

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2037-05-18T19:46:24.660
 Event type : PgtRgt
 : Uranus occs: geocentric, topocentric
 : Ring occs: geocentric, topocentric
 Gaia source ID : 3367528623792855040
 2Mass ID (if available) : 07110873+2251333

Uranus 2037-05-18T19:46:24 K13.49 G14.88 PgtRgt

ICRS Star Coord at Epoch: 07h 11m 08.73301s +22:51:33.22816s

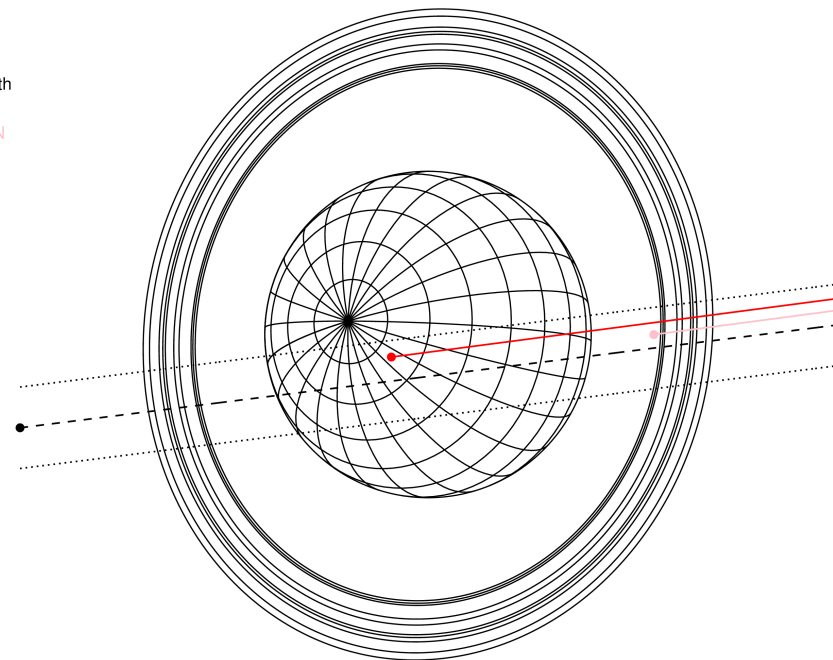
RUWE (>1.4 is poor) : 0.97
 K magnitude : 13.492
 G magnitude : 14.881
 RP magnitude : 14.389
 BP magnitude : 15.208
 DUPflag : 0
 Distance (au) : 19.395
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : 26.15
 Sun-Target sep (deg) : 48.66
 Sun-Moon sep (deg) : 5.02
 B (ring opening deg) : 60.25
 PA of pole (deg) : 80.50

Uranus 2037-05-18T19:46:24 K13.49 G14.88
 PgtRgt



2037-05-18T19:46:24.6600 α: 07 11 08.7330 δ: +22 51 33.228 C/A 0.456° PA 7.17 deg v_sky +26.15 km/s D 19.40 AU
 Credit: Styled after SORA/Lucky Star

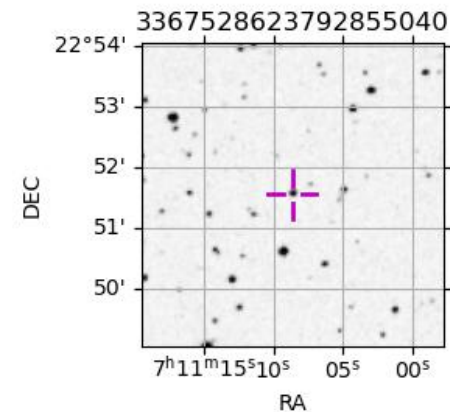
Earth
 PIC
 TEN



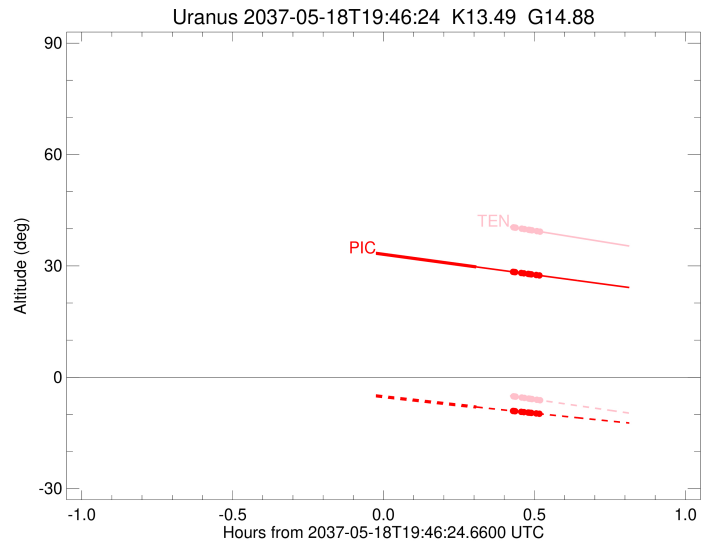
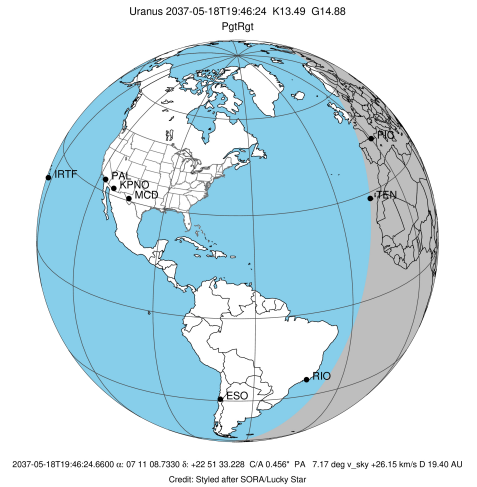
#	a(km)	ring
1	41837.2	6
2	42235.0	5
3	42571.2	4
4	44718.5	alpha
5	45661.1	beta
6	47176.1	eta
7	47626.3	gamma
8	48300.3	delta
9	50026.7	lambda
10	51149.4	epsilon

