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Atmospheric Chemistry and Physics Discussions

Interactive comment on "Formation and growth of nucleated particles: observational constraints on cloud condensation nuclei budgets" *by* D. M. Westervelt et al.

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Thank you for the short comment on our numbers for the observations at Po Valley. Indeed we made a mistake in calculating the total annual average CN100 (from all sources). This was due to a bug in the reading of the data files for the Po Valley dataset, which was incorrectly assumed to have size resolved number concentration (dN) in addition to values of the number size distribution function (dN/dlogDp).

Upon correcting this error, we calculate a total CN100 of about 2950 particles per cc, which agrees well with Table 1 of Laaksonen et al. (2005). As expected, the total CN50 were also affected by the bug, and we now have an updated value for that as well (5470

particles per cc, also in better agreement with Laaksonen et al. (2005)). Table S1 and S2 (supplemental) will be updated with these new numbers, as will the text.

Finally, the changes in total CN100 will change our percentages reported in the manuscript for the Po Valley site. The percentage contribution from nucleation to CN100 changes from 4% to 16%. Similarly for CN50, the percentage changes from 6% to 20%. The attached figure shows these correct percentages and will be incorporated into the new manuscript. We will adjust the discussion in the text to highlight that the Po Valley site has the largest nucleation contribution that we found among the five sites (for CN100) and emphasize that nucleation in the Po Valley does have a large effect on CCN. Our overall conclusions about the sites remain mainly the same since the 16% is around the range of both Hyytiala (14%) and Pittsburgh (12%).

Interactive comment on Atmos. Chem. Phys. Discuss., 12, 11765, 2012.

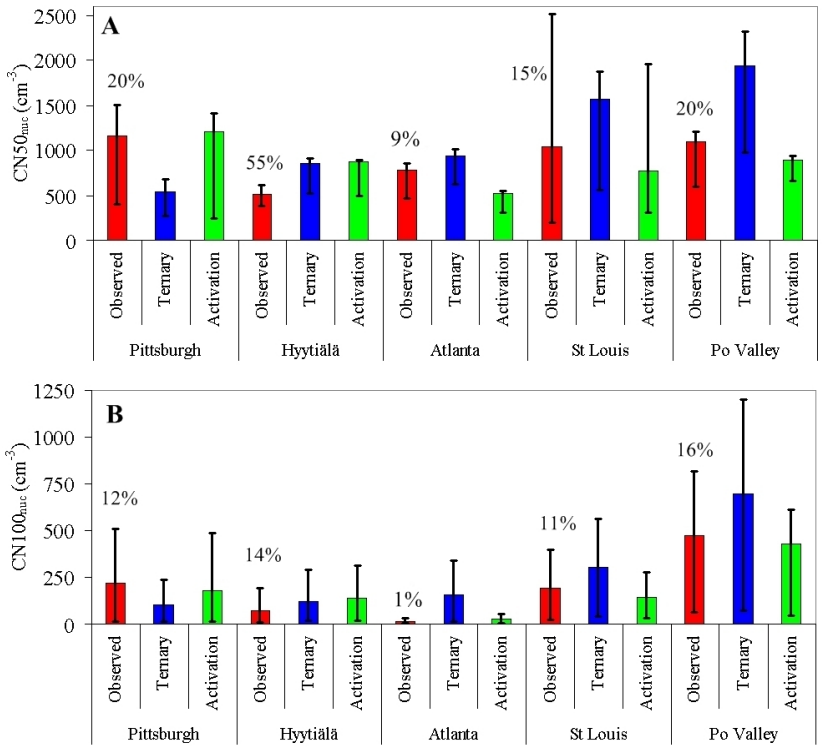
A
B
CN50nuc (cm-3)
CN100nuc (cm-3)
20%
55%
9%
15%
20%
12%
14%
1%
11%
16%
Observed
Ternary
Activation
Pittsburgh
Hyytiälä
Atlanta
St Louis
Po Valley

Fig. 1.