

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2035-12-09T10:56:30.610
 Event type : PgtRgt
 : Uranus occs: geocentric, topocentric
 : Ring occs: geocentric, topocentric
 Gaia source ID : 3380120535896076928
 2Mass ID (if available) : 06590942+2307415

Uranus 2035-12-09T10:56:30 K14.46 G16.19 PgtRgt

ICRS Star Coord at Epoch: 06h 59m 09.43542s +23:07:41.42345s

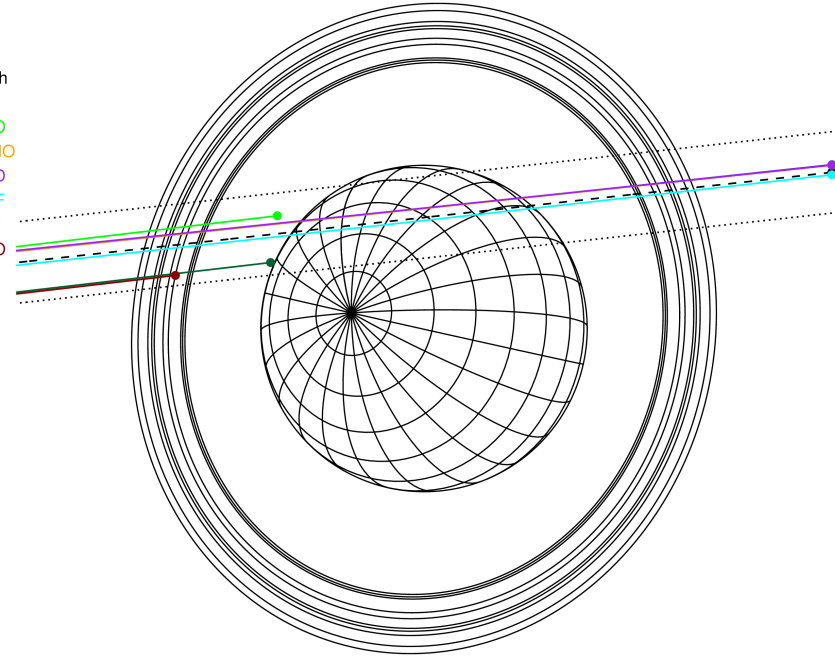
RUWE (>1.4 is poor) : 0.94
 K magnitude : 14.463
 G magnitude : 16.195
 RP magnitude : 15.609
 BP magnitude : 16.603
 DUPflag : 0
 Distance (au) : 17.947
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -20.12
 Sun-Target sep (deg) : 153.11
 Sun-Moon sep (deg) : 100.49
 B (ring opening deg) : 62.90
 PA of pole (deg) : 77.88

Uranus 2035-12-09T10:56:30 K14.46 G16.19
 PgtRgt



2035-12-09T10:56:30.6100 α: 06 59 09.4354 δ: +23 07 41.423 C/A 1.337° PA 186.31 deg v_sky -20.12 km/s D 17.95 AU
 Credit: Styled after SORA/Lucky Star

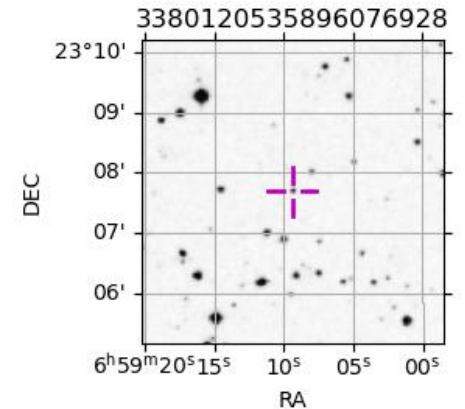
Earth
 PAL
 PMO
 KPNO
 MCD
 IRTF
 AAT
 MSO



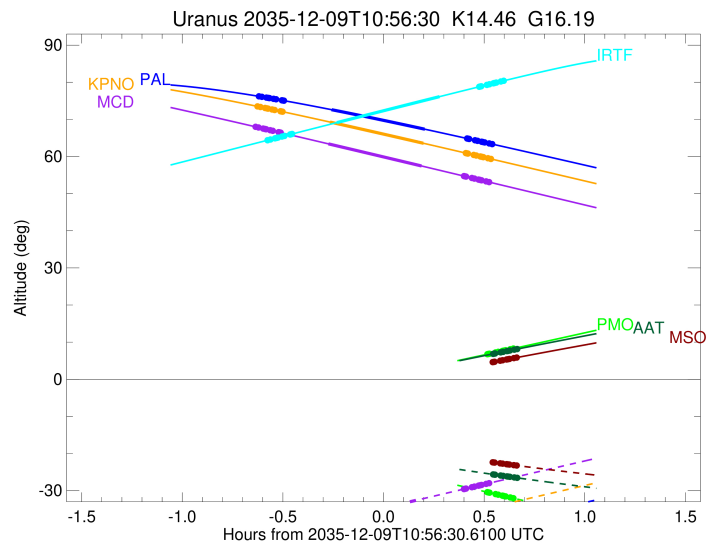
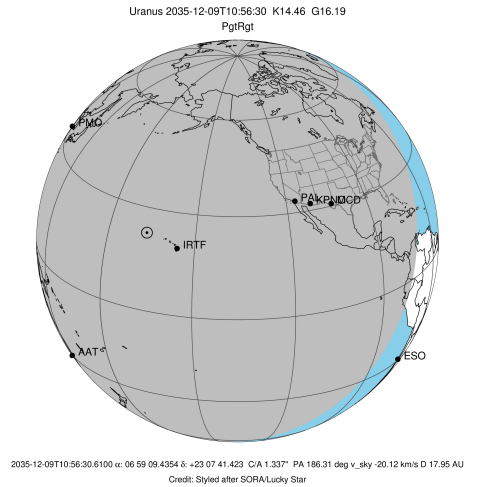
#	a(km)	ring
1	41837.2	6
2	42235.0	5
3	42571.2	4
4	44718.5	alpha
5	45661.1	beta
6	47176.1	eta
7	47626.3	gamma
8	48300.3	delta
9	50026.7	lambda
10	51149.4	epsilon

