

target : Uranus  
 target radius (km) : 25559.00  
 C/A epoch : 2025-11-07T23:26:36.680  
 Event type : PgtRgt  
 : Uranus occs: geocentric, topocentric  
 : Ring occs: geocentric, topocentric  
 Gaia source ID : 51112795179561600  
 2Mass ID (if available) : 03495746+1952008

ICRS Star Coord at Epoch: 03h 49m 57.45904s +19:52:00.83939s

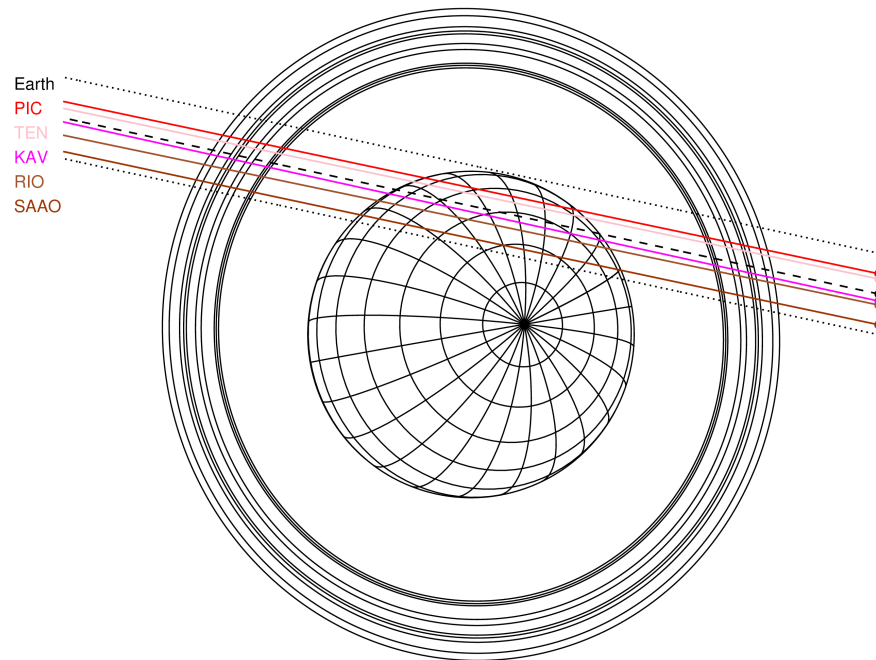
RUWE (>1.4 is poor) : 1.00  
 K magnitude : 13.909  
 G magnitude : 15.541  
 RP magnitude : 14.949  
 BP magnitude : 15.944  
 DUPflag : 0  
 Distance (au) : 18.538  
 f0 (km) : 0.000  
 g0 (km) : 0.000  
 skyplane vel. (km/s) : -22.52  
 Sun-Target sep (deg) : 165.81  
 Sun-Moon sep (deg) : 20.94  
 B (ring opening deg) : 70.54  
 PA of pole (deg) : -79.21

#	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



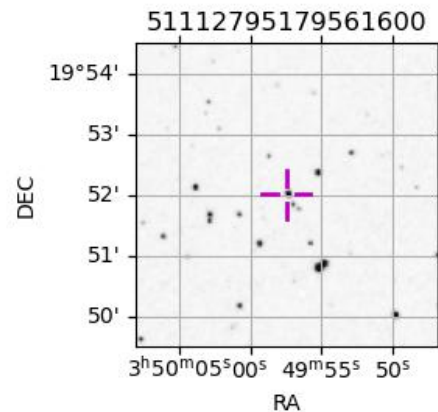
2025-11-07T23:26:36.6800 α: 03 49 57.4590 s: +19 52 00.839 C/A 1.467° PA 167.82 deg v\_sky -22.52 km/s D 18.54 AU  
 Credit: Styled after SORA/Lucky Star

