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Atmospheric Chemistry and Physics Discussions

Interactive comment on "Average molecular weight of surfactants in aerosols" *by* M. T. Latif and P. Brimblecombe

Anonymous Referee #2

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The paper presents interesting results regarding the nature of surfactants in atmospheric aerosols, correlating very well with previous studies. Elucidating on the possible origins and chemical/physical characteristics of surfactants in atmospheric aerosols is of much importance and the results presented here provide interesting arms of discussion for the atmospheric community as a whole. The authors show that the effect of surface activity tends to predominate in fine mode aerosol and that results correlate with previous findings regarding the importance of HULIS in particulate matter.

A review of the discussion of molecular weights and the organisation of the paper have been presented in some detail by the other referees and as such will not be restated much here. I do however have some comments regarding the implications of your findings which are perhaps not clear to the reader.

Firstly, i think perhaps a more thorough introduction to the known/unknown characteristics of HULIS would be beneficial to the reader as a whole.

Im not entirely sure the implications of your findings have been discussed in sufficient detail. For example,Section 3.1 The result suggesting that surface tension reduces with time is interesting. Under what conditions are these reported? For example, do you perceive an important kinetic effect which is liable to play an important role in the atmosphere depending on the age of the aerosol. I think this should maybe be discussed a little more. From a modelling perspective it is important to use accurate composition data before, for example, an analysis on cloud activation can be made.

I believe a general reorganisation of results, wich are certainly interesting, should be made using the comments of the other referees.

Minor comments:

Abstract first line: Sould read ‘surfactants in atmospheric aerosols were..’

Page 13807 line 16 ‘and represent’

Page 13811 line 13 – should read ‘indicates that surfactants were present..’

Page 13815 line 24 – The sentence should read ‘These results are similar to the concentration…which found higher amounts in solution…’

Line 26 – replace suggestion with suggesting.

Page 13816 – line 10 ‘The was also’ should read ‘There was also a relationship with DOC, although this may have been stronger when the amount of DOC was high’

Line 16 – replace ‘produces’ with ‘produced’

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Line 20 – remove ‘it is’

Interactive comment on Atmos. Chem. Phys. Discuss., 7, 13805, 2007.