

Note: Last day analyzed is 12/31/2016 for STA and 9/27/2014 for STB. List is updated on 7/15/2017.

The event list is compiled by Dr. Lan Jian (lan.jian@nasa.gov) for reference purpose. Not all the desired data are available, such as the particle composition data, for event identification. Some of the events are arguable. The interaction region is the focus and the continuous rise of fast wind beyond the interaction region is not included. For event details and ambiguous event, please consult Dr. Lan Jian. If there is a shock at the edge (see the shock list), the time is usually set at the closest minute.

The criteria of event classification are published in the following two papers.

L. Jian, C.T. Russell, J.G. Luhmann, and R.M. Skoug, Properties of Stream Interactions at One AU during 1995 – 2004, Solar Phys., 239, 337-392, 2006.

L.K. Jian, C.T. Russell, J.G. Luhmann, A.B. Galvin, K.D.C. Simunac, Solar Wind Observations at STEREO: 2007 – 2011, Amer. Inst. Phys. Proceedings of Solar Wind 13, 1539, 191-194, doi: 10.1063/1.4811020, 2013.

List of Stream Interaction Regions Observed by STEREO A/B

Comparison pair #	# of Spacecraft	Start time [Doy Month/Day HH:MM]	End time	P^1_{tmax} time	P_{tmax} [pPa]	B_{max} [nT]	N^2_{pmax} [cm^{-3}]	V_{min} [km/s]	V_{max} [km/s]	
2007										
1	1	B	63 03/04 18:50	66 03/07 20:00	65 03/06 06:50	150	10.1	21.4	343	635
	1	A	63 03/04 15:50	66 03/07 20:00	65 03/06 10:40	85	10.8	16.9	352	632
2	2	B	70 03/11 08:40	73 03/14 06:10	71 03/12 13:00	260	15	57.5	287	734
	2	A	70 03/11 03:50	73 03/14 06:30	70 03/11 16:30	115	11.5	36.8	322	722
3	3	B	82 03/23 08:30	87 03/28 12:00	82 03/23 19:40	170	14.3	41.3	277	621
	3	A	82 03/23 03:10	87 03/28 12:00	83 03/24 20:10	100	12.1	40.8	280	578
4	4	B	88 03/29 18:20	93 04/03 08:00	91 04/01 03:40	180	13	38.3	312	679
	4	A	88 03/29 13:30	93 04/03 08:00	91 04/01 02:20	90	11.4	29.1	333	683
5	5	B	99 04/09 02:00	99 04/09 15:57	99 04/09 04:40	269	19.8	65.3	289	496
	5	A	98 04/08 15:00	99 04/09 12:00	98 04/08 20:40	180	14.8	49.3	303	533
6	6	B	112 04/22 06:10	113 04/23 13:30	113 04/23 05:20	184	12.7	39.2	290	529
	6	A	111 04/21 18:59	113 04/23 06:54	113 04/23 01:00	156	14.4	36.2	310	610
7	7	B	116 04/26 14:00	119 04/29 15:20	117 04/27 22:40	94	10.1	14.6	384	713
	7	A	116 04/26 14:00	119 04/29 14:00	117 04/27 22:30	93	9.15	17.1	402	718
8	8	B	127 05/07 09:43	128 05/08 14:12	127 05/07 14:30	300	22.9	22.7	337	664
	8	A	127 05/07 08:12	128 05/08 20:40	127 05/07 14:30	200	20	51.6	329	664
9	9	B	137 05/17 21:23	139 05/19 12:00	138 05/18 12:10	229	16	26.1	306	681
	9	A	137 05/17 22:00	139 05/19 15:40	138 05/18 14:58	214	19.8	70.9	300	663
10	10	B	151 05/31 18:00	156 06/05 00:00	153 06/02 06:10	98	13	22	285	600

10	A	151 05/31 09:10	156 06/05 00:00	155 06/04 14:50	115	14	24	300	545
11	B	163 06/12 15:00	166 06/15 01:00	165 06/14 04:30	110	11	16	290	580
	A	164 06/13 02:00	166 06/15 16:00	165 06/14 16:40	130	13	25	305	630
12	B	172 06/21 06:00	174 06/23 09:00	173 06/22 04:45	160	12	22	375	660
	A	172 06/21 06:00	175 06/24 15:00	173 06/22 19:20	80	8.5	14	380	540
13	B	179 06/28 16:20	181 06/30 12:11	180 06/29 14:10	140	9.2	27	360	580
	A	180 06/29 11:00	182 07/01 18:00	180 06/29 23:00	110	12	34	305	510
14	B	184 07/03 03:00	185 07/04 09:30	184 07/03 17:40	110	10	16	335	630
	A	185 07/04 00:00	185 07/04 22:09	185 07/04 11:00	170	15	36	340	625
15	B	191 07/10 09:45	192 07/11 07:45	191 07/10 20:50	220	18.5	22	300	680
	A	192 07/11 03:44	192 07/11 20:22	192 07/11 11:20	250	21.5	44	310	580
16	B	194 07/13 22:00	196 07/15 05:40	195 07/14 09:20	130	10.7	24	380	540
	A	195 07/14 04:00	196 07/15 14:00	196 07/15 06:00	90	12	13	365	592
17	B	200 07/19 20:00	201 07/20 18:04	201 07/20 04:10	175	16	35	300	570
	A	201 07/20 08:30	203 07/22 06:00	202 07/21 01:30	93	11.5	31	310	460
18	B	207 07/26 01:40	208 07/27 02:30	207 07/26 14:20	200	12.8	38	300	480
	A	207 07/26 23:00	208 07/27 22:30	208 07/27 03:20	190	17	70	310	480
19	B	209 07/28 08:00	211 07/30 10:00	210 07/29 05:00	75	9	15	340	590
	A	210 07/29 00:00	212 07/31 04:00	210 07/29 11:30	120	13.5	38	375	663
20	B	217 08/05 23:45	219 08/07 05:00	218 08/06 12:20	200	14	26	300	680
	A	218 08/06 18:00	220 08/08 14:40	219 08/07 06:40	215	19	54	295	620
21	A	222 08/10 14:00	223 08/11 17:00	223 08/11 05:20	130	13	17	380	600
	B	226 08/14 10:30	227 08/15 03:00	226 08/14 20:00	130	14	26	330	485
	B	236 08/24 14:16	238 08/26 18:10	236 08/24 21:40	127	11.6	26	320	660
	22*	A	237 08/25 20:30	240 08/28 12:00	237 08/25 23:00	145	15	43	310
22	B	242 08/30 20:40	245 09/02 00:10	243 08/31 16:50	200	9.2	40	320	640
	A	244 09/01 14:00	247 09/04 01:00	246 09/03 09:20	130	11	16	355	680
23	A	258 09/15 01:40	258 09/15 18:20	258 09/15 06:20	190	20	44	360	540
	B	262 09/19 18:15	263 09/20 14:30	262 09/19 23:10	300	15	46	390	620
	A	264 09/21 12:00	266 09/23 11:32	266 09/23 01:50	150	14.5	38	300	620
24	B	269 09/26 15:45	272 09/29 7:55	269 09/26 18:40	150	11.5	40	380	700
	A	271 09/28 14:20	273 09/30 11:09	273 09/30 05:50	135	11.4	35	380	630
25	A	291 10/18 16:46	293 10/20 16:00	292 10/19 07:40	185	16	38	320	660
	B	289 10/16 04:00	291 10/18 18:00	290 10/17 22:20	100	11.2	10	320	700
26	B	297 10/24 11:20	298 10/25 11:06	297 10/24 19:20	100	10.5	22	365	650
	A	298 10/25 16:00	299 10/26 15:40	298 10/25 20:20	115	12.5	30	390	640

27	29	A	314 11/10 05:00	315 11/11 12:00	314 11/10 18:36	190	12	29	320	560
	28	B	315 11/11 22:00	317 11/13 22:00	317 11/13 03:53	125	10	20	300	600
	30	A	317 11/13 18:00	320 11/16 08:00	318 11/14 10:58	180	15	26.4	370	720
28	29	B	323 11/19 13:49	325 11/21 06:00	323 11/19 22:08	329	17	53.3	300	670
	30	B	327 11/23 08:00	328 11/24 15:00	327 11/23 21:05	93	8.4	13.8	410	580
	31	B	342 12/08 23:02	344 12/10 11:46	343 12/09 15:54	380	15.5	80	290	700
	31	A	345 12/11 02:00	347 12/13 04:10	346 12/12 15:47	200	15.5	42	355	680
29	32	B	350 12/16 00:16	350 12/16 20:44	350 12/16 08:30	200	12	30	370	620
	32	A	352 12/18 06:00	353 12/19 12:00	352 12/18 22:14	96	12	30	355	500
	33	A	354 12/20 19:30	355 12/21 14:30	355 12/21 01:10	120	14.7	18	480	680

