

NEOGENE-TO-QUATERNARY UPPER SLOPE SAND DEPOSITS RELATED TO THE ACTION OF THE BRAZIL CURRENT, CAMPOS BASIN

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Accumulation of modern sand deposits on the upper slope along Campos Basin, South-East Brazilian margin, has been attributed to the action of the western boundary surface Brazil Current (BC) reworking shelf overspilled sediments. Downstream decrease of the BC intensity responds for grain-size distribution and bedform development along the flow. Coarse-grained sediments (pebbles to very coarse sand) and erosional features are found below the zone of maximum acceleration of the BC, coincident with a seaward margin projection. Downstream, a grain-size decrease and parallel-to-isobaths sinuous-crested bedforms are observed. Linear multi-source sediment supply is yielded by shelf overspill resultant from the action of different forcing mechanisms: tides, storm, fronts, BC current onshelf penetrations as gyres and meanders. The passage of the cyclonic gyres over the shelf imposes a 'sea-floor polishing' like effect causing the resuspension and transport of sediments. Shelf overspill occurs mainly as low concentration gravity flows and secondarily as high concentration fluid and plastic gravity flows. Over the slope, sediments are captured by BC and re-transported along the isobaths. High resolution seismic stratigraphic interpretation suggests that the major periods of upper slope sand accumulation are found from the sea-level rise through highstand periods. Resultant deposits are along-isobaths elongated wedges thinning downslope. Sub-bottom profiles and multichannel seismic data provided the delineation of the geometry of the modern accumulations and indicated the occurrence of similar deposits along the whole Neogene.