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Surface Segregation in Mixed Alkali Halide Solutions SUTAPA GHOSAL, JOHN HEMMINGER, University of California, Irvine, HENDRIK BLUHM, B. SIMON MUN, GUIDO KETTELER, MIQUEL SALMERON, Lawrence Berkeley National Laboratory — Bromine compounds in the marine troposphere have been of great interest since the observation that tropospheric ozone depletion events in the arctic are correlated with gas phase bromine chemistry. Reactions with sea salt aerosols, particles and ice appears to be the source of these bromine compounds. In previous experiments we have shown that bromine segregates to the surface of sodium chloride crystals that are uniformly doped with low levels of bromide. We describe here experiments in which we have used high pressure photoelectron spectroscopy (HPPES) at the Advanced Light Source (ALS) to measure the ion concentrations at the surface of mixed alkali halide **solutions**. The experiments start with single crystals of sodium chloride that are uniformly doped with bromide at 7% and 0.1% level. The x-ray photoelectron spectra of the sample surface are obtained as a function of water vapor up to and at sample deliquescence. The concentrations of bromide and chloride ions at the liquid/vapor interface for the saturated solution that is produced upon deliquescence are obtained. For both samples, after deliquescence the bromide concentration at the surface of the saturated solution is greatly enhanced. The results will be compared with molecular dynamics simulations of a mixed bromide/chloride solution.

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