

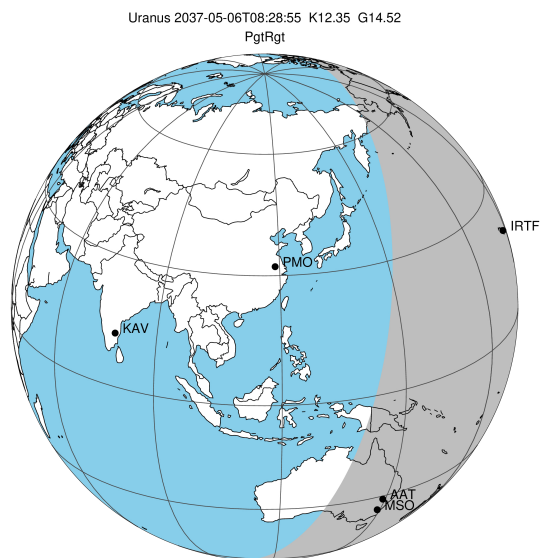
target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2037-05-06T08:28:55.070
 Event type : PgtRgt
 : Uranus occs: geocentric, topocentric
 : Ring occs: geocentric, topocentric
 Gaia source ID : 3368198673051624704
 2Mass ID (if available) : 07085749+2255204

Uranus 2037-05-06T08:28:55 K12.35 G14.52 PgtRgt

ICRS Star Coord at Epoch: 07h 08m 57.47527s +22:55:19.88052s

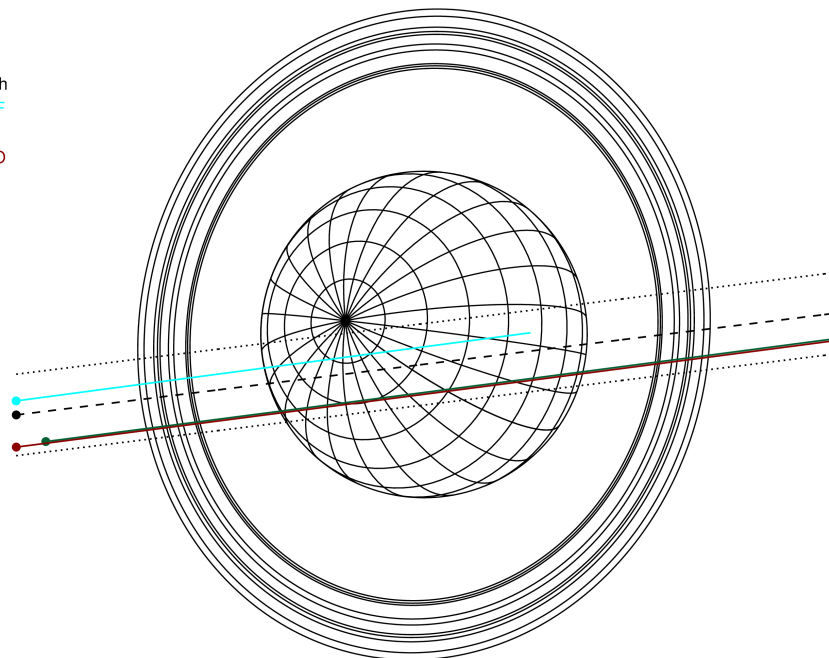
RUWE (>1.4 is poor) : 1.10
 K magnitude : 12.354
 G magnitude : 14.521
 RP magnitude : 13.812
 BP magnitude : 15.088
 DUPflag : 0
 Distance (au) : 19.225
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : 21.25
 Sun-Target sep (deg) : 60.20
 Sun-Moon sep (deg) : 159.60
 B (ring opening deg) : 60.73
 PA of pole (deg) : 80.03

#	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



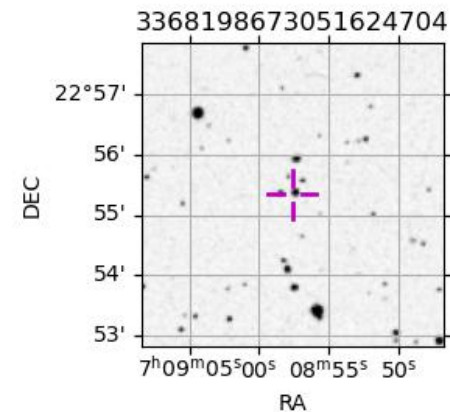
2037-05-06T08:28:55.0700 α: 07 08 57.4753 δ: +22 55 19.881 C/A 0.324° PA 7.08 deg v_sky +21.25 km/s D 19.23 AU
 Credit: Styled after SORA/Lucky Star

