



## Original Paper

## A Geomatic Approach to the Study of Islamic Archaeological Sites, Bostan-Abad, Eastern Azerbaijan, Iran



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### Abstract

The research is dedicated to recognize most effective attributes and main factors in locating and distribution of Islamic settlements of Bostan Abad plain, East Azerbaijan. The data under study is composed of 226 sites containing archaeological remains of Islamic period, resulted from three seasons of archaeological surveys covering 279km<sup>2</sup> of the plain. The Geomatics is a calculatory, analytic approach for making predictive geographical models about the interaction of archaeological sites with their surrounding environment, aimed at explaining characteristic environmental factors and attributes contributing in decision making of settlement location and distribution along a geographical zone. As every geographic region is made of different ecological zones, it has been possible for human beings to make different transactions with each of them and in doing so, constructing a distinct settlemental, subsistence system, culturally adapted to affectively cope with the limitations and potentialities of every different ecological zone. A geographic information investigation of archaeological sites distributions in a given region by means of some analytic tools such as site buffering with different environmental attributes, site catchment analysis and so on could help in building some precise practical models by using of which it would be possible to decide more accurately the kind of every archaeological settlement remains in terms of its potentiality of supporting which kind of subsistence system. The analysis of settlement correlations with the surrounding environment has done on the basis of attributes including permanent streams, height above the sea, precipitation, climate, vegetation, slope, the area of sites, and their buffering related to today settlements, using GIS and SPSS-related methods of analysis. The results show existence of a kind of settlement patterning of distribution, according to which it is possible to categorize settlements in three separate clusters. On the one cluster, settlements located in plains as well as lowlands in vicinity of permanent streams had highest area among the whole settlements, suitable for village living and agriculture; on another cluster, settlements located in the marginal zones of the plain with much lesser in area and vicinity to pasturelands might be evidence of a kind of village-based pastoralism. Yet, the third kind of cluster is containing settlements located in higher latitude with much more in area in comparison with the second cluster, suitable for fully nomadic pastoralist's settling during summers. The study showed that the investigated region can offer different subsistence possibility to build up along with the effort dedicated by communities settled it during different times of Islamic period. It is interesting while somehow predictable that there is and according to GIS-based models resulted from the study that the region has been very poor in providing an

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appropriate ground necessary for human communities to develop higher forms of settlemental, organizational and cultural developments, even during later parts of Islamic period. Accordingly the results also indicated that at least this part of northwestern Iran has not had any internal capacity necessary for higher levels of social as well as settlemental hierarchies to be formed organically, making every kind of higher than village life styles of the region a product of external, governmental developmental efforts of recent years.

**Keywords:** Bostanabad, Settlement, Islamic, Geomatics, GIS.

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