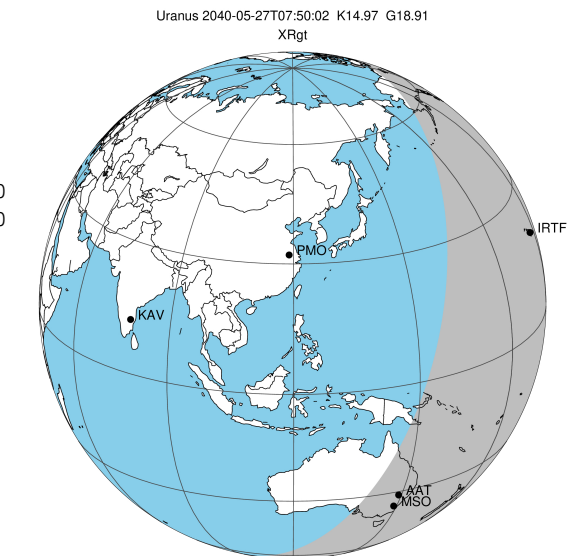


target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2040-05-27T07:50:02.150
 Event type : XRgt
 : No Uranus occs
 : Ring occs: geocentric, topocentric
 Gaia source ID : 670660208422349952
 2Mass ID (if available) : 08084247+2043224

ICRS Star Coord at Epoch: 08h 08m 42.50414s +20:43:22.68001s

RUWE (>1.4 is poor) : 0.98
 K magnitude : 14.972
 G magnitude : 18.906
 RP magnitude : 17.680
 BP magnitude : 20.074
 DUPflag : 0
 Distance (au) : 19.150
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : 24.13
 Sun-Target sep (deg) : 53.79
 Sun-Moon sep (deg) : 137.78
 B (ring opening deg) : 47.09
 PA of pole (deg) : 90.23

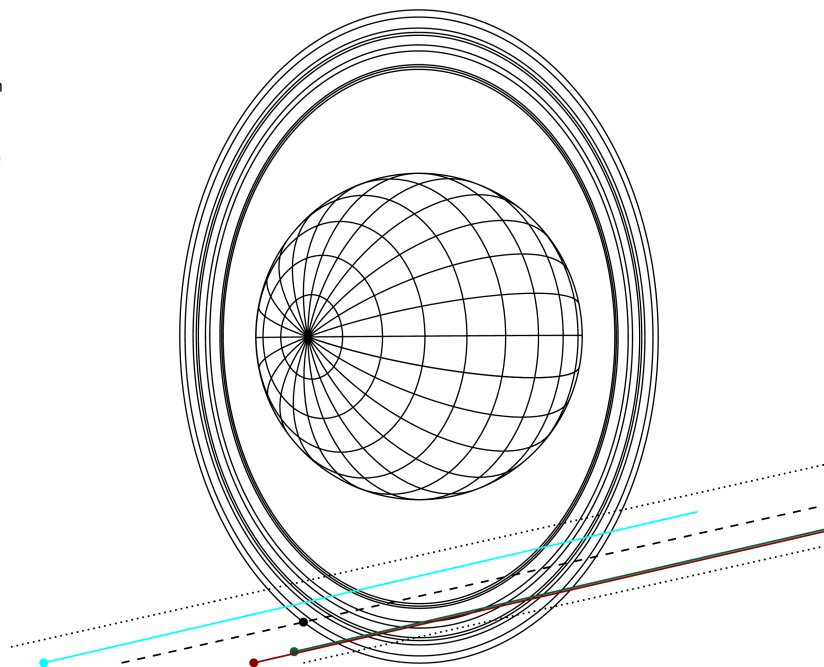
#	a(km)	ring
1	41837.2	6
2	42235.0	5
3	42571.2	4
4	44718.5	alpha
5	45661.1	beta
6	47176.1	eta
7	47626.3	gamma
8	48300.3	delta
9	50026.7	lambda
10	51149.4	epsilon



2040-05-27T07:50:02.1500 ra: 08 08 42.50414 s: +20 43 22.680 C/A 2.849° PA 12.63 deg v_sky +24.13 km/s D 19.15 AU
 Credit: Styled after SORA/Lucky Star

