

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2030-08-29T02:49:08.310
 Event type : XRgt
 : No Uranus occs
 : Ring occs: geocentric, topocentric
 Gaia source ID : 3416307696949597312
 2Mass ID (if available) : 05252711+2316160

ICRS Star Coord at Epoch: 05h 25m 27.11981s +23:16:16.10638s

RUWE (>1.4 is poor) : 0.90
 K magnitude : 14.478
 G magnitude : 17.145
 RP magnitude : 16.268
 BP magnitude : 17.893
 DUPflag : 0
 Distance (au) : 19.440
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : 14.88
 Sun-Target sep (deg) : 73.34
 Sun-Moon sep (deg) : 75.32
 B (ring opening deg) : 81.05
 PA of pole (deg) : 25.99

a(km) ring

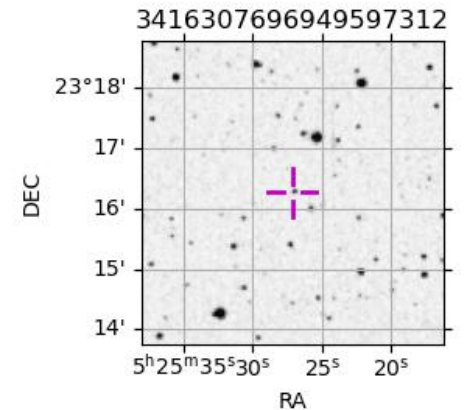
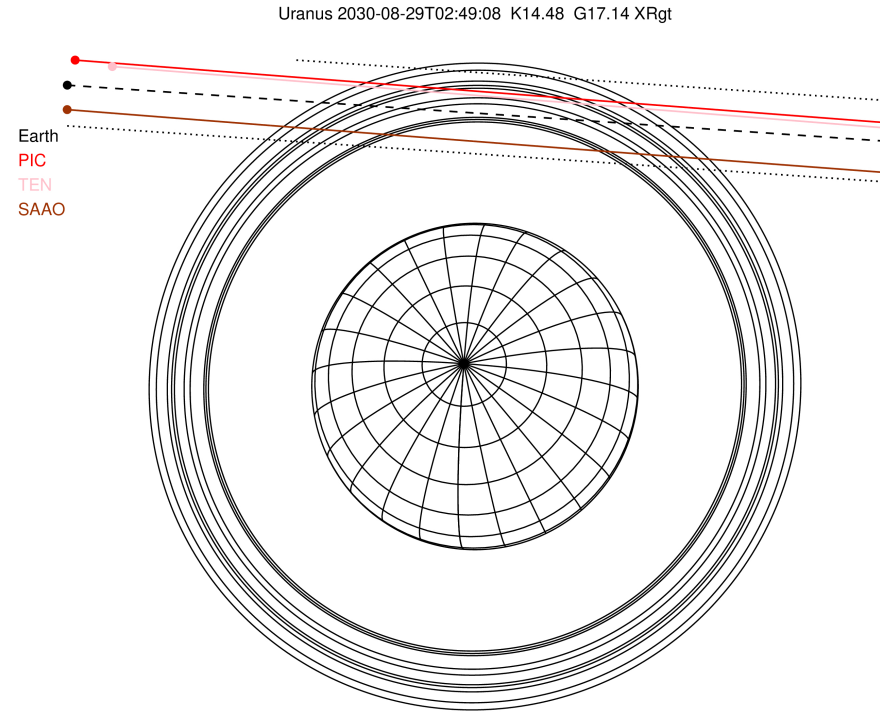
- 1 41837.2 6
- 2 42235.0 5
- 3 42571.2 4
- 4 44718.5 alpha
- 5 45661.1 beta
- 6 47176.1 eta
- 7 47626.3 gamma
- 8 48300.3 delta
- 9 50026.7 lambda
- 10 51149.4 epsilon

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 29 02:21 - AUG 29 03:10	PnnRie
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 29 02:18 - AUG 29 03:10	PnnRie
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 29 02:07 - AUG 29 03:24	PnnRie
MSO	Mt. Stromlo Observato	-35.3	149.0					PnnRnn

