

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2036-02-13T10:25:05.310
 Event type : PgtRgt
 : Uranus occs: geocentric, topocentric
 : Ring occs: geocentric, topocentric
 Gaia source ID : 3379635101511412992
 2Mass ID (if available) : 06475496+2322235

Uranus 2036-02-13T10:25:05 K14.98 G18.57 PgtRgt

ICRS Star Coord at Epoch: 06h 47m 54.97109s +23:22:23.48570s

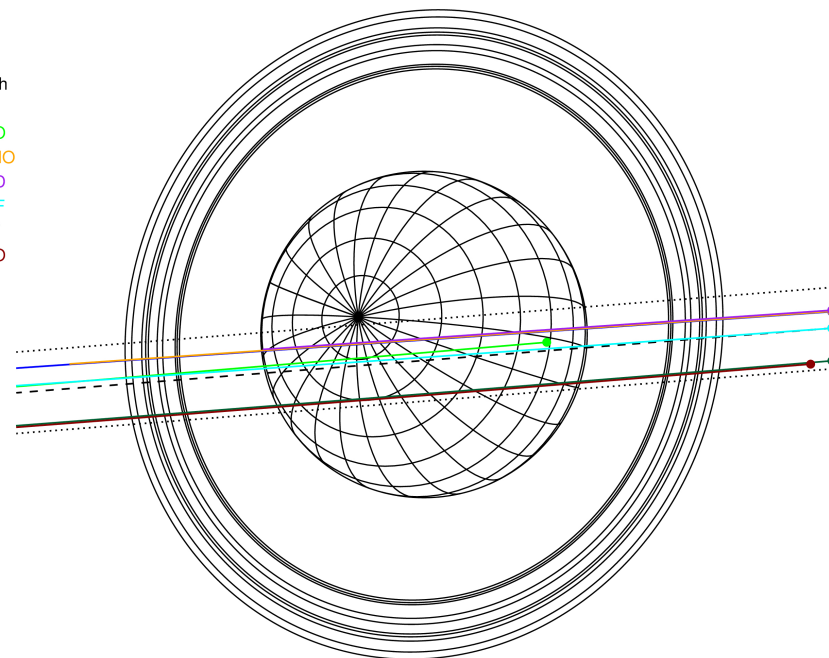
RUWE (>1.4 is poor) : 1.04
 K magnitude : 14.983
 G magnitude : 18.569
 RP magnitude : 17.490
 BP magnitude : 20.016
 DUPflag : 0
 Distance (au) : 18.083
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -15.42
 Sun-Target sep (deg) : 137.19
 Sun-Moon sep (deg) : 63.68
 B (ring opening deg) : 65.36
 PA of pole (deg) : 75.04

Uranus 2036-02-13T10:25:05 K14.98 G18.57
 PgtRgt



2036-02-13T10:25:05.3100 α: 06 47 54.9711 δ: +23 22 23.486 C/A 0.303° PA 4.54 deg v_sky -15.42 km/s D 18.08 AU
 Credit: Styled after SORA/Lucky Star

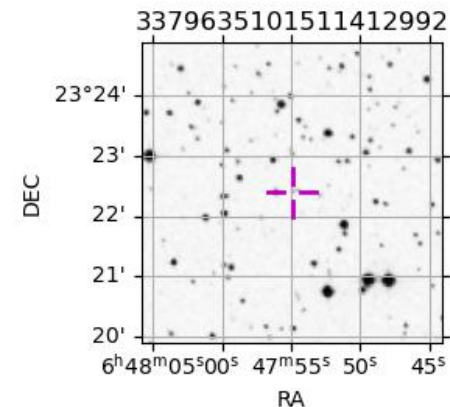
Earth
 PAL
 PMO
 KPNO
 MCD
 IRTF
 AAT
 MSO



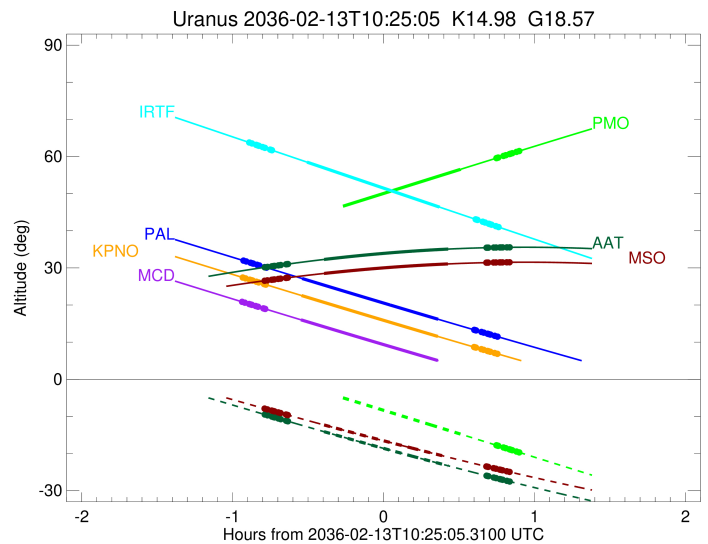
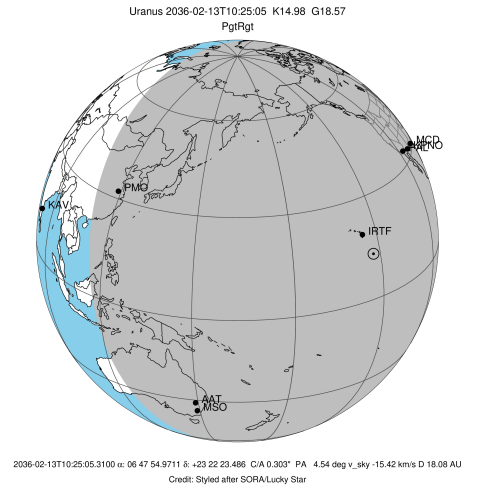
#	a(km)	ring
1	41837.2	6
2	42235.0	5
3	42571.2	4
4	44718.5	alpha
5	45661.1	beta
6	47176.1	eta
7	47626.3	gamma
8	48300.3	delta
9	50026.7	lambda
10	51149.4	epsilon

