



Paleomagnetism of the Upper Miocene volcanic rocks from the East Carpathians (Gurghiu Mountains, Romania)

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We present recent paleomagnetic results obtained from the volcanic rocks from the Gurghiu Mountains (East Carpathians, Romania). The Gurghiu Mountains are part of the 160 km long volcanic chain from the East Carpathians erupted between 10 Ma and 0.2 Ma. According to the K-Ar ages the volcanic activity took place in the Gurghiu Mountains between 9 Ma and 6 Ma. We sampled 103 sites, but after detailed AF and thermal demagnetizations only 80 sites passed the reliability criteria for the paleosecular variation studies: number of samples minimum 5, precision parameter $k > 50$. Rockmagnetic measurements (field dependence of magnetic susceptibility, low and high temperature variation of magnetic susceptibility, hysteresis properties, FORC diagrams) have shown that the main ferromagnetic minerals are magnetite or Ti poor magnetite. To select the data set within the paleosecular variation limits we have applied either the standard latitude cut-off at 45° or the Vandamme criterion. The data set selected using the Vandamme criterion has 65 sites and using the latitude cut-off it has 70 sites. Both data sets passed the reversal test. The paleosecular variation express as the dispersion of the virtual geomagnetic poles is within the limits expected for the latitude of 45°N . The area-mean declination is around 0° and the inclination is around 60° , which suggest a negative inclination anomaly in agreement with the global data set. The geographic distribution of the magnetic polarity is in agreement with the K-Ar ages and the magnetic polarity time scale and support the gradual migration of volcanism from north to south between 9 Ma and 6 Ma in the Gurghiu Mountains. Possible tectonics implications of the new paleomagnetic data for the evolution of volcanic chain and the Transylvanian basin will be discussed. This work was supported by a grant of the Ministry of National Education, CNCS – UEFISCDI, project number PN-II-ID-PCE-2012-4-0177.