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Comments on the paper “Grain size dependent potential for self generation of magnetic anomalies on Mars via thermoremanent magnetic acquisition and magnetic interaction of hematite and magnetite” by Kletetschka et al. (2005)

Kletetschka et al. (2005) presented the thermoremanent magnetization model by Arkani-Hamed (2003) incorrectly. The authors stated “The main reason why the Arkani-Hamed’s model does not generate significant contribution to the overall magnetic anomaly is because he assumed that the source layer, the upper lithosphere, is similar to that of the extrusive basalt near the oceanic ridge axes on Earth, and contains constant magnetization on the order of 25 A/m”. This incorrect statement may cause confusion among colleagues investigating the magnetic field of Mars. Contrary to the statement, Arkani-Hamed (2003) made no assumption about the magnetization of the upper lithosphere. He determined the magnetizations of the upper lithosphere and the lower layers simultaneously, through

a generalized inversion method, such that the overall magnetic field of the entire lithosphere was identical to a 50-degree spherical harmonic model of the magnetic field of Mars.

References

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