

CO₂ efflux from snow surface in boreal forest

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CO₂ efflux from soil has been studied many places, however, that from snow surface has not been observed so much due to difficulties in measurement under severe conditions. CO₂ efflux from snow surface has been measured in forests at Moshiri, northern Hokkaido, Japan, from November 2004 to April 2005, and discussed on the relations with the physical properties of snow, such as snow depth and porosity. CO₂ efflux was measured using a closed-chamber method as well as the CO₂ concentrations at the bottom and surface of snow pack, and diffusion coefficient was calculated using the CO₂ efflux and the gradient of CO₂ concentrations. As a result, in the dry snow period, the diffusion coefficient was decreased with the increases of snow pack depth and density. In the snowmelt period, the diffusion coefficient was not related with snow depth and density, and daily CO₂ efflux indicated some relations with daily snowmelt amount.