

target : Uranus  
 target radius (km) : 25559.00  
 C/A epoch : 2034-02-25T14:53:08.950  
 Event type : PgtRgt  
 : Uranus occs: geocentric, topocentric  
 : Ring occs: geocentric, topocentric  
 Gaia source ID : 3426149047570851840  
 2Mass ID (if available) : 06070307+2342129

Uranus 2034-02-25T14:53:08 K12.51 G14.22 PgtRgt

ICRS Star Coord at Epoch: 06h 07m 03.06299s +23:42:12.88505s

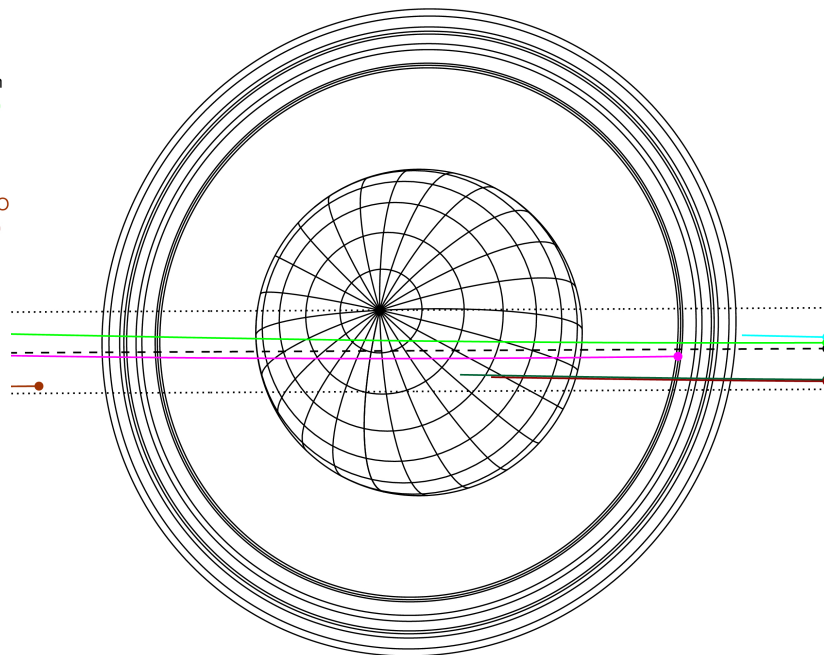
RUWE (>1.4 is poor) : 1.08  
 K magnitude : 12.512  
 G magnitude : 14.216  
 RP magnitude : 13.646  
 BP magnitude : 14.607  
 DUPflag : 0  
 Distance (au) : 18.503  
 f0 (km) : 0.000  
 g0 (km) : 0.000  
 skyplane vel. (km/s) : -6.21  
 Sun-Target sep (deg) : 115.02  
 Sun-Moon sep (deg) : 26.37  
 B (ring opening deg) : 73.94  
 PA of pole (deg) : 60.55

Uranus 2034-02-25T14:53:08 K12.51 G14.22  
 PgtRgt



2034-02-25T14:53:08.9500 α: 06 07 03.0630 δ: +23 42 12.885 C/A 0.207° PA 0.30 deg v\_sky - 6.21 km/s D 18.50 AU  
 Credit: Styled after SORA/Lucky Star

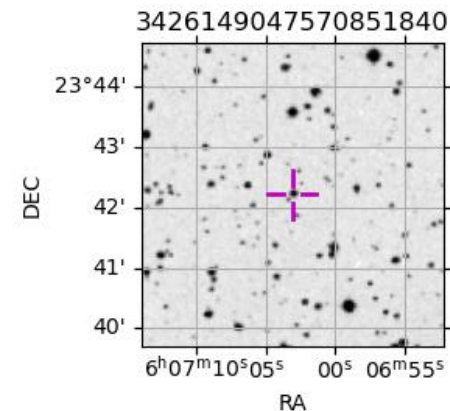
Earth  
 PMO  
 IRTF  
 KAV  
 AAT  
 SAAO  
 MSO