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	+++++	+ +	+++++	DEC 09 10:19 - DEC 09 11:29	PieRie
PMO	Purple Mtn Obs. Nanki	32.1	118.8			+++++	DEC 09 11:27 - DEC 09 11:35	PnnRne
KPNO	Kitt Peak Natl Obs	32.0	248.4	+++++	+ +	+++++	DEC 09 10:19 - DEC 09 11:28	PieRie
MCD	McDonald Obs. 2.7m	30.7	256.0	+++++	+ +	+++++	DEC 09 10:18 - DEC 09 11:28	PieRie
TEN	Teide Obs./Tenerife	28.3	343.5					PnnRnn
IRTF	Mauna Kea/IRTF	19.8	204.5	+++++	+ +	+++++	DEC 09 10:22 - DEC 09 11:32	PieRie
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			+++++	DEC 09 11:29 - DEC 09 11:36	PnnRne
SAAO	So. Afr. Astro. Obs.	-32.4	20.8					PnnRnn
MSO	Mt. Stromlo Observato	-35.3	149.0			+++++	DEC 09 11:32 - DEC 09 11:36	PnnRne



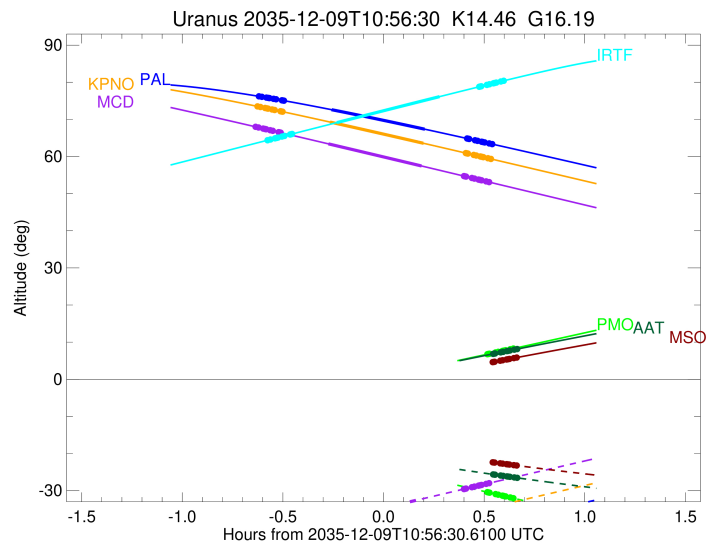
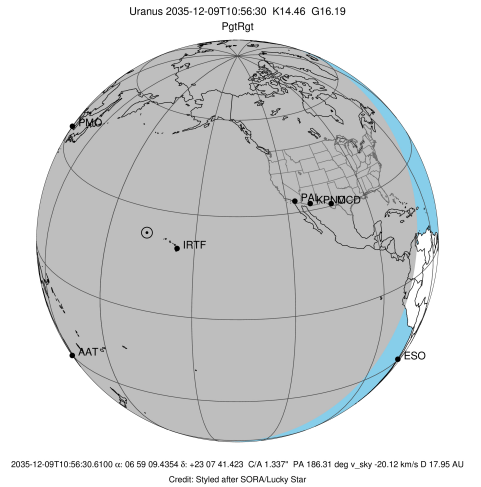
target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2035-12-09T10:55:05.030
 Event type : PgtRgt
 : Uranus occs: geocentric, topocentric
 : Ring occs: geocentric, topocentric
 Observer code : PAL
 Location : Palomar Mt (200")
 Latitude (deg) : 33.35622
 E. Longitude (deg) : 243.13601
 Altitude (km) : 1.706
 Gaia source ID : 3380120535896076928
 2Mass ID (if available) : 06590942+2307415
 ICRS Star Coord at Epoch: 06h 59m 09.43542s +23:07:41.42345s
 RUWE (>1.4 is poor) : 0.94
 K magnitude : 14.463
 G magnitude : 16.195
 RP magnitude : 15.609
 BP magnitude : 16.603
 DUPflag : 0
 Distance (au) : 17.947
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -20.12
 Sun-Target sep (deg) : 153.11
 Sun-Moon sep (deg) : 101.31
 B (ring opening deg) : 62.90
 PA of pole (deg) : 77.88
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 1.438
 C/A sky separation (km) : 18711.4
 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



