

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2033-09-11T10:39:47.040
 Event type : XRgt
 : No Uranus occs
 : Ring occs: geocentric, topocentric
 Gaia source ID : 3377572177179169664
 2Mass ID (if available) : 06225110+2334249

ICRS Star Coord at Epoch: 06h 22m 51.09466s +23:34:24.74534s

RUWE (>1.4 is poor) : 0.96
 K magnitude : 14.422
 G magnitude : 17.137
 RP magnitude : 16.290
 BP magnitude : 17.885
 DUPflag : 0
 Distance (au) : 19.237
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : 14.94
 Sun-Target sep (deg) : 73.32
 Sun-Moon sep (deg) : 73.66
 B (ring opening deg) : 70.74
 PA of pole (deg) : 67.48

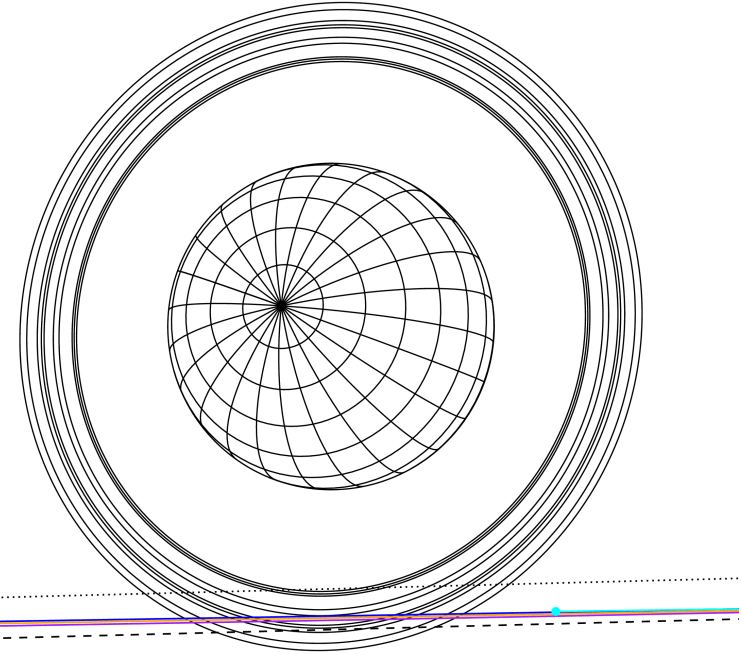
#	a(km)	ring
1	41837.2	6
2	42235.0	5
3	42571.2	4
4	44718.5	alpha
5	45661.1	beta
6	47176.1	eta
7	47626.3	gamma
8	48300.3	delta
9	50026.7	lambda
10	51149.4	epsilon



2033-09-11T10:39:47.0400 α: 06 22 51.0947 δ: +23 34 24.745 C/A 3.398" PA 1.48 deg v_sky +14.94 km/s D 19.24 AU
 Credit: Styled after SORA/Lucky Star

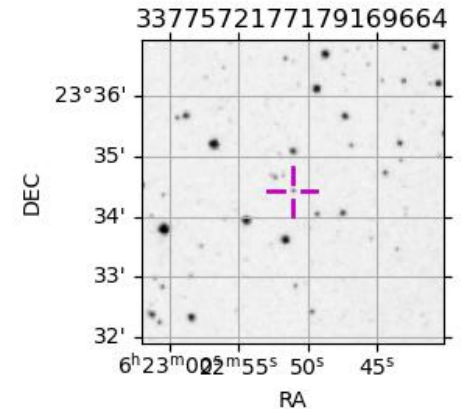
Uranus 2033-09-11T10:39:47 K14.42 G17.14 XRgt

