

Interactive comment on “Reassessment of the factors controlling temporal profiles of nitrate in polar ice cores using evidence from snow and atmospheric measurements” by E. W. Wolff et al.

E. W. Wolff et al.

Received and published: 30 July 2008

I will obviously have to answer some of the detailed points made by both reviewers when I revise the manuscript. However, I just wanted to comment before the close of the discussion period on the wider point made by both reviewers, who claim that it is "settled"; that SPEs are not clearly recorded in ice core nitrate profiles.

I have to say that this was my view until recently. In my 1995 paper, I gave a very strong lean to that view. However, I have realised that, while the ice core community believes this, there is a substantial body of very reputable scientists in the solar community who are unaware of it. We simply publish in different journals! Although we may think it describes a phenomenon we have dismissed, it turns out that the McCracken

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paper of 2001 has been cited 37 times in the literature! At the recent Leverhulme climate symposium in Cambridge, there was a breakout group on solar variability, which unfortunately none of the ice core attendees took part in; I was therefore shocked to find that they had spent a substantial part of their time discussing the McCracken paper and its implications. The ice core data seem to have played a major role in motivating a large special issue of the journal "Advances in Space Research"; in 2006, about the "Carrington event";. In summary, from discussions with my solar colleagues, I think we have not engaged with this community and made them aware of our view. For that reason, I thought it was worthwhile to revisit the problem, and in particular not only to explain the negative side (why SPEs would not be likely to be recorded), but also to explain with case studies how events similar to those seen in the earlier papers, could be generated.

I will of course try to re-balance the paper. I will also seek to shorten it as requested, although in fact it is already among the shorter papers that appear in ACP.

Interactive comment on Atmos. Chem. Phys. Discuss., 8, 11039, 2008.

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