

Imaging the subsurface in the Cameroon Centre Province using the Audiomagnetotelluric (AMT) soundings for the monitoring of the Monatele-Sa'a earthquake area

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In monitoring the Monatelé-Sa'a earthquake area, audiomagnetotellurics investigation were done using a scalar instrument with a frequency range from 4.1 Hz to 2300 Hz. Data have been collected along a profile directed N-S, having seven stations and running approximately 20 km. This profile is crossing the Sanaga river which seems to be parallel to a big fault buried in the subsurface without any indications on the top surface. The application of a statistical approach for the processing of the resistivity data collected on the field and their interpretation using 1D and 2D modelling have permitted to put in evidence from the image of the subsurface two major discontinuities. These discontinuities are:

- The Sanaga fault oriented SSW-NNE and covered by a thick layer of alluvial deposits and sand;
- The Biakoa-Goura II fractures zone characterized by a fault oriented N-S. This fault is correlated to the Pan African tectonic movement. It's also covered by a thick lateritic layer going up to 55 km in the subsurface.

The Biakoa-Goura and Sanaga faults tectonic node relaxation seems to be the origin of the February 2005 earthquake in Monatelé and Yaounde North areas.

Keywords: Audiomagnetotelluric soundings, interpretation, 1D & 2D modelling, fault, tectonic node.