

## SMM C/P 1987 Coronal Mass Ejections page 1 of 14

Date	DOY	Time [UT]	Ctrl PA [deg]	Width [deg]	Kinematics					Comments	
					Trajectory Times [UT]	Speed [km/s]	Speed PA	#Data Pts	Qual		Feature
											DATA BEGINS Mar 30, 1987 at 21:32.
											DATA GAPS: Mar 31 01:21 to 14:58. Mar 31 21:48 to Apr 01 14:32. Apr 02 22:06 to Apr 03 15:14.
Apr 04	094	01:04-11:31	090	034	—	—	—	—	1		Could be up to three events: 1. Faint, fuzzy material superposed on streamer. Streamer expands. 2. Loop(s?)/cavity superposed on south side of streamer. 3. Jet (or wisp) near south edge of previous loop.
		01:04-05:14									
		03:40-06:48	115	034	Apr 04 03:40-05:22	080 <sub>1</sub> ★	115	4	7	Loop	
		09:57-11:31	~107	~040	Apr 04 03:40-05:22	051 <sub>1</sub> ★	115	4	7	Cavity	
											Faint front in 2 images
Apr 05	095	03:14-03:47	092	030	—	—	—	—	0	Front at 03:14 only	Loop(?)/cavity superposed on streamer.
											DATA GAP: Apr 05 11:50 to 21:57.
Apr 06	096	04:55-06:29	085	~030	—	—	—	—	0	Front at 04:55 only	Mound (or blob) superposed on streamer. Streamer is disrupted.
											DATA GAP: Apr 06 19:03 to 21:30.
Apr 15	105	16:15-19:07	247	035	Apr 15 16:15-16:48	230 <sub>1</sub> ★ 251 <sub>2</sub>	242	3	3	Cloud	Faint cloud.
											DATA GAP: Apr 15 23:05 to Apr 16 14:15
Apr 16	106	17:07-20:16	~245	~040	Apr 16 17:07-17:48	672 <sub>1</sub> ★ 536 <sub>2</sub>	249†	3	2	Cloud	Faint cloud followed by second cloud in same location. Could be wider.
					Apr 16 17:40-17:57	280 <sub>1</sub> ★ 280 <sub>2</sub>	245	3	3	Second cloud	
Apr 17	107	13:49-18:40	~100	—	—	—	—	—	0	No obvious front	Cloud and blob superposed on streamer. Streamer is disrupted.
					Apr 17 15:48-16:57	325 <sub>1</sub> ★	102	2	4	Blob	
Apr 18	108	03:57-14:49	097?	015?	—	—	—	—	0	Front at 03:57 only	Blob superposed on streamer. Could be as far south as 065°. Data gap occurs during event.
											DATA GAP: Apr 18 07:31 to 13:06.

† Position of feature was measured along a non-radial line.

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					Trajectory Times [UT]	Speed [km/s]	Speed PA	#Data Pts	Qual		
Apr 19	109	05:05-09:48	083	041	—	—	—	—	1	Front in two images only, one good, one fuzzy	Material expands and blows out through streamer. Streamer is disrupted.
											DATA GAP: Apr 19 23:57 to Apr 20 01:56.
Apr 21/22	111/112	18:22~05:05	092	038	Apr 21 18:22-19:56	185 <sub>1</sub> *	090	2	3	Loop	Fuzzy loop(?)/cavity in streamer. Streamer expands. Loop fades into background brightness levels.
											DATA GAP: Apr 23 13:11 to Apr 24 13:38.
Apr 28	118	~01:25-10:17	266	038	Apr 28 03:15-07:09	079 <sub>1</sub> *	255	10	6	Southern edge of loop	Loop(?)/cavity superposed on streamer. Streamer is disrupted.
					Apr 28 02:26-03:15	045 <sub>1</sub> *	268	4	3	Cavity	
May 17/18	137/138	~09:52-06:18?	~080	—	—	—	—	—	0	No clear front	Slow expansion and disruption of streamer.
											DATA GAP: May 20 17:16 to 19:34.
May 24	144	09:13-15:05	305	050	May 24 09:13-12:21	078 <sub>1</sub>	305	7	6	Loop	Faint loop/cavity with (multiple?) inner loop/cavity. Possible concave-outward, 'U'-shaped material visible from 13:23 until 15:05.
					May 24 10:14-11:48	096 <sub>1</sub> *	300	4	4	Cavity	
					May 24 10:47-12:05	112 <sub>1</sub> *	305	3	5	Inner loop	
					May 24 10:47-12:21	078 <sub>1</sub>	300	5	7	Inner cavity	
May 24	144	12:21-16:31	244	012	—	—	—	—	0	Front at 13:23 only	Faint cloud superposed on south side of streamer.
May 26	146	07:39-15:38	115	040	May 26 07:39-08:12	206 <sub>1</sub> *	110	4	6	Outer cavity	Multiple loops/cavities superposed on south edge of streamer. Streamer is deflected.
					May 26 08:12-10:47	076 <sub>1</sub> *	120	3	7	Second loop	
					May 26 08:12-09:46	049 <sub>1</sub> *	120	2	5	Second cavity	
May 26	146	12:38-23:37	256	020	May 26 13:03-14:37	079 <sub>1</sub> *	253	4	6	Streamer	Expansion and disruption of streamer.

