Atmos. Chem. Phys. Discuss., 8, S7257–S7259, 2008
www.atmos-chem-phys-discuss.net/8/S7257/2008/

Atmospheric Chemistry and Physics Discussions

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

N. Kalivitis et al.

Received and published: 18 September 2008

Response to Reviewer: We would like to thank the reviewer for his/her comments that have helped us to prepare this final version. Most of the suggestions have been taken into account and all raised issues are answered one by one. Minor comments have been also taken into account. Below is a point by point answer (ANS) to the reviewer comments.

Reviewer #2 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 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.

ANS: The transition from Aerodynamic diameter to mobility diameter was taken into account during calculations. This is now clearly stated in the manuscript (Section 3.3, 3rd paragraph, lines 3-5) with the appropriate reference (Gerasopoulos et al., 2007).

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.

ANS: We have removed all the redundant to our opinion parts of the manuscript as suggested by the reviewer.

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.

ANS: While fitting SMPS and APS data to calculate a single common distribution for the size range 0.018 micron to 10 microns we have taken into account the different deployed size segregation techniques and the cutoff diameter of 1 micron refers to Stokes diameter. This is now stated in Section 2.2, Paragraph 2, line 4 to 6.

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.

ANS:We have added all the appropriate explanations in the caption of each figure.

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

ANS: The replacement has been made

ACPD

8, S7257–S7259, 2008

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

ACPD

8, S7257–S7259, 2008

Interactive Comment