

Application of electrical impedance spectroscopy to brine-saturated porous material(2)

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The fluid in mantle and crustal rocks plays important roles in a wide variety of mechanical and chemical processes. In order to clarify the roles of fluids, it is necessary to understand the fluid distribution in rocks. Electrical impedance spectroscopy is a non-destructive method to investigate material microstructures. Using brine-saturated sintered glass-beads as an analog of fluid-saturated rocks, we have been testing the validity of this method in studying the fluid distribution in rocks. The electrical impedance is measured at the frequency from 20 mHz to 1 MHz. We characterize a specimen in terms of the pore connectivity, the aspect ratio of pores, and their distribution functions. The pore structure is independently observed by an optical technique. We will compare the differently obtained structural information, and discuss the validity of the electrical impedance spectroscopy.