Earth
 IRTF
 AAT
 MSO



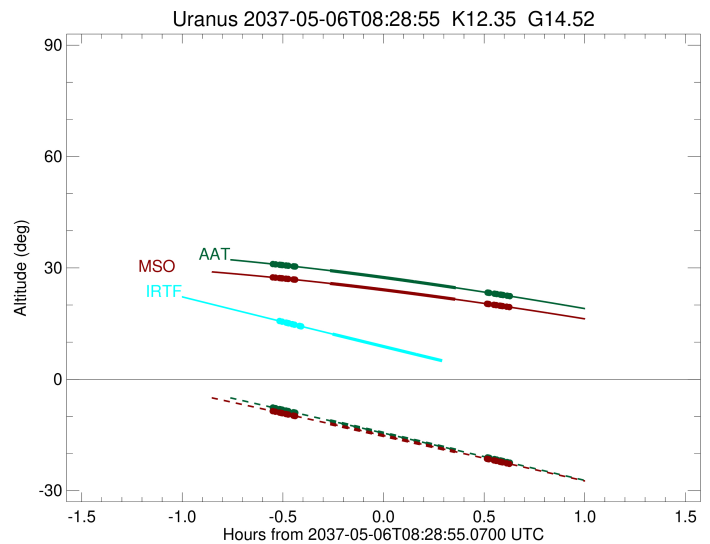
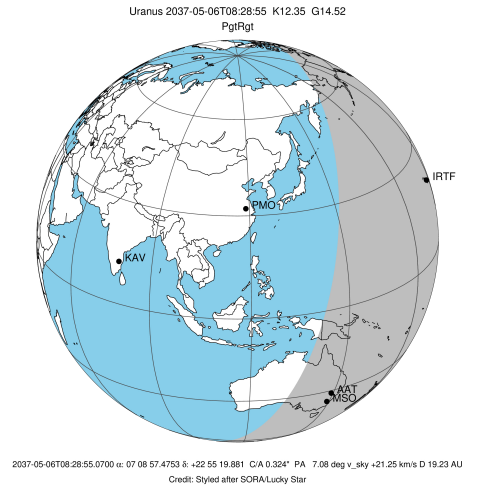
Observable events with sun below -5 deg and altitude above 5 deg unblocked by planet

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	+++++	+		MAY 06 07:57 - MAY 06 08:13	PinRin
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	+++++	+ +	+++++	MAY 06 07:55 - MAY 06 09:06	PieRie
SAAO	So. Afr. Astro. Obs.	-32.4	20.8					PnnRnn
MSO	Mt. Stromlo Observato	-35.3	149.0	+++++	+ +	+++++	MAY 06 07:55 - MAY 06 09:06	PieRie



