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### Soil and Water Research

Impact of Arable Land to Grassland Conversion on the Vegetation-period Water Balance of a Small Agricultural Catchment (Němčický Stream)

Kovář P., Vašková D.:

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This paper presents results of decadal (10-day) water balance simulations for the vegetation periods (April to October) of 2001 (normal year), 2002 (wet year) and 2003 (dry year) in the Němčický Stream experimental catchment (3.52 km<sup>2</sup>). The catchment is a typical agricultural area with a large extent of arable land. This paper shows that the model used (WBCM) is capable of reliably simulating decadal water balance components for the actual land use. The same model is then used to estimate water balance changes brought about when 10% of arable land has been transformed into permanent grassland. It is shown that this land use change results in a pronounced reduction of surface runoff and an increase in subsurface storage over the vegetation periods of all three years. The vegetation period groundwater runoff was only enhanced in the wet year, while the total runoff was reduced in all three years.

**Keywords:**

hydrological extremes; hydrological  
modelling; land use change; water  
balance

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