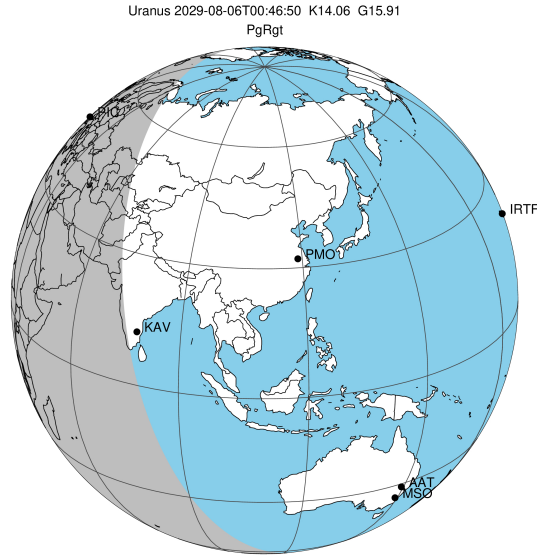


target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2029-08-06T00:46:50.870
 Event type : PgRgt
 : Uranus occs: geocentric, not topocentric
 : Ring occs: geocentric, topocentric
 Gaia source ID : 3418340693948667648
 2Mass ID (if available) : 05041104+2249382

ICRS Star Coord at Epoch: 05h 04m 11.04418s +22:49:38.32716s

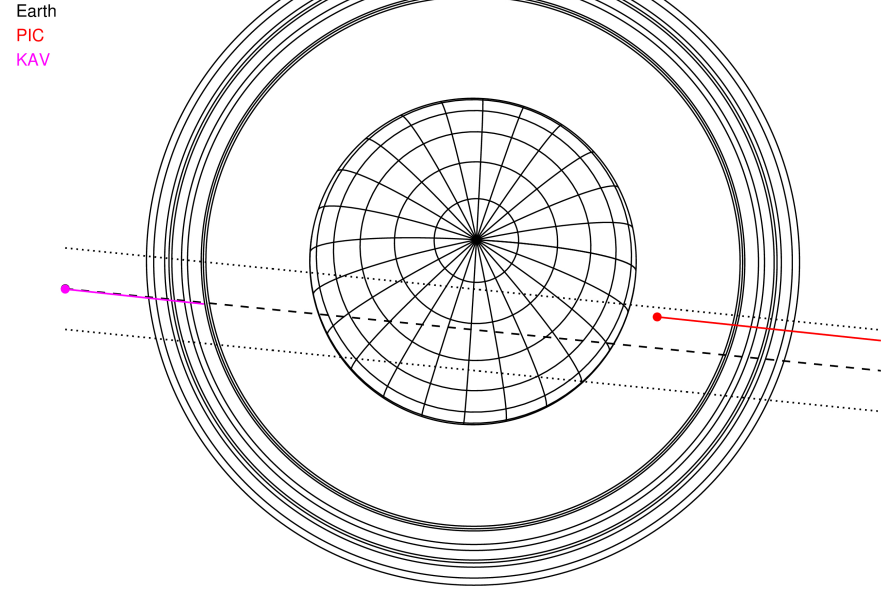
RUWE (>1.4 is poor) : 0.96
 K magnitude : 14.061
 G magnitude : 15.910
 RP magnitude : 15.250
 BP magnitude : 16.389
 DUPflag : 0
 Distance (au) : 19.792
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : 22.87
 Sun-Target sep (deg) : 56.29
 Sun-Moon sep (deg) : 6.28
 B (ring opening deg) : 82.26
 PA of pole (deg) : -9.10

