

INTERNATIONAL ASSOCIATION OF HYDROGEOLOGISTS

ANNUAL REPORT FOR 2012^{1,2}

SUMMARY

2012 has been an excellent year for the Association. The undoubted highlight was the 39th IAH Congress in Niagara Falls. Two months before the congress, the local organisers were obliged to take the unusual step of closing registrations at just over 900! On the theme of “Confronting Global Change”, there were some splendid invited keynote speakers, 575 oral presentations and 176 posters. The very full meeting programme nevertheless allowed time for IAH Council to meet and for the IAH Annual General Meeting and meetings of the Early Career Hydrogeologists Network, IAH Commissions and Networks and National Chapters.

2012 also saw the elections for the Association’s president and Council, the results of which were announced at the AGM in Niagara Falls. Out-going president Willi Struckmeier handed over the Presidency of the Association to Ken Howard. Ken will serve for four years, and pledged to work hand in hand with the new council to build on the successes of the previous council, which he generously thanked for their hard work. Following the elections, IAH has six new and enthusiastic council members who are already contributing ideas and energy to the benefit of members. The full election results are given in the main body of this report.

A major highlight of the year is that we have finally broken through the 4000 membership barrier. At the end of 2012 the Association had 4074 members, up by over 250 on the previous year. Membership has held up well during these tough economic times but further growth is essential for the long-term professional and financial viability of IAH and we must make more efforts to encourage students of hydrogeology and young groundwater professionals to join the Association.

Despite the continuing global economic uncertainty, IAH has had another good year financially. The Association’s total income of £288,000 was £3000 up on 2011. Total resources expended in 2012 were £287,000, giving a net income of £500. Taking account of currency losses of nearly £5000 and expenditure of £7000 from the restricted Burdon Fund, this leaves the Association with £257,500 in funds carried forward to 2013. Overall, IAH remains in a strong financial position at the end of 2012.

MANAGING THE ASSOCIATION

Executive and Council

The governing body of IAH is its Council, which is responsible for determining the Association’s general policy. Council is elected every four years and 2012 was election year. The democratic health, institutional transparency and organisational energy of IAH benefit greatly from regular changes to the Council’s composition. Nominations for Council opened on 1 January and closed on 30 April. Considerable efforts were made to encourage nominations, with a full page article on the back cover of the newsletter in December, a call on the home page of the website throughout the nomination period, mention in the IAH e-news in January and March and an HJ alert in March. Nominations were sought and

¹This report is intended to be read with the Financial Statement for the Association for 2012.

² This report is only distributed via the IAH website. A shorter version of this report, together with a summary financial statement is sent to all members.

received from IAH national chapters as well as from individual members. Whilst candidates did not step forward to provide competition for every post, we were nevertheless happy to see such strong candidates for the three contested posts, and will still hope to harness the energy and experience of the losing candidates to the benefit of IAH in the future.

Voting for the new IAH Council opened on 1 July and closed on 15 September and the 1205 votes cast from a total electorate of 3850 represents a 31.3% response, slightly down on the 34% of 2008 but significantly up on the 24% in 2004. This compares well with turnouts for voting in similar associations. The election results were declared at the Annual General Meeting in Niagara Falls on 18 September. The full results are shown in the table below. The Association is particularly pleased to have two women members on the new Council. Past-President Willi Struckmeier will join the elected members to complete Council.

