

Seasonal and annual geomorphologic changes of mesotidal Ba Dong beach in the south-eastern margin of Mekong delta, Vietnam

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Mekong delta coast, south Vietnam belongs to the tropical monsoon area, there are two clearly seasons, wet season due to southwest monsoon from May to October and dry season due to northeast monsoon from November to April. Here is a mesotidal beach around the margin of Mekong delta facing South China Sea. In generally there are a few precedence research studied about seasonal and annual changes of mesotidal beach in the world. Ba Dong beach is a typical mesotidal beach in the southeastern margin of Mekong delta in Tra Vinh province. We have carried out the six times repeat surveys in this beach between November 2005 and November 2007. In this beach survey, we had the procedure as below: (1) set up six survey lines (A, C, BN, BT, D and E in order from south to north) right-angled to shoreline, and (2) made beach profiles using auto-level, (3) described bed forms and bioturbations, (4) took surface sediments for grain size analysis, (5) sampled hand boring cores, (6) measured current directions and velocities using the flow velocimeter. In our presentation, we will focus on geomorphologic features, especially seasonal and annual change of beach topography and sedimentation on the beach.

In generally, beach sand consists of fine to very fine sand and beach gradients are $1/30 \sim 1/100$. In addition, this is a typical multistage bar coast which is clearly alternated asymmetrical and landward dipping sand bars and troughs. Beach profiles of southwestern part (A, C) and northeastern part (D, E) show erosional beach form (concave form) and the profiles of central part (BN, BT) show depositional beach form (convex form).

Firstly, according to seasonal viewpoint, the southwestern part was accumulated during wet season and eroded during dry season. But the central part was accumulated during both seasons. And the northeastern part was eroded during both seasons. Thus, we guess surface sediments on the beach were mainly derived from the northern Co Chien River due to strong northeast monsoon during dry season. But there were a few supplies from this river. As a result, we could observe depositional tendency only in the central part and erosion tendency in the southern and the northern parts. On the other hand, much sediment was derived from the southern Hau Giang River due to southwest monsoon during wet season. Hence, we could observe depositional tendency in the southwestern part and the central part, but erosion tendency in the southern part because of river influence.

Secondly, according to annual viewpoint, the southern part showed slightly erosional tendency (exactly erosional tendency in the landward area and depositional tendency in the seaward area). Also the northeastern part showed erosional tendency. But huge accumulation occurred about 1.5m (maximum) during last two years in the central part.