

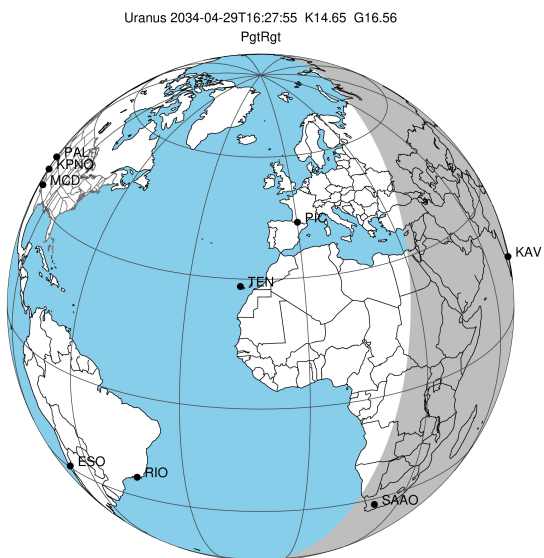
target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2034-04-29T16:27:55.040
 Event type : PgtRgt
 : Uranus occs: geocentric, topocentric
 : Ring occs: geocentric, topocentric
 Gaia source ID : 3425424920382701440
 2Mass ID (if available) : 06112956+2340537

Uranus 2034-04-29T16:27:55 K14.65 G16.56 PgtRgt

ICRS Star Coord at Epoch: 06h 11m 29.56662s +23:40:53.64429s

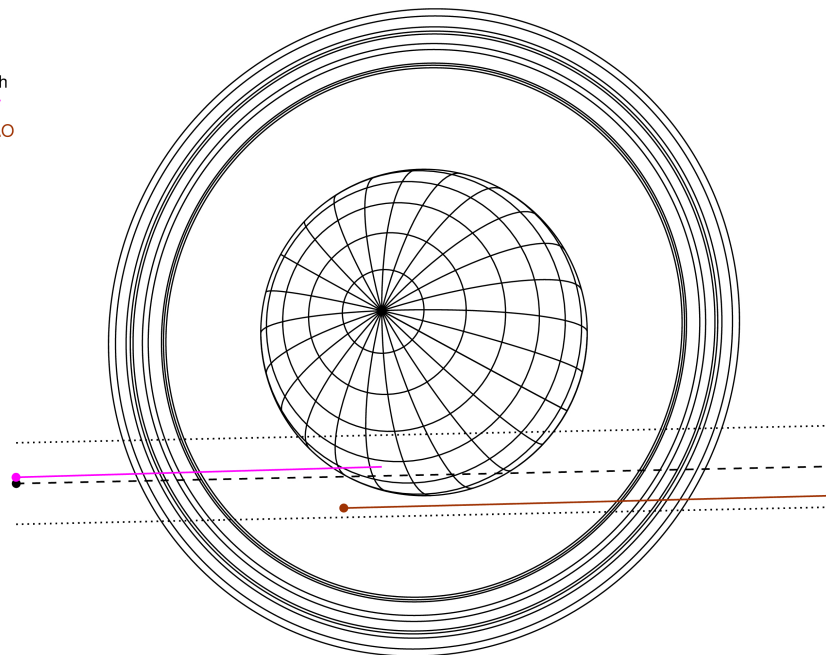
RUWE (>1.4 is poor) : 0.99
 K magnitude : 14.654
 G magnitude : 16.559
 RP magnitude : 15.858
 BP magnitude : 17.091
 DUPflag : 0
 Distance (au) : 19.511
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : 24.03
 Sun-Target sep (deg) : 53.67
 Sun-Moon sep (deg) : 84.66
 B (ring opening deg) : 73.06
 PA of pole (deg) : 62.69

#	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



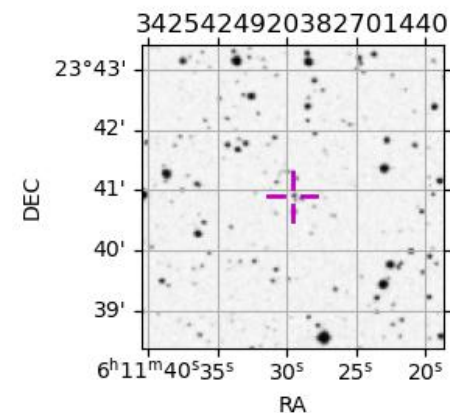
2034-04-29T16:27:55.0400 α: 06 11 29.5666 δ: +23 40 53.644 C/A 1.570° PA 1.21 deg v_sky +24.03 km/s D 19.51 AU
 Credit: Styled after SORA/Lucky Star

