

***Interactive comment on “Non-target and suspect characterisation of organic contaminants in Arctic air, Part II: Application of a new tool for identification and prioritisation of chemicals of emerging Arctic concern in air” by Laura Röhler et al.***

**Anonymous Referee #1**

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I liked the paper. It is done on the high level both in terms of finding classic pollutants and identification of chemicals of emerging concern in Arctic air. The study looks pretty solid addressing relevant scientific questions dealing with atmospheric chemistry. A lot of new interesting data allows the authors proposing valuable conclusions and ideas for future studies. The authors cite a number of publications reviling earlier results. The title nicely reflects the essence of the study while the abstract provides the crucial information on the work completed. The manuscript is easy to read. No problems with

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language. Besides, the text is well illustrated. Surely it would be better to use high resolution instrument. Nevertheless the authors tried to extract the maximum information from the low resolution mass spectra. I found many novel interesting structures, which may be quite helpful in future studies. I did not find serious mistakes requiring major revision of the manuscript. Below are just two comments. Page 5, sect.30 and further - SUS and NTS data processing reduced the number of peaks requiring manual interpretation. How many peaks passed that stage? Were all the peaks which did not pass that process checked manually? The authors mention as difficult cases only poly-halogenated compounds, however due to coelution and low levels of many constituents their spectra are quite often far from being ideal. Manual interpretation is always useful. Page 6, sect.5 and conclusions, sect.20 - Mass spectrometrists often forget about the usefulness of the retention indices information. Nevertheless in many cases it may help a lot, providing crucial information or making structural elucidation more reliable. Unfortunately that approach was not used in the described study. The authors mentioned that the first column RT were not applied due to the specific type of the first column. In conclusions it is emphasized that in the further in-depth GCxGC-HRMS study a non-polar first dimension column, allowing application of the RT databases and RI prediction data, will be used. I would like to mention that second-dimension retention indices may be quite useful as well when using comprehensive two-dimensional gas chromatography (Mazur et al, J.Chromatogr. A, 2018, 1569, 178-185).

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