05T19:18:43.385	63.19	-9.39	45666.51	9.15		
eta	E	2036-04-05T19:21:27.916	62.80	-9.87	47176.12	9.19		
gamma	E	2036-04-05T19:22:17.108	62.68	-10.01	47628.33	9.20		
delta	E	2036-04-05T19:23:30.101	62.50	-10.22	48300.35	9.21		
lambda	E	2036-04-05T19:26:37.046	62.04	-10.76	50026.71	9.25		
epsilon	E	2036-04-05T19:28:43.760	61.73	-11.13	51200.86	9.26		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2036-04-05T18:13:39.060
 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 : 3379627340507544704
 2Mass ID (if available) : 06462256+2323351
 ICRS Star Coord at Epoch: 06h 46m 22.55322s +23:23:34.81211s
 RUWE (>1.4 is poor) : 0.99
 K magnitude : 13.771
 G magnitude : 15.226
 RP magnitude : 14.718
 BP magnitude : 15.568
 DUPflag : 0
 Distance (au) : 18.878
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : 9.24
 Sun-Target sep (deg) : 84.60
 Sun-Moon sep (deg) : 27.80
 B (ring opening deg) : 65.69
 PA of pole (deg) : 74.64
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 1.081
 C/A sky separation (km) : 14804.6
 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	2036-04-05T16:53:25.425		28.02	-55.97	50877.99	-9.35		
lambda	I	2036-04-05T16:54:56.398		27.67	-56.28	50026.71	-9.35		
delta	I	2036-04-05T16:58:01.269		26.96	-56.91	48300.35	-9.32		
gamma	I	2036-04-05T16:59:14.097		26.68	-57.16	47621.70	-9.31		
eta	I	2036-04-05T17:00:01.964		26.50	-57.32	47176.12	-9.30		
beta	I	2036-04-05T17:02:46.686		25.87	-57.87	45644.97	-9.27		
alpha	I	2036-04-05T17:04:23.241		25.50	-58.19	44751.33	-9.26		
4	I	2036-04-05T17:08:16.729		24.60	-58.97	42602.37	-9.20		
5	I	2036-04-05T17:09:00.218		24.44	-59.11	42189.50	-9.20		
6	I	2036-04-05T17:09:41.355		24.28	-59.24	41830.78	-9.18		
Uranus	I	2036-04-05T17:36:49.927		18.06	-64.21	25102.24		23.50	24.49
Uranus	E	2036-04-05T18:50:49.672		1.27x	-70.97	25415.04		-12.82	-13.40
6	E	2036-04-05T19:19:43.775		-5.16x	-69.33	41814.08	9.48		
5	E	2036-04-05T19:20:37.383		-5.36x	-69.24	42312.77	9.50		
4	E	2036-04-05T19:20:59.526		-5.44x	-69.20	42526.15	9.51		
alpha	E	2036-04-05T19:24:48.176		-6.29x	-68.80	44698.33	9.58		
beta	E	2036-04-05T19:26:28.928		-6.66x	-68.61	45666.52	9.61		
eta	E	2036-04-05T19:29:05.510		-7.23x	-68.31	47176.12	9.65		
gamma	E	2036-04-05T19:29:52.324		-7.40x	-68.21	47628.33	9.67		
delta	E	2036-04-05T19:31:01.785		-7.66x	-68.07	48300.35	9.68		
lambda	E	2036-04-05T19:33:59.676		-8.31x	-67.69	50026.71	9.73		
epsilon	E	2036-04-05T19:36:00.227		-8.75x	-67.43	51200.72	9.73		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2036-04-05T18:08:04.410
 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 : 3379627340507544704
 2Mass ID (if available) : 06462256+2323351
 ICRS Star Coord at Epoch: 06h 46m 22.55322s +23:23:34.81211s
 RUWE (>1.4 is poor) : 0.99
 K magnitude : 13.771
 G magnitude : 15.226
 RP magnitude : 14.718
 BP magnitude : 15.568
 DUPflag : 0
 Distance (au) : 18.878
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : 9.24
 Sun-Target sep (deg) : 84.60
 Sun-Moon sep (deg) : 28.37
 B (ring opening deg) : 65.69
 PA of pole (deg) : 74.64
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 0.611
 C/A sky separation (km) : 8365.0
 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	2036-04-05T16:41:57.558		34.33	-4.03x	50916.33	-9.43		
lambda	I	2036-04-05T16:43:31.799		34.30	-4.36x	50026.71	-9.44		
delta	I	2036-04-05T16:46:34.804		34.25	-5.01	48300.35	-9.43		
gamma	I	2036-04-05T16:47:46.751		34.22	-5.26	47622.09	-9.43		
eta	I	2036-04-05T16:48:34.073		34.21	-5.43	47176.12	-9.42		
beta	I	2036-04-05T16:51:16.343		34.14	-6.00	45646.76	-9.41		
alpha	I	2036-04-05T16:52:51.702		34.10	-6.33	44749.80	-9.41		
4	I	2036-04-05T16:56:40.530		33.99	-7.14	42606.94	-9.39		
5	I	2036-04-05T16:57:24.785		33.97	-7.29	42180.09	-9.39		
6	I	2036-04-05T16:58:03.294		33.95	-7.43	41837.25	-9.39		
Uranus	I	2036-04-05T17:23:41.163		32.81	-12.85	25073.68		24.29	25.30
Uranus	E	2036-04-05T18:52:36.661		24.41	-31.52	25276.39		-18.18	-18.98
6	E	2036-04-05T19:19:16.684		20.81	-36.96	41820.36	9.55		
5	E	2036-04-05T19:20:09.161		20.69	-37.13	42308.42	9.56		
4	E	2036-04-05T19:20:31.521		20.63	-37.21	42527.49	9.56		
alpha	E	2036-04-05T19:24:19.009		20.09	-37.97	44694.34	9.59		
beta	E	2036-04-05T19:26:00.583		19.84	-38.31	45669.41	9.59		
eta	E	2036-04-05T19:28:37.345		19.46	-38.83	47176.12	9.61		
gamma	E	2036-04-05T19:29:24.460		19.34	-38.99	47629.03	9.61		
delta	E	2036-04-05T19:30:34.257		19.17	-39.22	48300.35	9.62		
lambda	E	2036-04-05T19:33:33.539		18.72	-39.81	50026.71	9.64		
epsilon	E	2036-04-05T19:35:40.907		18.41	-40.23	51254.85	9.64		