Field-reversal versus self-reversal hypothesis: Paleomagnetic properties, magnetic mineralogy and the reproducible self - reversal RM of the Eocene to Miocene age volcanic rocks from České Středohoří Mts. – North Bohemia (Part IV)

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A b s t r a c t: Paleomagnetic properties, magnetic mineralogy and the origin of the reversed remanent magnetization (RM) of volcanics from the České Středohoří volcanic field and from other 8 localities of the Bohemian Massif were studied. Homogeneous, or quasi homogeneous titanomagnetites (Ti-Mt) and hematite (He) are the carriers of normal RM in the volcanics. The Ilmenite-hematite (Ilm-hem) solid solutions of the compositional range Ilm_5 to Ilm_{12}, or $Ilm_{15}hem_{85}$ (the magnetic phase of the $T_C \approx 595$ to 625°C, or of the $T_C \approx 550$ to 625°C) are the carriers of the self-reversed RM in the volcanics. The reproducible self-reversed partial thermoremanent magnetization (PTRM) of the 8 samples from 8 localities was induced in the temperature interval of 630°C to 590°C in the field of normal polarity and intensity H = 0.048 mT. The laboratory induced self-reversed PTRM of rocks indicates the self-reversal origin of the reversed RM of rocks. The studied rocks originated in the Eocene to Miocene age (40–18 Ma). The results indicate that the geomagnetic field was not reversing its polarity during the delineated time interval.

Key words: Ti-Mt and Hem the carriers of normal, Ilm-hem a carrier of the self-reversed RM, the reproducible self-reversed PTRM of rocks

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