

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2032-08-28T03:02:57.010
 Event type : PgtRgt
 : Uranus occs: geocentric, topocentric
 : Ring occs: geocentric, topocentric
 Gaia source ID : 3424691782349829632
 2Mass ID (if available) : 06022036+2337060

Uranus 2032-08-28T03:02:57 K14.42 G17.54 PgtRgt

ICRS Star Coord at Epoch: 06h 02m 20.37317s +23:37:05.99201s

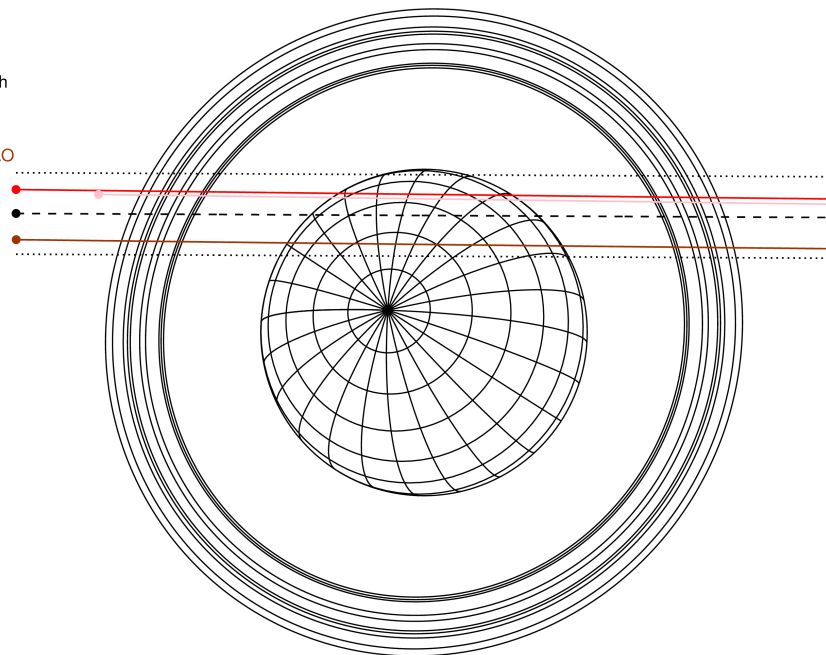
RUWE (>1.4 is poor) : 1.00
 K magnitude : 14.424
 G magnitude : 17.542
 RP magnitude : 16.614
 BP magnitude : 18.459
 DUPflag : 0
 Distance (au) : 19.455
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : 19.25
 Sun-Target sep (deg) : 64.39
 Sun-Moon sep (deg) : 22.13
 B (ring opening deg) : 74.91
 PA of pole (deg) : 58.37

Uranus 2032-08-28T03:02:57 K14.42 G17.54
 PgtRgt



2032-08-28T03:02:57.0100 ex: 06 02 20.3732 s: +23 37 05.992 C/A 1.303° PA 179.72 deg v_sky +19.25 km/s D 19.45 AU
 Credit: Styled after SORA/Lucky Star

