

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2038-12-22T13:58:14.230
 Event type : XRgt
 : No Uranus occs
 : Ring occs: geocentric, topocentric
 Gaia source ID : 673883602855486080
 2Mass ID (if available) : 07574257+2114238

ICRS Star Coord at Epoch: 07h 57m 42.57904s +21:14:23.58911s

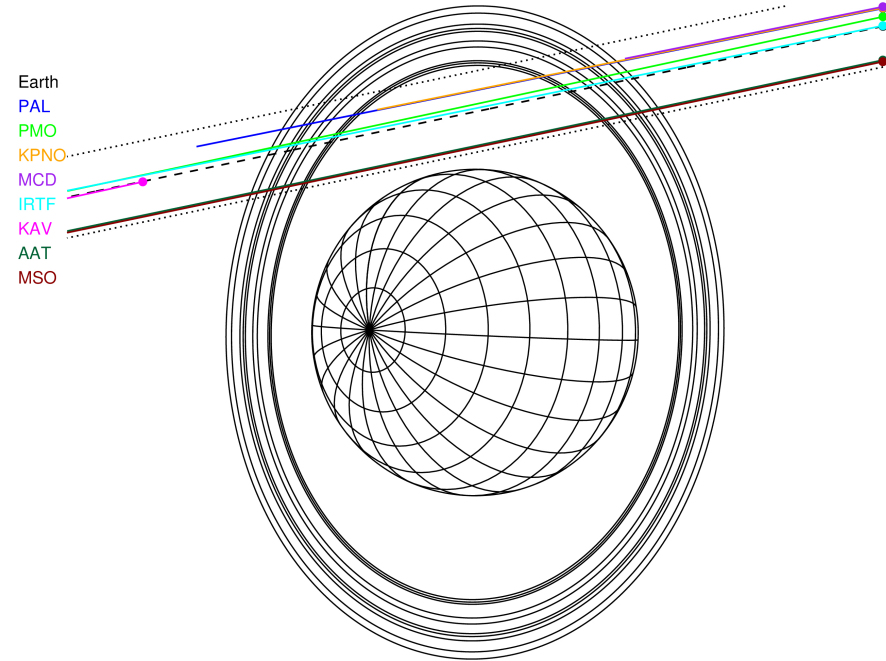
RUWE (>1.4 is poor) : 1.06
 K magnitude : 10.852
 G magnitude : 13.320
 RP magnitude : 12.580
 BP magnitude : 13.926
 DUPflag : 0
 Distance (au) : 17.767
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -20.02
 Sun-Target sep (deg) : 153.01
 Sun-Moon sep (deg) : 105.17
 B (ring opening deg) : 49.65
 PA of pole (deg) : 88.64

#	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



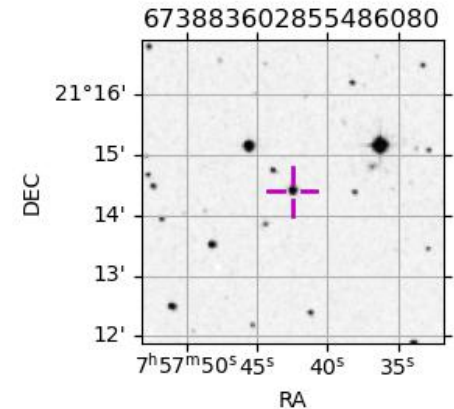
2038-12-22T13:58:14.2300 ra: 07 57 42.5790 s: +21 14 23.589 C/A 2.635° PA 191.84 deg v_sky -20.02 km/s D 17.77 AU
 Credit: Styled after SORA/Lucky Star

