

***Interactive comment on “Vertical distribution of chlorophyll <i>a</i> concentration and phytoplankton community composition from in situ fluorescence profiles: a first database for the global ocean” by R. Sauzède et al.***

**Anonymous Referee #1**

Received and published: 5 June 2015

The manuscript presents a new approach to obtain chlorophyll a global distribution, adding with a third dimension: depth. The Chla fluorescence database represents a considerable task, which will certainly be very useful for future studies on global phytoplankton distribution and climate studies. I consider that the length of the article appropriate, that the article is well structured and that figures and tables correct and of high quality. This work is strongly linked to a previous paper of the same team (Sauzède et al 2015, JGR). Some crucial information, namely regarding the characterization of FLAVOR is missing in the present article. I would suggest adding this information.

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tion. As well as a brief explanation how values of size-based community composition were obtained. Authors discuss thoroughly the fact that Chla fluorescence is not Chla, but just a proxy for Chla. However, a key issue is the strong dependence of Chla fluorescence on light environment. Authors do not specify if any correction/modeling was made to correct this effect. Or at least, they should mention this issue in Discussion. In conclusion, I rate this manuscript as Excellent, I think it will be very useful for other scientists, so it should be published in ESSD, after dealing with this important question.

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Interactive comment on Earth Syst. Sci. Data Discuss., 8, 365, 2015.