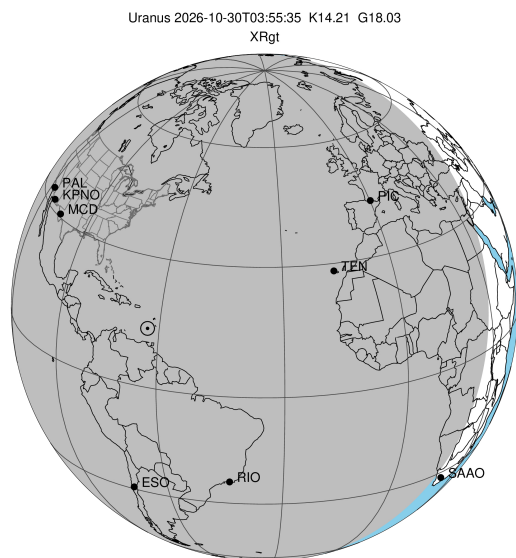


target : Uranus  
 target radius (km) : 25559.00  
 C/A epoch : 2026-10-30T03:55:35.110  
 Event type : XRgt  
 : No Uranus occs  
 : Ring occs: geocentric, topocentric  
 Gaia source ID : 52019750536727552  
 2Mass ID (if available) : 04093942+2051429

ICRS Star Coord at Epoch: 04h 09m 39.44350s +20:51:42.64710s

RUWE (>1.4 is poor) : 0.97  
 K magnitude : 14.210  
 G magnitude : 18.033  
 RP magnitude : 16.868  
 BP magnitude : 19.466  
 DUPflag : 0  
 Distance (au) : 18.553  
 f0 (km) : 0.000  
 g0 (km) : 0.000  
 skyplane vel. (km/s) : -19.96  
 Sun-Target sep (deg) : 152.01  
 Sun-Moon sep (deg) : 26.70  
 B (ring opening deg) : 74.75  
 PA of pole (deg) : -70.57

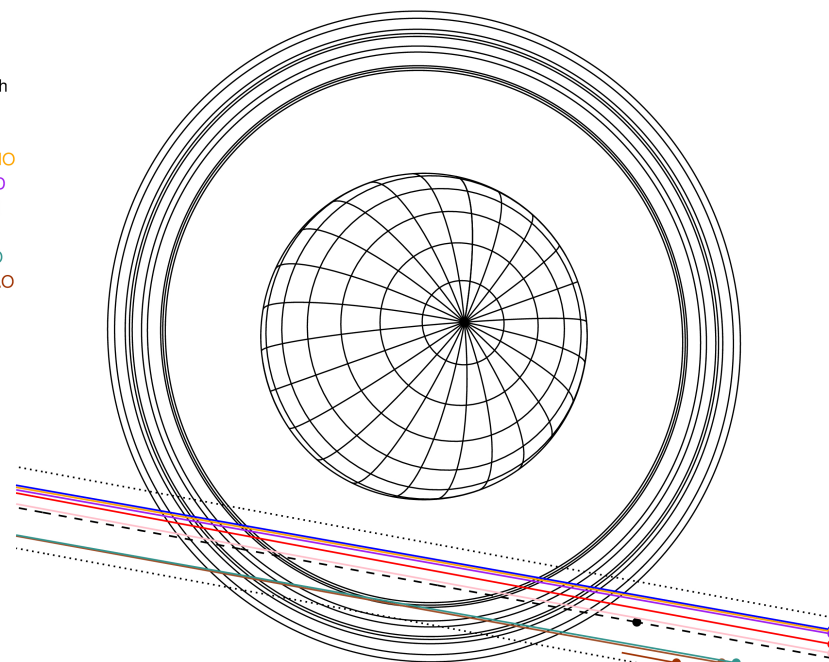
#	a(km)	ring
1	41837.2	6
2	42235.0	5
3	42571.2	4
4	44718.5	alpha
5	45661.1	beta
6	47176.1	eta
7	47626.3	gamma
8	48300.3	delta
9	50026.7	lambda
10	51149.4	epsilon



2026-10-30T03:55:35.1100 α: 04 09 39.4435 s: +20 51 42.647 C/A 2.815° PA 349.54 deg v\_sky -19.96 km/s D 18.55 AU  
 Credit: Styled after SORA/Lucky Star

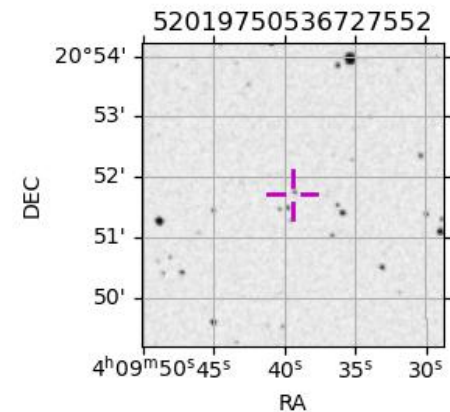
Uranus 2026-10-30T03:55:35 K14.21 G18.03 XRgt

