

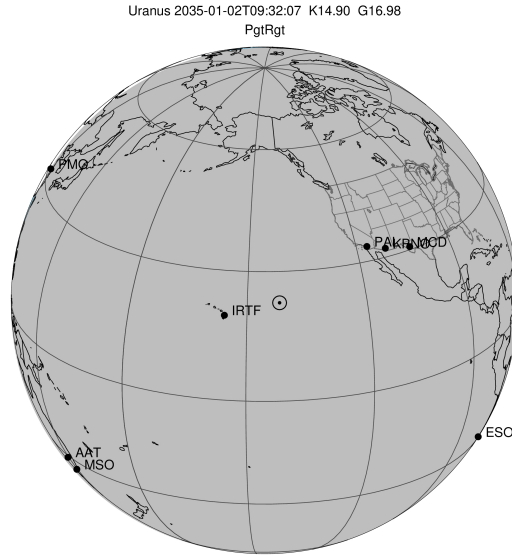
target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2035-01-02T09:32:07.150
 Event type : PgtRgt
 : Uranus occs: geocentric, topocentric
 : Ring occs: geocentric, topocentric
 Gaia source ID : 3382634779689296256
 2Mass ID (if available) : 06342936+2332068

Uranus 2035-01-02T09:32:07 K14.90 G16.98 PgtRgt

ICRS Star Coord at Epoch: 06h 34m 29.35893s +23:32:06.70940s

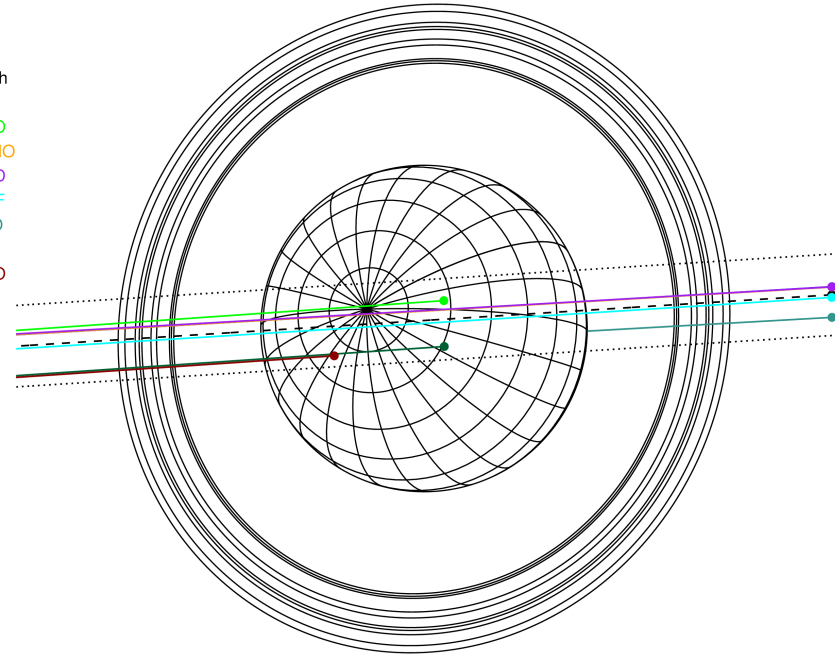
RUWE (>1.4 is poor) : 1.07
 K magnitude : 14.896
 G magnitude : 16.980
 RP magnitude : 16.383
 BP magnitude : 17.372
 DUPflag : 0
 Distance (au) : 17.907
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -23.32
 Sun-Target sep (deg) : 176.57
 Sun-Moon sep (deg) : 104.33
 B (ring opening deg) : 68.26
 PA of pole (deg) : 71.25

#	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



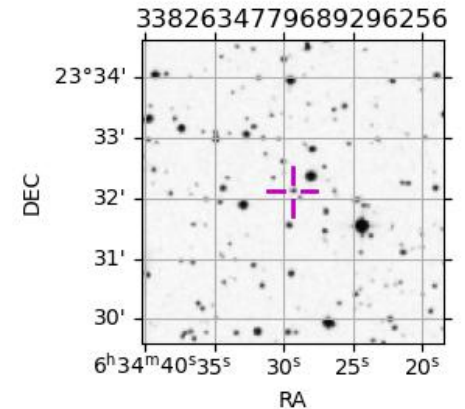
2035-01-02T09:32:07.1500 ra: 06 34 29.3589 s: +23 32 06.709 C/A 0.104 PA 183.61 deg v_sky -23.32 km/s D 17.91 AU
 Credit: Styled after SORA/Lucky Star

Earth
 PAL
 PMO
 KPNO
 MCD
 IRTF
 ESO
 AAT
 MSO

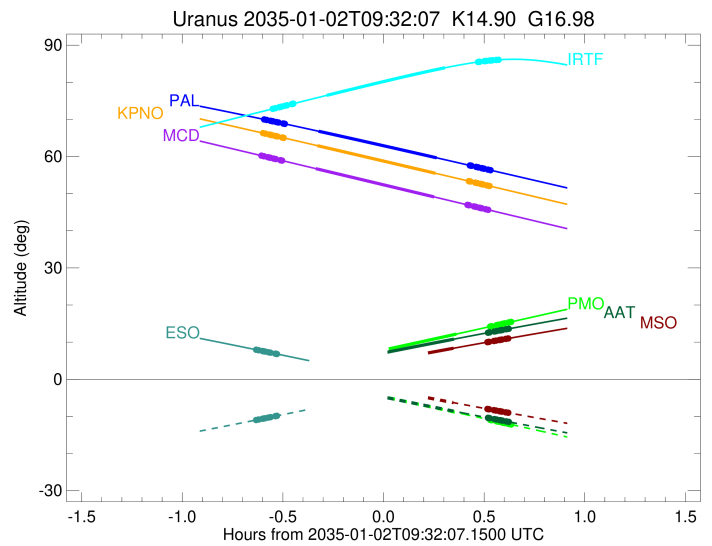
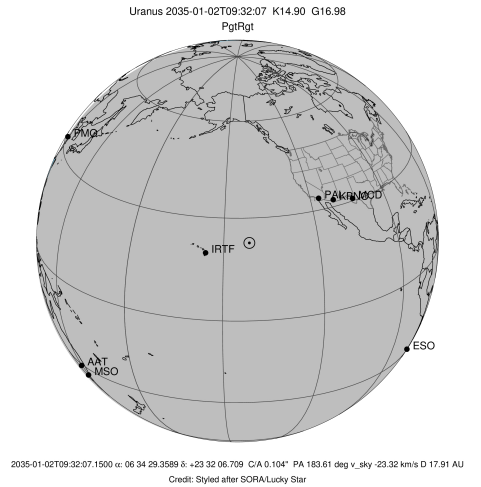