Uranus 2025-11-07T23:26:36 K13.91 G15.54 PgtRgt

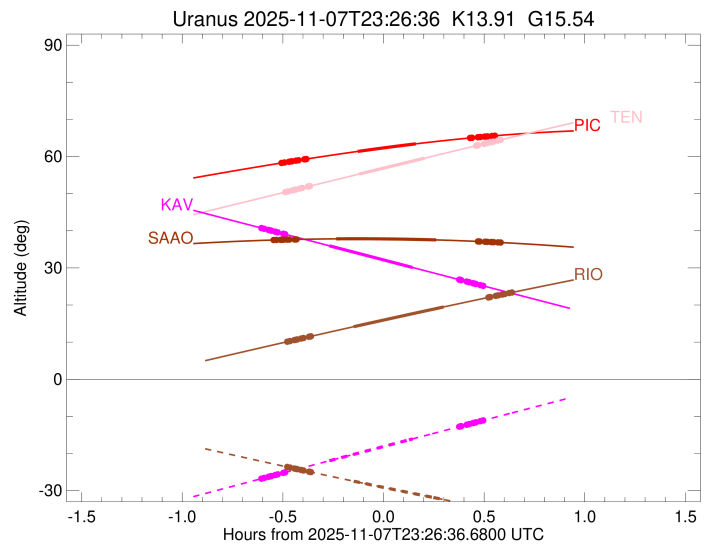
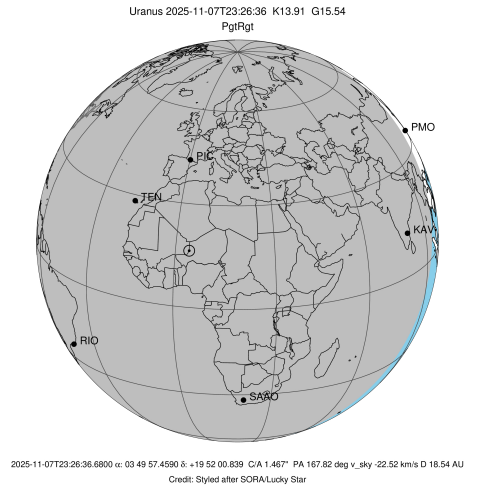


Observable events with sun below -5 deg and altitude above 5 deg unblocked by planet

Obs	Location	lat	Elon	Rings I	Planet	Rings E	Observed Events Interval	OEcode
PIC	Pic du Midi	42.9	0.1	+++++	+ +	+++++	NOV 07 22:56 - NOV 08 00:00	PieRie
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	+++++	+ +	+++++	NOV 07 22:57 - NOV 08 00:01	PieRie
IRTF	Mauna Kea/IRTF	19.8	204.5					PnnRnn
KAV	Kavalur Observatory	12.6	78.8	+++++	+ +	+++++	NOV 07 22:50 - NOV 07 23:56	PieRie
RIO	Rio de Janeiro	-22.9	316.8	+++++	+ +	+++++	NOV 07 22:58 - NOV 08 00:05	PieRie
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 07 22:54 - NOV 08 00:01	PieRie
MSO	Mt. Stromlo Observato	-35.3	149.0					PnnRnn

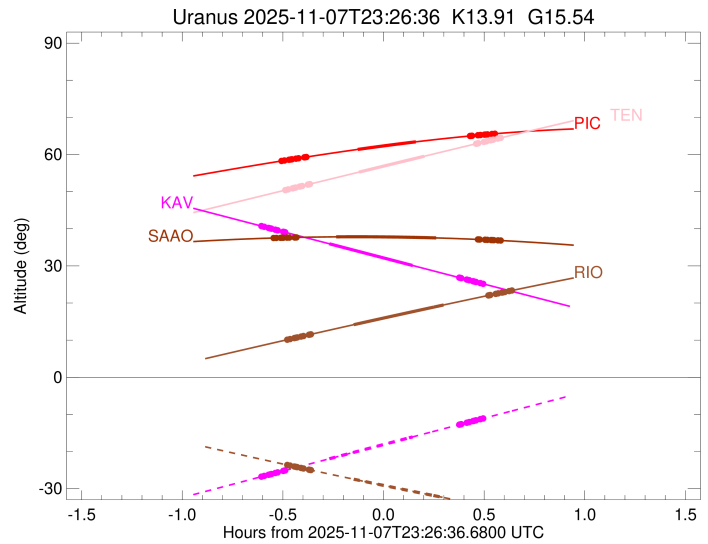
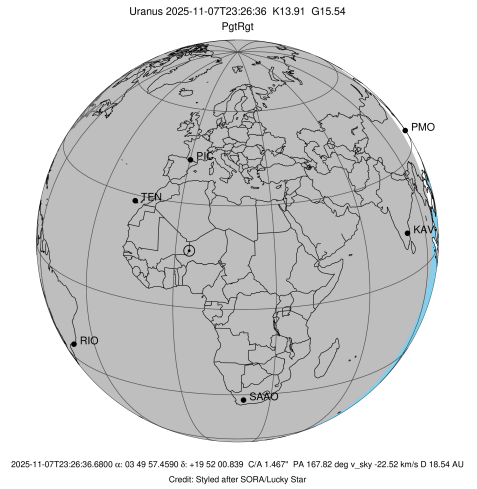


