

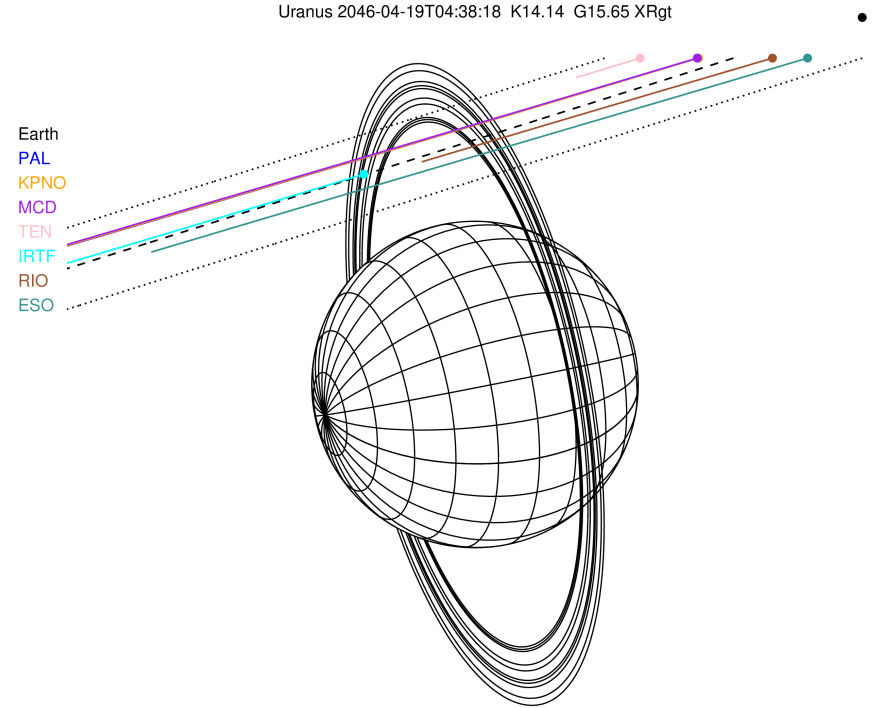
target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2046-04-19T04:38:18.730
 Event type : XRgt
 : No Uranus occs
 : Ring occs: geocentric, topocentric
 Gaia source ID : 614967131272164864
 2Mass ID (if available) : 09574305+1315140

ICRS Star Coord at Epoch: 09h 57m 43.05966s +13:15:13.47493s
 RUWE (>1.4 is poor) : 1.00
 K magnitude : 14.142
 G magnitude : 15.648
 RP magnitude : 15.132
 BP magnitude : 15.991
 DUPflag : 0
 Distance (au) : 17.835
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -7.39
 Sun-Target sep (deg) : 118.28
 Sun-Moon sep (deg) : 40.03
 B (ring opening deg) : 20.39
 PA of pole (deg) : 101.50

#	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

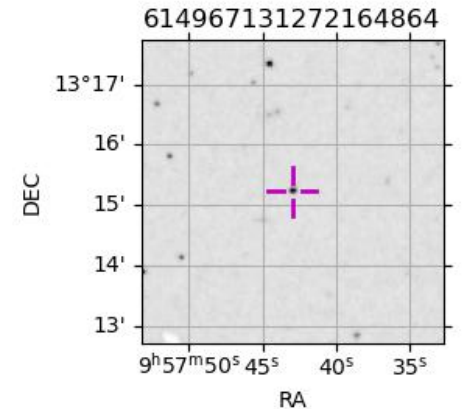


2046-04-19T04:38:18.7300 α: 09 57 43.0597 β: +13 15 13.475 C/A 2.816° PA 198.77 deg v_sky - 7.39 km/s D 17.84 AU
 Credit: Styled after SORA/Lucky Star

