

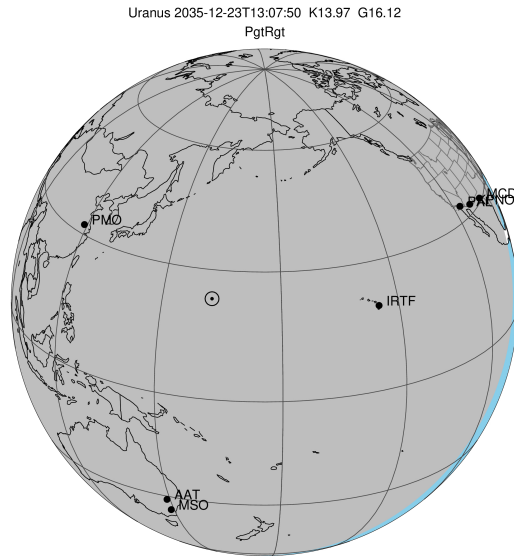
target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2035-12-23T13:07:50.010
 Event type : PgtRgt
 : Uranus occs: geocentric, topocentric
 : Ring occs: geocentric, topocentric
 Gaia source ID : 3380087451763790336
 2Mass ID (if available) : 06564365+2311135

ICRS Star Coord at Epoch: 06h 56m 43.65433s +23:11:13.42839s

RUWE (>1.4 is poor) : 0.96
 K magnitude : 13.968
 G magnitude : 16.118
 RP magnitude : 15.438
 BP magnitude : 16.653
 DUPflag : 0
 Distance (au) : 17.865
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -22.70
 Sun-Target sep (deg) : 168.00
 Sun-Moon sep (deg) : 100.24
 B (ring opening deg) : 63.44
 PA of pole (deg) : 77.29

a(km) ring

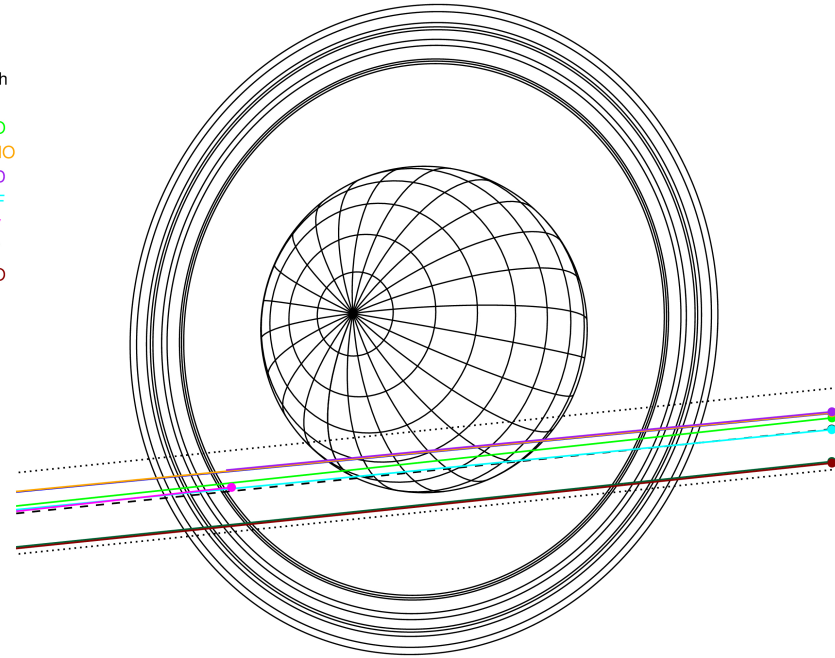
- 1 41837.2 6
- 2 42235.0 5
- 3 42571.2 4
- 4 44718.5 alpha
- 5 45661.1 beta
- 6 47176.1 eta
- 7 47626.3 gamma
- 8 48300.3 delta
- 9 50026.7 lambda
- 10 51149.4 epsilon



2035-12-23T13:07:50.0100 α: 06 56 43.6543 δ: +23 11 13.428 C/A 1.696° PA 5.91 deg v_sky -22.70 km/s D 17.86 AU
 Credit: Styled after SORA/Lucky Star

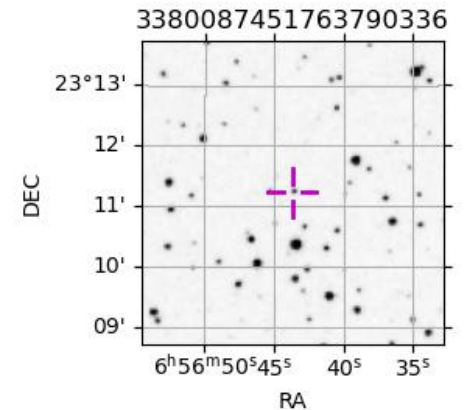
Uranus 2035-12-23T13:07:50 K13.97 G16.12 PgtRgt

Earth
 PAL
 PMO
 KPNO
 MCD
 IRTF
 KAV
 AAT
 MSO



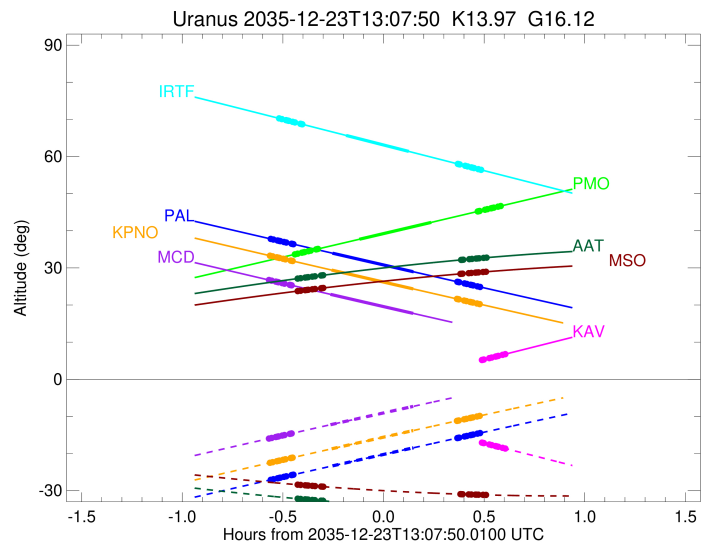
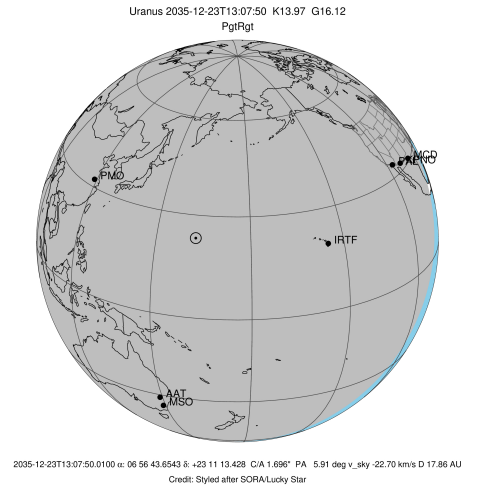
Observable events with sun below -5 deg and altitude above 5 deg unblocked by planet

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	+++++	+ +	+++++	DEC 23 12:34 - DEC 23 13:36	PieRie
PMO	Purple Mtn Obs. Nanki	32.1	118.8	+++++	+ +	+++++	DEC 23 12:41 - DEC 23 13:42	PieRie
KPNO	Kitt Peak Natl Obs	32.0	248.4	+++++	+ +	+++++	DEC 23 12:34 - DEC 23 13:36	PieRie
MCD	McDonald Obs. 2.7m	30.7	256.0	+++++	+ +		DEC 23 12:33 - DEC 23 13:16	PieRin
TEN	Teide Obs./Tenerife	28.3	343.5					PnnRnn
IRTF	Mauna Kea/IRTF	19.8	204.5	+++++	+ +	+++++	DEC 23 12:37 - DEC 23 13:37	PieRie
KAV	Kavalur Observatory	12.6	78.8			+++++	DEC 23 13:37 - DEC 23 13:44	PnnRne
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	+++++		+++++	DEC 23 12:42 - DEC 23 13:38	PnnRie
SAAO	So. Afr. Astro. Obs.	-32.4	20.8					PnnRnn
MSO	Mt. Stromlo Observato	-35.3	149.0	+++++		+++++	DEC 23 12:42 - DEC 23 13:38	PnnRie



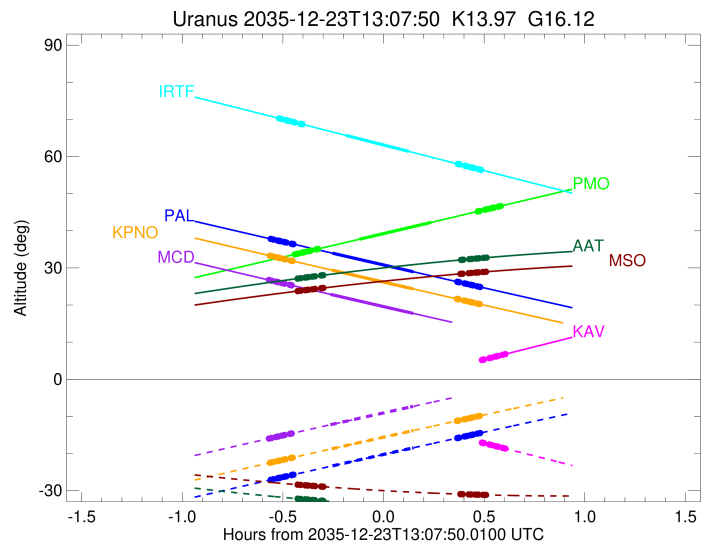
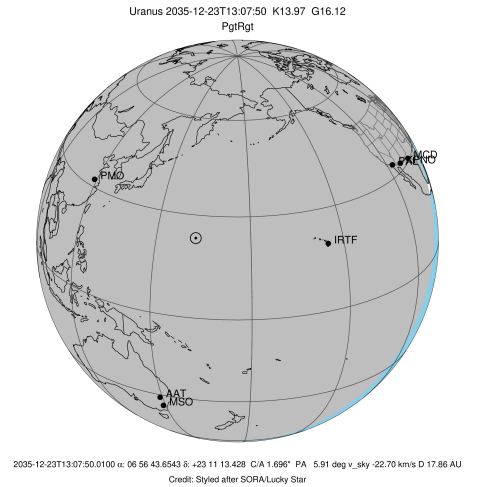
```

target                : Uranus
target radius (km)   : 25559.00
C/A epoch            : 2035-12-23T13:04:32.660
Event type           : PgtRgt
: Uranus occs: geocentric, topocentric
: Ring occs: geocentric, topocentric
Observer code        : PAL
Location             : Palomar Mt (200")
Latitude (deg)       : 33.35622
E. Longitude (deg)   : 243.13601
Altitude (km)        : 1.706
Gaia source ID       : 3380087451763790336
