

P07

Crustal Modelling of the Beira High, Offshore Mozambique - A Combined Seismic, Well and Potential Field Interpretation

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Summary

The crustal architecture/typing of the Beira High, offshore Mozambique has been subject to debate over the last couple of decades. Here, ERCL presents a fully integrated geophysical interpretation and crustal model of the Beira High. Importantly, this study marks the first instance whereby all released geophysical, well data and public domain models have been integrated to create a tied crustal model of the Beira High.

Abstract

The crustal architecture of the Beira High, offshore Mozambique, has been the subject of debate over the last couple of decades. This paper aims to provide an updated integrated geophysical crustal model of the Beira High. This study marks the first occasion whereby all released seismic, well, public domain gravity data and crustal models have been utilised to create a well constrained crustal model of the Beira High.

A total of five intersecting 2D composite seismic dip and strike lines orientated over the Beira High were selected. The ERCL regional seismic interpretation provided the critical framework for the construction of the gravity models. A total of nine key wells in the study area provided velocity and density constraint, alongside key public domain models.

Differing end-member crustal scenarios were tested for the Beira High and the best fit crustal model put forth. The evidence to date has led us to conclude the Beira High is most likely attributed to a continental fragment and not a thickened oceanic crustal feature (See **Figure 1** below).

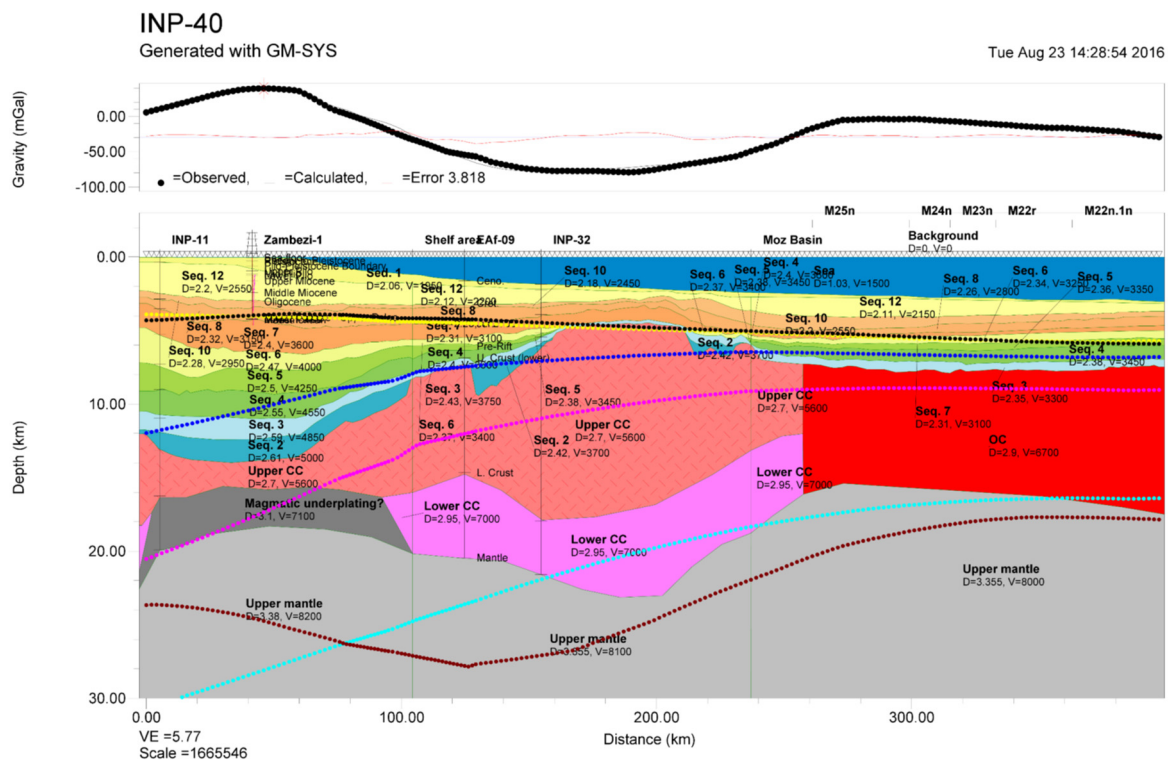


Figure 1 Example balanced 2D gravity model of the INP-40 profile. The Beira High, modelled as a continental crustal fragment, the outboard flank of the Beira High acts as the continent-ocean boundary supported by the presence of magnetic spreading centre anomalies. The dotted coloured lines overlaying the model are the public domain CRUST1.0 and GEMMA1.0 crustal profiles (yellow = CRUST1.0 bottom of sediments 3 (DB6), black = GEMMA1.0 crust top, blue = CRUST1.0 bottom of crystalline crust 1 (DB7), pink = CRUST1.0 bottom of crystalline crust 2 (DB8), light blue = CRUST1.0 bottom of crystalline crust 3 (DB9) and brown = GEMMA1.0 crust bottom).