Clim. Past Discuss., 5, C609–C610, 2009
www.clim-past-discuss.net/5/C609/2009/

Climate of the Past Discussions

Interactive comment on "Strong indications for nonlinear dynamics during Dansgaard-Oeschger events" *by* H. Braun

H. Braun

Holger.Braun@iup.uni-heidelberg.de

Received and published: 22 August 2009

I fully agree that the presented analysis should be extended in a revised version of the manuscript. In particular, I very much appreciate the suggestion to test the effect of the running mean procedure and to go beyond the applied M-statistic. Concerning the effect of dating assumptions and post-processing, I would like to stress that the NGRIP ice core has been layer-counted throughout the considered time interval (so there are no noteworthy dating assumptions) and that I used the freely available original delta-18-O data without any further processing from my side. In other words, there is no need to investigate the effects of dating assumptions and post-processing, because these effects are not relevant for the NGRIP ice core data.

Concerning the relevance of the manuscript: I also agree that the main message of

the study ("DO events are clearly inconsistent with a linear dynamical scenario, but consistent with a regime-shift scenario") is not at all surprising. However, I nevertheless think that the study is relevant: To the best of my knowledge, no study exists so far in which the nonlinear nature of DO events has been demonstrated on pure statistic grounds. And, after all, it is the concept of time series analysis that hypotheses can only be excluded once they are rejected. So I think the presented study is without doubt of relevance, even though the results are fully consistent with the leading interpretation of DO events as threshold-crossing events. Besides, I do not think that the nonlinear nature of DO events has already been fully accepted by the paleoclimatic community. After all, several studies have been published in the past in which linear methods have been used carelessly to analyse DO events. Also in this light I think that the presented study is of relevance, because it could help to prevent colleagues from repeating the same mistakes once again.

Interactive comment on Clim. Past Discuss., 5, 1751, 2009.