

We thank referee #2 (RC2) for the thoughtful review of our manuscript and the constructive comments on how it could be improved. Our responses to the comments and the resulting revisions to the manuscript are listed below.

**General Comment 1:** An uncertainty analysis was not conducted as part of the current study. However, we have expanded the Discussion Section (Sect. 4) to discuss in more detail the sources of uncertainties, and the relationship between model performance and source attribution results both of which are influenced by these uncertainties. Also, please see the response to General Comment 1 to RC1.

**General Comment 2:** The reviewer has requested information on the composition of the vehicle fleet in different cities in Europe with a discussion on how this might influence the source apportionment results. This information is not available, because the emission inventory was made available to the AQMEII participants with sources contribution grouped according the SNAP classification, but without any additional information about the car fleet or other proxies introduced in emission computation. However, the MACC-II emission inventory (Kuenen et al., 2014) that was used for this project was constructed by using the reported emission national totals by sector. Therefore, for each country a representative car fleet was used. The manuscript has been revised accordingly in Sect. 2.1 to include this information.

#### **Specific Comments:**

All comments have been addressed in the revised manuscript:

- 1) As requested by the referee, boundary conditions are more precisely defined in the abstract and in the text.
- 2) Section 2.2 has been revised to provide more information on why model performance at RB sites is expected to be better than performance at UB sites.
- 3) The source attribution table captions have been updated to point out that the source contributions are provided in %.
- 4) A sentence on the source categories included in non-road transport has been added in Sect. 2.1.
- 5) This comment is already addressed in the response to General Comment 2 above.
- 6) The large non-road transport contributions in London are likely related to shipping activity along the Channel and the text in Sect. 3.1 has been modified accordingly.
- 7) Sect. 3.2 has been updated to cite 2 new references regarding the presence of fine PM in Saharan dust.
- 8) Sect. 3.1 has been updated to note that emissions from shipping and harbors are an important non-road transport influence for Oslo and Helsinki, along with a citation to a new reference.
- 9) Source apportionment can provide useful information to policy makers that can be used in designing control strategies. Our study provides this information but cannot make policy decisions, which require other considerations, such as cost-benefit analysis, politics, societal impacts, etc. We have revised the discussion in Sect. 4 accordingly.