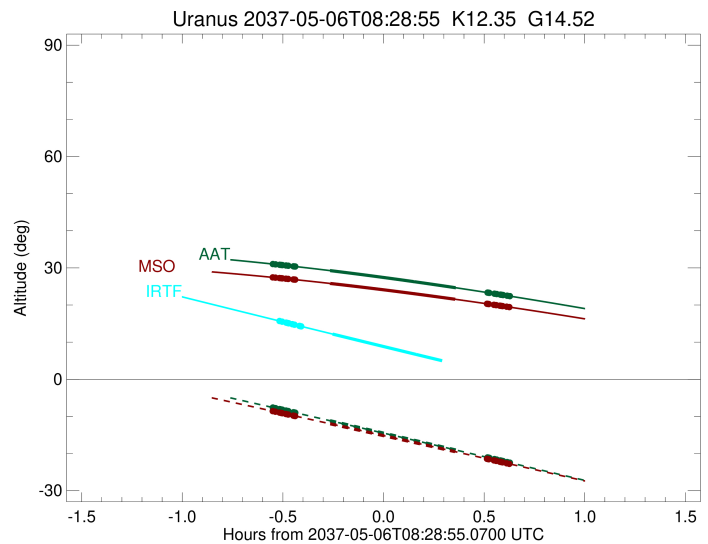
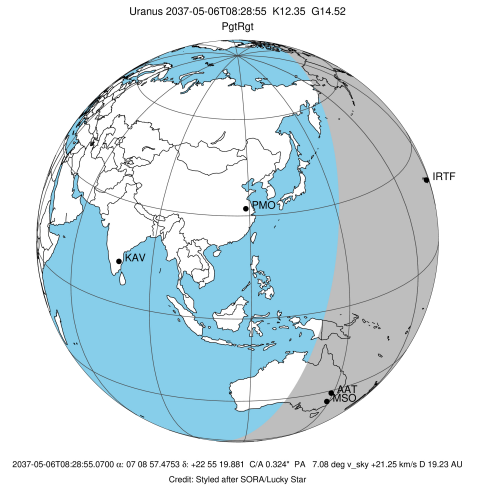
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target                : Uranus
target radius (km)   : 25559.00
C/A epoch            : 2037-05-06T08:33:24.350
Event type          : PgtRgt
: Uranus occs: geocentric, topocentric
: Ring occs: geocentric, topocentric
Observer code       : IRTF
Location            : Mauna Kea/IRTF
Latitude (deg)      : 19.82622
E. Longitude (deg)  : 204.52800
Altitude (km)       : 4.168
Gaia source ID      : 3368198673051624704
2Mass ID (if available) : 07085749+2255204
ICRS Star Coord at Epoch: 07h 08m 57.47527s +22:55:19.88052s
RUWE (>1.4 is poor) : 1.10
K magnitude          : 12.354
G magnitude          : 14.521
RP magnitude         : 13.812
BP magnitude         : 15.088
DUPflag             : 0
Distance (au)       : 19.225
f0 (km)             : 0.000
g0 (km)             : 0.000
skyplane vel. (km/s) : 21.25
Sun-Target sep (deg) : 60.20
Sun-Moon sep (deg)  : 158.88
B (ring opening deg) : 60.73
PA of pole (deg)    : 80.03
Pole direction: RA (deg): 257.31100
Dec (deg): -15.17500
C/A sky separation (") : 0.138
C/A sky separation (km) : 1918.1
NAIF SPICE kernels  : RAJobs_U111+rgf15.spk
URKALLvl1.spk
urall1.bsp
IAU_URANUS_for_RINGFIT.tpc
vgr2.urall1.bsp
ural61.bsp
vgr2.ural61.bsp
peph.ural60.bsp
earthstns_itrff93_040916.bsp
earth_720101_070426.bpc
earth_200101_990628_predict.bpc
pg3f0000r.bsp
pg490000r.bsp
naif0012.tls
earth_flat_IAU.spk
    
