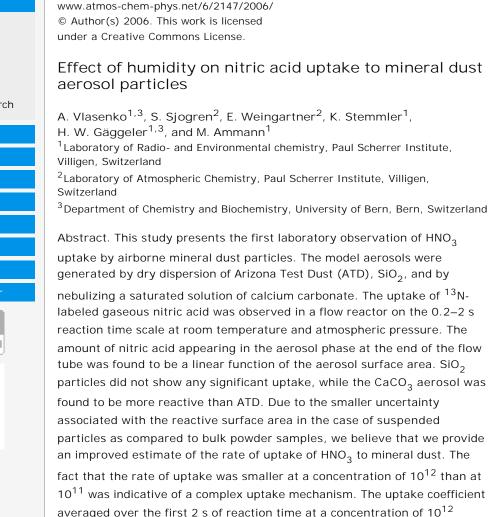
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Atmos. Chem. Phys., 6, 2147-2160, 2006

particles as compared to bulk powder samples, we believe that we provide an improved estimate of the rate of uptake of HNO₃ to mineral dust. The fact that the rate of uptake was smaller at a concentration of 10¹² than at 10¹¹ was indicative of a complex uptake mechanism. The uptake coefficient averaged over the first 2 s of reaction time at a concentration of 10¹² molecules cm^{-3} was found to increase with increasing relative humidity, from 0.022±0.007 at 12% RH to 0.113±0.017 at 73% RH , which was

attributed to an increasing degree of solvation of the more basic minerals. The extended processing of the dust by higher concentrations of HNO₃ at 85% RH led to a water soluble coating on the particles and enhanced their hygroscopicity.

■ Final Revised Paper (PDF, 439 KB) ■ Discussion Paper (ACPD)

Citation: Vlasenko, A., Sjogren, S., Weingartner, E., Stemmler, K., Gäggeler, H. W., and Ammann, M.: Effect of humidity on nitric acid uptake to mineral dust aerosol particles, Atmos. Chem. Phys., 6, 2147-2160, 2006.
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