

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2034-03-04T00:56:35.500
 Event type : PgtRgt
 : Uranus occs: geocentric, topocentric
 : Ring occs: geocentric, topocentric
 Gaia source ID : 3426149773424875008
 2Mass ID (if available) : 06064908+2342131

Uranus 2034-03-04T00:56:35 K11.59 G15.28 PgtRgt

ICRS Star Coord at Epoch: 06h 06m 49.08998s +23:42:13.09037s

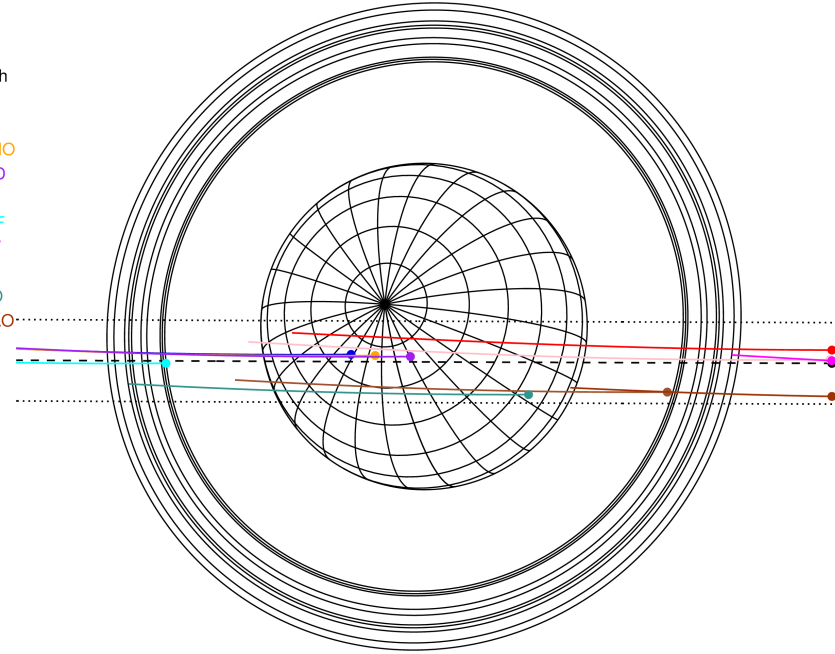
RUWE (>1.4 is poor) : 1.05
 K magnitude : 11.593
 G magnitude : 15.283
 RP magnitude : 14.266
 BP magnitude : 16.340
 DUPflag : 0
 Distance (au) : 18.603
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -3.08
 Sun-Target sep (deg) : 108.52
 Sun-Moon sep (deg) : 59.47
 B (ring opening deg) : 73.99
 PA of pole (deg) : 60.43

#	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



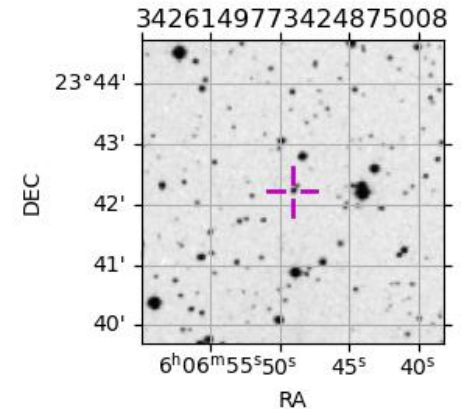
2034-03-04T00:56:35.5000 α: 06 06 49.0900 δ: +23 42 13.090 C/A 0.410° PA 352.78 deg v_sky - 3.08 km/s D 18.60 AU
 Credit: Styled after SORA/Lucky Star

Earth
 PIC
 PAL
 KPNO
 MCD
 TEN
 IRTF
 KAV
 RIO
 ESO
 SAAO



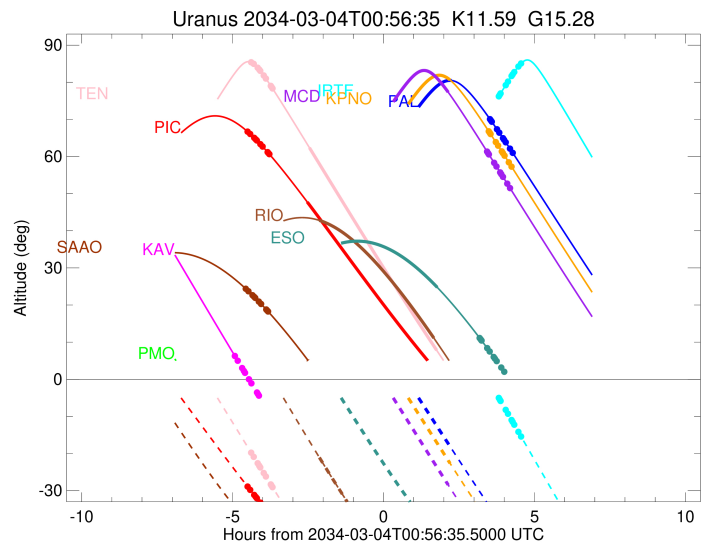
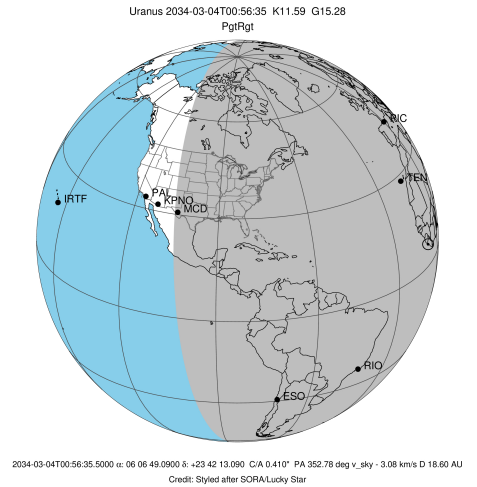
Observable events with sun below -5 deg and altitude above 5 deg unblocked by planet

Obs	Location	lat	Elon	Rings I	Planet	Rings E	Observed Events Interval	OCode
PIC	Pic du Midi	42.9	0.1	+++++++	+		MAR 03 20:24 - MAR 03 22:24	PinRin
PAL	Palomar Mt (200")	33.4	243.1		+	+++++++	MAR 04 03:11 - MAR 04 05:11	PneRne
PNO	Purple Mtn Obs. Nanki	32.1	118.8					PnnRnn
KPNO	Kitt Peak Natl Obs	32.0	248.4		+	+++++++	MAR 04 03:08 - MAR 04 05:09	PneRne
MCD	McDonald Obs. 2.7m	30.7	256.0		+	+++++++	MAR 04 03:05 - MAR 04 05:06	PneRne
TEN	Teide Obs./Tenerife	28.3	343.5	+++++++	+		MAR 03 20:31 - MAR 04 02:42	PieRin
IRTF	Mauna Kea/IRTF	19.8	204.5			+++++++	MAR 04 04:47 - MAR 04 05:28	PnnRne
KAV	Kavalur Observatory	12.6	78.8	+			MAR 03 19:59 - MAR 03 19:59	PnnRin
RIO	Rio de Janeiro	-22.9	316.8		+		MAR 03 22:49 - MAR 04 02:36	PieRnn
ESO	European Southern Obs	-29.3	289.3		+	+++++++	MAR 04 02:43 - MAR 04 04:37	PneRne
AAT	Siding Spring (AAT)	-31.3	149.1					PnnRnn
SAAO	So. Afr. Astro. Obs.	-32.4	20.8	+++++++	+		MAR 03 20:21 - MAR 03 22:25	PinRin
MSO	Mt. Stromlo Observato	-35.3	149.0					PnnRnn



