

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2036-02-06T08:20:00.540
 Event type : XRgt
 : No Uranus occs
 : Ring occs: geocentric, topocentric
 Gaia source ID : 3379586035805010304
 2Mass ID (if available) : 06485134+2321183

ICRS Star Coord at Epoch: 06h 48m 51.35978s +23:21:17.92750s

RUWE (>1.4 is poor) : 0.96
 K magnitude : 13.699
 G magnitude : 16.856
 RP magnitude : 15.860
 BP magnitude : 17.862
 DUPflag : 0
 Distance (au) : 18.008
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -17.83
 Sun-Target sep (deg) : 144.58
 Sun-Moon sep (deg) : 41.51
 B (ring opening deg) : 65.15
 PA of pole (deg) : 75.29

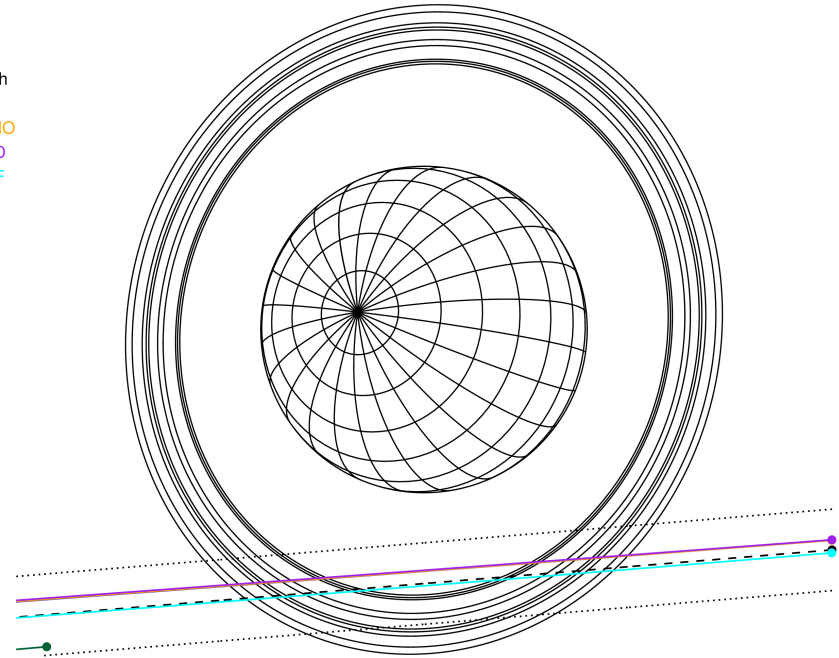
#	a(km)	ring
1	41837.2	6
2	42235.0	5
3	42571.2	4
4	44718.5	alpha
5	45661.1	beta
6	47176.1	eta
7	47626.3	gamma
8	48300.3	delta
9	50026.7	lambda
10	51149.4	epsilon



2036-02-06T08:20:00.5400 α: 06 48 51.3598 δ: +23 21 17.928 C/A 3.029° PA 4.71 deg v_sky -17.84 km/s D 18.01 AU
 Credit: Styled after SORA/Lucky Star

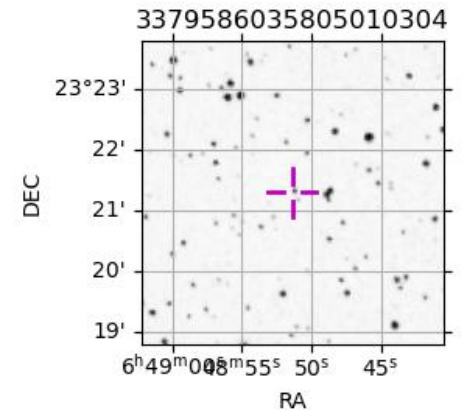
Uranus 2036-02-06T08:20:00 K13.70 G16.86 XRgt

