

target : Saturn
 target radius (km) : 60268.00
 C/A epoch : 2025-09-26T07:27:05.920
 Event type : PtRgt
 : Saturn occs: topocentric, not geocentric
 : Ring occs: geocentric, topocentric
 Gaia source ID : 2448869131022660480
 2Mass ID (if available) : 23554479-0312062

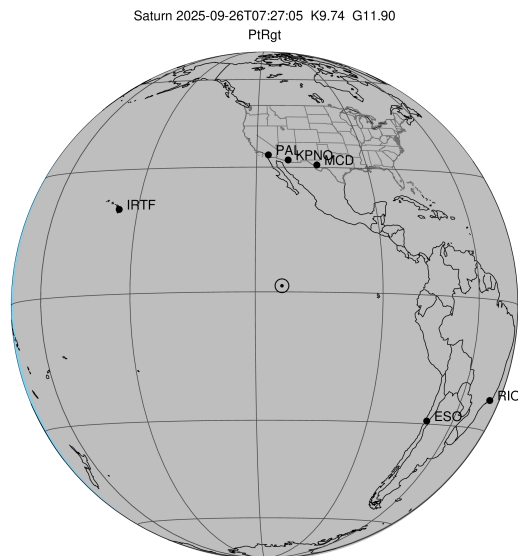
Saturn 2025-09-26T07:27:05 K9.74 G11.90 PtRgt

ICRS Star Coord at Epoch: 23h 55m 44.80882s -03:12:06.45935s

RUWE (>1.4 is poor) : 1.37
 K magnitude : 9.739
 G magnitude : 11.904
 RP magnitude : 11.223
 BP magnitude : 12.432
 DUPflag : 0
 Distance (au) : 8.551
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -19.92
 Sun-Target sep (deg) : 174.07
 Sun-Moon sep (deg) : 124.67
 B (ring opening deg) : -1.66
 PA of pole (deg) : 4.32

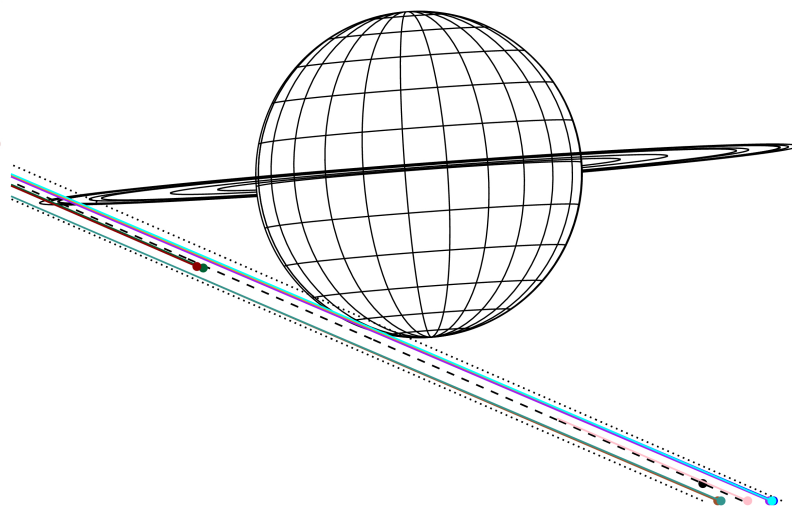
a(km) ring

- 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



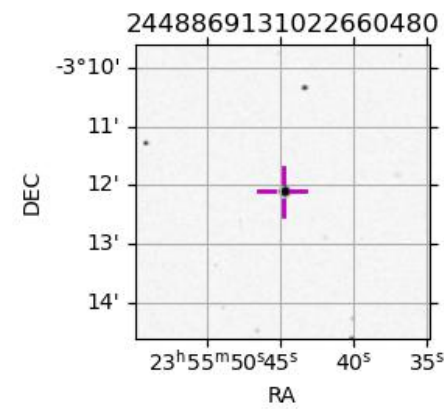
2025-09-26T07:27:05.9200 a: 23 55 44.8088 s: -03 12 06.459 C/A ***** PA 336.43 deg v_sky -19.92 km/s D 08.55 AU
 Credit: Styled after SORA/Lucky Star

