

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2036-09-18T02:36:53.440
 Event type : PgtRgt
 : Uranus occs: geocentric, topocentric
 : Ring occs: geocentric, topocentric
 Gaia source ID : 869234142999637760
 2Mass ID (if available) : 07202458+2233137

Uranus 2036-09-18T02:36:53 K13.73 G15.17 PgtRgt

ICRS Star Coord at Epoch: 07h 20m 24.57800s +22:33:13.63890s

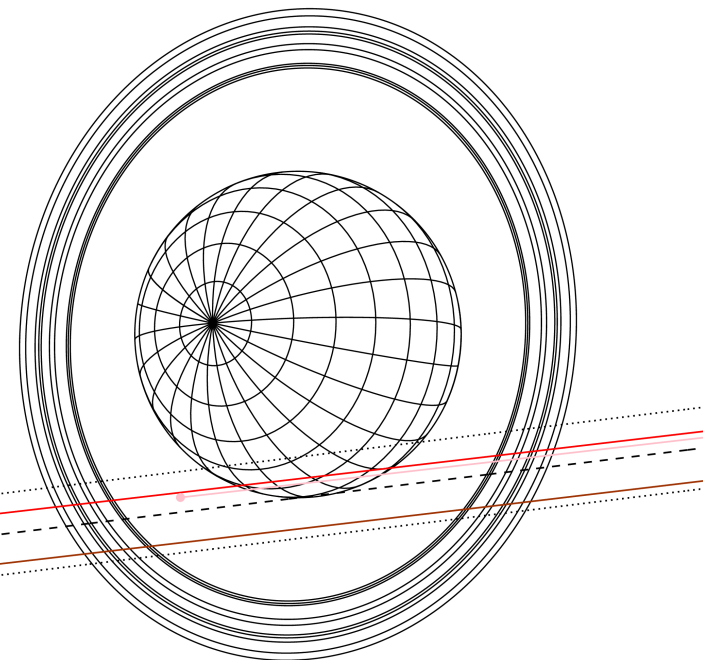
RUWE (>1.4 is poor) : 1.07
 K magnitude : 13.735
 G magnitude : 15.167
 RP magnitude : 14.670
 BP magnitude : 15.490
 DUPflag : 0
 Distance (au) : 19.156
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : 18.23
 Sun-Target sep (deg) : 66.76
 Sun-Moon sep (deg) : 39.37
 B (ring opening deg) : 58.18
 PA of pole (deg) : 82.43

Uranus 2036-09-18T02:36:53 K13.73 G15.17
 PgtRgt



2036-09-18T02:36:53.4400 α: 07 20 24.5780 δ: +22 33 13.6389 C/A 1.823° PA 7.01 deg v_sky +18.23 km/s D 19.16 AU
 Credit: Styled after SORA/Lucky Star

