

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2036-01-11T02:06:48.430
 Event type : XRgt
 : No Uranus occs
 : Ring occs: geocentric, topocentric
 Gaia source ID : 3380267599872300928
 2Mass ID (if available) : 06531656+2316002

ICRS Star Coord at Epoch: 06h 53m 16.55817s +23:15:59.97563s

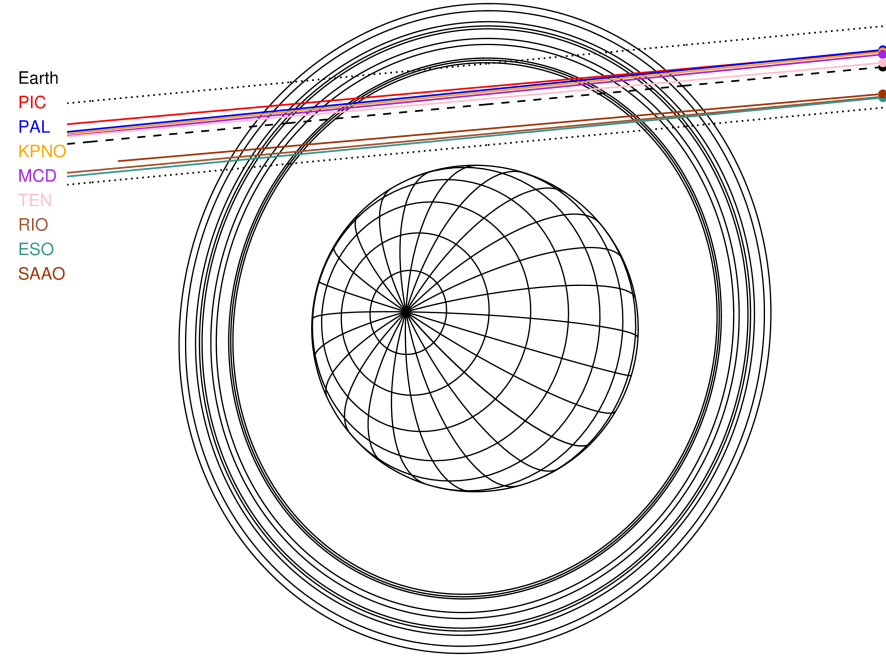
RUWE (>1.4 is poor) : 1.05
 K magnitude : 13.044
 G magnitude : 14.893
 RP magnitude : 14.276
 BP magnitude : 15.345
 DUPflag : 0
 Distance (au) : 17.850
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -23.07
 Sun-Target sep (deg) : 172.30
 Sun-Moon sep (deg) : 26.58
 B (ring opening deg) : 64.19
 PA of pole (deg) : 76.43

#	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



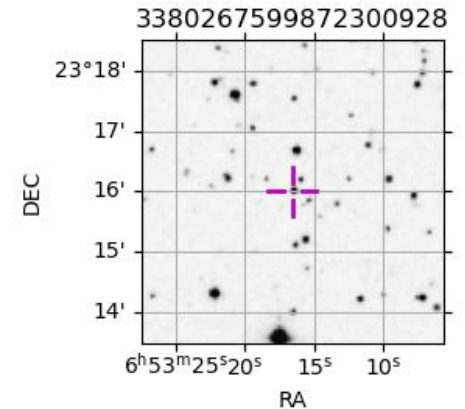
2036-01-11T02:06:48.4300 ra: 06 53 16.5582 d: +23 15 59.976 C/A 2.694" PA 185.39 deg v_sky -23.07 km/s D 17.85 AU
 Credit: Styled after SORA/Lucky Star

Uranus 2036-01-11T02:06:48 K13.04 G14.89 XRgt

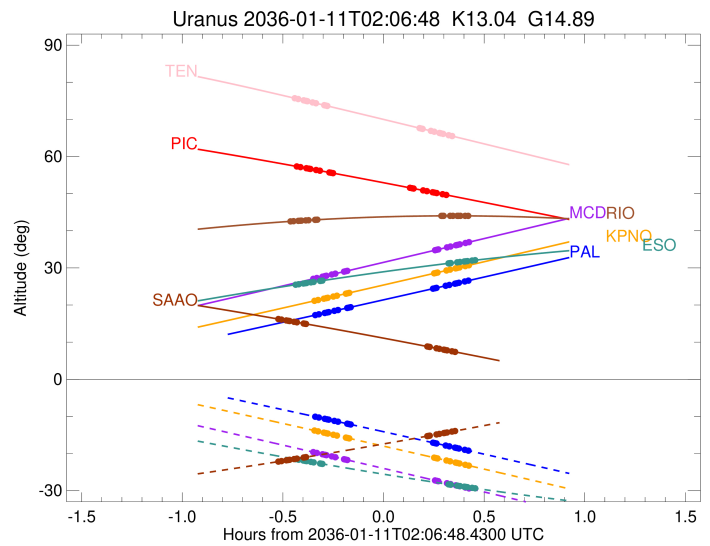
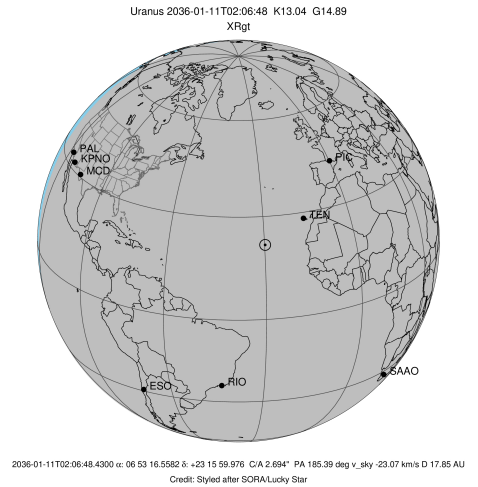