target : Uranus  
 target radius (km) : 25559.00  
 C/A epoch : 2025-11-07T23:27:21.910  
 Event type : PgtRgt  
 : Uranus occs: geocentric, topocentric  
 : Ring occs: geocentric, topocentric  
 Observer code : PIC  
 Location : Pic du Midi  
 Latitude (deg) : 42.93656  
 E. Longitude (deg) : 0.14231  
 Altitude (km) : 2.890  
 Gaia source ID : 51112795179561600  
 2Mass ID (if available) : 03495746+1952008  
 ICRS Star Coord at Epoch: 03h 49m 57.45904s +19:52:00.83939s  
 RUWE (>1.4 is poor) : 1.00  
 K magnitude : 13.909  
 G magnitude : 15.541  
 RP magnitude : 14.949  
 BP magnitude : 15.944  
 DUPflag : 0  
 Distance (au) : 18.538  
 f0 (km) : 0.000  
 g0 (km) : 0.000  
 skyplane vel. (km/s) : -22.52  
 Sun-Target sep (deg) : 165.81  
 Sun-Moon sep (deg) : 21.30  
 B (ring opening deg) : 70.54  
 PA of pole (deg) : -79.21  
 Pole direction: RA (deg): 257.31100  
 Dec (deg): -15.17500  
 C/A sky separation (") : 1.672  
 C/A sky separation (km) : 22486.2  
 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