Observable events with sun below -5 deg and altitude above 5 deg unblocked by planet

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	+++++	+ +	+++++	JAN 02 08:56 - JAN 02 10:03	PieRie
PMO	Purple Mtn Obs. Nanki	32.1	118.8		+	+++++	JAN 02 09:53 - JAN 02 10:09	PneRne
KPNO	Kitt Peak Natl Obs	32.0	248.4	+++++	+ +	+++++	JAN 02 08:55 - JAN 02 10:03	PieRie
MCD	McDonald Obs. 2.7m	30.7	256.0	+++++	+ +	+++++	JAN 02 08:55 - JAN 02 10:03	PieRie
TEN	Teide Obs./Tenerife	28.3	343.5					PnnRnn
IRTF	Mauna Kea/IRTF	19.8	204.5	+++++	+ +	+++++	JAN 02 08:58 - JAN 02 10:06	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	+++++			JAN 02 08:53 - JAN 02 09:00	PnnRin
AAT	Siding Spring (AAT)	-31.3	149.1		+	+++++	JAN 02 09:53 - JAN 02 10:09	PneRne
SAAO	So. Afr. Astro. Obs.	-32.4	20.8					PnnRnn
MSO	Mt. Stromlo Observato	-35.3	149.0		+	+++++	JAN 02 09:52 - JAN 02 10:09	PneRne

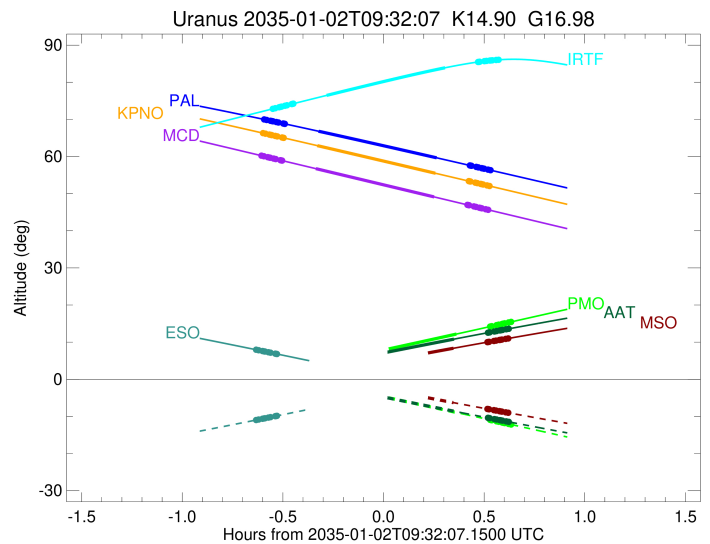
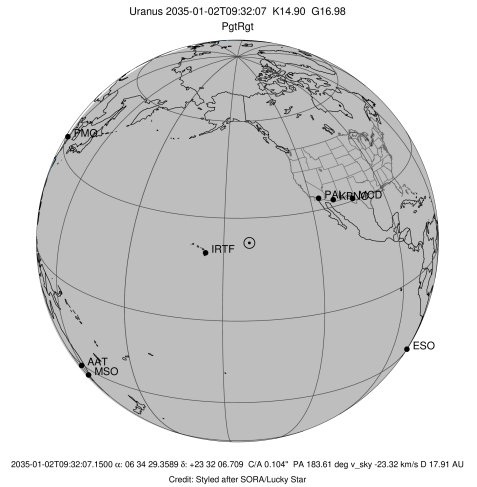


target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2035-01-02T09:30:21.780
 Event type : PgtRgt
 : Uranus occs: geocentric, topocentric
 : Ring occs: geocentric, topocentric
 Observer code : PAL
 Location : Palomar Mt (200")
 Latitude (deg) : 33.35622
 E. Longitude (deg) : 243.13601
 Altitude (km) : 1.706
 Gaia source ID : 3382634779689296256
 2Mass ID (if available) : 06342936+2332068
 ICRS Star Coord at Epoch: 06h 34m 29.35893s +23:32:06.70940s
 RUWE (>1.4 is poor) : 1.07
 K magnitude : 14.896
 G magnitude : 16.980
 RP magnitude : 16.383
 BP magnitude : 17.372
 DUPflag : 0
 Distance (au) : 17.907
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -23.32
 Sun-Target sep (deg) : 176.57
 Sun-Moon sep (deg) : 105.21
 B (ring opening deg) : 68.26
 PA of pole (deg) : 71.25
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 0.211
 C/A sky separation (km) : 2743.7
 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



