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Atmospheric Chemistry and Physics Discussions

Interactive comment on "Spatiotemporal variability and contribution of different aerosol types to the Aerosol Optical Depth over the Eastern Mediterranean" *by* Aristeidis K. Georgoulias et al.

Anonymous Referee #2

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The authors describe the spatial and temporal variation of aerosols over the eastern Mediterranean, using a variety of satellite and ground-based (AERONET) observations together with model results. Contributions of several aerosol types to the total AOD are analyzed. This is a very good paper describing how different sources of information can be used together and I recommend publication in ACP with only very few minor clarifications and editorial suggestions. Minor comments

Overall, suggest to: insert 'the' before 'Mediterranean' throughout the whole MS replace 'ocean' with 'sea' 6, 33 'such as' > 'such that' 7, 13 Li et al (2013) is missing from

the references 7, 27-28 needs editing 8, section 2.4: give the definition of the AAI (I assume you mean the absorbing aerosol index) and explain that is a qualitative measure for aerosol absorption, give a reference 8, 25 'is applied on spectral measurements from both TOMS and OMI sensor' > 'is applied to spectral measurements from both the TOMS and OMI sensors' 14, 5 is there a reason for these large overestimations of sea salt contribution to the AOD? 17, 21 is it useful to give both the EE and pIEE? They are not very different and in principle do not provide additional info for this kind of study, or does it? 18, 10 'about' > 'for the' 18, 16 why don't you use the same area as for DT? 18, 18 25x25 19,22 taking this into account 20, 26 and elsewhere throughout the MS (e.g. 30, 22): formulation. Due to the low precipation (removal) the AOD remains high, but actually the AOD is high because of emissions and atmospheric processes forming aerosol particles 21, 4 same as 20,26: the sources are what they are (important when large) but they do not become more prominent due to limited washout. Rephrase 27, 20 add 'with' after winter month 28, 33 remove 'region of' Figure 2: the text in the boxes is very small: could you make this larger? Figure 3: the headers above the text are difficult to read and not needed since they are all the same; removing them leaves more space to increase the font size of the statistical results given there. In the caption an expected uncertainty is mentioned (line 12) which does not occur in the text. Is this different from the EE, and if so, please explain how evaluated.

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