

Correlation of onshore unstratified sedimentary sections by initial magnetic susceptibility measurements

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In-situ measurements of initial magnetic susceptibility (MS) were carried out on sediments of the Pleistocene Sahama Mud Member to examine the applicability of MS measurements to the correlation of poorly stratified or unstratified sections onshore. The measurements were done in the field at five sites with a handy MS meter that has a maximum sensitivity of 1×10^{-5} SI. Despite lithologically homogeneous silty sediments, significant variations in MS were observed along the sections of almost all the sites. At one site where four sections 4-5 m high were measured, MS profiles of individual sections 4-5.5 m apart each other were very similar and thus definitely correlated. In addition, two sites about 150 m apart also showed similar MS variations of which most parts could clearly be correlated. We can thus point out that the simple and rapid technique of MS measurements may be quite useful in high-resolution correlation of onshore unstratified sequences. An environmental magnetic study conducted along a section suggests that the observed MS variation is primarily caused by the variation of the concentration of magnetite.