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	OEncode
PIC	Pic du Midi	42.9	0.1					PnnRnn
PAL	Palomar Mt (200")	33.4	243.1	+++++	+ +	+++++	FEB 13 09:29 - FEB 13 11:10	PieRie
PMO	Purple Mtn Obs. Nanki	32.1	118.8		+	+++++	FEB 13 10:55 - FEB 13 11:19	PneRne
KPNO	Kitt Peak Natl Obs	32.0	248.4	+++++	+ +	+++++	FEB 13 09:29 - FEB 13 11:10	PieRie
MCD	McDonald Obs. 2.7m	30.7	256.0	+++++	+ +		FEB 13 09:29 - FEB 13 10:46	PieRin
TEN	Teide Obs./Tenerife	28.3	343.5					PnnRnn
IRTF	Mauna Kea/IRTF	19.8	204.5	+++++	+ +	+++++	FEB 13 09:31 - FEB 13 11:11	PieRie
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	+++++	+ +	+++++	FEB 13 09:38 - FEB 13 11:15	PieRie
SAAO	So. Afr. Astro. Obs.	-32.4	20.8					PnnRnn
MSO	Mt. Stromlo Observato	-35.3	149.0	+++++	+ +	+++++	FEB 13 09:38 - FEB 13 11:15	PieRie

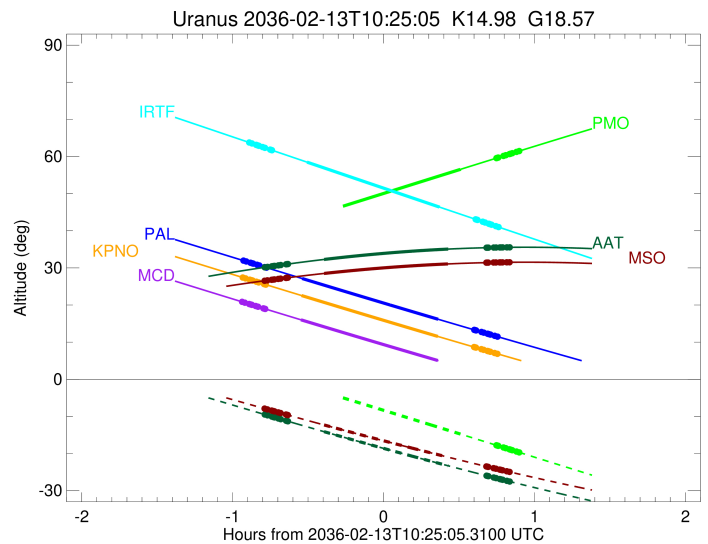
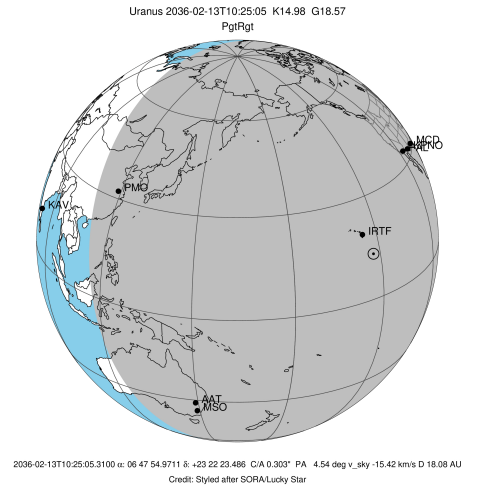


target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2036-02-13T10:19:42.840
 Event type : PgtRgt
 : Uranus occs: geocentric, topocentric
 : Ring occs: geocentric, topocentric
 Observer code : PAL
 Location : Palomar Mt (200")
 Latitude (deg) : 33.35622
 E. Longitude (deg) : 243.13601
 Altitude (km) : 1.706
 Gaia source ID : 3379635101511412992
 2Mass ID (if available) : 06475496+2322235
 ICRS Star Coord at Epoch: 06h 47m 54.97109s +23:22:23.48570s
 RUWE (>1.4 is poor) : 1.04
 K magnitude : 14.983
 G magnitude : 18.569
 RP magnitude : 17.490
 BP magnitude : 20.016
 DUPflag : 0
 Distance (au) : 18.083
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -15.42
 Sun-Target sep (deg) : 137.19
 Sun-Moon sep (deg) : 63.64
 B (ring opening deg) : 65.36
 PA of pole (deg) : 75.04
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 0.065
 C/A sky separation (km) : 851.3
 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



