



NEWS AND INFORMATION

International Association of Hydrogeologists

The international groundwater organisation

Since 1956 a world-wide forum on the management of groundwater for the benefit of mankind and the environment

Groundwater debate on the Virtual Water Forum

The 3rd World Water Forum (3WWF) will be held in Kyoto, Japan In March 2003. The meeting will be a forum for people from various fields and regions, including water experts, decision makers and NGOs looking for better understanding and appropriate solutions to the urgent water problems of the world.

But how do those who cannot attend such a meeting get their voice heard? It is with this in mind that the 3rd World Water Forum is taking a new approach to gathering submissions as varied and as widespread as possible. One of these is the Virtual Water Forum (VWF), web based "conference rooms" which allow anyone to contribute their opinions or learn about world water issues.

So far, nearly seventy such "conference rooms" have been set up on a wide variety of topics. IAH is keen to see a wide discussion on groundwater issues in order to bring to the attention of the world water community some of the challenges and opportunities of groundwater management. Among a number of discussion topics with a groundwater related theme are the following established by IAH moderators.

- Groundwater in Urban Areas - the key to the sustainable growth of healthy, prosperous cities - Ken Howard, IAH Vice President;
 - Transboundary Aquifer Resources Management - Shammy Puri, IAH Commission Chair;
 - Groundwater Irrigation: More crops and jobs per drop than surface water irrigation? R a m o n Llamas, Former IAH President;
 - Water & Sanitation for the Urban & Peri-urban Slums - Shrikant Limaye, IAH Vice President.
- More will be added in the next few months.

The site, run by the 3WWF organising committee, is very efficient, but so far the discussions are not generating much debate. So why not go and join in with your views.

How can you participate?

The Virtual Water Forum can be found at <http://www.worldwaterforum.org/for/en/flist> The site is password controlled and, although it is possible to enter as a guest, it is easy to register a user address and receive a password.

How to contact IAH

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To join IAH please use the on-line service on our web site, download our membership form or contact the IAH office

Inside this issue	Page
Path to Kyoto	1-2
Artificial Recharge	4-5
UNESCO	8-9
Conference Calendar	12

The path to Kyoto



In 1992 IAH was a contributor to the International Conference on Water and the Environment (ICWE) held in Dublin in January of that year. This conference was one of the feeder conferences to the 1992 UN

Conference on Environment and Development (UNCED) held in Rio de Janeiro in June 1992. UNCED produced Agenda 21 of which chapter 18, the freshwater chapter, was founded on the outputs of the Dublin Conference.

The focus on groundwater at Dublin and Rio was limited - it was not ignored but the understanding of the importance and special character of groundwater issues was not recognised. Over 10 years the situation has changed for the better. The second world water conference at The Hague in 2000 was perhaps the turning point and we are already engaged in ensuring that groundwater issues are well to the fore in the third world water congress in Japan in 2003 (see front page).

10 years after Dublin was last December's Bonn International Conference on Freshwater at which our signpost picture was taken.



Bonn is a feeder meeting to the UN World Summit on Sustainable Development to be held in Johannesburg in September 2002 marking the the anniversary of the Rio Conference. The Bonn Conference adopted the "Bonn Keys" as a contribution to Johannesburg 2002.

If you want to follow the path to Kyoto please visit:

- Bonn International Conference on Water and the Environment <http://www.water-2001.de/>
- Johannesburg World Summit on Sustainable Development <http://www.johannesburgsummit.org/>
- Kyoto Third World Water Congress <http://www.worldwaterforum.org/>

IAH Pakistan sponsors training courses

The Pakistan National Chapter has continued to extend its activities and has recently organised two national training courses. They are seeking help from IAH members to further develop groundwater training in Pakistan.

3-4 September 2001 - national training course on Groundwater and Groundwater Modelling - lecturers Ghulam Sarwar and Iftikhar Ahmad

31 January to 1 February 2002 - national training course on Groundwater Resources and Their Environmental Impacts - lecturer Dr A Q Rathur

Both course were well attended by participants from various public and private organizations. The Director for both courses was Sajid Rashid, Assistant Professor, Institute of Geology, Punjab, Lahore. He has recently been appointed the Convener/Head of Section of Hydrogeology at the Institute of Geology.



