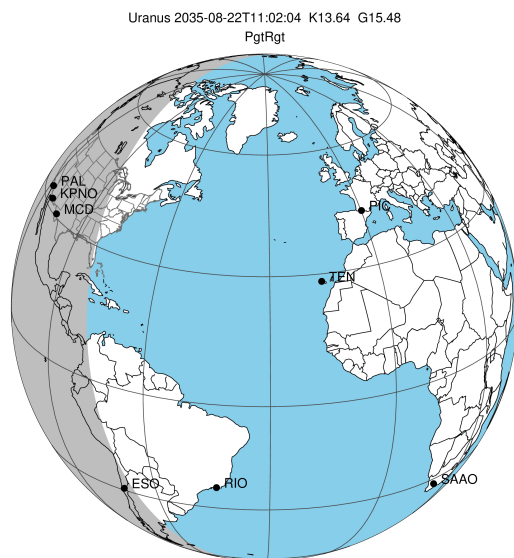


target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2035-08-22T11:02:04.450
 Event type : PgtRgt
 : Uranus occs: geocentric, topocentric
 : Ring occs: geocentric, topocentric
 Gaia source ID : 3380074360701484288
 2Mass ID (if available) : 06570236+2307483

ICRS Star Coord at Epoch: 06h 57m 02.36083s +23:07:48.28042s

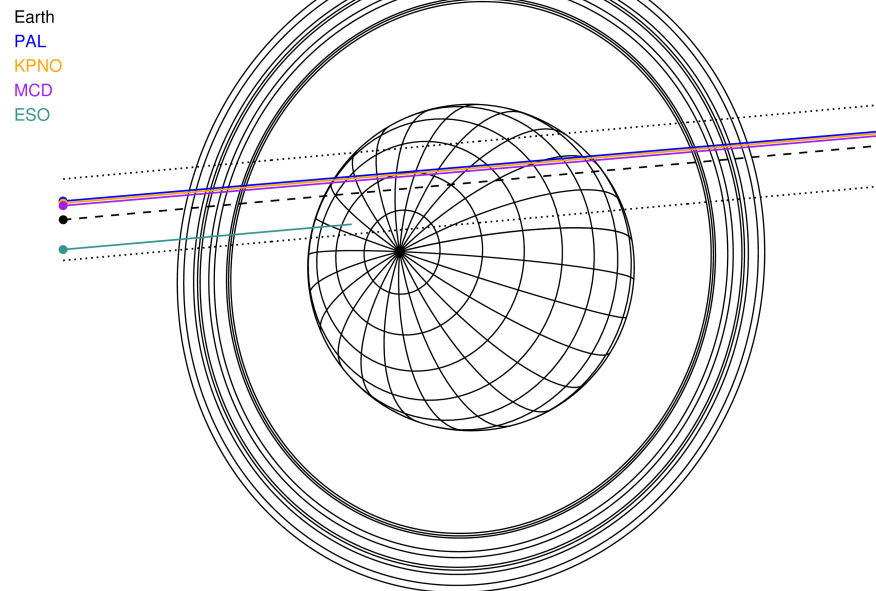
RUWE (>1.4 is poor) : 5.16
 K magnitude : 13.636
 G magnitude : 15.479
 RP magnitude : 14.796
 BP magnitude : 15.774
 DUPflag : 0
 Distance (au) : 19.542
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : 27.27
 Sun-Target sep (deg) : 45.63
 Sun-Moon sep (deg) : 94.02
 B (ring opening deg) : 63.38
 PA of pole (deg) : 77.47

#	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



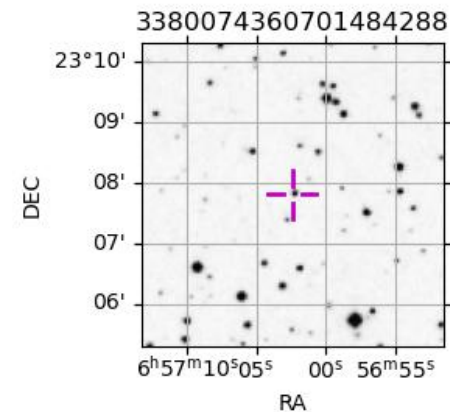
2035-08-22T11:02:04.4500 ex: 06 57 02.3608 s: +23 07 48.280 C/A 0.938° PA 185.19 deg v_sky +27.27 km/s D 19.54 AU
 Credit: Styled after SORA/Lucky Star

