

target : Saturn  
 target radius (km) : 60268.00  
 C/A epoch : 2030-01-30T12:41:05.920  
 Event type : XRT  
 : No Saturn occs  
 : Ring occs: topocentric, not geocentric  
 Gaia source ID : 30911738622828032  
 2Mass ID (if available) : 03034922+1501562

ICRS Star Coord at Epoch: 03h 03m 49.22503s +15:01:56.29920s

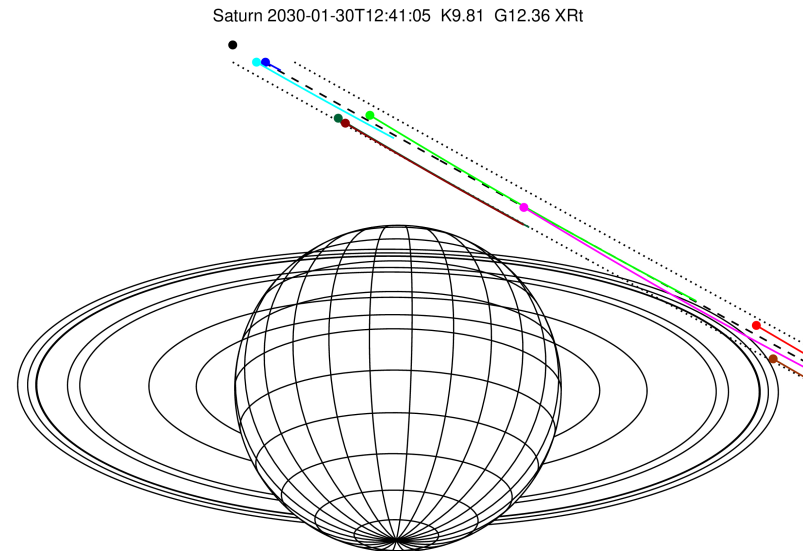
RUWE (>1.4 is poor) : 1.01  
 K magnitude : 9.810  
 G magnitude : 12.364  
 RP magnitude : 11.580  
 BP magnitude : 13.028  
 DUPflag : 0  
 Distance (au) : 8.936  
 f0 (km) : 0.000  
 g0 (km) : 0.000  
 skyplane vel. (km/s) : 5.92  
 Sun-Target sep (deg) : 97.53  
 Sun-Moon sep (deg) : 138.02  
 B (ring opening deg) : -21.50  
 PA of pole (deg) : -0.65

#	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



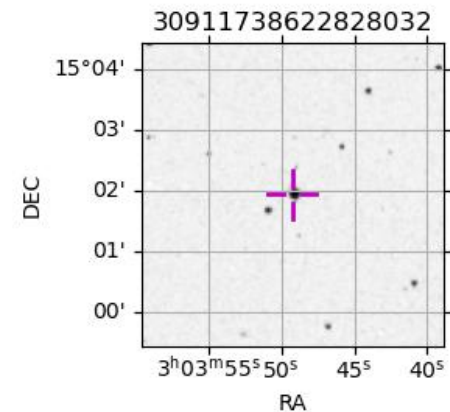
2030-01-30T12:41:05.9200 a: 03 03 49.22503 s: +15 01 56.299 C/A \*\*\*\*\* PA 151.03 deg v\_sky + 5.92 km/s D 08.94 AU  
 Credit: Styled after SORA/Lucky Star

Earth  
 PIC  
 PAL  
 PMO  
 IRTF  
 KAV  
 AAT  
 SAAO  
 MSO

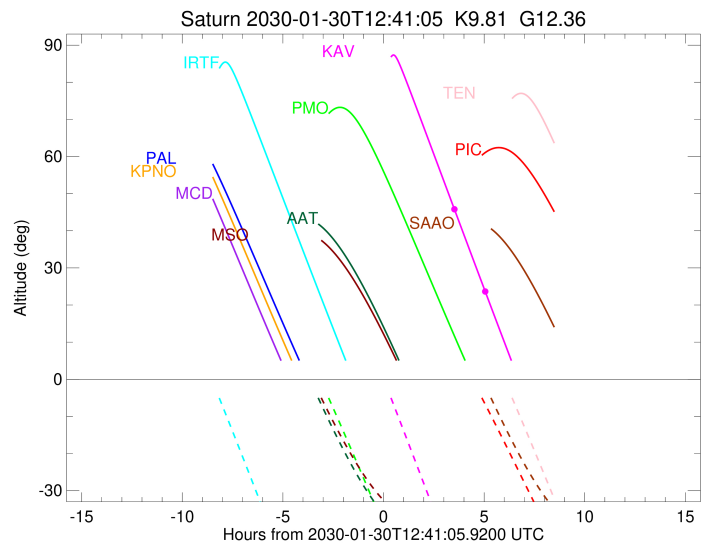
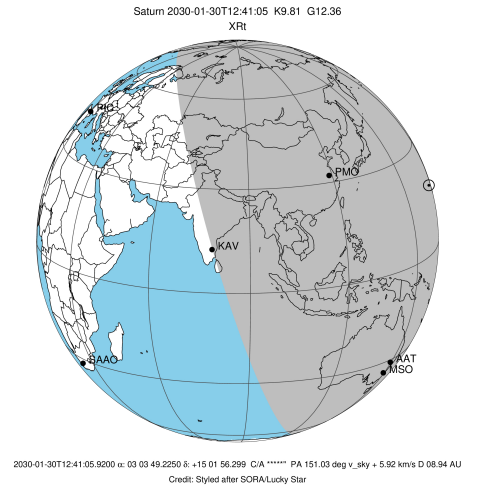


Observable events with sun below -5 deg and altitude above 5 deg unblocked by planet

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	+		+	JAN 30 16:11 - JAN 30 17:44	PnnRie
RIO	Rio de Janeiro	-22.9	316.8					PnnRnn
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 : 2030-01-30T12:48:37.460  
 Event type : XRt  
 : No Saturn occs  
 : Ring occs: topocentric, not geocentric  
 Observer code : KAV  
 Location : Kavalur Observatory  
 Latitude (deg) : 12.57556  
 E. Longitude (deg) : 78.83167  
 Altitude (km) : 0.722  
 Gaia source ID : 30911738622828032  
 2Mass ID (if available) : 03034922+1501562  
 ICRS Star Coord at Epoch: 03h 03m 49.22503s +15:01:56.29920s  
 RUWE (>1.4 is poor) : 1.01  
 K magnitude : 9.810  
 G magnitude : 12.364  
 RP magnitude : 11.580  
 BP magnitude : 13.028  
 DUPflag : 0  
 Distance (au) : 8.936  
 f0 (km) : 0.000  
 g0 (km) : 0.000  
 skyplane vel. (km/s) : 5.92  
 Sun-Target sep (deg) : 97.53  
 Sun-Moon sep (deg) : 138.77  
 B (ring opening deg) : -21.50  
 PA of pole (deg) : -0.65  
 Pole direction: RA (deg): 40.60000  
 Dec (deg): 83.50000  
 C/A sky separation (") : 12.541  
 C/A sky separation (km) : 81280.9  
 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	2030-01-30T16:11:34.233		46.01	-49.59	140461.00	-1.70		
No planet occultations									
F ring	E	2030-01-30T17:44:34.793		23.60	-71.60	140461.00	1.71		