

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2036-02-27T16:08:45.180
 Event type : PgtRgt
 : Uranus occs: geocentric, topocentric
 : Ring occs: geocentric, topocentric
 Gaia source ID : 3379626889535965696
 2Mass ID (if available) : 06462970+2323531

ICRS Star Coord at Epoch: 06h 46m 29.70300s +23:23:53.11271s

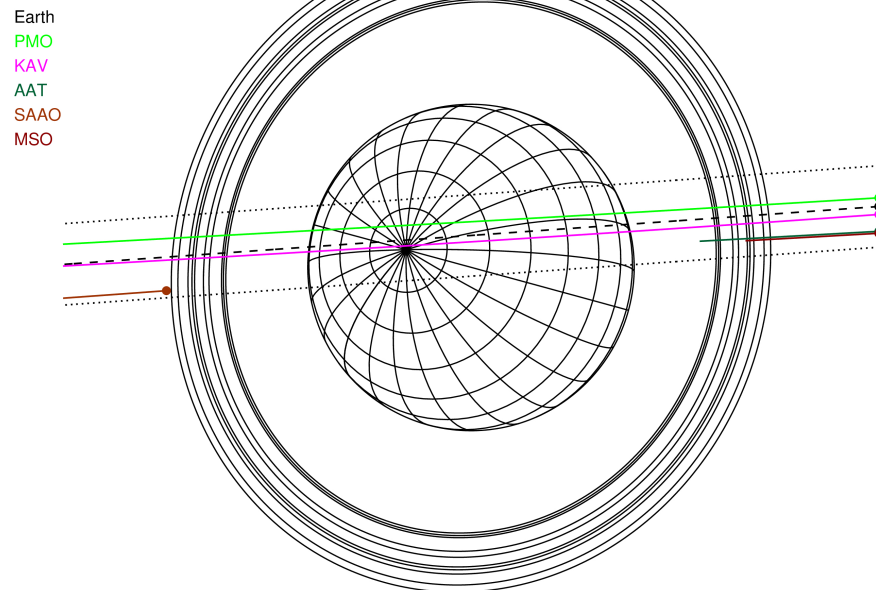
RUWE (>1.4 is poor) : 1.07
 K magnitude : 14.407
 G magnitude : 15.824
 RP magnitude : 15.339
 BP magnitude : 16.151
 DUPflag : 0
 Distance (au) : 18.266
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -9.59
 Sun-Target sep (deg) : 122.51
 Sun-Moon sep (deg) : 117.28
 B (ring opening deg) : 65.67
 PA of pole (deg) : 74.66

#	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



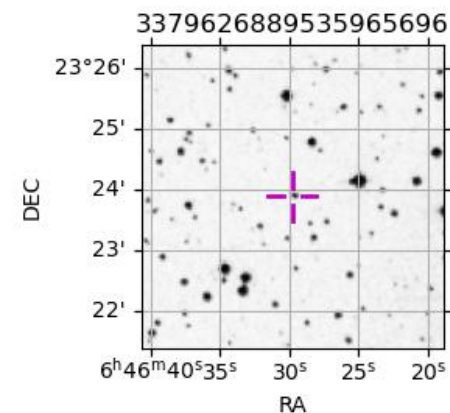
2036-02-27T16:08:45.1800 α: 06 46 29.7030 α: +23 23 53.113 C/A 0.383° PA 184.06 deg v_sky - 9.59 km/s D 18.27 AU
 Credit: Styled after SORA/Lucky Star

