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The properties and spatial distributions of flocs adjacent to the Yangtze Estuary

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Abstract

Flocculation plays an important role in sedimentation of estuaries and continental shelves. The process of flocculation in estuary or shelf is extremely complicated. In this paper, the flocs observed at five sections that include 36 stations within the Yangtze Estuary of the East China Sea were studied systematically using scanning electron microscopy and energy dispersive X-ray spectrometry. The characteristics and spatial distributions of the flocs were obtained, and the factors about the spatial distributions of the flocs were discussed. The flocs were divided into 6 types according to their components: mineral flocs, bio-detritus flocs, mineral-biological flocs, organic-mineral flocs, organic-biological flocs and complex flocs. The percent of the mineral flocs is the highest. The mean particle size of the flocs ranges from 4.00 to 5.00 Φ . The sizes of the mineral flocs are the finest, while the sizes of the complex flocs are the coarsest. The percent of mineral flocs is high near the coastal areas and decreases toward the open sea; this trend is similar to those of organic-mineral flocs and complex flocs. High percentage of bio-detritus flocs and organic-biological flocs is observed to the east of the Taiwan Warm Current. The

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