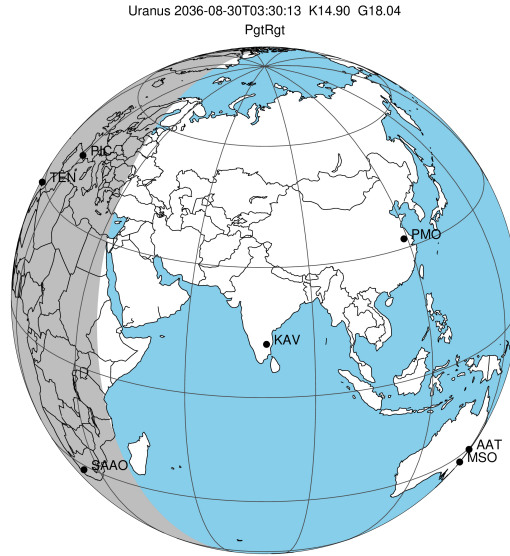


target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2036-08-30T03:30:13.530
 Event type : PgtRgt
 : Uranus occs: geocentric, topocentric
 : Ring occs: geocentric, topocentric
 Gaia source ID : 869273824200844032
 2Mass ID (if available) : 07171804+2238350

ICRS Star Coord at Epoch: 07h 17m 18.05021s +22:38:35.02709s

RUWE (>1.4 is poor) : 0.95
 K magnitude : 14.904
 G magnitude : 18.037
 RP magnitude : 17.073
 BP magnitude : 19.065
 DUPflag : 0
 Distance (au) : 19.432
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : 25.97
 Sun-Target sep (deg) : 49.07
 Sun-Moon sep (deg) : 156.17
 B (ring opening deg) : 58.88
 PA of pole (deg) : 81.83

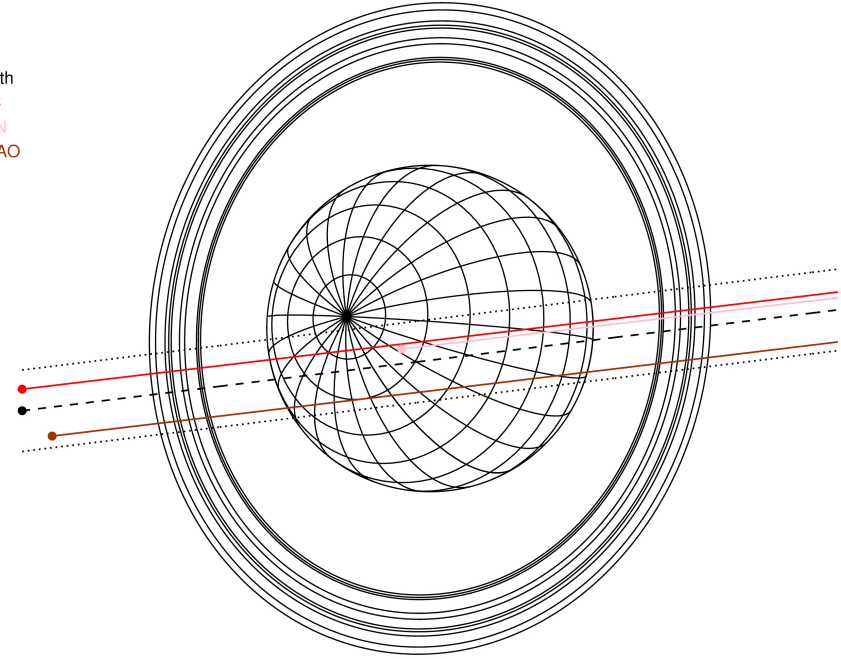
#	a(km)	ring
1	41837.2	6
2	42235.0	5
3	42571.2	4
4	44718.5	alpha
5	45661.1	beta
6	47176.1	eta
7	47626.3	gamma
8	48300.3	delta
9	50026.7	lambda
10	51149.4	epsilon



2036-08-30T03:30:13.5300 α: 07 17 18.05021 s +22 38 35.027 C/A 0.346° PA 7.05 deg v_sky +25.97 km/s D 19.43 AU
 Credit: Styled after SORA/Lucky Star

