

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2036-02-17T12:28:41.750
 Event type : XRgt
 : No Uranus occs
 : Ring occs: geocentric, topocentric
 Gaia source ID : 3379612806338465920
 2Mass ID (if available) : 06472639+2322520

ICRS Star Coord at Epoch: 06h 47m 26.42720s +23:22:51.39386s

RUWE (>1.4 is poor) : 1.06
 K magnitude : 11.867
 G magnitude : 13.456
 RP magnitude : 12.917
 BP magnitude : 13.834
 DUPflag : 0
 Distance (au) : 18.131
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -13.88
 Sun-Target sep (deg) : 132.96
 Sun-Moon sep (deg) : 119.80
 B (ring opening deg) : 65.46
 PA of pole (deg) : 74.91

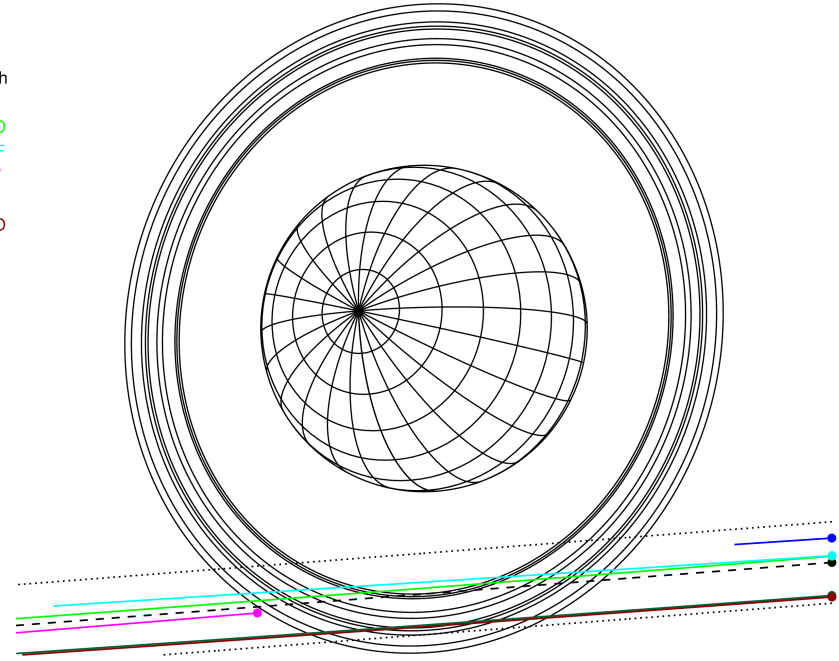
#	a(km)	ring
1	41837.2	6
2	42235.0	5
3	42571.2	4
4	44718.5	alpha
5	45661.1	beta
6	47176.1	eta
7	47626.3	gamma
8	48300.3	delta
9	50026.7	lambda
10	51149.4	epsilon



2036-02-17T12:28:41.7500 α: 06 47 26.4272 δ: +23 22 51.394 C/A 3.146° PA 4.42 deg v_sky -13.88 km/s D 18.13 AU
 Credit: Styled after SORA/Lucky Star

