



Using the concentration–volume (C–V) fractal model in the delineation of gold mineralized zones within the Tepeoba porphyry Cu-Mo-Au, Balikesir, NW Turkey

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The Tepeoba porphyry Cu-Mo-Au mineralization that located at the Biga peninsula (W Turkey) developed around the Eybek pluton concentrated at its southern contact. This mineralization that hosted in the hornfels rocks of Karakaya Complex is associated with three main alteration zones; potassic, phyllic and propylitic alterations along the fault controlled margins of the Eybek pluton and quartz stockwork veining as well as brecciation zones. As well as two mineralized zones were occurred in the mine area; hypogene and oxidation/supergene zone. The hypogene zone has differentiated alteration types; high potassic and low phyllic alteration, while the oxidation/supergene zone has high phyllic and propylitic alterations. This work deals with the delineation of gold mineralized zone within this porphyry deposit using the concentration–volume (C-V) fractal model. Five zones of gold were calculated using its power-law C-V relationship that revealed that the main phase of gold mineralization stated at 5.3083 ppm Au concentration. In addition, the C-V log-log plot shows that the highly and moderately Au mineralization zone developed in western part of deposit correlated with oxidation zone related to propylitic alteration. On the other hand, its weakly mineralization zone has a widespread in the hypogene zone related to potassic alteration. This refers to the enrichment of gold and depletion of copper at the oxidation/supergene zone is due to the oxidation/supergene alteration processes that enrich the deposits by the meteoric water.

Keywords: Concentration–volume (C–V) fractal model; gold mineralized zone; Tepeoba porphyry Cu-Mo-Au; Balikesir; NW Turkey.