



Climatic control of magnetic granulometry in the Mircea Vodă loess/paleosol sequence (Dobrogea, Romania)

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A detailed rock magnetic investigation of loess/palaeosol samples from the section at Mircea Vodă (Dobrogea Plateau, Romania) is presented. To investigate the climatic control of magnetic granulometry we use several grain-size and concentration-dependent proxies (magnetic susceptibility and its frequency dependence, anhysteretic remanent magnetization, isothermal remanent magnetization, hysteresis properties and FORC distributions) and an unmixing model for isothermal remanent magnetization curves. The palaeosol layers in the Mircea Vodă sequence experienced significant pedogenic alteration, resulting in high amounts of ultrafine grained SP, grains at SP/SD threshold, stable SD grains and PSD magnetite /maghemite grains. The loess layers in Mircea Vodă sequence are dominated by MD and/or PSD oxidized magnetite probably of aeolian origin. The unmixing model for IRM curves shows the presence of three components with different coercivities. The soft (~ 21 mT) and medium (~ 42 mT) coercivity components are produced by pedogenesis during interglacial and interstadial periods. The hard coercivity component (~ 60 mT) is of aeolian origin, being dominant in loess layers. Our study shows that end-member remanence magnetizations isolated from isothermal remanent magnetization curves can potentially contained more detailed climatic information than classical bulk rock-magnetic parameters.