b: ring blocked by planet x: target alt < 5.0 deg or sun > -5.0 deg

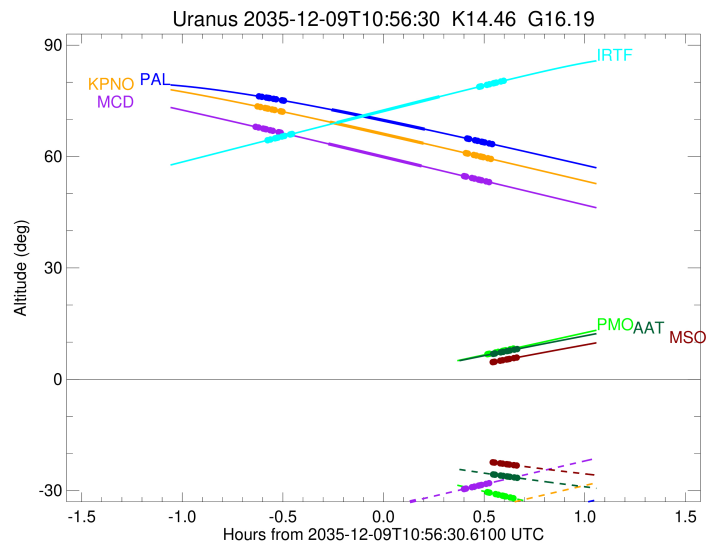
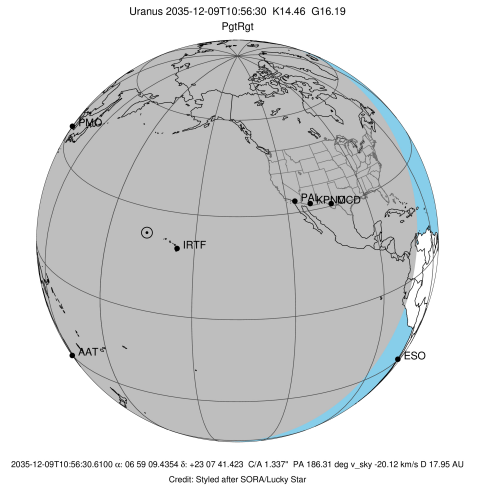
Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2035-12-09T10:19:30.222		76.20	-53.46	50988.11	-21.22		
lambda	I	2035-12-09T10:20:15.727		76.08	-53.30	50026.71	-21.09		
delta	I	2035-12-09T10:21:37.815		75.87	-53.02	48300.35	-20.96		
gamma	I	2035-12-09T10:22:09.974		75.79	-52.91	47627.01	-20.91		
eta	I	2035-12-09T10:22:31.556		75.73	-52.83	47176.12	-20.87		
beta	I	2035-12-09T10:23:43.658		75.55	-52.58	45676.23	-20.74		
alpha	I	2035-12-09T10:24:30.981		75.42	-52.42	44694.05	-20.63		
4	I	2035-12-09T10:26:16.140		75.14	-52.05	42544.47	-20.40		
5	I	2035-12-09T10:26:29.388		75.11	-52.01	42282.45	-20.40		
6	I	2035-12-09T10:26:51.443		75.05	-51.93	41834.00	-20.32		
Uranus	I	2035-12-09T10:41:01.174		72.62	-48.97	25477.14		-10.91	-11.42
Uranus	E	2035-12-09T11:08:49.649		67.37	-43.16	25207.55		23.29	24.27
6	E	2035-12-09T11:21:23.165		64.87	-40.53	41804.87	20.29		
5	E	2035-12-09T11:21:46.202		64.79	-40.45	42258.31	20.37		
4	E	2035-12-09T11:22:00.635		64.74	-40.40	42558.15	20.38		
alpha	E	2035-12-09T11:23:46.760		64.39	-40.03	44716.12	20.61		
beta	E	2035-12-09T11:24:32.264		64.24	-39.88	45661.27	20.71		
eta	E	2035-12-09T11:25:45.115		63.99	-39.62	47176.12	20.84		
gamma	E	2035-12-09T11:26:06.853		63.92	-39.55	47629.60	20.88		
delta	E	2035-12-09T11:26:38.933		63.81	-39.44	48300.35	20.93		
lambda	E	2035-12-09T11:28:01.142		63.53	-39.15	50026.71	21.06		
epsilon	E	2035-12-09T11:29:11.912		63.29	-38.90	51520.87	21.19		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2035-12-09T11:01:18.940
 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 : 3380120535896076928
 2Mass ID (if available) : 06590942+2307415
 ICRS Star Coord at Epoch: 06h 59m 09.43542s +23:07:41.42345s
 RUWE (>1.4 is poor) : 0.94
 K magnitude : 14.463
 G magnitude : 16.195
 RP magnitude : 15.609
 BP magnitude : 16.603
 DUPflag : 0
 Distance (au) : 17.947
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -20.12
 Sun-Target sep (deg) : 153.11
 Sun-Moon sep (deg) : 100.65
 B (ring opening deg) : 62.90
 PA of pole (deg) : 77.88
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 1.555
 C/A sky separation (km) : 20234.9
 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	2035-12-09T10:25:13.578	-5.05x	-17.54	51004.50	-20.40			
lambda	I	2035-12-09T10:26:01.750	-4.90x	-17.71	50026.71	-20.26			
delta	I	2035-12-09T10:27:27.267	-4.64x	-18.00	48300.35	-20.11			
gamma	I	2035-12-09T10:28:00.784	-4.54x	-18.11	47627.25	-20.05			
eta	I	2035-12-09T10:28:23.307	-4.47x	-18.19	47176.12	-20.01			
beta	I	2035-12-09T10:29:38.543	-4.24x	-18.44	45676.85	-19.86			
alpha	I	2035-12-09T10:30:28.096	-4.09x	-18.61	44692.92	-19.74			
4	I	2035-12-09T10:32:18.152	-3.75x	-18.99	42542.60	-19.47			
5	I	2035-12-09T10:32:31.779	-3.71x	-19.03	42285.77	-19.46			
6	I	2035-12-09T10:32:55.154	-3.64x	-19.11	41831.76	-19.37			
Uranus	I	2035-12-09T10:48:23.824	-0.76x	-22.29	25510.56	-8.37		-8.76	
Uranus	E	2035-12-09T11:13:50.867	4.10x	-27.57	25240.87	22.07		23.01	
6	E	2035-12-09T11:27:25.627	6.74	-30.40	41804.03	19.47			
5	E	2035-12-09T11:27:49.804	6.82	-30.49	42260.62	19.56			
4	E	2035-12-09T11:28:04.626	6.87	-30.54	42556.86	19.57			
alpha	E	2035-12-09T11:29:54.985	7.23	-30.92	44715.19	19.84			
beta	E	2035-12-09T11:30:42.286	7.38	-31.09	45661.79	19.97			
eta	E	2035-12-09T11:31:57.767	7.63	-31.35	47176.12	20.12			
gamma	E	2035-12-09T11:32:20.280	7.70	-31.43	47629.70	20.17			
delta	E	2035-12-09T11:32:53.476	7.81	-31.55	48300.35	20.23			
lambda	E	2035-12-09T11:34:18.469	8.09	-31.84	50026.71	20.39			
epsilon	E	2035-12-09T11:35:31.707	8.33	-32.10	51524.26	20.53			

