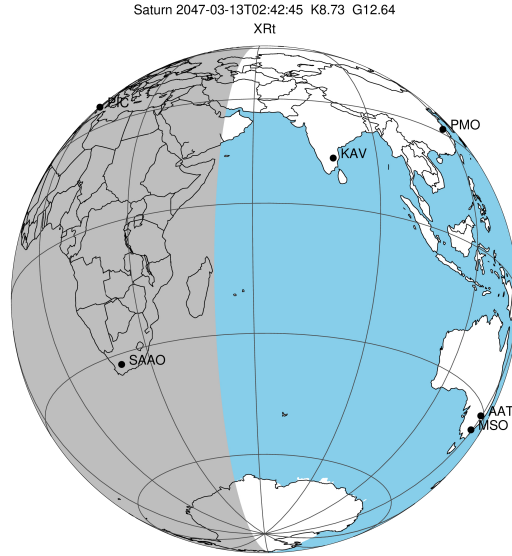


target : Saturn
 target radius (km) : 60268.00
 C/A epoch : 2047-03-13T02:42:45.960
 Event type : XRT
 : No Saturn occs
 : Ring occs: topocentric, not geocentric
 Gaia source ID : 4090697173935886976
 2Mass ID (if available) : 18133716-2219373

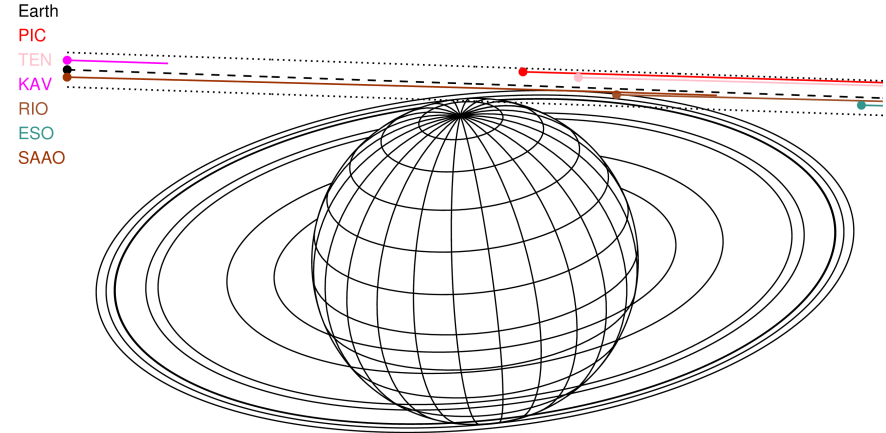
Saturn 2047-03-13T02:42:45 K8.73 G12.64 XRT

ICRS Star Coord at Epoch: 18h 13m 37.16530s -22:19:37.48032s

RUWE (>1.4 is poor) : 0.88
 K magnitude : 8.728
 G magnitude : 12.645
 RP magnitude : 11.578
 BP magnitude : 13.821
 DUPflag : 0
 Distance (au) : 10.193
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : 15.45
 Sun-Target sep (deg) : 78.63
 Sun-Moon sep (deg) : 86.71
 B (ring opening deg) : 26.15
 PA of pole (deg) : 5.77



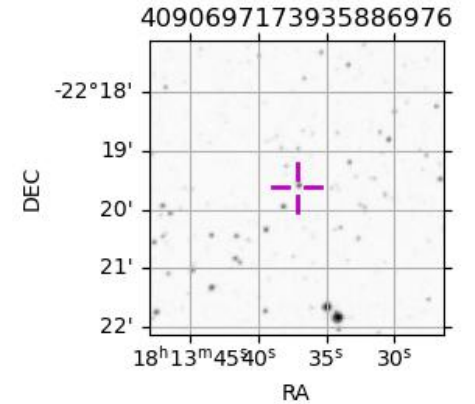
2047-03-13T02:42:45.9600 ra: 18 13 37.1653 s: -22 19 37.480 C/A 8.866° PA 178.01 deg v_sky +15.45 km/s D 10.19 AU
 Credit: Styled after SORA/Lucky Star