Observable events with sun below -5 deg and altitude above 5 deg unblocked by planet

Obs	Location	lat	Elon	Rings I	Planet	Rings E	Observed Events Interval	OEncode
PIC	Pic du Midi	42.9	0.1	+++++		+++++	JAN 11 01:41 - JAN 11 02:25	PnnRie
PAL	Palomar Mt (200")	33.4	243.1	+++++		+++++	JAN 11 01:46 - JAN 11 02:32	PnnRie
PNO	Purple Mtn Obs. Nanki	32.1	118.8					PnnRnn
KPNO	Kitt Peak Natl Obs	32.0	248.4	+++++		+++++	JAN 11 01:46 - JAN 11 02:32	PnnRie
MCD	McDonald Obs. 2.7m	30.7	256.0	+++++		+++++	JAN 11 01:46 - JAN 11 02:32	PnnRie
TEN	Teide Obs./Tenerife	28.3	343.5	+++++		+++++	JAN 11 01:40 - JAN 11 02:27	PnnRie
IRTF	Mauna Kea/IRTF	19.8	204.5					PnnRnn
KAV	Kavalur Observatory	12.6	78.8					PnnRnn
RIO	Rio de Janeiro	-22.9	316.8	+++++		+++++	JAN 11 01:39 - JAN 11 02:32	PnnRie
ESO	European Southern Obs	-29.3	289.3	+++++		+++++	JAN 11 01:40 - JAN 11 02:34	PnnRie
AAT	Siding Spring (AAT)	-31.3	149.1					PnnRnn
SAAO	So. Afr. Astro. Obs.	-32.4	20.8	+++++		+++++	JAN 11 01:35 - JAN 11 02:28	PnnRie
MSO	Mt. Stromlo Observato	-35.3	149.0					PnnRnn



target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2036-01-11T02:04:48.150
 Event type : XRgt
 : No Uranus occs
 : Ring occs: geocentric, topocentric
 Observer code : PIC
 Location : Pic du Midi
 Latitude (deg) : 42.93656
 E. Longitude (deg) : 0.14231
 Altitude (km) : 2.890
 Gaia source ID : 3380267599872300928
 2Mass ID (if available) : 06531656+2316002
 ICRS Star Coord at Epoch: 06h 53m 16.55817s +23:15:59.97563s
 RUWE (>1.4 is poor) : 1.05
 K magnitude : 13.044
 G magnitude : 14.893
 RP magnitude : 14.276
 BP magnitude : 15.345
 DUPflag : 0
 Distance (au) : 17.850
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -23.07
 Sun-Target sep (deg) : 172.30
 Sun-Moon sep (deg) : 27.39
 B (ring opening deg) : 64.19
 PA of pole (deg) : 76.43
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 2.901
 C/A sky separation (km) : 37553.2
 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

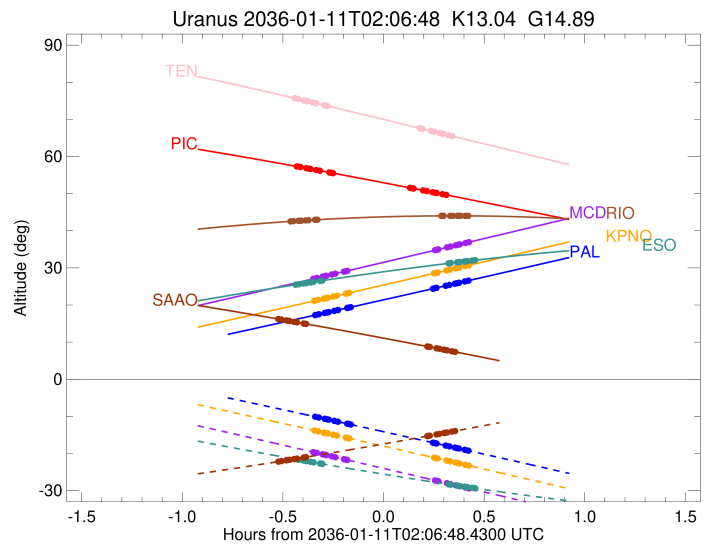
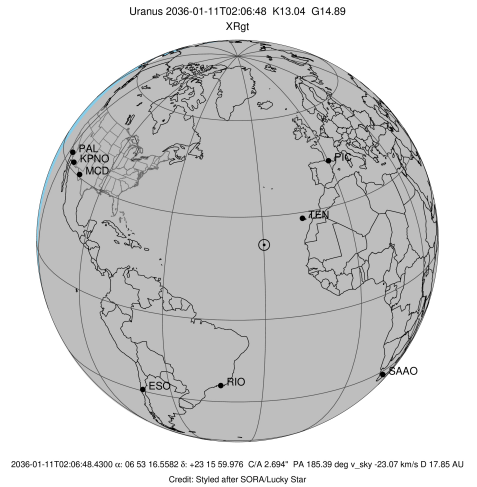


Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2036-01-11T01:41:13.648		57.29	-61.36	50879.20	-17.23		
lambda	I	2036-01-11T01:42:03.999		57.15	-61.24	50026.71	-16.74		
delta	I	2036-01-11T01:43:49.739		56.85	-60.98	48300.35	-15.90		
gamma	I	2036-01-11T01:44:32.760		56.74	-60.88	47624.44	-15.53		
eta	I	2036-01-11T01:45:01.881		56.65	-60.81	47176.12	-15.26		
beta	I	2036-01-11T01:46:44.052		56.37	-60.56	45665.92	-14.30		
alpha	I	2036-01-11T01:47:52.376		56.18	-60.39	44714.07	-13.57		
4	I	2036-01-11T01:50:40.791		55.71	-59.98	42580.90	-11.63		
5	I	2036-01-11T01:51:12.757		55.62	-59.90	42215.77	-11.30		
6	I	2036-01-11T01:51:43.939		55.53	-59.82	41868.83	-10.83		

