

This is a very comprehensive paper on the PM_{2.5} and PM₁₀ mass concentrations and metals and elemental composition for comparing two lines of the Barcelona metro system (one line that is relatively old (F-L3) and one line that is newly built with platform screen doors, driverless trains, new ventilation system, etc. (S-L9)). The SEM photographs are interesting and are usually not part of previous subway studies, which adds to a novelty of the study. The authors also present a very detailed comparative discussion between their results and previous subway studies. However, I have a number of suggestions and comments that should improve the overall quality of this paper.

Major suggestions/comments:

1. One major part that somewhat convolutes the results of the study is the fact that the first sampling period of the S-L9 is during a time when the new ventilation system was being tested for implementation and the second sampling period was when the ventilation system was in its final summer setting, yielding PM levels that are substantially different and perplexing between the two periods. This also adds complexity to the discussion results since the ventilation system is crucial to PM levels and metal content (i.e. sometimes you compare to the first 8 days, 10 days, whole period, etc.). If the S-L9 results presented were only based on the permanent ventilation setting, this will add much more consistency and clarity to the paper.
2. Another major comment is that the paper includes 11 figures and 7 tables, some of which are excessive for this paper. I would recommend reducing the number of figures and tables and corresponding discussion in the text to increase the focus of this paper to be in line with your statement on p. 6661 line 12-15. Specifically, some of the discussion in 4.2 and 4.3 is excessively detailed and should be reduced since the information is already presented in the tables.
3. All the figures and tables show average data, but no error bars or any mention of uncertainty in the text. Please include or provide a detailed explanation why this data was excluded.

Specific suggestions/comments:

1. On p. 6663 line 8, should it be F-L3?
2. In section 2.2, can you add the number of samples used for chemical analysis?
3. On p. 6665, there is no “top” or “bottom” figure. Please correct.
4. Please rephrase p. 6668 line 19-23.
5. On p.6669 line 26-27 is not validated based on your discussion and contradicts the previous sentence as well.
6. On p. 6671 line 25, should it be 14-22%?
7. On p. 6672 line 7-8, you state there is an anticorrelation and a correlation between x and y, what are the correlation coefficients?
8. Please change ‘very probably’ to ‘probably’.

9. On p. 6672, line 29, should it be 5.1 ug/m³?
10. On p. 6673, line 18-19, should it be 1.5-1.6 ug/m³?
11. Are REEs “rare earth elements”? Which elements were included?
12. On p. 6676 line 2, are the PM₁₀ levels at platforms deduced from the PM_{2.5}/PM₁₀ from Table 3? If so, please correct as your ratios most likely *do not* correspond to other subway systems.
13. Similar comment for p. 6678 line 7 regarding the PM₁₀ levels inside trains. Are they deduced from Table 4? If you are deducing based on your own data, these PM levels are most likely invalid as ventilation systems in trains vary substantially. For line 13, why are the PM_{2.5} levels ‘probably’ for Prague and Berlin?
14. On p. 6679 line 20-23, please rephrase.
15. On p. 6680 line 6, should be Fig. 11.
16. Was PCA also attempted for each separate rail line? Any differences?
17. Are there any nearby ambient PM monitoring stations of PM_{2.5} and PM₁₀ mass concentrations for making concurrent comparisons to ambient air?
18. For Table 1, what is the difference between platform, platform end, and sampling site? Are they necessary? It is also interesting to note that most of PM_{2.5} is PM₁ (same with Table 4), but most of PM₁₀ is coarse PM.
19. For Table 2 and 3, please label the second set of columns instead of italicize.
20. For Table 5, is it necessary to present two periods for the Sagrera line for PM₁₀?
21. For Fig. 9, what are the PM size fractions of these SEM photos? Are there any differences between the PM fractions?
22. Finally, please proofread as there are numerous grammar and punctuation errors.