

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2041-02-14T21:25:56.950
 Event type : PgtRgt
 : Uranus occs: geocentric, topocentric
 : Ring occs: geocentric, topocentric
 Gaia source ID : 662998467803954304
 2Mass ID (if available) : 08282257+1944004

ICRS Star Coord at Epoch: 08h 28m 22.56221s +19:44:00.09901s

RUWE (>1.4 is poor) : 1.09
 K magnitude : 14.390
 G magnitude : 17.629
 RP magnitude : 16.597
 BP magnitude : 18.694
 DUPflag : 0
 Distance (au) : 17.609
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -21.15
 Sun-Target sep (deg) : 158.59
 Sun-Moon sep (deg) : 9.33
 B (ring opening deg) : 42.45
 PA of pole (deg) : 92.80

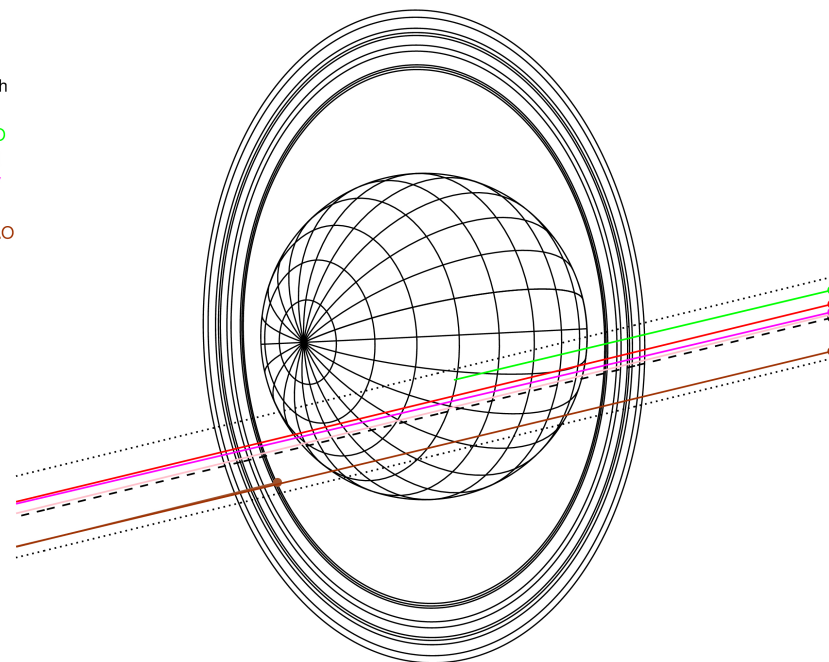
#	a(km)	ring
1	41837.2	6
2	42235.0	5
3	42571.2	4
4	44718.5	alpha
5	45661.1	beta
6	47176.1	eta
7	47626.3	gamma
8	48300.3	delta
9	50026.7	lambda
10	51149.4	epsilon



2041-02-14T21:25:56.9500 α: 08 28 22.5622 s; +19 44 00.099 C/A 0.956° PA 13.72 deg v_sky -21.15 km/s D 17.61 AU
 Credit: Styled after SORA/Lucky Star

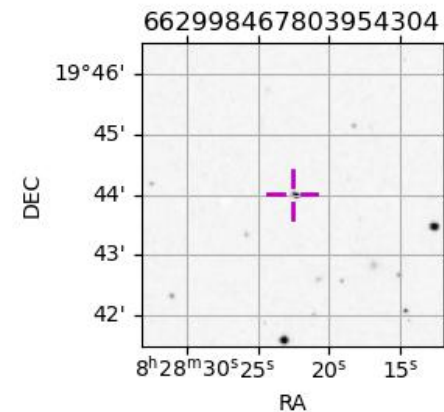
Uranus 2041-02-14T21:25:56 K14.39 G17.63 PgtRgt