2008

1	A	6 01/06 06:00	8 01/08 01:48	7 01/07 01:20	287	18.5	43.7	300	700
2	A	14 01/14 18:50	17 01/17 04:00	16 01/16 00:54	131	11.6	10	360	750
3	A	32 02/01 20:00	38 02/07 00:00	34 02/03 20:20	100	10	30	300	700
4	A	42 02/11 00:00	44 02/13 04:40	42 02/11 19:50	140	15	32	360	740
5	A	56 02/25 06:00	57 02/26 20:00	56 02/25 14:45	85	9	15.4	345	520
6	A	60 02/29 16:00	63 03/03 3:15	60 02/29 23:52	220	16	64.9	300	830
7	A	68 03/08 18:16	70 03/10 02:00	69 03/09 12:51	359	22	61.6	365	750
8	A	87 03/27 20:00	90 03/30 00:00	89 03/29 08:38	153	14	40	350	680
9	A	97 04/06 08:52	99 04/08 07:35	99 04/08 02:52	180	14	14.9	315	620
10	A	115 04/24 13:07	116 04/25 04:00	115 04/24 14:58	397	20	80	360	700
11	A	122 05/01 14:00	123 05/02 18:00	123 05/02 00:33	87	7.6	30	340	505
12	A	142 05/21 00:41	145 05/24 06:00	142 05/21 16:52	120	14	50	300	600
13	A	150 05/29 04:00	152 05/31 02:00	151 05/30 00:22	103	14	40	308	540
14	A	160 06/08 12:00	161 06/09 21:00	161 06/09 00:12	110	13	30	320	580
15	A	168 06/16 06:00	169 06/17 19:00	168 06/16 18:52	120	12	30	330	660
16	A	178 06/26 00:00	179 06/27 04:00	178 06/26 10:07	80	7.7	30	320	495
17	A	179 06/27 18:00	181 06/29 08:00	180 06/28 14:50	90	9	60	360	560
18	A	194 07/12 06:00	198 07/16 16:00	196 07/14 17:18	68	11.5	10	300	680
19	A	205 07/23 08:00	209 07/27 16:00	207 07/25 10:13	105	12	40	300	550
20	A	215 08/02 14:00	216 08/03 18:00	215 08/02 23:25	52	9	20	300	440
21	A	220 08/07 16:00	225 08/12 00:00	224 08/11 04:00	88	10	20	320	680
22	A	233 08/20 12:00	234 08/21 16:00	233 08/20 22:51	200	14	70	340	640
23	A	251 09/07 23:38	252 09/08 16:00	252 09/08 06:57	110	11	15	420	700
24	A	260 09/16 13:49	261 09/17 20:00	261 09/17 00:36	120	14	40	340	600

25	A	277 10/03 00:00	280 10/06 00:00	279 10/05 05:00	190	12	20	300	750
26	A	286 10/12 17:12	288 10/14 18:00	287 10/13 16:45	150	12.7	25	340	560
27	A	305 10/31 03:24	306 11/01 08:00	305 10/31 17:50	290	20	70	300	660
28	A	314 11/09 00:38	314 11/09 21:04	314 11/09 14:20	200	15.2	55	300	600
29	A	333 11/28 16:44	334 11/29 20:00	333 11/28 23:48	240	20	70	290	550
30	A	341 12/06 05:42	342 12/07 09:00	341 12/06 17:10	178	14.8	28	320	520
1	B	3 01/03 05:00	5 01/05 00:00	3 01/03 22:18	332	18	35	292	700
2	B	10 01/10 03:00	11 01/11 02:00	10 01/10 12:26	120	9.3	30	388	640
3	B	29 01/29 18:00	31 01/31 19:00	30 01/30 09:11	400	18	40	300	720
4	B	40 02/09 03:22	40 02/09 18:42	40 02/09 15:06	413	17	55	380	700
5	B	57 02/26 17:43	59 02/28 22:00	58 02/27 04:20	400	18	50	290	740
6	B	65 03/05 18:00	67 03/07 07:54	66 03/06 18:20	350	16.3	60	320	720
7	B	84 03/24 11:00	85 03/25 19:00	85 03/25 02:42	270	15	25	390	700
8	B	92 04/01 18:00	95 04/04 20:00	95 04/04 05:03	200	11	20	300	750
9	B	106 04/15 05:18	107 04/16 07:00	106 04/15 12:15	200	12	20	430	680
10	B	112 04/21 22:00	113 04/22 22:40	113 04/22 11:57	190	12	10	380	620
11	B	133 05/12 13:00	136 05/15 02:00	134 05/13 02:50	100	10	30	310	580
12	B	139 05/18 04:00	141 05/20 06:00	140 05/19 18:02	200	12.5	20	370	700
13	B	147 05/26 23:00	149 05/28 05:00	148 05/27 14:40	182	12.6	40	300	480
14	B	151 05/30 02:00	151 05/30 23:00	151 05/30 10:15	140	13	7	450	680
15	B	164 06/12 21:35	167 06/15 08:10	166 06/14 06:25	200	12.5	20	350	700
16	B	176 06/24 13:00	180 06/28 16:00	177 06/25 04:45	239	17	40	290	660
17	B	191 07/09 11:42	192 07/10 21:00	192 07/10 08:02	175	18.5	38	285	620
18	B	201 07/19 07:28	201 07/19 23:00	201 07/19 13:50	220	12	40	300	445
19	B	202 07/20 22:27	203 07/21 10:31	203 07/21 01:21	229	15	38	370	585
20	B	207 07/25 12:00	208 07/26 12:00	208 07/26 00:40	120	9	20	360	530
21	B	219 08/06 21:17	220 08/07 16:00	220 08/07 02:10	210	14	35	360	700
22	B	229 08/16 01:16	229 08/16 14:00	229 08/16 03:00	266	18	50	330	560
23	B	245 09/01 03:00	246 09/02 02:30	245 09/01 08:24	180	14	40	285	600
24	B	255 09/11 14:00	257 09/13 11:00	256 09/12 17:55	140	12.5	30	290	600
25	B	272 09/28 02:25	273 09/29 16:00	272 09/28 15:42	170	10.2	30	340	680
26	B	281 10/07 10:00	284 10/10 06:00	283 10/09 06:20	150	12	30	280	580
27	B	298 10/24 12:00	301 10/27 12:00	300 10/26 01:35	130	12	20	287	700
28	B	308 11/03 04:00	310 11/05 16:00	310 11/05 00:00	80	8	18	290	540
29	B	316 11/11 17:00	318 11/13 00:00	317 11/12 03:05	100	11.8	15	315	520

30	B	326 11/21 21:17	328 11/23 21:00	327 11/22 02:30	140	11.5	25	300	600
31	B	335 11/30 18:21	336 12/01 17:00	336 12/01 01:25	150	12.2	30	315	520
32	B	342 12/07 04:35	345 12/10 00:00	343 12/08 22:45	260	20	40	280	600
33	B	353 12/18 10:00	355 12/20 14:00	354 12/19 22:45	90	9	10	320	590
34	B	362 12/27 12:41	363 12/28 16:00	362 12/27 21:08	130	13.2	25	290	500

