

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2029-11-27T22:19:50.220
 Event type : XRgt
 : No Uranus occs
 : Ring occs: geocentric, topocentric
 Gaia source ID : 3418328294379363072
 2Mass ID (if available) : 05012846+2247116

ICRS Star Coord at Epoch: 05h 01m 28.47779s +22:47:11.85810s

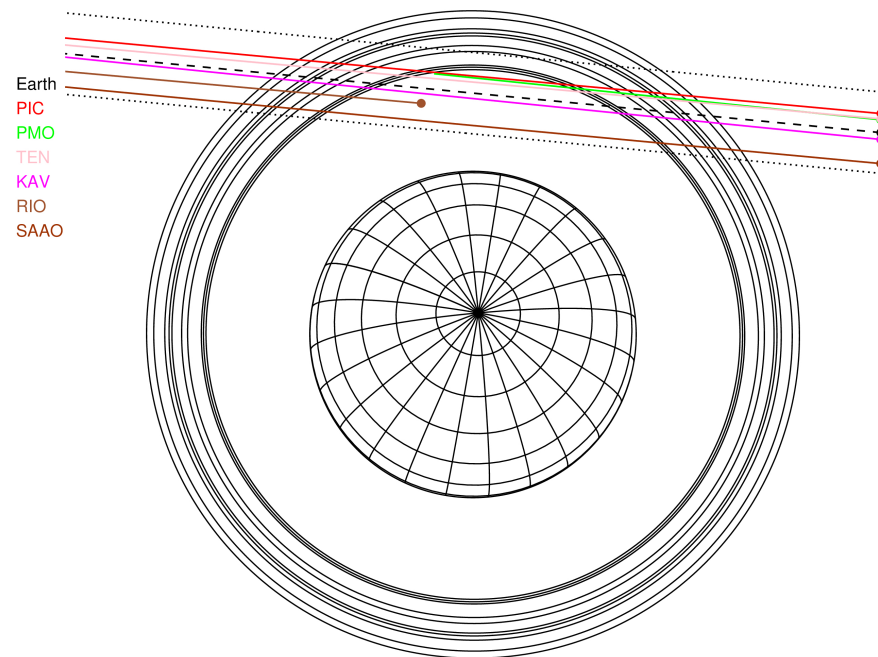
RUWE (>1.4 is poor) : 1.03
 K magnitude : 13.259
 G magnitude : 15.274
 RP magnitude : 14.600
 BP magnitude : 15.773
 DUPflag : 0
 Distance (au) : 18.257
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -22.91
 Sun-Target sep (deg) : 169.01
 Sun-Moon sep (deg) : 65.97
 B (ring opening deg) : 82.17
 PA of pole (deg) : -13.90

#	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



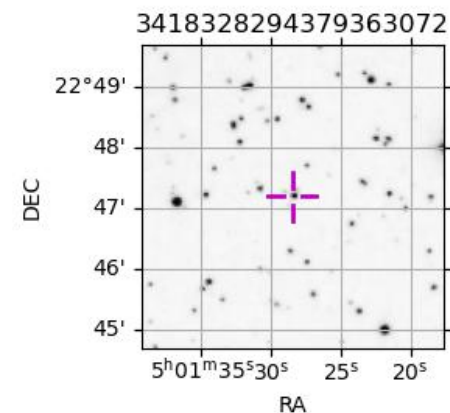
2029-11-27T22:19:50.2200 ex: 05 01 28.4778 s: +22 47 11.858 C/A 2.8477 PA 174.47 deg v_sky -22.91 km/s D 18.26 AU
 Credit: Styled after SORA/Lucky Star