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					Trajectory Times [UT]	Speed [km/s]	Speed PA	#Data Pts	Qual		
May 29	149	00:43-06:11	279?	017?	—	—	—	—	0	Front at 02:18 only	Small, faint cloud superposed on south side of streamer.
May 29	149	17:10-18:45	270	050	May 29 17:10-18:00	375 <sub>1</sub> * 374 <sub>2</sub>	275	3	6	Outer loop	Flat-topped (or heart-shaped) system (arcade?) of loops/cavities. Streamer is deflected.
May 29	149	20:44-23:52	275	060	May 29 21:53-22:43	459 <sub>1</sub> * 257 <sub>2</sub>	275	3	6	Outer loop	Fuzzy material followed by multiple loops/cavities and twisted, bright, structured core. Core extends to the southern edge of event.
					May 29 22:18-22:43	445 <sub>1</sub> *	285	2	7	Northern cavity	
					May 29 21:53-22:18	422 <sub>1</sub> *	265	2	9	Southern cavity	
					May 29 22:10-22:43	446 <sub>1</sub> * 556 <sub>2</sub>	255	3	9	Outer edge of twisted core	
May 30	150	08:08-08:53	~270	~045	—	—	—	—	0	Front at 08:08 only	Faint cloud (or loop/cavity). Deflections.
May 31	151	02:34-14:43	296	068	May 31 10:25-11:59	166 <sub>1</sub> 338 <sub>2</sub> *	315	5	9	Outer loop	Slow rising, multiple loops/cavities with bright, twisted (prominence?) core superposed on streamer. Core is under northern half of loop. Rapid acceleration at ~10:01. Bright, non-radial ray forms at core location at ~18:00. Motion (ejection?) of material along bright ray until end of Jun 01. Large deflections. Streamer is disrupted.
					May 31 11:35-12:24	410 <sub>1</sub> * 527 <sub>2</sub>	318†	4	7	Core (prominence?)	
											DATA GAPS: Jun 02 14:40 to 21:41. Jun 04 14:40 to Jun 05 15:39. Jun 05 17:38 to 19:13. Jun 10 09:33 to 13:27.
Jun 10	161	20:17-23:00	~252	~055	—	—	—	—	1	Cloud	Faint cloud (or fuzzy loop/cavity) superposed on and south of streamer.
											Jun 16 13:10 to Jun 17 13:28. Jun 18 01:16 to 14:35.
Jun 18	169	14:51-20:07	255	030	—	—	—	—	0	No obvious front	Expansion of faint material superposed on fan.

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					Trajectory Times [UT]	Speed [km/s]	Speed PA	#Data Pts	Qual	Feature	
Jun 25/26	176/177	~13:54~23:55	287	033	—	—	—	—	0	No clear front	Material superposed on streamer. Streamer expands slowly and blows out.
											DATA GAPS: Jun 27 20:05 to 23:13. Jun 29 04:21 to 06:40. Jul 01 16:05 to Jul 02 00:41.
Jul 07/08	188/189	17:21~05:10	030	070	Jul 07 17:21-18:02	255 <sub>1</sub> ★ 402 <sub>2</sub>	040	4	7	Loop	Loop/cavity with structured (prominence?) core. Core is located at north edge of event. Large deflections.
					—	—	—	—	1	Core (prominence?)	
											DATA GAP: Jul 09 18:43 to Jul 10 17:35.
Jul 10/11	191/192	19:51-08:25	075	050	Jul 10/11 20:44-03:42	056 <sub>1</sub> 113 <sub>2</sub> ★	090	10	5	Southern edge of mound	Mound (with cavity?) in streamer. Streamer expands and blows out.
Jul 15	196	13:56-15:30	~090	~030	—	—	—	—	1	Obscured by artifact	Diffuse loop(?)/cavity superposed on south edge of streamer.
											DATA GAP: Jul 18 00:27 to 02:02.
Jul 18/19	199/200	22:35-02:45	~070	~020	—	—	—	—	1	Cavity	Very faint loop(s?)/cavity.
Jul 20	201	13:26-15:33	~266	~090	Jul 20 13:34-15:00	244 <sub>1</sub> ★ 321 <sub>2</sub>	260	3	4	Loop	Wide, very faint loop/cavity.
					Jul 20 13:26-13:59	141 <sub>1</sub> ★	290	2	5	Cavity	
Jul 24	205	18:30-21:38	~280	~020	—	—	—	—	1		Faint material superposed on fan.
Jul 25/26	206/207	08:13-07:38	250	030	—	—	—	—	1		Structured material superposed on streamer. Streamer is disrupted.
Jul 27	208	12:19-16:28	102	055	Jul 27 13:12-13:53	314 <sub>1</sub> ★ 315 <sub>2</sub>	089†	4	7	Loop	Faint loop/cavity with interior loop-shaped(?) core superposed on south side of streamer.
					Jul 27 13:12-13:53	254 <sub>1</sub> ★ 270 <sub>2</sub>	095	4	7	Cavity	
Jul 29	210	06:18>06:51	~242	~005	Jul 29 06:18-06:26	770 <sub>1</sub> ★	243	2	3	Jet	Jet (or narrow loop/cavity).
											DATA GAP: Jul 29 06:51 to 15:27.