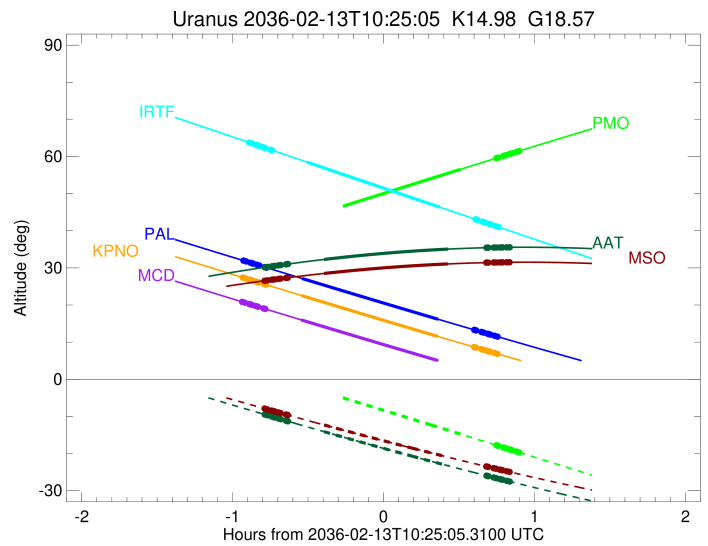
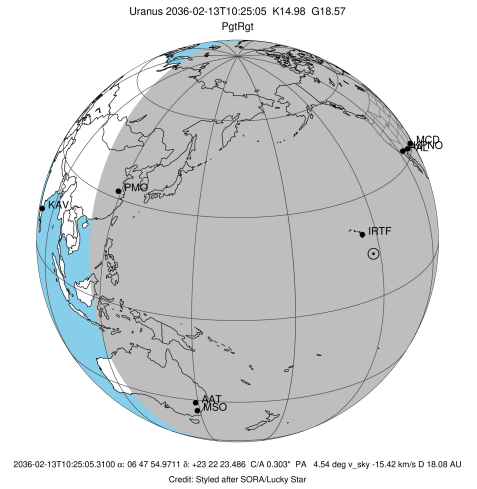
Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2036-02-13T09:29:42.827		31.90	-61.85	50868.90	-16.98		
lambda	I	2036-02-13T09:30:32.446		31.73	-61.72	50026.71	-16.97		
delta	I	2036-02-13T09:32:14.175		31.38	-61.44	48300.35	-16.97		
gamma	I	2036-02-13T09:32:54.132		31.24	-61.33	47622.38	-16.97		
eta	I	2036-02-13T09:33:20.435		31.15	-61.26	47176.12	-16.97		
beta	I	2036-02-13T09:34:50.931		30.84	-61.01	45642.49	-16.96		
alpha	I	2036-02-13T09:35:43.991		30.66	-60.86	44746.27	-16.96		
4	I	2036-02-13T09:37:50.592		30.22	-60.51	42583.93	-16.95		
5	I	2036-02-13T09:38:12.089		30.15	-60.45	42219.00	-16.95		
6	I	2036-02-13T09:38:35.214		30.07	-60.38	41818.02	-16.94		
Uranus	I	2036-02-13T09:52:44.481		27.15	-57.92	25115.97		-23.50	-24.49
Uranus	E	2036-02-13T10:46:47.894		16.17	-47.61	25135.58		22.93	23.90
6	E	2036-02-13T11:01:11.265		13.30	-44.72	41854.94	16.77		
5	E	2036-02-13T11:01:34.544		13.23	-44.64	42253.76	16.78		
4	E	2036-02-13T11:01:52.537		13.17	-44.58	42556.85	16.78		
alpha	E	2036-02-13T11:03:58.768		12.75	-44.15	44690.08	16.78		
beta	E	2036-02-13T11:04:58.004		12.56	-43.95	45680.05	16.78		
eta	E	2036-02-13T11:06:27.285		12.26	-43.65	47176.12	16.77		
gamma	E	2036-02-13T11:06:54.363		12.18	-43.56	47630.28	16.77		
delta	E	2036-02-13T11:07:34.318		12.04	-43.42	48300.35	16.77		
lambda	E	2036-02-13T11:09:17.268		11.71	-43.07	50026.71	16.77		
epsilon	E	2036-02-13T11:10:41.317		11.43	-42.79	51435.87	16.77		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2036-02-13T10:29:12.550
 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 : 3379635101511412992
 2Mass ID (if available) : 06475496+2322235
 ICRS Star Coord at Epoch: 06h 47m 54.97109s +23:22:23.48570s
 RUWE (>1.4 is poor) : 1.04
 K magnitude : 14.983
 G magnitude : 18.569
 RP magnitude : 17.490
 BP magnitude : 20.016
 DUPflag : 0
 Distance (au) : 18.083
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -15.42
 Sun-Target sep (deg) : 137.19
 Sun-Moon sep (deg) : 64.63
 B (ring opening deg) : 65.36
 PA of pole (deg) : 75.04
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 0.216
 C/A sky separation (km) : 2838.6
 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_itrf93_040916.bsp
 earth_720101_070426.bpc
 earth_200101_990628_predict.bpc
 pg3f0000r.bsp
 pg490000r.bsp
 naif0012.tls
 earth_flat_IAU.spk