Uranus 2035-08-22T11:02:04 K13.64 G15.48 PgtRgt

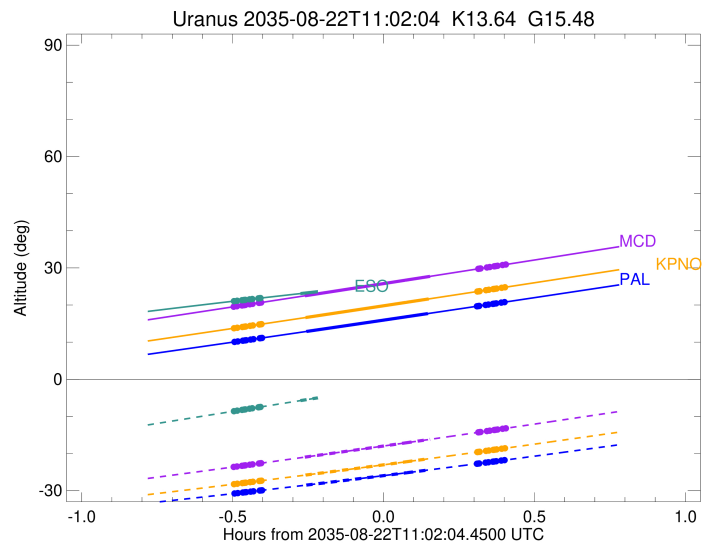
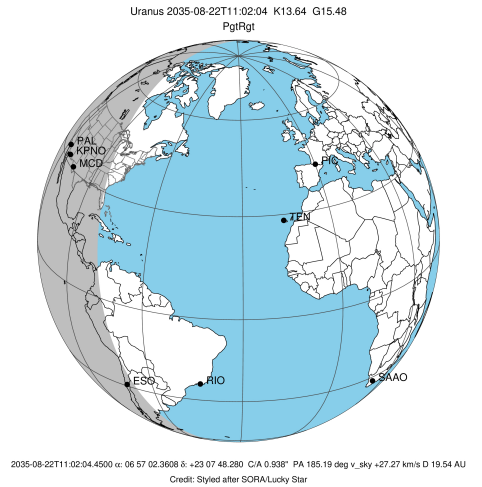


Observable events with sun below -5 deg and altitude above 5 deg unblocked by planet

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	+++++	+ +	+++++	AUG 22 10:32 - AUG 22 11:26	PieRie
PNO	Purple Mtn Obs. Nanki	32.1	118.8					PnnRnn
KPNO	Kitt Peak Natl Obs	32.0	248.4	+++++	+ +	+++++	AUG 22 10:32 - AUG 22 11:26	PieRie
MCD	McDonald Obs. 2.7m	30.7	256.0	+++++	+ +	+++++	AUG 22 10:32 - AUG 22 11:26	PieRie
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					PnnRnn
RIO	Rio de Janeiro	-22.9	316.8					PnnRnn
ESO	European Southern Obs	-29.3	289.3	+++++	+		AUG 22 10:32 - AUG 22 10:45	PinRin
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

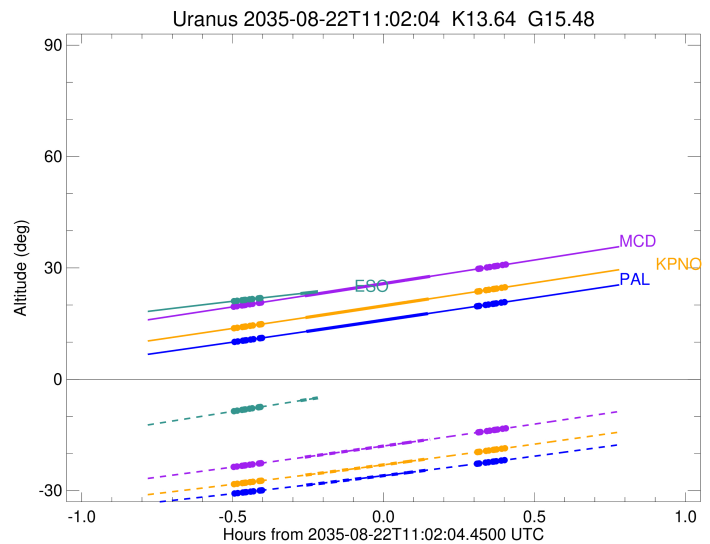
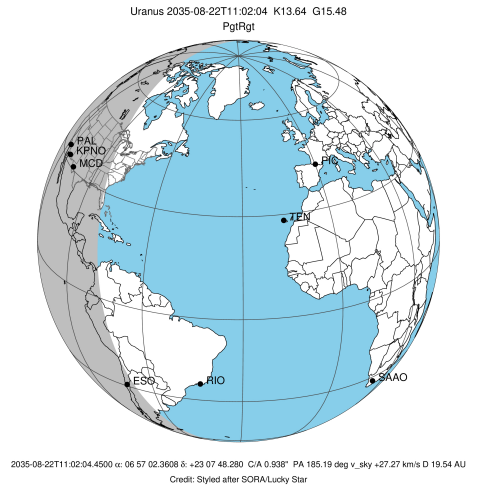