*Sajid Rashid,
Secretary of
the Pakistan
National
Chapter*

Members of IAH are asked to support the training initiatives being run by the Institute of Geology in association with the IAH Pakistan National Chapter. In particular Sajid is now planning an M.Sc. degree course and would appreciate contact with course directors from other countries with the prospect of sharing course materials. If you can help, please contact him at the Institute of Geology, Punjab University, Lahore, Pakistan. sajidpu@yahoo.com

Consulting farmers on sustainable groundwater use in India

Report by Dr S D Limaye on IGC2002, an international groundwater conference on sustainable development and management in semi arid regions with special reference to hard rocks held in Dindigul, India, 20-22 February 2002

IGC 2002 was the first international conference on groundwater held in a rural environment in India, where farmers took an active part in some of the sessions. Translation from English to Tamil (the local language) and vice-versa for the benefit of the farmers was thus a unique feature of the conference.

Dindigul, a small town near Madurai in the state of Tamil Nadu in south India, lies in hard rock terrain of fractured granite. Groundwater in Dindigul area is highly polluted due to industrial effluents from the local tanneries. The town was therefore an appropriate venue for the IGC 2002, which attracted about 250 participants, including delegates from Australia, England, and France. Over 50 representatives of farmers and their NGOs were also present. The conference was organized by the National Geophysical Research Institute, (NGRI), Hyderabad; Central Ground Water Board, Chennai, Collectorate of Dindigul District and local Trusts and Engineering Colleges. It was sponsored by NGRI, British Council, Tamil Nadu Water Supply and Drainage Board; Department of Science and Technology, New Delhi.

There were several co-sponsors from Government and the private sector. IAH, through the international office and the Indian National Committee, also co-sponsored the conference, particularly to promote the attendance of the farmer community. The technical sessions were devoted to the following themes, in which about 120 papers were presented orally:

- Assessment of groundwater potential through application of GIS, Remote Sensing and Geophysics;
- Groundwater recharge through natural and artificial processes;
- Groundwater pollution and remedial measures;
- Aquifer characterization in hard rocks;

- Modeling of groundwater flow and mass transport; and
- Community based groundwater resources management.

On the last day, the panel discussion proved to be a marathon session of three and a half hours duration. In this session over 30 farmers expressed their views and difficulties related to groundwater, to which the panel of seven experts from India and abroad responded. The depletion of groundwater table, removal of sand from river beds by the construction industry, saline water ingress, economics of irrigation with groundwater, equitable water distribution, water divining, bio-indicators of groundwater, and pollution from tanneries and from septic tanks, were some of the topics referred to by many farmers. However, recently, the tannery industries in Dindigul have cooperated in establishing a common effluent treatment plant.

Although Dindigul is a small town, the Collectorate and the Engineering Colleges with the help of local NGOs, provided various facilities to the delegates. Dr Thangarajan (mthangarajan@satyam.net.in) and his Organizing Committee deserve compliments for the success of the conference. The impressive, 586 pages volume of Conference Proceedings, has been published by the Oxford and IBH Publishing Co. Pvt. Ltd, (New Delhi and Kolkata).



A market in Tamil Nadu

Dr S D Limaye
IAH Vice President (Asia)

Commission on Management of Aquifer Recharge established

At its meeting in Barcelona in January 2002, the IAH Executive Committee approved the renaming of the IAH Artificial Recharge Working Group as the IAH Commission on the Management of Aquifer Recharge (IAH-MAR). This change reflects the reality that water banking and bank filtration harness natural processes to manage and enhance aquifer recharge, together a vital tool in the sustainable management of the world's groundwater resources.

IAH-MAR has its roots in the Working Group on Artificial Recharge, founded in 1998 by Ivan Johnson of AIJ Consultants in Denver and formerly of USGS, an activist for more than 30 years in artificial recharge research and practice, and leader of the ASCE/EWRI Standards Committee for Artificial Recharge. The group had its 1st meeting in November 2000 at IAH Cape Town Congress.

At the 2nd meeting of IAH MAR in Munich in September 2001 it became clearer that these aims would require a sustained series of activities over a number of years. With UNESCO advising that it intends to have recharge enhancement as a priority area within the 6th International Hydrological Program, 2002-2007, IAH signals its intention to reinforce this initiative by renaming the IAH-MAR Working Group as a Commission on Management of Aquifer Recharge. IAH establishes Commissions to oversee clusters of activity that operate over a longer term and generally embrace larger objectives that require sustained effort.

Aims of IAH-MAR

IAH-MAR aims to expand water resources and improve water quality in ways that are appropriate, environmentally sustainable, technically viable, economical, and socially desirable. It will do this by encouraging development and adoption of improved practices for management of aquifer recharge. This will be achieved by increasing awareness of MAR among IAH members, related professions and the community, by facilitating international exchange of information between members (e.g. via a web page www.iah.org/recharge and an email list), by disseminating results of research and practical experience (e.g. via conferences and reference

database), and by undertaking joint projects and activities identified as important by its members.

