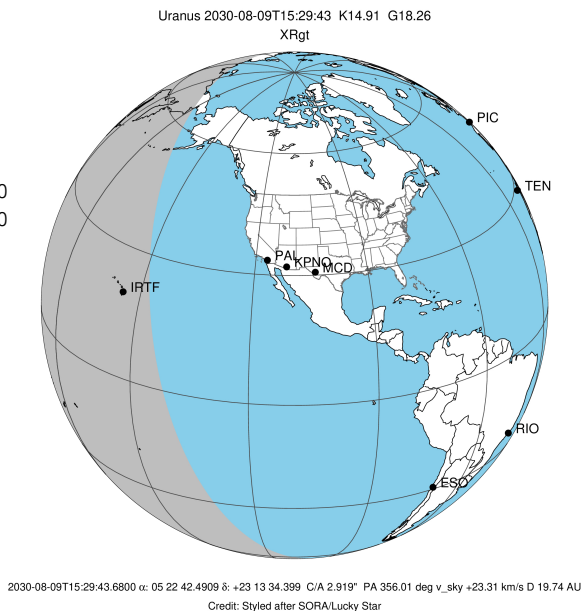


target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2030-08-09T15:29:43.680
 Event type : XRgt
 : No Uranus occs
 : Ring occs: geocentric, topocentric
 Gaia source ID : 3416341472571381248
 2Mass ID (if available) : 05224249+2313343

ICRS Star Coord at Epoch: 05h 22m 42.49088s +23:13:34.39910s

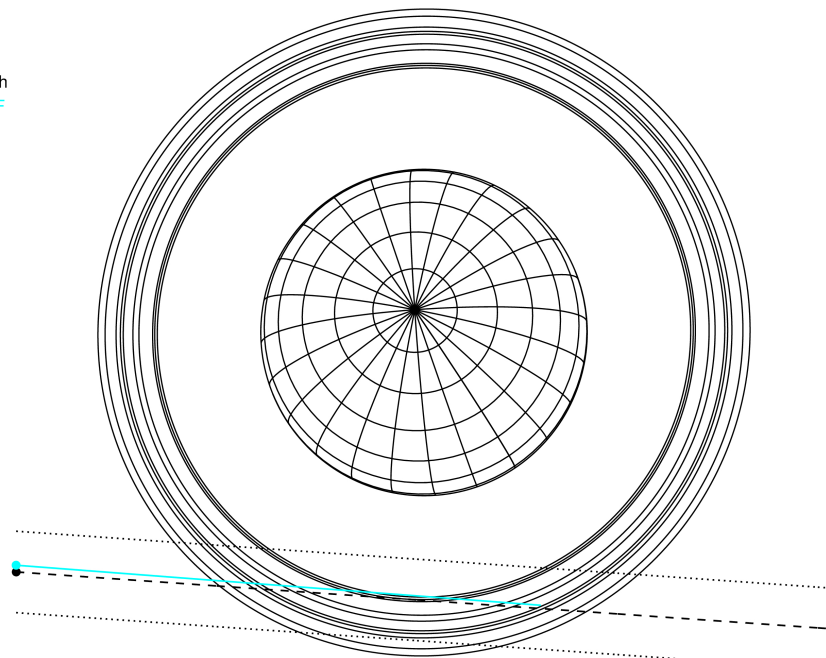
RUWE (>1.4 is poor) : 1.28
 K magnitude : 14.914
 G magnitude : 18.260
 RP magnitude : 17.187
 BP magnitude : 19.230
 DUPflag : 0
 Distance (au) : 19.739
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : 23.31
 Sun-Target sep (deg) : 55.24
 Sun-Moon sep (deg) : 175.44
 B (ring opening deg) : 81.35
 PA of pole (deg) : 22.12

#	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



Uranus 2030-08-09T15:29:43 K14.91 G18.26 XRgt

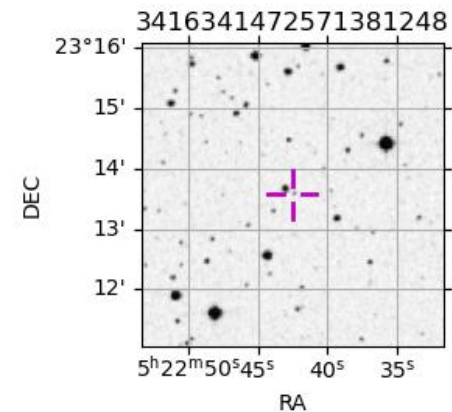
Earth
 IRTF



2030-08-09T15:29:43.6800 ex: 05 22 42.4909 s: +23 13 34.399 C/A 2.919" PA 356.01 deg v_sky +23.31 km/s D 19.74 AU
 Credit: Styled after SORA/Lucky Star

