

Interactive comment on “Connecting the Greenland ice-core and U/Th timescales via cosmogenic radionuclides: Testing the synchronicity of Dansgaard-Oeschger events” by Florian Adolphi et al.

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This paper addresses a crucial problem we face in paleoclimatology - namely that many of us are going ahead and using the U-Th-dated speleothems to improve other paleo chronologies, without really having answered the fundamental question of whether the abrupt DO events seen in speleothems are synchronous with those seen in Greenland ice cores. I am as guilty of this as anyone - in Buizert et al. (2015) *Clim. Past*, 11, 153–173 we made a physical argument based on known atmospheric and oceanic processes that the Chinese speleothem DO events cannot have lagged Greenland’s

DO events by more than 50 years. We then proceeded to tie the Greenland and WAIS Divide timescales in a pragmatic fashion to the Chinese speleothems, adopting an uncertainty of 50 years due to the assumption of synchronicity. I do believe that this argument is solid, but it is not enough for the high scientific standards we as a community must ultimately achieve, and the authors of the present paper are attempting to rectify this problem and empirically show that this lag cannot be very large. Therefore this work is essential, timely, and critical to the paleo field, and therefore I think this paper should be published with only very minor revisions.

The ultimate uncertainty that the authors arrive at is large, unfortunately, so it is perhaps best if the language of the conclusions is adjusted to reflect that large uncertainty. Instead of saying that the speleothems and ice cores are synchronous within uncertainty (which is true), it might be more helpful to the reader to write "we can reject the hypothesis of asynchrony larger than 189 yrs" or something equivalent. That way the conclusion shows what has actually been added by the present work.

Minor comments:

The term "synchronicity" is used in psychology (i.e. Carl Jung) and has nothing to do with paleoclimate or chronology. The proper term is "synchronicity". Please change all the uses in the paper accordingly.

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Discussion paper

