

Interactive comment on “On the role of the seawater absorption to attenuation ratio in the radiance polarization above the Southern Baltic surface” by Włodzimierz Freda et al.

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Received and published: 5 April 2019

Dear Sir/Madam

We are grateful that Reviewer 2 commented on the second version of the article in which we have included a number of corrections suggested by the Reviewer 1. Reply to the comments contained in the review 2: 1. Assuming, according to Reviewer 1, that the contribution made by section 3.5 of the manuscript “is marginal at best and most of the conclusion are known”, we have removed this part of the article without discussion with comments 32-37. We still think that the discussion of the direction of the highest polarization radiance could be meaningful for rough sea surface. However, it would

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require considering more SZAs, and that is why we decided to include such discussion in a separate article. 2. The comment regarding additional depolarization at low sun position and strong wind (high waves) is helpful. Our Monte Carlo algorithm does not take into account wave heights, and whitecaps, but only the slope of the wave during transmission/reflection from the surface. We do not take into account the additional depolarization effect and information about this has been added to the article (see red text added at pages: 5, 17 and 21) 3. We agree that the results of our modeling should be universal, independent of the region. However, our IOPs came from measurements made in the Southern Baltic, where the absorption and attenuation values are high in comparison to typical oceanic waters, that is why we decided to keep this information in the title. 4. Separating the impact of IOPs and the angular position of the sun is a good idea. However, we originally wanted to show the seasonal variability of the upwelling polarization radiance above the surface of the Baltic Sea. In the shortest days, the sun reaches, unfortunately, only 12 degrees above the horizon there. We therefore decided there is no sense to use the variability of the sun position for winter IOPs.

Yours faithfully Włodzimierz Freda

Please also note the supplement to this comment:

<https://www.ocean-sci-discuss.net/os-2018-127/os-2018-127-AC3-supplement.pdf>

Interactive comment on Ocean Sci. Discuss., <https://doi.org/10.5194/os-2018-127>, 2018.

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