Earth
 PAL
 KPNO
 MCD
 IRTF
 AAT

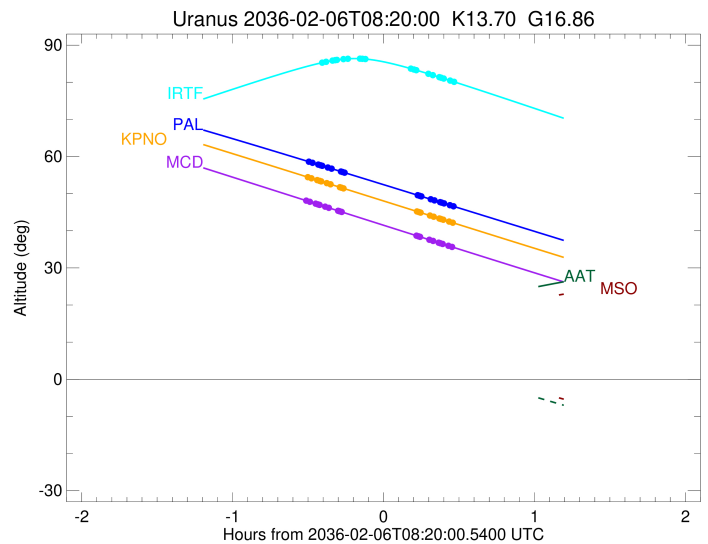
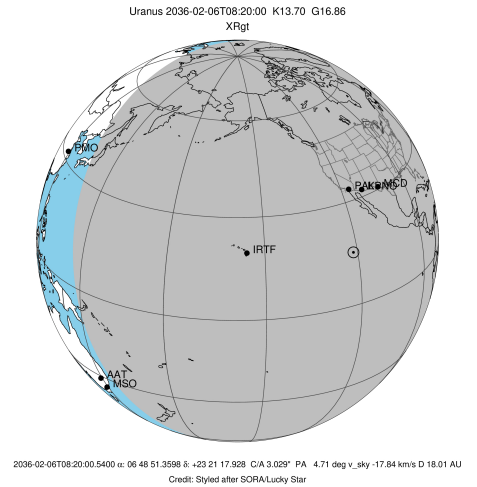


Observable events with sun below -5 deg and altitude above 5 deg unblocked by planet

Obs	Location	lat	Elon	Rings I	Planet	Rings E	Observed Events Interval	OEcode
PIC	Pic du Midi	42.9	0.1				FEB 06 07:50 - FEB 06 08:48	PnnRnn
PAL	Palomar Mt (200")	33.4	243.1	+++++		+++++	FEB 06 07:50 - FEB 06 08:48	PnnRie
PMO	Purple Mtn Obs. Nanki	32.1	118.8				FEB 06 07:50 - FEB 06 08:48	PnnRnn
KPNO	Kitt Peak Natl Obs	32.0	248.4	+++++		+++++	FEB 06 07:50 - FEB 06 08:48	PnnRie
MCD	McDonald Obs. 2.7m	30.7	256.0	+++++		+++++	FEB 06 07:49 - FEB 06 08:47	PnnRie
TEN	Teide Obs./Tenerife	28.3	343.5				FEB 06 07:55 - FEB 06 08:48	PnnRnn
IRTF	Mauna Kea/IRTF	19.8	204.5	+++++		+++++	FEB 06 07:55 - FEB 06 08:48	PnnRie
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 : 2036-02-06T08:17:08.440
 Event type : XRgt
 : No Uranus occs
 : 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 : 3379586035805010304
 2Mass ID (if available) : 06485134+2321183
 ICRS Star Coord at Epoch: 06h 48m 51.35978s +23:21:17.92751s
 RUWE (>1.4 is poor) : 0.96
 K magnitude : 13.699
 G magnitude : 16.856
 RP magnitude : 15.860
 BP magnitude : 17.862
 DUPflag : 0
 Distance (au) : 18.008
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -17.83
 Sun-Target sep (deg) : 144.58
 Sun-Moon sep (deg) : 42.44
 B (ring opening deg) : 65.15
 PA of pole (deg) : 75.29
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 2.891
 C/A sky separation (km) : 37758.0
 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