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					Trajectory Times [UT]	Speed [km/s]	Speed PA	#Data Pts	Qual		
Jul 30	211	07:17-08:51	~092	~005	—	—	—	—	0	No obvious front	Jet (or ray).
											DATA GAP: Jul 30 10:59 to Jul 31 14:33.
Aug 01	213	19:05-22:47	268	038	Aug 01 19:05-19:38	422 <sub>1</sub> *	260	2	5	Mound	Mound (or cloud) superposed on streamer.
Aug 02	214	11:12-16:03	352	145	Aug 02 12:05-12:55	312 <sub>1</sub> *	340	4	8	Loop	Wide, faint loop/cavity with small, structured, inner (prominence?) loop/cavity superposed on west side of streamer. Streamer is unaffected.
					Aug 02 12:55-13:56	155 <sub>1</sub> *	319	3	6	Inner loop (prominence?)	
Aug 03	215	00:55-04:04	258	038	Aug 03 00:55-01:28	193 <sub>1</sub> *	258	2	4	Mound	Mound (or cloud).
Aug 05	217	12:35-23:44	280	042	—	—	—	—	0	No clear front	Slow expansion of streamer.
Aug 05	217	17:10-21:44	~067	—	Aug 05 17:10-19:17	103 <sub>1</sub> *	065	6	3	Cloud	Faint cloud.
Aug 06/07	218/219	16:43~22:59	102	025	Aug 06 17:16-20:25	031 <sub>1</sub> *	110	5	5	Cavity	Faint loop/cavity with possible core superposed on streamer. Streamer is disrupted.
											DATA GAPS: Aug 14 15:30 to 17:49. Aug 18 13:05 to 14:56.
Aug 19	231	10:56-11:46	263	086	Aug 19 10:56-11:13	671 <sub>1</sub> *	225	3	5	Cloud	Structured cloud visible from 10:56 until 11:21. Additional material (loop/cavity?) superposed on streamer in 11:46 image. Streamer is disrupted.
					Aug 19 10:56-11:21	425 <sub>1</sub> *	225	4	6	Hook in material	
Aug 19/20	231/232	~19:37~01:29	240 238?	022 018?	—	—	—	—	0	No clear front	Cavity superposed on streamer. Faint material precedes cavity.
					Aug 19 19:37-22:20	043 <sub>1</sub> *	240	3	6	Cavity	
Aug 20	232	13:46-17:28	115	050	Aug 20 13:46-15:53	214 <sub>1</sub> *	115	5	5	Loop	Loop/cavity with structured, central core superposed on streamer. Streamer is blown out.
					Aug 20 13:46-15:53	228 <sub>1</sub> *	115	5	6	Cavity	
					Aug 20 13:46-15:53	179 <sub>1</sub> *	120	5	6	Core	