Earth
 PIC
 PMO
 TEN
 KAV
 RIO
 SAO

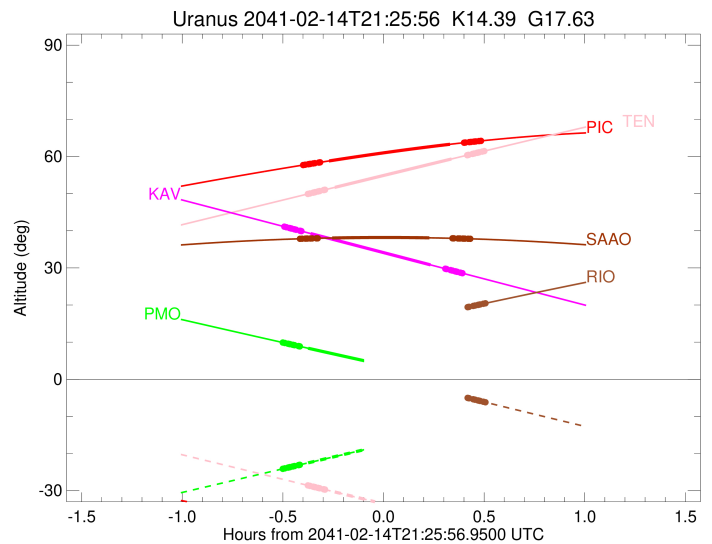
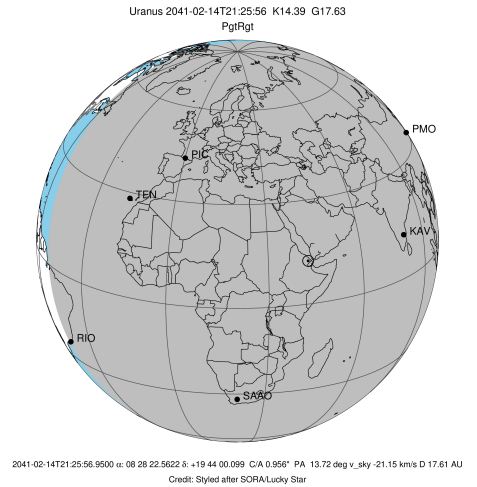


Observable events with sun below -5 deg and altitude above 5 deg unblocked by planet

Obs	Location	lat	Elon	Rings I	Planet	Rings E	Observed Events Interval	OEcode
PIC	Pic du Midi	42.9	0.1	+++++	+ +	+++++	FEB 14 21:02 - FEB 14 21:55	PieRie
PAL	Palomar Mt (200")	33.4	243.1					PnnRnn
PMO	Purple Mtn Obs. Nanki	32.1	118.8	+++++	+		FEB 14 20:56 - FEB 14 21:03	PinRin
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	+++++	+ +	+++++	FEB 14 21:03 - FEB 14 21:56	PieRie
IRTF	Mauna Kea/IRTF	19.8	204.5					PnnRnn
KAV	Kavalur Observatory	12.6	78.8	+++++	+ +	+++++	FEB 14 20:56 - FEB 14 21:49	PieRie
RIO	Rio de Janeiro	-22.9	316.8			+++++	FEB 14 21:51 - FEB 14 21:56	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	+++++	+ +	+++++	FEB 14 21:01 - FEB 14 21:52	PieRie
MSO	Mt. Stromlo Observato	-35.3	149.0					PnnRnn

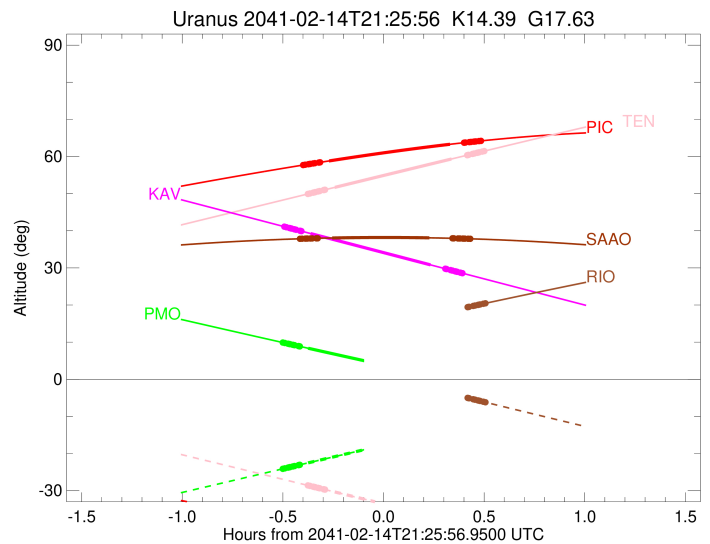
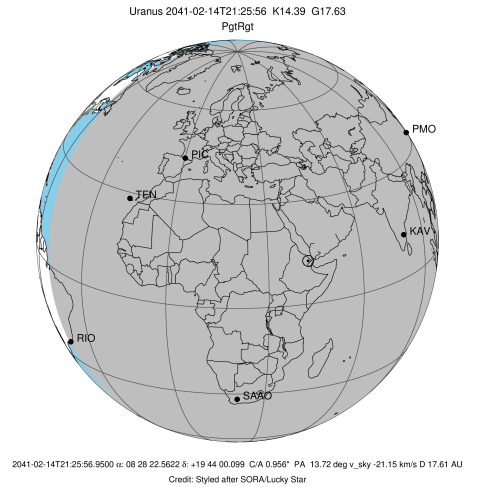