2009

1	A	4 01/04 21:00	7 01/07 06:00	5 01/05 20:15	90	11	20	320	560
2	A	32 02/01 18:00	34 02/03 18:00	34 02/03 03:30	60	8	10	320	530
3	A	48 02/17 08:00	49 02/18 01:55	48 02/17 14:09	240	18	60	300	600
4	A	55 02/24 16:00	59 02/28 08:00	56 02/25 05:52	110	11	30	320	520
5	A	62 03/03 04:00	64 03/05 06:00	63 03/04 07:25	83	11	13.5	330	480
6	A	68 03/09 20:17	70 03/11 00:00	69 03/10 03:51	140	12.3	40	300	560
7	A	73 03/14 20:00	76 03/17 00:00	74 03/15 23:10	80	10	11	350	640
8	A	82 03/23 02:00	84 03/25 00:00	83 03/26 08:50	75	10	17.5	300	460
9	A	100 04/10 22:00	104 04/14 06:00	102 04/12 19:12	110	11	25	290	520
10	A	109 04/19 16:00	111 04/21 10:00	110 04/20 06:35	250	14.8	70	300	460
11	A	129 05/09 04:00	130 05/10 09:00	129 05/09 11:09	270	8	80	300	545
12	A	151 05/31 08:13	153 06/02 16:00	151 05/31 15:34	150	11.5	40	300	570
13	A	171 06/20 00:00	172 06/21 13:00	171 06/20 9:13	73	7	28	300	400
14	A	175 06/24 15:00	176 06/25 10:00	176 06/25 00:35	70	10	13	320	480
15	A	178 06/27 13:00	181 06/30 05:15	179 06/28 07:40	145	12	40	310	600
16	A	192 07/11 10:00	195 07/14 08:00	194 07/13 12:05	200	15	60	355	560
17	A	198 07/17 02:02	199 07/18 12:00	199 07/18 00:08	125	10	19	320	540
18	A	204 07/23 00:00	205 07/24 22:00	204 07/23 13:00	70	9	30	270	380
19	A	206 07/25 12:00	208 07/27 12:00	207 07/26 15:05	110	12.3	20	300	560
20	A	222 08/10 17:00	224 08/12 07:00	223 08/11 10:20	170	12.5	50	305	550
21	A	233 08/21 20:30	234 08/22 20:00	234 08/22 04:50	110	9.8	38	280	400
22	A	248 09/05 02:00	248 09/05 18:00	248 09/05 07:00	75	8.3	26	305	420
23	A	251 09/08 05:31	252 09/09 11:00	251 09/08 09:45	200	14.8	70	310	500
24	A	260 09/17 18:00	262 09/19 09:20	261 09/18 12:00	70	7.5	20	280	420
25	A	288 10/15 02:00	289 10/16 09:00	288 10/15 15:00	50	6.2	20	250	340
26	A	303 10/30 18:00	304 10/31 22:00	304 10/31 15:26	117	9.5	14	350	580
27	A	321 11/17 16:58	322 11/18 8:30	322 11/18 4:17	90	9.3	26.7	290	450
28	A	326 11/22 18:00	328 11/24 6:00	327 11/23 10:04	55	7.3	18.5	255	360
29*	A	329 11/25 16:00	330 11/26 11:00	330 11/26 00:15	147	18	40	300	405

30	A	333 11/29 8:00	335 12/1 4:9	334 11/30 00:42	95	9	25.2	310	610
31	A	355 12/21 21:00	356 12/22 23:51	356 12/22 1:23	140	12	50	285	610
32	A	361 12/27 5:15	362 12/28 3:30	361 12/27 15:41	55	7.3	12.5	330	420
1	B	4 01/04 12:00	6 01/06 12:00	5 01/05 20:50	80	10	20	280	530
2	B	14 01/14 04:00	15 01/15 08:00	14 01/14 13:25	155	13	25	360	630
3	B	23 01/23 11:00	24 01/24 04:00	23 01/23 17:55	120	14	28	280	440
4	B	32 02/01 12:00	35 02/04 12:00	34 02/03 03:45	125	10	20	280	430
5	B	41 02/10 13:15	42 02/11 10:21	41 02/10 22:10	190	18	25	300	580
6	B	54 02/23 22:00	56 02/25 02:00	55 02/24 10:22	140	9.4	8	320	560
7	B	68 03/09 15:45	69 03/10 14:47	69 03/10 05:02	250	19	35	285	565
8	B	75 03/16 18:00	77 03/18 06:00	76 03/17 14:40	110	10	7	300	470
9	B	81 03/22 22:00	84 03/25 06:00	83 03/24 16:42	100	9	30	300	520
10	B	89 03/30 00:00	91 04/01 18:00	89 03/30 13:29	101	12.5	17.5	267	560
11	B	94 04/04 06:00	95 04/05 12:00	94 04/04 15:40	60	8.3	16	280	490
12	B	102 04/12 22:00	104 04/14 20:30	103 04/13 16:38	190	8.6	22	295	570
13	B	121 05/01 20:00	123 05/03 11:00	122 05/02 00:00	70	5.7	21	305	505
14	B	138 05/18 19:00	140 05/20 10:00	139 05/19 12:22	165	15	30	310	565
15	B	156 06/05 09:30	157 06/06 14:00	157 06/06 01:07	145	13	60	280	430
16	B	172 06/21 13:00	173 06/22 08:00	172 06/21 19:46	140	12.5	40	290	425
17	B	177 06/26 04:00	178 06/27 00:00	177 06/26 10:08	90	10	30	330	405
18	B	199 07/18 11:35	200 07/19 02:09	199 07/18 16:48	140	19	70	370	580
19	B	225 08/13 06:00	228 08/16 04:00	226 08/14 02:20	100	12	24	270	560
20	B	255 09/12 00:00	255 09/12 21:00	255 09/12 10:06	110	13	11	340	525
21	B	265 09/22 08:00	267 09/24 16:00	267 09/24 03:57	142	9	30	270	380
22	B	279 10/06 05:23	280 10/07 12:00	279 10/06 20:53	105	14.3	21	280	495
23	B	299 10/26 11:28	300 10/27 09:21	299 10/26 15:42	110	8.8	20	280	400
24	B	307 11/3 01:08	308 11/4 12:00	307 11/3 08:48	60	8.4	20	313	515
25	B	319 11/15 00:00	320 11/16 09:00	319 11/15 21:08	95	10.6	10	325	610
26	B	333 11/29 20:00	335 12/1 16:00	335 12/1 00:28	53	10.1	12.5	290	505
27	B	342 12/8 18:30	344 12/10 06:00	343 12/9 06:30	86	9	13.4	290	490
28	B	346 12/12 20:05	347 12/13 19:50	347 12/13 05:48	65	8	13	365	600
29	B	353 12/19 23:00	355 12/21 15:00	354 12/20 14:04	120	9	30	270	440

2010

1	A	2009 365 12/31 12:53	1 1/1 16:00	2009 365 12/31 21:08	105	10	30	295	380
2	A	6 1/6 21:44	8 1/8 6:00	7 1/7 14:00	70	11.2	25.8	285	400
3	A	15 1/15 7:00	16 1/16 20:00	16 1/16 00:14	170	14.5	50	258	480
4	A	22 1/22 02:00	23 1/23 02:46	22 1/22 10:48	100	11.5	40	350	445
5	A	24 1/24 12:30	26 1/26 06:00	24 1/24 17:19	150	12	50	300	530
6	A	33 2/1 6:46	35 2/4 2:00	33 2/1 17:31	50	8	10	305	450
7*	A	36 2/5 3:33	38 2/7 10:30	36 2/5 6:30	150	15	50	330	600
8	A	41 2/10 04:00	44 2/13 08:00	43 2/12 13:51	90	10	10	320	590
9	A	51 2/20 12:00	54 2/23 00:00	53 2/22 00:45	90	10	10	380	660
10	A	70 3/11 19:9	71 3/12 8:12	71 3/12 1:17	300	20	80	323	600
11	A	81 3/22 4:00	82 3/23 21:00	81 3/22 21:38	100	13	30	305	520
12	A	89 3/30 02:00	90 3/31 16:00	89 3/30 19:57	120	13.5	30	300	485
13	A	93 4/3 09:00	95 4/5 05:00	94 4/4 1:24	165	13.5	40	320	630
14	A	98 4/8 08:00	103 4/13 00:00	99 4/9 4:08	70	8	14.7	340	620
15	A	120 4/30 00:00	123 5/3 13:15	122 5/2 03:20	70	11	10	350	570
16	A	126 5/6 15:30	128 5/8 9:24.12	128 5/8 1:13	270	18	30	330	680
17	A	138 5/18 23:32	140 5/20 03:00	139 5/19 13:03	135	13	30	300	460
18	A	144 5/24 8:00	145 5/25 12:00	144 5/24 17:23	180	14	60	330	620
19	A	155 6/4 3:30	156 6/5 7:30	155 6/4 14:28	190	18	50	330	660
20	A	159 6/8 01:00	159 6/8 23:00	159 6/8 16:04	130	11.5	20	420	630
21	A	165 6/14 14:00	166 6/15 11:35	166 6/15 3:30	177	14.6	30	330	610
22	A	171 6/20 09:00	172 6/21 13:00	172 6/21 05:16	220	17	60	330	580
23	A	181 6/30 18:26	182 7/1 16:00	182 7/1 01:30	130	14.5	50	300	500
24	A	183 7/2 15:00	185 7/4 06:00	184 7/3 07:55	105	11	14.7	320	570
25	A	210 7/29 08:00	217 8/5 00:00	212 7/31 15:50	95	11	30	280	670
26	A	223 8/11 03:00	224 8/12 08:00	224 8/12 00:10	70	9	14.7	350	560
27	A	241 8/29 22:48	243 8/31 12:00	243 8/31 00:00	180	19.8	50	290	580
28	A	267 9/24 15:00	269 9/26 01:00	267 9/24 5:50	60	9.4	14.3	300	460
29	A	269 9/26 18:00	271 9/28 21:00	270 9/27 14:20	70	9.8	20	330	585
30	A	275 10/2 15:06	276 10/3 05:00	275 10/2 17:20	137	12.5	35	390	620
31	A	292 10/19 22:00	294 10/21 18:00	294 10/21 1:21	92	11	20	300	488
32	A	303 10/30 8:00	304 10/31 10:4	303 10/30 22:54	216	19	50	267	625
33	A	311 11/7 2:25	312 11/8 2:00	311 11/7 15:40	280	16	70	335	580
34	A	317 11/13 22:00	320 11/16 19:26	320 11/16 11:30	115	12.5	26.9	300	500
35	A	325 11/21 19:00	328 11/24 07:00	327 11/23 2:55	110	12	35	280	550
36	A	338 12/4 0:10	341 12/7 18:00	339 12/5 15:36	70	10.6	26	280	540