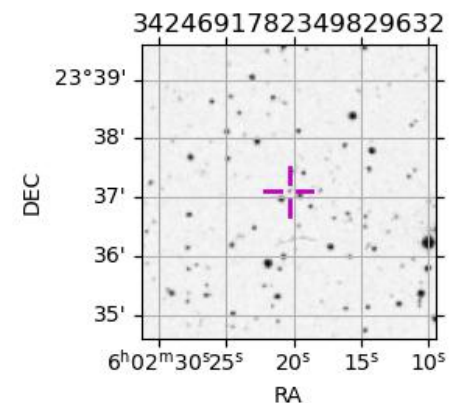
Earth
 PIC
 TEN
 SAAO



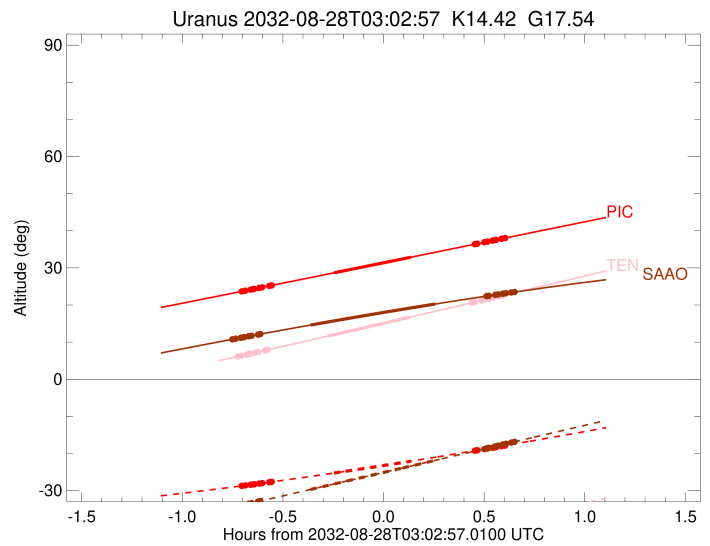
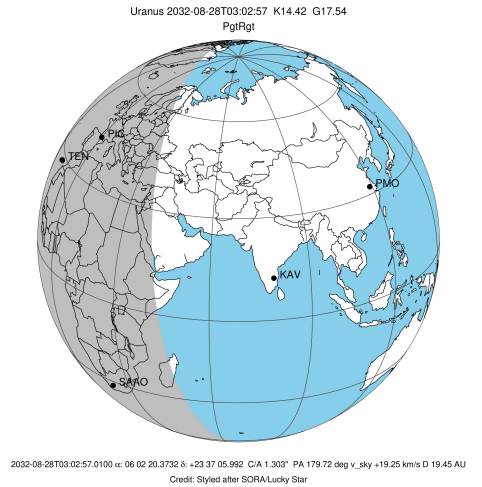
#	a(km)	ring
1	41837.2	6
2	42235.0	5
3	42571.2	4
4	44718.5	alpha
5	45661.1	beta
6	47176.1	eta
7	47626.3	gamma
8	48300.3	delta
9	50026.7	lambda
10	51149.4	epsilon

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	+++++	+ +	+++++	AUG 28 02:21 - AUG 28 03:39	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 28 02:19 - AUG 28 03:38	PieRie
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 28 02:18 - AUG 28 03:42	PieRie
MSO	Mt. Stromlo Observato	-35.3	149.0					PnnRnn



