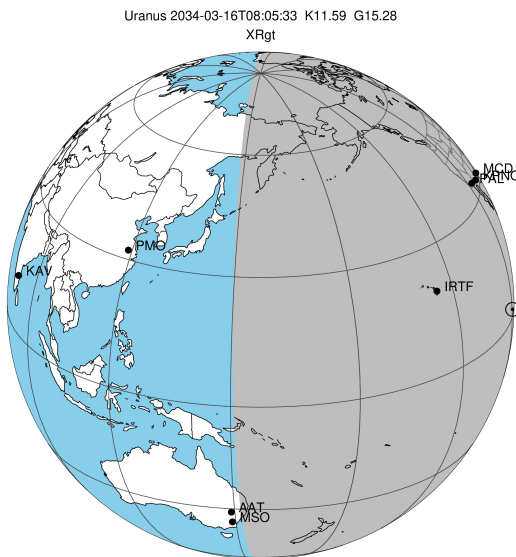


target : Uranus  
 target radius (km) : 25559.00  
 C/A epoch : 2034-03-16T08:05:33.100  
 Event type : XRgt  
 : No Uranus occs  
 : Ring occs: geocentric, topocentric  
 Gaia source ID : 3426149773424875008  
 2Mass ID (if available) : 06064908+2342131

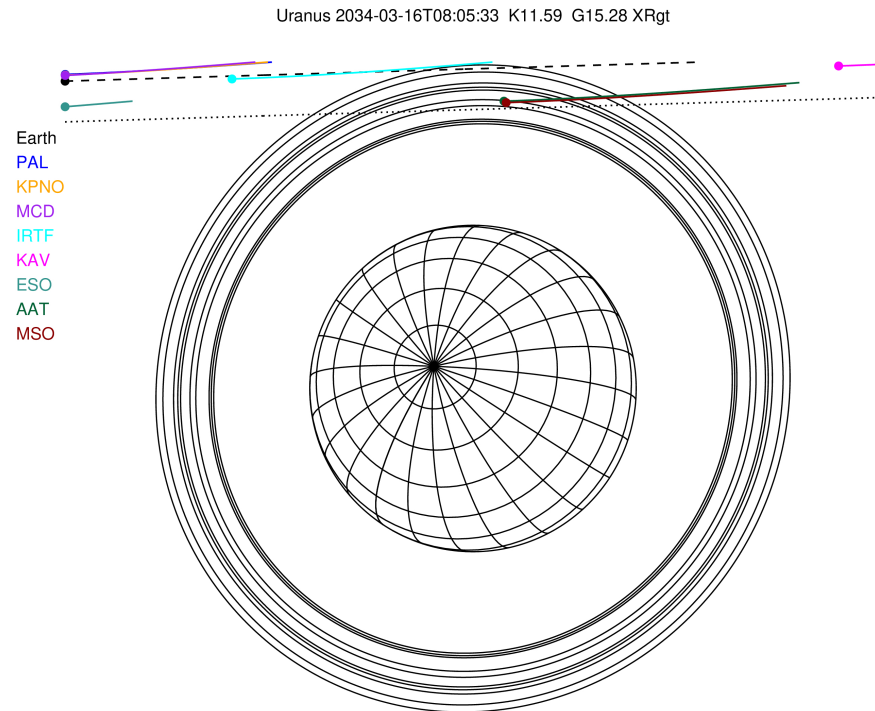
ICRS Star Coord at Epoch: 06h 06m 49.08998s +23:42:13.09031s

RUWE (>1.4 is poor) : 1.05  
 K magnitude : 11.593  
 G magnitude : 15.283  
 RP magnitude : 14.266  
 BP magnitude : 16.340  
 DUPflag : 0  
 Distance (au) : 18.806  
 f0 (km) : 0.000  
 g0 (km) : 0.000  
 skyplane vel. (km/s) : 3.13  
 Sun-Target sep (deg) : 96.23  
 Sun-Moon sep (deg) : 149.86  
 B (ring opening deg) : 73.99  
 PA of pole (deg) : 60.43

#	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

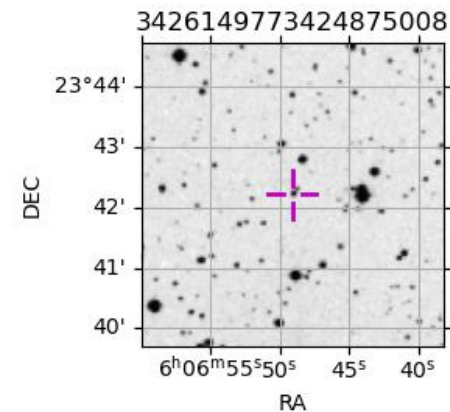


2034-03-16T08:05:33.1000 cr: 06 06 49.0900 s: +23 42 13.090 C/A 3.679° PA 182.45 deg v\_sky + 3.13 km/s D 18.81 AU  
 Credit: Styled after SORA/Lucky Star