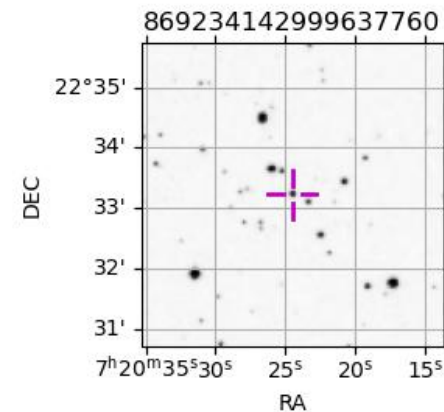
Earth
 PIC
 TEN
 SAAO



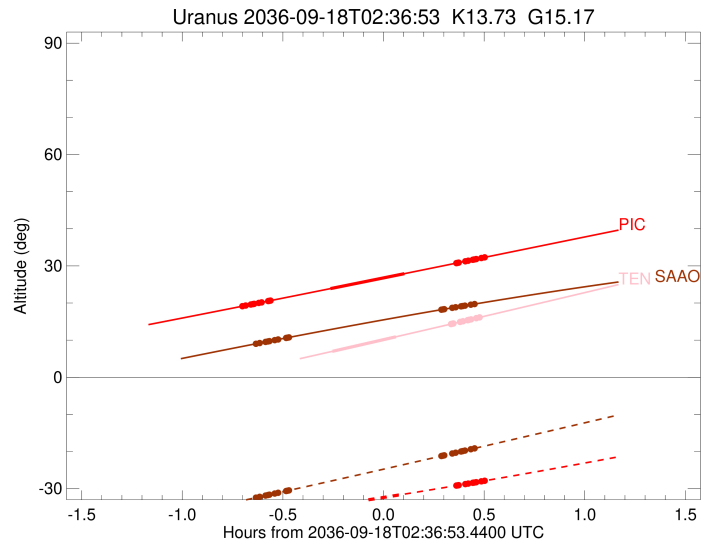
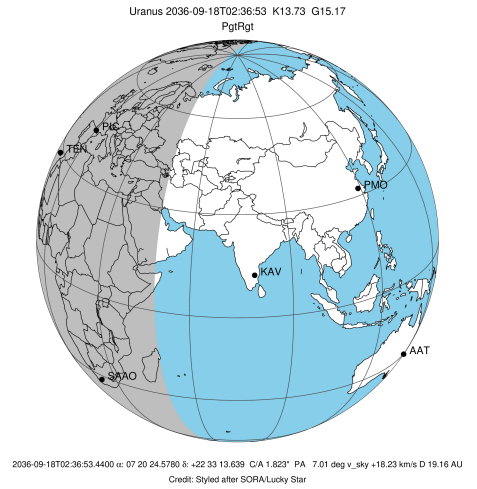
#	a(km)	ring
1	41837.2	6
2	42235.0	5
3	42571.2	4
4	44718.5	alpha
5	45661.1	beta
6	47176.1	eta
7	47626.3	gamma
8	48300.3	delta
9	50026.7	lambda
10	51149.4	epsilon

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	+++++	+ +	+++++	SEP 18 01:54 - SEP 18 03:06	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		+ +	+++++	SEP 18 02:21 - SEP 18 03:05	PieRne
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					PnnRnn
AAT	Siding Spring (AAT)	-31.3	149.1					PnnRnn
SAAO	So. Afr. Astro. Obs.	-32.4	20.8	+++++		+++++	SEP 18 01:58 - SEP 18 03:03	PnnRie
MSO	Mt. Stromlo Observato	-35.3	149.0					PnnRnn

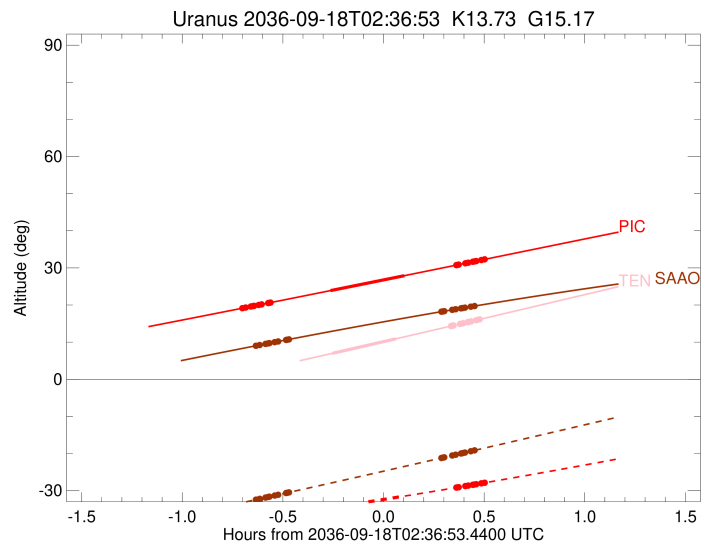
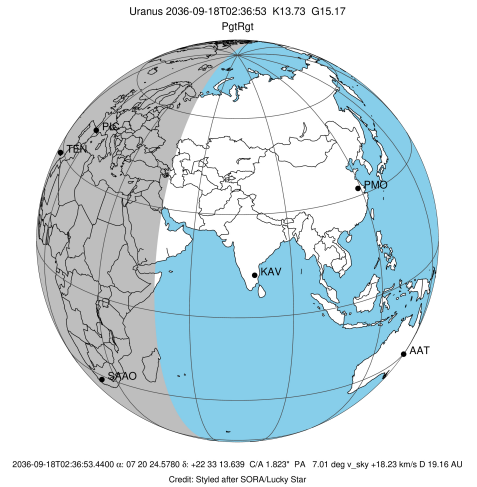


