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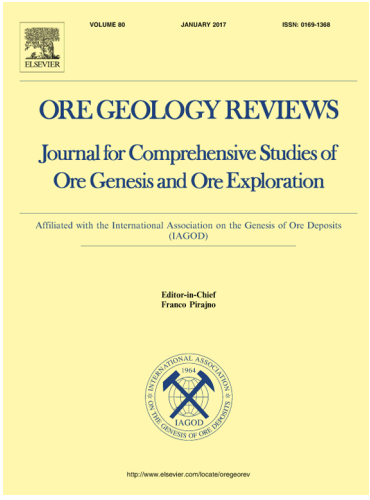

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Prospectivity analysis of orogenic gold deposits in Saqez-Sardasht Goldfield, Zagros Orogen, Iran

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Abstract

Diverse deposit-types or mineral systems form by diverse geological processes, so translation of knowledge about the controls of mineralization acquired from the 4D geological modeling into 2D spatial predictor maps is a major challenge for prospectivity analysis. In this regard, mathematical functions have been used to model the conceptual or perceived spatial relationships between geological variables and targeted type or system of mineralization. In this paper, due to the different models of spatial relationships between predictors and mineral deposits, we investigated the performance of different fuzzification functions to quantify the relationships. We demonstrated that various types of relationships between exploration features and a mineralization-type sought could be quantified using different fuzzification functions for prospectivity analysis. We illustrated the process of the prospectivity analysis by using a data set of orogenic gold deposits in Saqez-Sardasht Goldfield, Iran. Prospectivity modeling of orogenic gold mineralization in the study area showed that the NE-SW trending targets have priority for further prospecting of the deposits.

Keywords: Spatial relationship; Mineral deposits; Prospectivity analysis; Zagros Orogen; Iran; Orogenic Gold.

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