37	A	362 12/28 6:00	363 12/29 18:00	363 12/29 2:3	60	7.3	20	323	420
1	B	2009 365 12/31 19:00	2 1/2 7:00	1 1/1 3:01	50	7.6	13.1	320	490
2	B	5 1/5 21:36	6 1/6 19:00	6 1/6 11:37	230	17	30	300	620
3	B	15 1/15 8:00	16 1/16 14:00	16 1/16 2:06	130	9.7	16.3	345	585
4	B	24 1/24 08:00	26 1/26 00:56	25 1/25 01:47	56	9	20	300	490
5	B	31 1/31 20:50	33 2/2 18:00	32 2/1 23:42	110	11	13.7	380	700
6	B	44 2/13 11:52	45 2/14 7:50	44 2/13 18:45	106	14.7	17.9	300	500
7	B	55 2/24 03:00	56 2/25 12:00	55 2/24 12:25	67	12.2	30	280	410
8	B	60 3/1 18:00	62 3/3 10:00	61 3/2 10:15	220	15.2	20	300	680
9	B	69 3/10 16:00	70 3/11 8:49	70 3/11 01:01	120	13.5	30	300	630
10	B	78 3/19 5:25	79 3/20 10:51	78 3/19 20:26	130	15.5	30	275	430
11	B	87 3/28 4:40	92 4/2 16:00	90 3/31 23:07	90	11	16.4	340	600
12	B	98 4/8 3:00	99 4/9 12:00	98 4/8 18:44	75	9	15	280	500
13	B	110 4/20 22:00	111 4/21 17:00	111 4/21 9:56	60	8.4	18.7	320	535
14	B	117 4/27 12:00	118 4/28 06:00	117 4/27 16:35	380	22	40	280	675
15	B	125 5/5 17:00	127 5/7 05:00	126 5/6 1:54	145	14.5	30	290	600
16	B	135 5/15 1:19	135 5/15 22:49	135 5/15 3:58	162	17	30	300	660
17	B	140 5/20 8:15	142 5/22 0:0	141 5/21 3:22	63	9	13.1	310	465
18	B	144 5/24 02:00	147 5/27 6:00	DG	DG	DG	DG	300	740
19	B	153 6/2 04:00	153 6/2 20:47	153 6/2 14:00	130	12	26.0	330	540
20	B	162 6/11 4:42	163 6/12 4:59	163 6/12 1:19	150	13.6	20	340	620
21	B	172 6/21 9:50	173 6/22 5:42	172 6/21 15:54	160	15.5	40	315	460
22	B	176 6/25 13:00	177 6/26 18:00	177 6/26 00:28	67	8.8	9	350	590
23	B	189 7/8 16:42	190 7/9 11:04	189 7/8 22:34	260	21.5	50	300	590
24	B	201 7/20 00:00	204 7/23 20:00	203 7/22 21:48	100	9.2	20	310	500
25	B	223 8/11 9:32	224 8/12 8:39	223 8/11 21:00	90	12	20	300	435
26	B	230 8/18 19:00	232 8/20 10:28	231 8/19 21:43	125	11	20	320	640
27	B	244 9/1 1:00	245 9/2 0:00	244 9/1 8:08	60	10	16.2	295	430
28	B	255 9/12 5:27	256 9/13 10:00	255 9/12 9:23	75	10	20	300	440
29	B	258 9/15 22:00	260 9/17 13:48	259 9/16 00:52	125	12.5	30	280	640
30	B	272 9/29 9:30	275 10/2 8:10	273 9/30 5:37	50	8.5	14.3	280	440
31	B	278 10/5 8:00	282 10/9 16:00	281 10/8 13:53	46	8	10	303	427
32	B	285 10/12 22:00	287 10/14 18:00	287 10/14 4:28	50	8.7	11.9	320	495
33	B	290 10/17 3:00	290 10/17 18:55	290 10/17 10:43	160	14.5	20	430	720
34*	B	311 11/7 19:05	314 11/10 00:28	312 11/8 2:36	170	17.5	30	300	640

35	B	318 11/14 1:00	319 11/15 00:00	318 11/14 11:45	62	8.4	13.3	380	535
36	B	326 11/22 7:00	327 11/23 12:00	327 11/23 3:36	90	11	15.9	355	515
37	B	337 12/3 6:00	340 12/6 01:00	338 12/4 2:06	100	10	26.6	320	700
38	B	346 12/12 10:00	347 12/13 19:30	347 12/13 3:16	70	8.6	10	400	630
39	B	363 12/29 11:24	365 12/31 18:60	363 12/29 12:21	140	12.5	30	340	720

2011

1	A	4 1/4 9:10	8 1/8 00:00	4 1/4 14:03	140	14.5	45.4	285	450
2	A	12 1/12 12:03	14 1/14 8:00	12 1/12 14:17	130	11.5	50.3	320	550
3	A	19 1/19 02:00	21 1/21 13:38	19 1/19 18:46	60	7.8	20	392	600
4	A	23 1/23 17:06.05	25 1/25 0:06.45	24 1/24 7:56	175	16	30	310	600
5	A	38 2/7 4:00	39 2/8 00:00	38 2/7 13:13	163	15	30	300	540
6	A	39 2/8 23:00	41 2/10 08:00	41 2/10 01:10	120	10.7	16	370	720
7	A	61 3/2 04:00	64 3/5 08:00	63 3/4 01:02	120	15	24.3	285	570
8	A	67 3/8 9:00	68 3/9 2:00	67 3/8 11:58	150	12	40	340	680
9	A	73 3/14 6:00	74 3/15 19:00	73 3/14 18:38	110	8.2	6	380	660
10	A	89 3/30 6:06	90 3/31 12:37.17	89 3/30 17:15	190	17.5	60	300	580
11	A	115 4/25 00:00	117 4/27 13:00	116 4/26 2:45	106	13.6	30	290	485
12*	A	126 5/6 22:00	127 5/7 11:32.88	127 5/7 7:8	250	20	30	415	600
13	A	141 5/21 9:0.27	143 5/23 4:00	141 5/21 19:51	270	20	36	395	690
14	A	153 6/2 15:00	155 6/4 18:48.83	154 6/3 6:23	200	13.7	37.2	300	640
15	A	160 6/9 22:40.88	163 6/12 0:2.4	162 6/11 00:43	95	11	20	365	580
16	A	167 6/16 3:10.375	170 6/19 8:00	168 6/17 10:43	150	15.7	30	380	590
17	A	174 6/23 21:00	176 6/25 1:00	175 6/24 2:45	70	8.8	14.6	340	585
18	A	177 6/26 20:00	181 6/30 16:00	179 6/28 11:15	105	12.5	27	360	640
19	A	189 7/8 12:00	191 7/10 6:00	190 7/9 5:00	125	12.7	30	380	690
20	A	196 7/15 7:42	197 7/16 16:27.67	197 7/16 7:00	244	20.8	36.7	310	620
21	A	207 7/26 0:0	208 7/27 11:00	207 7/26 18:10	220	17.2	60	355	660
22	A	213 8/1 8:00	215 8/3 18:00	213 8/1 23:33	100	10.5	23.5	350	525
23	A	216 8/4 19:00	217 8/5 18:00	217 8/5 6:00	85	10.5	14.3	330	500
24	A	233 8/21 6:20	234 8/22 21:00	233 8/21 14:48	133	14	23	300	570
25	A	241 8/29 00:30	242 8/30 4:00	241 8/29 16:22	170	14	20	360	610
26	A	260 9/17 08:00	261 9/18 5:00	260 9/17 14:36	60	8.4	13.2	310	430
27	A	261 9/18 22:19	264 9/21 0:00	DG	DG	11.5	13.7	330	485
28	A	271 9/28 3:54.49	272 9/29 14:00	271 9/28 4:17	76	9.6	10	390	555
29	A	280 10/7 17:15.39	281 10/8 22:10	281 10/8 0:57	240	19.3	60	330	650

