

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2035-02-08T08:07:36.590
 Event type : PgtRgt
 : Uranus occs: geocentric, topocentric
 : Ring occs: geocentric, topocentric
 Gaia source ID : 3383342792160904064
 2Mass ID (if available) : 06282513+2336434

Uranus 2035-02-08T08:07:36 K13.41 G15.46 PgtRgt

ICRS Star Coord at Epoch: 06h 28m 25.12691s +23:36:43.07896s

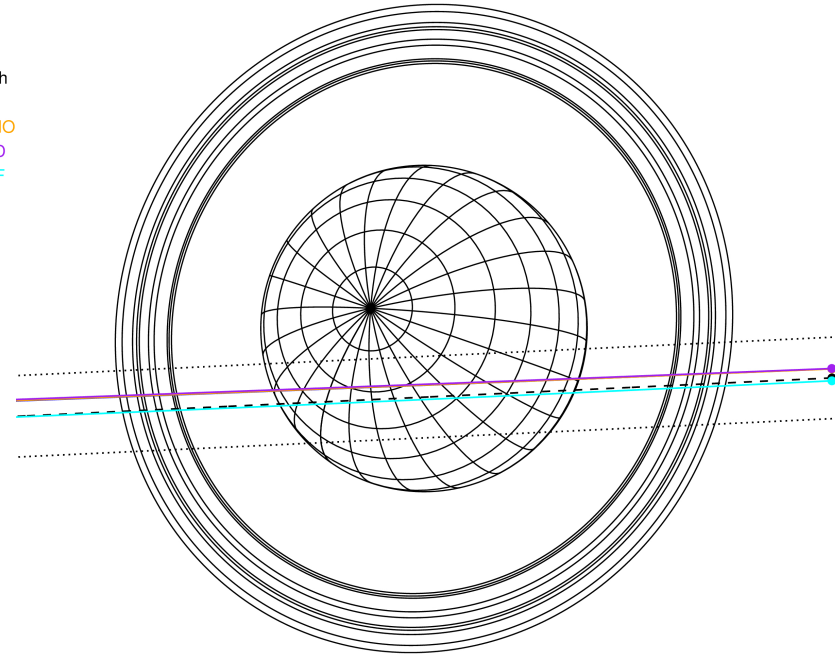
RUWE (>1.4 is poor) : 1.05
 K magnitude : 13.407
 G magnitude : 15.459
 RP magnitude : 14.775
 BP magnitude : 16.005
 DUPflag : 0
 Distance (au) : 18.142
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -15.61
 Sun-Target sep (deg) : 137.61
 Sun-Moon sep (deg) : 137.66
 B (ring opening deg) : 69.54
 PA of pole (deg) : 69.24

Uranus 2035-02-08T08:07:36 K13.41 G15.46
 PgtRgt



2035-02-08T08:07:36.5900 α: 06 28 25.1269 δ: +23 36 43.079 C/A 0.810° PA 2.69 deg v_sky -15.61 km/s D 18.14 AU
 Credit: Styled after SORA/Lucky Star

