

Recent advances in archaeological predictive modeling: contribution to Cultural Resource Management and archaeological research

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Abstract

The primal objective of Archaeology is the composition of the history and the understanding of past cultures through the study and interpretation of the natural relations of archaeological finds and the ideological context within which they operate. The problem, however, is always more complex in practice. On one hand, the discovery of archaeological remains is coincidental and mainly a result of modern development interventions, which, however, lead to partial or total destruction of archaeological sites. On the other hand, a number of reasons, such as the lack of financial resources ensue lack of systematic archaeological excavations and therefore, incomplete knowledge of the archaeological remains in many areas. Even in the cases of more systematic excavations, the under study areas are usually necessarily small, and consequently the archaeological information collected and studied cannot be easily compared or opposed to data from other areas related to the same human activity, from which these archaeological remains were generated.

The effort to address these problems led to the development and implementation of methodologies that would be able to recognize and identify possible areas of human activity and use in the past. Within this research context, the use of archaeological predictive modeling in the past recent years has yielded important expertise that can be used successfully both in Cultural Resource Management and archaeological research.

Numerous archaeological predictive models that have been developed to date are orientated to the Cultural Resource Management domain. The identification and knowledge of large areas that contain no archaeological sites, or the least possible archaeological sites, can be used for spatial guidance and support for projects that involve decision making about use of land and modern development activities. Thus, the damages to archaeological sites caused by modern environmental and urban planning projects can be impeded.

On the other hand, academic predictive models, focusing on the understanding of past human behavior, have gained attention over the past recent years and proved to be of great importance for archaeological research, as they provide answers to questions regarding the decision making process in the past. Moreover, predictive modelling can contribute to historical topography and to a possible cost reduction by minimizing the requirements for trial excavations, as it indicates areas that are of high probability to crown an archaeological excavation with success.

In this paper we will present indicative studies of archaeological predictive modeling of the past recent years, focusing mainly on their contribution to both Cultural Resource Management and archaeological research.