

target : Saturn
 target radius (km) : 60268.00
 C/A epoch : 2046-06-09T14:58:41.660
 Event type : PRgt
 : Saturn occs: not geocentric or topocentric
 : Ring occs: geocentric, topocentric
 Gaia source ID : 4115807618662910464
 2Mass ID (if available) : 17141358-2127239

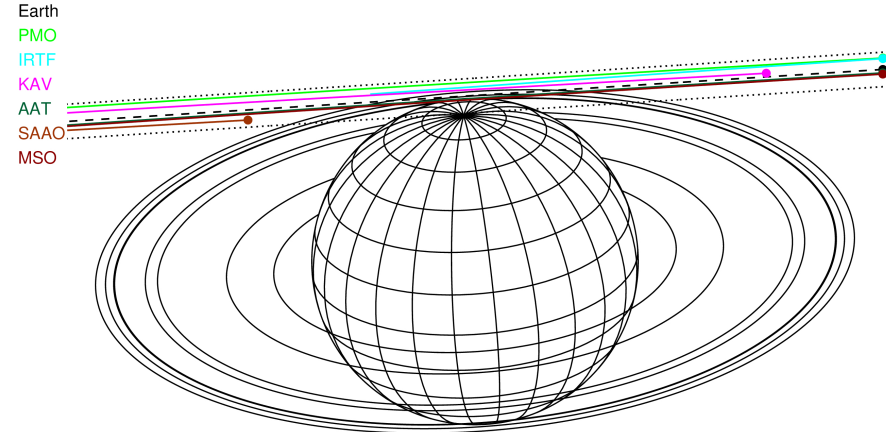
Saturn 2046-06-09T14:58:41 K9.82 G13.54 PRgt

ICRS Star Coord at Epoch: 17h 14m 13.57945s -21:27:24.39083s

RUWE (>1.4 is poor) : 0.96
 K magnitude : 9.818
 G magnitude : 13.535
 RP magnitude : 12.537
 BP magnitude : 14.569
 DUPflag : 0
 Distance (au) : 9.019
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -20.18
 Sun-Target sep (deg) : 178.13
 Sun-Moon sep (deg) : 117.65
 B (ring opening deg) : 26.52
 PA of pole (deg) : 4.47



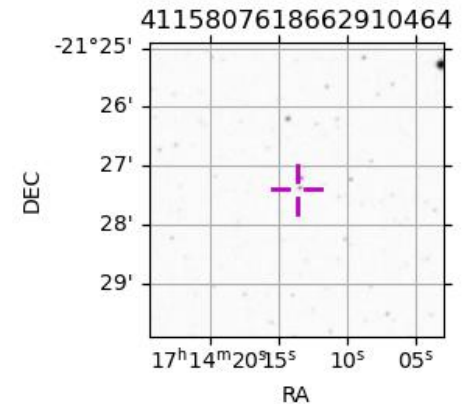
2046-06-09T14:58:41.6600 at: 17 14 13.5795 s: -21 27 24.391 C/A 9.355° PA 183.65 deg v_sky -20.18 km/s D 09.02 AU
 Credit: Styled after SORA/Lucky Star



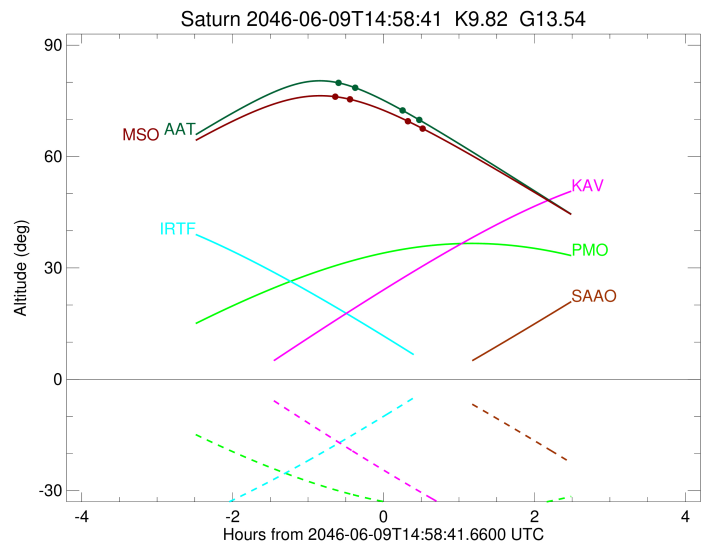
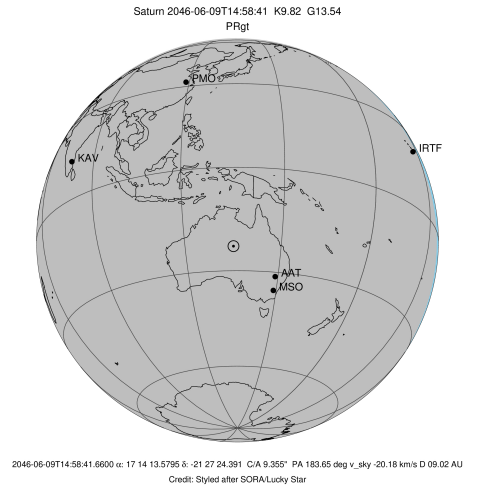
#	a(km)	ring
1	74490.6	C (IER)
2	91984.7	B (IER)
3	117571.2	B (OER)
4	122050.4	A (IER)
5	133423.3	Encke (IEG)
6	133744.9	Encke (OEG)
7	136774.4	A (OER)
8	140461.0	F ring