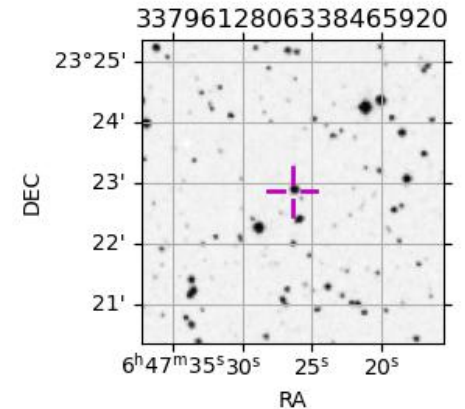
Earth
 PAL
 PMO
 IRTF
 KAV
 AAT
 MSO

Uranus 2036-02-17T12:28:41 K11.87 G13.46 XRgt

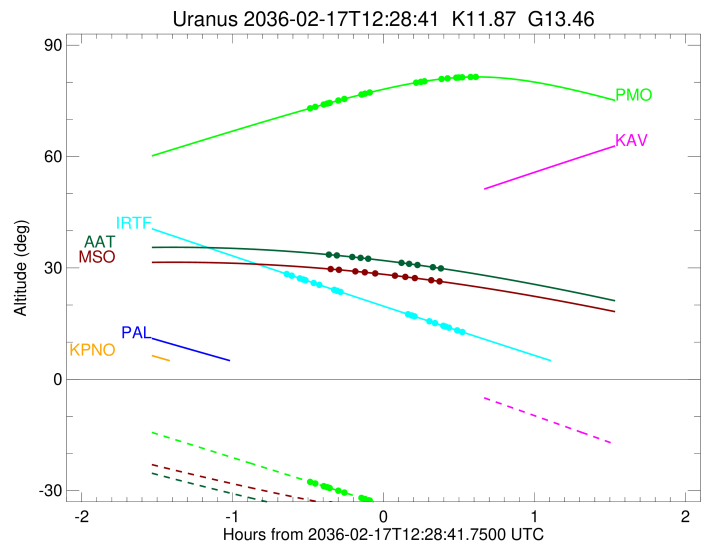
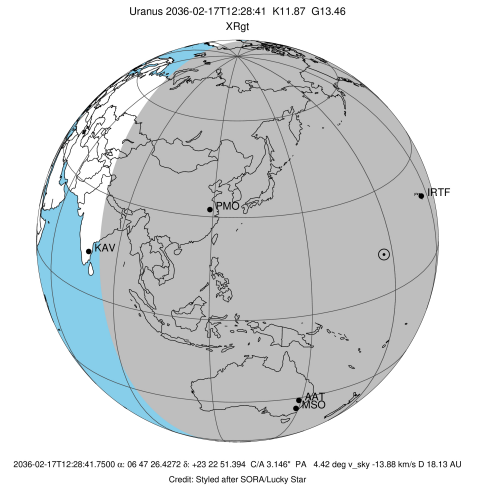


Observable events with sun below -5 deg and altitude above 5 deg unblocked by planet

Obs	Location	lat	Elon	Rings I	Planet	Rings E	Observed Events Interval	OEcode
PIC	Pic du Midi	42.9	0.1					PnnRnn
PAL	Palomar Mt (200")	33.4	243.1					PnnRnn
PMO	Purple Mtn Obs. Nanki	32.1	118.8	+++++		+++++	FEB 17 11:59 - FEB 17 13:06	PnnRie
KPNO	Kitt Peak Natl Obs	32.0	248.4					PnnRnn
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	+++++		+++++	FEB 17 11:50 - FEB 17 13:00	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	++++		++++	FEB 17 12:06 - FEB 17 12:52	PnnRie
SAAO	So. Afr. Astro. Obs.	-32.4	20.8					PnnRnn
MSO	Mt. Stromlo Observato	-35.3	149.0	++++		++++	FEB 17 12:07 - FEB 17 12:52	PnnRie



target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2036-02-17T12:29:49.880
 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 : 3379612806338465920
 2Mass ID (if available) : 06472639+2322520
 ICRS Star Coord at Epoch: 06h 47m 26.42720s +23:22:51.39386s
 RUWE (>1.4 is poor) : 1.06
 K magnitude : 11.867
 G magnitude : 13.456
 RP magnitude : 12.917
 BP magnitude : 13.834
 DUPflag : 0
 Distance (au) : 18.131
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -13.88
 Sun-Target sep (deg) : 132.96
 Sun-Moon sep (deg) : 120.53
 B (ring opening deg) : 65.46
 PA of pole (deg) : 74.91
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 3.084
 C/A sky separation (km) : 40551.2
 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

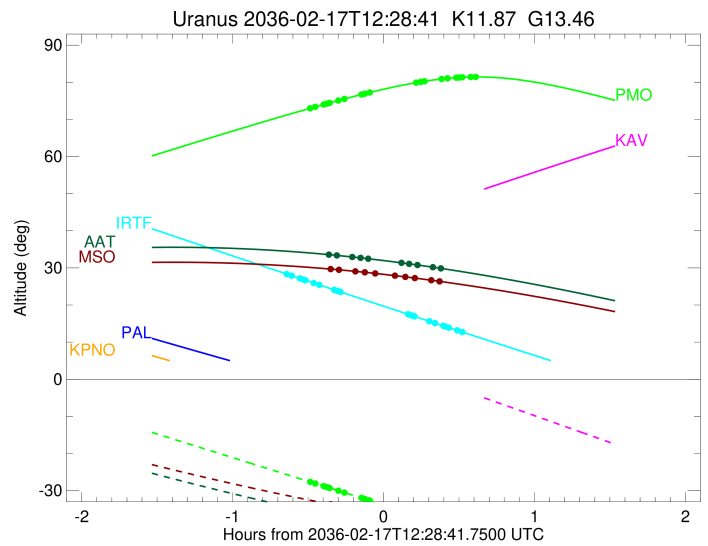
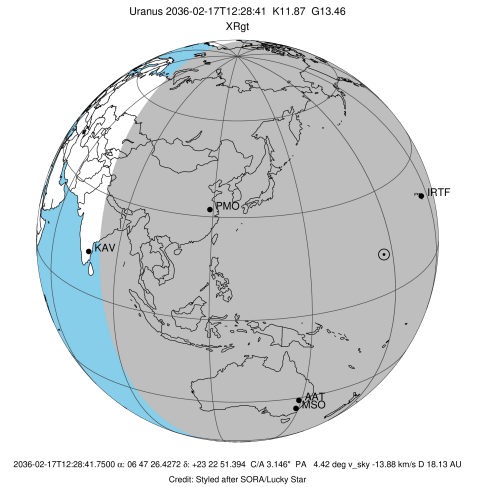


Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2036-02-17T11:59:23.069		72.96	-27.61	51243.33	-9.42		
lambda	I	2036-02-17T12:01:36.541		73.39	-28.08	50026.71	-8.91		
delta	I	2036-02-17T12:04:58.016		74.02	-28.80	48300.35	-8.22		
gamma	I	2036-02-17T12:06:21.357		74.28	-29.09	47627.90	-7.92		
eta	I	2036-02-17T12:07:19.234		74.46	-29.29	47176.12	-7.70		
beta	I	2036-02-17T12:10:47.325		75.09	-30.03	45661.95	-6.86		
alpha	I	2036-02-17T12:13:13.367		75.53	-30.54	44707.54	-6.21		
4	I	2036-02-17T12:20:09.581		76.74	-32.01	42529.48	-4.17		
5	I	2036-02-17T12:21:05.525		76.90	-32.20	42311.92	-3.89		
6	I	2036-02-17T12:23:30.022		77.30	-32.71	41798.75	-3.10		

No planet occultations

6	E	2036-02-17T12:41:26.782		79.87	-36.49	41808.90	3.10		
5	E	2036-02-17T12:43:50.661		80.15	-36.99	42313.34	3.89		
4	E	2036-02-17T12:44:43.787		80.24	-37.17	42526.42	4.17		
alpha	E	2036-02-17T12:51:38.539		80.88	-38.62	44687.50	6.21		
beta	E	2036-02-17T12:54:10.053		81.06	-39.14	45677.59	6.86		
eta	E	2036-02-17T12:57:35.699		81.25	-39.86	47176.12	7.70		
gamma	E	2036-02-17T12:58:34.032		81.29	-40.06	47631.49	7.92		
delta	E	2036-02-17T12:59:56.925		81.34	-40.35	48300.35	8.22		
lambda	E	2036-02-17T13:03:18.413		81.43	-41.04	50026.71	8.90		
epsilon	E	2036-02-17T13:06:05.174		81.44	-41.62	51555.12	9.42		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2036-02-17T12:22:29.210
 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 : 3379612806338465920
 2Mass ID (if available) : 06472639+2322520
 ICRS Star Coord at Epoch: 06h 47m 26.42720s +23:22:51.39386s
 RUWE (>1.4 is poor) : 1.06
 K magnitude : 11.867
 G magnitude : 13.456
 RP magnitude : 12.917
 BP magnitude : 13.834
 DUPflag : 0
 Distance (au) : 18.131
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -13.88
 Sun-Target sep (deg) : 132.96
 Sun-Moon sep (deg) : 120.51
 B (ring opening deg) : 65.46
 PA of pole (deg) : 74.91
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 3.015
 C/A sky separation (km) : 39641.3
 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

