

## 6.148 Atmospheric chemistry of reactive nitrogen species over Indo-Gangetic plains (India). .

Early Career Scientist

Presenting Author:

**Saumya Singh**, Jawaharlal Nehru University, School of Environmental Science, New Delhi, India., [saumya.8singh@gmail.com](mailto:saumya.8singh@gmail.com)

Co-Authors:

**U.C. Kulshrestha**, Jawaharlal Nehru University, School of Environmental Science, New Delhi, India.

Abstract:

In India around 70 % of population lives in villages taking care of agriculture to meet the demand of food supply. In order to get higher yield of agriculture and food product, increased practice of fertilizer application has added extra load of nutrients especially the reactive nitrogen (Nr) species viz  $\text{NH}_3$  and  $\text{NO}_x$ . Growing energy demand has resulted in increased emission of  $\text{NO}_x$  from coal combustion in thermal power plant and the petroleum combustion in transport sector. In addition, biomass burning in traditional cooking and heating is also a significant source of  $\text{NO}_x$  in Indian region.

Significance of the study lies in the fact that increasing Nr emissions have adverse impact on human health, plant, soil and water bodies directly and to see the effect, knowledge of emission and deposition for Nr at different sites should be there.

Considering the implications of these two species ( $\text{NH}_3$  and  $\text{NO}_x$ ) in changing N cycle, the present study was carried out in Indo-Gangetic plains (IGP) at two sites of different characteristic (urban and rural) to study the emissions and atmospheric levels in relation to their sources and role of meteorological parameters. Study presents seasonal and diurnal variations of gaseous reactive nitrogen species at sites to observe the contribution of different sources of atmospheric Nr. Average concentrations of  $\text{NH}_3$  at urban and rural site have been recorded as  $40.4 \pm 16.8$  and  $51.57 \pm 22.8 \mu\text{g}/\text{m}^3$  respectively. The average concentrations of  $\text{NO}_2$  have been recorded as  $24.4 \pm 13.5$  and  $18.8 \pm 12.6 \mu\text{g}/\text{m}^3$  at urban & rural site respectively. Dynamics of Nr will be discussed in details at the conference.

Key words: Reactive nitrogen, ammonia, nitrogen dioxide, agriculture