

## Ground magnetic survey over an aeromagnetic anomaly in the Dahaneh Siah copper deposit and KC5 exploration prospect (Bardaskan)

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**Abstract:** KC5 copper exploration prospect is located 80 Km to the northwest of Bardaskan and 4 Km to the Northeast of Dahaneh Siah copper mine in Khorasan Razavi. KC5 and Dahaneh Siah areas belong to Sabzevar geological Zone. Copper mineralization is observable mainly as secondary minerals such as Malachite and Chlorite which fills joints and fractures in a faultly contact at the boundary of the volcanic and Oriyan sedimentary (carbonaceous and tuff) rocks. High intensity ellipsoidal aeromagnetic anomaly overlies the boundary between the volcanic and carbonaceous rocks which follows old abandoned copper mines and extends to the KC5 prospect and Dahaneh Siyah area. Studies indicate the presence of magnetite up to maximum 5% in the volcanic rocks. Magnetic susceptibilities of the volcanic rocks in the KC5 west, KC5 east and Dahaneh Siyah show that this parameter is 2 times smaller in the first area than in the second and third. Magnetic anomalies of the two volcanic units in the KC5 east are similar but their amplitudes are lower than the anomalies produced by the same units in the KC5 west. Anomaly amplitudes of the Dahaneh Siyah volcanic are smaller than those produced by the same volcanic unit in the KC5 west and east. Lower magnetic susceptibilities of surface volcanic samples in the KC5 west and their higher amplitude anomalies in comparison with the anomalies from similar volcanic units in the KC5 east and Dahaneh Siyah implies that the source of the anomaly and main mineralization at KC5 west must be deep. Correlation of aeromagnetic anomaly with old abandoned copper mine (including the Dahaneh Siyah copper mine and the KC5 prospect area), upper boundary of the volcanic and carbonaceous sediment and geochemical anomaly of the region are indications of the relation of main mineralization with aeromagnetic anomaly.

**Keywords:** *Magnetic susceptibility, Magnetic anomaly, KC5, Dahaneh Siah.*