

Tabela 7: Catálogo de eventos Alfvênicos de longa duração (1999–2024) identificados in-situ a 1 UA em que todos os três componentes satisfazem o critério de correlação.

Tabela 7: Os eventos foram selecionados com base na condição de que o valor absoluto do coeficiente de correlação de Pearson permanecesse acima do limite por pelo menos 24 horas consecutivas em todos os três componentes: Vx-Bx (limite = 0,84), Vy-By (limite = 0,83) e Vz-Bz (limite = 0,87).

A tabela inclui, para cada evento: um número sequencial, um ID único, os horários de início e fim (UTC) e a duração (h). Além disso, quatro indicadores binários (onde 1=sim, 0=não) classificam a associação do evento com fenômenos do vento solar:

- ICME (Interplanetary Coronal Mass Ejection),
- HSS (High-Speed Streams),
- ICME_And_HSS (associação simultânea com ambos),
- Not_ICME_And_Not_HSS (sem associação, representando o vento solar calmo).

Um total de **115 intervalos Alfvênicos** foram identificados. A classificação de ICME é baseada no catálogo de Richardson e Cane (2024), enquanto os intervalos de HSS foram identificados nos trabalhos de Xystouris, Sigala e Mavromichalaki (2014), e Gerontidou, Mavromichalaki e Daglis (2018).

Vale notar que as associações com HSS foram verificadas apenas até 2016, que é a última data disponível nos catálogos consultados. O catálogo de ICME se estende até 2024; entretanto, nenhum evento Alfvênico após 2016 está associado a ICME. A análise dos dados foi realizada até o dia 138 de 2024, que corresponde ao último valor disponível no banco de dados utilizado neste estudo. Para os anos em que não foram observados eventos, não há entradas na tabela.

Event	Event ID	Start Time (UTC)	End Time (UTC)	Duratio n (h)	ICME	HS S	ICME And HSS	Not ICME And Not HSS
1	1999-1	1999-01-01T08:00:00	1999-01-03T08:00:00	48	0	1	0	0
2	1999-2	1999-01-07T12:00:00	1999-01-08T16:00:00	28	0	1	0	0
3	1999-3	1999-01-27T20:00:00	1999-01-29T00:00:00	28	0	0	0	1
4	1999-4	1999-02-04T20:00:00	1999-02-07T04:00:00	56	0	1	0	0
5	1999-5	1999-03-04T12:00:00	1999-03-05T12:00:00	24	0	1	0	0
6	1999-6	1999-03-17T04:00:00	1999-03-18T04:00:00	24	0	1	0	0
7	1999-7	1999-04-13T12:00:00	1999-04-14T12:00:00	24	0	0	0	1
8	1999-8	1999-05-21T08:00:00	1999-05-22T12:00:00	28	0	1	0	0
9	1999-9	1999-07-22T16:00:00	1999-07-23T16:00:00	24	0	1	0	0
10	1999-10	1999-07-24T08:00:00	1999-07-25T12:00:00	28	0	1	0	0
11	1999-11	1999-07-25T16:00:00	1999-07-27T00:00:00	32	0	1	0	0
12	1999-12	1999-08-27T12:00:00	1999-08-29T16:00:00	52	0	1	0	0
13	1999-13	1999-09-16T20:00:00	1999-09-17T20:00:00	24	0	1	0	0
14	1999-14	1999-09-24T04:00:00	1999-09-25T08:00:00	28	0	1	0	0
15	1999-15	1999-10-15T20:00:00	1999-10-16T20:00:00	24	0	1	0	0
16	1999-16	1999-11-08T20:00:00	1999-11-10T08:00:00	36	0	1	0	0
17	1999-17	1999-12-09T20:00:00	1999-12-11T04:00:00	32	0	1	0	0