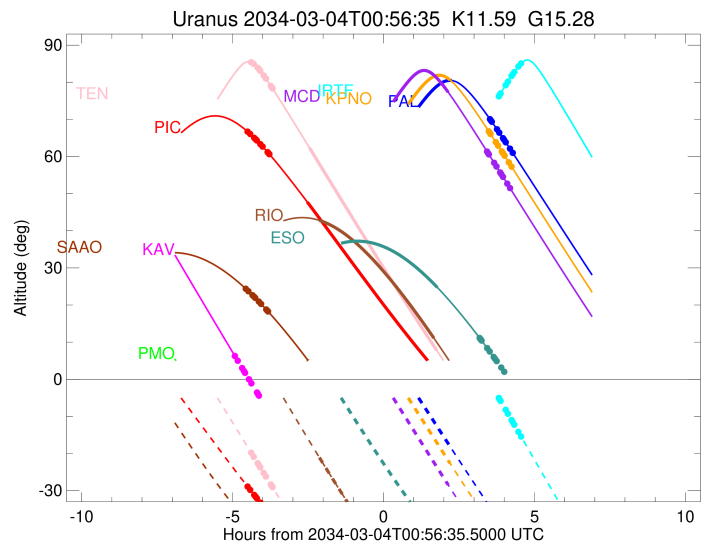
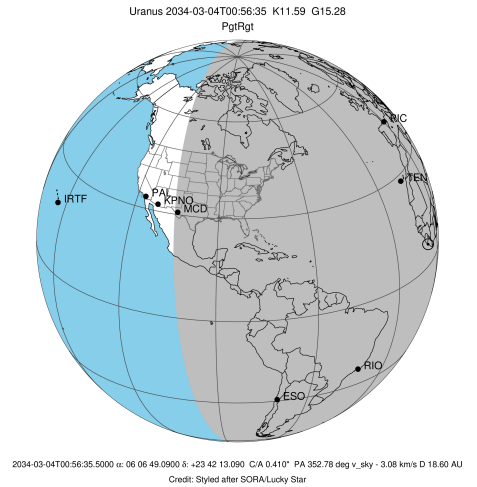
```

target                : Uranus
target radius (km)   : 25559.00
C/A epoch            : 2034-03-04T00:32:20.240
Event type           : PgtRgt
: Uranus occs: geocentric, 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       : 3426149773424875008
2Mass ID (if available) : 06064908+2342131
ICRS Star Coord at Epoch: 06h 06m 49.08998s +23:42:13.09037s
RUWE (>1.4 is poor) : 1.05
K magnitude           : 11.593
G magnitude           : 15.283
RP magnitude          : 14.266
BP magnitude          : 16.340
DUPflag              : 0
Distance (au)         : 18.603
f0 (km)               : 0.000
g0 (km)               : 0.000
skyplane vel. (km/s) : -3.08
Sun-Target sep (deg) : 108.52
Sun-Moon sep (deg)   : 59.43
B (ring opening deg) : 73.99
PA of pole (deg)     : 60.43
Pole direction: RA (deg): 257.31100
Dec (deg): -15.17500
C/A sky separation (") : 0.147
C/A sky separation (km) : 1988.0
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
  
```



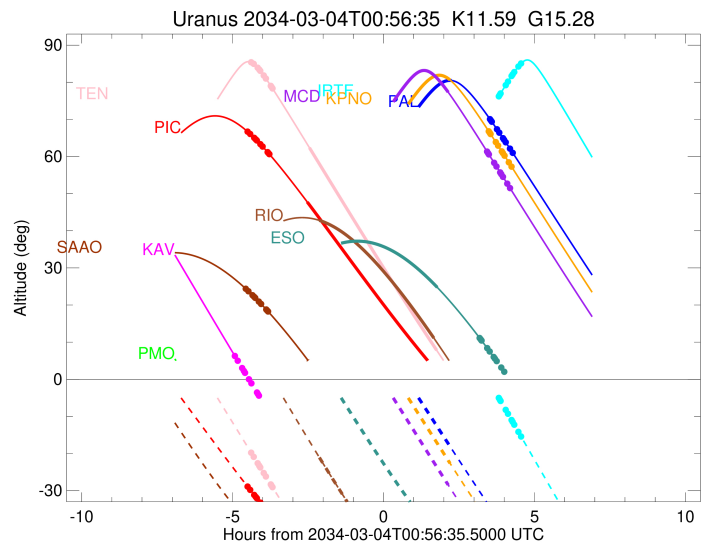
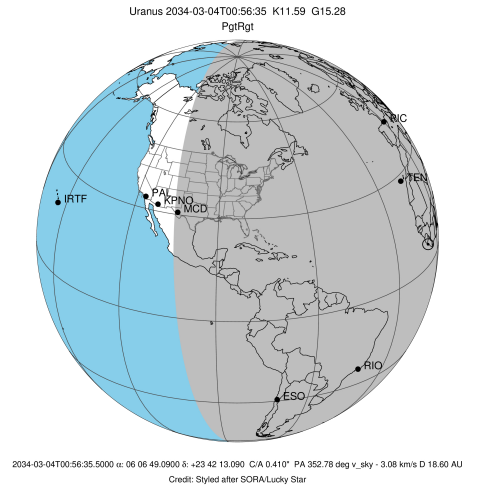
Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2034-03-03T20:24:43.377		66.91	-28.61	51528.87	-3.61		
lambda	I	2034-03-03T20:31:40.344		66.06	-29.81	50026.71	-3.60		
delta	I	2034-03-03T20:39:40.358		65.03	-31.18	48300.35	-3.59		
gamma	I	2034-03-03T20:42:47.291		64.61	-31.71	47628.94	-3.59		
eta	I	2034-03-03T20:44:53.445		64.32	-32.06	47176.12	-3.59		
beta	I	2034-03-03T20:52:01.545		63.31	-33.25	45642.26	-3.58		
alpha	I	2034-03-03T20:56:16.627		62.69	-33.96	44726.36	-3.58		
4	I	2034-03-03T21:06:07.883		61.20	-35.57	42611.09	-3.57		
5	I	2034-03-03T21:08:18.604		60.86	-35.92	42159.15	-3.57		
6	I	2034-03-03T21:09:40.930		60.65	-36.14	41867.29	-3.57		
Uranus	I	2034-03-03T22:24:51.898		47.79	-46.85	25096.65		-14.74	-15.41
Uranus	E	2034-03-04T02:49:53.568		0.98x	-39.63	25161.04		13.63	14.25
6	E	2034-03-04T04:20:14.571		-11.70x	-24.55	41809.34	2.86		
5	E	2034-03-04T04:23:10.071		-12.05x	-24.03	42308.89	2.85		
4	E	2034-03-04T04:24:32.348		-12.22x	-23.78	42529.99	2.85		
alpha	E	2034-03-04T04:37:19.041		-13.70x	-21.49	44712.83	2.83		
beta	E	2034-03-04T04:43:00.079		-14.34x	-20.47	45680.43	2.83		
eta	E	2034-03-04T04:51:50.653		-15.29x	-18.86	47176.12	2.81		
gamma	E	2034-03-04T04:54:29.613		-15.57x	-18.38	47623.32	2.81		
delta	E	2034-03-04T04:58:30.629		-15.98x	-17.65	48300.35	2.81		
lambda	E	2034-03-04T05:08:47.130		-17.00x	-15.78	50026.71	2.79		
epsilon	E	2034-03-04T05:13:16.209		-17.42x	-14.96	50777.82	2.79		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2034-03-04T01:10:20.550
 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 : 3426149773424875008
 2Mass ID (if available) : 06064908+2342131
 ICRS Star Coord at Epoch: 06h 06m 49.08998s +23:42:13.09037s
 RUWE (>1.4 is poor) : 1.05
 K magnitude : 11.593
 G magnitude : 15.283
 RP magnitude : 14.266
 BP magnitude : 16.340
 DUPflag : 0
 Distance (au) : 18.603
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -3.08
 Sun-Target sep (deg) : 108.52
 Sun-Moon sep (deg) : 60.38
 B (ring opening deg) : 73.99
 PA of pole (deg) : 60.43
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 0.313
 C/A sky separation (km) : 4220.3
 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



