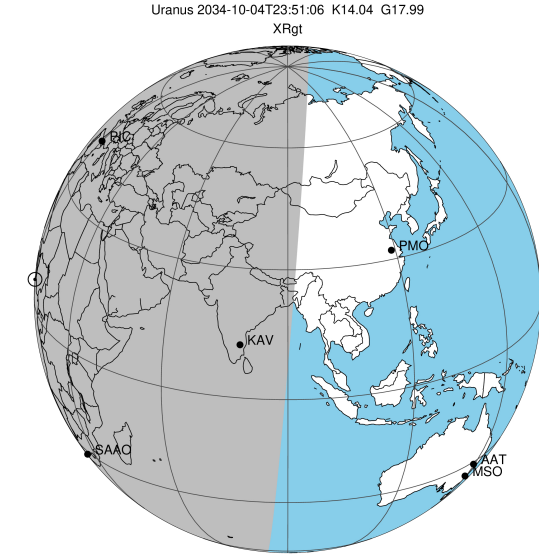


target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2034-10-04T23:51:06.000
 Event type : XRgt
 : No Uranus occs
 : Ring occs: geocentric, topocentric
 Gaia source ID : 3379731789816747008
 2Mass ID (if available) : 06434442+2321380

ICRS Star Coord at Epoch: 06h 43m 44.39491s +23:21:38.56879s

RUWE (>1.4 is poor) : 1.06
 K magnitude : 14.041
 G magnitude : 17.988
 RP magnitude : 17.336
 BP magnitude : 18.417
 DUPflag : 0
 Distance (au) : 18.855
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : 5.75
 Sun-Target sep (deg) : 91.32
 Sun-Moon sep (deg) : 6.83
 B (ring opening deg) : 66.29
 PA of pole (deg) : 74.08

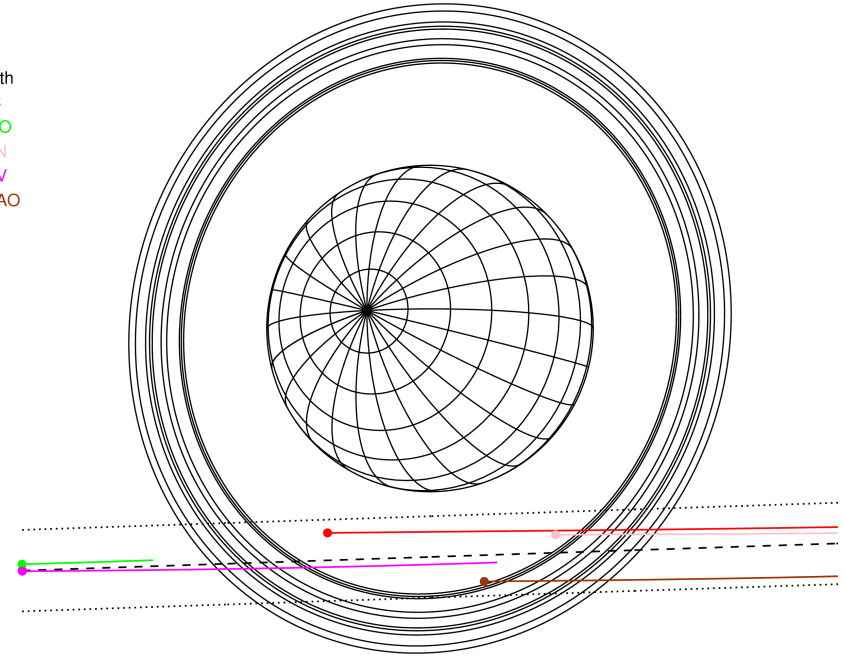
#	a(km)	ring
1	41837.2	6
2	42235.0	5
3	42571.2	4
4	44718.5	alpha
5	45661.1	beta
6	47176.1	eta
7	47626.3	gamma
8	48300.3	delta
9	50026.7	lambda
10	51149.4	epsilon



2034-10-04T23:51:06.0000 a: 06 43 44.3949 s: +23 21 38.5689 C/A 2.616° PA 1.91 deg v_sky + 5.74 km/s D 18.85 AU
 Credit: Styled after SORA/Lucky Star