Earth  
 PIC  
 PAL  
 KPNO  
 MCD  
 TEN  
 RIO  
 ESO  
 SAAO

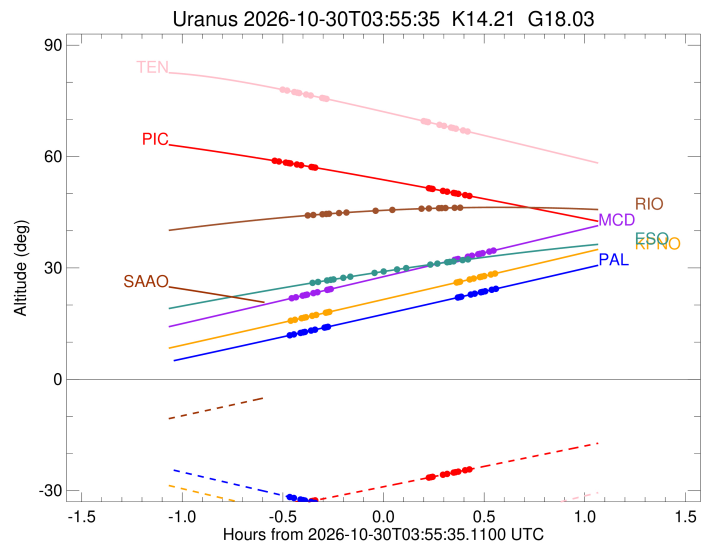
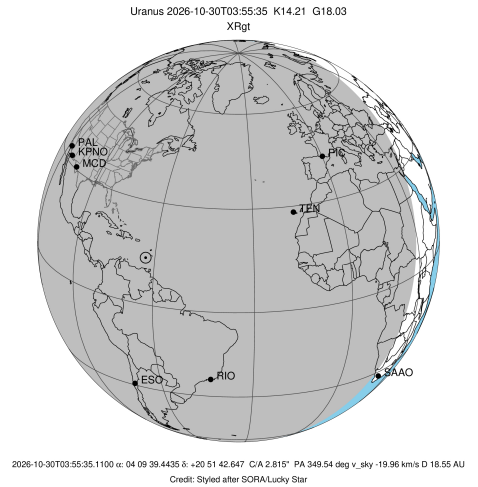


Observable events with sun below -5 deg and altitude above 5 deg unblocked by planet

Obs	Location	lat	Elon	Rings I	Planet	Rings E	Observed Events Interval	OEcode
PIC	Pic du Midi	42.9	0.1	+++++		+++++	OCT 30 03:22 - OCT 30 04:21	PnnRie
PAL	Palomar Mt (200")	33.4	243.1	+++++		+++++	OCT 30 03:27 - OCT 30 04:29	PnnRie
PMO	Purple Mtn Obs. Nanki	32.1	118.8					PnnRnn
KPNO	Kitt Peak Natl Obs	32.0	248.4	+++++		+++++	OCT 30 03:27 - OCT 30 04:29	PnnRie
MCD	McDonald Obs. 2.7m	30.7	256.0	+++++		+++++	OCT 30 03:27 - OCT 30 04:28	PnnRie
TEN	Teide Obs./Tenerife	28.3	343.5	+++++		+++++	OCT 30 03:25 - OCT 30 04:20	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	+++++		+++++	OCT 30 03:32 - OCT 30 04:18	PnnRie
ESO	European Southern Obs	-29.3	289.3	+++++		+++++	OCT 30 03:33 - OCT 30 04:21	PnnRie
AAT	Siding Spring (AAT)	-31.3	149.1					PnnRnn
SAAO	So. Afr. Astro. Obs.	-32.4	20.8					PnnRnn
MSO	Mt. Stromlo Observato	-35.3	149.0					PnnRnn



target : Uranus  
 target radius (km) : 25559.00  
 C/A epoch : 2026-10-30T03:53:03.490  
 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 : 52019750536727552  
 2Mass ID (if available) : 04093942+2051429  
 ICRS Star Coord at Epoch: 04h 09m 39.44350s +20:51:42.64710s  
 RUWE (>1.4 is poor) : 0.97  
 K magnitude : 14.210  
 G magnitude : 18.033  
 RP magnitude : 16.868  
 BP magnitude : 19.466  
 DUPflag : 0  
 Distance (au) : 18.553  
 f0 (km) : 0.000  
 g0 (km) : 0.000  
 skyplane vel. (km/s) : -19.96  
 Sun-Target sep (deg) : 152.01  
 Sun-Moon sep (deg) : 26.59  
 B (ring opening deg) : 74.75  
 PA of pole (deg) : -70.57  
 Pole direction: RA (deg): 257.31100  
 Dec (deg): -15.17500  
 C/A sky separation (") : 2.660  
 C/A sky separation (km) : 35795.2  
 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\_itrf93\_040916.bsp  
 earth\_720101\_070426.bpc  
 earth\_200101\_990628\_predict.bpc  
 pg3f0000r.bsp  
 pg490000r.bsp  
 naif0012.tls  
 earth\_flat\_IAU.spk