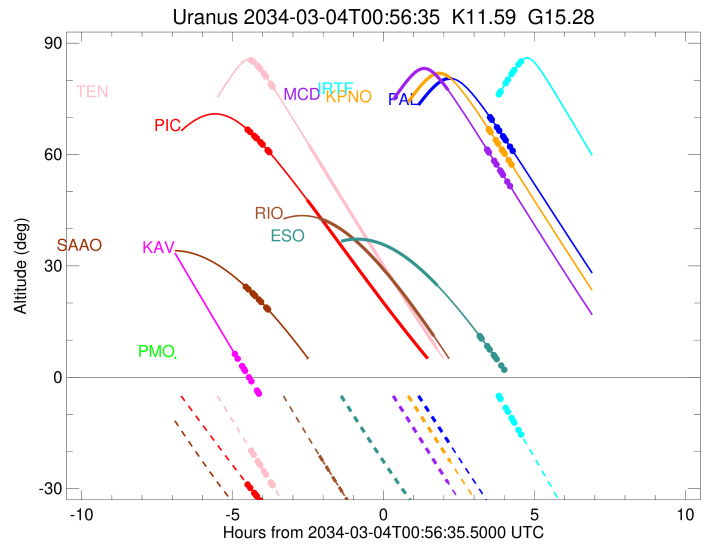
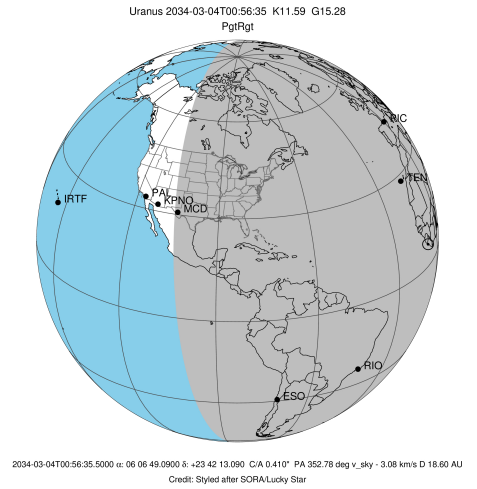
Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2034-03-03T20:58:56.426		10.64	47.82x	51525.62	-3.23		
lambda	I	2034-03-03T21:06:40.447		12.16	47.17x	50026.71	-3.24		
delta	I	2034-03-03T21:15:33.135		13.91	46.34x	48300.35	-3.25		
gamma	I	2034-03-03T21:18:59.783		14.59	46.00x	47629.02	-3.25		
eta	I	2034-03-03T21:21:19.040		15.05	45.76x	47176.12	-3.25		
beta	I	2034-03-03T21:29:10.069		16.61	44.91x	45642.15	-3.26		
alpha	I	2034-03-03T21:33:49.773		17.55	44.38x	44725.85	-3.27		
4	I	2034-03-03T21:44:34.377		19.71	43.07x	42611.36	-3.28		
5	I	2034-03-03T21:46:56.320		20.18	42.77x	42159.47	-3.29		
6	I	2034-03-03T21:48:25.844		20.48	42.58x	41866.93	-3.29		
Uranus	I	2034-03-03T23:07:52.883		36.83	30.22x	25088.93		-14.87	-15.54
Uranus	E	2034-03-04T03:11:30.458		80.49	-18.64	25233.85		12.27	12.83
6	E	2034-03-04T04:28:01.426		70.11	-34.35	41812.65	3.46		
5	E	2034-03-04T04:30:24.592		69.65	-34.83	42305.46	3.45		
4	E	2034-03-04T04:31:32.798		69.43	-35.06	42528.36	3.45		
alpha	E	2034-03-04T04:42:06.293		67.36	-37.16	44715.98	3.44		
beta	E	2034-03-04T04:46:46.120		66.42	-38.07	45680.86	3.44		
eta	E	2034-03-04T04:54:01.560		64.96	-39.49	47176.12	3.43		
gamma	E	2034-03-04T04:56:11.781		64.52	-39.91	47622.94	3.43		
delta	E	2034-03-04T04:59:29.361		63.86	-40.55	48300.35	3.43		
lambda	E	2034-03-04T05:07:53.770		62.14	-42.16	50026.71	3.42		
epsilon	E	2034-03-04T05:11:37.989		61.37	-42.87	50792.66	3.42		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2034-03-04T01:08:26.210
 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 : 3426149773424875008
 2Mass ID (if available) : 06064908+2342131
 ICRS Star Coord at Epoch: 06h 06m 49.08998s +23:42:13.09037s
 RUWE (>1.4 is poor) : 1.05
 K magnitude : 11.593
 G magnitude : 15.283
 RP magnitude : 14.266
 BP magnitude : 16.340
 DUPflag : 0
 Distance (au) : 18.603
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -3.08
 Sun-Target sep (deg) : 108.52
 Sun-Moon sep (deg) : 60.38
 B (ring opening deg) : 73.99
 PA of pole (deg) : 60.43
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 0.330
 C/A sky separation (km) : 4451.6
 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_itr93_040916.bsp
 earth_720101_070426.bpc
 earth_200101_990628_predict.bpc
 pg3f0000r.bsp
 pg490000r.bsp
 naif0012.tls
 earth_flat_IAU.spk



