

target : Saturn
 target radius (km) : 60268.00
 C/A epoch : 2046-02-06T22:18:25.470
 Event type : PgtRgt
 : Saturn occs: geocentric, topocentric
 : Ring occs: geocentric, topocentric
 Gaia source ID : 4115005005207294464
 2Mass ID (if available) : 17181326-2137503

Saturn 2046-02-06T22:18:25 K8.45 G12.71 PgtRgt

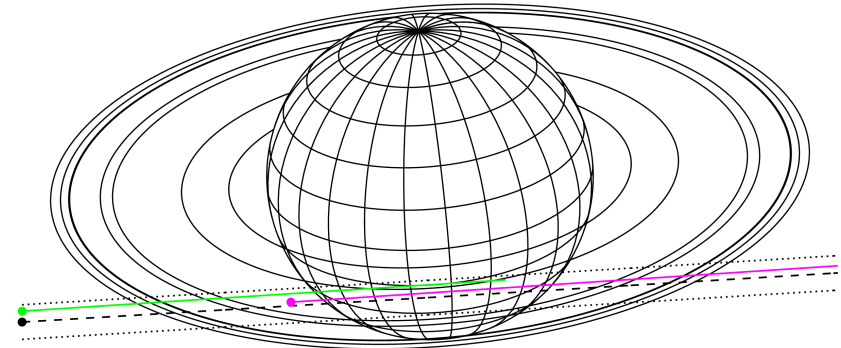
ICRS Star Coord at Epoch: 17h 18m 13.25860s -21:37:50.58156s

RUWE (>1.4 is poor) : 1.03
 K magnitude : 8.446
 G magnitude : 12.709
 RP magnitude : 11.589
 BP magnitude : 14.027
 DUPflag : 0
 Distance (au) : 10.523
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : 25.66
 Sun-Target sep (deg) : 57.36
 Sun-Moon sep (deg) : 67.79
 B (ring opening deg) : 26.62
 PA of pole (deg) : 4.57



2046-02-06T22:18:25.4700 α: 17 18 13.2586 δ: -21 37 50.582 C/A 5.843° PA 3.45 deg v_sky +25.66 km/s D 10.52 AU
 Credit: Styled after SORA/Lucky Star

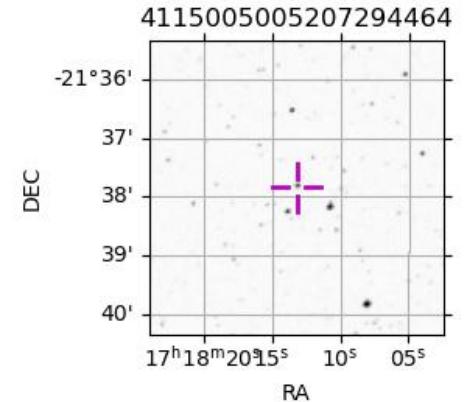
Earth
 PMO
 KAV



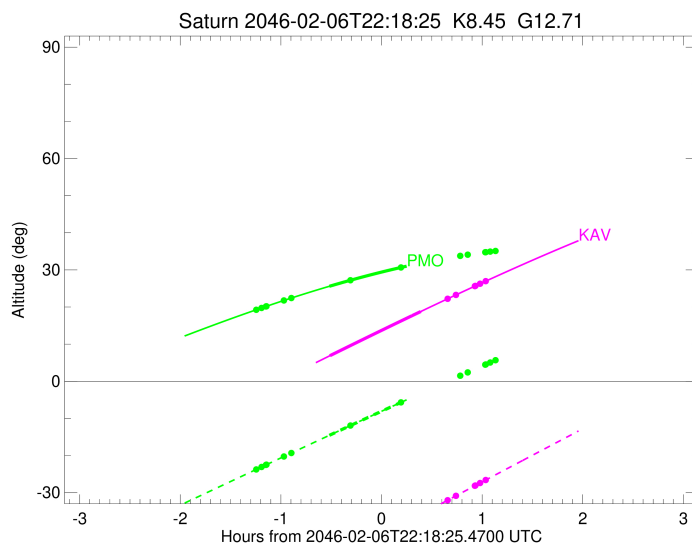
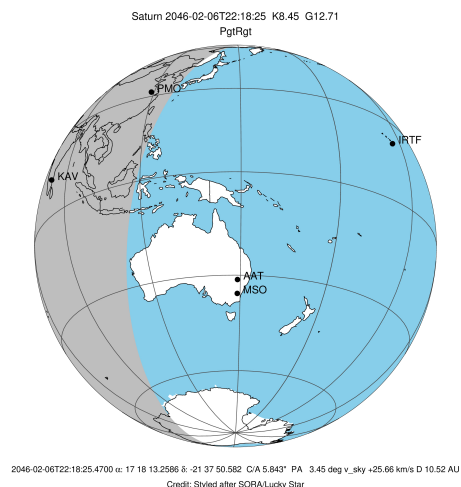
#	a(km)	ring
1	74490.6	C (IER)
2	91984.7	B (IER)
3	117571.2	B (OER)
4	122050.4	A (IER)
5	133423.3	Encke (IEG)
6	133744.9	Encke (OEG)
7	136774.4	A (OER)
8	140461.0	F ring