Earth
 PAL
 KPNO
 MCD
 TEN
 IRTF
 RIO
 ESO
 AAT
 MSO

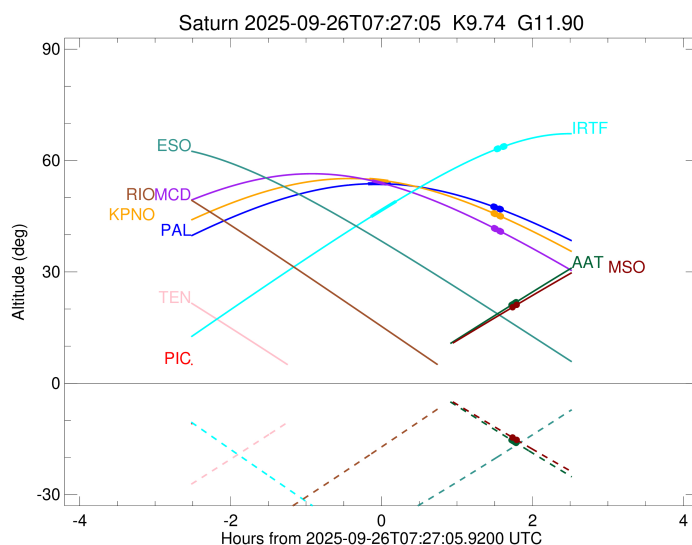
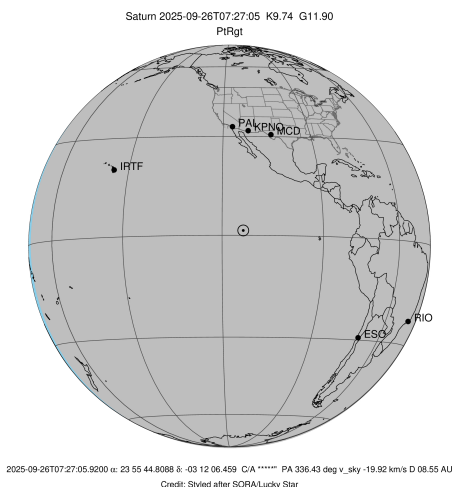


Observable events with sun below -5 deg and altitude above 5 deg unblocked by planet

Obs	Location	lat	Elon	Rings I	Planet	Rings E	Observed Events Interval	OEcode
PIC	Pic du Midi	42.9	0.1					PnnRnn
PAL	Palomar Mt (20	33.4	243.1	+	+	+	SEP 26 07:16 - SEP 26 09:01	PieRie
PMO	Purple Mtn Obs	32.1	118.8					PnnRnn
KPNO	Kitt Peak Natl	32.0	248.4	+	+	+	SEP 26 07:17 - SEP 26 09:01	PieRie
MCD	McDonald Obs.	30.7	256.0	+	+	+	SEP 26 07:19 - SEP 26 09:02	PieRie
TEN	Teide Obs./Ten	28.3	343.5					PnnRnn
IRTF	Mauna Kea/IRTF	19.8	204.5	+	+	+	SEP 26 07:18 - SEP 26 09:04	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	+		+	SEP 26 09:10 - SEP 26 09:14	PnnRie
SAAO	So. Afr. Astro	-32.4	20.8					PnnRnn
MSO	Mt. Stromlo Ob	-35.3	149.0	+		+	SEP 26 09:11 - SEP 26 09:14	PnnRie



