



## **Water's Journey from Rain to Stream in perspective**

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The International Hydrological Decade (IHD) 1965-1974, sponsored by UNESCO, initiated a research effort for coordinating the fragmented branches of hydrology and for understanding and quantifying the hydrologic cycle on various scales, from continents to small catchments. One important part of the Swedish IHD-program was to quantify the terms of the water budget, including detailed data on soil water and groundwater storage dynamics, of several medium sized to small. As an outcome of these studies and subsequent process oriented studies, a new view of the runoff process in forested till soils was developed in the 1970's, stressing the dominating role of groundwater in delivering water to the streams and the usefulness of subdividing catchments into recharge and discharge areas for groundwater for understanding the flowpaths of water. This view contrasted with the general view among the public, and also among professionals within the field and in text books, according to which overland flow is the main process for runoff. With this latter view it would, for instance, not be possible to understand stream water chemistry, which had become an important question in a time of growing environmental concern. In order to decrease the time lag between research results and practice, the Swedish Natural Science Research Council initiated a text book project for presenting the recent results of hydrologic research on stream flow generation applied to Swedish conditions, and in 1985 our book "Water's Journey from Rain to Stream" was published. Founded on the basic principles for water storage and flow in soils, the book gives a general picture of the water flow through the forested till landscape, with separate chapters for recharge and discharge areas. Chemical processes along the flowpaths of water are treated and the book concludes with a few applications to current issues. The book is written in Swedish and the target audience is those working professionally with water and university students. Guiding pedagogic ideas for the book were to present scientific findings on a strict physical basis, with few equations but with much emphasis on explanatory and attractive illustrations.

What have we learnt during the 30 years that have passed since the book was published? Does the book's general picture of the water flow through the landscape agree with recent scientific findings? Main breakthroughs in the understanding of the flow processes based on field studies with advanced measurement techniques, tracer studies, remote sensing and flow and transport modelling will be commented.