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**Environmental and Climate Variation during the Last Glacial Cycle and its sequence stratigraphic reflection at the South China Sea's Northern Margin**

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New high-resolution 2D seismic reflection profiles and core data from the Beibu Gulf, Northern South China Sea and the adjacent slope and basin are used for a general view of the Late Quaternary stratigraphic architecture of the Northern South China Sea Margin.

An interpretation of the seismic and sediment data allowed a separation of a series of seven distinct seismo-stratigraphic units, separated by erosional unconformities each of which are represented by a regionally correlatable seismic reflector. Three of the unconformities confine sediment sequences mirroring high-frequency Milankovitch cyclicity. The age of seismic reflectors were estimated according to a special age–depth model, based on the correlation of sediment age data with global sea-level curves ([1], [2]). Repeated falls in sea level, coupled with high sediment discharge, as well as the tectonically driven uplift of Hainan Island, have resulted—in our interpretation - in the development of prograding lowstand delta wedges on the shelf margin southwest of Hainan Island that took place during MIS 5–MIS 2. According to the location and preliminary dating, the sediments can be correlated to Unit 8 of Hanebuth et al. [3] on the Sunda Shelf. These isolated sediment bodies assigned to a “Forced Regressive Systems Tract” have formed during intermediate sea-level fluctuation during the last glacial period and can be regarded as one of the very few records of Last Glacial Cycle (LGC) regressive sea-level phases in the region.

The direction of the prograding internal reflectors of delta fore-sets points to weathering products from Island of Hainan as one of the main sediment sources to the paleo-delta ([4]). The Last Glacial Maximum sea-level lowstand is mirrored by a regional unconformity with incised paleo-river valleys which can be clearly traced in the seismic images. Post-glacial sea-level rise is related to the formation of the Southern Beibu Gulf Mud Depocentre located near the southern opening of the Beibu Gulf in water depths of 50–80 m.

Around 9 ka BP the rising sea-level had opened the Qiongzhou Strait as a permanent connection for east-west water exchange between the Beibu Gulf and the northeastern shelf of the South China Sea. Reciprocal tidal currents and seasonal fluctuations of the Monsoon driven longshore currents have lead to the formation of the “Butterfly Delta” East and West of the Qiongzhou Strait during the Late Holocene.

*References:*

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