

Wideband Magnetotelluric and Magnetic Surveys across the Tendaho Graben in the Afar Depression, Ethiopia

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The Afar area (Ethiopia) is well known as one of continental rifts transitioning to oceanic spreading centers. In order to delineate subsurface electric properties and document an initial stage of the formation process of magnetic stripes, we carried out wideband magnetotelluric (MT) measurements and ground magnetic survey along a common profile in 2016 and 2017. This profile, approximately 55km long, cuts across the Tendaho Graben in the Afar Depression. In MT survey, we obtained electromagnetic and electric data at 14 sites using MTU-5A (Phoenix Geophysics) and ELOG1K-PHX (NT system design) systems. In magnetic survey on foot, we recorded total magnetic fields at 2.4 meters above the ground every 4 seconds by utilizing GSM-19 Overhauser magnetometer (GEM systems). In this presentation, we will introduce the outline of our project and show preliminary results of MT and magnetic surveys.

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