

Responses to referee and editor comments

Adam Sokol

- "grid length" changed to "grid spacing"
- Lines 631–632: The last part of the sentence should not have been there. Now removed.

Karol Ćorko

- Point 1 about PDFs: A continuous PDF can have values above 1. Let's assume that some length has an uniform distribution between 0 and 1 mm. This PDF would have the constant value of 1000 1/m between 0 and 10^{-3} m (zero elsewhere). This PDF integrates to one. However, the PDF could very well be defined or plotted in terms of μm . Its non-zero values would then instead be 10^{-3} 1/ μm . We hope this small example clarifies that values above one in Fig 3a not necessarily means that there is an error, and the values also depends on the unit. Formulating this answer made us aware of that the unit of the PDF in Fig. 14 is lacking. This error has been corrected.
- Many thanks for checking our values carefully! Please note that the mean in Table 4 of DARDAR and 2C-ICE is 0.130 kg/m². Anyhow the text was misleading. The 3% in Sec. 5.1 was a typo (that we for sure should have noticed), the correct value is 10%. Still, the scaled lower limit of 0.082 kg/m² was correct (obtained as $0.130 * 0.9 * 0.7$). In addition, to make the reasoning clearer, Sec. 3.6 now ends with specifying the target range for quasi-global means. And these values are repeated in Sec 5.1.
- The introduction of acronyms has been revised, and changes have been made as suggested. In one case (NCEP/CPC), the text was changed to instead use a reference.

Blaž Gasparini

- Thanks for spotting the error in the email address.
- It has been our plan from start to share code and data after acceptance, but we have missed to clarify this. As we now hopefully is very close to acceptance, we have now uploaded material to Zenodo. Information added to the manuscript.