2Mass ID (if available) : 06564365+2311135
ICRS Star Coord at Epoch: 06h 56m 43.65433s +23:11:13.42839s
RUWE (>1.4 is poor) : 0.96
K magnitude          : 13.968
G magnitude          : 16.118
RP magnitude         : 15.438
BP magnitude         : 16.653
DUPflag             : 0
Distance (au)        : 17.865
f0 (km)              : 0.000
g0 (km)              : 0.000
skyplane vel. (km/s) : -22.70
Sun-Target sep (deg) : 168.00
Sun-Moon sep (deg)   : 100.85
B (ring opening deg) : 63.44
PA of pole (deg)     : 77.29
Pole direction: RA (deg): 257.31100
Dec (deg): -15.17500
C/A sky separation ("): 1.482
C/A sky separation (km): 19205.4
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_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	2035-12-23T12:34:31.148		37.74	-27.03	50744.15	-23.39		
lambda	I	2035-12-23T12:35:01.852		37.63	-26.92	50026.71	-23.34		
delta	I	2035-12-23T12:36:16.070		37.38	-26.67	48300.35	-23.18		
gamma	I	2035-12-23T12:36:45.394		37.27	-26.57	47621.48	-23.12		
eta	I	2035-12-23T12:37:04.677		37.21	-26.50	47176.12	-23.07		
beta	I	2035-12-23T12:38:10.984		36.98	-26.28	45651.14	-22.91		
alpha	I	2035-12-23T12:38:50.715		36.84	-26.14	44738.28	-22.81		
4	I	2035-12-23T12:40:25.353		36.51	-25.82	42608.00	-22.54		
5	I	2035-12-23T12:40:45.128		36.44	-25.75	42168.81	-22.47		
6	I	2035-12-23T12:40:58.252		36.39	-25.71	41879.74	-22.43		
Uranus	I	2035-12-23T12:52:37.391		33.96	-23.33	25215.60		-22.44	-23.39
Uranus	E	2035-12-23T13:16:46.676		28.95	-18.45	25486.61		10.01	10.48
6	E	2035-12-23T13:29:49.095		26.27	-15.85	41813.32	22.36		
5	E	2035-12-23T13:30:07.633		26.20	-15.78	42236.21	22.40		
4	E	2035-12-23T13:30:23.139		26.15	-15.73	42571.12	22.47		
alpha	E	2035-12-23T13:31:58.657		25.82	-15.42	44727.65	22.73		
beta	E	2035-12-23T13:32:39.269		25.68	-15.28	45654.14	22.83		
eta	E	2035-12-23T13:33:45.736		25.46	-15.06	47176.12	22.99		
gamma	E	2035-12-23T13:34:05.362		25.39	-15.00	47627.77	23.03		
delta	E	2035-12-23T13:34:34.522		25.29	-14.90	48300.35	23.10		
lambda	E	2035-12-23T13:35:49.022		25.03	-14.66	50026.71	23.25		
epsilon	E	2035-12-23T13:36:48.825		24.83	-14.46	51420.17	23.30		

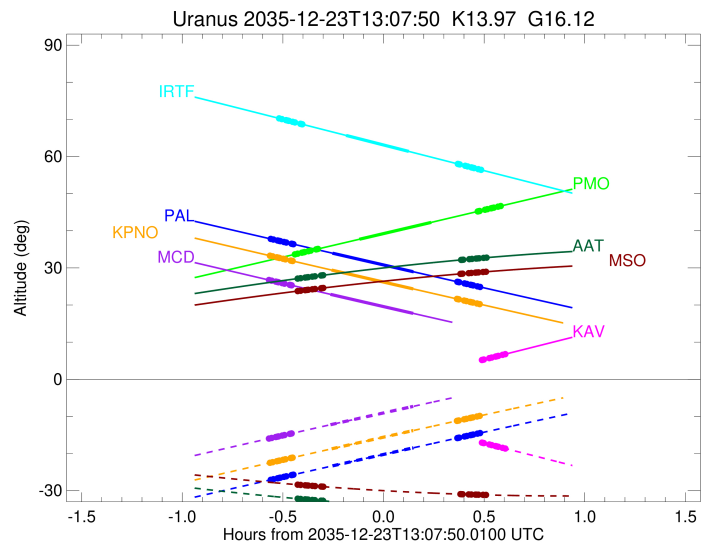
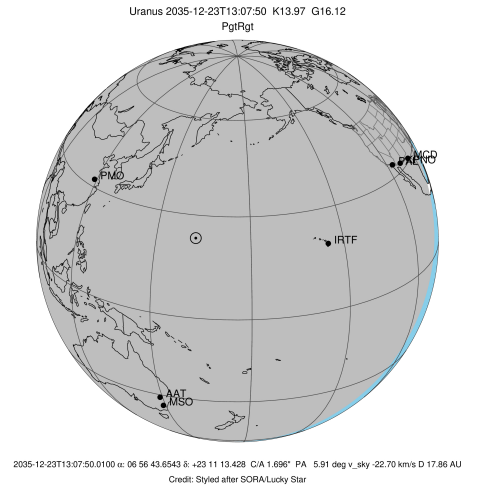
target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2035-12-23T13:11:11.760
 Event type : PgtRgt
 : Uranus occs: geocentric, topocentric
 : Ring occs: geocentric, topocentric
 Observer code : PMO
 Location : Purple Mtn Obs. Nanking
 Latitude (deg) : 32.06667
 E. Longitude (deg) : 118.82089
 Altitude (km) : 0.364
 Gaia source ID : 3380087451763790336
 2Mass ID (if available) : 06564365+2311135
 ICRS Star Coord at Epoch: 06h 56m 43.65433s +23:11:13.42839s
 RUWE (>1.4 is poor) : 0.96
