THE RECORD OF ORGANIC MATTER SOURCES CHANGE AND ITS SIGNIFICANCE OF THE SEDIMENTATION RATE IN THE TIDAL FLAT OF JIANGSU PROVINCE, CHINA

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Modern sedimentation rates is basic data and important indicators in the study of geomorphological evolution, dynamic erosion, shoreline changes, flux material recycling and others. Intertidal zone is potential of land resources. It is more important that study deposition rate of the tidal flat. But dynamic conditions, bioturbation result in the method of ^{210}Pb and ^{137}Cs having some limitations. This study tries to provides a new approach to estimate deposition rates by tracing organic matter sources in the tidalflat of Jiangsu Province. It can verify and complement with the method of ^{210}Pb and ^{137}Cs. Organic compositions in tidalflat were made from marine algae and terrigenious C3 and C4 plants. The differences of organic carbon isotope values among marine algae, C3 and C4 plants are obvious. They can be used to trace organic matter source. *Spartina* plants are widely distributed in Jiangsu tidal flat which is a introduced species. Sediment organic matter source in tidal flat is linked with deposition rate due to *Spartina* planations. Because *Spartina* is a kind of C4 plants, its organic input may have an obvious influence on sediment $\delta^{13}C$ value. 4 sediment cores were collected from the bare tidal flat (Core XY01), the transition area of bare and *Spartina alterniflora* tidal flat (Core XY02), the *Spartina alterniflora* tidal flat (Core XY04), and the *Spartina anglica* tidal flat (Core XY03) respectively in Xinyanggang of Jiangsu Province. Sediment grain-size, organic carbon, Organic carbon isotope were measured. The δ13C values have obvious increased from the depth of 54cm of Core XY01, 39cm of Core XY02, 62cm of Core XY04 and 48cm of XY03 respectively. With references of *Spartina* being firstly planted in tidal flats of Xinyanggang, China, the deposition rates can be estimated as 3.02 cm/a, 2.19 cm/a, 3.45 cm/a and 2.66 cm/a respectively. The deposition rate is the biggest in *Spartina alterniflora* tidal flat. During the the transition area of bare and *Spartina alterniflora* tidal flat, sediment is subjected to erosion.

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