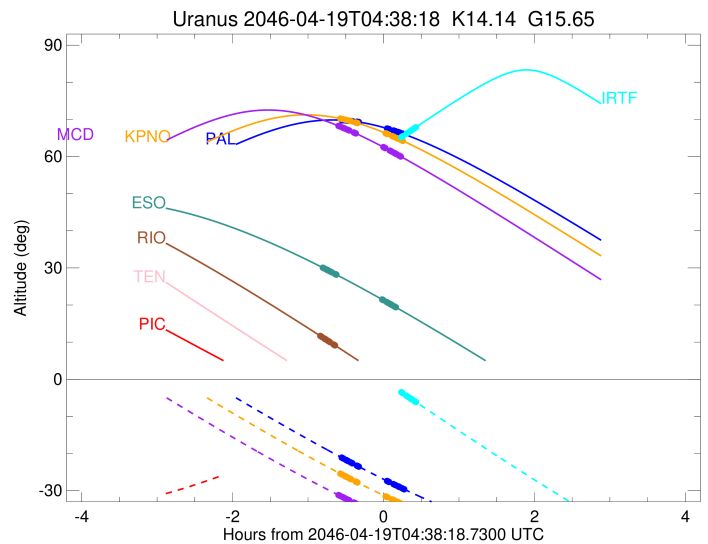
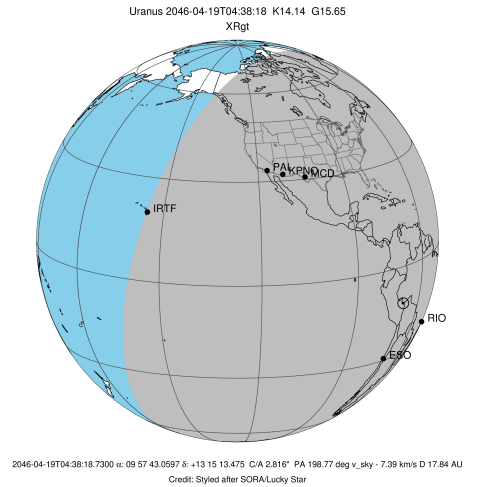


Observable events with sun below -5 deg and altitude above 5 deg unblocked by planet

Obs	Location	lat	Elon	Rings I	Planet	Rings E	Observed Events Interval	OEncode
PIC	Pic du Midi	42.9	0.1					PnnRnn
PAL	Palomar Mt (200")	33.4	243.1	+++++		+++++	APR 19 04:05 - APR 19 04:54	PnnRie
PNO	Purple Mtn Obs. Nanki	32.1	118.8					PnnRnn
KPNO	Kitt Peak Natl Obs	32.0	248.4	+++++		+++++	APR 19 04:04 - APR 19 04:53	PnnRie
MCD	McDonald Obs. 2.7m	30.7	256.0	+++++		+++++	APR 19 04:03 - APR 19 04:51	PnnRie
TEN	Teide Obs./Tenerife	28.3	343.5					PnnRnn
IRTF	Mauna Kea/IRTF	19.8	204.5			++++	APR 19 04:59 - APR 19 05:03	PnnRne
KAV	Kavalur Observatory	12.6	78.8					PnnRnn
RIO	Rio de Janeiro	-22.9	316.8	+++++			APR 19 03:48 - APR 19 03:59	PnnRin
ESO	European Southern Obs	-29.3	289.3	+++++		+++++	APR 19 03:50 - APR 19 04:47	PnnRie
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 : 2046-04-19T04:36:25.350
 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 : 614967131272164864
 2Mass ID (if available) : 09574305+1315140
 ICRS Star Coord at Epoch: 09h 57m 43.05966s +13:15:13.47493s
 RUWE (>1.4 is poor) : 1.00
 K magnitude : 14.142
 G magnitude : 15.648
 RP magnitude : 15.132
 BP magnitude : 15.991
 DUPflag : 0
 Distance (au) : 17.835
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -7.39
 Sun-Target sep (deg) : 118.28
 Sun-Moon sep (deg) : 40.67
 B (ring opening deg) : 20.39
 PA of pole (deg) : 101.50
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 3.009
 C/A sky separation (km) : 38929.0
 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