Specific goals for the IAH-MAR Commission

- That by 2004 all new recharge enhancement projects in developing and developed countries are appropriate and sustainable. Specifically:
 - that recharge enhancement is part of an integrated plan including demand reduction where aquifers are over-exploited, and
 - that planning, design, construction, operation and maintenance of recharge enhancement projects take into account sustainability of the project technically, environmentally, socially, and in a regulatory context and from a catchment/basin perspective.
- That there is continuous improvement in the design and operation of all types of managed recharge projects throughout the life of the commission.
- That security of water supply volumes and quality are increased as a result of effective management of aquifer recharge.
- That knowledge of the world status of the installed capacity and effective utilisation of managed aquifer recharge be determined, so as to assess its uptake and effectiveness.
- That the IAH-Commission on MAR plays a central role in integrating international and national efforts in this field, and provides effective communications via web pages, email list and links with other organisations with common goals.
- That IAH MAR stimulates and promotes training and education programs, workshops and conferences in order to ensure effective communication to all with a need to know, and with particular consideration to those in developing countries. This will be done by holding international conferences in 2002 and 2006, with intermediate regional conferences either alone or integrated within national and international IAH meetings.
- That IAH-MAR has a capacity to respond to needs in this area, particularly for developing countries and where needs are severe.

For more information visit www.iah.org/recharge

22-26 SEPTEMBER 2002
ADELAIDE SOUTH AUSTRALIA



Management of Aquifer Recharge for Sustainability

www.groundwater.com.au/conf/ISAR4.htm

Contains additional information on:

- Full registration brochure (pdf)
- Symposium program and list of papers
- Social, site visits and tour program
- Accommodation
- Registration (secure server)

Invitation

This unique international Symposium will focus on artificial recharge of aquifers for storage purposes, an area of intensive innovation with great potential to make a positive contribution to the management of the world's water issues. The Symposium will build on the successes of past symposia, the last of which was held in 1998 in Amsterdam.

The organizing committee and its affiliated international organisations and sponsors invite you to participate in the 4th International Symposium on Artificial Recharge with the theme Management of Aquifer Recharge for Sustainability.

Program

Issues to be discussed include:

- Sustainability of managed recharge
- Water quality changes in the subsurface
- Geochemistry of aquifer recharge
- Fate of pathogens and organics
- Management of clogging
- Storage and recovery efficiency
- Water reuse via aquifers
- Unsaturated zone processes
- Environmental applications of recharge projects
- Arid zone water management
- Injection well issues and solutions
- Pond and bank filtration issues and solutions
- Holistic urban water management

An open plenary of IAH Commission on Management of Aquifer Recharge will be held on Tuesday evening. The mid-Symposium tour covers UNESCO International Water Prize – winning recharge projects.

Key registration dates

Earlybird registration fee closes

Friday 28 June 2002

Standard registration fee closes

Friday 23 August 2002

On-site registration fee applies after
23 August 2002

The full Symposium fee includes entry to all social functions, Welcome Drinks on Sunday evening, the Symposium Reception on Monday evening and the Symposium Dinner. It also includes Symposium proceedings, morning and afternoon teas and lunches on each day and the technical tour on Wednesday 25 September. Additional information on concession and day registration may be found on the web site.

Further Information

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www.groundwater.com.au/conf/ISAR4.htm



Conference News



XXXII IAH & VI ALHSUD Congress "Groundwater and Human Development" - Mar del Plata, Argentina, 21-25 October 2002

The next IAH Congress will be held jointly with ALHSUD in October in Argentina. The Organizing Committee (many of them in the picture below) would like to invite the international scientific hydrogeological community to attend this Congress in Mar del Plata, a noted coastal resort and the venue of the first UN international water conference in 1977, twenty-five years ago. We are very encouraged that some 400 extended abstracts have already been received. That fact, along with the interesting opportunity of pre and post congress courses, workshops and outings to visit the most important geological and tourist places in Argentina, make us believe that we will have a noteworthy scientific event.



Participants will also enjoy sea trips, native music and tango shows. During the excursion we will have a gauchos show and the typical treat of the Pampas, the Argentine barbecue, in a large farm.

