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Atmospheric Chemistry and Physics Discussions

Interactive comment on "Long term precipitation chemistry and wet deposition in a remote dry savanna site in Africa (Niger)" *by* C. Galy-Lacaux et al.

C. Galy-Lacaux et al.

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Reviewer 1

1- The reviewer asks about significance of annual mean differences. In order to characterize one year we need to give a ponderation to calculate an annual mean for each species. (classical VWR) In our paper we create an annual VWR for all the database, the global characterization for all the years is not an average. Then, the interannual variability (each year) is discussed in our paper according the variation around this mean year. Statistical results are given in section 5 with deviation around the mean.

2-modification of the two last sentences of the abstract

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3-If we expose only 4 or 5 days, we cannot detect anything by ionic chromatography on impregnated filters: it shows that the detection cannot be done on these remote sites with an integration of 4-5 days. We can see a large difference in SO2 results: exposure one month on IDAF remote sites with results near the detection limit 0.1ppb, and measurements in DAKAR (Senegal) urban site where samplers are exposed 15 days.

4-reproducibility: yes, see changes in the text

5- t carbonates for total carbonates

6-we plot the frequency distribution of pH

5,113 6,072 6,072 6,831 90% of the events have a pH between 5.1 and 6.8 The mean and the median are closed to 6.05. See changes in the text.

7-In the paper we just used correlation coefficient and not PCA (delete PCA analysis)

8-true: neutralization increases the pH. In the Sahelian precipitation, the acidity potential including organic and mineral acidity is high and lower pH is observed due to the neutralization effects.

9-ammonium and potassium indicates biomass burning influence, taken into account

10-we do not have soil chemical composition and pH

11-we would like to keep figure 6 and 8 in this format. Figure 8 just illustrates the global charge in rain and the global wet fluxes and clearly shows the opposite trend Figure 6 is already proposed in this format in the paper of Yoboué et al, JAC, 2005 for the wet savanna ecosystem, so they are directly comparable. For the details of values, it is found in table 3

We have decided to delete figure 7 that is complicated and also makes the text longer

12-table 3 is plotted in figure 6 and allows as a table to have all the numbers

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All the text has been synthesized to improve fluency.

Interactive comment on Atmos. Chem. Phys. Discuss., 8, 5761, 2008.

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