

Growth Pattern of Beach and Dune Ridges in the Lower Mekong River Delta, Southern Vietnam

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Lower part of the Mekong River Delta is topographically characterized by development of several lines of active and relict beach sand ridges. especially it is significant for the understanding of a formation process of the Mekong River Delta that they are preserved distinctly at great distances as far as 60 km inland from the present coast line. Kolb and Dornbusch (1975) suggested several possibilities for the generative cause of striking topographic features, that is, 1) due in part to their original height, 2) a reflection of pronounced beach-forming capacity of the Mekong River, 3) a slow subsidence of the deltaic plain, and 4) the extreme youth of that portion of the deltaic plain where these landforms are still visible.

In this report, the geomorphologic and sedimentologic features of these active and relict beach ridges are described primarily together with some ages by OSL dating from quartz grains of beach ridges. Samples for sedimentologic and chronologic analysis were collected from 8 lines of beach ridges and one boring core in TV2 (Figure).

On the basis of their descriptive data, the formation process of the Lower Mekong River Delta.

Geomorphology

Eight lines of relict and active sand ridges are observed to the south of Tra Vinh City. Although they are arranged generally parallel to the recent Co Chien River and coast line, are distinctively developed in the eastern side of the island. Especially four lines inland converge to the south of the City, and elongated in the N-S direction parallel to the recent river. All beach ridges are diverged southward and westward to several narrow and low ridges. Main ridges are 15 to 20 km in length, 400 to 1000 m in wide, and 5 to 10 m in height. It was confirmed in the TV2 boring core that sub- and inter-tidal flat sediments underlie these dune sands. The lowland between the beach ridges are developed a few to several kilometers in wide, and mainly composed of silt.

Sedimentology and sedimentary petrography

Grain size distribution of sand from relict and active beach ridges and TV2 boring core are analyzed. Almost of dune sands are fine-grained, very well sorted, very positive skewness, and extremely leptokurtic. On the other hand, underlying sands are fine-grained, well to moderately sorted, and higher in kurtosis than dune sand.

Light and heavy mineral assemblages of relict and active beach sands are generally classified in three groups, that is, recent coastal and dune sands including characteristically opx and cpx grains, younger relict beach sands including metamorphic minerals such as chlorite and biotite, and older relict beach sands characterized by feldspar and quartz grains.

OSL ages

Some ages are gotten from relict beach sands by OSL dating method. Their ages are classified generally into two groups, that is, sands older than 4 ka, and ones younger than 1.2 ka.

More detail investigation, especially of ages of relict beach sands, should make clear the progradation system of strand plain in the Lower Mekong River Delta.