Post	Name	Votes
President	Ken Howard, Canada	1119
Secretary General	Shammy Puri, United Kingdom	1085
Vice President, Finance & Membership	Bruce Misstear, Ireland	1102
Vice President, Science & Programme	António Chambel, Portugal	1077
Vice President, Asia	Jun Shimada, Japan (elected)	532
	Shakheel Ahmed, India	310
	Gulab Prasad, India	179
Vice President, Australasia	Wendy Timms, Australia (elected)	691
	Philip Commander, Australia	355
Vice President, Eastern Europe	Igor Zektser, Russia	952
Vice President, Western Europe	Teódora Szócs, Hungary (elected)	613
	Andrzej Witkowski, Poland	450
Vice President, Latin America	Luiz Amore, Brazil	991
Vice President, Middle East and North Africa	Mohamed Aboufirass, Morocco	979
Vice President, North America	David Kreamer, USA	1012
Vice President, Sub Saharan Africa	Callist Tindimugaya, Uganda	1001

In addition to its elected members, Council is able to co-opt other members of the Association to enable it to undertake its work more effectively. At present, co-opted members who are invited to report to and participate in Council meetings as non-voting advisers are the editor of the *Hydrogeology Journal*, Cliff Voss, the books editor, Nick Robins, the representative of the Early Career Hydrogeologist's Network, Judith Flügge, and the Executive Manager John Chilton.

The IAH Executive Committee, consisting of the President, Secretary General, VP Finance and Membership and VP Scientific Programme is responsible for the day to day operation of the Association's business and activities, in conjunction with the Secretariat. The Executive met at UNESCO in Paris from 16th to 18th February 2012 and at Dorchester in the UK from 14th to 16th June. It is clear that a minimum of two meetings per year of the Executive are required for effective management of IAH.

Membership

Membership Numbers

At the end of 2012 the Association had 4074 members, up by over 250 on the previous year. It is gratifying that membership has continued to hold up well during these tough economic times and even more so that we have finally broken through the 4000 barrier. Further growth in higher and middle income countries is essential for the long-term professional and financial viability of IAH. To this end, we need to make much more focused efforts to encourage students of hydrogeology and young groundwater professionals to join the Association. The table shows recent membership trends by region, emphasising the need for

us to pay greater attention to promoting membership in Asia, the Middle East and North Africa, Eastern Europe and in Latin America.

IAH Membership by Region (end of year figures)

Region	2005	2006	2007	2008	2009	2010	2011	2012
Sub-Saharan Africa	206	202	204	200	247	231	233	267
North Africa & Middle East	84	78	90	90	74	99	97	101
Asia	238	265	263	288	214	191	191	229
Australasia and the Pacific	502	477	496	493	599	582	656	799
Eastern Europe	338	351	365	355	145	125	122	124
North America	704	695	685	669	672	654	632	659
Latin America & Caribbean	213	211	207	194	177	177	197	179
Western Europe	1539	1485	1545	1496	1796	1726	1656	1716
Total	3824	3763	3857	3786	3894	3785	3784	4074

Sponsored membership

Individual IAH members, National Chapters and members of the general public continue to make contributions to support our Sponsored Members Scheme. This enables membership to be offered to groundwater professionals from developing countries who are not able to pay their own fee. At the end of 2012, we had a total of 245 sponsored members. We know that sponsored membership is greatly appreciated by the recipients, and in 2009 IAH established a separate Sponsored Membership Fund to augment this component of the Association's activities and we continue to seek suitable candidates for sponsorship.

Corporate Membership

Corporate Membership has remained steady, and at the end of 2012 we had 42 Corporate Members. We also now have our first corporate sponsor, DHI-WASY, and we would be very interested to recruit more. It is the intention of the IAH Executive and Secretariat to review the benefits provided to corporate members, and we will consult with these members directly during this review.

Finance

These notes should be read in conjunction with the formal financial statement for IAH for 2012 which can be seen at http://www.iah.org/publications_annual_reports.asp. A general overview indicates that the Association ended the year with income lower than budgeted, mainly because the third payment from FAO for the GEF project thematic papers was not received until January 2013. Taking out this item, income was much as expected, as discussed below. Expenditure on general funds was somewhat below that budgeted, and in its formal financial statement for 2012, the Association has declared an operating deficit of some £6,400 on its routine activities from general funds, compared with £62,000 set in the 2012 budget. We have achieved our fiscal objective of ending the year with an overall operating deficit which shows IAH beginning to use its reserves more extensively to meet the Association's charitable and educational aims and objectives.