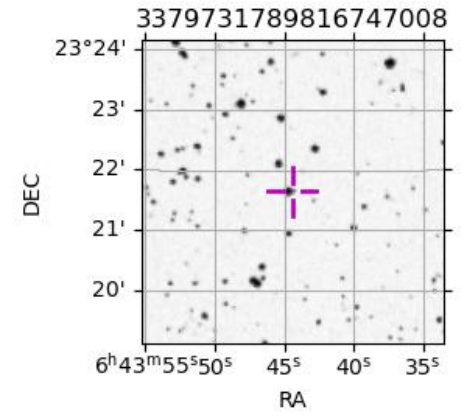
Uranus 2034-10-04T23:51:06 K14.04 G17.99 XRgt

Earth
 PIC
 PMO
 TEN
 KAV
 SAAO

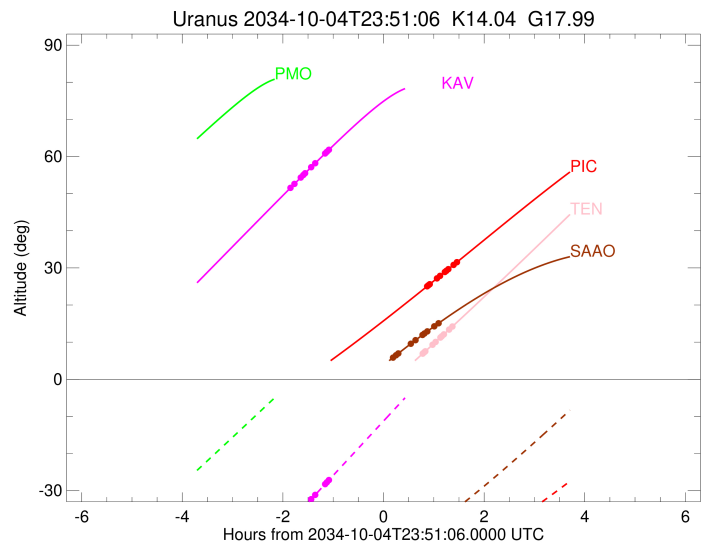
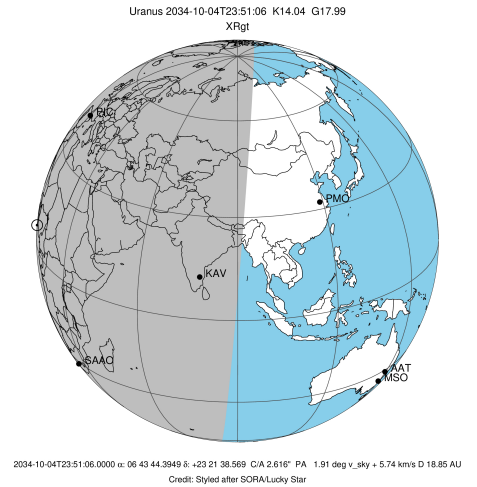


Observable events with sun below -5 deg and altitude above 5 deg unblocked by planet

Obs	Location	lat	Elon	Rings I	Planet	Rings E	Observed Events Interval	OEcode
PIC	Pic du Midi	42.9	0.1			+++++	OCT 05 00:43 - OCT 05 01:19	PnnRne
PAL	Palomar Mt (200")	33.4	243.1					PnnRnn
PMO	Purple Mtn Obs. Nanki	32.1	118.8					PnnRnn
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			+++++	OCT 05 00:37 - OCT 05 01:14	PnnRne
IRTF	Mauna Kea/IRTF	19.8	204.5					PnnRnn
KAV	Kavalur Observatory	12.6	78.8	+++++			OCT 04 21:59 - OCT 04 22:45	PnnRin
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			+++++	OCT 05 00:02 - OCT 05 00:58	PnnRne
MSO	Mt. Stromlo Observato	-35.3	149.0					PnnRnn



target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2034-10-04T23:34:58.210
 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 : 3379731789816747008
 2Mass ID (if available) : 06434442+2321380
 ICRS Star Coord at Epoch: 06h 43m 44.39491s +23:21:38.56879s
 RUWE (>1.4 is poor) : 1.06
 K magnitude : 14.041
 G magnitude : 17.988
 RP magnitude : 17.336
 BP magnitude : 18.417
 DUPflag : 0
 Distance (au) : 18.855
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : 5.75
 Sun-Target sep (deg) : 91.32
 Sun-Moon sep (deg) : 7.77
 B (ring opening deg) : 66.29
 PA of pole (deg) : 74.08
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 2.329
 C/A sky separation (km) : 31848.9
 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

