

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2033-08-28T06:35:25.040
 Event type : PgtRgt
 : Uranus occs: geocentric, topocentric
 : Ring occs: geocentric, topocentric
 Gaia source ID : 3377488034479165440
 2Mass ID (if available) : 06205596+2335113

ICRS Star Coord at Epoch: 06h 20m 55.95477s +23:35:11.23296s

RUWE (>1.4 is poor) : 1.04
 K magnitude : 14.164
 G magnitude : 16.174
 RP magnitude : 15.487
 BP magnitude : 16.712
 DUPflag : 0
 Distance (au) : 19.459
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : 21.27
 Sun-Target sep (deg) : 60.03
 Sun-Moon sep (deg) : 97.06
 B (ring opening deg) : 71.14
 PA of pole (deg) : 66.76

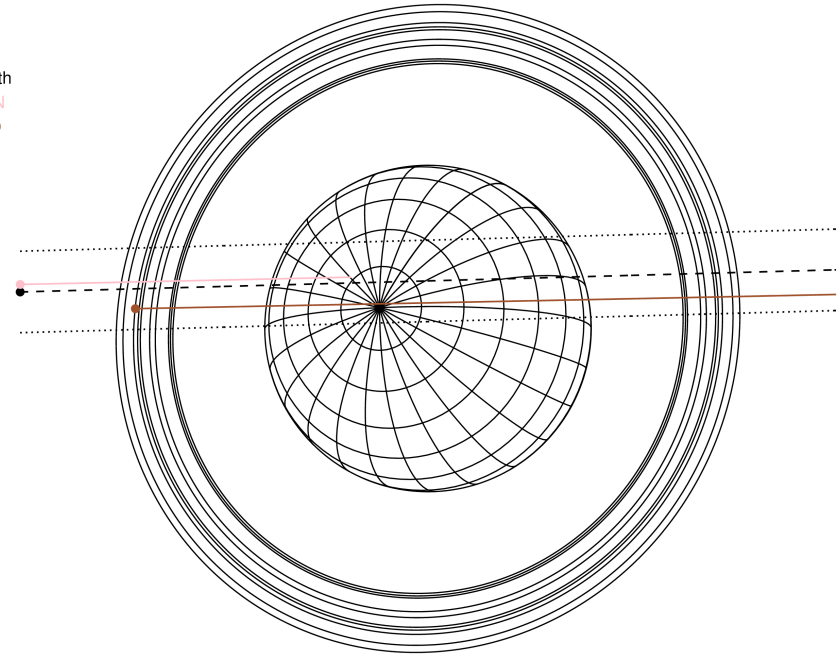
#	a(km)	ring
1	41837.2	6
2	42235.0	5
3	42571.2	4
4	44718.5	alpha
5	45661.1	beta
6	47176.1	eta
7	47626.3	gamma
8	48300.3	delta
9	50026.7	lambda
10	51149.4	epsilon



2033-08-28T06:35:25.0400 ex: 06 20 55.9548 s: +23 35 11.233 C/A 0.533° PA 181.55 deg v_sky +21.27 km/s D 19.46 AU
 Credit: Styled after SORA/Lucky Star

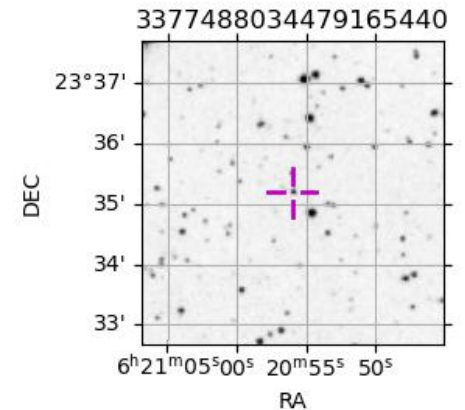
Uranus 2033-08-28T06:35:25 K14.16 G16.17 PgtRgt

Earth
 TEN
 RIO

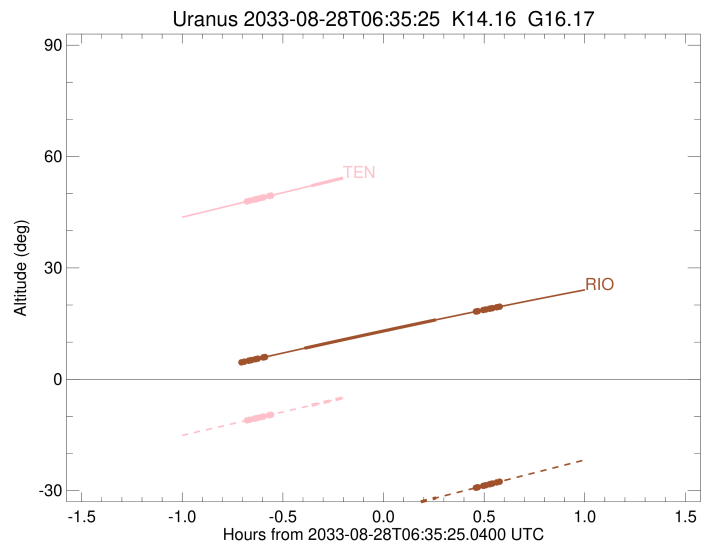
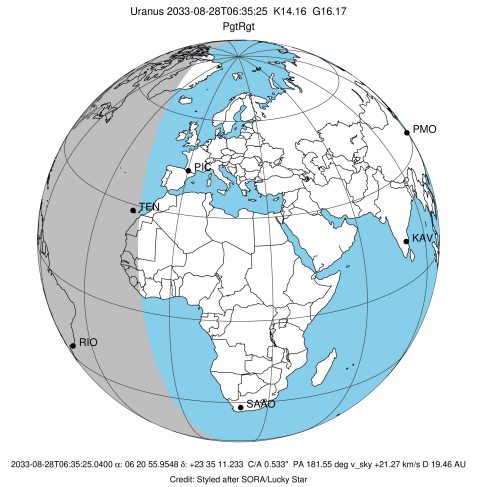


