

The Basin Architecture ,Tectonic Evolution and Hydrocarbon Habits of the Cenozoic Rifting and Foreland Basins,Western Taiwan, Eastern Asia

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Five major types of basins including rifting basin, extensional basin, relic back arc basin, foreland basin and forearc basin on the offshore and onshore Taiwan are recognized.

Basin distribution associated with regional tectonic setting suggests that the tectonic evolutions of the western Taiwan sedimentary basins on the East Chinese Continental Margin are characterized by (1) the formation of rifting half-graben basin initiated by asymmetric, extensional faulting on the inner continental shelf in Paleocene and Eocene; (2) the formation of extensional and relic backarc basins on the shelf-break in Oligocene; and (3) the formation of foreland together with forearc basins on the eastern edge of the continental margin in Early Pliocene, which were resulted from the interaction of the Philippine Sea Plate and the Chinese Continental Margin.

The Early Tertiary rifting basins are typical half-graben filled with syn-rift Paleocene and Eocene sequences derived principally from Mainland China. The characteristics of the basin architecture, lithofacies, burial and thermal history suggest that the Paleocene and Eocene sequences are favorable potential targets.

The foreland basin, which is expanded the greatly parts of onland Taiwan and is bordered by a westward moving foldand- thrust belt to its east.The foreland basin , greatly composed of Later Neocene clastic sequences, was formed owing to the continuous collision of the Philippine Sea Plate and Eurasian Plate since Late Miocene. A number of hydrocarbons are found from the faulted anticline traps. The pre-existing normal fault traps underneath the shallow lower angle thrust belts and the gentle anticline structures associated with the lower Miocene stratigraphic traps in the foreland basin are the most favorable targets for future hydrocarbon exploration as well.

Key Words: Tectonic Evolution, Hydrocarbon Habits, Rifting, Foreland Basin, Taiwan