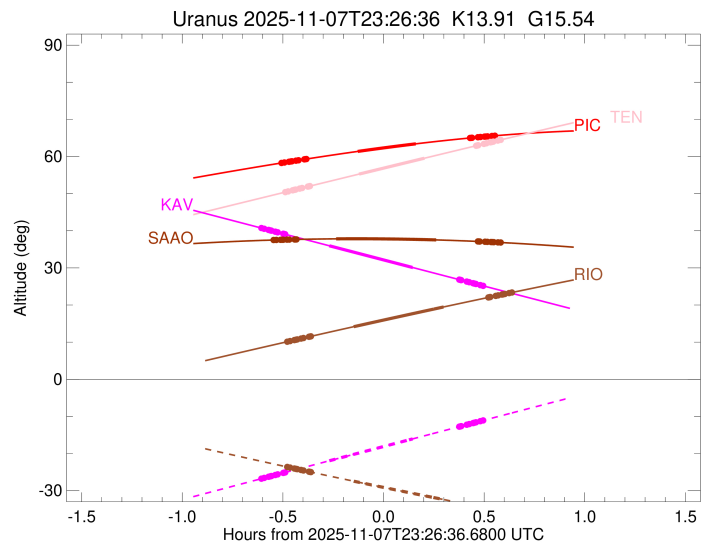
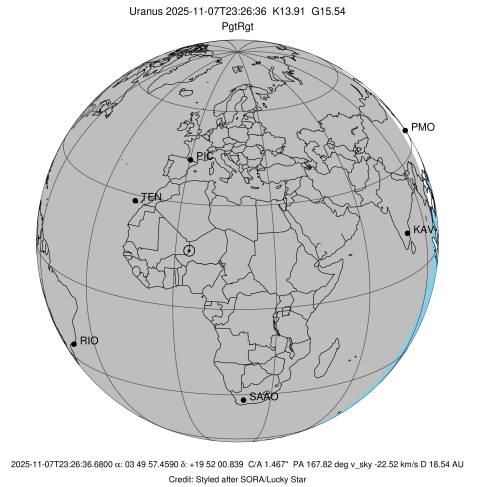
Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2025-11-07T22:56:23.625		58.30	-61.99	50909.45	-21.54		
lambda	I	2025-11-07T22:57:04.820		58.40	-62.04	50026.71	-21.38		
delta	I	2025-11-07T22:58:25.939		58.59	-62.14	48300.35	-21.18		
gamma	I	2025-11-07T22:58:57.898		58.67	-62.18	47624.85	-21.09		
eta	I	2025-11-07T22:59:19.201		58.72	-62.20	47176.12	-21.03		
beta	I	2025-11-07T23:00:31.937		58.89	-62.29	45652.55	-20.82		
alpha	I	2025-11-07T23:01:17.097		59.00	-62.34	44719.30	-20.68		
4	I	2025-11-07T23:02:59.992		59.24	-62.46	42614.41	-20.32		
5	I	2025-11-07T23:03:17.564		59.28	-62.48	42258.05	-20.22		
6	I	2025-11-07T23:03:39.532		59.33	-62.50	41796.07	-20.15		
Uranus	I	2025-11-07T23:18:58.706		61.39	-63.32	25251.80		14.74	15.40
Uranus	E	2025-11-07T23:36:13.408		63.42	-63.79	25553.81		-1.88	-1.97
6	E	2025-11-07T23:52:25.133		65.00	-63.76	41863.72	20.18		
5	E	2025-11-07T23:52:39.263		65.02	-63.76	42155.62	20.25		
4	E	2025-11-07T23:52:59.643		65.05	-63.75	42565.07	20.35		
alpha	E	2025-11-07T23:54:46.263		65.20	-63.72	44747.79	20.72		
beta	E	2025-11-07T23:55:31.145		65.26	-63.70	45681.15	20.86		
eta	E	2025-11-07T23:56:42.422		65.36	-63.68	47176.12	21.07		
gamma	E	2025-11-07T23:57:03.997		65.39	-63.67	47631.33	21.13		
delta	E	2025-11-07T23:57:35.595		65.43	-63.65	48300.35	21.22		
lambda	E	2025-11-07T23:58:56.573		65.53	-63.62	50026.71	21.42		
epsilon	E	2025-11-08T00:00:07.660		65.62	-63.59	51555.16	21.58		

target : Uranus  
 target radius (km) : 25559.00  
 C/A epoch : 2025-11-07T23:28:50.410  
 Event type : PgtRgt  
 : Uranus occs: geocentric, topocentric  
 : 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 : 51112795179561600  
 2Mass ID (if available) : 03495746+1952008  
 ICRS Star Coord at Epoch: 03h 49m 57.45904s +19:52:00.83939s  
 RUWE (>1.4 is poor) : 1.00  
 K magnitude : 13.909  
 G magnitude : 15.541  
 RP magnitude : 14.949  
 BP magnitude : 15.944  
 DUPflag : 0  
 Distance (au) : 18.538  
 f0 (km) : 0.000  
 g0 (km) : 0.000  
 skyplane vel. (km/s) : -22.52  
 Sun-Target sep (deg) : 165.81  
 Sun-Moon sep (deg) : 21.60  
 B (ring opening deg) : 70.54  
 PA of pole (deg) : -79.21  
 Pole direction: RA (deg): 257.31100  
 Dec (deg): -15.17500  
 C/A sky separation (") : 1.605  
 C/A sky separation (km) : 21573.3  
 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\_itr93\_040916.bsp  
 earth\_720101\_070426.bpc  
 earth\_200101\_990628\_predict.bpc  
 pg3f0000r.bsp  
 pg490000r.bsp  
 naif0012.tls  
 earth\_flat\_IAU.spk



