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The discovery of the Kahang porphyry copper deposit in Iran

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r The Kahang porphyry copper deposit is located in the central part of Urumieh-Dokhtar Magmatic Arc (UDMA) segment of L the Tethyan metallogenic belt in Iran. The giant Sar-Chesmeh and Sungun porphyry Cu deposits are also located along this arc. The Kahang deposit consists of three porphyry centers that crop out in an E-W trending direction (Afzal, 2009). During the reconnaissance stage by Rio Tinto in 2003, the first porphyry center was identified by mapping hydrothermal alteration using TM satellite data and ground control. In 2004 during the prospecting stage, an Iranian company (DORSA) re-evaluated the Kahang occurrence and successfully identified a 7.5×3.5 km zone of hydrothermal alteration using ASTER satellite data (Figure 1). Disseminated Cu mineralization is associated with plutons of quartz diorite showing potassic and phyllic alteration comprising magmatic K-feldspar, secondary biotite and well-developed quartz-sericite surrounded by barren argillic and extensive propyllitic alteration. In normalized multielement diagrams, Kahang host intrusions are characterized by enrichments in large ion lithophile elements and depletions in high field strength elements, and display features typical of subductionrelated calc-alkaline magmas. In 2005, DORSA by applying an additive index analysis on the soil geochemical data, three Cu-Mo anomalies were identified. A reduced to the pole magnetic map revealed strong negative magnetic anomalies at these centers. An IP/RS survey was also carried out at these centers; this information was combined with the earlier exploration data to generate drill targets tested by 18 deep holes. Most of these holes intersected several zones of economic Cu mineralization, mostly from 180 m to 456 m, and the project was upgraded to systematic drilling. In 2008, the Kahang deposit was transferred to the National Iranian Copper Industry Company (NICICO) and then in total about 45000 m drilling was carried out at Kahang to calculate a proved reserve of 110@0.45% Cu just at East Kahan porphyry center.

Biography

Hooshang Asadi Haroni holds degrees in Geology (BSc in National Iranian University, Tehran, Mineral Exploration (MSc in Faculty of Geo-Information Science and Earth Observation, ITC, The Netherlands) and also Mineral Exploration (PhD, Centre for Technical Geosciences, Delft University of Technology, Netherlands). He worked as Exploration Geologist and GIS Database Analyst at the international mining company of "Rio Tinto Mining and Exploration Limited. He worked an Assistant Professor in the Mining Engineering department of Isfahan University of Technology in Iran. In addition, he is appointed as Adjunct Senior Researcher in the Centre for Exploration targeting (CET), University of Western Australia (UWA).

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