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- Title and Author Search

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Modelling soil moisture for a grassland and a woodland site in south-east England

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Abstract. This paper describes a comparison between two soil moisture prediction models. One is MORECS (Met Office Rainfall and Evaporation Calculation Scheme), the Met Office soil moisture model that is used by agriculture, flood modellers and weather forecasters to initialise their models. The other is MOSES (Met Office Surface Exchange Scheme), modified with a runoff generation module. The models are made compatible by increasing the vegetation information available to MOSES. Both models were run with standard parameters and were driven using meteorological observations at Wallingford (1995-1997). Detailed soil moisture measurements were available at a grassland site and a woodland site in this area. The comparison between the models and the observed soil moisture indicated that, for the grassland site, MORECS dried out too quickly in the spring and, for the woodland site, was too wet. Overall, the performance of MOSES was superior. The soil moisture predicted by the new, modified MOSES will be included as a product of Nimrod - the 5 km x 5km gridded network of observed meteorological data across the UK.

Keywords: Soil moisture, model, observation, field capacity

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