Uranus 2036-02-27T16:08:45 K14.41 G15.82 PgtRgt

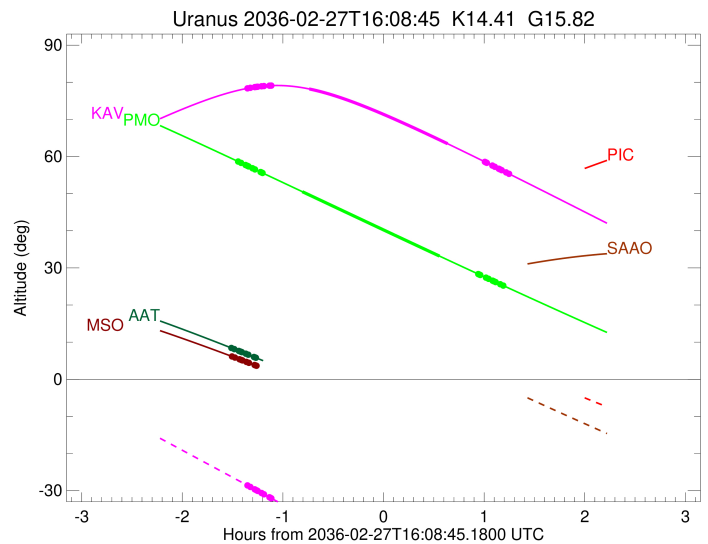
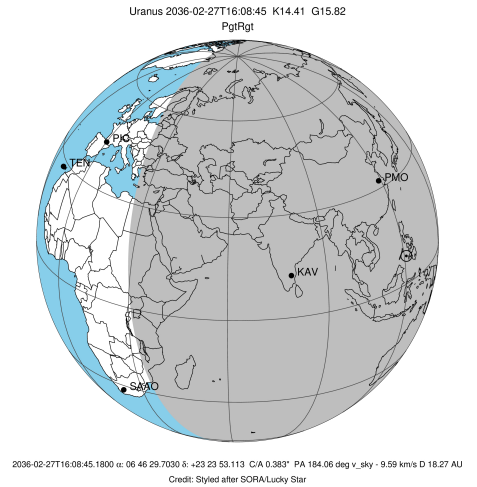


Observable events with sun below -5 deg and altitude above 5 deg unblocked by planet

Obs	Location	lat	Elon	Rings I	Planet	Rings E	Observed Events Interval	OEcode
PIC	Pic du Midi	42.9	0.1					PnnRnn
PAL	Palomar Mt (200")	33.4	243.1					PnnRnn
PMO	Purple Mtn Obs. Nanki	32.1	118.8	+++++	+ +	+++++	FEB 27 14:42 - FEB 27 17:20	PieRie
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					PnnRnn
IRTF	Mauna Kea/IRTF	19.8	204.5					PnnRnn
KAV	Kavalur Observatory	12.6	78.8	+++++	+ +	+++++	FEB 27 14:47 - FEB 27 17:23	PieRie
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	+++++			FEB 27 14:38 - FEB 27 14:52	PnnRin
SAAO	So. Afr. Astro. Obs.	-32.4	20.8					PnnRnn
MSO	Mt. Stromlo Observato	-35.3	149.0	+++++			FEB 27 14:38 - FEB 27 14:44	PnnRin

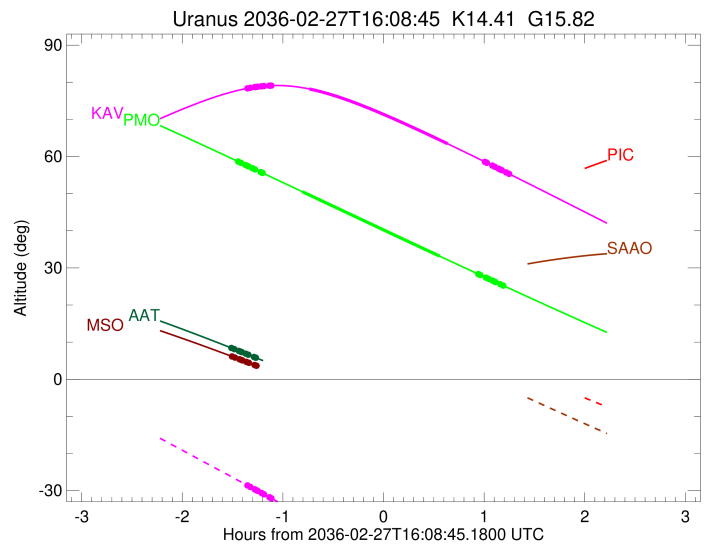
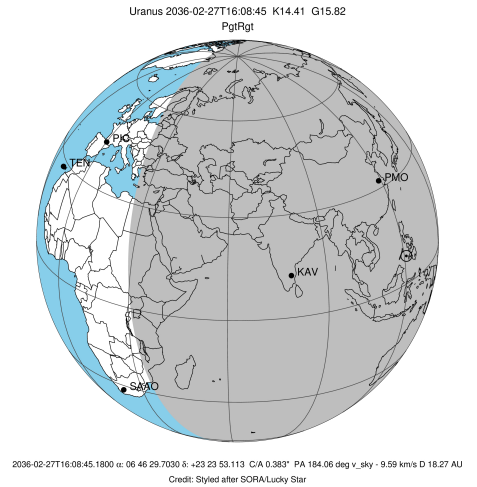