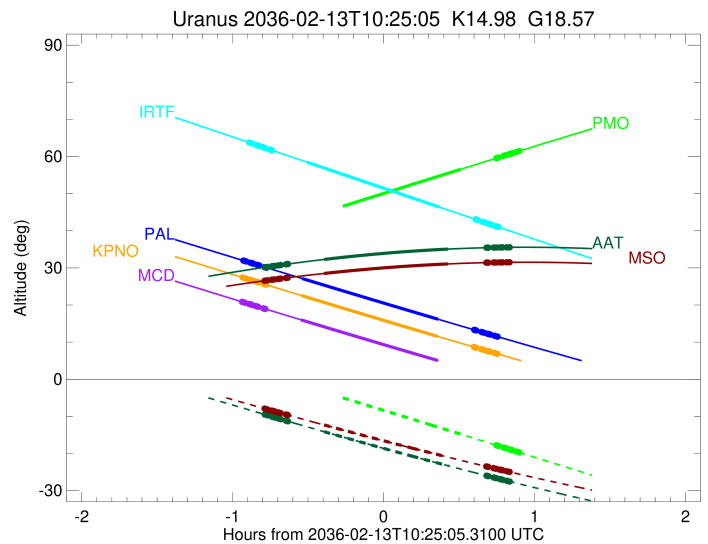
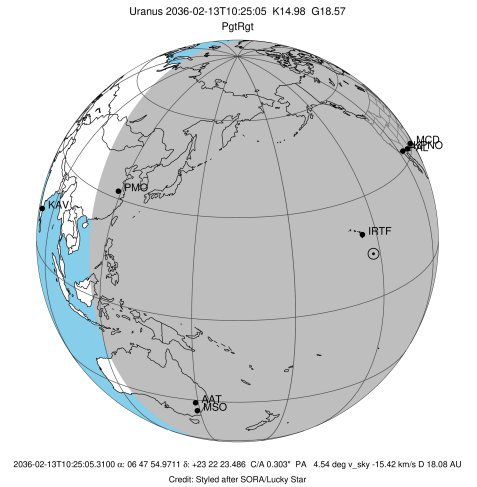
Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2036-02-13T09:39:50.794		40.43	0.98x	50876.18	-17.03		
lambda	I	2036-02-13T09:40:40.693		40.60	0.81x	50026.71	-17.02		
delta	I	2036-02-13T09:42:22.102		40.96	0.46x	48300.35	-17.02		
gamma	I	2036-02-13T09:43:01.922		41.10	0.33x	47622.48	-17.02		
eta	I	2036-02-13T09:43:28.143		41.20	0.24x	47176.12	-17.02		
beta	I	2036-02-13T09:44:58.315		41.51	-0.07x	45642.71	-17.02		
alpha	I	2036-02-13T09:45:51.232		41.70	-0.25x	44745.66	-17.02		
4	I	2036-02-13T09:47:57.398		42.15	-0.68x	42582.51	-17.01		
5	I	2036-02-13T09:48:18.605		42.22	-0.75x	42221.61	-17.02		
6	I	2036-02-13T09:48:41.834		42.31	-0.83x	41816.76	-17.01		
Uranus	I	2036-02-13T10:02:43.953		45.29	-3.71x	25100.86		-23.94	-24.93
Uranus	E	2036-02-13T10:55:43.078		56.56	-14.77	25168.17		21.96	22.89
6	E	2036-02-13T11:09:59.947		59.57	-17.78	41852.54	17.09		
5	E	2036-02-13T11:10:23.271		59.66	-17.87	42258.47	17.10		
4	E	2036-02-13T11:10:40.447		59.72	-17.93	42554.28	17.10		
alpha	E	2036-02-13T11:12:44.378		60.15	-18.36	44689.05	17.11		
beta	E	2036-02-13T11:13:42.539		60.36	-18.57	45680.41	17.11		
eta	E	2036-02-13T11:15:10.024		60.66	-18.88	47176.12	17.11		
gamma	E	2036-02-13T11:15:36.571		60.76	-18.97	47630.47	17.12		
delta	E	2036-02-13T11:16:15.708		60.89	-19.11	48300.35	17.12		
lambda	E	2036-02-13T11:17:56.554		61.25	-19.46	50026.71	17.12		
epsilon	E	2036-02-13T11:19:19.714		61.54	-19.76	51450.57	17.13		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2036-02-13T10:19:32.980
 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 : 3379635101511412992
 2Mass ID (if available) : 06475496+2322235
 ICRS Star Coord at Epoch: 06h 47m 54.97109s +23:22:23.48570s
 RUWE (>1.4 is poor) : 1.04
 K magnitude : 14.983
 G magnitude : 18.569
 RP magnitude : 17.490
 BP magnitude : 20.016
 DUPflag : 0
 Distance (au) : 18.083
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -15.42
 Sun-Target sep (deg) : 137.19
 Sun-Moon sep (deg) : 63.56
 B (ring opening deg) : 65.36
 PA of pole (deg) : 75.04
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 0.059
 C/A sky separation (km) : 771.1
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk
 URKALLvl.spk
 ural11.bsp
 IAU_URANUS_for_RINGFIT.tpc
 vgr2.ural11.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



Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2036-02-13T09:29:26.273		27.35	-59.04	50868.50	-16.94		
lambda	I	2036-02-13T09:30:15.966		27.17	-58.88	50026.71	-16.94		
delta	I	2036-02-13T09:31:57.896		26.82	-58.57	48300.35	-16.93		
gamma	I	2036-02-13T09:32:37.932		26.68	-58.45	47622.37	-16.93		
eta	I	2036-02-13T09:33:04.287		26.59	-58.36	47176.12	-16.93		
beta	I	2036-02-13T09:34:34.963		26.27	-58.08	45642.47	-16.93		
alpha	I	2036-02-13T09:35:28.127		26.09	-57.92	44746.30	-16.93		
4	I	2036-02-13T09:37:34.978		25.65	-57.52	42584.01	-16.92		
5	I	2036-02-13T09:37:56.528		25.57	-57.45	42218.86	-16.92		
6	I	2036-02-13T09:38:19.690		25.49	-57.38	41818.08	-16.91		
Uranus	I	2036-02-13T09:52:30.866		22.55	-54.66	25116.77		-23.48	-24.46
Uranus	E	2036-02-13T10:46:41.835		11.54	-43.70	25134.55		22.96	23.93
6	E	2036-02-13T11:01:06.927		8.68	-40.69	41855.02	16.73		
5	E	2036-02-13T11:01:30.244		8.60	-40.61	42253.61	16.74		
4	E	2036-02-13T11:01:48.295		8.54	-40.55	42556.93	16.74		
alpha	E	2036-02-13T11:03:54.815		8.12	-40.11	44690.11	16.74		
beta	E	2036-02-13T11:04:54.185		7.93	-39.90	45680.04	16.74		
eta	E	2036-02-13T11:06:23.674		7.64	-39.59	47176.12	16.73		
gamma	E	2036-02-13T11:06:50.815		7.55	-39.49	47630.27	16.73		
delta	E	2036-02-13T11:07:30.863		7.42	-39.35	48300.35	16.73		
lambda	E	2036-02-13T11:09:14.054		7.08	-38.99	50026.71	16.73		
epsilon	E	2036-02-13T11:10:38.272		6.80	-38.70	51435.41	16.73		

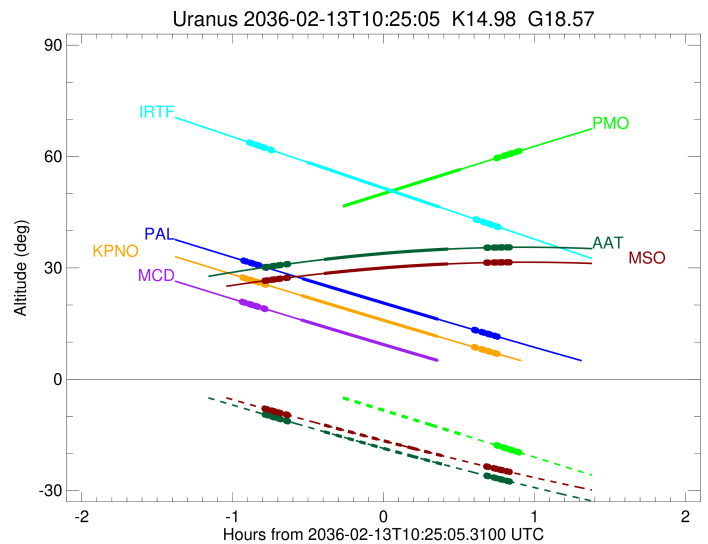
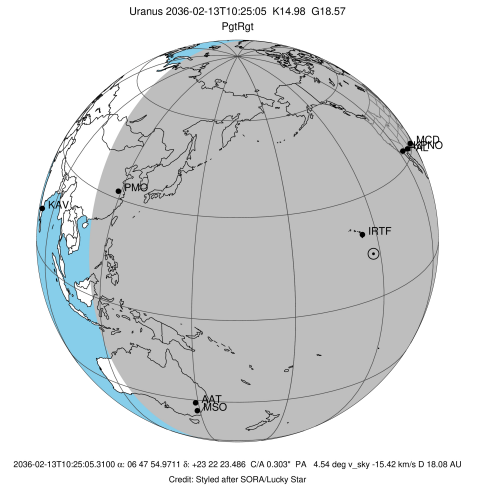
target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2036-02-13T10:19:27.030
 Event type : PgtRgt
 : Uranus occs: geocentric, topocentric
 : Ring occs: geocentric, topocentric
 Observer code : MCD
 Location : McDonald Obs. 2.7m
 Latitude (deg) : 30.67158
 E. Longitude (deg) : 255.97844
 Altitude (km) : 2.075
 Gaia source ID : 3379635101511412992
 2Mass ID (if available) : 06475496+2322235
 ICRS Star Coord at Epoch: 06h 47m 54.97109s +23:22:23.48570s
 RUWE (>1.4 is poor) : 1.04
 K magnitude : 14.983
 G magnitude : 18.569
 RP magnitude : 17.490
 BP magnitude : 20.016
 DUPflag : 0
 Distance (au) : 18.083
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -15.42
 Sun-Target sep (deg) : 137.19
 Sun-Moon sep (deg) : 63.45
 B (ring opening deg) : 65.36
 PA of pole (deg) : 75.04
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 0.045
 C/A sky separation (km) : 592.3
 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	2036-02-13T09:29:09.723		20.80	-53.76	50867.49	-16.89		
lambda	I	2036-02-13T09:29:59.511		20.62	-53.60	50026.71	-16.89		
delta	I	2036-02-13T09:31:41.758		20.27	-53.25	48300.35	-16.88		
gamma	I	2036-02-13T09:32:21.921		20.13	-53.11	47622.36	-16.88		
eta	I	2036-02-13T09:32:48.357		20.04	-53.03	47176.12	-16.88		
beta	I	2036-02-13T09:34:19.319		19.73	-52.72	45642.45	-16.88		
alpha	I	2036-02-13T09:35:12.643		19.54	-52.54	44746.37	-16.88		
4	I	2036-02-13T09:37:19.887		19.10	-52.10	42584.19	-16.86		
5	I	2036-02-13T09:37:41.532		19.03	-52.03	42218.53	-16.86		
6	I	2036-02-13T09:38:04.741		18.95	-51.95	41818.25	-16.86		
Uranus	I	2036-02-13T09:52:19.058		16.01	-49.01	25118.67		-23.42	-24.40
Uranus	E	2036-02-13T10:46:41.628		5.05	-37.51	25132.39		23.02	23.99
6	E	2036-02-13T11:01:09.099		2.22x	-34.41	41855.17	16.68		
5	E	2036-02-13T11:01:32.462		2.15x	-34.33	42253.28	16.68		
4	E	2036-02-13T11:01:50.607		2.09x	-34.26	42557.11	16.68		
alpha	E	2036-02-13T11:03:57.549		1.68x	-33.81	44690.19	16.68		
beta	E	2036-02-13T11:04:57.115		1.48x	-33.60	45680.01	16.68		
eta	E	2036-02-13T11:06:26.910		1.20x	-33.27	47176.12	16.68		
gamma	E	2036-02-13T11:06:54.143		1.11x	-33.18	47630.26	16.68		
delta	E	2036-02-13T11:07:34.327		0.98x	-33.03	48300.35	16.67		
lambda	E	2036-02-13T11:09:17.870		0.65x	-32.66	50026.71	16.67		
epsilon	E	2036-02-13T11:10:42.316		0.38x	-32.36	51434.44	16.67		

