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1.3 Archaeological Predictive modelling: a proposal for the CRM of the Veneto region.

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The title of this contribution is taken from my (AC) Specialization thesis which exposes the work plan and the outcomes of a five-month research project. Such a project was implemented through an Erasmus agreement between University of Padova and Leiden University and concerned with the methodological study of predictive modelling. The thesis encompasses study history, epistemological issues, limits and successful aspects of predictive modelling in both CRM and research environments, and a comparison between the Dutch practice with examples from others European countries. It aims at coming up with a proposal for the CRM of the Veneto region by especially analysing what has been already conducted for AHM-oriented predictive modelling in the Netherlands and referring to it as the main applicative instance throughout Europe. For the Veneto Region, currently engaged in updating the P.T.R.C. (Piano Territoriale Regionale di Coordinamento), this methodology may be helpful to improve the monitoring of the archaeological resources in the territory and to assess the archaeological risk involved. The practical target of our proposal will be the implementation of a supposed working model to be adopted by the regional CRM authority, that is presently addressing the predictive/preventive issue as the top priority of its agenda. A predictive model has been developed for the case-study of eastern Lessini area, in the provinces of Verona and Vicenza (CASAROTTO, DE GUIO, FERRARESE, LEONARDI 2011). Such a model could be revised, improved and afterwards used as a test-area for the Veneto region-wide target. *We need to predict the past in order to have a role in spatial planning* (KAMERMANS 2011: 15), as a matter of fact predictive modelling would be a valuable tool in CRM for assessing the archaeological potential of a region, and it allows policy makers to more consciously scale the protective actions as to the territory. A predictive model will be always a subjective interpretation of cultural processes occurred in the past, but differently from others approaches it uses objective operators during the analysis, indeed it exploits mathematical algorithms and statistical methods for producing probability maps. For this reason predictive modelling could become a shared platform for the standardised and controlled representation of the archaeological potential in a Region or, even better, in an entire country. Nevertheless we have come to the conclusion that

it does perform at one's best providing more reliable results and does allow the advancement of knowledge, when it is exploited to supply the goals of scientific research. Predictive model is a criticized issue (Wheatley 2003), still lacking standard procedures and with attached a long list of limits (Van Leusen, Kamermans 2005; Kamermans, Van Leusen, Verhagen 2009). Since the beginning (Judge, Sebastian 1988) this methodology has been customarily used both in the pragmatic field of CRM and in the scientific research environment. Especially Europe has by then explored potentialities and drawbacks of predictive modelling in landscape archaeology and settlement pattern investigations. To this effect predictive modelling has been considered a dynamic visualization system - rather than a tool for predicting the location of the archaeological record - which reproduces an enhanced reality composed by four dimensions (x,y,z, time) (De Guio 2000: 19; De Guio 2001: 301). It enables the researcher to gain further insights into the spatial relationships between different types of data and it permits to follow through the interpretative process. As regard such considerations, the researcher might come up with new hypotheses which could be revised during the analysis through a continuous feedback. Thus the heuristic power of the predictive model is fully manifested, inasmuch it does not provide the solution of problems but it can have a hand at the development of the final explanatory theory. We are going to further test this position during my (AC) PhD project which consists in the development of a predictive model to be used for the investigation of settlement ecologies, land use strategies and location preferences in colonial and non-colonial landscapes of Central-Southern Italy during the formative phase of the Roman Empire (4th-1st centuries BC) (Stek 2009).

To summarize, we personally believe that, rather than the production of likelihood maps for CRM, the real potentiality of predictive modelling is its visualization power which could stimulate the thinking eye process during the analysis; moreover it permits to became familiar with the spatial case study at issue and the decision-making process involved in ancient human behaviour. However, we asset as well the necessity of using predictive modelling for the evaluation of archaeological potential in CRM, making aware authorities and stakeholders about limits and potentialities of such a methodology.

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