

***Interactive comment on* “The representation of dust transport and missing urban sources as major issues for the simulation of PM episodes in a Mediterranean area” by E. Flaounas et al.**

Anonymous Referee #2

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General Comments

Using the CHIMERE model, this study examines PM₁₀ concentrations in southern France compared to surface measurements at six stations in the region. The study primarily focuses on two PM episodes in June 2006. The model is found to be deficient in its PM₁₀ concentrations during this episode, and the authors investigate this deficiency by considering (1) the lack of background, transported dust events and (2) the lack of consideration of particulate re-suspension as an aerosol source in the model. They find that by including dust events included in boundary conditions and an empirical formulation for “road dust” may greatly improve their model estimates of PM₁₀ relative to

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observations.

Specific Comments

Page 15296, Line 9: "... focuses on a summer particulate pollution episode ..." In the text you discuss two pollution events.

Page 15298, Line 3: "... have been shown ..." by whom? Some citations are needed here.

Page 15301, Line 10: What is primary particulate material? Is this black and organic carbon from fossil fuel emissions? Please be more specific here.

Conclusions section: It is important to put your work in the context of previous works. What have you added with this study? Are your results similar to other studies? Or are there contradictions with other studies?

Technical Corrections

Abstract

Line 11: "It aims at identifying the constitutive elements of this episode and to discuss its representation ..." should be "their representation" as the subject here is the "constitutive elements".

Paragraph 2, line 15 and 20: Reword so the phrase "in parallel" is not overused. Lines 18-20: You could assess this, or you do assess this? The phrase "this lack" is not specific; use "amplitude due to lack of diurnal variability" or some variation of this.

Line 21: Again, instead of "we could show" should be "we show." Introduction

Page 15297, Line 6: use a semi-colon instead of a colon (; not :)

Page 15297, Line 9: Exclude "Then," and start the sentence with "Epidemiological"

Page 15297, Line 12: "Recently, (Larrieu, 2007)" should be "Recently, Larrieu (2007)"

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Page 15298, Line 4: deep increases? perhaps “sharp” increases is a better term to use.

Page 15298, Line 23: “(among which SOA production)”; reword to “(including secondary organic aerosol or SOA production)”; always define an acronym on first use.

Page 15298, Line 29: Sentence beginning “Thus, ...” is a run-on and difficult to understand; reword.

Page 15299, Line 5: Change “2” to “two”

Page 15299, Line 14: Change “identifying” to “identify”

Section 2

Page 15299, Line 22: “South” should be “south”

Page 15300, Line 4: “North” should be “north”; do not capitalize cardinal directions.

Page 15300, Line 12: “...but also to long-range” change to “... but also due to long-range”

Page 15301, Line 11: change “-SOA-” to (SOA) or just say SOA if you define it previously.

Page 15302, Line 21: change “... from the wear (tires, brakes, roads) ...” to “from the wear of tires, brakes, and roads ...”

Section 3

Page 15304, Line 17: remove “well”

Page 15304, Line 24: “radiations” should be “radiation”

Page 15304, Line 25: “Such approach” should be “Such an approach”

Page 15305, Line 4: Sentence starting “Anyway ...” is a run-on and should be reworded; also, use of the word “Anyway” should be avoided.

Page 15306, Line 3: “founds” should be “finds”

Section 4

Page 15307, Line 23: “Southern Europe” should be “southern Europe”

Page 15308, Line 16: “influent” should be “influential”

Conclusions

Page 15308, Line 23: “we could show” should be “we show”

Interactive comment on Atmos. Chem. Phys. Discuss., 9, 15295, 2009.

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9, C3445–C3448, 2009

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