Atmos. Meas. Tech. Discuss., 8, C2782–C2784, 2015
www.atmos-meas-tech-discuss.net/8/C2782/2015/

Atmospheric Measurement Techniques Discussions

Interactive comment on "On the interpretation of the loading correction of the aethalometer" *by* A. Virkkula et al.

Anonymous Referee #2

Received and published: 31 August 2015

GENERAL REMARKS

The manuscript presents an in-depth analysis of approx. 18 months of aethalometer measurements of EBC mass concentrations in Nanjing, China. The analysis focuses on the investigation of interdependencies between the aethalometer compensation parameter k, the aerosol backscatter fraction, and aerosol single-scattering albedo, thus tackling an important parameter required for the analysis of aethalometer measurements.

The data analysis is scientifically sound, carefully conducted and convincingly presented. The manuscript demonstrates the effect of the backscatter fraction on the analysis of aethalometer data, including the multiple-scattering correction, and makes

a significant contribution to the important field of aerosol light absorption measurement.

While the study is built on a thorough and carefully conducted data analysis, the manuscript needs an improved presentation and a careful language check before being acceptable for publication in AMT.

SPECIFIC COMMENTS

The only specific comment aims at a more clear recommendation of how the findings of this study should be used in the future analysis of aethalometer data. Actually, the interdependencies between the aethalometer compensation parameter k, the aerosol backscatter fraction, and aerosol single-scattering albedo are analysed, but their potential implementation in a new data analysis algorithm is missing. A separate short section on this topic would enhance the usefullness of the study significantly and may be included into Chapter 3.

MINOR ISSUES

1| In the manuscript the term BC mass concentration should be used instead of BC concentration.

2| The term "darkness of aerosol" or "dark aerosol" is not very precise. The authors may use a more specific term like, e.g., "light-absorbing aerosol".

3| In all figures, the font size of axis labels should be checked, actually they are hardly readable.

4| Page 7380, line 22: please explain the parameters on which the fraction of light scattering s depends.

5|Please check carefully the use of English language: some examples are:

Page 7376, line 6, should be rephrased: "that the k value varies . . ."

Page 7376, line 8, should read "both at an urban and rural site"

Page 7377, line 3, should read “that site-related and seasonal . . .”

Page 7385, line 12, the expression “close to similar” should be replaced by, e.g., either “close” or “similar”.

Interactive comment on Atmos. Meas. Tech. Discuss., 8, 7373, 2015.