

target : Uranus  
 target radius (km) : 25559.00  
 C/A epoch : 2026-09-26T04:09:14.450  
 Event type : XRgt  
 : No Uranus occs  
 : Ring occs: geocentric, topocentric  
 Gaia source ID : 52362012186180096  
 2Mass ID (if available) : 04131654+2100561

ICRS Star Coord at Epoch: 04h 13m 16.56274s +21:00:55.83012s

RUWE (>1.4 is poor) : 1.15  
 K magnitude : 13.979  
 G magnitude : 16.461  
 RP magnitude : 15.656  
 BP magnitude : 17.140  
 DUPflag : 0  
 Distance (au) : 18.959  
 f0 (km) : 0.000  
 g0 (km) : 0.000  
 skyplane vel. (km/s) : -7.42  
 Sun-Target sep (deg) : 117.51  
 Sun-Moon sep (deg) : 69.11  
 B (ring opening deg) : 75.48  
 PA of pole (deg) : -68.59

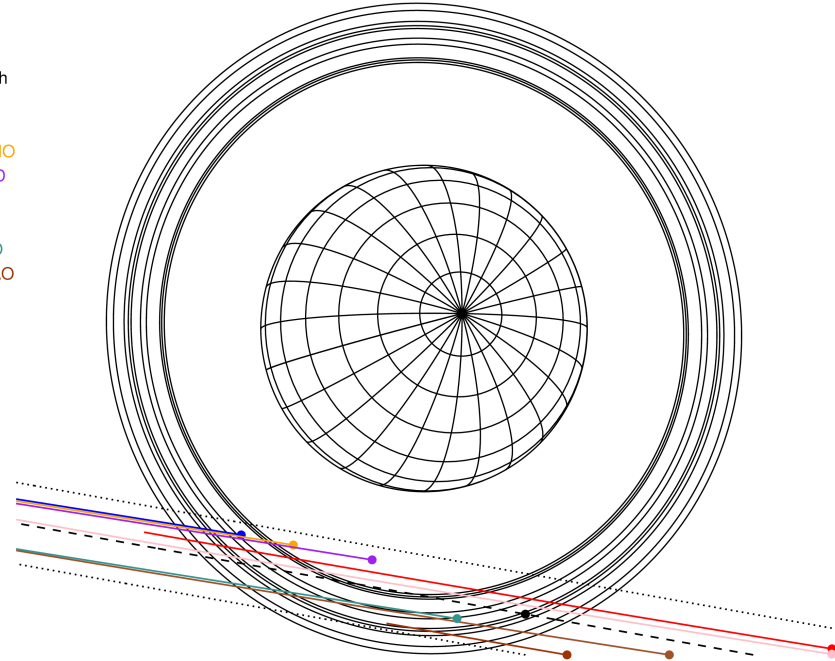
#	a(km)	ring
1	41837.2	6
2	42235.0	5
3	42571.2	4
4	44718.5	alpha
5	45661.1	beta
6	47176.1	eta
7	47626.3	gamma
8	48300.3	delta
9	50026.7	lambda
10	51149.4	epsilon



2026-09-26T04:09:14.4500 α: 04 13 16.5627 s: +21 00 55.830 C/A 2.996° PA 349.87 deg v\_sky - 7.42 km/s D 18.96 AU  
 Credit: Styled after SORA/Lucky Star

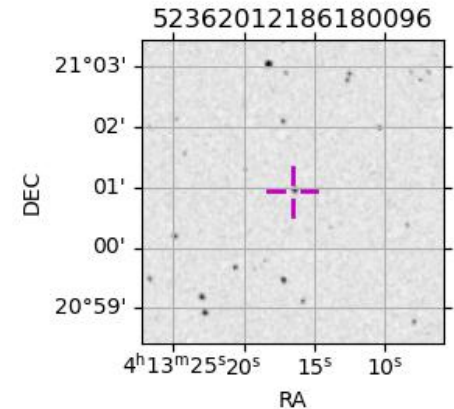
Uranus 2026-09-26T04:09:14 K13.98 G16.46 XRgt

Earth  
 PIC  
 PAL  
 KPNO  
 MCD  
 TEN  
 RIO  
 ESO  
 SAAO

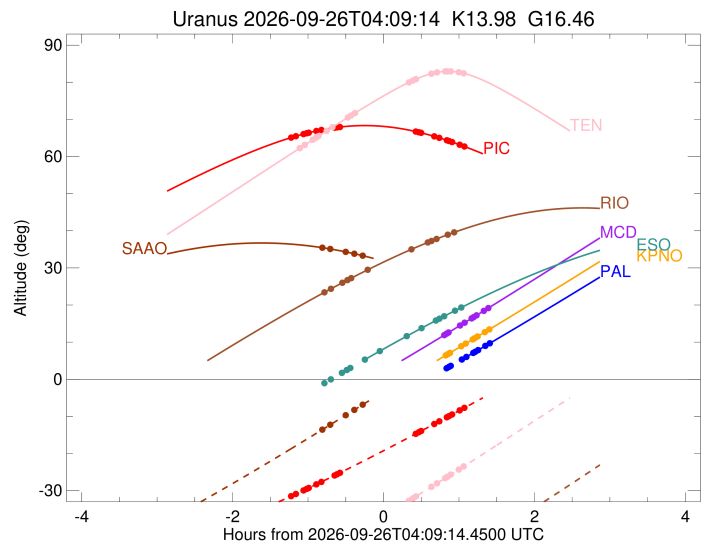
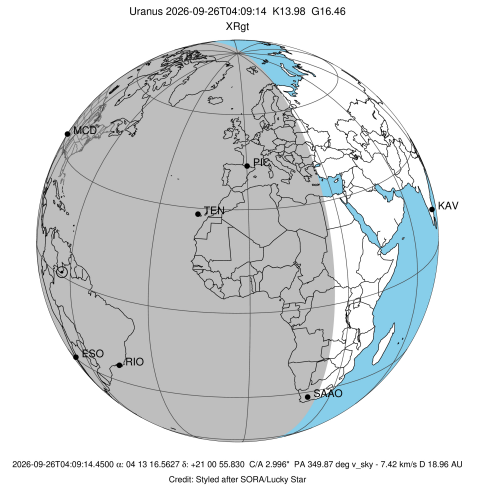