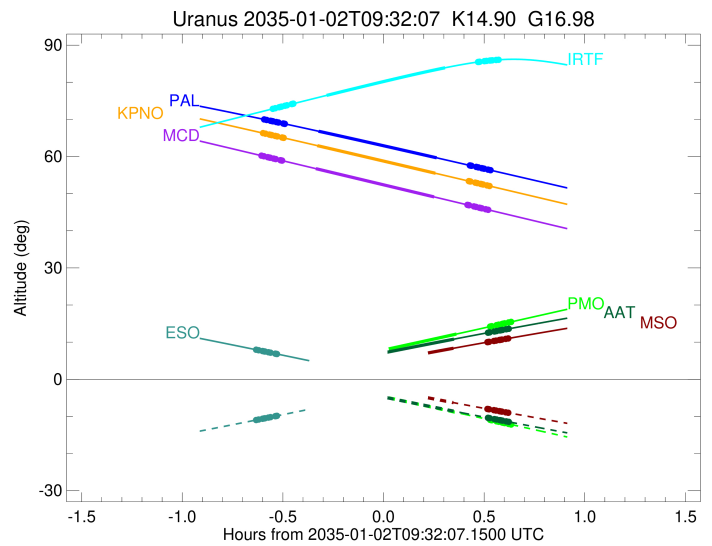
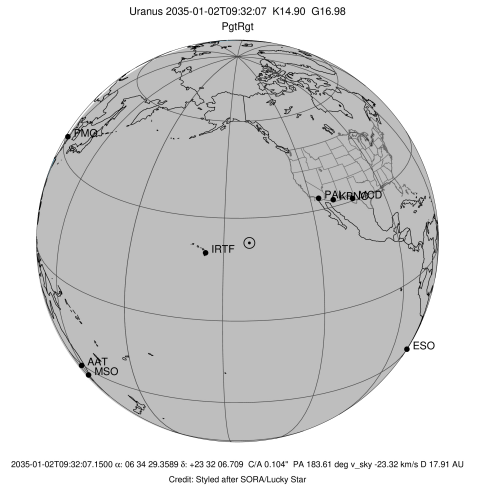
Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2035-01-02T08:56:18.744		70.04	-72.39	51510.78	-25.21		
lambda	I	2035-01-02T08:57:17.623		69.85	-72.22	50026.71	-25.20		
delta	I	2035-01-02T08:58:26.124		69.63	-72.01	48300.35	-25.20		
gamma	I	2035-01-02T08:58:53.023		69.54	-71.93	47622.51	-25.20		
eta	I	2035-01-02T08:59:10.739		69.48	-71.88	47176.12	-25.20		
beta	I	2035-01-02T09:00:10.886		69.29	-71.70	45661.18	-25.19		
alpha	I	2035-01-02T09:00:49.143		69.17	-71.58	44692.61	-25.19		
4	I	2035-01-02T09:02:13.293		68.89	-71.32	42570.74	-25.18		
5	I	2035-01-02T09:02:27.864		68.85	-71.28	42201.66	-25.17		
6	I	2035-01-02T09:02:41.501		68.80	-71.24	41853.86	-25.17		
Uranus	I	2035-01-02T09:12:44.882		66.82	-69.36	25165.69		-19.02	-19.85
Uranus	E	2035-01-02T09:47:56.171		59.66	-62.41	25090.73		20.88	21.77
6	E	2035-01-02T09:57:51.211		57.61	-60.39	41825.98	25.12		
5	E	2035-01-02T09:58:08.211		57.55	-60.33	42258.11	25.12		
4	E	2035-01-02T09:58:20.928		57.50	-60.29	42577.65	25.13		
alpha	E	2035-01-02T09:59:46.889		57.20	-59.99	44741.44	25.13		
beta	E	2035-01-02T10:00:23.376		57.08	-59.87	45663.57	25.14		
eta	E	2035-01-02T10:01:23.553		56.87	-59.66	47176.12	25.14		
gamma	E	2035-01-02T10:01:41.588		56.81	-59.60	47629.56	25.14		
delta	E	2035-01-02T10:02:08.268		56.71	-59.51	48300.35	25.14		
lambda	E	2035-01-02T10:03:16.926		56.48	-59.28	50026.71	25.15		
epsilon	E	2035-01-02T10:03:48.029		56.37	-59.17	50808.80	25.15		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2035-01-02T09:36:08.390
 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 : 3382634779689296256
 2Mass ID (if available) : 06342936+2332068
 ICRS Star Coord at Epoch: 06h 34m 29.35893s +23:32:06.70940s
 RUWE (>1.4 is poor) : 1.07
 K magnitude : 14.896
 G magnitude : 16.980
 RP magnitude : 16.383
 BP magnitude : 17.372
 DUPflag : 0
 Distance (au) : 17.907
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -23.32
 Sun-Target sep (deg) : 176.57
 Sun-Moon sep (deg) : 104.26
 B (ring opening deg) : 68.26
 PA of pole (deg) : 71.25
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 0.319
 C/A sky separation (km) : 4137.7
 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