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					Trajectory Times [UT]	Speed [km/s]	Speed PA	#Data Pts	Qual		
											DATA GAP: Aug 21 10:52 to 14:46.
Aug 22	234	08:44-19:43	085	036	—	—	—	—	1	Material	Diffuse material followed by a loop/cavity(?) superposed on streamer. Streamer is disrupted.
					Aug 22 11:19-14:27	101 <sub>1</sub> * 148 <sub>2</sub>	090	4	6	Loop	
Aug 23/24	235/236	22:24-04:34	080	050	Aug 23 23:26-23:59	492 <sub>1</sub> *	095	2	5	Southern mound	Multiple mounds (or clouds) superposed on streamer. Streamer is disrupted.
Aug 26	238	07:05-22:47	281	043	Aug 26 07:05-16:30	052 <sub>1</sub> 094 <sub>2</sub> *	280†	9	5	Cavity	Loop/cavity with core south of streamer. Core emerges late in event. Streamer is disrupted.
											DATA GAP: Aug 27 19:11 to Aug 28 17:55.
Aug 28	240	19:37-21:45	095	039	—	—	—	—	1		Small loop(?)/cavity superposed on south side of streamer. Data is streaked.
Aug 29	241	03:20-04:10	272	055	Aug 29 03:20-03:37	669 <sub>1</sub> *	295	2	6	Northern top of loop	Large, flat-topped loop/cavity superposed on fan. Fan is blown out.
					Aug 29 03:20-03:37	563 <sub>1</sub> *	295	2	4	Northern top of cavity	
Aug 31	243	12:42-13:43	280	055	—	—	—	—	0	Front at 12:42 only	Faint loop/cavity(?). Southern leg of loop is bent strongly away from event.
Sep 01	244	13:49-17:58	330	—	Sep 01 13:49-14:50	142 <sub>1</sub> * 140 <sub>2</sub>	328†	3	4	Mound	Faint mound.
Sep 01	244	16:16-17:50	110	055	—	—	—	—	1		Structured material south of streamer. Streamer is deflected.
Sep 03	246	09:39-12:14	090	042	Sep 03 09:39-10:40	362 <sub>1</sub> *	100	2	5	Loop	Faint, flat-topped loop/cavity superposed on streamer. Streamer is disrupted.
					Sep 03 09:39-10:40	343 <sub>1</sub> *	100	2	7	Cavity	
Sep 07	250	09:27-22:54	106	047	Sep 07 10:28-15:11	086 <sub>1</sub> 141 <sub>2</sub> *	115	6	5	Cavity	Diffuse loop/cavity with complex, structured, concave-outward, 'U'-shaped core superposed on streamer. Part of streamer is blown out.
											DATA GAPS: Sep 08 03:53 to 08:19. Sep 08 13:51 to Sep 09 03:10.
Sep 09	252	07:53-15:52	070	064	Sep 09 07:53-11:34	053 <sub>1</sub> * 067 <sub>2</sub>	065	10	3	Loop	Faint loop/cavity with faint core. Deflections.

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Sep 09	252	17:35-22:51	274	028	—	—	—	—	0	No clear front	Swelling and expansion of material superposed on streamer. Streamer is disrupted.
											DATA GAPS: Sep 10 17:00 to 20:00. Sep 10 22:24 to Sep 11 03:51. Sep 11 19:58 to Sep 12 00:16. Sep 13 01:48 to 03:22. Sep 15 18:28 to 22:29.
Sep 16/17	259/260	02:19-02:53	~108	~037	Sep 16 02:19-06:28	015 <sub>1</sub> * 015 <sub>2</sub>	105	5	3	Cavity	Fuzzy loop/cavity (or mound). Could be wider. Region is disrupted.
Sep 17	260	07:43-09:51	266	022	Sep 17 07:43-08:16	365 <sub>1</sub> * 301 <sub>2</sub>	260	3	5	Mound	Flat-topped mound (with small cavity?).
Sep 17	260	16:00-17:42	262	075	Sep 17 16:00-16:08	704 <sub>1</sub> *	240	2	2	Outer loop	Multiple loops/cavities(?) with possible loop-shaped (structured?) core superposed on streamer. Streamer is unaffected.
Sep 17	260	20:25-23:17	094	042	Sep 17 20:25-20:42	598 <sub>1</sub> *	108†	2	7	Loop	Loop/cavity superposed on fan. Deflections.
Sep 21	264	13:55-23:45	~240	—	Sep 21 13:55-21:38	048 <sub>1</sub> * 051 <sub>2</sub>	235	10	3	Mound	Faint mound (or cloud) superposed on and south of streamer.
Sep 22	265	10:36-14:46	062	045	Sep 22 11:38-13:12	172 <sub>1</sub> * 167 <sub>2</sub>	065	3	5	Loop	Faint loop(?)/cavity and mound-shaped core.
					Sep 22 12:11-13:12	208 <sub>1</sub> *	065	2	4	Core	
											DATA GAPS: Sep 22 16:54 to 20:55. Sep 22 21:44 to Sep 24 14:01.
Sep 24	267	17:34-23:18	091	042	Sep 24 19:09-22:17	058 <sub>1</sub> 134 <sub>2</sub> *	100	6	7	Cavity	Loop/cavity and core superposed on fan. Could be 'light-bulb' shaped. Fan is disrupted.
											DATA GAP: Sep 25 15:42 to 18:01.