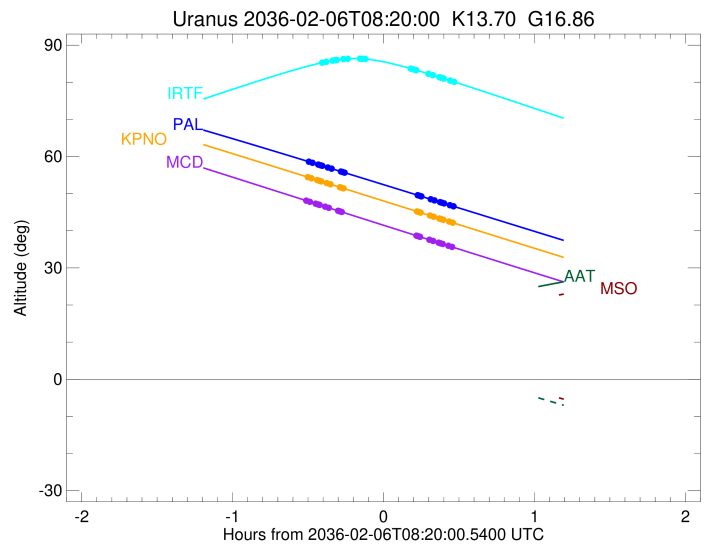
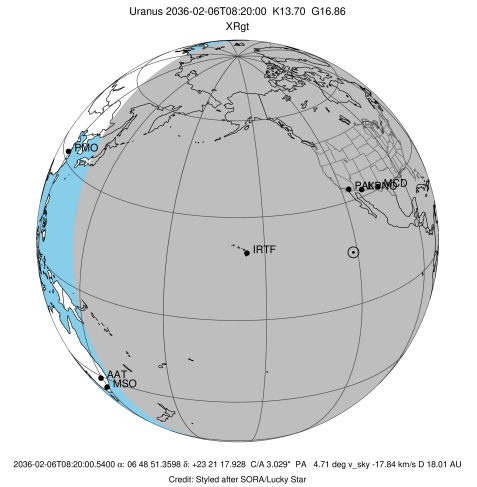
Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2036-02-06T07:50:25.349		58.59	-72.35	51103.79	-13.30		
lambda	I	2036-02-06T07:51:48.167		58.31	-72.39	50026.71	-12.82		
delta	I	2036-02-06T07:54:06.355		57.83	-72.45	48300.35	-12.15		
gamma	I	2036-02-06T07:55:02.543		57.63	-72.47	47625.57	-11.86		
eta	I	2036-02-06T07:55:40.759		57.50	-72.48	47176.12	-11.66		
beta	I	2036-02-06T07:57:56.014		57.03	-72.51	45651.93	-10.89		
alpha	I	2036-02-06T07:59:23.160		56.73	-72.52	44726.26	-10.33		
4	I	2036-02-06T08:03:09.969		55.95	-72.52	42550.23	-8.76		
5	I	2036-02-06T08:03:42.685		55.83	-72.52	42278.28	-8.57		
6	I	2036-02-06T08:04:39.217		55.64	-72.51	41796.88	-8.09		

No planet occultations

6	E	2036-02-06T08:33:30.449		49.60	-71.07	41800.49	8.07		
5	E	2036-02-06T08:34:32.358		49.38	-70.98	42314.82	8.55		
4	E	2036-02-06T08:34:56.638		49.30	-70.94	42526.58	8.74		
alpha	E	2036-02-06T08:38:43.548		48.51	-70.59	44692.61	10.30		
beta	E	2036-02-06T08:40:16.376		48.18	-70.43	45673.93	10.86		
eta	E	2036-02-06T08:42:29.953		47.71	-70.20	47176.12	11.62		
gamma	E	2036-02-06T08:43:08.769		47.58	-70.13	47631.12	11.82		
delta	E	2036-02-06T08:44:04.686		47.38	-70.03	48300.35	12.11		
lambda	E	2036-02-06T08:46:23.395		46.90	-69.77	50026.71	12.77		
epsilon	E	2036-02-06T08:48:20.078		46.49	-69.55	51546.48	13.25		

```

target                : Uranus
target radius (km)   : 25559.00
C/A epoch             : 2036-02-06T08:16:46.640
Event type            : XRgt
: No Uranus occs
: 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        : 3379586035805010304
2Mass ID (if available) : 06485134+2321183
ICRS Star Coord at Epoch: 06h 48m 51.35978s +23:21:17.92751s
RUWE (>1.4 is poor) : 0.96
K magnitude           : 13.699
G magnitude           : 16.856
RP magnitude          : 15.860
BP magnitude          : 17.862
DUPflag              : 0
Distance (au)         : 18.008
f0 (km)               : 0.000
g0 (km)               : 0.000
skyplane vel. (km/s) : -17.83
Sun-Target sep (deg)  : 144.58
Sun-Moon sep (deg)    : 42.46
B (ring opening deg) : 65.15
PA of pole (deg)      : 75.29
Pole direction: RA (deg): 257.31100
Dec (deg): -15.17500
C/A sky separation (") : 2.889
C/A sky separation (km) : 37734.5
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
    
```

