

**Biogeochemistry on the continuum from watersheds to the continental margin:
case studies from China**

Jing ZHANG

State Key Laboratory of Estuarine and Coastal Research, East China Normal University
Shanghai 200062, China
E-mail: jzhang@sklec.ecnu.edu.cn

Coastal environment represents an over-stressed ecosystem under the influences from both land and open ocean but with different patterns in terms of time-scale and magnitude. Land-based human activities from watersheds, such as deforestation, agriculture, and hydrological engineering (i.e. dam construction), have altered the fluxes of natural weathering materials and pollutants to the West Pacific Ocean. On the other side, incursion of Kuroshio regulates the biogeochemical processes of adjacent coastal ocean. The changes occurring in the Pacific Ocean Proper, such as in the El Niño -Southern Oscillation, climate warming, and variability of ocean circulation (e.g. PDO), have altered the fluxes of material from the ocean to the coastal Pacific region as well.

In the presentation, the role of biogeochemistry in the land-sea interaction is evaluated using some case studies from China Seas as an example. Data of this study are from various sea-going cruises in and cover a region from upstream of drainage basin to the continental margin, which includes nutrients, trace species, biomarkers, stable and radio isotopes. Cases studies are given, such as damming and fresh water regulation in the watersheds and monsoon induced change in water exchange over the shelf. Biogeochemical dynamics in the coastal environment is examined in more detail.