Observable events with sun below -5 deg and altitude above 5 deg unblocked by planet

Obs	Location	lat	Elon	Rings I	Planet	Rings E	Observed Events Interval	OEncode
PIC	Pic du Midi	42.9	0.1	+++++		+++++	SEP 26 02:55 - SEP 26 05:14	PnnRie
PAL	Palomar Mt (200")	33.4	243.1			+++++	SEP 26 05:11 - SEP 26 05:35	PnnRne
PNO	Purple Mtn Obs. Nanki	32.1	118.8					PnnRnn
KPNO	Kitt Peak Natl Obs	32.0	248.4			+++++	SEP 26 04:58 - SEP 26 05:34	PnnRne
MCD	McDonald Obs. 2.7m	30.7	256.0			+++++	SEP 26 04:57 - SEP 26 05:33	PnnRne
TEN	Teide Obs./Tenerife	28.3	343.5	+++++		+++++	SEP 26 03:02 - SEP 26 05:14	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	+++++		+++++	SEP 26 03:21 - SEP 26 05:07	PnnRie
ESO	European Southern Obs	-29.3	289.3	++		+++++	SEP 26 03:54 - SEP 26 05:12	PnnRie
AAT	Siding Spring (AAT)	-31.3	149.1					PnnRnn
SAAO	So. Afr. Astro. Obs.	-32.4	20.8	+++++			SEP 26 03:19 - SEP 26 03:53	PnnRin
MSO	Mt. Stromlo Observato	-35.3	149.0					PnnRnn



target : Uranus  
 target radius (km) : 25559.00  
 C/A epoch : 2026-09-26T04:07:09.340  
 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 : 52362012186180096  
 2Mass ID (if available) : 04131654+2100561  
 ICRS Star Coord at Epoch: 04h 13m 16.56274s +21:00:55.83012s  
 RUWE (>1.4 is poor) : 1.15  
 K magnitude : 13.979  
 G magnitude : 16.461  
 RP magnitude : 15.656  
 BP magnitude : 17.140  
 DUPflag : 0  
 Distance (au) : 18.959  
 f0 (km) : 0.000  
 g0 (km) : 0.000  
 skyplane vel. (km/s) : -7.42  
 Sun-Target sep (deg) : 117.51  
 Sun-Moon sep (deg) : 69.98  
 B (ring opening deg) : 75.48  
 PA of pole (deg) : -68.59  
 Pole direction: RA (deg): 257.31100  
 Dec (deg): -15.17500  
 C/A sky separation (") : 2.834  
 C/A sky separation (km) : 38974.7  
 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\_itrfr93\_040916.bsp  
 earth\_720101\_070426.bpc  
 earth\_200101\_990628\_predict.bpc  
 pg3f0000r.bsp  
 pg490000r.bsp  
 naif0012.tls  
 earth\_flat\_IAU.spk

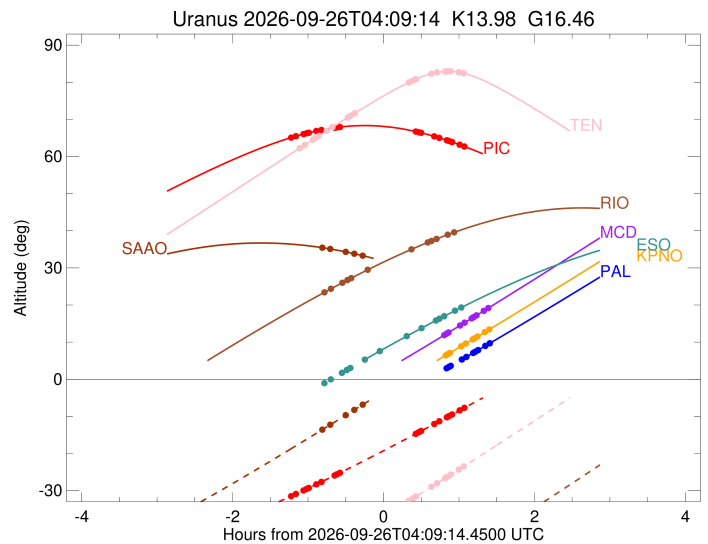
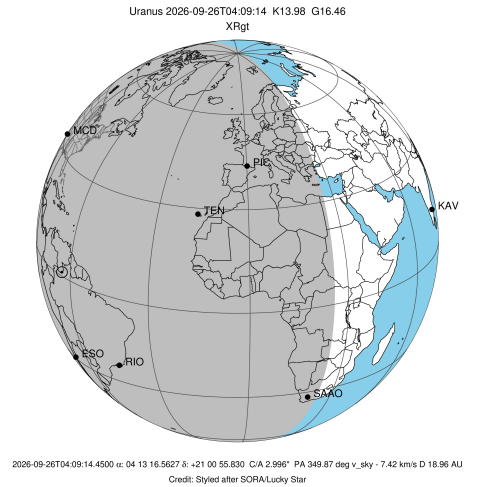


Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2026-09-26T02:55:36.105		65.07	-31.52	51226.64	-5.10		
lambda	I	2026-09-26T02:59:37.629		65.48	-30.90	50026.71	-4.88		
delta	I	2026-09-26T03:05:42.287		66.05	-29.94	48300.35	-4.58		
gamma	I	2026-09-26T03:08:10.410		66.27	-29.54	47630.69	-4.46		
eta	I	2026-09-26T03:09:53.486		66.41	-29.27	47176.12	-4.36		
beta	I	2026-09-26T03:15:58.569		66.89	-28.29	45646.08	-4.01		
alpha	I	2026-09-26T03:20:05.771		67.18	-27.61	44685.84	-3.75		
4	I	2026-09-26T03:30:36.077		67.77	-25.88	42544.77	-3.03		
5	I	2026-09-26T03:32:48.670		67.87	-25.51	42156.39	-2.85		
6	I	2026-09-26T03:34:40.997		67.95	-25.19	41845.91	-2.69		

No planet occultations

6	E	2026-09-26T04:34:36.518		66.75	-14.75	41817.10	2.70		
5	E	2026-09-26T04:36:46.851		66.58	-14.36	42166.37	2.85		
4	E	2026-09-26T04:39:06.649		66.39	-13.94	42578.73	3.03		
alpha	E	2026-09-26T04:49:23.922		65.45	-12.09	44693.16	3.77		
beta	E	2026-09-26T04:53:28.086		65.04	-11.35	45642.26	4.03		
eta	E	2026-09-26T04:59:32.481		64.39	-10.25	47176.12	4.38		
gamma	E	2026-09-26T05:01:13.876		64.20	-9.94	47625.10	4.47		
delta	E	2026-09-26T05:03:42.603		63.91	-9.49	48300.35	4.61		
lambda	E	2026-09-26T05:09:45.556		63.18	-8.39	50026.71	4.90		
epsilon	E	2026-09-26T05:14:50.183		62.54	-7.46	51555.05	5.13		

target : Uranus  
 target radius (km) : 25559.00  
 C/A epoch : 2026-09-26T04:17:31.410  
 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 : 52362012186180096  
 2Mass ID (if available) : 04131654+2100561  
 ICRS Star Coord at Epoch: 04h 13m 16.56274s +21:00:55.83012s  
 RUWE (>1.4 is poor) : 1.15  
 K magnitude : 13.979  
 G magnitude : 16.461  
 RP magnitude : 15.656  
 BP magnitude : 17.140  
 DUPflag : 0  
 Distance (au) : 18.959  
 f0 (km) : 0.000  
 g0 (km) : 0.000  
 skyplane vel. (km/s) : -7.42  
 Sun-Target sep (deg) : 117.51  
 Sun-Moon sep (deg) : 68.78  
 B (ring opening deg) : 75.48  
 PA of pole (deg) : -68.59  
 Pole direction: RA (deg): 257.31100  
 Dec (deg): -15.17500  
 C/A sky separation (") : 2.655  
 C/A sky separation (km) : 36499.6  
 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

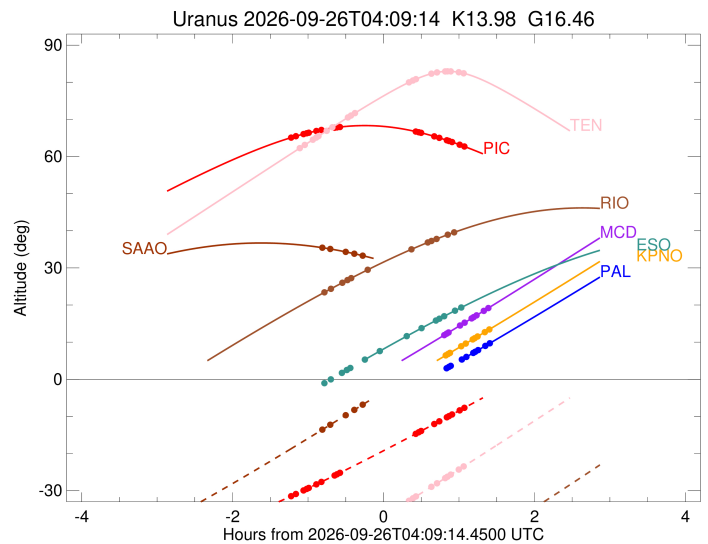
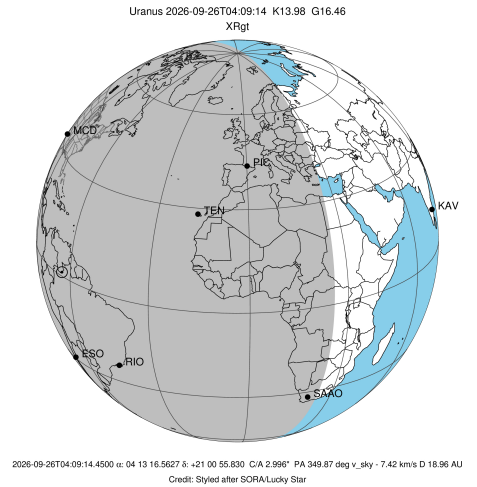


Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2026-09-26T02:54:57.674	-18.94x	-16.51	51196.70	-5.13			
lambda	I	2026-09-26T02:58:50.459	-18.34x	-17.31	50026.71	-4.96			
delta	I	2026-09-26T03:04:45.844	-17.41x	-18.53	48300.35	-4.75			
gamma	I	2026-09-26T03:07:08.151	-17.04x	-19.02	47630.94	-4.66			
eta	I	2026-09-26T03:08:46.493	-16.77x	-19.35	47176.12	-4.59			
beta	I	2026-09-26T03:14:28.376	-15.85x	-20.52	45647.53	-4.34			
alpha	I	2026-09-26T03:18:13.801	-15.24x	-21.29	44687.04	-4.17			
4	I	2026-09-26T03:27:19.074	-13.73x	-23.14	42539.98	-3.70			
5	I	2026-09-26T03:29:03.524	-13.44x	-23.49	42159.48	-3.59			
6	I	2026-09-26T03:30:30.160	-13.20x	-23.78	41852.09	-3.50			