Uranus 2029-11-27T22:19:50 K13.26 G15.27 XRgt

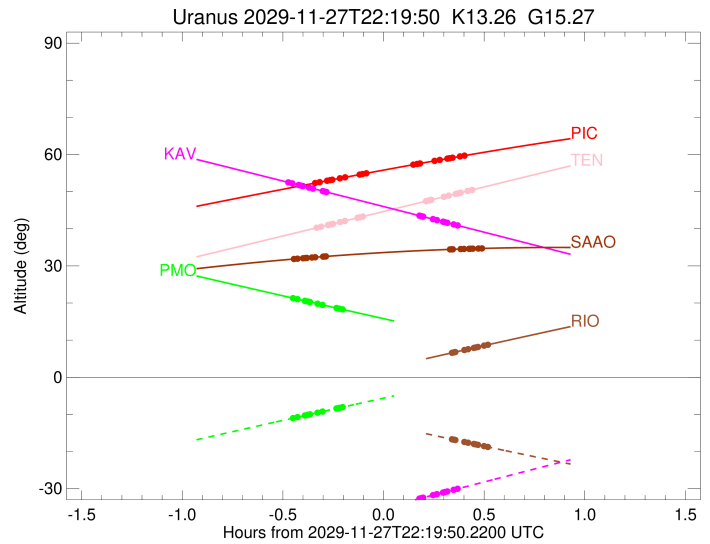
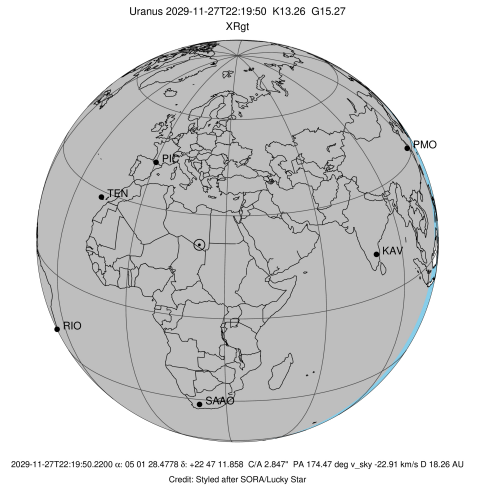


Observable events with sun below -5 deg and altitude above 5 deg unblocked by planet

Obs	Location	lat	Elon	Rings I	Planet	Rings E	Observed Events Interval	OEcode
PIC	Pic du Midi	42.9	0.1	+++++		+++++	NOV 27 21:59 - NOV 27 22:43	PnnRie
PAL	Palomar Mt (200")	33.4	243.1					PnnRnn
PMO	Purple Mtn Obs. Nanki	32.1	118.8	+++++			NOV 27 21:52 - NOV 27 22:07	PnnRin
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	+++++		+++++	NOV 27 21:59 - NOV 27 22:46	PnnRie
IRTF	Mauna Kea/IRTF	19.8	204.5					PnnRnn
KAV	Kavalur Observatory	12.6	78.8	+++++		+++++	NOV 27 21:51 - NOV 27 22:41	PnnRie
RIO	Rio de Janeiro	-22.9	316.8			+++++	NOV 27 22:40 - NOV 27 22:50	PnnRne
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	+++++		+++++	NOV 27 21:52 - NOV 27 22:48	PnnRie
MSO	Mt. Stromlo Observato	-35.3	149.0					PnnRnn



target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2029-11-27T22:21:38.880
 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 : 3418328294379363072
 2Mass ID (if available) : 05012846+2247116
 ICRS Star Coord at Epoch: 05h 01m 28.47779s +22:47:11.85810s
 RUWE (>1.4 is poor) : 1.03
 K magnitude : 13.259
 G magnitude : 15.274
 RP magnitude : 14.600
 BP magnitude : 15.773
 DUPflag : 0
 Distance (au) : 18.257
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -22.91
 Sun-Target sep (deg) : 169.01
 Sun-Moon sep (deg) : 66.84
 B (ring opening deg) : 82.17
 PA of pole (deg) : -13.90
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 3.045
 C/A sky separation (km) : 40317.8
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk
 URKALLvl.spk
 ural11.bsp
 IAU_URANUS_for_RINGFIT.tpc
 vgr2.ural11.bsp
 ural61.bsp
 vgr2.ural61.bsp
 peph.ural60.bsp
 earthstns_itrf93_040916.bsp
 earth_720101_070426.bpc
 earth_200101_990628_predict.bpc
 pg3f0000r.bsp
 pg490000r.bsp
 naif0012.tls
 earth_flat_IAU.spk

