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Soil and Water Research

Analysis of climate change effects on evapotranspiration in the watershed Uhlířská in the Jizera Mountains

Remrová M., Císlarová M.:

Soil & Water Res., 5 (2010): 28-38

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This study has been conducted with the aim to analyse the hydrology balance in the experimental watershed Uhlířská under the actual atmospheric conditions and expected climate changes in the upcoming years. The main accent is put on the water availability for the water root uptake by the dominant grass vegetation (*Calamagrostis villosa*). Special attention is paid to the seasonal potential evapotranspiration estimation under mountain climatic conditions. Three methods for the potential evapotranspiration quantification are analysed in order to find out the most acceptable approach for future periods for which no adequate weather data are available. The future precipitation and temperature data are simulated by the regional climate model HIRHAM which is driven by global climate model HadCM3. The data are simulated for the period from 2071 to 2100. The modelling of the soil water movement (using S1D model) is carried out on selected 18 years from the period of 1961– 2005 and on selected 10 climate-change-affected years with extremely low precipitations high

temperatures. The results of the scenario presented do not indicate that the climatic changes should significantly affect the hydrological balance in the studied area in terms of evapotranspiration up to the year 2100. Due to the lower seasonal precipitation and higher air the temperature, was increased in the results of simulations under the defined approach, however, the local vegetation cover did not suffer from insufficient water supply. These considerations are close to the simulation models used.

Keywords:

air temperature; climate change; climate models; potential evapotranspiration; precipitation; soil water movement; simulated actual evapotranspiration

[[fulltext](#)]

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