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Sep 25/26	268/269	18:17~03:42	267	046	Sep 25 18:50-21:59	082 <sub>1</sub> * 194 <sub>2</sub>	260	3	3	Core	Faint mound (or loop) with embedded cavity and core superposed on streamer. Streamer is disrupted. Possible concave-outward, 'U'-shaped material from Sep 25 23:33 until Sep 26 ~03:42.
					—	—	—	—	1	Concave-outward material	
Sep 27	270	01:42~23:41	299	038	—	—	—	—	0	No clear front	Faint cloud superposed on fan near equator. Northern edge accelerates and blows out beginning at ~16:23. Possible concave-outward material from 16:23 until ~23:41.
Oct 04	277	06:10-13:08	117	050	Oct 04 08:26-11:01	129 <sub>1</sub> 257 <sub>2</sub> *	130	6	3	Loop	Diffuse loop/cavity superposed on and south of streamer. Part of streamer is deflected.
											DATA GAP: Oct 04 22:41 to Oct 05 00:15.
Oct 06	279	16:24-19:32	075	026	—	—	—	—	1	Cavity	Mound (or loop) with cavity.
Oct 09	282	07:45-20:18	118 ~127	005 ~021	—	—	—	—	0	No clear front	Two part event: 1. Multiple small jets in ray. 2. Mound (or loop/cavity) with interior structure in ray. Event may be wider.
		07:45-11:54 11:54-20:18			Oct 09 12:11-15:03	059 <sub>1</sub> * 050 <sub>2</sub>	130 <sup>†</sup>	6	3	Mound	
											DATA GAP: Oct 10 13:42 to 20:44.
Oct 11	284	10:07-14:50	272	025	Oct 11 10:07-11:41	229 <sub>1</sub> * 307 <sub>2</sub>	270	3	4	Cloud	Fuzzy cloud near equatorial streamer.
Oct 14	287	08:38-11:13	083	027	—	—	—	—	0	No obvious front	Curved material (loop/cavity?) south of streamer. Deflections.
Oct 16	289	01:35-13:35	~272	~035	—	—	—	—	0	No clear front	Faint mound north of streamer. Could be wider.

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Oct 16/17	289/290	02:28-04:00	074	042	Oct 16 03:01-05:44	123 <sub>1</sub>	070	7	7	Cavity	Two-part event: 1. Loop/cavity with structured, loop-shaped (prominence) core superposed on streamer. Streamer is disrupted. 2. Faint jet ejected along ray.
	289	02:28-11:53				183 <sub>2</sub> *					
	289/290	22:52-04:00	~075	—	—	—	—	0	No clear front		
Oct 18	291	all day	250	054	—	—	—	—	1		Slow-moving, diffuse mound superposed on streamer. Faint cavity and core may be present in southern part of event.
											DATA GAP: Oct 19 14:22 to 21:24.
Oct 20/22	293/295	~01:22~06:38	~255	~030	—	—	—	—	0	No obvious front	Slow disruption of streamer.
Oct 21	294	03:48-08:39	081	048	—	—	—	—	0	No clear front	Fan appears and expands. Fan is superposed on equatorial streamer.
											DATA GAP: Oct 21 11:14 to 17:23.
Oct 23	296	10:13>12:37	290	030	Oct 23 10:13-12:37	044 <sub>1</sub> *	291	6	6	Cavity	Loop/cavity and core superposed on streamer. Streamer is disrupted. Event ends during data gap.
					013 <sub>2</sub>						
Oct 24	297	12:10-23:02	277	026	Oct 24 12:10-16:20	047 <sub>1</sub> *	280	6	5	Cavity	Loop/cavity with fuzzy core(?) superposed on fan.
						019 <sub>2</sub>					
					Oct 24 14:46-19:29	026 <sub>1</sub> *	280	5	5	Core	
Oct 25	298	18:46-19:35	283	046	Oct 25 18:46-19:35	312 <sub>1</sub>	305	4	7	Loop	Loop/cavity with broad, fuzzy core superposed on fan. Fan is unaffected. Deflections south of event.
						469 <sub>2</sub> *					
					Oct 25 18:46-19:35	323 <sub>1</sub> *					
					323 <sub>2</sub>						
					Oct 25 19:02-19:35	434 <sub>1</sub> *	305	3	7	Core	
						282 <sub>2</sub>					

