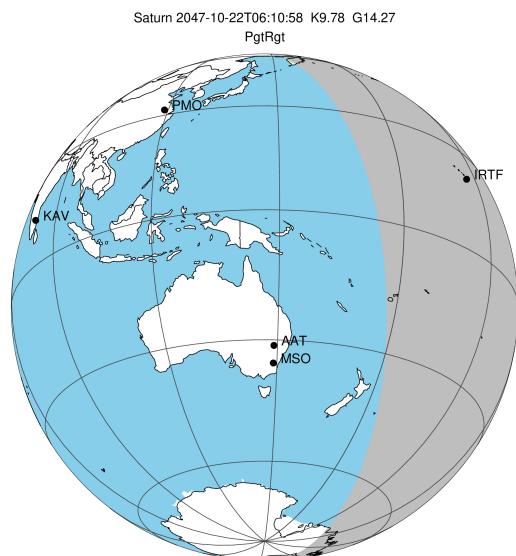


target : Saturn
 target radius (km) : 60268.00
 C/A epoch : 2047-10-22T06:10:58.090
 Event type : PgtRgt
 : Saturn occs: geocentric, topocentric
 : Ring occs: geocentric, topocentric
 Gaia source ID : 4070175343530903296
 2Mass ID (if available) : 17570189-2239058

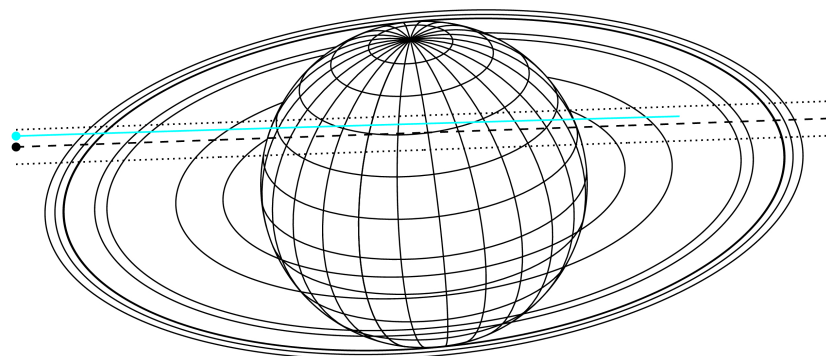
Saturn 2047-10-22T06:10:58 K9.78 G14.27 PgtRgt

ICRS Star Coord at Epoch: 17h 57m 01.87649s -22:39:06.25454s

RUWE (>1.4 is poor) : 0.92
 K magnitude : 9.782
 G magnitude : 14.274
 RP magnitude : 13.107
 BP magnitude : 15.745
 DUPflag : 0
 Distance (au) : 10.487
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : 23.95
 Sun-Target sep (deg) : 61.21
 Sun-Moon sep (deg) : 17.58
 B (ring opening deg) : 26.85
 PA of pole (deg) : 5.47



Earth
 IRTF

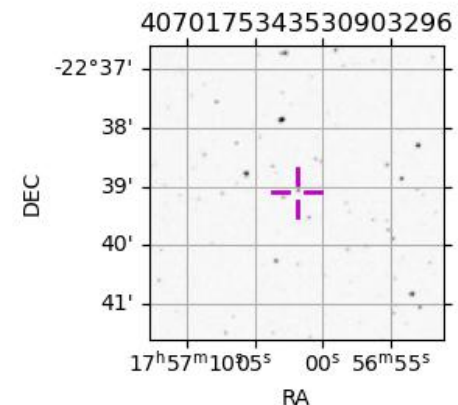


2047-10-22T06:10:58.0900 ra: 17 57 01.8765 s: -22 39 06.255 C/A 2.516° PA 182.01 deg v_sky +23.95 km/s D 10.49 AU
 Credit: Styled after SORA/Lucky Star

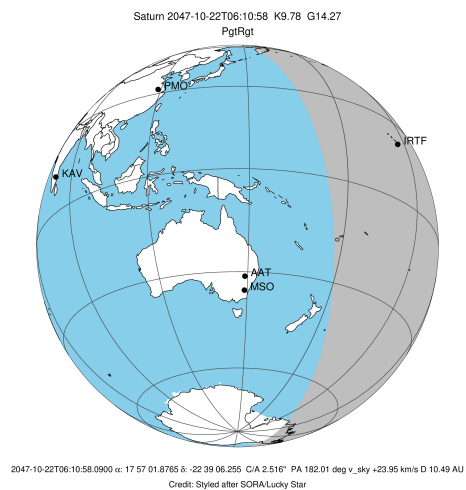
#	a(km)	ring
1	74490.6	C (IER)
2	91984.7	B (IER)
3	117571.2	B (OER)
4	122050.4	A (IER)
5	133423.3	Encke (IEG)
6	133744.9	Encke (OEG)
7	136774.4	A (OER)
8	140461.0	F ring

