

# ***Interactive comment on “Spatial pattern of $K_d$ (PAR) and its relationship with light absorption of optically active components in inland waters across China” by Zhidan Wen et al.***

**Zhidan Wen et al.**

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General comments: Underwater life is markedly influenced by the light field in the water. The spectral composition of light, its total amount, and change with depth are determined by the solar irradiance entering into water as well as by the optical properties of the natural water. Therefore, lake waters can be classified based on their optical properties and the classes indicate certain relationships related to ecological processes in these waters. The research topic is relevant because it enables better understanding optical properties in lakes as well as enhance the development of management strategies to restore and improve the ecological status of lakes In this

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manuscript, authors describe a new approach to predict  $K_d(\text{PAR})$  in turbid inland waters using the absorption characteristics of optically-active components (OACs) in waters. OACs information can be retrieved from widely available satellite images, thus allowing large-scale and high frequency assessment of photosynthetic active radiation and ecological health of lakes. To demonstrate the new approach, they used data collected from 141 lakes and reservoirs over a 3-year period. The study rationale and objectives are well stated and grounded in existing literature. Methodology is sound and adequately described, and conclusions of the study are supported by the data presented. The manuscript is publishable, but the text requires a great deal of editing. My detailed comments are listed below. Response: We thank the reviewer for the very instructive and helpful suggestions for revision. We have revised manuscript according to the reviewer's suggestion, and the details are listed as following. Thank you very much again for the positive evaluation and giving us the chance to further improve our manuscript. My detailed response to the comments are listed in the PDF file.

Please also note the supplement to this comment:

<https://www.biogeosciences-discuss.net/bg-2018-348/bg-2018-348-AC1-supplement.zip>

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