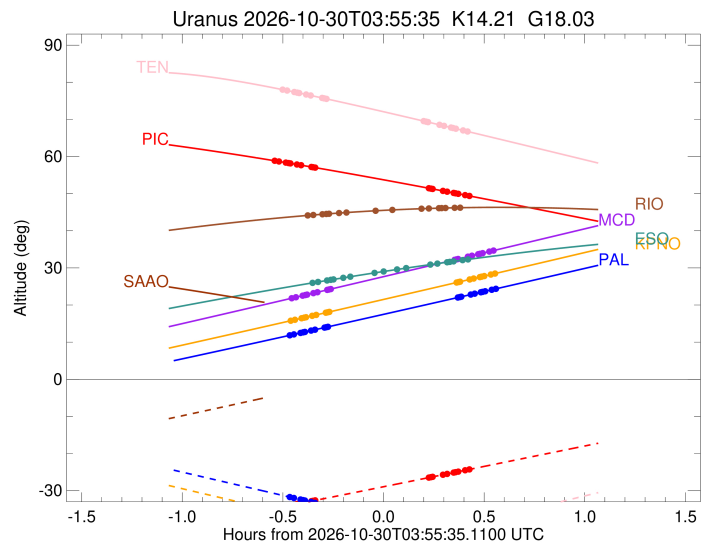
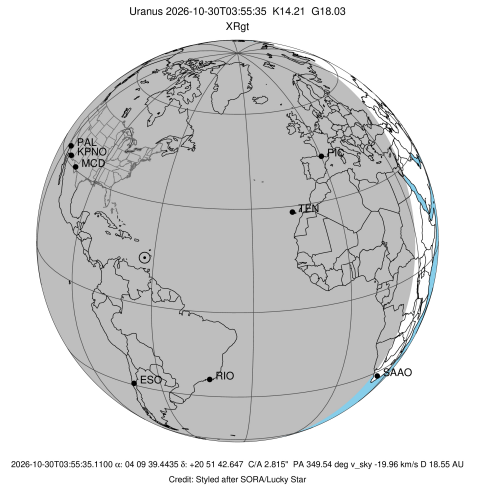


Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2026-10-30T03:22:47.364		58.91	-34.85	51471.45	-14.89		
lambda	I	2026-10-30T03:24:26.234		58.67	-34.56	50026.71	-14.40		
delta	I	2026-10-30T03:26:28.595		58.36	-34.19	48300.35	-13.81		
gamma	I	2026-10-30T03:27:17.829		58.23	-34.05	47626.51	-13.56		
eta	I	2026-10-30T03:27:51.263		58.15	-33.95	47176.12	-13.38		
beta	I	2026-10-30T03:29:48.742		57.85	-33.60	45642.39	-12.72		
alpha	I	2026-10-30T03:31:04.426		57.66	-33.37	44697.48	-12.26		
4	I	2026-10-30T03:34:04.166		57.19	-32.84	42602.46	-11.04		
5	I	2026-10-30T03:34:40.425		57.10	-32.73	42207.42	-10.78		
6	I	2026-10-30T03:35:19.178		57.00	-32.61	41796.74	-10.46		

No planet occultations

6	E	2026-10-30T04:09:00.959		51.48	-26.51	41806.08	10.45		
5	E	2026-10-30T04:09:46.056		51.35	-26.37	42289.15	10.77		
4	E	2026-10-30T04:10:16.562		51.26	-26.28	42614.41	11.03		
alpha	E	2026-10-30T04:13:18.484		50.74	-25.72	44737.47	12.25		
beta	E	2026-10-30T04:14:32.925		50.53	-25.50	45663.41	12.70		
eta	E	2026-10-30T04:16:28.861		50.20	-25.14	47176.12	13.36		
gamma	E	2026-10-30T04:17:01.941		50.10	-25.04	47621.06	13.54		
delta	E	2026-10-30T04:17:51.650		49.96	-24.89	48300.35	13.79		
lambda	E	2026-10-30T04:19:54.204		49.61	-24.52	50026.71	14.37		
epsilon	E	2026-10-30T04:21:27.582		49.34	-24.23	51387.80	14.87		

target : Uranus  
 target radius (km) : 25559.00  
 C/A epoch : 2026-10-30T03:59:15.980  
 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 : 52019750536727552  
 2Mass ID (if available) : 04093942+2051429  
 ICRS Star Coord at Epoch: 04h 09m 39.44350s +20:51:42.64710s  
 RUWE (>1.4 is poor) : 0.97  
 K magnitude : 14.210  
 G magnitude : 18.033  
 RP magnitude : 16.868  
 BP magnitude : 19.466  
 DUPflag : 0  
 Distance (au) : 18.553  
 f0 (km) : 0.000  
 g0 (km) : 0.000  
 skyplane vel. (km/s) : -19.96  
 Sun-Target sep (deg) : 152.01  
 Sun-Moon sep (deg) : 27.40  
 B (ring opening deg) : 74.75  
 PA of pole (deg) : -70.57  
 Pole direction: RA (deg): 257.31100  
 Dec (deg): -15.17500  
 C/A sky separation (") : 2.532  
 C/A sky separation (km) : 34069.5  
 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\_itrf93\_040916.bsp  
 earth\_720101\_070426.bpc  
 earth\_200101\_990628\_predict.bpc  
 pg3f0000r.bsp  
 pg490000r.bsp  
 naif0012.tls  
 earth\_flat\_IAU.spk

