

Estimation of trace gas fluxes in the forest of Mount Fuji using the multi layer model

NIJIMA, Kohei^{1*}; HIDA, Yuki¹; WADA, Ryuichi¹; MOCHIZUKI, Tomoki²; TANI, Akira²; NAKAI, Yuichiro³; TAKANASHI, Satoru³; NAKANO, Takashi⁴; TAKAHASHI, Yoshiyuki⁵; MIYAZAKI, Yuzo⁶; UEYAMA, Masahito⁷

¹Teikyo University of Science, ²University of Shizuoka, ³FFPRI, ⁴Yamanashi Institute of Environmental Science, ⁵National Institute for Environmental Studies, ⁶Hokkaido University, ⁷Osaka Prefecture University

We measured vertical profiles of nitrogen oxide, NO, nitrogen dioxides, NO₂, ozone, O₃, and VOC in the atmosphere in Fujiyoshida and Hokuroku forest observation sites at the foot of Mt. Fuji in summer 2012. The concentration of ozone increased gradually with the height, but the concentrations of NO and NO₂ did not changed obviously. VOCs showed characteristic vertical profiles. We calculated O₃ fluxes at parts of in and under the canopy, and around the surface layer as $-2.6 \pm 3.2 \text{ nmol m}^{-2} \text{ s}^{-1}$, $0.2 \pm 2.9 \text{ nmol m}^{-2} \text{ s}^{-1}$, $-8.7 \pm 5.2 \text{ nmol m}^{-2} \text{ s}^{-1}$, respectively.

Keywords: forest, atmosphere, nitrogen oxides, ozone, VOC, vertical profile