target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2036-09-18T02:32:15.760
 Event type : PgtRgt
 : Uranus occs: geocentric, topocentric
 : Ring occs: geocentric, topocentric
 Observer code : PIC
 Location : Pic du Midi
 Latitude (deg) : 42.93656
 E. Longitude (deg) : 0.14231
 Altitude (km) : 2.890
 Gaia source ID : 869234142999637760
 2Mass ID (if available) : 07202458+2233137
 ICRS Star Coord at Epoch: 07h 20m 24.57800s +22:33:13.63890s
 RUWE (>1.4 is poor) : 1.07
 K magnitude : 13.735
 G magnitude : 15.167
 RP magnitude : 14.670
 BP magnitude : 15.490
 DUPflag : 0
 Distance (au) : 19.156
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : 18.23
 Sun-Target sep (deg) : 66.76
 Sun-Moon sep (deg) : 40.26
 B (ring opening deg) : 58.18
 PA of pole (deg) : 82.43
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 1.616
 C/A sky separation (km) : 22453.5
 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



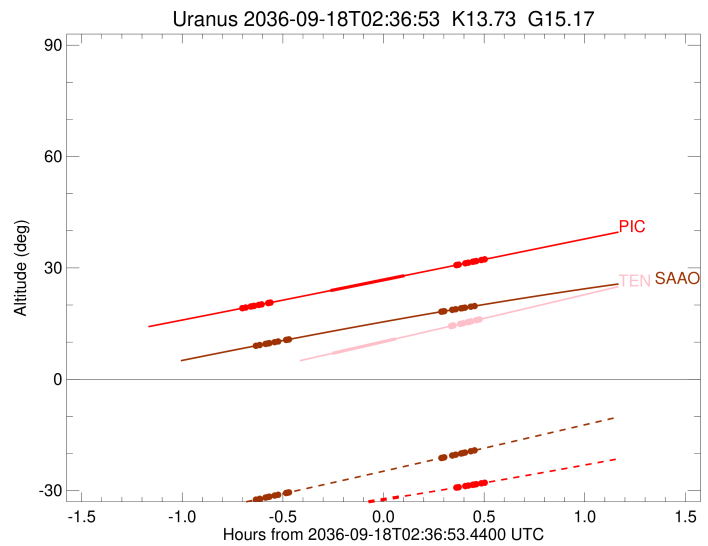
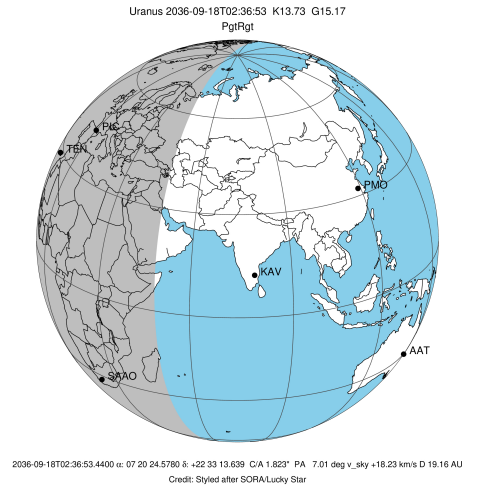
Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2036-09-18T01:54:34.282		19.10	-37.88	51443.27	-19.01		
lambda	I	2036-09-18T01:55:48.856		19.32	-37.73	50026.71	-18.93		
delta	I	2036-09-18T01:57:20.501		19.60	-37.55	48300.35	-18.75		
gamma	I	2036-09-18T01:57:56.301		19.70	-37.48	47630.61	-18.67		
eta	I	2036-09-18T01:58:20.681		19.78	-37.43	47176.12	-18.62		
beta	I	2036-09-18T01:59:42.092		20.02	-37.27	45666.88	-18.43		
alpha	I	2036-09-18T02:00:32.690		20.17	-37.17	44735.26	-18.29		
4	I	2036-09-18T02:02:31.505		20.53	-36.93	42589.40	-17.98		
5	I	2036-09-18T02:02:52.217		20.59	-36.88	42230.56	-17.89		
6	I	2036-09-18T02:03:15.124		20.66	-36.84	41802.65	-17.84		
Uranus	I	2036-09-18T02:21:05.574		23.89	-34.55	25532.94		7.44	7.79
Uranus	E	2036-09-18T02:43:07.303		27.91	-31.48	25367.92		-20.64	-21.53
6	E	2036-09-18T02:58:36.610		30.75	-29.18	41873.99	17.74		
5	E	2036-09-18T02:58:53.271		30.80	-29.14	42164.23	17.79		
4	E	2036-09-18T02:59:17.944		30.88	-29.07	42600.76	17.88		
alpha	E	2036-09-18T03:01:14.232		31.23	-28.78	44684.62	18.18		
beta	E	2036-09-18T03:02:08.577		31.40	-28.64	45674.82	18.31		
eta	E	2036-09-18T03:03:30.167		31.65	-28.43	47176.12	18.50		
