

We are very grateful to Prof. Alexey Ekaykin for his specific and valuable suggestion on our manuscript. The manuscript has been modified. In the following, the comments from Prof. Alexey Ekaykin are in black, and our responses are in blue.

CC1: 'Comment on egusphere-2026-769', Alexey Ekaykin, 22 Feb 2026

Dear authors, thank you for the manuscript! You might be interested in comparing your results with Vostok data as well. Sincerely, Alexey

Many thanks to the suggestion. We have compared our records with the volcanic record from vostok (Veres et al., 2023). The results are presented in Table S3 below.

We have also supplemented the following discussion content in section 3.3 and 3.4, as follows.

Section 3.3: “A comparison of Tambora's approximate ranking between the DA2009 (10th among 55 events) and DA2005 (11th among 57 events) records over the past two millennia further suggests that volcanic signals at Dome A tend to be relatively attenuated compared with those preserved at other Antarctic sites. This phenomenon is also observed in volcanic records from the VK16 ice core at Vostok in inland East Antarctica, where the sulfate flux of the Tambora event ranks 9th among the 59 volcanic events recorded in the past 2000 years (Veres et al., 2023).”

Section 3.4: “Our results show that for the five sites (Law Dome, Siple Dome, DT-401, Vostok and DML05), the ratios of volcanic event count in the 1000–2000 CE interval to those in the 1–1000 CE interval are 1.31, 1.22, 1.90, 1.11 and 1.72, respectively. The corresponding ratios of volcanic sulfate flux are 1.80, 1.63, 1.88, 2.22, and 1.86, respectively.”

Table S3: Comparisons of the DA2009 volcanic records with other Antarctic ice core records.

Event Number ^a	Start Date in the DA2009 ice core (CE)	Other cores where the events detected ^b
1 Pinatubo	1991	WDC, EDC96, DSS, DML05
2 Agung	1964	WDC, SPC14, EDC96, DA2005, DSS, SDMA, DT-401, DML05
3 Krakatau	1885	WDC, SPC14, EDC96, DA2005, DSS, SDMA, DML05, DF01
4 Cosigtauu	1834	WDC, SPC14, DA2005, DSS, SDMA, DML05, DF01
5 Tambora	1815	WDC, SPC14, EDC96, DA2005, DSS, DT-401, VK16, DML05, DF01
6 UE 1809	1809	WDC, SPC14, EDC96, DA2005, DSS, SDMA, VK16, DML05, DF01
7	1763	WDC, EDC96, DA2005, VK16, DML05
8	1699	WDC, SPC14, EDC96, DA2005, DSS, VK16, DML05, DF01
9	1677	WDC, EDC96, DA2005, DSS, DML05, DF01
10	1644	WDC, SPC14, DA2005, DSS, VK16, DML05, DF01
11 Huainaputina	1603	WDC, SPC14, EDC96, DA2005, DSS, SDMA, DT-401, VK16, DML05, DF01
12	1600	WDC, SPC14, DA2005, VK16, DML05, DF01
13 Kuwae	1459	WDC, SPC14, EDC96, DA2005, DSS, SDMA, DT-401, VK16, DML05, DF01
14	1380	WDC, DA2005, SDMA, DT-401, DML05

15	1347	WDC, SPC14, EDC96, DA2005, DSS, SDMA, DT-401, VK16, DML05, DF01
16	1289	WDC, SPC14, EDC96, DA2005, DSS, DT-401, VK16, DML05, DF01
17 Samalas	1258	WDC, SPC14, EDC96, DA2005, DSS, SDMA, DT-401, VK16, DML05, DF01
18	1231	WDC, SPC14, EDC96, DSS, SDMA, VK16, DML05, DF01
19	1192	WDC, SPC14, EDC96, DA2005, B53/54, SDMA, VK16, DML05, DF01
20	968	WDC, SPC14, DA2005, DSS, DML05
21	750	SPC14, DA2005, DT-401, VK16
22	682	WDC, SPC14, DA2005, DSS, VK16, DML05, DF01
23	575	WDC, SPC14, DA2005, DSS, VK16, DML05, DF01
24	538	WDC, SPC14, DA2005, DSS, VK16, DML05, DF01
25	434	WDC, SPC14, DA2005, DSS, VK16, DML05, DF01
26	306	WDC, SPC14, EDC96, DA2005, DSS, SDMA, VK16, DML05, DF01
27	209	WDC, SPC14, EDC96, DA2005, DSS, DT-401, VK16, DML05, DF01
28	173	WDC, SPC14, EDC96, DA2005, DSS, B53/54, SDMA, DT-401, VK16, DML05, DF01
29	-4	WDC, EDC96, DA2005, DSS
30	-166	WDC, SPC14, SDMA, VK16
31	-204	WDC, SPC14, EDC96, DA2005
32	-243	WDC, SPC14, DA2005
33	-392	WDC, SPC14, EDC96, DA2005, B53/54
34	-427	WDC, SPC14, DA2005, SDMA
35	-518	WDC, DA2005, B53/54
36	-582	WDC, SPC14, DA2005
37	-647	DA2005
38	-723	WDC, SPC14, DA2005, SDMA
39	-1173	WDC, SPC14
40	-1255	WDC, SPC14
41	-1366	WDC, SPC14, EDC96, B53/54
42	-1408	WDC, SPC14
43	-1533	WDC
44	-1657	WDC, SPC14, EDC96
45	-1719	WDC, SPC14
46	-1880	WDC, SPC14, EDC96
47	-1923	WDC, SPC14

^a Only events with volcanic flux $\geq 5 \text{ kg km}^{-2}$ are listed in the table.

^b Antarctic ice core volcanic records: WDC (WAIS Divide; Cole-Dai et al., 2021), SPC14 (South Pole; Brandis, 2022), EDC96 (Dome C; Castellano et al., 2005), DA2005 (Dome A; Jiang et al., 2012), DSS (Law Dome; Plummer et al., 2012), B53/54 (East Antarctic Plateau; Abbott et al., 2024), SDMA (Siple Dome; Kurbatov et al., 2006), DT-401 (East Antarctic Plateau; Ren et al., 2010), VK16 (Vostok; Veres et al., 2023), DML05 (Dronning Maud Land; Traufetter et al., 2004), DF01 (Dome F; Motizuki et al., 2014).

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