PAL
 KPNO
 MCD
 IRTF

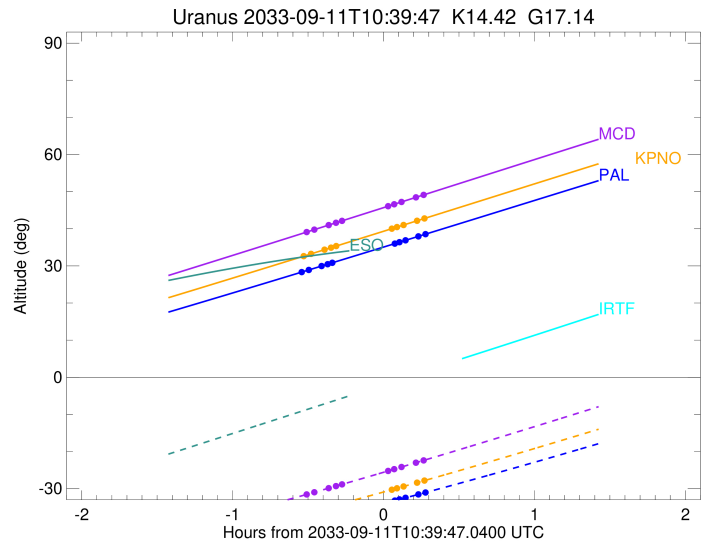
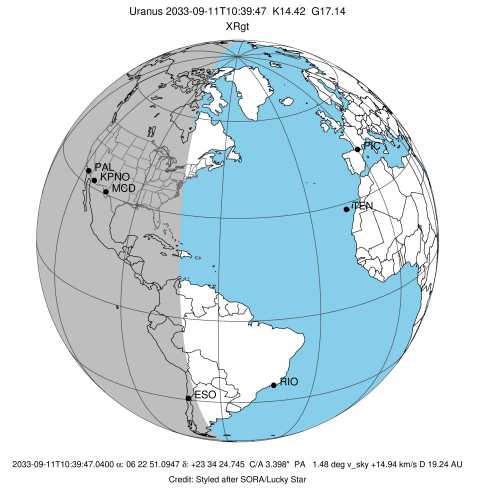


Observable events with sun below -5 deg and altitude above 5 deg unblocked by planet

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	+++++		+++++	SEP 11 10:08 - SEP 11 10:55	PnnRie
PMO	Purple Mtn Obs. Nanki	32.1	118.8					PnnRnn
KPNO	Kitt Peak Natl Obs	32.0	248.4	+++++		+++++	SEP 11 10:08 - SEP 11 10:55	PnnRie
MCD	McDonald Obs. 2.7m	30.7	256.0	+++++		+++++	SEP 11 10:10 - SEP 11 10:54	PnnRie
TEN	Teide Obs./Tenerife	28.3	343.5					PnnRnn
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					PnnRnn
MSO	Mt. Stromlo Observato	-35.3	149.0					PnnRnn



target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2033-09-11T10:33:54.720
 Event type : XRgt
 : No Uranus occs
 : Ring occs: geocentric, topocentric
 Observer code : PAL
 Location : Palomar Mt (200")
 Latitude (deg) : 33.35622
 E. Longitude (deg) : 243.13601
 Altitude (km) : 1.706
 Gaia source ID : 3377572177179169664
 2Mass ID (if available) : 06225110+2334249
 ICRS Star Coord at Epoch: 06h 22m 51.09466s +23:34:24.74534s
 RUWE (>1.4 is poor) : 0.96
 K magnitude : 14.422
 G magnitude : 17.137
 RP magnitude : 16.290
 BP magnitude : 17.885
 DUPflag : 0
 Distance (au) : 19.237
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : 14.94
 Sun-Target sep (deg) : 73.32
 Sun-Moon sep (deg) : 74.01
 B (ring opening deg) : 70.74
 PA of pole (deg) : 67.48
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 3.250
 C/A sky separation (km) : 45342.0
 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