As already mentioned in the summary, membership numbers at the end of 2012 were some 250 up at 4074. As a consequence, membership fee income was £9,500 above that budgeted and about £13,000 up on the equivalent membership fee income for 2011. Following the placing last year of £60,000 in a charity-oriented investment with the Principality Building Society, we now have a return for the year of £1500. We should

probably consider, as part of a strengthened reserves and financial risks policy, investing some more of the funds held in HSBC that we do not need to cover our routine operations or any anticipated additional expenditures. As agreed with the IAH Executive, the Secretariat will be developing a more explicit reserves policy during 2013.

IAH received two of the three contracted payments totaling £56,000 from FAO in 2011 for the groundwater governance project, and the third payment of £37,000 in January 2013. The lateness of this payment results from another round of revisions to the papers required by FAO in late summer/autumn 2012 and then delays on our part near the end of the year in submitting the final account to FAO. As a consequence, IAH received no income from the GEF project during 2012. This is not in itself a problem, but we will need to look carefully at our accounting of the GEF project and transfers between IAH and WWGW in relation to possible tax liabilities.

On the expenditure side, printing and publishing costs for Springer were £2500 above budget but £3000 below that in 2011. The apparent fluctuations from year to year are difficult to predict. In principle, given the annual contract price and the anticipated membership it should be easy to budget for this but payments to Springer usually include varying amounts for back issues. Most of the routine and recurrent administrative expenditure from general funds was close to budget and to that in 2011. Printing of the full-colour newsletter remains a modest cost.

In the past, IAH has not as a matter of routine provided financial support to the organizers of its congresses to help them prepare and to provide funds in the lead up time when there is no income but expenditure is required on items such as publicity and deposits to secure venue bookings. Having reviewed this policy, and in the light of IAH's overall sound financial situation, £13,000 was advanced to the organizers of the Niagara Falls congress in 2011. This was budgeted for return to IAH centrally towards the end of 2012. Additional funding support was provided in 2012 just before the congress. Some of the £13,000 was used to support delegates, and at the time of writing a full reconciliation is awaited from the local organizers. This is likely to become a regular commitment, and it is anticipated that a similar amount will be advanced to the Moroccan organizing committee preparing for 2014.

The cost of distribution of election material and on-line voting was about £2000, including the diminishing number of IAH members requiring material by post.

Total travel costs in 2012 for the Executive, Council and Secretariat (£37,000) were less than budgeted and a decrease on the £58,500 in 2011. Of this total, about £1500 was used to support the travel of Council members. While some members of Executive and Council continue to receive welcome partial support from their employers, which helps keep the direct cost to IAH down, this is becoming less forthcoming as the years go by and institutional budgets become more and more constrained. The benefit of travel by members of the Executive and Council in increased contact with national chapters, liaison with potential congress organizers and raising the profile of IAH is clear, all of these being in line with Forward Look objectives. Within this total, Secretariat travel was well over budget, representing the cost of two Executive meetings in 2012, attendance at a meeting with Springer and the journal editors' meeting and the high cost of Niagara Falls. The costs of the journal editors' meeting in Vienna in December 2012 is being spread over the two financial years. There will be no editors' meeting in 2013.

Secretariat salary costs were close to budget. All three of the hourly-paid staff have continued to work averages of 80 to 85 hours per month, with peaks at busy times above this. The hours of the Membership Secretary continue to show some modest savings resulting from the improved database operations established at the end of 2010.

Following a formal tendering process managed by the IAH Secretariat, a contract for the redesign of the IAH website was established in mid 2012. Work has proceeded well but

more slowly than envisaged. One payment of £8,300 was made to the contractor during 2012, and expenditure was therefore well below budget. A second payment of £11,000 was made in January 2013 for work which was largely undertaken in 2012. The 2013 budget will be set accordingly to take this into account.