gamma	E	2036-09-18T03:03:54.481		31.72	-28.37	47626.45	18.55		
delta	E	2036-09-18T03:04:30.742		31.83	-28.27	48300.35	18.62		
lambda	E	2036-09-18T03:06:03.010		32.12	-28.04	50026.71	18.80		
epsilon	E	2036-09-18T03:06:41.359		32.24	-27.94	50748.85	18.88		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2036-09-18T02:31:17.130
 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 : 869234142999637760
 2Mass ID (if available) : 07202458+2233137
 ICRS Star Coord at Epoch: 07h 20m 24.57800s +22:33:13.63890s
 RUWE (>1.4 is poor) : 1.07
 K magnitude : 13.735
 G magnitude : 15.167
 RP magnitude : 14.670
 BP magnitude : 15.490
 DUPflag : 0
 Distance (au) : 19.156
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : 18.23
 Sun-Target sep (deg) : 66.76
 Sun-Moon sep (deg) : 40.20
 B (ring opening deg) : 58.18
 PA of pole (deg) : 82.43
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 1.675
 C/A sky separation (km) : 23272.6
 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	2036-09-18T01:54:06.259		1.40x	-57.48	51438.72	-18.95		
lambda	I	2036-09-18T01:55:20.826		1.65x	-57.36	50026.71	-18.86		
delta	I	2036-09-18T01:56:52.829		1.95x	-57.21	48300.35	-18.66		
gamma	I	2036-09-18T01:57:28.791		2.08x	-57.15	47630.67	-18.58		
eta	I	2036-09-18T01:57:53.294		2.16x	-57.11	47176.12	-18.52		
beta	I	2036-09-18T01:59:15.140		2.43x	-56.97	45667.24	-18.32		
alpha	I	2036-09-18T02:00:06.117		2.60x	-56.88	44734.68	-18.16		
4	I	2036-09-18T02:02:05.757		3.01x	-56.67	42590.27	-17.82		
5	I	2036-09-18T02:02:26.788		3.08x	-56.63	42228.85	-17.73		
6	I	2036-09-18T02:02:49.790		3.15x	-56.59	41803.19	-17.67		
Uranus	I	2036-09-18T02:21:39.595		6.99	-54.33	25545.26		5.40	5.65
Uranus	E	2036-09-18T02:40:35.536		10.90	-51.65	25398.87		-18.81	-19.63
6	E	2036-09-18T02:57:01.755		14.34	-49.06	41873.43	17.55		
5	E	2036-09-18T02:57:18.606		14.40	-49.01	42163.30	17.61		
4	E	2036-09-18T02:57:43.599		14.49	-48.94	42601.61	17.70		
alpha	E	2036-09-18T02:59:40.848		14.90	-48.62	44684.63	18.03		
beta	E	2036-09-18T03:00:35.626		15.09	-48.47	45675.15	18.18		
eta	E	2036-09-18T03:01:57.747		15.38	-48.24	47176.12	18.38		
gamma	E	2036-09-18T03:02:22.215		15.46	-48.17	47626.56	18.44		