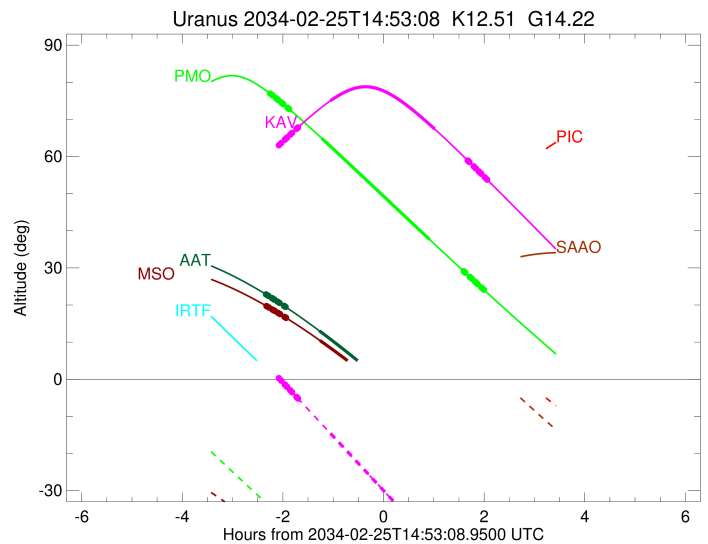
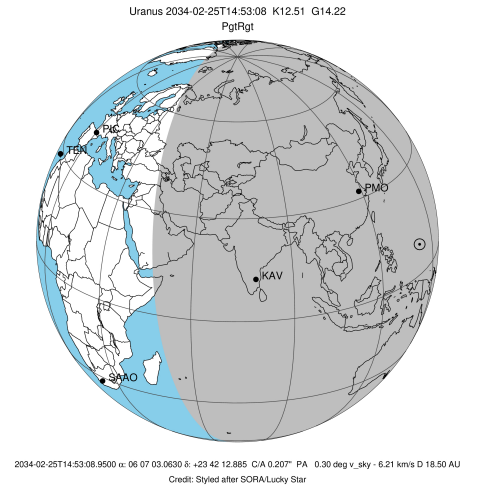
#	a(km)	ring
1	41837.2	6
2	42235.0	5
3	42571.2	4
4	44718.5	alpha
5	45661.1	beta
6	47176.1	eta
7	47626.3	gamma
8	48300.3	delta
9	50026.7	lambda
10	51149.4	epsilon

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 25 12:37 - FEB 25 16:51	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 25 13:10 - FEB 25 16:55	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 25 12:32 - FEB 25 13:36	PinRin
SAAO	So. Afr. Astro. Obs.	-32.4	20.8					PnnRnn
MSO	Mt. Stromlo Observato	-35.3	149.0	+++++	+		FEB 25 12:32 - FEB 25 13:37	PinRin

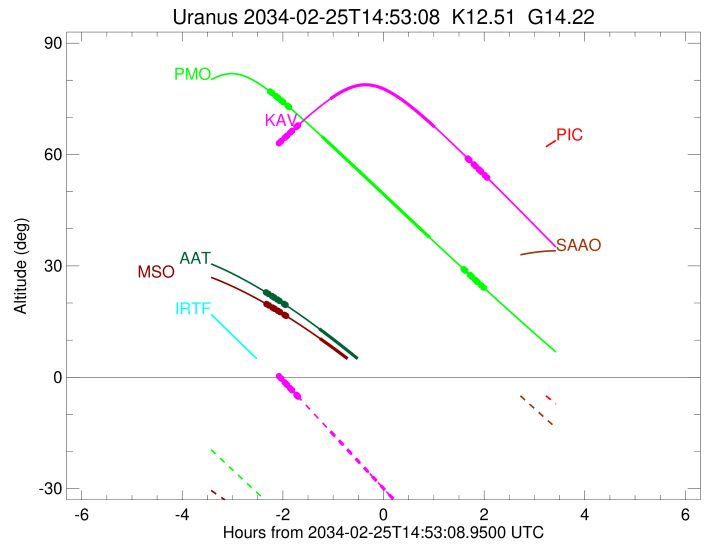
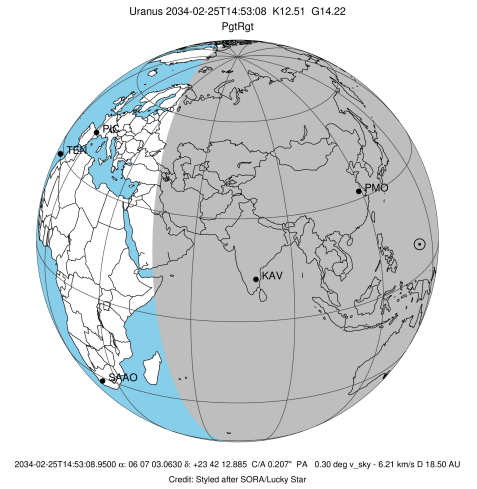


