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Interactive comment on "Absorption features of chromophoric dissolved organic matter (CDOM) and tracing implication for dissolved organic carbon (DOC) in Changjiang Estuary, China" *by* X. Y. Zhang et al.

Anonymous Referee #2

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The authors report measurements of CDOM absorption, CDOM spectral slope, DOC concentration, Chla concentration, suspended sediment concentration and salinity in the Changjiang estuary and for a number of offshore stations in the East China Sea. The data acquired by the authors are consistent with those obtained in numerous past studies of estuarine and coastal environments, namely 1) inverse relationship of CDOM absorption with salinity, indicative of a terrestrial source, 2) correlation of CDOM absorption with DOC concentration that varies seasonally, 3) spectral slopes that are generally higher in offshore waters than in the estuarine waters, and lack of

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correlation of CDOM absorption with Chla concentration (see below for discussion of the PN transect). So to be brutally frank, there is not much that is new here, except that these measurements were acquired in a different geographical region that had not been previously examined to any great extent. Whether this is sufficient justification for publication in Biogeosciences is not clear to me. Further, in my opinion, the paper needs major revisions to improve the clarity of the presentation: the text could be cut by half without losing content, and many figures could be combined or summarized within the text or a table. In some sections, the manuscript reads more like a review article than a research paper. Some specific comments and some examples of areas for improvement (by no means exhaustive): 1. Figure 1 is essentially useless, as the acronyms are neither defined in the figure caption nor discussed in the text. 2. Page 12221, line 16: Meaning?? 3. Page 12221, line 25: Don't you mean "fitted" not "simulated"? 4. Page 12222, line 1: Why was k discarded? Doesn't a non-zero value (within the spectrophotometric accuracy) indicate that you have a baseline offset that you have not accounted for? 5. Equation 2: Spectral slope is defined as S here, Sg in text. 6. Page 12222, lines 16,17: What reference? Where was this reference obtained?? 7.CDOM absorption spectra: Why don't you plot both CDOM absorption and spectral slope vs. salinity on a single plot? 8. Page 12224, lines 1,2: A value for the absorption coefficient of 0.0461 m-1 translates to an absorbance of 0.002 for a 10 cm cell. This value must close to the detection limit of this spectrophotometer and thus be a highly tenuous measurement. You certainly are not achieving three significant figures in this measurement, lucky if it's one (see also below). 9. Page 12226, lines 9,10: Phytoplankton are not known to consume CDOM, which is what you appear to be stating here. 10. Page 12226, lines 19-24: This so-called good correlation is driven by a single high point, while the lower CDOM absorption measurements are highly suspect (see comment 8 above). Further, if the CDOM is being produced by phytoplankton, while do you see an inverse relationship with salinity (Fig. 7)? 11. There are several errors in the referencing in Table 1. In summary, in my opinion this paper needs major revisions before it could even be considered for publication.

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Please also note the supplement to this comment:
http://www.biogeosciences-discuss.net/10/C4980/2013/bgd-10-C4980-2013-supplement.pdf

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Interactive comment on Biogeosciences Discuss., 10, 12217, 2013.