

After: Barnard, L., and M. Lockwood (2011), A survey of gradual solar energetic particle events, *J. Geophys. Res.* , 116 , A05103, doi:10.1029/2010JA016133

A Survey of Gradual Solar Energetic Particle Events (1967 - 2006)

ID	Onset	Duration	Event_Peak	Peak_Flux	Fluence	Coverage
1	18/11/1968	32	18/13	60	17	0.94
2	30/03/1969	41	30/17	6	5	1.00
3	04/12/1969	50	13/02	10	10	1.00
4	29/03/1970	30	29/18	4	4	1.00
5	24/01/1971	46	25/06	56	29	1.00
6	09/01/1971	57	02/01	42	28	0.95
7	08/04/1972	71	04/14	3875	1204	0.96
8	08/07/1972	40	07/20	44	29	0.95
9	07/04/1974	73	05/20	48	37	0.99
10	09/11/1974	95	13/04	14	25	0.88
11	19/09/1974	35	20/07	18	10	1.00
12	24/09/1974	63	25/05	8	11	0.78
13	30/04/1976	33	30/22	147	29	0.88
14	24/09/1977	59	24/09	64	31	0.86
15	22/11/1977	52	22/13	214	65	0.96
16	13/02/1978	56	14/13	170	154	0.96
17	04/11/1978	24	11/17	18	8	0.67
18	21/04/1978	129	23/21	3	13	0.81
19	28/04/1978	116	30/21	199	218	0.75
20	05/07/1978	41	07/06	82	21	0.80
21	24/06/1978	36	24/15	6	5	0.81
22	23/09/1978	83	24/13	338	373	0.69
23	06/06/1979	39	07/01	79	27	0.87
24	19/08/1979	129	20/08	94	94	0.75
25	15/09/1979	239	17/13	46	145	0.88
26	18/07/1980	50	18/19	22	19	0.86
27	04/10/1981	43	10/22	26	14	0.63
28	24/04/1981	96	24/18	56	46	0.71
29	28/04/1981	25	29/03	13	6	0.56
30	30/04/1981	40	30/16	34	19	0.75
31	05/05/1981	90	06/22	4	10	0.82
32	05/09/1981	84	10/10	51	40	0.60
33	16/05/1981	46	16/18	32	20	0.59
34	20/07/1981	27	20/16	22	8	0.78
35	10/08/1981	101	09/11	14	32	0.79
36	31/01/1982	109	31/19	131	140	0.57
37	06/06/1982	131	07/23	6	18	0.80
38	07/11/1982	87	13/18	298	108	0.63
39	22/07/1982	34	23/00	32	11	0.56

40	22/11/1982	25	22/22	8	4	0.56
41	26/11/1982	50	26/12	44	26	0.66
42	12/07/1982	66	08/04	236	124	0.73
43	17/12/1982	36	18/00	22	13	0.61
44	19/12/1982	31	20/00	18	10	0.94
45	26/12/1982	58	27/12	34	24	0.62
46	02/03/1983	29	04/16	16	8	0.52
47	19/02/1984	74	21/00	6	10	0.65
48	24/04/1985	54	26/05	11	10	0.56
49	14/12/1988	27	15/06	3	3	0.74
50	16/12/1988	57	17/10	5	8	0.77
51	03/09/1989	110	13/07	147	39	0.73
52	17/03/1989	52	18/16	122	81	0.52
53	04/11/1989	73	11/23	23	19	0.84
54	08/12/1989	63	13/04	1850	1134	0.76
55	15/08/1989	101	16/05	376	373	1.00
56	19/08/1989	293	20/01	52	84	0.74
57	29/09/1989	192	29/23	1472	1223	0.80
58	19/10/1989	77	20/15	3786	2529	0.66
59	22/10/1989	47	23/04	1808	1395	0.53
60	24/10/1989	199	24/22	926	695	0.81
61	15/11/1989	24	15/08	37	8	0.96
62	30/11/1989	61	01/08	311	192	0.74
63	19/03/1990	56	19/22	93	72	0.61
64	21/05/1990	49	22/05	143	48	0.71
65	24/05/1990	47	25/00	54	43	0.79
66	26/05/1990	32	27/01	71	28	0.63
67	26/07/1990	32	26/09	4	3	0.69
68	08/01/1990	45	01/18	20	13	0.93
69	23/03/1991	178	24/01	1831	838	0.66
70	04/03/1991	37	04/08	5	4	0.92
71	06/04/1991	148	07/05	62	164	0.61
72	15/06/1991	89	15/14	268	209	0.84
73	07/07/1991	55	08/15	201	82	0.65
74	30/10/1991	25	30/08	14	5	0.92
75	05/09/1992	30	09/21	110	23	0.83
76	25/06/1992	49	26/05	31	20	0.88
77	20/02/1994	38	21/07	123	34	0.74
78	11/06/1997	64	06/18	121	75	1.00
79	20/04/1998	85	21/13	166	117	0.84
80	05/02/1998	31	02/16	17	8	0.77
81	24/08/1998	59	26/07	33	22	0.85
82	30/09/1998	33	30/20	42	19	0.85
83	14/11/1998	38	14/12	41	17	0.89