target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2035-08-22T10:58:42.650
 Event type : PgtRgt
 : Uranus occs: geocentric, topocentric
 : Ring occs: geocentric, topocentric
 Observer code : PAL
 Location : Palomar Mt (200")
 Latitude (deg) : 33.35622
 E. Longitude (deg) : 243.13601
 Altitude (km) : 1.706
 Gaia source ID : 3380074360701484288
 2Mass ID (if available) : 06570236+2307483
 ICRS Star Coord at Epoch: 06h 57m 02.36083s +23:07:48.28042s
 RUWE (>1.4 is poor) : 5.16
 K magnitude : 13.636
 G magnitude : 15.479
 RP magnitude : 14.796
 BP magnitude : 15.774
 DUPflag : 0
 Distance (au) : 19.542
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : 27.27
 Sun-Target sep (deg) : 45.63
 Sun-Moon sep (deg) : 94.34
 B (ring opening deg) : 63.38
 PA of pole (deg) : 77.47
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 1.113
 C/A sky separation (km) : 15781.9
 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_itrf93_040916.bsp
 earth_720101_070426.bpc
 earth_200101_990628_predict.bpc
 pg3f0000r.bsp
 pg490000r.bsp
 naif0012.tls
 earth_flat_IAU.spk



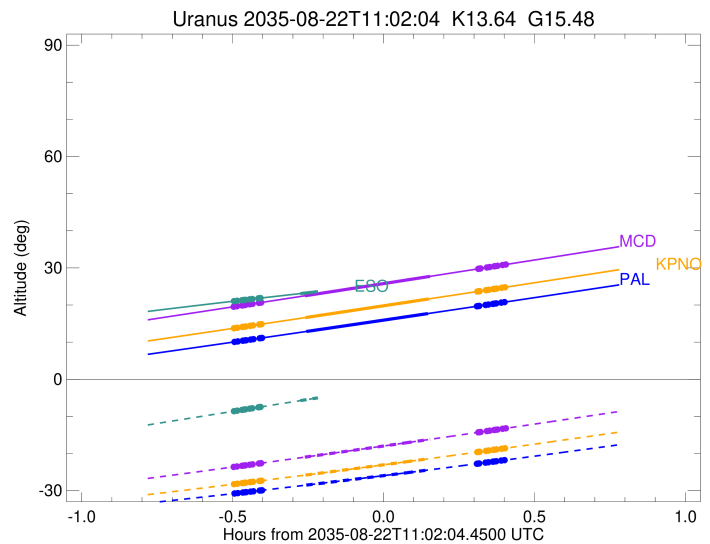
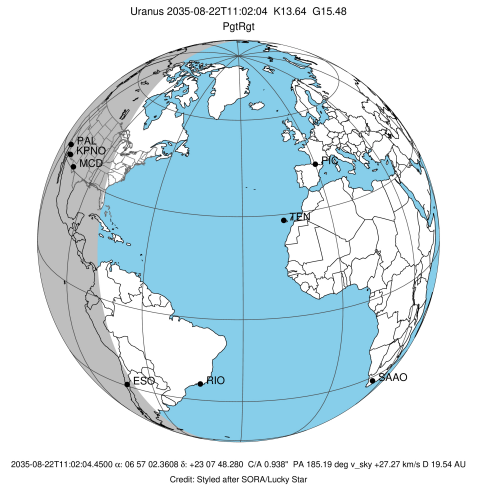
Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2035-08-22T10:32:42.464		10.11	-30.73	50745.25	-28.71		
lambda	I	2035-08-22T10:33:07.518		10.19	-30.66	50026.71	-28.66		
delta	I	2035-08-22T10:34:07.885		10.39	-30.51	48300.35	-28.54		
gamma	I	2035-08-22T10:34:31.607		10.47	-30.45	47624.03	-28.48		
eta	I	2035-08-22T10:34:47.341		10.52	-30.40	47176.12	-28.45		
beta	I	2035-08-22T10:35:40.281		10.69	-30.27	45675.16	-28.32		
alpha	I	2035-08-22T10:36:15.188		10.81	-30.18	44689.90	-28.24		
4	I	2035-08-22T10:37:32.108		11.06	-29.97	42525.93	-28.01		