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		+	+++++	MAY 18 20:04 - MAY 18 20:17	PneRne
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			+++++	MAY 18 20:12 - MAY 18 20:17	PnnRne
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					PnnRnn
SAAO	So. Afr. Astro. Obs.	-32.4	20.8					PnnRnn
MSO	Mt. Stromlo Observato	-35.3	149.0					PnnRnn

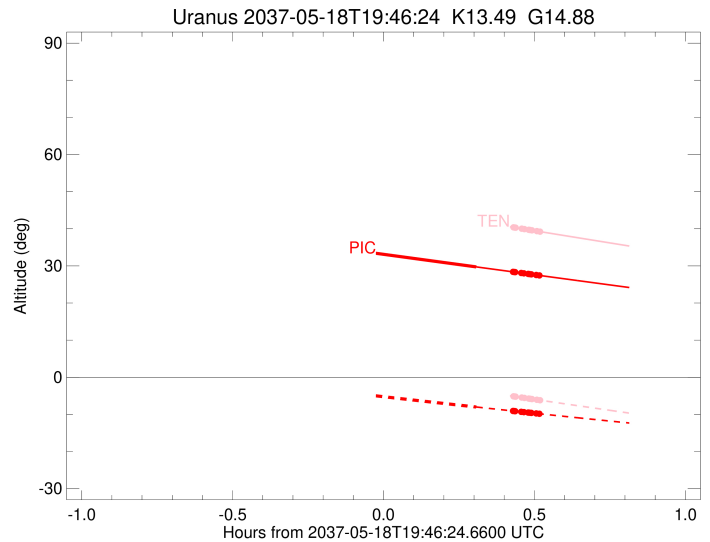
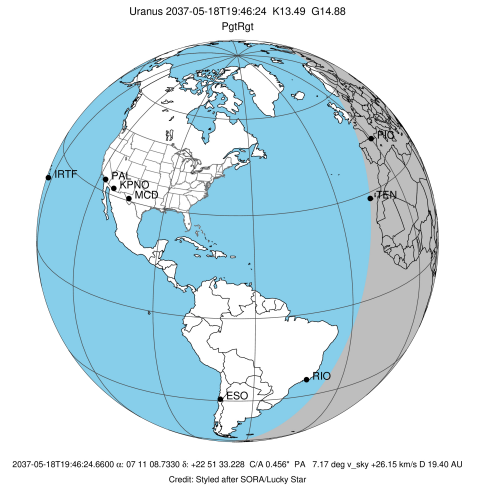


