

Interactive comment on “Estimates of radiance reflected towards the zenith at the surface of the sea” by E. Aas

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I want to thank Referee #3 for his valuable comments. Here are my replies.

COMMENT #1: "The reference list can be extended. This study is essentially an overview paper on the water-leaving radiance estimate from an above-water radiometry instrument. There are quite several published studies in this topic. For instance, the AERONET-OC component protocol proposed by Zibordi et al. (2004) deals with the optimal case. In introduction, such contents can be added."

REPLY: The year 2004 in the suggested reference creates a problem. I am aware of two papers by Zibordi et al. in 2004; in *J. Atmos. Oceanic Techn.* and in *IEEE Trans. Geosc. Remote Sens.* None of these deals with AERONET-OC protocols, because

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the AERONET-OC was not established until 2006. However, the paper by Zibordi et al. from 2009 in *J. Atmos. Oceanic Techn.* is entitled "AERONET-OC: A network for the validation of ocean color primary products". Probably this is the one that is meant. I have now included this paper in the text and in the reference list. All together, compared to the original manuscript the following new references have been included: Deschamps et al. 2004, *Appl. Opt.*; Fougnie et al. 1999, *Appl. Opt.*; Hooker et al. 2002, *J. Atmos. Oceanic Techn.*; Morel 1980, *Bound.-Layer Meteor.*; Ruddick et al. 2006, *Limnol. Oceanogr.*; Zibordi et al. 2002, *J. Atmos. Oceanic Techn.*; Zibordi et al. 2004, *IEEE Trans. Geosc. Remote Sens.*; Zibordi et al. 2009, *J. Atmos. Oceanic Techn.*

COMMENT #2: "In the summary (section 4), one paragraph may be added to provide some concise statements to highlight the most important factors impacting accuracies in estimating the water-leaving radiance from the nadir-viewing above-water radiometry in terms of this study. It is valuable for potential readers to understand how to improve estimate of the water-leaving radiance."

REPLY: In the present case I think there are two types of errors, both of equal importance. The first type depends on the accuracy of calibration and readings, and possible errors due to the set-up during the field experiment. The other type depends on the ability of the applied model to describe the real conditions. I have now added a paragraph where I summarize what I think are important points during the field work, and I have emphasized the need for testing and improving applied algorithms by validation experiments.

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