Observable events with sun below -5 deg and altitude above 5 deg unblocked by planet

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	+++++	+		AUG 28 05:54 - AUG 28 06:13	PinRin
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	+++++	+ +	+++++	AUG 28 05:55 - AUG 28 07:10	PieRie
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

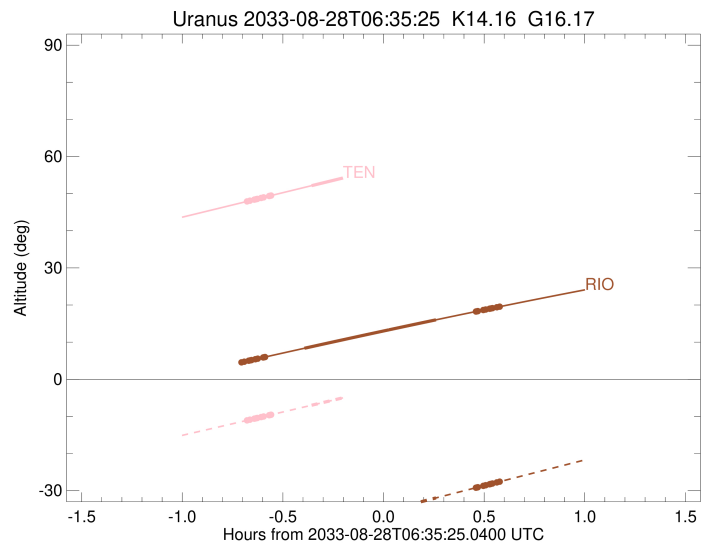
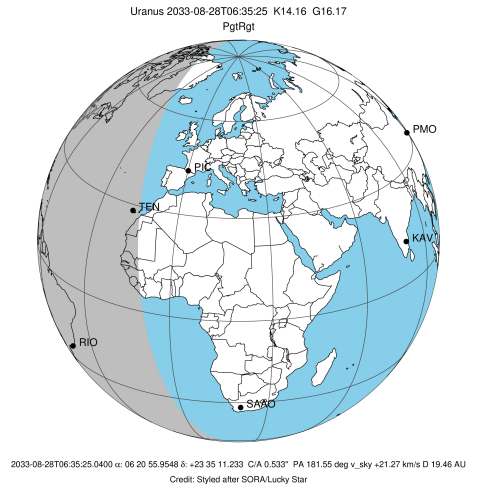