target : Uranus  
 target radius (km) : 25559.00  
 C/A epoch : 2034-02-25T14:43:21.790  
 Event type : PgtRgt  
 : Uranus occs: geocentric, topocentric  
 : Ring occs: geocentric, topocentric  
 Observer code : PMO  
 Location : Purple Mtn Obs. Nanking  
 Latitude (deg) : 32.06667  
 E. Longitude (deg) : 118.82089  
 Altitude (km) : 0.364  
 Gaia source ID : 3426149047570851840  
 2Mass ID (if available) : 06070307+2342129  
 ICRS Star Coord at Epoch: 06h 07m 03.06299s +23:42:12.88505s  
 RUWE (>1.4 is poor) : 1.08  
 K magnitude : 12.512  
 G magnitude : 14.216  
 RP magnitude : 13.646  
 BP magnitude : 14.607  
 DUPflag : 0  
 Distance (au) : 18.503  
 f0 (km) : 0.000  
 g0 (km) : 0.000  
 skyplane vel. (km/s) : -6.21  
 Sun-Target sep (deg) : 115.02  
 Sun-Moon sep (deg) : 27.27  
 B (ring opening deg) : 73.94  
 PA of pole (deg) : 60.55  
 Pole direction: RA (deg): 257.31100  
 Dec (deg): -15.17500  
 C/A sky separation (") : 0.099  
 C/A sky separation (km) : 1328.3  
 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



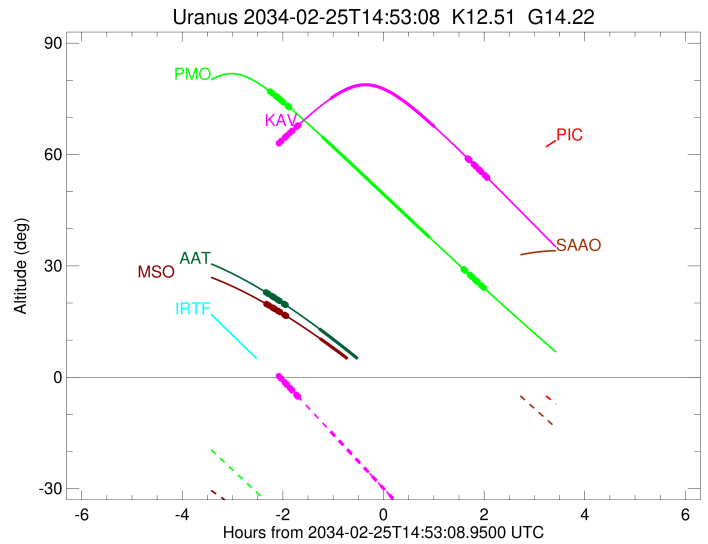
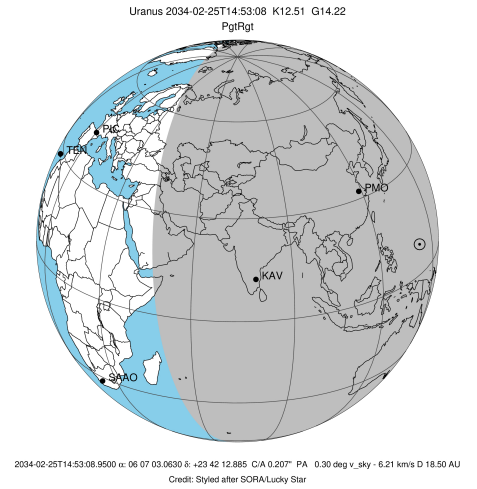
Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2034-02-25T12:37:06.204		77.10	-34.16	51494.93	-6.85		
lambda	I	2034-02-25T12:40:40.763		76.49	-34.90	50026.71	-6.84		
delta	I	2034-02-25T12:44:53.157		75.73	-35.77	48300.35	-6.84		
gamma	I	2034-02-25T12:46:31.206		75.44	-36.11	47629.93	-6.84		
eta	I	2034-02-25T12:47:37.586		75.23	-36.34	47176.12	-6.84		
beta	I	2034-02-25T12:51:22.329		74.54	-37.11	45641.13	-6.83		
alpha	I	2034-02-25T12:53:37.143		74.12	-37.58	44716.84	-6.83		
4	I	2034-02-25T12:58:44.629		73.14	-38.63	42615.94	-6.83		
5	I	2034-02-25T12:59:51.687		72.92	-38.85	42172.04	-6.83		
6	I	2034-02-25T13:00:38.288		72.77	-39.01	41855.22	-6.83		
Uranus	I	2034-02-25T13:39:30.885		64.90	-46.79	25118.88		-14.41	-15.06
Uranus	E	2034-02-25T15:48:16.778		37.62	-66.02	25163.91		13.62	14.24
6	E	2034-02-25T16:28:40.393		29.13	-66.85	41821.11	6.52		
5	E	2034-02-25T16:29:53.415		28.88	-66.82	42295.43	6.51		
4	E	2034-02-25T16:30:30.954		28.75	-66.80	42526.25	6.51		
alpha	E	2034-02-25T16:36:08.221		27.58	-66.60	44721.69	6.50		
beta	E	2034-02-25T16:38:35.441		27.06	-66.48	45681.22	6.49		
eta	E	2034-02-25T16:42:25.893		26.27	-66.28	47176.12	6.49		
gamma	E	2034-02-25T16:43:34.705		26.03	-66.22	47622.45	6.49		
delta	E	2034-02-25T16:45:19.265		25.67	-66.11	48300.35	6.48		
lambda	E	2034-02-25T16:49:45.790		24.75	-65.81	50026.71	6.47		
epsilon	E	2034-02-25T16:51:46.899		24.33	-65.66	50810.40	6.47		

