

## ***Interactive comment on “Dating of a Dome Fuji (Antarctica) shallow ice core by volcanic signal synchronization with B32 and EDML1 chronologies” by Y. Motizuki et al.***

**Anonymous Referee #2**

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This manuscript proposes a new chronology of the Dome Fuji ice core between AD 199 and AD 1900 using synchronization of nssSO<sub>4</sub><sup>2-</sup> signal with the DML B32 ice core. The authors have carefully explained their method, which is a classical method and the resulting chronology is sound. However, I am not sure that the resulting chronology presented in this manuscript is enough to make a scientific paper on its own. First the dating method is not original and already used in many ice core studies so there is no methodological originality to discuss. Second, the produced chronology is rather short. Third, no scientific implications of this new chronology are discussed concerning regional or global climate change, volcanism, . . . As a consequence, I do not recommend to publish this manuscript in its present form. At least a discussion part dealing

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with the implications of this new chronology should be added.

Some more specific comments along the text: - Second paragraph of p. 772 is useless since there is not discussion later related to stratospheric influence or the differences between Dome F and other sites. The authors could propose some discussion in this direction either through regional comparison (MAR between DML and Dome F; climatic variations between the two sites, chemical signature of the different antarctic sites, . . .). - Top of p. 775: what is the exact goal of the paper despite producing a third chronology for the top of the Dome F ice core? - The raw data are never displayed. It would be interesting at least to provide a comparison of nssSO<sub>4</sub><sup>2-</sup> calculated with equation 1 and equation 2. - paragraph 4.2: Herimite → Hermite - Part 5: The comparison of the different timescales is important but lacks of conclusion: is there a recommended chronology. Is there a way to combine the different dating information (nssSO<sub>4</sub><sup>2-</sup> and 10Be-14C) in one coherent chronology? What are the implications of the new chronology with respect to the previous ones? - It would be nice to discuss more the implication of the MAR of Dome F: how does it compare with previous estimates?

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Interactive comment on The Cryosphere Discuss., 8, 769, 2014.