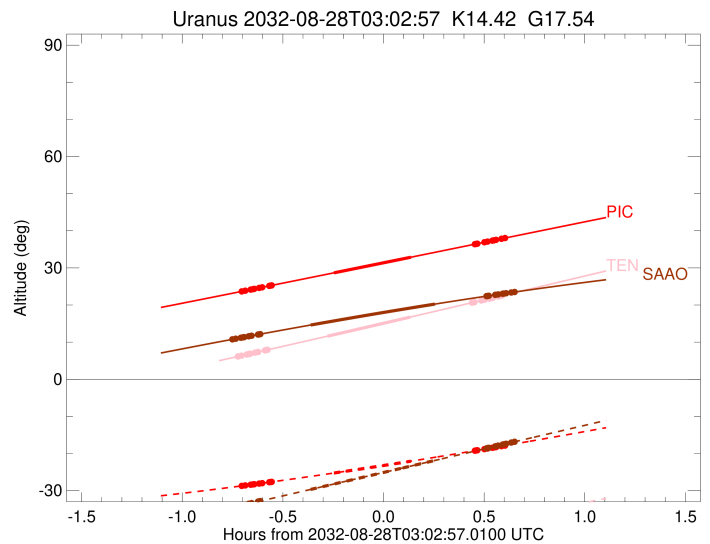
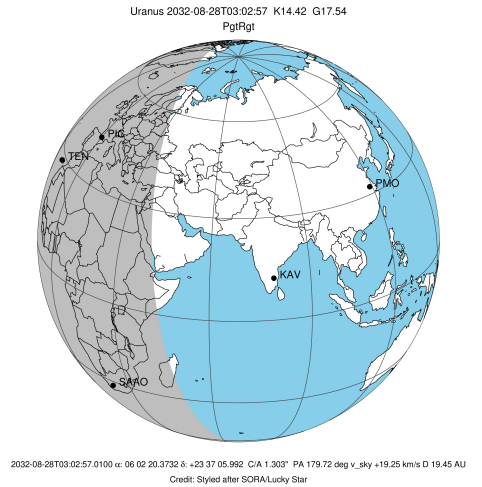
target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2032-08-28T02:59:17.550
 Event type : PgtRgt
 : Uranus occs: geocentric, topocentric
 : Ring occs: geocentric, topocentric
 Observer code : PIC
 Location : Pic du Midi
 Latitude (deg) : 42.93656
 E. Longitude (deg) : 0.14231
 Altitude (km) : 2.890
 Gaia source ID : 3424691782349829632
 2Mass ID (if available) : 06022036+2337060
 ICRS Star Coord at Epoch: 06h 02m 20.37317s +23:37:05.99201s
 RUWE (>1.4 is poor) : 1.00
 K magnitude : 14.424
 G magnitude : 17.542
 RP magnitude : 16.614
 BP magnitude : 18.459
 DUPflag : 0
 Distance (au) : 19.455
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : 19.25
 Sun-Target sep (deg) : 64.39
 Sun-Moon sep (deg) : 21.79
 B (ring opening deg) : 74.91
 PA of pole (deg) : 58.37
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 1.533
 C/A sky separation (km) : 21629.9
 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	2032-08-28T02:21:00.629		23.73	-28.68	50806.66	-17.75		
lambda	I	2032-08-28T02:21:44.554		23.86	-28.60	50026.71	-17.72		
delta	I	2032-08-28T02:23:22.377		24.16	-28.40	48300.35	-17.57		
gamma	I	2032-08-28T02:24:00.524		24.27	-28.32	47631.40	-17.50		
eta	I	2032-08-28T02:24:26.569		24.35	-28.27	47176.12	-17.46		
beta	I	2032-08-28T02:25:52.639		24.61	-28.10	45681.22	-17.30		
alpha	I	2032-08-28T02:26:46.481		24.77	-27.99	44752.43	-17.19		
4	I	2032-08-28T02:28:55.643		25.16	-27.73	42547.66	-16.90		
5	I	2032-08-28T02:29:10.740		25.21	-27.70	42305.06	-16.87		
6	I	2032-08-28T02:29:37.312		25.29	-27.64	41848.08	-16.78		
Uranus	I	2032-08-28T02:48:08.897		28.66	-25.26	25133.73		13.23	13.84
Uranus	E	2032-08-28T03:11:09.526		32.88	-22.06	25558.75		-0.32	-0.33
6	E	2032-08-28T03:30:08.047		36.38	-19.25	41795.72	16.69		
5	E	2032-08-28T03:30:34.423		36.46	-19.18	42236.64	16.78		
4	E	2032-08-28T03:30:57.519		36.53	-19.13	42616.51	16.81		
alpha	E	2032-08-28T03:33:00.373		36.90	-18.81	44700.54	17.09		
beta	E	2032-08-28T03:33:55.657		37.07	-18.67	45649.71	17.19		
eta	E	2032-08-28T03:35:24.074		37.35	-18.45	47176.12	17.35		
gamma	E	2032-08-28T03:35:49.753		37.42	-18.38	47622.17	17.39		
delta	E	2032-08-28T03:36:28.674		37.54	-18.28	48300.35	17.46		
lambda	E	2032-08-28T03:38:07.144		37.85	-18.03	50026.71	17.61		
epsilon	E	2032-08-28T03:39:13.259		38.05	-17.86	51193.73	17.63		

