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## Clay minerals in the core samples of Kusatsu-Shirane volcano

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Kusatsu-Shirane volcano is known for its historical phreatic eruptions. There were geophysical studies focusing on the structure under the peak of the volcano. Among them, Nurhasan(2006) made three-dimensional resistivity model over the peak zone by use of audio-magnetotelluric soundings at more than 80 stations and claims that the conductor is probably made up of smectite which is electrically conductive and hydrologically impermeable, working as a cap for geothermal system. We have not yet confirmed the existence of the smectite by direct analyses. In this study, we used the core samples from 200m deep drill hole at KSE seismic station of Kusatsushirane volcano and analysed the clay minerals by XRD. The results show the existence of smectite at 160-200m depth, consistent with the resistivity logging and temperature logging data.

Keywords: geothermal system, phreatic eruption, smectite, resistivity, temperature, magnetotelluric