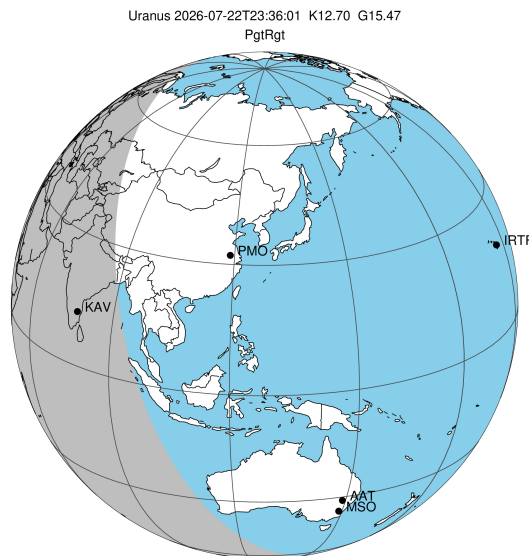


target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2026-07-22T23:36:01.310
 Event type : PgtRgt
 : Uranus occs: geocentric, topocentric
 : Ring occs: geocentric, topocentric
 Gaia source ID : 52019823551785856
 2Mass ID (if available) : 04092911+2051051

ICRS Star Coord at Epoch: 04h 09m 29.12968s +20:51:05.22238s

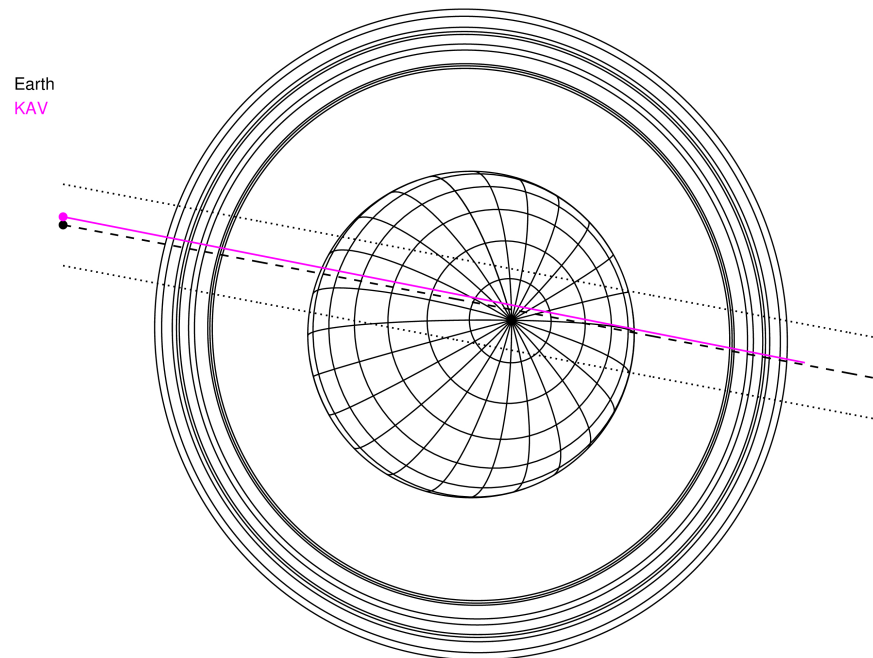
RUWE (>1.4 is poor) : 0.97
 K magnitude : 12.704
 G magnitude : 15.473
 RP magnitude : 14.625
 BP magnitude : 16.213
 DUPflag : 0
 Distance (au) : 20.012
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : 23.20
 Sun-Target sep (deg) : 55.49
 Sun-Moon sep (deg) : 161.83
 B (ring opening deg) : 74.71
 PA of pole (deg) : -70.67

#	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



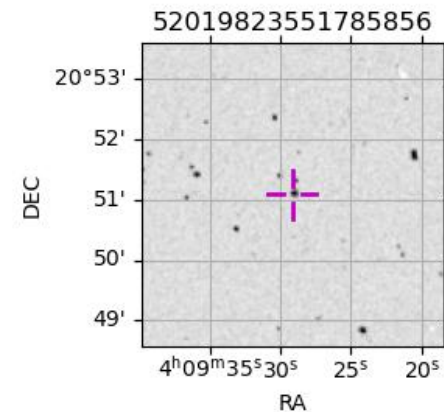
2026-07-22T23:36:01.3100 ex: 04 09 29.1297 8: +20 51 05.222 C/A 0.348° PA 169.31 deg v_sky +23.20 km/s D 20.01 AU
 Credit: Styled after SORA/Lucky Star

