The manuscript carried out monitoring and model assessments in a Brazilian city Curitiba focusing on PM 2.5 and Black Carbon emissions. It is an interesting and important research topic, however, there are information details lacking in the current manuscript and it is like a report instead of a research paper. There is a large block of text (for example in the discussion and conclusion section) which is difficult for the readers to follow.   I would suggest a major revision before we can consider for publication.

It is suggested that the authors would improve the manuscript by adding sub-headers at appropriate locations and also organize the tabulated data in form of bar/pie charts. Below are some specific comments:

Introduction:

- Page 2 line 6: "One Specific SDG indicator, 11.6.2, for meeting this goal is the annual mean level of PM2.5 weighted by population…" This sentence seems incomplete. Are the authors trying to bring out that the annual mean level of population weighted PM2.5 reaches a certain value would meet the goal? Please consider re-organize the sentence structure.

Section 2.1 Study Area:

- Page 4 line 1: The authors mentioned there are four automatic stations within the municipality of Curitiba and four in the industrial area of the nearby city of Araucaria and an analysis of PM10 and NO2 from the official monitoring network was performed for three years from 2013 to 2015. The analysis include the data from the four automatic stations within the municipality of Curitiba but does it consider the data from the four stations in the industrial area of the nearby city of Araucaria? If not, what is the reason for excluding them in the analysis? Also please clarify whether there are missing data?

Section 2.2 Study Design:

- Page 4 line 7: Please be specific measured data from which stations are validating the emission inventory?

Section 2.3 Emission Inventory:

- The emission inventory are developed mainly based on two economic sectors: industries and on-road transport.

  - ➢ Page 5 lines 5-8: Detailed data for industrial sources are lacking. Please summarize and supplement.
  - ➢ It is observed that data has been provided in Tables 1-3 for both public and private vehicles. Please supplement bar charts to these tables for better illustration. The data on public transportation are quite detailed but for private vehicles, it is recommended to report the total number/types of vehicles and average speed as now seem there is only emission factors for private vehicles as in Table 3. What about uncertainty analysis?
  - ➢ Page 5 line 23: Please describe more details about the VISSIM model and the corresponding input settings and data required for this model.
  - ➢ Page 5 line 25: Please provide information on the daily profiles adopted.

Section 2.5 Dispersion Modelling:

- The EDGAR-HTAP information include BC and OC emissions from what kind of sources, does the information include those BC release from vehicles and industries or wood burning within state of Parana?

- It is mentioned that Gaussian Dispersion model incorporates a diagnostic wind model that takes into account surface roughness and building heights. As the building morphologies of the investigated city, are quite complex revealed in Fig 2 (right). Do the authors require inputting surface roughness and building height information or construct the CAD city model for OSPM model? If so, what surface roughness profiles/values and assumptions do the authors made to input in the OSPM model? Please include in the manuscript.

- Would the justification of choice of BRAMS for regional scale modelling (P.6 line 27-29) be provided? How would be its accuracy compare with other major alternatives e.g. WRF?

Section 3 Results:

- Page 7 Line 28: There were no PM10 data reported from station CIC during the campaign period → Does it mean there is no PM10 release or there are other reasons behind? How about NO2 data at this station?

- Page 7 Line 32: Would the authors please provide more information on the variation in long range transported pollution arriving to Curitiba.

- Page 8 Line 21: Please describe what kind of technical failure caused the acquired data during fixed monitoring cannot be used.

- Section 3.4: It is mentioned that the street canyon dispersion model OSPM produced much smaller magnitude of PM 2.5 and BC compared to measurement and regression analysis has been carried out to obtain correction factors. Please provide some brief information on the way that regression analysis were carried out. Also are the correction factors applicable to other places in Brazil? Have the authors tried other dispersion models such as AERMOD, ADMS or CFD approach, which might improve the magnitude prediction?

- Section 3.4: Can the change of correction factor for BC for private vehicle emission by a factor of 5 be justified and conclude that it is not contributing by other factors like wrong fleet composition and modeling error? Is the new emission factor checked using an independent dataset of concentration measurement?

Section 4 Discussions and conclusions:

- This section needs to be better organized around the main conclusions and highlights. At the moment, there is a large block of text with many information which is hard for the readers to follow. Please add sub-headers at appropriate locations to break down the text and also present the important data in form of bar/pie charts instead of tables only. Please also list out important conclusions point by point and include a section on limitations of the study.

- Please add a sub-section that focus on discussion of comparison between model simulation results and measurement/monitoring data.

- EDGAR-HTAP gives only 0.1deg x 0.1deg resolution. Do you mean local industrial BC emission is low when compared to other BC sources in Curitiba by providing a simulated BC urban background (P.10 line 32-33)? Please justify?