Structural-geological predictive model of porphyry Copper potential, Sarcheshmeh area, Iran

MAJID MAGHAMI[1] AND REZA DERAKHSHANI[1]

[1]Depatment of Geology, Shahid Bahonar University, Kerman, Iran. Email: mjmaghami@yahoo.com
[2]Depatment of Geology, Shahid Bahonar University, Kerman, Iran. Email: reza_1217@yahoo.com

Structural surveys are essential in most modern mineral explorations. A geologically-constrained predictive porphyry Copper potential map is prepared in Sarcheshmeh copper mine, the second largest copper deposit in the world, by using the advantages of the fuzzy logic theory. Also specific relations of known porphyry Copper deposits and structural features in the Sarcheshmeh area is evaluated by using weights of evidence modelling. In this regard, evidential layers of hydrothermal alteration units, batholithic margins, pluton centroids and faults are combined by fuzzy gamma operator to delineated porphyry Copper potential zones. The results of the study show that the area could be divided into four areas: non-potential (87.65%), weak potential (10.70%), moderate potential (1.24%) and good potential for porphyry Copper deposits (0.41%).