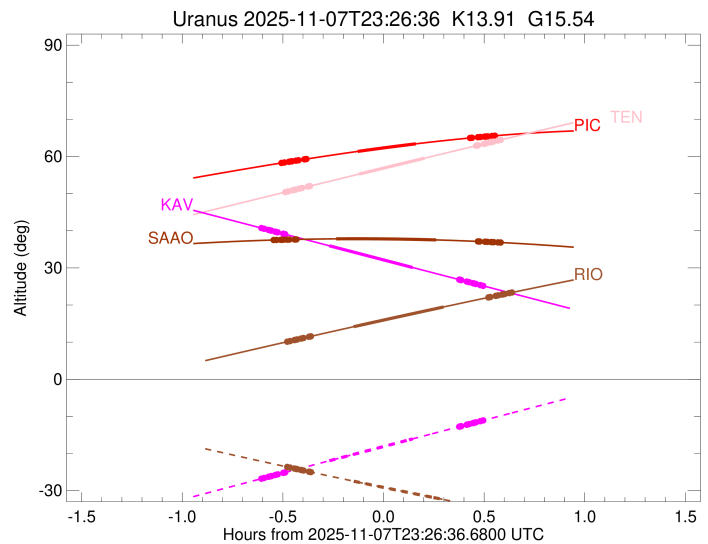
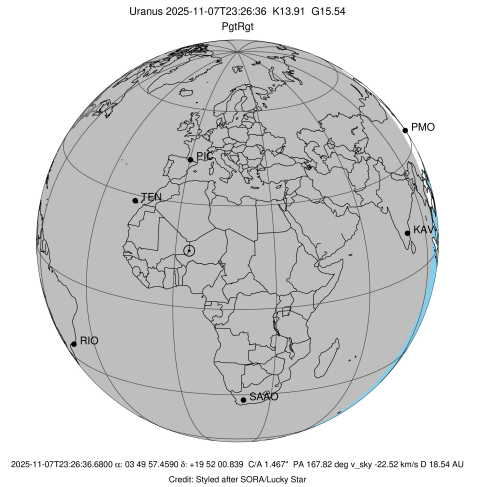
Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2025-11-07T22:57:31.791		50.46	-61.69	50903.54	-21.74		
lambda	I	2025-11-07T22:58:12.325		50.61	-61.84	50026.71	-21.59		
delta	I	2025-11-07T22:59:32.625		50.91	-62.12	48300.35	-21.41		
gamma	I	2025-11-07T23:00:04.244		51.02	-62.23	47624.74	-21.33		
eta	I	2025-11-07T23:00:25.305		51.10	-62.30	47176.12	-21.27		
beta	I	2025-11-07T23:01:37.199		51.36	-62.55	45652.17	-21.08		
alpha	I	2025-11-07T23:02:21.799		51.53	-62.70	44718.55	-20.96		
4	I	2025-11-07T23:04:03.242		51.90	-63.06	42614.07	-20.63		
5	I	2025-11-07T23:04:20.451		51.96	-63.11	42259.88	-20.54		
6	I	2025-11-07T23:04:42.170		52.04	-63.19	41795.83	-20.48		
Uranus	I	2025-11-07T23:19:18.624		55.27	-66.18	25216.75		15.59	16.29
Uranus	E	2025-11-07T23:38:49.059		59.55	-69.98	25543.57		-3.24	-3.39
6	E	2025-11-07T23:54:15.144		62.91	-72.77	41864.63	20.53		
5	E	2025-11-07T23:54:28.984		62.96	-72.81	42155.96	20.60		
4	E	2025-11-07T23:54:48.958		63.03	-72.86	42563.85	20.68		
alpha	E	2025-11-07T23:56:33.995		63.41	-73.16	44747.34	21.02		
beta	E	2025-11-07T23:57:18.269		63.57	-73.28	45681.10	21.15		
eta	E	2025-11-07T23:58:28.608		63.82	-73.48	47176.12	21.34		
gamma	E	2025-11-07T23:58:49.911		63.90	-73.53	47631.29	21.40		
delta	E	2025-11-07T23:59:21.124		64.01	-73.62	48300.35	21.47		
lambda	E	2025-11-08T00:00:41.166		64.30	-73.84	50026.71	21.66		
epsilon	E	2025-11-08T00:01:51.473		64.55	-74.02	51554.83	21.81		