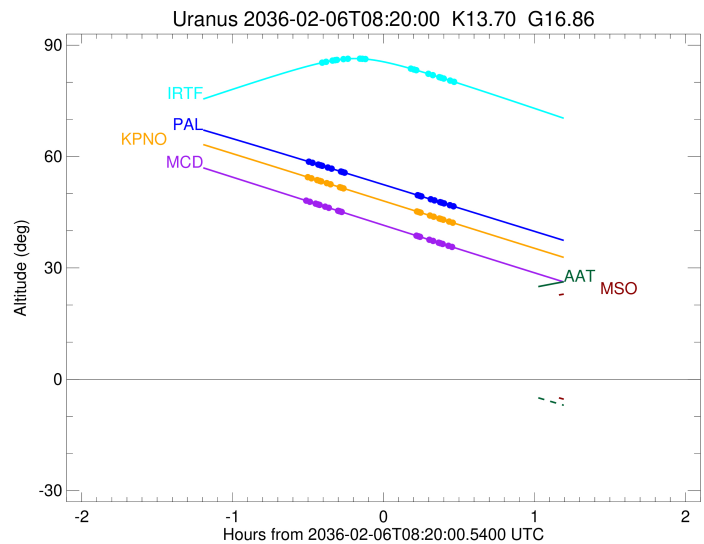
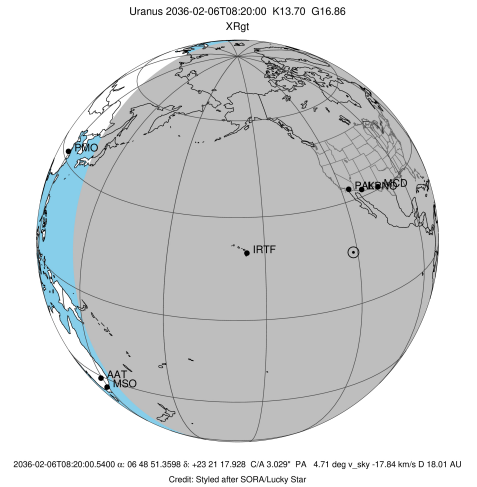


Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2036-02-06T07:50:00.343		54.43	-73.77	51103.71	-13.30		
lambda	I	2036-02-06T07:51:23.156		54.13	-73.72	50026.71	-12.82		
delta	I	2036-02-06T07:53:41.331		53.64	-73.63	48300.35	-12.16		
gamma	I	2036-02-06T07:54:37.506		53.44	-73.59	47625.56	-11.87		
eta	I	2036-02-06T07:55:15.711		53.31	-73.56	47176.12	-11.66		
beta	I	2036-02-06T07:57:30.907		52.83	-73.45	45651.92	-10.90		
alpha	I	2036-02-06T07:58:57.991		52.52	-73.37	44726.28	-10.34		
4	I	2036-02-06T08:02:44.526		51.72	-73.13	42550.26	-8.77		
5	I	2036-02-06T08:03:17.195		51.60	-73.09	42278.22	-8.58		
6	I	2036-02-06T08:04:13.601		51.40	-73.02	41796.90	-8.11		

