Atmos. Chem. Phys. Discuss.,
doi:10.5194/acp-2015-902-RC1, 2016

Atmospheric Chemistry and Physics Discussions

Interactive comment on "Detection of Saharan dust and biomass burning events using near real-time intensive aerosol optical properties in the northwestern Mediterranean" *by* M. Ealo et al.

Anonymous Referee #1

Received and published: 17 February 2016

General comments

1. This paper by Ealo et al. presents a very interesting idea for the real-time detection of dust and biomass burning events. However, one major concern I see with this technique is the difficulty to differentiate between the dust and biomass burning events, both dust and biomass being strong absorber in UV. This issue might be bigger in summer when the co-occurrence of SDE and Wildfire events may be highly probable. Due to re-circulation, these events may not be differentiated over prolonged time scales. 2. This technique make use of intrinsic properties of the aerosol species like Absorption, Scattering and Single Scattering Albedo Angstrom Exponents. However, these properties are influenced by environmental factors like temperature, RH, aerosol aging time,

etc., which is not discussed in this study. A part of difference in aerosol optical properties between MSY and MSA may be due to the fact that aerosol processing at these locations may be different and aerosol may have different properties. These concerns are highlighted especially during the re-circulation events. Please discuss.

Specific comments

1. The nephelometer instrument was calibrated only 3 times a year and zero adjust was carried out once a day may possibly insufficient for unbiased measurements. Some plots or data showing the stability of the instrument can be helpful in supporting the frequency of calibration and zero adjustments. 2. In order to help the reader, please provide average and standard deviation values in parentheses while comparing the optical properties in different events or between the two stations, 3. Line 511: "bellow" correction: below 4. Lines 592 and 593: please provide the abbreviated station names in the heading. 5. Lines 553- Lines 560: Thee fraction of BBOA and HOA in previous studies may be dependent upon the time of the year those measurements were made. So how fair it is to make those assumptions based on the observations in previous study? 6. Lines 651 and 678: "leaded" correction: lead 7. Supplementary tables S1 should be numbered S1 (a) and S1 (b) as they are discussed in the text.

Interactive comment on Atmos. Chem. Phys. Discuss., doi:10.5194/acp-2015-902, 2016.