



## **Effects of climate perturbations on the N-exchange between the atmosphere and a grassland in Central Hungary**

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Ecological observations and trace gas flux measurements were performed to determine and evaluate how nowadays-perturbed climate does impact on the N-cycle in a semi natural, semi arid grassland in Hungary. The changes in different climate parameters evidently affect not only the N deposition but also the soil N-exchange and N-gas emissions through the changes of soil conditions (e.g. soil temperature, humidity etc.), which mainly affects the processes controlled by micro organisms like mineralization, decomposition, nitrification, and denitrification. Due to the procedures above, the organic/inorganic N pool of soil or soil emission of NO, N<sub>2</sub>O as well as N uptake of plants are subject to change. These processes linked with other stressors (e.g. heat stress, water deficiency, etc.) may easily influence the plant physiology, productivity or plant species composition changes.

In 2006 and 2007, the amount of the deposited N is markedly decreased (between 15-30%) compared to the regular years. In the dry soil the NO emission in 2007 is higher than the N<sub>2</sub>O emission, latter is decreased compared to the earlier (2002-2004) years caused by the changes of weather conditions like less amount of precipitation.