

Modelling the AMS of SD Ferromagnetic Fraction: Significance for Inverse Magnetic Fabrics

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Abstract: The role of SD magnetic particles in creation of inverse magnetic fabrics was investigated on simple mathematical models. In contrast to the rock fraction created by MD particles, in which the AMS is controlled by both the grain AMS and intensity of the preferred orientation of the particles, the AMS of the SD fraction is controlled solely by the intensity of the preferred orientation. The degree of AMS of ensemble of preferably oriented SD particles is much higher than that of the same ensemble of MD particles implying the existence of frequent inverse magnetic fabrics. However, the occurrence of inverse magnetic fabrics due to SD particles is rather exception than a rule. Consequently, the amounts of SD particles must be in general low. Nevertheless, the presence of SD particles in amounts insufficient to create inverse magnetic fabrics may diminish the whole rock AMS substantially. This can be one of the reasons for relatively low AMS in volcanic rocks whose magnetic particles may be really small obeying the conditions for the existence of SD particles.

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