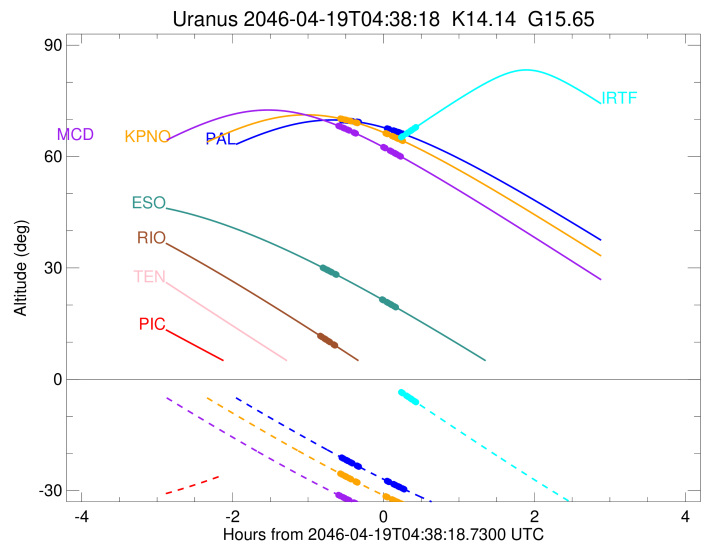
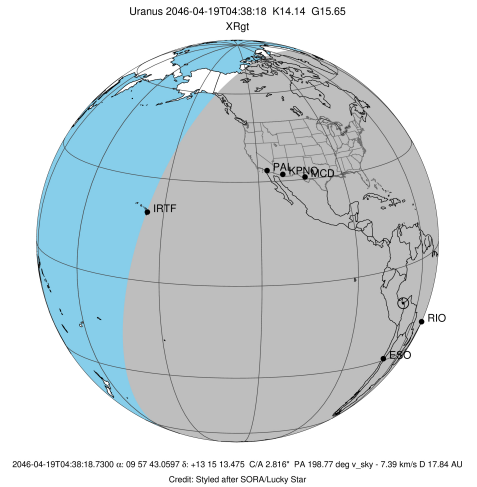


Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2046-04-19T04:05:34.482		69.77	-21.20	50781.88	-14.13		
lambda	I	2046-04-19T04:06:28.305		69.75	-21.36	50026.71	-13.87		
delta	I	2046-04-19T04:08:36.470		69.70	-21.75	48300.35	-13.05		
gamma	I	2046-04-19T04:09:29.213		69.67	-21.90	47621.25	-12.69		
eta	I	2046-04-19T04:10:04.628		69.66	-22.01	47176.12	-12.44		
beta	I	2046-04-19T04:12:12.548		69.58	-22.39	45647.46	-11.49		
alpha	I	2046-04-19T04:13:38.249		69.53	-22.65	44684.63	-10.76		
4	I	2046-04-19T04:17:08.651		69.37	-23.27	42597.96	-8.81		
5	I	2046-04-19T04:17:50.531		69.34	-23.39	42293.34	-8.53		
6	I	2046-04-19T04:18:47.578		69.29	-23.56	41813.49	-7.90		

No planet occultations

6	E	2046-04-19T04:41:02.180		67.56	-27.38	41796.10	7.89		
5	E	2046-04-19T04:42:08.346		67.45	-27.56	42315.22	8.52		
4	E	2046-04-19T04:42:33.107		67.41	-27.63	42562.91	8.79		
alpha	E	2046-04-19T04:46:14.605		67.01	-28.24	44701.31	10.73		
beta	E	2046-04-19T04:47:40.500		66.85	-28.48	45667.78	11.45		
eta	E	2046-04-19T04:49:47.150		66.61	-28.82	47176.12	12.40		
gamma	E	2046-04-19T04:50:22.810		66.54	-28.92	47622.90	12.65		
delta	E	2046-04-19T04:51:15.599		66.44	-29.06	48300.35	13.01		
lambda	E	2046-04-19T04:53:24.225		66.18	-29.41	50026.71	13.82		
epsilon	E	2046-04-19T04:54:27.284		66.05	-29.58	50909.72	14.08		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2046-04-19T04:35:14.360
 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 : 614967131272164864
 2Mass ID (if available) : 09574305+1315140
 ICRS Star Coord at Epoch: 09h 57m 43.05966s +13:15:13.47493s
 RUWE (>1.4 is poor) : 1.00
 K magnitude : 14.142
 G magnitude : 15.648
 RP magnitude : 15.132
 BP magnitude : 15.991
 DUPflag : 0
 Distance (au) : 17.835
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -7.39
 Sun-Target sep (deg) : 118.28
 Sun-Moon sep (deg) : 40.60
 B (ring opening deg) : 20.39
 PA of pole (deg) : 101.50
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 3.012
 C/A sky separation (km) : 38956.1
 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_itrf93_040916.bsp
 earth_720101_070426.bpc
 earth_200101_990628_predict.bpc
 pg3f0000r.bsp
 pg490000r.bsp
 naif0012.tls
 earth_flat_IAU.spk