Uranus 2038-12-22T13:58:14 K10.85 G13.32 XRgt

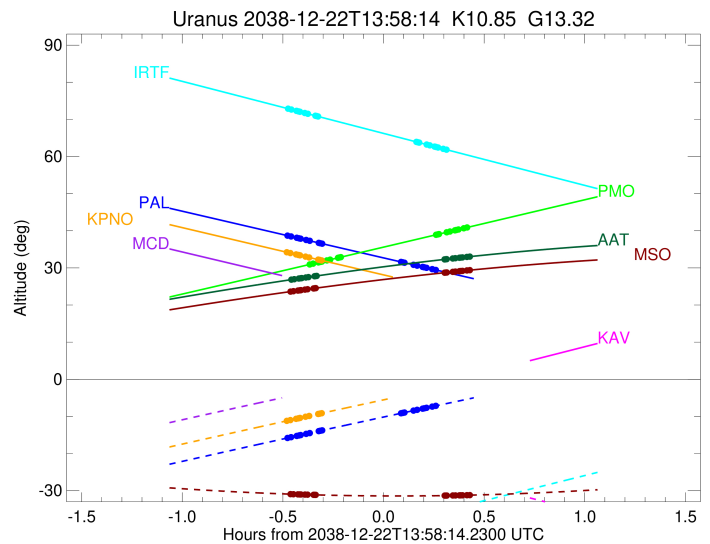
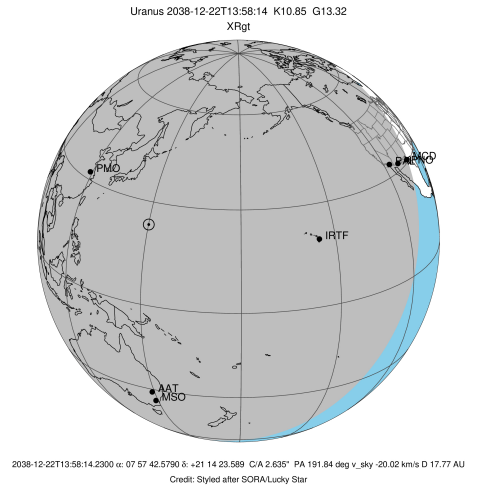


Observable events with sun below -5 deg and altitude above 5 deg unblocked by planet

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	+++++		+++++	DEC 22 13:29 - DEC 22 14:13	PnnRie
PMO	Purple Mtn Obs. Nanki	32.1	118.8	+++++		+++++	DEC 22 13:36 - DEC 22 14:23	PnnRie
KPNO	Kitt Peak Natl Obs	32.0	248.4	+++++			DEC 22 13:29 - DEC 22 13:39	PnnRin
MCD	McDonald Obs. 2.7m	30.7	256.0					PnnRnn
TEN	Teide Obs./Tenerife	28.3	343.5					PnnRnn
IRTF	Mauna Kea/IRTF	19.8	204.5	+++++		+++++	DEC 22 13:30 - DEC 22 14:17	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	+++++		+++++	DEC 22 13:31 - DEC 22 14:24	PnnRie
SAAO	So. Afr. Astro. Obs.	-32.4	20.8					PnnRnn
MSO	Mt. Stromlo Observato	-35.3	149.0	+++++		+++++	DEC 22 13:30 - DEC 22 14:24	PnnRie



target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2038-12-22T13:54:32.160
 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 : 673883602855486080
 2Mass ID (if available) : 07574257+2114238
 ICRS Star Coord at Epoch: 07h 57m 42.57904s +21:14:23.58911s
 RUWE (>1.4 is poor) : 1.06
 K magnitude : 10.852
 G magnitude : 13.320
 RP magnitude : 12.580
 BP magnitude : 13.926
 DUPflag : 0
 Distance (au) : 17.767
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -20.02
 Sun-Target sep (deg) : 153.01
 Sun-Moon sep (deg) : 105.89
 B (ring opening deg) : 49.65
 PA of pole (deg) : 88.64
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 2.883
 C/A sky separation (km) : 37147.7
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk
 URKALLvl1.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

