R003-07
D 会場 ：9/25　PM2 （15:45-18:15）
15:45〜16:00

MT 法比抵抗探査による支笏カルデラのマグマ供給系の解明

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Magnetotelluric resistivity study targeting magma supply system of Shikotsu Caldera, Hokkaido, Japan

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The Shikotsu caldera located in southwestern Hokkaido was formed approximately 40,000 years ago by a catastrophic eruption accompanied by large-volume pyroclastic flows. Subsequently, post-caldera volcanoes such as Mts. Tarumai, Fuppushi-dake, and Eniwa-dake erupted at the caldera rim. Mts. Tarumai and Eniwa-dake are active volcanoes that are characterized by seismicity including low-frequency events at depth and continuous fumarolic activity. Using the magnetotelluric method in the Ishikari lowland zone, Yamaya et al. (2017) estimated a remarkable conductive body at depths greater than 10 km beneath the Shikotsu caldera. This conductor implied the migration path and reservoir of magmatic fluid because the conductor extended to the depth of the Moho, and the hypocenters of low-frequency earthquakes were distributed nearby the conductor. However, its location and shape remained uncertain because the conductive structure was located at the edge of the observation area in the previous study. We conducted additional MT measurements at 12 sites in August-September 2021 to clarify the magma plumbing system of the Shikotsu caldera and the post-caldera volcanoes such as Tarumai. The ADU-07e systems measured a time series of two electric field components and three magnetic field components at all sites for over five days. We processed the data using the BIRRP code (Chave and Thomson, 2003) with the far remote-reference data at Okura Village, Yamagata Prefecture, about 450 km from the study area. The calculated apparent resistivity, phase, and magnetic transfer functions were generally consistent with the pre-existing data. We started preliminary three-dimensional inversion modeling with the aid of the FEMTIC code (Usui, 2015) based on the data at 55 sites in total. Although the smoothing parameters have not yet been optimized at the time of abstract submission, we have confirmed that some important features, such as the regionally-distributed conductive sedimentary layer and the remarkable conductor beneath the Shikotsu caldera, are in agreement with our previous studies.