

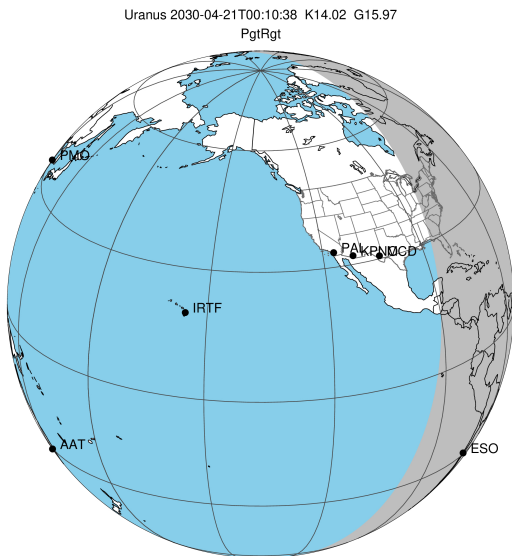
target : Uranus  
 target radius (km) : 25559.00  
 C/A epoch : 2030-04-21T00:10:38.350  
 Event type : PgtRgt  
 : Uranus occs: geocentric, topocentric  
 : Ring occs: geocentric, topocentric  
 Gaia source ID : 3412547234038766208  
 2Mass ID (if available) : 04570940+2242027

Uranus 2030-04-21T00:10:38 K14.02 G15.97 PgtRgt

ICRS Star Coord at Epoch: 04h 57m 09.39982s +22:42:02.59649s

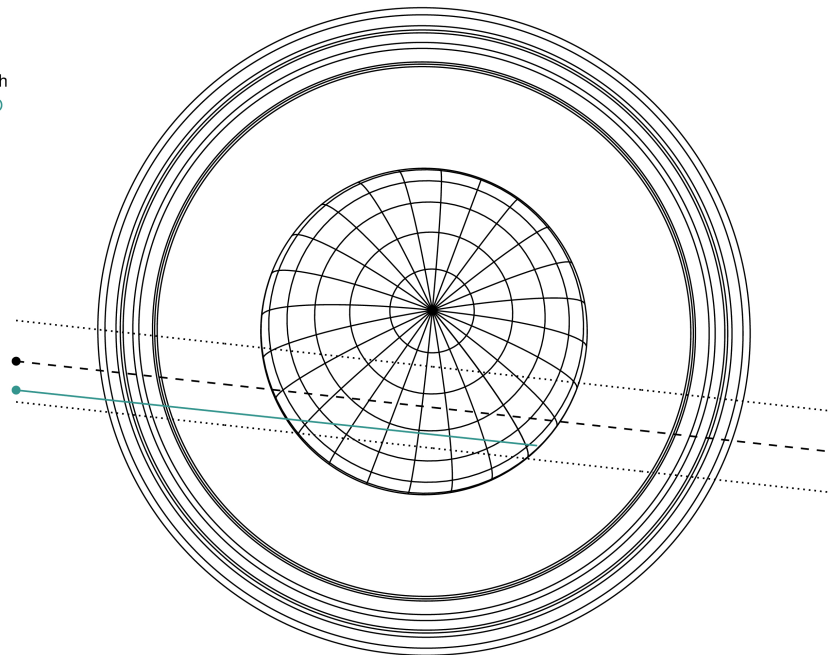
RUWE (>1.4 is poor) : 1.00  
 K magnitude : 14.020  
 G magnitude : 15.975  
 RP magnitude : 15.326  
 BP magnitude : 16.453  
 DUPflag : 0  
 Distance (au) : 19.897  
 f0 (km) : 0.000  
 g0 (km) : 0.000  
 skyplane vel. (km/s) : 27.38  
 Sun-Target sep (deg) : 45.00  
 Sun-Moon sep (deg) : 175.30  
 B (ring opening deg) : 81.95  
 PA of pole (deg) : -21.31

#	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



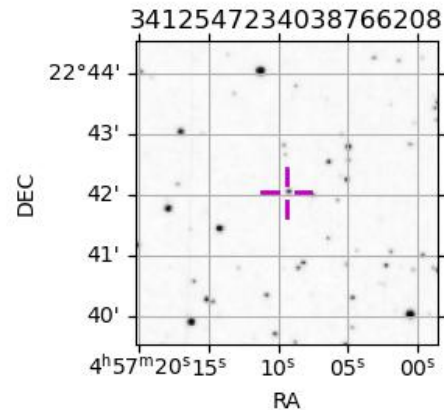
2030-04-21T00:10:38.3500 ex: 04 57 09.3998 s: +22 42 02.596 C/A 0.804° PA 353.66 deg v\_sky +27.38 km/s D 19.90 AU  
 Credit: Styled after SORA/Lucky Star

