

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2025-12-05T18:08:55.630
 Event type : XRgt
 : No Uranus occs
 : Ring occs: geocentric, topocentric
 Gaia source ID : 63053796397985920
 2Mass ID (if available) : 03451159+1937142

ICRS Star Coord at Epoch: 03h 45m 11.60884s +19:37:13.94333s

RUWE (>1.4 is poor) : 0.88
 K magnitude : 14.351
 G magnitude : 17.251
 RP magnitude : 16.358
 BP magnitude : 18.095
 DUPflag : 0
 Distance (au) : 18.541
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -22.42
 Sun-Target sep (deg) : 164.98
 Sun-Moon sep (deg) : 26.70
 B (ring opening deg) : 69.48
 PA of pole (deg) : -80.81

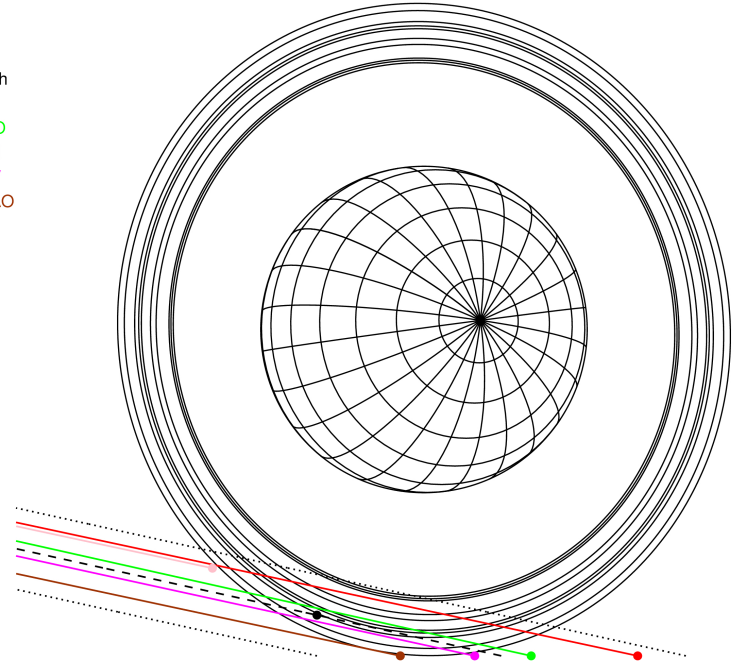
#	a(km)	ring
1	41837.2	6
2	42235.0	5
3	42571.2	4
4	44718.5	alpha
5	45661.1	beta
6	47176.1	eta
7	47626.3	gamma
8	48300.3	delta
9	50026.7	lambda
10	51149.4	epsilon



2025-12-05T18:08:55.6300 ex: 03 45 11.6088 s; +19 37 13.943 C/A 3.514" PA 347.55 deg v_sky -22.42 km/s D 18.54 AU
 Credit: Styled after SORA/Lucky Star

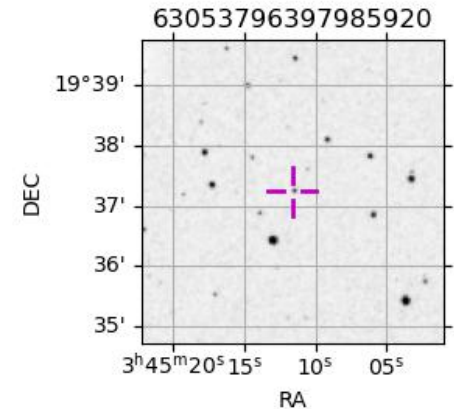
Uranus 2025-12-05T18:08:55 K14.35 G17.25 XRgt