No planet occultations

6	E	2036-01-11T02:14:39.156		51.58	-56.24	41835.86	10.82		
5	E	2036-01-11T02:15:19.822		51.46	-56.13	42284.71	11.29		
4	E	2036-01-11T02:15:42.768		51.39	-56.07	42541.21	11.62		
alpha	E	2036-01-11T02:18:33.798		50.89	-55.60	44686.40	13.56		
beta	E	2036-01-11T02:19:45.013		50.68	-55.41	45681.01	14.28		
eta	E	2036-01-11T02:21:26.240		50.38	-55.13	47176.12	15.24		
gamma	E	2036-01-11T02:21:55.804		50.29	-55.05	47630.58	15.50		
delta	E	2036-01-11T02:22:38.500		50.17	-54.93	48300.35	15.87		
lambda	E	2036-01-11T02:24:24.428		49.86	-54.64	50026.71	16.71		
epsilon	E	2036-01-11T02:25:46.523		49.61	-54.41	51423.42	17.20		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2036-01-11T02:10:54.840
 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 : 3380267599872300928
 2Mass ID (if available) : 06531656+2316002
 ICRS Star Coord at Epoch: 06h 53m 16.55817s +23:15:59.97563s
 RUWE (>1.4 is poor) : 1.05
 K magnitude : 13.044
 G magnitude : 14.893
 RP magnitude : 14.276
 BP magnitude : 15.345
 DUPflag : 0
 Distance (au) : 17.850
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -23.07
 Sun-Target sep (deg) : 172.30
 Sun-Moon sep (deg) : 26.05
 B (ring opening deg) : 64.19
 PA of pole (deg) : 76.43
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 2.859
 C/A sky separation (km) : 37010.6
 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

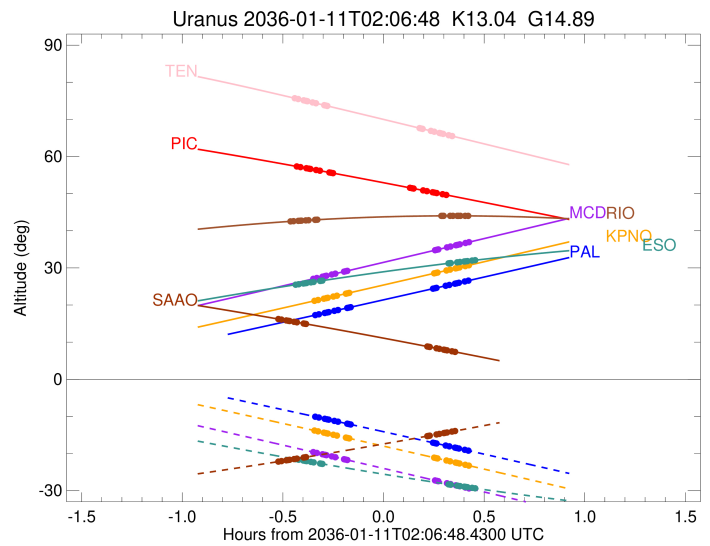
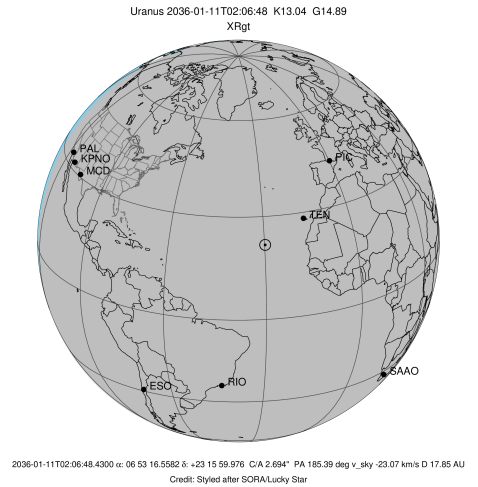


Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2036-01-11T01:46:43.527		17.34	-10.14	50877.53	-17.34		
lambda	I	2036-01-11T01:47:33.421		17.50	-10.30	50026.71	-16.88		
delta	I	2036-01-11T01:49:18.147		17.86	-10.65	48300.35	-16.08		
gamma	I	2036-01-11T01:50:00.642		18.00	-10.79	47624.40	-15.73		
eta	I	2036-01-11T01:50:29.359		18.09	-10.88	47176.12	-15.49		
beta	I	2036-01-11T01:52:09.817		18.43	-11.21	45665.71	-14.59		
alpha	I	2036-01-11T01:53:16.610		18.66	-11.43	44714.48	-13.91		
4	I	2036-01-11T01:55:59.696		19.20	-11.97	42581.64	-12.11		
5	I	2036-01-11T01:56:30.508		19.31	-12.08	42214.39	-11.82		
6	I	2036-01-11T01:57:00.049		19.41	-12.17	41869.37	-11.39		

