

## ***Interactive comment on “Variability of aerosols forecast over the Mediterranean area during July 2013 (ADRIMED/CHARMEX)” by L. Menut et al.***

**S. Kazadzis (Editor)**

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Dear authors,

Here is an additional document with suggestions, trying to summarize and smooth a bit the reviewer comments.

General comments

I agree with the two reviewers that the document needs improvement on the English language. This has to be fixed in the revised manuscript. This problem has also an impact on the discussion of the results.

I do not agree with a point of the reviewer that this is exactly the same work as the  
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previous Menut et al paper as this is an evaluation of the forecast scheme of the two models just using the same data. However, I do agree with the fact that there is a duplication of figures etc. So I suggest to focus on the comparison itself and not to duplicate time series etc.

The presentation and the form of the sections and sub-sections can be significantly improved. AOD and AOD maps can go together, also meteorological parameters, emission, aerosols can be the three main sections. Repetition of time series and variability in every section can be avoided.

The term variability is used in a wrong way most of the times in the manuscript, this makes it very difficult for the reader to follow arguments about model-measurements differences and sources of uncertainties. (see also below)

If the topic is accuracy of aerosol forecast then i miss the impact on the accuracy of the emissions and the meteorological parameters on the aerosol forecast model accuracy.

Title: The current title does not described the context of this work. I would use simply an evaluation of wrf and chimaire over mediterranean for July 2015. Or something like that.

Abstract "The goal of this study is to know the reason why the model does not always simulate in advance what is finally observed: is it due to systematic biases in the models used or to a too large variability due to the real non-linear nature of the meteorology and chemistry?"

This is a difficult question to answer. I would rephrase this as a direct sentence on the objectives of this project which is more or less the presentation of the performance of the models used and the investigation of the reasons behind observed deviations.

I would add some numbers in the abstract in order to include information on the final accuracy and the main findings. The abstract now it is more or less described in a “general” way.

Introduction 10343 line 26- Both reviewer's do not like the question that is raised here. I would say that the question itself is not easy since it is not easy (or possible) to clearly separate model errors and the (atmospheric) system's non linearity. In addition, I would say that if this is really the question you want to raise then it is not answered by this paper.. I would make things more easy and I would suggest that you are searching for model-measurements deviations and the quantification of the sources of errors.

Section 4 I would name this section Time series and statistical results. I would also add a second paragraph describing the way that you are presenting the analysis. Time series, statistical results, statistical parameters used, short discussion, more discussion in the conclusion section etc.. Also you don't have to mention variability in every paragraph but just the variable name would be enough There are several cases in the text that the discussion is difficult to follow: For example: "Figure 2 shows that the variability between the forecast leads is lower than the differences between the observations and the model." The variability between two things have no meaning, moreover if these two things is a. a forecasted parameter and b. the difference of this forecasted parameter with the measurement. In general the term variability is misused throughout the document. I would suggest to refer more to the difference of model vs forecast. If this parameter is highly variable means that the variability of each of the parameters (forecasted and measured) differs.

There are several minor comments raised by the reviewers that have to be taken into account.

I would suggest a major revision including all the above. I do agree with a reviewer comment that the material exist but is not publishable in this form. Practically after this new revised document is ready scientific points raised here and in the reviewer's reports could be answered within the responses to the reviewers accompanied by the full new manuscript.

best regards SK

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Interactive comment on Atmos. Chem. Phys. Discuss., 15, 10341, 2015.

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