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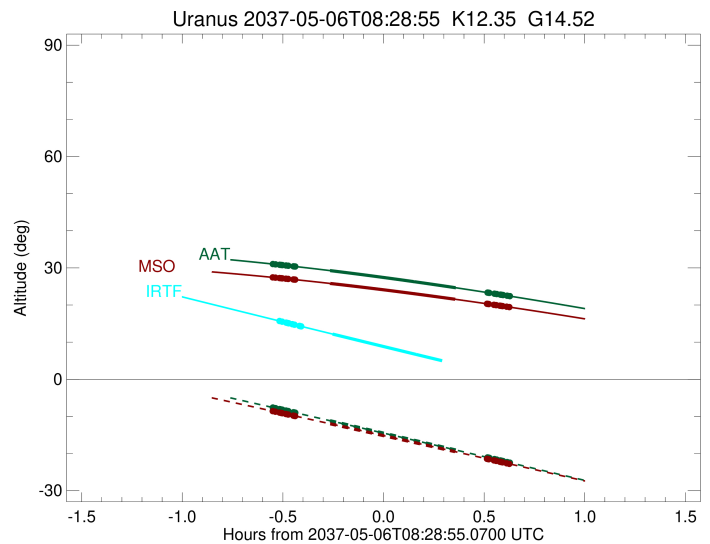
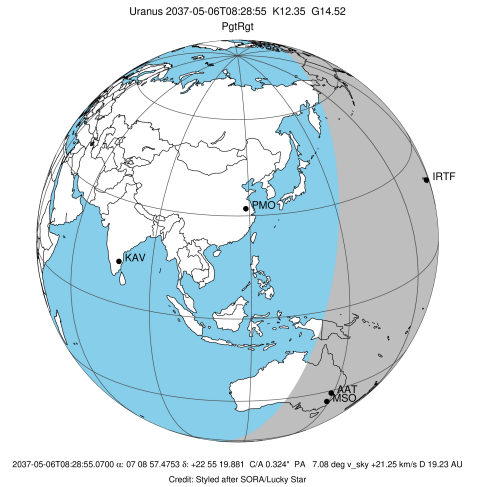
Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2037-05-06T07:57:49.492		15.71	-39.85	51304.17	-24.00		
lambda	I	2037-05-06T07:58:42.703		15.52	-40.00	50026.71	-24.01		
delta	I	2037-05-06T07:59:54.610		15.25	-40.20	48300.35	-24.01		
gamma	I	2037-05-06T08:00:22.735		15.14	-40.28	47625.10	-24.01		
eta	I	2037-05-06T08:00:41.435		15.07	-40.33	47176.12	-24.01		
beta	I	2037-05-06T08:01:45.217		14.84	-40.50	45643.17	-24.01		
alpha	I	2037-05-06T08:02:24.175		14.69	-40.61	44707.48	-24.01		
4	I	2037-05-06T08:03:51.589		14.37	-40.85	42611.37	-24.01		
5	I	2037-05-06T08:04:10.150		14.30	-40.91	42156.06	-24.00		
6	I	2037-05-06T08:04:24.703		14.25	-40.95	41838.06	-24.02		
Uranus	I	2037-05-06T08:13:43.205		12.18	-42.45	25174.71		26.98	28.06
Uranus	E	2037-05-06T08:53:01.293		3.56x	-48.01	25136.68		-28.43	-29.55
6	E	2037-05-06T09:02:06.228		1.59x	-49.07	41840.38	24.17		
5	E	2037-05-06T09:02:27.144		1.51x	-49.11	42312.33	24.15		
4	E	2037-05-06T09:02:35.687		1.48x	-49.13	42529.32	24.16		
alpha	E	2037-05-06T09:04:06.957		1.15x	-49.30	44732.32	24.16		
beta	E	2037-05-06T09:04:46.071		1.01x	-49.37	45678.27	24.17		
eta	E	2037-05-06T09:05:47.970		0.79x	-49.48	47176.12	24.17		
gamma	E	2037-05-06T09:06:06.657		0.72x	-49.51	47627.86	24.17		
delta	E	2037-05-06T09:06:34.475		0.62x	-49.56	48300.35	24.18		
lambda	E	2037-05-06T09:07:45.877		0.37x	-49.69	50026.71	24.18		
epsilon	E	2037-05-06T09:08:24.508		0.23x	-49.76	50960.90	24.18		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2037-05-06T08:31:47.880
 Event type : PgtRgt
 : Uranus occs: geocentric, topocentric
 : 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 : 3368198673051624704
 2Mass ID (if available) : 07085749+2255204
 ICRS Star Coord at Epoch: 07h 08m 57.47527s +22:55:19.88052s
 RUWE (>1.4 is poor) : 1.10
 K magnitude : 12.354
 G magnitude : 14.521
 RP magnitude : 13.812
 BP magnitude : 15.088
 DUPflag : 0
 Distance (au) : 19.225
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : 21.25
 Sun-Target sep (deg) : 60.20
 Sun-Moon sep (deg) : 159.27
 B (ring opening deg) : 60.73
 PA of pole (deg) : 80.03
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 0.646
 C/A sky separation (km) : 9004.5
 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_itrff93_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	2037-05-06T07:55:52.021		31.04	-7.60	51250.69	-23.28		
lambda	I	2037-05-06T07:56:44.554		30.96	-7.78	50026.71	-23.29		
delta	I	2037-05-06T07:57:58.722		30.84	-8.04	48300.35	-23.26		
gamma	I	2037-05-06T07:58:27.724		30.79	-8.14	47625.89	-23.25		
eta	I	2037-05-06T07:58:47.072		30.76	-8.21	47176.12	-23.24		
beta	I	2037-05-06T07:59:53.067		30.65	-8.44	45641.99	-23.21		
alpha	I	2037-05-06T08:00:33.138		30.58	-8.57	44712.71	-23.19		
4	I	2037-05-06T08:02:04.170		30.43	-8.89	42607.29	-23.14		
5	I	2037-05-06T08:02:23.394		30.39	-8.96	42154.83	-23.12		
6	I	2037-05-06T08:02:37.942		30.37	-9.01	41845.28	-23.14		
