

Interactive comment on “Particle size distributions in the Eastern Mediterranean troposphere” by N. Kalivitis et al.

Anonymous Referee #2

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The MS deals with the particle number size distributions and their evolution in the Eastern Mediterranean. It is a valuable contribution to the growing literature on ultrafine aerosol particles. It contains remarkable conclusions from both the experiments and modelling approach. It should, however, be further improved before the publication in ACP.

General comment

1. It is not described in Sect. 3.3 how the authors estimated the PM₁ mass from the PM₁₀ mass and SDI data. They mentioned in Sect. 2.3 that the SDI sampler was used to determine the chemical composition of the particles. More importantly, the SDI similarly to all impactors provides results that are related to the aerodynamic

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diameter (AD), and hence, the PM1 size fraction is also connected to AD. Then the authors divide the PM1 mass by the dry volume obtained from the mobility diameter. The limitations of this procedure should be definitely explained and discussed in more detail.

Specific comments

2. The MS lists many experimental techniques in Sect. 2.2 and 2.3 whose results were not utilized or presented at all, and, therefore, they are considered to be redundant here. They should be removed to shorten the text.

3. For the size range up to 1000 nm (or more exactly 900 nm), the authors used electrical mobility diameter, while the number size distribution for coarse particles (for Fig. 7b, bottom panel) was measured by APS and, therefore, the size interval of 1-10 microm is related to AD. This should be stated in the text to avoid any possible misunderstanding.

Technical corrections

4. In many figures (i.e., Figs. 1, 3, 4, 6, 7, 9 and 10), there is no axis legend for the abscissa. They should be implemented.

5. Sect. 3.3, line 3: Replace "to" in "dividing PM1 to dry volume" by word "by"

Interactive comment on Atmos. Chem. Phys. Discuss., 8, 6571, 2008.

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