#	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



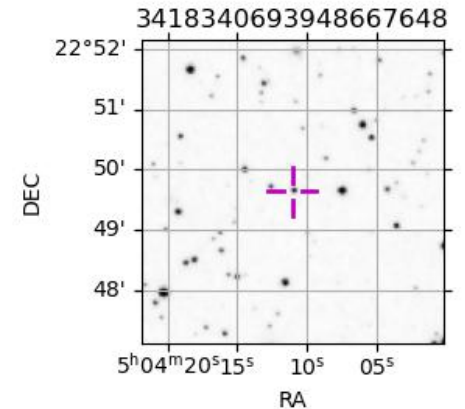
2029-08-06T00:46:50.8700 ex: 05 04 11.0442 s: +22 49 38.327 C/A 0.736° PA 354.26 deg v_sky +22.87 km/s D 19.79 AU
 Credit: Styled after SORA/Lucky Star

Uranus 2029-08-06T00:46:50 K14.06 G15.91 PgRgt

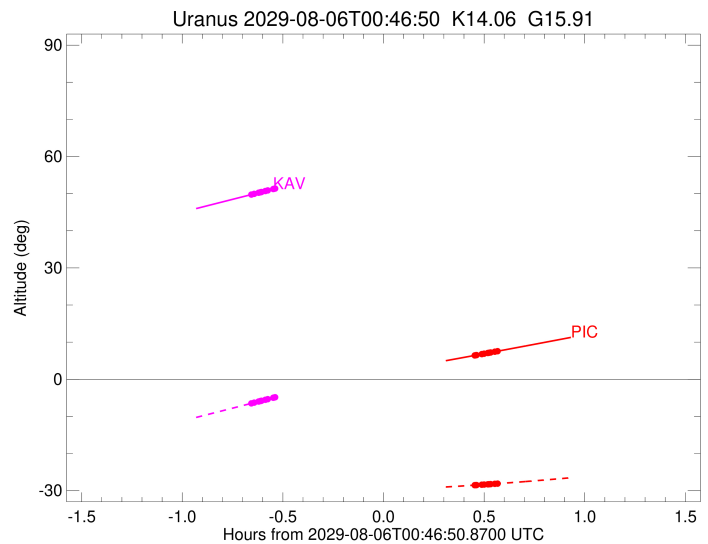
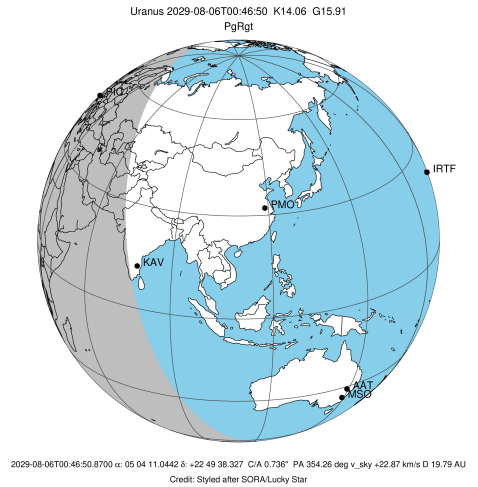


Observable events with sun below -5 deg and altitude above 5 deg unblocked by planet

Obs	Location	lat	Elon	Rings I	Planet	Rings E	Observed Events Interval	OEcode
PIC	Pic du Midi	42.9	0.1			+++++	AUG 06 01:14 - AUG 06 01:20	PnnRne
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	+++++			AUG 06 00:07 - AUG 06 00:12	PnnRin
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