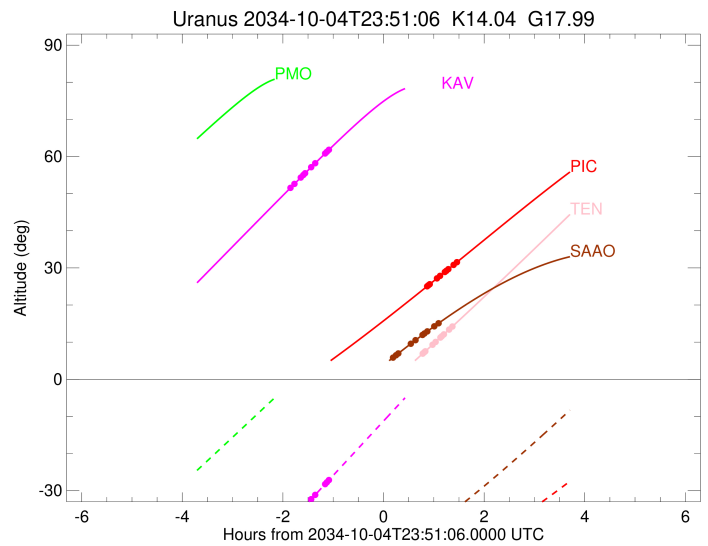
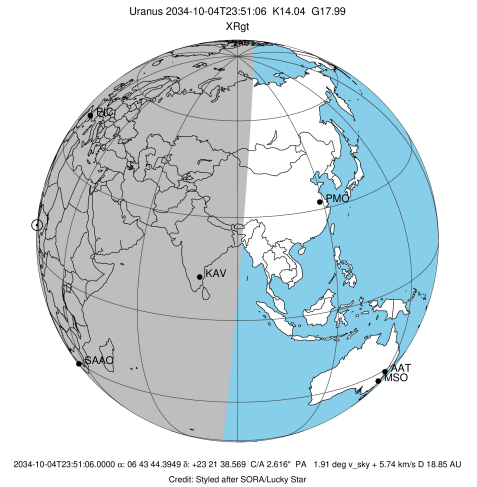


Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2034-10-04T21:45:57.337	-4.61x	-43.28	51392.88	-5.09			
lambda	I	2034-10-04T21:50:29.798	-3.94x	-43.86	50026.71	-4.97			
delta	I	2034-10-04T21:56:22.233	-3.07x	-44.58	48300.35	-4.83			
gamma	I	2034-10-04T21:58:43.587	-2.72x	-44.86	47621.80	-4.77			
eta	I	2034-10-04T22:00:17.390	-2.49x	-45.04	47176.12	-4.73			
beta	I	2034-10-04T22:05:39.623	-1.68x	-45.66	45673.91	-4.59			
alpha	I	2034-10-04T22:09:18.259	-1.12x	-46.07	44685.64	-4.48			
4	I	2034-10-04T22:17:13.733	0.10x	-46.92	42616.48	-4.23			
5	I	2034-10-04T22:18:59.861	0.37x	-47.10	42169.91	-4.17			
6	I	2034-10-04T22:20:13.025	0.56x	-47.23	41868.37	-4.12			

No planet occultations

6	E	2034-10-05T00:43:03.243	25.03	-50.03	41814.38	3.93			
5	E	2034-10-05T00:44:58.477	25.38	-49.90	42270.85	3.98			
4	E	2034-10-05T00:46:10.043	25.59	-49.81	42574.78	4.03			
alpha	E	2034-10-05T00:54:49.963	27.17	-49.16	44725.66	4.25			
beta	E	2034-10-05T00:58:31.803	27.85	-48.85	45676.53	4.34			
eta	E	2034-10-05T01:04:12.984	28.89	-48.36	47176.12	4.46			
gamma	E	2034-10-05T01:05:53.042	29.19	-48.21	47623.81	4.49			
delta	E	2034-10-05T01:08:22.886	29.65	-47.98	48300.35	4.54			
lambda	E	2034-10-05T01:14:38.589	30.80	-47.37	50026.71	4.65			
epsilon	E	2034-10-05T01:19:33.544	31.70	-46.87	51409.65	4.75			