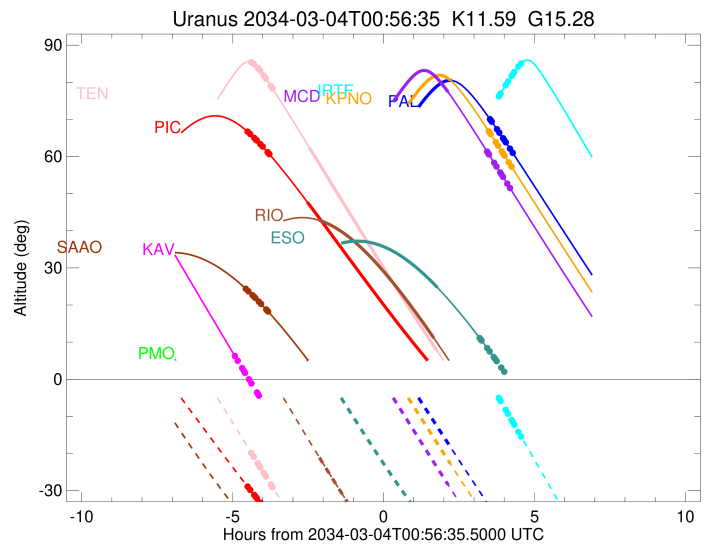
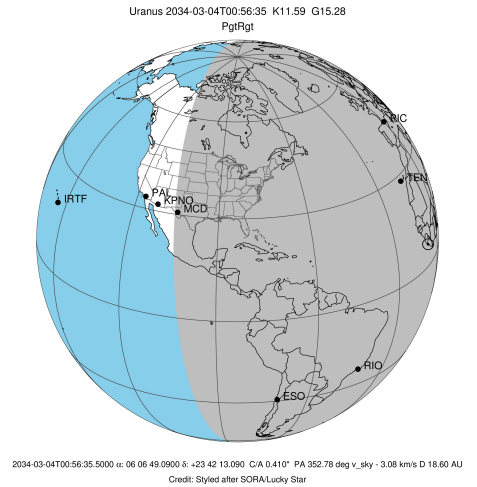
Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2034-03-03T20:59:30.511		14.44	47.04x	51526.58	-3.26		
lambda	I	2034-03-03T21:07:09.758		15.98	46.18x	50026.71	-3.27		
delta	I	2034-03-03T21:15:56.654		17.76	45.13x	48300.35	-3.28		
gamma	I	2034-03-03T21:19:21.075		18.46	44.71x	47628.99	-3.29		
eta	I	2034-03-03T21:21:38.819		18.92	44.41x	47176.12	-3.29		
beta	I	2034-03-03T21:29:24.774		20.51	43.39x	45642.20	-3.30		
alpha	I	2034-03-03T21:34:01.425		21.46	42.76x	44726.09	-3.30		
4	I	2034-03-03T21:44:39.350		23.65	41.23x	42611.20	-3.32		
5	I	2034-03-03T21:46:59.837		24.13	40.89x	42159.27	-3.32		
6	I	2034-03-03T21:48:28.293		24.44	40.67x	41867.17	-3.32		
Uranus	I	2034-03-03T23:07:09.234		40.96	27.21x	25084.64		-14.94	-15.61
Uranus	E	2034-03-04T03:08:58.495		80.61	-22.66	25236.89		12.21	12.77
6	E	2034-03-04T04:25:34.780		66.84	-38.51	41812.72	3.45		
5	E	2034-03-04T04:27:58.219		66.35	-38.99	42305.38	3.45		
4	E	2034-03-04T04:29:06.589		66.11	-39.22	42528.33	3.44		
alpha	E	2034-03-04T04:39:41.692		63.91	-41.32	44716.04	3.43		
beta	E	2034-03-04T04:44:22.283		62.93	-42.24	45680.87	3.43		
eta	E	2034-03-04T04:51:39.028		61.40	-43.66	47176.12	3.42		
gamma	E	2034-03-04T04:53:49.661		60.94	-44.08	47622.93	3.42		
delta	E	2034-03-04T04:57:07.891		60.24	-44.72	48300.35	3.42		
lambda	E	2034-03-04T05:05:34.067		58.46	-46.32	50026.71	3.41		
epsilon	E	2034-03-04T05:09:19.183		57.66	-47.03	50792.86	3.40		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2034-03-04T01:05:24.900
 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 : 3426149773424875008
 2Mass ID (if available) : 06064908+2342131
 ICRS Star Coord at Epoch: 06h 06m 49.08998s +23:42:13.09037s
 RUWE (>1.4 is poor) : 1.05
 K magnitude : 11.593
 G magnitude : 15.283
 RP magnitude : 14.266
 BP magnitude : 16.340
 DUPflag : 0
 Distance (au) : 18.603
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -3.08
 Sun-Target sep (deg) : 108.52
 Sun-Moon sep (deg) : 60.37
 B (ring opening deg) : 73.99
 PA of pole (deg) : 60.43
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 0.347
 C/A sky separation (km) : 4686.4
 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



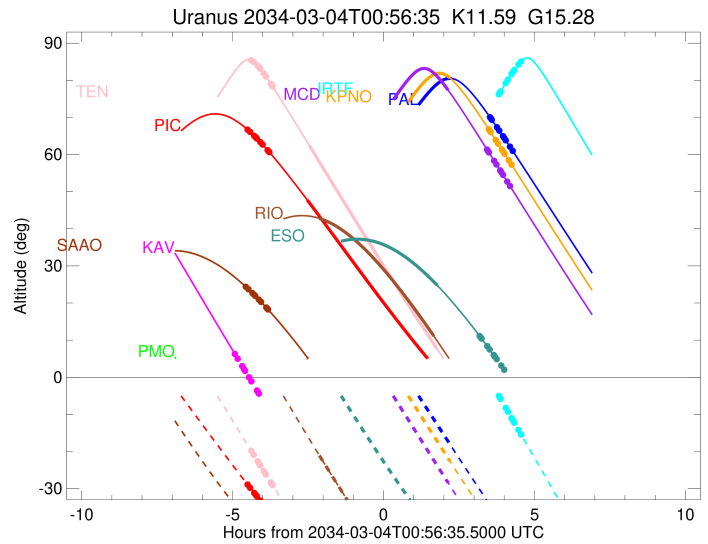
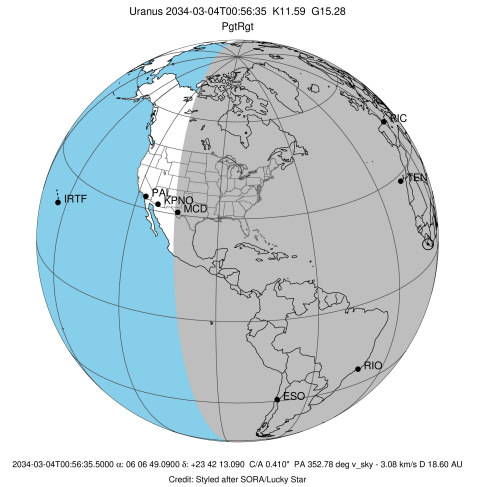
Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2034-03-03T20:59:38.335		20.25	44.29x	51527.77	-3.31		
lambda	I	2034-03-03T21:07:10.777		21.82	43.22x	50026.71	-3.32		
delta	I	2034-03-03T21:15:49.541		23.62	41.93x	48300.35	-3.33		
gamma	I	2034-03-03T21:19:10.846		24.32	41.41x	47628.95	-3.34		
eta	I	2034-03-03T21:21:26.480		24.80	41.06x	47176.12	-3.34		
beta	I	2034-03-03T21:29:05.379		26.40	39.85x	45642.26	-3.35		
alpha	I	2034-03-03T21:33:37.812		27.36	39.11x	44726.39	-3.35		
4	I	2034-03-03T21:44:06.501		29.57	37.36x	42611.00	-3.37		
5	I	2034-03-03T21:46:24.977		30.06	36.97x	42159.02	-3.37		
6	I	2034-03-03T21:47:51.994		30.37	36.72x	41867.45	-3.37		
Uranus	I	2034-03-03T23:05:31.188		46.99	22.21x	25079.81		-15.02	-15.70
Uranus	E	2034-03-04T03:05:22.364		77.30	-28.50	25239.09		12.17	12.72
6	E	2034-03-04T04:22:14.581		61.39	-44.36	41812.74	3.43		
5	E	2034-03-04T04:24:38.767		60.87	-44.84	42305.36	3.43		
4	E	2034-03-04T04:25:47.507		60.62	-45.06	42528.32	3.42		
alpha	E	2034-03-04T04:36:26.232		58.33	-47.14	44716.05	3.41		
beta	E	2034-03-04T04:41:08.536		57.32	-48.04	45680.87	3.41		
eta	E	2034-03-04T04:48:28.093		55.74	-49.43	47176.12	3.40		
gamma	E	2034-03-04T04:50:39.602		55.26	-49.84	47622.93	3.40		
delta	E	2034-03-04T04:53:59.189		54.55	-50.46	48300.35	3.39		
lambda	E	2034-03-04T05:02:28.998		52.71	-52.01	50026.71	3.38		
epsilon	E	2034-03-04T05:06:15.777		51.89	-52.69	50792.76	3.38		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2034-03-04T00:30:58.910
 Event type : PgtRgt
 : Uranus occs: geocentric, topocentric
 : Ring occs: geocentric, topocentric
 Observer code : TEN
 Location : Teide Obs./Tenerife
 Latitude (deg) : 28.30050
 E. Longitude (deg) : 343.48909
 Altitude (km) : 2.395
 Gaia source ID : 3426149773424875008
 2Mass ID (if available) : 06064908+2342131
 ICRS Star Coord at Epoch: 06h 06m 49.08998s +23:42:13.09037s
 RUWE (>1.4 is poor) : 1.05
 K magnitude : 11.593
 G magnitude : 15.283
 RP magnitude : 14.266
 BP magnitude : 16.340
 DUPflag : 0
 Distance (au) : 18.603
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -3.08
 Sun-Target sep (deg) : 108.52
 Sun-Moon sep (deg) : 59.50
 B (ring opening deg) : 73.99
 PA of pole (deg) : 60.43
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 0.289
 C/A sky separation (km) : 3901.1
 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



