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**Examination and advancement of soil water balance parameters by soil
water content measurements in the drought 2003**

Bernd Schultze, Hans-Peter Dietrich, Winfried Grimmeisen und Stephan Raspe

Bayerische Landesanstalt für Wald und Forstwirtschaft

Abstract

At the 22 Bavarian Forest Ecosystem Monitoring Stations (Level II) complete meteorological data sets are measured. Additionally soil water content and tension were measured at 6 Level II plots in different depths by TDR probes and tensiometers, respectively. This enables the simulation of the water balance at the Bavarian Level II plots by the application of the water balance model LWF-BROOK90, which was advanced by us during the last years. The measured water content is used to examine the simulations. Soil water balance parameters (porosity, field capacity, permanent wilting point) which are derived from soil physical parameters by the pedotransfer function HYPRES can be examined too.

In the drought 2003 a great natural field experiment took place. An extreme dehydration of the soils were observed. At many Bavarian Level II plots the whole plant available water supply was consumed. This field experiment now allowed to examine the used model parameters in a wider range. The examination showed, that the soil water balance parameters of the pedotransfer function HYPRES in some cases are not consistency with the observed field data.

Therefore it is necessary to make more systematic soil physical and soil hydraulic measurements at forest soils to advance and validate pedotransfer functions for forest soils. Now we have a good opportunity for a selective examination of pedotransfer functions of forest soils within the level II program., Data of level II plots where complex meteorological measurements took place in 2003 should be used for that purpose. A proposal for a project outline for the advancement of pedotransfer functions for forests sites will be presented.