We surely hope to meet you all in Argentina this coming October. You can find out all you need to know by visiting the congress web site <http://www.mdp.edu.ar/exactas/geologia/iah2002/iah2002.html>



Intensive Groundwater Use Conference (SINEX) 10-14 December 2002

IAH, together with UNESCO and the International Water Resources Association, is a sponsor of the Symposium on Groundwater intensive use; challenges and opportunities (SINEX). The purpose of SINEX is to convene a world-wide forum of scientists, stakeholders, social scientists and decision makers with experience of the challenges of managing intensive use of groundwater resources. SINEX is convened twelve years after the IAH symposium on groundwater exploitation held in Tenerife, and will be informed by a special workshop on the topic held in Madrid in December 2001, whose proceedings will be published shortly. The symposium will be held from 10-14 December 2002 and is timed to allow the findings of the meeting to be reported to the World Water Forum, Kyoto in March 2003. Abstracts are invited, to be submitted no later than the end of June 2002. Details are available at <http://www.fcih.org/SINEX.HTM>

Please note that this is a change of date from that previously announced.

Groundwater Depletion and Overexploitation: A Global Problem - Call for papers

The volume of fresh ground water in storage has decreased significantly during the past century, but the magnitude and global impacts are uncertain. The U.S. National Chapter of IAH is sponsoring a special session to focus on the magnitude and effects of groundwater mining, methods to quantify depletion, U.S. and international case studies, status and future trends, global impacts, and management solutions. This special session will be held during the 2002 Annual Meeting of the Geological Society of America in Denver, Colorado, 27-30 October .

The intense use of groundwater has caused major water-level declines and significantly decreased the saturated thickness of aquifers in some areas. In many semi-arid to arid regions, groundwater has been withdrawn at rates far in excess of recharge, leading to groundwater "mining." This is often accompanied

by detrimental environmental side effects, such as reduced groundwater discharge to springs, streams, and wetlands, and land subsidence. Land drainage is a source of groundwater depletion, as the construction of drainage ditches and canals in surficial systems can lead to regional lowering of the water table. A significant component of the total depletion may come from low-permeability confining layers, but they are rarely monitored and usually overlooked. The magnitude of worldwide depletion of groundwater in storage may be so large as to constitute a measurable contributor to sea-level rise. However, the magnitude of depletion is poorly documented worldwide, particularly in developing countries. The management concept of "sustainable development" may offer a viable approach to dealing with overexploitation of groundwater resources, but its implementation has been largely subjective and sometimes arbitrary. The purpose of this session is to document methods and examples that would help define the magnitude of the problem, at both local and global scales, and explore local and regional management approaches to mitigate the problem or assure sustainable development. Papers are solicited on all related topics.

Abstracts deadline: 16 July 2002. For further information about this session, please contact Leonard Konikow (lkonikow@usgs.gov). For information about the GSA Meeting, go to their web site at: www.geosociety.org

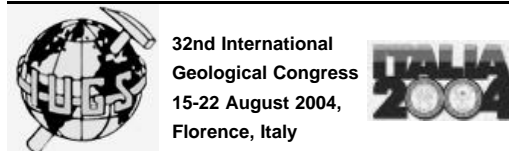
2nd Nerja Cave Symposium, Karst and Environment 15-19 September 2002, Nerja, Malaga, Spain.

The Nerja Cave Geological Symposium will be a forum for scientific debate on recent advances in our understanding of karst. The goals of the Symposium are to provide a platform for the discussion of current research activities into karst and the environment, activities based on various methodologies in different karstic areas throughout the world. As part of the activities of this Symposium, will be held the annual meeting of the Karst Commission of the International Association of Hydrogeologists, the annual meeting of the Project IGCP 448 of the UNESCO "Karst correlation on karst ecosystems" (<http://www.gxnu.edu.cn/KDL>), and the annual meeting of the Spanish Working Group of Project 448 (<http://www.hidrogeo.uma.es>)

International conference on soil and groundwater contamination and cleanup in arid countries, 20-23 January, 2003 Muscat, Sultanate of Oman

Anthropogenic practices such as excessive extraction, secondary salinization, sea water intrusion, and contamination from landfills, waste repositories and leaky containers can greatly impact soil and water quality, especially in arid and semi-arid regions, with little potential for natural precipitation-induced attenuation. This meeting, organised by the Sultan Qaboos University, is aimed at a wide range of professional specialisms who can combine to provide integrated solutions. Details from the web site at:

<http://www.squ.edu.om/agr/News/Water2003/Index.html>



The Congress is designed to create a forum for the broad debate of the most significant advances in the geological sciences, to foster new ideas and models for implementing a close interplay between pure science and its applications and to promote discussion of the Congress theme: "The Renaissance of Geology: From the Mediterranean area toward a global Geological Renaissance-Geology, Natural Hazards, and Cultural Heritage". By April 2002, the first circular will be mailed to scientists and organizations around the world. To receive the 1st Circular you should e-mail to 32igc@32igc.org or visit the Congress web site www.32igc.org