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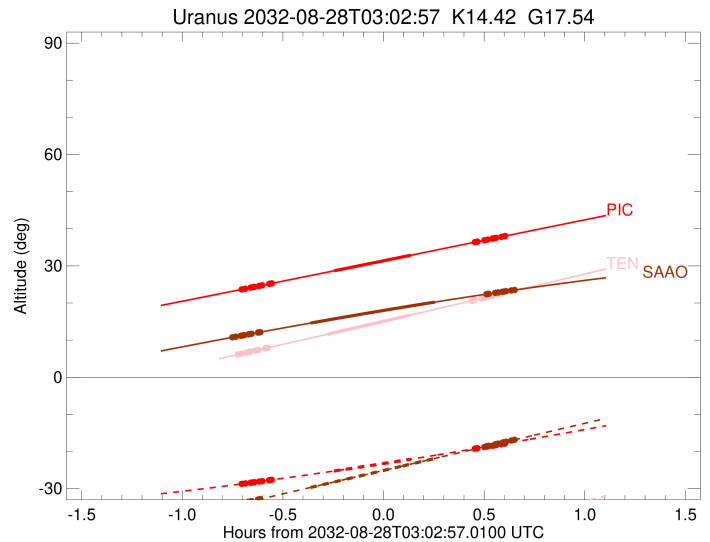
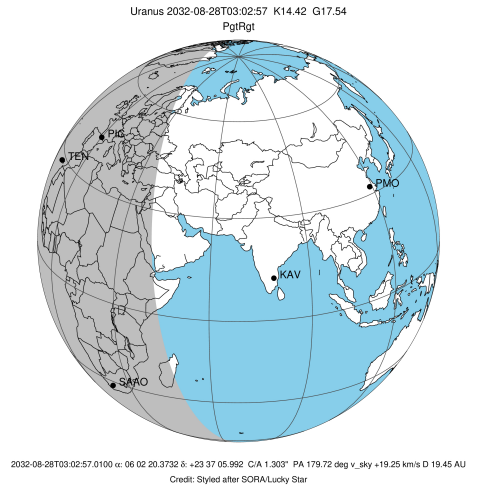
target                : Uranus
target radius (km)    : 25559.00
C/A epoch              : 2032-08-28T02:58:15.090
Event type             : PgtRgt
: Uranus occs: geocentric, topocentric
: Ring occs: geocentric, topocentric
Observer code         : TEN
Location               : Teide Obs./Tenerife
Latitude (deg)        : 28.30050
E. Longitude (deg)    : 343.48909
Altitude (km)         : 2.395
Gaia source ID        : 3424691782349829632
2Mass ID (if available) : 06022036+2337060
ICRS Star Coord at Epoch: 06h 02m 20.37317s +23:37:05.99201s
RUWE (>1.4 is poor)  : 1.00
K magnitude           : 14.424
G magnitude           : 17.542
RP magnitude          : 16.614
BP magnitude          : 18.459
DUPflag               : 0
Distance (au)         : 19.455
f0 (km)               : 0.000
g0 (km)               : 0.000
skyplane vel. (km/s)  : 19.25
Sun-Target sep (deg)  : 64.39
Sun-Moon sep (deg)    : 21.52
B (ring opening deg)  : 74.91
PA of pole (deg)     : 58.37
Pole direction: RA (deg): 257.31100
Dec (deg): -15.17500
C/A sky separation (") : 1.484
C/A sky separation (km) : 20936.7
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	2032-08-28T02:19:52.362		6.20	-48.42	50809.63	-17.98		
lambda	I	2032-08-28T02:20:35.893		6.35	-48.35	50026.71	-17.95		
delta	I	2032-08-28T02:22:12.431		6.68	-48.18	48300.35	-17.81		
gamma	I	2032-08-28T02:22:50.058		6.81	-48.12	47631.42	-17.75		
eta	I	2032-08-28T02:23:15.744		6.89	-48.07	47176.12	-17.70		
beta	I	2032-08-28T02:24:40.585		7.18	-47.92	45681.23	-17.55		
alpha	I	2032-08-28T02:25:33.623		7.36	-47.82	44752.43	-17.45		
4	I	2032-08-28T02:27:40.786		7.79	-47.59	42546.99	-17.18		
5	I	2032-08-28T02:27:55.647		7.84	-47.56	42304.36	-17.16		
6	I	2032-08-28T02:28:21.694		7.93	-47.52	41848.81	-17.07		
Uranus	I	2032-08-28T02:46:14.320		11.60	-45.36	25112.56		13.57	14.19
Uranus	E	2032-08-28T03:10:57.844		16.76	-41.89	25556.08		-1.07	-1.13
6	E	2032-08-28T03:29:17.333		20.62	-39.03	41795.93	16.96		
5	E	2032-08-28T03:29:43.179		20.71	-38.96	42234.95	17.04		
4	E	2032-08-28T03:30:06.043		20.79	-38.89	42616.55	17.07		
alpha	E	2032-08-28T03:32:07.077		21.22	-38.56	44699.98	17.32		
beta	E	2032-08-28T03:33:01.624		21.41	-38.41	45649.39	17.42		
eta	E	2032-08-28T03:34:28.918		21.72	-38.17	47176.12	17.57		
gamma	E	2032-08-28T03:34:54.274		21.81	-38.10	47622.11	17.61		
delta	E	2032-08-28T03:35:32.725		21.95	-38.00	48300.35	17.67		
lambda	E	2032-08-28T03:37:10.045		22.29	-37.73	50026.71	17.81		
epsilon	E	2032-08-28T03:38:15.809		22.53	-37.54	51200.62	17.83		

