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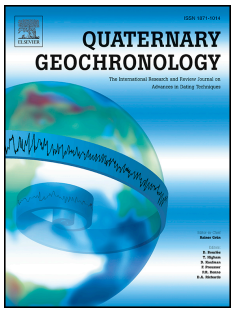

The minimum extraction technique: A new sampling methodology for optically stimulated luminescence dating of museum ceramics

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The minimum extraction technique: A new sampling methodology for optically stimulated luminescence dating of museum ceramics.

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Abstract

This paper introduces a novel optically stimulated luminescence (OSL) sampling protocol, referred to as the minimum extraction technique (MET), which assists in the OSL dating of museum ceramics. Here we outline how to extract a sample using this technique, as well as offering a discussion on the preparation protocols used for the method, and the calculation of the internal and external dose rates. A major benefit of MET is the minute sample size required, resulting in minimal damage to the museum object.

MET permits OSL dating of material which would otherwise be usually off-limits for conventional OSL dating, for example, those housed in museum collections. In particular, MET can be used on objects which originate from regions where scientific analysis is currently not permitted on archaeological material, often owing to heritage laws.

1: Introduction

Optically stimulated luminescence (OSL) dating has been used with increasing frequency in the study of archaeological ceramic chronologies (e.g. Altay Atlihan et al. 2012; Bailiff 2007; Bailiff et al. 2013; Bailiff et al. 2010; Blain et al. 2010; Brass & Schwenninger 2013; Feathers & Rhode 1998; Guibert et al. 2009; see also references and discussions in Feathers 2003; Feathers, 1997; Roberts 1997), since its inception in the mid 1980s (Huntley et. al. 1985). However, at present, the majority of OSL