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### Assessment of infiltration zones by crop water stress derived from remotely sensed data

Infiltration zones are defined as areas with high ability of water infiltration to the soil. These soils are usually shallow, with high proportion of sand and low proportion of organic matter and with low retention capacity. The knowledge of infiltration zones spatial distribution is crucial for purposes of fertilization of crops in system of precision farming, management of nutrients loss (mostly nitrates) from soil and for protection of surface waters. In principle, usage of crop water stress for identification of infiltration zones is based on faster drying out of these zones and thus faster crop water stress development than in other areas. We analyzed relation between some

several soil types with different water regime with crop water stress index (CWSI) derived from aerial spectral and thermal data. Analysis was developed on example of winter wheat field with heterogenous soil characteristics in Czech Republic. Our results showed good agreement between CWSI and infiltration properties of analysed soils. High values of CWSI corresponding with soils with high ability for water infiltration (arenic cambisols). The difference of results between arenic cambisols and other soil types was statistically significant. This work was supported by grant of Technological Agency of the Czech Republic TA ČR Epsilon TH02030133.

#### Biography

Jakub Brom has completed his PhD at University of South Bohemia in České Budějovice, Czech Republic. He is the Associate Professor at University of South Bohemia, Faculty of Agriculture and closely collaborates with ENKI for non-profit organization Třeboň, Czech Republic. He has published more than 40 contributions in reputed journals and book chapters.

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