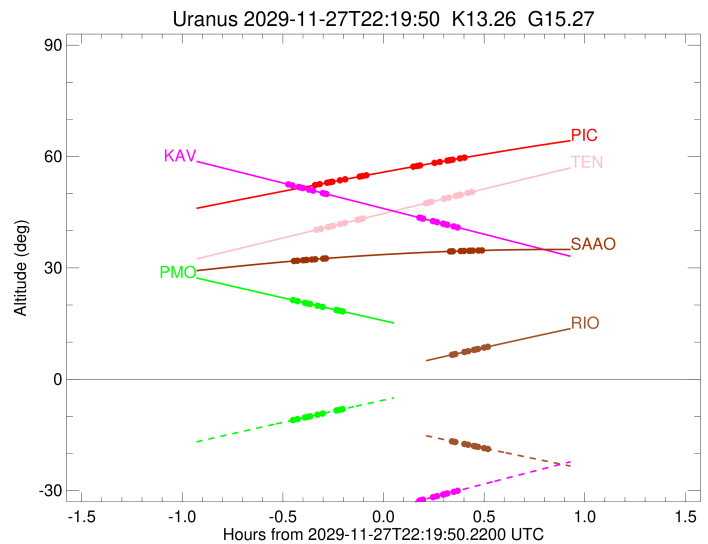
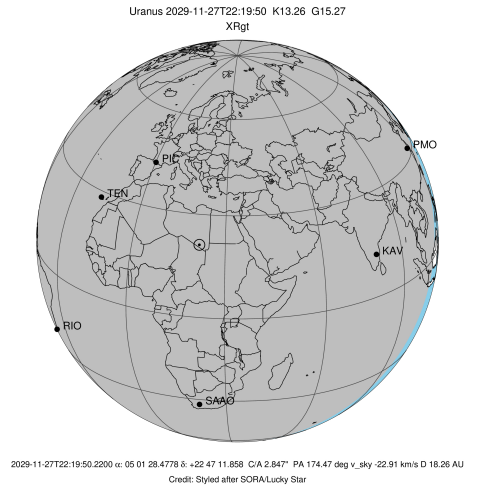


Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2029-11-27T21:59:06.173		52.26	-58.87	51454.76	-14.08		
lambda	I	2029-11-27T22:00:49.448		52.56	-59.12	50026.71	-13.47		
delta	I	2029-11-27T22:03:02.429		52.94	-59.45	48300.35	-12.47		
gamma	I	2029-11-27T22:03:57.810		53.10	-59.59	47621.72	-12.03		
eta	I	2029-11-27T22:04:35.341		53.21	-59.68	47176.12	-11.72		
beta	I	2029-11-27T22:06:53.314		53.61	-60.02	45643.64	-10.48		
alpha	I	2029-11-27T22:08:23.218		53.86	-60.23	44740.37	-9.63		
4	I	2029-11-27T22:12:51.503		54.62	-60.87	42538.81	-6.71		
5	I	2029-11-27T22:13:44.457		54.77	-61.00	42195.92	-6.07		
6	I	2029-11-27T22:14:50.269		54.96	-61.15	41824.11	-5.29		

No planet occultations

6	E	2029-11-27T22:28:33.701		57.24	-62.98	41807.53	5.30		
5	E	2029-11-27T22:29:38.340		57.42	-63.11	42165.90	6.08		
4	E	2029-11-27T22:30:33.919		57.57	-63.23	42526.72	6.72		
alpha	E	2029-11-27T22:35:05.084		58.30	-63.78	44752.43	9.64		
beta	E	2029-11-27T22:36:33.572		58.53	-63.96	45642.84	10.49		
eta	E	2029-11-27T22:38:51.419		58.90	-64.23	47176.12	11.73		
gamma	E	2029-11-27T22:39:29.302		59.00	-64.30	47626.61	12.05		
delta	E	2029-11-27T22:40:24.196		59.14	-64.40	48300.35	12.49		
lambda	E	2029-11-27T22:42:36.962		59.49	-64.65	50026.71	13.49		
epsilon	E	2029-11-27T22:43:45.748		59.67	-64.78	50971.52	14.10		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2029-11-27T22:15:33.350
 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 : 3418328294379363072
 2Mass ID (if available) : 05012846+2247116
 ICRS Star Coord at Epoch: 05h 01m 28.47779s +22:47:11.85810s
 RUWE (>1.4 is poor) : 1.03
 K magnitude : 13.259
 G magnitude : 15.274
 RP magnitude : 14.600
 BP magnitude : 15.773
 DUPflag : 0
 Distance (au) : 18.257
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -22.91
 Sun-Target sep (deg) : 169.01
 Sun-Moon sep (deg) : 65.87
 B (ring opening deg) : 82.17
 PA of pole (deg) : -13.90
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 3.020
 C/A sky separation (km) : 39993.7
 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