target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2041-02-14T21:27:41.990
 Event type : PgtRgt
 : Uranus occs: geocentric, topocentric
 : Ring occs: geocentric, topocentric
 Observer code : PIC
 Location : Pic du Midi
 Latitude (deg) : 42.93656
 E. Longitude (deg) : 0.14231
 Altitude (km) : 2.890
 Gaia source ID : 662998467803954304
 2Mass ID (if available) : 08282257+1944004
 ICRS Star Coord at Epoch: 08h 28m 22.56221s +19:44:00.09901s
 RUWE (>1.4 is poor) : 1.09
 K magnitude : 14.390
 G magnitude : 17.629
 RP magnitude : 16.597
 BP magnitude : 18.694
 DUPflag : 0
 Distance (au) : 17.609
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -21.15
 Sun-Target sep (deg) : 158.59
 Sun-Moon sep (deg) : 9.61
 B (ring opening deg) : 42.45
 PA of pole (deg) : 92.80
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 0.795
 C/A sky separation (km) : 10159.1
 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_itrfr93_040916.bsp
 earth_720101_070426.bpc
 earth_200101_990628_predict.bpc
 pg3f0000r.bsp
 pg490000r.bsp
 naif0012.tls
 earth_flat_IAU.spk



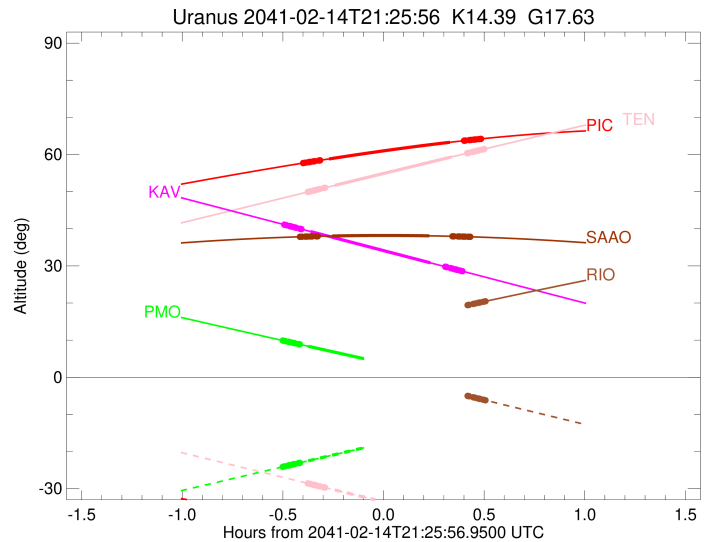
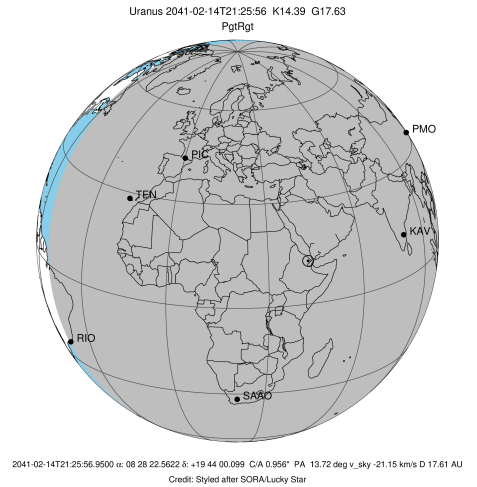
Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2041-02-14T21:02:11.686		57.74	-39.05	50797.34	-30.84		
lambda	I	2041-02-14T21:02:36.699		57.80	-39.12	50026.71	-30.80		
delta	I	2041-02-14T21:03:32.796		57.93	-39.28	48300.35	-30.75		
gamma	I	2041-02-14T21:03:54.891		57.99	-39.34	47621.17	-30.73		
eta	I	2041-02-14T21:04:09.378		58.02	-39.39	47176.12	-30.71		
beta	I	2041-02-14T21:04:58.118		58.14	-39.52	45677.93	-30.66		
alpha	I	2041-02-14T21:05:29.793		58.22	-39.61	44722.77	-30.63		
4	I	2041-02-14T21:06:40.618		58.39	-39.81	42529.58	-30.53		
5	I	2041-02-14T21:06:52.818		58.41	-39.85	42199.51	-30.53		
6	I	2041-02-14T21:07:03.274		58.44	-39.88	41804.72	-30.46		
Uranus	I	2041-02-14T21:09:42.153		58.81	-40.33	25306.62		-46.01	-47.32
Uranus	E	2041-02-14T21:45:45.199		63.30	-46.18	25377.51		37.50	38.78
6	E	2041-02-14T21:49:58.753		63.73	-46.83	41852.85	30.49		
5	E	2041-02-14T21:50:08.497		63.75	-46.86	42232.30	30.56		
4	E	2041-02-14T21:50:21.865		63.77	-46.89	42599.75	30.55		
alpha	E	2041-02-14T21:51:30.059		63.88	-47.07	44699.70	30.65		
beta	E	2041-02-14T21:52:01.522		63.93	-47.15	45650.85	30.69		
eta	E	2041-02-14T21:52:51.067		64.01	-47.27	47176.12	30.74		
gamma	E	2041-02-14T21:53:05.879		64.04	-47.31	47631.52	30.75		
delta	E	2041-02-14T21:53:27.618		64.07	-47.36	48300.35	30.78		
lambda	E	2041-02-14T21:54:23.667		64.16	-47.51	50026.71	30.83		
epsilon	E	2041-02-14T21:55:13.122		64.23	-47.63	51552.21	30.87		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2041-02-14T21:22:31.110
 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 : 662998467803954304
 2Mass ID (if available) : 08282257+1944004
 ICRS Star Coord at Epoch: 08h 28m 22.56221s +19:44:00.09901s
 RUWE (>1.4 is poor) : 1.09
 K magnitude : 14.390
 G magnitude : 17.629
 RP magnitude : 16.597
 BP magnitude : 18.694
 DUPflag : 0
 Distance (au) : 17.609
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -21.15
 Sun-Target sep (deg) : 158.59
 Sun-Moon sep (deg) : 8.51
 B (ring opening deg) : 42.45
 PA of pole (deg) : 92.80
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 0.604
 C/A sky separation (km) : 7708.4
 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