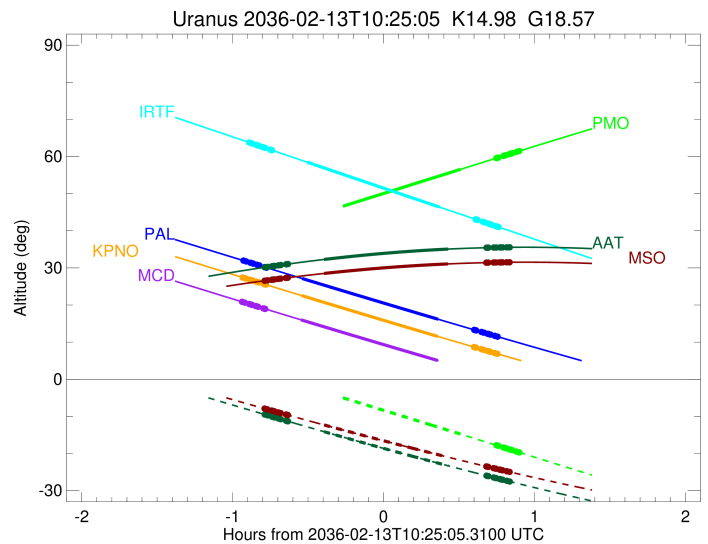
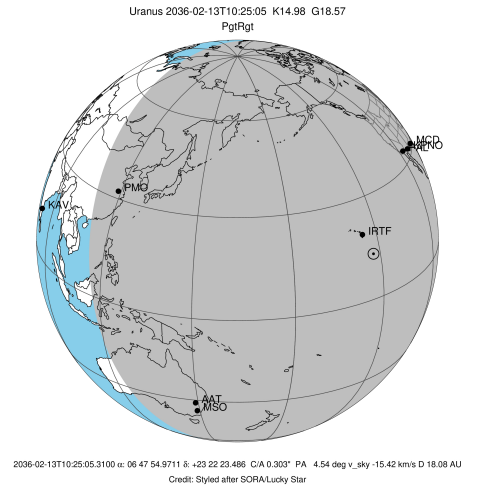
```

target                : Uranus
target radius (km)   : 25559.00
C/A epoch            : 2036-02-13T10:20:57.120
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      : 3379635101511412992
2Mass ID (if available) : 06475496+2322235
ICRS Star Coord at Epoch: 06h 47m 54.97109s +23:22:23.48570s
RUWE (>1.4 is poor) : 1.04
K magnitude          : 14.983
G magnitude          : 18.569
RP magnitude         : 17.490
BP magnitude         : 20.016
DUPflag             : 0
Distance (au)       : 18.083
f0 (km)             : 0.000
g0 (km)             : 0.000
skyplane vel. (km/s) : -15.42
Sun-Target sep (deg) : 137.19
Sun-Moon sep (deg)  : 64.11
B (ring opening deg) : 65.36
PA of pole (deg)    : 75.04
Pole direction: RA (deg): 257.31100
Dec (deg): -15.17500
C/A sky separation (") : 0.273
C/A sky separation (km) : 3577.6
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
    
```