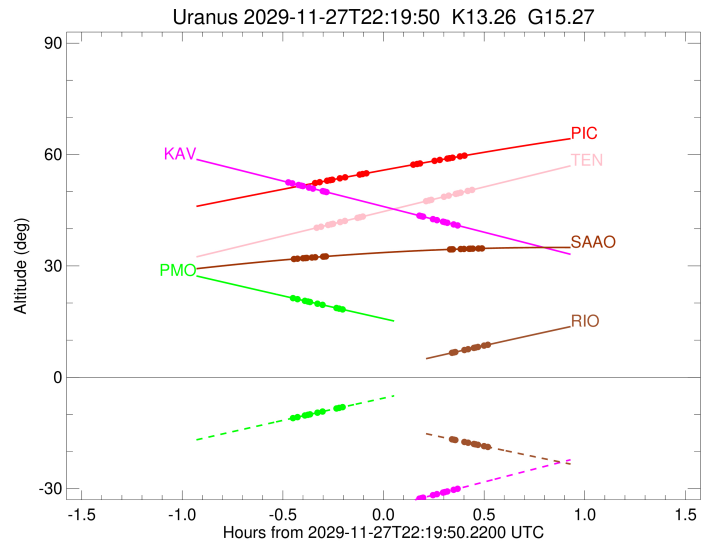
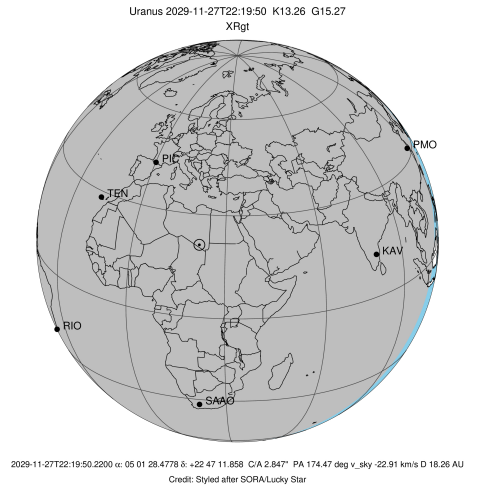


Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2029-11-27T21:52:30.228		21.39	-11.08	51460.38	-14.17		
lambda	I	2029-11-27T21:54:13.180		21.04	-10.73	50026.71	-13.58		
delta	I	2029-11-27T21:56:24.879		20.58	-10.29	48300.35	-12.62		
gamma	I	2029-11-27T21:57:19.579		20.40	-10.11	47621.66	-12.19		
eta	I	2029-11-27T21:57:56.577		20.27	-9.98	47176.12	-11.89		
beta	I	2029-11-27T22:00:12.035		19.80	-9.53	45643.90	-10.71		
alpha	I	2029-11-27T22:01:39.800		19.50	-9.24	44739.64	-9.91		
4	I	2029-11-27T22:05:55.816		18.63	-8.38	42539.97	-7.21		
5	I	2029-11-27T22:06:44.532		18.46	-8.22	42198.65	-6.64		
6	I	2029-11-27T22:07:44.027		18.26	-8.02	41825.84	-5.96		

No planet occultations

6	E	2029-11-27T22:23:28.557		15.05	-4.91x	41806.88	5.95		
5	E	2029-11-27T22:24:26.957		14.86	-4.72x	42165.20	6.63		
4	E	2029-11-27T22:25:18.436		14.68	-4.55x	42526.60	7.20		
alpha	E	2029-11-27T22:29:38.115		13.81	-3.70x	44752.43	9.89		
beta	E	2029-11-27T22:31:04.692		13.52	-3.42x	45642.88	10.69		
eta	E	2029-11-27T22:33:20.549		13.06	-2.98x	47176.12	11.86		
gamma	E	2029-11-27T22:33:58.051		12.94	-2.86x	47626.62	12.16		
delta	E	2029-11-27T22:34:52.491		12.75	-2.68x	48300.35	12.59		
lambda	E	2029-11-27T22:37:04.576		12.31	-2.25x	50026.71	13.54		
epsilon	E	2029-11-27T22:38:13.201		12.08	-2.03x	50971.53	14.12		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2029-11-27T22:23:01.170
 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 : 3418328294379363072
 2Mass ID (if available) : 05012846+2247116
 ICRS Star Coord at Epoch: 05h 01m 28.47779s +22:47:11.85810s
 RUWE (>1.4 is poor) : 1.03
 K magnitude : 13.259
 G magnitude : 15.274
 RP magnitude : 14.600
 BP magnitude : 15.773
 DUPflag : 0
 Distance (au) : 18.257
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -22.91
 Sun-Target sep (deg) : 169.01
 Sun-Moon sep (deg) : 66.83
 B (ring opening deg) : 82.17
 PA of pole (deg) : -13.90
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 2.973
 C/A sky separation (km) : 39369.5
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk
 URKALLvl.spk
 ural11.bsp
 IAU_URANUS_for_RINGFIT.tpc
 vgr2.ural11.bsp
 ural61.bsp
 vgr2.ural61.bsp
 peph.ural60.bsp
 earthstns_itr93_040916.bsp
 earth_720101_070426.bpc
 earth_200101_990628_predict.bpc
 pg3f0000r.bsp
 pg490000r.bsp
 naif0012.tls
 earth_flat_IAU.spk