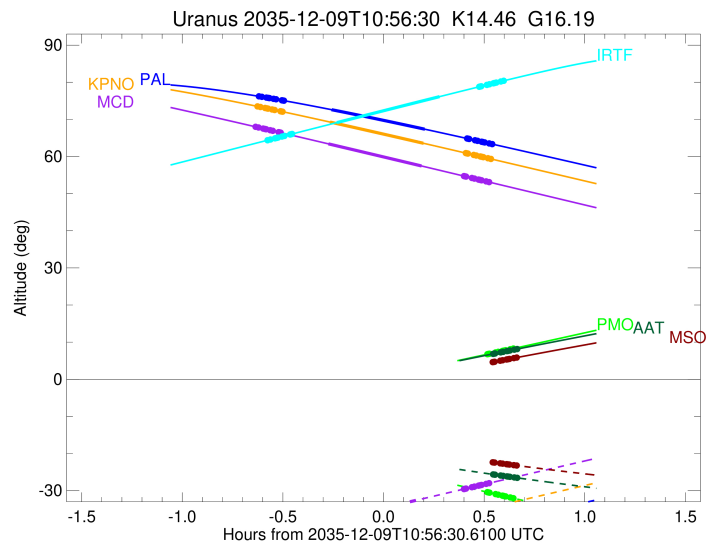
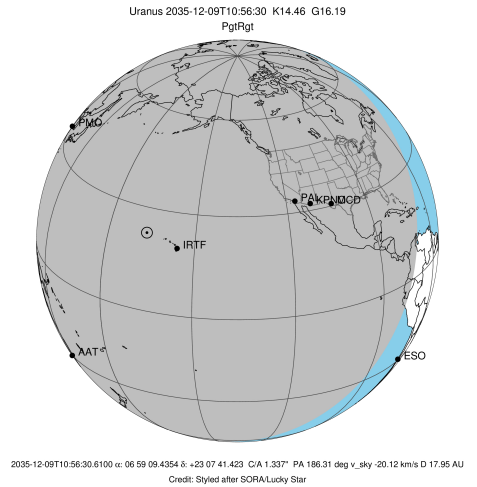
target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2035-12-09T10:54:40.330
 Event type : PgtRgt
 : Uranus occs: geocentric, topocentric
 : Ring occs: geocentric, topocentric
 Observer code : KPNO
 Location : Kitt Peak Natl Obs
 Latitude (deg) : 31.96333
 E. Longitude (deg) : 248.40000
 Altitude (km) : 2.120
 Gaia source ID : 3380120535896076928
 2Mass ID (if available) : 06590942+2307415
 ICRS Star Coord at Epoch: 06h 59m 09.43542s +23:07:41.42345s
 RUWE (>1.4 is poor) : 0.94
 K magnitude : 14.463
 G magnitude : 16.195
 RP magnitude : 15.609
 BP magnitude : 16.603
 DUPflag : 0
 Distance (au) : 17.947
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -20.12
 Sun-Target sep (deg) : 153.11
 Sun-Moon sep (deg) : 101.27
 B (ring opening deg) : 62.90
 PA of pole (deg) : 77.88
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 1.436
 C/A sky separation (km) : 18688.4
 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