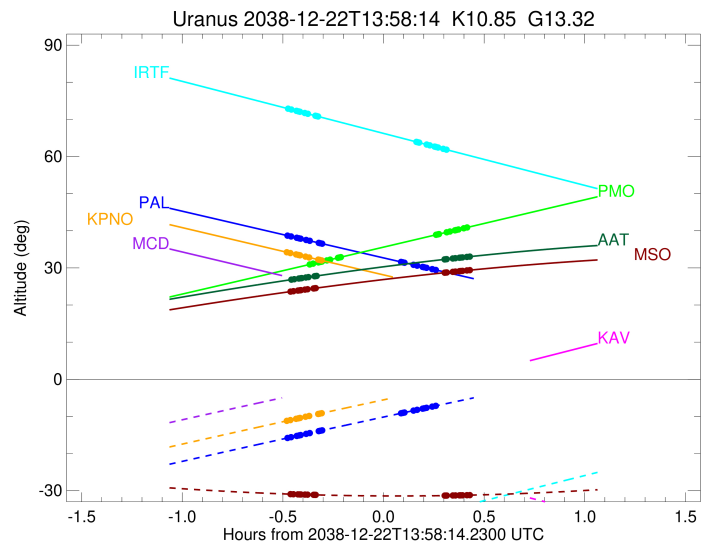
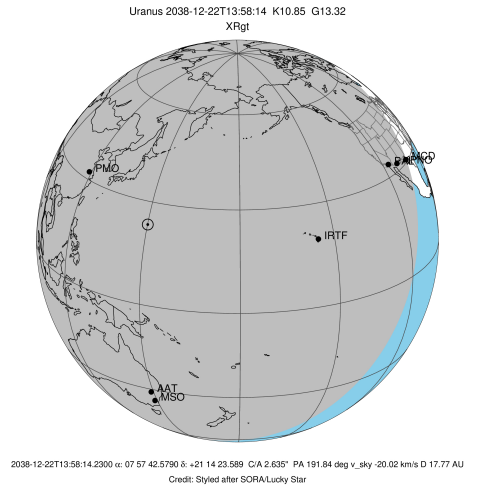


Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2038-12-22T13:29:59.232		38.61	-15.74	50768.52	-17.71		
lambda	I	2038-12-22T13:30:41.633		38.47	-15.60	50026.71	-17.33		
delta	I	2038-12-22T13:32:23.650		38.11	-15.26	48300.35	-16.50		
gamma	I	2038-12-22T13:33:05.279		37.96	-15.12	47621.17	-16.13		
eta	I	2038-12-22T13:33:33.087		37.87	-15.03	47176.12	-15.88		
beta	I	2038-12-22T13:35:11.801		37.52	-14.71	45656.55	-14.93		
alpha	I	2038-12-22T13:36:16.025		37.30	-14.49	44715.03	-14.25		
4	I	2038-12-22T13:39:00.839		36.72	-13.95	42528.71	-12.30		
5	I	2038-12-22T13:39:26.114		36.63	-13.87	42219.70	-12.03		
6	I	2038-12-22T13:39:55.980		36.53	-13.77	41863.08	-11.60		

No planet occultations

6	E	2038-12-22T14:03:31.375		31.59	-9.15	41879.75	11.58		
5	E	2038-12-22T14:04:03.830		31.48	-9.05	42290.30	12.01		
4	E	2038-12-22T14:04:24.703		31.41	-8.98	42534.48	12.28		
alpha	E	2038-12-22T14:07:11.644		30.83	-8.44	44747.86	14.22		
beta	E	2038-12-22T14:08:15.731		30.61	-8.23	45677.82	14.89		
eta	E	2038-12-22T14:09:53.238		30.27	-7.92	47176.12	15.84		
gamma	E	2038-12-22T14:10:21.268		30.17	-7.83	47623.59	16.09		
delta	E	2038-12-22T14:11:02.857		30.02	-7.70	48300.35	16.45		
lambda	E	2038-12-22T14:12:45.162		29.67	-7.37	50026.71	17.28		
epsilon	E	2038-12-22T14:13:55.183		29.43	-7.15	51255.20	17.65		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2038-12-22T14:02:30.540
 Event type : XRgt
 : No Uranus occs
 : 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 : 673883602855486080
 2Mass ID (if available) : 07574257+2114238
 ICRS Star Coord at Epoch: 07h 57m 42.57904s +21:14:23.58911s
 RUWE (>1.4 is poor) : 1.06
 K magnitude : 10.852
 G magnitude : 13.320
 RP magnitude : 12.580
 BP magnitude : 13.926
 DUPflag : 0
 Distance (au) : 17.767
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -20.02
 Sun-Target sep (deg) : 153.01
 Sun-Moon sep (deg) : 105.53
 B (ring opening deg) : 49.65
 PA of pole (deg) : 88.64
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 2.713
 C/A sky separation (km) : 34954.6
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk
 URKALLvl1.spk
 ural11.bsp
 IAU_URANUS_for_RINGFIT.tpc
 vgr2.ural11.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

