The Oil and Gas Habitats of the South Atlantic

Geological Society Special Publications

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Cover illustration. GEOSAT satellite free-air gravity image for the southern Atlantic region. Illumination is from the north. Total gravity colour range is –100 to +40 mgals (see gravity legend of Fig. 1, Karner & Driscoll). Gravity contours less than –100 mgals are coloured black whilst contours greater than +40 mgals are white. The free-air gravity anomaly, because it is dominated by near-field density contrasts, is particularly useful for defining the general bathymetry and structure of both thinned continental and oceanic crust. For example, the present-day mid-Atlantic ridge spreading centre, ridge jumps, fracture zone trends, continental margin rift structures and their continuity, the ocean/continent boundary, the 'edge-effect' anomaly that characterizes the shelf break, hot-spot traces, and possible reactivation structures are clearly delineated. Further, the early opening trends of magnetic quiet zone oceanic crust are well-imaged, allowing for improved plate tectonic reconstructions for this early part of the post-rift history to be mapped. Four hotspots have likely influenced significantly oceanic crust chemistry and thickness during the late Cretaceous period. From south to north, these hotspots are Tristan da Cunha, Saint Helena, Ascension, and Fernando de Noronha. Note also that the large river deltas (e.g. Congo, Niger, Ogooué and São Francisco) are all associated with extreme positive gravity anomalies, reflecting the large flexural strength of the underlying lithosphere at the time of loading (see Karner & Driscoll, pages 11–40, for details).

It is recommended that reference to all or part of this book should be made in one of the following ways:

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