No planet occultations

6	E	2026-09-26T04:59:09.356	2.92x	-40.81	41812.14	3.58			
5	E	2026-09-26T05:00:52.797	3.26x	-41.12	42172.37	3.67			
4	E	2026-09-26T05:02:42.925	3.61x	-41.44	42584.19	3.79			
alpha	E	2026-09-26T05:11:22.950	5.29	-42.95	44695.48	4.28			
beta	E	2026-09-26T05:14:59.788	6.00	-43.56	45642.95	4.47			
eta	E	2026-09-26T05:20:32.181	7.08	-44.50	47176.12	4.74			
gamma	E	2026-09-26T05:22:06.101	7.39	-44.76	47624.71	4.81			
delta	E	2026-09-26T05:24:25.050	7.85	-45.14	48300.35	4.91			
lambda	E	2026-09-26T05:30:08.160	8.98	-46.07	50026.71	5.15			
epsilon	E	2026-09-26T05:34:59.610	9.94	-46.84	51553.42	5.33			

target : Uranus  
 target radius (km) : 25559.00  
 C/A epoch : 2026-09-26T04:18:01.610  
 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 : 52362012186180096  
 2Mass ID (if available) : 04131654+2100561  
 ICRS Star Coord at Epoch: 04h 13m 16.56274s +21:00:55.83012s  
 RUWE (>1.4 is poor) : 1.15  
 K magnitude : 13.979  
 G magnitude : 16.461  
 RP magnitude : 15.656  
 BP magnitude : 17.140  
 DUPflag : 0  
 Distance (au) : 18.959  
 f0 (km) : 0.000  
 g0 (km) : 0.000  
 skyplane vel. (km/s) : -7.42  
 Sun-Target sep (deg) : 117.51  
 Sun-Moon sep (deg) : 68.81  
 B (ring opening deg) : 75.48  
 PA of pole (deg) : -68.59  
 Pole direction: RA (deg): 257.31100  
 Dec (deg): -15.17500  
 C/A sky separation (") : 2.672  
 C/A sky separation (km) : 36738.7  
 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\_itrf93\_040916.bsp  
 earth\_720101\_070426.bpc  
 earth\_200101\_990628\_predict.bpc  
 pg3f0000r.bsp  
 pg490000r.bsp  
 naif0012.tls  
 earth\_flat\_IAU.spk

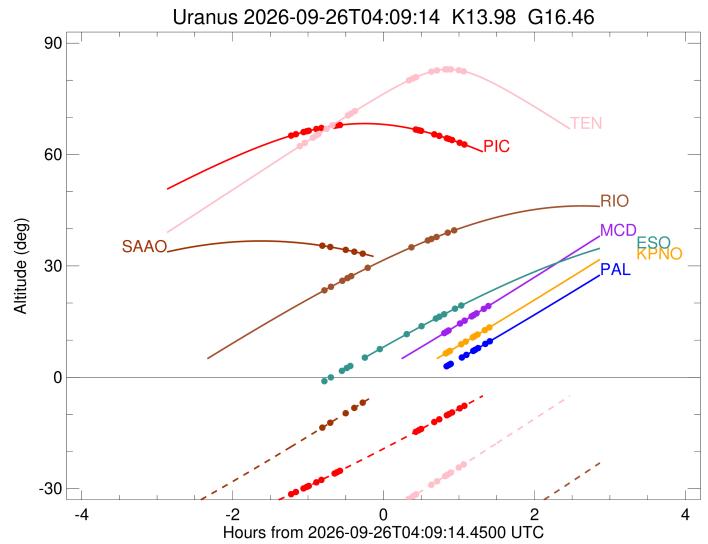
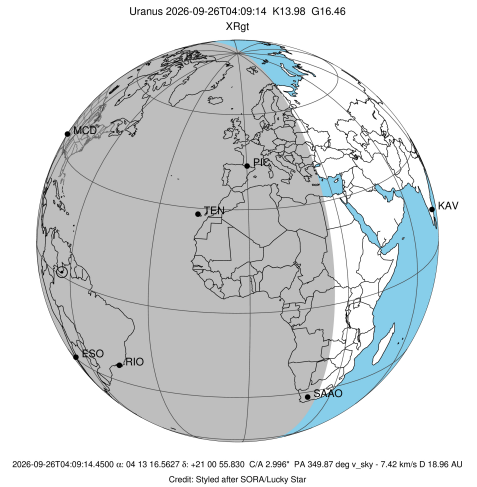


Ring	I/E	UTC	b? alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2026-09-26T02:56:19.077	-16.26x	-21.41	51198.69	-5.11		
lambda	I	2026-09-26T03:00:13.205	-15.60x	-22.22	50026.71	-4.94		
delta	I	2026-09-26T03:06:10.378	-14.59x	-23.46	48300.35	-4.72		
gamma	I	2026-09-26T03:08:33.541	-14.19x	-23.95	47630.92	-4.63		
eta	I	2026-09-26T03:10:12.522	-13.90x	-24.29	47176.12	-4.56		
beta	I	2026-09-26T03:15:57.058	-12.91x	-25.47	45647.42	-4.31		
alpha	I	2026-09-26T03:19:44.631	-12.24x	-26.24	44686.94	-4.13		
4	I	2026-09-26T03:28:56.860	-10.62x	-28.12	42540.30	-3.64		
5	I	2026-09-26T03:30:43.257	-10.30x	-28.48	42159.21	-3.53		
6	I	2026-09-26T03:32:11.553	-10.04x	-28.77	41851.67	-3.43		