target : Uranus  
 target radius (km) : 25559.00  
 C/A epoch : 2025-11-07T23:22:39.980  
 Event type : PgtRgt  
 : Uranus occs: geocentric, topocentric  
 : 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 : 51112795179561600  
 2Mass ID (if available) : 03495746+1952008  
 ICRS Star Coord at Epoch: 03h 49m 57.45904s +19:52:00.83939s  
 RUWE (>1.4 is poor) : 1.00  
 K magnitude : 13.909  
 G magnitude : 15.541  
 RP magnitude : 14.949  
 BP magnitude : 15.944  
 DUPflag : 0  
 Distance (au) : 18.538  
 f0 (km) : 0.000  
 g0 (km) : 0.000  
 skyplane vel. (km/s) : -22.52  
 Sun-Target sep (deg) : 165.81  
 Sun-Moon sep (deg) : 20.40  
 B (ring opening deg) : 70.54  
 PA of pole (deg) : -79.21  
 Pole direction: RA (deg): 257.31100  
 Dec (deg): -15.17500  
 C/A sky separation (") : 1.396  
 C/A sky separation (km) : 18766.4  
 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\_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	2025-11-07T22:50:24.946		40.68	-26.73	50881.79	-22.33		
lambda	I	2025-11-07T22:51:03.387		40.53	-26.58	50026.71	-22.21		
delta	I	2025-11-07T22:52:21.346		40.23	-26.27	48300.35	-22.07		
gamma	I	2025-11-07T22:52:52.009		40.11	-26.14	47624.37	-22.02		
eta	I	2025-11-07T22:53:12.388		40.02	-26.06	47176.12	-21.98		
beta	I	2025-11-07T22:54:21.962		39.75	-25.79	45650.79	-21.83		
alpha	I	2025-11-07T22:55:05.042		39.58	-25.62	44715.84	-21.74		
4	I	2025-11-07T22:56:42.584		39.20	-25.23	42612.66	-21.50		
5	I	2025-11-07T22:56:58.756		39.14	-25.17	42266.31	-21.43		
6	I	2025-11-07T22:57:19.880		39.05	-25.08	41795.16	-21.38		
Uranus	I	2025-11-07T23:10:26.743		35.96	-21.96	25130.31		17.55	18.33
Uranus	E	2025-11-07T23:35:17.993		30.11	-16.06	25499.85		-6.36	-6.66
6	E	2025-11-07T23:49:12.912		26.84	-12.77	41866.77	21.31		
5	E	2025-11-07T23:49:26.146		26.79	-12.72	42157.03	21.36		
4	E	2025-11-07T23:49:45.241		26.71	-12.64	42560.92	21.42		
alpha	E	2025-11-07T23:51:27.016		26.31	-12.24	44746.20	21.66		
beta	E	2025-11-07T23:52:10.074		26.14	-12.07	45680.94	21.75		
eta	E	2025-11-07T23:53:18.563		25.87	-11.80	47176.12	21.89		
gamma	E	2025-11-07T23:53:39.335		25.79	-11.72	47631.19	21.93		
delta	E	2025-11-07T23:54:09.813		25.67	-11.60	48300.35	21.98		
lambda	E	2025-11-07T23:55:28.101		25.37	-11.29	50026.71	22.12		
epsilon	E	2025-11-07T23:56:36.959		25.10	-11.02	51553.34	22.23		