Earth
 PIC
 PMO
 TEN
 KAV
 SAAO

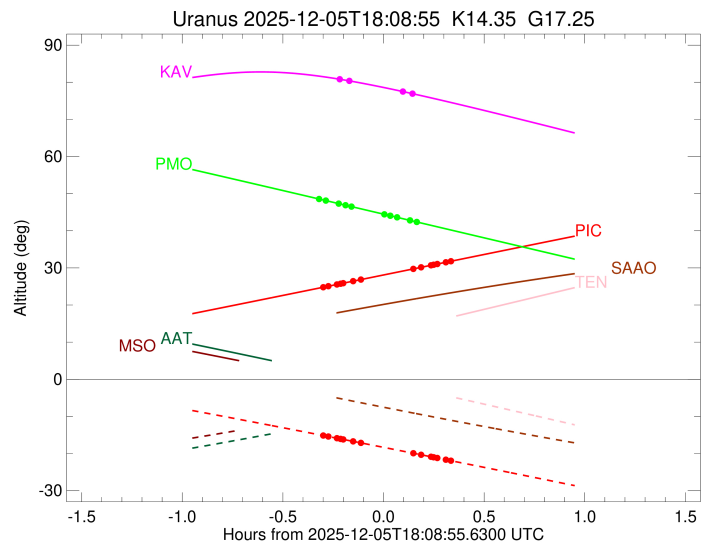
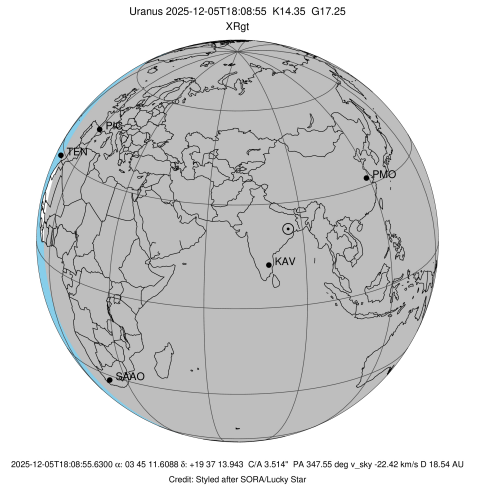


Observable events with sun below -5 deg and altitude above 5 deg unblocked by planet

Obs	Location	lat	Elon	Rings I	Planet	Rings E	Observed Events Interval	OEcode
PIC	Pic du Midi	42.9	0.1	++++++		++++++	DEC 05 17:51 - DEC 05 18:29	PnnRie
PAL	Palomar Mt (200")	33.4	243.1					PnnRnn
PMO	Purple Mtn Obs. Nanki	32.1	118.8	+++++		+++++	DEC 05 17:49 - DEC 05 18:19	PnnRie
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					PnnRnn
KAV	Kavalur Observatory	12.6	78.8	++		++	DEC 05 17:56 - DEC 05 18:17	PnnRie
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 : 2025-12-05T18:11:21.360
 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 : 63053796397985920
 2Mass ID (if available) : 03451159+1937142
 ICRS Star Coord at Epoch: 03h 45m 11.60884s +19:37:13.94333s
 RUWE (>1.4 is poor) : 0.88
 K magnitude : 14.351
 G magnitude : 17.251
 RP magnitude : 16.358
 BP magnitude : 18.095
 DUPflag : 0
 Distance (au) : 18.541
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -22.42
 Sun-Target sep (deg) : 164.98
 Sun-Moon sep (deg) : 27.30
 B (ring opening deg) : 69.48
 PA of pole (deg) : -80.81
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 3.194
 C/A sky separation (km) : 42945.2
 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_itr93_040916.bsp
 earth_720101_070426.bpc
 earth_200101_990628_predict.bpc
 pg3f0000r.bsp
 pg490000r.bsp
 naif0012.tls
 earth_flat_IAU.spk