 K magnitude : 13.968
 G magnitude : 16.118
 RP magnitude : 15.438
 BP magnitude : 16.653
 DUPflag : 0
 Distance (au) : 17.865
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -22.70
 Sun-Target sep (deg) : 168.00
 Sun-Moon sep (deg) : 100.70
 B (ring opening deg) : 63.44
 PA of pole (deg) : 77.29
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 1.595
 C/A sky separation (km) : 20660.2
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk
 URKALLvl1.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



b: ring blocked by planet x: target alt < 5.0 deg or sun > -5.0 deg

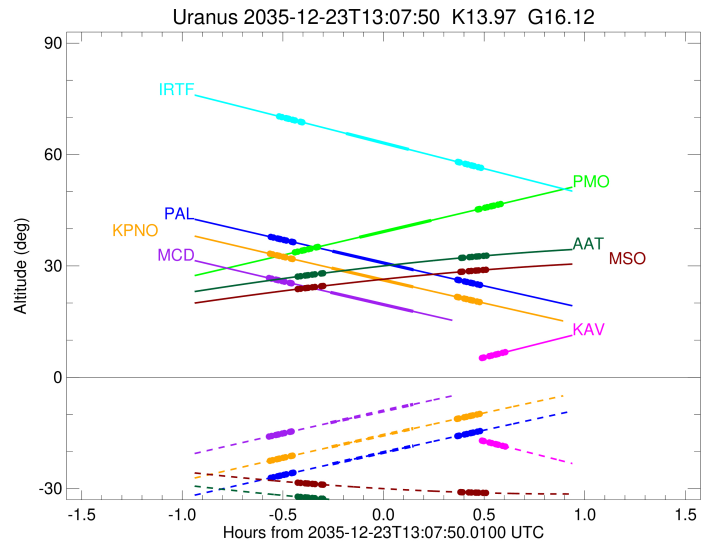
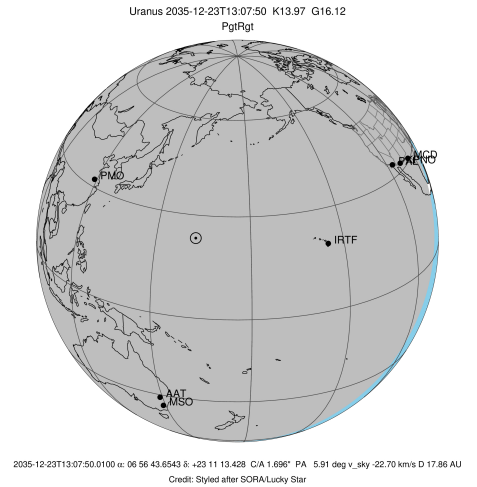
Ring	I/E	UTC	b? alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2035-12-23T12:41:43.508	33.72	-44.90	50743.76	-23.06		
lambda	I	2035-12-23T12:42:14.648	33.83	-45.01	50026.71	-22.99		
delta	I	2035-12-23T12:43:30.015	34.09	-45.27	48300.35	-22.82		
gamma	I	2035-12-23T12:43:59.819	34.20	-45.38	47621.42	-22.74		
eta	I	2035-12-23T12:44:19.422	34.27	-45.45	47176.12	-22.69		
beta	I	2035-12-23T12:45:26.907	34.51	-45.69	45650.69	-22.50		
alpha	I	2035-12-23T12:46:07.323	34.65	-45.83	44739.01	-22.39		
4	I	2035-12-23T12:47:43.869	34.99	-46.17	42608.76	-22.07		
5	I	2035-12-23T12:48:04.141	35.06	-46.24	42167.49	-21.98		
6	I	2035-12-23T12:48:17.516	35.11	-46.29	41879.74	-21.94		
Uranus	I	2035-12-23T13:00:38.321	37.72	-48.91	25250.16		-21.20	-22.11
Uranus	E	2035-12-23T13:22:04.843	42.26	-53.46	25517.65		7.54	7.90
6	E	2035-12-23T13:35:54.395	45.20	-56.38	41815.12	22.01		
5	E	2035-12-23T13:36:12.954	45.27	-56.45	42232.20	22.05		
4	E	2035-12-23T13:36:28.956	45.33	-56.50	42573.36	22.14		
alpha	E	2035-12-23T13:38:05.693	45.67	-56.85	44729.18	22.46		
beta	E	2035-12-23T13:38:46.678	45.82	-56.99	45653.28	22.58		
eta	E	2035-12-23T13:39:53.866	46.05	-57.23	47176.12	22.77		
gamma	E	2035-12-23T13:40:13.665	46.12	-57.30	47627.54	22.83		
delta	E	2035-12-23T13:40:43.091	46.23	-57.40	48300.35	22.90		
lambda	E	2035-12-23T13:41:58.169	46.49	-57.66	50026.71	23.08		
epsilon	E	2035-12-23T13:42:57.809	46.71	-57.87	51407.33	23.15		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2035-12-23T13:04:21.930
 Event type : PgtRgt
 : Uranus occs: geocentric, topocentric
 : Ring occs: geocentric, topocentric
 Observer code : KPNO
 Location : Kitt Peak Natl Obs
 Latitude (deg) : 31.96333
 E. Longitude (deg) : 248.40000
 Altitude (km) : 2.120
 Gaia source ID : 3380087451763790336
 2Mass ID (if available) : 06564365+2311135
 ICRS Star Coord at Epoch: 06h 56m 43.65433s +23:11:13.42839s
 RUWE (>1.4 is poor) : 0.96
 K magnitude : 13.968
 G magnitude : 16.118
 RP magnitude : 15.438
 BP magnitude : 16.653
 DUPflag : 0