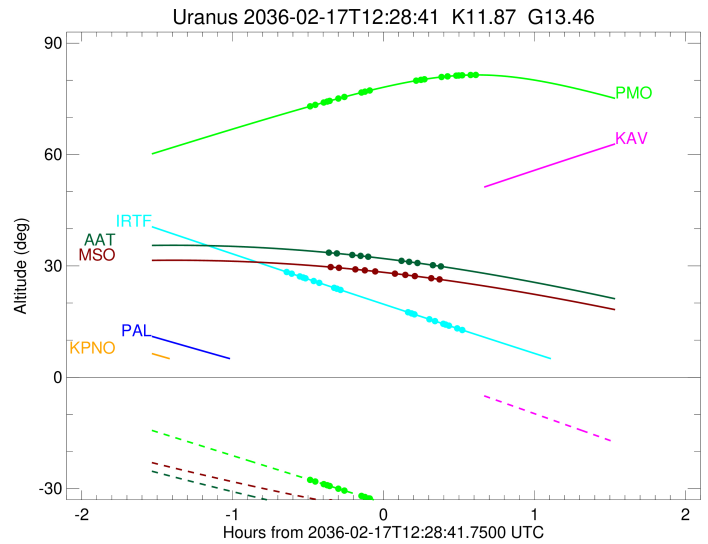
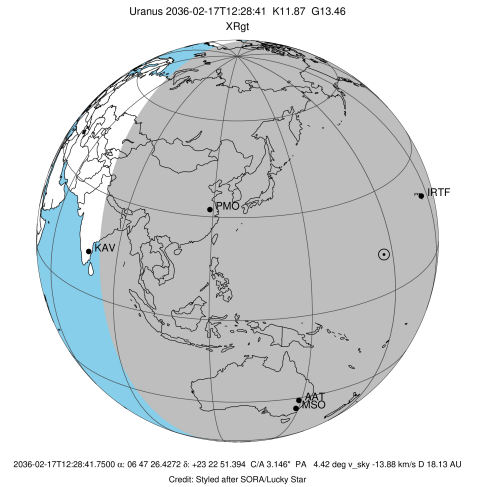


Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2036-02-17T11:50:04.774		28.38	-70.58	51236.07	-9.65		
lambda	I	2036-02-17T11:52:13.865		27.90	-70.11	50026.71	-9.18		
delta	I	2036-02-17T11:55:28.395		27.16	-69.39	48300.35	-8.56		
gamma	I	2036-02-17T11:56:48.227		26.86	-69.09	47627.77	-8.29		
eta	I	2036-02-17T11:57:43.366		26.66	-68.89	47176.12	-8.09		
beta	I	2036-02-17T12:00:59.484		25.92	-68.15	45661.28	-7.36		
alpha	I	2036-02-17T12:03:14.006		25.41	-67.65	44708.79	-6.80		
4	I	2036-02-17T12:09:15.516		24.06	-66.29	42530.65	-5.16		
5	I	2036-02-17T12:10:00.714		23.89	-66.11	42310.22	-4.96		
6	I	2036-02-17T12:11:48.128		23.48	-65.71	41797.41	-4.41		

No planet occultations

6	E	2036-02-17T12:38:17.928		17.55	-59.61	41812.31	4.39		
5	E	2036-02-17T12:40:04.939		17.15	-59.20	42311.50	4.94		
4	E	2036-02-17T12:40:47.661		16.99	-59.03	42527.13	5.14		
alpha	E	2036-02-17T12:46:49.587		15.65	-57.63	44686.73	6.76		
beta	E	2036-02-17T12:49:10.572		15.13	-57.08	45678.20	7.31		
eta	E	2036-02-17T12:52:25.697		14.41	-56.33	47176.12	8.03		
gamma	E	2036-02-17T12:53:21.749		14.20	-56.11	47631.53	8.22		
delta	E	2036-02-17T12:54:41.808		13.90	-55.80	48300.35	8.49		
lambda	E	2036-02-17T12:57:58.141		13.18	-55.03	50026.71	9.09		
epsilon	E	2036-02-17T13:00:42.133		12.57	-54.39	51555.27	9.55		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2036-02-17T12:26:16.100
 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 : 3379612806338465920
 2Mass ID (if available) : 06472639+2322520
 ICRS Star Coord at Epoch: 06h 47m 26.42720s +23:22:51.39386s
 RUWE (>1.4 is poor) : 1.06
 K magnitude : 11.867
 G magnitude : 13.456
 RP magnitude : 12.917
 BP magnitude : 13.834
 DUPflag : 0
 Distance (au) : 18.131
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -13.88
 Sun-Target sep (deg) : 132.96
 Sun-Moon sep (deg) : 120.36
 B (ring opening deg) : 65.46
 PA of pole (deg) : 74.91
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 3.524
 C/A sky separation (km) : 46336.2
 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

