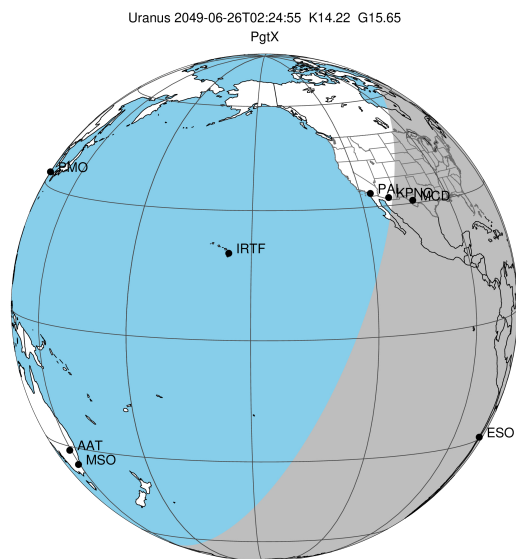


target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2049-06-26T02:24:55.960
 Event type : PgtX
 : Uranus occs: geocentric, topocentric
 : No ring occs
 Gaia source ID : 3865840144041492480
 2Mass ID (if available) : 10534931+0751234

ICRS Star Coord at Epoch: 10h 53m 49.30268s +07:51:22.89461s

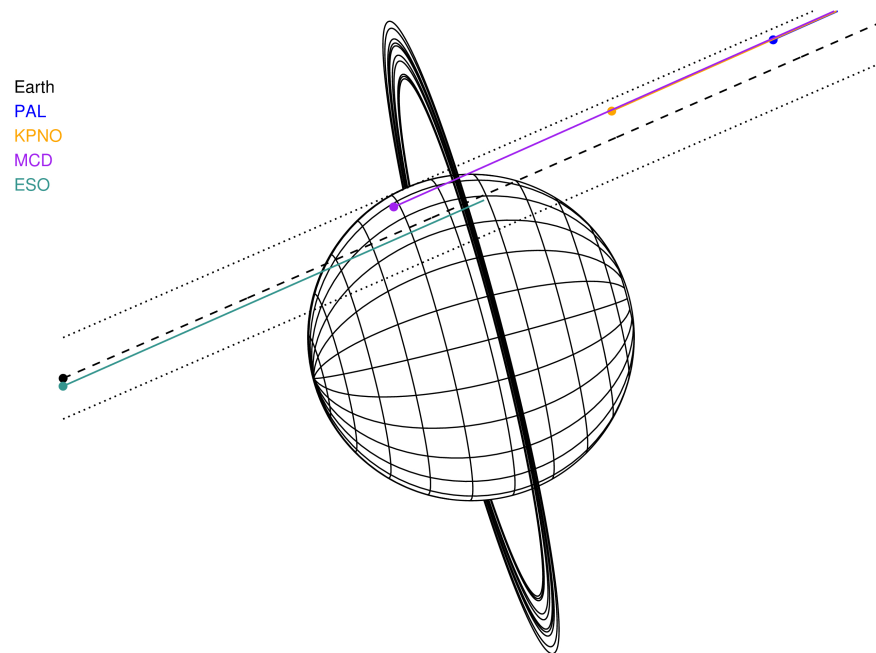
RUWE (>1.4 is poor) : 1.01
 K magnitude : 14.225
 G magnitude : 15.646
 RP magnitude : 15.176
 BP magnitude : 15.941
 DUPflag : 0
 Distance (au) : 18.651
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : 18.27
 Sun-Target sep (deg) : 67.48
 Sun-Moon sep (deg) : 113.13
 B (ring opening deg) : 5.74
 PA of pole (deg) : 104.58