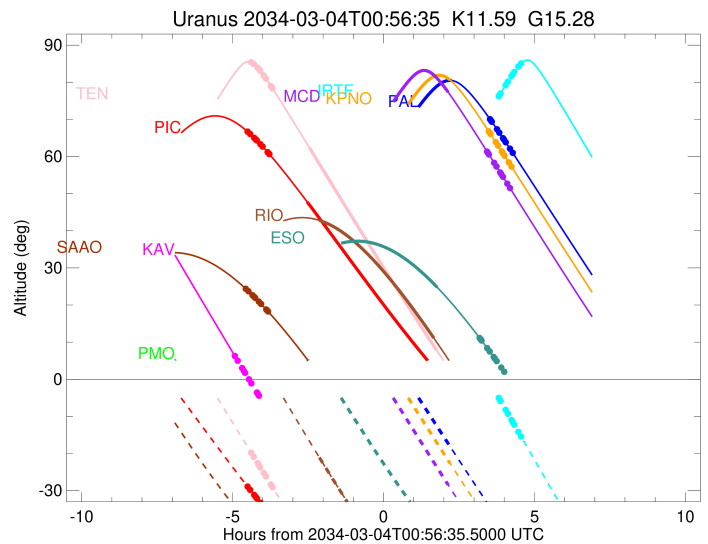
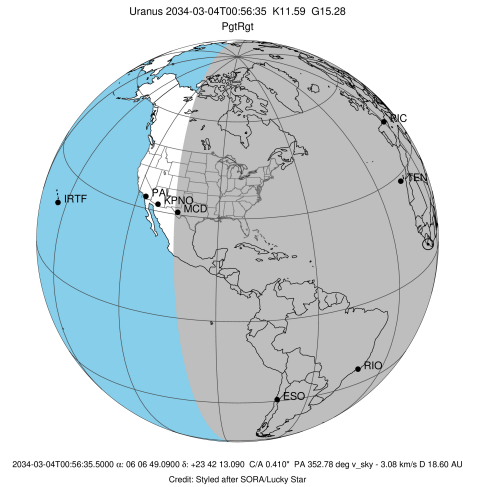
Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2034-03-03T20:31:54.006		85.48	-19.41	51533.41	-3.67		
lambda	I	2034-03-03T20:38:44.359		84.96	-20.91	50026.71	-3.67		
delta	I	2034-03-03T20:46:35.021		83.92	-22.64	48300.35	-3.67		
gamma	I	2034-03-03T20:49:38.270		83.43	-23.31	47628.77	-3.66		
eta	I	2034-03-03T20:51:41.834		83.08	-23.76	47176.12	-3.66		
beta	I	2034-03-03T20:58:41.074		81.80	-25.29	45642.54	-3.66		
alpha	I	2034-03-03T21:02:50.485		81.00	-26.20	44727.65	-3.66		
4	I	2034-03-03T21:12:29.702		79.06	-28.31	42610.16	-3.65		
5	I	2034-03-03T21:14:37.659		78.62	-28.78	42158.12	-3.65		
6	I	2034-03-03T21:15:57.542		78.34	-29.07	41868.54	-3.65		
Uranus	I	2034-03-03T22:29:16.502		62.39	-44.71	25070.69		-15.17	-15.85
Uranus	E	2034-03-04T02:42:22.930		7.79	-60.47	25195.57		13.00	13.59
6	E	2034-03-04T04:10:40.045		-9.44x	-43.72	41810.57	2.92		
5	E	2034-03-04T04:13:31.119		-9.96x	-43.13	42307.68	2.91		
4	E	2034-03-04T04:14:51.801		-10.21x	-42.85	42529.33	2.91		
alpha	E	2034-03-04T04:27:24.387		-12.48x	-40.21	44713.97	2.89		
beta	E	2034-03-04T04:32:59.081		-13.48x	-39.03	45680.60	2.88		
eta	E	2034-03-04T04:41:40.768		-15.01x	-37.17	47176.12	2.86		
gamma	E	2034-03-04T04:44:17.190		-15.46x	-36.62	47623.18	2.86		
delta	E	2034-03-04T04:48:14.614		-16.14x	-35.77	48300.35	2.85		
lambda	E	2034-03-04T04:58:22.577		-17.87x	-33.58	50026.71	2.83		
epsilon	E	2034-03-04T05:02:49.929		-18.61x	-32.62	50782.45	2.82		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2034-03-04T01:24:45.910
 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 : 3426149773424875008
 2Mass ID (if available) : 06064908+2342131
 ICRS Star Coord at Epoch: 06h 06m 49.08998s +23:42:13.09037s
 RUWE (>1.4 is poor) : 1.05
 K magnitude : 11.593
 G magnitude : 15.283
 RP magnitude : 14.266
 BP magnitude : 16.340
 DUPflag : 0
 Distance (au) : 18.604
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -3.08
 Sun-Target sep (deg) : 108.52
 Sun-Moon sep (deg) : 60.22
 B (ring opening deg) : 73.99
 PA of pole (deg) : 60.43
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 0.342
 C/A sky separation (km) : 4619.9
 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