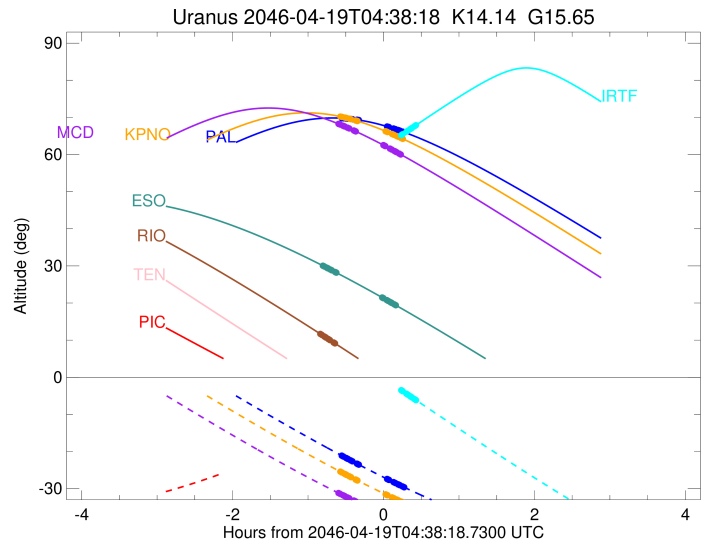
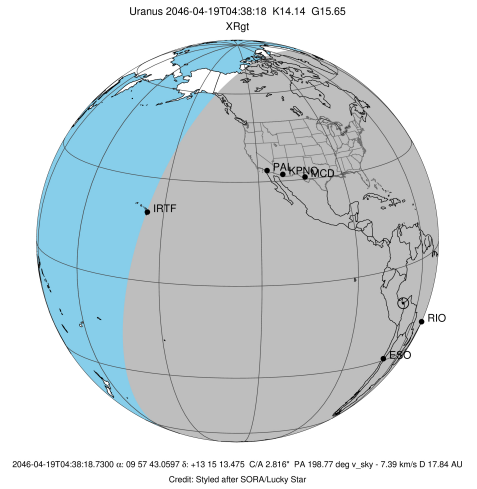


Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2046-04-19T04:04:28.485		70.19	-25.51	50781.81	-14.12		
lambda	I	2046-04-19T04:05:22.341		70.12	-25.67	50026.71	-13.86		
delta	I	2046-04-19T04:07:30.618		69.96	-26.04	48300.35	-13.04		
gamma	I	2046-04-19T04:08:23.417		69.88	-26.20	47621.24	-12.68		
eta	I	2046-04-19T04:08:58.873		69.83	-26.30	47176.12	-12.43		
beta	I	2046-04-19T04:11:06.972		69.65	-26.68	45647.47	-11.47		
alpha	I	2046-04-19T04:12:32.828		69.52	-26.93	44684.63	-10.74		
4	I	2046-04-19T04:16:03.776		69.18	-27.54	42597.92	-8.78		
5	I	2046-04-19T04:16:45.767		69.11	-27.66	42293.40	-8.50		
6	I	2046-04-19T04:17:43.058		69.01	-27.82	41813.45	-7.87		

No planet occultations

6	E	2046-04-19T04:39:52.177		66.29	-31.52	41796.12	7.85		
5	E	2046-04-19T04:40:58.620		66.13	-31.70	42315.22	8.48		
4	E	2046-04-19T04:41:23.489		66.07	-31.77	42562.98	8.76		
alpha	E	2046-04-19T04:45:05.658		65.54	-32.36	44701.27	10.71		
beta	E	2046-04-19T04:46:31.767		65.32	-32.58	45667.75	11.43		
eta	E	2046-04-19T04:48:38.686		65.00	-32.92	47176.12	12.38		
gamma	E	2046-04-19T04:49:14.415		64.91	-33.01	47622.90	12.63		
delta	E	2046-04-19T04:50:07.303		64.78	-33.15	48300.35	12.99		
lambda	E	2046-04-19T04:52:16.152		64.45	-33.48	50026.71	13.80		
epsilon	E	2046-04-19T04:53:19.289		64.28	-33.64	50909.38	14.05		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2046-04-19T04:33:38.630
 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 : 614967131272164864
 2Mass ID (if available) : 09574305+1315140
 ICRS Star Coord at Epoch: 09h 57m 43.05966s +13:15:13.47493s
 RUWE (>1.4 is poor) : 1.00
 K magnitude : 14.142
 G magnitude : 15.648
 RP magnitude : 15.132
 BP magnitude : 15.991
 DUPflag : 0
 Distance (au) : 17.835
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -7.39
 Sun-Target sep (deg) : 118.28
 Sun-Moon sep (deg) : 40.50
 B (ring opening deg) : 20.39
 PA of pole (deg) : 101.50
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 3.021
 C/A sky separation (km) : 39077.8
 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



