



Seismotectonic and structural study of the North Tanzanian Divergence: first results from the SEISMO-TANZ'07 experiment

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The Eastern Africa is affected by a ~4000 km N-S zone of rifting from the Afar triple Junction to the Mozambique Gulf, bounding the Somalian and Nubian plates. The East African Rift System (EARS) is divided into two different branches within a large intracontinental uplift, the East African Plateau (>1000 m altitude). Morphologically narrow across Kenya, the Eastern branch enlarges in northern Tanzania, ending into three main arms: the Eyasi, Manyara and Pangani rifts, which constitute the North Tanzanian Divergence (NTD). The place is also characterized by an E-W volcanic alignment, comprising among others, the famous Kilimanjaro.

The origins of the Cenozoic rifting, volcanism and uplift encountered in the EARS are still poorly understood. We have focused our study on the youngest structures, the NTD, in order to further understand forces that initiated continental break-up and the implication of the interaction of an old and thick lithosphere (Archaean and Proterozoic) on the rifting process.

In this purpose, we present here the first results of the seismological experiment called

SEISMO-TANZ'07, launched in June 2007. From this local network, composed of 38 seismic stations and deployed for six months in the NTD, a wide seismic database was obtained. We have made a location of the events in this period that comprises the 17th of July earthquake of magnitude 5.9, which occurred in the Gelaï area, southeast of Lake Natron. In August we have modified our network by moving stations near the crisis area, where the Lengai got an eruption one month later.

This dataset has started to give us new information on the seismotectonic and the volcano-tectonic crisis in the Gelaï area. It will be used for other topics like imaging the deep structures, helping us to better understand the origins of this sharp morphological, apparently tectonic and volcanic, change of the EARS observed in north Tanzania.