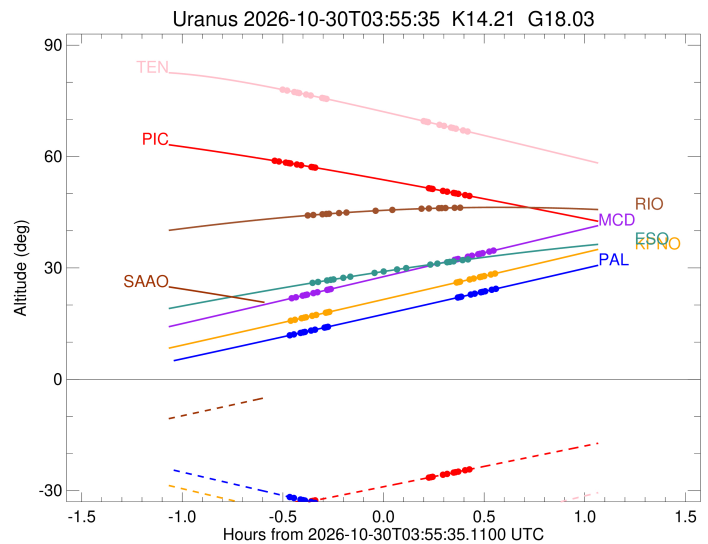
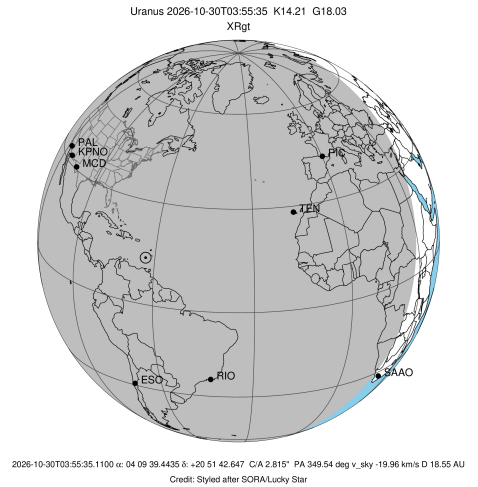


Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2026-10-30T03:27:18.591		11.77	-31.66	51457.65	-15.32		
lambda	I	2026-10-30T03:28:53.553		12.09	-31.99	50026.71	-14.89		
delta	I	2026-10-30T03:30:51.428		12.48	-32.40	48300.35	-14.40		
gamma	I	2026-10-30T03:31:38.554		12.64	-32.56	47626.84	-14.18		
eta	I	2026-10-30T03:32:10.494		12.75	-32.67	47176.12	-14.04		
beta	I	2026-10-30T03:34:01.934		13.12	-33.06	45641.95	-13.49		
alpha	I	2026-10-30T03:35:13.125		13.36	-33.31	44695.64	-13.11		
4	I	2026-10-30T03:37:59.149		13.92	-33.88	42599.71	-12.12		
5	I	2026-10-30T03:38:32.307		14.03	-34.00	42201.29	-11.92		
6	I	2026-10-30T03:39:06.718		14.15	-34.12	41797.99	-11.66		

No planet occultations

6	E	2026-10-30T04:17:40.917		22.01	-42.10	41808.18	11.70		
5	E	2026-10-30T04:18:21.605		22.15	-42.23	42293.01	11.96		
4	E	2026-10-30T04:18:48.787		22.24	-42.33	42613.42	12.17		
alpha	E	2026-10-30T04:21:36.135		22.82	-42.90	44739.00	13.17		
beta	E	2026-10-30T04:22:45.645		23.05	-43.13	45664.45	13.55		
eta	E	2026-10-30T04:24:34.869		23.43	-43.51	47176.12	14.10		
gamma	E	2026-10-30T04:25:06.248		23.54	-43.61	47621.02	14.25		
delta	E	2026-10-30T04:25:53.552		23.70	-43.77	48300.35	14.47		
lambda	E	2026-10-30T04:27:50.821		24.10	-44.17	50026.71	14.97		
epsilon	E	2026-10-30T04:29:19.870		24.41	-44.47	51375.00	15.40		

target : Uranus  
 target radius (km) : 25559.00  
 C/A epoch : 2026-10-30T03:59:17.340  
 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 : 52019750536727552  
 2Mass ID (if available) : 04093942+2051429  
 ICRS Star Coord at Epoch: 04h 09m 39.44350s +20:51:42.64710s  
 RUWE (>1.4 is poor) : 0.97  
 K magnitude : 14.210  
 G magnitude : 18.033  
 RP magnitude : 16.868  
 BP magnitude : 19.466  
 DUPflag : 0  
 Distance (au) : 18.553  
 f0 (km) : 0.000  
 g0 (km) : 0.000  
 skyplane vel. (km/s) : -19.96  
 Sun-Target sep (deg) : 152.01  
 Sun-Moon sep (deg) : 27.44  
 B (ring opening deg) : 74.75  
 PA of pole (deg) : -70.57  
 Pole direction: RA (deg): 257.31100  
 Dec (deg): -15.17500  
 C/A sky separation (") : 2.554  
 C/A sky separation (km) : 34367.6  
 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