Uranus	I	2037-05-06T08:12:58.773		29.27	-11.16	25282.03		22.58	23.53
Uranus	E	2037-05-06T08:50:27.148		24.66	-19.05	25116.02		-29.21	-30.34
6	E	2037-05-06T08:59:54.863		23.35	-21.05	41847.68	23.22		
5	E	2037-05-06T09:00:16.193		23.30	-21.13	42307.50	23.21		
4	E	2037-05-06T09:00:25.134		23.28	-21.16	42527.00	23.22		
alpha	E	2037-05-06T09:02:00.227		23.05	-21.50	44737.16	23.28		
beta	E	2037-05-06T09:02:40.486		22.96	-21.64	45676.38	23.30		
eta	E	2037-05-06T09:03:44.716		22.81	-21.87	47176.12	23.34		
gamma	E	2037-05-06T09:04:04.103		22.76	-21.94	47628.61	23.34		
delta	E	2037-05-06T09:04:32.870		22.69	-22.04	48300.35	23.36		
lambda	E	2037-05-06T09:05:46.729		22.51	-22.30	50026.71	23.39		
epsilon	E	2037-05-06T09:06:24.559		22.42	-22.43	50911.83	23.38		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2037-05-06T08:31:42.760
 Event type : PgtRgt
 : Uranus occs: geocentric, topocentric
 : 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 : 3368198673051624704
 2Mass ID (if available) : 07085749+2255204
 ICRS Star Coord at Epoch: 07h 08m 57.47527s +22:55:19.88052s
 RUWE (>1.4 is poor) : 1.10
 K magnitude : 12.354
 G magnitude : 14.521
 RP magnitude : 13.812
 BP magnitude : 15.088
 DUPflag : 0
 Distance (au) : 19.225
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : 21.25
 Sun-Target sep (deg) : 60.20
 Sun-Moon sep (deg) : 159.27
 B (ring opening deg) : 60.73
 PA of pole (deg) : 80.03
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 0.666
 C/A sky separation (km) : 9287.6
 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_itrff93_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	2037-05-06T07:55:49.849		27.45	-8.57	51248.54	-23.27		
lambda	I	2037-05-06T07:56:42.306		27.37	-8.74	50026.71	-23.28		
delta	I	2037-05-06T07:57:56.502		27.26	-8.99	48300.35	-23.25		
gamma	I	2037-05-06T07:58:25.515		27.22	-9.08	47625.92	-23.24		
eta	I	2037-05-06T07:58:44.874		27.19	-9.15	47176.12	-23.23		
beta	I	2037-05-06T07:59:50.905		27.09	-9.37	45641.96	-23.20		
alpha	I	2037-05-06T08:00:30.990		27.03	-9.50	44712.92	-23.18		
4	I	2037-05-06T08:02:02.104		26.88	-9.80	42607.10	-23.12		
5	I	2037-05-06T08:02:21.339		26.85	-9.86	42154.82	-23.11		
6	I	2037-05-06T08:02:35.878		26.83	-9.91	41845.56	-23.12		
Uranus	I	2037-05-06T08:12:59.419		25.81	-11.99	25287.06		22.36	23.30
Uranus	E	2037-05-06T08:50:16.065		21.55	-19.50	25116.76		-29.18	-30.32
6	E	2037-05-06T08:59:45.017		20.33	-21.43	41847.97	23.20		
5	E	2037-05-06T09:00:06.347		20.29	-21.50	42307.26	23.19		
4	E	2037-05-06T09:00:15.302		20.27	-21.53	42526.94	23.20		
alpha	E	2037-05-06T09:01:50.485		20.06	-21.86	44737.35	23.26		
beta	E	2037-05-06T09:02:30.760		19.97	-21.99	45676.30	23.28		
eta	E	2037-05-06T09:03:35.036		19.83	-22.21	47176.12	23.32		
gamma	E	2037-05-06T09:03:54.437		19.78	-22.28	47628.64	23.33		
delta	E	2037-05-06T09:04:23.220		19.72	-22.37	48300.35	23.34		
lambda	E	2037-05-06T09:05:37.118		19.55	-22.63	50026.71	23.38		
epsilon	E	2037-05-06T09:06:14.883		19.47	-22.75	50909.87	23.37		