target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2036-02-27T16:01:13.130
 Event type : PgtRgt
 : Uranus occs: geocentric, topocentric
 : Ring occs: geocentric, topocentric
 Observer code : PMO
 Location : Purple Mtn Obs. Nanking
 Latitude (deg) : 32.06667
 E. Longitude (deg) : 118.82089
 Altitude (km) : 0.364
 Gaia source ID : 3379626889535965696
 2Mass ID (if available) : 06462970+2323531
 ICRS Star Coord at Epoch: 06h 46m 29.70300s +23:23:53.11271s
 RUWE (>1.4 is poor) : 1.07
 K magnitude : 14.407
 G magnitude : 15.824
 RP magnitude : 15.339
 BP magnitude : 16.151
 DUPflag : 0
 Distance (au) : 18.266
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -9.59
 Sun-Target sep (deg) : 122.51
 Sun-Moon sep (deg) : 117.52
 B (ring opening deg) : 65.67
 PA of pole (deg) : 74.66
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 0.540
 C/A sky separation (km) : 7156.8
 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



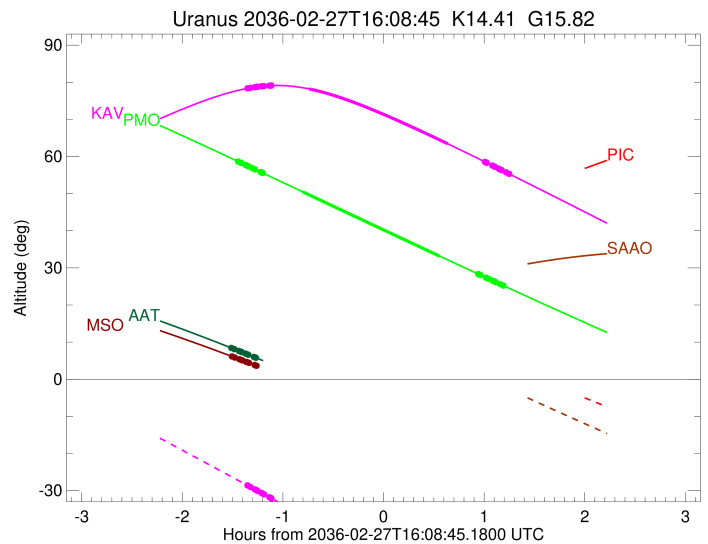
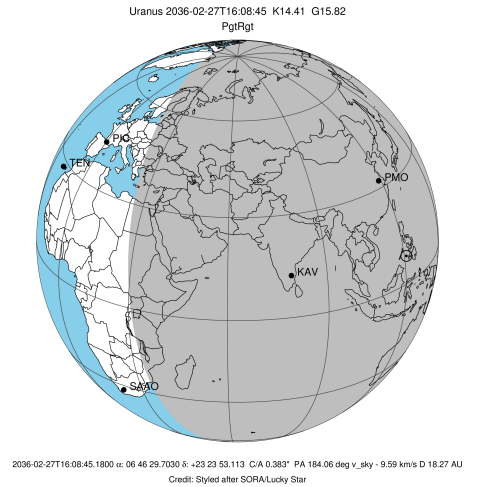
Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2036-02-27T14:42:26.768		58.58	-57.75	50928.11	-10.69		
lambda	I	2036-02-27T14:43:51.047		58.28	-57.97	50026.71	-10.69		
delta	I	2036-02-27T14:46:32.596		57.71	-58.39	48300.35	-10.68		
gamma	I	2036-02-27T14:47:35.987		57.49	-58.55	47623.49	-10.67		
eta	I	2036-02-27T14:48:17.902		57.34	-58.66	47176.12	-10.67		
beta	I	2036-02-27T14:50:41.431		56.83	-59.02	45645.96	-10.66		
alpha	I	2036-02-27T14:52:07.037		56.53	-59.23	44737.35	-10.65		
4	I	2036-02-27T14:55:30.444		55.81	-59.73	42563.19	-10.63		
5	I	2036-02-27T14:55:58.216		55.71	-59.80	42257.05	-10.62		
6	I	2036-02-27T14:56:41.511		55.56	-59.90	41802.22	-10.62		
Uranus	I	2036-02-27T15:20:17.167		50.55	-62.97	25230.83		-19.70	-20.56
Uranus	E	2036-02-27T16:42:10.188		33.18	-65.73	25074.01		24.32	25.33
6	E	2036-02-27T17:05:19.654		28.32	-63.92	41878.43	10.39		
5	E	2036-02-27T17:05:49.378		28.22	-63.87	42187.69	10.38		
4	E	2036-02-27T17:06:27.695		28.09	-63.80	42593.92	10.39		
alpha	E	2036-02-27T17:09:49.879		27.39	-63.45	44709.80	10.40		
beta	E	2036-02-27T17:11:22.718		27.06	-63.29	45671.35	10.40		
eta	E	2036-02-27T17:13:47.456		26.56	-63.02	47176.12	10.41		
gamma	E	2036-02-27T17:14:30.833		26.41	-62.94	47627.53	10.41		
delta	E	2036-02-27T17:15:35.478		26.19	-62.81	48300.35	10.41		
lambda	E	2036-02-27T17:18:21.320		25.61	-62.49	50026.71	10.41		
epsilon	E	2036-02-27T17:20:19.688		25.20	-62.25	51259.11	10.40		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2036-02-27T16:05:43.540
 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 : 3379626889535965696
 2Mass ID (if available) : 06462970+2323531
 ICRS Star Coord at Epoch: 06h 46m 29.70300s +23:23:53.11271s
 RUWE (>1.4 is poor) : 1.07
 K magnitude : 14.407
 G magnitude : 15.824
 RP magnitude : 15.339
 BP magnitude : 16.151
 DUPflag : 0
 Distance (au) : 18.266
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -9.59
 Sun-Target sep (deg) : 122.51
 Sun-Moon sep (deg) : 117.93
 B (ring opening deg) : 65.67
 PA of pole (deg) : 74.66
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 0.303
 C/A sky separation (km) : 4012.2
 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_itrf93_040916.bsp
 earth_720101_070426.bpc
 earth_200101_990628_predict.bpc
 pg3f0000r.bsp
 pg490000r.bsp
 naif0012.tls
 earth_flat_IAU.spk



