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

**Anonymous Referee #3**

Received and published: 21 July 2010

This paper provides a thorough overview of the theoretical relations to estimate the radiance component contributions (sky, sun glitter, foam, and water-leaving) reflected towards the zenith by a wavy sea surface. The radiance viewing geometry considered in this paper deals specifically with the case of the nadir-viewing of an above-water radiance sensor. This viewing geometry is not the optimal one to estimate water-leaving radiance (Mobley, 1999) but is a quite common ship-mounted above water radiance sensor setting. A set of relatively simple theoretical relations given in equations (19) (22), (27) and so on, are tested and supported by observational datasets. The results are well presented and the conclusion is solid. The content of this paper is definitely valuable in the ocean color remote sensing calibration and validation community. The manuscript is very-well written in general. The following comments may improve the manuscript in a minor revision.

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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.

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.

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Interactive comment on Ocean Sci. Discuss., 7, 1059, 2010.

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