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The WALPASS - Walvis Ridge Passive-Source Seismic Experiment in Namibia

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The Etendeka continental flood-basalt province in northern Namibia, linked by the Walvis Ridge to the Tristan da Cunha hotspot, has a great importance in global plate tectonic concepts, and is an ideal place to understand the roll of the plume-lithosphere interaction during the break-up of the Southern Atlantic Ocean. Within this frame we are operating an amphibian passive-source seismic network (WALPASS) at the position, where the Walvis Ridge intersects with the continental margin of northern Namibia. The broadband seismic network is composed of 28 three-component land stations and 12 ocean-bottom stations, and will be operating for two year. This configuration of stations will allow us to map the lithospheric and deeper upper mantle structure in the ocean-continent transition beneath the passive continental margin of northern Namibia and to find seismic anomalies related to the postulated hotspot track from the continent to the ocean along the Walvis Ridge. The acquired should help us to study the velocity anomaly in the lowermost mantle caused by the Africa super plume and to improve the distribution of seismicity in this geophysically little studied region. We present here some receiver function results in the first attempt to map the lithosphere and the upper mantle in an area known to be the place of a plume/flood basalt province that has the potential to unravel the impact of a continental break-up in the lower crust and mantle lithosphere.