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	+ + + + +	+		FEB 06 21:03 - FEB 06 21:47	PinRin
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		+ +	+ + + + +	FEB 06 21:47 - FEB 06 23:20	PieRne
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



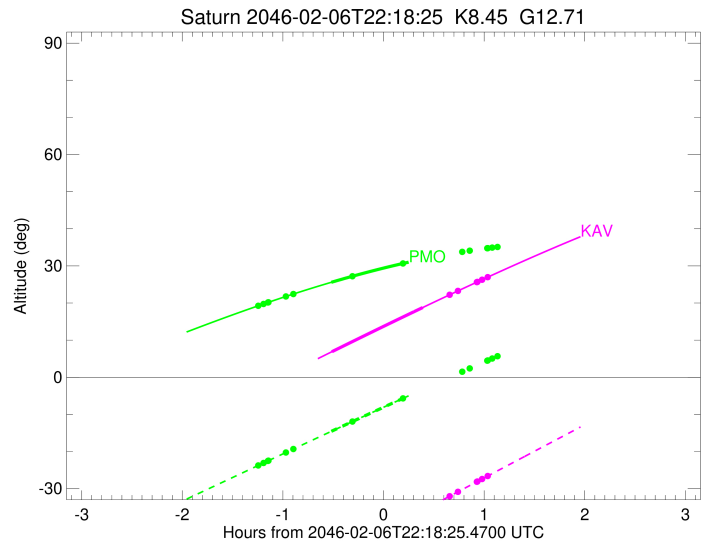
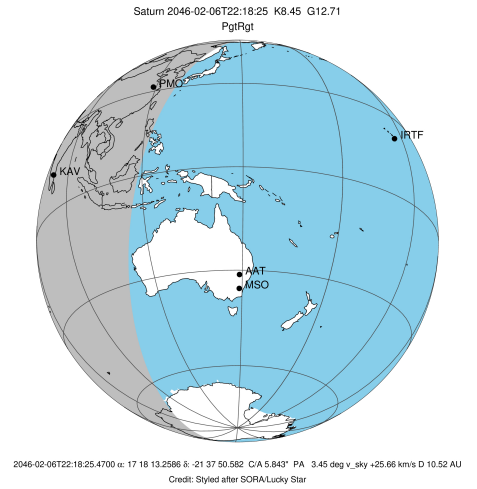
target : Saturn
 target radius (km) : 60268.00
 C/A epoch : 2046-02-06T22:16:35.220
 Event type : PgtRgt
 : Saturn occs: geocentric, topocentric
 : Ring occs: geocentric, topocentric
 Observer code : PMO
 Location : Purple Mtn Obs. Nanking
 Latitude (deg) : 32.06667
 E. Longitude (deg) : 118.82089
 Altitude (km) : 0.364
 Gaia source ID : 4115005005207294464
 2Mass ID (if available) : 17181326-2137503
 ICRS Star Coord at Epoch: 17h 18m 13.25860s -21:37:50.58156s
 RUWE (>1.4 is poor) : 1.03
 K magnitude : 8.446
 G magnitude : 12.709
 RP magnitude : 11.589
 BP magnitude : 14.027
 DUPflag : 0
 Distance (au) : 10.523
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : 25.66
 Sun-Target sep (deg) : 57.36
 Sun-Moon sep (deg) : 68.35
 B (ring opening deg) : 26.62
 PA of pole (deg) : 4.57
 Pole direction: RA (deg): 40.60000
 Dec (deg): 83.50000
 C/A sky separation (") : 5.227
 C/A sky separation (km) : 39892.7
 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	2046-02-06T21:03:39.939		19.24	-23.77	140461.00	-19.69		
A (OER)	I	2046-02-06T21:06:48.935		19.73	-23.10	136774.40	-19.32		
Encke (OEG)	I	2046-02-06T21:09:27.091		20.14	-22.54	133744.89	-18.99		
Encke (IEG)	I	2046-02-06T21:09:44.043		20.18	-22.48	133423.31	-18.95		
A (IER)	I	2046-02-06T21:20:08.792		21.76	-20.28	122050.38	-17.39		
B (OER)	I	2046-02-06T21:24:32.280		22.40	-19.36	117571.16	-16.60		
B (IER)	I	2046-02-06T21:59:55.360	b	27.21	-11.93	91984.69	-6.26		
Saturn	I	2046-02-06T21:47:18.978		25.59	-14.56	59771.30		-35.92	-41.45
Saturn	E	2046-02-06T22:45:51.972		32.19	-2.45x	59735.58		-37.42	-43.00
B (IER)	E	2046-02-06T22:29:53.533	b	30.64	-5.72	91984.69	6.24		
B (OER)	E	2046-02-06T23:05:24.230		33.78	1.50x	117571.16	16.52		
A (IER)	E	2046-02-06T23:09:48.968		34.10	2.38x	122050.38	17.30		
Encke (IEG)	E	2046-02-06T23:20:17.034		34.76	4.46x	133423.31	18.84		
Encke (OEG)	E	2046-02-06T23:20:34.084		34.78	4.52x	133744.89	18.88		
A (OER)	E	2046-02-06T23:23:13.165		34.93	5.05x	136774.40	19.21		
F ring	E	2046-02-06T23:26:23.311		35.10	5.67x	140461.00	19.57		