 Distance (au) : 17.865
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -22.70
 Sun-Target sep (deg) : 168.00
 Sun-Moon sep (deg) : 100.79
 B (ring opening deg) : 63.44
 PA of pole (deg) : 77.29
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 1.476
 C/A sky separation (km) : 19130.3
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk
 URKALLvl1.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



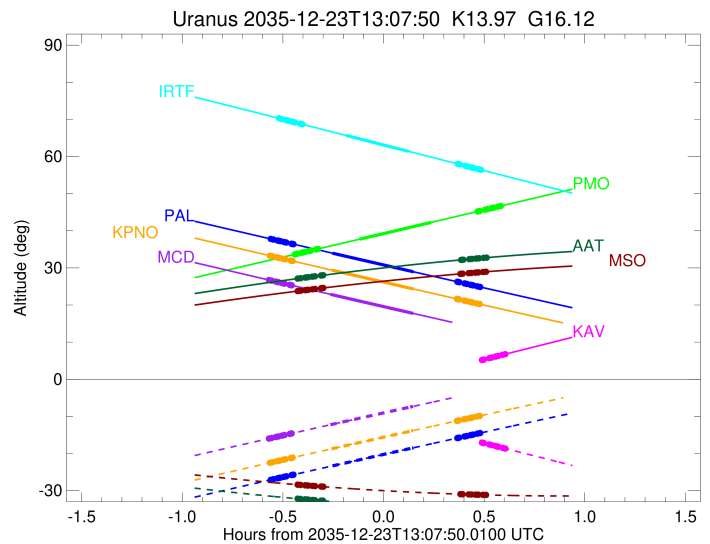
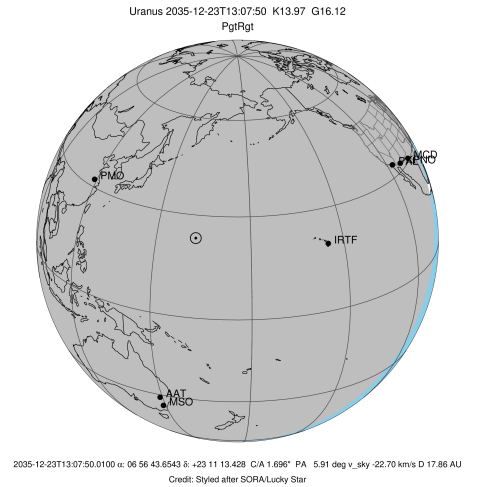
Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2035-12-23T12:34:16.598		33.22	-22.44	50744.18	-23.38		
lambda	I	2035-12-23T12:34:47.322		33.11	-22.33	50026.71	-23.32		
delta	I	2035-12-23T12:36:01.578		32.85	-22.08	48300.35	-23.17		
gamma	I	2035-12-23T12:36:30.916		32.75	-21.98	47621.48	-23.11		
eta	I	2035-12-23T12:36:50.208		32.68	-21.91	47176.12	-23.06		
beta	I	2035-12-23T12:37:56.542		32.45	-21.69	45651.17	-22.90		
alpha	I	2035-12-23T12:38:36.292		32.31	-21.55	44738.23	-22.80		
4	I	2035-12-23T12:40:10.958		31.98	-21.23	42607.95	-22.53		
5	I	2035-12-23T12:40:30.734		31.91	-21.16	42168.89	-22.46		
6	I	2035-12-23T12:40:43.863		31.86	-21.11	41879.74	-22.43		
Uranus	I	2035-12-23T12:52:21.965		29.42	-18.74	25213.84		-22.50	-23.46
Uranus	E	2035-12-23T13:16:40.634		24.35	-13.82	25485.04		10.12	10.59
6	E	2035-12-23T13:29:41.853		21.65	-11.22	41813.24	22.36		
5	E	2035-12-23T13:30:00.409		21.59	-11.16	42236.38	22.39		
4	E	2035-12-23T13:30:15.911		21.53	-11.11	42571.02	22.46		
alpha	E	2035-12-23T13:31:51.478		21.21	-10.79	44727.58	22.72		
beta	E	2035-12-23T13:32:32.117		21.07	-10.66	45654.18	22.81		
eta	E	2035-12-23T13:33:38.625		20.84	-10.44	47176.12	22.98		
gamma	E	2035-12-23T13:33:58.265		20.77	-10.37	47627.78	23.02		
delta	E	2035-12-23T13:34:27.444		20.67	-10.28	48300.35	23.08		
lambda	E	2035-12-23T13:35:42.000		20.42	-10.03	50026.71	23.23		
epsilon	E	2035-12-23T13:36:41.873		20.21	-9.83	51420.69	23.28		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2035-12-23T13:04:11.640
 Event type : PgtRgt
 : Uranus occs: geocentric, topocentric
 : Ring occs: geocentric, topocentric
 Observer code : MCD
 Location : McDonald Obs. 2.7m
 Latitude (deg) : 30.67158
 E. Longitude (deg) : 255.97844
 Altitude (km) : 2.075
 Gaia source ID : 3380087451763790336
 2Mass ID (if available) : 06564365+2311135
 ICRS Star Coord at Epoch: 06h 56m 43.65433s +23:11:13.42839s
 RUWE (>1.4 is poor) : 0.96
 K magnitude : 13.968
 G magnitude : 16.118
 RP magnitude : 15.438
 BP magnitude : 16.653
 DUPflag : 0
 Distance (au) : 17.865
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -22.70
 Sun-Target sep (deg) : 168.00
 Sun-Moon sep (deg) : 100.70
 B (ring opening deg) : 63.44
