

Tectonic Evolution and Structure Styles of Cenozoic Basins
around Taiwan Area

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The ocean margin island of Taiwan is a geodynamic body of young and complex build. It is the site of an ongoing arc-continent collision between the Eurasian plate and the Philippine-sea plate. The most manifest tectonic movements responsible for the deformation of this island arc are tephrogenic, collisional and wrenching. These movements played an important role in the Cenozoic tectonic evolution of Taiwan and formed various types of hydrocarbon accumulated geologic structures.

The Marginal-Pacific crust around Taiwan area was attenuated by rifting and developed north-northeast trending Cenozoic basins. These basins have various graben-horst structures and are bounded by large faults. Extensional structural styles have prevailed in Cenozoic basins in offshore Taiwan, with listric faults, and tilted blocks in the basement, and detached faults, growth faults, and rollover anticlines or drape fold in the cover rocks. However, in onshore Taiwan, with the collision of Luzon island arc, those basins show a strong response to the stress imposed upon the Cenozoic rocks by this Tertiary continent-arc collision. The collision remobilized the Mesozoic tectonized basement rocks and refolded them on various scales. Compressional and wrenching deformations are thus prevailed, with thrust faults, right-slip reverse faults and en-echelon arranged folds in the cover rocks.

The Cenozoic basins around Taiwan area have undergone different tectonics. In onshore areas the extensional structures have been changed into contractional structures. In offshore areas, those Cenozoic basins have extensional geologic structures until today.

Since there are different tectonic evolution types and different structural styles in different tectonic levels, these Cenozoic basins around Taiwan area have complicated hydrocarbon accumulations.
