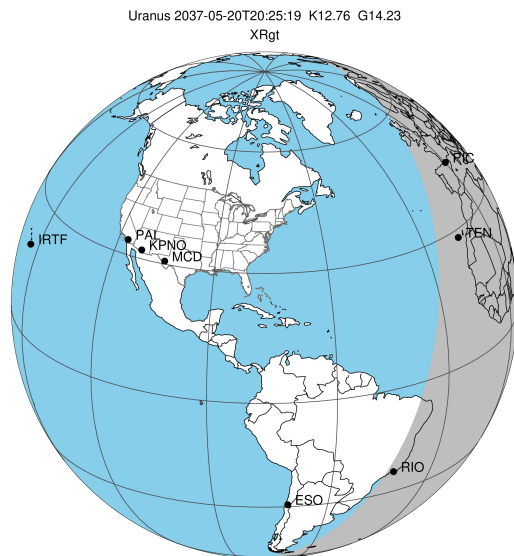


target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2037-05-20T20:25:19.910
 Event type : XRgt
 : No Uranus occs
 : Ring occs: geocentric, topocentric
 Gaia source ID : 3367528005317548544
 2Mass ID (if available) : 07113241+2250562

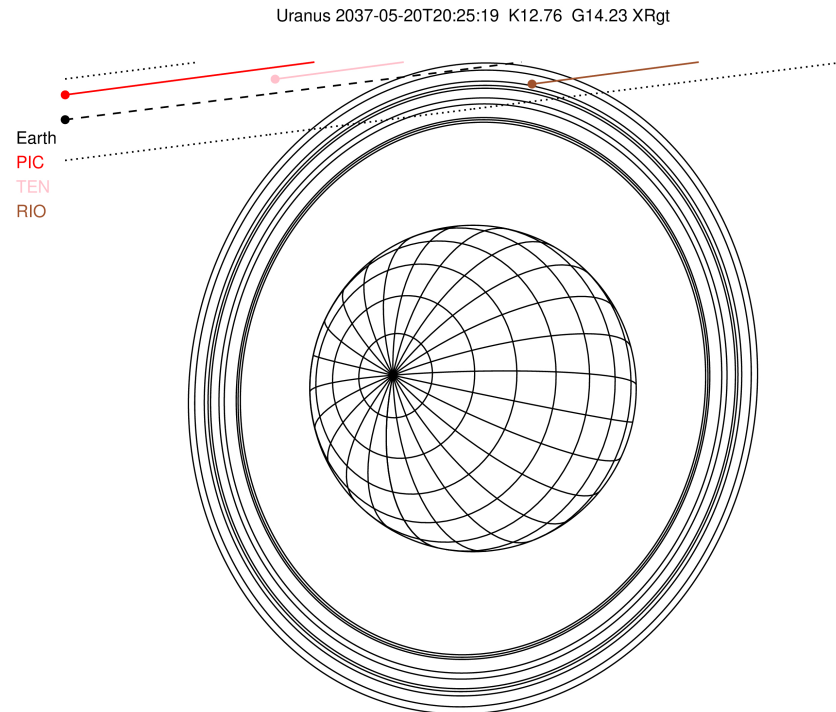
ICRS Star Coord at Epoch: 07h 11m 32.44491s +22:50:55.97346s

RUWE (>1.4 is poor) : 1.01
 K magnitude : 12.757
 G magnitude : 14.232
 RP magnitude : 13.723
 BP magnitude : 14.575
 DUPflag : 0
 Distance (au) : 19.420
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : 26.87
 Sun-Target sep (deg) : 46.80
 Sun-Moon sep (deg) : 23.22
 B (ring opening deg) : 60.16
 PA of pole (deg) : 80.58

#	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

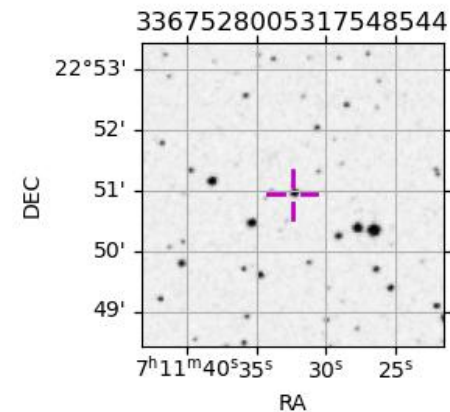


2037-05-20T20:25:19.9100 ex: 07 11 32.4449 s: +22 50 55.973 C/A 3.541" PA 187.19 deg v_sky +26.87 km/s D 19.42 AU
 Credit: Styled after SORA/Lucky Star

