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Atmospheric Chemistry and Physics Discussions

Interactive comment on "The role of sea-salt emissions and heterogeneous chemistry in theair quality of polluted coastal areas" *by* E. Athanasopoulou et al.

Anonymous Referee #1

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Review of the paper "The role of sea-salt emissions and heterogeneous chemistry in the air quality of polluted coastal areas"; by E. Athanasopoulou et al.

The paper investigates the impact of open-ocean and surf-zone sea salt aerosols and their interactions with gas-phase chemistry on the air quality of coastal areas using a modeling approach.

General comments:

The manuscript is clearly written. However, the major concern is about the model evaluation, which, to my opinion, has not been properly done. The model is applied for

a very short period (1 day) and not in the period when the measurements are available. It is not justified why that particular day was chosen, and anyway the period should be chosen among the days when the measurements were collected. The paper can be published when a proper model evaluation is done.

Specific comments:

p. 3810 Line 15, "... CL06 is the only parameterisation that covers sub-micron particles."; This is not true, Martensson parameterisation does it and others as well; see O'Dowd and de Leeuw, Phil. Trans. R. Soc. A (2007) 365, 1753-1774, Marine aerosol production: a review of the current knowledge.

p. 3811 Line 10, The reference Vignati et al, 2001 is used in the session of applications at the global scale, but the paper does not address the model application at that scale.

figure 5, the are discontinuities present in the open-ocean formulation in the figure which are not physically correct, the formulation must be continuous

figure 8, I would like to see in figure 8 the entire speciation of PM10 including also EC, OC, this would give a more complete picture of the PM10 composition and also the SSA-derived component concentrations are confronted with the other species as well.

references: Shankar et al (2006) is missing in the reference list and Russell et al. 1986 is not mentioned in the text

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Interactive comment on Atmos. Chem. Phys. Discuss., 8, 3807, 2008.

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Interactive Comment