

target : Saturn
 target radius (km) : 60268.00
 C/A epoch : 2044-04-30T20:13:23.190
 Event type : PgtRgt
 : Saturn occs: geocentric, topocentric
 : Ring occs: geocentric, topocentric
 Gaia source ID : 6261279710107361664
 2Mass ID (if available) : 15430787-1720076

Saturn 2044-04-30T20:13:23 K9.32 G12.26 PgtRgt

ICRS Star Coord at Epoch: 15h 43m 07.65372s -17:20:07.83096s

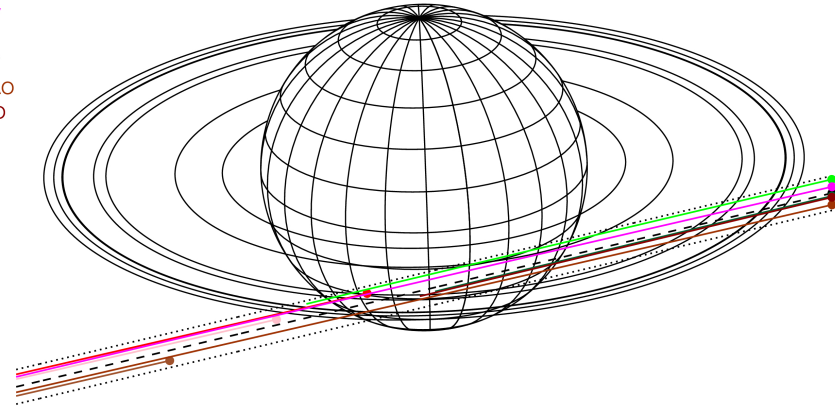
RUWE (>1.4 is poor) : 17.08
 K magnitude : 9.324
 G magnitude : 12.265
 RP magnitude : 11.338
 BP magnitude : 13.135
 DUPflag : 0
 Distance (au) : 8.976
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -18.91
 Sun-Target sep (deg) : 162.85
 Sun-Moon sep (deg) : 154.05
 B (ring opening deg) : 23.60
 PA of pole (deg) : 1.86

Saturn 2044-04-30T20:13:23 K9.32 G12.26
 PgtRgt



2044-04-30T20:13:23.1900 α: 15 43 07.6537 δ: -17 20 07.831 C/A 6.762° PA 13.36 deg v_sky -18.91 km/s D 08.98 AU
 Credit: Styled after SORA/Lucky Star

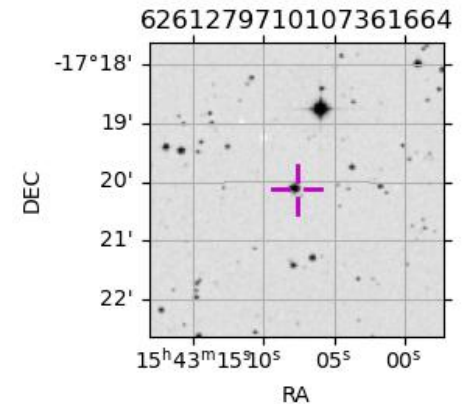
Earth
 PIC
 PMO
 TEN
 KAV
 RIO
 AAT
 SAAO
 MSO



