



A multidisciplinary project to address the onset of rifting and the interaction between deformation and inherited fabrics

Christel Tiberi (1), Stéphanie Gautier (1), Julie Albaric (2), Cindy Ebinger (3), Jacques Déverchère (4), Richard Ferdinand Wambura (5), Alfred Muzuka (6), and the CRAFTI-CoLiBrEA Team

(1) Géosciences Montpellier, University of Montpellier, France (christel.tiberi@gm.univ-montp2.fr), (2) University of Franche-Comté, France, (3) University of Rochester, US, (4) University of Brest, France, (5) University of Dar Es Salaam, Tanzania, (6) Nelson Mandela African Institute of Science and Technology, Arusha, Tanzania

Onset of continental rifting and the role of the different factors involved in the deformation when breakup occurs is still a pending question. We started a new project in 2013 in North Tanzania, near Natron and Manyara areas to tackle these questions. Besides, these two regions present clearly opposite seismological and magmatic behaviours: near Natron the seismicity is well located within the upper crust and linked to present day magmatism (Lengai), whereas Manyara area is characterized by a deep seismicity and no evidence of present magmatic activity at the surface.

This project gathers different approaches in geophysics, geochemistry, petrophysics,... to enhance our understanding of an active region where both tectonic and magmatic processes clearly interact. We present here the preliminary results from classic seismology, gravity and magnetotelluric studies we lead from 2013 to 2014 in this region. We take advantage of the distribution of our networks (both in 3D and 2D profiles) to investigate different scales and to better image the crustal and lithospheric structures beneath Natron and Manyara regions.

Moreover, the combination of those geophysical technics with geochemistry should contribute to a more constrained understanding of the differences between Natron and Manyara areas. This integrated study will bring new insight on the interactions between magmatic and tectonic processes in this rifting area.