target : Uranus  
 target radius (km) : 25559.00  
 C/A epoch : 2034-02-25T14:51:41.440  
 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 : 3426149047570851840  
 2Mass ID (if available) : 06070307+2342129  
 ICRS Star Coord at Epoch: 06h 07m 03.06299s +23:42:12.88505s  
 RUWE (>1.4 is poor) : 1.08  
 K magnitude : 12.512  
 G magnitude : 14.216  
 RP magnitude : 13.646  
 BP magnitude : 14.607  
 DUPflag : 0  
 Distance (au) : 18.503  
 f0 (km) : 0.000  
 g0 (km) : 0.000  
 skyplane vel. (km/s) : -6.21  
 Sun-Target sep (deg) : 115.02  
 Sun-Moon sep (deg) : 26.86  
 B (ring opening deg) : 73.94  
 PA of pole (deg) : 60.55  
 Pole direction: RA (deg): 257.31100  
 Dec (deg): -15.17500  
 C/A sky separation (") : 0.304  
 C/A sky separation (km) : 4075.9  
 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



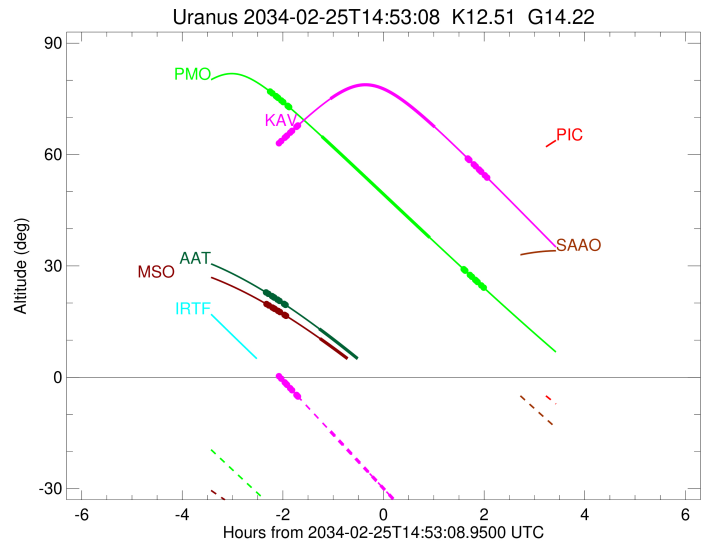
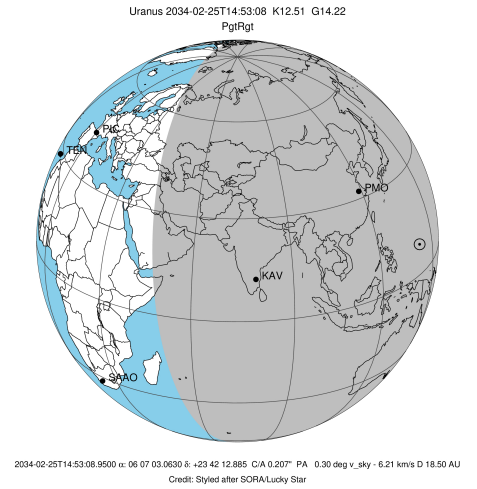
Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2034-02-25T12:47:36.858		62.86	0.49x	51502.99	-6.84		
lambda	I	2034-02-25T12:51:12.764		63.64	-0.38x	50026.71	-6.84		
delta	I	2034-02-25T12:55:25.229		64.54	-1.40x	48300.35	-6.84		
gamma	I	2034-02-25T12:57:03.295		64.89	-1.79x	47629.75	-6.84		
eta	I	2034-02-25T12:58:09.633		65.12	-2.06x	47176.12	-6.84		
beta	I	2034-02-25T13:01:54.245		65.91	-2.96x	45641.22	-6.84		
alpha	I	2034-02-25T13:04:08.694		66.38	-3.50x	44718.45	-6.84		
4	I	2034-02-25T13:09:16.135		67.44	-4.74x	42615.50	-6.84		
5	I	2034-02-25T13:10:23.407		67.67	-5.01	42169.58	-6.84		
6	I	2034-02-25T13:11:09.273		67.83	-5.19	41857.19	-6.84		
Uranus	I	2034-02-25T13:49:51.751		75.03	-14.57	25082.45		-15.02	-15.70
Uranus	E	2034-02-25T15:54:10.586		67.41	-44.85	25225.29		12.47	13.04
6	E	2034-02-25T16:33:34.666		58.95	-54.46	41824.21	6.74		
5	E	2034-02-25T16:34:44.184		58.70	-54.74	42291.18	6.74		
4	E	2034-02-25T16:35:20.983		58.56	-54.89	42525.97	6.73		
alpha	E	2034-02-25T16:40:47.171		57.35	-56.22	44724.15	6.73		
beta	E	2034-02-25T16:43:08.983		56.83	-56.80	45681.22	6.73		
eta	E	2034-02-25T16:46:51.341		56.00	-57.70	47176.12	6.73		
gamma	E	2034-02-25T16:47:57.676		55.75	-57.97	47622.20	6.72		
delta	E	2034-02-25T16:49:38.540		55.38	-58.38	48300.35	6.72		
lambda	E	2034-02-25T16:53:55.430		54.42	-59.42	50026.71	6.72		
epsilon	E	2034-02-25T16:55:54.370		53.97	-59.90	50825.62	6.72		