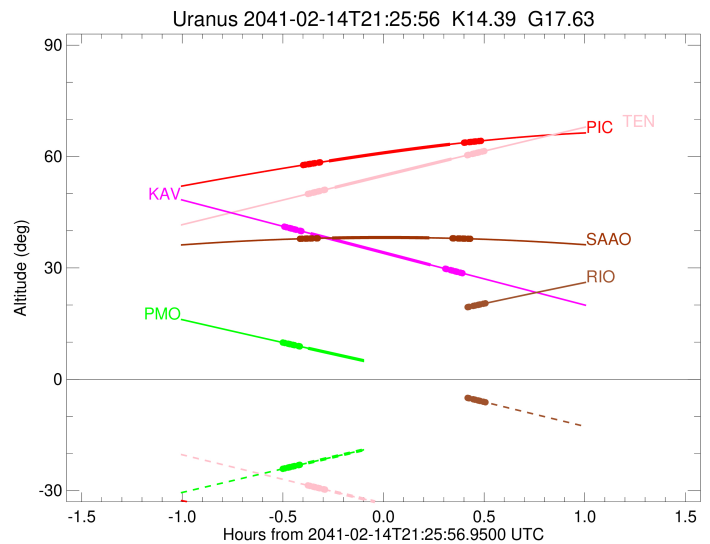
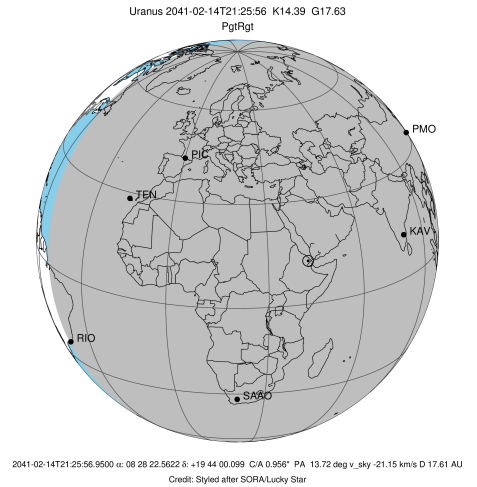
Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2041-02-14T20:56:08.014		9.85	-24.08	50788.35	-30.64		
lambda	I	2041-02-14T20:56:32.894		9.77	-23.99	50026.71	-30.61		
delta	I	2041-02-14T20:57:29.329		9.58	-23.79	48300.35	-30.57		
gamma	I	2041-02-14T20:57:51.550		9.50	-23.71	47621.11	-30.56		
eta	I	2041-02-14T20:58:06.113		9.45	-23.66	47176.12	-30.55		
beta	I	2041-02-14T20:58:55.108		9.28	-23.49	45677.33	-30.52		
alpha	I	2041-02-14T20:59:26.848		9.18	-23.38	44724.57	-30.50		
4	I	2041-02-14T21:00:37.994		8.94	-23.12	42530.66	-30.43		
5	I	2041-02-14T21:00:50.158		8.90	-23.08	42203.69	-30.45		
6	I	2041-02-14T21:01:00.636		8.86	-23.04	41806.36	-30.38		
Uranus	I	2041-02-14T21:03:28.633		8.36	-22.52	25297.76		-47.06	-48.37
Uranus	E	2041-02-14T21:41:38.160		0.75x	-14.44	25352.70		40.51	41.81
6	E	2041-02-14T21:45:19.170		0.02x	-13.66	41855.30	30.27		
5	E	2041-02-14T21:45:29.017		-0.01x	-13.62	42237.28	30.34		
4	E	2041-02-14T21:45:42.434		-0.05x	-13.58	42601.87	30.32		
alpha	E	2041-02-14T21:46:51.113		-0.28x	-13.33	44701.38	30.38		
beta	E	2041-02-14T21:47:22.799		-0.38x	-13.22	45649.87	30.40		
eta	E	2041-02-14T21:48:12.873		-0.54x	-13.05	47176.12	30.42		
gamma	E	2041-02-14T21:48:27.841		-0.59x	-12.99	47631.56	30.43		
delta	E	2041-02-14T21:48:49.814		-0.66x	-12.92	48300.35	30.44		
lambda	E	2041-02-14T21:49:46.499		-0.85x	-12.72	50026.71	30.47		
epsilon	E	2041-02-14T21:50:36.449		-1.01x	-12.54	51549.13	30.50		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2041-02-14T21:28:46.160
 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 : 662998467803954304
 2Mass ID (if available) : 08282257+1944004
 ICRS Star Coord at Epoch: 08h 28m 22.56221s +19:44:00.09901s
 RUWE (>1.4 is poor) : 1.09
 K magnitude : 14.390
 G magnitude : 17.629
 RP magnitude : 16.597
 BP magnitude : 18.694
 DUPflag : 0
 Distance (au) : 17.609
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -21.15
 Sun-Target sep (deg) : 158.59
 Sun-Moon sep (deg) : 9.88
 B (ring opening deg) : 42.45
 PA of pole (deg) : 92.80
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 0.926
 C/A sky separation (km) : 11820.8
 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_itrfr93_040916.bsp
 earth_720101_070426.bpc
 earth_200101_990628_predict.bpc
 pg3f0000r.bsp
 pg490000r.bsp
 naif0012.tls
 earth_flat_IAU.spk