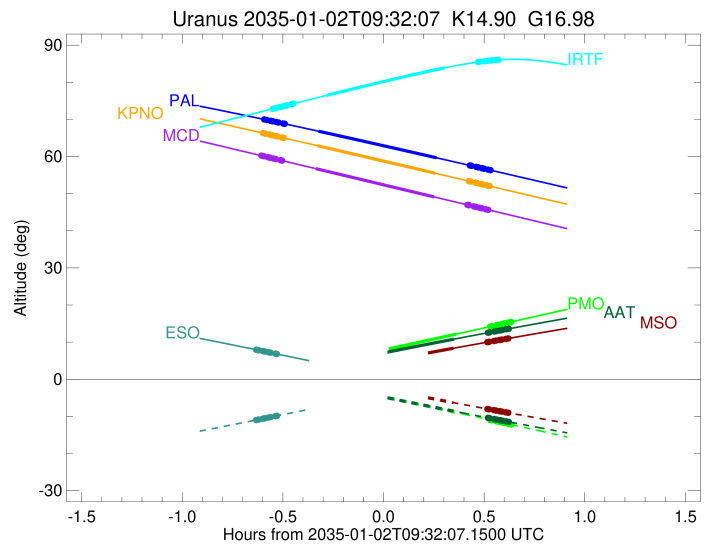
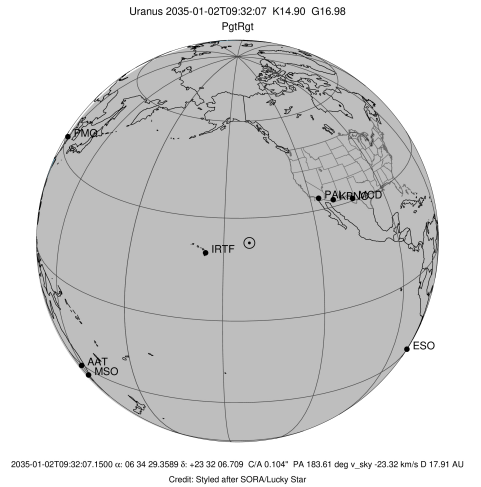
Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2035-01-02T09:01:29.683		1.95x	1.14x	51517.47	-24.69		
lambda	I	2035-01-02T09:02:30.090		2.15x	0.95x	50026.71	-24.68		
delta	I	2035-01-02T09:03:40.056		2.37x	0.73x	48300.35	-24.67		
gamma	I	2035-01-02T09:04:07.537		2.45x	0.64x	47622.36	-24.67		
eta	I	2035-01-02T09:04:25.626		2.51x	0.59x	47176.12	-24.67		
beta	I	2035-01-02T09:05:27.033		2.71x	0.39x	45662.00	-24.66		
alpha	I	2035-01-02T09:06:06.184		2.83x	0.27x	44691.73	-24.66		
4	I	2035-01-02T09:07:32.045		3.11x	0.00x	42572.69	-24.65		
5	I	2035-01-02T09:07:47.111		3.15x	-0.05x	42198.53	-24.64		
6	I	2035-01-02T09:08:00.856		3.20x	-0.09x	41855.55	-24.64		
Uranus	I	2035-01-02T09:18:21.315		5.19	-2.05x	25194.45		-18.27	-19.07
Uranus	E	2035-01-02T09:53:49.117		12.17	-8.94	25079.96		21.14	22.04
6	E	2035-01-02T10:03:53.561		14.19	-10.94	41826.94	24.74		
5	E	2035-01-02T10:04:10.709		14.25	-10.99	42256.33	24.74		
4	E	2035-01-02T10:04:23.753		14.29	-11.04	42578.68	24.75		
alpha	E	2035-01-02T10:05:50.950		14.58	-11.33	44740.90	24.76		
beta	E	2035-01-02T10:06:28.017		14.71	-11.45	45663.98	24.77		
eta	E	2035-01-02T10:07:29.058		14.91	-11.65	47176.12	24.78		
gamma	E	2035-01-02T10:07:47.351		14.97	-11.71	47629.48	24.78		
delta	E	2035-01-02T10:08:14.417		15.06	-11.80	48300.35	24.79		
lambda	E	2035-01-02T10:09:24.049		15.30	-12.04	50026.71	24.80		
epsilon	E	2035-01-02T10:09:55.742		15.41	-12.14	50812.65	24.81		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2035-01-02T09:30:01.930
 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 : 3382634779689296256
 2Mass ID (if available) : 06342936+2332068
 ICRS Star Coord at Epoch: 06h 34m 29.35893s +23:32:06.70940s
 RUWE (>1.4 is poor) : 1.07
 K magnitude : 14.896
 G magnitude : 16.980
 RP magnitude : 16.383
 BP magnitude : 17.372
 DUPflag : 0
 Distance (au) : 17.907
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -23.32
 Sun-Target sep (deg) : 176.57
 Sun-Moon sep (deg) : 105.20
 B (ring opening deg) : 68.26
 PA of pole (deg) : 71.25
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 0.210
 C/A sky separation (km) : 2726.6
 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	2035-01-02T08:55:57.976		66.36	-69.05	51510.62	-25.20		
lambda	I	2035-01-02T08:56:56.868		66.15	-68.85	50026.71	-25.20		
delta	I	2035-01-02T08:58:05.391		65.92	-68.62	48300.35	-25.19		
gamma	I	2035-01-02T08:58:32.300		65.82	-68.53	47622.51	-25.19		
eta	I	2035-01-02T08:58:50.021		65.76	-68.47	47176.12	-25.19		
beta	I	2035-01-02T08:59:50.190		65.55	-68.27	45661.16	-25.19		
alpha	I	2035-01-02T09:00:28.459		65.42	-68.14	44692.64	-25.18		
4	I	2035-01-02T09:01:52.641		65.13	-67.86	42570.70	-25.17		
5	I	2035-01-02T09:02:07.213		65.08	-67.81	42201.73	-25.16		
6	I	2035-01-02T09:02:20.859		65.03	-67.76	41853.82	-25.17		
Uranus	I	2035-01-02T09:12:24.408		62.93	-65.71	25165.18		-19.03	-19.86
Uranus	E	2035-01-02T09:47:37.074		55.49	-58.38	25090.78		20.88	21.77
6	E	2035-01-02T09:57:32.509		53.38	-56.28	41825.98	25.11		
5	E	2035-01-02T09:57:49.520		53.32	-56.22	42258.11	25.11		
4	E	2035-01-02T09:58:02.246		53.28	-56.18	42577.65	25.11		
alpha	E	2035-01-02T09:59:28.268		52.97	-55.88	44741.44	25.12		
beta	E	2035-01-02T10:00:04.781		52.84	-55.75	45663.57	25.12		
eta	E	2035-01-02T10:01:05.002		52.63	-55.54	47176.12	25.12		
gamma	E	2035-01-02T10:01:23.050		52.56	-55.47	47629.55	25.12		
delta	E	2035-01-02T10:01:49.749		52.47	-55.38	48300.35	25.12		
lambda	E	2035-01-02T10:02:58.459		52.22	-55.14	50026.71	25.13		
epsilon	E	2035-01-02T10:03:29.586		52.11	-55.03	50808.83	25.13		

