The lifetimes and potential change in planetary albedo owing to the oxidation of organic films extracted from atmospheric aerosol by hydroxyl (OH) radical oxidation at the air-water interface of aerosol particles

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We thank the reviewer, and the editor for their time and comments, which have helped improve this paper.

I consider the majority of the comments settled in the revised version, except the point of representativeness of the conditions of the insoluble extracted organics in the trough for the conditions under which the same components were exposed to the surrounding gas phase while in ambient air.

Both reviewers seemed to understand that spreading the extracted component on the water surface in the trough leads to a monolayer. However, in the particles, from which these components were extracted, they may not have necessarily formed a monolayer but may have been part of a complex morphology. This would mean that they may have a different lifetime with respect to reaction with OH or also with respect to their contribution to the optical properties. It seems that the present experiments are certainly representing the situation when ambient particles are activated into cloud droplets, so that these insoluble surfactants can spread on the surface of the droplets.

I suggest that a caveat about this is included in the discussion and conclusions, and the tonality of the abstract adapted to this.

The following text has been added: “Although Fig 1 demonstrates that the material extracted from atmospheric aerosol produces a stable thin film at the air-water interface and thus may form these films on aqueous droplets in the atmosphere, it does not necessarily imply that the aerosol from which these insoluble surfactants were extracted had such a monolayer and may have had a more complex morphology.”

An additional point helping to clarify would be to mention the mass fraction of the material spread in the trough of the total particle mass from which it was extracted.

The mass fraction of the spreading solution is not precisely known as enough material is added to achieve the required surface pressure, but an estimate was included in the last revision and identifies the mass per unit volume as approximately 7×10^{-5} g ml^{-1} with the following text in line 150: “A similar surface pressure produced by either a monolayer of fatty acid molecules like oleic acid would give a surface coverage of $\sim 2 \times 10^{18}$ molecule cm^{-2} , (King et al., 2010), about 16 µg of material, or by using the mass density of the spreading solution ($\sim 7 \times 10^{-5}$ g ml^{-1}) of similar aerosol extract (Shepherd et al., 2018) to those used here demonstrates about 10µg of materials was added to the trough. ”

The following changes were also made: “TEXT” removed from optional copyright statement. Crossing red and green plots changed on Figures 1,2 and 6. Figure 3, the marker shape is changed as well as the colour. Figure 6 has different marker shapes as well as colours.