

Magnetic and Magnetotelluric surveys across the Afar depression, transition between continental rifting and sea-floor spreading

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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 Dabbahu rift in the Afar Depression. 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 MT survey, we obtained electromagnetic and electric data at 14 sites using MTU-5A (Phoenix Geophysics) and ELOG1K-PHX (NT system design) systems. In this presentation, we will introduce the outline of our project and show results of magnetic and MT surveys.

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