No planet occultations

6	E	2026-09-26T04:58:28.588	6.38	-45.15	41812.61	3.51		
5	E	2026-09-26T05:00:13.548	6.73	-45.45	42171.72	3.61		
4	E	2026-09-26T05:02:05.544	7.10	-45.77	42583.64	3.73		
alpha	E	2026-09-26T05:10:52.117	8.86	-47.24	44695.21	4.24		
beta	E	2026-09-26T05:14:30.921	9.59	-47.84	45642.86	4.44		
eta	E	2026-09-26T05:20:05.639	10.72	-48.73	47176.12	4.71		
gamma	E	2026-09-26T05:21:40.104	11.04	-48.98	47624.76	4.79		
delta	E	2026-09-26T05:23:59.754	11.51	-49.34	48300.35	4.89		
lambda	E	2026-09-26T05:29:44.255	12.68	-50.23	50026.71	5.13		
epsilon	E	2026-09-26T05:34:36.605	13.67	-50.95	51553.72	5.32		

target : Uranus  
 target radius (km) : 25559.00  
 C/A epoch : 2026-09-26T04:18:29.810  
 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 : 52362012186180096  
 2Mass ID (if available) : 04131654+2100561  
 ICRS Star Coord at Epoch: 04h 13m 16.56274s +21:00:55.83012s  
 RUWE (>1.4 is poor) : 1.15  
 K magnitude : 13.979  
 G magnitude : 16.461  
 RP magnitude : 15.656  
 BP magnitude : 17.140  
 DUPflag : 0  
 Distance (au) : 18.959  
 f0 (km) : 0.000  
 g0 (km) : 0.000  
 skyplane vel. (km/s) : -7.42  
 Sun-Target sep (deg) : 117.51  
 Sun-Moon sep (deg) : 68.88  
 B (ring opening deg) : 75.48  
 PA of pole (deg) : -68.59  
 Pole direction: RA (deg): 257.31100  
 Dec (deg): -15.17500  
 C/A sky separation (") : 2.695  
 C/A sky separation (km) : 37061.8  
 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



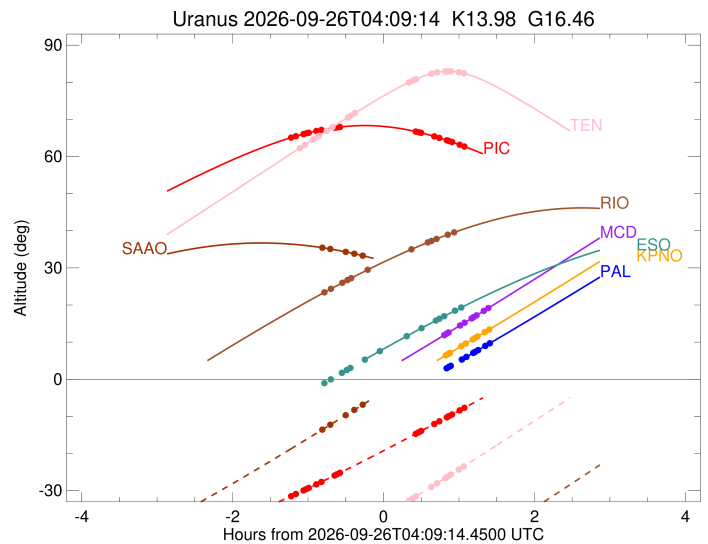
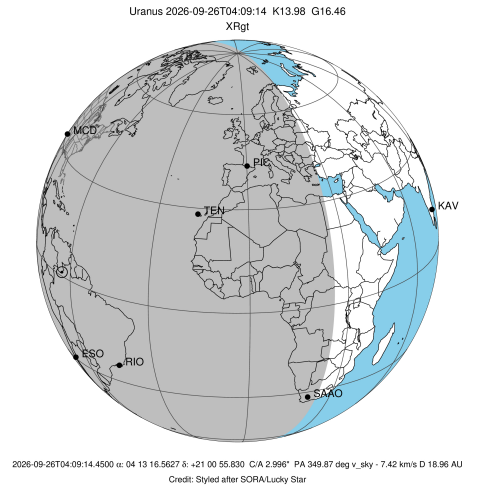
Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2026-09-26T02:58:01.433	-11.44x	-28.37	51201.48	-5.09			
lambda	I	2026-09-26T03:01:57.195	-10.73x	-29.18	50026.71	-4.91			
delta	I	2026-09-26T03:07:56.508	-9.63x	-30.40	48300.35	-4.69			
gamma	I	2026-09-26T03:10:20.732	-9.19x	-30.90	47630.90	-4.59			
eta	I	2026-09-26T03:12:00.514	-8.88x	-31.23	47176.12	-4.52			
beta	I	2026-09-26T03:17:48.476	-7.80x	-32.41	45647.27	-4.26			
alpha	I	2026-09-26T03:21:38.897	-7.08x	-33.19	44686.81	-4.07			
4	I	2026-09-26T03:31:00.697	-5.32x	-35.06	42540.75	-3.56			
5	I	2026-09-26T03:32:49.859	-4.97x	-35.43	42158.85	-3.44			
6	I	2026-09-26T03:34:20.539	-4.68x	-35.73	41851.07	-3.34			

