

# Carbon and nitrogen isotopic characterization of sedimentary organic matter in a boring core from the Changjiang estuary.

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## Abstract

In order to study paleoenvironmental change in the East Asia region during past 12,000 years, carbon and nitrogen isotopic and elemental analyses were made for a sediment core obtained from the Changjiang estuary. The  $\delta^{13}\text{C}$  of total organic carbon (TOC) varied from -21 ‰ to -24 ‰ and significantly correlated with organic carbon contents which ranged from 0.1 % to 1.1 %, suggesting  $\delta^{13}\text{C}$ -TOC might indicate temporal change of source organic matters. Assuming that the conventional mixing model based on terrestrial and marine organic matters, it is presumed that the contribution of marine plankton (or aquatic plants) into the TOC would be slowly extended since last 10,000 years until 4,000 years ago. However to interpret the  $\delta^{13}\text{C}$ -TOC below 60 m depth, some other explanations not only contribution of marine organic matter, but also possibility of floral succession of higher plants in China are necessary to be considered. On the other hand,  $\delta^{15}\text{N}$  of bulk nitrogen decreased from 10 to 5 ‰ in the top 5 m depth (ca. 2,000 years BP) and showed less variation below 10 m to 70 m depth averaged about 4 ‰. We believe that the recent enrichment of  $^{15}\text{N}$  in organic matter would be resulted by drastic increase of population and consequently brought eutrophication in the Changjiang catchment.