Prof. Giovanni Barrocu, President of the IAH Italian National Chapter is representing IAH in discussion with the scientific programme committee and hydrogeology will have a high profile in the meeting. So far the detailed arrangements for symposia and poster sessions have not been concluded, but already it has been decided that "Hydrogeology" will be the theme of a general symposium. In addition, "Water resources management" will be the subject of a topical symposium according to the proposals for separate sessions on Arid zone hydrogeology, Hydrogeology problems in developing countries, Water resources management in vulnerable areas, Groundwater management in urban areas, Groundwater resources problems in the Mediterranean area.

International Groundwater Resource Assessment Centre

Previous issues of IAH News and Information have mentioned the initiative taken by WMO and UNESCO to promote the establishment of an International Groundwater Assessment Centre (IGRAC).

The idea behind this proposal was that, on regional and global scales, there is only limited knowledge on the groundwater resources, in terms of their quantity, quality and availability for use, and in terms of their role in sustaining ecosystems and environmental quality. This lack of basic information is significantly impeding the rational appraisal of the contribution which groundwater and groundwater specialists can make in addressing global water issues. The Second World Water Forum in The Hague (2000) supported this vision. Many organisations and individuals, including IAH, contributed subsequently to the discussions and in the development of ideas about an international centre on groundwater as mentioned above.

At an early stage, the Government of The Netherlands expressed a willingness to take responsibility for the setting up of the Centre, which was accepted in principle by both WMO and UNESCO, but it has taken a long time for the discussions and negotiations to give effect to this commitment. However, in January 2002 the Dutch Vice-Minister of Public Transport and Water Management announced at a meeting with WMO and UNESCO representatives, that the Dutch government would be establishing a contract with the TNO organisation to investigate, by international consultation, the basis for establishing IGRAC, including the organisational structure and international relations of IGRAC, as well as the long term outlook on financial support to ensure its sustainability. The results of this investigation have to be reported in April 2002. If they show that the prospects for long-term financing are favourable, then it is likely that direct financing will be granted for the coming two years to establish IGRAC at the Netherlands Institute of Applied Geoscience, part of TNO.

Jac van der Gun, a senior geohydrologist with TNO, has been appointed the project manager for this evaluation and the consultation phase has begun. A questionnaire is in circulation, which the various stakeholder interests are invited to complete.

The questionnaire can be downloaded from the IAH web site (www.iah.org/News/2002/021.html) and should be returned to Jac van der Gun (j.vandergun@nitg.tno.nl) as soon as possible.

Report on the UNESCO-IHP Workshop on Modelling in Hydrogeology

A workshop on Modelling in Hydrogeology was organised at the Centre for Geoscience and Engineering, Anna University, Chennai during 3-7 December, 2001 with the support of the UNESCO International Hydrological Programme (IHP).

A key note address was given by Dr R Sakthivadivel, from the International Water Management Institute, Sri Lanka, on groundwater management and the need for practising scientists and engineers to start using the modelling techniques. Some 50 hydrologists, hydrogeologists, groundwater resources planners, academicians and researchers from India, Australia, Argentina, Germany, Sri Lanka and Bangladesh participated in the workshop.

During the last sessions on 5th, 6th and 7th, other delegates were given an opportunity to present the work carried out by them in hydrogeology. They all had an excellent opportunity to get the necessary guidance and suggestions from the experts present. A session was allocated on 6 December to demonstrate of the Groundwater Modelling System (GMS) available at the Centre for Geoscience and Engineering, Anna University. As part of the workshop, a field visit to the sandy aquifer, south of Chennai, was arranged on the afternoon of 5 December.

An UNESCO-IHP publication on Modelling in Hydrogeology was brought out prior to the workshop and it was released during the inaugural function. The contributions included in this book are from the invited speakers, who are all experts and have been working in this area of research for more than a decade. This book was printed and published by Allied Publishers, Chennai. For further details, please contact Prof.C.Mohandoss or Dr.L.Elango at: elango@annauniv.edu Centre for Geoscience and Engineering, Anna University, Chennai-600025, India.

UNESCO: 32nd IHP Bureau, Paris, France : 4-5 March 2002

Prof Stephen Foster, IAH Vice President, attended, as an IAH invited observer, the meeting of the Bureau of the International Hydroglogical Programme (IHP) in Paris in March. This meeting primarily dealt with the Implementation Plan for the 6th phase of the IHP, and its launching for the biennium 2002-04. He reports some major UNESCO initiatives to expand and integrate the water and environment programmes as a response to the increasing profile of the world water agenda.