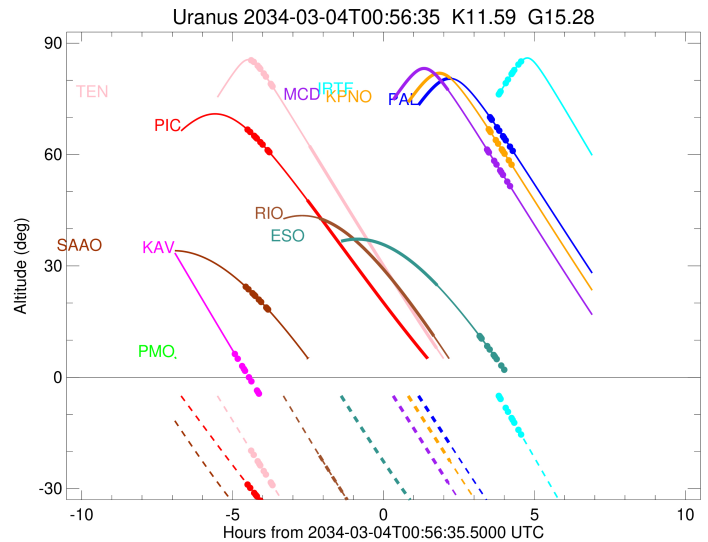
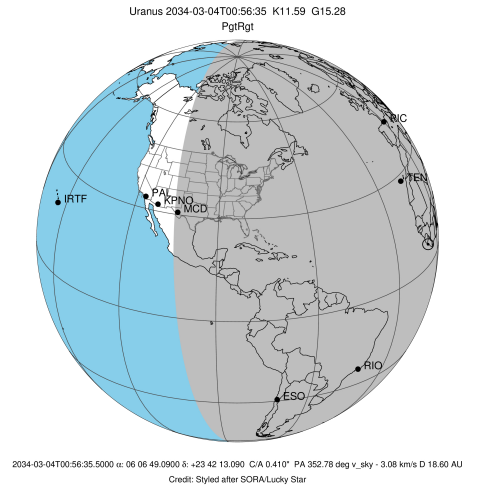
Ring	I/E	UTC	b? alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2034-03-03T20:54:05.896	-26.52x	54.10x	51524.68	-2.95		
lambda	I	2034-03-03T21:02:33.873	-24.99x	55.49x	50026.71	-2.95		
delta	I	2034-03-03T21:12:17.446	-23.21x	56.99x	48300.35	-2.96		
gamma	I	2034-03-03T21:16:03.820	-22.51x	57.55x	47629.05	-2.97		
eta	I	2034-03-03T21:18:36.382	-22.03x	57.91x	47176.12	-2.97		
beta	I	2034-03-03T21:27:12.335	-20.40x	59.08x	45642.11	-2.98		
alpha	I	2034-03-03T21:32:18.720	-19.42x	59.73x	44725.61	-2.99		
4	I	2034-03-03T21:44:04.246	-17.14x	61.07x	42611.52	-3.00		
5	I	2034-03-03T21:46:39.543	-16.63x	61.33x	42159.67	-3.00		
6	I	2034-03-03T21:48:17.641	-16.31x	61.49x	41866.71	-3.01		
Uranus	I	2034-03-03T23:14:51.263	1.59x	61.90x	25090.96		-14.83	-15.50
Uranus	E	2034-03-04T03:29:00.289	58.73	12.85x	25257.28		11.80	12.35
6	E	2034-03-04T04:45:33.720	76.16	-4.97x	41813.95	3.50		
5	E	2034-03-04T04:47:54.148	76.68	-5.52	42303.99	3.50		
4	E	2034-03-04T04:49:01.536	76.93	-5.78	42527.85	3.50		
alpha	E	2034-03-04T04:59:25.426	79.21	-8.22	44717.22	3.50		
beta	E	2034-03-04T05:03:59.882	80.19	-9.29	45680.99	3.51		
eta	E	2034-03-04T05:11:06.556	81.68	-10.96	47176.12	3.51		
gamma	E	2034-03-04T05:13:13.943	82.11	-11.46	47622.79	3.51		
delta	E	2034-03-04T05:16:27.167	82.74	-12.22	48300.35	3.51		
lambda	E	2034-03-04T05:24:39.474	84.24	-14.15	50026.71	3.51		
epsilon	E	2034-03-04T05:28:19.921	84.82	-15.01	50799.70	3.51		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2034-03-04T00:45:12.270
 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 : 3426149773424875008
 2Mass ID (if available) : 06064908+2342131
 ICRS Star Coord at Epoch: 06h 06m 49.08998s +23:42:13.09037s
 RUWE (>1.4 is poor) : 1.05
 K magnitude : 11.593
 G magnitude : 15.283
 RP magnitude : 14.266
 BP magnitude : 16.340
 DUPflag : 0
 Distance (au) : 18.603
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -3.08
 Sun-Target sep (deg) : 108.52
 Sun-Moon sep (deg) : 58.75
 B (ring opening deg) : 73.99
 PA of pole (deg) : 60.43
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 0.144
 C/A sky separation (km) : 1939.4
 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_itrfr93_040916.bsp
 earth_720101_070426.bpc
 earth_200101_990628_predict.bpc
 pg3f0000r.bsp
 pg490000r.bsp
 naif0012.tls
 earth_flat_IAU.spk