#	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



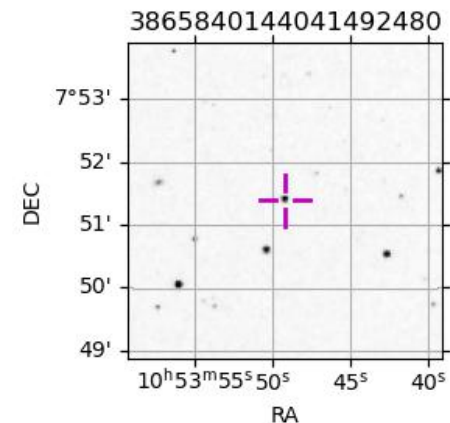
2049-06-26T02:24:55.9600 ex: 10 53 49.3027 8: +07 51 22.895 C/A 1.463° PA 203.53 deg v_sky +18.27 km/s D 18.65 AU
 Credit: Styled after SORA/Lucky Star

Uranus 2049-06-26T02:24:55 K14.22 G15.65 PgtX

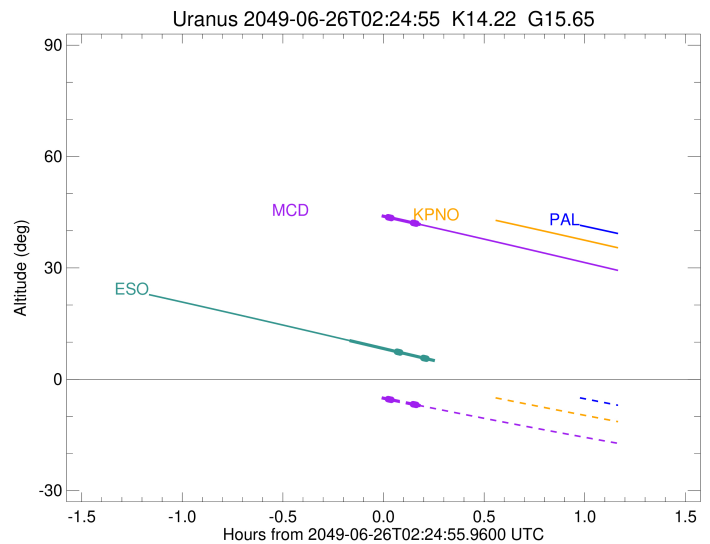
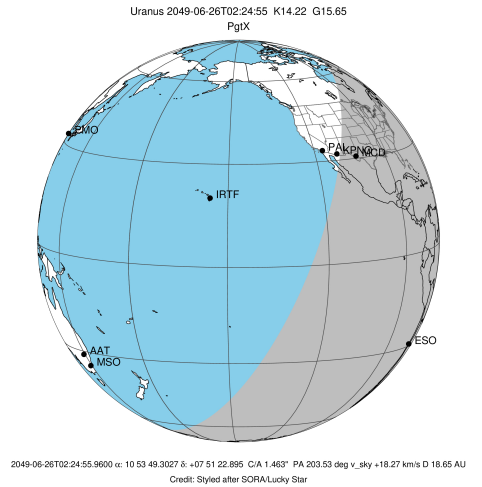


Observable events with sun below -5 deg and altitude above 5 deg unblocked by planet

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					PnnRnn
KPNO	Kitt Peak Natl Obs	32.0	248.4					PnnRnn
MCD	McDonald Obs. 2.7m	30.7	256.0		+		JUN 26 02:35 - JUN 26 02:35	PneRnn
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		+		JUN 26 02:14 - JUN 26 02:14	PinRnn
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

