

Interactive comment on “Forecasting for a Lagrangian aircraft campaign” by A. Stohl et al.

A. Stohl et al.

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We would like to thank the reviewer for his positive review.

1. Specific comments

We agree that somewhat more information is needed here. We had actually written "65 cases from six different flight combinations", but without giving more details about which combinations these were. We will list the flight dates in the revised version of this manuscript. The 65 cases are not truly independent, because most of the combinations occurred between “neighboring” 1-minute average positions of two matching flights. Even more so, the same upwind data point could match with several downwind points. If these cases are counted only once, then the number of our best matches is actually only 20 (this is how error bars in Fig. 3 were calculated). This small number shows

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the limitations of the NARE 97 dataset for verifying the forecast system. The number of matches, of course, increases dramatically when the matching criteria are relaxed, as in Fig. 3. Then, typically thousands or even ten thousands of matches (hundreds to thousands when upwind points were counted only once) were identified. Note that a typical NARE flight took about 8 hours, yielding 480 1-minute averages. In total, almost 7000 flight minutes were available, each of which could potentially match with all the other points (except that some flights were temporally too far apart from each other).

2. Technical corrections

p.6: thanks, this will be corrected.

p.7: We agree. This will now read: Note that this effectively also reduces the number of cases where particle trajectories diverge rapidly, which often also indicates that the errors in the simulated transport are large.

p.13: True. This will now read: A likely reason for this further reduction is that the centers of pollution plumes by their very nature are not so close to air mass boundaries, where particles diverge rapidly (Cohen and Kreitzberg 1997), where mixing is strong, and where errors in the simulated transport are likely largest.

Fig.3: Thanks. Corrected.

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