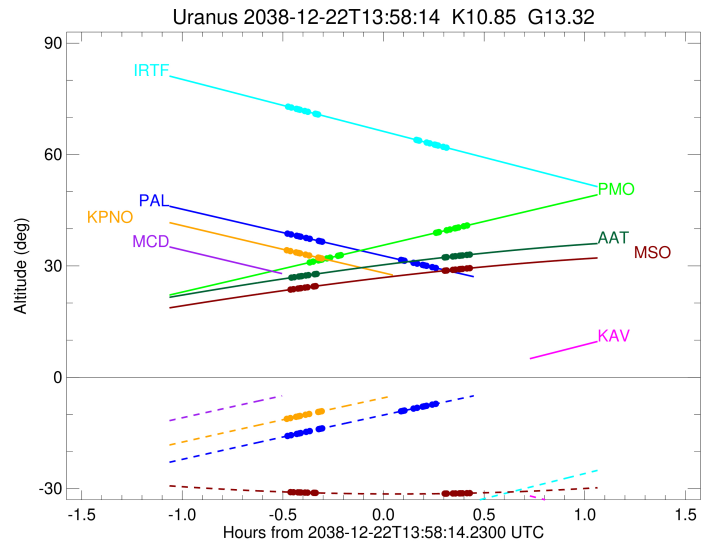
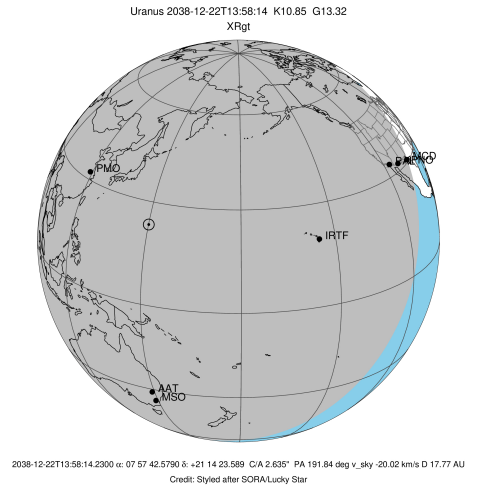


Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2038-12-22T13:36:35.993		31.01	-56.61	50761.77	-18.84		
lambda	I	2038-12-22T13:37:15.368		31.15	-56.75	50026.71	-18.53		
delta	I	2038-12-22T13:38:50.229		31.48	-57.09	48300.35	-17.85		
gamma	I	2038-12-22T13:39:28.589		31.62	-57.22	47621.27	-17.55		
eta	I	2038-12-22T13:39:54.099		31.71	-57.31	47176.12	-17.35		
beta	I	2038-12-22T13:41:23.809		32.02	-57.63	45655.19	-16.59		
alpha	I	2038-12-22T13:42:21.244		32.23	-57.83	44712.52	-16.05		
4	I	2038-12-22T13:44:44.151		32.73	-58.33	42530.30	-14.56		
5	I	2038-12-22T13:45:06.032		32.81	-58.41	42212.44	-14.36		
6	I	2038-12-22T13:45:30.331		32.89	-58.49	41859.68	-14.03		

No planet occultations

6	E	2038-12-22T14:13:57.288		38.93	-64.44	41879.47	14.06		
5	E	2038-12-22T14:14:24.102		39.03	-64.54	42296.41	14.39		
4	E	2038-12-22T14:14:41.508		39.09	-64.60	42537.56	14.59		
alpha	E	2038-12-22T14:17:05.831		39.60	-65.09	44749.31	16.10		
beta	E	2038-12-22T14:18:02.786		39.80	-65.29	45678.74	16.64		
eta	E	2038-12-22T14:19:30.798		40.11	-65.59	47176.12	17.40		
gamma	E	2038-12-22T14:19:56.380		40.20	-65.68	47623.96	17.61		
delta	E	2038-12-22T14:20:34.463		40.34	-65.81	48300.35	17.91		
lambda	E	2038-12-22T14:22:08.999		40.67	-66.14	50026.71	18.60		
epsilon	E	2038-12-22T14:23:15.690		40.91	-66.36	51282.30	18.91		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2038-12-22T13:54:18.730
 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 : 673883602855486080
 2Mass ID (if available) : 07574257+2114238
 ICRS Star Coord at Epoch: 07h 57m 42.57904s +21:14:23.58911s
 RUWE (>1.4 is poor) : 1.06
 K magnitude : 10.852
 G magnitude : 13.320
 RP magnitude : 12.580
 BP magnitude : 13.926
 DUPflag : 0
 Distance (au) : 17.767
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -20.02
 Sun-Target sep (deg) : 153.01
 Sun-Moon sep (deg) : 105.83
 B (ring opening deg) : 49.65
 PA of pole (deg) : 88.64
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 2.889
 C/A sky separation (km) : 37231.9
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk
 URKALLvl1.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