Earth  
 ESO

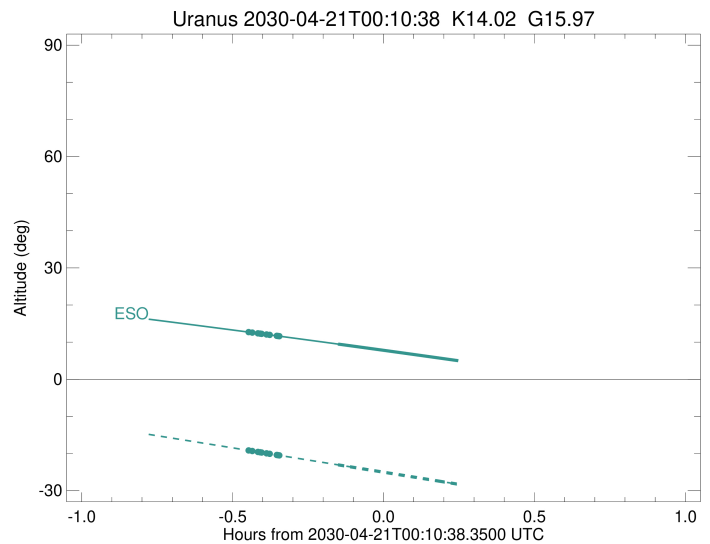
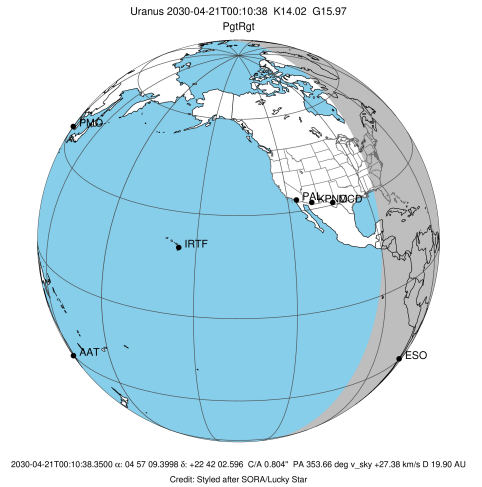


Observable events with sun below -5 deg and altitude above 5 deg unblocked by planet

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					PnnRnn
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	+++++	+		APR 20 23:43 - APR 21 00:01	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 : 2030-04-21T00:13:32.840  
 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 : 3412547234038766208  
 2Mass ID (if available) : 04570940+2242027  
 ICRS Star Coord at Epoch: 04h 57m 09.39982s +22:42:02.59649s  
 RUWE (>1.4 is poor) : 1.00  
 K magnitude : 14.020  
 G magnitude : 15.975  
 RP magnitude : 15.326  
 BP magnitude : 16.453  
 DUPflag : 0  
 Distance (au) : 19.897  
 f0 (km) : 0.000  
 g0 (km) : 0.000  
 skyplane vel. (km/s) : 27.38  
 Sun-Target sep (deg) : 45.00  
 Sun-Moon sep (deg) : 176.07  
 B (ring opening deg) : 81.95  
 PA of pole (deg) : -21.31  
 Pole direction: RA (deg): 257.31100  
 Dec (deg): -15.17500  
 C/A sky separation (") : 1.102  
 C/A sky separation (km) : 15901.9  
 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	2030-04-20T23:43:34.930		12.75	-19.12	51548.99	-25.82		
lambda	I	2030-04-20T23:44:34.011		12.57	-19.33	50026.71	-25.72		
delta	I	2030-04-20T23:45:41.261		12.37	-19.58	48300.35	-25.62		
gamma	I	2030-04-20T23:46:07.632		12.29	-19.67	47625.39	-25.57		
eta	I	2030-04-20T23:46:25.212		12.24	-19.74	47176.12	-25.54		
beta	I	2030-04-20T23:47:23.864		12.07	-19.95	45681.16	-25.43		
alpha	I	2030-04-20T23:48:02.631		11.95	-20.09	44696.47	-25.34		
4	I	2030-04-20T23:49:27.429		11.69	-20.40	42555.75	-25.17		
5	I	2030-04-20T23:49:42.617		11.65	-20.46	42174.90	-25.13		
6	I	2030-04-20T23:49:57.698		11.60	-20.51	41796.30	-25.08		
Uranus	I	2030-04-21T00:01:35.066		9.48	-23.05	25174.87		-6.54	-6.85
Uranus	E	2030-04-21T00:25:43.763		4.96x	-28.33	25465.78		-3.19	-3.34
6	E	2030-04-21T00:37:14.756		2.75x	-30.84	41874.16	25.16		
5	E	2030-04-21T00:37:32.297		2.69x	-30.91	42315.12	25.22		
4	E	2030-04-21T00:37:44.034		2.65x	-30.95	42612.08	25.25		
alpha	E	2030-04-21T00:39:07.105		2.38x	-31.25	44717.54	25.43		
beta	E	2030-04-21T00:39:43.595		2.27x	-31.38	45647.20	25.52		
eta	E	2030-04-21T00:40:43.372		2.07x	-31.60	47176.12	25.64		
gamma	E	2030-04-21T00:41:00.817		2.02x	-31.66	47623.61	25.67		
delta	E	2030-04-21T00:41:27.158		1.93x	-31.76	48300.35	25.71		
lambda	E	2030-04-21T00:42:34.147		1.71x	-32.00	50026.71	25.83		
epsilon	E	2030-04-21T00:43:06.725		1.61x	-32.12	50868.86	25.92		