

SEISMIC STRATIGRAPHY OF PERCHED OCEANIC BASINS AT THE CHAIN FRACTURE ZONE IN THE BRAZILIAN EQUATORIAL MARGIN: PRELIMINARY RESULTS

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Sedimentation in the Brazilian Equatorial Margin has been developed since the opening of the Atlantic Ocean in the Mesozoic Era. The narrow continental shelves and some perched oceanic basins are located between Fracture Zones (FZ) and volcanic seamounts in the Brazilian Equatorial margin. Oceanic perched basin may record long-term sedimentation; however, their deposits are affected by the channelization of deep-sea paleocurrents, sediment input from the continental shelf and slope instabilities, volcanic flows and the active tectonics of FZ. This study aims to investigate the evolution of these perched basins FZ in the Brazilian transform margin. We interpreted reflection seismic data in the area between the Potiguar Basin, Touros Platform, Chain FZ, and the Fernando de Noronha chain of seamounts. We used conventional post-stack seismic data provided by Brazilian Agency of oil and gas (ANP) to investigate the sedimentary evolution of one of these oceanic perched basin. The seismic lines are perpendicular to the shelf break, continental slope, and they cross the basin and a volcanic seamount. The sections have penetration of 12 seconds and together comprise a total of 920 km of lines. Preliminary results revealed four principal seismic units (SU): SU1, SU2, SU3, and SU4. The SU1 is limited on top by a continuous erosional discordance D1 with the internal configuration of chaotic reflections, low continuity, medium amplitude, and low frequency. This layer represents the bedrock. The basin sedimentation occurs from D1 to the top of the section. The SU2 is delimited on the base by D1 and its internal configuration presents continuous plane-parallel reflectors with high amplitude and frequency. SU3 is delimited on base and on top by plane-parallel reflectors with high to medium amplitude. However, its internal pattern of reflection is composed of very low amplitude reflections. Finally, SU4 is also delimited by two plane-parallel reflectors with high amplitude, and its internal configurations are defined by subparallel reflections with medium to low amplitude and frequency. We also identified folds and faults on the bottom of the basin and in the upper crust. Besides, the wedge on continental slope deposits depicts clinofolds patterns, mass wasting, and gravitational faults. Although seismic units reveal a continuous sedimentation of the perched basin, the vertical variations on seismic units indicate different marine paleo-conditions and geomorphic controls on the depositional architecture of these deep narrow pathways.

KEYWORDS: TRANSFORM MARGIN, SEISMOSTRATIGRAPHY, SLOPE FEATURES.