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Date	DOY	Time [UT]	Cent PA [deg]	Width [deg]	Kinematics						Comments
					Trajectory Times [UT]	Speed [km/s]	Speed PA	#Data Pts	Qual	Feature	
Oct 26/27	299/300	20:27-02:51	109	063	Oct 26 20:27-22:17	157 <sub>1</sub> 326 <sub>2</sub> *	125	5	5	Loop	Diffuse loop/cavity with structured (prominence) core superposed on and south of streamer. Streamer is unaffected.
					Oct 26 20:43-22:17	156 <sub>1</sub> 216 <sub>2</sub> *	120	4	7	Cavity	
					Oct 26/27 21:52-01:17	175 <sub>1</sub> * 196 <sub>2</sub>	102†	5	5	Core (prominence)	
Oct 26/27	299/300	23:02-05:35	245	030	Oct 26/27 23:02-01:00	105 <sub>1</sub> * 048 <sub>2</sub>	245	4	3	Mound	Very faint mound (or loop/cavity).
Oct 27/28	300/301	12:17-08:08	096	052	Oct 27 12:17-16:52	042 <sub>1</sub> * 026 <sub>2</sub>	100	5	2	Cavity	Loop/cavity (or mound with cavity) and core superposed on streamer. Streamer is disrupted. 'Light-bulb' shaped late in event. Deflections.
											DATA GAPS: Oct 28 03:34 to 08:00. Oct 28 11:58 to Oct 29 04:25.
Nov 01	305	07:55-11:36	117	045	Nov 01 07:55-08:28	246 <sub>1</sub> * 316 <sub>2</sub>	120	3	8	Cavity	Faint loop/cavity superposed on and south of streamer. Streamer is unaffected. Very faint material ejected late in event.
Nov 01	305	12:54-17:12	116	052	Nov 01 12:54-14:12	387 <sub>1</sub> * 435 <sub>2</sub>	125	3	7	Loop	Fuzzy loop/cavity superposed on and south of streamer. Streamer is unaffected.
					Nov 01 12:54-14:12	338 <sub>1</sub> * 361 <sub>2</sub>	125	3	5	Cavity	Irregular material precedes loop. Could be related to previous event.
Nov 02	306	14:26-17:26	287	035	—	—	—	—	1		Faint mound (or loop/cavity) superposed on streamer. Streamer is unaffected.
Nov 03	307	16:51-21:42	110	041	Nov 03 16:51-18:08	321 <sub>1</sub> 455 <sub>2</sub> *	115	5	7	Cavity	Bright loop/cavity with loop-shaped core(?) superposed on streamer. Streamer is blown out.
					Nov 03 16:51-18:08	203 <sub>1</sub> * 193 <sub>2</sub>	126†	3	4	Core	

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Date	DOY	Time [UT]	Cent PA [deg]	Width [deg]	Kinematics					Feature	Comments
					Trajectory Times [UT]	Speed [km/s]	Speed PA	#Data Pts	Qual		
Nov 04	308	01:43-03:25	~020	~090	—	—	—	—	0	Front at 01:43 only	Very faint, broad mound spans north polar region. Could be wider. West edge is tough to measure.
Nov 04/05	308/309	18:06-06:14	289	047	—	—	—	—	0	No obvious front	Two piece event: 1. Slow expansion and disruption of streamer. 2. (Loop-shaped?) material superposed on streamer.
	308/309	18:06-06:14			—	—	—	—	0	Front at 05:13 only	
Nov 05	309	07:40~22:21	110	040	Nov 05 07:40-12:56	037 <sub>1</sub> * 054 <sub>2</sub>	105	11	7	Cavity	Two part event: 1. Loop/cavity superposed on streamer. Second, structured (prominence?) loop/cavity at south edge of first loop from 10:49 until 11:22. Streamer is disrupted. 2. Mound-shaped material follows loops. Fades into background brightness levels.
		12:39~22:21			—	—	—	—	1		
DATA GAP: Nov 05 22:29 to Nov 06 00:48.											
Nov 06	310	07:46-10:22	113	037	Nov 06 08:47-09:20	070 <sub>1</sub> *	110	2	4	Cavity	Fan expands. Loop(?)/cavity in fan.
Nov 06/07	310/311	20:20-12:02	120	060	Nov 06 20:20-20:28	776 <sub>1</sub> *	125	2	8	Loop	Bright loop/cavity with structured (prominence?) core superposed on fan. Fan is blown out.
					Nov 06 20:20-20:28	706 <sub>1</sub> *	125	2	9	Cavity	
					Nov 06 20:20-20:28	706 <sub>1</sub> *	138	2	9	Core (prom?)	
Nov 07	311	17:45-22:53	122	047	Nov 07 17:45-18:18	270 <sub>1</sub> * 158 <sub>2</sub>	125	3	7	Loop	Loop/cavity superposed on streamer. Back edge of cavity is concave-outward 'U'-shaped. Streamer is blown out.
					Nov 07 17:45-18:18	258 <sub>1</sub> * 369 <sub>2</sub>	125	3	7	Cavity	
Nov 07/08	311/312	20:01~05:26	300	043	—	—	—	—	0	Front at 20:01 only	Bright loop/cavity superposed on fan. Fan is disrupted. Wisp of (prominence?) material is visible at north edge of event from 22:20 until 23:01. Data gap occurs near end of event.
DATA GAP: Nov 08 03:52 to 05:09.											