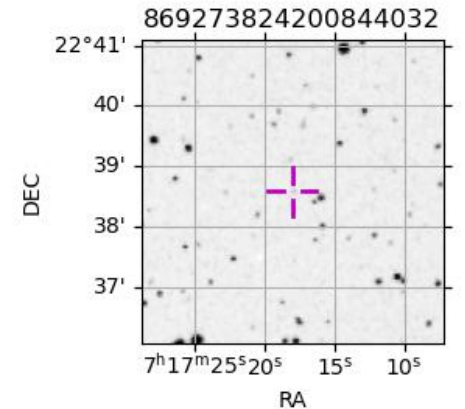
Uranus 2036-08-30T03:30:13 K14.90 G18.04 PgtRgt

Earth
 PIC
 TEN
 SAAO

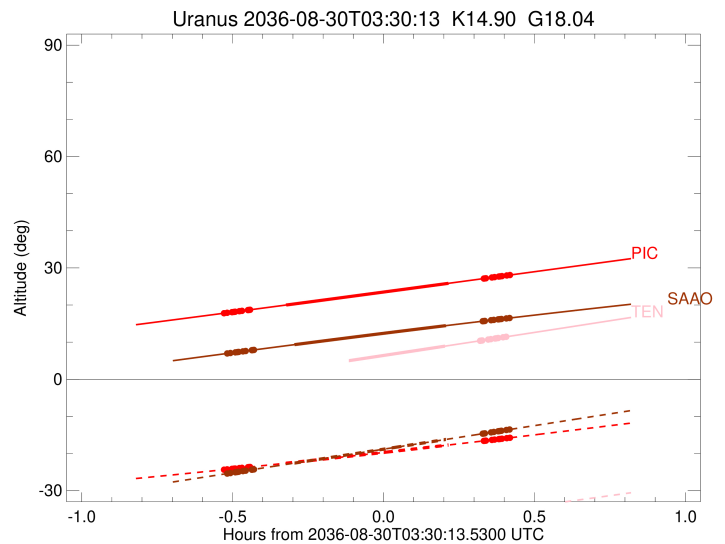
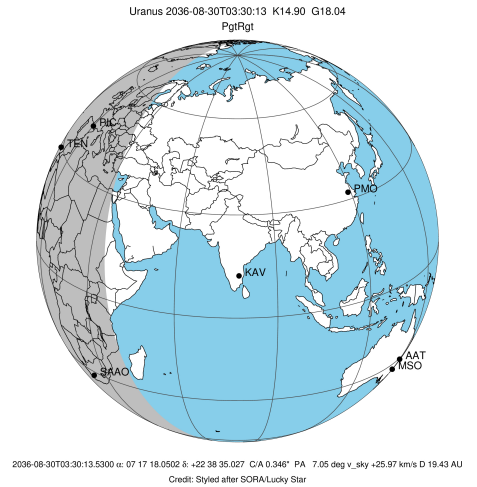


Observable events with sun below -5 deg and altitude above 5 deg unblocked by planet

Obs	Location	lat	Elon	Rings I	Planet	Rings E	Observed Events Interval	OEcode
PIC	Pic du Midi	42.9	0.1	+++++	+ +	+++++	AUG 30 02:58 - AUG 30 03:55	PieRie
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 30 03:42 - AUG 30 03:54	PneRne
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	+++++	+ +	+++++	AUG 30 02:59 - AUG 30 03:55	PieRie
MSO	Mt. Stromlo Observato	-35.3	149.0					PnnRnn

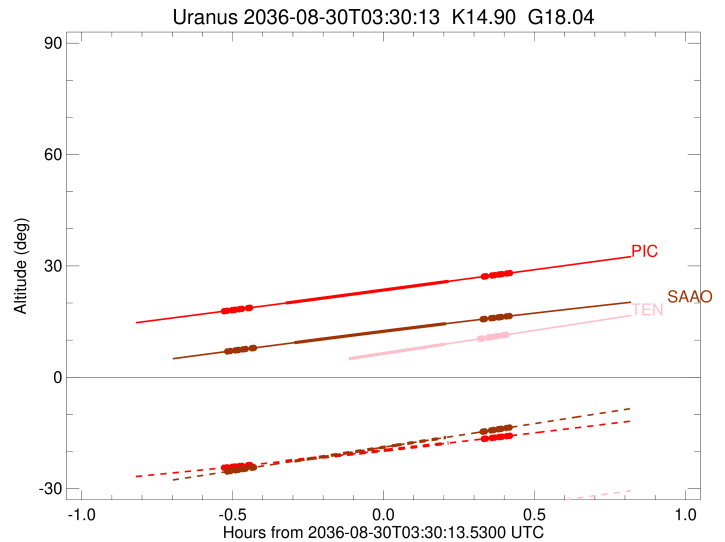
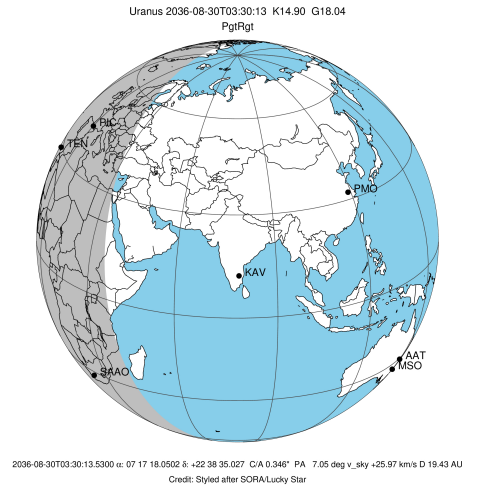


