

## ***Interactive comment on “Greenland ice core evidence of the 79 AD Vesuvius eruption” by C. Barbante et al.***

**Anonymous Referee #2**

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This paper presents a very small dataset of glass analyses from the GRIP ice core, and correlates the glass compositions to those generated in the 79 AD Vesuvius eruption. When I first read through the paper and looked at the glass compositions presented, I was concerned about the great compositional variation between the small number of glass shards analyzed, and was disinclined to believe that they represented a true tephra layer. However, after further reading of the paper, and more importantly, reading the paper by Santacroce et al., 2008, I am in agreement with the authors about their interpretation, although I would still be wary about making a correlation using the very disparate glass compositions that they observe. However, in view of the good chronology in this part of the GRIP core, along with the sulfate signal, and the sensible offset between the tephra particulate layer and the sulfate signal, I think that there is reason to present the results in print.

C3066

A number of minor comments are noted in the MS. Two numbered comments (keyed to numbers in the MS) are elaborated upon here.

Comment 1. The first 3 sentences of the abstract are really background for the paper, rather than new information. I would recommend removing these sentence, and focusing the abstract on information that results from this research, even if it makes the abstract very short. This is, after all, a study based on one very small dataset.

Comment 2. Even though the analyses of glass presented in this paper are so scattered that accuracy and precision becomes almost a moot point, I would like to suggest that the authors make an attempt to quantify and present this information with their analysis. They have analyzed SRMs as part of their work, and at the very least should present accuracy and precision for those data. However, I would like to suggest that they selected a suitable glass (such as SRMs KN18, KE12 or some other alkaline glass), crush some to a fine grain size, mount it using the same methods that they used for their unknowns, and analyze it using the methods that they describe in the paper. This would then provide a more realistic assessment of accuracy and precision than analyzed polished SRMs. I think that this would add significant scientific value to the paper, and would also make their analysis method for these very fine glass particles more widely usable, because researchers would have some idea of the quality of analysis that they would be able to obtain using these methods.

Please also note the supplement to this comment:

<http://www.clim-past-discuss.net/8/C3066/2013/cpd-8-C3066-2013-supplement.pdf>

Interactive comment on Clim. Past Discuss., 8, 5429, 2012.

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