

CHARACTERISTIC FINGERPRINTS OF THE LACUSTRINE SEDIMENTARY ENVIRONMENTS RETRIEVED FROM THE MAGNETIC SUSCEPTIBILITY RECORDS IN THE WETLANDS OF SOUTHEASTERN ROMANIA; GEOECOLOGICAL INFERENCES

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A vast enviromagnetic archive of modern sediments from the Danube Delta, Razelm - Sinoie Lagoonal Complex and the Black Sea Littoral Zone (Romania) was sampled in the 1976-2008 time span. The magnetic signatures identified within the sediments characterise and differentiate the depositional environments inside of an extended, diversified, and at the same time, unitary complex of fluvial, lacustrine, lagoonal, deltaic and marine ecosystems. Confined vs dynamic deltaic environments were compared and defined by particular magnetic fingerprints. Special cases are concerned with the harmful influence exerted by (artificial) canals crossing lacustrine areas or cutting Danube Delta Branch meanders. The presence of the anthropogenic impact on the ecosystems is clearly demonstrated by the modified magnetic fingerprints recovered from sediments at different time intervals. With regard to the Razelm – Sinoie Lagoonal Complex, the magnetic susceptibility (MS) maps suggested good connections between the (higher intensity) magnetic regime and the structure of the surrounding sand ridges. As concerns the Black Sea Littoral Zone, the bottom sediments from four littoral lakes (i.e., Tasaul, Siutghiol, Techirghiol and Mangalia) were investigated for the enviromagnetic parameter **k**. For instance, the MS results obtained in a fluvio-marine liman (i.e., Tasaul Lake) showed that the highest **k** values, matching the anomaly recorded in the detrital component map, were measured in the main stream inlet into the lake, while the lowest **k** values cover its central zone, where the organic matter-rich sediments are mainly present. In addition, two MS maps obtained in the fluvial-marine interaction zone are presented and the magnetic fingerprints are interpreted. To calibrate the modern sediments and to compare different magnetic signatures recovered from the various aquatic environments, an original Magnetic Susceptibility Scale was used (Rădan and Rădan, 2007). The MS classes characterising the recent sediments are able to define the sediment quality, which is commonly evaluated by geochemical and ecological scales.

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