



The Impact of Extreme Weather Events on Dissolved Organic Matter and Microbial Biomass of chernozem soils

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The aim of this experiment was to study the impact of the extreme weather events freezing-thawing and drying-rewetting on C-, N- and P-dynamics in dissolved organic matter and microbial biomass. The three variants of a chernozem soil (Voronezh region, Russia) are (1) fertilized maize cropping, (2) unfertilized maize cropping and (3) a bare fallow. After both abiotic perturbations the respiration rates were generally lower in the freezing-thawing than in the drying-rewetting treatment, due to the lower temperature. The elevated respiration came along with the decay of organic matter, which was also manifested in increased mineralization of C, N and P immediately after rewetting. However, freezing-thawing had significantly less impact on C-, N- and P-mobilization. We conclude that drying-rewetting leads to an initially increased mobilization of C, N and P, which becomes obvious as increased amounts of DOM immediately after rewetting. Freezing-thawing does not affect mobilization in the same way. There, only an increased mobilization of C can be observed. Especially concerning N and P, the reaction is dependent on the form of use/cropping in both treatments.