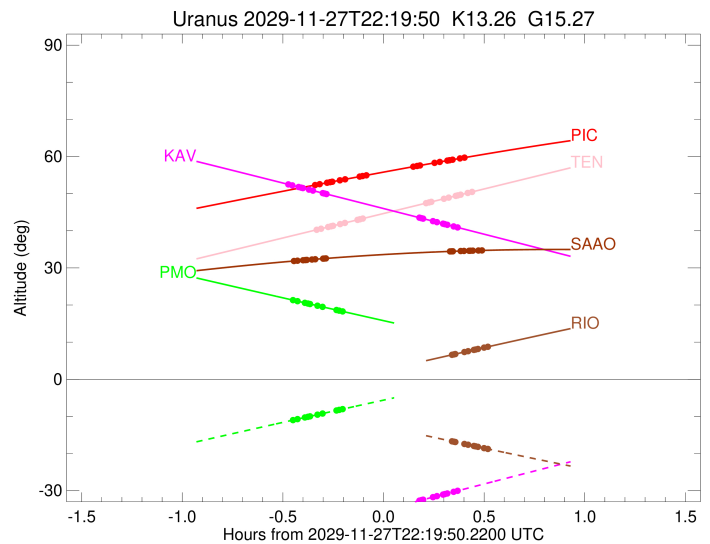
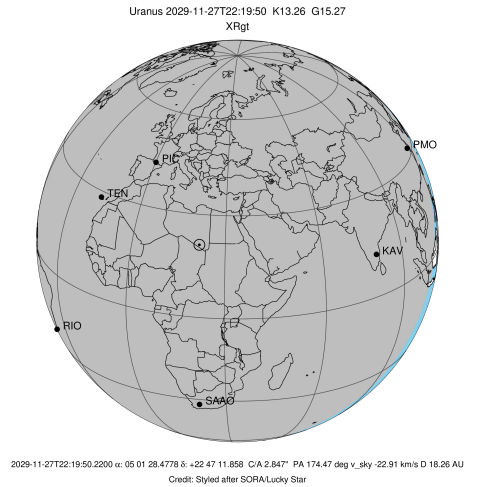


Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2029-11-27T21:59:34.339		40.19	-50.05	51462.17	-14.60		
lambda	I	2029-11-27T22:01:14.198		40.56	-50.42	50026.71	-14.05		
delta	I	2029-11-27T22:03:21.097		41.02	-50.89	48300.35	-13.14		
gamma	I	2029-11-27T22:04:13.525		41.21	-51.08	47621.63	-12.74		
eta	I	2029-11-27T22:04:48.872		41.34	-51.21	47176.12	-12.46		
beta	I	2029-11-27T22:06:57.352		41.81	-51.68	45644.07	-11.37		
alpha	I	2029-11-27T22:08:19.678		42.11	-51.98	44739.14	-10.63		
4	I	2029-11-27T22:12:12.069		42.97	-52.84	42541.02	-8.23		
5	I	2029-11-27T22:12:54.192		43.12	-52.99	42201.19	-7.74		
6	I	2029-11-27T22:13:44.541		43.31	-53.18	41827.50	-7.18		

