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Transfer function approaches in palaeoclimatic reconstructions using Quaternary ostracod records

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It is a standard in palaeoenvironmental studies to present quantitative reconstructions rather than descriptions inferred by palaeo-proxies. Based on large ecological datasets (calibration sets), mathematical models are designed to infer environmental parameters from fossil species assemblages. While this approach is commonly used in various biological proxies (e.g., pollen, diatoms, chironomidae, anemopoda and chrysophyte cysts), quantitative transfer functions from ostracods are still rare and often with regional limitations (e.g., Delorme 1989; Mourguiart 1998; Alin & Cohen 2003; Forester et al. 2005; Viehberg 2005; Horne 2007; Mischke et al. 2007). This led to the general impression that ostracods are used as calcite source for analyses of stable isotopes (i.e., δ18O/δ13C) and/or elements (i.e., Ca, Mg, Sr, Mn) rather than as ecological indicators.

Here, we present a review of published transfer functions worldwide, their statistical approaches and application. In addition, we discuss the potential and limitation of accessible faunistic and ecological datasets (e.g., NODE, NANODe, Fauna Europaea). The aim is to present a design for a model calibration set for ostracods and its implication of future field sampling campaigns.

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