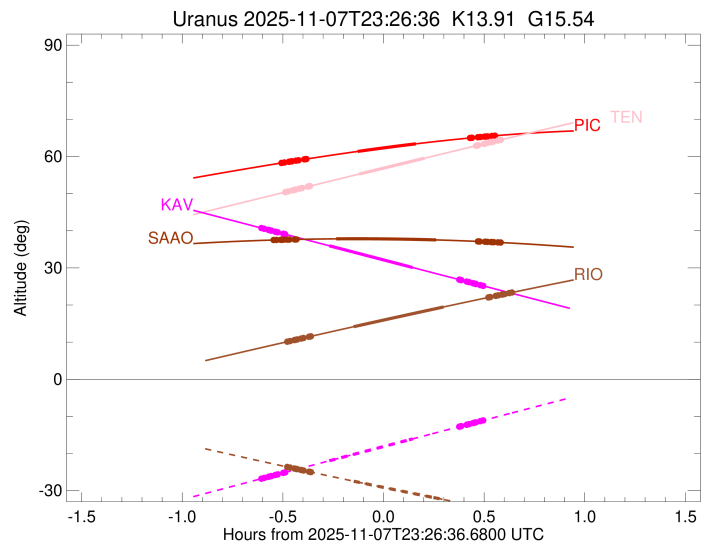
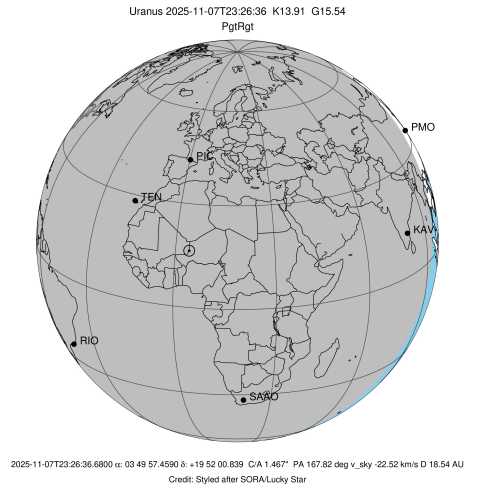
target : Uranus  
 target radius (km) : 25559.00  
 C/A epoch : 2025-11-07T23:30:56.080  
 Event type : PgtRgt  
 : Uranus occs: geocentric, topocentric  
 : Ring occs: geocentric, topocentric  
 Observer code : RIO  
 Location : Rio de Janeiro  
 Latitude (deg) : -22.89506  
 E. Longitude (deg) : 316.77708  
 Altitude (km) : 0.033  
 Gaia source ID : 51112795179561600  
 2Mass ID (if available) : 03495746+1952008  
 ICRS Star Coord at Epoch: 03h 49m 57.45904s +19:52:00.83939s  
 RUWE (>1.4 is poor) : 1.00  
 K magnitude : 13.909  
 G magnitude : 15.541  
 RP magnitude : 14.949  
 BP magnitude : 15.944  
 DUPflag : 0  
 Distance (au) : 18.538  
 f0 (km) : 0.000  
 g0 (km) : 0.000  
 skyplane vel. (km/s) : -22.52  
 Sun-Target sep (deg) : 165.81  
 Sun-Moon sep (deg) : 21.94  
 B (ring opening deg) : 70.54  
 PA of pole (deg) : -79.21  
 Pole direction: RA (deg): 257.31100  
 Dec (deg): -15.17500  
 C/A sky separation (") : 1.304  
 C/A sky separation (km) : 17535.8  
 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	2025-11-07T22:58:07.416		10.16	-23.67	50876.84	-22.37		
lambda	I	2025-11-07T22:58:45.538		10.29	-23.79	50026.71	-22.27		
delta	I	2025-11-07T23:00:03.241		10.56	-24.05	48300.35	-22.16		
gamma	I	2025-11-07T23:00:33.783		10.66	-24.14	47624.28	-22.11		
eta	I	2025-11-07T23:00:54.067		10.73	-24.21	47176.12	-22.08		
beta	I	2025-11-07T23:02:03.296		10.97	-24.44	45650.45	-21.96		
alpha	I	2025-11-07T23:02:46.126		11.12	-24.58	44715.14	-21.88		
4	I	2025-11-07T23:04:22.936		11.45	-24.89	42612.23	-21.68		
5	I	2025-11-07T23:04:38.879		11.50	-24.94	42267.99	-21.62		
6	I	2025-11-07T23:04:59.894		11.57	-25.01	41795.03	-21.58		
Uranus	I	2025-11-07T23:17:44.129		14.16	-27.46	25108.29		18.03	18.82
Uranus	E	2025-11-07T23:44:29.364		19.47	-32.39	25471.07		-7.77	-8.13
6	E	2025-11-07T23:57:53.592		22.05	-34.74	41868.08	21.67		
5	E	2025-11-07T23:58:06.548		22.09	-34.77	42157.92	21.71		
4	E	2025-11-07T23:58:25.207		22.15	-34.83	42559.03	21.77		
alpha	E	2025-11-08T00:00:05.477		22.46	-35.11	44745.36	21.98		
beta	E	2025-11-08T00:00:47.953		22.60	-35.23	45680.78	22.06		
eta	E	2025-11-08T00:01:55.507		22.81	-35.42	47176.12	22.18		
gamma	E	2025-11-08T00:02:16.001		22.88	-35.48	47631.11	22.22		
delta	E	2025-11-08T00:02:46.088		22.97	-35.57	48300.35	22.27		
lambda	E	2025-11-08T00:04:03.402		23.21	-35.78	50026.71	22.39		
epsilon	E	2025-11-08T00:05:11.367		23.43	-35.97	51551.59	22.49		