b: ring blocked by planet x: target alt < 5.0 deg or sun > -5.0 deg

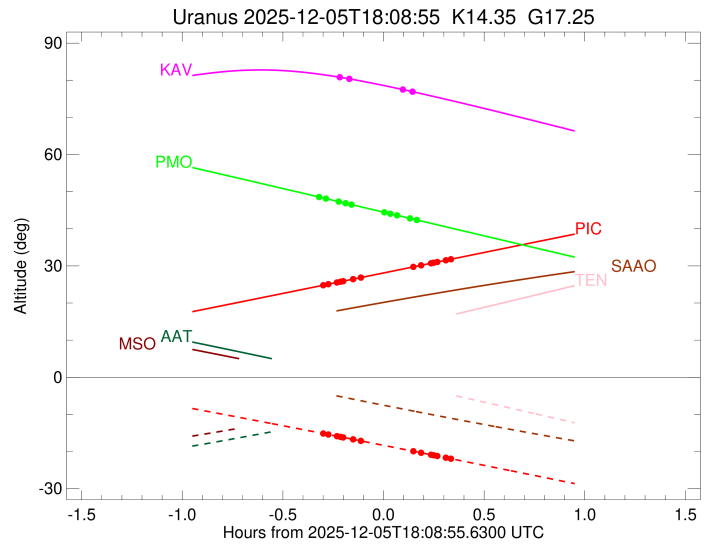
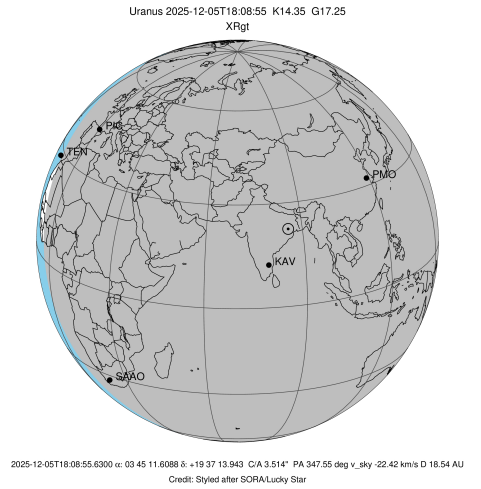
Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2025-12-05T17:51:11.283		24.83	-15.20	50995.71	-12.72		
lambda	I	2025-12-05T17:52:30.400		25.07	-15.43	50026.71	-11.92		
delta	I	2025-12-05T17:55:03.962		25.54	-15.88	48300.35	-10.54		
gamma	I	2025-12-05T17:56:10.082		25.75	-16.07	47624.27	-9.91		
eta	I	2025-12-05T17:56:56.409		25.89	-16.21	47176.12	-9.44		
beta	I	2025-12-05T17:59:54.372		26.43	-16.74	45662.15	-7.55		
alpha	I	2025-12-05T18:02:15.791		26.87	-17.15	44709.91	-5.92		

No planet occultations

alpha	E	2025-12-05T18:17:47.894		29.73	-19.92	44726.78	5.93		
beta	E	2025-12-05T18:20:08.107		30.16	-20.34	45674.02	7.56		
eta	E	2025-12-05T18:23:04.322		30.70	-20.87	47176.12	9.46		
gamma	E	2025-12-05T18:23:51.024		30.84	-21.01	47628.68	9.92		
delta	E	2025-12-05T18:24:56.592		31.04	-21.20	48300.35	10.56		
lambda	E	2025-12-05T18:27:29.875		31.51	-21.66	50026.71	11.94		
epsilon	E	2025-12-05T18:29:22.380		31.86	-22.00	51422.86	12.75		

