

**Emissions of  $\text{NH}_3$ ,  $\text{NO}_2$  & their secondary aerosols during biomass burning at an agricultural area in NCR-Delhi, India.**S. Yadav<sup>1</sup>

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Burning of agricultural residue emits enormous amounts of reactive Nitrogen species (Nr) into the atmosphere every year. It represents a significant source of chemically and radiatively important trace gases and aerosols to the atmosphere thereby causing a major concern for global change. Emissions from agricultural residue burning are further aggravated due to other anthropogenic sources viz. vehicular exhaust, power plants, crustal dust etc. enhancing the air pollution level in urban areas like New Delhi. This study is carried out at a rural agricultural site in Haryana (India) which mainly focuses on the emissions from rice paddy residue burning (October–November) and wheat residue burning (April–May) in the year 2017 & 2018. Measurements of  $\text{NH}_3$ ,  $\text{NO}_2$ ,  $\text{NH}_4^+$ ,  $\text{NO}_3^-$  were carried out using a low volume pump operating at a flow rate of 1 LPM. Average concentrations of  $\text{NH}_3$ ,  $\text{NO}_2$ ,  $\text{NH}_4^+$ ,  $\text{NO}_3^-$  were 99.3, 30.5, 5.3, 8.1  $\mu\text{gm}^{-3}$  and 32.3, 29.9, 1.2, 4.1  $\mu\text{gm}^{-3}$  during rice paddy and wheat residue burning respectively. Concentrations of measured pollutants were higher during October–November months which corresponds to rice paddy residue burning period in the IGP (Indo-Gangetic Plain). Burning of crop residues from rice-wheat cropping pattern of Punjab, Haryana and western Uttar Pradesh at large scale is a matter of serious concern not only for GHG emission but also associated with numerous environmental problems such as pollution, health hazards and loss of nutrients. The present study suggests the need for immediate attention and introducing alternative methods for management of crop residue. Incorporation of crop residues into the soil can be a sustainable alternative to the burning of crop biomass. Consequently, validating the emission estimates experimentally along with their associated uncertainties is the need of the hour.

**Keywords:** Agricultural residue,  $\text{NH}_3$ , Atmospheric Chemistry, Rice-paddy residue, Wheat residue, etc.