

Understanding Australia's Cultural History through Archaeological Geophysics

Kelsey M. Lowe

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The aim of this thesis is to develop and apply geophysical methods for Australian archaeology. The methods focus on magnetic susceptibility and ground penetrating radar (GPR). The techniques are contextualised through application to the following four key archaeological questions: 1) Can magnetic susceptibility assist in resolving questions surrounding the potential downward movement of stone artefacts in rockshelter deposits?; 2) Is human occupation persistent through the changing climatic regime associated with the last glacial maximum (LGM) at a Pleistocene-aged rockshelter in interior Australia?; 3) How might we identify burials in a geologically complex rockshelter deposit? and; 4) How might magnetic susceptibility contribute to knowledge about the formation of 'archaeologically instantaneous' shell matrix sites? In exploring these questions, research was conducted at two rockshelters in northern Australia and on three shell mounds in the Gulf of Carpentaria, Australia. The results demonstrate that both magnetic susceptibility and GPR studies can be valuable tools in deciphering key archaeological questions in the Australian landscape. The most important findings relate to the ability of magnetic susceptibility signals to clearly define levels at which humans first appear in the archaeological record. This will allow major progress in determining the timing and dispersion of human settlements for Australian sites.