target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2033-08-28T06:32:45.370
 Event type : PgtRgt
 : Uranus occs: geocentric, topocentric
 : Ring occs: geocentric, topocentric
 Observer code : TEN
 Location : Teide Obs./Tenerife
 Latitude (deg) : 28.30050
 E. Longitude (deg) : 343.48909
 Altitude (km) : 2.395
 Gaia source ID : 3377488034479165440
 2Mass ID (if available) : 06205596+2335113
 ICRS Star Coord at Epoch: 06h 20m 55.95477s +23:35:11.23296s
 RUWE (>1.4 is poor) : 1.04
 K magnitude : 14.164
 G magnitude : 16.174
 RP magnitude : 15.487
 BP magnitude : 16.712
 DUPflag : 0
 Distance (au) : 19.459
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : 21.27
 Sun-Target sep (deg) : 60.03
 Sun-Moon sep (deg) : 97.74
 B (ring opening deg) : 71.14
 PA of pole (deg) : 66.76
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 0.589
 C/A sky separation (km) : 8313.5
 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_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	2033-08-28T05:54:44.483		47.91	-11.07	51139.95	-21.71		
lambda	I	2033-08-28T05:55:35.843		48.10	-10.89	50026.71	-21.67		
delta	I	2033-08-28T05:56:55.566		48.39	-10.61	48300.35	-21.64		
gamma	I	2033-08-28T05:57:26.690		48.51	-10.50	47626.93	-21.63		
eta	I	2033-08-28T05:57:47.535		48.58	-10.43	47176.12	-21.62		
beta	I	2033-08-28T05:58:56.774		48.84	-10.18	45681.15	-21.60		
alpha	I	2033-08-28T05:59:40.326		49.00	-10.03	44735.55	-21.58		
4	I	2033-08-28T06:01:21.191		49.37	-9.67	42572.96	-21.53		
5	I	2033-08-28T06:01:39.525		49.44	-9.61	42163.33	-21.53		
6	I	2033-08-28T06:01:52.524		49.48	-9.56	41878.04	-21.52		
Uranus	I	2033-08-28T06:13:58.182		52.15	-7.00	25038.95		18.78	19.60
Uranus	E	2033-08-28T06:51:46.240		60.50	1.13x	25281.58		-13.50	-14.11
6	E	2033-08-28T07:04:10.276		63.24	3.83x	41804.37	21.43		
5	E	2033-08-28T07:04:33.851		63.33	3.92x	42315.07	21.44		
4	E	2033-08-28T07:04:44.559		63.37	3.95x	42552.12	21.44		
alpha	E	2033-08-28T07:06:24.663		63.74	4.32x	44691.88	21.48		
beta	E	2033-08-28T07:07:08.665		63.90	4.48x	45641.83	21.50		
eta	E	2033-08-28T07:08:20.038		64.16	4.74x	47176.12	21.52		
gamma	E	2033-08-28T07:08:41.006		64.24	4.81x	47627.47	21.53		
delta	E	2033-08-28T07:09:12.253		64.35	4.93x	48300.35	21.54		
lambda	E	2033-08-28T07:10:32.364		64.65	5.22x	50026.71	21.56		
epsilon	E	2033-08-28T07:11:30.640		64.86	5.43x	51283.59	21.60		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2033-08-28T06:31:22.100
 Event type : PgtRgt
 : Uranus occs: geocentric, topocentric
 : Ring occs: geocentric, topocentric
 Observer code : RIO
 Location : Rio de Janeiro
 Latitude (deg) : -22.89506
 E. Longitude (deg) : 316.77708
 Altitude (km) : 0.033
 Gaia source ID : 3377488034479165440
 2Mass ID (if available) : 06205596+2335113
 ICRS Star Coord at Epoch: 06h 20m 55.95477s +23:35:11.23296s
 RUWE (>1.4 is poor) : 1.04
 K magnitude : 14.164
 G magnitude : 16.174
 RP magnitude : 15.487
 BP magnitude : 16.712
 DUPflag : 0
 Distance (au) : 19.459
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : 21.27
 Sun-Target sep (deg) : 60.03
 Sun-Moon sep (deg) : 97.17
 B (ring opening deg) : 71.14
 PA of pole (deg) : 66.76
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 0.284
 C/A sky separation (km) : 4012.6
 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_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	2033-08-28T05:53:06.836		4.57x	-45.25	51106.32	-22.09		
lambda	I	2033-08-28T05:53:55.736		4.73x	-45.06	50026.71	-22.08		
delta	I	2033-08-28T05:55:13.955		5.00x	-44.77	48300.35	-22.07		
gamma	I	2033-08-28T05:55:44.496		5.10	-44.65	47626.46	-22.06		
eta	I	2033-08-28T05:56:04.909		5.17	-44.57	47176.12	-22.06		
beta	I	2033-08-28T05:57:12.743		5.40	-44.31	45681.23	-22.05		
alpha	I	2033-08-28T05:57:55.273		5.55	-44.15	44738.27	-22.04		
4	I	2033-08-28T05:59:33.831		5.88	-43.78	42577.51	-22.03		
5	I	2033-08-28T05:59:52.180		5.94	-43.71	42160.05	-22.03		
6	I	2033-08-28T06:00:04.789		5.98	-43.66	41876.60	-22.02		
Uranus	I	2033-08-28T06:11:49.172		8.35	-40.98	25069.74		18.18	18.98
Uranus	E	2033-08-28T06:51:03.064		16.01	-31.97	25191.65		-15.62	-16.33
6	E	2033-08-28T07:02:56.734		18.24	-29.22	41801.66	21.89		
5	E	2033-08-28T07:03:19.876		18.31	-29.14	42314.05	21.90		
4	E	2033-08-28T07:03:30.515		18.35	-29.09	42556.57	21.90		
alpha	E	2033-08-28T07:05:08.561		18.65	-28.72	44694.12	21.90		
beta	E	2033-08-28T07:05:51.585		18.78	-28.55	45641.38	21.91		
eta	E	2033-08-28T07:07:01.680		19.00	-28.28	47176.12	21.91		
gamma	E	2033-08-28T07:07:22.254		19.06	-28.20	47626.97	21.91		
delta	E	2033-08-28T07:07:52.980		19.16	-28.09	48300.35	21.92		
lambda	E	2033-08-28T07:09:11.746		19.40	-27.78	50026.71	21.92		
epsilon	E	2033-08-28T07:10:07.518		19.57	-27.57	51249.26	21.93		