target : Saturn
 target radius (km) : 60268.00
 C/A epoch : 2046-02-06T22:14:43.510
 Event type : PgtRgt
 : Saturn occs: geocentric, topocentric
 : 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 : 4115005005207294464
 2Mass ID (if available) : 17181326-2137503
 ICRS Star Coord at Epoch: 17h 18m 13.25860s -21:37:50.58156s
 RUWE (>1.4 is poor) : 1.03
 K magnitude : 8.446
 G magnitude : 12.709
 RP magnitude : 11.589
 BP magnitude : 14.027
 DUPflag : 0
 Distance (au) : 10.523
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : 25.66
 Sun-Target sep (deg) : 57.36
 Sun-Moon sep (deg) : 68.29
 B (ring opening deg) : 26.62
 PA of pole (deg) : 4.57
 Pole direction: RA (deg): 40.60000
 Dec (deg): 83.50000
 C/A sky separation (") : 5.618
 C/A sky separation (km) : 42872.8
 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



Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
F ring	I	2046-02-06T21:06:20.452	-2.43x	-58.90	140461.00	-18.79			
A (OER)	I	2046-02-06T21:09:39.029	-1.68x	-58.10	136774.40	-18.33			
Encke (OEG)	I	2046-02-06T21:12:26.128	-1.05x	-57.43	133744.89	-17.92			
Encke (IEG)	I	2046-02-06T21:12:44.095	-0.98x	-57.36	133423.31	-17.88			
A (IER)	I	2046-02-06T21:23:55.823	1.56x	-54.66	122050.38	-15.90			
B (OER)	I	2046-02-06T21:28:46.783	2.65x	-53.49	117571.16	-14.87			
Saturn	I	2046-02-06T21:47:37.885		6.88	-48.95	59688.23		-39.38	-44.99
Saturn	E	2046-02-06T22:41:51.234		18.79	-35.90	59659.05		-40.58	-46.19
B (OER)	E	2046-02-06T22:57:54.060		22.22	-32.04	117571.16	14.76		
A (IER)	E	2046-02-06T23:02:47.265		23.26	-30.87	122050.38	15.77		
Encke (IEG)	E	2046-02-06T23:14:04.973		25.62	-28.16	133423.31	17.70		
Encke (OEG)	E	2046-02-06T23:14:23.116		25.69	-28.09	133744.89	17.75		
A (OER)	E	2046-02-06T23:17:11.887		26.27	-27.41	136774.40	18.15		
F ring	E	2046-02-06T23:20:32.541		26.96	-26.61	140461.00	18.59		