30	A	309 11/5 21:12.16	310 11/6 12:35.23	310 11/6 4:54	195	15.5	60	300	370
31	A	311 11/7 5:20	312 11/8 0:20	311 11/7 9:21	155	12.6	40	350	500
32	A	316 11/12 2:00	318 11/14 18:00	317 11/13 12:03	80	10	23.5	303	470
33*	A	319 11/15 21:00	321 11/17 08:00	320 11/16 13:21	47	8.7	10	340	410
?									
34	A	323 11/19 14:15	324 11/20 21:50.383	324 11/20 9:42	130	12.2	20	290	550
35	A	326 11/22 3:32	327 11/23 17:35.083	327 11/23 3:26	90	9.5	11.5	360	480
36	A	334 11/30 14:00	335 12/1 23:22	335 12/1 14:23	46	6.8	6	340	490
37	A	342 12/8 00:00	346 12/12 3:47.35	342 12/8 6:20	110	13.5	25.6	350	630
38	A	351 12/17 2:5.117	352 12/18 5:45	351 12/17 2:24	120	11.9	30	350	480
39	A	353 12/19 11:00	355 12/21 0:30	353 12/19 18:20	220	18.8	35.3	340	540
40	A	362 12/28 1:28.767	362 12/28 20:47.15	362 12/28 10:10	560	26	90	300	400
1	B	6 1/6 10:00	8 1/8 18:00	8 1/8 9:40	52	9	8	333	590
2	B	23 1/23 18:00	28 1/28 2:35	26 1/26 11:35	85	9.5	15.5	270	700
3	B	48 2/17 2:00	49 2/18 23:30	48 2/17 21:03	110	13	20	310	510
4	B	51 2/20 18:45	53 2/22 13:55	52 2/21 12:38	160	12	20	320	680
5	B	75 3/16 15:30	77 3/18 16:00	76 3/17 8:00	150	9.2	13	350	620
6*	B	82 3/23 13:37	84 3/25 2:30	83 3/24 4:27	142	16	20	400	720
7	B	99 4/9 22:00	102 4/12 2:00	100 4/10 18:38	120	14	20	290	440
8	B	103 4/13 6:55	104 4/14 8:00	103 4/13 22:25	80	11	9	350	530
9	B	107 4/17 5:00	108 4/18 18:00	108 4/18 2:40	190	11.2	30	300	460
10	B	113 4/23 12:10	114 4/24 11:7.35	113 4/23 19:30	200	18	30	360	630
11*	B	124 5/4 00:43	126 5/6 7:40	124 5/4 20:52	190	16	50	325	476
12	B	128 5/8 2:00	128 5/8 20:00	128 5/8 13:58	157	13	20	340	685
13	B	140 5/20 16:55	142 5/22 8:00	141 5/21 8:18	190	18.3	20	300	780
14	B	156 6/5 1:20	158 6/7 18:00	157 6/6 22:25	100	11	13.7	360	620
15	B	167 6/16 19:36.38	168 6/17 2:12.39	167 6/16 23:50	360	25	50	350	660
16*	B	177 6/26 4:00	180 6/29 6:00	178 6/27 1:26	150	14.3	27.1	295	490
17	B	193 7/12 19:30	195 7/14 1:00	194 7/13 8:28	155	13	20	380	710
18	B	200 7/19 18:45	201 7/20 14:00	200 7/19 23:00	110	11.7	25	300	440
19	B	204 7/23 21:14	205 7/24 21:18	205 7/24 14:46	250	16	30	300	660
20	B	211 7/30 19:05	212 7/31 20:32	212 7/31 5:58	250	20	40	300	730
21	B	221 8/9 1:00	221 8/9 14:00	221 8/9 7:26	360	27	40	300	660
22	B	225 8/13 16:00	226 8/14 22:21	226 8/14 8:55	60	8.7	10	345	550

23	B	239 8/27 2:3.6	239 8/27 21:35	239 8/27 12:47	220	18	36.2	290	570
24	B	247 9/4 19:00	249 9/6 5:00	248 9/5 17:21	160	11.5	20	300	540
25	B	253 9/10 18:00	254 9/11 9:00	253 9/10 21:43	200	14	40	350	490
26	B	264 9/21 1:27.21	265 9/22 2:00	264 9/21 6:05	75	12.5	12.7	340	610
27	B	286 10/13 10:00	288 10/15 18:00	287 10/14 13:10	37	6.75	7	290	430
28	B	334 11/30 12:40	336 12/2 8:00	DG	DG	11	DG	290	485
29	B	346 12/12 2:00	347 12/13 4:52.325	346 12/12 14:10	170	14.7	20	290	420
30*	B	360 12/26 23:50.767	364 12/30 00:00	361 12/27 22:44	170	16.7	40	315	485

2012

1	A	4 1/4 16:40	7 1/7 20:00	6 1/6 10:53	280	22.6	60	340	700
2	A	23 1/23 1:07	25 1/25 14:00	23 1/23 7:13	190	14.5	50	350	700
3	A	34 2/3 21:30	37 2/6 08:00	35 2/4 13:49	65	10.6	16.2	300	490
4	A	51 2/20 19:17	52 2/21 7:15	52 2/21 3:59	270	24	60	280	445
5	A	56 2/25 12:00	59 2/28 23:20	56 2/25 21:05	112	12.5	30	300	550
6	A	68 3/8 22:00	70 3/10 10:00	69 3/9 15:41	260	19	40	266	610
7	A	74 3/14 6:50	75 3/15 14:00	75 3/15 3:27	85	10	23.29	350	525
8	A	95 4/4 10:40	96 4/5 8:44	95 4/4 17:01	140	14.6	30	290	455
9*	A	109 4/18 17:00	118 4/27 21:00	111 4/20 1:50	280	22	25.07	300	660
10	A	120 4/29 11:00	122 5/1 10:00	121 4/30 5:2	200	20.40	40	290	550
11?	A	131 5/10 10:00	134 5/13 3:00	132 5/11 7:4	180	15.5	33.67	264	410
12	A	135 5/14 3:30	136 5/15 6:00	135 5/14 9:2	120	15	40	315	580
13	A	137 5/16 0:4	138 5/17 1:00	137 5/16 7:55	230	16	30	360	660
14	A	164 6/12 4:00	165 6/13 18:00	164 6/12 20:40	320	21	60	330	780
15*	A	172 6/20 8:20	173 6/21 23:26	173 6/21 14:07	240	16	30	340	560
16	A	185 7/3 20:18	186 7/4 10:30	186 7/4 00:47	165	10.5	25.9	373	490
17	A	186 7/4 22:50	189 7/7 4:47	187 7/5 17:50	115	13	20	375	530
18	A	190 7/8 18:42	192 7/10 3:00	191 7/9 5:38	400	21	50	350	630
19	A	200 7/18 6:00	201 7/19 16:00	200 7/18 20:37	115	10.3	20	330	473
20	A	202 7/20 6:00	202 7/20 22:43	202 7/20 15:58	400	18	26.24	390	690
21	A	214 8/1 16:51.83	216 8/3 3:15.3	215 8/2 13:52	170	17	50	295	480
22	A	234 8/21 20:00	236 8/23 11:10	235 8/22 15:00	56	8.8	13.78	290	475
23	A	236 8/23 18:16	237 8/24 16:25	237 8/24 4:29	55	9.5	12.92	325	470
24	A	242 8/29 8:00	247 9/3 8:00	244 8/31 7:37	72	10.3	25.6	330	580