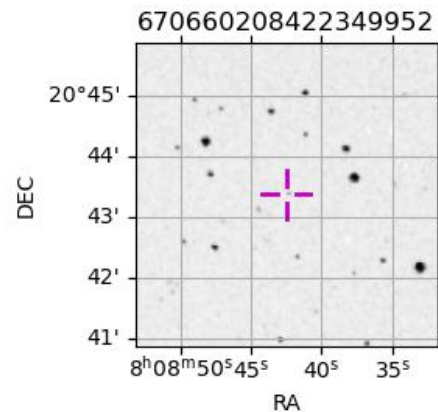
Earth
 IRTF
 AAT
 MSO

Uranus 2040-05-27T07:50:02 K14.97 G18.91 XRgt



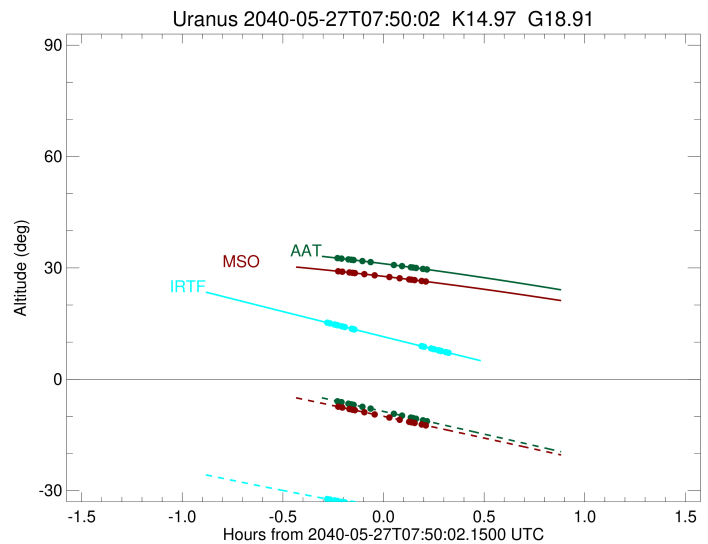
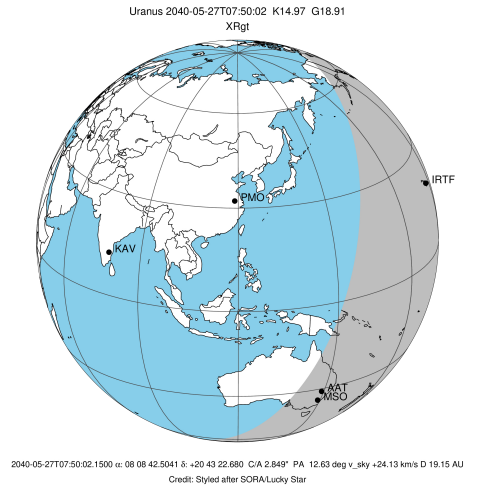
Observable events with sun below -5 deg and altitude above 5 deg unblocked by planet

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					PnnRnn
IRTF	Mauna Kea/IRTF	19.8	204.5	+++++		+++++	MAY 27 07:33 - MAY 27 08:09	PnnRie
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	+++++		+++++	MAY 27 07:36 - MAY 27 08:02	PnnRie
SAAO	So. Afr. Astro. Obs.	-32.4	20.8					PnnRnn
MSO	Mt. Stromlo Observato	-35.3	149.0	+++++		+++++	MAY 27 07:36 - MAY 27 08:02	PnnRie



```

target                : Uranus
target radius (km)   : 25559.00
C/A epoch            : 2040-05-27T07:53:56.980
Event type          : XRgt
: No Uranus occs
: Ring occs: geocentric, topocentric
Observer code       : IRTF
Location            : Mauna Kea/IRTF
Latitude (deg)      : 19.82622
E. Longitude (deg)  : 204.52800
Altitude (km)       : 4.168
Gaia source ID      : 670660208422349952
2Mass ID (if available) : 08084247+2043224
ICRS Star Coord at Epoch: 08h 08m 42.50414s +20:43:22.68001s
RUWE (>1.4 is poor) : 0.98
K magnitude         : 14.972
G magnitude         : 18.906
RP magnitude        : 17.680
BP magnitude        : 20.074
DUPflag            : 0
Distance (au)       : 19.150
f0 (km)            : 0.000
g0 (km)            : 0.000
skyplane vel. (km/s) : 24.13
Sun-Target sep (deg) : 53.79
Sun-Moon sep (deg)  : 138.55
B (ring opening deg) : 47.09
PA of pole (deg)    : 90.23
Pole direction: RA (deg): 257.31100
Dec (deg): -15.17500
C/A sky separation (") : 2.632
C/A sky separation (km) : 36553.4
NAIF SPICE kernels  : RAJobs_U111+rgf15.spk
URKALLvl1.spk
urall11.bsp
IAU_URANUS_for_RINGFIT.tpc
vgr2.urall11.bsp
ural161.bsp
vgr2.ural161.bsp
peph.ural160.bsp
earthstns_itr93_040916.bsp
earth_720101_070426.bpc
earth_200101_990628_predict.bpc
pg3f0000r.bsp
pg490000r.bsp
naif0012.tls
earth_flat_IAU.spk
    
```



