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SHORT-TERM RESPONSES OF NITROUS OXIDE FLUXES TO NITROGEN AND PHOSPHORUS ADDITION IN A PEATLAND ON THE TIBETAN PLATEAU

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Abstract

The effects of nitrogen (N) and phosphorus (P) addition to peatland ecosystem on emissions of nitrous oxide (N_2O) were measured using the closed chamber method during one growing season within a peatland on the Tibetan Plateau. The highest N_2O fluxes occurred during late spring (May), while fluxes of N_2O were lowest during early autumn (September). No significant correlations were found between N_2O emissions and soil temperature. Because of the sites stable hydrological conditions no evidence of correlations between N_2O emissions and water content was found. There was a negative correlation between N_2O fluxes and vegetation height. It was clearly shown that the emissions of N_2O were significantly affected by increasing N availability. In contrast to that, no significant effect of P addition on the emissions of N_2O was found in the present study.

Key words: atmospheric deposition, greenhouse gases, high altitude peatland, Tibetan Plateau

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