5	I	2035-08-22T10:37:40.265		11.09	-29.95	42314.48	-28.01		
6	I	2035-08-22T10:37:58.699		11.15	-29.90	41796.15	-27.94		
Uranus	I	2035-08-22T10:46:43.766		12.87	-28.51	25152.80		24.65	25.66
Uranus	E	2035-08-22T11:10:54.184		17.70	-24.46	25408.61		-14.59	-15.25
6	E	2035-08-22T11:20:39.596		19.67	-22.75	41874.07	27.86		
5	E	2035-08-22T11:20:50.435		19.70	-22.72	42185.76	27.92		
4	E	2035-08-22T11:21:05.981		19.76	-22.68	42603.83	27.93		
alpha	E	2035-08-22T11:22:22.248		20.01	-22.45	44751.99	28.15		
beta	E	2035-08-22T11:22:53.928		20.12	-22.36	45641.13	28.23		
eta	E	2035-08-22T11:23:48.216		20.30	-22.20	47176.12	28.35		
gamma	E	2035-08-22T11:24:04.037		20.36	-22.15	47624.97	28.39		
delta	E	2035-08-22T11:24:27.808		20.44	-22.08	48300.35	28.44		
lambda	E	2035-08-22T11:25:28.393		20.64	-21.90	50026.71	28.55		
epsilon	E	2035-08-22T11:26:19.797		20.82	-21.75	51496.73	28.60		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2035-08-22T10:58:42.550
 Event type : PgtRgt
 : Uranus occs: geocentric, topocentric
 : 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 : 3380074360701484288
 2Mass ID (if available) : 06570236+2307483
 ICRS Star Coord at Epoch: 06h 57m 02.36083s +23:07:48.28042s
 RUWE (>1.4 is poor) : 5.16
 K magnitude : 13.636
 G magnitude : 15.479
 RP magnitude : 14.796
 BP magnitude : 15.774
 DUPflag : 0
 Distance (au) : 19.542
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : 27.27
 Sun-Target sep (deg) : 45.63
 Sun-Moon sep (deg) : 94.40
 B (ring opening deg) : 63.38
 PA of pole (deg) : 77.47
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 1.091
 C/A sky separation (km) : 15465.1
 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



