

## **Segmentation of an Obliquely-Rifted margin, Campos and Santos Basins, SE Brazil**

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We document new evidence for Early Cretaceous transfer zones, which segment the obliquely-rifted Atlantic margin of SE Brazil. Our database includes Bouguer-corrected gravity, regional reflection seismic lines and well data. Our results impact the risks associated with distribution, maturation, and migration of hydrocarbons within the prolific Early Cretaceous lacustrine petroleum system of the Campos and Santos basins.

The passive margin of SE Brazil initiated as a rift system in Neocomian time, as rifting propagated northward into the central South Atlantic. Rift architecture was strongly influenced by pre-existing fabric and structures of Late Proterozoic (Brasiliano) age. Between the Santos and Campos basins, the Atlantic margin inherited an E-W orientation, so that rifting was oblique to the margin.

On a regional map of Bouguer-corrected gravity, a near-shore belt of positive anomalies correlates with a broad Moho uplift in the footwall of Neocomian extensional faults. Farther offshore, a second belt of positive anomalies correlates with a pre-salt ridge of eroded basement anticlines, which are covered by thin Aptian evaporites. We interpret this ridge as a failed spreading center. An intervening belt of negative anomalies coincides with the main rift basin. All three belts show apparent offsets along linear zones, trending WNW-ESE, which we interpret as transfer zones. The vergence of half-rifts tends to change across transfer zones, compartmentalizing the rifted margin into sub-basins. At the eastern limit of continental crust, transfer zones become aligned with ocean-ridge transform faults, which trend E-W across the South Atlantic.