Biogeosciences Discuss., 10, C1015–C1016, 2013
www.biogeosciences-discuss.net/10/C1015/2013/

Biogeosciences Discussions

Interactive comment on "Seasonal signatures in SFG vibrational spectra of the sea surface nanolayer at Boknis Eck Time Series Station (SW Baltic Sea)" *by* K. Laß et al.

Anonymous Referee #1

Received and published: 17 April 2013

This is an interesting paper that seasonally characterises the surface nanolayer properties of some Baltic Sea coastal waters and discusses possibilities for nanolayer generation/ development related to bloom conditions and biological succession. This characterisation is a demonstration of the use of vibrational sum frequency generation spectroscopy (VSFG), a technique that is apparently well established in the author 's laboratory. I have had the opportunity of reading both a previous set of referee comments and the authors response. The former raised some important issues that the authors have in my view responded to mostly adequately. However I have a few additional observations. 1. The authors used a mesh screen for sampling. Although they do not quote the depth range sampled by this device this can be derived from their method description

as being in the range 30 to 50 microns. Nevertheless, i think it would be helpful to the reader if this depth range was formally stated. 2. Also regarding sampling, it would be informative if the authors could explain their rationale for selecting the mesh screen in preference to alternatives such as the glass plate and others. Cunliffe et al (2012), to which the authors refer in their response to the other referee, give some consideration to this. Are there any potential implications for sample integrity arising from the choice of sampling protocol? Some explanation should be given. 3. The authors also state that some samples were returned to the laboratory for analysis within a few hours while others were stored frozen for up to 2 weeks. It would be helpful to know which specific samples were subject to each of these treatments as the issue of storage bias should be considered here. In their response to the other reviewer (Wurl), who also raised the issue of sample integrity, the authors cite the recent submission to BGD of Schneider-Zapp et al which concludes that no sample treatment and minimal storage at 4o C was optimal. However, Scneider-Zapp et al also found potentially substantial changes on freezing and I therefore feel that given that some samples were subjected to this treatment, this point is not adequately addressed by the authors. Can they provide comparative analyses of samples processed in these two different ways? Some further consideration is warranted here. 4. In section 4.2 the authors state that the structure of a broad band between 3000 and 3600 per cm "is still subject to ongoing discussion". While the authors cite some publications, for clarity it might be helpful to also briefly outline in a couple of sentences, what the most likely possible explanations of this structure are. 5. In agreement with the other reviewer, I do find the discussion of possible anthropogenic effects rather weak and perhaps distracting from the main focus of the paper and that it should be shortened somewhat

Interactive comment on Biogeosciences Discuss., 10, 3177, 2013.