

*PLATE TECTONICS AND THE OCCURRENCE OF
MAJOR HYDROCARBON ACCUMULATIONS*

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ABSTRACT

Most major hydrocarbon accumulations occur in basins formed during the Mesozoic and the Cenozoic. Many of these basins, their contained sediments, and their structurally and stratigraphically trapped oil and gas fields appear to be genetically related to Plate Tectonics.

Many are basins formed at plate boundaries. Three fundamental methods of basin development according to type of plate margin deformation are reviewed: tensional, compressional, and shear-zone. Basin types, structural styles, and sedimentary histories are reviewed for different plate margins.

Significant intracratonic basins have developed as a result of embryonic and/or aborted "pull-apart" zones; shear-zones "cracking" the cratons; and "sinks" (and their associated uplifts) due to viscosity inhomogeneities within the asthenosphere.

Many major worldwide eustatic changes in sea level appear to be due to the episodic nature of sea floor spreading. Accordingly, much of the paleogeographic history of our continents appears to be influenced by Plate Tectonics.

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