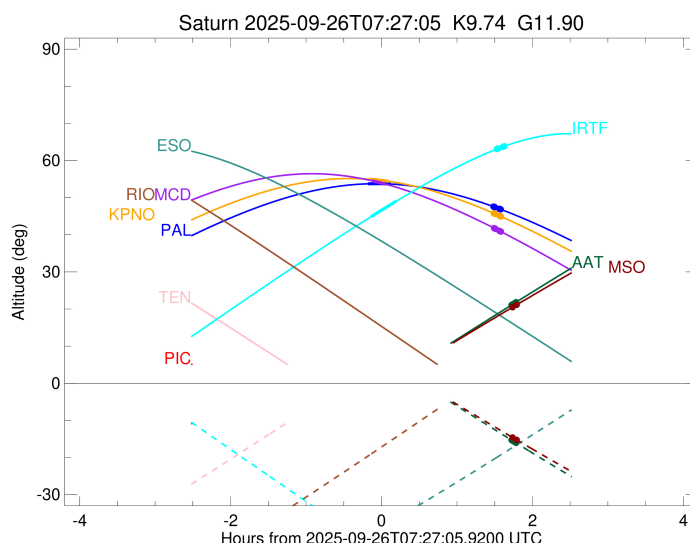
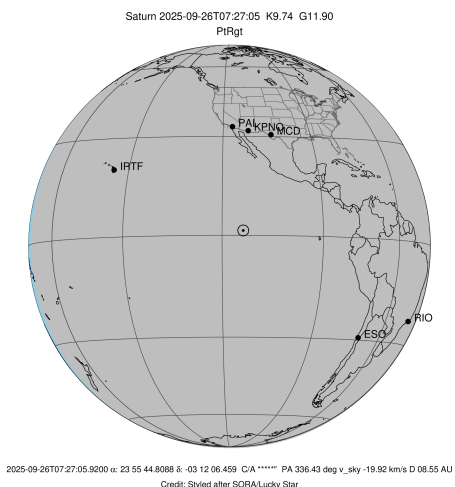
target : Saturn
 target radius (km) : 60268.00
 C/A epoch : 2025-09-26T07:25:24.910
 Event type : PtRgt
 : Saturn occs: topocentric, not geocentric
 : Ring occs: geocentric, topocentric
 Observer code : PAL
 Location : Palomar Mt (200")
 Latitude (deg) : 33.35622
 E. Longitude (deg) : 243.13601
 Altitude (km) : 1.706
 Gaia source ID : 2448869131022660480
 2Mass ID (if available) : 23554479-0312062
 ICRS Star Coord at Epoch: 23h 55m 44.80882s -03:12:06.45935s
 RUWE (>1.4 is poor) : 1.37
 K magnitude : 9.739
 G magnitude : 11.904
 RP magnitude : 11.223
 BP magnitude : 12.432
 DUPflag : 0
 Distance (au) : 8.551
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -19.92
 Sun-Target sep (deg) : 174.07
 Sun-Moon sep (deg) : 125.09
 B (ring opening deg) : -1.66
 PA of pole (deg) : 4.32
 Pole direction: RA (deg): 40.60000
 Dec (deg): 83.50000
 C/A sky separation (") : 9.555
 C/A sky separation (km) : 59254.5
 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_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	2025-09-26T08:55:56.421		47.61	-53.43	140461.01	-130.92		
A (OER)	I	2025-09-26T08:56:26.815		47.54	-53.38	136774.43	-111.34		
Encke (OEG)	I	2025-09-26T08:56:56.782		47.48	-53.32	133744.92	-90.55		
Encke (IEG)	I	2025-09-26T08:57:00.384		47.47	-53.31	133423.35	-87.96		
Saturn	I	2025-09-26T07:16:23.230		53.73	-57.77	60263.84		-73.00	-75.79
Saturn	E	2025-09-26T07:34:26.991		53.66	-58.19	60265.17		-52.04	-57.25
Encke (IEG)	E	2025-09-26T09:00:46.178		47.00	-52.86	133423.32	88.03		
Encke (OEG)	E	2025-09-26T09:00:49.779		46.99	-52.86	133744.89	90.61		
A (OER)	E	2025-09-26T09:01:19.750		46.93	-52.79	136774.40	111.39		
F ring	E	2025-09-26T09:01:50.148		46.87	-52.73	140461.00	130.97		