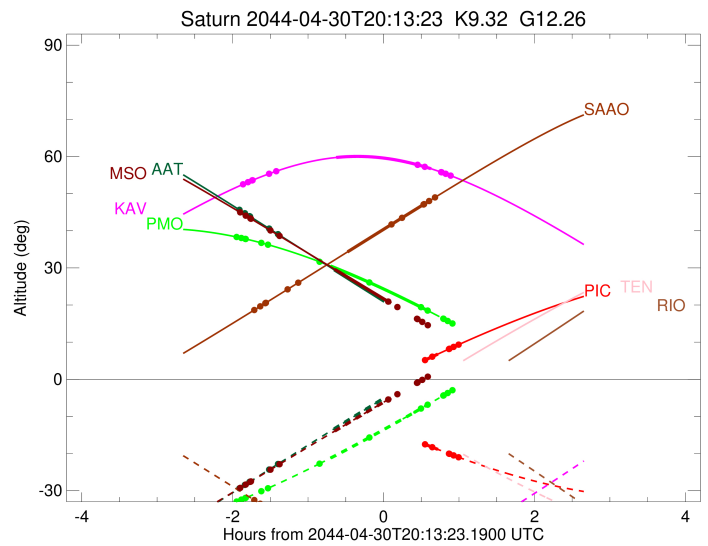
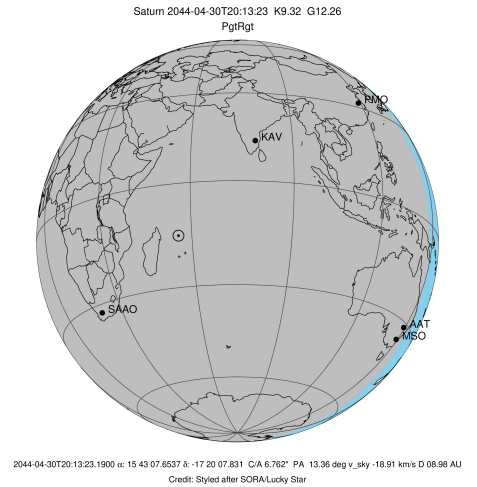
#	a(km)	ring
1	74490.6	C (IER)
2	91984.7	B (IER)
3	117571.2	B (OER)
4	122050.4	A (IER)
5	133423.3	Encke (IEG)
6	133744.9	Encke (OEG)
7	136774.4	A (OER)
8	140461.0	F ring

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		+	+	APR 30 20:56 - APR 30 21:13	PneRne
PAL	Palomar Mt (20	33.4	243.1					PnnRnn
PMO	Purple Mtn Obs	32.1	118.8	+	+		APR 30 18:16 - APR 30 20:50	PieRin
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	+	+	+	APR 30 18:21 - APR 30 21:06	PieRie
RIO	Rio de Janeiro	-22.9	316.8					PnnRnn
ESO	European South	-29.3	289.3					PnnRnn
AAT	Siding Spring	-31.3	149.1	+	+		APR 30 18:18 - APR 30 19:34	PinRin
SAAO	So. Afr. Astro	-32.4	20.8	+	+	+	APR 30 18:30 - APR 30 20:54	PieRie
MSO	Mt. Stromlo Ob	-35.3	149.0	+	+		APR 30 18:19 - APR 30 19:34	PinRin