target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2037-05-18T19:48:51.200
 Event type : PgtRgt
 : Uranus occs: geocentric, topocentric
 : Ring occs: geocentric, topocentric
 Observer code : PIC
 Location : Pic du Midi
 Latitude (deg) : 42.93656
 E. Longitude (deg) : 0.14231
 Altitude (km) : 2.890
 Gaia source ID : 3367528623792855040
 2Mass ID (if available) : 07110873+2251333
 ICRS Star Coord at Epoch: 07h 11m 08.73301s +22:51:33.22816s
 RUWE (>1.4 is poor) : 0.97
 K magnitude : 13.492
 G magnitude : 14.881
 RP magnitude : 14.389
 BP magnitude : 15.208
 DUPflag : 0
 Distance (au) : 19.395
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : 26.15
 Sun-Target sep (deg) : 48.66
 Sun-Moon sep (deg) : 5.83
 B (ring opening deg) : 60.25
 PA of pole (deg) : 80.50
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 0.196
 C/A sky separation (km) : 2756.5
 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	2037-05-18T19:19:52.589		38.00	-1.05x	51403.76	-29.55		
lambda	I	2037-05-18T19:20:39.178		37.86	-1.18x	50026.71	-29.56		
delta	I	2037-05-18T19:21:37.589		37.68	-1.33x	48300.35	-29.55		
gamma	I	2037-05-18T19:22:00.497		37.61	-1.40x	47623.32	-29.55		
eta	I	2037-05-18T19:22:15.630		37.57	-1.44x	47176.12	-29.55		
beta	I	2037-05-18T19:23:07.296		37.41	-1.57x	45648.51	-29.55		
alpha	I	2037-05-18T19:23:39.657		37.31	-1.66x	44694.37	-29.55		
4	I	2037-05-18T19:24:50.204		37.09	-1.85x	42616.46	-29.55		
5	I	2037-05-18T19:25:04.992		37.05	-1.89x	42175.84	-29.54		
6	I	2037-05-18T19:25:17.878		37.01	-1.92x	41814.45	-29.56		
Uranus	I	2037-05-18T19:32:48.899		35.62	-3.12x	25185.75		27.13	28.22
Uranus	E	2037-05-18T20:04:50.493		29.73	-8.01	25133.34		-29.19	-30.33
6	E	2037-05-18T20:12:09.185		28.39	-9.08	41864.60	29.65		
5	E	2037-05-18T20:12:24.220		28.35	-9.11	42286.33	29.63		
4	E	2037-05-18T20:12:32.154		28.32	-9.13	42526.83	29.64		
alpha	E	2037-05-18T20:13:47.221		28.09	-9.31	44745.46	29.64		
beta	E	2037-05-18T20:14:18.523		28.00	-9.39	45671.75	29.64		
eta	E	2037-05-18T20:15:09.228		27.84	-9.51	47176.12	29.65		
gamma	E	2037-05-18T20:15:24.526		27.80	-9.55	47629.72	29.65		
delta	E	2037-05-18T20:15:47.142		27.73	-9.60	48300.35	29.65		
lambda	E	2037-05-18T20:16:45.351		27.55	-9.74	50026.71	29.66		
epsilon	E	2037-05-18T20:17:13.394		27.47	-9.81	50858.54	29.65		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2037-05-18T19:49:00.640
 Event type : PgtRgt
 : Uranus occs: geocentric, topocentric
 : Ring occs: geocentric, topocentric
 Observer code : TEN
 Location : Teide Obs./Tenerife
 Latitude (deg) : 28.30050
 E. Longitude (deg) : 343.48909
 Altitude (km) : 2.395
 Gaia source ID : 3367528623792855040
 2Mass ID (if available) : 07110873+2251333
 ICRS Star Coord at Epoch: 07h 11m 08.73301s +22:51:33.22816s
 RUWE (>1.4 is poor) : 0.97
 K magnitude : 13.492
 G magnitude : 14.881
 RP magnitude : 14.389
 BP magnitude : 15.208
 DUPflag : 0
 Distance (au) : 19.395
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : 26.15
 Sun-Target sep (deg) : 48.66
 Sun-Moon sep (deg) : 5.75
 B (ring opening deg) : 60.25
 PA of pole (deg) : 80.50
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 0.330
 C/A sky separation (km) : 4637.6
 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_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	2037-05-18T19:19:53.338	51.92	5.52x	51391.63	-29.32		
lambda	I	2037-05-18T19:20:39.874	51.75	5.36x	50026.71	-29.33		
delta	I	2037-05-18T19:21:38.747	51.54	5.15x	48300.35	-29.32		
gamma	I	2037-05-18T19:22:01.835	51.45	5.07x	47623.50	-29.32		
eta	I	2037-05-18T19:22:17.096	51.40	5.02x	47176.12	-29.31		
beta	I	2037-05-18T19:23:09.217	51.20	4.84x	45647.86	-29.30		
alpha	I	2037-05-18T19:23:41.799	51.08	4.73x	44695.42	-29.30		
4	I	2037-05-18T19:24:52.997	50.82	4.48x	42616.56	-29.29		
5	I	2037-05-18T19:25:08.024	50.77	4.43x	42173.43	-29.28		
6	I	2037-05-18T19:25:20.831	50.72	4.38x	41816.13	-29.29		
Uranus	I	2037-05-18T19:33:03.402	49.02	2.79x	25211.24		26.09	27.15
Uranus	E	2037-05-18T20:04:53.465	42.00	-3.67x	25123.90		-29.55	-30.70
6	E	2037-05-18T20:12:14.624	40.39	-5.14	41866.03	29.38		
5	E	2037-05-18T20:12:29.697	40.34	-5.19	42283.53	29.36		
4	E	2037-05-18T20:12:37.793	40.31	-5.22	42527.27	29.37		
alpha	E	2037-05-18T20:13:53.522	40.03	-5.47	44746.30	29.39		
beta	E	2037-05-18T20:14:25.028	39.91	-5.57	45671.04	29.40		
eta	E	2037-05-18T20:15:16.173	39.73	-5.74	47176.12	29.41		
gamma	E	2037-05-18T20:15:31.601	39.67	-5.79	47629.87	29.41		
delta	E	2037-05-18T20:15:54.393	39.59	-5.86	48300.35	29.42		
lambda	E	2037-05-18T20:16:53.061	39.37	-6.06	50026.71	29.43		
epsilon	E	2037-05-18T20:17:20.976	39.27	-6.15	50848.37	29.42		