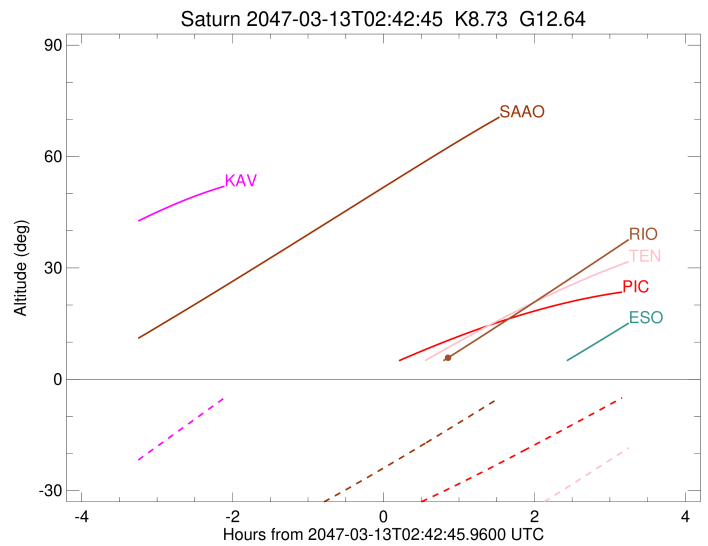
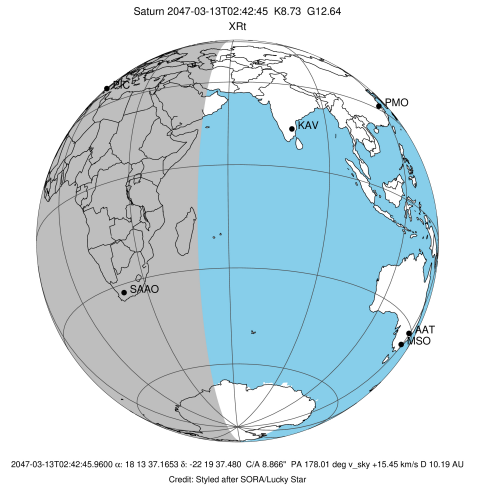
#	a(km)	ring
1	74490.6	C (IER)
2	91984.7	B (IER)
3	117571.2	B (OER)
4	122050.4	A (IER)
5	133423.3	Encke (IEG)
6	133744.9	Encke (OEG)
7	136774.4	A (OER)
8	140461.0	F ring

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	OEncode
PIC	Pic du Midi	42.9	0.1					PnnRnn
PAL	Palomar Mt (20	33.4	243.1					PnnRnn
PMO	Purple Mtn Obs	32.1	118.8					PnnRnn
KPNO	Kitt Peak Natl	32.0	248.4					PnnRnn
MCD	McDonald Obs.	30.7	256.0					PnnRnn
TEN	Teide Obs./Ten	28.3	343.5					PnnRnn
IRTF	Mauna Kea/IRTF	19.8	204.5					PnnRnn
KAV	Kavalur Observ	12.6	78.8					PnnRnn
RIO	Rio de Janeiro	-22.9	316.8					PnnRne
ESO	European South	-29.3	289.3					PnnRnn
AAT	Siding Spring	-31.3	149.1					PnnRnn
SAAO	So. Afr. Astro	-32.4	20.8					PnnRnn
MSO	Mt. Stromlo Ob	-35.3	149.0					PnnRnn



target : Saturn
 target radius (km) : 60268.00
 C/A epoch : 2047-03-13T02:35:54.390
 Event type : XRt
 : No Saturn occs
 : Ring occs: topocentric, not geocentric
 Observer code : RIO
 Location : Rio de Janeiro
 Latitude (deg) : -22.89506
 E. Longitude (deg) : 316.77708
 Altitude (km) : 0.033
 Gaia source ID : 4090697173935886976
 2Mass ID (if available) : 18133716-2219373
 ICRS Star Coord at Epoch: 18h 13m 37.16530s -22:19:37.48032s
 RUWE (>1.4 is poor) : 0.88
 K magnitude : 8.728
 G magnitude : 12.645
 RP magnitude : 11.578
 BP magnitude : 13.821
 DUPflag : 0
 Distance (au) : 10.193
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : 15.45
 Sun-Target sep (deg) : 78.63
 Sun-Moon sep (deg) : 86.57
 B (ring opening deg) : 26.15
 PA of pole (deg) : 5.77
 Pole direction: RA (deg): 40.60000
 Dec (deg): 83.50000
 C/A sky separation (") : 8.497
 C/A sky separation (km) : 62816.0
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk
 URKALLvl.spk
 Saturn_ring_plane.tf
 sat378.bsp
 sat286.bsp
 vgr1.sat286.bsp
 vgr2.sat286.bsp
 HST1081HSPephemUTC.bsp
 pfb10000r.bsp
 cassini.bsp
 earthstns_itrf93_040916.bsp
 earth_200101_990628_predict.bpc
 earth_720101_070426.bpc
 cpck28Mar2008.tpc
 pck.sat440.tpc
 IAU_SATURN_for_RINGFIT.tpc
 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
F ring	I	2047-03-13T02:42:16.057	-5.13x	-63.79	140461.00	-2.88			
No planet occultations									
F ring	E	2047-03-13T03:34:42.626	5.93	-63.08	140461.00	2.86			