



Mediterranean fluvial response to long-term Quaternary climate change: Improving chronologies by coupling OSL and U-series techniques

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Many studies have attempted to understand the relationship between Late Quaternary climate change and Mediterranean river activity over the last 200,000 years (Macklin et al., 2002). The long-terrace records associated with most large river systems and the thick aggradation of fan sediments associated with smaller catchments in southern Europe and north Africa make the Mediterranean an ideal region to test this relationship. Such studies have been further enhanced by recent improvements in optically stimulated luminescence (OSL) and U-series dating techniques which are widely applicable in this region. Despite the fact that combining these two techniques provides the best potential method for constructing high precision chronologies this has rarely been done.

In this paper we discuss the problems and advantages of producing “coupled” chronologies with reference to examples from southern Spain and Crete. In both of these examples the use of U-series and OSL dating has allowed the age of terrace aggradation and terrace abandonment (incision) to be constrained, consequently our understanding of fluvial “response” is greatly improved. The paper concludes by discussing further problems in terms of constructing fluvial chronologies which need to be considered and the problems of understanding the climate history of the region in which the catchment is found.

Macklin, M.G., Fuller, I.C., Lewin, J., Maas, G.S., Passmore, D.G., Rose, J., Woodward, J.C., Black, S., Hamlin, R.H.B., Rowan, J.S., 2002. Correlation of fluvial sequences in the Mediterranean basin over the last 200 ka and their relationship to climate change. *Quaternary Science Reviews*, 21, 1633 – 1641.