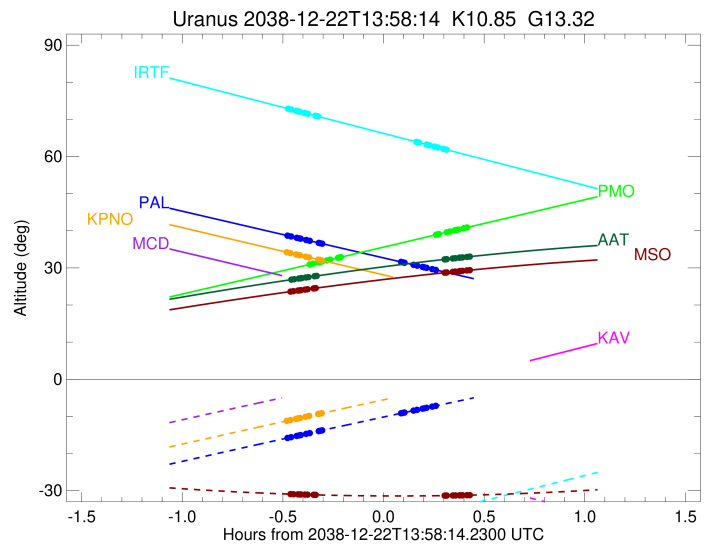
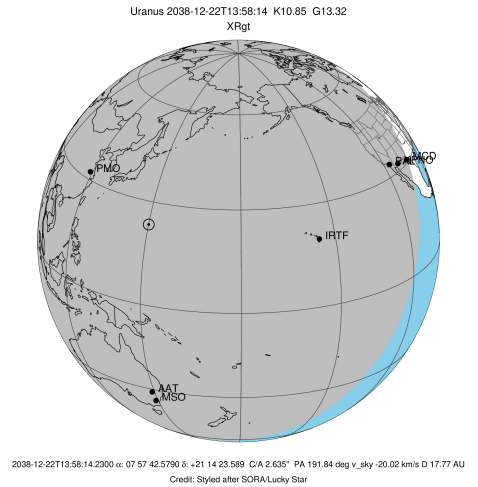


Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2038-12-22T13:29:46.791		34.14	-11.13	50768.86	-17.63		
lambda	I	2038-12-22T13:30:29.393		33.99	-10.99	50026.71	-17.26		
delta	I	2038-12-22T13:32:11.884		33.63	-10.65	48300.35	-16.42		
gamma	I	2038-12-22T13:32:53.724		33.48	-10.51	47621.16	-16.05		
eta	I	2038-12-22T13:33:21.679		33.38	-10.42	47176.12	-15.79		
beta	I	2038-12-22T13:35:00.961		33.03	-10.09	45656.61	-14.84		
alpha	I	2038-12-22T13:36:05.606		32.80	-9.88	44715.15	-14.15		
4	I	2038-12-22T13:38:51.769		32.22	-9.34	42528.64	-12.19		
5	I	2038-12-22T13:39:17.260		32.13	-9.25	42220.05	-11.91		
6	I	2038-12-22T13:39:47.470		32.02	-9.15	41863.23	-11.47		

