Interactive comment on "An interactive ocean surface albedo scheme: formulation and evaluation in two atmospheric models" *by* Roland Séférian et al.

Anonymous Referee #1

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The authors present an interactive ocean surface albedo scheme that is based on pulling together results from previously published studies. Nevertheless, for the two atmospheric models (AGCMs) that is applied to it represents a substantial improvement. The presentation has a clear layout and comprises the development of the scheme itself, its implementation in the AGCMs, evaluation of the analytical results, evaluation against observations (both remotely sensed and ground-based), and finally an evaluation of its performance in the AGCMs against the previously used schemes. While there are still obvious shortcomings of the new scheme, which the authors discuss, it still represents a very clear improvement.

In my view the ms. is excellent with regards to all four review criteria for GMD. I will suggest a few points for improving the ms. below; these consitute a minor review in my opinion.

1) General remarks

I am wondering whether it could be interesting to compare the OSA parametrization developed here to other state-of-the art AGCMs, given that the previously used schemes in LMDZ and ARPEGE were somewhat outdated. Since the authors work within the CRESCENDO framework, they might want to consider some of the other AGCMs used in CRESCENDO for that purpose.

Section 6. The comparison with the ground-based data (Fig. 6) shows a large discrepancy in the albedo PDF around the value of 0.06. While the authors discuss the general problems of comparing a model grid-cell average with observed point values in the last paragraph of section 6, I would think that this feature deserves more explanation. Perhaps the modelled peak in the PDF is flatter in higher-resolution model runs?

2) Specific remarks

l.102 This paragraph needs updating to reflect the current structure of the ms.

l.346 "i.e." I think "e.g." fits better here.

Figure 4: the legend in the panels needs updating with regards to the referenced papers.