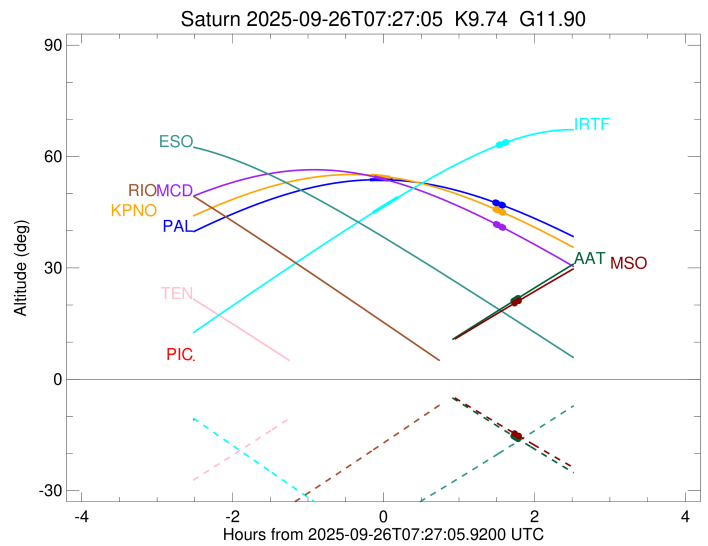
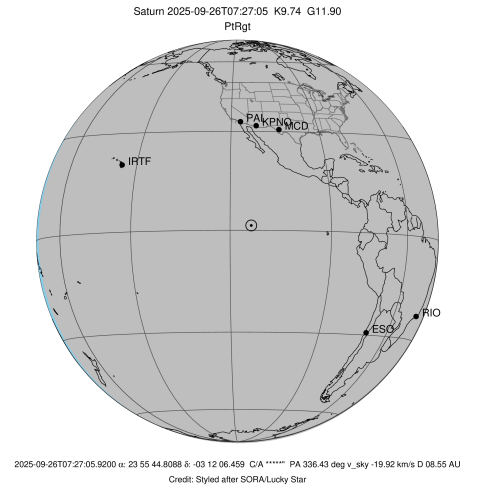
target : Saturn
 target radius (km) : 60268.00
 C/A epoch : 2025-09-26T07:25:04.310
 Event type : PtRgt
 : Saturn occs: topocentric, not geocentric
 : Ring occs: geocentric, topocentric
 Observer code : KPNO
 Location : Kitt Peak Natl Obs
 Latitude (deg) : 31.96333
 E. Longitude (deg) : 248.40000
 Altitude (km) : 2.120
 Gaia source ID : 2448869131022660480
 2Mass ID (if available) : 23554479-0312062
 ICRS Star Coord at Epoch: 23h 55m 44.80882s -03:12:06.45935s
 RUWE (>1.4 is poor) : 1.37
 K magnitude : 9.739
 G magnitude : 11.904
 RP magnitude : 11.223
 BP magnitude : 12.432
 DUPflag : 0
 Distance (au) : 8.551
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -19.92
 Sun-Target sep (deg) : 174.07
 Sun-Moon sep (deg) : 125.07
 B (ring opening deg) : -1.66
 PA of pole (deg) : 4.32
 Pole direction: RA (deg): 40.60000
 Dec (deg): 83.50000
 C/A sky separation (") : 9.605
 C/A sky separation (km) : 59566.5
 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_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	2025-09-26T08:56:11.927		45.81	-51.76	140461.01	-127.31		
A (OER)	I	2025-09-26T08:56:43.372		45.73	-51.69	136774.42	-106.84		
Encke (OEG)	I	2025-09-26T08:57:14.951		45.66	-51.61	133744.93	-84.71		
Encke (IEG)	I	2025-09-26T08:57:18.809		45.65	-51.60	133423.36	-81.91		
Saturn	I	2025-09-26T07:17:33.496		54.96	-59.59	60263.92		-71.24	-74.30
Saturn	E	2025-09-26T07:32:35.536		54.40	-59.39	60265.03		-53.82	-58.90
Encke (IEG)	E	2025-09-26T09:00:49.202		45.13	-51.09	133423.32	81.98		
Encke (OEG)	E	2025-09-26T09:00:53.060		45.12	-51.08	133744.89	84.78		
A (OER)	E	2025-09-26T09:01:24.642		45.04	-51.00	136774.40	106.89		
F ring	E	2025-09-26T09:01:56.091		44.96	-50.93	140461.00	127.35		