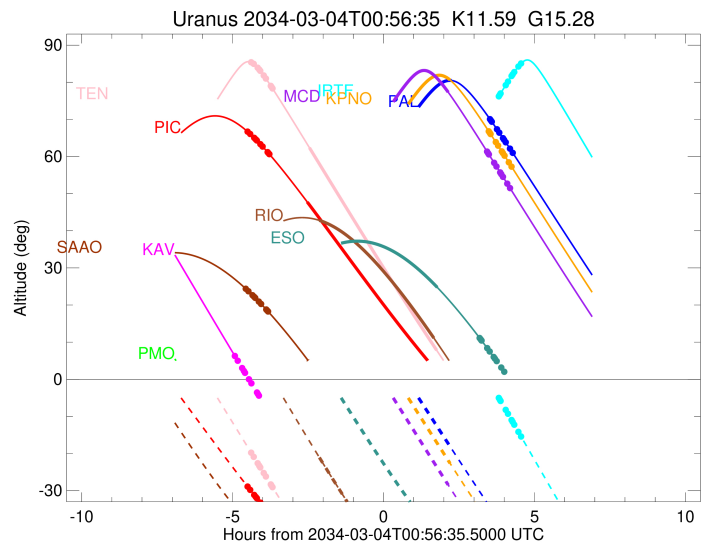
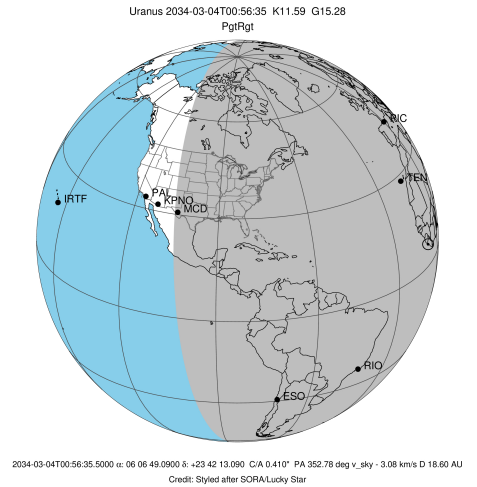
Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2034-03-03T19:59:18.119		6.69	-73.41	51531.51	-3.31		
lambda	I	2034-03-03T20:06:54.633		4.97x	-71.65	50026.71	-3.29		
delta	I	2034-03-03T20:15:41.521		3.00x	-69.59	48300.35	-3.27		
gamma	I	2034-03-03T20:19:07.386		2.23x	-68.78	47628.86	-3.26		
eta	I	2034-03-03T20:21:26.483		1.71x	-68.23	47176.12	-3.25		
beta	I	2034-03-03T20:29:19.793		-0.05x	-66.36	45642.37	-3.23		
alpha	I	2034-03-03T20:34:02.596		-1.10x	-65.23	44726.85	-3.22		
4	I	2034-03-03T20:45:01.271		-3.54x	-62.60	42610.80	-3.19		
5	I	2034-03-03T20:47:27.363		-4.07x	-62.01	42158.81	-3.19		
6	I	2034-03-03T20:48:59.203		-4.41x	-61.64	41867.68	-3.19		
Uranus	I	2034-03-03T22:14:42.944		-22.80x	-40.82	25095.74		-14.75	-15.42
Uranus	E	2034-03-04T03:25:01.916		-48.94x	34.18x	25181.32		13.26	13.86
6	E	2034-03-04T05:02:45.499		-33.53x	56.02x	41811.06	2.75		
5	E	2034-03-04T05:05:46.213		-32.96x	56.64x	42307.13	2.76		
4	E	2034-03-04T05:07:11.457		-32.70x	56.93x	42529.06	2.76		
alpha	E	2034-03-04T05:20:20.662		-30.16x	59.56x	44714.66	2.77		
beta	E	2034-03-04T05:26:07.871		-29.03x	60.67x	45680.71	2.78		
eta	E	2034-03-04T05:35:05.048		-27.25x	62.34x	47176.12	2.79		
gamma	E	2034-03-04T05:37:45.087		-26.72x	62.82x	47623.07	2.79		
delta	E	2034-03-04T05:41:47.216		-25.91x	63.53x	48300.35	2.80		
lambda	E	2034-03-04T05:52:02.305		-23.82x	65.25x	50026.71	2.81		
epsilon	E	2034-03-04T05:56:32.524		-22.90x	65.96x	50787.85	2.82		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2034-03-04T00:39:21.860
 Event type : PgtRgt
 : Uranus occs: geocentric, topocentric
 : Ring occs: geocentric, topocentric
 Observer code : RIO
 Location : Rio de Janeiro
 Latitude (deg) : -22.89506
 E. Longitude (deg) : 316.77708
 Altitude (km) : 0.033
 Gaia source ID : 3426149773424875008
 2Mass ID (if available) : 06064908+2342131
 ICRS Star Coord at Epoch: 06h 06m 49.08998s +23:42:13.09037s
 RUWE (>1.4 is poor) : 1.05
 K magnitude : 11.593
 G magnitude : 15.283
 RP magnitude : 14.266
 BP magnitude : 16.340
 DUPflag : 0
 Distance (au) : 18.603
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -3.08
 Sun-Target sep (deg) : 108.52
 Sun-Moon sep (deg) : 59.56
 B (ring opening deg) : 73.99
 PA of pole (deg) : 60.43
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 0.720
 C/A sky separation (km) : 9717.8
 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



