

Characteristics of Submarine Topography off Northern Taiwan

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ABSTRACT

Based on bathymetric data collected in recent years, the topographic features and their structural implications on the northern offshore area of Taiwan are described. The Chilung Shelf is representative of the submarine physiographic units in this region. It occupies the shallow water area eastward to the City of Chilung between the Chilung Valley and the Mien-Hua Canyon. To its north and west, the East China Sea Shelf reveals a gentle ocean bottom such that water depths on its edge (the shelf break) are found to be at least 150 meters shallower than those on the Chilung Shelf. Taiwan is a product of orogeny which resulted in compressive imprints throughout the island. On the Chilung Shelf, a series of topographical lineaments extending from onland Taiwan and oriented in the SW-NE direction are present; however, seismic profiles indicate that these lineaments are a factor of normal faulting mechanics. It is suggested that the offshore area of northern Taiwan has been under a different tectonic stress from that represented on the island.

(Key words: Bathymetry, Tectonics, Chilung Shelf)

1. INTRODUCTION

The sea floor off the northern coast of the Island of Taiwan mainly consists of three major submarine physiographic units: the East China Sea continental shelf (the Tunghai Shelf, hereafter), the East China Sea continental slope (the Tunghai Slope), and the southern Okinawa Trough. Physiographically, the Tunghai Slope acts as a northern flank of the Okinawa Trough. Bathymetrically, it is a transit zone separating the shallow shelfal area to the northwest from the deep ocean to the southeast.

In general, the Tunghai Shelf is seen as a broad, smooth, flat featureless sea floor. Although such low relief bottom features have been observed, marine geologists have suggested these features resulted from subaerial processes during the glacially lowered sea level period of the late Pleistocene (Emery *et al.*, 1969; Boggs *et al.*, 1979).

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