

Interactive comment on “Influence of environmental factors on spectral characteristic of chromophoric dissolved organic matter (CDOM) in Inner Mongolia Plateau, China” by Z. D. Wen et al.

D. Graeber (Referee)

dgr@bios.au.dk

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General comments

This could be an interesting study from a place with rare data, however, the study is out of the scope for HESS. HESS publishes papers which investigate the interactions between hydrological and biogeochemical processes. The paper contains DOC concentration and DOM composition, as well as other chemical and physical data, but lacks any investigation of relationships of this data hydrological process data, since this was not measured. Furthermore it contains many minor to major problems, please

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see below for details. Inclusion of catchment hydrology measurements and a sharper focus would strongly improve this manuscript.

I strongly recommend to sharpen the objectives and it would be even better to include testable hypotheses. Until now, the paper lacks focus.

Please check the English language of the manuscript thoroughly. Several minor mistakes can be found throughout the text, especially for the word tense and wrong prepositions.

Many of your data in Figure 2 do not follow a normal distribution. Please redo the statistics after log-transformation of the data. Otherwise the statistics are not valid, since linear regressions assume normal distributions and homoscedacity.

Please check that the data in the PCA follows a normal distribution (as for the linear regressions above). Otherwise please use non-parametric alternatives.

Abstract

Line 4 and in further text: Please substitute the term "terminal waters" with "saline lakes" or similar, since it does not become clear from the abstract that you mean lakes when you write "terminal waters". Terminal waters could also be any other kind of water body in which the rivers end (e.g. another river or an inland delta).

Lines 24 - 25: The vital contribution of the study to the global carbon balance estimation becomes not clear from the abstract. Moreover, please avoid to start a sentence with "And".

Introduction

Lines 9 - 10: It is not the sole purpose of DOM to shield biota from UV radiation. It is one of its functions in aquatic ecosystems. Please rephrase the sentence.

Objective 1: You write that have the objective to characterize the DOM "...in plateau rivers and terminal waters in cold and arid regions". Are you investigating more than

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one region?

Methods

Page 5900, Lines 14 - 18: Please support your climate statements with climate data, e.g. "windy spring" is not an accurate statement.

Lines 13 - 14: How was made sure that all particles were in suspension?

Lines 21 - 22: 2 days are a long time for microbial processing to occur. Often most of the DOM processing happens in that time frame. How was made sure that the DOM was not processed from sampling until filtration? Have the samples been continuously cooled? At which temperature if yes?

Line 22: Do you mean "within" instead of "with"?

Page 5902, Line 11: How was the fit done? Which program was used? Why was the approach different to the one of Helms 2008?

Page 5902, Line 15: Why was 440 nm used as reference wavelength?

Page 5903, lines 18 - 19: Which regression coefficient is meant here?

Page 5903, line 21: Why was that inflation coefficient chosen?

Page 5903, lines 19 - 25: In which program were the CCA and the MC test conducted?

Discussion

Page 5908, Line: Please explain, how higher alkalinity may explain the inversed pattern.

Page 5908, Line 15: You cite only a small selection of case studies. Please support this statement with more and more general publications. Check out for example (in the supplement of this paper a large collection of DOC concentrations in streams and rivers is given): Alvarez-Cobelas M., Angeler D., Sánchez-Carrillo S. & Almendros G. (2012) A worldwide view of organic carbon export from catchments. Biogeochemistry

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107, 275–293.

Page 5908, Line 16: Please delete "obviously".

Page 5908, Lines 18 - 25: Please support these statements with literature.

Page 5908, Line 26: You probably mean decreasing acid deposition. Please rephrase the sentence.

Conclusions

Page 5915, Line 5: This snapshot study is not an intensive study. Spatial and temporal resolution are too small. Please rephrase.

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