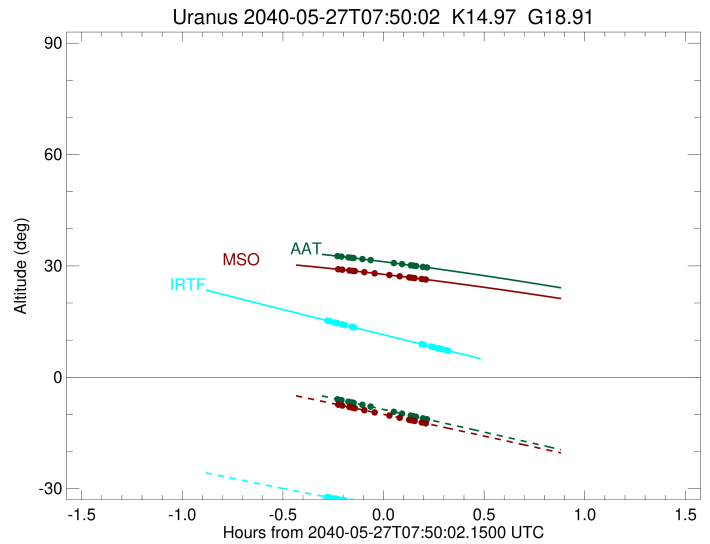
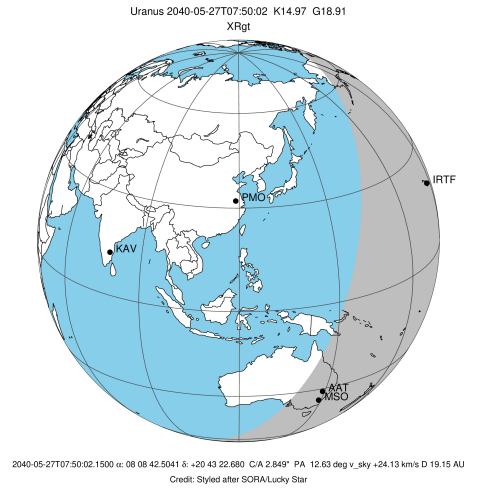
Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2040-05-27T07:33:00.840		15.30	-32.22	51508.10	-22.54		
lambda	I	2040-05-27T07:34:07.380		15.05	-32.41	50026.71	-21.89		
delta	I	2040-05-27T07:35:28.016		14.75	-32.64	48300.35	-20.91		
gamma	I	2040-05-27T07:36:00.805		14.63	-32.73	47621.70	-20.48		
eta	I	2040-05-27T07:36:22.719		14.54	-32.80	47176.12	-20.18		
beta	I	2040-05-27T07:37:40.076		14.25	-33.02	45658.86	-19.06		
alpha	I	2040-05-27T07:38:28.449		14.07	-33.15	44749.71	-18.29		
4	I	2040-05-27T07:40:34.254		13.60	-33.50	42591.76	-16.10		
5	I	2040-05-27T07:40:59.680		13.50	-33.57	42189.93	-15.61		
6	I	2040-05-27T07:41:23.144		13.42	-33.64	41812.63	-15.13		

