

## ***Interactive comment on “Assimilating monthly precipitation data in a paleoclimate data assimilation framework” by V. Valler et al.***

### **Anonymous Referee #2**

Received and published: 18 March 2020

This is a good paper that is relatively straight-forward. I think the result about assimilating wet days vs precipitation amount is particularly useful. I only have a few suggestions for clarification and improving the presentation of the results.

I.89 Could you clarify that this is the traditional Gaspari-Cohn localization function with a specific cut-off length (i.e., it is zero beyond some specified distance)?

I.156-158 What's the justification for assimilating the observation types in this order? I would have guessed that one would assimilate the observations with the longest localization length first (i.e., pressure)?

I.172 Replace "Besides" with "In addition"

Discussion of Figs. 3 & 4 I found it difficult to assess some of the comparative state-

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ments made about these results based on the data present in the figures. The maps give an idea of what the data values are, but unless they are compared with something like box plots then it's hard to tell which option/experiment is better or best. For example, statements are made about one choice of localization length being better than another, but I couldn't tell if that was really the case given only the maps; the distributions of the data values need to be compared more quantitatively.

Figs. S1 & S2 Can you label which columns are which months?

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Interactive comment on Clim. Past Discuss., <https://doi.org/10.5194/cp-2019-137>, 2019.

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