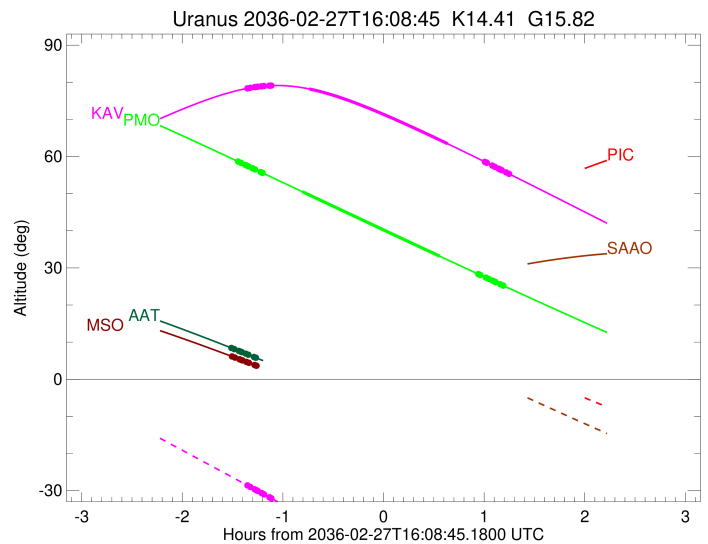
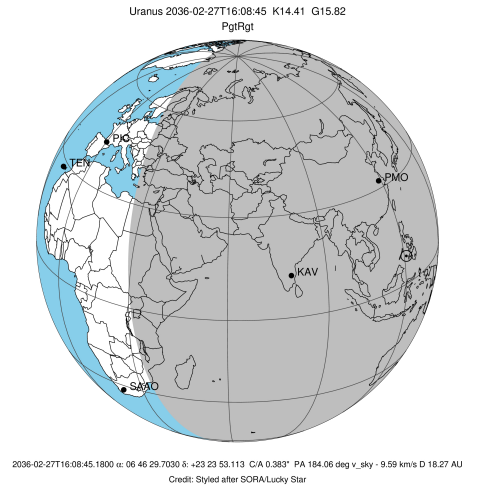
Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2036-02-27T14:47:58.206		78.40	-28.67	50947.19	-10.91		
lambda	I	2036-02-27T14:49:22.576		78.51	-29.01	50026.71	-10.91		
delta	I	2036-02-27T14:52:00.852		78.70	-29.66	48300.35	-10.91		
gamma	I	2036-02-27T14:53:02.896		78.76	-29.91	47623.77	-10.90		
eta	I	2036-02-27T14:53:43.951		78.81	-30.08	47176.12	-10.90		
beta	I	2036-02-27T14:56:04.304		78.93	-30.65	45646.82	-10.90		
alpha	I	2036-02-27T14:57:28.264		78.99	-30.99	44735.50	-10.90		
4	I	2036-02-27T15:00:46.964		79.09	-31.80	42560.17	-10.89		
5	I	2036-02-27T15:01:13.340		79.10	-31.90	42262.30	-10.88		
6	I	2036-02-27T15:01:56.125		79.11	-32.08	41800.63	-10.89		
Uranus	I	2036-02-27T15:24:28.432		78.20	-37.58	25179.53		-21.29	-22.20
Uranus	E	2036-02-27T16:46:58.235		63.45	-57.70	25086.76		23.97	24.96
6	E	2036-02-27T17:09:16.128		58.55	-63.12	41877.44	10.77		
5	E	2036-02-27T17:09:45.519		58.44	-63.23	42193.06	10.77		
4	E	2036-02-27T17:10:21.591		58.31	-63.38	42590.71	10.77		
alpha	E	2036-02-27T17:13:36.827		57.58	-64.17	44707.33	10.78		
beta	E	2036-02-27T17:15:06.794		57.24	-64.53	45672.61	10.77		
eta	E	2036-02-27T17:17:26.443		56.72	-65.10	47176.12	10.77		
gamma	E	2036-02-27T17:18:08.378		56.57	-65.27	47627.89	10.77		
delta	E	2036-02-27T17:19:10.797		56.33	-65.52	48300.35	10.77		
lambda	E	2036-02-27T17:21:51.057		55.73	-66.16	50026.71	10.77		
epsilon	E	2036-02-27T17:23:47.882		55.30	-66.63	51285.05	10.76		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2036-02-27T15:58:52.190
 Event type : PgtRgt
 : Uranus occs: geocentric, topocentric
 : Ring occs: geocentric, topocentric
 Observer code : AAT
 Location : Siding Spring (AAT)
 Latitude (deg) : -31.27703
 E. Longitude (deg) : 149.06608
 Altitude (km) : 1.164
 Gaia source ID : 3379626889535965696
 2Mass ID (if available) : 06462970+2323531
 ICRS Star Coord at Epoch: 06h 46m 29.70300s +23:23:53.11271s
 RUWE (>1.4 is poor) : 1.07
 K magnitude : 14.407
 G magnitude : 15.824
 RP magnitude : 15.339
 BP magnitude : 16.151
 DUPflag : 0