No planet occultations

6	E	2036-02-06T08:33:12.338		45.23	-69.91	41800.53	8.09		
5	E	2036-02-06T08:34:14.131		45.01	-69.77	42314.83	8.56		
4	E	2036-02-06T08:34:38.369		44.92	-69.71	42526.57	8.75		
alpha	E	2036-02-06T08:38:25.060		44.12	-69.18	44692.58	10.31		
beta	E	2036-02-06T08:39:57.857		43.79	-68.95	45673.95	10.86		
eta	E	2036-02-06T08:42:11.417		43.31	-68.62	47176.12	11.62		
gamma	E	2036-02-06T08:42:50.236		43.18	-68.52	47631.13	11.82		
delta	E	2036-02-06T08:43:46.160		42.98	-68.38	48300.35	12.11		
lambda	E	2036-02-06T08:46:04.908		42.49	-68.03	50026.71	12.77		
epsilon	E	2036-02-06T08:48:01.650		42.07	-67.73	51546.58	13.24		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2036-02-06T08:16:19.540
 Event type : XRgt
 : No Uranus occs
 : 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 : 3379586035805010304
 2Mass ID (if available) : 06485134+2321183
 ICRS Star Coord at Epoch: 06h 48m 51.35978s +23:21:17.92751s
 RUWE (>1.4 is poor) : 0.96
 K magnitude : 13.699
 G magnitude : 16.856
 RP magnitude : 15.860
 BP magnitude : 17.862
 DUPflag : 0
 Distance (au) : 18.008
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -17.83
 Sun-Target sep (deg) : 144.58
 Sun-Moon sep (deg) : 42.46
 B (ring opening deg) : 65.15
 PA of pole (deg) : 75.29
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 2.879
 C/A sky separation (km) : 37607.9
 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

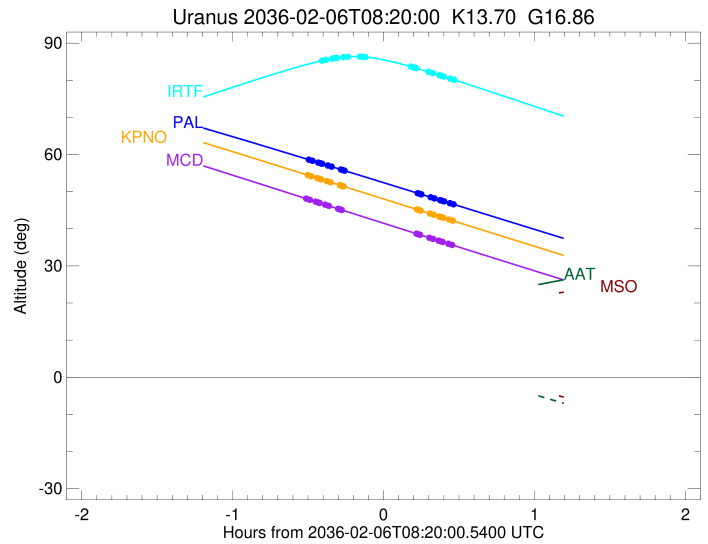
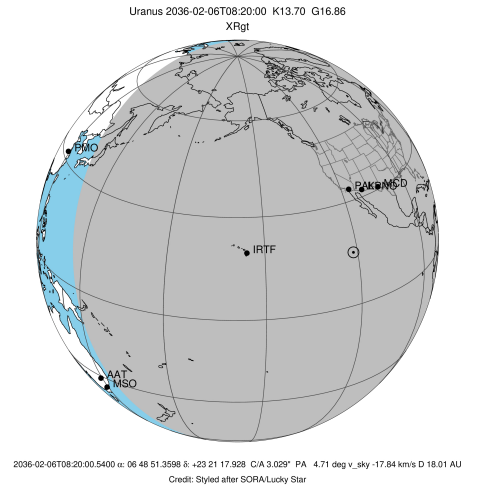


Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2036-02-06T07:49:22.534		48.10	-72.68	51102.46	-13.34		
lambda	I	2036-02-06T07:50:45.025		47.80	-72.51	50026.71	-12.86		
delta	I	2036-02-06T07:53:02.732		47.31	-72.23	48300.35	-12.20		
gamma	I	2036-02-06T07:53:58.683		47.11	-72.11	47625.54	-11.92		
eta	I	2036-02-06T07:54:36.717		46.97	-72.03	47176.12	-11.71		
beta	I	2036-02-06T07:56:51.214		46.49	-71.73	45651.84	-10.96		
alpha	I	2036-02-06T07:58:17.711		46.17	-71.53	44726.44	-10.42		
4	I	2036-02-06T08:02:02.152		45.37	-71.01	42550.51	-8.88		
5	I	2036-02-06T08:02:34.510		45.25	-70.93	42277.79	-8.69		
6	I	2036-02-06T08:03:30.079		45.05	-70.80	41796.99	-8.23		

