

## Preface

This 1½-day workshop included 13 oral presentations (four in French) on a wide range of scientific issues associated with the large field of karst hydrology. Presentations included both theoretical and applied studies on modelling karst water aquifers (flow and solute transport), analytical analyses of tracer tests, estimation of transmission losses in arid zone rivers using tracer techniques and assessment of groundwater vulnerability in karst areas. Several papers dealt with regional studies of karst water systems in arid and semiarid regions. This volume contains papers selected from those presented at the workshop together with reports from the workshop convenors and rapporteurs.

The workshop considered the following three topics as the main recent problems in karst hydrology:

- \* *Modelling of flow and transport in karst aquifers.* The use of standard techniques is problematic and new approaches are required. Two papers are presented outlining advanced ideas concerning modelling.
- \* *Recharge processes of karst aquifers.* Recharge is of fundamental importance but the actual processes are very complicated and not sufficiently understood, particularly in the arid and semiarid zones. The roles of adjacent porous aquifers and of alluvial fans are topics of particular concern which should be investigated in the future. Although only one paper was presented specifically on recharge processes, there was useful discussion in the workshop.
- \* *The high vulnerability of karst water systems.* Four papers addressed this problem which makes it necessary to incorporate special measures of protection into management schemes.

Aware of the fact that karstic limestone aquifers are widespread in North Africa, the convenors originally intended to offer a regional topic for this conference in Morocco and to attract researchers and senior employees from governmental and regional water resources staffs of the host country and neighbouring countries. Unfortunately, the idea of strengthening the links between the regional karst hydrologists was not picked up broadly. Although numerous colleagues registered initially, many were forced to cancel their participation in the workshop due to the very restricted financial means in their countries. However, a number of regional papers are included in these proceedings and it is hoped that these will be of interest to those who were unable to attend.

In contrast to the normal format for workshops during Assemblies, papers were presented briefly and without discussion in the first half of each session. In the second half specific open research and methodological problems, identified by the participants or the convenors were discussed intensively within working groups and within the plenum. In addition to the convenors,

L. Bouchaou (Morocco), J. Lange, A. Werner and T. Clemens (Germany) acted as rapporteurs in the three respective sessions. This experimental format for running a workshop was highly appreciated by the 45 participants.

Several problems and areas where our knowledge is incomplete were identified during the workshop. The convenors would like to encourage colleagues/readers to pick up such problems for further scientific treatment and to contact the respective authors to discuss their work in greater detail.

The workshop was organized by the International Committee on Tracers and co-sponsored by the International Commission on Groundwater of IAHS.

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