Uranus 2026-07-22T23:36:01 K12.70 G15.47 PgtRgt

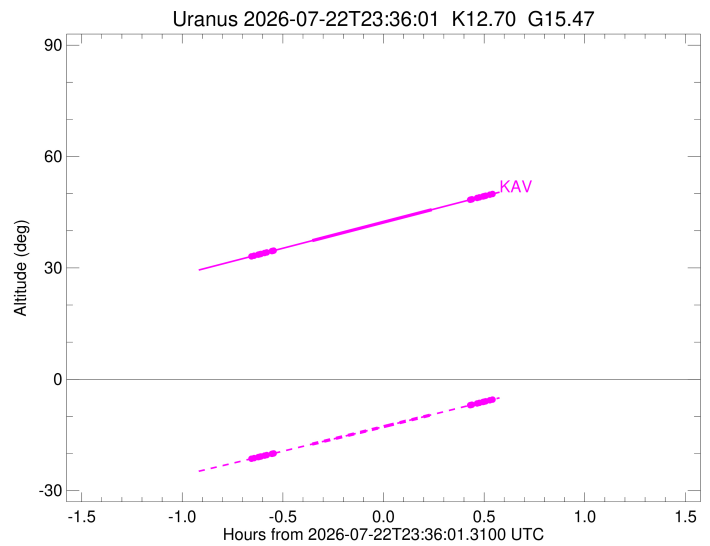
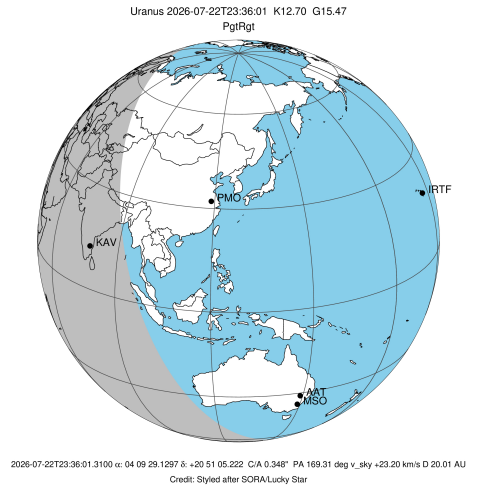


Observable events with sun below -5 deg and altitude above 5 deg unblocked by planet

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	+++++++	+ +	+++++++	JUL 22 22:56 - JUL 23 00:08	PieRie
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 : 2026-07-22T23:32:39.880
 Event type : PgtRgt
 : Uranus occs: geocentric, topocentric
 : 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 : 52019823551785856
 2Mass ID (if available) : 04092911+2051051
 ICRS Star Coord at Epoch: 04h 09m 29.12968s +20:51:05.22238s
 RUWE (>1.4 is poor) : 0.97
 K magnitude : 12.704
 G magnitude : 15.473
 RP magnitude : 14.625
 BP magnitude : 16.213
 DUPflag : 0
 Distance (au) : 20.012
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : 23.20
 Sun-Target sep (deg) : 55.49
 Sun-Moon sep (deg) : 161.39
 B (ring opening deg) : 74.71
 PA of pole (deg) : -70.67
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 0.396
 C/A sky separation (km) : 5751.4
 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_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	2026-07-22T22:56:24.693		33.04	-21.46	51500.35	-23.49		
lambda	I	2026-07-22T22:57:27.467		33.29	-21.24	50026.71	-23.47		
delta	I	2026-07-22T22:58:41.048		33.58	-20.97	48300.35	-23.45		
gamma	I	2026-07-22T22:59:09.651		33.69	-20.87	47629.54	-23.45		
eta	I	2026-07-22T22:59:28.990		33.76	-20.80	47176.12	-23.44		
beta	I	2026-07-22T23:00:34.267		34.02	-20.56	45646.89	-23.43		
alpha	I	2026-07-22T23:01:15.081		34.18	-20.41	44689.43	-23.42		
4	I	2026-07-22T23:02:47.654		34.54	-20.08	42526.21	-23.40		
5	I	2026-07-22T23:03:01.782		34.59	-20.03	42201.53	-23.39		
6	I	2026-07-22T23:03:15.264		34.65	-19.98	41877.85	-23.38		
Uranus	I	2026-07-22T23:14:47.983		37.35	-17.46	25269.07		-11.00	-11.51
Uranus	E	2026-07-22T23:50:23.976		45.68	-9.56	25060.38		14.59	15.25
6	E	2026-07-23T00:01:49.705		48.35	-6.99	41794.76	23.27		
5	E	2026-07-23T00:02:08.581		48.42	-6.92	42247.28	23.28		
4	E	2026-07-23T00:02:24.667		48.48	-6.86	42615.97	23.28		
alpha	E	2026-07-23T00:03:56.216		48.84	-6.51	44742.16	23.30		
beta	E	2026-07-23T00:04:35.980		48.99	-6.36	45671.37	23.31		
eta	E	2026-07-23T00:05:40.562		49.25	-6.12	47176.12	23.32		
gamma	E	2026-07-23T00:05:59.685		49.32	-6.05	47622.08	23.32		
delta	E	2026-07-23T00:06:28.765		49.43	-5.94	48300.35	23.33		
lambda	E	2026-07-23T00:07:42.757		49.72	-5.66	50026.71	23.34		
epsilon	E	2026-07-23T00:08:18.058		49.86	-5.53	50850.61	23.36		