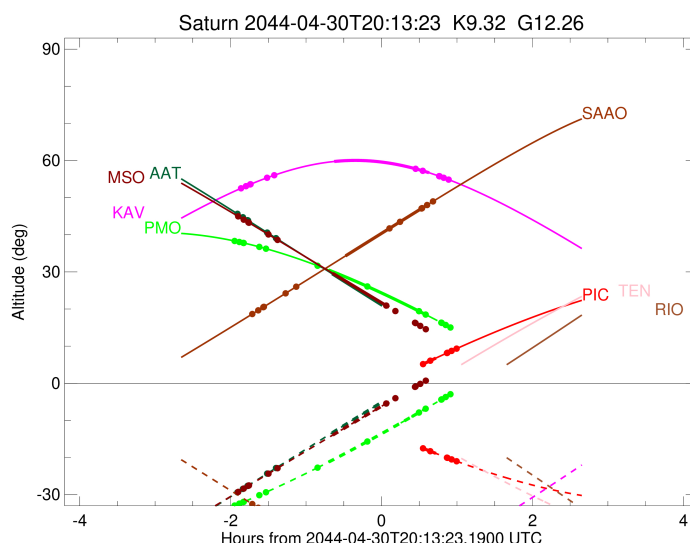
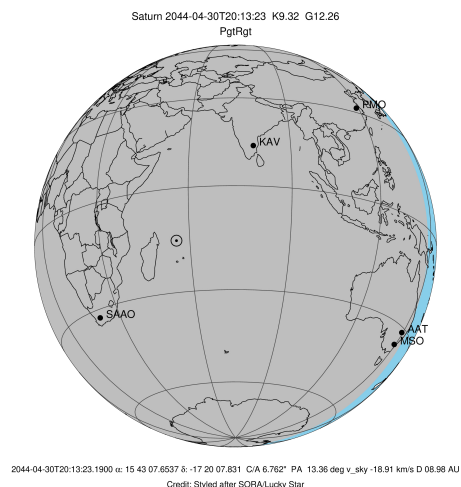
target : Saturn
 target radius (km) : 60268.00
 C/A epoch : 2044-04-30T20:18:20.760
 Event type : PgtRgt
 : Saturn occs: geocentric, topocentric
 : Ring occs: geocentric, topocentric
 Observer code : PIC
 Location : Pic du Midi
 Latitude (deg) : 42.93656
 E. Longitude (deg) : 0.14231
 Altitude (km) : 2.890
 Gaia source ID : 6261279710107361664
 2Mass ID (if available) : 15430787-1720076
 ICRS Star Coord at Epoch: 15h 43m 07.65372s -17:20:07.83096s
 RUWE (>1.4 is poor) : 17.08
 K magnitude : 9.324
 G magnitude : 12.265
 RP magnitude : 11.338
 BP magnitude : 13.135
 DUPflag : 0
 Distance (au) : 8.976
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -18.91
 Sun-Target sep (deg) : 162.85
 Sun-Moon sep (deg) : 154.92
 B (ring opening deg) : 23.60
 PA of pole (deg) : 1.86
 Pole direction: RA (deg): 40.60000
 Dec (deg): 83.50000
 C/A sky separation (") : 6.237
 C/A sky separation (km) : 40603.4
 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	2044-04-30T18:23:29.286		-19.75x	5.39x	140461.00	-15.45		
A (OER)	I	2044-04-30T18:27:30.404		-19.02x	4.68x	136774.40	-15.12		
Encke (OEG)	I	2044-04-30T18:30:52.659		-18.40x	4.09x	133744.89	-14.83		
Encke (IEG)	I	2044-04-30T18:31:14.368		-18.33x	4.03x	133423.31	-14.80		
A (IER)	I	2044-04-30T18:44:39.518		-15.89x	1.69x	122050.38	-13.39		
B (OER)	I	2044-04-30T18:50:23.187		-14.85x	0.70x	117571.16	-12.66		
Saturn	I	2044-04-30T19:39:29.611		-6.09x	-7.50	60018.44		-28.53	-33.61
Saturn	E	2044-04-30T20:56:39.788		6.79	-18.90	59671.34		-47.88	-53.34
B (OER)	E	2044-04-30T20:46:35.674	b	5.19	-17.55	117571.16	12.73		
A (IER)	E	2044-04-30T20:52:17.195	b	6.10	-18.32	122050.38	13.48		
Encke (IEG)	E	2044-04-30T21:05:35.529		8.18	-20.06	133423.31	14.94		
Encke (OEG)	E	2044-04-30T21:05:57.022		8.23	-20.11	133744.89	14.98		
A (OER)	E	2044-04-30T21:09:17.189		8.75	-20.53	136774.40	15.29		
F ring	E	2044-04-30T21:13:15.645		9.35	-21.03	140461.00	15.63		

