

Dear Giovanni,

I have received two reviews of the latest version of your paper. The referees are the same as those of the previous version, with the same identifying numbers.

Referee 1 makes only one comment (but also says that he/she may have editing comments for a possible further version). That comment is that the estimation problem you consider, in view of the dimension numbers you give, is largely underdetermined, and that the results you obtain are determined much more by the first guesses and the associated error covariance matrices (well, an analogue of such a matrix in the case of DBFN) than by the observations. He/she considers that additional experiments, with higher temporal density of observations, are necessary in order to really assess the compared performance of DBFN and 4DVar.

Referee 2 is more critical, and actually recommends rejection. He/she gives a number of comments, stressing what he/she considers as a lack of a proper theoretical basis for DBFN, as well as a number of obscurities.

I think most of the comments of the two referees are justified. I however consider there is material in your paper that is worth publication, and I will not follow referee 2's suggestion for rejection. In particular, the lack of a solid theoretical basis is not in my opinion a good reason for rejecting the paper if numerical results show that DBFN is capable of producing, at a lower cost, results that are of similar quality as those of 4DVar. But, as requested by referee 1, please perform additional experiments with a larger amount of observations. I understand it may be very inconvenient to perform such experiments (your codes may not be easy to use any more), but I think they are necessary, and I hope you will be able to submit a new version.

If you do so, please join explanations on how you have dealt with referee 1's request. You may wish also to respond to reviewer 2's comments, but (with the possible exception of his/her comment on the inflation parameter  $\gamma$ ), I will not consider such a response as necessary for acceptance of the paper.

I look forward to receiving a new version of your paper,