

Dear Olivier Talagrand,

We have made changes to the article accordingly to your comments.

In the following we describe the changes and where they have been made in the manuscript.

1) We have rewritten the paragraph describing the figure 6 and we have changed its caption. See lines 503-508.

2) You are right, the algorithms were cycled accordingly to the description given on the section 5.3. The figures you have mentioned show the forecast rms error calculated from the sequence of assimilation cycles, i.e calculated from the forecasts that were initialized with the analyzed fields. Thus, we have changed the text to make it more clear on lines: 512-514, 547-548, 559-560, 599, and in the captions of the figures: 7,10,11,13.

3), 4), 5), 8) and 9) We have changed the text accordingly to your suggestions.

6) To make more clear what is the ONDG algorithm we have changed the text to: "It is worth noting that in Sect 6 we also apply this update scheme to an ordinary direct nudging experiment (ONDG). In this case, there is no backward integration, there is no iterations and each observation is used only once. Accordingly, the parameter γ is equal to one." See lines 387-389.

7) We have changed the text. Now F is used for the "full" model and \tilde{F} for the model without diffusion.

Giovanni Ruggiero