

## Preface

There is an increasing demand for the forecasting of water quantity as well as quality, at all scales from the local (point) scale up to the regional (meso and macro) scale. Therefore, while in the past research concentrated on the development of modelling tools, regionalization has become one of the major issues in hydrology.

Due to the enormous effort of the past decades, the basic principles of hydrological processes are well understood and numerous models, applicable at different scales, have been developed. However, it is not usually possible to apply such models across scales because the model structure, and/or the model parameters, are scale variant. Therefore in addition to the classical definition of regionalization (determination of hydrologically similar units), it is necessary to analyse problems concerned with interpolation, and up- and downscaling. While interpolation takes place at a certain scale, up- and downscaling are concerned with a change of scale from the local up to the regional scale, or *vice versa*.

The conference on Regionalization in Hydrology which took place in March 1997, aimed to explore new mathematical and computational tools to describe and analyse the behaviour of hydrological systems at all relevant scales from the point to the global, for whole systems and for subsystems. The aim was to bring together scientists involved in this subject area from different disciplines and from different countries. In order to stimulate research on scale-dependent processes, in 1992 the Deutsche Forschungsgemeinschaft established a programme focusing on regionalization in hydrology; it concluded in 1998. Nearly all the groups participating in this research programme presented their results at the conference and so there was comprehensive coverage of recent developments in German hydrology regarding regionalization, in addition to international contributions. The papers included in this volume are selected oral and poster presentations. They give an overview of actual model and regionalization concepts, scaling of properties and processes, and of modern software tools.

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This publication is dedicated to the memory of Dr U. de Haar who died on 2 February 1998. He was responsible for funding research on hydrology at the Deutsche Forschungsgemeinschaft and so for the "Regionalization in Hydrology" programme. Since he was not only a financial administrator but was actively stimulating research, the scientific community loses one of its outstanding personalities at the boundary between hydrological science and research.

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