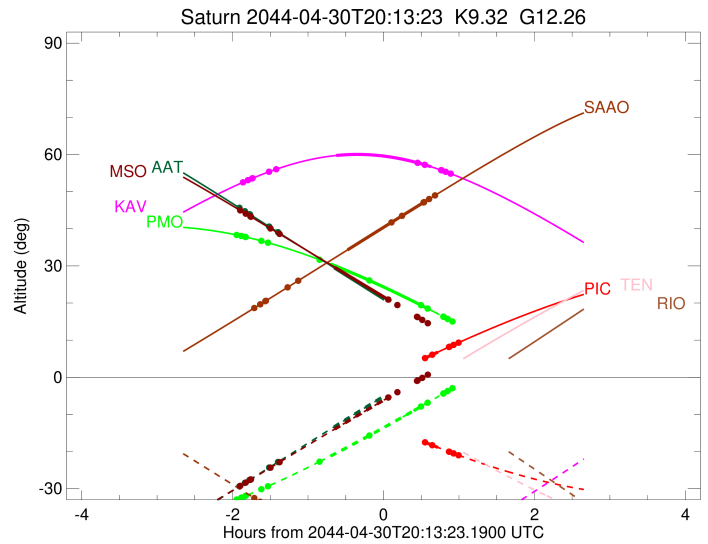
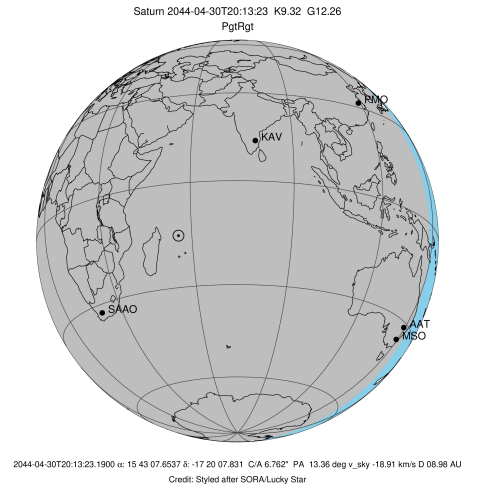
target : Saturn
 target radius (km) : 60268.00
 C/A epoch : 2044-04-30T20:10:58.330
 Event type : PgtRgt
 : Saturn occs: geocentric, topocentric
 : Ring occs: geocentric, topocentric
 Observer code : PMO
 Location : Purple Mtn Obs. Nanking
 Latitude (deg) : 32.06667
 E. Longitude (deg) : 118.82089
 Altitude (km) : 0.364
 Gaia source ID : 6261279710107361664
 2Mass ID (if available) : 15430787-1720076
 ICRS Star Coord at Epoch: 15h 43m 07.65372s -17:20:07.83096s
 RUWE (>1.4 is poor) : 17.08
 K magnitude : 9.324
 G magnitude : 12.265
 RP magnitude : 11.338
 BP magnitude : 13.135
 DUPflag : 0
 Distance (au) : 8.976
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -18.91
 Sun-Target sep (deg) : 162.85
 Sun-Moon sep (deg) : 154.04
 B (ring opening deg) : 23.60
 PA of pole (deg) : 1.86
 Pole direction: RA (deg): 40.60000
 Dec (deg): 83.50000
 C/A sky separation (") : 5.976
 C/A sky separation (km) : 38905.5
 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	2044-04-30T18:16:36.313		38.33	-32.94	140461.00	-16.47		
A (OER)	I	2044-04-30T18:20:22.200		38.05	-32.43	136774.40	-16.17		
Encke (OEG)	I	2044-04-30T18:23:31.098		37.81	-31.99	133744.89	-15.90		
Encke (IEG)	I	2044-04-30T18:23:51.339		37.79	-31.94	133423.31	-15.87		
A (IER)	I	2044-04-30T18:36:16.087		36.74	-30.15	122050.38	-14.61		
B (OER)	I	2044-04-30T18:41:29.354		36.26	-29.37	117571.17	-13.97		
B (IER)	I	2044-04-30T19:22:29.495		31.66	-22.75	91984.69	-5.83		
Saturn	I	2044-04-30T19:31:19.991		30.50	-21.22	60053.77		-26.25	-31.10
Saturn	E	2044-04-30T20:50:17.120		18.20	-6.50	59697.73		-46.46	-51.98
B (IER)	E	2044-04-30T20:02:10.244	b	26.08	-15.68	91984.69	5.82		
B (OER)	E	2044-04-30T20:43:22.538	b	19.39	-7.85	117571.16	13.91		
A (IER)	E	2044-04-30T20:48:37.212	b	18.49	-6.83	122050.38	14.55		
Encke (IEG)	E	2044-04-30T21:01:04.947		16.30	-4.37x	133423.31	15.81		
Encke (OEG)	E	2044-04-30T21:01:25.264		16.24	-4.30x	133744.89	15.84		
A (OER)	E	2044-04-30T21:04:34.866		15.67	-3.67x	136774.40	16.11		
F ring	E	2044-04-30T21:08:21.580		15.00	-2.92x	140461.00	16.41		