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target                : Uranus
target radius (km)   : 25559.00
C/A epoch            : 2025-12-05T18:05:44.480
Event type          : XRgt
: No Uranus occs
: Ring occs: geocentric, topocentric
Observer code       : PMO
Location            : Purple Mtn Obs. Nanking
Latitude (deg)      : 32.06667
E. Longitude (deg)  : 118.82089
Altitude (km)       : 0.364
Gaia source ID      : 63053796397985920
2Mass ID (if available) : 03451159+1937142
ICRS Star Coord at Epoch: 03h 45m 11.60884s +19:37:13.94333s
RUWE (>1.4 is poor) : 0.88
K magnitude         : 14.351
G magnitude         : 17.251
RP magnitude        : 16.358
BP magnitude        : 18.095
DUPflag            : 0
Distance (au)       : 18.541
f0 (km)             : 0.000
g0 (km)             : 0.000
skyplane vel. (km/s) : -22.42
Sun-Target sep (deg) : 164.98
Sun-Moon sep (deg)  : 26.37
B (ring opening deg) : 69.48
PA of pole (deg)    : -80.81
Pole direction: RA (deg): 257.31100
Dec (deg): -15.17500
C/A sky separation (") : 3.439
C/A sky separation (km) : 46249.2
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_itrfr93_040916.bsp
earth_720101_070426.bpc
earth_200101_990628_predict.bpc
pg3f0000r.bsp
pg490000r.bsp
naif0012.tls
earth_flat_IAU.spk
  
```

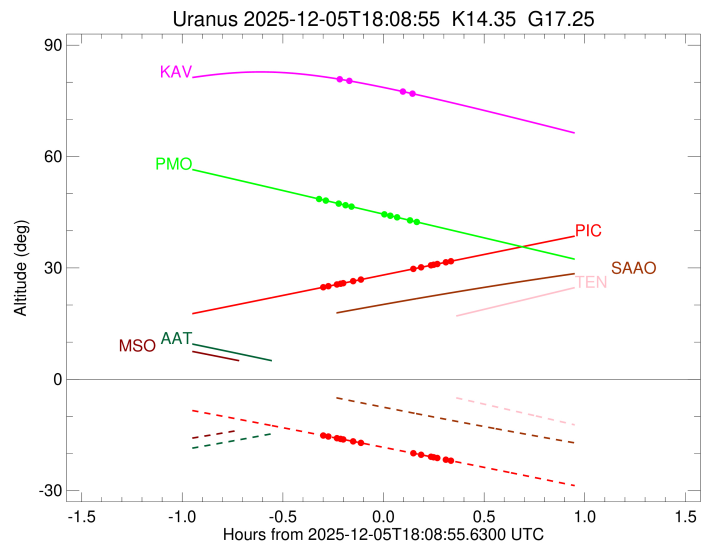
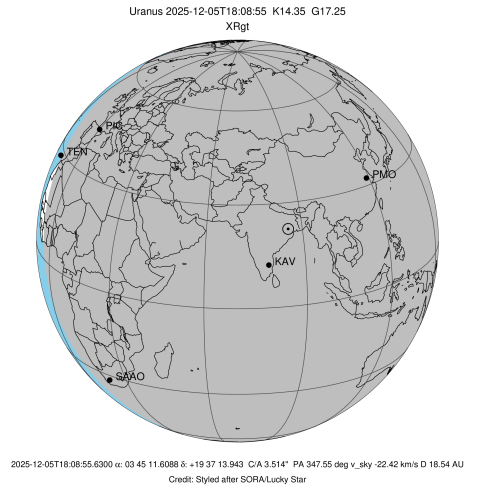


Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2025-12-05T17:49:54.591		48.52	-62.97	51051.53	-9.92		
lambda	I	2025-12-05T17:51:45.781		48.13	-62.59	50026.71	-8.67		
delta	I	2025-12-05T17:55:37.170		47.31	-61.79	48300.35	-6.21		
gamma	I	2025-12-05T17:57:39.498		46.88	-61.37	47625.46	-4.82		
eta	I	2025-12-05T17:59:26.928		46.50	-61.00	47176.12	-3.54		

No planet occultations

eta	E	2025-12-05T18:09:06.558		44.44	-58.98	47176.12	3.54		
gamma	E	2025-12-05T18:10:54.501		44.06	-58.60	47627.59	4.81		
delta	E	2025-12-05T18:12:56.495		43.63	-58.18	48300.35	6.20		
lambda	E	2025-12-05T18:16:48.167		42.81	-57.37	50026.71	8.66		
epsilon	E	2025-12-05T18:19:12.879		42.30	-56.86	51381.49	9.91		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2025-12-05T18:08:13.710
 Event type : XRgt
 : No Uranus occs
 : Ring occs: geocentric, topocentric
 Observer code : KAV
 Location : Kavalur Observatory
 Latitude (deg) : 12.57556
 E. Longitude (deg) : 78.83167
 Altitude (km) : 0.722
 Gaia source ID : 63053796397985920
 2Mass ID (if available) : 03451159+1937142
 ICRS Star Coord at Epoch: 03h 45m 11.60884s +19:37:13.94333s
 RUWE (>1.4 is poor) : 0.88
 K magnitude : 14.351
 G magnitude : 17.251
 RP magnitude : 16.358
 BP magnitude : 18.095
 DUPflag : 0
 Distance (au) : 18.541
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -22.42
 Sun-Target sep (deg) : 164.98
 Sun-Moon sep (deg) : 27.07
 B (ring opening deg) : 69.48
 PA of pole (deg) : -80.81
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 3.589
 C/A sky separation (km) : 48263.7
 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	2025-12-05T17:56:02.582		80.80	-76.31	51093.18	-7.53		
lambda	I	2025-12-05T17:58:47.366		80.37	-76.74	50026.71	-5.58		

No planet occultations

lambda	E	2025-12-05T18:14:40.209		77.51	-78.87	50026.71	5.58		
epsilon	E	2025-12-05T18:17:58.149		76.85	-79.19	51342.12	7.53		