No planet occultations

6	E	2036-01-11T02:21:31.330		24.40	-17.08	41834.23	11.41		
5	E	2036-01-11T02:22:10.304		24.53	-17.21	42287.01	11.84		
4	E	2036-01-11T02:22:31.985		24.60	-17.28	42540.00	12.14		
alpha	E	2036-01-11T02:25:17.150		25.17	-17.84	44686.08	13.94		
beta	E	2036-01-11T02:26:26.582		25.40	-18.07	45681.09	14.62		
eta	E	2036-01-11T02:28:05.699		25.74	-18.41	47176.12	15.53		
gamma	E	2036-01-11T02:28:34.739		25.84	-18.51	47630.66	15.78		
delta	E	2036-01-11T02:29:16.722		25.99	-18.65	48300.35	16.12		
lambda	E	2036-01-11T02:31:01.147		26.34	-19.00	50026.71	16.93		
epsilon	E	2036-01-11T02:32:22.707		26.62	-19.28	51430.82	17.39		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2036-01-11T02:10:51.120
 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 : 3380267599872300928
 2Mass ID (if available) : 06531656+2316002
 ICRS Star Coord at Epoch: 06h 53m 16.55817s +23:15:59.97563s
 RUWE (>1.4 is poor) : 1.05
 K magnitude : 13.044
 G magnitude : 14.893
 RP magnitude : 14.276
 BP magnitude : 15.345
 DUPflag : 0
 Distance (au) : 17.850
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -23.07
 Sun-Target sep (deg) : 172.30
 Sun-Moon sep (deg) : 26.07
 B (ring opening deg) : 64.19
 PA of pole (deg) : 76.43
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 2.835
 C/A sky separation (km) : 36701.1
 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_itr93_040916.bsp
 earth_720101_070426.bpc
 earth_200101_990628_predict.bpc
 pg3f0000r.bsp
 pg490000r.bsp
 naif0012.tls
 earth_flat_IAU.spk

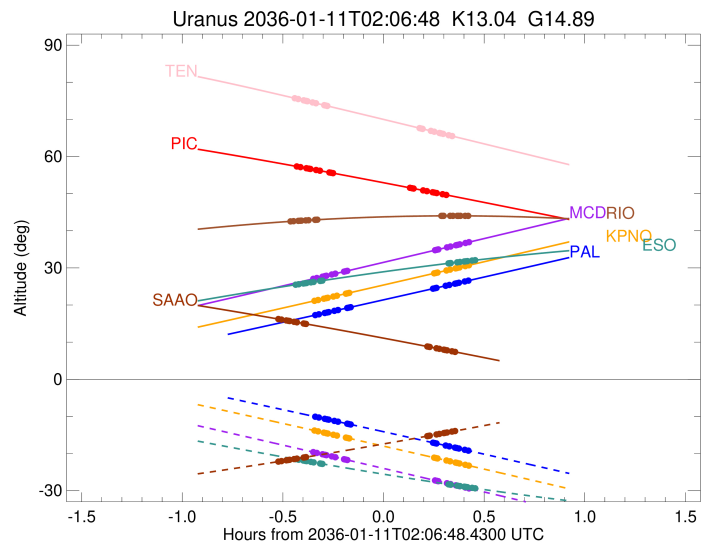
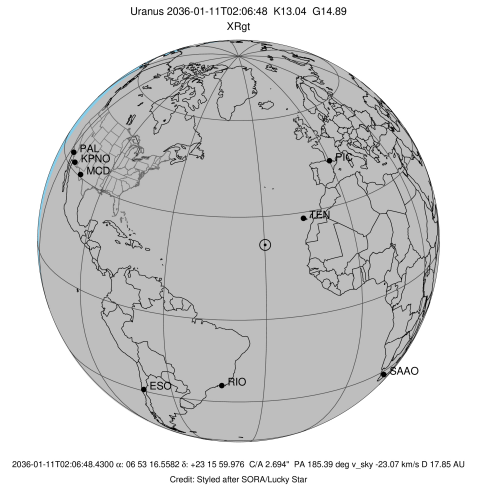


Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2036-01-11T01:46:29.931		21.18	-13.87	50874.79	-17.53		
lambda	I	2036-01-11T01:47:19.088		21.35	-14.03	50026.71	-17.08		
delta	I	2036-01-11T01:49:02.465		21.71	-14.38	48300.35	-16.30		
gamma	I	2036-01-11T01:49:44.357		21.85	-14.52	47624.35	-15.97		
eta	I	2036-01-11T01:50:12.638		21.95	-14.62	47176.12	-15.73		
beta	I	2036-01-11T01:51:51.433		22.29	-14.95	45665.48	-14.86		
alpha	I	2036-01-11T01:52:56.895		22.51	-15.18	44714.91	-14.20		
4	I	2036-01-11T01:55:35.995		23.06	-15.72	42582.32	-12.47		
5	I	2036-01-11T01:56:06.060		23.17	-15.82	42213.16	-12.19		
6	I	2036-01-11T01:56:34.496		23.26	-15.92	41869.83	-11.78		

No planet occultations

6	E	2036-01-11T02:21:51.481		28.53	-21.11	41833.54	11.80		
5	E	2036-01-11T02:22:29.334		28.66	-21.24	42287.95	12.21		
4	E	2036-01-11T02:22:50.279		28.73	-21.31	42539.52	12.50		
alpha	E	2036-01-11T02:25:31.451		29.29	-21.87	44685.96	14.23		
beta	E	2036-01-11T02:26:39.552		29.53	-22.10	45681.12	14.89		
eta	E	2036-01-11T02:28:17.013		29.87	-22.44	47176.12	15.77		
gamma	E	2036-01-11T02:28:45.616		29.97	-22.54	47630.69	16.01		
delta	E	2036-01-11T02:29:26.998		30.12	-22.68	48300.35	16.35		
lambda	E	2036-01-11T02:31:10.079		30.48	-23.04	50026.71	17.13		
epsilon	E	2036-01-11T02:32:30.855		30.76	-23.31	51433.36	17.59		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2036-01-11T02:10:40.460
 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 : 3380267599872300928
 2Mass ID (if available) : 06531656+2316002
 ICRS Star Coord at Epoch: 06h 53m 16.55817s +23:15:59.97563s
 RUWE (>1.4 is poor) : 1.05
 K magnitude : 13.044
 G magnitude : 14.893
 RP magnitude : 14.276
 BP magnitude : 15.345
 DUPflag : 0
 Distance (au) : 17.850
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -23.07
 Sun-Target sep (deg) : 172.30
 Sun-Moon sep (deg) : 26.13
 B (ring opening deg) : 64.19
 PA of pole (deg) : 76.43
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 2.807
 C/A sky separation (km) : 36334.9
 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

