

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2038-09-24T20:46:31.090
 Event type : PgtRgt
 : Uranus occs: geocentric, topocentric
 : Ring occs: geocentric, topocentric
 Gaia source ID : 673867316339482880
 2Mass ID (if available) : 07585351+2108056

Uranus 2038-09-24T20:46:31 K14.33 G15.40 PgtRgt

ICRS Star Coord at Epoch: 07h 58m 53.50970s +21:08:05.58771s

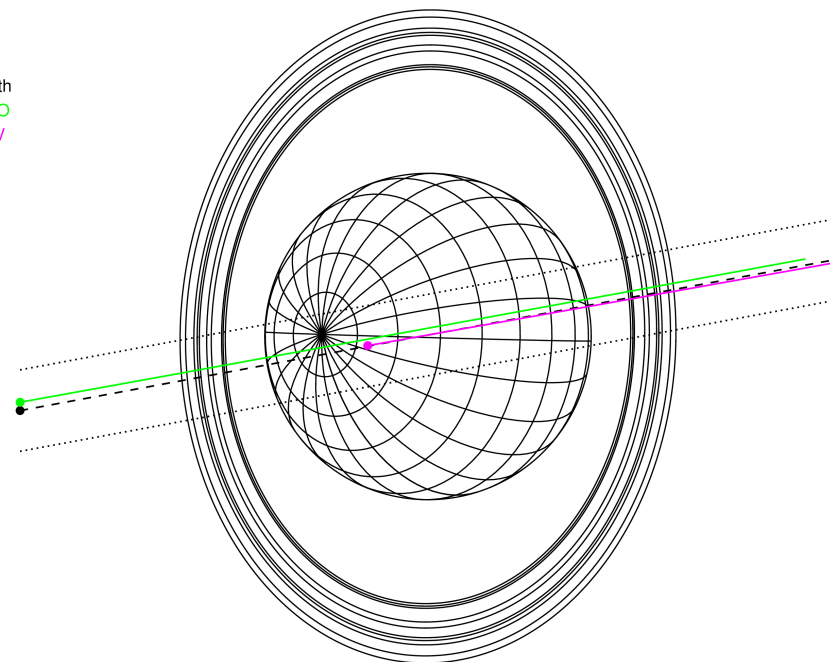
RUWE (>1.4 is poor) : 1.17
 K magnitude : 14.333
 G magnitude : 15.395
 RP magnitude : 15.000
 BP magnitude : 15.632
 DUPflag : 0
 Distance (au) : 19.083
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : 19.68
 Sun-Target sep (deg) : 63.83
 Sun-Moon sep (deg) : 11.58
 B (ring opening deg) : 49.38
 PA of pole (deg) : 88.88

Uranus 2038-09-24T20:46:31 K14.33 G15.40
 PgtRgt



2038-09-24T20:46:31.0900 ex: 07 58 53.5097 s: +21 08 05.588 C/A 0.020" PA 190.55 deg v_sky +19.68 km/s D 19.08 AU
 Credit: Styled after SORA/Lucky Star