No planet occultations

6	E	2029-11-27T22:32:23.735		47.41	-57.28	41805.00	7.19		
5	E	2029-11-27T22:33:12.875		47.60	-57.46	42162.95	7.75		
4	E	2029-11-27T22:33:57.614		47.76	-57.63	42526.23	8.24		
alpha	E	2029-11-27T22:37:52.732		48.62	-58.49	44752.41	10.65		
beta	E	2029-11-27T22:39:13.588		48.92	-58.78	45643.25	11.40		
eta	E	2029-11-27T22:41:21.834		49.39	-59.25	47176.12	12.49		
gamma	E	2029-11-27T22:41:57.502		49.53	-59.38	47626.82	12.78		
delta	E	2029-11-27T22:42:49.394		49.72	-59.57	48300.35	13.18		
lambda	E	2029-11-27T22:44:55.953		50.18	-60.04	50026.71	14.09		
epsilon	E	2029-11-27T22:46:01.185		50.42	-60.28	50959.88	14.65		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2029-11-27T22:16:36.770
 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 : 3418328294379363072
 2Mass ID (if available) : 05012846+2247116
 ICRS Star Coord at Epoch: 05h 01m 28.47779s +22:47:11.85810s
 RUWE (>1.4 is poor) : 1.03
 K magnitude : 13.259
 G magnitude : 15.274
 RP magnitude : 14.600
 BP magnitude : 15.773
 DUPflag : 0
 Distance (au) : 18.257
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -22.91
 Sun-Target sep (deg) : 169.01
 Sun-Moon sep (deg) : 66.33
 B (ring opening deg) : 82.17
 PA of pole (deg) : -13.90
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 2.776
 C/A sky separation (km) : 36762.4
 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

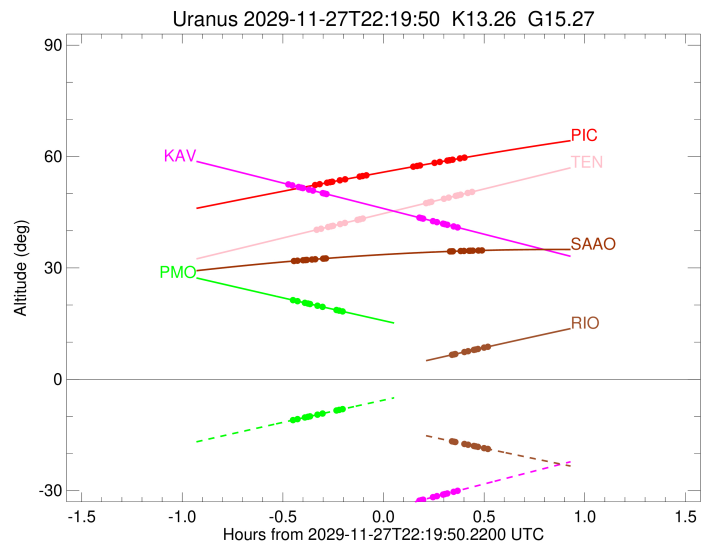
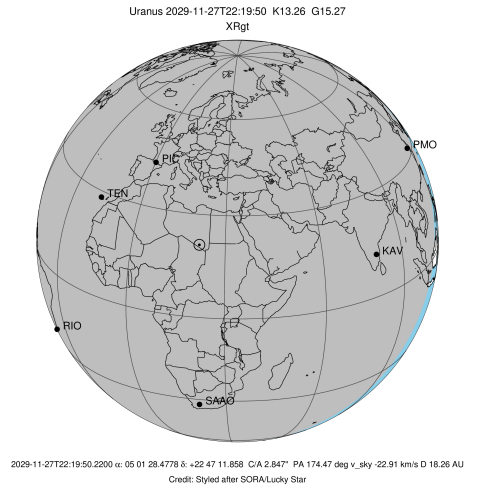


Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2029-11-27T21:51:07.927		52.57	-41.87	51483.68	-16.06		
lambda	I	2029-11-27T21:52:39.701		52.22	-41.52	50026.71	-15.61		
delta	I	2029-11-27T21:54:32.843		51.79	-41.08	48300.35	-14.90		
gamma	I	2029-11-27T21:55:18.904		51.62	-40.90	47621.39	-14.58		
eta	I	2029-11-27T21:55:49.664		51.50	-40.78	47176.12	-14.37		
beta	I	2029-11-27T21:57:39.322		51.08	-40.35	45645.43	-13.54		
alpha	I	2029-11-27T21:58:47.933		50.82	-40.09	44735.61	-13.00		
4	I	2029-11-27T22:01:47.402		50.14	-39.39	42546.64	-11.35		
5	I	2029-11-27T22:02:16.984		50.02	-39.28	42213.48	-11.05		
6	I	2029-11-27T22:02:51.846		49.89	-39.14	41834.76	-10.71		

