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D 会場 ：11/25　PM1 （13:15-14:45）
14:15〜14:30

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MT study in the southern part of Tohoku region: Unveiling electrical resistivity structure and its geological implications

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The southern part of Tohoku, Northeast Japan, is abundant in volcanic and seismic activities due to the subduction system. In the central part of the region, there are active volcanoes located on and around the volcanic front (Mt. Azuma, Mt. Adatara, and Mt. Bandai) and one on the back-arc side (Mt. Numazawa). The spatial distribution of deep, low-frequency earthquakes (DLFEs) aligns with these volcanoes and is oblique to the volcanic front. It is widely recognized that fluids play a significant role in subduction zone magmatic and seismic activities, and electrical resistivity is sensitive to the presence of fluids. Therefore, we estimated three-dimensional resistivity structures from the inversion of a wideband magnetotelluric (MT) dataset. In addition to applying the conventional MT inversion scheme to the data (as described in Diba et al., 2023), we also utilized the structure-guided inversion scheme, which enforces structural resemblance between the inverted resistivity model and a guiding seismic velocity model (Diba et al., 2024, JpGU). Both inversion schemes reveal a large conductive zone from the lower crust to the upper mantle beneath the volcanic area, consistent with the hypocenters of DLFEs, which may indicate the presence of a fluid-rich area. Although the velocity model lacks a similar feature, this conductive zone remains robust in the structure-guided inversion result. We then investigated the possible scenarios for the origin of this fluid-rich conductive zone and its impact on volcanism and seismic activities to enhance our understanding of the geology of the study area. More of the geological interpretation will be discussed in the presentation.