b: ring blocked by planet x: target alt < 5.0 deg or sun > -5.0 deg

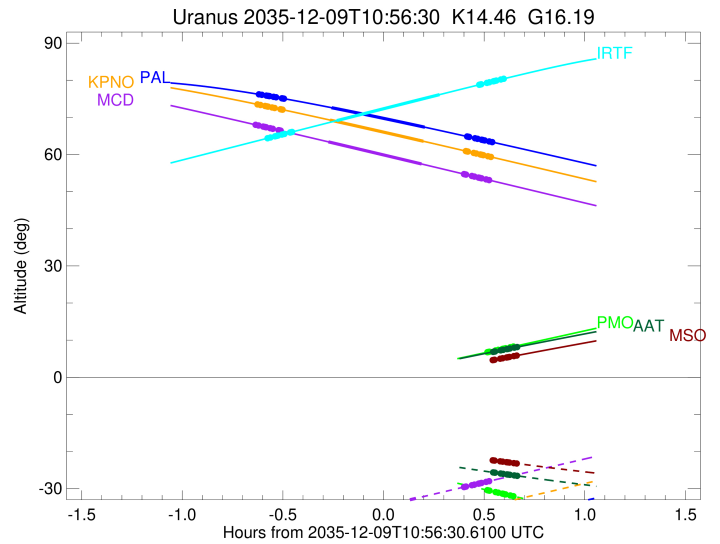
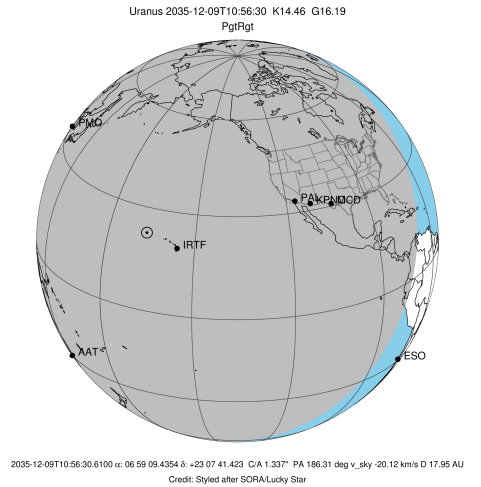
Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2035-12-09T10:19:04.677		73.48	-49.20	50987.70	-21.22		
lambda	I	2035-12-09T10:19:50.161		73.34	-49.04	50026.71	-21.10		
delta	I	2035-12-09T10:21:12.244		73.08	-48.75	48300.35	-20.97		
gamma	I	2035-12-09T10:21:44.401		72.98	-48.64	47627.00	-20.91		
eta	I	2035-12-09T10:22:05.981		72.91	-48.56	47176.12	-20.87		
beta	I	2035-12-09T10:23:18.078		72.68	-48.31	45676.21	-20.74		
alpha	I	2035-12-09T10:24:05.395		72.53	-48.14	44694.08	-20.64		
4	I	2035-12-09T10:25:50.543		72.19	-47.77	42544.51	-20.41		
5	I	2035-12-09T10:26:03.795		72.15	-47.72	42282.37	-20.40		
6	I	2035-12-09T10:26:25.842		72.08	-47.64	41834.05	-20.32		
Uranus	I	2035-12-09T10:40:34.957		69.28	-44.64	25476.44		-10.96	-11.46
Uranus	E	2035-12-09T11:08:26.593		63.57	-38.73	25207.26		23.30	24.28
6	E	2035-12-09T11:20:59.983		60.94	-36.08	41804.87	20.29		
5	E	2035-12-09T11:21:23.026		60.86	-36.00	42258.30	20.37		
4	E	2035-12-09T11:21:37.464		60.81	-35.94	42558.16	20.37		
alpha	E	2035-12-09T11:23:23.624		60.44	-35.57	44716.12	20.60		
beta	E	2035-12-09T11:24:09.145		60.28	-35.41	45661.26	20.70		
eta	E	2035-12-09T11:25:22.024		60.02	-35.16	47176.12	20.83		
gamma	E	2035-12-09T11:25:43.770		59.95	-35.08	47629.60	20.87		
delta	E	2035-12-09T11:26:15.864		59.83	-34.97	48300.35	20.93		
lambda	E	2035-12-09T11:27:38.109		59.54	-34.68	50026.71	21.05		
epsilon	E	2035-12-09T11:28:48.911		59.30	-34.43	51520.87	21.18		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2035-12-09T10:54:07.060
 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 : 3380120535896076928
 2Mass ID (if available) : 06590942+2307415
 ICRS Star Coord at Epoch: 06h 59m 09.43542s +23:07:41.42345s
 RUWE (>1.4 is poor) : 0.94
 K magnitude : 14.463
 G magnitude : 16.195
 RP magnitude : 15.609
 BP magnitude : 16.603
 DUPflag : 0
 Distance (au) : 17.947
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -20.12
 Sun-Target sep (deg) : 153.11
 Sun-Moon sep (deg) : 101.21
 B (ring opening deg) : 62.90
 PA of pole (deg) : 77.88
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 1.441
 C/A sky separation (km) : 18757.3
 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