18	1999-1 8	1999-12-15T20: 00:00	1999-12-17T04: 00:00	32	0	1	0	0
19	1999-1 9	1999-12-18T00: 00:00	1999-12-19T00: 00:00	24	0	1	0	0
					0	17	0	2
20	2000-1	2000-02-02T04: 00:00	2000-02-04T04: 00:00	48	0	1	0	0
21	2000-2	2000-02-28T08: 00:00	2000-02-29T08: 00:00	24	0	1	0	0
22	2000-3	2000-04-28T08: 00:00	2000-04-30T00: 00:00	40	0	0	0	1
23	2000-4	2000-06-07T08: 00:00	2000-06-08T08: 00:00	24	0	1	0	0
24	2000-5	2000-08-03T00: 00:00	2000-08-04T04: 00:00	28	0	1	0	0
25	2000-6	2000-09-26T12: 00:00	2000-09-28T04: 00:00	40	0	1	0	0
26	2000-7	2000-10-19T00: 00:00	2000-10-20T00: 00:00	24	0	1	0	0
27	2000-8	2000-11-12T16: 00:00	2000-11-14T00: 00:00	32	0	1	0	0
28	2000-9	2000-11-20T16: 00:00	2000-11-21T16: 00:00	24	0	0	0	1
					0	7	0	2
29	2001-1	2001-04-16T04: 00:00	2001-04-17T04: 00:00	24	0	1	0	0
30	2001-2	2001-12-05T16: 00:00	2001-12-06T20: 00:00	28	0	1	0	0
					0	2	0	0
31	2002-1	2002-01-27T00: 00:00	2002-01-28T04: 00:00	28	0	1	0	0
32	2002-2	2002-10-17T00: 00:00	2002-10-18T16: 00:00	40	0	1	0	0
33	2002-3	2002-10-19T12: 00:00	2002-10-20T20: 00:00	32	0	1	0	0
34	2002-4	2002-10-26T04: 00:00	2002-10-27T04: 00:00	24	0	1	0	0
35	2002-5	2002-11-02T08: 00:00	2002-11-04T12: 00:00	52	0	1	0	0
36	2002-6	2002-11-05T08: 00:00	2002-11-06T08: 00:00	24	0	1	0	0
37	2002-7	2002-11-22T04: 00:00	2002-11-23T08: 00:00	28	0	1	0	0
38	2002-8	2002-11-23T16: 00:00	2002-11-24T16: 00:00	24	0	1	0	0
39	2002-9	2002-11-29T12: 00:00	2002-12-01T08: 00:00	44	0	1	0	0
40	2002-1 0	2002-12-02T20: 00:00	2002-12-04T12: 00:00	40	0	1	0	0
41	2002-1 1	2002-12-15T12: 00:00	2002-12-16T16: 00:00	28	0	1	0	0
					0	11	0	0
42	2003-1	2003-02-06T20: 00:00	2003-02-09T20: 00:00	72	0	0	0	1
43	2003-2	2003-02-15T08: 00:00	2003-02-17T20: 00:00	60	0	1	0	0
44	2003-3	2003-02-28T12: 00:00	2003-03-01T16: 00:00	28	0	1	0	0
45	2003-4	2003-03-06T12: 00:00	2003-03-07T16: 00:00	28	0	1	0	0
46	2003-5	2003-03-16T04: 00:00	2003-03-17T12: 00:00	32	0	1	0	0
47	2003-6	2003-03-18T00: 00:00	2003-03-19T04: 00:00	28	0	1	0	0
48	2003-7	2003-03-21T00: 00:00	2003-03-22T04: 00:00	28	0	1	0	0
49	2003-8	2003-03-22T08: 00:00	2003-03-23T20: 00:00	36	0	1	0	0
50	2003-9	2003-03-27T08: 00:00	2003-03-28T08: 00:00	24	0	1	0	0

51	2003-1 0	2003-04-01T08: 00:00	2003-04-02T12: 00:00	28	0	1	0	0
52	2003-1 1	2003-04-02T16: 00:00	2003-04-04T00: 00:00	32	0	1	0	0
53	2003-1 2	2003-04-16T12: 00:00	2003-04-17T12: 00:00	24	0	1	0	0
54	2003-1 3	2003-04-19T00: 00:00	2003-04-20T00: 00:00	24	0	1	0	0
55	2003-1 4	2003-04-23T08: 00:00	2003-04-24T08: 00:00	24	0	1	0	0
56	2003-1 5	2003-04-26T00: 00:00	2003-04-27T04: 00:00	28	0	1	0	0
57	2003-1 6	2003-05-12T00: 00:00	2003-05-13T00: 00:00	24	0	1	0	0
58	2003-1 7	2003-05-14T00: 00:00	2003-05-16T04: 00:00	52	0	1	0	0
59	2003-1 8	2003-05-22T20: 00:00	2003-05-24T08: 00:00	36	0	1	0	0
60	2003-1 9	2003-06-10T04: 00:00	2003-06-11T08: 00:00	28	0	1	0	0
61	2003-2 0	2003-06-22T16: 00:00	2003-06-23T16: 00:00	24	0	1	0	0
62	2003-2 1	2003-06-24T08: 00:00	2003-06-26T04: 00:00	44	0	1	0	0
63	2003-2 2	2003-06-30T00: 00:00	2003-07-01T08: 00:00	32	0	1	0	0
64	2003-2 3	2003-07-04T08: 00:00	2003-07-05T08: 00:00	24	0	1	0	0
65	2003-2 4	2003-07-30T20: 00:00	2003-07-31T20: 00:00	24	0	1	0	0
66	2003-2 5	2003-08-01T00: 00:00	2003-08-02T12: 00:00	36	0	1	0	0
67	2003-2 6	2003-08-09T08: 00:00	2003-08-10T08: 00:00	24	0	1	0	0
68	2003-2 7	2003-08-13T08: 00:00	2003-08-15T12: 00:00	52	0	1	0	0
69	2003-2 8	2003-08-22T00: 00:00	2003-08-23T08: 00:00	32	0	1	0	0
70	2003-2 9	2003-09-04T16: 00:00	2003-09-05T20: 00:00	28	0	1	0	0
71	2003-3 0	2003-09-06T00: 00:00	2003-09-07T00: 00:00	24	0	1	0	0
72	2003-3 1	2003-09-10T08: 00:00	2003-09-11T20: 00:00	36	0	1	0	0
73	2003-3 2	2003-10-08T12: 00:00	2003-10-09T12: 00:00	24	0	1	0	0
74	2003-3 3	2003-10-16T08: 00:00	2003-10-18T04: 00:00	44	0	1	0	0
75	2003-3 4	2003-11-13T16: 00:00	2003-11-15T04: 00:00	36	0	1	0	0
76	2003-3 5	2003-11-16T16: 00:00	2003-11-18T20: 00:00	52	0	1	0	0
77	2003-3 6	2003-11-23T08: 00:00	2003-11-24T12: 00:00	28	0	0	0	1
78	2003-3 7	2003-11-24T20: 00:00	2003-11-25T20: 00:00	24	0	1	0	0
79	2003-3 8	2003-11-26T00: 00:00	2003-11-27T00: 00:00	24	0	1	0	0
80	2003-3 9	2003-12-12T00: 00:00	2003-12-13T04: 00:00	28	0	1	0	0
81	2003-4 0	2003-12-21T16: 00:00	2003-12-23T00: 00:00	32	0	1	0	0
				0	38	0		2
82	2004-1	2004-01-05T00: 00:00	2004-01-06T16: 00:00	40	0	1	0	0
83	2004-2	2004-01-16T12: 00:00	2004-01-17T16: 00:00	28	0	1	0	0
84	2004-3	2004-01-18T16: 00:00	2004-01-20T16: 00:00	48	0	0	0	1
85	2004-4	2004-01-20T20: 00:00	2004-01-22T00: 00:00	28	0	0	0	1

