Geophysical Research Abstracts
Vol. 17, EGU2015-14755, 2015
EGU General Assembly 2015

Comparison of CDOM EEMs Characteristics along F and PN section in Eastern China Sea: significance for sources tracing

Yong Du, Xiaoyu Zhang, Binbin Jiang, Dasong Huang, and Lingling Yao
Zhejiang University, Department of Earth Science, Hangzhou, China (cubesir@foxmail.com)

Abstract: In this paper, a total of 28 water samples were collected mainly from three sections(C section in the Yangtze river inner estuary, PN section and F section on the spindle of Changjiang diluted water influenced by different hydrodynamic processes),which taken on two cruises in spring and summer of 2011. Absorption and fluorescence spectroscopy were measured along with dissolved organic carbon(DOC) concentrations and temperature, salinity and another environmental parameters to characterize the material sources and environmental implications of dissolved organic matter(DOM). Two protein-like components(tyrosine-like peak B and tryptophan-like peak T1), and two humic-like components(marine humic-like peak M and ultraviolet region humic-like peak A) were identified by PARAFAC. We discussed CDOM distribution characteristic, material composition, and influence factors during the slowly dilution process of Changjiang diluted water into the east China sea by comparing the correlation of the CDOM absorption, fluorescence intensity, and fluorescence peak with DOC, in order to provide the based biogeochemistry theory basis for building DOC implications using CDOM fluorescence properties. The results revealed that:1) the Yangtze river and its inner estuary (upstream of the river mouth) were detected a higher amount of humic-like components. With the rapid dilution (or settlement) at the inner estuary, the humic-like components would further spread and dilute slowly on PN section and F section. On PN section, the terrigenous material is the main source material, and the main mechanism of CDOM distribution characteristics is controlled by dilution diffusion. Affected by the water mass convergence, marine dissolved organic matter in local waters had obvious input. However, due to the complexed hydrodynamic environment on F section, the input of terrigenous material has many ways. The influence of marine dissolved organic matter increased with the offshore distance increases.2) Although the absorption coefficient of DOC has good instruction significance, CDOM fluorescence intensity can more accurately express the amount of DOC in water than that of absorption coefficient with the source of dissolved organic matter enhanced.3) In general, CDOM fluorescence intensity and DOC show good linear relationship in the study region. But the correlation would change in different sea, and may ignore the rapidly dilution(or possibly sedimentation process) of estuarine waters, which need to be further depth study.
Keywords: CDOM; F section; PN section; sources tracing; hydrodynamic environment