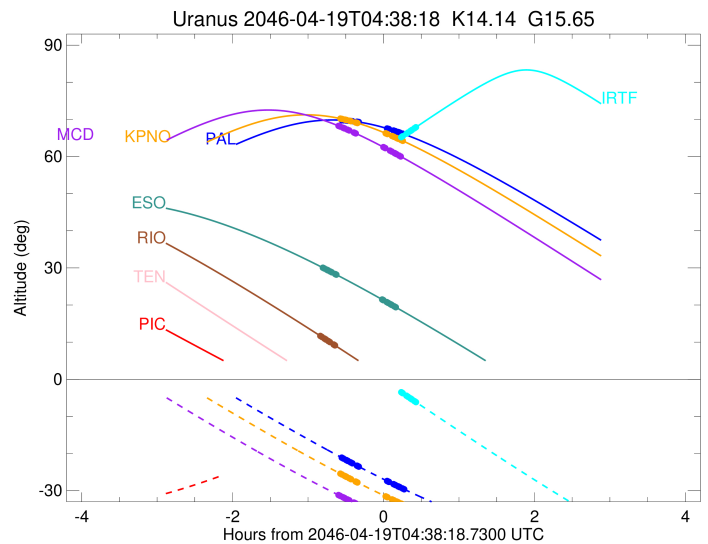
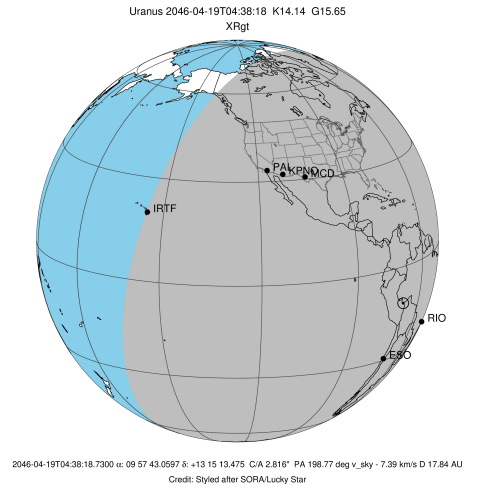
Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2046-04-19T04:03:00.191		68.19	-31.26	50781.24	-14.05		
lambda	I	2046-04-19T04:03:54.300		68.07	-31.41	50026.71	-13.78		
delta	I	2046-04-19T04:06:03.366		67.76	-31.77	48300.35	-12.95		
gamma	I	2046-04-19T04:06:56.535		67.64	-31.92	47621.24	-12.59		
eta	I	2046-04-19T04:07:32.255		67.55	-32.02	47176.12	-12.33		
beta	I	2046-04-19T04:09:41.437		67.23	-32.38	45647.54	-11.36		
alpha	I	2046-04-19T04:11:08.197		67.02	-32.62	44684.63	-10.62		
4	I	2046-04-19T04:14:42.166		66.47	-33.20	42597.67	-8.63		
5	I	2046-04-19T04:15:24.732		66.36	-33.31	42293.79	-8.34		
6	I	2046-04-19T04:16:23.339		66.21	-33.47	41813.17	-7.69		