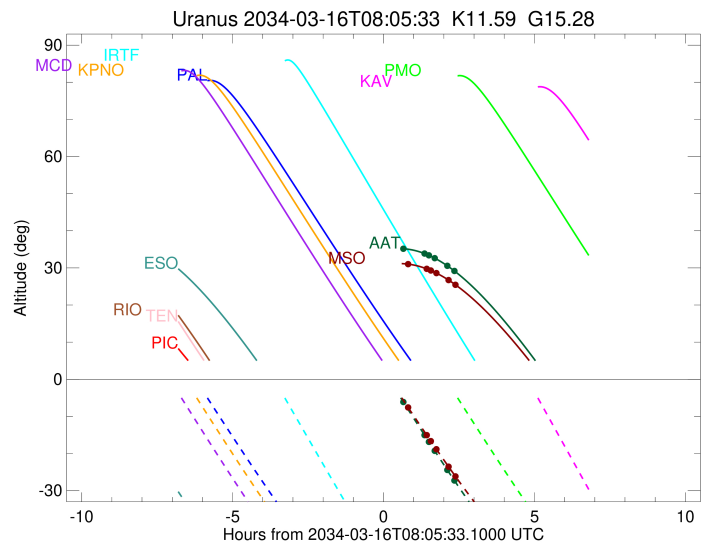
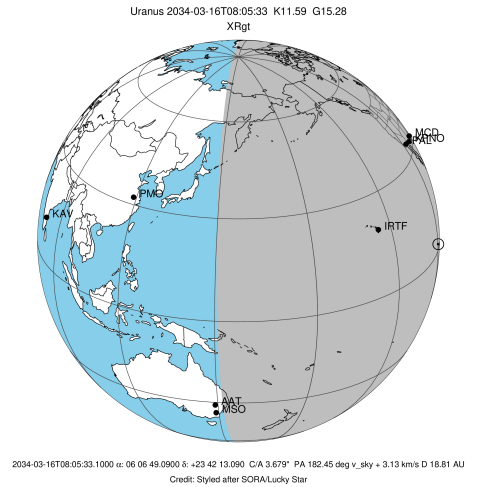


Observable events with sun below -5 deg and altitude above 5 deg unblocked by planet

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					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			+++++	MAR 16 08:43 - MAR 16 10:27	PnnRne
SAAO	So. Afr. Astro. Obs.	-32.4	20.8					PnnRnn
MSO	Mt. Stromlo Observato	-35.3	149.0			+++++	MAR 16 08:53 - MAR 16 10:29	PnnRne



target : Uranus  
 target radius (km) : 25559.00  
 C/A epoch : 2034-03-16T08:03:07.390  
 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 : 3426149773424875008  
 2Mass ID (if available) : 06064908+2342131  
 ICRS Star Coord at Epoch: 06h 06m 49.08998s +23:42:13.09031s  
 RUWE (>1.4 is poor) : 1.05  
 K magnitude : 11.593  
 G magnitude : 15.283  
 RP magnitude : 14.266  
 BP magnitude : 16.340  
 DUPflag : 0  
 Distance (au) : 18.806  
 f0 (km) : 0.000  
 g0 (km) : 0.000  
 skyplane vel. (km/s) : 3.13  
 Sun-Target sep (deg) : 96.23  
 Sun-Moon sep (deg) : 150.09  
 B (ring opening deg) : 73.99  
 PA of pole (deg) : 60.43  
 Pole direction: RA (deg): 257.31100  
 Dec (deg): -15.17500  
 C/A sky separation (") : 3.287  
 C/A sky separation (km) : 44829.6  
 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

