

Interactive comment on “Influence of local air pollution on the deposition of peroxyacetyl nitrate to a nutrient-poor natural grassland ecosystem” by A. Moravek et al.

Anonymous Referee #1

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This work is essentially good quality. It addresses an aspect of the “deposition” of peroxy acetyl nitrate (PAN) on vegetation and other surface elements, a process which was not frequently studied in the past. I intentionally put the term “deposition” between quotes because, similarly to many gaseous pollutants, PAN is not really deposited on solid surfaces, but mainly absorbed (stomatal penetration) and chemically transformed inside the living tissues.

The study is methodologically sound. All conditions of the experiment are strictly controlled. The discussion carefully examines all aspects of the process and compares the observational results with modeling approaches and with the previous literature.

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The manuscript deserves publication with very minor revision. The measurements appear to have been carried out with the necessary precautions. There are a few typing errors :

Page 20386, l. 26 : “leaf” (instead of “leave”) ; Page 20391, l. 15 : Due to its (instead of is); l. 20 : replace “divers” by “different” or “various”.

One minor comment : on page 20391 : The authors use a Relative Humidity (RH) criterion of 60% for the application of the Penman-Monteith (PM) scheme. Is this fully justified ? The PM approach is correct when direct evaporation from wet surfaces, including bare soil, is absent. This does not depend directly on the humidity present in air, but on the presence of liquid water on and inside the surface elements. You can have a RH-value of 90% in air and a soil that is perfectly dry. In this case, the PM approach is fully justified. So the authors should comment this aspect more in depth.

Interactive comment on Atmos. Chem. Phys. Discuss., 14, 20383, 2014.