 PA of pole (deg) : 77.29
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 1.463
 C/A sky separation (km) : 18951.5
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk
 URKALLvl1.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
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 pg3f0000r.bsp
 pg490000r.bsp
 naif0012.tls
 earth_flat_IAU.spk



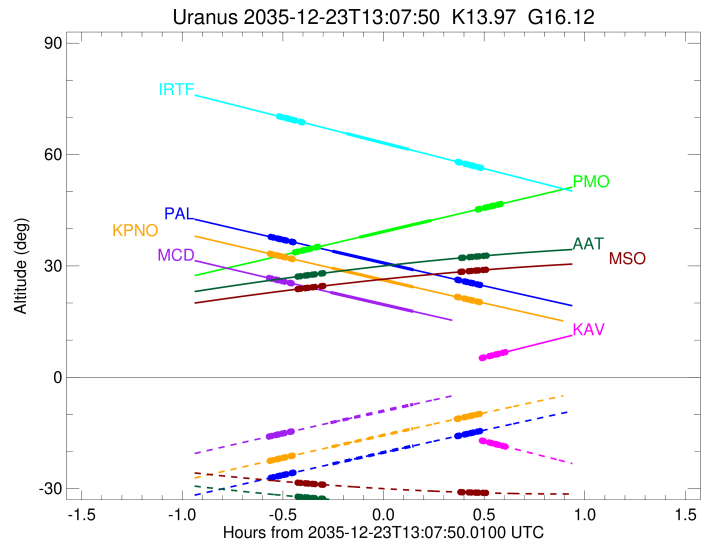
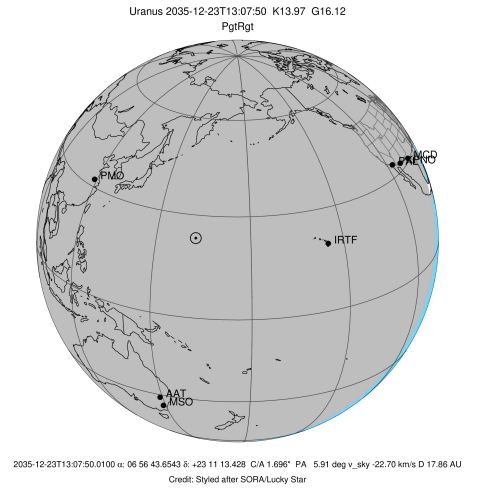
Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2035-12-23T12:33:59.101		26.67	-15.91	50744.27	-23.37		
lambda	I	2035-12-23T12:34:29.841		26.56	-15.81	50026.71	-23.31		
delta	I	2035-12-23T12:35:44.122		26.30	-15.56	48300.35	-23.17		
gamma	I	2035-12-23T12:36:13.466		26.20	-15.46	47621.49	-23.10		
eta	I	2035-12-23T12:36:32.762		26.13	-15.39	47176.12	-23.06		
beta	I	2035-12-23T12:37:39.099		25.90	-15.17	45651.24	-22.90		
alpha	I	2035-12-23T12:38:18.856		25.76	-15.03	44738.11	-22.80		
4	I	2035-12-23T12:39:53.500		25.43	-14.71	42607.83	-22.54		
5	I	2035-12-23T12:40:13.257		25.36	-14.64	42169.11	-22.47		
6	I	2035-12-23T12:40:26.387		25.31	-14.60	41879.74	-22.44		
Uranus	I	2035-12-23T12:52:01.378		22.88	-12.25	25209.57		-22.65	-23.61
Uranus	E	2035-12-23T13:16:40.548		17.75	-7.31	25481.40		10.37	10.85
6	E	2035-12-23T13:29:38.121		15.08	-4.75x	41813.07	22.36		
5	E	2035-12-23T13:29:56.698		15.02	-4.69x	42236.77	22.39		
4	E	2035-12-23T13:30:12.171		14.96	-4.64x	42570.80	22.46		
alpha	E	2035-12-23T13:31:47.742		14.64	-4.33x	44727.43	22.72		
beta	E	2035-12-23T13:32:28.398		14.50	-4.20x	45654.26	22.81		
eta	E	2035-12-23T13:33:34.921		14.27	-3.98x	47176.12	22.97		
gamma	E	2035-12-23T13:33:54.570		14.21	-3.92x	47627.80	23.01		
delta	E	2035-12-23T13:34:23.761		14.11	-3.82x	48300.35	23.07		
lambda	E	2035-12-23T13:35:38.358		13.85	-3.58x	50026.71	23.21		
epsilon	E	2035-12-23T13:36:38.321		13.65	-3.38x	51421.85	23.26		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2035-12-23T13:05:50.350
 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 : 3380087451763790336
 2Mass ID (if available) : 06564365+2311135
 ICRS Star Coord at Epoch: 06h 56m 43.65433s +23:11:13.42839s
 RUWE (>1.4 is poor) : 0.96
 K magnitude : 13.968
 G magnitude : 16.118
 RP magnitude : 15.438
 BP magnitude : 16.653
 DUPflag : 0
 Distance (au) : 17.865
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -22.70
 Sun-Target sep (deg) : 168.00
 Sun-Moon sep (deg) : 101.14
 B (ring opening deg) : 63.44
 PA of pole (deg) : 77.29
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 1.689
 C/A sky separation (km) : 21882.7
 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_itrf93_040916.bsp
 earth_720101_070426.bpc
 earth_200101_990628_predict.bpc
 pg3f0000r.bsp