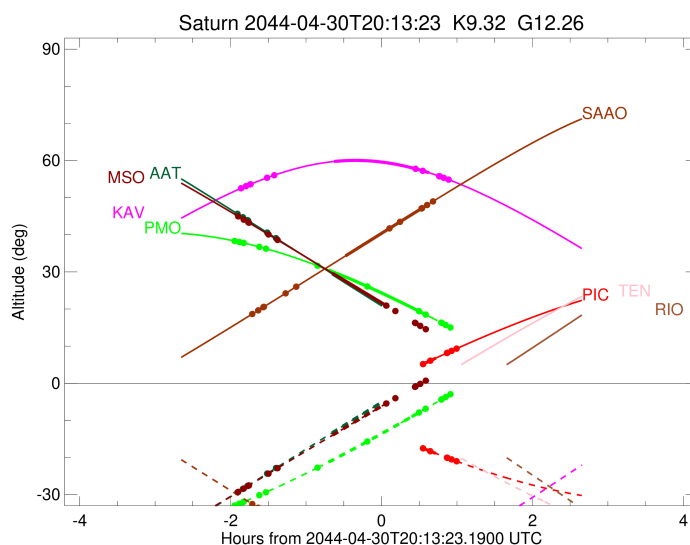
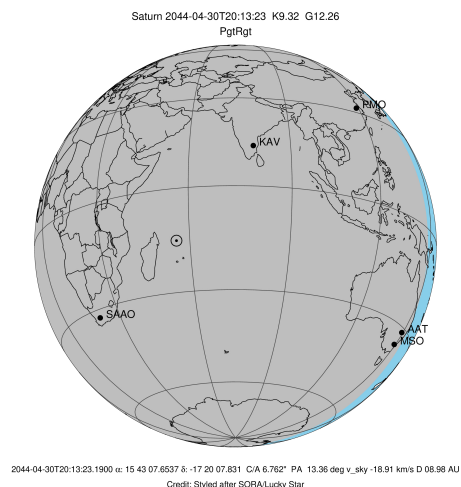
target : Saturn
 target radius (km) : 60268.00
 C/A epoch : 2044-04-30T20:13:41.980
 Event type : PgtRgt
 : Saturn occs: geocentric, topocentric
 : Ring occs: geocentric, topocentric
 Observer code : KAV
 Location : Kavalur Observatory
 Latitude (deg) : 12.57556
 E. Longitude (deg) : 78.83167
 Altitude (km) : 0.722
 Gaia source ID : 6261279710107361664
 2Mass ID (if available) : 15430787-1720076
 ICRS Star Coord at Epoch: 15h 43m 07.65372s -17:20:07.83096s
 RUWE (>1.4 is poor) : 17.08
 K magnitude : 9.324
 G magnitude : 12.265
 RP magnitude : 11.338
 BP magnitude : 13.135
 DUPflag : 0
 Distance (au) : 8.976
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -18.91
 Sun-Target sep (deg) : 162.85
 Sun-Moon sep (deg) : 154.57
 B (ring opening deg) : 23.60
 PA of pole (deg) : 1.86
 Pole direction: RA (deg): 40.60000
 Dec (deg): 83.50000
 C/A sky separation (") : 6.267
 C/A sky separation (km) : 40798.6
 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



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	2044-04-30T18:21:43.287		52.52	-61.92	140461.00	-15.81		
A (OER)	I	2044-04-30T18:25:39.008		53.10	-62.08	136774.40	-15.47		
Encke (OEG)	I	2044-04-30T18:28:56.797		53.57	-62.18	133744.89	-15.16		
Encke (IEG)	I	2044-04-30T18:29:18.030		53.62	-62.19	133423.31	-15.13		
A (IER)	I	2044-04-30T18:42:26.178		55.36	-62.36	122050.38	-13.67		
B (OER)	I	2044-04-30T18:48:03.110		56.03	-62.31	117571.16	-12.91		
Saturn	I	2044-04-30T19:35:49.015		59.74	-59.28	60015.43		-28.72	-33.81
Saturn	E	2044-04-30T20:51:09.909		56.71	-47.67	59665.47		-48.20	-53.64
B (OER)	E	2044-04-30T20:40:42.217	b	57.76	-49.60	117571.16	12.93		
A (IER)	E	2044-04-30T20:46:18.393	b	57.22	-48.58	122050.38	13.70		
Encke (IEG)	E	2044-04-30T20:59:23.485		55.78	-46.11	133423.31	15.20		
Encke (OEG)	E	2044-04-30T20:59:44.613		55.73	-46.05	133744.89	15.24		
A (OER)	E	2044-04-30T21:03:01.370		55.33	-45.41	136774.40	15.55		
F ring	E	2044-04-30T21:06:55.742		54.84	-44.65	140461.00	15.90		