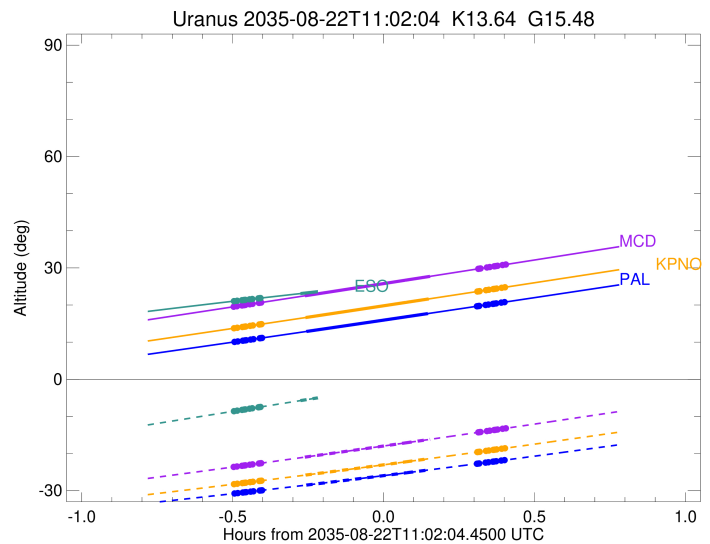
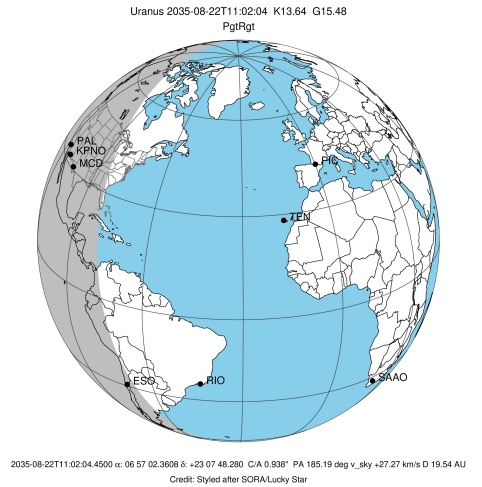
Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2035-08-22T10:32:36.175		13.79	-28.21	50745.01	-28.73		
lambda	I	2035-08-22T10:33:01.197		13.88	-28.14	50026.71	-28.68		
delta	I	2035-08-22T10:34:01.504		14.08	-27.97	48300.35	-28.57		
gamma	I	2035-08-22T10:34:25.197		14.16	-27.91	47624.06	-28.52		
eta	I	2035-08-22T10:34:40.913		14.21	-27.86	47176.12	-28.49		
beta	I	2035-08-22T10:35:33.779		14.39	-27.71	45675.27	-28.36		
alpha	I	2035-08-22T10:36:08.643		14.51	-27.61	44689.76	-28.29		
4	I	2035-08-22T10:37:25.420		14.77	-27.39	42525.93	-28.07		
5	I	2035-08-22T10:37:33.568		14.79	-27.37	42314.38	-28.06		
6	I	2035-08-22T10:37:51.961		14.86	-27.32	41796.06	-28.00		
Uranus	I	2035-08-22T10:46:33.717		16.62	-25.81	25147.91		24.81	25.83
Uranus	E	2035-08-22T11:11:03.830		21.64	-21.41	25401.77		-14.92	-15.60
6	E	2035-08-22T11:20:44.902		23.64	-19.61	41874.24	27.92		
5	E	2035-08-22T11:20:55.695		23.68	-19.58	42185.26	27.98		
4	E	2035-08-22T11:21:11.243		23.73	-19.53	42604.08	27.98		
alpha	E	2035-08-22T11:22:27.374		24.00	-19.29	44752.03	28.20		
beta	E	2035-08-22T11:22:59.006		24.11	-19.19	45641.14	28.27		
eta	E	2035-08-22T11:23:53.223		24.29	-19.02	47176.12	28.39		
gamma	E	2035-08-22T11:24:09.027		24.35	-18.98	47625.01	28.42		
delta	E	2035-08-22T11:24:32.771		24.43	-18.90	48300.35	28.47		
lambda	E	2035-08-22T11:25:33.296		24.64	-18.71	50026.71	28.58		
epsilon	E	2035-08-22T11:26:24.704		24.82	-18.55	51498.07	28.63		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2035-08-22T10:58:46.840
 Event type : PgtRgt
 : Uranus occs: geocentric, topocentric
 : 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 : 3380074360701484288
 2Mass ID (if available) : 06570236+2307483
 ICRS Star Coord at Epoch: 06h 57m 02.36083s +23:07:48.28042s
 RUWE (>1.4 is poor) : 5.16
 K magnitude : 13.636
 G magnitude : 15.479
 RP magnitude : 14.796
 BP magnitude : 15.774
 DUPflag : 0
 Distance (au) : 19.542
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : 27.27
 Sun-Target sep (deg) : 45.63
 Sun-Moon sep (deg) : 94.49
 B (ring opening deg) : 63.38
 PA of pole (deg) : 77.47
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 1.064
 C/A sky separation (km) : 15079.5
 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	2035-08-22T10:32:32.527		19.59	-23.57	50744.74	-28.75		
lambda	I	2035-08-22T10:32:57.523		19.67	-23.49	50026.71	-28.70		
delta	I	2035-08-22T10:33:57.780		19.88	-23.31	48300.35	-28.59		
gamma	I	2035-08-22T10:34:21.448		19.97	-23.23	47624.11	-28.55		
eta	I	2035-08-22T10:34:37.149		20.02	-23.19	47176.12	-28.52		
beta	I	2035-08-22T10:35:29.947		20.20	-23.02	45675.40	-28.40		
alpha	I	2035-08-22T10:36:04.775		20.32	-22.92	44689.60	-28.33		
4	I	2035-08-22T10:37:21.411		20.59	-22.68	42525.94	-28.12		
5	I	2035-08-22T10:37:29.553		20.62	-22.65	42314.26	-28.12		
6	I	2035-08-22T10:37:47.903		20.68	-22.60	41795.96	-28.06		