Bank charges, particularly those related to international transfers of funds, have increased significantly in recent years. Following a meeting with HSBC in mid 2012, we are now able to make international on-line transfers in all three IAH working currencies and in sterling for WWGW, subject of course to a daily limit. The cost in bank charges of processing the few membership renewal fees which come in by bank cheque has risen steadily to be roughly equivalent to the value of the cheque itself. Following research into the use of Travelex or Western Union to facilitate transfers, we have now set up a PayPal account. This needs the user to have a bank account, but not a credit or debit card, so it is hoped this will help facilitate payment for those who are not able to pay with a card.

In summary, the overall smaller operating deficit of £6500 compared to the planned deficit in the 2012 budget can be ascribed to the extra income from membership fees, delayed spending on the website development contract, spreading the cost of the journal editor's meeting over two financial years and combined under-spends on some of the smaller budget items. These were partly offset by not having received the return of the loan to the Niagara Falls congress, as explained above. Overall, the financial performance of the Association remains sound.

At the end of 2012, the Burdon Fund balance stood at £50,000, down from £57,500, showing greater use of the fund than in 2011. This expenditure comprised £5500 for the 2012 book distribution and £2000 for course material and participant support to a course in Zambia organised by the African Groundwater Network, with whom the Association now has an MoU for cooperation. In the past, the conventional approach to maintaining the Burdon Fund has been to replenish it at the end of the financial year with the investment income or by the equivalent of the employer or third party donations to the travel of members of the Executive and Council. In the light of the substantial balance in the Fund and the modest level of expenditure on its charitable and educational objectives from 2009 to 2011, it has not been considered necessary to replenish the fund during that time.

A decision was taken by the IAH Executive in 2009 to establish a separate fund for Education and Development and this was announced to the membership. The balance of £2500 from the original £12,500 remaining at the beginning of 2012 was greatly overdrawn to support participants to the Niagara congress and an initial meeting of the IAH Karst Commission team working on the world map of karst. These show in the formal accounts within the grants to institutions and grants to individuals. Although the process for allocating support funds for the Niagara congress worked well, the Executive needs to define the operational criteria for approval of support for conference participation for which the Education Fund can be used, and agree on which other activities this Fund should support (for example Commission and Network activities), and publicise this accordingly to members. The Education Fund has been replenished with £30,000 to leave a balance at the end of 2012 of just over £13,000.

A decision was also taken by the Executive in 2009 to establish a separate fund for Sponsorship and this was also announced to the Membership. 77 of the current total of 242 sponsored members were supported from the Fund in 2012 to a total amount of £4700 and the final accounts reflect this. Although the number of sponsored members is rising steadily, we still receive substantial support in sponsoring members from national chapters and individual IAH members, which we will continue to encourage. The Sponsorship Fund will need to be replenished in 2013.

In addition to the activities described above, the financial contribution of £7500 in 2012 to the Time Capsule project may also be regarded as charitable funding as it supports the Association's educational and research objectives.

The balance of accounts shows IAH's continuing favourable financial position, with total end of year balance of £246,000. While the UK charity regulators might regard reserves of this level in relation to a turnover of around £288,000 as an over-cautious position, the end of year balance has previously been well in excess of turnover. We are moving in the right direction, and a number of current and proposed activities are likely to take us further. While we need to maintain a reasonable degree of caution in tough economic times, we need to continue undertaking activities on behalf of our members which will use our funds effectively.

Trading Activities

The company World-Wide Groundwater Limited (WWGW) was established as the trading subsidiary of the Association. There was very little activity in 2007 and 2008 and in 2009 Council agreed to make the company dormant and to transfer its assets back to the parent company. The company was re-activated at the beginning of 2011 to facilitate the Association to undertake consultancy work in partnership with FAO and UNESCO on a GEF (Global Environment Facility) project on groundwater governance. Thus in 2012, WWGW had a turnover of £55,000, of which £19,000 represented the use of the earlier payments from FAO to provide instalment payments for four consultancy contracts for the preparation of thematic papers required for the project, and the remainder provides for administrative costs associated with the operation of the project and a return of the eventual surplus to IAH.

