

MODELING ONSHORE-OFFSHORE WIDE-ANGLE SEISMIC DATA ACROSS THE ALAGOAS-SERGIPE PASSIVE MARGINS, NW BRAZIL

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RESUMO: In 2014, a deep- and wide-angle seismic refraction survey was carried out off the Northeast coast of Brazil, precisely off the states of Bahia, Sergipe and Alagoas. This project called SALSA (Sergipe Alagoas Seismic Acquisition) was conducted by a collaboration between the Department of Marine Geosciences (IFREMER: Institut Français de Recherche pour l'Exploitation de la MER, France), the Laboratory of Oceanic Domain (IUEM: Institut Universitaire et Européen de la Mer, France), the Faculdade de Ciências da Universidade de Lisboa (IDL, Portugal), the Universidade de Brasilia (Brazil) and PETROBRAS (Brazil). The purpose of this project is to image the lithospheric structure of the Jequitinhonha-Camamu-Jacuípe-Alagoas-Sergipe margin segment that formed following the Jurassic-Cretacic continental break-up of Pangea. Seismic shot, Multi-Channel Seismic acquisition (MCS) and Ocean Bottom Seismometers (OBS) deployments were performed by the N/O L'Atalante (IFREMER) along 12 profiles. Among them, five were extended onshore by Land Seismic Stations (LSS). P-wave velocity models were constructed based on the joint interpretation of multi-channel and wide-angle seismic data using the RAYINVR software. Here, we presented initial results obtained from profiles located in the northern part of the experiment, which comprises the Sergipe-Alagoas segment. According to the data, the sedimentary cover in the region can reach 6 km deep. The preliminary velocity models indicate a heterogeneous crust, with 2, and sometimes 3 layers, with classical velocities ranging from 6.0 to 7.0 km/s, very well constrained by clear reflected and refracted phases from its tops and base. The necking zone shows some abrupt decreases in the crust thickness, that goes from 35-40 km, in continental domain, to 5-10 km, in the oceanic domain, characterizing, which corresponds to the transitional domain. Below this zone is also observed an anomalously high velocity layer (7.6 km/s), with ~8 km width between the lower-crust and the mantle. The nature of these bodies must be the principal discussion of this work, and will need a more precise modelisation and a better comprehension of the processes that induce thinning of continental crust.

PALAVRAS-CHAVE: PASSIVE-MARGINS, LITHOSPHERE, MOHO, WIDE-ANGLE

DATA