Atmospheric
Chemistry
and Physics
Discussions

Open Access

ACPD

Interactive
comment

Interactive comment on "Contributions of Nordic anthropogenic emissions on air pollution and premature mortality over the Nordic region and the Arctic" *by* Ulas Im et al.

Anonymous Referee #1

Received and published: 13 May 2019

This work described the contributions of Nordic anthropogenic emissions on air pollution and premature mortality over the Nordic region and the Arctic. Although this study provides important results and is well written, there remain some concerns in the current manuscript. First, one issue is that the results are unsatisfactory discussed with only a few references in the case of premature mortality. Are the results coherent to other studies, years, countries? Which are the limitations of your method? Major comments: L113: Why 2015? Justify the selected year. L231: Why you use exposure-response functions for chronic mortality based on data from United States from the year 2002? Didn't you find any study from your Nordic region? What is about short-term exposure for PM2.5? Are the results from United States really applicable in the

Nordic region? How could influence the use of ERF from different studies? Why you use short-term effects only for specific pollutants and for others only chronic mortality? I recommend including table S2 as regular table, as only with this table the paragraph is understandable. The paragraph is not very clear. I would also include some limitation here about the use of exposure-response functions or discuss the limitation. Explain and justify the reason for selecting the specific exposure-response functions from these studies. Fig. 5-9: I think you should use stacked percent plot, which could help to compare sectorial emissions. In order to see the total, you could label each bar. In the actual form, it is not possible to compare correctly some sectorial categories. L448-: Why only PM2.5? NOx? SO2? O3? Please indicate the confidence interval for the mortality estimations, particularly in Table 4. The same for the cost estimations.

Minor comments: L77: please use capital letter for Primary PM2.5 (PPM2.5) L79: "secondary inorganic PM2.5 (SIA)" should it be secondary inorganic aerosol? L123: DHEM, although the abbreviation was defined in the abstract here you should repeat it for the reader. The same for EVA in point 2.2. It is not advisable to use abbreviations as titles. Fig1: Please use a better graphical representation. For example, treemap, circular packing or something else in which the graph is easier to read. L206: It should be "European Environmental Agency (EEA)". L232: remove last ")". L305: "eacvh" -> each; "Figure 4" If you use figure reference in text at beginning, it would be better the style "Figure X". Please, revise the whole document. L307: "The figure" -> the bars or graph?; subindex missing for PM2.5