Atmos. Chem. Phys. Discuss., 15, C12153–C12154, 2016
www.atmos-chem-phys-discuss.net/15/C12153/2016/

Atmospheric Chemistry and Physics Discussions

Interactive comment on "Vertical and horizontal variability of PM_{10} source contributions in Barcelona during SAPUSS" *by* M. Brines et al.

Anonymous Referee #2

Received and published: 1 February 2016

Title: Vertical and horizontal variability of PM10 source contributions in Barcelona during SAPUSS Authors: M. Brines, M. Dall'Osto, F. Amato, M. C. Minguillón, A. Karanasiou, A. Alastuey, and X. Querol

Objective: The objective of this work was to assess the vertical and horizontal variability of aerosol levels and composition, sources contribution and physico-chemical transformations in Barcelona.

Structure: The paper is clear and well structured. It has a correct English.

Innovation: Neither the analytical techniques and models used in the paper are innovative, nor their application to the city of Barcelona, which is one of the most studied cities in Europe in this field of science. However, I agree that there are very few stud-

Full Screen / Esc
Printer-friendly Version
Interactive Discussion
Discussion Paper

ies conducted in European urban vertical columns speciïňĄcally looking at chemically resolved aerosol sources.

Introduction: The introduction gives a good state of the art concerning the developed work and clearly presents the objectives of the study.

Methodological approach: From my point of view the major constraint of this work is the sampling design to test the hypotheses which are subjacent to this work. Authors aimed to study the vertical profile of the aerosols composition and sources, however sampling points varied not only in altitude but also horizontally. Consequently, the differences between factor contributions to PM10 in ground and tower levels can be due to the sources affecting each one of the coordinates and not to vertical issues. To properly achieve the proposed objectives, authors should have sampled in parallel at different heights for the same coordinate. At the same time authors stated that a decreasing trend from the site closest to traïňČc sources to the one located in the suburban background was observed. In this case authors refers to a horizontal profile and therefore they should have kept the altitude constant. Authors should comment this constraint.

Results: -A map with the location of the sampling points, wind rose and trajectories representing each trajectory cluster should be added to support the interpretation of the results. -Figure 2 doesn't add new information to Table 1. -The authors should give more information about the constraints used for the source apportionment PMF to quantify the road dust fraction of the mineral dust.

Conclusion: The conclusion reflects the main outputs obtained in the developed work.

Please also note the supplement to this comment:
http://www.atmos-chem-phys-discuss.net/15/C12153/2016/acpd-15-C12153-2016-supplement.pdf

Interactive comment on Atmos. Chem. Phys. Discuss., 15, 33331, 2015.