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Atmospheric Chemistry and Physics Discussions

Interactive comment on "Chemical composition and aerosol size distribution of the middle mountain range in the Nepal Himalayas during the 2009 pre-monsoon season" *by* P. Shrestha et al.

Anonymous Referee #2

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This manuscript describes the physical and chemical characterization of aerosol in the Kathmandu valley and the Marsyangdi river valley during the 2009 pre-monsoon season. The authors provide some interesting information about the causes for the variability in the physical and chemical properties of aerosol at the sampling sites. The dataset is unique as such field data from this region is limited. This reviewer finds the manuscript meets the scope of the journal though the manuscript requires a major revision before it can be recommended for publication.

Major comments:

Section '3.2.1 General characteristics' This section is too narrative, too detailed and too

long. Showing six out of thirteen figures in this section seems a little out of proportion considering the fact that this section is only 'General characteristics'. This reviewer feels that such detailed descriptions about particle size distributions do not add much useful information to the manuscript. The authors should shorten this section and leave only the most important findings here.

Section '3.3 Aerosol composition' It seems so that Figure 8 shows the percentage of each component in the sum of measured inorganic ions, oxalate, OC, WSOC, WSON and EC rather than in PM2.5 mass. This needs to be clearly stated. In Figure 8, have the authors subtracted oxalate, WSOC and WSON from the OC values? This needs to be clarified as well.

Minor comments:

Page 15636, line 18: For clarity, these values should be given in mean values and ranges. A '$\pm$' sign is often used for the standard deviation in combination with a mean value.

Page 15637, line 1: Do the authors mean 'M$\Omega\bullet$cm' instead of "MW"?

Page 15637, lines 8-13: The authors should define WSOC and WSON used in this study at the beginning of the paragraph rather than at the end. It is not clear from the paragraph how the authors have defined the WSOC and WSON (NPOC and NPON materials that are not trapped by a 0.2 μm Teflon filter).

Page 15639, line 17: Do the authors mean '$\pm$ 1 σ'?

Page 15640, line 5: A period should be a comma. 'At both locations.' -> 'At both locations,'

Page 15640, lines 5-7: This sentence is not clear to me. Please rephrase.

Page 15641 line 10: A space is missing in 'LTthroughout'.

Page 15646 line 4: Unnecessary carriage return.

Page 15646 line 20: I am not too sure how relevant the 10 years old EC/OC values in Bombay (or Mumbai rather) is to the measurement in Kathmandu valley. Some explanations should be given if the authors want to emphasize the differences in the EC/OC ratios in different environments.

Page 15646 line 25: WSOC/OC ratios of 0.27 aren't that high. On contrary, the authors should state that large fractions of OC at the both sites were water 'insoluble' and may have a significant impact on the CCN activation (if there is any – the authors need provide evidence for this).

Page 15647 lines 3-4: The unit should be μgN/m^3.

Page 15665: Figure 8. Charges are missing from ions.

Interactive comment on Atmos. Chem. Phys. Discuss., 10, 15629, 2010.