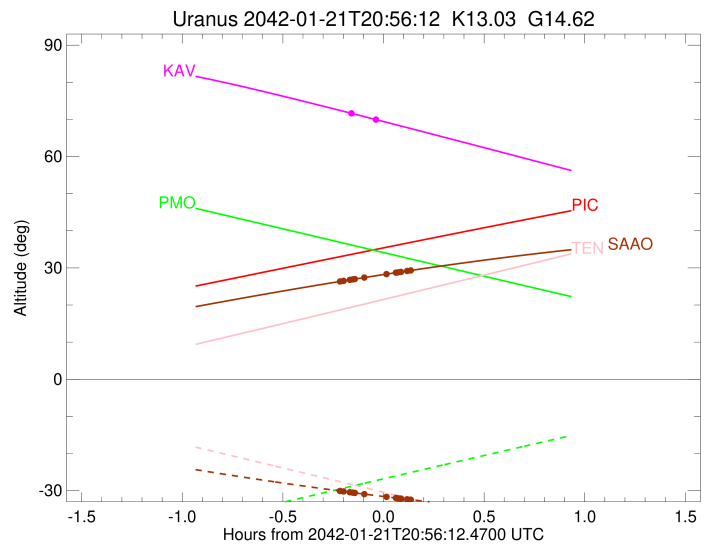
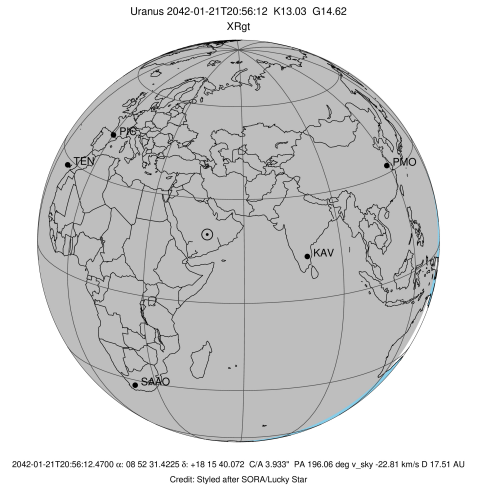



```

target                : Uranus
target radius (km)   : 25559.00
C/A epoch            : 2042-01-21T20:54:20.700
Event type          : XRgt
: No Uranus occs
: Ring occs: geocentric, topocentric
Observer code       : KAV
Location            : Kavalur Observatory
Latitude (deg)      : 12.57556
E. Longitude (deg)  : 78.83167
Altitude (km)       : 0.722
Gaia source ID      : 659975090000701824
2Mass ID (if available) : 08523145+1815404
ICRS Star Coord at Epoch: 08h 52m 31.42248s +18:15:40.07154s
RUWE (>1.4 is poor) : 1.03
K magnitude         : 13.032
G magnitude         : 14.621
RP magnitude        : 14.070
BP magnitude        : 14.926
DUPflag            : 0
Distance (au)       : 17.514
f0 (km)             : 0.000
g0 (km)             : 0.000
skyplane vel. (km/s) : -22.81
Sun-Target sep (deg) : 170.86
Sun-Moon sep (deg)  : 170.50
B (ring opening deg) : 36.65
PA of pole (deg)    : 95.63
Pole direction: RA (deg): 257.31100
Dec (deg): -15.17500
C/A sky separation (") : 3.933
C/A sky separation (km) : 49954.2
NAIF SPICE kernels  : RAJobs_U111+rgf15.spk
URKALLvl1.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
  