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Date	DOY	Time [UT]	Cent PA [deg]	Width [deg]	Kinematics					Feature	Comments
					Trajectory Times [UT]	Speed [km/s]	Speed PA	#Data Pts	Qual		
Nov 08	312	17:51-22:09	~265	~030	—	—	—	—	0	No obvious fronts	Expansion of material in fan. Cavity may be present. Fan is disrupted.
Nov 09	313	12:41-23:33	114	032	—	—	—	—	1		Faint cloud superposed on streamer.
Nov 10/11	314/315	22:32-01:40	271	062	Nov 10 22:32-22:40	393 <sub>1</sub> ★	294 <sub>†</sub>	2	7	Hook in core (prominence)	Fuzzy loop/cavity with structured, knotty (prominence) core in northern leg of loop. Region is disrupted. Deflections.
Nov 11/12	315/316	19:05-07:38	072	052	—	—	—	—	0	No clear front	Expansion and disruption of streamer. Concave-outward 'U'-shaped material may be present.
											DATA GAPS: Nov 16 09:14 to 13:32. Nov 16 14:22 to Nov 17 14:39.
Nov 18/19	322/323	05:20-09:43	~105	~070	—	—	—	—	0	No obvious front	Slow expansion of wide, faint, diffuse cloud around streamer.
Nov 18/19	322/323	12:54-23:51	~240	—	—	—	—	—	0	No obvious front	Slow expansion of faint, diffuse cloud around streamer.
Nov 19/20	323/324	10:44-11:51	106	071	Nov 19/20 22:09-09:16	039 <sub>1</sub> 066 <sub>2</sub> ★	122 <sub>†</sub>	18	7	Cavity	Faint cloud superposed on streamer. Tear-dropped-shaped cavity visible late in event. Deflections.
Nov 21	325	00:25-11:57	~102	~045	Nov 21 00:25-00:58	176 <sub>1</sub> ★ 176 <sub>2</sub>	110	3	3	Cloud	Broad, fuzzy cloud superposed on background structures. Could be wider.
Nov 21	325	00:41~13:06	262	061	Nov 21 00:41-08:24	057 <sub>1</sub> ★ 070 <sub>2</sub>	250	8	4	Cavity	Broad, diffuse cloud with cavity and possible concave-outward 'U'-shaped material superposed on existing structures. Equatorial region is blown out.
Nov 22	326	06:14-11:29	082	036	—	—	—	—	1		Cloud(?) with cavity superposed on fan. Fan is blown out.
											DATA GAP: Nov 22 14:13 to Nov 23 19:45.

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## SMM C/P 1987 Coronal Mass Ejections page 13 of 14

