

Interactive comment on “Land-surface modelling in hydrological perspective” by J. Overgaard et al.

J. Overgaard et al.

Received and published: 14 March 2006

Final author comments

First, we would like to thank the four reviewers for their valuable comments. Among the comments are suggestions for how to make the paper more readable (sentence structures, language issues and structure of the paper). These recommendations have all been taken into account in the revised paper, and will not be specifically addressed here. The responses to the more general comments are given below.

Blöschl and Daamen suggest that the status of the paper as a review paper should be more clearly indicated already in the title. We agree and, consequently, the title has been changed to: “Land-surface modelling in hydrological perspective - a review”.

Menzel points out that the purpose of the paper comes quite late in the introduction. The idea has been to present the necessary background before defining the exact purpose of the paper, but we take the point. Instead of changing the introduction, we have, however, chosen to emphasise the purpose of the paper in the abstract.

Full Screen / Esc

Print Version

Interactive Discussion

Discussion Paper

Daamen and anonymous referee #4 suggest that it is more clearly stated what scale the paper addresses. Anonymous referee #4 asks what “hydrological scales” are, and Daamen suggests that the perspective seems to be one of modelling catchment hydrology using groundwater models. By hydrological scales we mean the spatial scale at which distributed hydrological models are normally applied. We are aware that this is not very specific, since hydrological models are applied from the continental scale to the scale of, e.g., a single well field. We find that the topics discussed here are relevant over a wide range of scales, and, accordingly, we have decided not to be more specific.

Daamen expresses that there is a large potential in using remote sensing to replace evapotranspiration models, and that this may be a better way to utilise RS data. We agree that this indeed is an interesting topic, but considering that one of the most important uses of numerical models is forecasting and evaluation of scenarios, we believe that there will be a continued need for evapotranspiration models, and hence a need for distributed data for evaluation of these models.

Blöschl points out that an image of surface temperature represents a very short period of time, an issue that was not stressed in the paper. A comment about this has now been added at the end of section 3.1.1. Hopefully, the temporal resolution of surface temperature products will improve in the future (METEOSAT Second generation, 15 min., see e.g. Sobrino and Romaguera, 2004, Remote Sensing of Environment). This would improve the efficiency of using surface temperature for evaluation purposes, and hence reduce the problem.

Anonymous referee #4 suggests that we should be more specific on how to couple hydrological and atmospheric models through a shared land-surface scheme. It is indeed correct that this topic is only briefly touched upon in this paper. We included the section about coupling because it is one of the new possibilities that arises, when energy-based land-surface models are implemented in hydrological models. Although the section contains a short review of selected work in this area, it is rather meant as an introduction to the topic only. As interesting as the coupling issues may be, we believe

[Full Screen / Esc](#)[Print Version](#)[Interactive Discussion](#)[Discussion Paper](#)

that a detailed discussion on how to actually create the coupling would be outside the scope of this review paper. The subject is discussed in some details in Overgaard, 2005, and will be addressed in a forthcoming paper.

Interactive comment on Biogeosciences Discussions, 2, 1815, 2005.

BGD

2, S1036–S1038, 2005

Interactive
Comment

Full Screen / Esc

Print Version

Interactive Discussion

Discussion Paper