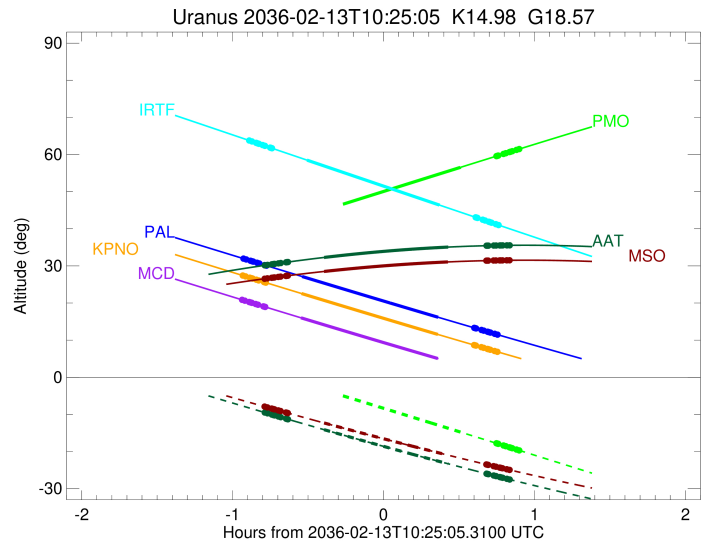
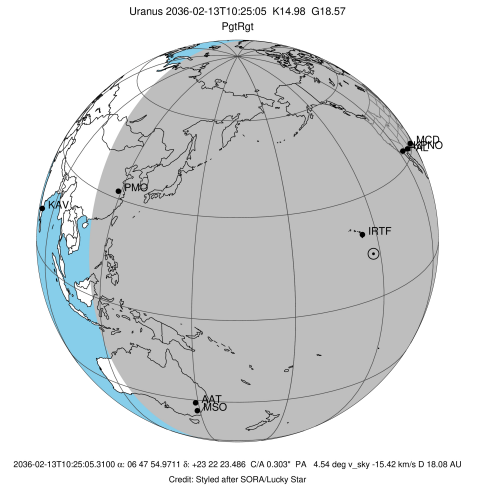
Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2036-02-13T09:31:59.049		63.72	-73.44	50884.55	-17.19		
lambda	I	2036-02-13T09:32:48.978		63.52	-73.63	50026.71	-17.18		
delta	I	2036-02-13T09:34:29.484		63.14	-73.99	48300.35	-17.17		
gamma	I	2036-02-13T09:35:08.951		62.99	-74.14	47622.59	-17.17		
eta	I	2036-02-13T09:35:34.953		62.89	-74.23	47176.12	-17.17		
beta	I	2036-02-13T09:37:04.356		62.55	-74.56	45642.95	-17.16		
alpha	I	2036-02-13T09:37:56.890		62.34	-74.75	44745.05	-17.16		
4	I	2036-02-13T09:40:02.102		61.86	-75.21	42581.16	-17.15		
5	I	2036-02-13T09:40:22.957		61.78	-75.28	42224.03	-17.15		
6	I	2036-02-13T09:40:46.188		61.69	-75.36	41815.62	-17.14		
Uranus	I	2036-02-13T09:54:41.441		58.49	-78.29	25092.40		-24.18	-25.18
Uranus	E	2036-02-13T10:47:22.069		46.38	-83.15	25174.10		21.78	22.71
6	E	2036-02-13T11:01:44.259		43.08	-81.19	41852.33	17.01		
5	E	2036-02-13T11:02:07.737		42.99	-81.13	42258.85	17.02		
4	E	2036-02-13T11:02:24.961		42.93	-81.08	42554.07	17.01		
alpha	E	2036-02-13T11:04:29.530		42.45	-80.72	44688.99	17.02		
beta	E	2036-02-13T11:05:27.999		42.23	-80.55	45680.43	17.02		
eta	E	2036-02-13T11:06:55.950		41.89	-80.28	47176.12	17.02		
gamma	E	2036-02-13T11:07:22.642		41.79	-80.20	47630.47	17.02		
delta	E	2036-02-13T11:08:01.994		41.64	-80.08	48300.35	17.02		
lambda	E	2036-02-13T11:09:43.408		41.25	-79.76	50026.71	17.02		
epsilon	E	2036-02-13T11:11:07.079		40.93	-79.50	51451.06	17.03		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2036-02-13T10:26:02.250
 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 : 3379635101511412992
 2Mass ID (if available) : 06475496+2322235
 ICRS Star Coord at Epoch: 06h 47m 54.97109s +23:22:23.48570s
 RUWE (>1.4 is poor) : 1.04
 K magnitude : 14.983
 G magnitude : 18.569
 RP magnitude : 17.490
 BP magnitude : 20.016
 DUPflag : 0
 Distance (au) : 18.083
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -15.42
 Sun-Target sep (deg) : 137.19
 Sun-Moon sep (deg) : 64.26
 B (ring opening deg) : 65.36
 PA of pole (deg) : 75.04
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 0.707
 C/A sky separation (km) : 9271.7
 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	2036-02-13T09:38:07.901		30.18	-9.55	50918.18	-16.92		
lambda	I	2036-02-13T09:39:00.662		30.27	-9.72	50026.71	-16.89		
delta	I	2036-02-13T09:40:42.932		30.43	-10.06	48300.35	-16.87		
gamma	I	2036-02-13T09:41:23.094		30.50	-10.19	47623.04	-16.86		
eta	I	2036-02-13T09:41:49.607		30.54	-10.28	47176.12	-16.85		
beta	I	2036-02-13T09:43:20.673		30.69	-10.58	45644.09	-16.83		
alpha	I	2036-02-13T09:44:14.487		30.77	-10.75	44742.29	-16.82		
4	I	2036-02-13T09:46:22.551		30.97	-11.17	42575.42	-16.77		
5	I	2036-02-13T09:46:43.043		31.00	-11.24	42234.38	-16.77		
6	I	2036-02-13T09:47:07.576		31.04	-11.32	41811.03	-16.75		
Uranus	I	2036-02-13T10:01:27.678		32.28	-14.12	25076.52		-24.62	-25.64