No planet occultations

6	E	2046-04-19T04:38:05.640		62.56	-36.84	41796.21	7.67		
5	E	2046-04-19T04:39:13.466		62.36	-37.01	42315.24	8.32		
4	E	2046-04-19T04:39:38.866		62.29	-37.07	42563.31	8.60		
alpha	E	2046-04-19T04:43:24.258		61.61	-37.62	44701.10	10.58		
beta	E	2046-04-19T04:44:51.355		61.34	-37.83	45667.65	11.31		
eta	E	2046-04-19T04:46:59.488		60.95	-38.14	47176.12	12.27		
gamma	E	2046-04-19T04:47:35.521		60.84	-38.22	47622.88	12.52		
delta	E	2046-04-19T04:48:28.839		60.68	-38.35	48300.35	12.89		
lambda	E	2046-04-19T04:50:38.636		60.27	-38.65	50026.71	13.70		
epsilon	E	2046-04-19T04:51:42.104		60.08	-38.80	50908.08	13.96		

```

target                : Uranus
target radius (km)   : 25559.00
C/A epoch            : 2046-04-19T04:43:59.420
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      : 614967131272164864
2Mass ID (if available) : 09574305+1315140
ICRS Star Coord at Epoch: 09h 57m 43.05966s +13:15:13.47493s
RUWE (>1.4 is poor) : 1.00
K magnitude          : 14.142
G magnitude          : 15.648
RP magnitude         : 15.132
BP magnitude         : 15.991
DUPflag             : 0
Distance (au)       : 17.835
f0 (km)              : 0.000
g0 (km)              : 0.000
skyplane vel. (km/s) : -7.39
Sun-Target sep (deg) : 118.28
Sun-Moon sep (deg)  : 40.97
B (ring opening deg) : 20.39
PA of pole (deg)    : 101.50
Pole direction: RA (deg): 257.31100
Dec (deg): -15.17500
C/A sky separation (") : 2.827
C/A sky separation (km) : 36564.2
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
    
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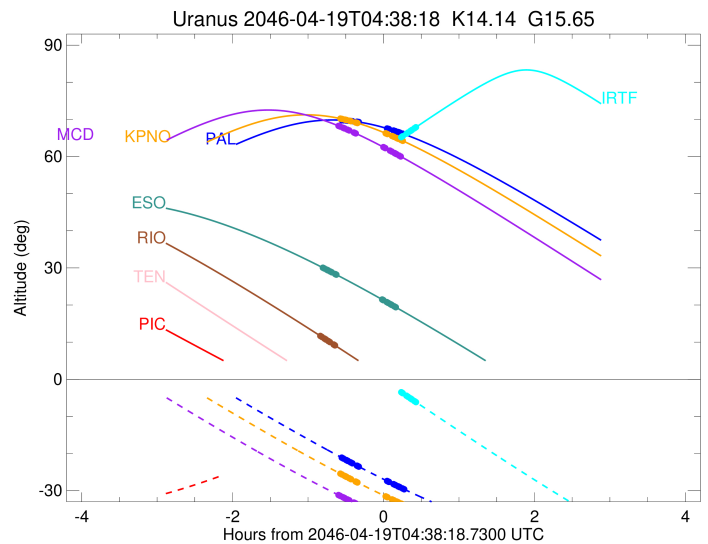
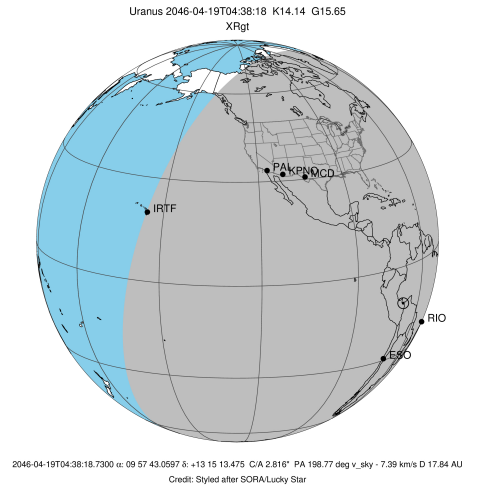


Ring	I/E	UTC	b? alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2046-04-19T04:11:03.455	55.55	6.06x	50794.17	-15.25		
lambda	I	2046-04-19T04:11:54.004	55.75	5.86x	50026.71	-15.05		
delta	I	2046-04-19T04:13:51.196	56.21	5.41x	48300.35	-14.40		
gamma	I	2046-04-19T04:14:38.816	56.39	5.22x	47621.40	-14.11		
eta	I	2046-04-19T04:15:10.586	56.52	5.10x	47176.12	-13.92		
beta	I	2046-04-19T04:17:03.734	56.96	4.66x	45646.20	-13.18		
alpha	I	2046-04-19T04:18:17.253	57.25	4.38x	44684.70	-12.62		
4	I	2046-04-19T04:21:09.612	57.92	3.72x	42602.14	-11.22		
5	I	2046-04-19T04:21:45.045	58.06	3.58x	42286.10	-11.05		
6	I	2046-04-19T04:22:27.129	58.22	3.42x	41818.35	-10.62		

No planet occultations

6	E	2046-04-19T04:52:19.660	65.18	-3.46x	41795.03	10.64		