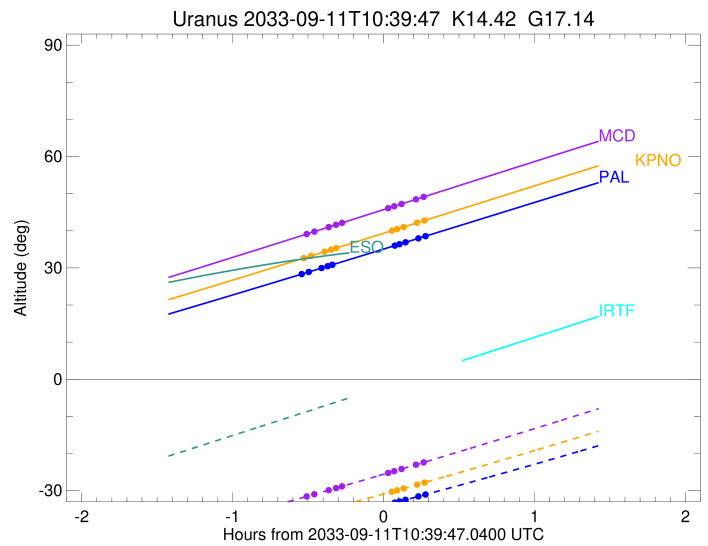
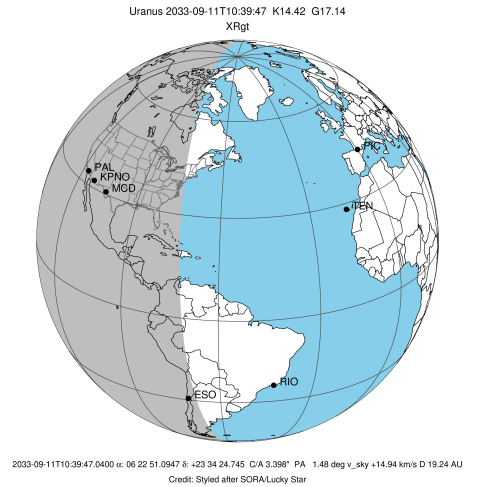
Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2033-09-11T10:08:06.619		28.50	-39.30	50817.12	-6.70		
lambda	I	2033-09-11T10:10:07.674		28.92	-38.98	50026.71	-6.29		
delta	I	2033-09-11T10:15:13.556		29.97	-38.16	48300.35	-4.98		
gamma	I	2033-09-11T10:17:39.575		30.48	-37.76	47622.11	-4.31		
eta	I	2033-09-11T10:19:29.795		30.86	-37.46	47176.12	-3.78		

No planet occultations

eta	E	2033-09-11T10:44:12.072		35.99	-33.24	47176.12	3.77		
gamma	E	2033-09-11T10:46:02.414		36.37	-32.92	47620.99	4.29		
delta	E	2033-09-11T10:48:29.283		36.88	-32.48	48300.35	4.96		
lambda	E	2033-09-11T10:53:36.699		37.95	-31.56	50026.71	6.25		
epsilon	E	2033-09-11T10:55:29.850		38.34	-31.22	50759.25	6.66		

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target                : Uranus
target radius (km)   : 25559.00
C/A epoch            : 2033-09-11T10:34:07.480
Event type          : XRgt
: No Uranus occs
: Ring occs: geocentric, topocentric
Observer code       : KPNO
Location            : Kitt Peak Natl Obs
Latitude (deg)      : 31.96333
E. Longitude (deg)  : 248.40000
Altitude (km)       : 2.120
Gaia source ID      : 3377572177179169664
2Mass ID (if available) : 06225110+2334249
ICRS Star Coord at Epoch: 06h 22m 51.09466s +23:34:24.74534s
RUWE (>1.4 is poor) : 0.96
K magnitude         : 14.422
G magnitude         : 17.137
RP magnitude        : 16.290
BP magnitude        : 17.885
DUPflag            : 0
Distance (au)       : 19.237
f0 (km)             : 0.000
g0 (km)             : 0.000
skyplane vel. (km/s) : 14.94
Sun-Target sep (deg) : 73.32
Sun-Moon sep (deg)  : 74.07
B (ring opening deg) : 70.74
PA of pole (deg)    : 67.48
Pole direction: RA (deg): 257.31100
Dec (deg): -15.17500
C/A sky separation (") : 3.272
C/A sky separation (km) : 45646.6
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
    