25	A	249 9/5 3:00	250 9/6 2:22	249 9/5 13:40	125	12	39.93	315	478
26	A	292 10/18 21:20	293 10/19 10:39	293 10/19 5:51	600	14.2	30	360	570
27	A	305 10/31 13:42	308 11/3 6:00	307 11/2 8:34	39	7.5	6	350	510
28	A	324 11/19 19:00	325 11/20 23:00	325 11/20 0:11	183	15	50	330	560
29	A	341 12/6 3:40.9667	343 12/8 00:00	341 12/6 22:38	130	11.5	20	280	400
30	A	353 12/18 21:00	355 12/20 6:00	354 12/19 2:19	180	15.5	50	328	498
31	A	355 12/20 22:00	357 12/22 21:00	356 12/21 22:54	86	9.3	22	380	515
32	A	362 12/27 5:12	364 12/29 14:00	363 12/28 6:53	122	16	16.19	300	565
1	B	6 1/6 12:13.23	8 1/8 18:29	8 1/8 5:4	150	11.5	20	285	420
2	B	24 1/24 3:30	28 1/28 4:00	25 1/25 6:55	65	10	20	300	560
3	B	34 2/3 5:46	34 2/3 15:20	34 2/3 10:16	260	18.2	63.03	360	470
4	B	40 2/9 14:15	42 2/11 12:40	41 2/10 3:42	160	16	28.65	290	610
5	B	51 2/20 10:27.67	54 2/23 3:38	52 2/21 14:39	240	13.5	26.65	290	590
6	B	64 3/4 6:00	66 3/6 20:55	65 3/5 8:00	135	9.8	16.24	300	468
7*	B	67 3/7 18:14.67	68 3/8 17:00	67 3/7 21:04	540	22	60	420	820
8	B	78 3/18 6:00	81 3/21 12:00	78 3/18 20:00	72	9	23.58	305	525
9?	B	82 3/22 23:00	84 3/24 6:00	84 3/24 1:44	130	9.1	10.39	310	435
10	B	93 4/2 8:00	96 4/5 10:00	94 4/3 2:3	70	8	10	370	680
11	B	104 4/13 12:00	107 4/16 10:00	105 4/14 15:51	260	20	23.78	280	740
12?	B	119 4/28 3:30	120 4/29 4:00	119 4/28 11:55	39	7.6	10	290	430
13	B	121 4/30 8:00	123 5/2 6:00	121 4/30 19:48	150	16	20	292	535
14*	B	128 5/7 1:7	130 5/9 12:00	129 5/8 17:1	470	28	72.32	312	510
15*	B	133 5/12 23:8.51	135 5/14 13:40	134 5/13 3:3	110	13.8	30	335	480
16	B	139 5/18 23:48	143 5/22 16:35	140 5/19 11:30	77	11.5	18.69	335	500
17	B	145 5/24 14:43	147 5/26 16:00	146 5/25 9:18	170	13.5	30	345	820
18	B	159 6/7 21:00	161 6/9 11:00	160 6/8 19:36	105	9	17.02	305	470
19	B	166 6/14 22:00	167 6/15 23:27	166 6/14 3:56	110	12	30	350	700
20	B	172 6/20 16:00	175 6/23 4:00	173 6/21 11:09	180	12.7	10	420	750
21	B	178 6/26 21:51	179 6/27 19:3.33	179 6/27 13:23	250	12.5	12.35	430	680
22	B	194 7/12 00:00	198 7/16 10:00	196 7/14 8:14	220	12	10	340	740
23	B	200 7/18 12:21	201 7/19 19:27	200 7/18 23:40	85	10.5	15.12	400	520
24	B	217 8/4 8:00	220 8/7 17:30	219 8/6 14:39	50	8.6	10	300	522
25	B	223 8/10 8:00	225 8/12 6:000	224 8/13 2:30	70	7.8	20	330	535
26	B	255 9/11 4:00	257 9/13 6:00	255 9/11 22:56	102	11.5	30	350	500

27?	B	263 9/19 7:26	265 9/21 10:00	263 9/19 19:18	112	8	16.7	290	397
28	B	268 9/24 16:30	268 9/24 23:48	268 9/24 16:44	250	16.5	35	410	635
29	B	274 9/30 7:54	276 10/2 15:25	275 10/1 5:5	95	10	10	380	600
30	B	278 10/4 19:4	280 10/6 8:00	279 10/5 16:00	140	11	40	380	580
31	B	283 10/9 0:00	284 10/10 8:00	283 10/9 8:45	100	12	20	325	440
32	B	314 11/9 7:30	315 11/10 7:00	314 11/9 14:37	96	12.3	20	280	385
33	B	335 11/30 2:00	337 12/2 8:00	335 11/30 15:11	80	9	10	290	390
34	B	341 12/6 21:00	343 12/8 2:00	342 12/7 7:57	75	9.5	8	370	660
35*	B	360 12/25 21:00	361 12/26 10:00	361 12/26 1:22	300	18	60	350	500

2013

1	A	5 1/5 18:00	7 1/7 13:00	6 1/6 4:13	85	8.5	30	285	400
2	A	42 2/11 3:3	43 2/12 00:00	42 2/11 12:51	280	19	42	330	610
3	A	69 3/10 6:55	71 3/12 22:37	69 3/10 20:23	110	13.5	30	320	590
4	A	74 3/15 12:00	78 3/19 18:00	77 3/18 6:8	80	11.5	12	330	550
5?	A	81 3/22 15:30	82 3/23 22:00	82 3/23 11:15	70	9.3	13	300	380
6	A	97 4/7 16:21	98 4/8 8:41.5	97 4/7 22:51	280	22	60	300	640
7	A	108 4/18 16:00	109 4/19 14:19	109 4/19 8:16	120	12.3	14.98	385	580
8	A	120 4/30 4:17.7	121 5/1 3:52.1	120 4/30 10:26	265	15	60	390	690
9	A	126 5/6 00:00	127 5/7 00:00	126 5/6 11:59	220	16	32	380	650
10	A	129 5/9 2:00	131 5/11 12:00	130 5/10 13:48	73	11	10	390	600
11	A	136 5/16 5:22	137 5/17 00:05	136 5/16 13:8	600	30	90	340	590
12	A	153 6/2 3:27	155 6/4 16:00	154 6/3 4:40	300	19.5	41	300	670
13	A	161 6/10 8:46	162 6/11 14:05	162 6/11 1:17	210	16.3	27.3	386	750
14	A	182 7/1 23:42	186 7/5 23:12	184 7/3 4:51	160	16.3	12	280	700
15	A	189 7/8 17:35	191 7/10 7:20	190 7/9 5:22	135	12	50	373	550
16	A	198 7/17 0:00	203 7/22 16:00	199 7/18 16:14	210	17.3	56.21	290	625
17	A	216 8/4 13:42	218 8/6 14:18	217 8/7 0:23	120	13.4	26.49	340	580
18	A	224 8/12 13:46	228 8/16 17:30	226 8/14 21:30	68	10.7	16.67	325	580
19	A	239 8/27 8:00	241 8/29 7:52	240 8/28 2:10	110	13	34.13	320	540
20	A	245 9/2 2:20	246 9/3 8:00	245 9/2 12:55	95	11	20	333	430
21	A	254 9/11 8:00	255 9/12 22:45	255 9/12 5:15	100	10	14.93	310	520
22	A	257 9/14 12:00	258 9/15 21:30	257 9/14 16:30	100	10.5	34.17	332	540
23	A	267 9/24 8:00	268 9/25 12:00	267 9/24 16:13	145	14.5	40	320	580
24	A	272 9/29 12:55	274 10/1 14:2	273 9/30 10:34	115	11.3	26.10	250	440
25	A	297 10/24 10:00	299 10/26 2:25	298 10/25 16:59	163	14	20	290	600

26*	A	309 11/5 22:24	310 11/6 11:00	310 11/6 2:43	290	22	16.87	440	700
27	A	324 11/20 23:52	326 11/22 18:40	326 11/22 15:27	110	9	20	285	555
28*	A	330 11/26 9:00	332 11/28 12:00	331 11/27 0:50	88	12.3	25.37	320	560
29	A	346 12/12 23:30	348 12/14 14:00	347 12/13 13:8	90	9.6	20	275	420
30	A	349 12/15 7:00	351 12/17 16:7	350 12/16 4:34	200	16.2	40	340	630
31*	A	358 12/24 20:6	360 12/26 5:4	359 12/25 0:15	210	20.5	4	335	440
32	A	363 12/29 3:39	365 12/31 2:12	364 12/30 8:11	120	12	20	365	485
1	B	10 1/10 20:00	12 1/12 3:20	11 1/11 3:4	70	10.8	20	300	400
2	B	13 1/13 17:02	14 1/14 1:17	13 1/13 21:56	350	15.6	56.16	390	635
3	B	22 1/22 22:20	25 1/25 16:00	23 1/23 13:05	80	12.3	17	270	450
4	B	53 2/22 12:00	55 2/24 12:09	54 2/23 12:53	68.8	10.6	10	320	490
5	B	64 3/5 19:57	66 3/7 6:00	65 3/6 7:41	115	11	15.15	270	452
6	B	77 3/18 0:24	77 3/18 21:50	77 3/18 3:28	160	14.6	30	300	600
7	B	90 3/31 7:00	90 3/31 22:00	90 3/31 15:34	65	8.4	9	290	460
8*	B	99 4/9 6:40	102 4/12 7:20	101 4/11 7:40	60	10.5	17.40	280	435
9	B	103 4/13 01:00	104 4/14 18:30	103 4/13 17:37	120	11.5	22.33	320	670
10	B	132 5/12 2:00	135 5/15 0:00	132 5/12 12:10	100	11.8	20	330	520
11*	B	142 5/22 3:48	143 5/23 22:21	143 5/23 6:6	280	24	30	340	610
12	B	150 5/30 20:25	151 5/31 22:25	150 5/30 22:30	190	16	30	330	522
13	B	158 6/7 10:00	160 6/9 9:00	159 6/8 4:14	120	13	20	305	465
14	B	161 6/10 16:17	163 6/12 20:00	162 6/11 19:4	120	12.2	20	300	680
15	B	168 6/17 4:45	169 6/18 8:26	168 6/17 10:25	165	14	40	360	740
16	B	177 6/26 13:18	179 6/28 11:38	178 6/27 11:5	125	14	20	290	440
17	B	189 7/8 4:00	190 7/9 20:50	189 7/8 15:33	130	13.6	15.4	300	590
18	B	196 7/15 22:20	198 7/17 6:00	197 7/16 18:50	107.3	14.5	21.71	285	440
19*	B	206 7/25 23:44	207 7/26 14:00	207 7/26 6:10	80	11.7	6	350	575
20	B	217 8/5 9:21	219 8/7 5:1	217 8/5 9:50	164	17	20	305	540
21	B	222 8/10 12:00	223 8/11 14:49	223 8/11 12:12	250	16	20	300	600
22	B	232 8/20 6:27	233 8/21 19:59	233 8/21 1:31	200	14.5	20	325	700
23	B	263 9/20 18:42	264 9/21 18:00	264 9/21 5:55	150	15.2	30	290	520
24	B	274 10/1 6:00	275 10/2 16:00	275 10/2 00:09	230	11.2	20	270	435
25	B	277 10/4 18:00	280 10/7 15:25	279 10/6 3:00	55	13.89	8.4	270	435
26	B	290 10/17 18:10	291 10/18 13:34	290 10/17 22:36	56	9.6	11.58	290	400
27	B	304 10/31 12:00	306 11/2 5:30	304 10/31 22:2	118	13.6	26.09	305	530
28	B	324 11/20 13:00	326 11/22 6:00	325 11/21 9:14	200	9	14.23	300	490

