

Interactive comment on “Field and laboratory evaluation of a high time resolution x-ray fluorescence instrument for determining the elemental composition of ambient aerosols” by Anja H. Tremper et al.

Anonymous Referee #5

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The new version of the article has been greatly improved. Some modification have still to be done before publication: 1) In section 3.1 the authors should explicitly cite the fact that in XRF there are neither self-absorption problems for the medium-high Z elements nor matrix effects. There can be self-absorption effects only for low Z elements (the only one, which can be affected in their comparison, is Si) even with samples with high loading unless the deposit on a very small area. Those effects depend mostly on the absorption within the single particle therefore they are present also in the samples prepared by the authors. The use of self-made standard can be useful, but I do not

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see any problem in the use of commercial standards as it is done in many laboratories which routinely use XRF for aerosol analysis. 2) Again what is reported at the end of section 3.2.1 page 11 lines 12-13 is not correct (same comment as above) 3) Section 3.2.2: the use of Cl to calculate non sea-salt sulphate can give a strong overestimation of that component due to the possible volatilization of Cl in case of aged sea-salt as reported in many works regarding also the sites analyzed by the authors. Normally Na is used. The authors must make a comment about this 4) All the information reported by the authors are interesting and better explained in this new version. However, in my opinion, it cannot be neglected that the best way to assess the performances of the XACT spectrometer would have been to use a standard aerosol sampler (like one of those used by the authors), the proper collection filters (e.g. Teflon or polycarbonate filters) and XRF analysis of the collected filters. The authors should make an explicit comment about this.

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