Uranus	I	2035-08-22T10:46:26.022		22.48	-20.98	25142.21		25.00	26.02
Uranus	E	2035-08-22T11:11:19.847		27.72	-16.18	25393.53		-15.32	-16.01
6	E	2035-08-22T11:20:56.041		29.75	-14.29	41874.45	27.98		
5	E	2035-08-22T11:21:06.783		29.79	-14.26	42184.65	28.03		
4	E	2035-08-22T11:21:22.338		29.85	-14.21	42604.38	28.04		
alpha	E	2035-08-22T11:22:38.332		30.12	-13.96	44752.08	28.24		
beta	E	2035-08-22T11:23:09.919		30.23	-13.85	45641.16	28.31		
eta	E	2035-08-22T11:24:04.069		30.42	-13.67	47176.12	28.42		
gamma	E	2035-08-22T11:24:19.858		30.48	-13.62	47625.05	28.45		
delta	E	2035-08-22T11:24:43.576		30.56	-13.54	48300.35	28.49		
lambda	E	2035-08-22T11:25:44.049		30.77	-13.34	50026.71	28.60		
epsilon	E	2035-08-22T11:26:35.478		30.96	-13.17	51499.66	28.64		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2035-08-22T11:00:10.460
 Event type : PgtRgt
 : Uranus occs: geocentric, topocentric
 : 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 : 3380074360701484288
 2Mass ID (if available) : 06570236+2307483
 ICRS Star Coord at Epoch: 06h 57m 02.36083s +23:07:48.28042s
 RUWE (>1.4 is poor) : 5.16
 K magnitude : 13.636
 G magnitude : 15.479
 RP magnitude : 14.796
 BP magnitude : 15.774
 DUPflag : 0
 Distance (au) : 19.542
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : 27.27
 Sun-Target sep (deg) : 45.63
 Sun-Moon sep (deg) : 94.46
 B (ring opening deg) : 63.38
 PA of pole (deg) : 77.47
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 0.591
 C/A sky separation (km) : 8375.2
 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	2035-08-22T10:32:35.499		21.08	-8.55	50744.26	-29.48		
lambda	I	2035-08-22T10:32:59.840		21.15	-8.46	50026.71	-29.47		
delta	I	2035-08-22T10:33:58.449		21.30	-8.25	48300.35	-29.44		
gamma	I	2035-08-22T10:34:21.401		21.36	-8.17	47624.85	-29.42		
eta	I	2035-08-22T10:34:36.654		21.40	-8.11	47176.12	-29.41		
beta	I	2035-08-22T10:35:27.696		21.53	-7.93	45677.42	-29.38		
alpha	I	2035-08-22T10:36:01.512		21.62	-7.81	44687.16	-29.36		
4	I	2035-08-22T10:37:15.074		21.81	-7.54	42526.72	-29.29		
5	I	2035-08-22T10:37:23.082		21.83	-7.51	42311.01	-29.30		
6	I	2035-08-22T10:37:40.523		21.88	-7.45	41794.84	-29.28		
Uranus	I	2035-08-22T10:45:33.166		23.08	-5.75	25092.27		26.60	27.68
Uranus	E	2035-08-22T11:14:54.901		27.27	0.52x	25257.54		-20.99	-21.89
6	E	2035-08-22T11:23:21.713		28.38	2.31x	41877.34	29.21		
5	E	2035-08-22T11:23:31.591		28.40	2.35x	42175.09	29.24		
4	E	2035-08-22T11:23:47.061		28.43	2.40x	42608.97	29.22		
alpha	E	2035-08-22T11:25:00.046		28.59	2.66x	44752.43	29.29		
beta	E	2035-08-22T11:25:30.535		28.65	2.77x	45641.70	29.31		
eta	E	2035-08-22T11:26:22.907		28.76	2.95x	47176.12	29.34		
gamma	E	2035-08-22T11:26:38.233		28.79	3.01x	47625.81	29.35		
delta	E	2035-08-22T11:27:01.212		28.84	3.09x	48300.35	29.36		
lambda	E	2035-08-22T11:27:59.980		28.96	3.29x	50026.71	29.39		
epsilon	E	2035-08-22T11:28:50.898		29.07	3.47x	51523.90	29.40		