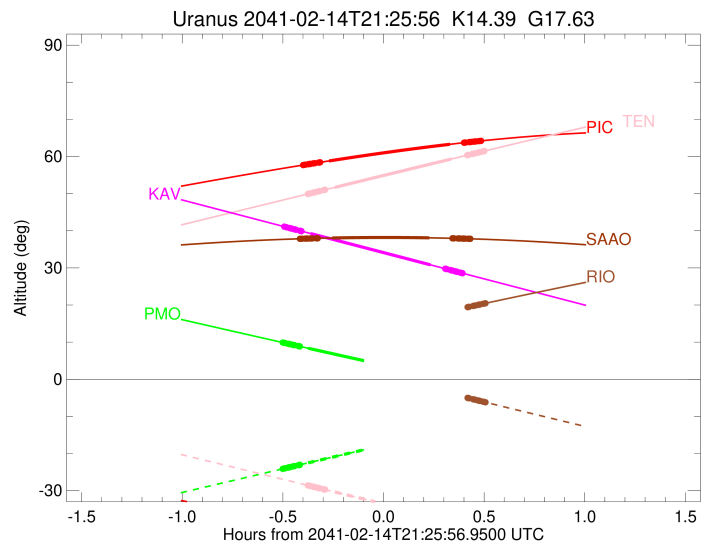
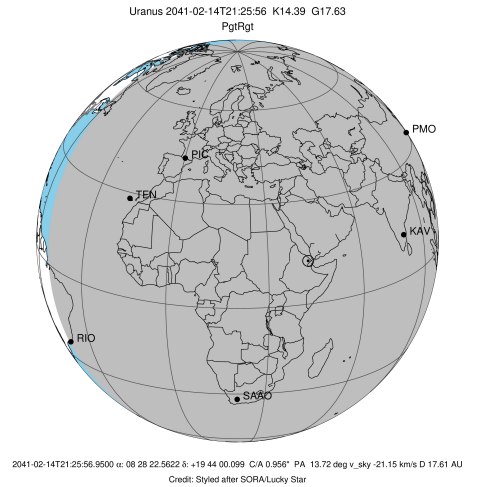
Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2041-02-14T21:03:36.569		49.97	-28.64	50804.06	-30.62		
lambda	I	2041-02-14T21:04:01.994		50.06	-28.73	50026.71	-30.56		
delta	I	2041-02-14T21:04:58.546		50.27	-28.94	48300.35	-30.49		
gamma	I	2041-02-14T21:05:20.828		50.35	-29.02	47621.23	-30.46		
eta	I	2041-02-14T21:05:35.444		50.41	-29.07	47176.12	-30.44		
beta	I	2041-02-14T21:06:24.620		50.59	-29.25	45678.33	-30.37		
alpha	I	2041-02-14T21:06:56.651		50.70	-29.37	44721.50	-30.33		
4	I	2041-02-14T21:08:08.168		50.97	-29.63	42528.90	-30.19		
5	I	2041-02-14T21:08:20.549		51.01	-29.68	42196.66	-30.19		
6	I	2041-02-14T21:08:31.139		51.05	-29.72	41803.64	-30.12		
Uranus	I	2041-02-14T21:11:23.818		51.69	-30.35	25315.81		-44.91	-46.22
Uranus	E	2041-02-14T21:46:12.055		59.34	-38.01	25396.20		35.19	36.44
6	E	2041-02-14T21:50:55.449		60.37	-39.04	41851.14	30.17		
5	E	2041-02-14T21:51:05.283		60.40	-39.08	42228.90	30.25		
4	E	2041-02-14T21:51:18.811		60.45	-39.13	42598.25	30.25		
alpha	E	2041-02-14T21:52:27.698		60.70	-39.38	44698.59	30.39		
beta	E	2041-02-14T21:52:59.472		60.82	-39.49	45651.53	30.44		
eta	E	2041-02-14T21:53:49.387		61.00	-39.67	47176.12	30.51		
gamma	E	2041-02-14T21:54:04.308		61.05	-39.73	47631.49	30.53		
delta	E	2041-02-14T21:54:26.207		61.13	-39.81	48300.35	30.56		
lambda	E	2041-02-14T21:55:22.638		61.33	-40.01	50026.71	30.63		
epsilon	E	2041-02-14T21:56:12.451		61.51	-40.20	51553.71	30.69		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2041-02-14T21:22:03.670
 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 : 662998467803954304
 2Mass ID (if available) : 08282257+1944004
 ICRS Star Coord at Epoch: 08h 28m 22.56221s +19:44:00.09901s
 RUWE (>1.4 is poor) : 1.09
 K magnitude : 14.390
 G magnitude : 17.629