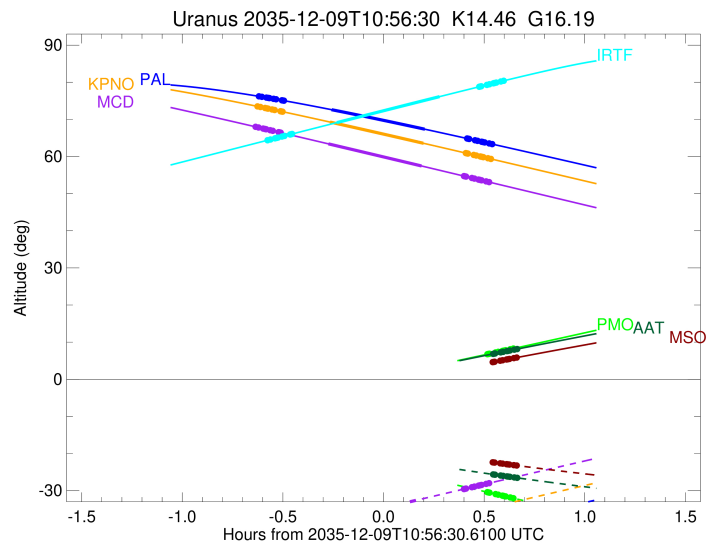
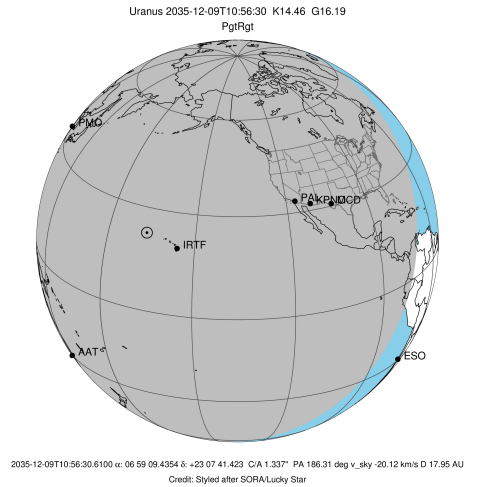
Ring	I/E	UTC	b? alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2035-12-09T10:18:30.711	67.98	-42.81	50987.96	-21.20		
lambda	I	2035-12-09T10:19:16.263	67.82	-42.65	50026.71	-21.07		
delta	I	2035-12-09T10:20:38.453	67.53	-42.35	48300.35	-20.94		
gamma	I	2035-12-09T10:21:10.653	67.42	-42.24	47627.00	-20.88		
eta	I	2035-12-09T10:21:32.264	67.34	-42.16	47176.12	-20.85		
beta	I	2035-12-09T10:22:44.463	67.09	-41.90	45676.22	-20.71		
alpha	I	2035-12-09T10:23:31.851	66.92	-41.73	44694.06	-20.61		
4	I	2035-12-09T10:25:17.164	66.55	-41.36	42544.48	-20.37		
5	I	2035-12-09T10:25:30.433	66.51	-41.31	42282.44	-20.37		
6	I	2035-12-09T10:25:52.522	66.43	-41.23	41834.00	-20.29		
Uranus	I	2035-12-09T10:40:04.400	63.42	-38.19	25477.56		-10.88	-11.39
Uranus	E	2035-12-09T11:07:50.680	57.46	-32.26	25209.15		23.23	24.21
6	E	2035-12-09T11:20:26.942	54.74	-29.59	41804.80	20.24		
5	E	2035-12-09T11:20:50.051	54.66	-29.51	42258.50	20.32		
4	E	2035-12-09T11:21:04.503	54.61	-29.46	42558.05	20.33		
alpha	E	2035-12-09T11:22:50.894	54.23	-29.08	44716.04	20.56		
beta	E	2035-12-09T11:23:36.516	54.06	-28.92	45661.31	20.66		
eta	E	2035-12-09T11:24:49.543	53.80	-28.66	47176.12	20.79		
gamma	E	2035-12-09T11:25:11.333	53.72	-28.59	47629.61	20.83		
delta	E	2035-12-09T11:25:43.492	53.61	-28.47	48300.35	20.88		
lambda	E	2035-12-09T11:27:05.901	53.31	-28.18	50026.71	21.01		
epsilon	E	2035-12-09T11:28:16.858	53.05	-27.93	51521.22	21.14		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2035-12-09T10:58:02.320
 Event type : PgtRgt
 : Uranus occs: geocentric, topocentric
 : Ring occs: geocentric, topocentric
 Observer code : IRTF
 Location : Mauna Kea/IRTF
 Latitude (deg) : 19.82622
 E. Longitude (deg) : 204.52800
 Altitude (km) : 4.168
 Gaia source ID : 3380120535896076928
 2Mass ID (if available) : 06590942+2307415
 ICRS Star Coord at Epoch: 06h 59m 09.43542s +23:07:41.42345s
 RUWE (>1.4 is poor) : 0.94
 K magnitude : 14.463
 G magnitude : 16.195
 RP magnitude : 15.609
 BP magnitude : 16.603
 DUPflag : 0
 Distance (au) : 17.947
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -20.12
 Sun-Target sep (deg) : 153.11
 Sun-Moon sep (deg) : 101.43
 B (ring opening deg) : 62.90
 PA of pole (deg) : 77.88
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 1.291
 C/A sky separation (km) : 16807.6
 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