target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2036-08-30T03:26:59.990
 Event type : PgtRgt
 : Uranus occs: geocentric, topocentric
 : Ring occs: geocentric, topocentric
 Observer code : PIC
 Location : Pic du Midi
 Latitude (deg) : 42.93656
 E. Longitude (deg) : 0.14231
 Altitude (km) : 2.890
 Gaia source ID : 869273824200844032
 2Mass ID (if available) : 07171804+2238350
 ICRS Star Coord at Epoch: 07h 17m 18.05021s +22:38:35.02709s
 RUWE (>1.4 is poor) : 0.95
 K magnitude : 14.904
 G magnitude : 18.037
 RP magnitude : 17.073
 BP magnitude : 19.065
 DUPflag : 0
 Distance (au) : 19.432
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : 25.97
 Sun-Target sep (deg) : 49.07
 Sun-Moon sep (deg) : 155.74
 B (ring opening deg) : 58.88
 PA of pole (deg) : 81.83
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 0.135
 C/A sky separation (km) : 1901.5
 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	2036-08-30T02:58:22.898		17.77	-24.38	51432.01	-30.00		
lambda	I	2036-08-30T02:59:09.737		17.91	-24.27	50026.71	-30.00		
delta	I	2036-08-30T03:00:07.285		18.08	-24.14	48300.35	-30.00		
gamma	I	2036-08-30T03:00:29.600		18.14	-24.08	47630.97	-29.99		
eta	I	2036-08-30T03:00:44.765		18.19	-24.05	47176.12	-29.99		
beta	I	2036-08-30T03:01:34.983		18.34	-23.93	45670.62	-29.99		
alpha	I	2036-08-30T03:02:06.493		18.43	-23.86	44727.71	-29.99		
4	I	2036-08-30T03:03:17.727		18.64	-23.69	42602.56	-29.99		
5	I	2036-08-30T03:03:31.047		18.68	-23.66	42201.91	-29.98		
6	I	2036-08-30T03:03:44.409		18.72	-23.63	41814.75	-30.00		
Uranus	I	2036-08-30T03:10:51.016		20.00	-22.60	25176.55		29.20	30.34
Uranus	E	2036-08-30T03:43:08.781		25.85	-17.71	25145.11		-30.53	-31.70
6	E	2036-08-30T03:50:09.331		27.13	-16.60	41862.95	29.90		
5	E	2036-08-30T03:50:23.189		27.17	-16.56	42261.03	29.89		
4	E	2036-08-30T03:50:32.527		27.20	-16.54	42543.00	29.90		
alpha	E	2036-08-30T03:51:45.251		27.42	-16.34	44706.48	29.89		
beta	E	2036-08-30T03:52:17.009		27.52	-16.26	45653.19	29.89		
eta	E	2036-08-30T03:53:07.989		27.67	-16.12	47176.12	29.89		
gamma	E	2036-08-30T03:53:22.899		27.72	-16.08	47621.77	29.89		
delta	E	2036-08-30T03:53:45.602		27.79	-16.02	48300.35	29.89		
lambda	E	2036-08-30T03:54:43.360		27.96	-15.87	50026.71	29.89		
epsilon	E	2036-08-30T03:55:10.657		28.05	-15.79	50842.64	29.88		

