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A Mutual Temperature Range method for European Quaternary nonmarine Ostracoda

D. J. Horne

Department of Geography, Queen Mary, University of London, UK (d.j.horne@qmul.ac.uk)

The value of nonmarine ostracods in Quaternary palaeoclimate reconstruction has long been recognized, mainly in terms of the use of indicator species and, more recently, analyses of the trace element and stable isotope chemistry of their calcareous valves. A new Mutual Temperature Range (MTR) method for European Quaternary nonmarine Ostracoda is presented, using the NODE (Nonmarine Ostracod Distribution in Europe) database and a modern climate dataset in conjunction with DIVA-GIS software. The MTR method is intended as a step towards the development of a sophisticated Mutual Climate Range (MCR) method; preliminary testing has yielded good matches with both modern temperatures (using living assemblages not already in NODE) and palaeotemperatures inferred by the coleopteran MCR method, but further testing and refinement are needed. Assumptions about the climatic tolerances of living and fossil ostracod species, as well as complicating factors (such as the relationship between water temperature and air temperature, habitat preferences and taxonomic errors) require careful examination; nevertheless, the ostracod MTR method shows considerable promise.