THE RESISTIVITY CHARACTERISTIC OF THE CLAYEY BEDS IN OSAKA PLAIN, JAPAN

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A practical system has been developed which can measure the electrical resistivity of clayey beds both at the outcrop as well as in the laboratory. The resistivity measurement of the so called marine clay bed Ma3 (~ 0.87 MYA) of Osaka Group (Pleistocene) in the Osaka sedimentary basin reveals that this bed is consisting of both the marine as well as non-marine clayey sedimentary layers. A strong correlation has been found between the electrical resistivity as measured by the present system and the depositional environment (marine/non-marine) that is obtained from the diatom fossil analysis. These patterns also resemble the change in oxygen isotope ratio as determined from the core obtained from the Ocean Drilling Program (ODP). The depositional environment in the clayey beds is well preserved in terms of its microfossil content (diatom) even if it is exposed on the earth surface. Besides, the changing pattern of resistivity in marine and non-marine clayey beds is found helpful to identify the boundary between marine and non-marine beds in the places where the marker beds are absent.