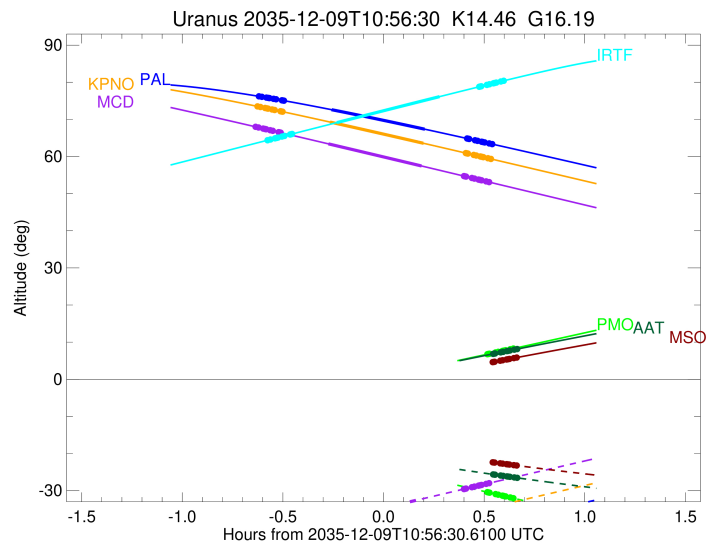
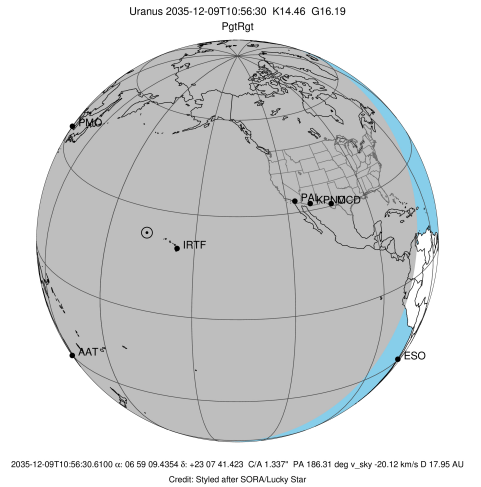
Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2035-12-09T10:22:05.257		64.42	-86.37	50974.99	-21.55		
lambda	I	2035-12-09T10:22:49.424		64.59	-86.28	50026.71	-21.44		
delta	I	2035-12-09T10:24:10.113		64.90	-86.10	48300.35	-21.34		
gamma	I	2035-12-09T10:24:41.701		65.02	-86.02	47626.80	-21.30		
eta	I	2035-12-09T10:25:02.874		65.11	-85.97	47176.12	-21.27		
beta	I	2035-12-09T10:26:13.596		65.38	-85.79	45675.67	-21.17		
alpha	I	2035-12-09T10:26:59.853		65.55	-85.67	44695.07	-21.08		
4	I	2035-12-09T10:28:42.645		65.95	-85.38	42546.15	-20.90		
5	I	2035-12-09T10:28:55.788		66.00	-85.34	42279.44	-20.90		
6	I	2035-12-09T10:29:17.094		66.08	-85.28	41835.97	-20.84		
Uranus	I	2035-12-09T10:42:32.768		69.13	-82.67	25439.47		-13.24	-13.84
Uranus	E	2035-12-09T11:13:13.691		76.14	-75.88	25167.50		24.70	25.71
6	E	2035-12-09T11:25:00.084		78.78	-73.20	41806.43	20.88		
5	E	2035-12-09T11:25:22.186		78.86	-73.11	42254.11	20.94		
4	E	2035-12-09T11:25:36.584		78.92	-73.06	42560.51	20.94		
alpha	E	2035-12-09T11:27:19.951		79.30	-72.66	44717.84	21.13		
beta	E	2035-12-09T11:28:04.224		79.46	-72.49	45660.26	21.21		
eta	E	2035-12-09T11:29:15.452		79.72	-72.22	47176.12	21.32		
gamma	E	2035-12-09T11:29:36.699		79.80	-72.14	47629.40	21.35		
delta	E	2035-12-09T11:30:08.094		79.92	-72.02	48300.35	21.39		
lambda	E	2035-12-09T11:31:28.594		80.21	-71.71	50026.71	21.50		
epsilon	E	2035-12-09T11:32:37.617		80.46	-71.45	51513.29	21.60		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2035-12-09T11:00:32.090
 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 : 3380120535896076928
 2Mass ID (if available) : 06590942+2307415
 ICRS Star Coord at Epoch: 06h 59m 09.43542s +23:07:41.42345s
 RUWE (>1.4 is poor) : 0.94
 K magnitude : 14.463
 G magnitude : 16.195
 RP magnitude : 15.609
 BP magnitude : 16.603
 DUPflag : 0
 Distance (au) : 17.947
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -20.12
 Sun-Target sep (deg) : 153.11
 Sun-Moon sep (deg) : 100.64
 B (ring opening deg) : 62.90
 PA of pole (deg) : 77.88
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 1.003
 C/A sky separation (km) : 13055.7
 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	2035-12-09T10:23:21.206	-5.65x	-15.86	50949.09	-21.70			
lambda	I	2035-12-09T10:24:03.817	-5.51x	-15.97	50026.71	-21.63			
delta	I	2035-12-09T10:25:23.724	-5.25x	-16.19	48300.35	-21.58			
gamma	I	2035-12-09T10:25:54.978	-5.15x	-16.27	47626.39	-21.55			
eta	I	2035-12-09T10:26:15.879	-5.08x	-16.33	47176.12	-21.54			
beta	I	2035-12-09T10:27:25.710	-4.85x	-16.52	45674.48	-21.48			
alpha	I	2035-12-09T10:28:11.090	-4.70x	-16.64	44697.22	-21.43			
4	I	2035-12-09T10:29:52.057	-4.37x	-16.91	42549.64	-21.33			
5	I	2035-12-09T10:30:05.360	-4.33x	-16.95	42273.22	-21.33			
6	I	2035-12-09T10:30:25.815	-4.27x	-17.01	41839.86	-21.30			
Uranus	I	2035-12-09T10:42:37.929	-1.90x	-18.94	25362.91	-17.10		-17.86	
Uranus	E	2035-12-09T11:18:10.380	4.82x	-24.16	25116.89	26.40		27.47	
6	E	2035-12-09T11:29:08.583	6.83	-25.63	41809.60	21.41			
5	E	2035-12-09T11:29:29.578	6.89	-25.67	42246.09	21.45			
4	E	2035-12-09T11:29:44.312	6.94	-25.70	42565.00	21.44			
alpha	E	2035-12-09T11:31:25.430	7.24	-25.92	44721.09	21.55			
beta	E	2035-12-09T11:32:08.634	7.37	-26.02	45658.39	21.60			
eta	E	2035-12-09T11:33:18.749	7.58	-26.17	47176.12	21.66			
gamma	E	2035-12-09T11:33:39.645	7.65	-26.21	47629.00	21.68			
delta	E	2035-12-09T11:34:10.589	7.74	-26.28	48300.35	21.71			
lambda	E	2035-12-09T11:35:29.997	7.98	-26.44	50026.71	21.77			
epsilon	E	2035-12-09T11:36:37.458	8.18	-26.59	51497.04	21.84			