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

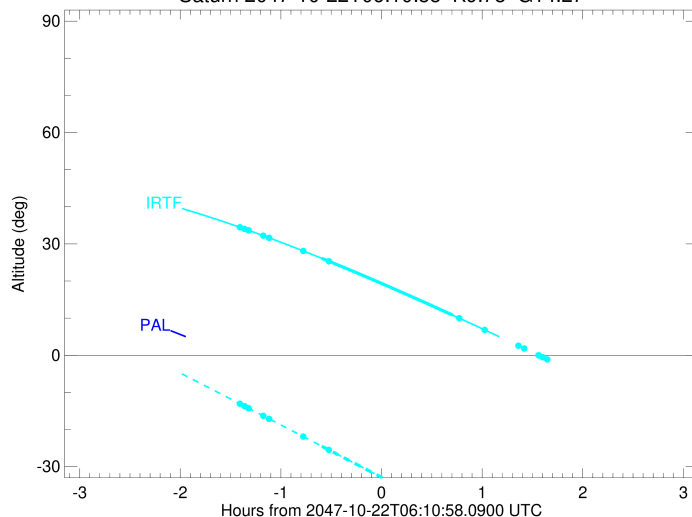
Obs	Location	lat	Elon	Rings I	Planet	Rings E	Observed Events Interval	OEcode
PIC	Pic du Midi	42.9	0.1					PnnRnn
PAL	Palomar Mt (20	33.4	243.1					PnnRnn
PMO	Purple Mtn Obs	32.1	118.8					PnnRnn
KPNO	Kitt Peak Natl	32.0	248.4					PnnRnn
MCD	McDonald Obs.	30.7	256.0					PnnRnn
TEN	Teide Obs./Ten	28.3	343.5					PnnRnn
IRTF	Mauna Kea/IRTF	19.8	204.5	+ + + + + +	+ +	+ +	OCT 22 04:46 - OCT 22 07:12	PieRie
KAV	Kavalur Observ	12.6	78.8					PnnRnn
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 : 2047-10-22T06:14:34.050
 Event type : PgtRgt
 : Saturn occs: geocentric, topocentric
 : Ring occs: geocentric, topocentric
 Observer code : IRTF
 Location : Mauna Kea/IRTF
 Latitude (deg) : 19.82622
 E. Longitude (deg) : 204.52800
 Altitude (km) : 4.168
 Gaia source ID : 4070175343530903296
 2Mass ID (if available) : 17570189-2239058
 ICRS Star Coord at Epoch: 17h 57m 01.87649s -22:39:06.25454s
 RUWE (>1.4 is poor) : 0.92
 K magnitude : 9.782
 G magnitude : 14.274
 RP magnitude : 13.107
 BP magnitude : 15.745
 DUPflag : 0
 Distance (au) : 10.487
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : 23.95
 Sun-Target sep (deg) : 61.21
 Sun-Moon sep (deg) : 18.52
 B (ring opening deg) : 26.85
 PA of pole (deg) : 5.47
 Pole direction: RA (deg): 40.60000
 Dec (deg): 83.50000
 C/A sky separation (") : 2.954
 C/A sky separation (km) : 22467.5
 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_itr93_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



Saturn 2047-10-22T06:10:58 K9.78 G14.27



Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
F ring	I	2047-10-22T04:46:33.536		34.48	-13.06	140461.00	-22.22		
A (OER)	I	2047-10-22T04:49:19.770		34.03	-13.71	136774.40	-22.14		
Encke (OEG)	I	2047-10-22T04:51:36.853		33.67	-14.24	133744.89	-22.06		
Encke (IEG)	I	2047-10-22T04:51:51.431		33.63	-14.30	133423.31	-22.05		
A (IER)	I	2047-10-22T05:00:30.812		32.21	-16.32	122050.38	-21.72		
B (OER)	I	2047-10-22T05:03:57.753		31.63	-17.13	117571.16	-21.56		
B (IER)	I	2047-10-22T05:24:21.375		28.10	-21.91	91984.69	-20.07		
C (IER)	I	2047-10-22T05:39:39.165	b	25.32	-25.51	74490.58	-17.81		
Saturn	I	2047-10-22T05:35:22.266		26.11	-24.50	60045.54		22.78	27.21
Saturn	E	2047-10-22T06:53:43.126		10.75	-42.94	60152.95		16.14	19.55
C (IER)	E	2047-10-22T06:57:21.851		10.00	-43.80	74490.58	17.95		
B (IER)	E	2047-10-22T07:12:31.418		6.83	-47.36	91984.69	20.27		
B (OER)	E	2047-10-22T07:32:40.856		2.56x	-52.07	117571.16	21.85		
A (IER)	E	2047-10-22T07:36:05.001		1.83x	-52.87	122050.38	22.03		
Encke (IEG)	E	2047-10-22T07:44:36.852		0.00x	-54.85	133423.31	22.40		
Encke (OEG)	E	2047-10-22T07:44:51.208		-0.05x	-54.91	133744.89	22.40		
A (OER)	E	2047-10-22T07:47:06.176		-0.53x	-55.43	136774.40	22.49		
F ring	E	2047-10-22T07:49:49.778		-1.12x	-56.07	140461.00	22.58		