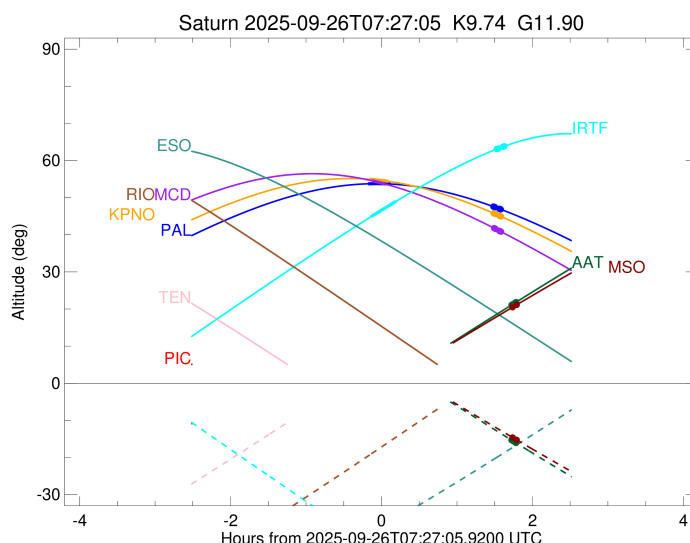
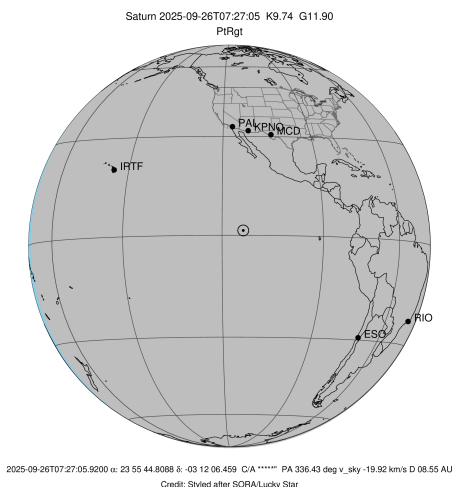
target : Saturn
 target radius (km) : 60268.00
 C/A epoch : 2025-09-26T07:24:33.720
 Event type : PtRgt
 : Saturn occs: topocentric, not geocentric
 : Ring occs: geocentric, topocentric
 Observer code : MCD
 Location : McDonald Obs. 2.7m
 Latitude (deg) : 30.67158
 E. Longitude (deg) : 255.97844
 Altitude (km) : 2.075
 Gaia source ID : 2448869131022660480
 2Mass ID (if available) : 23554479-0312062
 ICRS Star Coord at Epoch: 23h 55m 44.80882s -03:12:06.45935s
 RUWE (>1.4 is poor) : 1.37
 K magnitude : 9.739
 G magnitude : 11.904
 RP magnitude : 11.223
 BP magnitude : 12.432
 DUPflag : 0
 Distance (au) : 8.551
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -19.92
 Sun-Target sep (deg) : 174.07
 Sun-Moon sep (deg) : 125.02
 B (ring opening deg) : -1.66
 PA of pole (deg) : 4.32
 Pole direction: RA (deg): 40.60000
 Dec (deg): 83.50000
 C/A sky separation (") : 9.670
 C/A sky separation (km) : 59965.3
 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

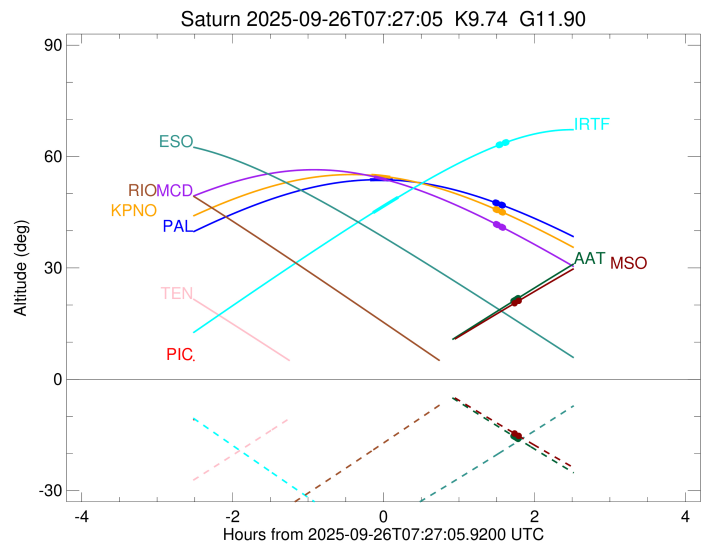
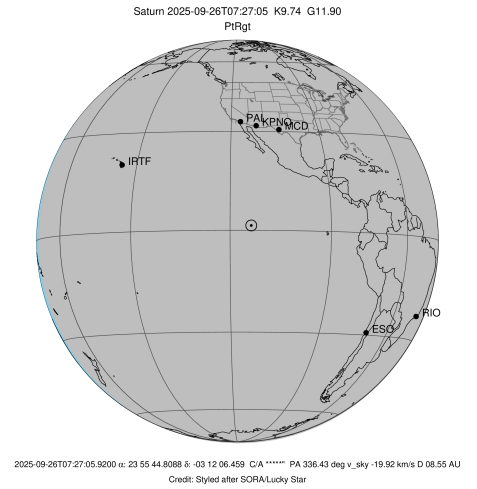
Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
F ring	I	2025-09-26T08:56:27.583		41.82	-47.80	140461.01	-122.74		
A (OER)	I	2025-09-26T08:57:00.475		41.72	-47.71	136774.43	-101.07		
Encke (OEG)	I	2025-09-26T08:57:34.438		41.62	-47.61	133744.95	-76.99		
Encke (IEG)	I	2025-09-26T08:57:38.699		41.61	-47.60	133423.38	-73.86		
Saturn	I	2025-09-26T07:19:38.071		54.55	-59.90	60264.07		-68.24	-71.72
Saturn	E	2025-09-26T07:29:29.781		53.72	-59.22	60264.81		-56.84	-61.66
Encke (IEG)	E	2025-09-26T09:00:48.595		41.07	-47.05	133423.31	73.93		
Encke (OEG)	E	2025-09-26T09:00:52.856		41.05	-47.04	133744.90	77.06		
A (OER)	E	2025-09-26T09:01:26.823		40.96	-46.94	136774.40	101.13		
F ring	E	2025-09-26T09:01:59.718		40.86	-46.85	140461.01	122.79		