Staff

Routine administration of the Association is functioning well and Secretariat staff are able to devote more time to initiatives such as the Forward Look, education and development, website and publicity and recruitment and national chapters. To facilitate further development of these initiatives, the Secretariat recommended that the Association's bookkeeping and accounting capacity should be strengthened. The recommendation was that this should be achieved by engaging a bookkeeping contractor rather than by employing an additional staff member within the Secretariat. Council agreed to this proposal at its meeting in Pretoria in 2011, and the Secretariat proceeded with an advertising and contracting process at the end of 2011 for start at the beginning of 2012. This has proved highly successful, and has now been followed up by a gradual transfer to more up to date accounting software. The cost of the bookkeeping contract for 2012 was just over £3000.

In the meantime, Sharon Warden has continued to provide her assured touch on all membership issues, and Technical Editorial Adviser Sue Duncan maintains the high standard of her work on the journal and has become a key member of the editorial team. The Association will continue to provide support for its staff to take up suitable training opportunities.

THE IAH FORWARD LOOK

On taking office in 2008, Council set itself the task of undertaking a strategic look at the way the Association should develop up to 2020. This was undertaken by a questionnaire in April 2010 and the Forward Look meeting at Reading University in July 2010 and the results of these activities and recommendations arising from them presented to Council in Krakow in September 2010. Council agreed that the Executive should develop the long list of possible actions into an overall strategy for IAH up to 2020. This was done early in 2011 and a brochure outlining the strategy was prepared and distributed to members with the *Hydrogeology Journal* and is available on the IAH website.

The extensive, structured list of activities is grouped within five themes – the internal development of IAH, education and professional development, informing and influencing global policy, enhancing alliances and partnerships, developing the science of hydrogeology and activities are assigned priorities in terms of importance and identified as those for the immediate, short-term, those for the next two to five years and those for the longer term over the Forward Look's ten-year timescale. For some of the suggested activities, their feasibility needs to be investigated and the human and financial resources that would be required to take them up need to be further defined. Progress with implementation during 2012 has included improved communication with members and national chapters and work on the development of the new IAH website, as outlined below.

SCIENTIFIC AND PROFESSIONAL ACTIVITIES

The Niagara Congress

Having been nervous earlier in 2012 about whether there would be enough abstracts submitted and the likely numbers of participants, the congress turned out to be so popular that in July the rare step of closing registrations and setting up a waiting list had to be taken. Participants enjoyed a very full week of plenary presentations, parallel sessions and poster presentations and will have taken away with them warm memories of their time in Canada and of the congress. The local organisers managed the numbers very well.

To provide a strong and broad basis for the overall congress theme of “Confronting Global Change”, the invited speakers Joe Tóth, John Cherry, Alan Freeze, Frank Schwartz and Garth van der Kamp each packed the Great Room of the conference centre for their keynote presentations. It was a privilege for so many colleagues to be able to listen to these four “grandees” of Canadian hydrogeology, and moreover a shrewd move on the part of the congress organisers to spread these keynotes through the conference week.

While of course very gratifying, the large number of good quality abstracts submitted presented the local organising committee with a difficult scheduling task. Of the total of 971 abstracts submitted, only a few were rejected at the outset but nearly 200 accepted abstracts were not included in the congress programme because the authors had not registered by the deadline of 15 June. This left 751 abstracts to be fitted into the technical programme! For much of the week, therefore, eight parallel sessions were needed to cope with all of these. This is far higher than we have had at past congresses, and the scientific committee are to be congratulated for their hard work setting up such an excellent technical programme and in managing it so efficiently through the whole week.