 RP magnitude : 16.597
 BP magnitude : 18.694
 DUPflag : 0
 Distance (au) : 17.609
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -21.15
 Sun-Target sep (deg) : 158.59
 Sun-Moon sep (deg) : 8.69
 B (ring opening deg) : 42.45
 PA of pole (deg) : 92.80
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 0.852
 C/A sky separation (km) : 10883.8
 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_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	2041-02-14T20:56:35.115		41.06	-61.25	50801.29	-30.70		
lambda	I	2041-02-14T20:57:00.380		40.96	-61.15	50026.71	-30.64		
delta	I	2041-02-14T20:57:56.769		40.74	-60.92	48300.35	-30.58		
gamma	I	2041-02-14T20:58:18.983		40.65	-60.83	47621.21	-30.56		
eta	I	2041-02-14T20:58:33.552		40.59	-60.77	47176.12	-30.54		
beta	I	2041-02-14T20:59:22.569		40.40	-60.57	45678.16	-30.48		
alpha	I	2041-02-14T20:59:54.464		40.27	-60.44	44722.05	-30.44		
4	I	2041-02-14T21:01:05.722		39.99	-60.15	42529.19	-30.32		
5	I	2041-02-14T21:01:18.031		39.94	-60.10	42197.90	-30.32		
6	I	2041-02-14T21:01:28.568		39.90	-60.06	41804.11	-30.25		
Uranus	I	2041-02-14T21:04:14.650		39.25	-59.38	25311.32		-45.45	-46.76
Uranus	E	2041-02-14T21:39:58.065		30.82	-50.69	25383.65		36.75	38.02
6	E	2041-02-14T21:44:23.311		29.77	-49.61	41852.31	30.14		
5	E	2041-02-14T21:44:33.161		29.74	-49.57	42231.22	30.22		
4	E	2041-02-14T21:44:46.689		29.68	-49.52	42599.28	30.21		
alpha	E	2041-02-14T21:45:55.653		29.41	-49.24	44699.35	30.32		
beta	E	2041-02-14T21:46:27.470		29.29	-49.11	45651.05	30.36		
eta	E	2041-02-14T21:47:17.535		29.09	-48.91	47176.12	30.42		
gamma	E	2041-02-14T21:47:32.502		29.03	-48.85	47631.51	30.43		
delta	E	2041-02-14T21:47:54.470		28.94	-48.76	48300.35	30.46		
lambda	E	2041-02-14T21:48:51.099		28.72	-48.53	50026.71	30.51		
epsilon	E	2041-02-14T21:49:41.075		28.53	-48.33	51552.70	30.56		