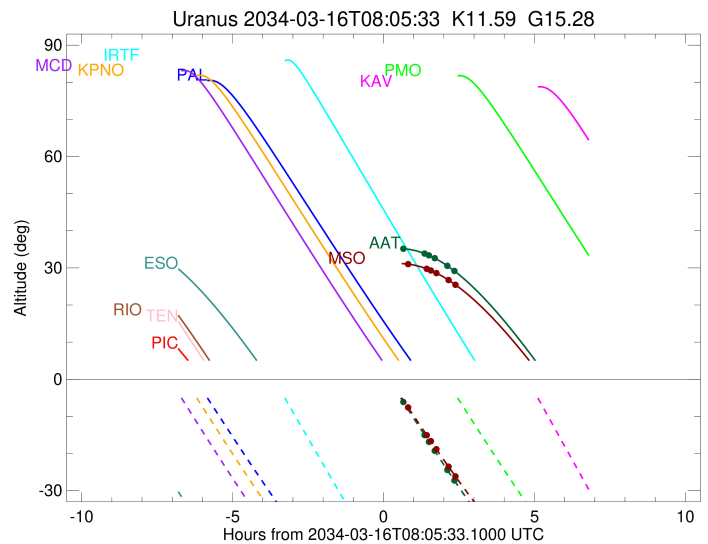
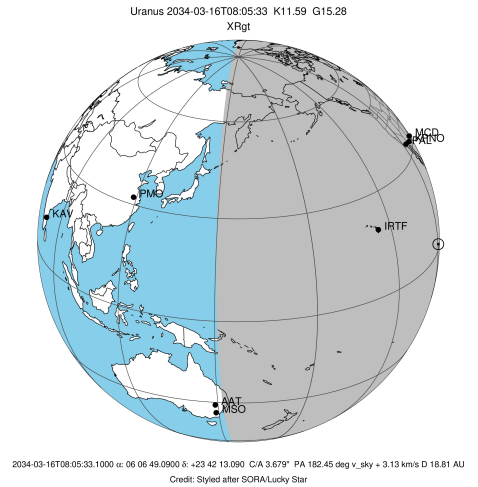


Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2034-03-16T05:59:20.033		23.46	28.99x	50911.14	-1.36		
lambda	I	2034-03-16T06:10:43.377		24.97	26.65x	50026.71	-1.25		
delta	I	2034-03-16T06:36:10.085		28.05	21.34x	48300.35	-1.01		
gamma	I	2034-03-16T06:47:49.670		29.30	18.89x	47630.79	-0.90		
eta	I	2034-03-16T06:56:40.463		30.18	17.02x	47176.12	-0.81		
beta	I	2034-03-16T07:40:01.471		33.54	7.78x	45650.36	-0.35		

No planet occultations

beta	E	2034-03-16T08:43:35.678		35.17	-5.83	45646.67	0.36		
eta	E	2034-03-16T09:26:49.386		33.89	-14.98	47176.12	0.82		
gamma	E	2034-03-16T09:35:35.896		33.39	-16.82	47631.57	0.91		
delta	E	2034-03-16T09:47:06.961		32.64	-19.22	48300.35	1.03		
lambda	E	2034-03-16T10:12:13.461		30.58	-24.39	50026.71	1.26		
epsilon	E	2034-03-16T10:27:46.458		29.04	-27.54	51271.32	1.38		

target : Uranus  
 target radius (km) : 25559.00  
 C/A epoch : 2034-03-16T08:03:18.270  
 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 : 3426149773424875008  
 2Mass ID (if available) : 06064908+2342131  
 ICRS Star Coord at Epoch: 06h 06m 49.08998s +23:42:13.09031s  
 RUWE (>1.4 is poor) : 1.05  
 K magnitude : 11.593  
 G magnitude : 15.283  
 RP magnitude : 14.266  
 BP magnitude : 16.340  
 DUPflag : 0  
 Distance (au) : 18.806  
 f0 (km) : 0.000  
 g0 (km) : 0.000  
 skyplane vel. (km/s) : 3.13  
 Sun-Target sep (deg) : 96.23  
 Sun-Moon sep (deg) : 150.05  
 B (ring opening deg) : 73.99  
 PA of pole (deg) : 60.43  
 Pole direction: RA (deg): 257.31100  
 Dec (deg): -15.17500  
 C/A sky separation (") : 3.269  
 C/A sky separation (km) : 44586.0  
 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	2034-03-16T05:57:21.307		20.04	28.16x	50907.55	-1.39		
lambda	I	2034-03-16T06:08:24.551		21.42	26.01x	50026.71	-1.28		
delta	I	2034-03-16T06:32:59.511		24.23	21.17x	48300.35	-1.06		
gamma	I	2034-03-16T06:44:06.606		25.37	18.95x	47630.74	-0.95		
eta	I	2034-03-16T06:52:26.970		26.16	17.27x	47176.12	-0.87		
beta	I	2034-03-16T07:30:24.347		29.09	9.58x	45651.00	-0.47		

No planet occultations

beta	E	2034-03-16T08:53:23.622		31.04	-7.37	45646.16	0.47		
eta	E	2034-03-16T09:31:13.181		29.76	-14.99	47176.12	0.88		
gamma	E	2034-03-16T09:39:29.113		29.31	-16.63	47631.56	0.96		
delta	E	2034-03-16T09:50:27.471		28.62	-18.80	48300.35	1.07		
lambda	E	2034-03-16T10:14:41.651		26.74	-23.52	50026.71	1.30		
epsilon	E	2034-03-16T10:29:53.585		25.32	-26.41	51275.54	1.42		