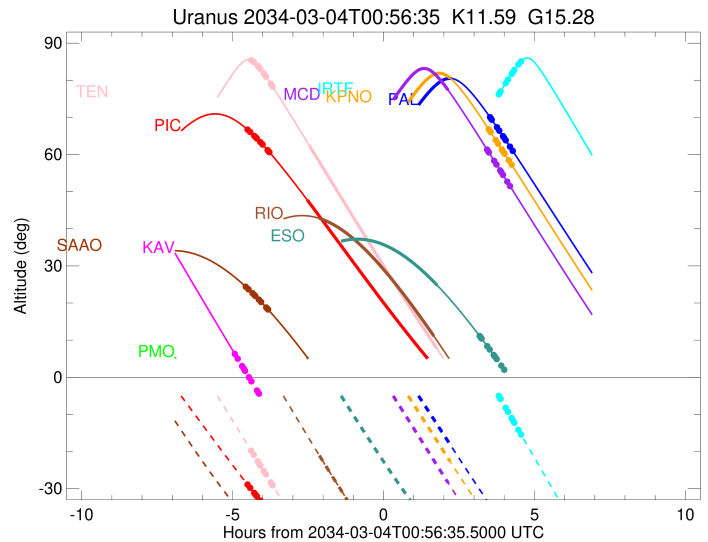
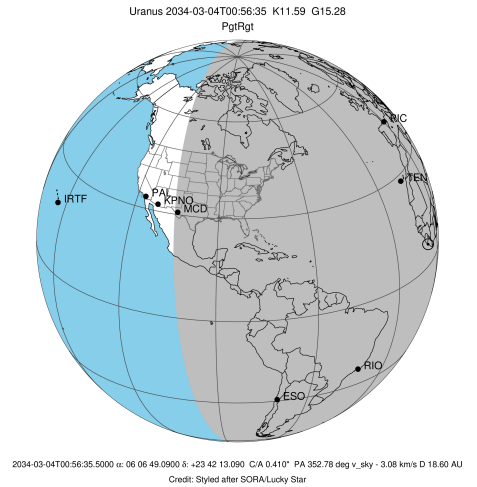
Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2034-03-03T20:48:23.595		39.01	6.26x	51544.53	-3.59		
lambda	I	2034-03-03T20:55:26.778		39.69	4.64x	50026.71	-3.59		
delta	I	2034-03-03T21:03:28.427		40.41	2.79x	48300.35	-3.58		
gamma	I	2034-03-03T21:06:36.062		40.67	2.08x	47628.25	-3.58		
eta	I	2034-03-03T21:08:42.333		40.84	1.59x	47176.12	-3.58		
beta	I	2034-03-03T21:15:50.967		41.38	-0.04x	45643.52	-3.58		
alpha	I	2034-03-03T21:20:05.214		41.68	-1.01x	44731.39	-3.57		
4	I	2034-03-03T21:29:59.986		42.29	-3.28x	42606.99	-3.56		
5	I	2034-03-03T21:32:10.812		42.41	-3.77x	42155.88	-3.56		
6	I	2034-03-03T21:33:30.957		42.48	-4.08x	41871.92	-3.56		
Uranus	I	2034-03-03T22:49:01.454		42.80	-21.05	25022.79		-15.94	-16.65
Uranus	E	2034-03-04T02:36:40.055		11.10	-60.00	25327.89		10.29	10.77
6	E	2034-03-04T04:03:24.073		-6.74x	-57.46	41815.77	3.05		
5	E	2034-03-04T04:06:04.364		-7.31x	-57.17	42301.90	3.04		
4	E	2034-03-04T04:07:22.289		-7.58x	-57.02	42527.27	3.04		
alpha	E	2034-03-04T04:19:24.294		-10.16x	-55.56	44718.65	3.02		
beta	E	2034-03-04T04:24:42.809		-11.30x	-54.85	45681.10	3.01		
eta	E	2034-03-04T04:33:00.449		-13.10x	-53.69	47176.12	3.00		
gamma	E	2034-03-04T04:35:29.453		-13.63x	-53.32	47622.65	2.99		
delta	E	2034-03-04T04:39:15.991		-14.45x	-52.76	48300.35	2.99		
lambda	E	2034-03-04T04:48:55.294		-16.56x	-51.25	50026.71	2.97		
epsilon	E	2034-03-04T04:53:17.792		-17.51x	-50.53	50805.77	2.97		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2034-03-04T00:51:02.460
 Event type : PgtRgt
 : Uranus occs: geocentric, topocentric
 : Ring occs: geocentric, topocentric
 Observer code : ESO
 Location : European Southern Obs. (3.6m)
 Latitude (deg) : -29.26097
 E. Longitude (deg) : 289.26831
 Altitude (km) : 2.400
 Gaia source ID : 3426149773424875008
 2Mass ID (if available) : 06064908+2342131
 ICRS Star Coord at Epoch: 06h 06m 49.08998s +23:42:13.09037s
 RUWE (>1.4 is poor) : 1.05
 K magnitude : 11.593
 G magnitude : 15.283
 RP magnitude : 14.266
 BP magnitude : 16.340
 DUPflag : 0
 Distance (au) : 18.603
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -3.08
 Sun-Target sep (deg) : 108.52
 Sun-Moon sep (deg) : 59.82
 B (ring opening deg) : 73.99
 PA of pole (deg) : 60.43
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 0.784
 C/A sky separation (km) : 10582.0
 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	2034-03-03T20:58:13.685		20.70	28.54x	51544.40	-3.45		
lambda	I	2034-03-03T21:05:33.260		21.83	26.96x	50026.71	-3.45		
delta	I	2034-03-03T21:13:53.046		23.08	25.15x	48300.35	-3.45		
gamma	I	2034-03-03T21:17:07.586		23.56	24.44x	47628.25	-3.45		
eta	I	2034-03-03T21:19:18.451		23.88	23.97x	47176.12	-3.45		
beta	I	2034-03-03T21:26:42.382		24.93	22.36x	45643.53	-3.45		
alpha	I	2034-03-03T21:31:05.477		25.55	21.41x	44731.43	-3.45		
4	I	2034-03-03T21:41:20.384		26.93	19.17x	42606.92	-3.45		
5	I	2034-03-03T21:43:35.510		27.23	18.68x	42155.85	-3.45		
6	I	2034-03-03T21:44:58.246		27.40	18.38x	41871.98	-3.45		
Uranus	I	2034-03-03T23:02:38.598		35.14	1.43x	25021.20		-15.96	-16.68
Uranus	E	2034-03-04T02:43:40.958		24.72	-42.51	25357.57		9.59	10.04
6	E	2034-03-04T04:07:26.032		11.16	-52.71	41817.19	3.20		
5	E	2034-03-04T04:09:57.697		10.71	-52.89	42300.15	3.19		
4	E	2034-03-04T04:11:12.147		10.48	-52.97	42526.89	3.19		
alpha	E	2034-03-04T04:22:39.057		8.41	-53.66	44719.89	3.18		
beta	E	2034-03-04T04:27:41.030		7.48	-53.90	45681.17	3.18		
eta	E	2034-03-04T04:35:32.675		6.02	-54.19	47176.12	3.17		
gamma	E	2034-03-04T04:37:53.725		5.58	-54.26	47622.52	3.16		
delta	E	2034-03-04T04:41:28.156		4.91x	-54.35	48300.35	3.16		
lambda	E	2034-03-04T04:50:35.759		3.17x	-54.48	50026.71	3.15		
epsilon	E	2034-03-04T04:54:45.933		2.38x	-54.49	50813.08	3.14		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2034-03-04T00:30:04.550
 Event type : PgtRgt
 : Uranus occs: geocentric, topocentric
 : Ring occs: geocentric, topocentric
 Observer code : SAAO
 Location : So. Afr. Astro. Obs. (Sutherland)
 Latitude (deg) : -32.37953
 E. Longitude (deg) : 20.81070
 Altitude (km) : 1.768
 Gaia source ID : 3426149773424875008
 2Mass ID (if available) : 06064908+2342131
 ICRS Star Coord at Epoch: 06h 06m 49.08998s +23:42:13.09037s
 RUWE (>1.4 is poor) : 1.05
 K magnitude : 11.593
 G magnitude : 15.283
 RP magnitude : 14.266
 BP magnitude : 16.340
 DUPflag : 0
 Distance (au) : 18.603
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -3.08
 Sun-Target sep (deg) : 108.52
 Sun-Moon sep (deg) : 58.74
 B (ring opening deg) : 73.99
 PA of pole (deg) : 60.43
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 0.621
 C/A sky separation (km) : 8372.1
 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	2034-03-03T20:21:01.995		24.60	-37.71	51545.26	-3.55		
lambda	I	2034-03-03T20:28:10.709		23.70	-38.84	50026.71	-3.54		
delta	I	2034-03-03T20:36:19.990		22.63	-40.08	48300.35	-3.52		
gamma	I	2034-03-03T20:39:31.055		22.20	-40.56	47628.22	-3.51		
eta	I	2034-03-03T20:41:39.762		21.91	-40.87	47176.12	-3.51		
beta	I	2034-03-03T20:48:57.522		20.90	-41.92	45643.55	-3.50		
alpha	I	2034-03-03T20:53:17.778		20.29	-42.52	44731.46	-3.49		
4	I	2034-03-03T21:03:28.406		18.81	-43.88	42606.99	-3.46		
5	I	2034-03-03T21:05:43.033		18.47	-44.17	42155.89	-3.46		
6	I	2034-03-03T21:07:05.572		18.27	-44.34	41871.90	-3.46		
Uranus	I	2034-03-03T22:25:50.760		5.21	-50.90	25025.90		-15.89	-16.60
Uranus	E	2034-03-04T02:46:48.056		-47.31x	-21.46	25292.67		11.07	11.58
6	E	2034-03-04T04:25:08.483		-67.95x	-1.48x	41814.63	2.69		
5	E	2034-03-04T04:28:11.068		-68.56x	-0.84x	42303.22	2.68		
4	E	2034-03-04T04:29:39.123		-68.86x	-0.54x	42527.62	2.68		
alpha	E	2034-03-04T04:43:15.224		-71.56x	2.32x	44717.74	2.68		
beta	E	2034-03-04T04:49:14.870		-72.72x	3.58x	45681.03	2.67		
eta	E	2034-03-04T04:58:35.184		-74.48x	5.55x	47176.12	2.67		
gamma	E	2034-03-04T05:01:22.673		-74.99x	6.14x	47622.74	2.67		
delta	E	2034-03-04T05:05:36.945		-75.76x	7.03x	48300.35	2.66		
lambda	E	2034-03-04T05:16:25.593		-77.59x	9.31x	50026.71	2.66		
epsilon	E	2034-03-04T05:21:17.229		-78.35x	10.34x	50801.93	2.66		