

滨海湿地生态学与生物地球化学

## 长江口崇明东滩冬季沉积物水界面营养盐通量

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**摘要** 对长江口崇明东滩冬季沉积物中营养盐早期成岩过程和沉积物 水界面营养盐通量及其影响因素进行了研究. 其中, 高潮滩对各项营养盐均有显著吸收, 中潮滩主要表现为对TIN和SiO<sub>2-3</sub>的释放, 低潮滩由于受到局部水动力作用影响, 营养盐通量存在较大不确定性. 分子扩散作用对沉积物 水界面营养盐通量的贡献不大. 由于潮滩对于水体PO<sub>3-4</sub>浓度的影响能力高于对TIN和SiO<sub>2-3</sub>的影响能力, 潮滩能够在一定程度上促进水体中N/P和Si/P比的增加.

**关键词** [沉积物水界面营养盐通量](#); [河口](#); [潮间带](#); [崇明东滩](#)

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## Nutrient fluxes at sediment water interface in the east Chongming tidal flat in winter

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### Abstract

Benthic nutrient fluxes and early diagenetic processes were investigated in the east Chongming tidal flat of Yangtze estuary in winter. [JP2] Significantly nutrient influxes from water column to sediment are observed in high marsh: benthic fluxes of NO<sub>3-</sub>, NO<sub>2-</sub>, NH<sub>4+</sub>, PO<sub>3-4</sub> and SiO<sub>2-3</sub> are (-0.896± 0.540) mmol/m<sup>2</sup>/d, (-0.089±0.049) mmol/m<sup>2</sup>/d, [JP] (-2.002± 0.642) mmol/m<sup>2</sup>/d, (-0.068± 0.006) mmol/m<sup>2</sup>/d and (-1.334± 0.381) mmol/m<sup>2</sup>/d individually (negative indicate nutrient absorption from water column to sediment and positive indicate nutrient release from sediment to water column). The exflux of NO<sub>3-</sub> (( 0.203±0.112) mmol/m<sup>2</sup>/d ) and influxes of NO<sub>2-</sub> (( -0.010± 0.005) mmol/m<sup>2</sup>/d ) and PO<sub>3-4</sub> (( -0.005± 0.002) mmol/m<sup>2</sup>/d ) are observed in middle marsh. In low marsh, only PO<sub>3-4</sub> (( -0.047± 0.009) mmol/m<sup>2</sup>/d ) influx is significant and there are large uncertainty in other nutrient fluxes due to strong wave disturbance. Diffusional nutrient fluxes contribute to the benthic nutrient fluxes slightly. Due to benthic flux differences among nutrients, benthic nutrient exchanges promote the growths of N/P and Si/P ratios in water column.

**Key words** [benthic nutrient fluxes](#) [estuary](#) [salt marsh](#) [east Chongming tidal flat](#)

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