Earth
 KAV
 SAAO

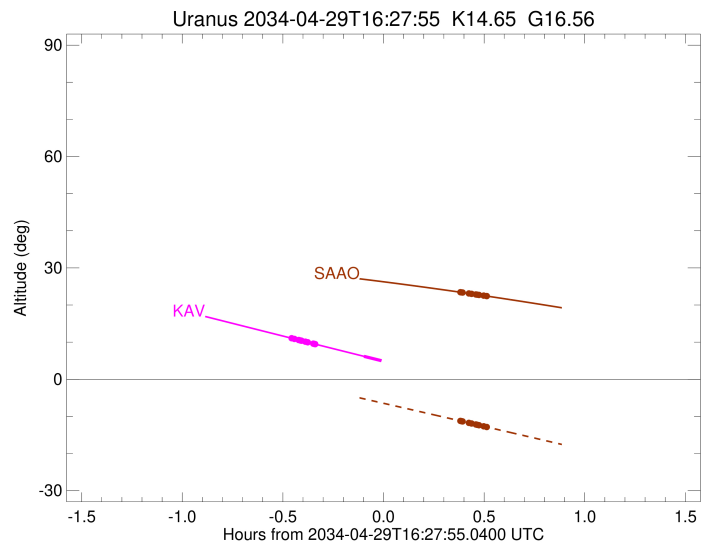
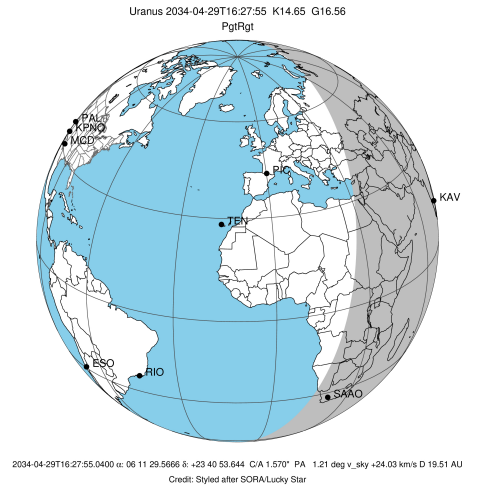


Observable events with sun below -5 deg and altitude above 5 deg unblocked by planet

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					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 29 16:00 - APR 29 16:22	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 29 16:50 - APR 29 16:58	PnnRne
MSO	Mt. Stromlo Observato	-35.3	149.0					PnnRnn

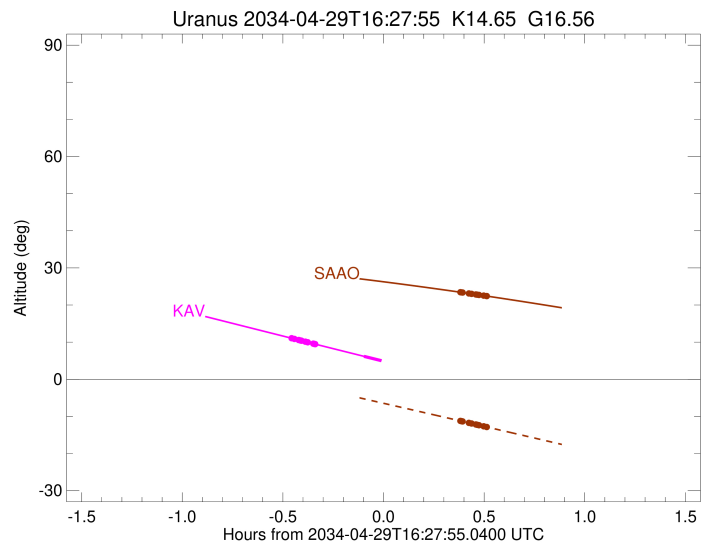
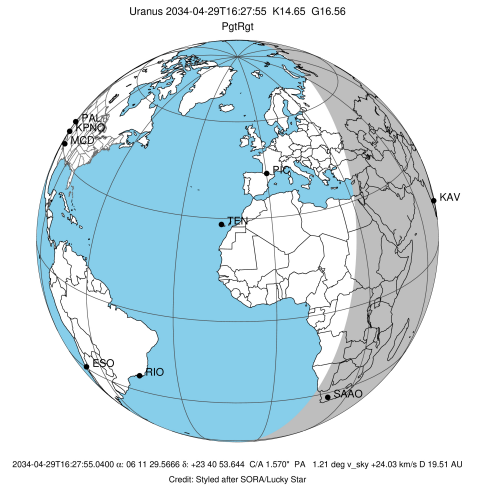


