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# How to deal with uncertainty and the propogation of errors in a multi-proxy reconstruction of climate

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We present a treatment of uncertainty and the propogation of errors in a multi-proxy reconstruction of climate, which is mainly based on “common sense” and some basic statistics. As an example, we take the MARGO (Multiproxy Approach for the Reconstruction of the Glacial Ocean Surface) compilation of data and consider the sources of uncertainty for individual Last Glacial Maximum (LGM) sea-surface temperature (SST) reconstructions, as well as the propagation of these uncertainties during the calculation of $5^\circ \times 5^\circ$ “block averages” and the estimation of SST anomalies for larger horizontal regions (such as the tropics).

Finally, we discuss the implications for model-data comparisons and the assimiliation of proxy data into coupled climate models, e.g., for an assessment of the global climate sensitity during LGM cooling.