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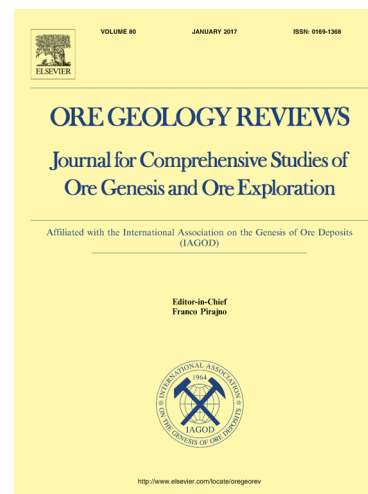
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# Spatial analyses of exploration evidence data to model skarn-type copper prospectivity in the Varzaghan district, NW Iran

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## Abstract

Recognition of significant ore-forming processes, which control mineralization, improves the efficiency of mineral prospectivity modeling. In this study, controlling processes of skarn copper mineralization in Varzaghan district, northwestern Iran, were distinguished by a series of spatial and numerical analyses comprising point pattern, fractal, fry and distance distribution methods. The recognized processes were then translated to a set of exploration criteria of the deposits in the area. Based on the accomplished exploration criteria, two data-driven models of skarn copper prospectivity were generated using logistic regression and random forest techniques. The comparison of two generated models demonstrated that the targets derived by the latter technique were more reliable for further exploration than those created by the former one.

**Keywords:** Skarn Cu deposits; fractal analysis; fry analysis; prospectivity modeling; random forest; Iran.

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