The Executive Board confirmed 'Water and Related Ecosystems' as one of their highest programme priorities for the biennium 2002-04 and made three associated decisions :

- a consequent 30% budget supplement
- a directive to integrate part of the Man and Biosphere Programme (MABP) into IHP VI so as to provide much greater emphasis on ecohydrological issues, creating the precedent of an inter-programme initiative
- a stronger focus on the requirements of the UN-WWAP within IHP VI.

These major modifications late in programme gestation have resulted in the following :

- a major overall budget increase to US\$ 4.4M (compared to US\$ 2.4M in the previous biennium)
- a requirement to re-structure the enlarged programme under the UNESCO-SISTER programme management structure so as to provide increased transparency of outputs and outcomes.

A summary of the programme structure in new format is given below in tabular form, including cross-reference to the themes of the programme as originally proposed. It has a substantial groundwater-related content (reflecting earlier IAH advice and lobbying), concentrated mainly in the new MLAs (main-line actions) 1.2-1.3, 1.4 and 1.5.

The much increased emphasis on 'ecohydrology' in the new programme is evident at MLAs 3.1 and 3.3-3.4. It was evident that the Action Managers for these activities (coming from MABP) had little appreciation of the importance of hydrogeology in providing the foundation for many aquatic and terrestrial ecosystems.

In the same context the HELP initiative, which with FRIEND is being funded as a cross-cutting element in IHP VI, is seeking input on the characterization of groundwater-surface water ecosystem interactions and their variation across catchments of wide climatic diversity.

UNESCO IHP VI (Biennium 2002-04) Summary of Expansion and Restructuring by SISTER Programme Management Scheme March 2002		
Main Line action	Short Title	UNESCO action leader
1.1	Institutional Capacity Building	A. Salih
1.2	WWAP Water Resource Studies	A. Salih
1.3	Global Change & Water Resources	M. Bonnell
1.4	Integrated Watershed & Aquifer Dynamics	A. Aureli
1.5	Land Habitat Hydrology	A. Tejada
1.6	FRIEND Programme	M. Bonnell
1.7	HELP Programme	M. Bonnell
2.1	Water & Society	J. Bogardi
2.2	Water Education & Training	J. Bogardi
2.3	WWAP Water Conflicts	J. Bogardi
3.1	Development of Ecohydrological Approach	P. Pypaert*
3.2	Comparitive Urban Environmental Studies	A. Tejada
3.3-3.4	Co-Operative Research Programmes	M Clusenert*

* UNESCO personnel from MABP (not IHP) Secretariat

IAH News

National Chapter News

At its annual meeting in Paris on 11-12 December the **French National Committee** selected a new bureau. The new President is Jean-Claude Roux, secretary Laurence Chery and treasurer Jean-Jacques Risler. Jean Margat is now honorary President.

After a long period of debate and planning it is a pleasure to welcome the creation of a new national group for IAH in **Portugal**. The officers elected at the inaugural meeting on 25 February 2002 were President Dr Fernando Peixinho, Vice-President Dr Chambel and Secretary/Treasurer Teresa Melo.

At the end of 2001 the **Belgian Committee of Hydrogeologists** was formed with co-Presidents Prof. Kristine Walraevens and Jean-Paul Biron. The BCH is warmly welcomed as a reinvigoration of the Belgium National Chapter of IAH on which discussions proceed.

New Publications

The Irish Group of IAH have published the proceedings of their 2001 national conference, which was on the topic of Gravel Aquifers. Copies from the remaining stock can be ordered from Malcolm Doak, Irish EPA (m.doak@epa.ie) for EUR 35.00.

In March IAH/Balkema will publish a new edition in the IAH book series International Contributions to Hydrogeology entitled "Managing Water Well Deterioration". It is by Rob McLaughlan of UTS, Sydney and integrates concepts from hydrogeology, hydrochemistry and microbiology to understand water well deterioration processes. It is priced at EUR 55.00 (US\$ 55.00) with 60% discount for IAH members. You can place an advance order from <http://balkema.ima.nl/Scripts/cgiBalkema.exe/society?SctNo=5> You will need to give your IAH membership number to receive the discount.

Hydrogeology Journal

There is good news for IAH members outside Europe and North America who received their copies of HJ later because airfreight was not always used. Priority delivery is now used by the Journal publishers for all countries and will mean that your Journal will be delivered to major centres in all countries within one week of shipping, although of course there may be

further delays within each country depending on destination and postal service.

