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Atmospheric Measurement Techniques Discussions

Interactive comment on "A sea surface reflectance model for (A)ATSR, and application to aerosol retrievals" *by* A. M. Sayer et al.

A. M. Sayer et al.

sayer@atm.ox.ac.uk

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The authors thank the three anonymous reviewers for their comments on the manuscript. Our response to this review is given below.

Review 2.

"1. Page 1207, lines 4 and 5: "Mischenko" should be "Mishchenko"."

Our apologies; this has been corrected in the revised version of the manuscript.

"2. page 1042, 2nd paragraph. The authors focus on case I waters which are usually

open (deep) oceans and thus the bottom reflectance formulations on page 1043 are not necessary."

This is correct, although we wished to present a general formulation before dealing specifically with open oceans, as this is not often specifically addressed in previous works. The text has been clarified in the revised version of the manuscript.

"3. The authors adopted the Cox-Munk wind-anisotropic glint model in this work. Is there any wind-direction effect in this sea surface BRDF model? For example, if one plots directional-hemispherical reflectance as a function of wind angle (with respect to sun or viewing azimuth, for example) and solar zenith angle (similar to Fig. 5), is there any regular pattern?"

There are wind-direction effects in terms of the slope components (p. 1038, equations 11 and 12). The directional-hemispherical and bihemispherical reflectances will be independent of wind direction because their calculation involves integration over relative azimuth angles (p. 1033, equations 3 and 4).

"4. For Figs. 11-14, I would like to see more specific information such as geo-locations, sun-sensor geometry and wind speed to assist the reader. For example, a table indicating the typical or maximum/minimum wind speed accompanying each plot will be helpful."

Figs. 11-14 have been redrawn to include geolocation information, as well as the surface reflectance for other AATSR swaths in the region shown for that day. Angular and wind speed information have been added as an additional figure in the revised version of the manuscript.

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