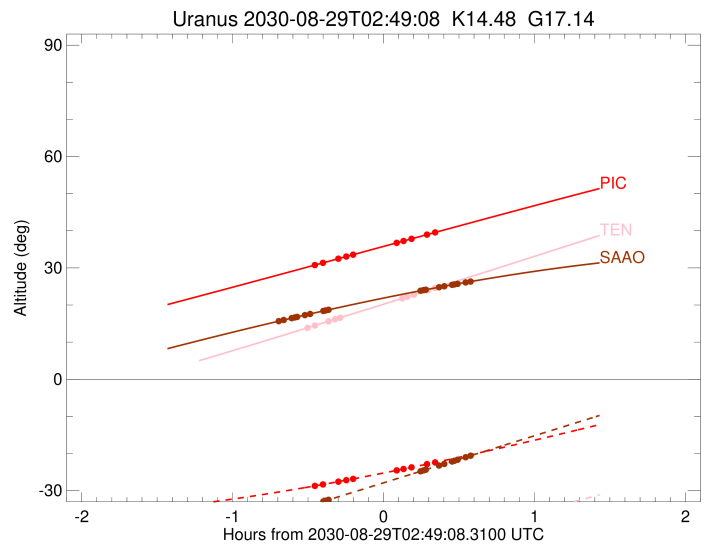
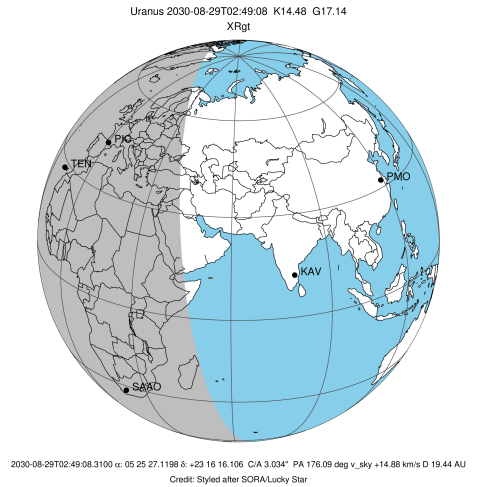


2030-08-29T02:49:08.3100 ex: 05 25 27.1198 s: +23 16 16.106 C/A 3.034" PA 176.09 deg v_sky +14.88 km/s D 19.44 AU
 Credit: Styled after SORA/Lucky Star



