

Interactive comment on “The real part of the refractive indices and effective densities for chemically segregated ambient aerosols in Guangzhou by a single particle aerosol mass spectrometer” by G. Zhang et al.

Anonymous Referee #2

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This manuscript describes the characterization of aerosols in Guangzhou, China with a single particle mass spectrometer. The analysis included using the collected mass spec data to determine the density and the real part of the refractive index. This manuscript is well-written, the topic is relevant for ACP, and provides important new results. The results are put into context with previous studies. I would recommend that the manuscript is accepted. I do have a couple minor points on the manuscript that I would recommend are addressed before the final submission.

In section 2.2, the discussion of the use of the “upper limit” is a little unclear as written.

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I would recommend either on page 3452 line 27 adding the exact “data” that are being referred to in the sentence “. . .we only used data that lie at the 90th percentiles.” I believe this is referring to LSS. Alternatively, if the discussion of how the calculation was performed (page 34653 starting at line 6) was moved towards the beginning of the paragraph, might help to make the description of the upper limit more clear. Also, I would recommend in this section to include a line that says something about how in the figures that follow in the results section these points are referred to as “upper limit,” as that term was not specifically used often in the methods section, and thus was a little confusing in the results section.

Section 3.1.2, starting line 14 of page 34656, it is stated that EC that has been exposed to water can change its shape towards more spherical. In this study the particles were dried. Would it be expected that EC particles, if they started as spheres, would keep their shape after they are dried?

Page 34650 line 7, should read “. . .various compounds. . .”

Page 34650 line 15 should read “. . .measurements into aerosol mass. . .”

Page 34650 line 20, should read “. . .which have served as important parameters. . .”

Page 34651 line 25, I would recommend “related” instead of “corresponded” in “the velocity is corresponded to. . .”

Page 34652 line 23, include cite of previous publication that explains methodology.

Page 34686, line 6, should read “. . .there metal rich types are mainly. . .”

Figure 5, it is hard to distinguish between black and green line. Perhaps would lighter color for the green line work better? Or even just a different symbol (i.e. square, cross) would help.

Interactive comment on Atmos. Chem. Phys. Discuss., 15, 34647, 2015.