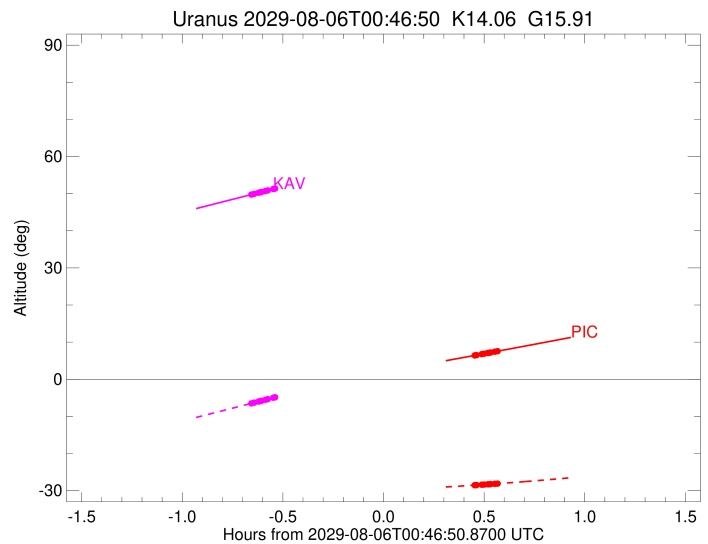
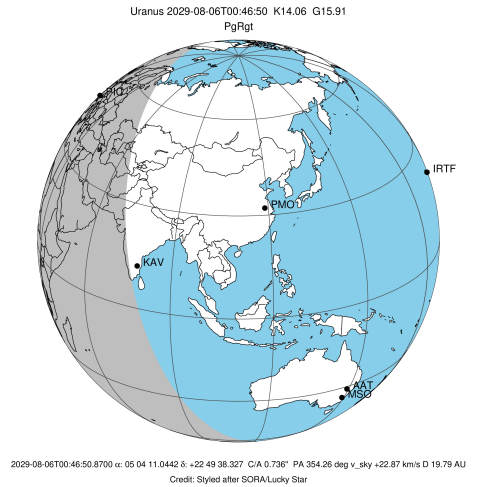


target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2029-08-06T00:43:58.570
 Event type : PgRgt
 : Uranus occs: geocentric, not topocentric
 : Ring occs: geocentric, topocentric
 Observer code : PIC
 Location : Pic du Midi
 Latitude (deg) : 42.93656
 E. Longitude (deg) : 0.14231
 Altitude (km) : 2.890
 Gaia source ID : 3418340693948667648
 2Mass ID (if available) : 05041104+2249382
 ICRS Star Coord at Epoch: 05h 04m 11.04418s +22:49:38.32716s
 RUWE (>1.4 is poor) : 0.96
 K magnitude : 14.061
 G magnitude : 15.910
 RP magnitude : 15.250
 BP magnitude : 16.389
 DUPflag : 0
 Distance (au) : 19.792
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : 22.87
 Sun-Target sep (deg) : 56.29
 Sun-Moon sep (deg) : 6.80
 B (ring opening deg) : 82.26
 PA of pole (deg) : -9.10
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 0.390
 C/A sky separation (km) : 5601.7
 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	2029-08-06T00:06:57.298	-4.15x	-30.59	51497.42	-22.93			
lambda	I	2029-08-06T00:08:01.486	-3.99x	-30.59	50026.71	-22.91			
delta	I	2029-08-06T00:09:16.870	-3.81x	-30.58	48300.35	-22.89			
gamma	I	2029-08-06T00:09:46.549	-3.73x	-30.58	47620.96	-22.89			
eta	I	2029-08-06T00:10:05.986	-3.69x	-30.58	47176.12	-22.88			
beta	I	2029-08-06T00:11:12.926	-3.52x	-30.57	45644.69	-22.87			
alpha	I	2029-08-06T00:11:52.305	-3.42x	-30.57	44744.45	-22.86			
4	I	2029-08-06T00:13:29.390	-3.18x	-30.56	42526.12	-22.84			
5	I	2029-08-06T00:13:45.623	-3.14x	-30.56	42155.08	-22.83			
6	I	2029-08-06T00:14:01.396	-3.10x	-30.56	41795.09	-22.83			
Uranus	I	2029-08-06T00:25:57.152	-1.29x	-30.40	25515.17	-2.10		-2.20	
Uranus	E	2029-08-06T01:02:02.620	4.44x	-29.18	25542.46	-1.29		-1.35	
6	E	2029-08-06T01:14:03.710	6.43	-28.53	41876.35	22.73			
5	E	2029-08-06T01:14:22.807	6.48	-28.51	42310.36	22.74			
4	E	2029-08-06T01:14:36.241	6.52	-28.50	42615.84	22.74			
alpha	E	2029-08-06T01:16:07.811	6.77	-28.41	44698.94	22.76			
beta	E	2029-08-06T01:16:50.657	6.89	-28.37	45674.22	22.76			
eta	E	2029-08-06T01:17:56.620	7.07	-28.30	47176.12	22.77			
gamma	E	2029-08-06T01:18:16.610	7.13	-28.28	47631.37	22.78			
delta	E	2029-08-06T01:18:45.979	7.21	-28.25	48300.35	22.78			
lambda	E	2029-08-06T01:20:01.748	7.42	-28.17	50026.71	22.79			
epsilon	E	2029-08-06T01:20:38.030	7.52	-28.13	50853.61	22.81			