 Distance (au) : 18.266
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -9.59
 Sun-Target sep (deg) : 122.51
 Sun-Moon sep (deg) : 116.79
 B (ring opening deg) : 65.67
 PA of pole (deg) : 74.66
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 0.163
 C/A sky separation (km) : 2156.3
 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_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	2036-02-27T14:38:21.617		8.37	-50.20	50963.96	-10.63		
lambda	I	2036-02-27T14:39:49.763		8.11	-50.15	50026.71	-10.63		
delta	I	2036-02-27T14:42:32.199		7.63	-50.05	48300.35	-10.62		
gamma	I	2036-02-27T14:43:35.865		7.44	-50.01	47624.00	-10.62		
eta	I	2036-02-27T14:44:18.033		7.31	-49.99	47176.12	-10.62		
beta	I	2036-02-27T14:46:42.080		6.88	-49.89	45647.56	-10.61		
alpha	I	2036-02-27T14:48:08.528		6.62	-49.82	44733.95	-10.61		
4	I	2036-02-27T14:51:32.626		6.00	-49.66	42557.82	-10.60		
5	I	2036-02-27T14:51:59.150		5.92	-49.64	42266.35	-10.60		
6	I	2036-02-27T14:52:43.515		5.78	-49.60	41799.51	-10.60		
Uranus	I	2036-02-27T15:15:41.169	1.52x	-48.08	25148.07			-22.22	-23.17
Uranus	E	2036-02-27T16:42:21.986	-15.55x	-37.33	25099.34			23.62	24.60
6	E	2036-02-27T17:05:41.132	-20.33x	-33.49	41876.87		10.30		
5	E	2036-02-27T17:06:12.238	-20.44x	-33.40	42195.76		10.30		
4	E	2036-02-27T17:06:49.495	-20.57x	-33.29	42589.12		10.30		
alpha	E	2036-02-27T17:10:13.758	-21.27x	-32.71	44706.17		10.30		
beta	E	2036-02-27T17:11:48.050	-21.60x	-32.43	45673.19		10.30		
eta	E	2036-02-27T17:14:14.139	-22.10x	-32.01	47176.12		10.29		
gamma	E	2036-02-27T17:14:58.053	-22.26x	-31.88	47628.07		10.29		
delta	E	2036-02-27T17:16:03.386	-22.48x	-31.69	48300.35		10.29		
lambda	E	2036-02-27T17:18:51.215	-23.06x	-31.20	50026.71		10.28		
epsilon	E	2036-02-27T17:20:54.767	-23.49x	-30.83	51297.08		10.28		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2036-02-27T15:59:15.780
 Event type : PgtRgt
 : Uranus occs: geocentric, topocentric
 : Ring occs: geocentric, topocentric
 Observer code : MSO
 Location : Mt. Stromlo Observatory
 Latitude (deg) : -35.32000
 E. Longitude (deg) : 149.00833