29	B	331 11/27 3:45	332 11/28 7:30	331 11/27 13:12	82	11	15.27	320	525
30	B	335 12/1 19:33	337 12/3 18:00	336 12/2 10:16	170	9.5	16.95	350	610
31	B	349 12/15 1:8	350 12/16 6:49	349 12/15 11:12	125	13	20	305	500
32*	B	356 12/22 0:9	356 12/22 13:00	356 12/22 7:54	460	22	70	300	690

Comparison pair #	# of Spacecraft	Start time [Doy Month/Day HH:MM]	End time	P^1_{tmax} time	P_{tmax} [pPa]	B_{max} [nT]	N^2_{pmax} [cm^{-3}]	V_{min} [km/s]	V_{max} [km/s]
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2014

1?	A	5 1/5 7:00	7 1/7 3:00	5 1/5 21:57	100.7	11.8	22.06	295	410
2*	A	8 1/8 8:00	11 1/11 3:32	9 1/9 15:48	376.3	21	8	350	580
3	A	20 1/20 19:21.83	23 1/23 22:00	22 1/22 2:10	170	17	23	300	840
4*	A	46 2/15 5:50	48 2/17 16:15	47 2/16 8:14	440	20.3	30	300	720
5	A	62 3/3 8:30	63 3/4 18:50	63 3/4 1:12	75	11	20	295	460
6*	A	65 3/6 12:00	68 3/9 6:00	66 3/7 19:20	260	15.3	16.37	300	610
7*	A	73 3/14 1:16	74 3/15 14:25	73 3/14 16:41	95	11	20	360	720
8	A	114 4/24 7:00	115 4/25 17:15	115 4/25 2:9	120	12	20	290	495
9	A	118 4/28 16:47	120 4/30 19:5	119 4/29 16:00	150	11	17.58	300	400
10	A	126 5/6 2:37	127 5/7 2:00	126 5/6 9:43	160	16	17.30	330	480
11	A	154 6/3 7:27	156 6/5 0:00	155 6/4 8:40	350	16	20	300	670
12*	A	179 6/28 22:00	182 7/1 10:42	181 6/30 4:00	76	12.5	4.7	320	575
13*	A	185 7/4 16:53	186 7/5 21:00	186 7/5 10:30	80	12	15.38	310	362
14	A	197 7/16 18:45	204 7/23 0:00	202 7/21 13:6	70	10.3	14.064	300	530
15	A	208 7/27 9:48	210 7/29 11:00	208 7/27 17:40	205	18	50	300	565
16	A	214 8/2 8:00	217 8/5 8:00	216 8/4 0:00	85	10.5	20	300	490
1	B	2013 365 12/31 21:47	2014 2 1/2 17:38	2014 1 1/1 18:3	87	11.8	15	385	540
2	B	8 1/8 21:30	14 1/14 20:00	11 1/11 8:00	65	9.6	20	280	453
3	B	18 1/18 0:45	19 1/19 20:00	18 1/18 23:8	148	14.3	20	300	640
4*	B	24 1/24 7:13	26 1/26 11:42	24 1/24 15:15	200	13.2	40	300	660
5*	B	43 2/12 12:15	44 2/13 23:30	43 2/12 15:32	160	13.5	40	385	660
6	B	88 3/29 17:8	90 3/31 9:44	89 3/30 7:43	80	11	2.3	295	350
7	B	92 4/2 6:4	93 4/3 22:15	93 4/3 4:33	66	8.8	9	300	430
8*	B	95 4/5 15:20	96 4/6 17:00	95 4/5 21:18	66	10	20	300	460
9	B	107 4/17 18:00	109 4/19 13:42	108 4/18 22:19	60	8.4	8	270	360
10	B	120 4/30 16:20	123 5/3 19:16	122 5/2 2:47	58	10.5	10	280	420
11*	B	133 5/13 13:45	135 5/15 6:00	133 5/13 14:6	175	13.3	20	340	510

12	B	139 5/19 1:43	140 5/20 6:00	139 5/19 14:8	60	10	9	300	433
13	B	143 5/23 2:00	145 5/25 12:00	144 5/24 4:21	70	10.3	10	300	420
14	B	156 6/5 10:52	158 6/7 16:45	157 6/6 13:37	230	17.2	20	300	700
15	B	166 6/15 15:00	168 6/17 16:00	167 6/16 21:46	200	13	13.60	290	435
16	B	169 6/18 21:00	171 6/20 8:30	170 6/19 13:2	61	8	13.47	304	430
17*	B	182 7/1 11:18	183 7/2 18:47	182 7/1 14:53	640	33	50	345	700
18	B	193 7/12 4:33	196 7/15 16:00	195 7/14 13:2	77	7.8	9	300	470
19	B	202 7/21 11:25	206 7/25 16:00	203 7/22 8:15	115	11.5	10	275	545
20	B	211 7/30 8:6	212 7/31 10:00	211 7/30 18:7	250	19.6	25	280	610
21	B	218 8/6 12:35	219 8/7 11:30	218 8/6 22:21	280	17.7	40	300	530
22	B	220 8/8 21:9	221 8/9 22:16	221 8/9 4:45	63	8.5	20	320	450
23*	B	221 8/9 22:35	223 8/11 1:30	222 8/10 10:57	190	13.5	50	340	640
24	B	236 8/24 11:10	238 8/26 17:35	238 8/26 7:38	145	12	11.93	280	475
25	B	250 9/7 1:00	251 9/8 21:00	DG	DG	12.6	DG	340	590
26	B	256 9/13 1:00	257 9/14 4:36	256 9/13 21:11	100	9.3	10	345	540
27	B	265 9/22 14:00	265 9/22 23:20	265 9/22 17:35	163	13	10	285	430

2015

1	A	321 11/17 14:00	323 11/19 6:47	322 11/18 14:36	240	21	37.4	320	750
2	A	325 11/21 16:00	330 11/26 0:00	328 11/24 11:2	84	11.3	10	340	646
3	A	330 11/26 17:00	333 11/29 0:00	331 11/27 2:00	120	14	20	420	680
4*	A	335 12/1 19:00	337 12/3 19:00	336 12/2 12:35	230	23.5	40	410	640
5	A	344 12/10 0:00	348 12/14 0:00	347 12/13 7:35	130	14.5	25	300	480
6	A	354 12/20 20:00	357 12/23 0:00	355 12/21 18:47	190	16	23.7	300	700
7	A	357 12/23 21:00	359 12/25 3:30	358 12/24 9:00	76	10	9	390	660
8	A	365 12/31 2:00	2016 2 1/2 7:00	2016 1 1/1 11:00	78	10.3	13	340	490

