

## ***Interactive comment on “Quantitative assessment of organosulfates in size-segregated rural fine aerosol” by H. Lukács et al.***

**H. Lukács et al.**

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Filter samples were also available and analyzed using the same analytical approach. However, the number of samples was small and thus the information obtained was limited compared to that available from size-segregated measurements. Particle bounce/loss on Al foil might be a problem but it most probably affects sulfate and organosulfate mass on each stage equally since the most particles are internally mixed. It is indeed an interesting new aspect that sulfuric acid acidity may not be needed for organosulfates and nitroxy-organosulfates to form from isoprene. This new aspect will be mentioned with references in the revised manuscript to be submitted for ACP. Similarly, possible formation mechanism will be discussed in more details based on the references suggested by three of the referees. Details on making the log-normal plot of mass size-distributions in Figure 2 will be presented as requested by two of the ref-

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erees. Other compounds (e.g. beta-pinene oxide and pinanediol) will be added as potential precursors with adequate references. Since data on TC on each stage are also available, it is possible to estimate which fraction of OC (TC) can be attributed to organosulfates. However, it can only be done with a very high level of uncertainty, since a mass-weighted average MW of all organosulfates and of organic compounds would be needed, preferably for each stage. While the latter can be estimated from available bulk measurements, organosulfate speciation measurements have been so far only qualitative and cannot provide the required information. Nevertheless a rough estimate will be provided in the revised manuscript. Concerning nucleation mode organosulfates the proximity of the detection limit indeed extended uncertainty ranges significantly and thus made our statements less conclusive for the very first stage. However, the fact that very low if any excess sulfate can be found on the second and third stages (with amounts well above the detection limits) may imply that our statement can be valid. Some words of caution, however, will be added to this section.

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