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**VALIDATION OF A WET SAMPLING/LONG PATH ABSORPTION
PHOTOMETER METHOD FOR ATMOSPHERIC AMMONIA SPECIES
MEASUREMENT**

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Ammonia species (NH_x), including gaseous ammonia (NH_3) and aerosol ammonium (NH_4^+), is increasingly being recognized as a major atmospheric pollutant. It plays critically important roles in neutralization of acidic gases and formation of fine particulate matters in the atmosphere. Its deposition is known to cause eutrophication of ecosystem, and at elevated concentrations, it poses adverse health effect. In this study, we have developed an atmospheric $\text{NH}_3/\text{NH}_4^+$ measurement method based on Wet Sampling coupled with Long Path Absorption Photometer (WS/LOPAP). Method validations have been made by calibrations and inter-comparisons with other semi-continuous analytical methods in both laboratory and field measurements. Wide linearity range of 0-35ppbv, lower detection limit of 30 pptv, good precision and accuracy were demonstrated with aqueous NH_4^+ standard calibration ($R^2 = 0.9999$) and gaseous NH_3 standard calibration ($R^2 = 0.993$, Slope =0.97). The NH_4^+ measurement method was inter-compared with Particle Into Liquid Sampler with Ion Chromatography (PILS-IC), Aerosol Mass Spectrometer (AMS) and integrated filter method in two field campaigns, while the NH_3 measurement method was inter-compared with Tunable Diode Laser Absorption Spectroscopy (TDLAS), Wet Effusive Diffusion Denuder (WEDD), Ion Mass Spectrometer (IMS) and Nitrolux Ammonia Analyzer in a laboratory setting. Good agreements were achieved in both inter-comparisons.