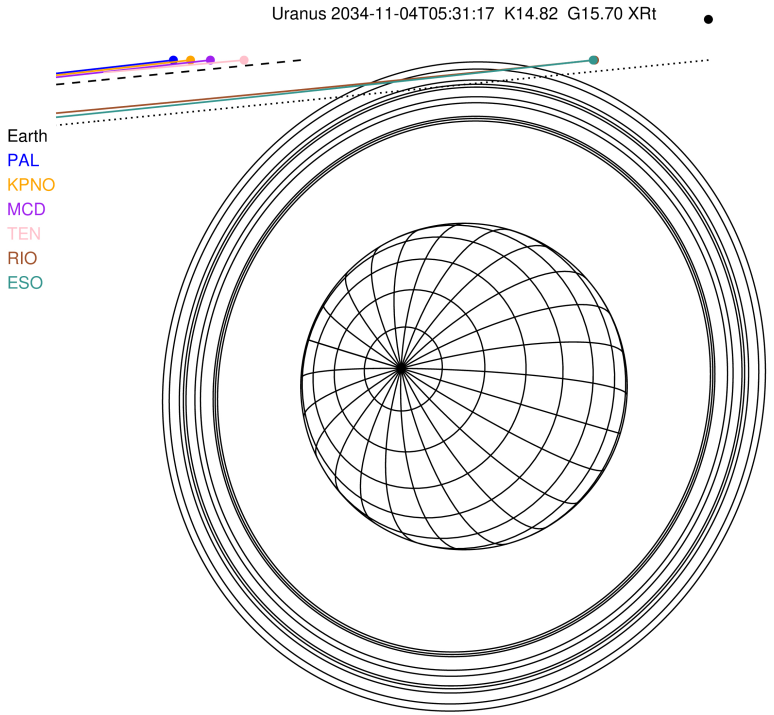
Stellar occultation prediction by rfrench@wellesley.edu Sun Jun 25 01:24:51 2023

target : Uranus
target radius (km) : 25559.00
C/A epoch : 2034-11-04T05:31:17.680
Event type : XRt
: No Uranus occs
: Ring occs: topocentric, not geoecetric
Gaia source ID : 3379727121189185920
2Mass ID (if available) : 06431843+2322582

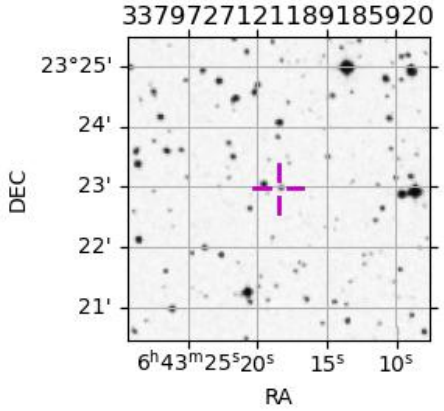
ICRS Star Coord at Epoch: 06h 43m 18.43302s +23:22:58.27872s
RUWE (>1.4 is poor) : 1.07
K magnitude : 14.818
G magnitude : 15.703
RP magnitude : 15.387
BP magnitude : 15.891
DUPflag : 0
Distance (au) : 18.362
f0 (km) : 0.000
g0 (km) : 0.000
skyplane vel. (km/s) : -9.12
Sun-Target sep (deg) : 121.46
Sun-Moon sep (deg) : 44.76
B (ring opening deg) : 66.37
PA of pole (deg) : 73.93

#	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



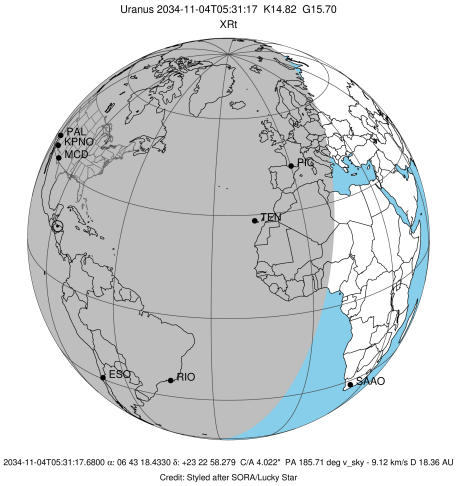
Observable events with sun below -5 deg and altitude above 5 deg unblocked by planet