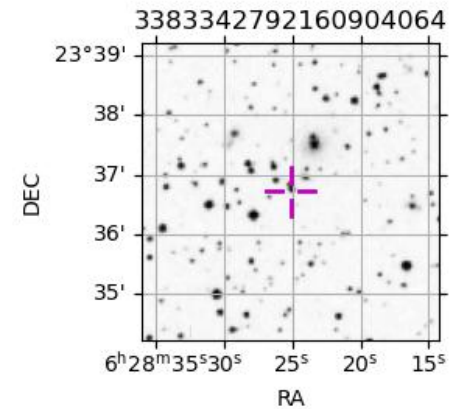
Earth
 PAL
 KPNO
 MCD
 IRTF



#	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

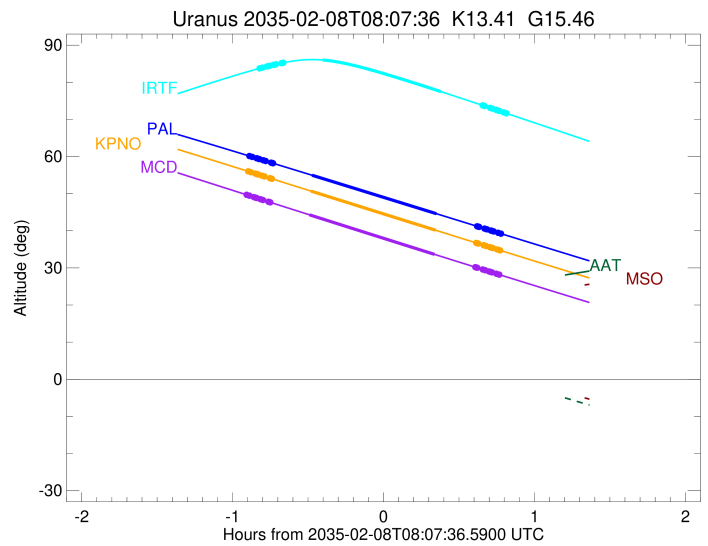
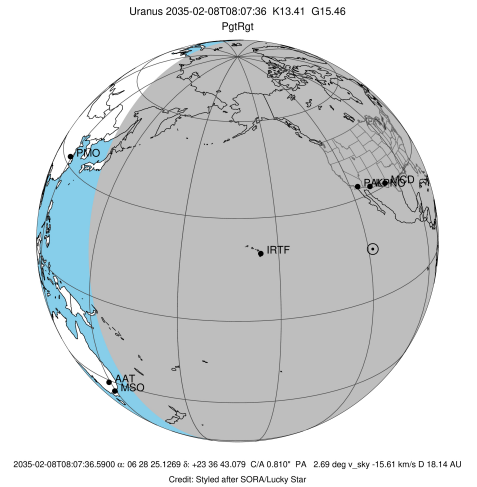
Observable events with sun below -5 deg and altitude above 5 deg unblocked by planet

Obs	Location	lat	Elon	Rings I	Planet	Rings E	Observed Events Interval	OEcode
PIC	Pic du Midi	42.9	0.1					PnnRnn
PAL	Palomar Mt (200")	33.4	243.1	+++++	+ +	+++++	FEB 08 07:14 - FEB 08 08:54	PieRie
PNO	Purple Mtn Obs. Nanki	32.1	118.8					PnnRnn
KPNO	Kitt Peak Natl Obs	32.0	248.4	+++++	+ +	+++++	FEB 08 07:13 - FEB 08 08:53	PieRie
MCD	McDonald Obs. 2.7m	30.7	256.0	+++++	+ +	+++++	FEB 08 07:13 - FEB 08 08:53	PieRie
TEN	Teide Obs./Tenerife	28.3	343.5					PnnRnn
IRTF	Mauna Kea/IRTF	19.8	204.5	+++++	+ +	+++++	FEB 08 07:18 - FEB 08 08:56	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					PnnRnn
SAAO	So. Afr. Astro. Obs.	-32.4	20.8					PnnRnn
MSO	Mt. Stromlo Observato	-35.3	149.0					PnnRnn



