



Seismic anisotropy of the crust and lithosphere beneath the Mozambique Channel

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The Mozambique Channel results from the opening of the Indian Ocean and the dislocation of the Gondwana in a complex extensive geodynamical context. However the lithosphere dynamics beneath the Mozambican and Madagascar margins and their relationship with surface processes and topography are still poorly understood. Whereas recent geophysical studies suggest a correlation between regions of highest topography and the presence of deep magmatic bodies, such features are not well characterised and their origin and evolution are disputed. In an attempt to enrich our understanding of the lithosphere and the deep structures beneath the Mozambique Channel, we performed a receiver function analysis on 26 broadband seismic stations from the MACOMO (Madagascar comores mozambique; Wysession et al., 2011) network, deployed for two years on either side of the channel. The receiver function method was used to image anisotropic structures in the lithosphere, as it is sensitive to sloping interface and/or material previously deformed. By applying two different methodologies, we retrieve the average anisotropy within the crust and the lithosphere as well as the orientation and depth of the main anisotropic fabrics. Our results complement previous SKS-splitting and S-wave tomography studies in the region.