```

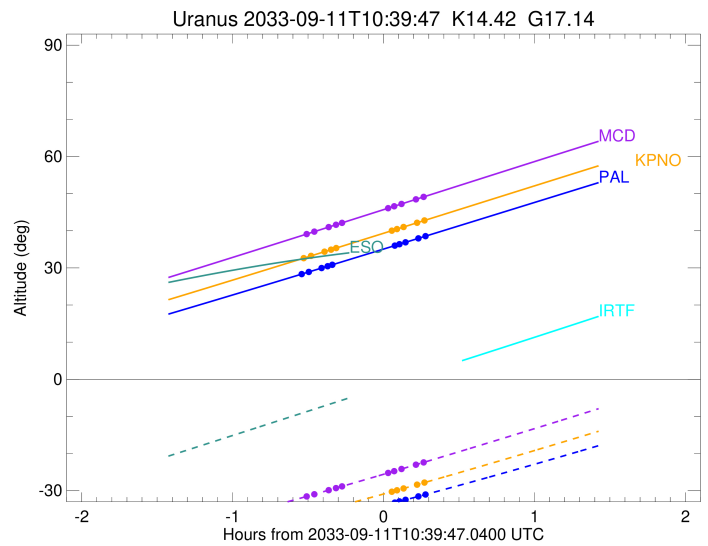
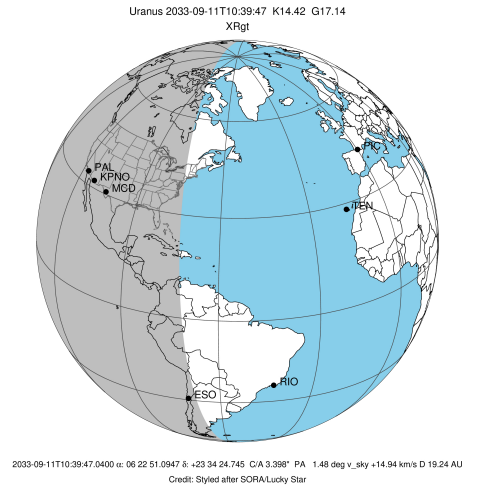


Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2033-09-11T10:08:56.871		32.81	-36.50	50813.78	-6.49		
lambda	I	2033-09-11T10:11:01.763		33.25	-36.13	50026.71	-6.05		
delta	I	2033-09-11T10:16:23.345		34.38	-35.19	48300.35	-4.66		
gamma	I	2033-09-11T10:19:01.103		34.93	-34.72	47622.03	-3.93		
eta	I	2033-09-11T10:21:03.613		35.36	-34.35	47176.12	-3.34		

No planet occultations

eta	E	2033-09-11T10:43:00.999		40.01	-30.31	47176.12	3.34		
gamma	E	2033-09-11T10:45:03.622		40.44	-29.93	47621.01	3.92		
delta	E	2033-09-11T10:47:42.219		41.00	-29.43	48300.35	4.64		
lambda	E	2033-09-11T10:53:05.306		42.15	-28.40	50026.71	6.02		
epsilon	E	2033-09-11T10:55:02.274		42.56	-28.03	50757.75	6.45		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2033-09-11T10:34:34.660
 Event type : XRgt
 : No Uranus occs
 : Ring occs: geocentric, topocentric
 Observer code : MCD
 Location : McDonald Obs. 2.7m
 Latitude (deg) : 30.67158
 E. Longitude (deg) : 255.97844
 Altitude (km) : 2.075
 Gaia source ID : 3377572177179169664
 2Mass ID (if available) : 06225110+2334249
 ICRS Star Coord at Epoch: 06h 22m 51.09466s +23:34:24.74534s
 RUWE (>1.4 is poor) : 0.96
 K magnitude : 14.422
 G magnitude : 17.137
 RP magnitude : 16.290
 BP magnitude : 17.885
 DUPflag : 0
 Distance (au) : 19.237
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : 14.94
 Sun-Target sep (deg) : 73.32
 Sun-Moon sep (deg) : 74.17
 B (ring opening deg) : 70.74
 PA of pole (deg) : 67.48
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 3.297
 C/A sky separation (km) : 46003.5
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk
 URKALLvl1.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	2033-09-11T10:10:09.655		39.31	-31.39	50809.75	-6.22		
lambda	I	2033-09-11T10:12:19.680		39.78	-30.97	50026.71	-5.76		
delta	I	2033-09-11T10:18:03.373		41.01	-29.87	48300.35	-4.26		
gamma	I	2033-09-11T10:20:59.399		41.64	-29.30	47621.93	-3.44		
eta	I	2033-09-11T10:23:23.491		42.16	-28.83	47176.12	-2.74		

No planet occultations

eta	E	2033-09-11T10:41:31.924		46.06	-25.25	47176.12	2.74		
gamma	E	2033-09-11T10:43:56.110		46.58	-24.77	47621.03	3.43		
delta	E	2033-09-11T10:46:52.945		47.22	-24.18	48300.35	4.25		
lambda	E	2033-09-11T10:52:38.065		48.46	-23.02	50026.71	5.73		
epsilon	E	2033-09-11T10:54:40.137		48.90	-22.61	50756.05	6.19		