



MOZART – A seismological investigation of Central Mozambique

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Project MOZART (MOZambique Rift Tomography) aims to investigate the geological structure and current tectonic activity of the Mozambique sector of the East African Rift System (EARS). Space geodesy has indicated in recent years that the border between Nubia and the Somalian plate at these latitudes (16°S to 24°S) encompasses the Rovuma microplate, but little is known about its geometry or seismotectonics. The M7 Machaze earthquake of 2006 highlighted the relevance of the associated deformation, and motivated the MOZART deployment. Besides the regional seismotectonics, other targets of the project are the illumination of the Mesoproterozoic structures of the Mozambique Belt, and the study of its role in the current incipient rifting.

The seismic network is composed of 30 VBB seismographic stations on loan from NERC's SEIS-UK Pool (Guralp CMG-3T 120s sensors) covering Central Mozambique (Manica, Sofala, Gaza and Inhambane provinces) with average inter-station spaces of the order of 100 km. Four stations are across the border in South Africa (Kruger Park). Data acquisition started in March 2011, and decommissioning is foreseen for August 2013. Data processing is underway, and includes local seismicity analysis, receiver function estimation and the study of surface wave dispersion (both ambient noise and teleseismic). Once a preliminary velocity model is developed with these techniques, further refinements will be attempted through waveform tomography. For this purpose, SPECFEM waveform modelling with a 3D velocity model is currently being implemented. Preliminary results of the ongoing data processing and analysis will be presented.