However you do not need to wait for the mail to read HJ. Each paper is on line as soon as it is accepted for publication and each issue is available in full in advance of Journal publication. The Springer LINK service, which includes access to back issues, is available free to all IAH members. If you would like details of how to access the service please e-mail the IAH office (jgoldson@iah.org)

Meetings of IAH Commissions

The IAH Karst Commission will meet in 2002 as part of the Nerja Cave Symposium in Malaga in September (see page 5). The Mineral and Thermal Waters Commission will also meet in September in Olimia, Slovenia from 14-21 September.

Water Law and Groundwater

Members of the International Water Law Association and many visitors to their web site www.internationalwaterlaw.org have been taking a strong interest in the International Shared Aquifer Resource Management Project (TARM). A link to the TARM framework report has been posted on the IWLA homepage and has attracted so many downloads that this 8MB file is now the top download from our site www.iah.org/News/2001/016.html

ALHSUD News

During the 2001 Annual Meeting of ALHSUD (Latin American Groundwater Association) in Montevideo, Jorge Montaña was unanimously elected to the vacant place on the ALHSUD Council replacing the late German Galarza. Jorge Montaña is a Professor of Civil and Environmental Engineering of the University of the Andes and at the National University of Columbia.



IAH in partnership with the Groundwater Resources Association of California

We are pleased to announce a partnership between IAH and the Groundwater Resources Association of California (GRA). GRA has compatible goals with IAH and, like IAH, has a broad membership of professionals from a

variety of disciplines interested in groundwater issues and working in universities, research institutes, environmental regulation and consulting. GRA is offering its members a special joint GRA/IAH membership option for 2002, which has already had a good uptake. To learn more about GRA visit their website <http://www.grac.org> Notice of GRA meetings will be included in the IAH conference calendar.

NATO Advanced Research Workshop on current problems of hydrogeology in urban areas, urban agglomerates and industrial centers


This meeting was held from 29 May to 1 June 2001 at the Institute of Geology of Azerbaijan Academy of Sciences, Baku, Azerbaijan under the joint chairmanship of Dr Ken Howard, Professor of Hydrogeology at the University of Toronto, Canada and Prof D. Rauf Israfilov, Head of Laboratory, Institute of Geology of Azerbaijan. The purpose of the workshop was to consolidate the efforts of expert scientists working on urban groundwater issues around the world, to share problems and experiences,

to identify primary issues and research directions, and thereby develop a sound foundation for further activity and collaboration in this globally important field. A major focus of the workshop was to develop and identify resolutions to urban groundwater problems and develop an understanding of ways these resolutions can be achieved. For more details see: <http://www.scar.utoronto.ca/~gwater/NATOARW2001BAKU/>



Baku conference delegates

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3D Groundwater Flow & Contaminant Transport Modeling
- Visual Groundwater**
3D Visualization & Animation of Subsurface Data
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1D Unsaturated Flow & Transport Modeling
- MoNA ToolKit**
Evaluating & Visualizing Monitored Natural Attenuation Data
- AquaChem**
Aqueous GeoChemical Data Management, Analysis, Modeling, and Plotting
- AquiferTest**
Pumping Test & Slug Test Analysis

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Conference Listing

Summary details of conferences with e-mail or web addresses are given below. For a fuller list of conferences and more details, including hot links to web sites visit www.iah.org/confs/

2002

April 16-17 Tullamore, Ireland. Groundwater Quality Current Issues and Concerns. E-mail: mdoak@epa.ie

April 16-18 Orange, California, U.S.A. Principles of Groundwater Flow and Transport Modeling. Web: www.grac.org

April 17 San Gabriel Valley, California, U.S.A. Perchlorate, NDMA and other groundwater contaminants from aerospace and rocket fuel facilities. Web: www.grac.org/perchloratesymposium.pdf

May 5-10 Banff, Alberta, Canada. International Symposium on the Interactions between Sediments and Water. E-mail: iasws@unbc.ca

May 6-10, Delft, The Netherlands. 17th Salt-Water Intrusion meeting (SWIM). E-mail t.olsthoorn@gwa.nl

May 12-17, Darwin, Australia. International Conference on Balancing the Groundwater Budget. Web: www1.octa4.net.au/iahnt/conference.htm

June 4-7 Wisla, Poland IAH Euromeeting 2002 - Workshop on Nitrate in Groundwater in Europe. Web: www.pgi.waw.pl/iah2002.html