No planet occultations

6	E	2026-09-26T04:57:17.136	11.84	-50.78	41813.26	3.42			
5	E	2026-09-26T04:59:04.321	12.21	-51.06	42170.84	3.52			
4	E	2026-09-26T05:00:59.014	12.60	-51.36	42582.88	3.65			
alpha	E	2026-09-26T05:09:54.881	14.45	-52.71	44694.85	4.19			
beta	E	2026-09-26T05:13:36.413	15.21	-53.24	45642.75	4.39			
eta	E	2026-09-26T05:19:14.314	16.39	-54.04	47176.12	4.68			
gamma	E	2026-09-26T05:20:49.516	16.72	-54.25	47624.82	4.75			
delta	E	2026-09-26T05:23:10.107	17.21	-54.57	48300.35	4.86			
lambda	E	2026-09-26T05:28:56.453	18.41	-55.33	50026.71	5.11			
epsilon	E	2026-09-26T05:33:49.963	19.44	-55.94	51554.08	5.30			



target : Uranus  
 target radius (km) : 25559.00  
 C/A epoch : 2026-09-26T04:10:27.750  
 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 : 52362012186180096  
 2Mass ID (if available) : 04131654+2100561  
 ICRS Star Coord at Epoch: 04h 13m 16.56274s +21:00:55.83012s  
 RUWE (>1.4 is poor) : 1.15  
 K magnitude : 13.979  
 G magnitude : 16.461  
 RP magnitude : 15.656  
 BP magnitude : 17.140  
 DUPflag : 0  
 Distance (au) : 18.959  
 f0 (km) : 0.000  
 g0 (km) : 0.000  
 skyplane vel. (km/s) : -7.42  
 Sun-Target sep (deg) : 117.51  
 Sun-Moon sep (deg) : 69.93  
 B (ring opening deg) : 75.48  
 PA of pole (deg) : -68.59  
 Pole direction: RA (deg): 257.31100  
 Dec (deg): -15.17500  
 C/A sky separation (") : 2.925  
 C/A sky separation (km) : 40219.2  
 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

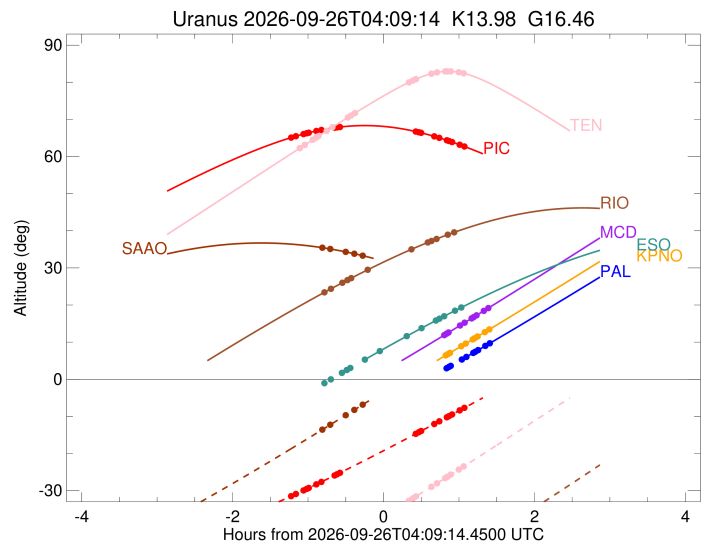
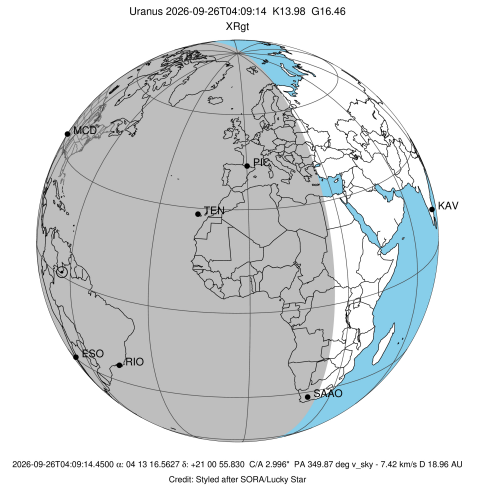


Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2026-09-26T03:02:24.815		62.20	-49.81	51239.65	-4.88		
lambda	I	2026-09-26T03:06:41.036		63.14	-49.05	50026.71	-4.63		
delta	I	2026-09-26T03:13:07.289		64.54	-47.88	48300.35	-4.30		
gamma	I	2026-09-26T03:15:45.720		65.11	-47.39	47630.56	-4.15		
eta	I	2026-09-26T03:17:36.544		65.52	-47.05	47176.12	-4.05		
beta	I	2026-09-26T03:24:14.561		66.95	-45.81	45645.42	-3.64		
alpha	I	2026-09-26T03:28:50.140		67.94	-44.94	44685.38	-3.33		
4	I	2026-09-26T03:41:13.318		70.58	-42.54	42547.79	-2.40		
5	I	2026-09-26T03:44:06.000		71.19	-41.97	42155.31	-2.16		
6	I	2026-09-26T03:46:39.963		71.73	-41.47	41841.86	-1.93		

No planet occultations

6	E	2026-09-26T04:29:08.764		79.93	-32.80	41821.27	1.94		
5	E	2026-09-26T04:32:00.194		80.38	-32.20	42162.57	2.17		
4	E	2026-09-26T04:34:59.632		80.83	-31.58	42574.60	2.42		
alpha	E	2026-09-26T04:47:06.933		82.30	-29.01	44691.68	3.35		
beta	E	2026-09-26T04:51:38.224		82.65	-28.05	45641.87	3.67		
eta	E	2026-09-26T04:58:13.409		82.93	-26.65	47176.12	4.09		
gamma	E	2026-09-26T05:00:01.914		82.95	-26.26	47625.39	4.20		
delta	E	2026-09-26T05:02:39.960		82.94	-25.70	48300.35	4.35		
lambda	E	2026-09-26T05:09:01.934		82.71	-24.33	50026.71	4.69		
epsilon	E	2026-09-26T05:14:19.222		82.31	-23.19	51555.28	4.94		