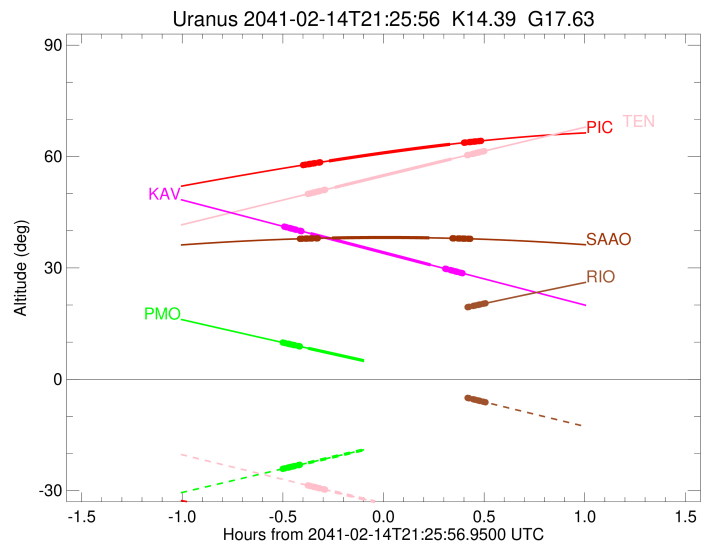
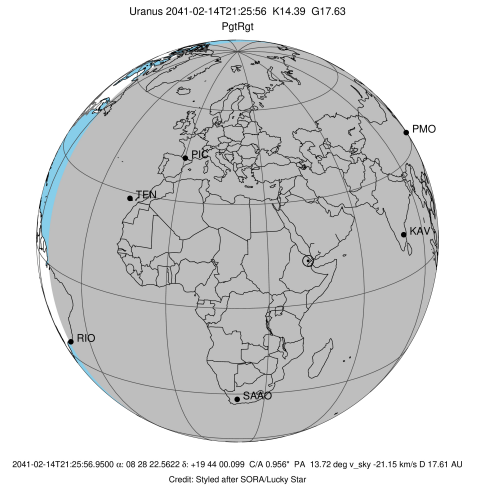
target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2041-02-14T21:29:18.600
 Event type : PgtRgt
 : Uranus occs: geocentric, topocentric
 : Ring occs: geocentric, topocentric
 Observer code : RIO
 Location : Rio de Janeiro
 Latitude (deg) : -22.89506
 E. Longitude (deg) : 316.77708
 Altitude (km) : 0.033
 Gaia source ID : 662998467803954304
 2Mass ID (if available) : 08282257+1944004
 ICRS Star Coord at Epoch: 08h 28m 22.56221s +19:44:00.09901s
 RUWE (>1.4 is poor) : 1.09
 K magnitude : 14.390
 G magnitude : 17.629
 RP magnitude : 16.597
 BP magnitude : 18.694
 DUPflag : 0
 Distance (au) : 17.609
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -21.15
 Sun-Target sep (deg) : 158.59
 Sun-Moon sep (deg) : 10.19
 B (ring opening deg) : 42.45
 PA of pole (deg) : 92.80
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 1.305
 C/A sky separation (km) : 16672.2
 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_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	2041-02-14T21:05:09.911		10.18	5.26x	50826.48	-29.54		
lambda	I	2041-02-14T21:05:37.054		10.27	5.15x	50026.71	-29.44		
delta	I	2041-02-14T21:06:35.836		10.48	4.93x	48300.35	-29.30		
gamma	I	2041-02-14T21:06:59.030		10.56	4.84x	47621.44	-29.24		
eta	I	2041-02-14T21:07:14.269		10.61	4.79x	47176.12	-29.20		
beta	I	2041-02-14T21:08:05.582		10.79	4.59x	45679.37	-29.06		
alpha	I	2041-02-14T21:08:39.237		10.90	4.47x	44717.65	-28.96		
4	I	2041-02-14T21:09:54.161		11.16	4.19x	42527.28	-28.70		
5	I	2041-02-14T21:10:07.312		11.20	4.14x	42188.41	-28.67		
6	I	2041-02-14T21:10:18.561		11.24	4.09x	41800.70	-28.58		
Uranus	I	2041-02-14T21:14:23.676		12.08	3.17x	25359.11		-39.74	-41.04
Uranus	E	2041-02-14T21:44:18.742		18.11	-3.53x	25457.61		27.00	28.08
6	E	2041-02-14T21:51:02.751		19.43	-5.02	41845.92	28.66		
5	E	2041-02-14T21:51:13.138		19.47	-5.06	42218.87	28.76		
4	E	2041-02-14T21:51:27.405		19.51	-5.11	42593.49	28.79		
alpha	E	2041-02-14T21:52:39.819		19.75	-5.38	44695.48	29.05		
beta	E	2041-02-14T21:53:13.149		19.86	-5.50	45653.63	29.16		
eta	E	2041-02-14T21:54:05.115		20.03	-5.70	47176.12	29.30		
gamma	E	2041-02-14T21:54:20.639		20.08	-5.75	47631.35	29.34		
delta	E	2041-02-14T21:54:43.415		20.15	-5.84	48300.35	29.40		
lambda	E	2041-02-14T21:55:41.988		20.34	-6.05	50026.71	29.54		
epsilon	E	2041-02-14T21:56:33.629		20.51	-6.24	51555.26	29.65		