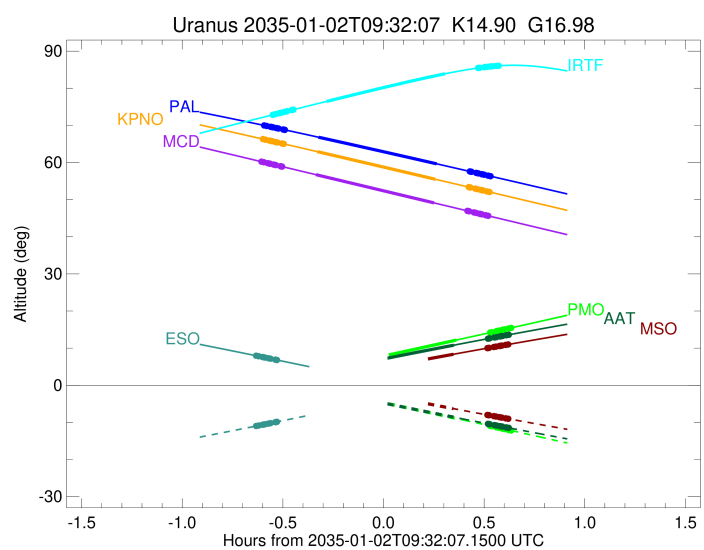
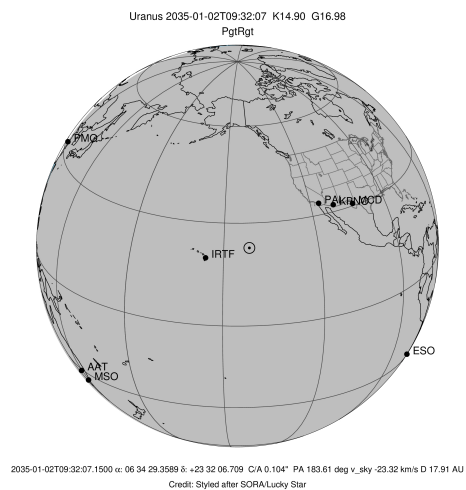
target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2035-01-02T09:29:35.840
 Event type : PgtRgt
 : Uranus occs: geocentric, topocentric
 : Ring occs: geocentric, topocentric
 Observer code : MCD
 Location : McDonald Obs. 2.7m
 Latitude (deg) : 30.67158
 E. Longitude (deg) : 255.97844
 Altitude (km) : 2.075
 Gaia source ID : 3382634779689296256
 2Mass ID (if available) : 06342936+2332068
 ICRS Star Coord at Epoch: 06h 34m 29.35893s +23:32:06.70940s
 RUWE (>1.4 is poor) : 1.07
 K magnitude : 14.896
 G magnitude : 16.980
 RP magnitude : 16.383
 BP magnitude : 17.372
 DUPflag : 0
 Distance (au) : 17.907
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -23.32
 Sun-Target sep (deg) : 176.57
 Sun-Moon sep (deg) : 105.16
 B (ring opening deg) : 68.26
 PA of pole (deg) : 71.25
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 0.216
 C/A sky separation (km) : 2803.2
 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	2035-01-02T08:55:29.824		60.28	-63.18	51510.77	-25.18		
lambda	I	2035-01-02T08:56:28.778		60.07	-62.97	50026.71	-25.17		
delta	I	2035-01-02T08:57:37.368		59.83	-62.73	48300.35	-25.17		
gamma	I	2035-01-02T08:58:04.303		59.73	-62.63	47622.51	-25.16		
eta	I	2035-01-02T08:58:22.042		59.67	-62.57	47176.12	-25.16		
beta	I	2035-01-02T08:59:22.270		59.45	-62.36	45661.18	-25.16		
alpha	I	2035-01-02T09:00:00.579		59.31	-62.22	44692.61	-25.15		
4	I	2035-01-02T09:01:24.845		59.01	-61.92	42570.75	-25.15		
5	I	2035-01-02T09:01:39.437		58.96	-61.87	42201.64	-25.14		
6	I	2035-01-02T09:01:53.092		58.91	-61.82	41853.87	-25.14		
Uranus	I	2035-01-02T09:11:57.453		56.74	-59.67	25166.16		-19.01	-19.84
Uranus	E	2035-01-02T09:47:11.922		49.13	-52.10	25089.82		20.90	21.80
6	E	2035-01-02T09:57:08.171		46.98	-49.96	41826.08	25.07		
5	E	2035-01-02T09:57:25.196		46.92	-49.90	42257.92	25.07		
4	E	2035-01-02T09:57:37.955		46.88	-49.85	42577.76	25.07		
alpha	E	2035-01-02T09:59:04.099		46.57	-49.54	44741.38	25.08		
beta	E	2035-01-02T09:59:40.671		46.43	-49.41	45663.62	25.08		
eta	E	2035-01-02T10:00:40.981		46.22	-49.20	47176.12	25.09		
gamma	E	2035-01-02T10:00:59.056		46.15	-49.13	47629.55	25.09		
delta	E	2035-01-02T10:01:25.796		46.06	-49.04	48300.35	25.09		
lambda	E	2035-01-02T10:02:34.609		45.81	-48.79	50026.71	25.09		
epsilon	E	2035-01-02T10:03:05.801		45.70	-48.68	50809.30	25.10		

