

## A preliminary result of electrical conductivity network model within the rock

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It is essential to make sense the mechanism of electrical conductivity in the earth to consider the electrical conductivity network within the rock. The aim of our study is to quantify the electrical conductivity network in the rock and is to evaluate the electrical conductivity models of fluid-mineral interaction. Prior to our model study, we have performed electrical conductivity measurements on sintered rock sample, raw rocks and mineral from well-known geological sites. Experimental data collected using high pressure and temperatures methods produce clear Arrhenius diagrams of various rocks and mineral. To measure the conductivity of single crystal brucite, we have observed a remarkable conductivity change accompanied with dehydration. Though small amount of H<sub>2</sub>O was formed after dehydration, bulk conductivity of the sample showed high conductivity. Electrical conductivity data of granulite, gneiss and amphibolites was also obtained. Based on these electrical conductivity data obtained from laboratory experiments, we have tried to construct electrical conductivity model of crustal rock. Our model also has been compared with results from Electron Probe Micro Analysis. In the initial model, we assumed a network model consists of 100 by 102 elements. Currents flow in the network model is ruled by optimal conditional judgments. As the result, our model can explain the electrical conductivity network within the natural rock. The obtained models also help us to interpret that of Electro-Magnetic (EM) soundings within the crust.