Geophysical Research Abstracts
Vol. 12, EGU2010-1375, 2010
EGU General Assembly 2010

Platinum group elements in the Fengshan porphyry Cu-Mo Deposit, Hubei Province, China

Minfang Wang
Faculty of Earth Resources, China University of Geosciences, Wuhan

The Fengshan porphyry copper-molybdenum (Cu-Mo) deposit is located in the southeastern of Hubei province in East China. Carbonate rock of Daye Formation in Triassic, is the predominant rock type exposed in the Fengshan ore deposit. The rock has been intruded by the Fengshan porphyry stock, which is of intermediate-acidity composition and is Cretaceous in age (140Ma). The Fengshan porphyry intrusion and the surrounding country rocks are strongly fractured and intensely altered by hydrothermal fluids. Compilation of some new data on the precious metal and associated trace-element contents in Fengshan deposit indicates that Pd content in the ore sample is relatively high, ranging between 0.403 and 17.979 ppb (average 7.259 ppb), whereas in the porphyry copper intrusions and altered wall rock, it is very low (average 1.453 ppb). The Pt content is much lower than Pd in Fengshan porphyry Cu-Mo deposit studied. Molybdenum content in samples studied ranges between 2.56 and 58800 ppm in rocks of Fengshan deposit. Copper contents in our samples ranges between 30.2 and 60100 ppm. The correlation matrix for selected major and trace element data on studied samples indicates that precious metals are associated with either chalcopyrite or molybdenite. Copper shows a strong positive correlation with Ag and Au ($r \geq 0.96$), while Mo shows a strong positive correlation with Pt (r=+0.98). A strong positive correlation between precious metals is 0.96 (Ag-Au). The reconnaissance study presented here confirms the existence of Pd and Pt in the Fengshan porphyry Cu–Mo deposit. When compared with intracontinent and island arc geotectonic settings, the Pd, Pt, and Au contents in the Fengshan porphyry Cu–Mo deposit in the intracontinent is lower than the continental margin types and island are types. A combination of available data indicates that Pd and Pt were derived from oxidized alkaline magmas generated by the partial melting of an enriched mantle source.