2016

1	A	4 1/4 3:00	5 1/5 22:33	4 1/4 15:25	100	14	30	320	490
2	A	15 1/15 0:00	18 1/18 12:00	17 1/17 23:30	190	17	25.963	300	750
3	A	20 1/20 14:00	23 1/23 20:00	21 1/21 17:32	80	9.4	13.559	355	600
4	A	26 1/26 13:00	27 1/27 12:00	26 1/26 18:46	270	19.8	55	313	593
5	A	35 2/4 4:00	36 2/5 11:19	35 2/4 12:35	170	15	35	290	510
6	A	38 2/7 0:12	40 2/9 10:00	38 2/7 12:20	102	12.5	27.183	323	456
7	A	42 2/11 8:20	43 2/12 18:28	43 2/12 6:43	225	16	40	300	516
8	A	48 2/17 0:00	50 2/19 12:00	49 2/18 11:35	103	11.3	14.022	350	650

9	A	53 2/22 14:00	55 2/24 01:00	54 2/23 3:00	270	24	22.905	340	680
10	A	57 2/26 11:10	59 2/28 12:00	58 2/27 17:59	86	10.3	15.657	325	425
11	A	60 2/29 9:10	62 3/2 7:49	61 3/1 8:5	85	10.5	23.509	325	448
12	A	68 3/8 18:00	71 3/11 11:00	69 3/9 4:38	110.7	13.5	25.856	310	630
13	A	76 3/16 15:43	77 3/17 20:16	76 3/16 21:44	153	16.5	26.247	370	546
14	A	81 3/21 19:00	84 3/24 18:00	82 3/22 23:34	105	11	20	320	534
15	A	86 3/26 18:40	90 3/30 1:19	88 3/28 6:41	70	9.6	20	305	433
16	A	90 3/30 8:00	93 4/2 23:00	90 3/30 21:41	146	16	30	310	585
17	A	98 4/7 0:00	99 4/8 22:00	98 4/7 14:46	130	14.4	17.721	320	573
18	A	101 4/10 5:52	102 4/11 9:00	101 4/10 21:50	95	11	9	400	660
19	A	115 4/24 13:00	116 4/25 13:45	116 4/25 7:7	124.2	13	25.32	320	520
20	A	117 4/26 19:00	119 4/28 18:00	118 4/27 10:41	166	16.3	20	380	670
21	A	125 5/4 0:00	126 5/5 18:00	125 5/4 6:41	200	16	40	280	553
22	A	128 5/7 8:15	129 5/8 18:00	128 5/7 17:8	110	12	11.126	430	690
23	A	130 5/9 19:17	132 5/11 20:00	131 5/10 16:32	85	10	10	400	640
24	A	135 5/14 21:23	138 5/17 6:00	136 5/15 12:57	158.8	16.2	30	330	500
25	A	143 5/22 18:00	145 5/24 20:00	144 5/23 17:10	190	15	30	280	690
26	A	150 5/29 17:10	152 5/31 9:20	151 5/30 7:57	130	13	16	400	606
27	A	155 6/3 6:00	156 6/4 1:30	155 6/3 11:35	195.2	17.3	30	340	672
28	A	163 6/11 16:30	165 6/13 5:30	163 6/13 23:9	271.4	18	50	340	485
29	A	169 6/17 16:00	174 6/22 16:00	172 6/20 19:13	136.1	13.92	22.712	336.9	564
30	A	176 6/24 12:34	178 6/26 6:00	177 6/25 6:55	162.5	14.33	27.856	340.9	610.4
31	A	181 6/29 18:00	183 7/1 0:00	182 6/30 5:7	120.3	11.33	8.0376	429.9	726.7
32	A	189 7/7 5:00	191 7/9 5:00	190 7/8 0:7	91.69	10.93	10.288	434.3	751.2
33	A	198 7/16 19:00	200 7/18 6:00	199 7/17 6:26	153.6	14.87	24.833	383.5	669.7
34	A	204 7/22 11:00	205 7/23 8:30	204 7/22 18:30	270.4	18.4	29.633	339.1	641.2
35	A	216 8/3 17:11	217 8/4 8:25	216 8/3 18:55	183.8	17.29	31.117	400.2	728.1
36	A	225 8/12 15:00	228 8/15 4:00	226 8/13 7:26	69.05	9.708	7.3372	427	725.9
37	A	231 8/18 11:00	233 8/20 6:00	232 8/19 0:48	106.2	10.82	22.36	332.9	450.5
38	A	234 8/21 14:00	237 8/24 10:30	235 8/22 7:47	149.5	15.29	25.931	335.2	797
39	A	244 8/31 1:00	246 9/2 5:15	244 8/31 13:21	226.8	17.96	35.528	343.9	726.3
40	A	248 9/4 3:00	249 9/5 23:00	248 9/4 11:10	79.34	9.502	10.87	437.6	691.5
41	A	252 9/8 15:46	253 9/9 12:00	253 9/9 0:58	136.9	16.71	12.571	328	536.2
42	A	257 9/13 19:00	258 9/14 9:30	258 9/14 0:23	102.8	12.43	28.301	375	585
43	A	260 9/16 12:00	262 9/18 6:00	261 9/17 10:10	144.1	15.08	16.715	367.9	687.1
44	A	271 9/27 14:00	272 9/28 9:00	271 9/27 16:23	330.9	22.12	59.912	298.4	604.9

45	A	278 10/4 21:00	279 10/5 21:00	279 10/5 2:52	132	12.62	8.63	446	754
46	A	283 10/9 17:47	286 10/12 22:00	284 10/10 18:43	80.75	10.83	21.4	392	525
47	A	288 10/14 9:34	289 10/15 13:46	289 10/15 2:25	304.5	19.21	42.2	352	700
48	A	299 10/25 11:00	300 10/26 3:20	299 10/25 18:33	162.1	15.09	51.794	306	455
49*	A	303 10/29 1:4	305 10/31 8:28	303 10/29 15:17	283.9	24.57	44.469	350	574.2
50	A	312 11/7 21:42	313 11/8 17:00	313 11/8 6:10	187	15.88	37.496	333	468.1
51	A	316 11/11 20:00	318 11/13 17:33	317 11/12 10:0	150.2	16.41	21.961	342.8	782.1
52	A	326 11/21 16:00	329 11/24 18:00	328 11/23 0:31	166	17.26	34.711	302.8	492.4
53	A	331 11/26 20:26	332 11/27 16:00	332 11/27 3:25	327.8	24.84	43.026	353	646.5
54	A	338 12/3 16:30	340 12/5 5:34	339 12/4 7:13	156	12.46	33.634	373.3	692.7
55	A	344 12/9 18:00	348 12/13 8:00	345 12/10 9:18	109.1	12.87	25.528	362.8	601.2
56	A	355 12/20 3:30	357 12/22 3:00	355 12/20 15:23	130.6	15.07	24.218	320.9	641.1
57	A	360 12/25 23:00	361 12/26 18:00	361 12/26 3:39	104.9	12.31	12.483	418.4	742.7

¹ P_{tmax} time: approximate stream interface time, because it is where the forces at the two sides of the interface are equal and in opposite directions.

² N_{pmax} : maximum proton number density.

Since 2008, as the two spacecraft were separated farther and farther away from each other, we do not number the pairs any more.

* Hybrid event combined by a SIR and another solar wind structure like an ICME.

? Ambiguous event.

Records:

1. 6/9/2011: Change the start time of a SIR at STA from 2008 11/27 22:00 to 2008 11/28 16:44, where a forward shock occurred.
2. 3/19/2012: Add SIRs during Jan.-Sept. of 2011 at STB.
3. 4/4/2012: Add SIRs during Jan.-July of 2011 at STA.
4. 4/13/2012: Add SIRs during Oct.-Dec. of 2011 at STB.
5. 7/30/2012: Add SIRs during Aug.-Dec. of 2011 at STA.
6. 3/18/2013: Add SIRs during Jan.-Aug. of 2012 at STA.
7. 4/3/2013: Change the boundaries of 2/25/2012 SIR at STA.
8. 5/24/2013: Add SIRs during Jan.-Aug. of 2012 at STB.
9. 7/2/2013: Add SIRs in late Feb and early March of 2008 at STA because the plasma data became available after reprocessing.
10. 10/22/2013: Add SIRs during Sept.-Dec. of 2012 at STB.
11. 11/4/2013: Add SIRs during Sept.- Dec. of 2012 at STA.
12. 5/28/2014: Add SIRs during Jan.-June of 2013 at STA.

13. 9/4/2014: Add SIRs during 2013 at STB.
14. 9/25/2014: Add SIRs during July - Dec. of 2013 at STA.
15. 3/4/2015: Add SIRs during Jan. - June of 2014 at STA.
16. 12/3/2015: Add SIRs during Jan. - Sept. of 2014 at STB.
17. 11/9/2016: Add SIRs during July - August of 2014 at STA. Because the plasma data are only available for a few hours per day in the rest of 2014 and the Level 2 PLASTIC data of 2015 are in process, the event survey is only updated to 8/26/2014.
18. //15/2017: Update STA SIRs to the end of 2016, using Version 11 PLASTIC data and the new Level 2 merged data.