No planet occultations

6	E	2040-05-27T08:01:19.419		8.94	-36.85	41794.75	15.16		
5	E	2040-05-27T08:01:41.830		8.86	-36.91	42154.85	15.65		
4	E	2040-05-27T08:02:07.387		8.76	-36.98	42546.98	16.14		
alpha	E	2040-05-27T08:04:12.876		8.30	-37.30	44717.63	18.34		
beta	E	2040-05-27T08:05:02.093		8.11	-37.42	45641.48	19.10		
eta	E	2040-05-27T08:06:20.078		7.82	-37.62	47176.12	20.24		
gamma	E	2040-05-27T08:06:41.980		7.74	-37.67	47622.68	20.54		
delta	E	2040-05-27T08:07:14.630		7.62	-37.76	48300.35	20.97		
lambda	E	2040-05-27T08:08:35.027		7.32	-37.96	50026.71	21.96		
epsilon	E	2040-05-27T08:09:17.683		7.17	-38.06	50973.79	22.61		

```

target                : Uranus
target radius (km)   : 25559.00
C/A epoch            : 2040-05-27T07:52:47.140
Event type          : XRgt
: No Uranus occs
: Ring occs: geocentric, topocentric
Observer code       : AAT
Location            : Siding Spring (AAT)
Latitude (deg)      : -31.27703
E. Longitude (deg)  : 149.06608
Altitude (km)       : 1.164
Gaia source ID      : 670660208422349952
2Mass ID (if available) : 08084247+2043224
ICRS Star Coord at Epoch: 08h 08m 42.50414s +20:43:22.68001s
RUWE (>1.4 is poor) : 0.98
K magnitude          : 14.972
G magnitude          : 18.906
RP magnitude         : 17.680
BP magnitude         : 20.074
DUPflag             : 0
Distance (au)       : 19.150
f0 (km)             : 0.000
g0 (km)             : 0.000
skyplane vel. (km/s) : 24.13
Sun-Target sep (deg) : 53.79
Sun-Moon sep (deg)  : 138.56
B (ring opening deg) : 47.09
PA of pole (deg)    : 90.23
Pole direction: RA (deg): 257.31100
Dec (deg): -15.17500
C/A sky separation (") : 3.147
C/A sky separation (km) : 43715.2
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_itr93_040916.bsp
earth_720101_070426.bpc
earth_200101_990628_predict.bpc
pg3f0000r.bsp
pg490000r.bsp
naif0012.tls
earth_flat_IAU.spk
  
```

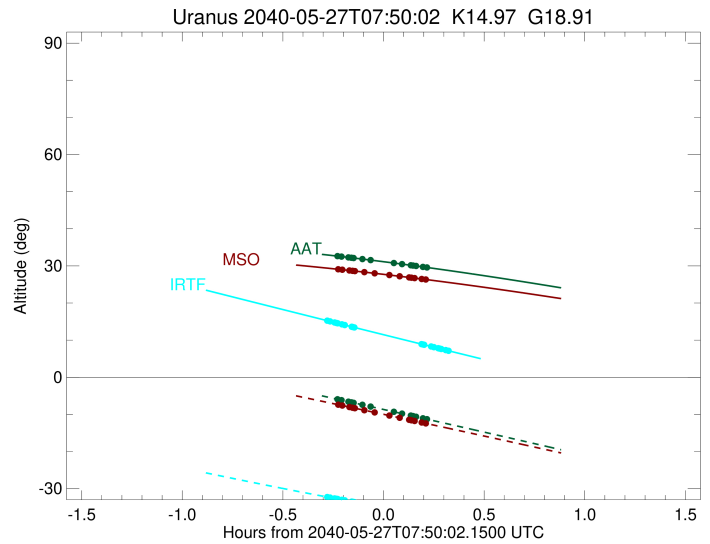
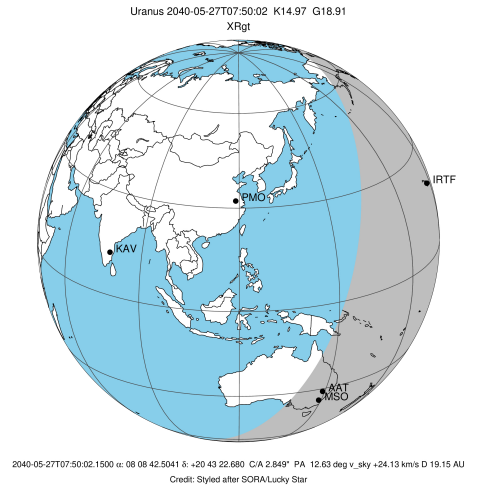


Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2040-05-27T07:36:01.307		32.66	-5.87	51454.18	-16.26		
lambda	I	2040-05-27T07:37:32.162		32.51	-6.17	50026.71	-15.00		
delta	I	2040-05-27T07:39:35.756		32.29	-6.58	48300.35	-12.90		
gamma	I	2040-05-27T07:40:30.528		32.19	-6.76	47621.10	-11.90		
eta	I	2040-05-27T07:41:09.111		32.12	-6.89	47176.12	-11.16		
beta	I	2040-05-27T07:43:48.240		31.83	-7.42	45651.70	-7.93		
alpha	I	2040-05-27T07:46:10.535		31.57	-7.90	44740.91	-4.80		

No planet occultations

alpha	E	2040-05-27T07:53:06.792		30.77	-9.30	44732.38	4.81		
beta	E	2040-05-27T07:55:30.017		30.49	-9.78	45644.37	7.94		
eta	E	2040-05-27T07:58:09.853		30.17	-10.32	47176.12	11.18		
gamma	E	2040-05-27T07:58:48.451		30.09	-10.45	47621.68	11.91		
delta	E	2040-05-27T07:59:43.121		29.98	-10.63	48300.35	12.91		
lambda	E	2040-05-27T08:01:46.579		29.73	-11.05	50026.71	15.02		
epsilon	E	2040-05-27T08:02:53.290		29.59	-11.27	51063.86	16.28		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2040-05-27T07:52:44.040
 Event type : XRgt
 : No Uranus occs
 : Ring occs: geocentric, topocentric
 Observer code : MSO
 Location : Mt. Stromlo Observatory
 Latitude (deg) : -35.32000
 E. Longitude (deg) : 149.00833
 Altitude (km) : 0.770
 Gaia source ID : 670660208422349952
 2Mass ID (if available) : 08084247+2043224
 ICRS Star Coord at Epoch: 08h 08m 42.50414s +20:43:22.68001s
 RUWE (>1.4 is poor) : 0.98
 K magnitude : 14.972
 G magnitude : 18.906
 RP magnitude : 17.680
 BP magnitude : 20.074
 DUPflag : 0
 Distance (au) : 19.150
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : 24.13
 Sun-Target sep (deg) : 53.79
 Sun-Moon sep (deg) : 138.52
 B (ring opening deg) : 47.09
 PA of pole (deg) : 90.23
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 3.169
 C/A sky separation (km) : 44013.4
 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	2040-05-27T07:36:13.933		29.12	-7.33	51451.08	-15.94		
lambda	I	2040-05-27T07:37:46.570		28.97	-7.62	50026.71	-14.64		
delta	I	2040-05-27T07:39:53.884		28.76	-8.03	48300.35	-12.44		
gamma	I	2040-05-27T07:40:50.886		28.67	-8.21	47621.08	-11.38		
eta	I	2040-05-27T07:41:31.351		28.60	-8.34	47176.12	-10.60		
beta	I	2040-05-27T07:44:23.371		28.31	-8.89	45651.21	-7.06		
alpha	I	2040-05-27T07:47:22.433		28.01	-9.46	44739.48	-3.05		

No planet occultations

alpha	E	2040-05-27T07:51:46.859		27.54	-10.32	44734.06	3.06		
beta	E	2040-05-27T07:54:46.854		27.22	-10.90	45644.69	7.06		
eta	E	2040-05-27T07:57:39.585		26.90	-11.45	47176.12	10.61		
gamma	E	2040-05-27T07:58:20.065		26.82	-11.59	47621.63	11.39		
delta	E	2040-05-27T07:59:16.969		26.72	-11.77	48300.35	12.45		
lambda	E	2040-05-27T08:01:24.150		26.48	-12.18	50026.71	14.66		
epsilon	E	2040-05-27T08:02:32.665		26.35	-12.40	51068.59	15.97		