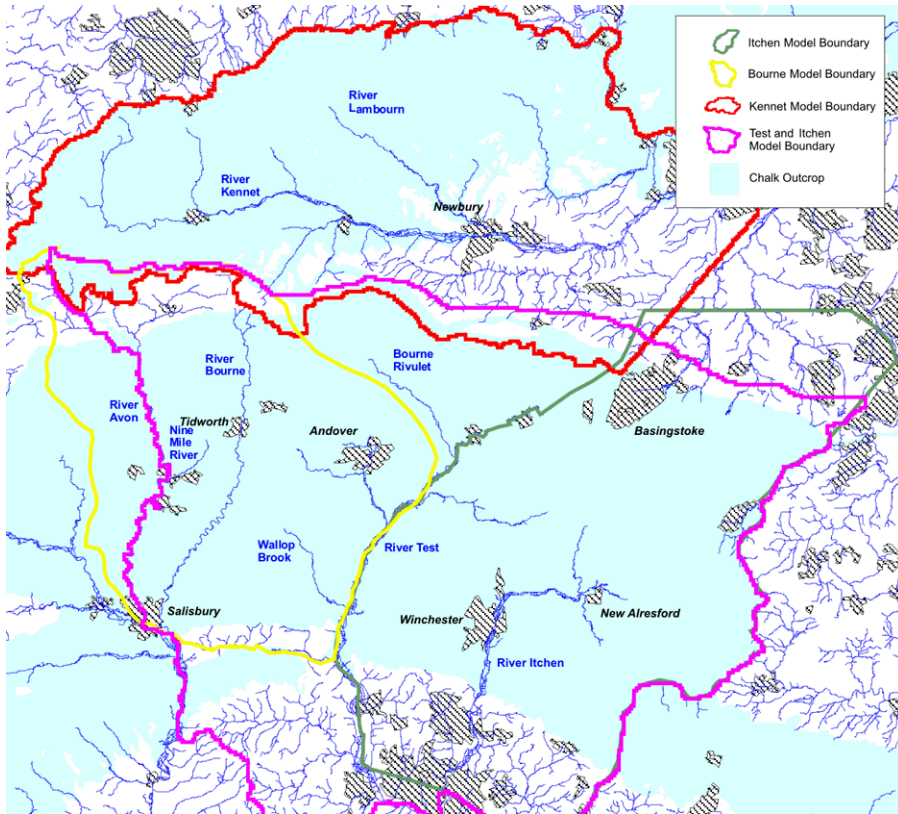


A Comparison of Chalk Groundwater Models in and Around the River Test Catchment Environment Agency Science Group - Air, Land & Water

Aiding consistency among the national groundwater modelling community



Over the last three years, the Environment Agency (the Agency) has been preparing three catchment-scale chalk groundwater models in Hampshire, Berkshire and Wiltshire. These models have been prepared by three different regions of the Agency using three different consultants.

The Test and Itchen groundwater model is currently being developed for the Agency by Entec and spatially overlaps with the three existing model areas. This is the first time that a new model has overlapped with several recently built models and the Agency wanted to communicate the valuable lessons learnt and issues raised to the modelling community nationally.

Entec were asked to consider the construction and operation of the three

existing models and compare the representation of the near-surface and groundwater flow systems - the boundaries, initial conditions, aquifer properties and key recharge and discharge processes. The study also compared water balances and flows across boundaries.

The study concluded that many aspects of conceptual understanding and groundwater modelling techniques were similar in the three existing models. In particular the concepts, aquifer properties and groundwater – surface water interaction modelled in the Bourne and Itchen studies provide a sound and consistent basis for the Test and Itchen model. The study did however highlight considerable differences in the implementation of, and hence results derived from, the recharge estimation

methods. This has provoked useful national discussion and helped to facilitate increased sharing of ideas between different Agency regions and consultants in an attempt to both further understanding and guide future work.

The report also includes examples of useful formats for presenting conceptual and numerical model output and suggestions for future work as part of both the Agency Science Group Research Programme and the Groundwater Modelling Programme. Copies have been widely distributed amongst Agency staff and external consultants.