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2034-10-04T23:33:00.710
 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 : 3379731789816747008
 2Mass ID (if available) : 06434442+2321380
 ICRS Star Coord at Epoch: 06h 43m 44.39491s +23:21:38.56879s
 RUWE (>1.4 is poor) : 1.06
 K magnitude : 14.041
 G magnitude : 17.988
 RP magnitude : 17.336
 BP magnitude : 18.417
 DUPflag : 0
 Distance (au) : 18.855
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : 5.75
 Sun-Target sep (deg) : 91.32
 Sun-Moon sep (deg) : 7.73
 B (ring opening deg) : 66.29
 PA of pole (deg) : 74.08
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 2.370
 C/A sky separation (km) : 32410.6
 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

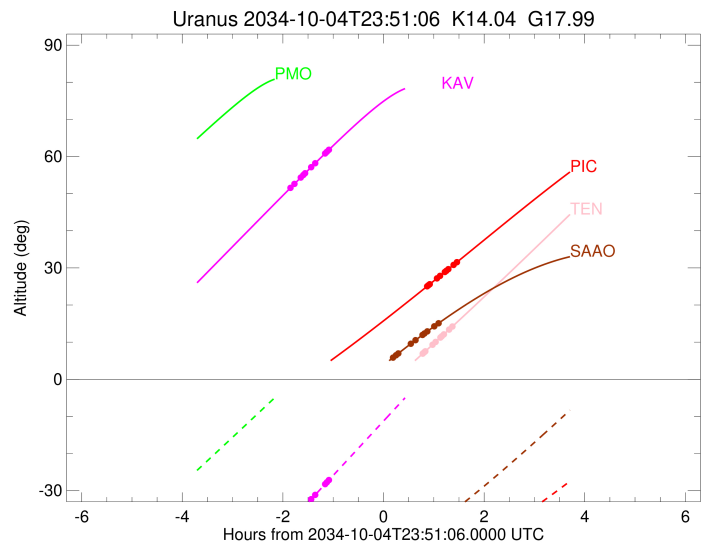
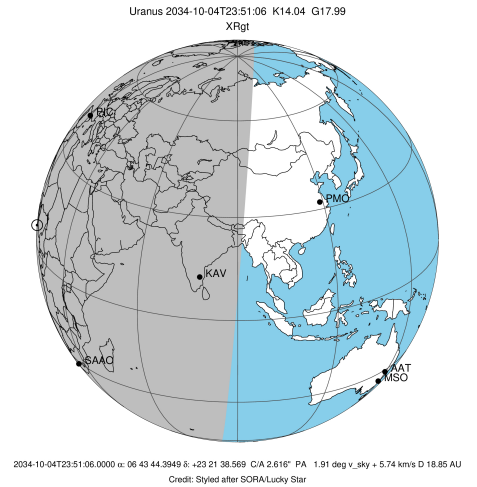


Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2034-10-04T21:47:34.879	-24.17x	-39.84	51397.06	-5.14			
lambda	I	2034-10-04T21:52:05.391	-23.48x	-40.77	50026.71	-5.01			
delta	I	2034-10-04T21:57:54.686	-22.58x	-41.98	48300.35	-4.87			
gamma	I	2034-10-04T22:00:14.949	-22.22x	-42.46	47621.76	-4.81			
eta	I	2034-10-04T22:01:48.072	-21.97x	-42.78	47176.12	-4.76			
beta	I	2034-10-04T22:07:08.336	-21.12x	-43.87	45674.16	-4.61			
alpha	I	2034-10-04T22:10:46.064	-20.54x	-44.61	44685.78	-4.50			
4	I	2034-10-04T22:18:40.967	-19.24x	-46.20	42616.43	-4.22			
5	I	2034-10-04T22:20:27.095	-18.95x	-46.55	42170.81	-4.16			
6	I	2034-10-04T22:21:40.797	-18.74x	-46.79	41867.80	-4.11			