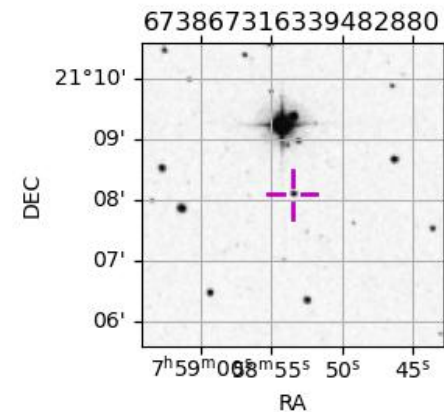
Earth
 PMO
 KAV



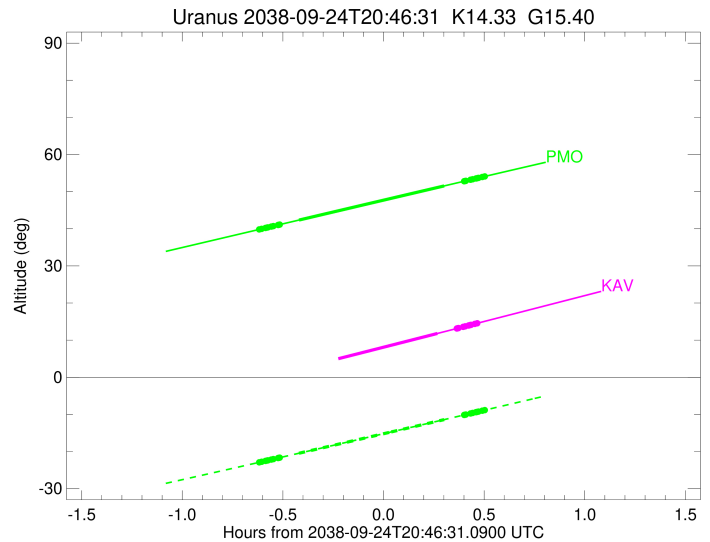
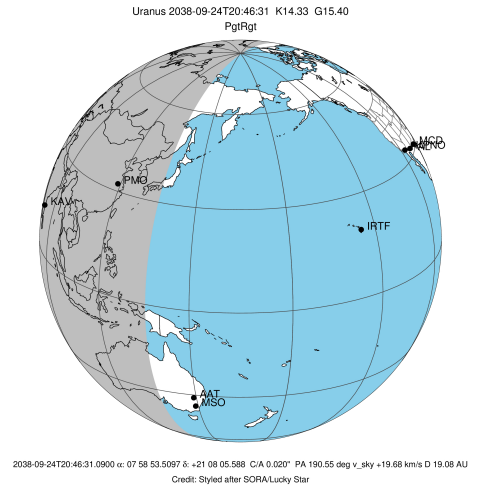
#	a(km)	ring
1	41837.2	6
2	42235.0	5
3	42571.2	4
4	44718.5	alpha
5	45661.1	beta
6	47176.1	eta
7	47626.3	gamma
8	48300.3	delta
9	50026.7	lambda
10	51149.4	epsilon

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	+++++	+ +	+++++	SEP 24 20:09 - SEP 24 21:16	PieRie
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		+	+++++	SEP 24 21:02 - SEP 24 21:14	PneRne
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

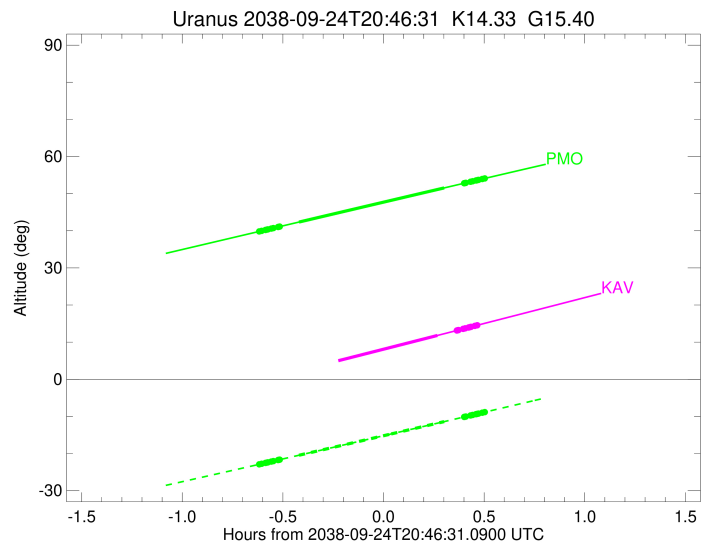
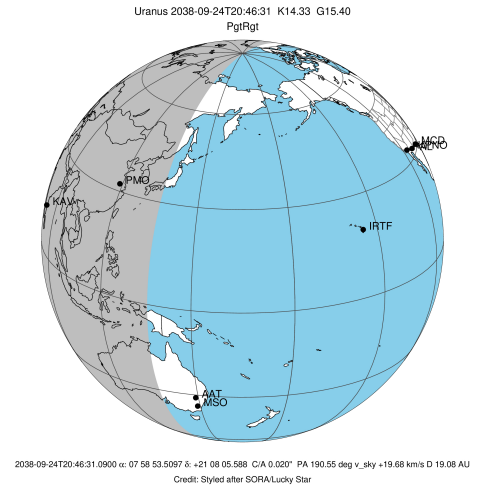


