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**Atmospheric Measurement Techniques Discussions**

# *Interactive comment on* "Dry deposition of NaCl aerosols: theory and method for a modified leaf-washing technique" *by* A. Reinap et al.

**Anonymous Referee #1**

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1. Does the paper address relevant scientific questions within the scope of AMT? Yes – in that the issue of the relationship between particle deposition and what can be washed from leaves has a very long research history, going back well over 30 years. 2. Does the paper present novel concepts, ideas, tools, or data? No – the concepts have all been well-rehearsed before, and the use of a wind tunnel to study the process goes back to studies of deposition of radioactive particles to vegetation in the 1960s (see cited papers by Chamberlain, 1967, and Slinn, 1982, for example). Neither the theory nor the practical part is novel. 3. Are substantial conclusions reached? The experiments appear to have been performed robustly – the problem is in their utility. 4. Are the scientific methods and assumptions valid and clearly outlined? The system used is very artificial and bears little resemblance to the real-world situation. It



does not progress our understanding of the capture of particles by vegetation. It would not be possible, for example, to take the data and use them to predict deposition of NaCl particles even to an oak forest canopy in the real world. There is no attempt to simulate or even estimate how the turbulence conditions in the wind-tunnel approach or approximate those in real forest canopies. 5. Are the results sufficient to support the interpretations and conclusions? There are no significant conclusions – and given the combined analytical uncertainty as stated, even the conclusion that the amounts of sodium removed are less than those of chloride is not supported (although probably correct). However, in the real world there are other sources of chloride (e.g. HCl) which would make such a finding irrelevant. 6. Is the description of experiments and calculations sufficiently complete and precise to allow their reproduction by fellow scientists (traceability of results)? Yes 7. Do the authors give proper credit to related work and clearly indicate their own new/original contribution? Although some early work is cited, work in the 1970s and 1980s (e.g. by McCune, Lauver, and reviews by Parker on throughfall) would show how little the present study contributes to understanding. 8. Does the title clearly reflect the contents of the paper? Yes – it does indicate that this is a very restricted artificial system. 9. Does the abstract provide a concise and complete summary? Yes – and shows that no new information was obtained. 10. Is the overall presentation well structured and clear? Rather long-winded in places; in particular, the development of the equations (which are well known) is rather complicated, and the assumption of first-order kinetics is neither explained nor justified. 11. Is the language fluent and precise? Yes 12. Are mathematical formulae, symbols, abbreviations, and units correctly defined and used? Yes 13. Should any parts of the paper (text, formulae, figures, tables) be clarified, reduced, combined, or eliminated? This paper should not be published as it does not contribute significantly to the existing extensive literature. 14. Are the number and quality of references appropriate? No – significant earlier work is completely omitted 15. Is the amount and quality of supplementary material appropriate?

Interactive comment on Atmos. Meas. Tech. Discuss., 3, 3851, 2010.