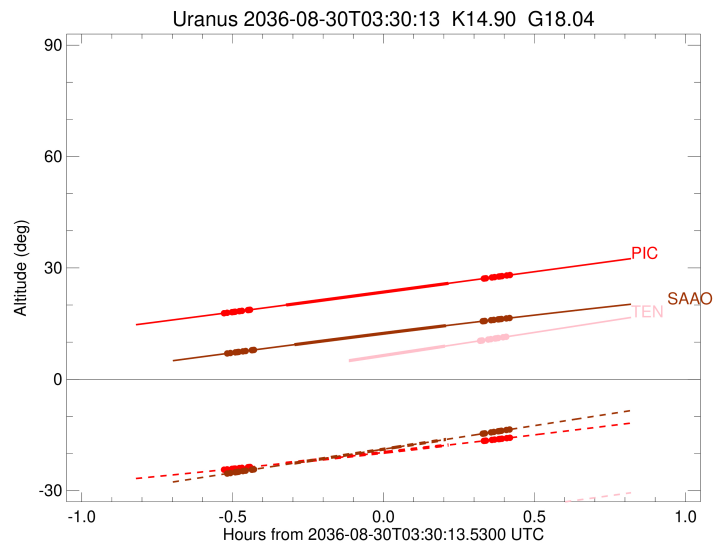
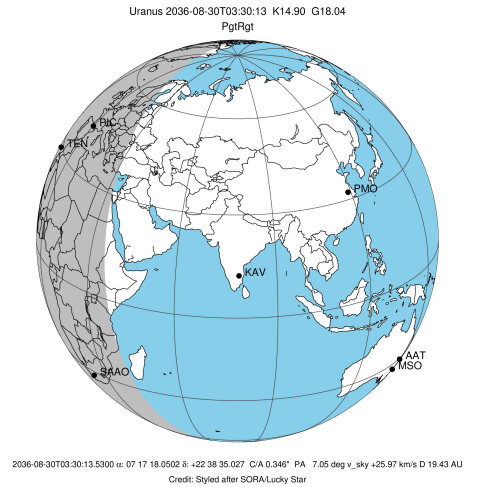
target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2036-08-30T03:26:24.710
 Event type : PgtRgt
 : Uranus occs: geocentric, topocentric
 : Ring occs: geocentric, topocentric
 Observer code : TEN
 Location : Teide Obs./Tenerife
 Latitude (deg) : 28.30050
 E. Longitude (deg) : 343.48909
 Altitude (km) : 2.395
 Gaia source ID : 869273824200844032
 2Mass ID (if available) : 07171804+2238350
 ICRS Star Coord at Epoch: 07h 17m 18.05021s +22:38:35.02709s
 RUWE (>1.4 is poor) : 0.95
 K magnitude : 14.904
 G magnitude : 18.037
 RP magnitude : 17.073
 BP magnitude : 19.065
 DUPflag : 0
 Distance (au) : 19.432
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : 25.97
 Sun-Target sep (deg) : 49.07
 Sun-Moon sep (deg) : 155.50
 B (ring opening deg) : 58.88
 PA of pole (deg) : 81.83
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 0.190
 C/A sky separation (km) : 2679.1
 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	2036-08-30T02:57:54.193	-0.12x	-44.30	51427.90	-30.11			
lambda	I	2036-08-30T02:58:40.723	0.04x	-44.19	50026.71	-30.11			
delta	I	2036-08-30T02:59:38.063	0.23x	-44.05	48300.35	-30.10			
gamma	I	2036-08-30T03:00:00.298	0.30x	-44.00	47631.01	-30.10			
eta	I	2036-08-30T03:00:15.411	0.35x	-43.96	47176.12	-30.10			
beta	I	2036-08-30T03:01:05.441	0.52x	-43.84	45670.90	-30.10			
alpha	I	2036-08-30T03:01:36.868	0.62x	-43.76	44727.18	-30.09			
4	I	2036-08-30T03:02:47.828	0.86x	-43.59	42603.12	-30.09			
5	I	2036-08-30T03:03:01.175	0.90x	-43.56	42200.65	-30.08			
6	I	2036-08-30T03:03:14.412	0.95x	-43.53	41815.38	-30.10			
Uranus	I	2036-08-30T03:10:22.072	2.38x	-42.47	25184.54			28.86	29.99
Uranus	E	2036-08-30T03:42:26.865	8.92	-37.26	25140.58			-30.72	-31.89
6	E	2036-08-30T03:49:25.223	10.37	-36.04	41863.62	29.99			
5	E	2036-08-30T03:49:38.989	10.41	-36.00	42259.52	29.97			
4	E	2036-08-30T03:49:48.364	10.45	-35.98	42543.71	29.98			
alpha	E	2036-08-30T03:51:00.835	10.70	-35.76	44705.89	29.97			
beta	E	2036-08-30T03:51:32.537	10.81	-35.67	45653.54	29.97			
eta	E	2036-08-30T03:52:23.360	10.98	-35.52	47176.12	29.98			
gamma	E	2036-08-30T03:52:38.229	11.03	-35.48	47621.83	29.98			
delta	E	2036-08-30T03:53:00.864	11.11	-35.41	48300.35	29.98			
lambda	E	2036-08-30T03:53:58.451	11.31	-35.24	50026.71	29.98			
epsilon	E	2036-08-30T03:54:25.520	11.41	-35.16	50838.24	29.97			

```

