

SOIL Discuss., author comment AC3  
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## Reply on CC1

Claire Froger et al.

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Author comment on "Spatial variations, origins, and risk assessments of polycyclic aromatic hydrocarbons in French soils" by Claire Froger et al., SOIL Discuss.,  
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Dear Mr Delile,

Thank you for your comment and the link to your interesting paper. First, in our study, we used geostatistical modelling to predict PAHs concentrations at the scale of the country. Therefore, the maps presents the results of interpolated values between sites to show variations at a national scale. Localized sites highly contaminated by PAHs could not be evidenced due to the interpolation process. In addition, higher values of PAHs in SPM could be explained by multiples factors such as direct releases of PAHs into the rivers (from wastewaters or road runoff as you mentioned in you study) or the content of organic matter in SPM. Knowing the affinity of PAHs with organic matter, higher content of organic matter in SPM compared to soils would lead to higher PAHs concentrations. Nevertheless, PAHs concentration of 475 µg/kg in the SPM of the Rhône River and of 100 – 300 µg/kg in the soils in the regions append to be in the same order of magnitude. However, the comparison of soils and SPM implies a completely different study focusing on tracing the sources of the SPM in the Rhone river, identifying sources of particles and their respective contribution. Given those arguments, we find it difficult to strictly compare PAHs concentrations in soils and in the SPM of the Rhône River in the discussion as it will go a bit too far considering the purpose of the current study.

Thank you again for your consideration and your comment,

Best regards,

The authors