Synthesized measurements of reactive nitrogen fluxes onto a forest using gradient and relaxed eddy accumulation method

Kazuhide Matsuda, Takaaki Honjo,

Mao Xu, Taiichi Sakamoto

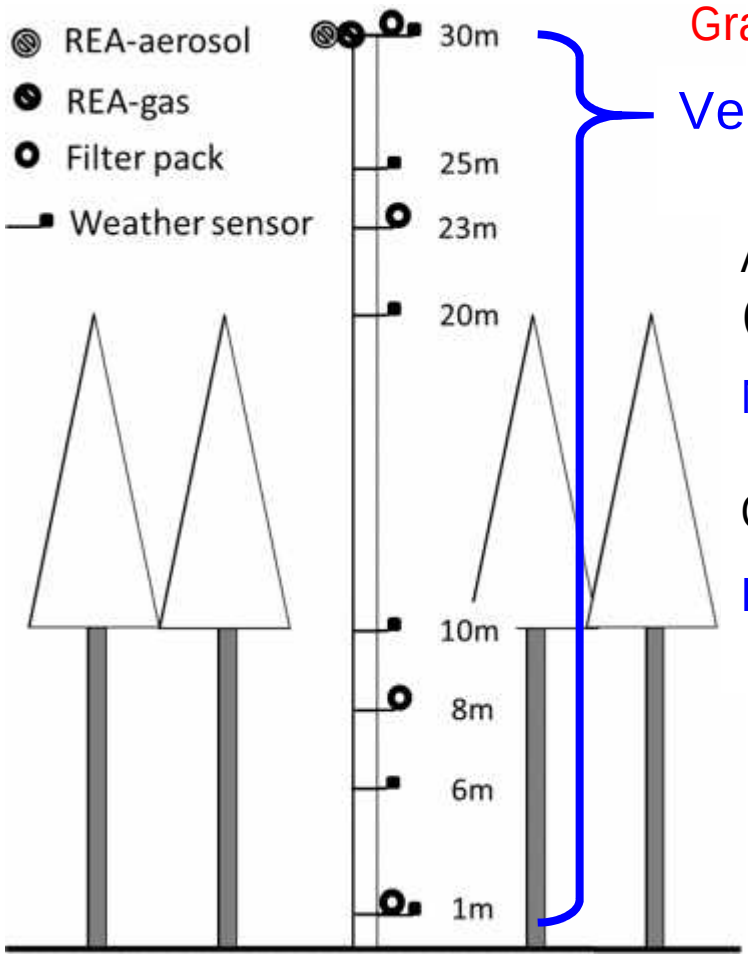
Tokyo University of Agriculture and Technology

REA-aerosol

REA-gas

Relaxed eddy accumulation (REA) method

Exchange fluxes of Nr



Gradient method

Vertical profiles of Nr

Aerosols ($PM_{2.5}$ & coarse)

NO_3^-, NH_4^+, SO_4^{2-}

Gases

HNO_3, NH_3, SO_2

Removal speed (Deposition velocity)

Theoretical Expectations

$HNO_3 > SO_2 > NO_3^-$ in coarse > **NO_3^- in $PM_{2.5}$ =** SO_4^{2-} in $PM_{2.5}$

Results measured by the synthesized measurement system

$HNO_3 >$ **NO_3^- in $PM_{2.5}$** $> SO_2 > NO_3^-$ in coarse > SO_4^{2-} in $PM_{2.5}$