 pg490000r.bsp
 naif0012.tls
 earth_flat_IAU.spk



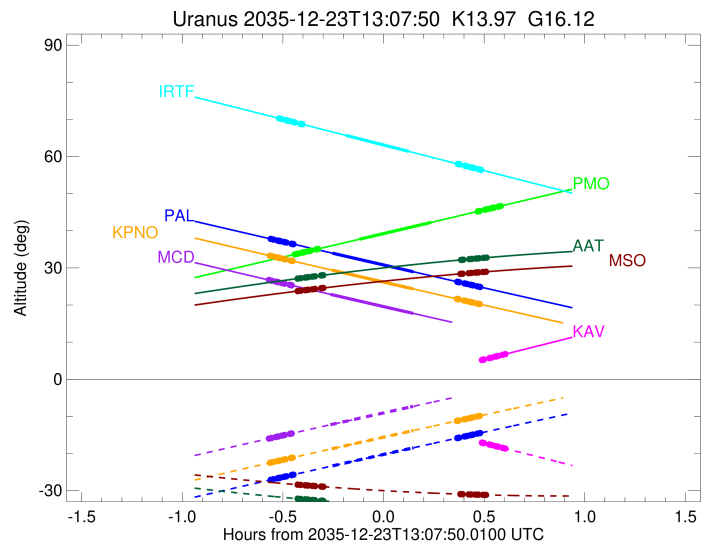
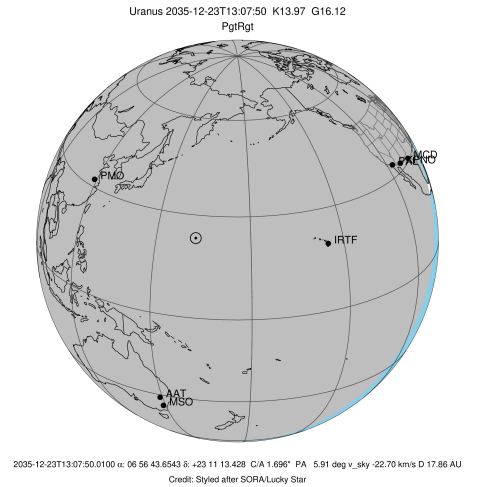
Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2035-12-23T12:37:00.795		70.21	-58.19	50743.52	-23.00		
lambda	I	2035-12-23T12:37:32.017		70.09	-58.07	50026.71	-22.92		
delta	I	2035-12-23T12:38:47.674		69.80	-57.78	48300.35	-22.71		
gamma	I	2035-12-23T12:39:17.625		69.68	-57.66	47621.35	-22.63		
eta	I	2035-12-23T12:39:37.328		69.61	-57.59	47176.12	-22.57		
beta	I	2035-12-23T12:40:45.254		69.35	-57.33	45650.03	-22.34		
alpha	I	2035-12-23T12:41:25.889		69.19	-57.17	44740.07	-22.21		
4	I	2035-12-23T12:43:03.318		68.82	-56.80	42609.79	-21.84		
5	I	2035-12-23T12:43:23.898		68.74	-56.72	42165.72	-21.75		
6	I	2035-12-23T12:43:37.373		68.69	-56.67	41879.66	-21.70		
Uranus	I	2035-12-23T12:56:40.469		65.69	-53.68	25294.12		-19.54	-20.39
Uranus	E	2035-12-23T13:15:21.021		61.39	-49.40	25535.72		5.65	5.92
6	E	2035-12-23T13:29:57.896		58.02	-46.06	41816.04	21.66		
5	E	2035-12-23T13:30:16.618		57.95	-45.99	42230.20	21.71		
4	E	2035-12-23T13:30:33.000		57.88	-45.92	42574.47	21.81		
alpha	E	2035-12-23T13:32:11.077		57.51	-45.55	44729.89	22.17		
beta	E	2035-12-23T13:32:52.537		57.35	-45.39	45652.88	22.30		
eta	E	2035-12-23T13:34:00.528		57.08	-45.13	47176.12	22.52		
gamma	E	2035-12-23T13:34:20.539		57.01	-45.06	47627.43	22.58		
delta	E	2035-12-23T13:34:50.279		56.89	-44.94	48300.35	22.67		
lambda	E	2035-12-23T13:36:06.092		56.60	-44.66	50026.71	22.87		
epsilon	E	2035-12-23T13:37:06.024		56.37	-44.43	51401.83	22.95		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2035-12-23T13:12:21.020
 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 : 3380087451763790336
 2Mass ID (if available) : 06564365+2311135
 ICRS Star Coord at Epoch: 06h 56m 43.65433s +23:11:13.42839s
 RUWE (>1.4 is poor) : 0.96
 K magnitude : 13.968
 G magnitude : 16.118
 RP magnitude : 15.438
 BP magnitude : 16.653
 DUPflag : 0
 Distance (au) : 17.865
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -22.70
 Sun-Target sep (deg) : 168.00
 Sun-Moon sep (deg) : 100.06
 B (ring opening deg) : 63.44
 PA of pole (deg) : 77.29
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 1.639
 C/A sky separation (km) : 21233.0
 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	2035-12-23T12:42:44.573	-6.98x	-4.75x	50743.64	-22.65			
lambda	I	2035-12-23T12:43:16.275	-6.86x	-4.86x	50026.71	-22.58			
delta	I	2035-12-23T12:44:33.040	-6.58x	-5.15	48300.35	-22.39			
gamma	I	2035-12-23T12:45:03.410	-6.47x	-5.27	47621.40	-22.32			
eta	I	2035-12-23T12:45:23.387	-6.40x	-5.34	47176.12	-22.26			
beta	I	2035-12-23T12:46:32.195	-6.14x	-5.60	45650.50	-22.06			