target : Uranus  
 target radius (km) : 25559.00  
 C/A epoch : 2026-09-26T04:16:47.050  
 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 : 52362012186180096  
 2Mass ID (if available) : 04131654+2100561  
 ICRS Star Coord at Epoch: 04h 13m 16.56274s +21:00:55.83012s  
 RUWE (>1.4 is poor) : 1.15  
 K magnitude : 13.979  
 G magnitude : 16.461  
 RP magnitude : 15.656  
 BP magnitude : 17.140  
 DUPflag : 0  
 Distance (au) : 18.959  
 f0 (km) : 0.000  
 g0 (km) : 0.000  
 skyplane vel. (km/s) : -7.42  
 Sun-Target sep (deg) : 117.51  
 Sun-Moon sep (deg) : 69.36  
 B (ring opening deg) : 75.48  
 PA of pole (deg) : -68.59  
 Pole direction: RA (deg): 257.31100  
 Dec (deg): -15.17500  
 C/A sky separation (") : 3.240  
 C/A sky separation (km) : 44544.3  
 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\_itrfr93\_040916.bsp  
 earth\_720101\_070426.bpc  
 earth\_200101\_990628\_predict.bpc  
 pg3f0000r.bsp  
 pg490000r.bsp  
 naif0012.tls  
 earth\_flat\_IAU.spk

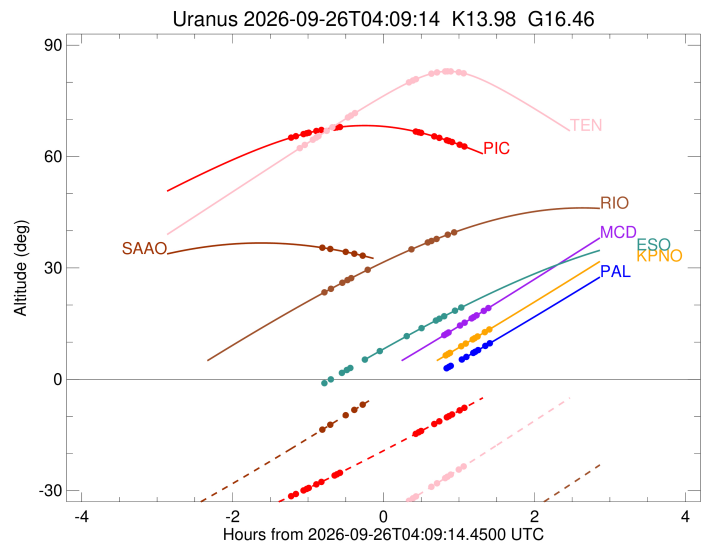
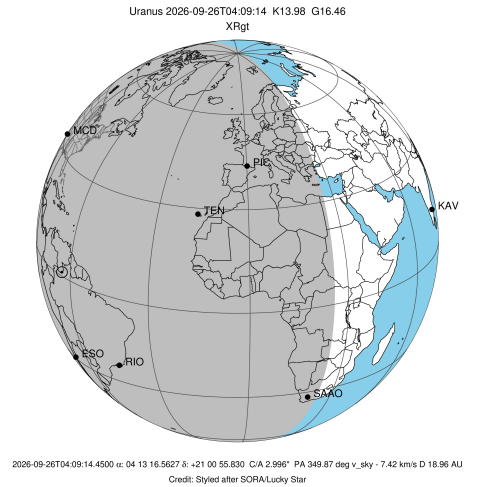


Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2026-09-26T03:21:40.777		23.31	-64.36	51297.25	-3.83		
lambda	I	2026-09-26T03:27:32.053		24.38	-63.81	50026.71	-3.45		
delta	I	2026-09-26T03:36:36.152		26.01	-62.85	48300.35	-2.89		
gamma	I	2026-09-26T03:40:39.978		26.73	-62.37	47629.83	-2.61		
eta	I	2026-09-26T03:43:40.904		27.26	-62.00	47176.12	-2.40		
beta	I	2026-09-26T03:57:04.776		29.56	-60.18	45642.47	-1.39		

No planet occultations

beta	E	2026-09-26T04:31:03.015		34.94	-54.63	45641.06	1.40		
eta	E	2026-09-26T04:44:20.554		36.84	-52.19	47176.12	2.43		
gamma	E	2026-09-26T04:47:18.099		37.25	-51.63	47626.55	2.64		
delta	E	2026-09-26T04:51:19.957		37.79	-50.86	48300.35	2.93		
lambda	E	2026-09-26T05:00:15.603		38.94	-49.12	50026.71	3.51		
epsilon	E	2026-09-26T05:07:05.362		39.77	-47.76	51549.37	3.91		

target : Uranus  
 target radius (km) : 25559.00  
 C/A epoch : 2026-09-26T04:19:43.600  
 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 : 52362012186180096  
 2Mass ID (if available) : 04131654+2100561  
 ICRS Star Coord at Epoch: 04h 13m 16.56274s +21:00:55.83012s  
 RUWE (>1.4 is poor) : 1.15  
 K magnitude : 13.979  
 G magnitude : 16.461  
 RP magnitude : 15.656  
 BP magnitude : 17.140  
 DUPflag : 0  
 Distance (au) : 18.959  
 f0 (km) : 0.000  
 g0 (km) : 0.000  
 skyplane vel. (km/s) : -7.42  
 Sun-Target sep (deg) : 117.51  
 Sun-Moon sep (deg) : 68.94  
 B (ring opening deg) : 75.48  
 PA of pole (deg) : -68.59  
 Pole direction: RA (deg): 257.31100  
 Dec (deg): -15.17500  
 C/A sky separation (") : 3.206  
 C/A sky separation (km) : 44082.7  
 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\_itrfr93\_040916.bsp  
 earth\_720101\_070426.bpc  
 earth\_200101\_990628\_predict.bpc  
 pg3f0000r.bsp  
 pg490000r.bsp  
 naif0012.tls  
 earth\_flat\_IAU.spk



