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The reaction of HOCl and HOBr on sea salt and alkali halide model aerosols at 300K and atmospheric pressure in the range 50 to 90% rh.

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We have performed HOBr and HOCl uptake experiments on two types of laboratory generated sea salt (SS) aerosols in an atmospheric laminar flow tube reactor whose trace gas concentration is sampled by a residual gas mass spectrometer. In addition, NaCl and NaBr as well as pure sulphuric acid where used as model alkali halide aerosols as a reference with respect to the mentioned SS uptake experiments. Acidification of SS and model aerosols using H_2SO_4 is necessary in order to enable HOBr and HOCl uptake. HOBr and HOCl uptake on acidified SS aerosols has been observed in a small rh window, namely between 75 and 85% rh, in contrast to the studied alkali halide aerosols where uptake took place on a wider rh range. For HOBr we have observed a significant variation of γ as a function of rh between 75 and 85% rh for SS aerosols with γ peaking at 8 x 10^{-3}. This dependence for SS is significantly different from that observed in previous work by Abbatt and Waschewsky (1998) on NaCl aerosol. We have obtained a γ value of HOBr smaller by a factor 10 for acidified deliquescent NaCl aerosol compared to acidified SS aerosol, while no uptake was measured for rh $<$ 70 %. Finally, in HOCl uptake experiments, we have observed uptake only on acidified SS aerosols in the given rh window resulting in a γ peaking at 4 x 10^{-4}. The organic fraction of SS aerosols seems to have a significant influence on both the absolute magnitude as well as the rh-dependence of both the HOBr and HOCl uptake coefficient.