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Atmospheric Chemistry and Physics Discussions

Interactive comment on "Seasonal variations of water-soluble organic carbon, dicarboxylic acids, ketoacids, and α-dicarbonyls in the central Himalayan aerosols" *by* P. Hegde and K. Kawamura

Anonymous Referee #2

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This paper gives an interesting account of a sampling campaign that took place in the Himalayas foothill, with sampling and analyses of EC/OC and organic acids. This paper merits publication, since such data are not so common in the literature, and the location is pretty interesting for the understanfind of the Brown Cloud processes and characteristics.

However, this version needs improvments on several points, including some level of corrections for the english. Below are other more specific comments for precise issues.

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Interactive Discussion
Discussion Paper

Page 937 : Line 6 : Âń ....of great interest.... Âż Lines 10-15 : reference should be made to some papers from the recent ACP - Special Issue “Atmospheric brown cloud in the Himalayas” Line 23 : “...due to their....”

Page 938 : Lines 10-11 : english

Page 940, section 2.2 : you should indicate how many samples were collected and analyzed in each category

Page 944 ; Line 3 : “Therefore” is not correct since the following part of the sentence is not a consequence of the sentence in lines 1-3. Lines 24 and 27 : english

Sentence on page 944-945 : check english

Page 945 : Lines 5-8 : no relation between the two parts of the sentence. Lines 18-19 : I do not get why this is an explaination Line 19 : why is it “Consequently ...” ?

Page 946 Lines 13-21 : all of this section is highly speculative, since the calculation of SOC with this method is subjected to many uncertainties. Further, it is known that a large fraction of WSOC is of primary origin (particularly in biomass burning). To conlude that there is a similarity in the chemistry of SOC and WSOC based on these information is plain speculation.

Page 948 Lines 7-9 : a discussion should take place at this point about the fact that the contribution of C-diacids to OC is higher in winter than in summer.

Page 950 : Lines 3-7 : how come that there is such a large difference in concentrations for oxalic acid between Winter and Summer, that is not found for the other acids ? Invoking change is the air masses should impact all of theses species coming mainly from secondary processes ... ? Is this the meaning of the section 12 -27 in the same page ? In this case, it should be stated clearly.

Page 951 Lines 1-3 : this can hold as long as the removal processes (including the process explained in the previous section) is taken into account. Lines 18-20 : In

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do not understand this sentence : what do you mean by “relate” ? These formation processes should indeed increase the ratio C2 / total diacids . . .

Page 952 Lines 10-19 : what is the purpose of the last two sentences of this paragraph ? Page 953 Line 21 : english Lines 27-28 : it is the production, not the oxydation, of benzene / toluene that occurs mainly in the urbain atmosphere ..

Page 956 Line 16 : what are the hypotheses for explaining this observation, that is conterintuitive with current believe of increased oxydation of OC in summer ?

Page 958 Lines 14-15 : does this sentence mean that other sources are more important than biomass burning in general, or just for these species ? Lines 15-17 : this is not discussed previously in the paper

Figure 2 There should be a refernce in the caption, or a torough description on how this figure is obtained

Figures 7, 8, 10, and 11 Not readable

Figure 9 Why don’t you put r2 on the figures, like in figure 4 ?

Interactive comment on Atmos. Chem. Phys. Discuss., 12, 935, 2012.