



## **Proxy records from planktonic foraminifera: Pitfalls and perspectives**

Gerald M. Ganssen, Frank Peeters, and Brett Metcalfe

Free University of Amsterdam, Institute of Earth Sciences, Amsterdam, Netherlands (gerald.ganssen@falw.vu.nl, +31-(0)20-5989941)

There is an urgent need to better quantify proxy records. Current research aims to generate high resolution records that allow for accurate interpretations of past water mass conditions. Accuracy and precision do not necessarily represent true biological conditions. Combined with errors in the reconstructed parameters, current proxy research does not fulfil the needs for a quantitative reconstruction of the past and allow for a prediction of the future changes within the ocean.

Based on oxygen isotope data from planktonic foraminifera we highlight pitfalls hidden in the records which cannot be detected using conventional approaches but can influence interpretations of palaeo processes significantly. A careful selection of species and specimens based on a profound knowledge of the ecological seasonal and vertical distribution is needed to improve the quality of the signal and can deliver hitherto unrecognised perspectives. We show that a careful application of the Individual Specimen Approach (ISA) can result in deconvolving bioturbation, identification of expatriated specimens or allows to assess the seasonal calcification temperature range of a fossil population.