

Impact on the material sources of the West Pacific marginal sea by the Three Gorge Project

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From 2003, the discharge of Changjiang River reduced greatly for the construction of Three Gorge Dam, but few studies have been performed on the changes of the trace elements inputs in the sediments in the Yangtze Estuary.

In this study, we examine the concentration of 52 major and trace elements in archive (2006) surface sediments from 35 sites across the Yangtze estuary, and in two sediments cores (to examine depositional history, collected in 2016).

The study suggested that: 1) Surface sediment data indicate that the REEs Tm and Er, Tl and Sb show high accumulation factors with average I_{geo} values between 0 and 1 ranked in order of Tm>Tl>Er>Sb. 2) It is notable that most major and trace elements exhibit an obvious reduction in the upper 30cm of the core B8, which may due to a decrease of sediment discharge by Changjiang River runoff following the construction of the Three Gorge Dam, coupled with the effective implementation of pollutant emission controls. However, C3 displays increase of some trace elements in its upper 20cm, demonstrating a distinct local anthropogenic input in recent years.

Key words: Three Gorge Dam, Changjiang Estuary; trace elements; material sources; impact factors