

**Is vehicular emission a
significant contributor to
ammonia in the
urban atmosphere? –
Observational results in China**

XAIOLIN TENG¹, JIAJIA QI¹, JINHUI SHI¹, YUJIAO ZHU¹, HUIWANG GAO^{1,2} AND XIAOHONG YAO^{1,2,*}

¹ Key Lab of Marine Environmental Science and Ecology, Ministry of Education, Ocean University of China, Qingdao 266100, China

² Qingdao Collaborative Center of Marine Science and Technology, Qingdao 266100, China

The vehicular emission of NH₃ has been widely studied over two decades. We recently published an article [1] where we challenged these studies and confirmed that the vehicular emission was a negligible contributor to atmospheric ammonia at a site ~200 m downwind of a highway with the highest traffic flow in Canada (~4.0*10⁵ vehicles/day). Lots of papers were published afterwards and the new studies claimed that the vehicular emission was an important NH₃ source and an important contributor to atmospheric NH₃ at urban sites. A question is raised, i.e., does the vehicular emission indeed yield a significant contribution to atmospheric NH₃ at urban sites outside Canada? In this study, we adopt the identical approach as employed in [1] to address the question in China. We made measurements at a semi-urban site, ~300 m from a major traffic road with the moderately heavy traffic flow in the North China, in a cold season when agriculture NH₃ emissions were at the lowest level among the whole year. To reinforce our observation, an NH₃-H₂O analyzer and a CO₂-CH₄-H₂O analyzer were also used to simultaneously measure related gases. We obtain the same conclusion as presented in [1]. Moreover, we find a few coincidences and the instrument artifact signal which can be mistakenly recognized as the vehicular emission of NH₃.

[1] Yao et al. (2013) Atmos. Environ., **80**, 499-606