Geology, alteration, mineralization and geochemistry of Gazu prospect area, southeast of Tabas

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Abstract: Gazu prospect area is located about 65Km southeast of Tabas in the southern part of Shotori range. Sub-volcanic intermediate intrusive rocks (Upper Cretaceous?), monzonitic to dioritic in composition, intruded into carbonate rocks of Shotori Formation (Triassic) which are the main source for copper mineralization in Gazu district. Alteration zones associated within the intrusive are: Quartz-sericite±pyrite (main type), silicified-sericite, propylitic, silicified-propylitic and strong silicification. The carbonate unit is silicified, near some intrusive rocks, and in some area Skarns were formed. Mineralization occurs mainly as stockwork and disseminated with minor breccia. Veinlet’s type is: Quartz, pyrite, quartz- pyrite, quartz-carbonate-sulfide, carbonate-sulfide and sulfide. The density of quartz-sulfide veinlet with sulfide minerals is about 40 per m² in some places. An extensive gossan zone is formed due to oxidation of sulfides appeared in intrusive rocks and carbonate unit that due to oxidation of sulfide minerals. The geochemistry of stream sediments are as follow: Cu = 36-1200 (ppm), Pb = 36-125(ppm), Zn = 62- 738 (ppm). Rock chip geochemistry is: Cu = 100-20000 (ppm), Pb = 10-400 (ppm), Zn = 50 - 3000 (ppm). High content Cu and Zn are associated with quartz-sericite±pyrite and strong silicification. The evidence shows that the Gazu is porphyry copper and related skarn type system.

Keywords: Gazu; porphyry copper; quartz-sericite ± pyrite; stockwork mineralization; Tabas block.

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