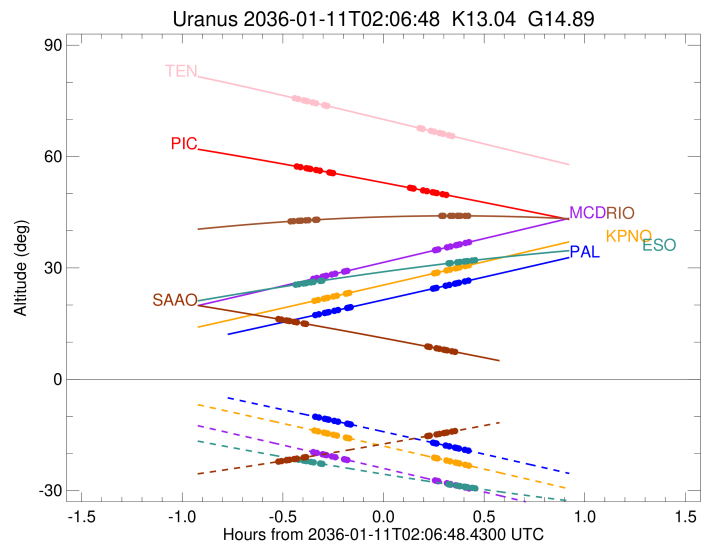
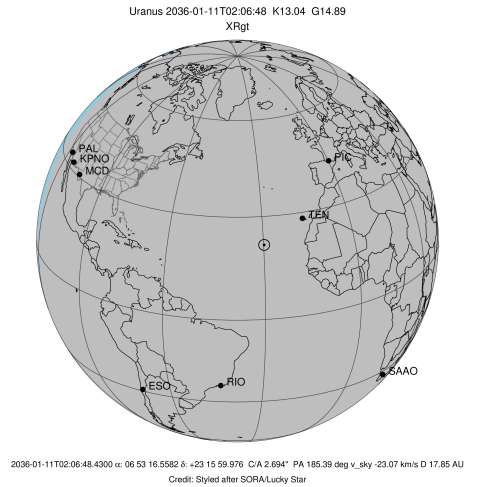


Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2036-01-11T01:46:08.470		27.11	-19.68	50871.57	-17.76		
lambda	I	2036-01-11T01:46:56.769		27.28	-19.85	50026.71	-17.33		
delta	I	2036-01-11T01:48:38.578		27.64	-20.20	48300.35	-16.57		
gamma	I	2036-01-11T01:49:19.773		27.79	-20.35	47624.29	-16.25		
eta	I	2036-01-11T01:49:47.553		27.88	-20.44	47176.12	-16.02		
beta	I	2036-01-11T01:51:24.451		28.23	-20.78	45665.20	-15.18		
alpha	I	2036-01-11T01:52:28.409		28.45	-21.00	44715.42	-14.54		
4	I	2036-01-11T01:55:03.100		29.00	-21.54	42583.10	-12.89		
5	I	2036-01-11T01:55:32.355		29.10	-21.64	42211.74	-12.62		
6	I	2036-01-11T01:55:59.600		29.20	-21.74	41870.34	-12.23		

No planet occultations

6	E	2036-01-11T02:22:07.622		34.76	-27.24	41832.76	12.26		
5	E	2036-01-11T02:22:44.264		34.89	-27.37	42289.01	12.64		
4	E	2036-01-11T02:23:04.414		34.96	-27.44	42538.97	12.91		
alpha	E	2036-01-11T02:25:41.177		35.52	-28.00	44685.82	14.58		
beta	E	2036-01-11T02:26:47.780		35.76	-28.23	45681.14	15.21		
eta	E	2036-01-11T02:28:23.357		36.10	-28.57	47176.12	16.06		
gamma	E	2036-01-11T02:28:51.463		36.20	-28.67	47630.73	16.29		
delta	E	2036-01-11T02:29:32.154		36.34	-28.81	48300.35	16.62		
lambda	E	2036-01-11T02:31:13.682		36.70	-29.17	50026.71	17.38		
epsilon	E	2036-01-11T02:32:33.537		36.99	-29.45	51436.25	17.82		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2036-01-11T02:05:17.520
 Event type : XRgt
 : No Uranus occs
 : Ring occs: geocentric, topocentric
 Observer code : TEN
 Location : Teide Obs./Tenerife
 Latitude (deg) : 28.30050
 E. Longitude (deg) : 343.48909
 Altitude (km) : 2.395
 Gaia source ID : 3380267599872300928
 2Mass ID (if available) : 06531656+2316002
 ICRS Star Coord at Epoch: 06h 53m 16.55817s +23:15:59.97563s
 RUWE (>1.4 is poor) : 1.05
 K magnitude : 13.044
 G magnitude : 14.893
 RP magnitude : 14.276
 BP magnitude : 15.345
 DUPflag : 0
 Distance (au) : 17.850
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -23.07
 Sun-Target sep (deg) : 172.30
 Sun-Moon sep (deg) : 27.31
 B (ring opening deg) : 64.19
 PA of pole (deg) : 76.43
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 2.755
 C/A sky separation (km) : 35662.1
 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_itr93_040916.bsp
 earth_720101_070426.bpc
 earth_200101_990628_predict.bpc
 pg3f0000r.bsp
 pg490000r.bsp
 naif0012.tls
 earth_flat_IAU.spk