Uranus	E	2036-02-13T10:50:50.444		35.07	-23.31	25280.42		18.34	19.15
6	E	2036-02-13T11:06:03.536		35.44	-25.98	41846.33	16.76		
5	E	2036-02-13T11:06:28.515		35.45	-26.05	42269.75	16.78		
4	E	2036-02-13T11:06:44.867		35.45	-26.10	42548.19	16.78		
alpha	E	2036-02-13T11:08:51.311		35.48	-26.46	44686.97	16.83		
beta	E	2036-02-13T11:09:50.566		35.49	-26.63	45681.01	16.85		
eta	E	2036-02-13T11:11:19.331		35.51	-26.88	47176.12	16.87		
gamma	E	2036-02-13T11:11:46.284		35.52	-26.96	47630.86	16.87		
delta	E	2036-02-13T11:12:25.947		35.52	-27.07	48300.35	16.88		
lambda	E	2036-02-13T11:14:08.125		35.54	-27.36	50026.71	16.91		
epsilon	E	2036-02-13T11:15:34.145		35.55	-27.60	51481.76	16.94		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2036-02-13T10:25:57.530
 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 : 3379635101511412992
 2Mass ID (if available) : 06475496+2322235
 ICRS Star Coord at Epoch: 06h 47m 54.97109s +23:22:23.48570s
 RUWE (>1.4 is poor) : 1.04
 K magnitude : 14.983
 G magnitude : 18.569
 RP magnitude : 17.490
 BP magnitude : 20.016
 DUPflag : 0
 Distance (au) : 18.083
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -15.42
 Sun-Target sep (deg) : 137.19
 Sun-Moon sep (deg) : 64.20
 B (ring opening deg) : 65.36
 PA of pole (deg) : 75.04
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 0.726
 C/A sky separation (km) : 9515.0
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk
 URKALLvl.spk
 ural11.bsp
 IAU_URANUS_for_RINGFIT.tpc
 vgr2.ural11.bsp
 ural161.bsp
 vgr2.ural161.bsp
 peph.ural160.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	2036-02-13T09:38:03.551		26.56	-7.95	50919.82	-16.89		
lambda	I	2036-02-13T09:38:56.515		26.64	-8.12	50026.71	-16.86		
delta	I	2036-02-13T09:40:38.995		26.80	-8.44	48300.35	-16.83		
gamma	I	2036-02-13T09:41:19.239		26.86	-8.57	47623.07	-16.82		
eta	I	2036-02-13T09:41:45.810		26.90	-8.65	47176.12	-16.82		
beta	I	2036-02-13T09:43:17.072		27.03	-8.93	45644.15	-16.79		
alpha	I	2036-02-13T09:44:11.018		27.11	-9.10	44742.15	-16.78		
4	I	2036-02-13T09:46:19.391		27.30	-9.50	42575.15	-16.73		
5	I	2036-02-13T09:46:39.893		27.33	-9.57	42234.86	-16.73		
6	I	2036-02-13T09:47:04.522		27.36	-9.64	41810.83	-16.71		
Uranus	I	2036-02-13T10:01:27.539		28.51	-12.31	25076.94		-24.61	-25.63
Uranus	E	2036-02-13T10:50:41.561		31.07	-20.97	25285.34		18.17	18.97
6	E	2036-02-13T11:05:59.040		31.41	-23.49	41846.08	16.72		
5	E	2036-02-13T11:06:24.129		31.42	-23.56	42270.18	16.74		
4	E	2036-02-13T11:06:40.478		31.42	-23.60	42547.96	16.74		
alpha	E	2036-02-13T11:08:47.243		31.45	-23.94	44686.90	16.79		
beta	E	2036-02-13T11:09:46.641		31.46	-24.10	45681.03	16.81		
eta	E	2036-02-13T11:11:15.605		31.48	-24.33	47176.12	16.83		
gamma	E	2036-02-13T11:11:42.618		31.48	-24.40	47630.87	16.84		
delta	E	2036-02-13T11:12:22.367		31.49	-24.51	48300.35	16.85		
lambda	E	2036-02-13T11:14:04.765		31.50	-24.78	50026.71	16.87		
epsilon	E	2036-02-13T11:15:31.031		31.51	-25.01	51482.90	16.90		