

***Interactive comment on* “Technical note: Effects of iron(II) on fluorescence properties of dissolved organic matter at circumneutral pH” by Kun Jia et al.**

Anonymous Referee #2

Received and published: 24 June 2020

This study presents results on the influence of Fe(II) on the fluorescence properties of DOM. The concept is novel and addresses a relevant scientific question. However, the results fail to support the conclusions, specifically the PARAFAC modeling results. My recommendation is that the paper should be reconsidered after major revisions. I have three major comments and the rest are addressed in the comments of the attachment.

1. Papers with PARAFAC modeling results typically publish the modeled components and sometimes also the modeled excitation and emission spectra, or at least include them for closer inspection in supplementary material. I'm not sure familiar HESS audience is with PARAFAC, but seeing the modeled components help with understanding.

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There was also no mention made of your validation techniques. Validating a model can be very subjective. What steps did you take to resolve this dataset into 13 components? I found it difficult to comment on your PARAFAC results without first knowing how you arrived at your modeled results.

2. I strongly recommend defining optical measurements (absorbance and fluorescence), then describe why they are useful to study DOM, and then define the specific optical properties (FI, HIX, etc.) that were used diagnostically to describe DOM and Fe interactions in this study.

3. This paper could be vastly improved by a more complete and thorough literature review. Some statements were not attributed appropriately/completely. See comments within doc.

Please also note the supplement to this comment:

<https://www.hydrol-earth-syst-sci-discuss.net/hess-2020-150/hess-2020-150-RC2-supplement.pdf>

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., <https://doi.org/10.5194/hess-2020-150>, 2020.

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