```



```

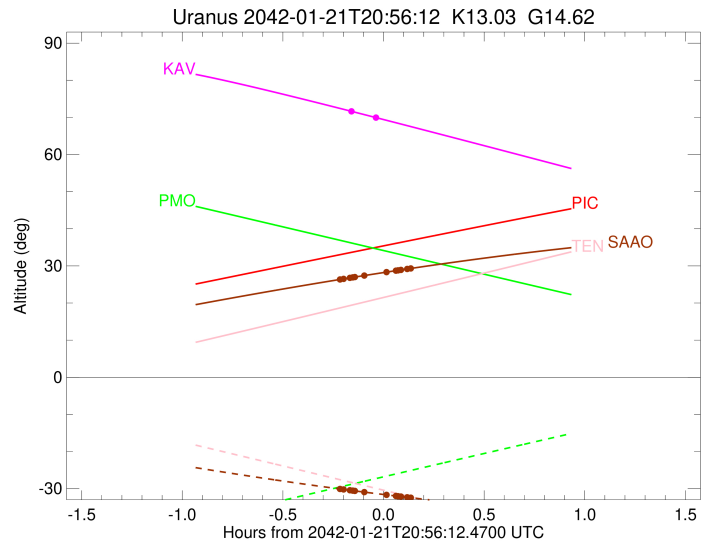
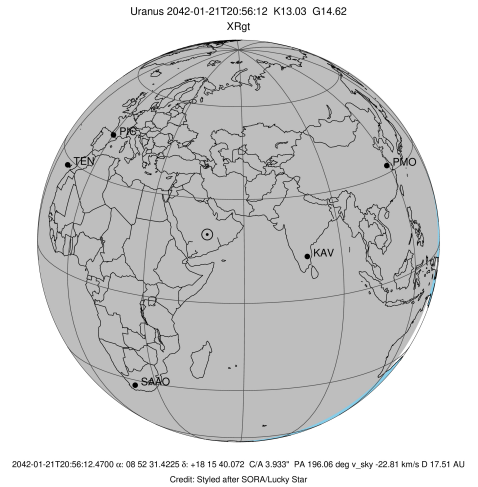
b: ring blocked by planet  x: target alt < 5.0 deg or sun > -5.0 deg
Ring      I/E      UTC      b? alt  alt-sun  radius  r-dot  lat-geo lat-geodetic
-----
epsilon   I  2042-01-21T20:47:38.217  71.41 -62.27  50839.35  -4.49
  
```

No planet occultations

```

epsilon   E  2042-01-21T20:52:47.567  70.22 -61.08  50788.08  4.50
  
```

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2042-01-21T20:57:32.210
 Event type : XRgt
 : No Uranus occs
 : Ring occs: geocentric, topocentric
 Observer code : SAAO
 Location : So. Afr. Astro. Obs. (Sutherland)
 Latitude (deg) : -32.37953
 E. Longitude (deg) : 20.81070
 Altitude (km) : 1.768
 Gaia source ID : 659975090000701824
 2Mass ID (if available) : 08523145+1815404
 ICRS Star Coord at Epoch: 08h 52m 31.42248s +18:15:40.07154s
 RUWE (>1.4 is poor) : 1.03
 K magnitude : 13.032
 G magnitude : 14.621
 RP magnitude : 14.070
 BP magnitude : 14.926
 DUPflag : 0
 Distance (au) : 17.514
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -22.81
 Sun-Target sep (deg) : 170.86
 Sun-Moon sep (deg) : 170.18
 B (ring opening deg) : 36.65
 PA of pole (deg) : 95.63
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 3.507
 C/A sky separation (km) : 44548.0
 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_itrfr93_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	2042-01-21T20:43:26.382		26.38	-30.11	50949.92	-17.69		
lambda	I	2042-01-21T20:44:19.707		26.51	-30.22	50026.71	-16.69		
delta	I	2042-01-21T20:46:12.567		26.78	-30.44	48300.35	-13.85		
gamma	I	2042-01-21T20:47:03.344		26.90	-30.54	47631.50	-12.48		
eta	I	2042-01-21T20:47:41.448		27.00	-30.61	47176.12	-11.41		
beta	I	2042-01-21T20:50:34.346		27.41	-30.95	45642.98	-6.22		

No planet occultations

beta	E	2042-01-21T20:57:00.481		28.31	-31.66	45641.19	6.22		
eta	E	2042-01-21T20:59:53.842		28.71	-31.98	47176.12	11.42		
gamma	E	2042-01-21T21:00:31.789		28.80	-32.04	47629.82	12.49		
delta	E	2042-01-21T21:01:22.667		28.91	-32.13	48300.35	13.86		
lambda	E	2042-01-21T21:03:15.438		29.17	-32.33	50026.71	16.71		
epsilon	E	2042-01-21T21:03:57.237		29.26	-32.40	50745.47	17.71		