

## Special Section on Ecohydrology—Editorial

The terms ecohydrology and hydro-ecology (also written as eco-hydrology and hydroecology) are now in common usage. A search on the Internet comes up with a plethora of related entries. There are university units, study courses, research projects, scientific conferences, and journal papers devoted to ecohydrology. There are several books with ecohydrology (or hydro-ecology) in the title and even a dedicated periodical: the *International Journal on Ecohydrology and Hydrobiology*, launched in 2001 (edited by Zalewski and Harper).

Yet, despite dynamic recent activity in the area of ecohydrology, the notion does not necessarily mean the same thing to everyone. A number of competing definitions raise sensitivity and controversy among scientists and practitioners alike. This situation may confuse many a layman. Therefore, it seems worthwhile to extend the base of the consensus as to the interpretation of the notion “ecohydrology”, and to strive towards more clarification and order (without detriment to creativity). As Editor of *Hydrological Sciences Journal* (HSJ), I took the initiative to promote an exchange of thoughts among experts actively involved in ecohydrology research, who may not necessarily agree as to the interpretation of the term. I circulated a draft background paper early in 2002 among a dozen or so scientists involved in ecohydrology research, with an invitation to react in the form of commentaries or short stand-alone articles. Positive reactions from most respondents to the idea of such a discussion endorsed my willingness to accommodate a Special Section on Ecohydrology in a regular HSJ issue.

This Special Section contains five elements. After my background paper “Ecohydrology—seeking consensus on the interpretation of the notion”, there are two discussions: “Is ecohydrology one idea or many?” (Nuttle) and “Ecohydrology—a completely new idea? (Bonell). These are followed by two independent papers: “Ecohydrology: a challenging multidisciplinary research perspective” (Porporato & Rodriguez-Iturbe) and “Ecohydrology—the use of ecological and hydrological processes for sustainable management of water resources” (Zalewski). These articles, which I was delighted to read, were prepared simultaneously and contain no cross-references to each other.

Even if experts do not necessarily agree on the details of the interpretation of the notion of ecohydrology, they seem to agree that the interface between hydrological and ecological sciences is a major research challenge. A question of much theoretical and practical importance is: How do hydrological systems control (and how are they controlled by) ecological systems? Ecohydrology, understood broadly as the science of bilateral interactions between water resources and ecosystems, may provide environment-friendly solutions to several problems related to water abundance, scarcity, and pollution. Unlike the inflexible (or even irreversible) large structural means of protection against hydrological extremes, ecohydrology-based methods may not adversely affect the sustainable development principles.

I wish to express my warm thanks to all the contributors to this Special Section, who delivered excellent material, and, united around the idea, met our tight deadlines. I also thank other experts, who offered their advice and assistance in reviewing the material.

I should like to take this opportunity to congratulate Professor Ignacio Rodriguez-Iturbe, co-author of an article in this Special Section, and former Vice-President of IAHS (1983–1987), on the occasion of receiving the highly prestigious 2002 Stockholm Water Prize, from the hands of His Majesty the King Carl XVI Gustaf of Sweden. It is the second time that this high award is bestowed upon a hydrologist who paid a substantial contribution to ecohydrology: in 1997, the Stockholm Water Prize was given to Professor Peter S. Eagleson who had made pioneering and landmark contributions to the studies of climate–soil–vegetation relationships and water-related ecological optimality.

This Special Section of HSJ provides a novel opportunity for Journal readers, as exponents of different views on the term “ecohydrology” present their perspectives here. I trust that the collection of opinions contained in this Special Section brings us a little closer to a common understanding of the notion and to a more unified interpretation.

**Zbigniew W. Kundzewicz**

Research Centre for Agricultural and Forest Environment,  
Polish Academy of Sciences, Poznan, Poland  
*and*  
Potsdam Institute for Climate Impact Research,  
Potsdam, Germany