Proxy Signals Presentation: Brainstorming

With the present document, we would thus like to collect input from all workshop participants to include into an introduction talk concerning the main and/or most robust signals of centennial climate variability in the proxy record.

If you have more extensive material (slides, videos, etc) you can send it by email to the organizers of this presentation:

- Alyssa Atwood: aatwood@fsu.edu
- Matthew Jones: Matthew.Jones@nottingham.ac.uk
- Nikita Kaushal: nikitageologist@gmail.com

Please indicate your name and email below when you contribute.

1. Nikita: The mid-Holocene conundrum may be interesting to address (?) given this focus on differences in models versus proxies over longer timescales…. https://www.nature.com/articles/s41586-022-05536-w

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Ed Hathorne (ehathorne@geomar.de)

What are the best ways to get records of centennial variability from varved marine sediments?

Varved sediments with annual layers covering the last 5000 years exist from the N Arabian Sea. Records of varve thickness, sediment elemental composition and planktonic foraminifer d18O have been generated at resolutions ranging from annual to decadal every 50 years (1 cm = 10yrs sampled every 5 cm). New micro-analytical techniques are also offering sub-annual resolution records of sea surface temperature and sediment elemental composition but we need to establish ways of increasing the confidence in the proxy reconstructions. What level of correlation between the proxy and the short instrumental record is needed to have confidence in centennial variability? What temporal resolution is required to resolve centennial variability? Are some proxy types more suited to record centennial variability above higher frequencies?

Vladimir Matskovsky (matskovsky@gmail.com)

Well-reproduced hemispherical centennial temperature variability in low sensitive tree-ring width records

I would like to present some examples where (locally) low-to-moderate temperature sensitive tree-ring width chronologies demonstrate good covariability with hemispheric temperature reconstruction on centennial timescales. These cases might promote previously unused proxies into paleoclimatic research.

Cecile Blanchet (blanchet@gfz-potsdam.de)

Might it be worth joining work with the floods PAGES group? I am working on flood reconstructions (from varved records) and I guess there is quite some info there.
Also, some of the discussions in the CVAS group for "non-calibrated" proxies was on how to use the chronological information, xrf, grain-size data, varve thickness (etc) to explore variability (not answered! ;). On my side, the contribution would be from the VARDA database (https://varve.gfz-potsdam.de/) and our expertise with dealing with xrf data + varved records. Our research is also very much centered on hydroclimates so would be happy to contribute!