

Interactive comment on “Aircraft-based observations and high-resolution simulations of an Icelandic dust storm” by A.-M. Blechschmidt et al.

Anonymous Referee #1

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General comments:

The paper presents new modeling and aircraft observation studies of an Icelandic dust. The results are valuable in respect of regional modeling and dust transport. Majority of the up-to-date regional models disregard Iceland as a significant source of the dust, so this paper could bring a considerable progress in the research area. In addition, paper is well-written and easy to follow. The key concepts were explained and only minor errors were observed by this reviewer.

Technical comments:

Flight descriptions should be moved from Introduction to Methodology section or similar
C2600

(Starting from P7950, L22).

If available, black carbon data could give an additional confidence in the absence of contribution from anthropogenic sources, either from aircraft or observation stations (P7953, L18).

To my opinion, correct representation of a vegetation mask for Icelandic vegetation is an important result (P7955,L10-14) and should be mentioned in the abstract or/and conclusions.

Quantification (at least an approximate one) of the errors arising from the different sea surface temperature would add more confidence in the model results (P7956, L25).

P7960, L5 true only for the 400m height.

P7964, L7 An improvement of MPR over OPR should be stressed rather than a good agreement, as while reviewer acknowledge the significant improvement, the agreement is still not good, especially for the heights more than 400 m.

Technical corrections: P7951, L6 missing date in Ref. P7956, L23 diameters should be between 0.1 and 1 micron Fig. 11 and 12 Additional information on how particle mass mixing ratios were found should be provided in the “Aircraft data”.

Interactive comment on Atmos. Chem. Phys. Discuss., 12, 7949, 2012.