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Southeast Ocean and Coastal Acidification Network

"Estuarine Acidification: A Conceptual Discussion with Examples"

Wei-Jun Cai,
University of Delaware

Please join SOCAN for our next webinar **Wednesday March 18, 12pm ET.** It is titled "Estuarine Acidification: A Conceptual Discussion with Examples" presented by Wei-Jun Cai, University of Delaware. Click here to access and download flyer.

Abstract
Wei-Jun Cai will discuss how estuarine pH is affected by mixing between riverine and anthropogenic carbon dioxide (CO_2) enriched seawater and by respiration under various conditions (salinity, temperature and river end-member alkalinity). A few rivers with different levels of weathering products and temperature are selected for the discussion. It is shown here that estuaries receiving low to moderate levels of weathering products exhibit maximum pH decrease in mid-salinity region as a result of anthropogenic CO_2 intrusion. Such maximum pH decrease coincides with a mid-salinity minimum buffer zone. In addition, water column oxygen consumption can further depress pH for all simulated estuaries. Recognition of the estuarine minimum buffer zone may be important for studying estuarine calcifying organisms and pH-sensitive biogeochemical processes.

Brief Biography
Dr. Cai has worked on marine carbon cycling for twenty years. His research areas include calcium carbonate ($CaCO_3$) dissolution and sediment diagenesis in the deep sea using microelectrodes (O_2, pH and pCO_2), air-sea exchange of CO_2 and carbon cycling in coastal oceans. Most recently, his research has focused on the responses of coastal ocean carbon cycles and ecosystems to a changing terrestrial export of carbon and nutrients as well as bottom-water acidification in estuaries and coastal oceans.

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