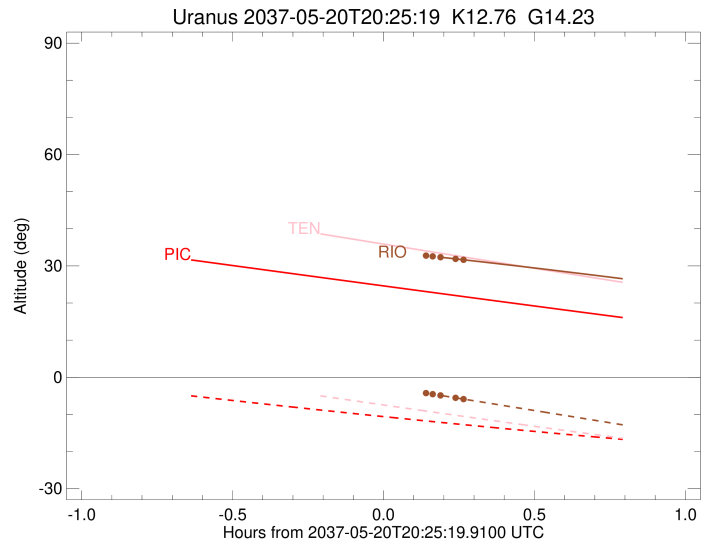
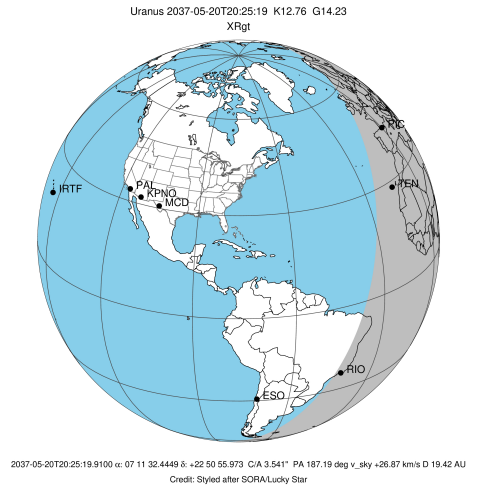


Observable events with sun below -5 deg and altitude above 5 deg unblocked by planet

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					PnnRnn
KAV	Kavalur Observatory	12.6	78.8					PnnRnn
RIO	Rio de Janeiro	-22.9	316.8			++	MAY 20 20:39 - MAY 20 20:41	PnnRne
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 : 2037-05-20T20:27:32.490
 Event type : XRgt
 : No Uranus occs
 : Ring occs: geocentric, topocentric
 Observer code : RIO
 Location : Rio de Janeiro
 Latitude (deg) : -22.89506
 E. Longitude (deg) : 316.77708
 Altitude (km) : 0.033
 Gaia source ID : 3367528005317548544
 2Mass ID (if available) : 07113241+2250562
 ICRS Star Coord at Epoch: 07h 11m 32.44491s +22:50:55.97346s
 RUWE (>1.4 is poor) : 1.01
 K magnitude : 12.757
 G magnitude : 14.232
 RP magnitude : 13.723
 BP magnitude : 14.575
 DUPflag : 0
 Distance (au) : 19.420
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : 26.87
 Sun-Target sep (deg) : 46.80
 Sun-Moon sep (deg) : 22.92
 B (ring opening deg) : 60.16
 PA of pole (deg) : 80.58
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 3.270
 C/A sky separation (km) : 46063.1
 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	2037-05-20T20:17:25.686		35.09	-0.74x	51531.14	-12.88		
lambda	I	2037-05-20T20:19:30.887		34.81	-1.19x	50026.71	-11.05		
delta	I	2037-05-20T20:22:31.343		34.39	-1.83x	48300.35	-8.03		
gamma	I	2037-05-20T20:24:05.837		34.17	-2.17x	47621.61	-6.33		
eta	I	2037-05-20T20:25:25.599		33.98	-2.46x	47176.12	-4.84		

No planet occultations

eta	E	2037-05-20T20:33:43.779		32.78	-4.25x	47176.12	4.84		
gamma	E	2037-05-20T20:35:03.730		32.58	-4.54x	47623.05	6.33		
delta	E	2037-05-20T20:36:37.933		32.34	-4.88x	48300.35	8.03		
lambda	E	2037-05-20T20:39:38.228		31.89	-5.53	50026.71	11.06		
epsilon	E	2037-05-20T20:41:24.205		31.62	-5.92	51286.36	12.89		