target : Uranus  
 target radius (km) : 25559.00  
 C/A epoch : 2025-11-07T23:27:16.630  
 Event type : PgtRgt  
 : Uranus occs: geocentric, topocentric  
 : 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 : 51112795179561600  
 2Mass ID (if available) : 03495746+1952008  
 ICRS Star Coord at Epoch: 03h 49m 57.45904s +19:52:00.83939s  
 RUWE (>1.4 is poor) : 1.00  
 K magnitude : 13.909  
 G magnitude : 15.541  
 RP magnitude : 14.949  
 BP magnitude : 15.944  
 DUPflag : 0  
 Distance (au) : 18.538  
 f0 (km) : 0.000  
 g0 (km) : 0.000  
 skyplane vel. (km/s) : -22.52  
 Sun-Target sep (deg) : 165.81  
 Sun-Moon sep (deg) : 21.49  
 B (ring opening deg) : 70.54  
 PA of pole (deg) : -79.21  
 Pole direction: RA (deg): 257.31100  
 Dec (deg): -15.17500  
 C/A sky separation (") : 1.095  
 C/A sky separation (km) : 14718.2  
 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	2025-11-07T22:54:04.313		37.52	-40.57	50858.77	-23.07		
lambda	I	2025-11-07T22:54:40.465		37.53	-40.55	50026.71	-23.00		
delta	I	2025-11-07T22:55:55.664		37.57	-40.50	48300.35	-22.92		
gamma	I	2025-11-07T22:56:25.202		37.58	-40.48	47623.95	-22.88		
eta	I	2025-11-07T22:56:44.783		37.59	-40.46	47176.12	-22.86		
beta	I	2025-11-07T22:57:51.642		37.61	-40.41	45649.29	-22.77		
alpha	I	2025-11-07T22:58:32.955		37.63	-40.38	44712.74	-22.72		
4	I	2025-11-07T23:00:06.035		37.66	-40.31	42610.66	-22.58		
5	I	2025-11-07T23:00:21.050		37.66	-40.30	42273.48	-22.54		
6	I	2025-11-07T23:00:41.460		37.67	-40.29	41794.78	-22.51		
Uranus	I	2025-11-07T23:12:31.141		37.83	-39.66	25065.02		18.93	19.76
Uranus	E	2025-11-07T23:42:20.633		37.54	-37.43	25411.16		-10.12	-10.58
6	E	2025-11-07T23:54:46.250		37.13	-36.25	41870.04	22.52		
5	E	2025-11-07T23:54:58.655		37.12	-36.23	42159.62	22.55		
4	E	2025-11-07T23:55:16.430		37.11	-36.20	42556.09	22.59		
alpha	E	2025-11-07T23:56:53.319		37.04	-36.03	44743.98	22.73		
beta	E	2025-11-07T23:57:34.479		37.02	-35.96	45680.48	22.78		
eta	E	2025-11-07T23:58:39.964		36.97	-35.85	47176.12	22.87		
gamma	E	2025-11-07T23:58:59.845		36.95	-35.81	47630.97	22.89		
delta	E	2025-11-07T23:59:29.065		36.93	-35.76	48300.35	22.92		
lambda	E	2025-11-08T00:00:44.235		36.88	-35.63	50026.71	23.01		
epsilon	E	2025-11-08T00:01:50.268		36.83	-35.51	51548.04	23.08		