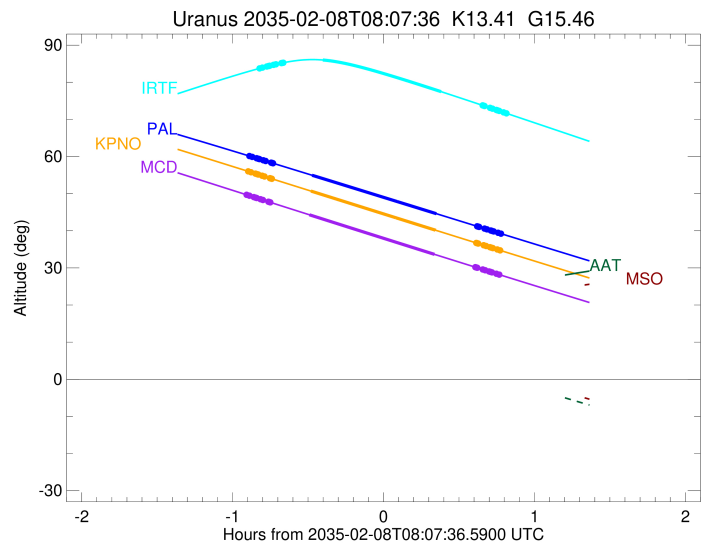
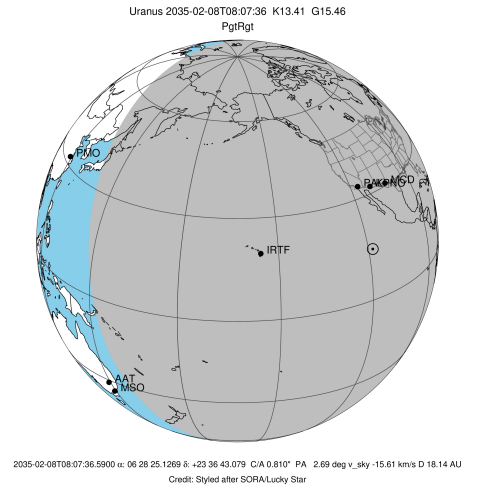
```

target                : Uranus
target radius (km)   : 25559.00
C/A epoch            : 2035-02-08T08:03:46.310
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       : 3383342792160904064
2Mass ID (if available) : 06282513+2336434
ICRS Star Coord at Epoch: 06h 28m 25.12691s +23:36:43.07896s
RUWE (>1.4 is poor) : 1.05
K magnitude           : 13.407
G magnitude           : 15.459
RP magnitude          : 14.775
BP magnitude          : 16.005
DUPflag              : 0
Distance (au)         : 18.142
f0 (km)               : 0.000
g0 (km)               : 0.000
skyplane vel. (km/s) : -15.61
Sun-Target sep (deg) : 137.61
Sun-Moon sep (deg)   : 137.75
B (ring opening deg) : 69.54
PA of pole (deg)     : 69.24
Pole direction: RA (deg): 257.31100
Dec (deg): -15.17500
C/A sky separation (") : 0.674
C/A sky separation (km) : 8873.1
NAIF SPICE kernels   : RAJobs_U111+rgf15.spk
URKALLvl1.spk
urall11.bsp
IAU_URANUS_for_RINGFIT.tpc
vgr2.urall11.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
  