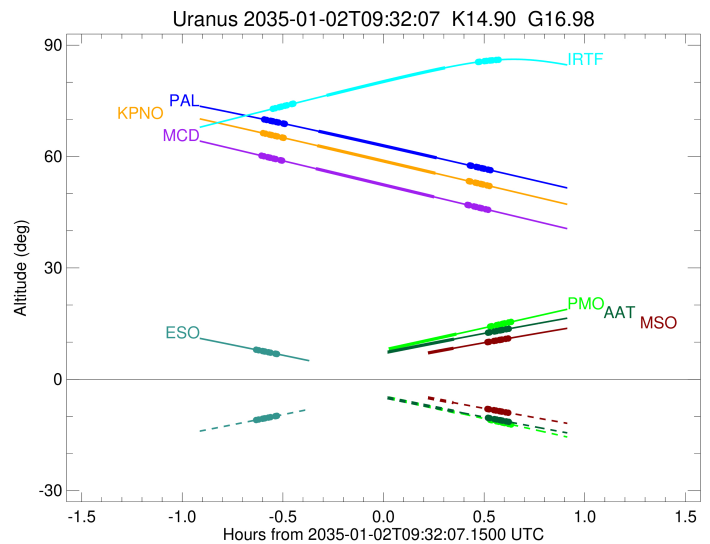
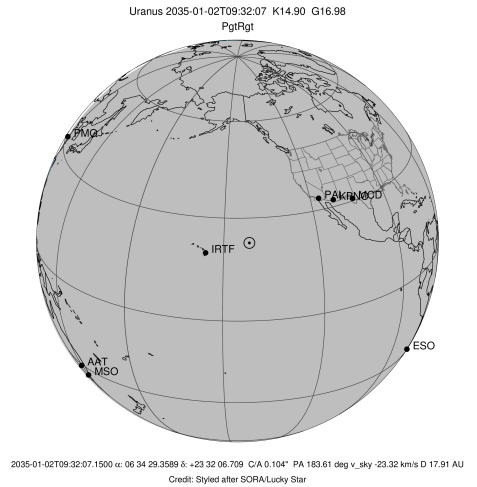

```

target                : Uranus
target radius (km)   : 25559.00
C/A epoch            : 2035-01-02T09:32:48.680
Event type          : PgtRgt
: 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      : 3382634779689296256
2Mass ID (if available) : 06342936+2332068
ICRS Star Coord at Epoch: 06h 34m 29.35893s +23:32:06.70940s
RUWE (>1.4 is poor) : 1.07
K magnitude          : 14.896
G magnitude          : 16.980
RP magnitude         : 16.383
BP magnitude         : 17.372
DUPflag             : 0
Distance (au)       : 17.907
f0 (km)             : 0.000
g0 (km)             : 0.000
skyplane vel. (km/s) : -23.32
Sun-Target sep (deg) : 176.57
Sun-Moon sep (deg)  : 105.16
B (ring opening deg) : 68.26
PA of pole (deg)    : 71.25
Pole direction: RA (deg): 257.31100
Dec (deg): -15.17500
C/A sky separation (") : 0.061
C/A sky separation (km) : 794.6
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
    
```



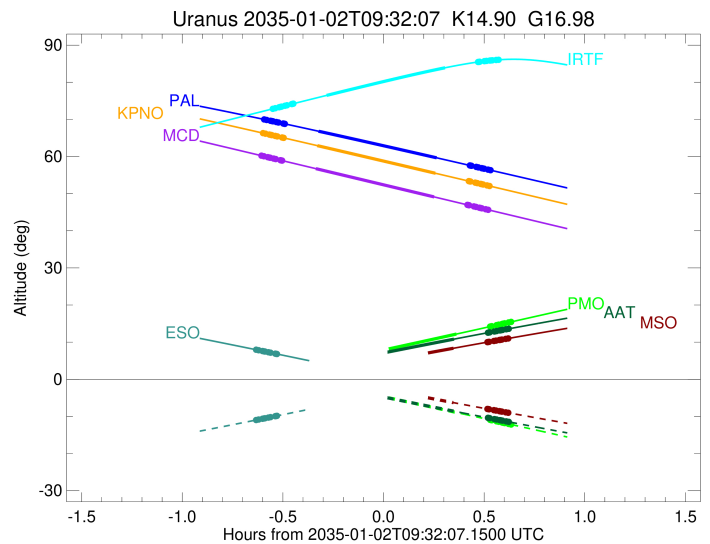
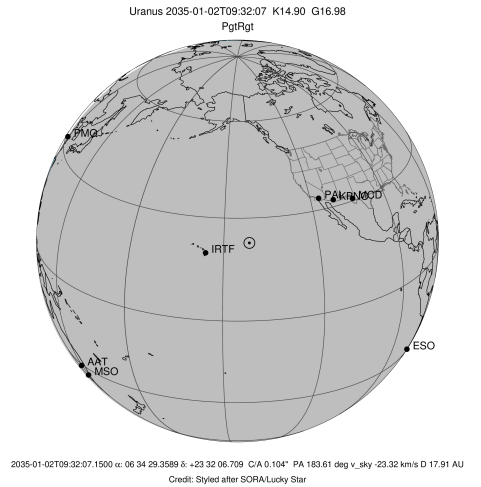
Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2035-01-02T08:58:53.380		72.80	-69.54	51504.19	-25.30		
lambda	I	2035-01-02T08:59:51.786		73.02	-69.77	50026.71	-25.30		
delta	I	2035-01-02T09:01:00.032		73.28	-70.03	48300.35	-25.30		
gamma	I	2035-01-02T09:01:26.823		73.38	-70.13	47622.65	-25.30		
eta	I	2035-01-02T09:01:44.475		73.45	-70.20	47176.12	-25.30		
beta	I	2035-01-02T09:02:44.412		73.67	-70.43	45660.39	-25.30		
alpha	I	2035-01-02T09:03:22.443		73.82	-70.57	44693.52	-25.29		
4	I	2035-01-02T09:04:46.333		74.13	-70.89	42568.82	-25.29		
5	I	2035-01-02T09:05:00.667		74.19	-70.95	42204.81	-25.29		
6	I	2035-01-02T09:05:14.427		74.24	-71.00	41852.15	-25.29		
Uranus	I	2035-01-02T09:15:11.043		76.47	-73.27	25136.81		-19.75	-20.61
Uranus	E	2035-01-02T09:50:25.194		83.90	-81.18	25114.63		20.30	21.18
6	E	2035-01-02T10:00:17.971		85.47	-83.27	41823.91	25.30		
5	E	2035-01-02T10:00:35.090		85.50	-83.33	42261.95	25.31		
4	E	2035-01-02T10:00:47.441		85.53	-83.37	42575.40	25.31		
alpha	E	2035-01-02T10:02:12.946		85.69	-83.66	44742.61	25.31		
beta	E	2035-01-02T10:02:49.097		85.76	-83.78	45662.64	25.31		
eta	E	2035-01-02T10:03:48.900		85.86	-83.97	47176.12	25.31		
gamma	E	2035-01-02T10:04:06.819		85.88	-84.03	47629.74	25.31		
delta	E	2035-01-02T10:04:33.310		85.92	-84.12	48300.35	25.32		
lambda	E	2035-01-02T10:05:41.503		86.01	-84.34	50026.71	25.32		
epsilon	E	2035-01-02T10:06:12.040		86.05	-84.44	50799.80	25.32		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2035-01-02T09:28:08.750
 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 : 3382634779689296256
 2Mass ID (if available) : 06342936+2332068
 ICRS Star Coord at Epoch: 06h 34m 29.35893s +23:32:06.70940s
 RUWE (>1.4 is poor) : 1.07
 K magnitude : 14.896
 G magnitude : 16.980
 RP magnitude : 16.383
 BP magnitude : 17.372
 DUPflag : 0
 Distance (au) : 17.907
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -23.32
 Sun-Target sep (deg) : 176.57
 Sun-Moon sep (deg) : 104.53
 B (ring opening deg) : 68.26
 PA of pole (deg) : 71.25
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 0.142
 C/A sky separation (km) : 1841.7
 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