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2035-12-09T11:00:18.550
 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 : 3380120535896076928
 2Mass ID (if available) : 06590942+2307415
 ICRS Star Coord at Epoch: 06h 59m 09.43542s +23:07:41.42345s
 RUWE (>1.4 is poor) : 0.94
 K magnitude : 14.463
 G magnitude : 16.195
 RP magnitude : 15.609
 BP magnitude : 16.603
 DUPflag : 0
 Distance (au) : 17.947
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -20.12
 Sun-Target sep (deg) : 153.11
 Sun-Moon sep (deg) : 100.60
 B (ring opening deg) : 62.90
 PA of pole (deg) : 77.88
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 0.981
 C/A sky separation (km) : 12771.6
 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



b: ring blocked by planet x: target alt < 5.0 deg or sun > -5.0 deg

Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2035-12-09T10:23:04.750	-7.35x	-13.17	50946.94	-21.73			
lambda	I	2035-12-09T10:23:47.202	-7.22x	-13.28	50026.71	-21.66			
delta	I	2035-12-09T10:25:06.991	-6.96x	-13.48	48300.35	-21.61			
gamma	I	2035-12-09T10:25:38.198	-6.87x	-13.56	47626.35	-21.59			
eta	I	2035-12-09T10:25:59.064	-6.80x	-13.61	47176.12	-21.57			
beta	I	2035-12-09T10:27:08.781	-6.58x	-13.79	45674.37	-21.52			
alpha	I	2035-12-09T10:27:54.064	-6.44x	-13.91	44697.41	-21.47			
4	I	2035-12-09T10:29:34.834	-6.13x	-14.16	42549.93	-21.37			
5	I	2035-12-09T10:29:48.144	-6.09x	-14.20	42272.70	-21.38			
6	I	2035-12-09T10:30:08.523	-6.02x	-14.25	41840.18	-21.34			
Uranus	I	2035-12-09T10:42:16.094	-3.77x	-16.06	25356.85			-17.37	-18.14
Uranus	E	2035-12-09T11:18:05.497	2.70x	-21.00	25114.51			26.48	27.55
6	E	2035-12-09T11:29:00.822	4.61x	-22.37	41809.83	21.45			
5	E	2035-12-09T11:29:21.736	4.67x	-22.41	42245.54	21.49			
4	E	2035-12-09T11:29:36.488	4.71x	-22.44	42565.31	21.48			
alpha	E	2035-12-09T11:31:17.425	5.00x	-22.64	44721.31	21.58			
beta	E	2035-12-09T11:32:00.544	5.12	-22.73	45658.26	21.63			
eta	E	2035-12-09T11:33:10.563	5.32	-22.87	47176.12	21.69			
gamma	E	2035-12-09T11:33:31.428	5.38	-22.91	47628.98	21.71			
delta	E	2035-12-09T11:34:02.332	5.47	-22.97	48300.35	21.74			
lambda	E	2035-12-09T11:35:21.642	5.70	-23.13	50026.71	21.80			
epsilon	E	2035-12-09T11:36:28.974	5.89	-23.26	51495.87	21.87			