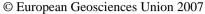
Geophysical Research Abstracts, Vol. 9, 08291, 2007

SRef-ID: 1607-7962/gra/EGU2007-A-08291





## Using sub-grid-scale topographic information to parameterise a probability-distributed runoff-production scheme for regional climate modelling

**S. J. Dadson** (1), V. A. Bell (1)

(1) Centre for Ecology and Hydrology, Maclean Building, Crowmarsh Gifford, Wallingford, Oxfordshire, OX10 8BB.Tel: +44 (0)1491 838800; Fax: +44 (0)1491 692424. Email: sjdad@ceh.ac.uk; vib@ceh.ac.uk

Fully-coupled regional climate models require the representation of hydrological processes at spatial scales coarser than the scale over which topographic variability influences water fluxes. It is possible to retain sub-grid-scale information by constructing a parameterised representation of fine resolution topography.

Here we describe a procedure that can be used to infer catchment and grid-pixel hydrological properties from existing topographic and geomorphic datasets. This procedure permits the calculation of the probability distribution of soil moisture stores within a grid pixel or a catchment. The new scheme is demonstrated in use as a hydrological sub-component of a regional climate/land-surface model.

As well as improving the representation of hydrological processes in coarse resolution gridded flow models, the work may provide a physically-based method of providing enhanced calibration of hydrological models in ungauged basins using readily available geomorphic data.