

Evidence-based archaeology: opportunities for statistical inference in archaeological science

Richard ‘Bert’ Roberts¹ & Rex F Galbraith²

1 School of Earth and Environmental Sciences, University of Wollongong

2 Department of Statistical Science, University College London

Archaeology is an interdisciplinary endeavour concerning human events that happened in the past. Many archaeological questions require the application of scientific techniques, and some of the data collected are amenable to statistical analysis using techniques that are routinely applied in other evidence-based contexts. In this seminar, we will describe some case studies that required the use of statistical techniques to answer archaeological questions, drawing examples from our own work on optically stimulated luminescence (OSL) dating of early human occupation sites in Australia and Africa. We will also discuss other emerging topics of interest at the intersection of statistics and archaeology, where data are often patchy in space and time. Most of the statistical requirements for evidence-based archaeology can be met by adapting existing approaches and models to the particular circumstances, but the development of novel statistical procedures may be warranted in some situations. An additional motive for giving this talk, therefore, is to begin discussions of potential avenues for collaboration between statisticians and archaeological scientists at UOW, which will be the hub of a newly created Australian Centre for Archaeological Science.