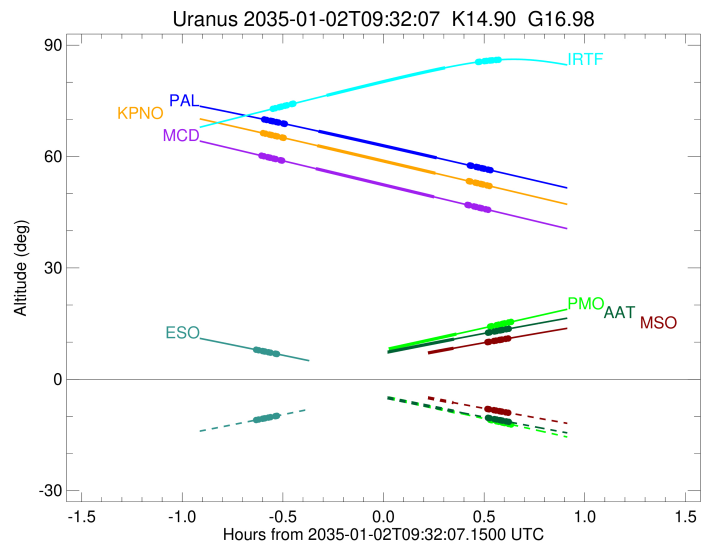
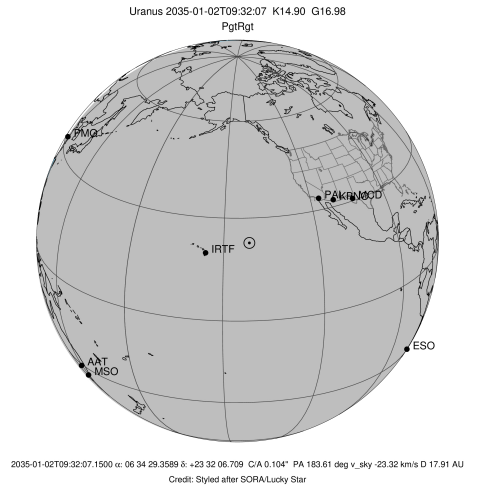
Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2035-01-02T08:53:55.555		8.00	-11.02	51491.93	-25.01		
lambda	I	2035-01-02T08:54:54.131		7.82	-10.84	50026.71	-25.01		
delta	I	2035-01-02T08:56:03.157		7.60	-10.64	48300.35	-25.01		
gamma	I	2035-01-02T08:56:30.246		7.52	-10.55	47622.90	-25.01		
eta	I	2035-01-02T08:56:48.113		7.47	-10.50	47176.12	-25.01		
beta	I	2035-01-02T08:57:48.798		7.28	-10.32	45659.08	-25.00		
alpha	I	2035-01-02T08:58:27.160		7.16	-10.20	44695.09	-25.00		
4	I	2035-01-02T08:59:52.224		6.90	-9.94	42565.69	-24.99		
5	I	2035-01-02T09:00:06.443		6.85	-9.90	42210.07	-24.99		
6	I	2035-01-02T09:00:20.683		6.81	-9.86	41849.31	-24.98		
Uranus	I	2035-01-02T09:10:20.900		4.93x	-8.02	25099.85		-20.66	-21.55
Uranus	E	2035-01-02T09:46:00.153		-1.96x	-1.24x	25149.91		19.42	20.27
6	E	2035-01-02T09:56:06.801		-3.96x	0.73x	41821.61	24.88		
5	E	2035-01-02T09:56:24.483		-4.02x	0.79x	42266.21	24.89		
4	E	2035-01-02T09:56:36.731		-4.06x	0.83x	42572.85	24.88		
alpha	E	2035-01-02T09:58:03.852		-4.35x	1.11x	44743.85	24.89		
beta	E	2035-01-02T09:58:40.528		-4.47x	1.23x	45661.59	24.89		
eta	E	2035-01-02T09:59:41.394		-4.67x	1.43x	47176.12	24.89		
gamma	E	2035-01-02T09:59:59.627		-4.73x	1.49x	47629.94	24.89		
delta	E	2035-01-02T10:00:26.561		-4.82x	1.58x	48300.35	24.89		
lambda	E	2035-01-02T10:01:35.921		-5.05x	1.81x	50026.71	24.89		
epsilon	E	2035-01-02T10:02:06.615		-5.15x	1.91x	50790.67	24.89		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2035-01-02T09:35:25.590
 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 : 3382634779689296256
 2Mass ID (if available) : 06342936+2332068
 ICRS Star Coord at Epoch: 06h 34m 29.35893s +23:32:06.70940s
 RUWE (>1.4 is poor) : 1.07
 K magnitude : 14.896
 G magnitude : 16.980
 RP magnitude : 16.383
 BP magnitude : 17.372
 DUPflag : 0
 Distance (au) : 17.907
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -23.32
 Sun-Target sep (deg) : 176.57
 Sun-Moon sep (deg) : 104.26
 B (ring opening deg) : 68.26
 PA of pole (deg) : 71.25
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 0.233
 C/A sky separation (km) : 3030.3
 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	2035-01-02T09:01:18.193		1.41x	1.02x	51489.39	-24.93		
lambda	I	2035-01-02T09:02:16.849		1.60x	0.83x	50026.71	-24.94		
delta	I	2035-01-02T09:03:26.084		1.81x	0.61x	48300.35	-24.93		
gamma	I	2035-01-02T09:03:53.252		1.90x	0.53x	47622.96	-24.93		
eta	I	2035-01-02T09:04:11.174		1.96x	0.47x	47176.12	-24.93		
beta	I	2035-01-02T09:05:12.047		2.15x	0.28x	45658.79	-24.93		
alpha	I	2035-01-02T09:05:50.493		2.27x	0.15x	44695.46	-24.93		
4	I	2035-01-02T09:07:15.841		2.53x	-0.12x	42564.95	-24.92		
5	I	2035-01-02T09:07:30.031		2.58x	-0.16x	42211.35	-24.92		
6	I	2035-01-02T09:07:44.387		2.62x	-0.21x	41848.62	-24.91		