alpha	I	2035-12-23T12:47:13.395	-5.99x	-5.75	44739.33	-21.94			
4	I	2035-12-23T12:48:51.944	-5.63x	-6.12	42609.08	-21.61			
5	I	2035-12-23T12:49:12.680	-5.55x	-6.20	42166.93	-21.52			
6	I	2035-12-23T12:49:26.327	-5.50x	-6.25	41879.72	-21.48			
Uranus	I	2035-12-23T13:02:16.613	-2.65x	-9.15	25266.37			-20.60	-21.49
Uranus	E	2035-12-23T13:22:45.918	1.94x	-13.79	25528.29			6.50	6.80
6	E	2035-12-23T13:37:08.741	5.18	-17.06	41815.83	21.57			
5	E	2035-12-23T13:37:27.573	5.25	-17.13	42230.65	21.62			
4	E	2035-12-23T13:37:43.999	5.31	-17.20	42574.23	21.71			
alpha	E	2035-12-23T13:39:22.588	5.69	-17.57	44729.76	22.05			
beta	E	2035-12-23T13:40:04.298	5.84	-17.73	45652.95	22.17			
eta	E	2035-12-23T13:41:12.715	6.10	-17.99	47176.12	22.38			
gamma	E	2035-12-23T13:41:32.860	6.18	-18.07	47627.45	22.43			
delta	E	2035-12-23T13:42:02.802	6.29	-18.18	48300.35	22.51			
lambda	E	2035-12-23T13:43:19.158	6.58	-18.47	50026.71	22.70			
epsilon	E	2035-12-23T13:44:19.563	6.81	-18.70	51402.30	22.78			

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2035-12-23T13:09:11.590
 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 : 3380087451763790336
 2Mass ID (if available) : 06564365+2311135
 ICRS Star Coord at Epoch: 06h 56m 43.65433s +23:11:13.42839s
 RUWE (>1.4 is poor) : 0.96
 K magnitude : 13.968
 G magnitude : 16.118
 RP magnitude : 15.438
 BP magnitude : 16.653
 DUPflag : 0
 Distance (au) : 17.865
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -22.70
 Sun-Target sep (deg) : 168.00
 Sun-Moon sep (deg) : 100.64
 B (ring opening deg) : 63.44
 PA of pole (deg) : 77.29
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 2.104
 C/A sky separation (km) : 27261.8
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk
 URKALLvl1.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

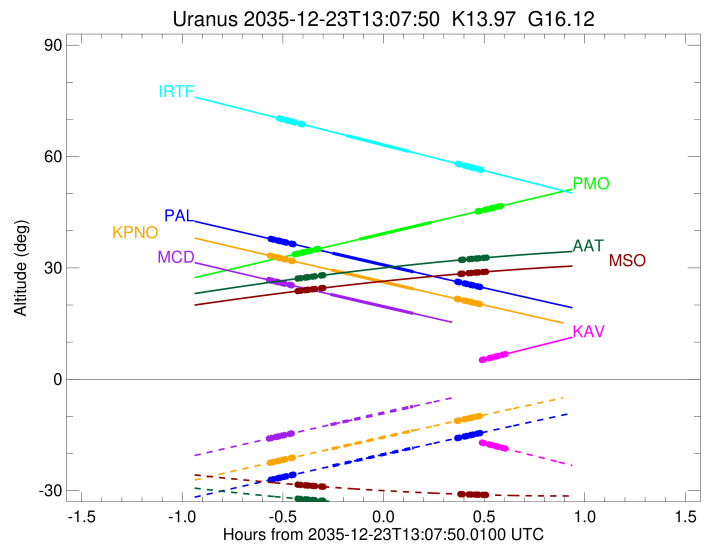
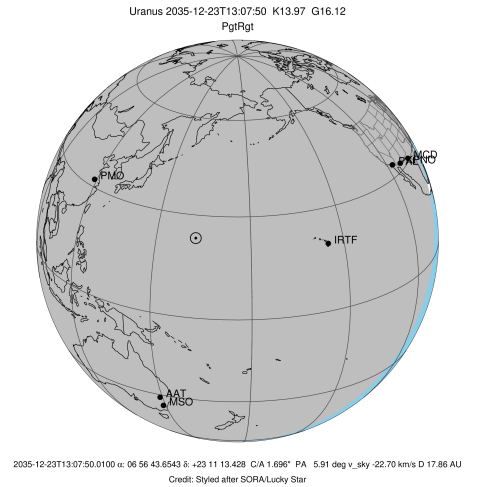


Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2035-12-23T12:42:33.977		27.16	-32.20	50746.27	-21.40		
lambda	I	2035-12-23T12:43:07.718		27.23	-32.24	50026.71	-21.26		
delta	I	2035-12-23T12:44:29.560		27.39	-32.35	48300.35	-20.92		
gamma	I	2035-12-23T12:45:02.137		27.46	-32.39	47621.13	-20.78		
eta	I	2035-12-23T12:45:23.608		27.50	-32.42	47176.12	-20.68		
beta	I	2035-12-23T12:46:38.137		27.65	-32.51	45647.86	-20.30		
alpha	I	2035-12-23T12:47:22.697		27.74	-32.57	44743.53	-20.08		
4	I	2035-12-23T12:49:11.321		27.95	-32.70	42612.96	-19.44		
5	I	2035-12-23T12:49:34.785		28.00	-32.73	42160.34	-19.28		
6	I	2035-12-23T12:49:49.873		28.02	-32.75	41878.73	-19.19		

No planet occultations

6	E	2035-12-23T13:30:57.197		32.15	-34.95	41822.51	19.22		
5	E	2035-12-23T13:31:17.278		32.18	-34.96	42217.03	19.31		