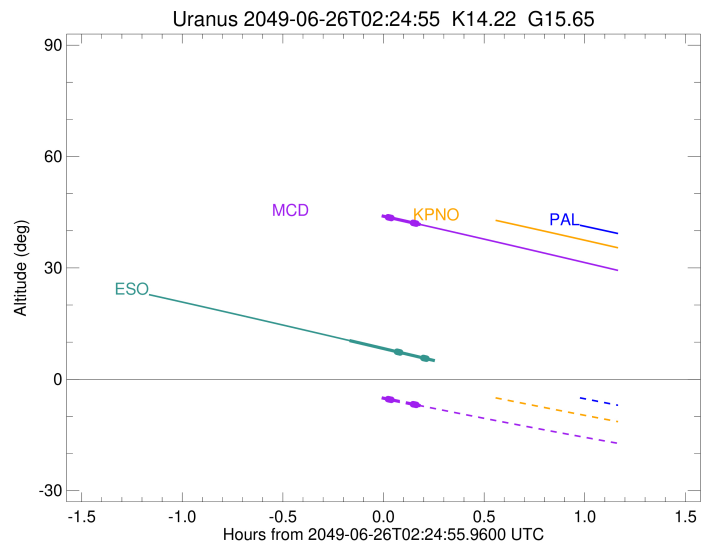
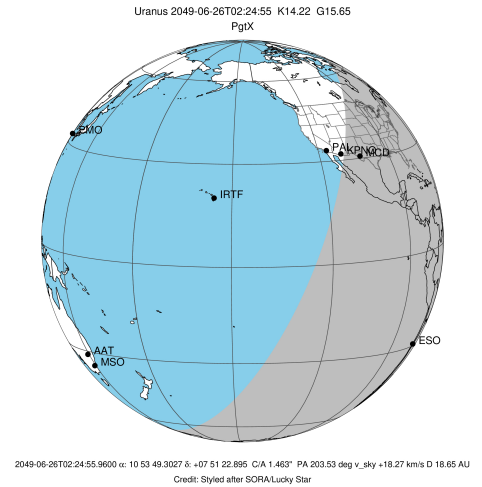