target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2034-04-29T16:32:19.240
 Event type : PgtRgt
 : Uranus occs: geocentric, topocentric
 : Ring occs: geocentric, topocentric
 Observer code : KAV
 Location : Kavalur Observatory
 Latitude (deg) : 12.57556
 E. Longitude (deg) : 78.83167
 Altitude (km) : 0.722
 Gaia source ID : 3425424920382701440
 2Mass ID (if available) : 06112956+2340537
 ICRS Star Coord at Epoch: 06h 11m 29.56662s +23:40:53.64429s
 RUWE (>1.4 is poor) : 0.99
 K magnitude : 14.654
 G magnitude : 16.559
 RP magnitude : 15.858
 BP magnitude : 17.091
 DUPflag : 0
 Distance (au) : 19.511
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : 24.03
 Sun-Target sep (deg) : 53.67
 Sun-Moon sep (deg) : 84.65
 B (ring opening deg) : 73.06
 PA of pole (deg) : 62.69
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 1.473
 C/A sky separation (km) : 20840.7
 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	2034-04-29T16:00:48.033		10.99	-41.75	50787.65	-22.53		
lambda	I	2034-04-29T16:01:21.797		10.86	-41.87	50026.71	-22.50		
delta	I	2034-04-29T16:02:38.815		10.57	-42.13	48300.35	-22.33		
gamma	I	2034-04-29T16:03:08.911		10.46	-42.23	47629.51	-22.25		
eta	I	2034-04-29T16:03:29.310		10.38	-42.30	47176.12	-22.20		
beta	I	2034-04-29T16:04:37.994		10.12	-42.53	45656.87	-22.02		
alpha	I	2034-04-29T16:05:22.353		9.96	-42.68	44685.59	-21.88		
4	I	2034-04-29T16:06:58.094		9.59	-43.00	42606.22	-21.57		
5	I	2034-04-29T16:07:15.389		9.53	-43.06	42225.10	-21.53		
6	I	2034-04-29T16:07:33.904		9.46	-43.12	41826.75	-21.42		
Uranus	I	2034-04-29T16:22:04.107		6.18	-46.00	25552.13		1.86	1.95
Uranus	E	2034-04-29T16:42:03.047		1.70x	-49.78	25131.51		-15.04	-15.72
6	E	2034-04-29T16:55:56.868		-1.41x	-52.25	41806.48	21.52		
5	E	2034-04-29T16:56:20.120		-1.49x	-52.31	42308.78	21.63		
4	E	2034-04-29T16:56:29.809		-1.53x	-52.34	42528.64	21.67		
alpha	E	2034-04-29T16:58:10.434		-1.90x	-52.63	44730.06	21.99		
beta	E	2034-04-29T16:58:53.648		-2.06x	-52.75	45679.67	22.13		
eta	E	2034-04-29T17:00:00.951		-2.31x	-52.94	47176.12	22.32		
gamma	E	2034-04-29T17:00:20.859		-2.38x	-52.99	47620.96	22.37		
delta	E	2034-04-29T17:00:51.175		-2.50x	-53.08	48300.35	22.45		
lambda	E	2034-04-29T17:02:07.762		-2.78x	-53.29	50026.71	22.63		
epsilon	E	2034-04-29T17:03:01.439		-2.98x	-53.44	51244.58	22.67		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2034-04-29T16:30:05.610
 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 : 3425424920382701440
 2Mass ID (if available) : 06112956+2340537
 ICRS Star Coord at Epoch: 06h 11m 29.56662s +23:40:53.64429s
 RUWE (>1.4 is poor) : 0.99
 K magnitude : 14.654
 G magnitude : 16.559
 RP magnitude : 15.858
 BP magnitude : 17.091
 DUPflag : 0
 Distance (au) : 19.511
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : 24.03
 Sun-Target sep (deg) : 53.67
 Sun-Moon sep (deg) : 85.02
 B (ring opening deg) : 73.06
 PA of pole (deg) : 62.69
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 1.920
 C/A sky separation (km) : 27171.7
 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	2034-04-29T16:00:21.867		29.16	-0.84x	50765.65	-20.56		
lambda	I	2034-04-29T16:00:57.852		29.10	-0.96x	50026.71	-20.47		
delta	I	2034-04-29T16:02:22.845		28.97	-1.25x	48300.35	-20.15		
gamma	I	2034-04-29T16:02:56.287		28.91	-1.36x	47628.83	-20.01		
eta	I	2034-04-29T16:03:18.964		28.88	-1.44x	47176.12	-19.91		
beta	I	2034-04-29T16:04:35.720		28.75	-1.70x	45660.08	-19.57		
alpha	I	2034-04-29T16:05:25.962		28.67	-1.87x	44684.71	-19.32		
4	I	2034-04-29T16:07:15.543		28.49	-2.24x	42600.52	-18.72		
5	I	2034-04-29T16:07:34.566		28.46	-2.30x	42239.63	-18.64		
6	I	2034-04-29T16:07:57.205		28.42	-2.38x	41819.37	-18.45		

No planet occultations

6	E	2034-04-29T16:50:48.103		23.45	-11.21	41801.46	18.49		
5	E	2034-04-29T16:51:15.625		23.39	-11.31	42313.39	18.68		
4	E	2034-04-29T16:51:26.921		23.37	-11.35	42532.25	18.76		
alpha	E	2034-04-29T16:53:21.594		23.12	-11.74	44724.38	19.37		
beta	E	2034-04-29T16:54:10.807		23.01	-11.92	45680.71	19.62		
eta	E	2034-04-29T16:55:26.326		22.85	-12.18	47176.12	19.97		
gamma	E	2034-04-29T16:55:48.555		22.80	-12.25	47621.03	20.06		
delta	E	2034-04-29T16:56:22.296		22.72	-12.37	48300.35	20.20		
lambda	E	2034-04-29T16:57:47.052		22.53	-12.67	50026.71	20.53		
epsilon	E	2034-04-29T16:58:43.258		22.41	-12.86	51186.23	20.62		