



Abstract Details

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Title: (OA12) Atmospheric nitrogen and Acidic Depositions on Lake Sihwa, South Korea

Abstract:

Continuous weekly measurements of atmospheric depositions of nitrogen and sulfur nutrient compounds (NO_3^- and NH_4^+) and other acidic components (HCOO^- , CH_3COO^- , MSA, SO_4^{2-}) have been made at three sites (Banwol, Hwasung, Daeboo) using automatic wet and dry samplers located along the shore of Sihwa Lake from June of 2000 to March 2004. Volume weighted mean pH at Banwol where is situated in the middle of industrial complex is the lowest with 4.9 compared to those of Hwasung with pH 5.3 and Daeboo with pH 5.0. The average annual wet deposition ($\text{g m}^{-2} \text{ year}^{-1}$) of NO_3^- , MSA, and SO_4^{2-} from three sites were 1.3, 0.8, and 2.2, respectively. Seasonal variation of nitrogen total deposition was found with late spring and early spring maxima. The average annual dry deposition of NO_3^- ($1.4 \text{ g m}^{-2} \text{ year}^{-1}$) and NH_4^+ ($1.3 \text{ g m}^{-2} \text{ year}^{-1}$) are comparable to those of wet deposition. Annual fluxes of nitrogen nutrients ($\text{NO}_3^- \text{-N} + \text{NH}_4^+ \text{-N}$) to Sihwa Lake surface were indicated $0.82 \text{ Ton N week}^{-1}$ for wet and $1.15 \text{ Ton N week}^{-1}$ for dry deposition. Atmospheric inputs of nitrogen nutrients to surrounding lake basin surface were estimated for $9.28 \text{ Ton N week}^{-1}$ for wet and $12.9 \text{ Ton N week}^{-1}$ for dry deposition. Compared with riverine inputs, atmospheric deposition appears to provide significant fluxes of nitrogen nutrients and many acidic components to Sihwa Lake.

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