LASER-BASED KINETIC INVESTIGATIONS OF HALOGENE-CONTAINING COMPOUNDS IN AQUEOUS SOLUTION

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Tropospheric particles may release halogen atoms into the gas phase. Model calculations suggest that halogen-atoms and related species could play a role not just in the gas-phase but also in cloud water and, possibly, in aerosol particles (Herrmann et al., 2000). A laser flash photolysis experiment has been used to investigate the BrCl-radical anion. The equilibrium constant for the reaction Cl + Br- <–> BrCl- (R-1) has been measured for the first time by fitting a chemical mechanism to experimental data of absorbance as a function of wavelength and time. A method to study the kinetics of bromine atom in the aqueous phase has been developed. Bromine atoms have been generated by 248 nm excimer-laser photolysis of aqueous solutions containing bromoacetone. The results obtained can be used in modelling studies and may be helpful for a better understanding of tropospheric aqueous phase chemistry.