 Altitude (km) : 0.770
 Gaia source ID : 3379626889535965696
 2Mass ID (if available) : 06462970+2323531
 ICRS Star Coord at Epoch: 06h 46m 29.70300s +23:23:53.11271s
 RUWE (>1.4 is poor) : 1.07
 K magnitude : 14.407
 G magnitude : 15.824
 RP magnitude : 15.339
 BP magnitude : 16.151
 DUPflag : 0
 Distance (au) : 18.266
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -9.59
 Sun-Target sep (deg) : 122.51
 Sun-Moon sep (deg) : 116.79
 B (ring opening deg) : 65.67
 PA of pole (deg) : 74.66
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 0.136
 C/A sky separation (km) : 1807.3
 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_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	2036-02-27T14:38:42.862		6.10	-46.20	50966.21	-10.63		
lambda	I	2036-02-27T14:40:11.269		5.85	-46.16	50026.71	-10.63		
delta	I	2036-02-27T14:42:53.793		5.38	-46.08	48300.35	-10.62		
gamma	I	2036-02-27T14:43:57.488		5.20	-46.04	47624.04	-10.62		
eta	I	2036-02-27T14:44:39.681		5.08	-46.02	47176.12	-10.62		
beta	I	2036-02-27T14:47:03.787		4.67x	-45.93	45647.66	-10.61		
alpha	I	2036-02-27T14:48:30.306		4.42x	-45.87	44733.73	-10.61		
4	I	2036-02-27T14:51:54.486		3.83x	-45.73	42557.49	-10.60		
5	I	2036-02-27T14:52:20.941		3.76x	-45.71	42266.92	-10.59		
6	I	2036-02-27T14:53:05.377		3.63x	-45.67	41799.35	-10.59		
Uranus	I	2036-02-27T15:16:01.418		-0.43x	-44.32	25143.56		-22.35	-23.30
Uranus	E	2036-02-27T16:42:48.880		-16.81x	-34.53	25102.60		23.52	24.51
6	E	2036-02-27T17:06:08.074		-21.42x	-30.97	41876.72	10.31		
5	E	2036-02-27T17:06:39.249		-21.52x	-30.89	42196.39	10.31		
4	E	2036-02-27T17:07:16.373		-21.64x	-30.79	42588.75	10.31		
alpha	E	2036-02-27T17:10:40.514		-22.32x	-30.24	44705.90	10.31		
beta	E	2036-02-27T17:12:14.779		-22.63x	-29.99	45673.33	10.30		
eta	E	2036-02-27T17:14:40.753		-23.12x	-29.60	47176.12	10.30		
gamma	E	2036-02-27T17:15:24.640		-23.26x	-29.48	47628.11	10.30		
delta	E	2036-02-27T17:16:29.924		-23.48x	-29.30	48300.35	10.30		
lambda	E	2036-02-27T17:19:17.636		-24.04x	-28.84	50026.71	10.29		
epsilon	E	2036-02-27T17:21:21.380		-24.45x	-28.50	51299.93	10.28		