target                : Uranus
target radius (km)    : 25559.00
C/A epoch             : 2036-08-30T03:27:37.510
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        : 869273824200844032
2Mass ID (if available) : 07171804+2238350
ICRS Star Coord at Epoch: 07h 17m 18.05021s +22:38:35.02709s
RUWE (>1.4 is poor)  : 0.95
K magnitude           : 14.904
G magnitude           : 18.037
RP magnitude          : 17.073
BP magnitude          : 19.065
DUPflag              : 0
Distance (au)         : 19.432
f0 (km)               : 0.000
g0 (km)               : 0.000
skyplane vel. (km/s)  : 25.97
Sun-Target sep (deg)  : 49.07
Sun-Moon sep (deg)    : 155.61
B (ring opening deg)  : 58.88
PA of pole (deg)      : 81.83
Pole direction: RA (deg): 257.31100
Dec (deg): -15.17500
C/A sky separation (") : 0.689
C/A sky separation (km) : 9716.2
NAIF SPICE kernels    : RAJobs_U111+rgf15.spk
URKALLvl1.spk
urall1.bsp
IAU_URANUS_for_RINGFIT.tpc
vgr2.urall1.bsp
ural61.bsp
vgr2.ural61.bsp
peph.ural60.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	2036-08-30T02:59:02.282		6.93	-25.43	51383.32	-29.27		
lambda	I	2036-08-30T02:59:48.590		7.07	-25.26	50026.71	-29.28		
delta	I	2036-08-30T03:00:47.597		7.25	-25.06	48300.35	-29.23		
gamma	I	2036-08-30T03:01:10.490		7.32	-24.98	47631.32	-29.22		
eta	I	2036-08-30T03:01:26.074		7.36	-24.92	47176.12	-29.20		
beta	I	2036-08-30T03:02:17.576		7.51	-24.74	45673.56	-29.16		
alpha	I	2036-08-30T03:02:50.279		7.61	-24.62	44721.77	-29.12		
4	I	2036-08-30T03:04:03.344		7.83	-24.37	42608.13	-29.06		
5	I	2036-08-30T03:04:17.851		7.87	-24.32	42188.74	-29.02		
6	I	2036-08-30T03:04:30.749		7.91	-24.27	41822.01	-29.04		
Uranus	I	2036-08-30T03:12:31.358		9.32	-22.58	25287.63		24.18	25.19
Uranus	E	2036-08-30T03:42:38.263		14.45	-16.21	25138.46		-30.81	-31.98
6	E	2036-08-30T03:49:56.402		15.64	-14.66	41868.88	28.95		
5	E	2036-08-30T03:50:10.172		15.68	-14.62	42246.37	28.93		
4	E	2036-08-30T03:50:20.450		15.70	-14.58	42550.07	28.97		
alpha	E	2036-08-30T03:51:34.924		15.90	-14.32	44701.08	29.02		
beta	E	2036-08-30T03:52:07.933		15.99	-14.20	45656.50	29.06		
eta	E	2036-08-30T03:53:00.233		16.13	-14.02	47176.12	29.10		
gamma	E	2036-08-30T03:53:15.563		16.17	-13.96	47622.31	29.11		
delta	E	2036-08-30T03:53:38.847		16.23	-13.88	48300.35	29.13		
lambda	E	2036-08-30T03:54:38.068		16.39	-13.67	50026.71	29.17		
epsilon	E	2036-08-30T03:55:04.751		16.46	-13.58	50805.33	29.16		