Response to reviewer comments for the paper "Effect of vehicular traffic, remote sources and new particle formation events on the activation properties of cloud condensation nuclei in the Brazilian megacity of São Paulo".

We thank the reviewer for the valuable suggestions to made our manuscript more persuasive. We agree with the comments and have made all the suggested modifications. Below, our responses to each of the comments (in black) are provided (in blue). In the revised manuscript, we have highlighted the newly added text in yellow.

A PMF analysis was performed to apportion the aerosol sources now. Based on PMF, lidar and HYSPLIT analysis, the authors apportioned the aerosols to vehicular traffic, sea salt, industrial and biomass burning. The text and figures were changed accordingly to tightly link daytime aerosol to vehicular traffic. Simultaneous CCN activation parameter measurements then allowed the author to identify the effect of NPF, vehicular traffic and remote sources.

These revision made the manuscript more persuasive. I suggest to accept the manuscript. But the manuscript still needs minor revisions:

1. The PMF apportionment should be added in the abstract.

   We added in the abstract the text about the use of PMF for source apportionment, as follow:

   Abstract. Atmospheric aerosol is the primary source of cloud condensation nuclei (CCN). The microphysics and chemical composition of aerosols can affect cloud development and the precipitation process. Among studies conducted in Latin America, only a handful have reported the impact of urban aerosol on CCN activation parameters such as activation ratio (AR) and activation diameter (D_{act}). With over 20 million inhabitants, the Metropolitan Area of São Paulo (MASP) is the largest megacity in South America. To our knowledge, this is the first study to assess the impact that remote sources and new particle formation (NPF) events have on CCN activation properties in a South American megacity. The measurements were conducted in the MASP between August and September 2014. We measured the CCN within the 0.2–1.0% range of supersaturation, together with particle number concentration (PNC) and particle number distribution (PND), as well as trace-element concentrations and black carbon (BC). NPF events were identified on 35% of the sampling days. Combining multivariate analysis in the form of positive matrix factorization (PMF) with an aerosol profile from lidar and HYSPLIT model analyses, allowed us to identify the main contribution of vehicular traffic in all days and sea-salt and biomass-burning from remote regions on 28% and 21% of the sampling days, respectively. The AR and D_{act} parameters showed distinct patterns for daytime with intense vehicular traffic and nighttime periods. For example, CCN activation was lower during the daytime than during the nighttime periods, a pattern that was found to be associated mainly with local road traffic emissions. A decrease in CCN activation was observed on the NPF event days, mainly due to high concentrations of particles with smaller diameters. We also found that aerosols from sea-salt + industrial emissions and vehicular emissions + biomass-burning had minor effects on D_{act}. For example, nights with biomass-burning + vehicular emissions showed slightly lower CCN activation properties than did sea-salt + industrial and non-event nights. Our results show that

particulate matter from local vehicular emissions during the daytime has a greater effect on CCN activation parameters than does that from remote sources.

2. The format of references should be checked. for example, doi is not added for some references. Abbreviation should replace full journal title.

The format of all references and abbreviation for journal title was checked and also the doi was added in all the references.