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## ***Interactive comment on “A new algorithm for brown and black carbon identification and organic carbon detection in fine atmospheric aerosols by a multi-wavelength Aethalometer” by F. Esposito et al.***

**F. Esposito et al.**

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Received and published: 7 November 2012

We would like to thank the referee for the suggestions and comments.

The main purpose of our paper was to develop a method to detect, by means of an aethalometer, a change in the aerosol composition, in order to discriminate between the presence of Black Carbon only (see fig. 2 ), and the presence of a mixture of Black Carbon and other components. Of course the instrument itself is not suitable to identify

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the composition of the aerosol, but we think that our procedure could improve the information obtained by the Aethalometer. In fact our algorithm helps to identify changes in aerosol composition, as verified by comparing data collected during the maintenance period and during normal operation at the Oil pre-treatement center. Moreover, we think that our technique can improve the estimation of the UV component in cases of  $\text{Alfa} > 1$ : MAGEE procedure for UVPM estimation can give data strongly affected by a bias under the hypothesis of  $\text{Alfa} = 1$ . In figure 7 UVPM derived by both MAGEE and our algorithm is reported. It is evident how there are cases in which MAGEE procedure detects UVPM presence while ours not, or there are cases in which MAGEE procedure gives higher values for UVPM.

Finally, we will check the adopted symbols, according to already known terminology, and we will correct our paper according to the suggestions of the two referees.

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Interactive comment on *Atmos. Meas. Tech. Discuss.*, 5, 1003, 2012.

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