



Observation of atmospheric ammonia with 1 Hz resolution at a rural site in North China Plain

Yuxin he (1,2), Yuepeng Pan (1), Guozhong Zhang (3), and Yuesi Wang (1)

(1) State Key Laboratory of Atmospheric Boundary Layer Physics and Atmospheric Chemistry (LAPC), Institute of Atmospheric Physics, Chinese Academy of Sciences, Beijing 100029, China, (2) University of Chinese Academy of Sciences, Beijing 100049, China, (3) College of Forestry, Gansu Agricultural University, Lanzhou 730070, China

The North China Plain has been identified as a hotspot of ammonia on the globe, with significant implications in haze pollution, nitrogen deposition and climates. To date, the surface observations of ammonia in China were mostly employed by passive samplers (e.g., AMoN-China) and few studies were performed with fast-response instruments. During November 2017 to March 2018 ammonia concentrations were observed with high time resolution (i.e. 1 Hz) by using Picarro at a rural site Xianghe (between the mega cities of Beijing and Tianjin). During the campaign the ammonia concentrations ranged from 0.79 ppb to 3896.18ppb, with an overall mean of 22.62 ± 39.79 ppb. This presentation will discuss the diurnal variations of ammonia concentrations with a focus on the morning peaks. In addition, the emission changes (SO₂ reduction, biomass burning) and source attributions that contributed to increased ammonia concentrations were also included.