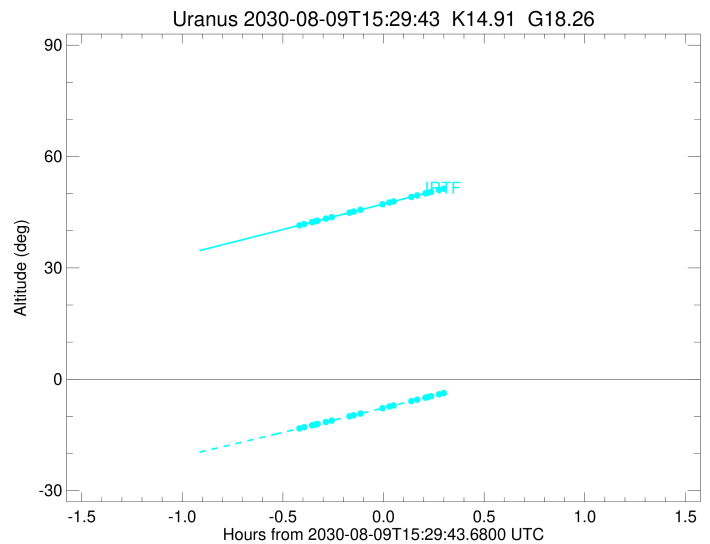
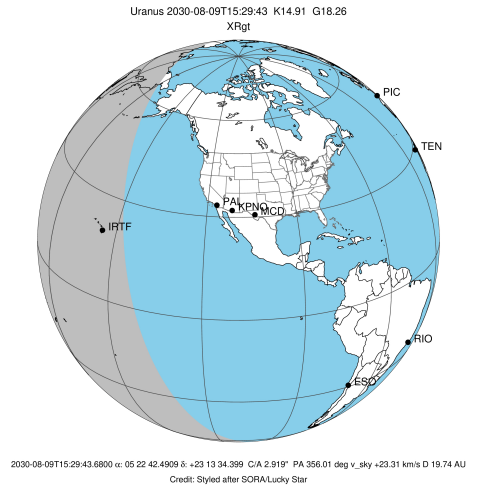
Observable events with sun below -5 deg and altitude above 5 deg unblocked by planet

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	+++++		++++	AUG 09 15:04 - AUG 09 15:39	PnnRie
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					PnnRnn
MSO	Mt. Stromlo Observato	-35.3	149.0					PnnRnn



```

target                : Uranus
target radius (km)    : 25559.00
C/A epoch              : 2030-08-09T15:26:25.950
Event type             : XRgt
: No Uranus occs
: 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        : 3416341472571381248
2Mass ID (if available) : 05224249+2313343
ICRS Star Coord at Epoch: 05h 22m 42.49088s +23:13:34.39910s
RUWE (>1.4 is poor)  : 1.28
K magnitude           : 14.914
G magnitude           : 18.260
RP magnitude          : 17.187
BP magnitude          : 19.230
DUPflag              : 0
Distance (au)         : 19.739
f0 (km)               : 0.000
g0 (km)               : 0.000
skyplane vel. (km/s)  : 23.31
Sun-Target sep (deg)  : 55.24
Sun-Moon sep (deg)    : 176.16
B (ring opening deg)  : 81.35
PA of pole (deg)      : 22.12
Pole direction: RA (deg): 257.31100
Dec (deg): -15.17500
C/A sky separation (") : 2.879
C/A sky separation (km) : 41212.0
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_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	2030-08-09T15:04:58.409		41.54	-13.16	50914.37	-13.44		
lambda	I	2030-08-09T15:06:06.314		41.80	-12.92	50026.71	-12.82		
delta	I	2030-08-09T15:08:26.823		42.33	-12.41	48300.35	-11.73		
gamma	I	2030-08-09T15:09:25.240		42.56	-12.19	47629.39	-11.24		
eta	I	2030-08-09T15:10:06.217		42.71	-12.05	47176.12	-10.88		
beta	I	2030-08-09T15:12:36.713		43.29	-11.50	45641.14	-9.49		
alpha	I	2030-08-09T15:14:17.657		43.67	-11.13	44733.02	-8.49		
4	I	2030-08-09T15:19:30.628		44.87	-9.98	42614.54	-4.97		
5	I	2030-08-09T15:20:37.420		45.12	-9.74	42311.45	-4.19		
6	I	2030-08-09T15:22:50.390		45.63	-9.25	41864.69	-2.54		

No planet occultations

6	E	2030-08-09T15:29:30.509		47.16	-7.78	41871.13	2.54		
5	E	2030-08-09T15:31:42.856		47.67	-7.29	42315.13	4.19		
4	E	2030-08-09T15:32:46.245		47.91	-7.05	42604.89	4.97		
alpha	E	2030-08-09T15:38:03.946		49.13	-5.88	44750.07	8.48		
beta	E	2030-08-09T15:39:43.623		49.51	-5.51	45646.53	9.47		
eta	E	2030-08-09T15:42:13.866		50.09	-4.95x	47176.12	10.86		
gamma	E	2030-08-09T15:42:55.139		50.24	-4.80x	47631.56	11.21		
delta	E	2030-08-09T15:43:53.517		50.47	-4.58x	48300.35	11.70		
lambda	E	2030-08-09T15:46:14.431		51.01	-4.05x	50026.71	12.79		
epsilon	E	2030-08-09T15:47:57.804		51.40	-3.67x	51386.52	13.39		