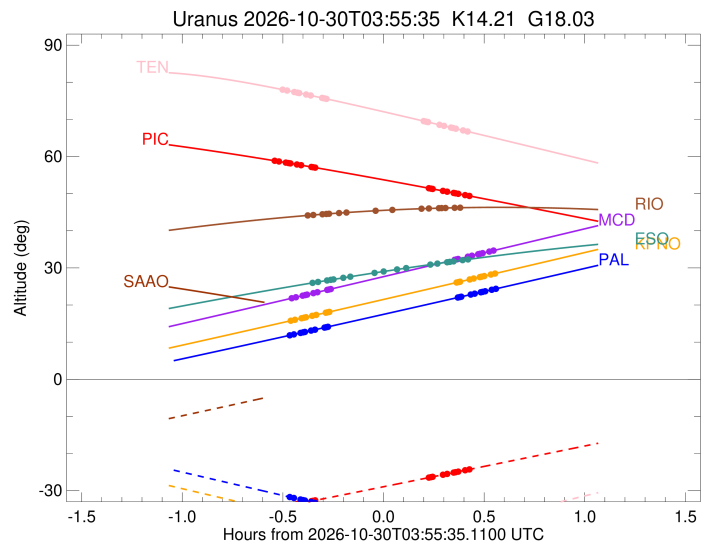
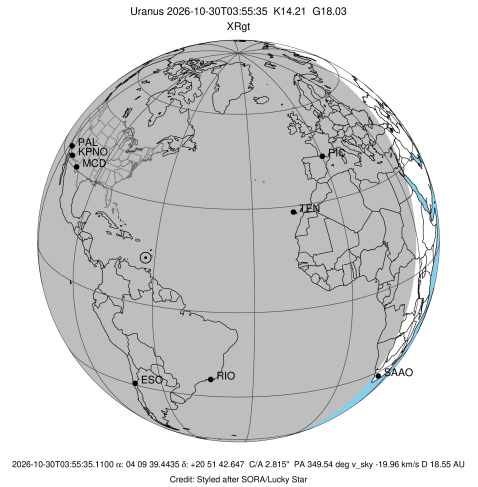


Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2026-10-30T03:27:36.015		15.70	-36.26	51459.63	-15.24		
lambda	I	2026-10-30T03:29:11.653		16.03	-36.60	50026.71	-14.80		
delta	I	2026-10-30T03:31:10.319		16.44	-37.02	48300.35	-14.29		
gamma	I	2026-10-30T03:31:57.807		16.60	-37.18	47626.79	-14.07		
eta	I	2026-10-30T03:32:30.002		16.71	-37.30	47176.12	-13.92		
beta	I	2026-10-30T03:34:22.447		17.10	-37.69	45642.00	-13.35		
alpha	I	2026-10-30T03:35:34.369		17.35	-37.95	44695.90	-12.97		
4	I	2026-10-30T03:38:22.531		17.93	-38.54	42600.12	-11.94		
5	I	2026-10-30T03:38:56.164		18.04	-38.66	42202.17	-11.73		
6	I	2026-10-30T03:39:31.214		18.16	-38.78	41797.79	-11.47		

No planet occultations

6	E	2026-10-30T04:17:18.537		26.05	-46.66	41807.78	11.51		
5	E	2026-10-30T04:17:59.852		26.19	-46.80	42292.31	11.78		
4	E	2026-10-30T04:18:27.526		26.29	-46.90	42613.62	11.99		
alpha	E	2026-10-30T04:21:17.009		26.88	-47.48	44738.71	13.02		
beta	E	2026-10-30T04:22:27.255		27.13	-47.72	45664.25	13.41		
eta	E	2026-10-30T04:24:17.489		27.52	-48.09	47176.12	13.99		
gamma	E	2026-10-30T04:24:49.123		27.63	-48.20	47621.02	14.14		
delta	E	2026-10-30T04:25:36.790		27.79	-48.36	48300.35	14.36		
lambda	E	2026-10-30T04:27:34.852		28.21	-48.76	50026.71	14.87		
epsilon	E	2026-10-30T04:29:04.598		28.53	-49.07	51377.74	15.32		

target : Uranus  
 target radius (km) : 25559.00  
 C/A epoch : 2026-10-30T03:59:12.770  
 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 : 52019750536727552  
 2Mass ID (if available) : 04093942+2051429  
 ICRS Star Coord at Epoch: 04h 09m 39.44350s +20:51:42.64710s  
 RUWE (>1.4 is poor) : 0.97  
 K magnitude : 14.210  
 G magnitude : 18.033  
 RP magnitude : 16.868  
 BP magnitude : 19.466  
 DUPflag : 0  
 Distance (au) : 18.553  
 f0 (km) : 0.000  
 g0 (km) : 0.000  
 skyplane vel. (km/s) : -19.96  
 Sun-Target sep (deg) : 152.01  
 Sun-Moon sep (deg) : 27.48  
 B (ring opening deg) : 74.75  
 PA of pole (deg) : -70.57  
 Pole direction: RA (deg): 257.31100  
 Dec (deg): -15.17500  
 C/A sky separation (") : 2.583  
 C/A sky separation (km) : 34755.4  
 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