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					PnnRnn
ESO	European South	-29.3	289.3					PnnRnn
AAT	Siding Spring	-31.3	149.1	+		+	JUN 09 14:22 - JUN 09 15:27	PnnRie
SAAO	So. Afr. Astro	-32.4	20.8					PnnRnn
MSO	Mt. Stromlo Ob	-35.3	149.0	+		+	JUN 09 14:20 - JUN 09 15:29	PnnRie



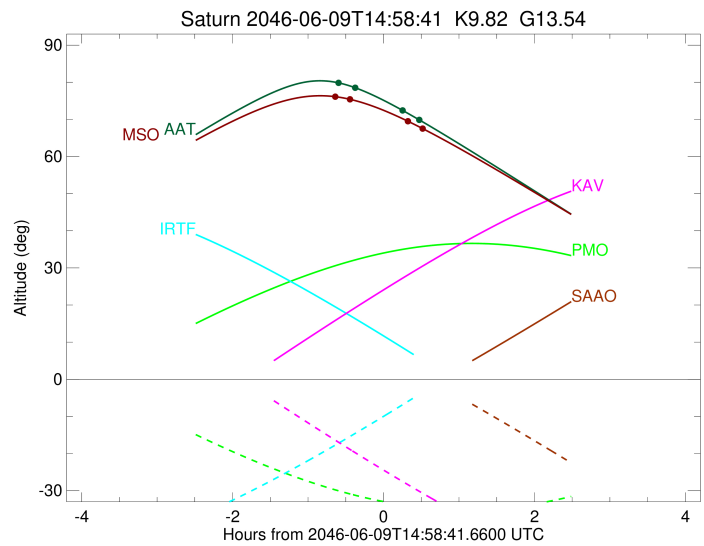
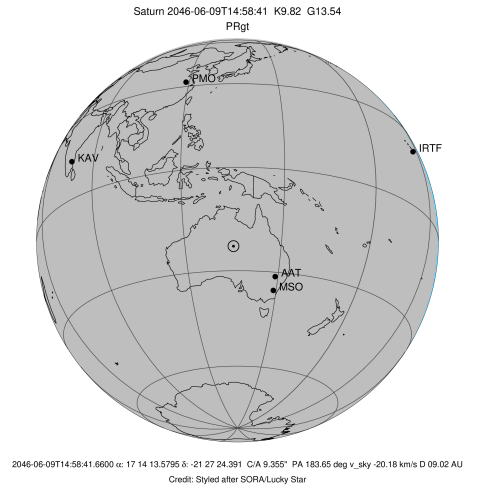
target : Saturn
 target radius (km) : 60268.00
 C/A epoch : 2046-06-09T14:57:41.640
 Event type : PRgt
 : Saturn occs: not geocentric or topocentric
 : Ring occs: geocentric, topocentric
 Observer code : AAT
 Location : Siding Spring (AAT)
 Latitude (deg) : -31.27703
 E. Longitude (deg) : 149.06608
 Altitude (km) : 1.164
 Gaia source ID : 4115807618662910464
 2Mass ID (if available) : 17141358-2127239
 ICRS Star Coord at Epoch: 17h 14m 13.57945s -21:27:24.39083s
 RUWE (>1.4 is poor) : 0.96
 K magnitude : 9.818
 G magnitude : 13.535
 RP magnitude : 12.537
 BP magnitude : 14.569
 DUPflag : 0
 Distance (au) : 9.019
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -20.18
 Sun-Target sep (deg) : 178.13
 Sun-Moon sep (deg) : 118.39
 B (ring opening deg) : 26.52
 PA of pole (deg) : 4.47
 Pole direction: RA (deg): 40.60000
 Dec (deg): 83.50000
 C/A sky separation (") : 9.196
 C/A sky separation (km) : 60154.8
 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



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	2046-06-09T14:22:39.101		79.87	-80.77	140461.00	-5.79		
A (OER)	I	2046-06-09T14:35:48.333		78.58	-79.08	136774.40	-3.52		
No planet occultations									
A (OER)	E	2046-06-09T15:14:05.587		72.38	-72.25	136774.40	3.52		
F ring	E	2046-06-09T15:27:15.946		69.85	-69.61	140461.00	5.78		

target : Saturn
 target radius (km) : 60268.00
 C/A epoch : 2046-06-09T14:57:43.140
 Event type : PRgt
 : Saturn occs: not geocentric or topocentric
 : Ring occs: geocentric, topocentric
 Observer code : MSO
 Location : Mt. Stromlo Observatory
 Latitude (deg) : -35.32000
 E. Longitude (deg) : 149.00833
 Altitude (km) : 0.770
 Gaia source ID : 4115807618662910464
 2Mass ID (if available) : 17141358-2127239
 ICRS Star Coord at Epoch: 17h 14m 13.57945s -21:27:24.39083s
 RUWE (>1.4 is poor) : 0.96
 K magnitude : 9.818
 G magnitude : 13.535
 RP magnitude : 12.537
 BP magnitude : 14.569
 DUPflag : 0
 Distance (au) : 9.019
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -20.18
 Sun-Target sep (deg) : 178.13
 Sun-Moon sep (deg) : 118.38
 B (ring opening deg) : 26.52
 PA of pole (deg) : 4.47
 Pole direction: RA (deg): 40.60000
 Dec (deg): 83.50000
 C/A sky separation (") : 9.129
 C/A sky separation (km) : 59715.9
 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	2046-06-09T14:20:04.198		76.13	-77.30	140461.00	-6.26		
A (OER)	I	2046-06-09T14:31:42.507		75.44	-76.35	136774.40	-4.28		

No planet occultations

A (OER)	E	2046-06-09T15:18:16.360		69.48	-69.66	136774.40	4.27		
F ring	E	2046-06-09T15:29:55.708		67.51	-67.58	140461.00	6.25		