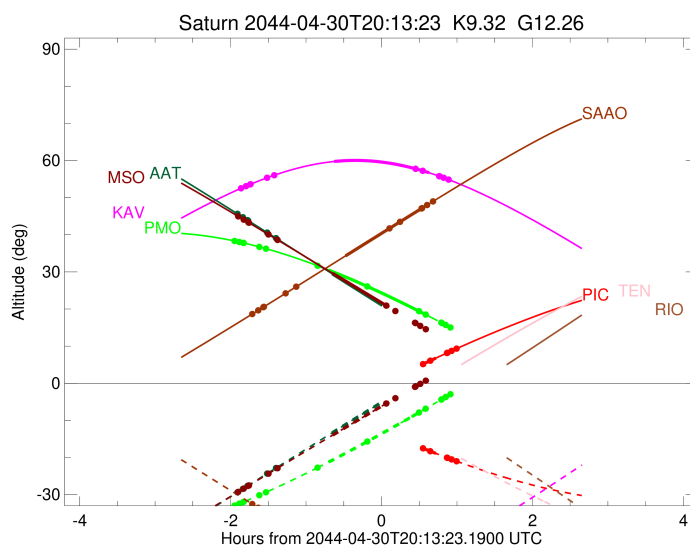
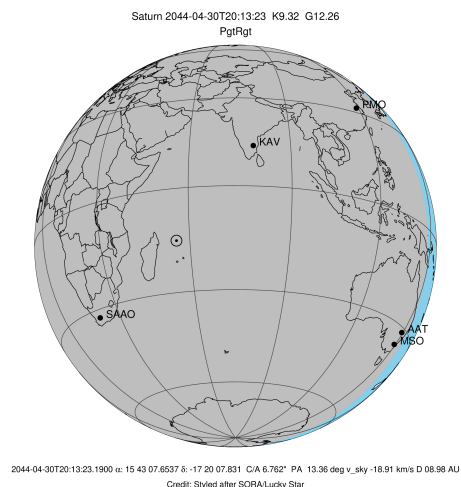
target : Saturn
 target radius (km) : 60268.00
 C/A epoch : 2044-04-30T20:08:09.550
 Event type : PgtRgt
 : Saturn occs: geocentric, topocentric
 : Ring occs: geocentric, topocentric
 Observer code : AAT
 Location : Siding Spring (AAT)
 Latitude (deg) : -31.27703
 E. Longitude (deg) : 149.06608
 Altitude (km) : 1.164
 Gaia source ID : 6261279710107361664
 2Mass ID (if available) : 15430787-1720076
 ICRS Star Coord at Epoch: 15h 43m 07.65372s -17:20:07.83096s
 RUWE (>1.4 is poor) : 17.08
 K magnitude : 9.324
 G magnitude : 12.265
 RP magnitude : 11.338
 BP magnitude : 13.135
 DUPflag : 0
 Distance (au) : 8.976
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -18.91
 Sun-Target sep (deg) : 162.85
 Sun-Moon sep (deg) : 153.37
 B (ring opening deg) : 23.60
 PA of pole (deg) : 1.86
 Pole direction: RA (deg): 40.60000
 Dec (deg): 83.50000
 C/A sky separation (") : 6.982
 C/A sky separation (km) : 45452.2
 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	2044-04-30T18:18:52.025		45.64	-29.38	140461.00	-14.40		
A (OER)	I	2044-04-30T18:23:12.155		44.72	-28.45	136774.40	-13.94		
Encke (OEG)	I	2044-04-30T18:26:52.874		43.93	-27.66	133744.89	-13.51		
Encke (IEG)	I	2044-04-30T18:27:16.718		43.85	-27.58	133423.31	-13.46		
A (IER)	I	2044-04-30T18:42:29.602		40.59	-24.33	122050.38	-11.36		
B (OER)	I	2044-04-30T18:49:24.483		39.11	-22.85	117571.16	-10.21		
Saturn	I	2044-04-30T19:34:02.758		29.53	-13.38	59926.92		-33.99	-39.44
Saturn	E	2044-04-30T20:41:52.620		15.10	0.69x	59565.78		-53.69	-58.78
B (OER)	E	2044-04-30T20:18:57.531	b	19.95	-4.00x	117571.16	10.13		
A (IER)	E	2044-04-30T20:25:55.821	b	18.47	-2.56x	122050.38	11.26		
Encke (IEG)	E	2044-04-30T20:41:16.851	b	15.23	0.57x	133423.31	13.34		
Encke (OEG)	E	2044-04-30T20:41:40.915	b	15.14	0.65x	133744.89	13.39		
A (OER)	E	2044-04-30T20:45:23.682		14.36	1.41x	136774.40	13.81		
F ring	E	2044-04-30T20:49:46.262		13.45	2.29x	140461.00	14.27		

