



Deconstructing reconstruction

M. R. Schofield (1), R. J. Barker (2)

(1) University of Otago, (mschofield@maths.otago.ac.nz), (2) University of Otago
(rbarker@maths.otago.ac.nz)

The study of climatological data is often inhibited by the availability of data. Inference about the climate over the past hundreds or thousands of years cannot be based on direct observations, which are only available for the past century or two. To obviate this problem, proxies with many more observations, such as isotopes, tree rings and ice cores are used to predict the past climate. Most reconstruction methods do not account for all sources of uncertainty, with only one climatological record being produced from which all inference is obtained. This leads to overly precise and potentially spurious predictions. Using Bayesian computation, treating the unknown climate observation as missing data, we can model the climate data with all uncertainty accounted for. We present an example where temperature records are reconstructed from tree ring observations investigating evidence of global warming.