



COnstructing Proxy-Record Age models (COPRA)

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Reliable age models are fundamental for any palaeoclimate reconstruction. The increasing availability of high-resolution palaeoclimate time series, e.g., based on speleothem archives, has attracted some new activity in the development of alternative and novel approaches for reconstructing chronologies. Challenges in this effort are (semi-)automatic outlier, reversal, and hiatus detection and treatment, as well as the inclusion of information on age uncertainties and independent layer counting to improve the overall precision of the chronology. However, different dating strategies, different kinds of palaeoarchive formation, dating uncertainties, and different chronology construction methods cause a limited comparability of the different palaeoclimate records.

We present a recently developed framework which addresses these challenges and which allows the incorporation of layer counting data to improve the reconstructed chronology of a given time series. Moreover, we introduce the concept of an “absolute” time scale, a common time axis which works as an invariant reference allowing the comparison of different palaeoclimate records. This concept translates the age uncertainties into uncertainties in the proxy values.

This framework is implemented as an open source software (COPRA) for Octave and Matlab.