

Stratigraphy of Cenozoic Sequences in Taiwan Strait and Southern East China Sea

HO-SHING YU* and FRANK FU-WEN HUANG⁺

ABSTRACT

Cenozoic sediments with a thickness up to 8,000 m were deposited in the southern East China Sea and Taiwan Strait off north and west Taiwan, respectively. These deposits primarily consist of nonmarine and shallow marine clastics with a lesser amount of volcanic clastics unconformably overlying basements consisting of Cretaceous clastics, Jurassic volcanic rocks, Mesozoic igneous/metamorphic rocks and Pre-Cambrian metamorphic complexes. The lower Tertiary strata are commonly tilted and structurally disturbed as nonmarine to marginal marine facies were deposited in wedge-shaped half grabens, and upper Tertiary and Quaternary strata having characteristic flat-lying shallow marine facies overlie the infilled half grabens.

Seismic-stratigraphic studies indicate Cenozoic strata to be divided into four major seismic sequences. The sequence boundaries are coincident with regional unconformities which can be correlated to the tectonic events around Taiwan. A three stage tectonic cycle of pre-rift, syn-rift and post-rift has controlled the sedimentation of the Cenozoic sediments. Paleocene and Eocene strata, which are primarily found in half grabens, were formed in the syn-rift stage; late Oligocene-Quaternary sediments, meanwhile, accumulated during the post-rift stage. The Cenozoic clastic sequences were interrupted by basaltic flows which are indicative of episodic rifting of the continental crust along the Taiwan Strait and the southern East China Sea.

The stratigraphy in the Taiwan Strait fills the gap between the established stratigraphic columns of the Fujian Province on China mainland and the offshore island of Taiwan.

INTRODUCTION

Regional Setting

The island of Taiwan on the Western Pacific coast is indicated in Figure 1 to be located near the junction of the Ryukyu and Luzon Arcs. The Eurasian Plate and the Philippine Sea Plate are actively interacting with each other. Around Taiwan, the

* Institute of Oceanography, National Taiwan University, P.O. Box 23-13, Taipei, Taiwan, R.O.C.

⁺ Exploration and Development Research Institute, Chinese Petroleum Corporation, P.O. Box 166, Miaoli, Taiwan, R.O.C.