

SPECTROSCOPIC CHARACTERIZATION OF N_2O_5 HALIDE CLUSTERS AND THE FORMATION OF HNO_3

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N_2O_5 is an atmospheric species which serves as night-time sink for NO_x species. Its reconversion to NO_x products occurs through solvation in atmospheric aerosols. Detection of N_2O_5 and NO_3^- fragmentation products in such aerosols has previously utilized chemical ionization featuring halides (of which chlorine is ubiquitous in sea-spray aerosols). We examine the solvation behavior of N_2O_5 and the critical number of water molecules to form HNO_3 from N_2O_5 and water. We have been able to generate and spectroscopically characterize N_2O_5 -halide ions formed from halide-water clusters. We observe $\text{X}^-\text{N}_2\text{O}_5$ species whose spectra best correspond to a calculated $(\text{O}_2\text{NX})(\text{ONO}_2^-)$ species.^a

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