No planet occultations

6	E	2034-10-05T00:37:46.160	6.88	-66.22	41815.28	3.91			
5	E	2034-10-05T00:39:41.117	7.27	-66.30	42269.09	3.96			
4	E	2034-10-05T00:40:53.687	7.52	-66.34	42575.86	4.02			
alpha	E	2034-10-05T00:49:33.129	9.29	-66.53	44724.92	4.25			
beta	E	2034-10-05T00:53:14.582	10.05	-66.56	45676.80	4.35			
eta	E	2034-10-05T00:58:54.264	11.22	-66.54	47176.12	4.48			
gamma	E	2034-10-05T01:00:33.773	11.57	-66.52	47623.71	4.52			
delta	E	2034-10-05T01:03:02.771	12.08	-66.48	48300.35	4.57			
lambda	E	2034-10-05T01:09:15.944	13.37	-66.31	50026.71	4.68			
epsilon	E	2034-10-05T01:14:09.815	14.40	-66.11	51415.35	4.79			

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2034-10-04T23:46:59.850
 Event type : XRgt
 : No Uranus occs
 : Ring occs: geocentric, topocentric
 Observer code : KAV
 Location : Kavalur Observatory
 Latitude (deg) : 12.57556
 E. Longitude (deg) : 78.83167
 Altitude (km) : 0.722
 Gaia source ID : 3379731789816747008
 2Mass ID (if available) : 06434442+2321380
 ICRS Star Coord at Epoch: 06h 43m 44.39491s +23:21:38.56879s
 RUWE (>1.4 is poor) : 1.06
 K magnitude : 14.041
 G magnitude : 17.988
 RP magnitude : 17.336
 BP magnitude : 18.417
 DUPflag : 0
 Distance (au) : 18.855
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : 5.75
 Sun-Target sep (deg) : 91.32
 Sun-Moon sep (deg) : 6.91
 B (ring opening deg) : 66.29
 PA of pole (deg) : 74.08
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 2.702
 C/A sky separation (km) : 36950.8
 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_itrf93_040916.bsp
 earth_720101_070426.bpc
 earth_200101_990628_predict.bpc
 pg3f0000r.bsp
 pg490000r.bsp
 naif0012.tls
 earth_flat_IAU.spk

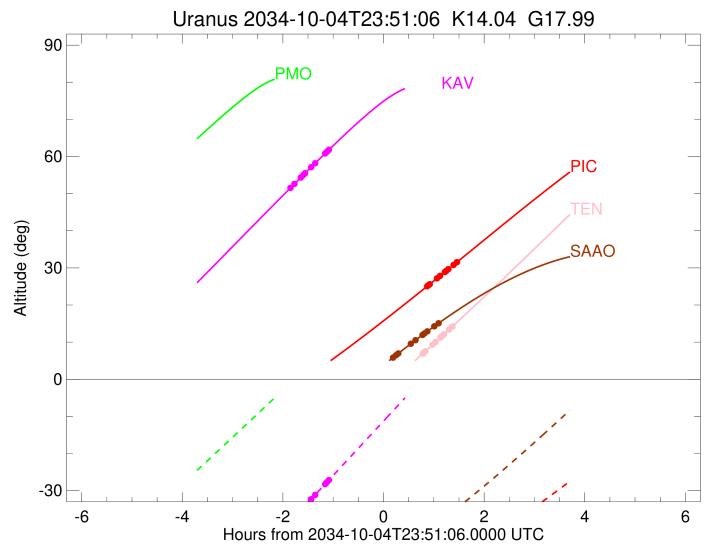
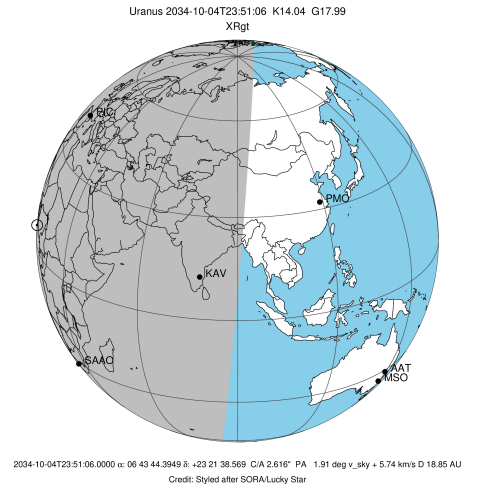


Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2034-10-04T21:59:02.445		51.30	-38.60	51437.47	-4.06		
lambda	I	2034-10-04T22:04:57.771		52.65	-37.16	50026.71	-3.90		
delta	I	2034-10-04T22:12:31.106		54.36	-35.32	48300.35	-3.71		
gamma	I	2034-10-04T22:15:36.051		55.05	-34.57	47621.38	-3.63		
eta	I	2034-10-04T22:17:39.682		55.51	-34.07	47176.12	-3.57		
beta	I	2034-10-04T22:24:51.729		57.13	-32.31	45676.56	-3.36		
alpha	I	2034-10-04T22:29:53.199		58.25	-31.08	44687.88	-3.21		
4	I	2034-10-04T22:41:21.663		60.80	-28.29	42614.75	-2.81		
5	I	2034-10-04T22:43:58.371		61.37	-27.65	42182.26	-2.72		
6	I	2034-10-04T22:45:58.807		61.81	-27.16	41860.73	-2.63		

No planet occultations

6	E	2034-10-05T00:37:12.790		79.16	-0.04x	41822.07	2.59		
5	E	2034-10-05T00:39:57.369		79.12	0.63x	42256.19	2.67		
4	E	2034-10-05T00:41:52.728		79.06	1.10x	42583.25	2.76		
alpha	E	2034-10-05T00:53:57.339		78.31	4.03x	44720.20	3.13		
beta	E	2034-10-05T00:58:55.939		77.81	5.24x	45678.31	3.28		
eta	E	2034-10-05T01:06:19.124		76.91	7.03x	47176.12	3.48		
gamma	E	2034-10-05T01:08:26.660		76.62	7.55x	47623.19	3.53		
delta	E	2034-10-05T01:11:36.314		76.16	8.32x	48300.35	3.61		
lambda	E	2034-10-05T01:19:23.197		74.94	10.20x	50026.71	3.78		
epsilon	E	2034-10-05T01:25:31.289		73.89	11.69x	51442.99	3.93		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2034-10-04T23:33:33.470
 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 : 3379731789816747008
 2Mass ID (if available) : 06434442+2321380
 ICRS Star Coord at Epoch: 06h 43m 44.39491s +23:21:38.56879s
 RUWE (>1.4 is poor) : 1.06
 K magnitude : 14.041
 G magnitude : 17.988
 RP magnitude : 17.336
 BP magnitude : 18.417
 DUPflag : 0
 Distance (au) : 18.855
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : 5.75
 Sun-Target sep (deg) : 91.32
 Sun-Moon sep (deg) : 6.87
 B (ring opening deg) : 66.29
 PA of pole (deg) : 74.08
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 2.902
 C/A sky separation (km) : 39686.5
 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	2034-10-04T22:01:29.837	-17.48x	-52.72	51455.78	-4.01			
lambda	I	2034-10-04T22:07:37.192	-16.24x	-52.91	50026.71	-3.79			
delta	I	2034-10-04T22:15:28.113	-14.65x	-53.07	48300.35	-3.53			
gamma	I	2034-10-04T22:18:43.535	-14.00x	-53.11	47621.22	-3.42			
eta	I	2034-10-04T22:20:55.356	-13.56x	-53.13	47176.12	-3.34			
beta	I	2034-10-04T22:28:45.538	-12.00x	-53.13	45677.73	-3.03			
alpha	I	2034-10-04T22:34:24.937	-10.87x	-53.08	44689.59	-2.80			
4	I	2034-10-04T22:48:21.483	-8.12x	-52.73	42612.62	-2.16			
5	I	2034-10-04T22:51:44.591	-7.46x	-52.60	42191.57	-2.00			
6	I	2034-10-04T22:54:40.151	-6.89x	-52.48	41854.97	-1.84			

No planet occultations

6	E	2034-10-05T00:02:19.617	5.81	-46.50	41829.99	1.79			
5	E	2034-10-05T00:05:58.847	6.46	-46.03	42241.70	1.95			
4	E	2034-10-05T00:08:46.567	6.96	-45.67	42590.67	2.09			
alpha	E	2034-10-05T00:23:32.962	9.54	-43.63	44715.33	2.69			
beta	E	2034-10-05T00:29:17.825	10.53	-42.79	45679.56	2.90			
eta	E	2034-10-05T00:37:30.868	11.92	-41.55	47176.12	3.17			
gamma	E	2034-10-05T00:39:50.113	12.31	-41.19	47622.69	3.24			
delta	E	2034-10-05T00:43:15.834	12.88	-40.65	48300.35	3.34			
lambda	E	2034-10-05T00:51:34.700	14.25	-39.32	50026.71	3.57			
epsilon	E	2034-10-05T00:58:09.805	15.31	-38.24	51470.55	3.76			