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target                : Uranus
target radius (km)   : 25559.00
C/A epoch            : 2030-08-29T02:45:09.680
Event type           : XRgt
: No Uranus occs
: 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       : 3416307696949597312
2Mass ID (if available) : 05252711+2316160
ICRS Star Coord at Epoch: 05h 25m 27.11981s +23:16:16.10638s
RUWE (>1.4 is poor) : 0.90
K magnitude           : 14.478
G magnitude           : 17.145
RP magnitude          : 16.268
BP magnitude          : 17.893
DUPflag              : 0
Distance (au)         : 19.440
f0 (km)               : 0.000
g0 (km)               : 0.000
skyplane vel. (km/s) : 14.88
Sun-Target sep (deg) : 73.34
Sun-Moon sep (deg)   : 76.01
B (ring opening deg) : 81.05
PA of pole (deg)     : 25.99
Pole direction: RA (deg): 257.31100
Dec (deg): -15.17500
C/A sky separation (") : 3.271
C/A sky separation (km) : 46123.8
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_itrfr93_040916.bsp
earth_720101_070426.bpc
earth_200101_990628_predict.bpc
pg3f0000r.bsp
pg490000r.bsp
naif0012.tls
earth_flat_IAU.spk
  
```

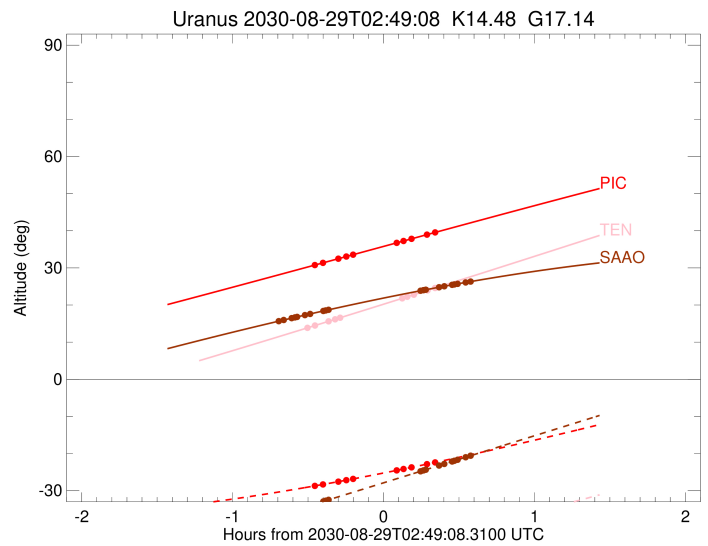
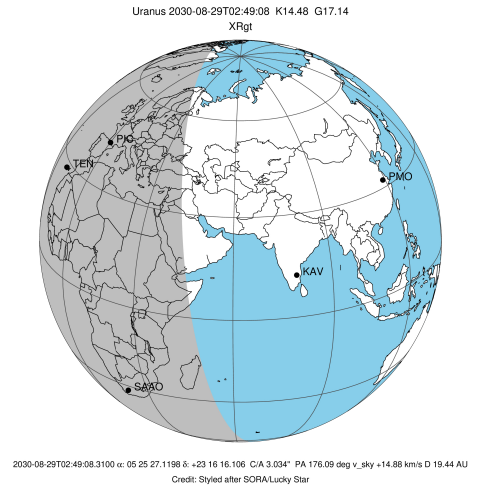


Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2030-08-29T02:21:51.010		30.76	-28.72	51161.78	-6.25		
lambda	I	2030-08-29T02:25:07.222		31.37	-28.33	50026.71	-5.42		
delta	I	2030-08-29T02:31:15.250		32.49	-27.57	48300.35	-3.94		
gamma	I	2030-08-29T02:34:27.487		33.08	-27.17	47622.65	-3.11		
eta	I	2030-08-29T02:37:10.103		33.58	-26.83	47176.12	-2.38		

No planet occultations

eta	E	2030-08-29T02:54:17.166		36.73	-24.56	47176.12	2.38		
gamma	E	2030-08-29T02:57:00.758		37.23	-24.18	47624.57	3.10		
delta	E	2030-08-29T03:00:12.926		37.82	-23.74	48300.35	3.93		
lambda	E	2030-08-29T03:06:22.389		38.95	-22.87	50026.71	5.39		
epsilon	E	2030-08-29T03:10:28.958		39.71	-22.28	51467.81	6.22		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2030-08-29T02:43:41.080
 Event type : XRgt
 : No Uranus occs
 : 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 : 3416307696949597312
 2Mass ID (if available) : 05252711+2316160
 ICRS Star Coord at Epoch: 05h 25m 27.11981s +23:16:16.10638s
 RUWE (>1.4 is poor) : 0.90
 K magnitude : 14.478
 G magnitude : 17.145
 RP magnitude : 16.268
 BP magnitude : 17.893
 DUPflag : 0
 Distance (au) : 19.440
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : 14.88
 Sun-Target sep (deg) : 73.34
 Sun-Moon sep (deg) : 75.84
 B (ring opening deg) : 81.05
 PA of pole (deg) : 25.99
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 3.224
 C/A sky separation (km) : 45459.2
 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



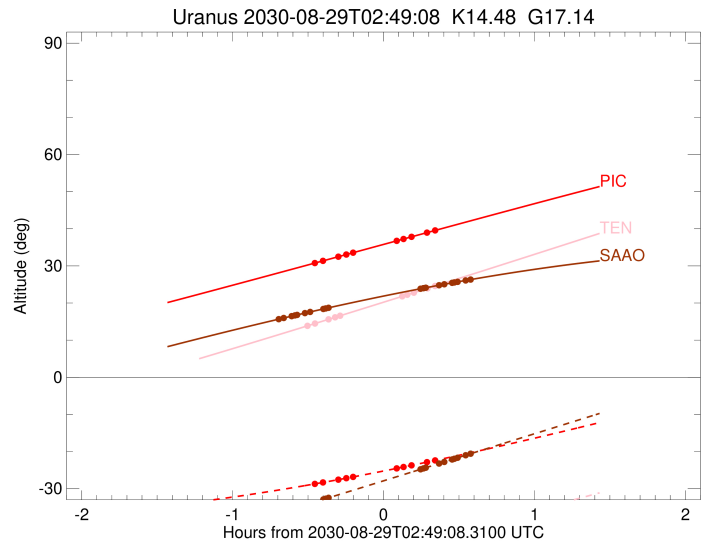
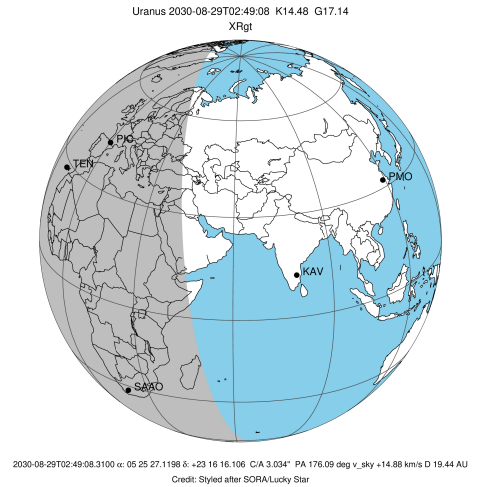
Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2030-08-29T02:18:57.199		13.86	-48.66	51150.38	-6.69		
