**M. Weber, Ch. Haberland, B. Heit, G. Kapinos, O. Ritter, T. Ryberg, U. Weckmann, X. Yuan (all GFZ Potsdam, Germany)**

**Geophysical exploration of the land fall of the Tristan da Cunha plume in northern Namibia**

Passive continental margins offer the unique opportunity to study the processes involved in continental extension and break up and the role of hot-spot related magmatism. Several geophysical experiments (Seismics, Magnetotellurics and Seismology) were therefore carried out 2011 and 2012 in northern Namibia to image crust and upper mantle at the landfall of the Walvis Ridge. The aim of these studies is to shed light on the present-day structure of this area to understand the dynamics of the breakup of Pangaea and the processes involved.

First results of the **seismic** part of the project show anomalous velocity structures and reflective properties in the mid- and lower crust. The lower crust (onshore) is characterized by an unusual high velocity body which might be associated with magmatic processes of the plume continent interaction. The distribution of the upper mantle wave propagation velocities shows a rather complex, very inhomogeneous pattern. Onshore **magnetotelluric (MT)** data were acquired at 167 sites in a ~140 km wide and ~260 km long corridor from the Atlantic Ocean through the Kaoko Mobile Belt onto the Congo Craton. The data are generally of excellent quality. A first inspection of magnetotelluric and vertical magnetic transfer functions indicates significant three-dimensional (3-D) structures in the crust and upper mantle, particularly in the Western Kaoko Zone in the vicinity of prominent shear zones. The **seismological** team operates a passive-source seismic experiment for two years onshore/offshore NW Namibia. The seismic network consists of 28 land-based and 12 ocean-bottom stations covering an area of 400km x 800km. Different seismic methods, such as body wave and surface wave tomography, receiver function, shear wave splitting, etc, will be used to image the seismic anomalies in the upper mantle and to map the thickness of the crust and mantle lithosphere in this ocean-continental transition area. The aim is to find the mantle deformation styles related to the plume-lithosphere interaction along the Walvis Ridge.