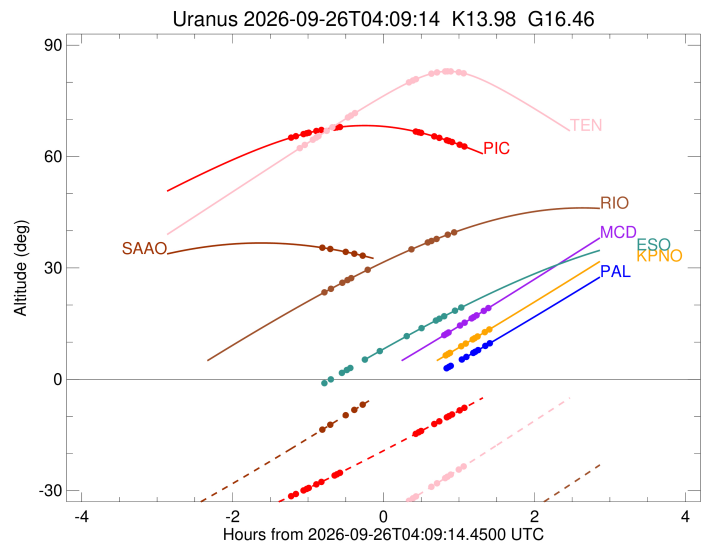
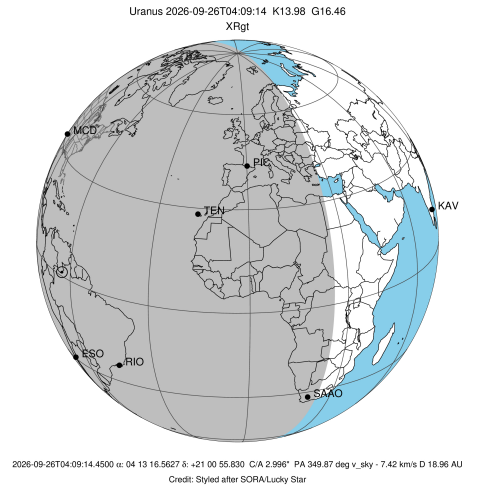
Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2026-09-26T03:21:41.738	-1.16x	-55.05	51290.16	-3.86			
lambda	I	2026-09-26T03:27:26.349	-0.01x	-55.71	50026.71	-3.51			
delta	I	2026-09-26T03:36:15.494	1.74x	-56.64	48300.35	-3.00			
gamma	I	2026-09-26T03:40:08.167	2.50x	-57.02	47629.94	-2.76			
eta	I	2026-09-26T03:42:58.335	3.06x	-57.28	47176.12	-2.57			
beta	I	2026-09-26T03:54:45.295	5.36	-58.23	45642.88	-1.75			
alpha	I	2026-09-26T04:07:21.295	7.79	-58.99	44684.84	-0.78			

No planet occultations

alpha	E	2026-09-26T04:26:41.639	11.42	-59.61	44686.30	0.78			
beta	E	2026-09-26T04:39:09.733	13.71	-59.64	45641.06	1.77			
eta	E	2026-09-26T04:50:47.866	15.80	-59.40	47176.12	2.62			
gamma	E	2026-09-26T04:53:33.875	16.29	-59.31	47626.41	2.81			
delta	E	2026-09-26T04:57:23.464	16.97	-59.16	48300.35	3.06			
lambda	E	2026-09-26T05:06:01.168	18.46	-58.72	50026.71	3.60			
epsilon	E	2026-09-26T05:12:43.075	19.61	-58.29	51550.42	3.97			



target : Uranus  
 target radius (km) : 25559.00  
 C/A epoch : 2026-09-26T04:06:17.670  
 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 : 52362012186180096  
 2Mass ID (if available) : 04131654+2100561  
 ICRS Star Coord at Epoch: 04h 13m 16.56274s +21:00:55.83012s  
 RUWE (>1.4 is poor) : 1.15  
 K magnitude : 13.979  
 G magnitude : 16.461  
 RP magnitude : 15.656  
 BP magnitude : 17.140  
 DUPflag : 0  
 Distance (au) : 18.959  
 f0 (km) : 0.000  
 g0 (km) : 0.000  
 skyplane vel. (km/s) : -7.42  
 Sun-Target sep (deg) : 117.51  
 Sun-Moon sep (deg) : 69.67  
 B (ring opening deg) : 75.48  
 PA of pole (deg) : -68.59  
 Pole direction: RA (deg): 257.31100  
 Dec (deg): -15.17500  
 C/A sky separation (") : 3.381  
 C/A sky separation (km) : 46494.1  
 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	2026-09-26T03:19:43.217		35.49	-13.76	51335.51	-3.28		
lambda	I	2026-09-26T03:26:59.953		35.10	-12.24	50026.71	-2.76		
delta	I	2026-09-26T03:39:19.881		34.31	-9.65	48300.35	-1.89		
gamma	I	2026-09-26T03:46:10.867		33.81	-8.22	47629.05	-1.37		
eta	I	2026-09-26T03:53:00.365		33.27	-6.78	47176.12	-0.84		

No planet occultations

eta	E	2026-09-26T04:13:52.193		31.37	-2.38x	47176.12	0.84		
gamma	E	2026-09-26T04:20:40.845		30.67	-0.93x	47627.33	1.37		
delta	E	2026-09-26T04:27:33.693		29.92	0.52x	48300.35	1.89		
lambda	E	2026-09-26T04:39:55.221		28.50	3.14x	50026.71	2.75		
epsilon	E	2026-09-26T04:48:17.295		27.47	4.91x	51543.80	3.27		