

## Answer to Reviewer's Minor Comments

We thank the Reviewer for the comments. We have corrected the typos and incorrect language as the Reviewer suggested. Below are the Authors' answers (A) to the other minor comments (R).

**R: Pg. 6, Lines 2-5: This list of citations is too long and broad for the statement “more detailed description of the in situ measurements can be found e.g. in”. The authors should parse each of these references out and state exactly which instrument is described in each publication so that the reader knows where to go for more information without having to consult all of them.**

**A:** We agree with the Reivewer that the reference ”list” is too long. We have now modified the text and added which measurement station is considered in each of these studies.

**R: Pg. 6, Equations: Define the variables in the text.**

**A:** The definitions of the parameters have been added to the text.

**R: Pg. 7, Line 10: After introducing all of these equations, I'd like to see some additional discussion on how these proxies were developed and why they are thought to be good representations. Discussion of the linear and quadratic terms, and their rationale is especially important.**

**A:** Discussion has been added to Sect. 3 where the proxy equations are introduced.

**R: Pg. 7, Lines 18-19: Define “diffusion coefficient” and “transitional correction factor” and add a citation if appropriate. As it is now, I don't know what these parameters are and what they relate to (aerosol, gas, etc.)**

**A:** The definitions and one citation have been added to the text.

**R: Pg. 9, Line 28: Was an impactor or a cyclone or something else used to limit the particle size to < 10 um?**

**A:** DMPS inlet had a Digital PM2.5 impactor at Marikana and Botsalano. Elandsfontein aerosol inlet (SMPS, scattering, absorption) had an R&P PM10 impactor.

**R: Pg. 10, Lines 6-8: This is a very interesting observation. I wonder why this is. Can the authors discuss or speculate as to why this might be?**

**A:** There was a mistake in the  $R^2$  – value obtained at Hyytiälä measurement site. The correct value for  $R^2$  at Hyytiälä is 0.62, which is close to the values obtained in this study. Slightly higher correlations between CS and scattering coefficient obtained at South Africa might be related to the fact that the range within which both CS and scattering coefficient varied was slightly wider at South Africa than at Hyytiälä.

**R: Pg. 11, Line 15: What is the lower size limit of the particle counter in Marikana? 3 nm?**

**A:** DMPS lower size limit was 12 nm at Marikana.

**R: Figure 6: Explain why the red line stops at 3.25 km in the figure caption.**

**A:** The explanation has been added to the figure caption.