Uranus	I	2035-01-02T09:17:45.373		4.48x	-2.10x	25090.35		-20.89	-21.78
Uranus	E	2035-01-02T09:53:08.191		10.81	-8.60	25174.41		18.79	19.62
6	E	2035-01-02T10:03:15.500		12.55	-10.39	41820.03	25.00		
5	E	2035-01-02T10:03:33.282		12.60	-10.44	42269.14	25.01		
4	E	2035-01-02T10:03:45.254		12.63	-10.48	42571.05	25.01		
alpha	E	2035-01-02T10:05:12.034		12.88	-10.73	44744.70	25.02		
beta	E	2035-01-02T10:05:48.447		12.98	-10.84	45660.83	25.03		
eta	E	2035-01-02T10:06:49.001		13.15	-11.01	47176.12	25.03		
gamma	E	2035-01-02T10:07:07.133		13.20	-11.06	47630.07	25.04		
delta	E	2035-01-02T10:07:33.904		13.27	-11.14	48300.35	25.04		
lambda	E	2035-01-02T10:08:42.843		13.47	-11.34	50026.71	25.04		
epsilon	E	2035-01-02T10:09:13.089		13.55	-11.43	50784.25	25.04		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2035-01-02T09:35:15.370
 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 : 3382634779689296256
 2Mass ID (if available) : 06342936+2332068
 ICRS Star Coord at Epoch: 06h 34m 29.35893s +23:32:06.70940s
 RUWE (>1.4 is poor) : 1.07
 K magnitude : 14.896
 G magnitude : 16.980
 RP magnitude : 16.383
 BP magnitude : 17.372
 DUPflag : 0
 Distance (au) : 17.907
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -23.32
 Sun-Target sep (deg) : 176.57
 Sun-Moon sep (deg) : 104.24
 B (ring opening deg) : 68.26
 PA of pole (deg) : 71.25
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 0.255
 C/A sky separation (km) : 3312.9
 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	2035-01-02T09:01:08.695	-0.60x	2.88x	51488.09	-24.91			
lambda	I	2035-01-02T09:02:07.336	-0.42x	2.70x	50026.71	-24.92			
delta	I	2035-01-02T09:03:16.615	-0.21x	2.49x	48300.35	-24.92			
gamma	I	2035-01-02T09:03:43.800	-0.13x	2.41x	47622.98	-24.92			
eta	I	2035-01-02T09:04:01.735	-0.08x	2.35x	47176.12	-24.92			
beta	I	2035-01-02T09:05:02.656	0.10x	2.17x	45658.66	-24.91			
alpha	I	2035-01-02T09:05:41.117	0.22x	2.05x	44695.63	-24.91			
4	I	2035-01-02T09:07:06.548	0.47x	1.79x	42564.64	-24.90			
5	I	2035-01-02T09:07:20.720	0.51x	1.75x	42211.89	-24.90			
6	I	2035-01-02T09:07:35.120	0.56x	1.70x	41848.33	-24.89			
Uranus	I	2035-01-02T09:17:36.442	2.33x	-0.11x	25087.42	-20.96		-21.86	
Uranus	E	2035-01-02T09:52:57.076	8.35	-6.29	25179.16	18.67		19.49	
6	E	2035-01-02T10:03:05.665	10.00	-8.00	41819.77	24.98			
5	E	2035-01-02T10:03:23.495	10.05	-8.05	42269.62	24.99			
4	E	2035-01-02T10:03:35.442	10.08	-8.08	42570.75	24.99			
alpha	E	2035-01-02T10:05:02.322	10.31	-8.32	44744.83	25.00			
beta	E	2035-01-02T10:05:38.758	10.41	-8.42	45660.71	25.01			
eta	E	2035-01-02T10:06:39.370	10.57	-8.59	47176.12	25.01			
gamma	E	2035-01-02T10:06:57.519	10.62	-8.64	47630.10	25.02			
delta	E	2035-01-02T10:07:24.311	10.69	-8.71	48300.35	25.02			
lambda	E	2035-01-02T10:08:33.308	10.87	-8.90	50026.71	25.02			
epsilon	E	2035-01-02T10:09:03.541	10.95	-8.99	50783.31	25.02			