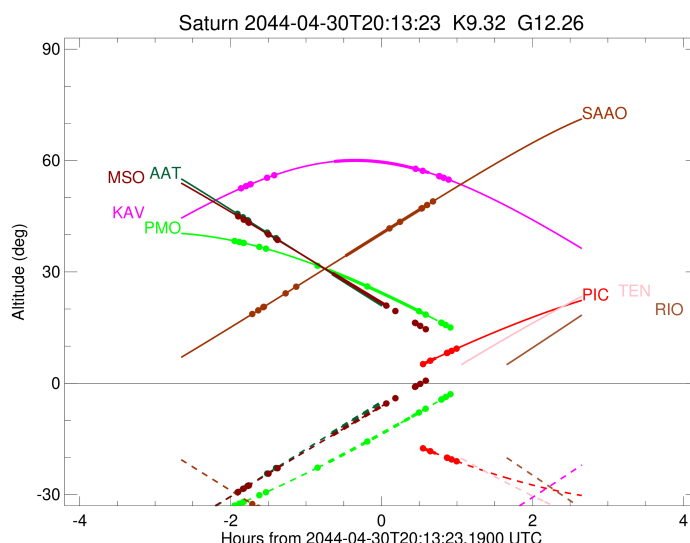
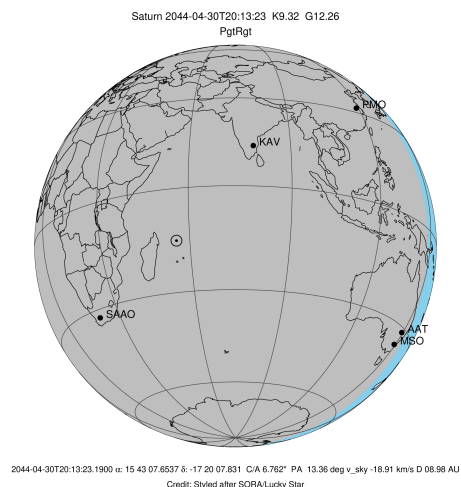
target : Saturn
 target radius (km) : 60268.00
 C/A epoch : 2044-04-30T20:16:53.850
 Event type : PgtRgt
 : Saturn occs: geocentric, topocentric
 : Ring occs: geocentric, topocentric
 Observer code : SAAO
 Location : So. Afr. Astro. Obs. (Sutherland)
 Latitude (deg) : -32.37953
 E. Longitude (deg) : 20.81070
 Altitude (km) : 1.768
 Gaia source ID : 6261279710107361664
 2Mass ID (if available) : 15430787-1720076
 ICRS Star Coord at Epoch: 15h 43m 07.65372s -17:20:07.83096s
 RUWE (>1.4 is poor) : 17.08
 K magnitude : 9.324
 G magnitude : 12.265
 RP magnitude : 11.338
 BP magnitude : 13.135
 DUPflag : 0
 Distance (au) : 8.976
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -18.91
 Sun-Target sep (deg) : 162.85
 Sun-Moon sep (deg) : 154.69
 B (ring opening deg) : 23.60
 PA of pole (deg) : 1.86
 Pole direction: RA (deg): 40.60000
 Dec (deg): 83.50000
 C/A sky separation (") : 7.246
 C/A sky separation (km) : 47173.3
 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	2044-04-30T18:30:39.165		18.66	-32.54	140461.00	-13.25		
A (OER)	I	2044-04-30T18:35:23.014		19.65	-33.54	136774.40	-12.72		
Encke (OEG)	I	2044-04-30T18:39:25.745		20.50	-34.39	133744.89	-12.24		
Encke (IEG)	I	2044-04-30T18:39:52.086		20.59	-34.49	133423.31	-12.18		
A (IER)	I	2044-04-30T18:57:06.736		24.22	-38.12	122050.38	-9.69		
B (OER)	I	2044-04-30T19:05:25.687		25.97	-39.87	117571.16	-8.24		
Saturn	I	2044-04-30T19:44:43.718		34.30	-48.05	59875.27		-36.89	-42.45
Saturn	E	2044-04-30T20:48:30.613		47.77	-60.63	59541.01		-55.10	-60.08
B (OER)	E	2044-04-30T20:19:58.621	b	41.77	-55.16	117571.16	8.27		
A (IER)	E	2044-04-30T20:28:15.445	b	43.52	-56.79	122050.38	9.74		
Encke (IEG)	E	2044-04-30T20:45:23.374	b	47.12	-60.05	133423.31	12.28		
Encke (OEG)	E	2044-04-30T20:45:49.493	b	47.21	-60.13	133744.89	12.34		
A (OER)	E	2044-04-30T20:49:50.053		48.05	-60.87	136774.40	12.84		
F ring	E	2044-04-30T20:54:31.071		49.03	-61.73	140461.00	13.39		