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target                : Uranus
target radius (km)    : 25559.00
C/A epoch             : 2032-08-28T02:59:31.340
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        : 3424691782349829632
2Mass ID (if available) : 06022036+2337060
ICRS Star Coord at Epoch: 06h 02m 20.37317s +23:37:05.99201s
RUWE (>1.4 is poor) : 1.00
K magnitude           : 14.424
G magnitude           : 17.542
RP magnitude          : 16.614
BP magnitude          : 18.459
DUPflag               : 0
Distance (au)         : 19.455
f0 (km)               : 0.000
g0 (km)               : 0.000
skyplane vel. (km/s)  : 19.25
Sun-Target sep (deg)  : 64.39
Sun-Moon sep (deg)    : 21.62
B (ring opening deg)  : 74.91
PA of pole (deg)      : 58.37
Pole direction: RA (deg): 257.31100
Dec (deg): -15.17500
C/A sky separation (") : 0.977
C/A sky separation (km) : 13787.7
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_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	2032-08-28T02:18:10.221		10.81	-34.49	50847.33	-18.79		
lambda	I	2032-08-28T02:18:53.867		10.93	-34.34	50026.71	-18.79		
delta	I	2032-08-28T02:20:25.899		11.19	-34.02	48300.35	-18.73		
gamma	I	2032-08-28T02:21:01.634		11.29	-33.90	47631.56	-18.70		
eta	I	2032-08-28T02:21:25.998		11.36	-33.81	47176.12	-18.68		
beta	I	2032-08-28T02:22:46.197		11.58	-33.54	45680.98	-18.62		
alpha	I	2032-08-28T02:23:36.081		11.72	-33.36	44751.83	-18.58		
4	I	2032-08-28T02:25:35.252		12.05	-32.95	42540.25	-18.47		
5	I	2032-08-28T02:25:49.272		12.09	-32.90	42295.49	-18.47		
6	I	2032-08-28T02:26:12.624		12.16	-32.82	41856.42	-18.43		
Uranus	I	2032-08-28T02:41:13.447		14.61	-29.68	25014.11		15.07	15.75
Uranus	E	2032-08-28T03:18:18.356		20.26	-21.86	25449.85		-6.60	-6.91
6	E	2032-08-28T03:33:36.682		22.39	-18.62	41798.52	18.32		
5	E	2032-08-28T03:33:59.613		22.44	-18.54	42220.15	18.36		
4	E	2032-08-28T03:34:21.776		22.49	-18.46	42616.03	18.37		
alpha	E	2032-08-28T03:36:14.533		22.74	-18.07	44695.36	18.47		
beta	E	2032-08-28T03:37:05.886		22.86	-17.88	45646.82	18.51		
eta	E	2032-08-28T03:38:28.433		23.04	-17.59	47176.12	18.56		
gamma	E	2032-08-28T03:38:52.422		23.09	-17.51	47621.64	18.58		
delta	E	2032-08-28T03:39:28.927		23.17	-17.38	48300.35	18.60		
lambda	E	2032-08-28T03:41:01.584		23.37	-17.05	50026.71	18.66		
epsilon	E	2032-08-28T03:42:07.587		23.52	-16.82	51259.48	18.65		