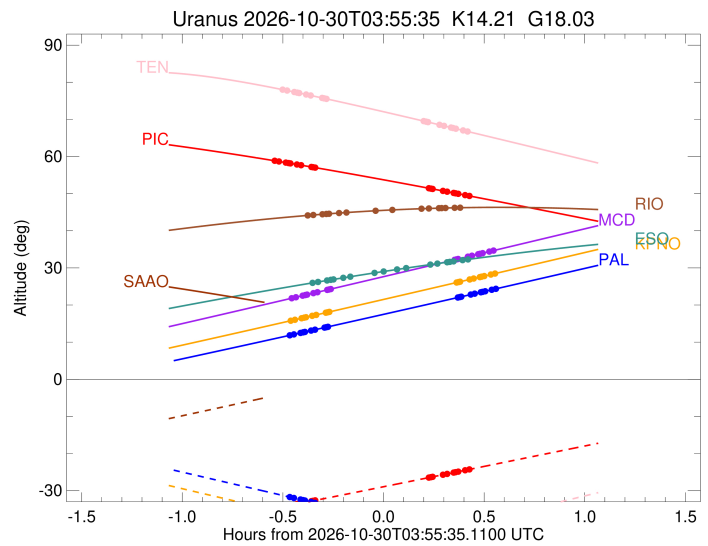
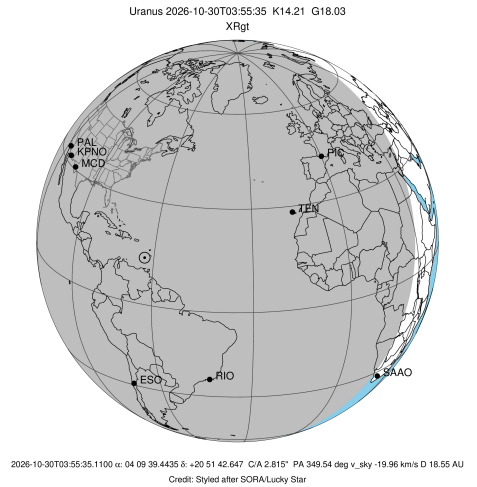


Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2026-10-30T03:27:53.022		21.76	-42.92	51462.24	-15.13		
lambda	I	2026-10-30T03:29:29.549		22.10	-43.27	50026.71	-14.68		
delta	I	2026-10-30T03:31:29.261		22.52	-43.69	48300.35	-14.15		
gamma	I	2026-10-30T03:32:17.229		22.69	-43.86	47626.73	-13.93		
eta	I	2026-10-30T03:32:49.764		22.81	-43.97	47176.12	-13.77		
beta	I	2026-10-30T03:34:43.558		23.21	-44.37	45642.08	-13.18		
alpha	I	2026-10-30T03:35:56.468		23.46	-44.63	44696.25	-12.78		
4	I	2026-10-30T03:38:47.560		24.07	-45.23	42600.67	-11.71		
5	I	2026-10-30T03:39:21.850		24.19	-45.35	42203.35	-11.49		
6	I	2026-10-30T03:39:57.790		24.32	-45.48	41797.53	-11.21		

No planet occultations

6	E	2026-10-30T04:16:42.081		32.16	-53.11	41807.25	11.24		
5	E	2026-10-30T04:17:24.269		32.31	-53.26	42291.37	11.53		
4	E	2026-10-30T04:17:52.625		32.41	-53.35	42613.88	11.75		
alpha	E	2026-10-30T04:20:45.048		33.02	-53.94	44738.32	12.83		
beta	E	2026-10-30T04:21:56.297		33.28	-54.18	45663.98	13.24		
eta	E	2026-10-30T04:23:47.897		33.68	-54.55	47176.12	13.83		
gamma	E	2026-10-30T04:24:19.876		33.79	-54.66	47621.03	13.99		
delta	E	2026-10-30T04:25:08.028		33.97	-54.82	48300.35	14.22		
lambda	E	2026-10-30T04:27:07.153		34.39	-55.22	50026.71	14.75		
epsilon	E	2026-10-30T04:28:37.823		34.72	-55.53	51381.26	15.21		

target : Uranus  
 target radius (km) : 25559.00  
 C/A epoch : 2026-10-30T03:54:00.480  
 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 : 52019750536727552  
 2Mass ID (if available) : 04093942+2051429  
 ICRS Star Coord at Epoch: 04h 09m 39.44350s +20:51:42.64710s  
 RUWE (>1.4 is poor) : 0.97  
 K magnitude : 14.210  
 G magnitude : 18.033  
 RP magnitude : 16.868  
 BP magnitude : 19.466  
 DUPflag : 0  
 Distance (au) : 18.553  
 f0 (km) : 0.000  
 g0 (km) : 0.000  
 skyplane vel. (km/s) : -19.96  
 Sun-Target sep (deg) : 152.01  
 Sun-Moon sep (deg) : 26.86  
 B (ring opening deg) : 74.75  
 PA of pole (deg) : -70.57  
 Pole direction: RA (deg): 257.31100  
 Dec (deg): -15.17500  
 C/A sky separation (") : 2.777  
 C/A sky separation (km) : 37363.6  
 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

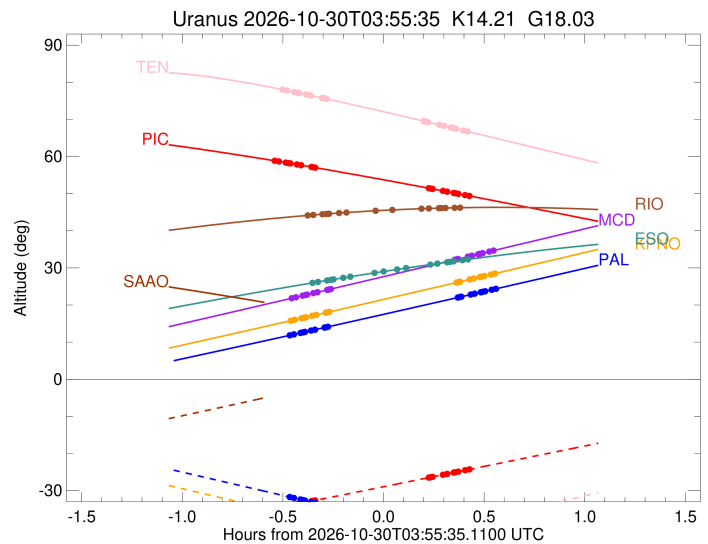
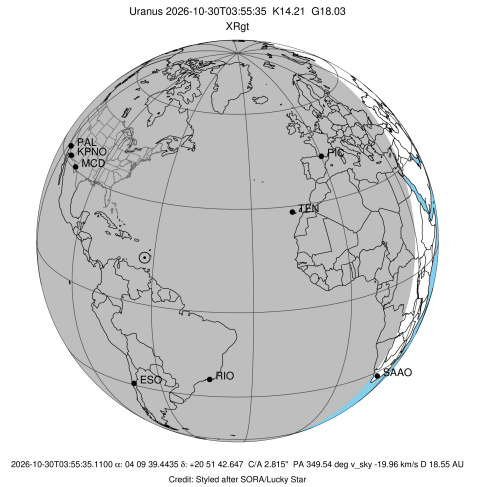


Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2026-10-30T03:25:07.836		78.09	-51.18	51481.54	-14.30		
lambda	I	2026-10-30T03:26:51.826		77.77	-50.81	50026.71	-13.74		
delta	I	2026-10-30T03:29:00.581		77.37	-50.35	48300.35	-13.06		
gamma	I	2026-10-30T03:29:52.760		77.21	-50.16	47626.24	-12.77		
eta	I	2026-10-30T03:30:28.292		77.10	-50.03	47176.12	-12.56		
beta	I	2026-10-30T03:32:34.189		76.70	-49.58	45642.83	-11.78		
alpha	I	2026-10-30T03:33:56.207		76.44	-49.29	44699.13	-11.24		
4	I	2026-10-30T03:37:15.726		75.79	-48.57	42604.76	-9.74		
5	I	2026-10-30T03:37:56.695		75.66	-48.42	42213.15	-9.43		
6	I	2026-10-30T03:38:41.914		75.51	-48.26	41795.86	-9.02		

No planet occultations

6	E	2026-10-30T04:07:28.097		69.57	-42.00	41803.79	9.01		
5	E	2026-10-30T04:08:19.594		69.39	-41.81	42284.30	9.42		
4	E	2026-10-30T04:08:54.857		69.26	-41.68	42615.34	9.74		
alpha	E	2026-10-30T04:12:16.424		68.55	-40.95	44735.61	11.23		
beta	E	2026-10-30T04:13:37.165		68.26	-40.65	45662.19	11.78		
eta	E	2026-10-30T04:15:41.444		67.81	-40.20	47176.12	12.56		
gamma	E	2026-10-30T04:16:16.598		67.69	-40.07	47621.12	12.76		
delta	E	2026-10-30T04:17:09.213		67.50	-39.88	48300.35	13.06		
lambda	E	2026-10-30T04:19:18.061		67.04	-39.40	50026.71	13.73		
epsilon	E	2026-10-30T04:20:56.581		66.68	-39.04	51402.69	14.29		

target : Uranus  
 target radius (km) : 25559.00  
 C/A epoch : 2026-10-30T03:56:46.390  
 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 : 52019750536727552  
 2Mass ID (if available) : 04093942+2051429  
 ICRS Star Coord at Epoch: 04h 09m 39.44350s +20:51:42.64710s  
 RUWE (>1.4 is poor) : 0.97  
 K magnitude : 14.210  
 G magnitude : 18.033  
 RP magnitude : 16.868  
 BP magnitude : 19.466  
 DUPflag : 0  
 Distance (au) : 18.553  
 f0 (km) : 0.000  
 g0 (km) : 0.000  
 skyplane vel. (km/s) : -19.96  
 Sun-Target sep (deg) : 152.01  
 Sun-Moon sep (deg) : 27.36  
 B (ring opening deg) : 74.75  
 PA of pole (deg) : -70.57  
 Pole direction: RA (deg): 257.31100  
 Dec (deg): -15.17500  
 C/A sky separation (") : 3.128  
 C/A sky separation (km) : 42094.9  
 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\_itrf93\_040916.bsp  
 earth\_720101\_070426.bpc  
 earth\_200101\_990628\_predict.bpc  
 pg3f0000r.bsp  
 pg490000r.bsp  
 naif0012.tls  
 earth\_flat\_IAU.spk

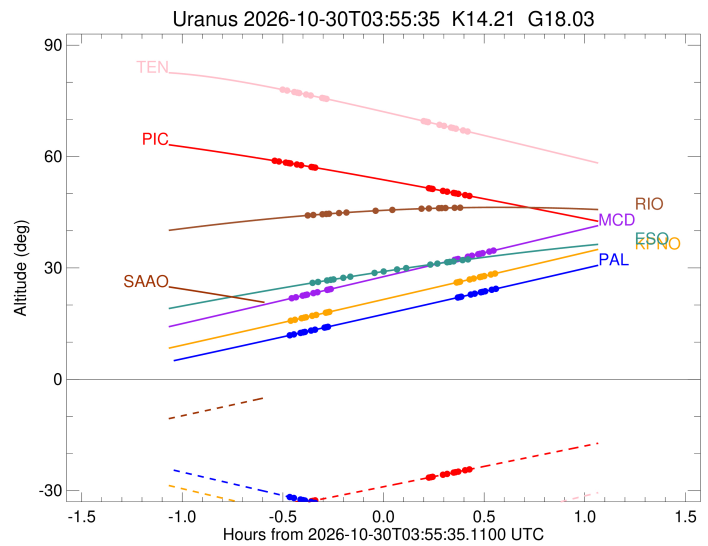
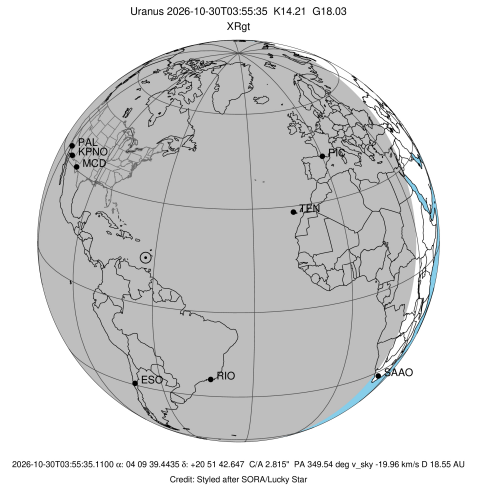


Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2026-10-30T03:32:30.355		44.10	-51.00	51511.83	-11.89		
lambda	I	2026-10-30T03:34:40.100		44.26	-50.81	50026.71	-11.05		
delta	I	2026-10-30T03:37:24.299		44.45	-50.56	48300.35	-9.96		
gamma	I	2026-10-30T03:38:33.808		44.53	-50.45	47625.27	-9.46		
eta	I	2026-10-30T03:39:22.188		44.58	-50.38	47176.12	-9.10		
beta	I	2026-10-30T03:42:24.572		44.78	-50.08	45645.08	-7.67		
alpha	I	2026-10-30T03:44:36.747		44.92	-49.86	44706.50	-6.54		
4	I	2026-10-30T03:52:58.840		45.38	-48.97	42614.01	-1.70		

No planet occultations

4	E	2026-10-30T03:58:29.760		45.63	-48.33	42615.88	1.70		
alpha	E	2026-10-30T04:06:53.589		45.94	-47.30	44727.73	6.55		
beta	E	2026-10-30T04:09:04.391		46.01	-47.02	45657.65	7.67		
eta	E	2026-10-30T04:12:04.944		46.09	-46.63	47176.12	9.11		
gamma	E	2026-10-30T04:12:52.883		46.11	-46.53	47621.47	9.47		
delta	E	2026-10-30T04:14:02.732		46.13	-46.37	48300.35	9.97		
lambda	E	2026-10-30T04:16:46.769		46.19	-46.00	50026.71	11.06		
epsilon	E	2026-10-30T04:18:50.962		46.22	-45.71	51447.83	11.91		

target : Uranus  
 target radius (km) : 25559.00  
 C/A epoch : 2026-10-30T03:58:40.020  
 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 : 52019750536727552  
 2Mass ID (if available) : 04093942+2051429  
 ICRS Star Coord at Epoch: 04h 09m 39.44350s +20:51:42.64710s  
 RUWE (>1.4 is poor) : 0.97  
 K magnitude : 14.210  
 G magnitude : 18.033  
 RP magnitude : 16.868  
 BP magnitude : 19.466  
 DUPflag : 0  
 Distance (au) : 18.553  
 f0 (km) : 0.000  
 g0 (km) : 0.000  
 skyplane vel. (km/s) : -19.96  
 Sun-Target sep (deg) : 152.01  
 Sun-Moon sep (deg) : 27.58  
 B (ring opening deg) : 74.75  
 PA of pole (deg) : -70.57  
 Pole direction: RA (deg): 257.31100  
 Dec (deg): -15.17500  
 C/A sky separation (") : 3.107  
 C/A sky separation (km) : 41805.4  
 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	2026-10-30T03:33:56.824		25.90	-45.30	51509.60	-12.00		
lambda	I	2026-10-30T03:36:05.045		26.22	-45.44	50026.71	-11.18		
delta	I	2026-10-30T03:38:46.860		26.62	-45.61	48300.35	-10.14		
gamma	I	2026-10-30T03:39:55.043		26.79	-45.68	47625.35	-9.66		
eta	I	2026-10-30T03:40:42.377		26.90	-45.73	47176.12	-9.32		
beta	I	2026-10-30T03:43:39.448		27.34	-45.90	45644.85	-7.96		
alpha	I	2026-10-30T03:45:45.811		27.64	-46.02	44705.79	-6.91		
4	I	2026-10-30T03:52:46.465		28.64	-46.37	42612.96	-2.97		
5	I	2026-10-30T03:55:47.092		29.05	-46.50	42245.49	-1.17		

No planet occultations

5	E	2026-10-30T03:59:35.038		29.57	-46.64	42254.36	1.17		
4	E	2026-10-30T04:02:29.953		29.97	-46.74	42616.27	2.97		
alpha	E	2026-10-30T04:09:32.095		30.89	-46.94	44728.33	6.92		
beta	E	2026-10-30T04:11:36.959		31.15	-46.98	45657.94	7.97		
eta	E	2026-10-30T04:14:32.001		31.52	-47.03	47176.12	9.34		
gamma	E	2026-10-30T04:15:18.832		31.62	-47.05	47621.44	9.68		
delta	E	2026-10-30T04:16:27.269		31.76	-47.06	48300.35	10.16		
lambda	E	2026-10-30T04:19:08.690		32.09	-47.09	50026.71	11.21		
epsilon	E	2026-10-30T04:21:11.213		32.34	-47.11	51445.67	12.03		