

Atmos. Chem. Phys. Discuss., referee comment RC2
<https://doi.org/10.5194/acp-2021-253-RC2>, 2021
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Comment on acp-2021-253

Anonymous Referee #2

Referee comment on "Measurement report: Receptor modeling for source identification of urban fine and coarse particulate matter using hourly elemental composition" by Magdalena Reizer et al., Atmos. Chem. Phys. Discuss., <https://doi.org/10.5194/acp-2021-253-RC2>, 2021

The manuscript presents a study to identify the sources of fine and coarse particulate matter based on high resolution sampling of elemental components in the city of Warsaw. The sample collection and the data treatment were carried out according to state-of-the-art methodologies. The manuscript is well organized and complete. The figures are of good quality and summarize the data properly. The discussion of some of the sources needs to be improved as pointed out in the specific comments. The text should be revised by a native speaker.

Specific comments

Line 81: the year should be between parentheses

Line 141: Maybe Belis et al., 2020 (<https://doi.org/10.1016/j.aeaoa.2019.100053>) is a more appropriate citation for this paragraph

Line 171: The authors should discuss what's the impact of the absence of such important components on the ability of the analysis to quantify sources

Line 222: Please, discuss if the soluble ions are comparable with the elemental determinations

Lines 220 – 228: This paragraph should go to materials and methods

Lines 249-251: This paragraph should go to materials and methods

Line 369: The bioavailability issue should be explained/discussed more in detail

Line 396: Although sulfate is a common component of biomass burning profiles, claiming this fuel is a major contributor to secondary sulfate should be better supported by evidence. Especially in an area where coal combustion, a well-known SO₂ source, is well documented.

Line 494: Consider calling this source mixed wood and coal combustion

Line 568: The aged sea salt contribution may be higher than the authors' estimations considering that what is identified as "road salt" has the highest shares in the three clusters originated in the North Atlantic

Line 580: I guess you mean "m above ground level" please, specify

Lines 615-617: This sentence is not clear, please, rephrase

Line 622: excluding the secondary aerosol

Table 1: you should point out when min values are below the detection limit here

Figures 4 and 5: Please, put the labels of the x axis categories also at the top for a better visualization.

Figure 7: I suggest to use the same colour for corresponding sources in the fine and coarse fraction.