Oral | Symbol S (Solid Earth Sciences) | S-EM Earth's Electromagnetism

[S-EM36_30PM2]Electrical conductivity, Tectono-electromagnetism

Convener:*Ken'ichi Yamazaki(Disaster Prevention Research Institute, Kyoto University), Noriko Tada(Japan Agency for Marine-Earth Science and Technology), Chair:Noriko Tada(Japan Agency for Marine-Earth Science and Technology), Ken'ichi Yamazaki(Disaster Prevention Research Institute, Kyoto University)

Wed. Apr 30, 2014 4:15 PM - 5:45 PM 413 (4F)

This session is for wide variety of studies on electromagnetism of solid Earth. The topics include electromagnetic phenomena associated with earthquakes and volcanism, electrical conductivity structure, laboratory experiments, results of simulations, new equipments for observation, and methods of data analysis.

5:30 PM - 5:45 PM

[SEM36-P03_PG]Volcano-Loop observation at Kusatsu-Shirane volcano

3-min talk in an oral session

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Keywords:Electromagnetic induction, time domain, loop, volcano, monitoring

We have made successful measurement of time domain electromagnetic signals using transmitting and receiving loops at the same location. This system is being planned to work for monitoring the volcano vent. The test measurement was conducted in the Kusatsu-Shirane volcano where detailed resistivity structure is known by audio-magnetotelluric method. The stepwise waveform was used and off-time response was measured using a transmitting and receiving loop both with 33m radius. The induced voltage was measured from the 0.1ms to 30ms. The observed voltages as a function of time in logarithm were inverted using Occam's algorithm and the model resistivity and resolution of the model were investigated. We also compared the result with those obtained by magnetotelluric method and found that the upper surface layers which have 1d structure are consistent with volcano loop results. We plant to use the system for repeated measurements or continuous monitoring the volcano in the future.