No planet occultations

6	E	2038-12-22T14:03:11.825		27.08	-4.59x	41879.74	11.45		
5	E	2038-12-22T14:03:44.628		26.96	-4.48x	42290.04	11.89		
4	E	2038-12-22T14:04:05.715		26.89	-4.42x	42534.36	12.17		
alpha	E	2038-12-22T14:06:54.029		26.30	-3.88x	44747.80	14.12		
beta	E	2038-12-22T14:07:58.547		26.07	-3.67x	45677.78	14.80		
eta	E	2038-12-22T14:09:36.635		25.73	-3.36x	47176.12	15.75		
gamma	E	2038-12-22T14:10:04.818		25.63	-3.27x	47623.57	16.00		
delta	E	2038-12-22T14:10:46.625		25.49	-3.13x	48300.35	16.37		
lambda	E	2038-12-22T14:12:29.422		25.13	-2.81x	50026.71	17.20		
epsilon	E	2038-12-22T14:13:39.697		24.88	-2.58x	51254.23	17.58		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2038-12-22T13:55:59.260
 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 : 673883602855486080
 2Mass ID (if available) : 07574257+2114238
 ICRS Star Coord at Epoch: 07h 57m 42.57904s +21:14:23.58911s
 RUWE (>1.4 is poor) : 1.06
 K magnitude : 10.852
 G magnitude : 13.320
 RP magnitude : 12.580
 BP magnitude : 13.926
 DUPflag : 0
 Distance (au) : 17.767
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -20.02
 Sun-Target sep (deg) : 153.01
 Sun-Moon sep (deg) : 106.17
 B (ring opening deg) : 49.65
 PA of pole (deg) : 88.64
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 2.669
 C/A sky separation (km) : 34391.9
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk
 URKALLvl1.spk
 ural11.bsp
 IAU_URANUS_for_RINGFIT.tpc
 vgr2.ural11.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

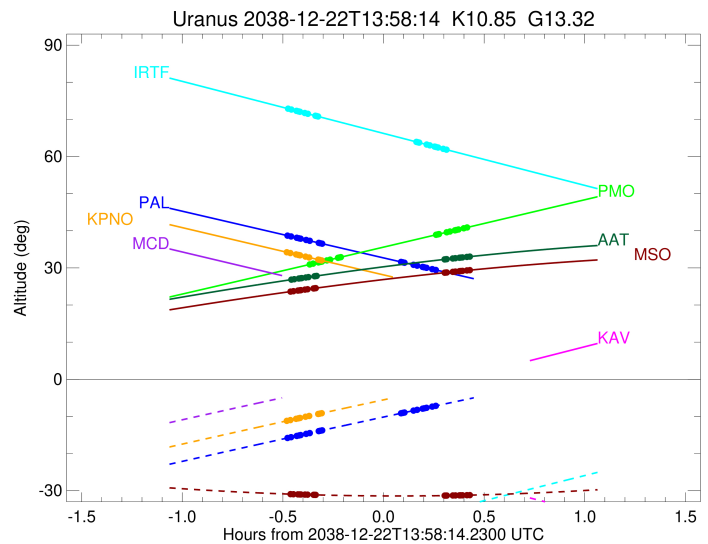
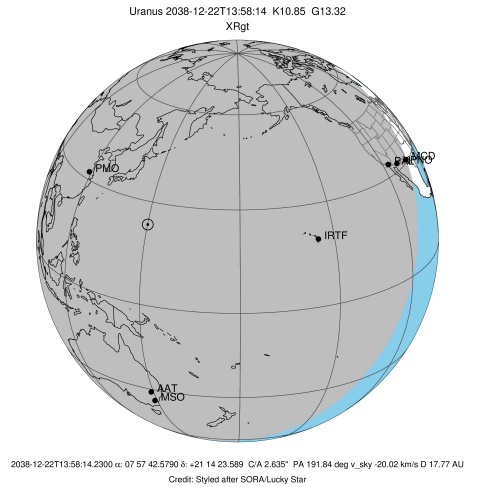


Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2038-12-22T13:30:08.365		72.81	-45.93	50758.90	-19.35		
lambda	I	2038-12-22T13:30:46.522		72.66	-45.78	50026.71	-19.06		
delta	I	2038-12-22T13:32:18.659		72.30	-45.43	48300.35	-18.40		
gamma	I	2038-12-22T13:32:55.848		72.15	-45.29	47621.32	-18.11		
eta	I	2038-12-22T13:33:20.559		72.06	-45.20	47176.12	-17.92		
beta	I	2038-12-22T13:34:47.314		71.72	-44.87	45654.63	-17.19		
alpha	I	2038-12-22T13:35:42.673		71.50	-44.66	44711.51	-16.68		
4	I	2038-12-22T13:37:59.581		70.97	-44.14	42530.97	-15.26		
5	I	2038-12-22T13:38:20.660		70.89	-44.06	42209.83	-15.08		
6	I	2038-12-22T13:38:43.574		70.80	-43.97	41858.41	-14.76		

