



Assessment and evaluation of soil moisture in Iowa using hydrological modeling and observational data

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The data from soil moisture observed at the hillslope scale in several locations of Central and Eastern Iowa are compared with estimates of water content at the upper zone of the soil derived from a distributed hydrological model. Both observed and simulated data are available at fine temporal resolution. We analyze the adequacy of the hydrologic model structure to reproduce the processes that partition rainfall into soil moisture. The model uses a decomposition of the landscape into hillslopes and channel links. Runoff generation takes place at hillslopes accounting for soil properties, topography, and land use. The in-situ soil moisture data have not been used in model development and thus the comparison presents an interesting test of the model's ability. The rainfall data forcing the model are available from high-resolution radar-rainfall maps and/or rain gauge measurements located in the same hillslopes where the soil moisture probes are installed.