```



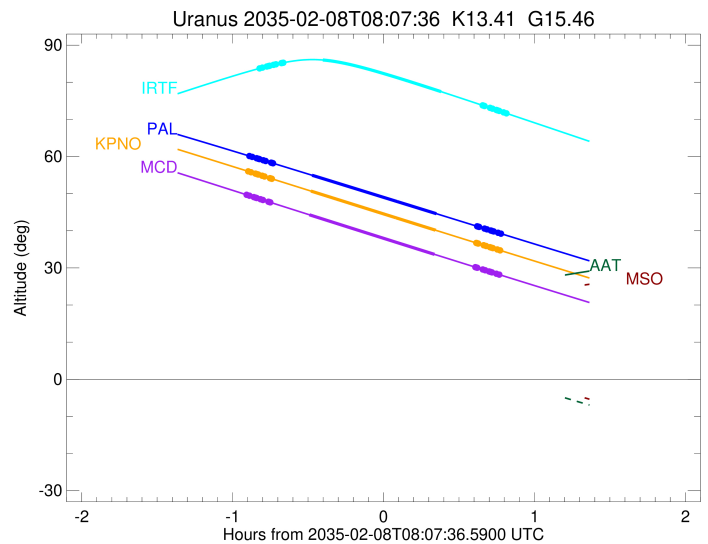
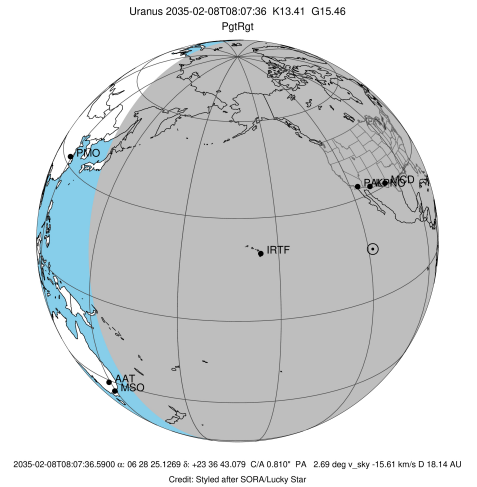
Ring	I/E	UTC	b? alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2035-02-08T07:14:19.330	60.13	-68.92	51139.99	-16.57		
lambda	I	2035-02-08T07:15:26.462	59.90	-69.05	50026.71	-16.58		
delta	I	2035-02-08T07:17:10.677	59.54	-69.24	48300.35	-16.55		
gamma	I	2035-02-08T07:17:51.228	59.40	-69.31	47629.26	-16.54		
eta	I	2035-02-08T07:18:18.622	59.31	-69.36	47176.12	-16.54		
beta	I	2035-02-08T07:19:51.594	58.98	-69.53	45641.06	-16.52		
alpha	I	2035-02-08T07:20:45.827	58.80	-69.62	44743.11	-16.50		
4	I	2035-02-08T07:23:00.460	58.33	-69.85	42529.50	-16.46		
5	I	2035-02-08T07:23:12.441	58.29	-69.86	42315.25	-16.45		
6	I	2035-02-08T07:23:44.234	58.18	-69.92	41794.95	-16.44		
Uranus	I	2035-02-08T07:39:12.772	54.96	-71.14	25046.11		-20.44	-21.32
Uranus	E	2035-02-08T08:28:39.297	44.60	-70.81	25285.14		14.68	15.34
6	E	2035-02-08T08:44:52.049	41.20	-69.33	41877.44	16.32		
5	E	2035-02-08T08:45:09.690	41.14	-69.30	42161.54	16.33		
4	E	2035-02-08T08:45:36.738	41.04	-69.25	42616.56	16.34		
alpha	E	2035-02-08T08:47:44.748	40.60	-69.02	44704.94	16.37		
beta	E	2035-02-08T08:48:44.221	40.39	-68.90	45679.73	16.38		
eta	E	2035-02-08T08:50:15.579	40.07	-68.73	47176.12	16.40		
gamma	E	2035-02-08T08:50:42.949	39.97	-68.67	47625.09	16.41		
delta	E	2035-02-08T08:51:24.096	39.83	-68.59	48300.35	16.41		
lambda	E	2035-02-08T08:53:09.216	39.46	-68.38	50026.71	16.43		
epsilon	E	2035-02-08T08:54:09.243	39.26	-68.25	51013.31	16.42		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2035-02-08T08:03:21.730
 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 : 3383342792160904064
 2Mass ID (if available) : 06282513+2336434
 ICRS Star Coord at Epoch: 06h 28m 25.12691s +23:36:43.07896s
 RUWE (>1.4 is poor) : 1.05
 K magnitude : 13.407
 G magnitude : 15.459
 RP magnitude : 14.775
 BP magnitude : 16.005
 DUPflag : 0
 Distance (au) : 18.142
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -15.61
 Sun-Target sep (deg) : 137.61
 Sun-Moon sep (deg) : 137.67
 B (ring opening deg) : 69.54
 PA of pole (deg) : 69.24
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 0.673
 C/A sky separation (km) : 8852.7
 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	2035-02-08T07:13:51.040	56.00	-72.16	51139.88	-16.55		
lambda	I	2035-02-08T07:14:58.224	55.76	-72.24	50026.71	-16.56		
delta	I	2035-02-08T07:16:42.530	55.39	-72.37	48300.35	-16.54		
gamma	I	2035-02-08T07:17:23.116	55.25	-72.42	47629.26	-16.53		
eta	I	2035-02-08T07:17:50.534	55.15	-72.45	47176.12	-16.52		
beta	I	2035-02-08T07:19:23.588	54.82	-72.55	45641.06	-16.50		
alpha	I	2035-02-08T07:20:17.870	54.63	-72.60	44743.11	-16.49		
4	I	2035-02-08T07:22:32.624	54.15	-72.73	42529.50	-16.45		
5	I	2035-02-08T07:22:44.616	54.11	-72.74	42315.25	-16.44		
6	I	2035-02-08T07:23:16.438	54.00	-72.77	41794.95	-16.43		
Uranus	I	2035-02-08T07:38:45.816	50.70	-73.22	25046.12		-20.44	-21.32
Uranus	E	2035-02-08T08:28:17.365	40.16	-69.98	25284.39		14.70	15.36
6	E	2035-02-08T08:44:31.396	36.72	-67.74	41877.46	16.30		
5	E	2035-02-08T08:44:49.062	36.66	-67.70	42161.50	16.30		
4	E	2035-02-08T08:45:16.153	36.56	-67.63	42616.56	16.32		
alpha	E	2035-02-08T08:47:24.363	36.11	-67.31	44704.90	16.35		
beta	E	2035-02-08T08:48:23.934	35.90	-67.15	45679.74	16.36		
eta	E	2035-02-08T08:49:55.439	35.58	-66.92	47176.12	16.38		
gamma	E	2035-02-08T08:50:22.852	35.48	-66.85	47625.09	16.38		
delta	E	2035-02-08T08:51:04.067	35.34	-66.74	48300.35	16.39		
lambda	E	2035-02-08T08:52:49.359	34.97	-66.46	50026.71	16.40		
epsilon	E	2035-02-08T08:53:49.508	34.76	-66.30	51013.68	16.39		