target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2049-06-26T02:26:55.390
 Event type : PgtX
 : Uranus occs: geocentric, topocentric
 : No ring occs
 Observer code : MCD
 Location : McDonald Obs. 2.7m
 Latitude (deg) : 30.67158
 E. Longitude (deg) : 255.97844
 Altitude (km) : 2.075
 Gaia source ID : 3865840144041492480
 2Mass ID (if available) : 10534931+0751234
 ICRS Star Coord at Epoch: 10h 53m 49.30268s +07:51:22.89461s
 RUWE (>1.4 is poor) : 1.01
 K magnitude : 14.225
 G magnitude : 15.646
 RP magnitude : 15.176
 BP magnitude : 15.941
 DUPflag : 0
 Distance (au) : 18.651
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : 18.27
 Sun-Target sep (deg) : 67.48
 Sun-Moon sep (deg) : 113.58
 B (ring opening deg) : 5.74
 PA of pole (deg) : 104.58
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 1.745
 C/A sky separation (km) : 23602.9
 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	2049-06-26T02:26:17.567	b	43.64	-5.35	51002.58	-157.71		
lambda	I	2049-06-26T02:26:23.796	b	43.62	-5.37	50026.72	-156.21		
delta	I	2049-06-26T02:26:34.906	b	43.59	-5.41	48300.36	-154.52		
gamma	I	2049-06-26T02:26:39.245	b	43.57	-5.42	47631.29	-153.81		
eta	I	2049-06-26T02:26:42.210	b	43.56	-5.43	47176.12	-153.30		
beta	I	2049-06-26T02:26:51.979	b	43.53	-5.46	45652.90	-151.40		
alpha	I	2049-06-26T02:26:57.816	b	43.51	-5.48	44704.70	-149.81		
4	I	2049-06-26T02:27:11.419	b	43.46	-5.52	42615.94	-146.86		
5	I	2049-06-26T02:27:13.656	b	43.46	-5.53	42157.05	-145.09		
6	I	2049-06-26T02:27:18.679	b	43.44	-5.54	41807.93	-146.97		
Uranus	I	2049-06-26T02:17:51.175		45.34	-3.79x	25557.38		31.81	33.00
Uranus	E	2049-06-26T02:35:59.399		41.67	-7.13	25558.71		-13.07	-13.67
6	E	2049-06-26T02:33:40.672	b	42.14	-6.71	41818.38	147.04		
5	E	2049-06-26T02:33:48.042	b	42.12	-6.73	42280.33	145.16		
4	E	2049-06-26T02:33:47.842	b	42.12	-6.73	42547.80	146.93		
alpha	E	2049-06-26T02:34:02.941	b	42.07	-6.78	44696.36	149.88		
beta	E	2049-06-26T02:34:09.188	b	42.05	-6.79	45681.21	151.48		
eta	E	2049-06-26T02:34:18.878	b	42.01	-6.82	47176.12	153.38		
gamma	E	2049-06-26T02:34:21.801	b	42.00	-6.83	47625.25	153.89		
delta	E	2049-06-26T02:34:26.178	b	41.99	-6.85	48300.34	154.60		
lambda	E	2049-06-26T02:34:37.283	b	41.95	-6.88	50026.72	156.30		
epsilon	E	2049-06-26T02:34:46.949	b	41.92	-6.91	51543.85	157.80		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2049-06-26T02:30:34.810
 Event type : PgtX
 : Uranus occs: geocentric, topocentric
 : No ring occs
 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 : 3865840144041492480
 2Mass ID (if available) : 10534931+0751234
 ICRS Star Coord at Epoch: 10h 53m 49.30268s +07:51:22.89461s
 RUWE (>1.4 is poor) : 1.01
 K magnitude : 14.225
 G magnitude : 15.646
 RP magnitude : 15.176
 BP magnitude : 15.941
 DUPflag : 0
 Distance (au) : 18.651
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : 18.27
 Sun-Target sep (deg) : 67.48
 Sun-Moon sep (deg) : 112.89
 B (ring opening deg) : 5.74
 PA of pole (deg) : 104.58
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 1.394
 C/A sky separation (km) : 18854.7
 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	2049-06-26T02:28:58.681	b	7.41	-58.90	50964.39	-167.36		
lambda	I	2049-06-26T02:29:04.308	b	7.39	-58.92	50026.71	-166.36		
delta	I	2049-06-26T02:29:14.717	b	7.36	-58.96	48300.35	-165.33		
gamma	I	2049-06-26T02:29:18.770	b	7.34	-58.97	47631.08	-164.90		
eta	I	2049-06-26T02:29:21.532	b	7.33	-58.98	47176.12	-164.59		
beta	I	2049-06-26T02:29:30.608	b	7.30	-59.02	45650.78	-163.39		
alpha	I	2049-06-26T02:29:35.933	b	7.28	-59.04	44708.60	-162.28		
4	I	2049-06-26T02:29:48.541	b	7.24	-59.08	42616.53	-160.57		
5	I	2049-06-26T02:29:50.300	b	7.23	-59.09	42155.27	-158.95		
6	I	2049-06-26T02:29:55.485	b	7.21	-59.11	41812.30	-161.36		
Uranus	I	2049-06-26T02:14:46.718		10.43	-55.80	25555.43		51.32	52.59
Uranus	E	2049-06-26T02:46:21.475		3.69x	-62.69	25557.26		-33.08	-34.29
6	E	2049-06-26T02:36:44.964	b	5.75	-60.60	41823.68	161.43		
5	E	2049-06-26T02:36:52.159	b	5.73	-60.62	42288.75	159.02		
4	E	2049-06-26T02:36:51.731	b	5.73	-60.62	42542.91	160.64		
alpha	E	2049-06-26T02:37:05.601	b	5.68	-60.67	44699.68	162.36		
beta	E	2049-06-26T02:37:11.297	b	5.66	-60.69	45680.96	163.47		
eta	E	2049-06-26T02:37:20.273	b	5.63	-60.72	47176.13	164.67		
gamma	E	2049-06-26T02:37:22.994	b	5.62	-60.73	47624.66	164.98		
delta	E	2049-06-26T02:37:27.085	b	5.60	-60.75	48300.35	165.41		
lambda	E	2049-06-26T02:37:37.489	b	5.56	-60.79	50026.71	166.45		
epsilon	E	2049-06-26T02:37:46.508	b	5.53	-60.82	51531.78	167.44		