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Soil respiration and its variability due to soil moisture

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Due to the soil microbial activity, carbon dioxide is steadily released into the atmosphere, which implies that the content of the soil organic carbon decreases whereas the concentration of CO_2 in the atmosphere increases. The amount of released CO_2 is dependent on the soil and climate char-acteristics as well as on the land use and tillage management. Main objective of this study was to evaluate soil respiration activity at the arable land in the Czech Republic. To achieve that, 30 sampling plots have been chosen with a different soil type and climate. Each plot was sampled in 2 repetitions and altogether 12 undisturbed soil samples were taken from each at different sea-sons. Subsequently, the soil samples were incubated to measure the amount of CO_2 released through the microbial activity. A significant correlation (at confidence level of 0.05) was found between the soil respiration and temperature (75.6%), moisture (37.1%), Cox (18.3) and soil texture (11.7 %). The soil respiration for the arable land was quantified using a mixed effects model.