

# ***Interactive comment on “Seasonal characterization of CDOM for lakes in semi-arid regions of Northeast China using excitation-emission matrices fluorescence and parallel factor analysis (EEM-PARAFAC)” by Y. Zhao et al.***

**Y. Zhao et al.**

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Responses to the comments: Thank you very much for recommending the reference “Mostofa KMG, Liu CQ, Yoshioka T, Vione D, Zhang YL, Sakugawa H (2013) Fluorescent dissolved organic matter in natural waters. In: MostofaKMG, Yoshioka T, Mottaleb A, Vione D (Eds), Photobiogeochemistry of Organic Matter: Principles and Practices in Water Environments, Springer, New York, Chapter 6, pp429-559.” The authors have

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read this reference carefully.

1) “fluorescence components” should be replaced by “fluorescent components” throughout the manuscript. Response 1: Thank you very much for pointing out the mistakes. Your kind suggestion has been adopted in the revised manuscript; “fluorescence components” were replaced by “fluorescent components” throughout the manuscript.

2) Author expression of the fluorescent components are needed to change throughout the manuscript. For example, in the abstract: “Two humic-like peaks C1 (Ex/Em= 230, 300/425 nm) and C2 (Ex/Em= 255, 350/460 nm)” here, two humic-like components, not peaks. Similarly, “and two protein-like B (Ex/Em= 220, 275/320 nm) and T (Ex/Em = 225, 290/360 nm) peaks”, here also the same mistakes and also author should separate them easily, not saying two protein-like components: first one should be tyrosine and second one should be “Tryptophan” based on the excitation emission fluorescence peaks. That should be needed to change throughout the manuscript. Response 2: Thank you very much for pointing out the wrong expression of the fluorescent components. The contents “Two humic-like peaks C1 (Ex/Em= 230, 300/425 nm) and C2 (Ex/Em= 255, 350/460 nm)” should be replaced by “Two humic-like components C1(Ex/Em= 230, 300/425 nm) and C2 (Ex/Em= 255, 350/460 nm)”. The contents “and two protein-like B (Ex/Em= 220, 275/320 nm) and T (Ex/Em = 225, 290/360 nm) peaks”, should be replaced by “and protein-like components (C3 and C4): tyrosine B (Ex/Em= 220, 275/320 nm) and tryptophan T (Ex/Em = 225, 290/360 nm).” throughout the manuscript. Your kind correction has been adopted in the revised manuscript.

3) “The humic-like component is a complex mixture of aromatic and aliphatic compounds fulvic acids and humic acids, which were originated from terrestrial materials or algal decomposition in the waters. While the two protein-like components consist of two dissolved amino acids, i.e., tryptophan and tyrosine...”. Wording and discussion are completely wrong in these sentences. Authors need more study in that issue to distinguish the terrestrial humic substances which are composed of humic and fulvic acids. But aquatic humic-like substances are of algal or phytoplankton origin.

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Authors need clarify in that regards. Second issue, I have explained in my second comments. “..the two protein-like components consist of two dissolved amino acid..” it is entirely wrong. These issues needed them clarify well. Response 3: Thank you very much for pointing out the wrong expression. Your kind correction was accommodated in the revised manuscript. The contents “The humic-like component is a complex mixture of aromatic and aliphatic compounds fulvic acids and humic acids, which were originated from terrestrial materials or algal decomposition in the waters. While the two protein-like components consist of two dissolved amino acids, i.e., tryptophan and tyrosine. . .” should replace by the contents “The humic components is a mixture of aromatic and aliphatic compounds from terrestrial substances composed of humic and fulvic acids, and aquatic humic-like substances of phytoplankton origin. While the protein-like components-tyrosine (B) and tryptophan (T) consist of dissolved amino acids.

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Interactive comment on Biogeosciences Discuss., 12, 5725, 2015.

**BGD**

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