



Calibrating a new proxy for Pleistocene climate change in southern Africa: the Mutual Ostracod Temperature Range method

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The Mutual Ostracod Temperature Range (MOTR) method has so far been applied only in the European Pleistocene, where it is proving effective in producing past air temperature range estimates that compare well with those obtained by other proxy methods (Horne, 2007; Horne & Mezquita, 2008; Holmes et al., in press). As an essential preliminary step towards applying the method in southern Africa, we have calibrated a training set of living ostracod species' distributions against a modern climate dataset and other available environmental data. The modern ostracod dataset is based on material held by the Royal Belgian Institute of Natural Sciences in Brussels, which constitutes the most diverse and comprehensive collection of southern African nonmarine ostracods available anywhere in the world. To date, c. 150 nominal species have been described from southern Africa (Martens, 2001) out of c. 450 species in the total Afrotropical area (Martens et al., 2008). We used an edited dataset comprising a total of 2,118 records of ostracod species from 748 localities in southern Africa, ranging in latitude from approximately 17 degrees S to 35 degrees S. We have explored the potential value and limitations of this training set for the estimation of past climatic parameters including mean July, January and annual air temperatures, precipitation, water conductivity and pH.

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