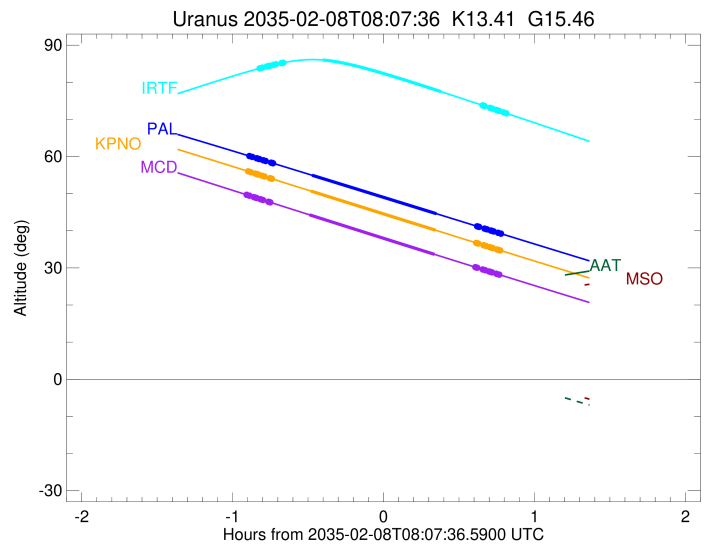
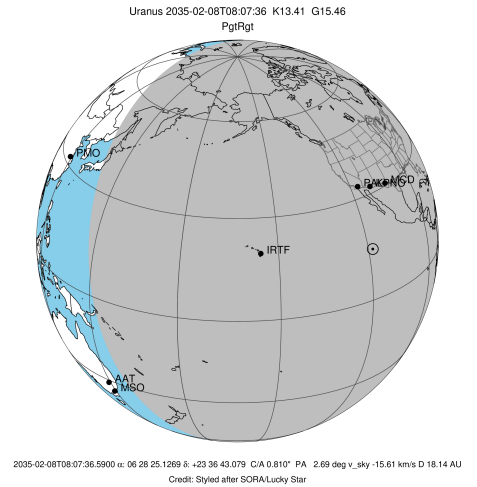
target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2035-02-08T08:02:51.680
 Event type : PgtRgt
 : Uranus occs: geocentric, topocentric
 : Ring occs: geocentric, topocentric
 Observer code : MCD
 Location : McDonald Obs. 2.7m
 Latitude (deg) : 30.67158
 E. Longitude (deg) : 255.97844
 Altitude (km) : 2.075
 Gaia source ID : 3383342792160904064
 2Mass ID (if available) : 06282513+2336434
 ICRS Star Coord at Epoch: 06h 28m 25.12691s +23:36:43.07896s
 RUWE (>1.4 is poor) : 1.05
 K magnitude : 13.407
 G magnitude : 15.459
 RP magnitude : 14.775
 BP magnitude : 16.005
 DUPflag : 0
 Distance (au) : 18.142
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -15.61
 Sun-Target sep (deg) : 137.61
 Sun-Moon sep (deg) : 137.57
 B (ring opening deg) : 69.54
 PA of pole (deg) : 69.24
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 0.663
 C/A sky separation (km) : 8730.0
 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_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	2035-02-08T07:13:12.925		49.69	-74.50	51140.55	-16.53		
lambda	I	2035-02-08T07:14:20.244		49.45	-74.48	50026.71	-16.54		
delta	I	2035-02-08T07:16:04.695		49.07	-74.45	48300.35	-16.52		
gamma	I	2035-02-08T07:16:45.338		48.92	-74.44	47629.25	-16.51		
eta	I	2035-02-08T07:17:12.794		48.82	-74.43	47176.12	-16.50		
beta	I	2035-02-08T07:18:45.976		48.49	-74.39	45641.05	-16.48		
alpha	I	2035-02-08T07:19:40.334		48.29	-74.36	44743.06	-16.46		
4	I	2035-02-08T07:21:55.267		47.81	-74.28	42529.46	-16.43		
5	I	2035-02-08T07:22:07.273		47.77	-74.27	42315.25	-16.41		
6	I	2035-02-08T07:22:39.138		47.65	-74.25	41794.94	-16.41		
Uranus	I	2035-02-08T07:38:09.444		44.31	-73.23	25046.31		-20.44	-21.32
Uranus	E	2035-02-08T08:27:53.813		33.65	-66.38	25281.39		14.78	15.45
6	E	2035-02-08T08:44:08.994		30.19	-63.46	41877.51	16.26		
5	E	2035-02-08T08:44:26.687		30.13	-63.40	42161.38	16.27		
4	E	2035-02-08T08:44:53.841		30.03	-63.32	42616.56	16.28		
alpha	E	2035-02-08T08:47:02.326		29.58	-62.92	44704.80	16.31		
beta	E	2035-02-08T08:48:02.038		29.37	-62.73	45679.76	16.32		
eta	E	2035-02-08T08:49:33.751		29.05	-62.44	47176.12	16.34		
gamma	E	2035-02-08T08:50:01.227		28.95	-62.36	47625.07	16.34		
delta	E	2035-02-08T08:50:42.539		28.80	-62.22	48300.35	16.35		