5	E	2046-04-19T04:53:10.375	65.37	-3.65x	42314.26	11.07		
4	E	2046-04-19T04:53:29.291	65.45	-3.73x	42557.45	11.24		
alpha	E	2046-04-19T04:56:31.517	66.15	-4.42x	44704.37	12.66		
beta	E	2046-04-19T04:57:44.797	66.43	-4.70x	45669.54	13.21		
eta	E	2046-04-19T04:59:35.972	66.86	-5.12	47176.12	13.96		
gamma	E	2046-04-19T05:00:07.778	66.98	-5.24	47623.26	14.16		
delta	E	2046-04-19T05:00:55.121	67.16	-5.43	48300.35	14.44		
lambda	E	2046-04-19T05:02:51.931	67.60	-5.87	50026.71	15.10		
epsilon	E	2046-04-19T05:03:51.378	67.83	-6.10	50933.77	15.30		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2046-04-19T04:22:50.210
 Event type : XRgt
 : No Uranus occs
 : 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 : 614967131272164864
 2Mass ID (if available) : 09574305+1315140
 ICRS Star Coord at Epoch: 09h 57m 43.05966s +13:15:13.47493s
 RUWE (>1.4 is poor) : 1.00
 K magnitude : 14.142
 G magnitude : 15.648
 RP magnitude : 15.132
 BP magnitude : 15.991
 DUPflag : 0
 Distance (au) : 17.835
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -7.39
 Sun-Target sep (deg) : 118.28
 Sun-Moon sep (deg) : 39.26
 B (ring opening deg) : 20.39
 PA of pole (deg) : 101.50
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 2.767
 C/A sky separation (km) : 35792.8
 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

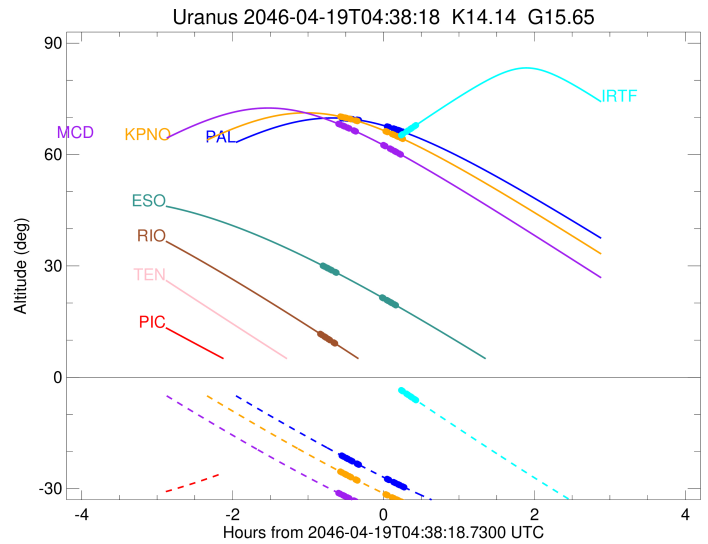
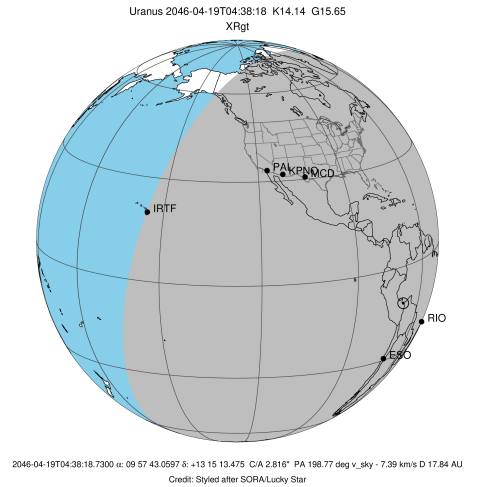


Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2046-04-19T03:48:30.224		11.59	-72.25	50799.15	-15.11		
lambda	I	2046-04-19T03:49:21.547		11.40	-72.10	50026.71	-14.93		
delta	I	2046-04-19T03:51:19.512		10.97	-71.74	48300.35	-14.33		
gamma	I	2046-04-19T03:52:07.319		10.80	-71.59	47621.46	-14.07		
eta	I	2046-04-19T03:52:39.174		10.68	-71.49	47176.12	-13.89		
beta	I	2046-04-19T03:54:32.312		10.27	-71.14	45645.79	-13.22		
alpha	I	2046-04-19T03:55:45.294		10.00	-70.91	44684.79	-12.72		
4	I	2046-04-19T03:58:35.040		9.38	-70.37	42603.37	-11.48		
5	I	2046-04-19T03:59:10.487		9.25	-70.25	42283.68	-11.33		
6	I	2046-04-19T03:59:51.068		9.11	-70.12	41819.89	-10.96		

No planet occultations

6	E	2046-04-19T04:33:11.171	1.72x	-63.26	41794.88	10.85			
5	E	2046-04-19T04:34:01.211	1.53x	-63.08	42313.76	11.22			
4	E	2046-04-19T04:34:19.925	1.47x	-63.01	42555.97	11.36			
alpha	E	2046-04-19T04:37:22.229	0.79x	-62.36	44705.27	12.57			
