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Dear Colleagues

At the HIHOL meeting in Avignon in October, several of us (Steig, van Ommen, Dahl-Jensen, Vimeux) agreed to write a review paper addressing Holocene climate change as viewed from polar ice core records. The main task of writing and organizing this paper has fallen upon Tas and Eric, and we are writing to solicit your interest, support, and contribution. We would appreciate hearing from each of you with comments on our proposed plan, requests for clarification and (hopefully) data sets. We hope you will be interested in working with us on this project. Note that the deadline for completion is the end of March, 2001.

Although the question of Holocene climate change has obviously been addressed in numerous papers on individual ice core records (and most recently in the Masson et al. review of Antarctic records in QR), we believe that it would be valuable to select the best-understood, best dated, polar ice core data from both hemispheres and put them in a single paper. We also think that the paper should be limited only to

- 1) data that address directly the TEMPERATURE history at high latitudes -- the information we get from isotopes and from borehole reconstructions -- as opposed e.g. to atmospheric circulation changes that one gets from the chemistry record, and
- 2) discussion of the long-term variations, as opposed to short term variations such as the Little Ice Age.

The intention here is not to be exclusive of either people or ideas, but to limit the scope of the paper so that it is as definitive a document as possible. Of particular interest is the "simple" question of the timing and magnitude of the "thermal maximum", the subsequent Holocene cooling, and their relationship to insolation forcing. This was a major question at the HIHOL meeting and we do not believe it was adequately resolved there.

Our vision is a summary paper that not only reproduces already-published work, but that carefully quantifies the uncertainties inherent in each of the reconstructions. Of particular interest are the possible effects of elevation change on the records, and uncertainties in the timescales. We cannot say a priori what the conclusions of this paper will be. An example might be that the "thermal maximum" was actually warmer than present - a major issue of contention in the popular literature - and was more-or-less simultaneous in both polar regions. If this is correct, it will be a useful service to the paleoclimate community to demonstrate it. Alternatively, we may find after carefully looking at the data that we CANNOT reach such a conclusion. This would be an equally important result.

How should we proceed? Our suggestion is that those who are willing to participate send their favorite ice-core based temperature reconstructions to us, providing the best available timescales and a brief description of the uncertainties you ascribe to the reconstruction. We will compile the data and produce both 1) a single file containing all the data, and 2) a PDF figure comparing all the independent temperature reconstructions. We can then initiate discussion around a common figure, so that everyone is looking at exactly the same information. The last 11,000 years would be considered the appropriate time interval to consider. We do not wish to confuse matters by including the glacial-interglacial transition!

Data sets that we think would be particularly important include the

following. Note that we will probably need to include other authors. This is just a preliminary list and is not intended to exclude anyone. We are also aware that some of these data are so far unpublished but we hope that they could be included anyway, perhaps in "smoothed" form (?).

- 1) Isotope profiles from Vostok, Byrd (and EPICA, if possible), on the most-accepted timescales (Francoise).
- 2) Isotope profiles from Taylor Dome and Siple Dome, Dye 3 and GISP2 (Eric).
- 3) Isotope profile from Dome Fuji (Fujii)
- 3) Isotope profiles and borehole temperatures from Law Dome core(s) (Tas, Vin).*
- 4) Isotope data from GRIP (and from N-GRIP if possible) (Dorthe)
- 4) Borehole data from Taylor Dome, GISP2, Dye 3 (Gary, Ed).*
- 5) Borehole data from GRIP (and N-GRIP if possible) (Dorethe)
- 6) Isotope, meltlayer frequency, and borehole T data from the Canadian ice caps (David, Fritz)
- 7) Meltlayer data from other sites (GISP2 - Alley?)

*The Law and Taylor Dome records only go to mid Holocene but would still be very useful here!

Other suggestions for data sets and people to contact?

Again, please reply to this email with your comments, criticisms concerns, request for clarification and (hopefully) data sets!

Thanks!

Warm regards to all,

Eric Steig & Tas van Ommen