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Interactive comment on “Vegetation and proximity to the river control amorphous silica storage in a riparian wetland (Biebrza National Park, Poland)” by E. Struyf et al.

Anonymous Referee #2

Received and published: 24 March 2009

The biogeochemistry of silica in terrestrial and wetland environments is a relatively neglected subject of study compared to other major elements such as carbon, nitrogen and phosphorus. This study fits in an exploratory phase of research into the role of silica in the biogeochemistry of wetland ecosystems. It is a first example of a study of gradients in amorphous and dissolved soil silica in river floodplains in relation to the species composition of the vegetation. The data give evidence for a gradient in amorphous silica perpendicular to the river channel, with the highest values close to the river. Annual harvesting of the vegetation seems to somewhat decrease the ASi concentrations. Although the patterns of the dominance of graminoids and soil ASi contents in Fig 4 do not really match, it can be said that if Asi is corrected for distance

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from the river, the degree of dominance by graminoids is positively correlated with this parameter. Dissolved Si showed spatial patterns similar to those of Asi. Most of these relations were not unexpected. Their significance for the behaviour of Si at the landscape level and beyond remains to be studied. It is very important to know under which circumstances river floodplains act as sinks or sources of Si transported by the river channel, because dissolved Si often controls primary production of phytoplankton in freshwater and marine habitats. Hydrological studies of water and dissolved Si, as well as the rates of formation and decay of amorphous silica, are needed to evaluate the role of wetlands in retaining or releasing this element. Hopefully, this publication, together with earlier work in freshwater tidal wetlands, will further stimulate the study of Si biogeochemistry in wetlands.

Interactive comment on Biogeosciences Discuss., 6, 895, 2009.

BGD

6, S539–S540, 2009

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