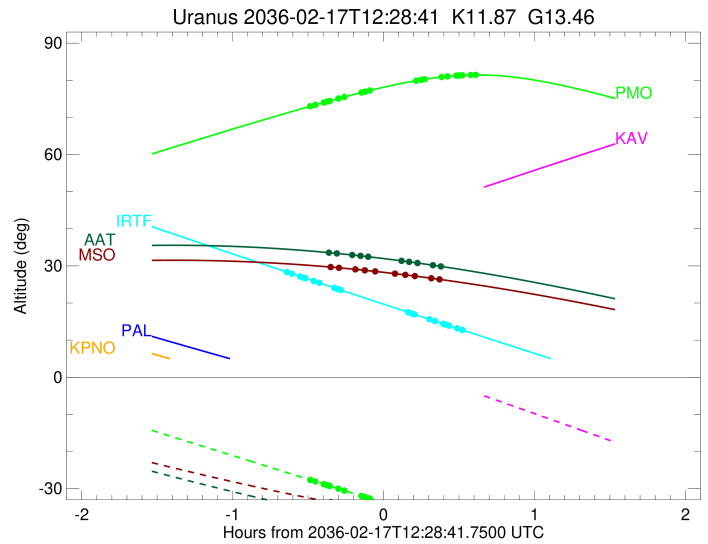
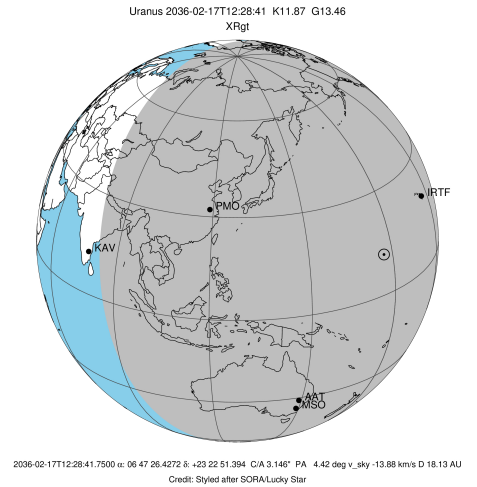


Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2036-02-17T12:06:32.388		33.60	-36.62	51329.74	-6.48		
lambda	I	2036-02-17T12:10:11.712		33.36	-37.13	50026.71	-5.49		
delta	I	2036-02-17T12:16:20.241		32.94	-37.97	48300.35	-3.85		
gamma	I	2036-02-17T12:19:38.763		32.70	-38.41	47629.55	-2.90		
eta	I	2036-02-17T12:22:44.211		32.46	-38.81	47176.12	-1.98		

No planet occultations

eta	E	2036-02-17T12:35:43.663		31.38	-40.42	47176.12	1.98		
gamma	E	2036-02-17T12:38:49.745		31.10	-40.79	47630.85	2.90		
delta	E	2036-02-17T12:42:08.088		30.79	-41.16	48300.35	3.84		
lambda	E	2036-02-17T12:48:17.336		30.19	-41.84	50026.71	5.48		
epsilon	E	2036-02-17T12:52:30.405		29.77	-42.28	51543.02	6.46		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2036-02-17T12:26:20.240
 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 : 3379612806338465920
 2Mass ID (if available) : 06472639+2322520
 ICRS Star Coord at Epoch: 06h 47m 26.42720s +23:22:51.39386s
 RUWE (>1.4 is poor) : 1.06
 K magnitude : 11.867
 G magnitude : 13.456
 RP magnitude : 12.917
 BP magnitude : 13.834
 DUPflag : 0
 Distance (au) : 18.131
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -13.88
 Sun-Target sep (deg) : 132.96
 Sun-Moon sep (deg) : 120.31
 B (ring opening deg) : 65.46
 PA of pole (deg) : 74.91
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 3.543
 C/A sky separation (km) : 46595.4
 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	2036-02-17T12:07:13.687		29.71	-33.60	51334.18	-6.30		
lambda	I	2036-02-17T12:11:01.600		29.48	-34.09	50026.71	-5.26		
delta	I	2036-02-17T12:17:34.140		29.06	-34.91	48300.35	-3.50		
gamma	I	2036-02-17T12:21:20.853		28.80	-35.36	47629.68	-2.41		
eta	I	2036-02-17T12:25:36.789		28.50	-35.87	47176.12	-1.13		

No planet occultations

eta	E	2036-02-17T12:33:01.877		27.93	-36.71	47176.12	1.13		
gamma	E	2036-02-17T12:37:18.441		27.58	-37.17	47630.77	2.41		
delta	E	2036-02-17T12:41:04.967		27.26	-37.57	48300.35	3.50		
lambda	E	2036-02-17T12:47:38.204		26.68	-38.23	50026.71	5.25		
epsilon	E	2036-02-17T12:51:59.893		26.28	-38.65	51541.72	6.28		