

EGU21-9103, updated on 20 Oct 2021

<https://doi.org/10.5194/egusphere-egu21-9103>

EGU General Assembly 2021

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## Wet Deposition Fluxes of Nitrate and Ammonium at a Rural Agricultural Site in north India

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The chemical composition of rainwater is an indicator of the air quality and sources of influence. In this study, pH and ionic concentrations were measured in rain samples collected during monsoon season of 2018 at a rural agricultural site located in northern part of India. Wet deposition fluxes of reactive nitrogen species  $\text{NH}_4^+$  over  $\text{NO}_3^-$  were calculated to estimate their annual deposition. The pH of samples varied between 5.2 and 6.14, with an average value of 5.72 which is in alkaline range considering 5.6 as the neutral pH of cloud water with atmospheric  $\text{CO}_2$  equilibrium. These relatively high pH values indicate the neutralisation of acidity in precipitation. Samples were analysed for their cationic and anionic content using ion chromatography. The results showed that  $\text{NH}_4^+$  concentrations were higher than  $\text{NO}_3^-$  with the VWM concentrations of  $187.23 \mu\text{eq l}^{-1}$  and  $26.79 \mu\text{eq l}^{-1}$  respectively. Furthermore, wet deposition flux of  $\text{NH}_4^+\text{-N}$  was calculated as  $4.25 \text{ kg ha}^{-1} \text{ yr}^{-1}$  while that of  $\text{NO}_3^-\text{-N}$  was as  $2.10 \text{ kg ha}^{-1} \text{ yr}^{-1}$ . VWM concentrations of major ions decreased in the following order  $\text{NH}_4^+ > \text{Ca}^{2+} > \text{SO}_4^{2-} > \text{NO}_3^- > \text{K}^+ > \text{Cl}^- > \text{Na}^+ > \text{Mg}^{2+}$ . In this study, relatively high  $\text{NH}_4^+$  concentrations in rainwater can be attributed to nearby agricultural activities, excreta and biomass burning.

**Keywords:** Rainwater, Neutralisation, VWM concentration, Agricultural site, Reactive Nitrogen.