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Atmospheric Measurement Techniques Discussions

Interactive comment on "Description and applications of a mobile system performing on-road aerosol remote sensing and in situ measurements" *by* Ioana Elisabeta Popovici et al.

Anonymous Referee #1

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Much progress has been maid on ground networks of surface PM2.5, aerosol optical depth and lidar, however, the spatial coverage of such surface networks is still limited and these networks cannot reveal subtle spatial variation of these key aerosol parameters. Mobile facility equipped with sophisticated instruments capable for simultaneous measurements of aerosol properties is a good idea to fill the gap left by the surface networks. A mobile platform instrumented by sunphotometer, lidar and OPC was described in detail in this manuscript. The manuscript provides a detailed technical documentation of this platform. Some interesting results were also presented including validation of satellite remote sensing and model aerosol products. Overall, this is a nice manuscript and I suggest to accept it after a minor revision.

1. The structure of the paper is a little complex and it looks somewhat a technical report. I suggest to present the description of the system according to its instruments including its technical detail, its data processing procedure, as well as its uncertainty. For example, in section of methodology, texts related to the introduction of PLASMA can be combined together and therefore, it is easy for readers to have a good understanding of this instrument and application in the mobile platform.

2. I suggest to add a discussion section in which to talk about the status of this mobile facility and its potential developments in near future, also can talk about its potential application in atmospheric environment study and climate research, therefore, these sentences in section 2 and other sections can be combined together to present a clear picture about the status, its uncertainty, its potential developments, as well as its applications.

3. Grimm was said to can work under condition when air speed is 25 m/s, i.e., 90 km/hr, this means that the car speed should be within this threshold, otherwise, in situ measurements would be impacted. Additionally, Grimm measurement of size distribution is based on both electrical mobility and optical method.

Minor issue: 1.page 4, fulfils to fulfills 2. suggest to change methodology to instrument, measurement and data quality control, more specific 3. page 9, how to control of data quality in the presence of tree and building

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