Editorial comments on ACP-2017-1240

Thank you for your efforts in responding to the reviewer's comments. The responses took care of some of the reviewer's original comments. However, there are a number of places where the responses were not adequate, as described below. The still requires significant revision before it will be acceptable for publication.

Comments on the author's response (page numbers from combined comment/response pdf)

Pages 2-3. The author's response to the comment the lack of day/night differences might be due to the fact that transport to the site takes several days is not really adequate. The authors need to admit the part of the reason for the lack of day/night difference is due to multi-day transport.

Page 3, Figure S1 doesn't add anything to the discussion, you could transmit the same information by noting the times of sunrise and sunset.

Page 3. What was different about the studies that did show day/night differences? Probably the nearby presence of the sources?

Page 5. When you say "pressure, temperature and RH didn't change much in clusters 2 and 4, are you saying between clusters 2 and 4, or in each cluster 2, and 4, over the timescale of the back trajectory?

Page 6. Yes, the reviewer was mistaken about the average RH.

Page 12. To use the ratio of PM2.5 to TSP to scale DCRCs and Levoglucosan, the way the authors have done requires the assumption that there is no size-dependent composition differences, so this needs to be stated as an assumption. Your response did not answer the reviewer's question about measurements from other locations.

Pages 14 and 15. The reviewers' comment that you have included too many significant figures in many places is correct, and your response is not correct. The appropriate number of significant figures should be based on the uncertainties of your measurements, which is a combination of the propagated errors, and detect limit. So, for example, your stated detection limits are between 0.05 and 0.1 ng/m3, and you do not specify what your propagated errors are, but let's assume they are ±10%, your uncertainty then would be ± the sum of 10% + the detection limit. So, in that case 3 significant figures are not justified. For numbers below 1 ng/m3, you can't justify more that 1 significant figure, since your detection limit is 0.1 ng/m3. Likewise, numbers in the 0.01 place are not significant, so those numbers in Tables 1 and 2 should be rounded to the nearest 0.1 place.

Page 15. The correct terms are "VOC sampling" and "VOC samples", using two plural terms (e.g. VOCs samples) is not correct, please those changes.

Pages 19 and 20. You did not describe the overall uncertainties in the measurements as requested. This needs to be done and then reflected in the reported data, i.e. significant figures.

Page 28. Point (5). Your answer does not really answer the question. The answer may be that transport to the site takes place over several day/night cycles.

Page 29 and 30. Removing a data point doesn't any more valid, and in fact could be interpreted as deceptive and misleading, and therefore, highly inappropriate.

Page 30, bottom. Do you have any iron measurements to back up your supposition about iron-oxalate photolysis?

Page 34. Your response to the reviewer's concern about significant figures is not acceptable. Your significant figures need to be based on measurement or estimate uncertainties. For example, 387 ng/m3 should be 390, due to both kinds of uncertainties.

Page 35. When you say "more than three times higher" Do you mean three times higher at Mt Tai?

Page 38 Point #3 at the bottom the reviewer wants to know what the values in the tables are. This should be in the title of the table. Also, you should note that the term "factor loading" means the correlation coefficient (r) between the variable (e.g. Z_j) and the principal component (PC#).

Page 39. The discussion of PCA results needs to be changed so that the PC numbers are connected to the names they have been given in the text. So Tables 3 and 4 the PC numbers have the names associated with them, and the numbers are given (e.g. PC2) after the name is given in the text.

Page 43. Aren't "coefficients of determination" and "factor loadings" the same thing?

Page 52, Figure 3. Is the boundary layer height above ground, or above sea level? If it is above ground, what site is the reference?

Comments on the corrected manuscript.

Page 7, Line 5. Please give the overall uncertainties here.

Page 8, Line 8. Here you should explain what "factor loading" is.

Page 10, Line 20. This assumes aerosol composition is not size-dependent, please note that and discuss how reasonable that assumption is.

Page 12, Lines 10-14. Mountain top sites are subject to "drainage flow" due to cooling of the ground surface and subsidence of the cooler air, that serves to pull air from above to the surface from above. Please consider what this might mean to your observations.

Page 17, line 2. Don't you mean that the "contribution of this source to the variance" was 13%?