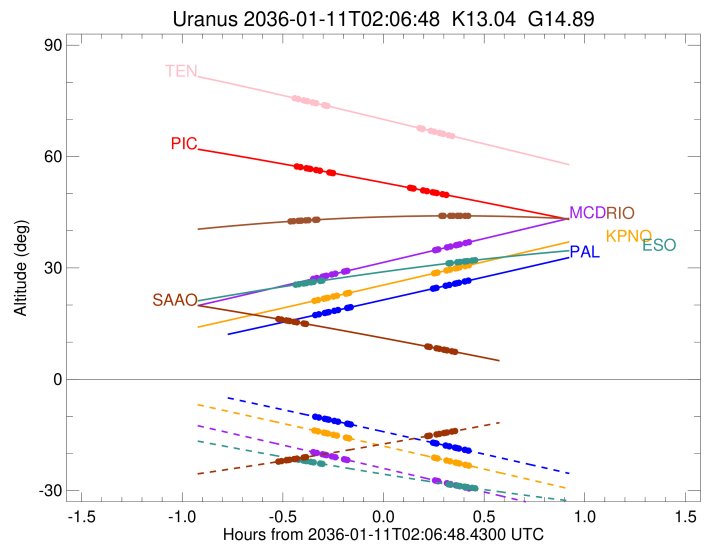
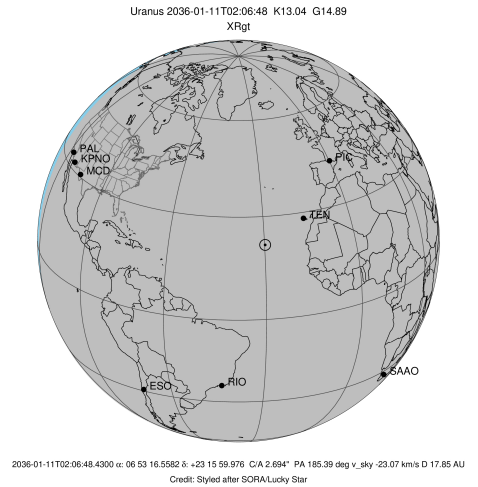


Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2036-01-11T01:40:37.020		75.65	-81.24	50863.42	-18.32		
lambda	I	2036-01-11T01:41:23.350		75.49	-81.12	50026.71	-17.90		
delta	I	2036-01-11T01:43:01.717		75.14	-80.85	48300.35	-17.18		
gamma	I	2036-01-11T01:43:41.423		75.00	-80.74	47624.13	-16.88		
eta	I	2036-01-11T01:44:08.146		74.90	-80.67	47176.12	-16.66		
beta	I	2036-01-11T01:45:41.149		74.57	-80.40	45664.53	-15.86		
alpha	I	2036-01-11T01:46:42.106		74.35	-80.23	44716.62	-15.27		
4	I	2036-01-11T01:49:08.464		73.83	-79.80	42584.85	-13.72		
5	I	2036-01-11T01:49:36.293		73.73	-79.71	42208.61	-13.48		
6	I	2036-01-11T01:50:01.379		73.64	-79.64	41871.44	-13.12		

No planet occultations

6	E	2036-01-11T02:17:30.843		67.66	-74.23	41831.70	13.11		
5	E	2036-01-11T02:18:05.340		67.53	-74.11	42290.42	13.47		
4	E	2036-01-11T02:18:24.165		67.47	-74.04	42538.24	13.71		
alpha	E	2036-01-11T02:20:53.018		66.92	-73.53	44685.66	15.25		
beta	E	2036-01-11T02:21:56.840		66.69	-73.30	45681.17	15.84		
eta	E	2036-01-11T02:23:28.866		66.35	-72.98	47176.12	16.64		
gamma	E	2036-01-11T02:23:56.017		66.25	-72.89	47630.77	16.85		
delta	E	2036-01-11T02:24:35.381		66.11	-72.75	48300.35	17.16		
lambda	E	2036-01-11T02:26:13.885		65.75	-72.40	50026.71	17.88		
epsilon	E	2036-01-11T02:27:31.768		65.46	-72.13	51439.31	18.29		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2036-01-11T02:06:50.470
 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 : 3380267599872300928
 2Mass ID (if available) : 06531656+2316002
 ICRS Star Coord at Epoch: 06h 53m 16.55817s +23:15:59.97563s
 RUWE (>1.4 is poor) : 1.05
 K magnitude : 13.044
 G magnitude : 14.893
 RP magnitude : 14.276
 BP magnitude : 15.345
 DUPflag : 0
 Distance (au) : 17.850
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -23.07
 Sun-Target sep (deg) : 172.30
 Sun-Moon sep (deg) : 26.75
 B (ring opening deg) : 64.19
 PA of pole (deg) : 76.43
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 2.330
 C/A sky separation (km) : 30167.0
 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