beta	E	2046-04-19T04:38:36.086	0.51x	-62.09	45670.03	13.06			
eta	E	2046-04-19T04:40:28.971	0.09x	-61.68	47176.12	13.70			
gamma	E	2046-04-19T04:41:01.406	-0.03x	-61.56	47623.36	13.87			
delta	E	2046-04-19T04:41:49.758	-0.21x	-61.39	48300.35	14.13			
lambda	E	2046-04-19T04:43:49.501	-0.66x	-60.95	50026.71	14.70			
epsilon	E	2046-04-19T04:44:51.131	-0.89x	-60.73	50941.04	14.87			

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2046-04-19T04:24:42.860
 Event type : XRgt
 : No Uranus occs
 : 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 : 614967131272164864
 2Mass ID (if available) : 09574305+1315140
 ICRS Star Coord at Epoch: 09h 57m 43.05966s +13:15:13.47493s
 RUWE (>1.4 is poor) : 1.00
 K magnitude : 14.142
 G magnitude : 15.648
 RP magnitude : 15.132
 BP magnitude : 15.991
 DUPflag : 0
 Distance (au) : 17.835
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -7.39
 Sun-Target sep (deg) : 118.28
 Sun-Moon sep (deg) : 39.55
 B (ring opening deg) : 20.39
 PA of pole (deg) : 101.50
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 2.651
 C/A sky separation (km) : 34296.3
 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	2046-04-19T03:50:30.562		29.98	-68.46	50808.10	-16.05		
lambda	I	2046-04-19T03:51:19.376		29.84	-68.56	50026.71	-15.90		
delta	I	2046-04-19T03:53:09.798		29.52	-68.80	48300.35	-15.36		
gamma	I	2046-04-19T03:53:54.316		29.39	-68.89	47621.57	-15.13		
eta	I	2046-04-19T03:54:23.912		29.31	-68.95	47176.12	-14.97		
beta	I	2046-04-19T03:56:08.498		29.00	-69.16	45645.12	-14.38		
alpha	I	2046-04-19T03:57:15.123		28.81	-69.30	44685.04	-13.94		
4	I	2046-04-19T03:59:48.226		28.36	-69.59	42605.35	-12.87		
5	I	2046-04-19T04:00:21.021		28.26	-69.65	42279.40	-12.75		
6	I	2046-04-19T04:00:56.436		28.16	-69.72	41822.57	-12.43		

No planet occultations

6	E	2046-04-19T04:37:08.254		21.51	-72.10	41794.75	12.33		
5	E	2046-04-19T04:37:52.658		21.37	-72.11	42312.64	12.64		
4	E	2046-04-19T04:38:09.431		21.31	-72.11	42553.37	12.76		
alpha	E	2046-04-19T04:40:54.182		20.79	-72.13	44706.96	13.80		
beta	E	2046-04-19T04:42:01.483		20.57	-72.13	45670.93	14.23		
eta	E	2046-04-19T04:43:45.490		20.24	-72.13	47176.12	14.81		
gamma	E	2046-04-19T04:44:15.555		20.14	-72.13	47623.57	14.96		
delta	E	2046-04-19T04:45:00.457		20.00	-72.12	48300.35	15.18		
lambda	E	2046-04-19T04:46:52.227		19.64	-72.10	50026.71	15.70		
epsilon	E	2046-04-19T04:47:50.890		19.45	-72.08	50955.02	15.85		