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Atmospheric Chemistry and Physics Discussions

Interactive comment on "Measurement of ambient aerosols in northern Mexico City by single particle mass spectrometry" *by* R. C. Moffet et al.

R. C. Moffet et al.

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Response to Reviewer 2

We thank the reviewers for their careful review of our manuscript. We have addressed each comment below in italics.

1. I would suggest a modification in the title of the paper, changing the word 8220;Measurement8221; by 8220;Characterization.8221;

We changed the title.

2. Some of the results, like the discussion on the composition of PbZn and related particles, indicate there is still a need for other complementary techniques that would help to answer some of the questions still left open in this work. This is especially true when there are interferences among several chemical species with the same mass. Possible complementary techniques might be Electron Probe Microanalysis (EPMA), microXRF or microPIXE, offering results on single particle analysis. It may be useful to add a comment on this.

We believe this too, and as a result, we submitted a publication to EST comparing the ATOFMS data to CCSEM/EDX, PIXE, filter analysis, and STXM/NEXAFS. That paper focuses on the metal-containing particles. We added a reference to this in the text.

3. The authors pay special attention to element vanadium. In this regard, Fig. 10 shows a strong source of this element in the Southeast area. The authors do not mention this fact nor give any explanation to a possible source there.

We do not know of any source for vanadium in the southeast. We expected to see higher vanadium from the north (Tula). The strong southerly signature may be because the emission of vanadium happened to coincide with the gap flow in the afternoons. This does not necessarily mean that the V came through the gap.

4. Iron is an element found in high concentrations in all the works published earlier about elemental contents in the MCMA aerosols. The authors, however, only mention that there may be an interference with other compounds with the same mass and a brief comment on Fe-soil particles. I believe there should be a deeper discussion about this element, as there may be other sources in addition to soil.

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From our measurements, much of the Fe is associated with soil. We did detect Fe in a relatively small fraction of industrial emissions. PIXE measurements for MCMA 2006 indicate that the mass concentrations of Fe mostly track those of Si and Al, confirming this conclusion. These findings are also in line with those of Chow, 2002.

5. Other minor points are the following:

a. Page 6416, line 15: Johnson et al. (2006) actually used Positive Matrix Factorization, not exactly Factor Analysis; also, the citation 8220;Johnston8221; should read 8220;Johnson.8221;

OK

b. Page 6418, line 16: Write the correct date.

OK

c. Page 6421, line 2: For the sake of clarity for non-expert readers, it may be convenient to explain what the units 8220;m/z8221; mean. Also, a space is missing in 8220;units in.8221;

OK

d. Page 6430, line 19: a space is missing in 8220;=0.38 μm8221;.

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OK

e. Page 6431, line 14: 8220;Figs. 8-108221; should change to 8220;Figs. 9-11.8221;

OK

Interactive comment on Atmos. Chem. Phys. Discuss., 7, 6413, 2007.