target : Uranus  
 target radius (km) : 25559.00  
 C/A epoch : 2034-02-25T14:39:32.910  
 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 : 3426149047570851840  
 2Mass ID (if available) : 06070307+2342129  
 ICRS Star Coord at Epoch: 06h 07m 03.06299s +23:42:12.88505s  
 RUWE (>1.4 is poor) : 1.08  
 K magnitude : 12.512  
 G magnitude : 14.216  
 RP magnitude : 13.646  
 BP magnitude : 14.607  
 DUPflag : 0  
 Distance (au) : 18.503  
 f0 (km) : 0.000  
 g0 (km) : 0.000  
 skyplane vel. (km/s) : -6.21  
 Sun-Target sep (deg) : 115.02  
 Sun-Moon sep (deg) : 27.00  
 B (ring opening deg) : 73.94  
 PA of pole (deg) : 60.55  
 Pole direction: RA (deg): 257.31100  
 Dec (deg): -15.17500  
 C/A sky separation (") : 0.484  
 C/A sky separation (km) : 6492.5  
 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\_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	2034-02-25T12:32:11.674		22.98	-42.77	51516.45	-6.71		
lambda	I	2034-02-25T12:35:53.926		22.47	-43.23	50026.71	-6.70		
delta	I	2034-02-25T12:40:11.858		21.86	-43.76	48300.35	-6.69		
gamma	I	2034-02-25T12:41:52.211		21.62	-43.96	47629.44	-6.68		
eta	I	2034-02-25T12:43:00.055		21.46	-44.09	47176.12	-6.68		
beta	I	2034-02-25T12:46:50.122		20.90	-44.53	45641.48	-6.67		
alpha	I	2034-02-25T12:49:07.624		20.57	-44.79	44721.11	-6.66		
4	I	2034-02-25T12:54:24.096		19.78	-45.36	42614.56	-6.65		
5	I	2034-02-25T12:55:33.709		19.61	-45.49	42166.02	-6.64		
6	I	2034-02-25T12:56:19.904		19.49	-45.57	41860.20	-6.64		
Uranus	I	2034-02-25T13:36:31.498		13.07	-48.82	25046.63		-15.61	-16.31
Uranus	E	2034-02-25T15:44:26.311		-10.77x	-44.81	25267.39		11.63	12.17
6	E	2034-02-25T16:27:11.710		-19.45x	-39.24	41825.96	6.23		
5	E	2034-02-25T16:28:26.187		-19.70x	-39.06	42288.71	6.23		
4	E	2034-02-25T16:29:06.301		-19.84x	-38.96	42525.93	6.23		
alpha	E	2034-02-25T16:34:59.132		-21.06x	-38.08	44725.46	6.23		
beta	E	2034-02-25T16:37:32.274		-21.58x	-37.69	45681.18	6.22		
eta	E	2034-02-25T16:41:32.718		-22.41x	-37.07	47176.12	6.22		
gamma	E	2034-02-25T16:42:44.436		-22.66x	-36.88	47622.08	6.22		
delta	E	2034-02-25T16:44:33.541		-23.04x	-36.59	48300.35	6.22		
lambda	E	2034-02-25T16:49:11.406		-24.00x	-35.85	50026.71	6.21		
epsilon	E	2034-02-25T16:51:21.412		-24.45x	-35.50	50833.90	6.21		

