

Interactive comment on “High contributions of fossil sources to more volatile organic carbon” by Haiyan Ni et al.

Anonymous Referee #2

Received and published: 18 April 2019

In this manuscript, the authors report their results of an extensive measurement and analysis effort to assess the contribution of fossil sources to a fraction of particulate organic carbon, i.e., more volatile organic carbon, which they define as the fraction of organic carbon desorbing at 200°C in a helium stream. The combination of numerous analytical techniques, including ^{14}C analysis and $\delta^{13}\text{C}$ determination with statistical analysis is intriguing. The authors also discuss several aspects of data uncertainty, including e.g. positive sampling artifacts due to the adsorption of volatile organic compounds onto the quartz filters used for sampling and recoveries of mvOC during filter aliquot desorption. They also outline the influence of nuclear bomb tests in the 1960s and 1970s on the measured $^{14}\text{C}/^{12}\text{C}$ ratios. Further positive points are the detailed presentation of assumptions and estimations going into the calculations, and the ex-

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tensive supporting information. The scientific methods and assumptions are presented clearly and appear to be valid. In my opinion, the presented, well-written manuscript meets all requirements for publication in ACP. However, I am not that familiar with the term 'more volatile' organic carbon and thus I do not know how common it really is and if the title is self-explanatory in its current state.

Technical comments:

- 1) Please check the manuscript again for the proper introduction of abbreviations before they are used for the first time
- 2) Page 6, Line 12: You have diluted the CO₂ with He, thus it should read "CO₂/He" mixture, not "CO₂/H₂" mixture

Interactive comment on Atmos. Chem. Phys. Discuss., <https://doi.org/10.5194/acp-2018-1343>, 2019.

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