Biogeosciences
Discussions

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Interactive
comment

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.

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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 manuscript, authors

describe a new approach to predict Kd(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.

The abstract doesn't include all important from the paper: for example, the aim of the study was not even mentioned. The abstract should be more concrete too! "This study highlights the . . ."; ". . . findings which have application for monitoring Kd(PAR)..." In manuscript, why are you going from OACs to aOAC? Sometimes, you write OAC, other time you write aOACs. Unless there is a valid reason, it is important to use the same abbreviation throughout the manuscript. Line 38 and throughout the manuscript, the citations should be presented as the followed format (First author, et al., year), please do not list all authors in the text. Line 43 "optically active compounds" and "optically active components". You need to develop some consistency regarding the use of terms. Line 61-64 A reference is required here. Line 117-137 Condense these sentences. Limit your description to details that would help readers under the context of the study. This section is not your emphasis. You can reduce the length as soon as possible. Line 138-144 Same thing here. These details are superfluous. Please do not in so much detail. Line 160 I care how long the samples are stored in the field and how to be stored. Line 211 Has this classification been used before? If so, provide reference. In addition, and more importantly, this is the only time reference is made to CHAID approach in the entire manuscript. There is no reason to list the method, if it is not used in the analysis of data presented in the manuscript. Line 221 I think, it's more precise to say "point". An entire lake can be viewed as a study site. Line

227 That sentence is a repetition of information that has just been provided. Line 234 Sometimes you use trophic status but sometimes trophic state. Please the consistent expression for all the text. Line 314 What is the basis for using a TSM threshold of 3.8 mg/L to categorize the lakes? If that is based on a previous study, list the reference(s). If that is based on the analysis of the data from the present study, indicate where the information is presented. Figure 2 and Figure 8: I could not find in the text how the trophic states were defined.

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