No planet occultations

6	E	2038-12-22T14:08:05.720		63.93	-37.28	41879.37	14.75		
5	E	2038-12-22T14:08:31.303		63.83	-37.18	42297.29	15.06		
4	E	2038-12-22T14:08:47.943		63.77	-37.12	42538.07	15.25		
alpha	E	2038-12-22T14:11:06.797		63.23	-36.59	44749.50	16.66		
beta	E	2038-12-22T14:12:01.906		63.01	-36.38	45678.86	17.17		
eta	E	2038-12-22T14:13:27.353		62.68	-36.06	47176.12	17.89		
gamma	E	2038-12-22T14:13:52.249		62.58	-35.96	47624.01	18.09		
delta	E	2038-12-22T14:14:29.344		62.44	-35.82	48300.35	18.37		
lambda	E	2038-12-22T14:16:01.625		62.08	-35.48	50026.71	19.03		
epsilon	E	2038-12-22T14:17:07.020		61.82	-35.23	51285.29	19.32		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2038-12-22T13:59:36.710
 Event type : XRgt
 : No Uranus occs
 : 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 : 673883602855486080
 2Mass ID (if available) : 07574257+2114238
 ICRS Star Coord at Epoch: 07h 57m 42.57904s +21:14:23.58911s
 RUWE (>1.4 is poor) : 1.06
 K magnitude : 10.852
 G magnitude : 13.320
 RP magnitude : 12.580
 BP magnitude : 13.926
 DUPflag : 0
 Distance (au) : 17.767
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -20.02
 Sun-Target sep (deg) : 153.01
 Sun-Moon sep (deg) : 105.57
 B (ring opening deg) : 49.65
 PA of pole (deg) : 88.64
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 2.219
 C/A sky separation (km) : 28587.8
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk
 URKALLvl1.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

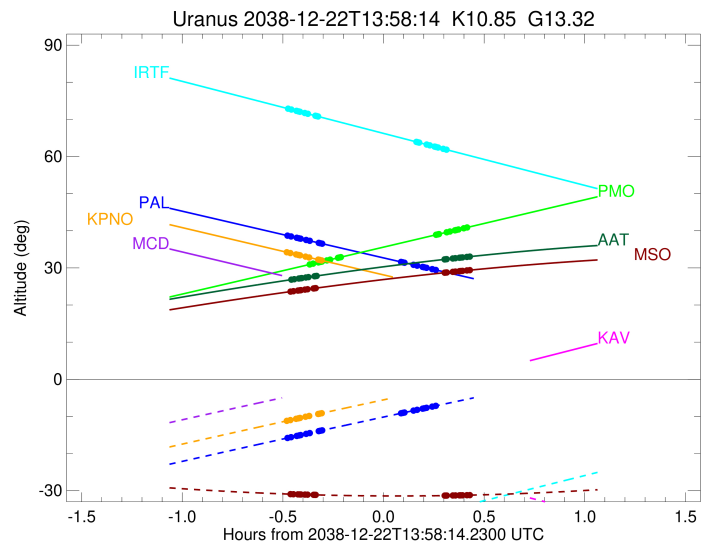
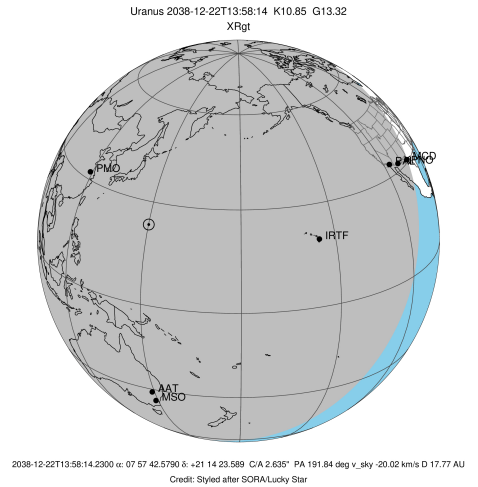


Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2038-12-22T13:31:05.435		26.88	-34.95	50747.20	-21.71		
lambda	I	2038-12-22T13:31:38.761		26.96	-34.97	50026.71	-21.54		
delta	I	2038-12-22T13:32:59.624		27.14	-35.01	48300.35	-21.15		
gamma	I	2038-12-22T13:33:31.844		27.21	-35.03	47621.69	-20.98		
eta	I	2038-12-22T13:33:53.143		27.25	-35.04	47176.12	-20.86		
beta	I	2038-12-22T13:35:07.073		27.42	-35.08	45651.44	-20.44		
alpha	I	2038-12-22T13:35:53.319		27.52	-35.10	44705.63	-20.15		
4	I	2038-12-22T13:37:43.723		27.76	-35.15	42536.00	-19.36		
5	I	2038-12-22T13:38:01.377		27.80	-35.16	42194.72	-19.27		
6	I	2038-12-22T13:38:18.192		27.84	-35.16	41850.20	-19.09		

No planet occultations

6	E	2038-12-22T14:16:28.645		32.29	-35.36	41877.10	19.12		
5	E	2038-12-22T14:16:48.339		32.33	-35.35	42306.75	19.31		
4	E	2038-12-22T14:17:01.382		32.35	-35.35	42545.39	19.40		
alpha	E	2038-12-22T14:18:53.355		32.54	-35.32	44751.56	20.19		
beta	E	2038-12-22T14:19:39.093		32.61	-35.31	45680.30	20.48		
eta	E	2038-12-22T14:20:51.447		32.73	-35.28	47176.12	20.91		
gamma	E	2038-12-22T14:21:12.850		32.77	-35.28	47624.86	21.02		
delta	E	2038-12-22T14:21:44.847		32.82	-35.27	48300.35	21.20		
lambda	E	2038-12-22T14:23:05.522		32.95	-35.24	50026.71	21.60		
epsilon	E	2038-12-22T14:24:06.029		33.05	-35.21	51341.75	21.76		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2038-12-22T13:59:28.290
 Event type : XRgt
 : No Uranus occs
 : 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 : 673883602855486080
 2Mass ID (if available) : 07574257+2114238
 ICRS Star Coord at Epoch: 07h 57m 42.57904s +21:14:23.58911s
 RUWE (>1.4 is poor) : 1.06
 K magnitude : 10.852
 G magnitude : 13.320
 RP magnitude : 12.580
 BP magnitude : 13.926
 DUPflag : 0
 Distance (au) : 17.767
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -20.02
 Sun-Target sep (deg) : 153.01
 Sun-Moon sep (deg) : 105.52
 B (ring opening deg) : 49.65
 PA of pole (deg) : 88.64
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 2.200
 C/A sky separation (km) : 28347.1
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk
 URKALLvl1.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	2038-12-22T13:30:50.449		23.66	-30.95	50746.89	-21.78		
lambda	I	2038-12-22T13:31:23.649		23.73	-30.97	50026.71	-21.62		
delta	I	2038-12-22T13:32:44.218		23.89	-31.01	48300.35	-21.23		
gamma	I	2038-12-22T13:33:16.308		23.96	-31.02	47621.71	-21.06		
eta	I	2038-12-22T13:33:37.519		24.00	-31.03	47176.12	-20.95		
beta	I	2038-12-22T13:34:51.123		24.16	-31.07	45651.32	-20.54		
alpha	I	2038-12-22T13:35:37.141		24.25	-31.09	44705.41	-20.25		
4	I	2038-12-22T13:37:26.896		24.47	-31.13	42536.22	-19.49		
5	I	2038-12-22T13:37:44.480		24.51	-31.14	42194.18	-19.40		
6	I	2038-12-22T13:38:01.144		24.54	-31.14	41849.87	-19.22		

No planet occultations

6	E	2038-12-22T14:16:30.890		28.71	-31.34	41876.98	19.25		
5	E	2038-12-22T14:16:50.449		28.74	-31.33	42307.03	19.43		
4	E	2038-12-22T14:17:03.412		28.76	-31.33	42545.69	19.52		
alpha	E	2038-12-22T14:18:54.745		28.93	-31.30	44751.62	20.29		
beta	E	2038-12-22T14:19:40.254		29.00	-31.29	45680.34	20.58		
eta	E	2038-12-22T14:20:52.286		29.11	-31.27	47176.12	21.00		
gamma	E	2038-12-22T14:21:13.602		29.15	-31.26	47624.90	21.11		
delta	E	2038-12-22T14:21:45.472		29.19	-31.25	48300.35	21.28		
lambda	E	2038-12-22T14:23:05.860		29.31	-31.23	50026.71	21.67		
epsilon	E	2038-12-22T14:24:06.269		29.40	-31.21	51343.82	21.83		