4	E	2035-12-23T13:31:36.605		32.21	-34.97	42581.80	19.47		
alpha	E	2035-12-23T13:33:25.357		32.36	-35.02	44734.62	20.11		
beta	E	2035-12-23T13:34:10.607		32.42	-35.05	45650.27	20.34		
eta	E	2035-12-23T13:35:24.963		32.52	-35.08	47176.12	20.72		
gamma	E	2035-12-23T13:35:46.662		32.54	-35.09	47626.70	20.81		
delta	E	2035-12-23T13:36:18.910		32.59	-35.11	48300.35	20.96		
lambda	E	2035-12-23T13:37:40.593		32.69	-35.14	50026.71	21.30		
epsilon	E	2035-12-23T13:38:42.788		32.77	-35.17	51359.12	21.45		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2035-12-23T13:09:05.920
 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 : 3380087451763790336
 2Mass ID (if available) : 06564365+2311135
 ICRS Star Coord at Epoch: 06h 56m 43.65433s +23:11:13.42839s
 RUWE (>1.4 is poor) : 0.96
 K magnitude : 13.968
 G magnitude : 16.118
 RP magnitude : 15.438
 BP magnitude : 16.653
 DUPflag : 0
 Distance (au) : 17.865
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -22.70
 Sun-Target sep (deg) : 168.00
 Sun-Moon sep (deg) : 100.59
 B (ring opening deg) : 63.44
 PA of pole (deg) : 77.29
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 2.123
 C/A sky separation (km) : 27505.7
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk
 URKALLvl1.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



b: ring blocked by planet x: target alt < 5.0 deg or sun > -5.0 deg

Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2035-12-23T12:42:34.135		23.79	-28.42	50746.55	-21.31		
lambda	I	2035-12-23T12:43:08.042		23.85	-28.47	50026.71	-21.16		
delta	I	2035-12-23T12:44:30.277		24.00	-28.56	48300.35	-20.82		
gamma	I	2035-12-23T12:45:03.022		24.06	-28.60	47621.12	-20.67		
eta	I	2035-12-23T12:45:24.605		24.10	-28.63	47176.12	-20.57		
beta	I	2035-12-23T12:46:39.557		24.24	-28.72	45647.75	-20.19		
alpha	I	2035-12-23T12:47:24.373		24.32	-28.77	44743.69	-19.95		
4	I	2035-12-23T12:49:13.724		24.52	-28.89	42613.09	-19.30		
5	I	2035-12-23T12:49:37.371		24.57	-28.92	42160.11	-19.14		
6	I	2035-12-23T12:49:52.569		24.59	-28.94	41878.66	-19.04		

No planet occultations

6	E	2035-12-23T13:30:44.602		28.39	-30.95	41822.82	19.07		
5	E	2035-12-23T13:31:04.791		28.42	-30.96	42216.43	19.17		
4	E	2035-12-23T13:31:24.302		28.44	-30.97	42582.13	19.33		
alpha	E	2035-12-23T13:33:13.779		28.58	-31.02	44734.83	19.99		
beta	E	2035-12-23T13:33:59.291		28.64	-31.04	45650.15	20.22		
eta	E	2035-12-23T13:35:14.074		28.73	-31.07	47176.12	20.60		
gamma	E	2035-12-23T13:35:35.887		28.76	-31.08	47626.67	20.71		
delta	E	2035-12-23T13:36:08.305		28.79	-31.10	48300.35	20.86		
lambda	E	2035-12-23T13:37:30.387		28.89	-31.13	50026.71	21.20		
epsilon	E	2035-12-23T13:38:32.772		28.97	-31.16	51357.12	21.35		