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2029-08-06T00:44:22.270
 Event type : PgRgt
 : Uranus occs: geocentric, not 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 : 3418340693948667648
 2Mass ID (if available) : 05041104+2249382
 ICRS Star Coord at Epoch: 05h 04m 11.04418s +22:49:38.32716s
 RUWE (>1.4 is poor) : 0.96
 K magnitude : 14.061
 G magnitude : 15.910
 RP magnitude : 15.250
 BP magnitude : 16.389
 DUPflag : 0
 Distance (au) : 19.792
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : 22.87
 Sun-Target sep (deg) : 56.29
 Sun-Moon sep (deg) : 6.86
 B (ring opening deg) : 82.26
 PA of pole (deg) : -9.10
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 0.773
 C/A sky separation (km) : 11092.2
 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



Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2029-08-06T00:07:10.668		49.69	-6.55	51517.94	-22.02		
lambda	I	2029-08-06T00:08:18.485		49.95	-6.29	50026.71	-21.97		
delta	I	2029-08-06T00:09:37.139		50.25	-5.99	48300.35	-21.93		
gamma	I	2029-08-06T00:10:08.137		50.37	-5.87	47620.97	-21.91		
eta	I	2029-08-06T00:10:28.449		50.44	-5.79	47176.12	-21.89		
beta	I	2029-08-06T00:11:38.530		50.71	-5.52	45643.41	-21.85		
alpha	I	2029-08-06T00:12:19.608		50.87	-5.36	44746.97	-21.82		
4	I	2029-08-06T00:14:01.562		51.26	-4.97x	42527.04	-21.74		
5	I	2029-08-06T00:14:18.648		51.32	-4.90x	42154.94	-21.72		
6	I	2029-08-06T00:14:35.270		51.38	-4.84x	41794.75	-21.71		
Uranus	I	2029-08-06T00:27:25.952		54.31	-1.86x	25421.25		-3.73	-3.91
Uranus	E	2029-08-06T01:01:22.073		61.92	6.08x	25470.22		-2.99	-3.13
6	E	2029-08-06T01:14:17.213		64.75	9.12x	41873.74	21.63		
5	E	2029-08-06T01:14:37.227		64.82	9.20x	42305.98	21.64		
4	E	2029-08-06T01:14:51.458		64.88	9.25x	42614.38	21.66		
alpha	E	2029-08-06T01:16:27.716		65.22	9.63x	44702.59	21.73		
beta	E	2029-08-06T01:17:12.297		65.38	9.81x	45672.24	21.76		
eta	E	2029-08-06T01:18:21.338		65.63	10.08x	47176.12	21.80		
gamma	E	2029-08-06T01:18:42.204		65.71	10.16x	47631.17	21.81		
delta	E	2029-08-06T01:19:12.868		65.82	10.28x	48300.35	21.83		
lambda	E	2029-08-06T01:20:31.868		66.10	10.59x	50026.71	21.87		
epsilon	E	2029-08-06T01:21:11.133		66.24	10.75x	50885.92	21.92		