No planet occultations

6	E	2036-02-06T08:33:01.074		38.70	-65.93	41800.70	8.21		
5	E	2036-02-06T08:34:02.044		38.48	-65.74	42314.89	8.67		
4	E	2036-02-06T08:34:25.974		38.40	-65.67	42526.51	8.85		
alpha	E	2036-02-06T08:38:10.643		37.60	-64.99	44692.45	10.38		
beta	E	2036-02-06T08:39:42.897		37.27	-64.70	45674.04	10.92		
eta	E	2036-02-06T08:41:55.810		36.79	-64.29	47176.12	11.67		
gamma	E	2036-02-06T08:42:34.476		36.65	-64.17	47631.14	11.87		
delta	E	2036-02-06T08:43:30.200		36.45	-64.00	48300.35	12.15		
lambda	E	2036-02-06T08:45:48.549		35.96	-63.56	50026.71	12.80		
epsilon	E	2036-02-06T08:47:45.070		35.55	-63.19	51546.94	13.27		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2036-02-06T08:19:47.900
 Event type : XRgt
 : No Uranus occs
 : 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 : 3379586035805010304
 2Mass ID (if available) : 06485134+2321183
 ICRS Star Coord at Epoch: 06h 48m 51.35978s +23:21:17.92750s
 RUWE (>1.4 is poor) : 0.96
 K magnitude : 13.699
 G magnitude : 16.856
 RP magnitude : 15.860
 BP magnitude : 17.862
 DUPflag : 0
 Distance (au) : 18.008
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -17.83
 Sun-Target sep (deg) : 144.58
 Sun-Moon sep (deg) : 42.20
 B (ring opening deg) : 65.15
 PA of pole (deg) : 75.29
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 3.065
 C/A sky separation (km) : 40025.9
 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	2036-02-06T07:55:40.783		85.30	-51.74	51130.33	-12.32		
lambda	I	2036-02-06T07:57:12.977		85.52	-52.10	50026.71	-11.74		
delta	I	2036-02-06T07:59:45.394		85.84	-52.69	48300.35	-10.90		
gamma	I	2036-02-06T08:00:48.311		85.96	-52.94	47626.00	-10.53		
eta	I	2036-02-06T08:01:31.567		86.03	-53.11	47176.12	-10.27		
beta	I	2036-02-06T08:04:07.507		86.24	-53.72	45653.67	-9.26		
alpha	I	2036-02-06T08:05:52.152		86.34	-54.13	44722.78	-8.50		
4	I	2036-02-06T08:10:46.821		86.36	-55.29	42544.85	-6.18		
5	I	2036-02-06T08:11:31.208		86.33	-55.46	42287.63	-5.85		
6	I	2036-02-06T08:13:00.250		86.25	-55.81	41795.27	-5.04		

No planet occultations

6	E	2036-02-06T08:30:42.339		83.72	-59.98	41797.41	5.04		
5	E	2036-02-06T08:32:16.758		83.41	-60.34	42312.60	5.85		
4	E	2036-02-06T08:32:52.591		83.29	-60.49	42528.19	6.18		
alpha	E	2036-02-06T08:37:46.950		82.31	-61.64	44695.23	8.50		
beta	E	2036-02-06T08:39:37.043		81.93	-62.07	45672.27	9.26		
eta	E	2036-02-06T08:42:10.984		81.39	-62.67	47176.12	10.26		
gamma	E	2036-02-06T08:42:54.738		81.23	-62.84	47630.91	10.53		
delta	E	2036-02-06T08:43:57.234		81.01	-63.09	48300.35	10.89		
lambda	E	2036-02-06T08:46:29.775		80.46	-63.68	50026.71	11.73		
epsilon	E	2036-02-06T08:48:35.381		80.01	-64.17	51539.23	12.31		