target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2038-09-24T20:42:56.790
 Event type : PgtRgt
 : Uranus occs: geocentric, topocentric
 : Ring occs: geocentric, topocentric
 Observer code : PMO
 Location : Purple Mtn Obs. Nanking
 Latitude (deg) : 32.06667
 E. Longitude (deg) : 118.82089
 Altitude (km) : 0.364
 Gaia source ID : 673867316339482880
 2Mass ID (if available) : 07585351+2108056
 ICRS Star Coord at Epoch: 07h 58m 53.50970s +21:08:05.58771s
 RUWE (>1.4 is poor) : 1.17
 K magnitude : 14.333
 G magnitude : 15.395
 RP magnitude : 15.000
 BP magnitude : 15.632
 DUPflag : 0
 Distance (au) : 19.083
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : 19.68
 Sun-Target sep (deg) : 63.83
 Sun-Moon sep (deg) : 12.31
 B (ring opening deg) : 49.38
 PA of pole (deg) : 88.88
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 0.092
 C/A sky separation (km) : 1275.7
 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	2038-09-24T20:09:28.876		39.83	-22.91	51136.70	-25.40		
lambda	I	2038-09-24T20:10:12.590		39.98	-22.76	50026.71	-25.39		
delta	I	2038-09-24T20:11:20.588		40.23	-22.53	48300.35	-25.39		
gamma	I	2038-09-24T20:11:47.122		40.32	-22.44	47626.75	-25.38		
eta	I	2038-09-24T20:12:04.875		40.38	-22.37	47176.12	-25.38		
beta	I	2038-09-24T20:13:05.182		40.60	-22.17	45642.17	-25.38		
alpha	I	2038-09-24T20:13:42.767		40.73	-22.04	44691.94	-25.38		
4	I	2038-09-24T20:15:07.189		41.03	-21.75	42533.77	-25.36		
5	I	2038-09-24T20:15:19.431		41.07	-21.71	42208.44	-25.35		
6	I	2038-09-24T20:15:34.823		41.13	-21.65	41862.29	-25.38		
Uranus	I	2038-09-24T20:21:18.922		42.35	-20.47	25230.33		40.08	41.38
Uranus	E	2038-09-24T21:04:37.478		51.55	-11.40	25243.40		-39.10	-40.39
6	E	2038-09-24T21:10:31.249		52.80	-10.16	41810.13	25.27		
5	E	2038-09-24T21:10:50.799		52.87	-10.09	42256.79	25.24		
4	E	2038-09-24T21:11:04.199		52.91	-10.04	42610.15	25.25		
alpha	E	2038-09-24T21:12:27.984		53.21	-9.75	44743.85	25.26		
beta	E	2038-09-24T21:13:05.203		53.34	-9.62	45679.72	25.26		
eta	E	2038-09-24T21:14:04.312		53.55	-9.41	47176.12	25.26		
gamma	E	2038-09-24T21:14:22.124		53.61	-9.35	47626.06	25.26		
delta	E	2038-09-24T21:14:48.817		53.70	-9.25	48300.35	25.26		
lambda	E	2038-09-24T21:15:57.161		53.94	-9.01	50026.71	25.26		
epsilon	E	2038-09-24T21:16:42.660		54.10	-8.85	51175.98	25.26		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2038-09-24T20:41:09.450
 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 : 673867316339482880
 2Mass ID (if available) : 07585351+2108056
 ICRS Star Coord at Epoch: 07h 58m 53.50970s +21:08:05.58771s
 RUWE (>1.4 is poor) : 1.17
 K magnitude : 14.333
 G magnitude : 15.395
 RP magnitude : 15.000
 BP magnitude : 15.632
 DUPflag : 0
 Distance (au) : 19.083
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : 19.68
 Sun-Target sep (deg) : 63.83
 Sun-Moon sep (deg) : 12.53
 B (ring opening deg) : 49.38
 PA of pole (deg) : 88.88
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 0.017
 C/A sky separation (km) : 234.4
 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_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	2038-09-24T20:08:02.663	-0.71x	-64.45	51129.94	-25.75			
lambda	I	2038-09-24T20:08:45.515	-0.55x	-64.29	50026.71	-25.74			
delta	I	2038-09-24T20:09:52.579	-0.29x	-64.05	48300.35	-25.74			
gamma	I	2038-09-24T20:10:18.753	-0.19x	-63.95	47626.66	-25.74			
eta	I	2038-09-24T20:10:36.258	-0.13x	-63.89	47176.12	-25.74			
beta	I	2038-09-24T20:11:35.732	0.10x	-63.67	45642.30	-25.73			
alpha	I	2038-09-24T20:12:12.800	0.24x	-63.53	44692.36	-25.73			
4	I	2038-09-24T20:13:36.084	0.55x	-63.22	42533.25	-25.71			
5	I	2038-09-24T20:13:48.074	0.60x	-63.18	42210.03	-25.70			
6	I	2038-09-24T20:14:03.326	0.66x	-63.12	41863.01	-25.73			
Uranus	I	2038-09-24T20:19:45.771	1.96x	-61.84	25234.24			39.79	41.09
Uranus	E	2038-09-24T21:02:36.427	11.80	-51.94	25236.62			-39.61	-40.91
6	E	2038-09-24T21:08:20.655	13.13	-50.58	41811.10	25.57			
5	E	2038-09-24T21:08:39.977	13.21	-50.51	42259.02	25.54			
4	E	2038-09-24T21:08:53.107	13.26	-50.46	42609.46	25.55			
alpha	E	2038-09-24T21:10:15.989	13.58	-50.13	44744.46	25.56			
beta	E	2038-09-24T21:10:52.750	13.72	-49.98	45679.92	25.55			
eta	E	2038-09-24T21:11:51.171	13.94	-49.75	47176.12	25.55			
gamma	E	2038-09-24T21:12:08.773	14.01	-49.68	47625.92	25.55			
delta	E	2038-09-24T21:12:35.167	14.11	-49.58	48300.35	25.55			
lambda	E	2038-09-24T21:13:42.732	14.37	-49.31	50026.71	25.55			
epsilon	E	2038-09-24T21:14:27.321	14.55	-49.14	51165.94	25.55			