

Interactive comment on “The DO-climate events are noise induced: statistical investigation of the claimed 1470 years cycle” by P. D. Ditlevsen et al.

Anonymous Referee #3

Received and published: 22 January 2007

Review of:

The DO-climate events are noise induced: statistical investigations of the claimed 1470 years cycle by P.S. Ditlevsen, K.K. Andersen and A. Svensson

Ditlevsen et al. test the hypothesis of a periodic 1470 yr signal in the d18O records from Greenland. In their analysis they include the older GISP2 time scale (which has led to the hypothesis of this cycle) and the newer and most probably better GICC05 time scale. The data is tested against 3 different models: (i) noise induced, (ii) periodic signal with waiting times and (iii) a periodic signal that causes stochastic resonance. Ditlevsen et al. conclude that the recurrence times of the DO events are indistinguishable from a random occurrence.

I think this is an interesting analysis of the frequency distribution of the D/O events. By including the newest dating (GICC05) of the Greenland ice cores it represents an important update on the discussion of the cyclicity of the D/O events. I recommend the publication of this manuscript in *Climate of the Past*. However, it would be nice if some details would be added to the discussion. In the following I have some suggestions for minor revisions.

It seems to me that the title is not really exact. According to the explanation of Ditlevsen et al. it follows that this noise model cannot be proven (e.g. some SR models cannot be rejected) which, however, seems to be suggested by the title.

page 1279 line 3: "... the dating highly reliable..." This depends on the definition of "highly reliable". It might be better to say: "... the dating is based on annual layers counting with errors of less than..." or something like that.

page 1280 line 3: "... this has been refuted..." Muscheler & Beer write: "This comparison does not provide convincing evidence for a persistent solar influence on these strong climatic oscillations during the last ice age ". Therefore, they didn't really refute this hypothesis. It would be more accurate to write that "...the comparison of 10Be and d18o does not support this hypothesis...".

page 1281 lines 17-18: Events DO1c, ... should be shown in figure 1.

It is not clear to me how the ages (see caption of figure 1) are obtained. It seems (according to Ditlevsen et al., 2005) that the dates are defined by the center of the fast d18o jumps, correct? This should be added to the text.

page 1283 line 21: please add the details how $n(i)$ was generated. Is it constrained by the "average omittance" time of the D/O events?

page 1283 line 22: It is not clear to me if this additional standard deviation correctly represents the case if there is a systematic bias in the dating (which is possible). To me it seems that it only represents the case where the dating errors are nonsystematic.

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Please discuss and clarify this.

figure 3c&d: Why do the 2 methods give different results for case G2-D=9 (rejection of case G2-DO09 in figure 3d but not in figure 3c); same question for figure 3e & 3f: page 1285 line 21 seems to be true for the case in figure 3e but not for the case in figure 3f.

Interactive comment on Clim. Past Discuss., 2, 1277, 2006.

CPD

2, S822–S824, 2007

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