target : Saturn
 target radius (km) : 60268.00
 C/A epoch : 2025-09-26T07:28:46.170
 Event type : PtRgt
 : Saturn occs: topocentric, not geocentric
 : 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 : 2448869131022660480
 2Mass ID (if available) : 23554479-0312062
 ICRS Star Coord at Epoch: 23h 55m 44.80882s -03:12:06.45935s
 RUWE (>1.4 is poor) : 1.37
 K magnitude : 9.739
 G magnitude : 11.904
 RP magnitude : 11.223
 BP magnitude : 12.432
 DUPflag : 0
 Distance (au) : 8.551
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -19.92
 Sun-Target sep (deg) : 174.07
 Sun-Moon sep (deg) : 125.35
 B (ring opening deg) : -1.66
 PA of pole (deg) : 4.32
 Pole direction: RA (deg): 40.60000
 Dec (deg): 83.50000
 C/A sky separation (") : 9.519
 C/A sky separation (km) : 59030.6
 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	2025-09-26T08:58:39.545		63.07	-64.17	140461.01	-134.12		
A (OER)	I	2025-09-26T08:59:09.084		63.14	-64.26	136774.41	-115.18		
Encke (OEG)	I	2025-09-26T08:59:37.827		63.20	-64.34	133744.92	-95.34		
Encke (IEG)	I	2025-09-26T08:59:41.242		63.21	-64.35	133423.34	-92.90		
Saturn	I	2025-09-26T07:18:47.224		44.87	-43.60	60263.79		-74.02	-76.66
Saturn	E	2025-09-26T07:38:45.196		49.03	-48.04	60265.26		-50.85	-56.15
Encke (IEG)	E	2025-09-26T09:03:38.713		63.71	-65.02	133423.32	92.96		
Encke (OEG)	E	2025-09-26T09:03:42.129		63.71	-65.03	133744.89	95.41		
A (OER)	E	2025-09-26T09:04:10.873		63.77	-65.11	136774.40	115.23		
F ring	E	2025-09-26T09:04:40.414		63.83	-65.19	140461.01	134.17		

target : Saturn
 target radius (km) : 60268.00
 C/A epoch : 2025-09-26T07:32:27.020
 Event type : PtRgt
 : Saturn occs: topocentric, not geocentric
 : 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 : 2448869131022660480
 2Mass ID (if available) : 23554479-0312062
 ICRS Star Coord at Epoch: 23h 55m 44.80882s -03:12:06.45935s
 RUWE (>1.4 is poor) : 1.37
 K magnitude : 9.739
 G magnitude : 11.904
 RP magnitude : 11.223
 BP magnitude : 12.432
 DUPflag : 0
 Distance (au) : 8.551
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -19.92
 Sun-Target sep (deg) : 174.07
 Sun-Moon sep (deg) : 125.17
 B (ring opening deg) : -1.66
 PA of pole (deg) : 4.32
 Pole direction: RA (deg): 40.60000
 Dec (deg): 83.50000
 C/A sky separation (") : 10.243
 C/A sky separation (km) : 63523.9
 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