Date	DOY	Time [UT]	Cent PA [deg]	Width [deg]	Kinematics						Comments
					Trajectory Times [UT]	Speed [km/s]	Speed PA	#Data Pts	Qual	Feature	
Nov 24	328	17:44-22:34	061	046	Nov 24 19:51-20:00	422 <sub>1</sub> ★	060	2	7	Outer loop	Loop/cavity with inner loop/cavity all superposed on southern edge of streamer. Deflections.
					Nov 24 19:51-20:00	422 <sub>1</sub> ★	060	2	7	Outer cavity	
					Nov 24 19:51-21:00	327 <sub>1</sub> ★	060	3	7	Inner loop	
					Nov 24 19:51-21:00	236 <sub>1</sub> ★	063†	3	4	Inner cavity	
Nov 26	330	12:55-15:14	257	045	Nov 26 12:55-13:57	247 <sub>1</sub> ★	244†	2	3	Cloud	Faint, diffuse cloud.
Nov 29	333	14:33-18:42	105	034	Nov 29 14:33-15:34	306 <sub>1</sub> ★	109†	2	3	Loop	Loop(?)/cavity superposed on streamer. Streamer is partially blown out.
Dec 01	335	17:39-19:13	286	079	Dec 01 17:39-18:29	290 <sub>1</sub> ★ 338 <sub>2</sub>	300	4	5	Loop	Faint loop/cavity superposed on streamer.
Dec 03	337	09:43-12:44	280	060	—	—	—	—	1		Cloud superposed on streamer.
											DATA GAP: Dec 03 14:27 to Dec 04 03:44.
Dec 05	339	~04:00-16:41	259	042	Dec 05 11:58-13:33	185 <sub>1</sub> ★ 171 <sub>2</sub>	263	3	2	Mound	Slow expansion and swelling of streamer. Fuzzy mound with indistinct cavity becomes visible around streamer at ~10:24. Brighter, structured core is visible from 13:33 until ~16:03. Streamer is blown out. Deflections.
					Dec 05 14:34-15:07	351 <sub>1</sub> ★	270	2	5	Core	
Dec 06	340	06:08-07:42	103	055	Dec 06 06:08-06:41	351 <sub>1</sub> ★ 351 <sub>2</sub>	115	3	6	Loop	Faint loop/cavity and diffuse core. Deflections.
					Dec 06 06:08-06:41	293 <sub>1</sub> ★ 456 <sub>2</sub>	115	3	6	Cavity	
					Dec 06 06:08-06:41	261 <sub>1</sub> ★ 298 <sub>2</sub>	115	3	6	Core	
Dec 09	343	03:15-10:58	120	032	Dec 09 04:49-07:58	345 <sub>2</sub> ★	124†	7	5	Loop	Loop/cavity with diffuse core. Deflections.
											DATA GAP: Dec 11 21:21 to Dec 12 15:55.
Dec 14	348	02:28-10:27	062	060	Dec 14 02:28-03:09	208 <sub>1</sub> ★	063	4	5	Cavity	Faint loop/cavity and diffuse core in streamer. Streamer is disrupted.

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## SMM C/P 1987 Coronal Mass Ejections page 14 of 14

Date	DOY	Time [UT]	Cent PA [deg]	Width [deg]	Kinematics					Feature	Comments	
					Trajectory Times [UT]	Speed [km/s]	Speed PA	#Data Pts	Qual			
Dec 14	348	04:43-15:10	122	037	—	—	—	—	0	Front at 04:43 only	Two part event: 1. Mound with cavity(?) superposed on fan and streamer. 2. Faint mound with cavity superposed on fan.	
		04:43-06:10										10:27-15:10
Dec 16	350	13:06-20:48	135	050	Dec 16 13:06-17:40	041 <sub>1</sub> * 040 <sub>2</sub>	130	9	4	Mound	Faint mound superposed on streamer. Simultaneous deflections (or brightening) in southwest.	
Dec 17/18	351/352	23:13-02:13	080	078	Dec 17/18 23:13-00:39	262 <sub>1</sub> * 299 <sub>2</sub>	056†	4	7	Loop	Loop/cavity and structured (prominence) core. South edge is superposed on streamer. Streamer is unaffected.	
						Dec 17/18 23:13-00:47	245 <sub>1</sub> 368 <sub>2</sub> *	056†	4	7		Cavity
						Dec 17/18 23:46-01:20	214 <sub>1</sub> 342 <sub>2</sub> *	060†	5	7		Core (prominence)
Dec 20/21	354/355	12:34-05:33	067	054	Dec 20 16:59-23:57	046 <sub>1</sub> 098 <sub>2</sub> *	065	13	5	Mound	Faint, diffuse mound north of equatorial streamer. Streamer is unaffected.	
Dec 26	360	20:30-22:05	138	027	—	—	—	—	1	Material	Irregularly-shaped, material with some internal structure. Deflections.	
Dec 26/27	360/361	22:38-05:11	~225	—	—	—	—	—	0	No clear front	Tongue south of streamer. Partially obscured by pylon shadow late in event.	
Dec 28	362	00:53-06:10	080	040	Dec 28 01:26-06:10	102 <sub>1</sub> * 092 <sub>2</sub>	073†	5	3	Mound	Faint, diffuse mound with cavity(?) superposed on fan. Deflections.	
					Dec 28 01:26-03:54	100 <sub>1</sub> *	080†	2	5	Cavity		
Dec 29	363	14:50-17:59	264	103	Dec 29 14:50-15:15	422 <sub>1</sub> *	240	2	9	Loop	Asymmetric, flat-topped loop/cavity with complex, structured core on existing structures. Large region is blown out. Big deflections.	
					Dec 29 14:50-15:15	422 <sub>1</sub> *	240	2	9	Cavity		

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