

Structure and Stratigraphy of South Pengchiahsu Basin, Northern Offshore Taiwan

TA-TSUN CHEN* and JOEL S. WATKINS⁺

ABSTRACT

The South Pengchiahsu Basin is a rifted marginal basin of the continental shelf of the East China Sea. The initial phase of basin extension occurred in the late Paleocene. Cross sections of the basin show a series of mainly asymmetrical half-grabens. The basin is characterized by opposing, partly overlapping half-graben systems linked by an interference accommodation zone in the form of a local structural high. There are three major half-grabens. One is related to the main phase of extension, and the others are due to local normal faulting. The basin underwent two stages of reactivated thrust tectonic events in middle Miocene and late Pliocene.

A widespread angular unconformity separates synrift and postrift sequences. Fandelta deposits in semi-closed lakes characterize the late Paleocene rift phase. A major rift phase with rising sea level and subsidence in early Eocene time was accompanied by deepwater deposition. Lowstand prograding complex-fan delta systems were deposited in the basin with falling sea level at the beginning of middle Eocene. Deposition of late Eocene to early Oligocene (?) deltaic sediments marks the final stage of synrift basin.

INTRODUCTION

The South Pengchiahsu Basin is located at southern tip of the continental shelf of the East China Sea. This study covers the South Pengchiahsu Basin, Kuanyin Uplift, Tungyintao Ridge, and part of Pengchiahsu Platform and Taiwan-Sinzi Folded Zone (Fig.1).

A geophysical survey was made in the East China Sea and Yellow Sea by the ship R/V F.V. Hunt in 1968. The Taiwan Basin was found under the continental shelf of the East China Sea. Chinese Petroleum Corporation (CPC) began seismic reflection surveys

* Offshore and Overseas Petroleum Exploration Division, Chinese Petroleum Corporation, P.O. Box 24-727, Taipei, Taiwan, R.O.C.

⁺ Department of Geology and Geophysics, Texas A & M University, College Station, Texas 77843, U.S.A.