target : Saturn
 target radius (km) : 60268.00
 C/A epoch : 2044-04-30T20:08:17.660
 Event type : PgtRgt
 : Saturn occs: geocentric, 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 : 6261279710107361664
 2Mass ID (if available) : 15430787-1720076
 ICRS Star Coord at Epoch: 15h 43m 07.65372s -17:20:07.83096s
 RUWE (>1.4 is poor) : 17.08
 K magnitude : 9.324
 G magnitude : 12.265
 RP magnitude : 11.338
 BP magnitude : 13.135
 DUPflag : 0
 Distance (au) : 8.976
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -18.91
 Sun-Target sep (deg) : 162.85
 Sun-Moon sep (deg) : 153.38
 B (ring opening deg) : 23.60
 PA of pole (deg) : 1.86
 Pole direction: RA (deg): 40.60000
 Dec (deg): 83.50000
 C/A sky separation (") : 7.046
 C/A sky separation (km) : 45873.2
 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	2044-04-30T18:19:28.069		44.96	-29.26	140461.00	-14.23		
A (OER)	I	2044-04-30T18:23:51.503		44.07	-28.37	136774.40	-13.75		
Encke (OEG)	I	2044-04-30T18:27:35.344		43.32	-27.60	133744.89	-13.31		
Encke (IEG)	I	2044-04-30T18:27:59.545		43.24	-27.52	133423.31	-13.26		
A (IER)	I	2044-04-30T18:43:30.123		40.09	-24.35	122050.38	-11.08		
B (OER)	I	2044-04-30T18:50:37.019		38.64	-22.90	117571.16	-9.88		
Saturn	I	2044-04-30T19:34:36.818		29.62	-13.96	59917.00		-34.55	-40.03
Saturn	E	2044-04-30T20:41:34.133		15.98	-0.67x	59557.64		-54.15	-59.21
B (OER)	E	2044-04-30T20:17:22.888	b	20.88	-5.41	117571.16	9.81		
A (IER)	E	2044-04-30T20:24:33.109	b	19.43	-4.00x	122050.38	10.99		
Encke (IEG)	E	2044-04-30T20:40:11.651	b	16.26	-0.94x	133423.31	13.15		
Encke (OEG)	E	2044-04-30T20:40:36.066	b	16.18	-0.86x	133744.89	13.20		
A (OER)	E	2044-04-30T20:44:21.902		15.42	-0.13x	136774.40	13.63		
F ring	E	2044-04-30T20:48:47.714		14.53	0.73x	140461.00	14.10		