June 17-20 Prague, Czech Republic. Fourth International Conference on Calibration and Reliability in Groundwater Modelling. Web: www.guarant.cz/ModelCARE2002

July 2-3 Kingston, Jamaica. Conference on Environmental Management and Regulation of Underground Storage Tanks. Web: www.wra-ja.org/conference

August 12-15 Stockholm, Sweden. 12th Stockholm Water Symposium: Balancing Competing Water Uses. Web: www.siwi.org/sws2002/sws2002.html

September 9-12, Bremerhaven, Germany. International symposium on low-lying coastal areas - Hydrology and integrated coastal zone management. E-mail: strigel@bafg.de

September 15-19 Malaga, Spain 2nd Nerja Cave Geological Symposium and 2002 meeting of IGCP 448 Project, "World Correlation on Karst Ecosystem". Web page: www.hidrogeo.uma.es

September 15-19 Freiberg, Germany. International Conference on Uranium Mining and Hydrogeology. Web: www.geo.tu-freiberg.de/umh

September 17-21 Postojna, Slovenia. Evolution of karst: from pre-karst to cessation. Web: www.zrc-sazu.si/evokarst

18-19 September Newport Beach, California, U.S.A. GRAC Annual Meeting Sustaining the resource - approaches to groundwater management. Web: <http://www.grac.org>

September 22-26, Adelaide, Australia. ISAR4 - 4th International Symposium on Artificial Recharge. Web: www.hartleymgt.com.au/ISAR4

September 30-October 4 Amsterdam, Netherlands. 6th International Conference on Diffuse Pollution. Web: www.nva.net/agenda/conference.htm

October 14-18 Kuala Lumpur, Malaysia. International Conference on Urban Hydrology for the 21st Century.

Web: <http://htc.moa.my/htc/icuh2002/icuh2002/html>

October 20-23 Niagara Falls, Ontario, Canada 3rd IAH-CNC/CGS Conference Ground and Water - Theory to Practice. Web: http://members.rogers.com/cgs_iah/2002/

October 21-25 Mar del Plata, Argentina. Thirty-Second IAH Congress on Groundwater and Human Development. Web: www.mdp.edu.ar/exactas/geologia/iah2002/iah2002.html

October 27-30 Denver, Colorado, U.S.A. Annual Meeting of the Geological Society of America, including IAH sponsored session on "Groundwater Depletion and Overexploitation: A Global Problem". E-mail: lkonikow@usgs.gov

November 18-22 Monterey, Mexico. International Symposium on Transboundary Waters Management. Organised by the Mexican Hydraulics Association. Web: www.transboundarywatersmexico.org

December 9-11 Las Vegas, Nevada, U.S.A. Linking Surface and Subsurface Hydrology - from Science to Technology. Organised by AGWSE/NGWA. Web: <http://www.ngwa.org>

December 10-14, Valencia, Spain. Symposium on Groundwater Intensive Use - Challenges and Opportunities. (SINEX). Web: www.fcis.org/SINEX.HTM

2003

January 20-23 Muscat, Oman. International Conference on Soil and groundwater Contamination and Clean-up in Arid Zones. Web: www.squ.edu.om/agr/

March 16-23, Kyoto, Shiga and Osaka, Japan. 3rd World Water Forum. Web: www.worldwaterforum.org

March 30-April 2, Merida, Yucatan, Mexico. Second International Conference on Salt Water Intrusion and Coastal Aquifer Monitoring, Modeling, and Management (SWICA-M³). Web: www.igeofcu.unam.mx/swica2/

April 1-5, Saint-Etienne, France. 4th International Conference on Analytic Element Method for the modeling of groundwater flow and applications in environmental sciences. Web: www.emse.fr/icaem

April 7-10, Montpellier, France. International Conference on Hydrology in the Mediterranean and Semi-arid Regions. Web: <http://mpl.ird.fr/montpellier2003>

May, Esfahan, Iran. Third international symposium on water resources in karst and hard formations. E-mail: karstsympo2003@yahoo.com

September Winnipeg, Canada. 4th CNC-IAH/CGS Conference. Web: www.iah.ca

September 15-19, Prague, Czech Republic. Conference on Groundwater in Fractured Rocks. Web: <http://www.natur.cuni.cz/gwfr2003>

September 22-26, Ljubljana, Slovenia. Conference on Groundwater in Geological Engineering. E-Mail: andrej.juren@siol.net

2004

August, Florence, Italy. 32nd International Geological Congress. Web: www.32igc.org Contact for hydrogeology sessions barrocu@crs4.it