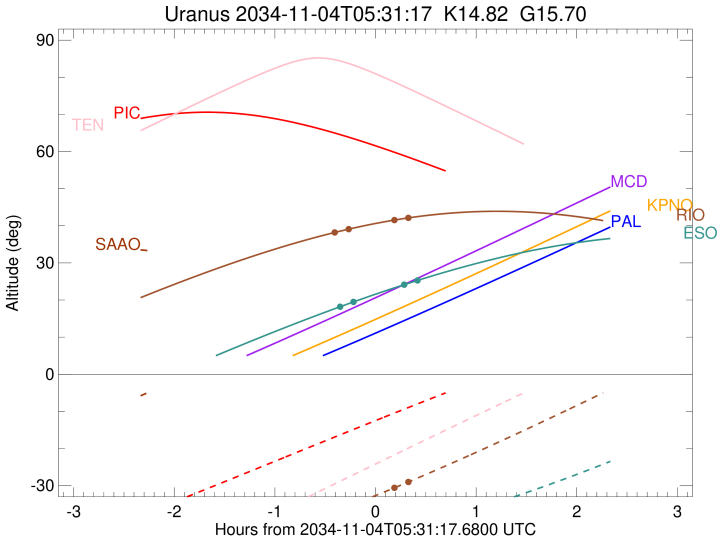
Obs	Location	lat	Elon	Rings I	Planet	Rings E	Observed Events Interval	OEcode
PIC	Pic du Midi	42.9	0.1					PnnRnn
PAL	Palomar Mt (200")	33.4	243.1					PnnRnn
PMO	Purple Mtn Obs. Nanki	32.1	118.8					PnnRnn
KPNO	Kitt Peak Natl Obs	32.0	248.4					PnnRnn
MCD	McDonald Obs. 2.7m	30.7	256.0					PnnRnn
TEN	Teide 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	++		++	NOV 04 05:08 - NOV 04 05:48	PnnRie
ESO	European Southern Obs	-29.3	289.3	++		++	NOV 04 05:11 - NOV 04 05:53	PnnRie
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



Uranus_2034-11-04T05_31_17.6800_RIO.txt
Occultation predictions computed by rfrench@wellesley.edu Sun Jun 11 11:33:34 2023

target : Uranus
target radius (km) : 25559.00
C/A epoch : 2034-11-04T05:33:45.630
Event type : XRt
: No Uranus occs
: Ring occs: topocentric, not geoecetric
Observer code : RIO
Location : Rio de Janeiro
Latitude (deg) : -22.89506
E. Longitude (deg) : 316.77708
Altitude (km) : 0.033
Gaia source ID : 3379727121189185920
2Mass ID (if available) : 06431843+2322582
ICRS Star Coord at Epoch: 06h 43m 18.43302s +23:22:58.27872s
RUWE (>1.4 is poor) : 1.07
K magnitude : 14.818
G magnitude : 15.703
RP magnitude : 15.387
BP magnitude : 15.891
DUPflag : 0
Distance (au) : 18.362
f0 (km) : 0.000
g0 (km) : 0.000
skyplane vel. (km/s) : -9.12
Sun-Target sep (deg) : 121.46
Sun-Moon sep (deg) : 45.33
B (ring opening deg) : 66.37
PA of pole (deg) : 73.93
Pole direction: RA (deg): 257.31100
Dec (deg): -15.17500
C/A sky separation (") : 3.661
C/A sky separation (km) : 48758.1
NAIF SPICE kernels : RAJobs_U111+rgf15.spk
URKALLv1.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





