



Preliminary results of layered modelling of seismic refraction data at the East Limpopo Margin, Mozambique (PAMELA project, MOZ3/5 cruise)

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The East Limpopo Margin is a continental margin located offshore southern Mozambique, in the Mozambique Channel. The southern Mozambique margin has not been studied much until now, but its formation is assumed to be the result of the separation of the African plate from the Antarctica plate. A new geophysical survey MOZ3/5 (February-April 2016; PAMELA project*) allowed the acquisition of seven wide-angle reflection and refraction seismic profiles across the southernmost Mozambique margin. In this work, we show the first results obtained from the layered modelling of an approximately 400 km long transect crossing the East Limpopo Margin and including information from 22 ocean-bottom seismometers and 18 land seismometers.

The velocity model, compared to coincident seismic reflection data, allows to observe (1) the variations of seismic velocities together with the variations of reflectivity characteristics in the sediments, including the occurrence of some magmatism, (2) some deep features located below the acoustic basement and that can be related to the pre-to-syn-rift history of the margin, (3) the velocities and Moho depths in the different areas of the crust, from the thick continental crust to the clear oceanic crust (magnetic anomalies), helping to define the nature of the crust and the presence of magmatic features along the whole profile, and (4) some velocity information in the uppermost mantle.

These results will allow us to (1) understand the deep structures of the East Limpopo Margin and to have better constraints on the formation of the margin, helping kinematic reconstructions, improving the quantification of the magmatism along this margin, and (2) improve the knowledge of both the thermal evolution of the sediments and the potential magmatic sources in the study area.

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Moulin, M., Aslanian, D., et al 2016. PAMELA-MOZ03 cruise, RV Pourquoi pas ?, <http://dx.doi.org/10.17600/16001600>

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