86	2004-5	2004-01-31T12:00:00	2004-02-01T12:00:00	24	0	1	0	0
87	2004-6	2004-02-03T04:00:00	2004-02-04T08:00:00	28	0	1	0	0
88	2004-7	2004-02-13T16:00:00	2004-02-14T20:00:00	28	0	1	0	0
89	2004-8	2004-02-29T12:00:00	2004-03-01T16:00:00	28	0	1	0	0
90	2004-9	2004-03-12T12:00:00	2004-03-13T16:00:00	28	0	1	0	0
91	2004-10	2004-03-13T20:00:00	2004-03-15T04:00:00	32	0	1	0	0
92	2004-11	2004-03-29T08:00:00	2004-03-31T00:00:00	40	0	1	0	0
93	2004-12	2004-04-22T04:00:00	2004-04-23T04:00:00	24	0	1	0	0
94	2004-13	2004-05-23T00:00:00	2004-05-24T08:00:00	32	0	1	0	0
95	2004-14	2004-05-24T20:00:00	2004-05-25T20:00:00	24	0	1	0	0
96	2004-15	2004-06-01T04:00:00	2004-06-02T08:00:00	28	0	1	0	0
97	2004-16	2004-06-02T12:00:00	2004-06-04T00:00:00	36	0	1	0	0
98	2004-17	2004-06-04T08:00:00	2004-06-05T12:00:00	28	0	1	0	0
99	2004-18	2004-06-05T16:00:00	2004-06-06T20:00:00	28	0	1	0	0
100	2004-19	2004-07-28T08:00:00	2004-07-29T16:00:00	32	0	1	0	0
101	2004-20	2004-07-29T20:00:00	2004-07-30T20:00:00	24	0	1	0	0
102	2004-21	2004-08-21T20:00:00	2004-08-22T20:00:00	24	0	1	0	0
103	2004-22	2004-08-27T20:00:00	2004-08-29T00:00:00	28	0	1	0	0
104	2004-23	2004-09-22T16:00:00	2004-09-24T00:00:00	32	0	1	0	0
105	2004-24	2004-10-08T20:00:00	2004-10-09T20:00:00	24	0	1	0	0
106	2004-25	2004-12-07T04:00:00	2004-12-08T04:00:00	24	0	1	0	0
107	2004-26	2004-12-17T08:00:00	2004-12-18T12:00:00	28	0	1	0	0
					0	24	0	2
108	2005-1	2005-09-17T08:00:00	2005-09-18T16:00:00	32	0	1	0	0
109	2005-2	2005-09-19T08:00:00	2005-09-20T12:00:00	28	0	0	0	1
					0	1	0	1
110	2007-1	2007-02-08T00:00:00	2007-02-09T08:00:00	32	0	1	0	0
					0	1	0	0
111	2014-1	2014-09-01T04:00:00	2014-09-02T12:00:00	32	0	1	0	0
112	2014-2	2014-09-24T20:00:00	2014-09-25T20:00:00	24	0	0	0	1
113	2014-3	2014-11-20T04:00:00	2014-11-21T16:00:00	36	0	0	0	1
					0	1	0	2
114	2015-1	2015-05-29T20:00:00	2015-05-30T20:00:00	24	0	1	0	0
115	2015-2	2015-09-05T08:00:00	2015-09-06T08:00:00	24	0	1	0	0
					0	2	0	0