Biogeosciences Discuss., 10, C4232–C4233, 2013
www.biogeosciences-discuss.net/10/C4232/2013/

Biogeosciences Discussions
Open Access

Interactive comment on "Saltwater intrusion into tidal freshwater marshes alters the biogeochemical processing of organic carbon" *by* S. C. Neubauer et al.

Anonymous Referee #2

Received and published: 13 August 2013

This is an interesting paper reporting results of a long-term (and acute) salinity manipulation of tidal marsh sediment metabolism. Salinity intrusion is likely to increase in the future altering both the vegetation and microbial processes occurring in these important ecosystems. The 3.5 year experiment reveals some non-intuitive results, most striking is the change in sediment organic composition which is a large pool of material and often controls other rates of element cycling. The MS would benefit from more discussion of whether this is driven by altered decay of extant organic matter versus change in inputs due to shift in vegetation. The Neubauer and Sutton 2013 reference is missing but apparently covers some of this. The contrast between long-term and chronic effects is valuable in that it reveals both differences in potential controls as well

as capturing response to episodes versus a change in state. Inclusion of an array of response variables (gas efflux, enzymes, pools of OM) expands the possible responses since they are apparently susceptible to differing controls. Minor points: Could the watering regime affect oxygen delivery to subsurface layers? I gather the control plots received no water addition but maybe the others got some flushing effect? Throughout the authors use “parameters” (a constant) when they mean “variables”.

Interactive comment on Biogeosciences Discuss., 10, 10685, 2013.