



Structural Comparison of 27 Passive Margin Fold-Belts from the Margins of the Gulf of Mexico, South Atlantic, and Africa

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ABSTRACT

Map information were compiled on 27 passive margin fold belts (PMFB) in the Gulf of Mexico, African and Atlantic margins. PMFBs are important as they provide a setting for forming structural traps in shallow water (related to updip, normal faulting) and in deepwater (downdip, compressional structures). Of this group 27 PMFBs or 46%, are controlled by a basal detachment composed of salt and 16% are controlled by shale detachments, and have detachment that are either not well documented or controlled by other lithologies. Measurements are compared of: (1) the widths of the downdip, compressed zone, the intermediate neutral zone, and the updip, extensional zone; (2) the average regional dip of their bathymetric slopes in these three areas; (3) the average regional dip of their basement dip; (4) the average regional dip of their basal detachment zone divided into the downdip compressed zone, the intermediate, neutral zone, and the updip, extensional zone; (5) continental vs. oceanic basement types; and (6) the occurrence of hydrocarbons in the up-dip, normal fault zone; the intermediate zone, and the downdip, compressional zone. A matrix is used to show the most common combination of these features is associated with hydrocarbon occurrence.