

Interactive comment on “The Finokalia Aerosol Measurement Experiment – 2008 (FAME-08): an overview” by M. Pikridas et al.

M. Pikridas et al.

spyros@chemeng.upatras.gr

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1. Page 6650-51: *It remains unclear for the reader how the five source regions have been defined from trajectories, especially when the source areas are of very different geographical extent (e.g. Athens vs. other continental regions). Please add a few explanatory lines on this.*

We have added an explanation of our algorithm for the categorization of the source regions including a flowchart (new Figure 2).

2. Page 6652: *It is stated that air mass origin was related to temperature and RH only in case of Africa. What is the actual meaning of this statement?*

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It means that there was no correlation between the local temperature and relative humidity and the source area affecting the site. Africa is the exception because air masses from Africa, when they arrive in Crete, are accompanied by higher temperature and lower RH. This is now explained in the text.

3. Page 6656: *The information given in section 5.6 is totally useless as presented in current form. This section should either be removed altogether or, alternatively, more quantitative information on the aerosol water content should be provided. It is a pity that the measurement results are not compared to other measurements conducted over Europe (or elsewhere) in any way. A very brief comparison of at least the following quantities would be very interesting: PM mass concentration and related mass balance, Cl deficit in sea-salt particles, OC/EC ratio, WSOC fraction of OC, and particle number concentration.*

The section 5.6 was removed. Some information about the water is now included in the last paragraph of the inorganics section 5.4. The details of this work will be discussed in a forthcoming publication (Engelhart et al., to be submitted to ACPD).

Comparisons of our work to the concentrations in other sites based on the work of Putaud et al. (2004) and Van Dingenen et al. (2004) have been added to the revised manuscript.

4. Page 6658: *What do the authors mean by "retroplumes"?*

A definition of the term has been added to the paper. The source region analysis was not conducted using trajectories but retroplumes. Retroplumes are plumes that depict how much a specific area on the map has contributed to the aerosol content of the target point (in our case Finokalia). Because this plume is in backward mode it is called retroplume. It is practically the composite of thousands of trajectories that account for atmospheric dispersion and advection.

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5. *In their present form, conclusions made on page 6658 are pretty thin. The authors should put a bit more effort to summary the main scientific findings related to these measurements.*

We have added to the conclusions section text summarizing some of the findings of FAME-08.

6. *The general structure of the paper should be improved/modified. First, I do not really think that 6-line site description deserves a section of its own (section 2). This information would fit much better into section 4 before introducing the instrumentation. Second, the authors might consider presenting the program objectives (section 3) already in introduction (section 1). Third, both the end of section 4 (source region analysis) and beginning of section 5 (statistical analysis) contain material that does not really fit with the title of these sections. Clearly, this material would be under the title: data analysis.*

We have reorganized the manuscript following the reviewer's suggestions. The site description is now a subsection in the Measurements section. We have created a Data Analysis section and moved the corresponding material there. We would prefer to keep the objectives separate, given that they allow the reader to see the big picture of the study and its design.

7. *Page 6649, line 7: "PM size distribution" gives usually an impression of a mass size distribution, so it is a bit strange that this term is used as a synonym to the particle number size distribution.*

We have rephrased this to clarify that it is the number size distribution.

8. *Page 6649, lines 8-9: AIS measures the number size distribution of charged particles, not that of total particles like SMPS does. Please add this information into the text.*

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Done.

9. *Page 6656, line 11: "that period"? What time frame are the authors referring to?*

FAME-08. "That period" was replaced by "FAME-08 period".

10. *Page 6658, line 13: should be "average ozone concentration".*

Done.

Interactive comment on Atmos. Chem. Phys. Discuss., 10, 6641, 2010.

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