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Interactive comment on "A bio-optical model for remote sensing of Lena water" *by* H. Örek et al.

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Review of "A bio-optical model for remote sensing of Lena water" by Orek et al.

Reviewer: Emmanuel Boss, University of Maine

This paper presents optical measurements conducted at the mouth of the Lena river over two short sampling periods. The data is of interest as very little data emanating from large Russian rivers is available. The data could help develop regional algorithms for remote sensing (and check whether assumptions used in current algorithms are sound) and provide input to biogeochemical model that are coupled with optics.

The paper is of interest to BG readers specializing in aquatic optics. The paper could benefit from being edited by a native English speaker. It is not well written and suffers from repetitions and inaccuracies. The quality of the figures is low (cut and paste from

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Interactive Discussion
Discussion Paper

Excel with titles and grid lines).

I believe this paper can be significantly improved if the following comments are addressed (I also return a marked up PDF):

1. To develop a bio-optical model what one needs are mass specific optical parameters. These parameters should be highlighted, their variability computed, and compared to literature values (so that one can evaluate how 'anomalous' Lena river water may be). The actual range of values observed is much less interesting (as it could probably not be similarly generalized to other seasons and times). Comparing CDOM/DOM, cp/SPM, bp/SPM, cp/POC, ap(676) absorption height/Chl, ap/SPM etc' to literature values will be much more informative. 2. Uncertainties in all derived quantities should be provided. 3. The method of fitting the data to obtain spectral slopes should be provided (e.g. log-linear vs. non-linear). The appropriate one to use depends on knowledge of errors of spectra (e.g. relative or absolute). It is usually assumed that the errors are constants at each wavelength (and hence a non-linear fit is most appropriate). 4. Particulate carbon: is it POC or POC+PIC? 5. I don't see any data of in-situ fluorescence. As it been used? If not, remove mentioning them. 6. Provide indication of scattering method used with ac-meter. 7. Units are often missing when spectral slopes values are provided. 8. Humic substances are a sub fraction of DOM that is extracted following very specific protocols. Have you analyzed the DOM for this fraction? If not, avoid using this term.

Dear authors: I am often wrong. If you feel that my comments are off the point please feel free to contact me , and if convinced, I will be happy to modify them.

Please also note the supplement to this comment:
http://www.biogeosciences-discuss.net/10/C1730/2013/bgd-10-C1730-2013-supplement.pdf

Interactive comment on Biogeosciences Discuss., 10, 4887, 2013.