lambda	E	2035-02-08T08:52:28.081		28.43	-61.89	50026.71	16.37		
epsilon	E	2035-02-08T08:53:28.447		28.22	-61.70	51014.86	16.35		

```

target                : Uranus
target radius (km)   : 25559.00
C/A epoch            : 2035-02-08T08:06:51.100
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      : 3383342792160904064
2Mass ID (if available) : 06282513+2336434
ICRS Star Coord at Epoch: 06h 28m 25.12691s +23:36:43.07896s
RUWE (>1.4 is poor) : 1.05
K magnitude          : 13.407
G magnitude          : 15.459
RP magnitude         : 14.775
BP magnitude         : 16.005
DUPflag             : 0
Distance (au)       : 18.142
f0 (km)             : 0.000
g0 (km)             : 0.000
skyplane vel. (km/s) : -15.61
Sun-Target sep (deg) : 137.61
Sun-Moon sep (deg)  : 138.20
B (ring opening deg) : 69.54
PA of pole (deg)    : 69.24
Pole direction: RA (deg): 257.31100
Dec (deg): -15.17500
C/A sky separation (") : 0.845
C/A sky separation (km) : 11118.6
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	2035-02-08T07:18:22.821		83.75	-42.78	51123.70	-16.52		
lambda	I	2035-02-08T07:19:29.154		83.95	-43.04	50026.71	-16.53		
delta	I	2035-02-08T07:21:13.705		84.26	-43.45	48300.35	-16.50		
gamma	I	2035-02-08T07:21:54.393		84.37	-43.61	47629.45	-16.48		
eta	I	2035-02-08T07:22:21.905		84.45	-43.72	47176.12	-16.47		
beta	I	2035-02-08T07:23:55.276		84.70	-44.08	45641.08	-16.44		
alpha	I	2035-02-08T07:24:49.698		84.85	-44.30	44744.18	-16.42		
4	I	2035-02-08T07:27:05.096		85.17	-44.83	42530.43	-16.36		
5	I	2035-02-08T07:27:17.215		85.20	-44.87	42315.10	-16.35		
6	I	2035-02-08T07:27:49.177		85.27	-45.00	41795.21	-16.33		
Uranus	I	2035-02-08T07:43:32.045		86.00	-48.70	25046.71		-20.43	-21.31
Uranus	E	2035-02-08T08:30:31.367		77.48	-59.74	25336.74		13.17	13.78
6	E	2035-02-08T08:47:03.119		73.77	-63.62	41876.54	16.29		
5	E	2035-02-08T08:47:20.971		73.71	-63.69	42163.58	16.31		
4	E	2035-02-08T08:47:47.977		73.61	-63.79	42616.42	16.32		
alpha	E	2035-02-08T08:49:56.154		73.12	-64.29	44706.71	16.38		
beta	E	2035-02-08T08:50:55.476		72.90	-64.53	45679.28	16.40		
eta	E	2035-02-08T08:52:26.746		72.55	-64.88	47176.12	16.43		
gamma	E	2035-02-08T08:52:54.084		72.45	-64.99	47625.37	16.44		
delta	E	2035-02-08T08:53:35.131		72.30	-65.15	48300.35	16.45		
lambda	E	2035-02-08T08:55:19.974		71.90	-65.56	50026.71	16.48		
epsilon	E	2035-02-08T08:56:18.666		71.68	-65.78	50994.49	16.47		