lambda	I	2030-08-29T02:21:56.520		14.49	-48.35	50026.71	-5.94		
delta	I	2030-08-29T02:27:22.064		15.62	-47.77	48300.35	-4.65		
gamma	I	2030-08-29T02:29:59.141		16.17	-47.47	47622.44	-3.98		
eta	I	2030-08-29T02:31:59.216		16.59	-47.24	47176.12	-3.45		

No planet occultations

eta	E	2030-08-29T02:56:30.502		21.78	-44.11	47176.12	3.44		
gamma	E	2030-08-29T02:58:31.635		22.21	-43.83	47624.88	3.97		
delta	E	2030-08-29T03:01:08.772		22.77	-43.45	48300.35	4.63		
lambda	E	2030-08-29T03:06:36.085		23.93	-42.66	50026.71	5.90		
epsilon	E	2030-08-29T03:10:25.702		24.75	-42.09	51475.84	6.65		

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target                : Uranus
target radius (km)   : 25559.00
C/A epoch            : 2030-08-29T02:45:05.750
Event type          : XRgt
: No Uranus occs
: 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      : 3416307696949597312
2Mass ID (if available) : 05252711+2316160
ICRS Star Coord at Epoch: 05h 25m 27.11981s +23:16:16.10638s
RUWE (>1.4 is poor) : 0.90
K magnitude         : 14.478
G magnitude         : 17.145
RP magnitude        : 16.268
BP magnitude        : 17.893
DUPflag            : 0
Distance (au)       : 19.440
f0 (km)            : 0.000
g0 (km)            : 0.000
skyplane vel. (km/s) : 14.88
Sun-Target sep (deg) : 73.34
Sun-Moon sep (deg)  : 75.79
B (ring opening deg) : 81.05
PA of pole (deg)    : 25.99
Pole direction: RA (deg): 257.31100
Dec (deg): -15.17500
C/A sky separation (") : 2.715
C/A sky separation (km) : 38277.0
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	2030-08-29T02:07:42.164		15.68	-36.54	51047.30	-9.70		
lambda	I	2030-08-29T02:09:29.857		15.97	-36.17	50026.71	-9.34		
delta	I	2030-08-29T02:12:39.902		16.47	-35.52	48300.35	-8.82		
gamma	I	2030-08-29T02:13:57.895		16.67	-35.25	47621.40	-8.59		
eta	I	2030-08-29T02:14:50.216		16.81	-35.07	47176.12	-8.43		
beta	I	2030-08-29T02:17:53.948		17.28	-34.43	45680.83	-7.84		
alpha	I	2030-08-29T02:20:02.889		17.61	-33.98	44699.43	-7.39		
4	I	2030-08-29T02:25:24.568		18.43	-32.87	42526.01	-6.12		
5	I	2030-08-29T02:26:22.414		18.57	-32.67	42170.06	-5.89		
6	I	2030-08-29T02:27:24.321		18.73	-32.45	41826.24	-5.62		

No planet occultations

6	E	2030-08-29T03:03:51.918		23.85	-24.80	41858.56	5.60		
5	E	2030-08-29T03:04:56.437		23.99	-24.57	42225.66	5.87		
4	E	2030-08-29T03:05:48.517		24.10	-24.39	42539.75	6.10		
alpha	E	2030-08-29T03:11:13.747		24.79	-23.24	44733.49	7.35		
beta	E	2030-08-29T03:13:17.708		25.05	-22.81	45673.22	7.79		
eta	E	2030-08-29T03:16:23.507		25.43	-22.15	47176.12	8.38		
gamma	E	2030-08-29T03:17:16.788		25.54	-21.96	47626.73	8.54		
delta	E	2030-08-29T03:18:34.670		25.70	-21.69	48300.35	8.76		
lambda	E	2030-08-29T03:21:46.057		26.08	-21.01	50026.71	9.27		
epsilon	E	2030-08-29T03:24:24.406		26.39	-20.46	51525.58	9.62		