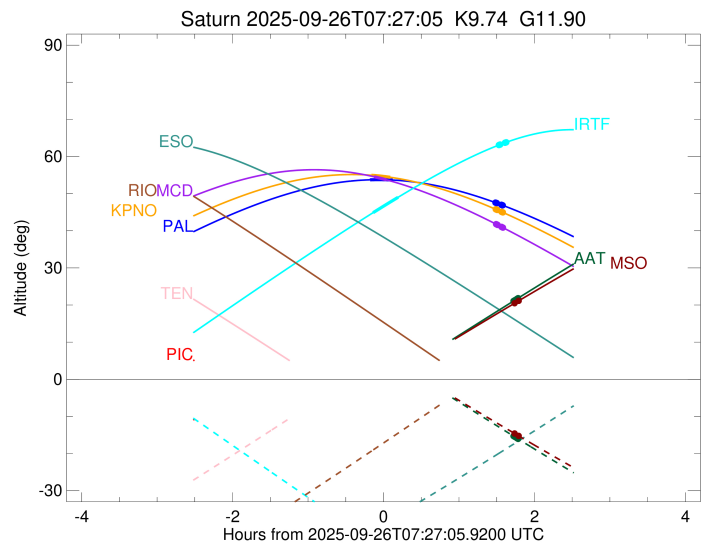
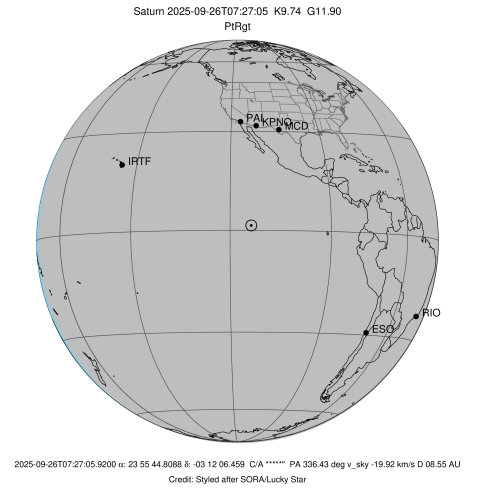
b: ring blocked by planet x: target alt < 5.0 deg or sun > -5.0 deg

Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
F ring	I	2025-09-26T09:10:19.114		21.04	-15.27	140461.05	-82.82		
A (OER)	I	2025-09-26T09:11:19.190		21.26	-15.48	136774.97	-39.27		

No planet occultations

A (OER)	E	2025-09-26T09:13:02.280		21.62	-15.84	136774.41	39.33		
F ring	E	2025-09-26T09:14:02.355		21.83	-16.05	140461.00	82.89		

target : Saturn
 target radius (km) : 60268.00
 C/A epoch : 2025-09-26T07:32:23.060
 Event type : PtRgt
 : Saturn occs: topocentric, not geocentric
 : 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 : 2448869131022660480
 2Mass ID (if available) : 23554479-0312062
 ICRS Star Coord at Epoch: 23h 55m 44.80882s -03:12:06.45935s
 RUWE (>1.4 is poor) : 1.37
 K magnitude : 9.739
 G magnitude : 11.904
 RP magnitude : 11.223
 BP magnitude : 12.432
 DUPflag : 0
 Distance (au) : 8.551
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -19.92
 Sun-Target sep (deg) : 174.07
 Sun-Moon sep (deg) : 125.17
 B (ring opening deg) : -1.66
 PA of pole (deg) : 4.32
 Pole direction: RA (deg): 40.60000
 Dec (deg): 83.50000
 C/A sky separation (") : 10.315
 C/A sky separation (km) : 63965.3
 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	2025-09-26T09:11:09.208		20.45	-14.57	140461.07	-74.22		
No planet occultations									
F ring	E	2025-09-26T09:14:29.335		21.12	-15.24	140461.01	74.29		