



Databases and Geographical Information Systems at the research/teaching interface: palaeoclimate proxies, freshwater biodiversity and the OMEGA project

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The Mutual Ostracod Temperature Range (MOTR) method provides Quaternary palaeotemperature range estimates based on fossil ostracod assemblages calibrated using modern distributional databases and climate data. Over the past five years, aspects of the development and application of the MOTR method have been incorporated into undergraduate teaching in two second-year modules (Global Environmental Change and Digital Worlds: Cartography, Geographical Information Systems and Modelling) via lectures and practical exercises. Consequently, several students became sufficiently interested and enthused to undertake successful major projects aimed at developing, testing and applying aspects of the method, leading in turn to postgraduate work on the same topic in two cases and in a third case to co-authorship of a research publication. Thus both research and teaching have benefited from the integration of an innovative geoscience application with undergraduate coursework. The scope of MOTR applications is being expanded from European to global via the Ostracod Metadatabase of Environmental and Geographical Attributes (OMEGA) project; the current focus is on harmonising North American and European datasets, supported by the EU-funded (FP7) BioFresh project which is building a global information platform with access to all available databases of freshwater biodiversity. Undergraduate participation will be sought to underpin a Citizen Science initiative aimed at checking, correcting and validating the geographic referencing of species' records in the databases, using datasets exported as Keyhole Markup Language files for use in Google Earth.