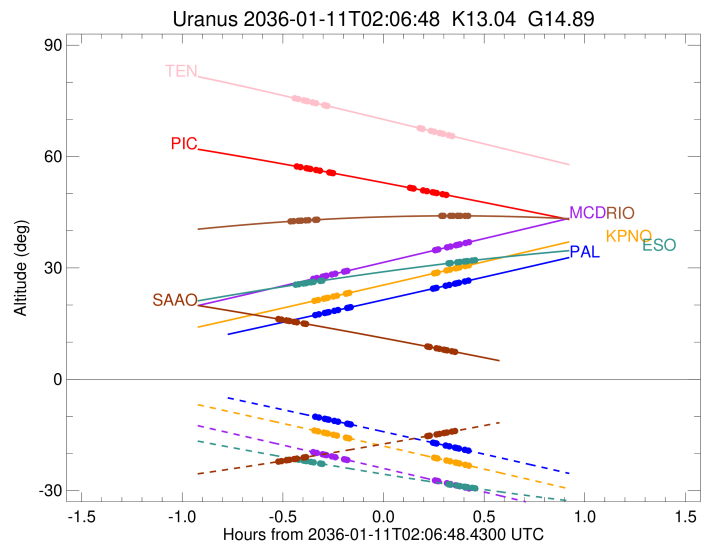
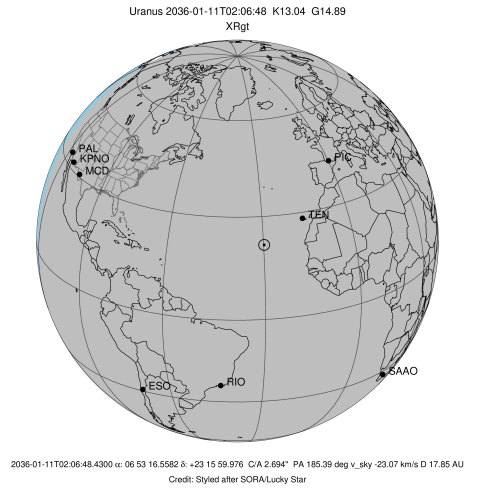


Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2036-01-11T01:39:20.990		42.55	-41.19	50825.96	-20.75		
lambda	I	2036-01-11T01:39:59.829		42.59	-41.25	50026.71	-20.48		
delta	I	2036-01-11T01:41:25.018		42.67	-41.39	48300.35	-20.04		
gamma	I	2036-01-11T01:41:58.962		42.71	-41.45	47623.38	-19.85		
eta	I	2036-01-11T01:42:21.571		42.73	-41.48	47176.12	-19.72		
beta	I	2036-01-11T01:43:39.405		42.80	-41.61	45661.02	-19.24		
alpha	I	2036-01-11T01:44:28.675		42.85	-41.68	44722.85	-18.89		
4	I	2036-01-11T01:46:23.515		42.95	-41.86	42593.49	-18.02		
5	I	2036-01-11T01:46:46.092		42.97	-41.89	42193.23	-17.89		
6	I	2036-01-11T01:47:03.486		42.98	-41.92	41876.10	-17.70		

No planet occultations

6	E	2036-01-11T02:24:00.972		44.02	-44.49	41822.49	17.70		
5	E	2036-01-11T02:24:27.682		44.02	-44.51	42301.65	17.90		
4	E	2036-01-11T02:24:41.190		44.02	-44.52	42532.41	18.02		
alpha	E	2036-01-11T02:26:38.208		44.03	-44.61	44684.68	18.89		
beta	E	2036-01-11T02:27:30.297		44.03	-44.65	45681.13	19.24		
eta	E	2036-01-11T02:28:47.043		44.02	-44.71	47176.12	19.72		
gamma	E	2036-01-11T02:29:10.042		44.02	-44.72	47631.17	19.85		
delta	E	2036-01-11T02:29:43.588		44.02	-44.74	48300.35	20.04		
lambda	E	2036-01-11T02:31:08.765		44.02	-44.80	50026.71	20.49		
epsilon	E	2036-01-11T02:32:18.999		44.01	-44.84	51477.46	20.75		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2036-01-11T02:08:39.520
 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 : 3380267599872300928
 2Mass ID (if available) : 06531656+2316002
 ICRS Star Coord at Epoch: 06h 53m 16.55817s +23:15:59.97563s
 RUWE (>1.4 is poor) : 1.05
 K magnitude : 13.044
 G magnitude : 14.893
 RP magnitude : 14.276
 BP magnitude : 15.345
 DUPflag : 0
 Distance (au) : 17.850
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -23.07
 Sun-Target sep (deg) : 172.30
 Sun-Moon sep (deg) : 26.30
 B (ring opening deg) : 64.19
 PA of pole (deg) : 76.43
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 2.302
 C/A sky separation (km) : 29796.7
 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

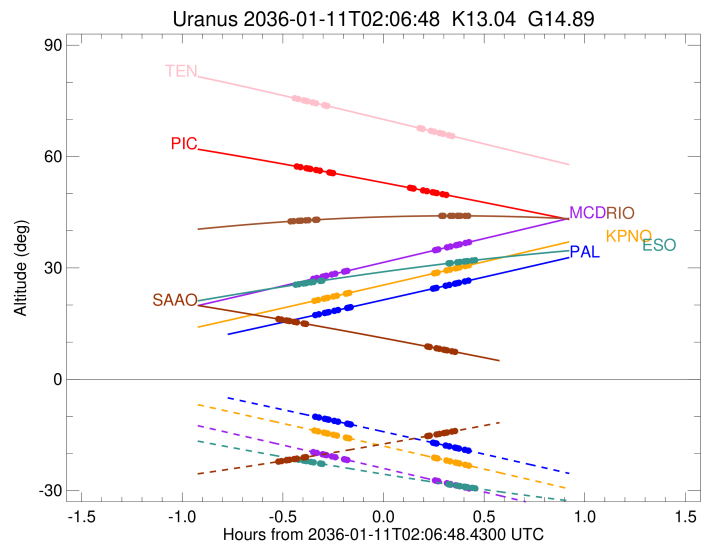
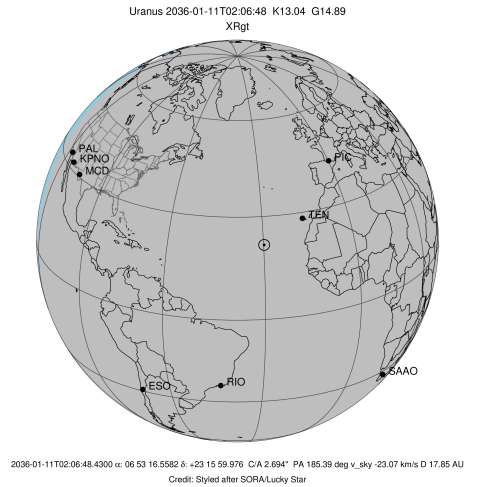


Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2036-01-11T01:40:53.269		25.51	-21.58	50824.50	-20.79		
lambda	I	2036-01-11T01:41:31.941		25.60	-21.68	50026.71	-20.54		
delta	I	2036-01-11T01:42:56.866		25.80	-21.90	48300.35	-20.11		
gamma	I	2036-01-11T01:43:30.683		25.88	-21.99	47623.35	-19.93		
eta	I	2036-01-11T01:43:53.199		25.93	-22.05	47176.12	-19.80		
beta	I	2036-01-11T01:45:10.671		26.11	-22.26	45660.87	-19.34		
alpha	I	2036-01-11T01:45:59.639		26.22	-22.39	44723.13	-19.01		
4	I	2036-01-11T01:47:53.653		26.48	-22.69	42593.86	-18.17		
5	I	2036-01-11T01:48:16.103		26.53	-22.75	42192.58	-18.05		
6	I	2036-01-11T01:48:33.286		26.57	-22.79	41876.26	-17.86		

No planet occultations

6	E	2036-01-11T02:26:08.561		31.22	-28.30	41821.87	17.89		
5	E	2036-01-11T02:26:35.056		31.27	-28.36	42302.33	18.08		
4	E	2036-01-11T02:26:48.389		31.29	-28.39	42532.06	18.20		
alpha	E	2036-01-11T02:28:44.421		31.50	-28.65	44684.65	19.04		
beta	E	2036-01-11T02:29:36.138		31.60	-28.77	45681.10	19.38		
eta	E	2036-01-11T02:30:52.405		31.73	-28.94	47176.12	19.83		
gamma	E	2036-01-11T02:31:15.274		31.77	-28.99	47631.20	19.96		
delta	E	2036-01-11T02:31:48.639		31.83	-29.06	48300.35	20.15		
lambda	E	2036-01-11T02:33:13.408		31.98	-29.25	50026.71	20.58		
epsilon	E	2036-01-11T02:34:23.488		32.10	-29.40	51480.31	20.83		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2036-01-11T02:03:04.580
 Event type : XRgt
 : No Uranus occs
 : Ring occs: geocentric, topocentric
 Observer code : SAAO
 Location : So. Afr. Astro. Obs. (Sutherland)
 Latitude (deg) : -32.37953
 E. Longitude (deg) : 20.81070
 Altitude (km) : 1.768
 Gaia source ID : 3380267599872300928
 2Mass ID (if available) : 06531656+2316002
 ICRS Star Coord at Epoch: 06h 53m 16.55817s +23:15:59.97563s
 RUWE (>1.4 is poor) : 1.05
 K magnitude : 13.044
 G magnitude : 14.893
 RP magnitude : 14.276
 BP magnitude : 15.345
 DUPflag : 0
 Distance (au) : 17.850
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -23.07
 Sun-Target sep (deg) : 172.30
 Sun-Moon sep (deg) : 27.26
 B (ring opening deg) : 64.19
 PA of pole (deg) : 76.43
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 2.394
 C/A sky separation (km) : 30987.3
 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	2036-01-11T01:35:43.858		16.18	-22.14	50829.67	-20.27		
lambda	I	2036-01-11T01:36:23.813		16.08	-22.04	50026.71	-19.99		
delta	I	2036-01-11T01:37:51.175		15.84	-21.83	48300.35	-19.52		
gamma	I	2036-01-11T01:38:26.034		15.75	-21.75	47623.46	-19.32		
eta	I	2036-01-11T01:38:49.279		15.69	-21.69	47176.12	-19.17		
beta	I	2036-01-11T01:40:09.393		15.48	-21.50	45661.41	-18.66		
alpha	I	2036-01-11T01:41:00.291		15.34	-21.37	44722.17	-18.29		
4	I	2036-01-11T01:42:59.238		15.02	-21.08	42592.58	-17.35		
5	I	2036-01-11T01:43:22.530		14.96	-21.02	42194.84	-17.21		
6	I	2036-01-11T01:43:40.768		14.91	-20.98	41875.67	-17.00		

No planet occultations

6	E	2036-01-11T02:19:49.753		8.84	-15.32	41823.84	16.96		
5	E	2036-01-11T02:20:17.475		8.76	-15.24	42300.13	17.17		
4	E	2036-01-11T02:20:31.648		8.71	-15.21	42533.19	17.31		
alpha	E	2036-01-11T02:22:33.150		8.36	-14.87	44684.75	18.24		
beta	E	2036-01-11T02:23:27.057		8.20	-14.72	45681.18	18.61		
eta	E	2036-01-11T02:24:46.313		7.97	-14.50	47176.12	19.11		
gamma	E	2036-01-11T02:25:10.028		7.90	-14.44	47631.11	19.26		
delta	E	2036-01-11T02:25:44.601		7.80	-14.34	48300.35	19.46		
lambda	E	2036-01-11T02:27:12.253		7.54	-14.10	50026.71	19.93		
epsilon	E	2036-01-11T02:28:24.114		7.33	-13.90	51471.45	20.20		