No planet occultations

6	E	2029-11-27T22:30:27.304		43.55	-32.72	41801.17	10.69		
5	E	2029-11-27T22:31:01.016		43.42	-32.59	42158.66	11.03		
4	E	2029-11-27T22:31:33.348		43.30	-32.46	42525.94	11.33		
alpha	E	2029-11-27T22:34:36.302		42.59	-31.75	44752.09	12.98		
beta	E	2029-11-27T22:35:43.705		42.33	-31.49	45644.21	13.51		
eta	E	2029-11-27T22:37:33.672		41.91	-31.06	47176.12	14.33		
gamma	E	2029-11-27T22:38:04.906		41.79	-30.94	47627.26	14.55		
delta	E	2029-11-27T22:38:50.674		41.62	-30.77	48300.35	14.86		
lambda	E	2029-11-27T22:40:44.101		41.18	-30.33	50026.71	15.57		
epsilon	E	2029-11-27T22:41:41.891		40.96	-30.10	50936.09	16.02		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2029-11-27T22:24:20.920
 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 : 3418328294379363072
 2Mass ID (if available) : 05012846+2247116
 ICRS Star Coord at Epoch: 05h 01m 28.47779s +22:47:11.85810s
 RUWE (>1.4 is poor) : 1.03
 K magnitude : 13.259
 G magnitude : 15.274
 RP magnitude : 14.600
 BP magnitude : 15.773
 DUPflag : 0
 Distance (au) : 18.257
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -22.91
 Sun-Target sep (deg) : 169.01
 Sun-Moon sep (deg) : 66.35
 B (ring opening deg) : 82.17
 PA of pole (deg) : -13.90
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 2.669
 C/A sky separation (km) : 35337.9
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk
 URKALLvl.spk
 ural11.bsp
 IAU_URANUS_for_RINGFIT.tpc
 vgr2.ural11.bsp
 ural61.bsp
 vgr2.ural61.bsp
 peph.ural60.bsp
 earthstns_itr93_040916.bsp
 earth_720101_070426.bpc
 earth_200101_990628_predict.bpc
 pg3f0000r.bsp
 pg490000r.bsp
 naif0012.tls
 earth_flat_IAU.spk

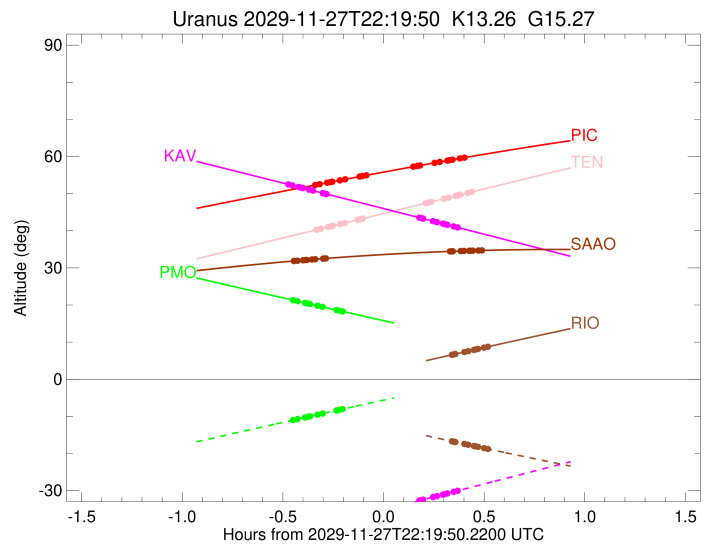
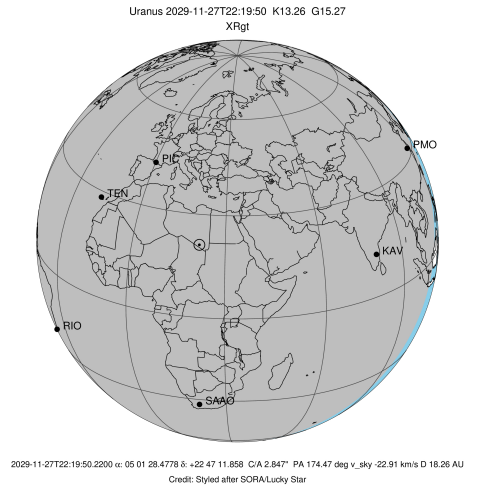


Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2029-11-27T21:57:29.645	-2.30x	-8.16	51490.18	-16.48			
lambda	I	2029-11-27T21:58:59.321	-1.99x	-8.47	50026.71	-16.09			
delta	I	2029-11-27T22:00:48.690	-1.60x	-8.84	48300.35	-15.47			
gamma	I	2029-11-27T22:01:32.960	-1.45x	-8.99	47621.31	-15.20			
eta	I	2029-11-27T22:02:02.422	-1.34x	-9.09	47176.12	-15.02			
beta	I	2029-11-27T22:03:46.726	-0.98x	-9.45	45645.96	-14.31			
alpha	I	2029-11-27T22:04:51.489	-0.75x	-9.67	44734.29	-13.86			
4	I	2029-11-27T22:07:37.147	-0.17x	-10.23	42548.75	-12.49			
5	I	2029-11-27T22:08:03.795	-0.08x	-10.32	42217.88	-12.24			
6	I	2029-11-27T22:08:35.233	0.03x	-10.42	41837.26	-11.97			

No planet occultations

6	E	2029-11-27T22:40:10.752	6.57	-16.69	41799.46	12.00			
5	E	2029-11-27T22:40:40.886	6.67	-16.79	42156.97	12.28			
4	E	2029-11-27T22:41:10.198	6.77	-16.89	42526.15	12.53			
alpha	E	2029-11-27T22:43:58.471	7.34	-17.43	44751.70	13.91			
beta	E	2029-11-27T22:45:01.705	7.56	-17.63	45644.94	14.36			
eta	E	2029-11-27T22:46:45.686	7.91	-17.97	47176.12	15.07			
gamma	E	2029-11-27T22:47:15.445	8.01	-18.06	47627.56	15.26			
delta	E	2029-11-27T22:47:59.135	8.15	-18.20	48300.35	15.53			
lambda	E	2029-11-27T22:49:48.056	8.52	-18.55	50026.71	16.16			
epsilon	E	2029-11-27T22:50:42.768	8.71	-18.73	50918.60	16.55			

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2029-11-27T22:21:06.700
 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 : 3418328294379363072
 2Mass ID (if available) : 05012846+2247116
 ICRS Star Coord at Epoch: 05h 01m 28.47779s +22:47:11.85810s
 RUWE (>1.4 is poor) : 1.03
 K magnitude : 13.259
 G magnitude : 15.274
 RP magnitude : 14.600
 BP magnitude : 15.773
 DUPflag : 0
 Distance (au) : 18.257
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -22.91
 Sun-Target sep (deg) : 169.01
 Sun-Moon sep (deg) : 66.53
 B (ring opening deg) : 82.17
 PA of pole (deg) : -13.90
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 2.461
 C/A sky separation (km) : 32583.5
 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_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	2029-11-27T21:52:49.148		31.83	-35.96	51506.18	-17.85		
lambda	I	2029-11-27T21:54:12.612		31.94	-36.01	50026.71	-17.54		
delta	I	2029-11-27T21:55:52.435		32.06	-36.06	48300.35	-17.04		
gamma	I	2029-11-27T21:56:32.534		32.11	-36.08	47621.17	-16.83		
eta	I	2029-11-27T21:56:59.091		32.15	-36.09	47176.12	-16.68		
beta	I	2029-11-27T21:58:32.249		32.26	-36.14	45647.29	-16.13		
alpha	I	2029-11-27T21:59:29.692		32.33	-36.16	44731.19	-15.78		
4	I	2029-11-27T22:01:52.229		32.50	-36.22	42553.41	-14.75		
5	I	2029-11-27T22:02:14.468		32.52	-36.23	42227.19	-14.56		
6	I	2029-11-27T22:02:41.001		32.55	-36.24	41842.38	-14.36		

No planet occultations

6	E	2029-11-27T22:39:36.374		34.44	-36.37	41797.53	14.38		
5	E	2029-11-27T22:40:01.627		34.45	-36.37	42155.43	14.57		
4	E	2029-11-27T22:40:26.589		34.47	-36.36	42526.87	14.76		
alpha	E	2029-11-27T22:42:52.101		34.54	-36.32	44750.91	15.80		
beta	E	2029-11-27T22:43:48.172		34.57	-36.30	45646.04	16.15		
eta	E	2029-11-27T22:45:21.294		34.61	-36.26	47176.12	16.70		
gamma	E	2029-11-27T22:45:48.227		34.62	-36.25	47627.96	16.85		
delta	E	2029-11-27T22:46:27.878		34.64	-36.24	48300.35	17.06		
lambda	E	2029-11-27T22:48:07.586		34.68	-36.20	50026.71	17.56		
epsilon	E	2029-11-27T22:48:56.797		34.70	-36.18	50896.31	17.88		