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Interactive comment on “Comparisons of urban and rural PM_{10–2.5} and PM_{2.5} mass concentrations and semi-volatile fractions in Northeastern Colorado” by N. Clements et al.

Anonymous Referee #1

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This work consist in the interpretation of the time and spatial variation of the concentrations of fine (PM_{2.5}) and coarse (PM_{2.5–10}) particulate matter during a three years period at four urban and at two background sites in Denver. Levels of PM are obtained from the measurements carried out with TEOM and FDMS instruments. These measurements permitted to estimate the semi volatile PM. Concentrations obtained at each site were correlated with the other monitoring sites. A higher homogeneity was observed for PM_{2.5} whereas the spatial distribution of the coarse fraction showed a higher dependence on the distance to the source and on the wind direction and speed. Relative humidity was also found to differentially influence levels of fine and coarse PM.

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Thus, for RH >50%, levels of PM coarse tend to decrease whereas PM fine tends to increase. The method used is sound, although the correlation between the instruments used is not showed. However, the work presented here seems not to be a novel contribution. Thus, the work is similar to that previously published by the authors in 2012 about 1 year monitoring. The present paper extends the study period to 3 years and includes also the semi volatile fraction as derived from TEOM measurements, covering a number of sites. But, most of the conclusions obtained were presented before in the mentioned paper.

Minor comments: Introduction: As regards for the impact on health of the PM_{2.5-10} fraction you should refer to Stafoggia et al. (2013). These authors demonstrated that “PM_{2.5} and PM_{2.5-10} were positively associated with cardiovascular and respiratory admissions in eight Mediterranean cities Stafoggia M, et al. 2013. Short-term associations between fine and coarse particulate matter and hospitalizations in Southern Europe: results from the MED-PARTICLES project. Environ Health Perspect 121:1026–1033; <http://dx.doi.org/10.1289/ehp.1206151> Table 1: It should be improved including the instruments used at each sites Table 2. Spell out “COV”

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