```

target                : Uranus
target radius (km)   : 25559.00
C/A epoch            : 2041-02-14T21:25:04.920
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       : 662998467803954304
2Mass ID (if available) : 08282257+1944004
ICRS Star Coord at Epoch: 08h 28m 22.56221s +19:44:00.09901s
RUWE (>1.4 is poor) : 1.09
K magnitude           : 14.390
G magnitude           : 17.629
RP magnitude          : 16.597
BP magnitude          : 18.694
DUPflag               : 0
Distance (au)        : 17.609
f0 (km)               : 0.000
g0 (km)               : 0.000
skyplane vel. (km/s) : -21.15
Sun-Target sep (deg) : 158.59
Sun-Moon sep (deg)   : 9.61
B (ring opening deg) : 42.45
PA of pole (deg)     : 92.80
Pole direction: RA (deg): 257.31100
Dec (deg): -15.17500
C/A sky separation (") : 1.344
C/A sky separation (km) : 17163.7
NAIF SPICE kernels   : RAJobs_U111+rgf15.spk
URKALLvl1.spk
urall1.bsp
IAU_URANUS_for_RINGFIT.tpc
vgr2.urall1.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	2041-02-14T21:01:14.212		37.85	-38.04	50830.32	-29.75		
lambda	I	2041-02-14T21:01:41.303		37.86	-38.10	50026.71	-29.63		
delta	I	2041-02-14T21:02:39.707		37.89	-38.21	48300.35	-29.48		
gamma	I	2041-02-14T21:03:02.758		37.90	-38.26	47621.47	-29.42		
eta	I	2041-02-14T21:03:17.906		37.90	-38.29	47176.12	-29.38		
beta	I	2041-02-14T21:04:08.921		37.92	-38.39	45679.51	-29.22		
alpha	I	2041-02-14T21:04:42.414		37.94	-38.45	44717.07	-29.11		
4	I	2041-02-14T21:05:56.948		37.97	-38.60	42527.09	-28.83		
5	I	2041-02-14T21:06:10.053		37.97	-38.63	42187.24	-28.80		
6	I	2041-02-14T21:06:21.272		37.98	-38.65	41800.32	-28.70		
Uranus	I	2041-02-14T21:10:37.329		38.06	-39.14	25366.96		-38.79	-40.08
Uranus	E	2041-02-14T21:39:38.646		38.10	-42.02	25462.16		26.33	27.40
6	E	2041-02-14T21:46:31.323		37.97	-42.58	41845.62	28.69		
5	E	2041-02-14T21:46:41.703		37.97	-42.59	42218.31	28.79		
4	E	2041-02-14T21:46:55.953		37.96	-42.61	42593.21	28.83		
alpha	E	2041-02-14T21:48:08.265		37.93	-42.71	44695.32	29.11		
beta	E	2041-02-14T21:48:41.538		37.92	-42.75	45653.75	29.22		
eta	E	2041-02-14T21:49:33.389		37.90	-42.81	47176.12	29.37		
gamma	E	2041-02-14T21:49:48.878		37.89	-42.83	47631.34	29.41		
delta	E	2041-02-14T21:50:11.600		37.88	-42.86	48300.35	29.47		
lambda	E	2041-02-14T21:51:10.024		37.86	-42.93	50026.71	29.62		
epsilon	E	2041-02-14T21:52:01.522		37.83	-42.99	51555.22	29.74		