Comments to the Author:
Dear Authors,

I have now received two reviewers' comments on your manuscript. Please address them thoughtfully (especially R2's Q5), and let me know if you have any questions.

Dear Min-Hui, dear reviewers.
Please find hereafter my replies to your additional comments. Note that in the revised manuscript, the previous corrections are highlighted in red and the new corrections in blue.

R1:
1. Section 2.1, spelling of DMS is incorrect.
It has been corrected.

2. Section 2.2, author used 2011 emission data to simulate 2016 case. Section 4.1 mentioned that the comparison between model and observation can be due to emission uncertainty. But this study does not include any discussions related to the emission uncertainty.
The following information **(in bold)** has been added:
"The TNO-MACC emission dataset for 2011 on 0.25° × 0.125° (longitude-latitude) resolution (Kuenen et al., 2014, see https://atmosphere.copernicus.eu/sites/default/files/repository/MACCIII_FinalReport.pdf) has been used and the forest fire emissions are from GFASv1.2 inventory (Kaiser et al., 2012) **as done in the companion paper and at the beginning of the development of the product. It is worth noting the use of a more recent CAMS emission product (CAMS-REG, Granier et al., 2019) has not been addressed in this work.**

With the corresponding reference:

Granier, C., S. Darras, H. Denier van der Gon, J. Doubalova, N. Elguindi, B. Galle, M. Gauss, M. Guevara, J.-P. Jalkanen, J. Kuenen, C. Liousse, B. Quack, D. Simpson, K. Sindelarova: The Copernicus Atmosphere Monitoring Service global and regional emissions (April 2019 version) Report April 2019 version, doi:10.24380/d0bn-kx16, 2019.

3.In Fig. 3, why can use of large city areas prevent non-linearity? Considering the emission characteristics, are the PM compositions reasonable? close to the real world observation?
A smaller area will be more influenced by external sources than a large area (such as 9 grid cells definition). Thus, it will increase the impact of non-linearity in the calculated sources.
It is also worth reminding that the forecasting system aims providing information on background concentration, so the emission characteristics and the composition are reasonable even in comparison with "real world" observations.
This system does not obviously provide concentrations and contributions at street-level.

4.Section 5.1. For Paris, the largest peaks are predicted on December 01st and on 02nd (e.g Fig. 2). On December 1st, the "City" contribution represented in average 44% of the PM10. Figure 2 only presents variation from Dec 2.
I have added the following information (in bold) in the sentence:
"On December 1st, the "City" contribution represented in average 44% of the PM_{10} **(see catalogue)."**

5. This study used an old scenario to demonstrate the impact. Authors need to include discussions about the more recent update regarding the system development, such as emission inventory, etc, in the manuscript.

Note there is a new information on the emission inventory, as mentioned in your comment (2).
In addition, the following sentence has been added in the conclusion:
"The use of more recent emission inventories such as CAMS-REG has also not been studied in this work."

R2:
1. The remark on the basis for the choice of the precipitation intensity has not been fully addressed. Please complete the answer and manuscript.
The following information (in bold) has been added:
"The intensity of the precipitation is assumed constant over all heights where they are non-zero **and is set equal to surface precipitation intensity**."

2. A short discussion on the choice of square shape for the areas (as in the response to referees) should appear in the revised paper.
The following sentence has been added in Section 2.2.:
"The advantage to have a city domain defined by the 1 grid cell or 9 grid cells, is to have a similar domain for all cities used for the comparison. By using the grid cells based on GADM definition, the size of the cities differs according to the administrative extension of each city."