delta	E	2036-09-18T03:02:58.679		15.59	-48.07	48300.35	18.52		
lambda	E	2036-09-18T03:04:31.419		15.92	-47.81	50026.71	18.71		
epsilon	E	2036-09-18T03:05:10.017		16.05	-47.70	50750.25	18.80		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2036-09-18T02:33:17.910
 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 : 869234142999637760
 2Mass ID (if available) : 07202458+2233137
 ICRS Star Coord at Epoch: 07h 20m 24.57800s +22:33:13.63890s
 RUWE (>1.4 is poor) : 1.07
 K magnitude : 13.735
 G magnitude : 15.167
 RP magnitude : 14.670
 BP magnitude : 15.490
 DUPflag : 0
 Distance (au) : 19.156
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : 18.23
 Sun-Target sep (deg) : 66.76
 Sun-Moon sep (deg) : 40.01
 B (ring opening deg) : 58.18
 PA of pole (deg) : 82.43
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 2.177
 C/A sky separation (km) : 30252.6
 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	2036-09-18T01:58:38.429		8.98	-32.47	51387.84	-16.86		
lambda	I	2036-09-18T01:59:59.399		9.22	-32.21	50026.71	-16.68		
delta	I	2036-09-18T02:01:44.035		9.53	-31.86	48300.35	-16.31		
gamma	I	2036-09-18T02:02:25.256		9.65	-31.73	47631.13	-16.16		
eta	I	2036-09-18T02:02:53.515		9.73	-31.63	47176.12	-16.05		
beta	I	2036-09-18T02:04:28.393		10.01	-31.32	45670.83	-15.66		
alpha	I	2036-09-18T02:05:28.974		10.18	-31.12	44728.39	-15.37		
4	I	2036-09-18T02:07:50.991		10.59	-30.64	42598.71	-14.69		
5	I	2036-09-18T02:08:18.168		10.67	-30.55	42211.44	-14.51		
6	I	2036-09-18T02:08:44.887		10.75	-30.46	41809.71	-14.38		

No planet occultations

6	E	2036-09-18T02:54:08.338		18.21	-21.21	41867.73	14.32		
5	E	2036-09-18T02:54:29.243		18.26	-21.14	42157.28	14.44		
4	E	2036-09-18T02:55:00.225		18.34	-21.03	42608.01	14.62		
alpha	E	2036-09-18T02:57:19.758		18.70	-20.55	44685.50	15.29		
beta	E	2036-09-18T02:58:24.188		18.86	-20.33	45677.61	15.57		
eta	E	2036-09-18T02:59:59.273		19.11	-20.00	47176.12	15.96		
gamma	E	2036-09-18T03:00:27.463		19.18	-19.90	47627.49	16.07		
delta	E	2036-09-18T03:01:09.145		19.28	-19.76	48300.35	16.22		
lambda	E	2036-09-18T03:02:54.400		19.55	-19.39	50026.71	16.58		
epsilon	E	2036-09-18T03:03:38.866		19.66	-19.24	50767.03	16.75		