

#

EHT

Judging Dept.

Jian Hou

Student

EHT

5

, Xianliang Zhou

Dept or Program Years in program

Mentor

Measurement Of Ambient Ammonia Species In Downtown Albany, New York

Author (s)

Jian Hou, Xianliang Zhou

The scientific attention given to the urban atmospheric ammonia species ($\text{NH}_x = \text{NH}_3 + \text{NH}_4^+$) has grown in recent years due to the increasing concern of the adverse health impact of fine particulate matter ($\text{PM}_{2.5}$). Herein we report a four-week continuous measurement of ambient NH_3 and NH_4^+ performed during summer time in downtown Albany from June 20 to July 18, 2005. Air sample was collected by wet scrubbing, derivatized via Berthelot's reaction and quantified by a long path absorption photometer. The NO and NO_2 concentrations were monitored simultaneously for estimating the sources of ammonia species. The total ammonia species NH_x mixing ratios were in the range of 0.53 - 15.6 ppbv with a median of 3.39 ppbv and a mean of 3.89 ppbv. The NH_4^+ concentrations in aerosol phase were in the range of less than 0.03 – 9.38 ppbv with a median of 1.53 ppbv and a mean of 2.07 ppbv. The results show that the ambient ammonia species levels were strongly affected by local source emissions and correlated with meteorological conditions such as environment temperature, relative humidity and wet scavenging by precipitation.