Paleofield determination from compositional dependent magnetic minerals within meteorites that post cooled down through their blocking temperatures.

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We analyzed a linear relation [1] between the magnetic efficiency of thermoremanent magnetization M_{tr} measured at room temperature and level of the ambient field present at the time of acquisition. Similar equation has been used for paleofield estimates [2]. We used experimental data for derivation of the empirical constants for paleofield estimate equations. We used specific magnetic mineral carriers from single domain (SD) through pseudosingle domain (PSD) to multidomain (MD) states. We show that the level of paleofield record relates to two major types of demagnetizing field that act as a barrier against the domain wall pinning during the magnetic acquisition. The first type of demagnetizing field relates to saturation magnetization constant derived from the distribution of Bohr's magnetons within the crystal lattice. The second type of demagnetizing field originates from the effect of shape of the magnetic minerals. Knowledge of the character of these demagnetizing fields is a prerequisite for paleofield estimates from rocks containing known magnetic mineralogy and magnetic shape anisotropy. Our analysis allows of interpretation of magnetic anomalies detected not only in meteorites, but also on Mars and Moon where the sources of magnetic field can be assumed to be $M_{tr.}$ We show how this approach allows deriving of generalized equation for iron concentration estimate from magnetizations derived from crustal magnetic anomalies on the Moon.

A recent advancement of magnetic scanning technique allows magnetic analysis of specific minerals in situ, within the geologic thin sections [3], [4], where identification of the specific magnetic mineralogy would allow use of specific M_s constant and the above analysis is applicable for magnetic paleofield estimate.

References: [1] Kletetschka G. et al 2004. *EPSL*. **226**, 521-528. [2] Gattacceca J. and Rochette P. 2004. *EPSL*. **227**, 377-393. [3] Kletetschka G. et al 2013 *Studia Geophysica Et Geodaetica*. **57**, 103-117. [4] Nabelek L. et al 2014. *MPS*. **50**, 1112-1121.