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## **Submarine Geomorphology and Bottom Dynamics in the Southern Sector of the São Paulo Plateau (Santos Basin)**

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### **Introduction**

The southern portion of the São Paulo Plateau, in the Santos Basin, represents one of the most significant regions of the basin due to its socioeconomic, environmental, and geological relevance. For this reason, it has been the focus of numerous studies and surveys over the past decades. The study area is partially located over the Abimael Ridge, a structure likely associated with proto-oceanic crust or an aborted spreading center. The analysis of deep-ocean acoustic data, such as multibeam bathymetry and subsurface seismic data, can contribute to a better understanding of the regional morphology, sedimentary dynamics, and the action of deep ocean currents. Therefore, this study aims to characterize the geomorphology of the study area through the integration of newly acquired multibeam bathymetric data (15 m resolution) with 2D seismic lines and backscatter data. Furthermore, it seeks to correlate subsurface dynamics—such as salt tectonics and the structural influence of the proto-oceanic crust—with surface processes, including mass-transport deposits associated with the Cananéia Canyon and the action of bottom currents, to understand their influence on seafloor morphology.

### **Method and/or Theory**

The 15-meter resolution multibeam bathymetric data and backscatter data used for geomorphometric analyses and submarine relief characterization were provided by TGS Brasil through a cooperation agreement with the Fluminense Federal University. The 2D seismic lines (from the ANP – National Agency for Petroleum, Natural Gas and Biofuels) were used to understand the influence of the Abimael Ridge and salt diapirs on seafloor morphology.

### **Results and Conclusions**

As significant results, areas were identified where seafloor morphology is influenced by mass-transport deposits, bottom currents, and submarine valleys/channels related to the Cananéia Canyon. Features associated with salt tectonics were also observed, including the formation of minibasins. The geomorphological analysis contributes to the understanding of deep-ocean morphodynamics and provides valuable insights for future research as well as for the management of oceanic regions, such as in Marine Spatial Planning.