‘Data’ Working Group Report PEN meeting

Approximately 20 people contributed towards the discussions in the ‘data’ working group, including both palaeoclimate data experts and statisticians.

Several ‘challenges’ were highlighted in initial round table discussions, including:

- making full use of qualitative or presence/absence data
- communication of proxy limitations and uncertainty
- communication of proxy basis to statisticians
- statistical issues associated with compiling data
- statistical techniques to produce spatio-temporal maps from discrete data
- methodologies to integrate different proxies
- quantification of uncertainties over different timescales
- identification of climate versus proxy noise in records
- use of forward models

A common theme soon became apparent, namely **palaeoclimate visualization.** This topic spans the entire range of proxies across different timescales, and has exciting potential – e.g., can statistical treatment of multi-proxy datasets be used to produce spatio-temporal maps of palaeoclimate with reduced uncertainties?

The working group therefore focused on this topic in subsequent discussions. The group concluded that in order to make progress on this challenge, forward models of proxies should be developed by collaboration between statisticians and proxy experts. The working group thought that a feasibility study could be used to explore the potential of this approach by studying a specific case study (time slice and set of proxies). Although some examples were suggested (e.g. LGM), the preliminary consensus was that the target case study should be identified in a workshop.

Palaeoclimate visualization workshop

The workshop would introduce an array of possible statistical techniques for enhanced interpretation of palaeoclimate data. The workshop would include the forward modeling approach, and one possible output of the workshop could be a review of proxies including an initial conceptual forward model for each proxy. The workshop would also identify the target for a feasibility study, i.e. the timeslice, the proxies and the statistical approach. At this point the PEN website could be used to host a relevant database alongside an explanatory text of the working group’s goals.

It was noted that care would need to be taken to make the workshop useful and attractive to a broad range of palaeoclimate / statistics researchers. One way to facilitate this might be to tag the workshop onto an inaugral UK palaeoclimate meeting, which would be repeated approximately every 3 years with a different theme. This could be a lasting legacy of the PEN network.