target : Uranus  
 target radius (km) : 25559.00  
 C/A epoch : 2034-02-25T14:40:09.850  
 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 : 3426149047570851840  
 2Mass ID (if available) : 06070307+2342129  
 ICRS Star Coord at Epoch: 06h 07m 03.06299s +23:42:12.88505s  
 RUWE (>1.4 is poor) : 1.08  
 K magnitude : 12.512  
 G magnitude : 14.216  
 RP magnitude : 13.646  
 BP magnitude : 14.607  
 DUPflag : 0  
 Distance (au) : 18.503  
 f0 (km) : 0.000  
 g0 (km) : 0.000  
 skyplane vel. (km/s) : -6.21  
 Sun-Target sep (deg) : 115.02  
 Sun-Moon sep (deg) : 26.95  
 B (ring opening deg) : 73.94  
 PA of pole (deg) : 60.55  
 Pole direction: RA (deg): 257.31100  
 Dec (deg): -15.17500  
 C/A sky separation (") : 0.507  
 C/A sky separation (km) : 6803.8  
 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\_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	2034-02-25T12:32:43.546		19.83	-39.51	51517.37	-6.69		
lambda	I	2034-02-25T12:36:26.607		19.35	-39.93	50026.71	-6.68		
delta	I	2034-02-25T12:40:45.326		18.78	-40.41	48300.35	-6.67		
gamma	I	2034-02-25T12:42:25.991		18.55	-40.59	47629.42	-6.66		
eta	I	2034-02-25T12:43:34.042		18.40	-40.71	47176.12	-6.66		
beta	I	2034-02-25T12:47:24.822		17.88	-41.11	45641.51	-6.65		
alpha	I	2034-02-25T12:49:42.728		17.56	-41.34	44721.32	-6.64		
4	I	2034-02-25T12:55:00.266		16.82	-41.86	42614.47	-6.62		
5	I	2034-02-25T12:56:10.133		16.66	-41.97	42165.75	-6.62		
6	I	2034-02-25T12:56:56.401		16.55	-42.04	41860.44	-6.62		
Uranus	I	2034-02-25T13:37:17.125		10.46	-44.95	25043.86		-15.65	-16.36
Uranus	E	2034-02-25T15:44:53.271		-12.25x	-41.31	25274.83		11.48	12.01
6	E	2034-02-25T16:27:44.964		-20.61x	-36.22	41826.32	6.23		
5	E	2034-02-25T16:28:59.369		-20.86x	-36.05	42288.19	6.22		
4	E	2034-02-25T16:29:39.589		-20.99x	-35.96	42525.93	6.22		
alpha	E	2034-02-25T16:35:32.730		-22.16x	-35.15	44725.73	6.22		
beta	E	2034-02-25T16:38:05.931		-22.67x	-34.79	45681.17	6.22		
eta	E	2034-02-25T16:42:06.507		-23.47x	-34.21	47176.12	6.22		
gamma	E	2034-02-25T16:43:18.254		-23.71x	-34.04	47622.06	6.21		
delta	E	2034-02-25T16:45:07.410		-24.07x	-33.78	48300.35	6.21		
lambda	E	2034-02-25T16:49:45.369		-25.00x	-33.09	50026.71	6.21		
epsilon	E	2034-02-25T16:51:55.709		-25.43x	-32.77	50835.77	6.21		