

**Seismic Evidences of Relative Changes of Sea Level in the Tertiary
Depositional Sequences near Taiwan**

C.H. LIU and Y.S. PAN, Chinese Petroleum Corporation

It is generally conceived that the tectonic evolution of Taiwan can be attributed to interaction of crustal plates. In this plate tectonic model, the island of Taiwan is situated on the juncture between the continental Eurasian plate on the west and the oceanic Philippine Sea plate on the east. The foreland basin formed on the Eurasian plate to the west of the Central Range, covering foothills, coastal plain and offshore areas, has been considered a prolific province consisting of a thick sequence of Tertiary to Pleistocene clastic sediments.

The Miocene basin to which this study is referred is a fine example of a combined structural-stratigraphic development.

Deposition has occurred concurrently with intermittent structural movement, which in turn has had substantial influence on the migration and accumulation of hydrocarbons. The primary hydrocarbon migration and accumulation was probably determined in late Miocene time, but the hydrocarbons remained trapped only if subsequent Pliocene/Pleistocene movements did not move the trapping mechanism.

The sandstone members within the Talu shale sequence (middle Miocene) have proven to be the most prolific producers of hydrocarbons in northwestern Taiwan. Although excellent production is obtained from them on shore, efforts to extend the production offshore into the studied area has not been so successful. However, prolific production was obtained from one well, which suggests that the sequence offshore is capable of producing hydrocarbons provided proper condition for entrapment exist.

Taking correlative reflections as formation boundaries, this paper describes the seismic facies for the various formations encountered in the studied area. During the course of deposition, the relative rise of sea level as determined by the rate of terrigenous influx gave rise to the associated reflection configurations and variations in amplitude, frequency and continuity of reflections. By use of these criteria, the environmental setting and estimates of lithology of each formation are interpreted as an aid for the further appraisal of the prospect.