84	14/07/2000	86	14/16	1316	834	0.93
85	11/08/2000	59	09/03	1338	701	1.00
86	26/11/2000	55	26/20	38	22	0.85
87	04/02/2001	74	03/07	38	37	1.00
88	15/04/2001	46	15/16	245	62	0.98
89	18/04/2001	30	18/06	31	12	1.00
90	16/08/2001	51	16/03	79	31	1.00
91	24/09/2001	114	25/08	220	246	1.00
92	10/01/2001	29	02/08	16	8	1.00
93	22/10/2001	34	22/22	7	6	1.00
94	11/04/2001	92	06/02	1081	553	1.00
95	22/11/2001	51	24/05	99	87	1.00
96	26/12/2001	39	26/07	204	40	1.00
97	21/04/2002	89	21/10	187	164	1.00
98	24/08/2002	45	24/02	113	30	1.00
99	28/10/2003	32	29/00	942	507	1.00
100	29/10/2003	46	29/23	365	180	1.00
101	11/02/2003	48	02/19	176	60	1.00
102	11/04/2003	47	05/06	19	12	1.00
103	11/10/2004	43	10/10	21	13	1.00
104	16/01/2005	31	16/15	15	10	1.00
105	17/01/2005	47	17/17	246	126	1.00
106	19/01/2005	21	19/16	6	4	1.00
107	20/01/2005	76	20/07	949	214	1.00
108	22/08/2005	24	23/02	8	4	1.00
109	09/07/2005	113	10/03	67	118	1.00
110	12/06/2006	118	07/17	131	125	1.00
111	13/12/2006	42	13/05	286	94	1.00
112	14/12/2006	21	15/00	21	6	1.00

Auxiliary material for Paper [2010JA016133](#) (Journal of Geophysical Research)

A survey of gradual solar energetic particle events

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Introduction

Provided as auxiliary material is the database of 112 SEP events identified from a homogenised proton flux time series. The homogenised proton flux time series is formed from >60 MeV proton flux data from the OMNI 2 data set and data from the GOES satellites. The event criteria is that the proton flux should be consistently above a flux threshold of $2 \text{ cm}^{-2} \text{ sr}^{-1} \text{ s}^{-1}$ for greater than 24 hours, and that over this period there must be greater than 50 percent data coverage. For sequences of overlapping events, the flux minimum between the two events is taken to separate them.

The structure of this database is as follows:

Column "ID": Integer ID number, in order of oldest to most recent event.

Column "Event_Onset" : Date of event onset, in dd-mm-yyyy format.

Column "Duration": The duration of the event in hours.

Column "Event_Peak" : The time of the event peak after the onset in (hh/dd).

Column "Peak Flux": The peak proton flux in $\text{cm}^{-2} \text{ sr}^{-1} \text{ s}^{-1}$.

Column "Fluence": The time integral of the proton flux over the event in $1 \times 10^5 \text{ cm}^{-2} \text{ sr}^{-1}$.

Column "Coverage": The fraction of the event over which measurements were recorded. Data gaps in the time series are filled using a 1st order polynomial interpolation. Therefore coverage is calculated as the number of recorded measurements during an event, divided by the total number of data points (real + interpolated).