

Interactive comment on “Source apportionment of elevated wintertime PAHs by compound-specific radiocarbon analysis” by R. J. Sheesley et al.

Anonymous Referee #2

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I read the article by Sheesley et al with interest, which assess the relative impact of residential wood combustions and traffic emissions using radio carbon analysis and compound specific radiocarbon analysis (CSRA) of the samples collected from a town in Sweden. However, the article is written very well and the application of CSRA techniques brings some novelty and but I have following reservations.

1.] What is the total number of sample? Based on the description it seems that only 6 filter (after mixing only 3) and 4 PUF samples were analysed. In general, this sample number is too small for any concrete scientific conclusions and for statistical analysis.

2.] Sampling period for filter is two weeks, which is exceptionally more than normal. Even a similar study by Kumata et al (EST, 40, 3424, 2006) used maximum of 7 days

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sample, which they also claim as unusual. Further they had in total 79 samples. As highlighted by Ravindra et al (AE, 42, 2895, 2008) and reference therein that unusual long sampling period may introduce both positive and negative sampling artefacts.

3.] A study by Khalili et al. (AE, 29, 553, 1995) identify that 3- and 4-ring PAHs contributes major fraction (75%) of wood combustion; whereas as 5- and 6-rign up to 15%. Further, an inventory of Breivik et al. (ESP, 9, 663, 2006) and a review (AE, 42, 2895, 2008) also identify residential sector as a major source of PAHs emission in Europe. These studies follow the similar conclusions including to regulate residential wood combustion.

Interactive comment on Atmos. Chem. Phys. Discuss., 8, 20901, 2008.

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