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

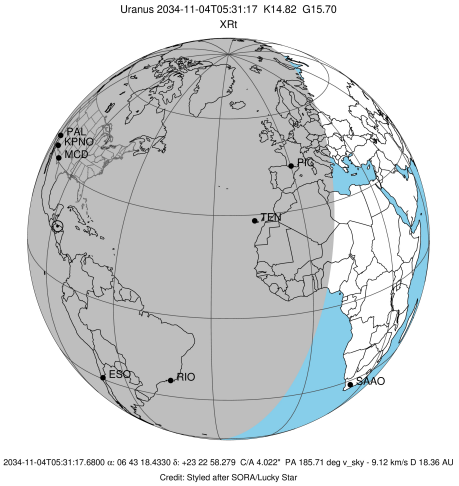
Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2034-11-04T05:08:38.871		38.38	-36.69	50898.25	-2.48		
lambda	I	2034-11-04T05:15:27.073		39.11	-35.51	50026.71	-1.72		

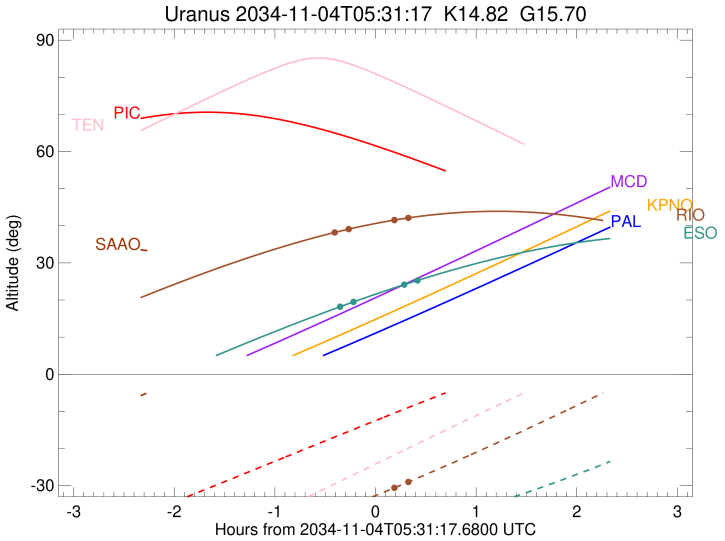
No planet occultations

lambda	E	2034-11-04T05:42:26.354		41.53	-30.62	50026.71	1.73		
epsilon	E	2034-11-04T05:48:25.539		41.96	-29.49	50778.74	2.49		

Uranus_2034-11-04T05_31_17.6800_ESO.txt
Occultation predictions computed by rfrench@wellesley.edu Sun Jun 11 11:35:44 2023

target : Uranus
target radius (km) : 25559.00
C/A epoch : 2034-11-04T05:38:14.900
Event type : XRt
: No Uranus occs
: Ring occs: topocentric, not geoecetric
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 : 3379727121189185920
2Mass ID (if available) : 06431843+2322582
ICRS Star Coord at Epoch: 06h 43m 18.43302s +23:22:58.27872s
RUWE (>1.4 is poor) : 1.07
K magnitude : 14.818
G magnitude : 15.703
RP magnitude : 15.387
BP magnitude : 15.891
DUPflag : 0
Distance (au) : 18.362
f0 (km) : 0.000
g0 (km) : 0.000
skyplane vel. (km/s) : -9.12
Sun-Target sep (deg) : 121.46
Sun-Moon sep (deg) : 45.36
B (ring opening deg) : 66.37
PA of pole (deg) : 73.93
Pole direction: RA (deg): 257.31100
Dec (deg): -15.17500
C/A sky separation (") : 3.649
C/A sky separation (km) : 48593.5
NAIF SPICE kernels : RAJobs_U111+rgf15.spk
URKALLv1.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





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	2034-11-04T05:11:48.945		18.46	-44.19	50899.65	-2.56		
lambda	I	2034-11-04T05:18:18.000		19.51	-43.79	50026.71	-1.86		

No planet occultations

lambda	E	2034-11-04T05:48:17.740	24.12	-41.32	50026.71	1.87		
epsilon	E	2034-11-04T05:53:56.581	24.94	-40.75	50775.74	2.57		