



Asymmetric Erosion of the Thu Bon River Delta, Central Vietnam

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The shape of an estuarine delta is determined based on the steady state between sediment supply from the river and the longshore flux which transports the sediment away from the river mouth. Therefore, significant change in the delta landform will occur where there is imbalance between the sediment supply and the longshore sediment transport. Coastal erosion at Cua Dai Beach which is located on the left of Thu Bon River estuary in central Vietnam can be considered as an example. On the left side of the river mouth, the significant retreat of shoreline positions (around 170m) clearly indicates severe erosion at Cua Dai Beach. Along this coastline, erosion zone extends from the river mouth to a distance approximate to 4km and no erosion is observed beyond that. On the other hand, except for the variation of the cusped shoreline's tip, there is almost no significant change of shoreline position on the right side of the river mouth.

In order to study the propagation of the erosion wave on Cua Dai Beach, analytical solution of one-line model for delta shape was applied. The applicability of this theory can be confirmed by the protruding shape of the Thu Bon River estuary which indicates the typical type of estuarine delta formed by the sediment supply from the river. In addition, a method for determination of a model's constant was also proposed using the basis of dimensionless representation of analytical solution of one-line model for delta shape. The comparison between the measured data and the theoretical one in terms of the propagation speed of the erosion wave shows good agreement which confirms the reliability of the model's constant value. (275 words)