RED SEDIMENTARY AND COMBUSTION METAMORPHIC ROCKS AS MAGNETIC ANOMALY SOURCES; ROCK MAGNETIC AND PALAEOMAGNETIC SIGNATURES RECOVERED FROM BAUXITES AND PORCELANITES

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The first case refers to the Cretaceous bauxite deposits occurring as lenses in Pãdurea Craiului Massif (Apuseni Mountains, Romania). Micromagnetic mapping of bauxite lenses with a definite geometry and position (inferred from exploration works), as well as other methodological experiments (e.g., magnetic surveys related to four successive phases of the bauxite lens exploitation works) were carried out. Primary and secondary (ΔT) magnetic maps are presented. A rock magnetic databank and various models related to the bauxite magnetic prospecting capabilities were accomplished. The Koenigsberger ratio (Q) shows that the natural remanent magnetisation intensity (NRM) is higher than the induced magnetisation for 96% of the measured bauxite samples. As regards the Cretaceous bauxite palaeomagnetism, a few outcrops suitable for taking oriented samples were found in the area; nevertheless, the Characteristic Remanent Magnetisation is defined by a normal polarity and the palaeomagnetic poles have suggested a clockwise rotation.
The second case regards the baked clays from a well-known coal-generating area of the western Dacic Basin (Romania). The occurrence of post-depositional thermal perturbations within the lignite-clay sequences (caused by the spontaneous autocombustion of certain coal beds) resulted in essential changes of the magnetic recording medium. New rocks were formed: the porcelanites and clinkers. The enhancement of the initial magnetic susceptibility and of several magnetic anisotropy parameters, as well as of the NRM intensity was recorded. The NRM direction was also modified, from a reversed polarity (for the "fresh" clays) to a normal polarity (for the "baked" clays). The "thermally non-affected clays" recorded the geomagnetic polarity in Pliocene, assigned to the lower part of the C2Ar Subchron, whereas the porcelanites situated in the vicinity of the "fresh" clays printed the palaeofield polarity in Middle-Upper Pleistocene, assigned to the Brunhes Chron. Finally, magnetic anomalies of up to 1880 nT amplitudes, which were mapped for porcelanite deposits, are presented.

red sedimentary rocks, red combustion-metamorphic rocks, rock/paleo/magnetic signatures

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