The large attendance also presented some logistical challenges for the mid-congress field visits. For several of these, transport was arranged so that participants were started from both ends of a trip to avoid congestion at small sites with limited access and to spread the burden on hosting partners and their staff and facilities, and this worked well.

The full congress programme nevertheless provided time for the Association's own meetings. The visitor centre beside the Horseshoe Falls was able to accommodate the full complement of congress participants to an excellent buffet supper, during which we were able to go down in small groups into tunnels excavated into the rock behind the falls and come out into the spray to the side of the wall of falling water. From reactions during and after the congress, participants thoroughly enjoyed their time in Niagara, and our hosts on the organising committee and their many helpers and supporters are to be congratulated on a job well done.

IAH Commissions and Networks

The strong science base of the Association is its Commissions, some of which have a long history of activity and publication, but they need to be able to respond to new issues and challenges, and to find new partners for their work. Following the review of the structure and operation of IAH's (reported previously) a group of new commissions and networks established from 1 July 2011 have begun to undertake activities outlined in their proposals.

Thus the Commission on Mineral and Thermal Water held its annual meeting in Budapest, from 12 to 18 August 2012 on the general topic of: "Groundwater, Thermal and Mineral Water in Karstic Terrains and Porous Sedimentary Basins: Utilization of Thermal and Mineral Waters". The meeting was jointly organized by the Institute for Geological and Geochemical Research, the Research Centre for Astronomy and Earth Sciences, the Hungarian Academy of Sciences and the Hungarian National Chapter of IAH. A full day of technical presentations in Budapest on Monday 13 August was followed by a three day excursion to some of the most spectacular thermal spas in Hungary, a visit to a bottling plant in Budapest and the option at the end of visiting the famous thermal spas and baths of Budapest.

In a new commitment to enhance the Association's efforts to meet its educational objectives and meet Forward Look aspirations, the IAH Executive approved the provision of financial support to the Karst Commission to assist in the preparation of a global map of karst. Support was provided initially for a meeting of the scientific advisory board which took place in late 2012. The Karst Commission has established successful cooperation with the Speleogenesis Commission of the International Union of Speleogenesis.

In 2012 the Commission for Managed Aquifer Recharge (MAR) organised and/or promoted a number of activities to advance the science and application of MAR. The commission continues to make progress on activities that were agreed to at ISMAR6 in Phoenix in 2007 and at ISMAR7 in Abu Dhabi in 2010, and were reinforced at a Commission Plenary Session at the Niagara Falls IAH Congress in September 2012 and at the International Groundwater Conference in Aurangabad in December 2012. Commission members prepared one of the background thematic papers for the GEF/FAO Groundwater Governance Project, in which IAH is a partner. Cornelius Sandhu (University of Applied Sciences, Dresden) edited a special issue of the *Journal of Indian Water Works Association* on River Bank Filtration and Russell Martin (AGT, Adelaide) and a band of co-authors are bringing together a monograph on the management of clogging. Preparations for ISMAR8 Beijing, 15-19 Oct 2013 are well underway thanks to a strong local organising committee, including Chair, Prof Zhao, Prof Weiping Wang and Jordy Yin (secretariat). More than 70 oral papers have been accepted, some of which will be published in special editions of several journals, at least 4 workshops and an interesting field trip are offered to conference participants.

The first meeting of IAH's newly created Commission on Regional Groundwater Flow was held in Niagara Falls. The objective of the commission is to foster research and practical application of regional groundwater flow theory. This is to be pursued globally by motivating new basic research, popularizing the concept through meetings and publications, and promoting its application to a range of groundwater situations. About 40 potential or already registered supporters attended and expressed interest in becoming involved in the commission's work. The meeting was opened by the newly elected President of IAH, Ken Howard, and Joe Tóth, chair of the interim board, gave a brief overview of the commission's mandate, structure, tasks and needs. The newly elected Board Members are: Chair: Judit Mádl-Szőnyi (Eötvös Loránd University, Hungary); Vice Chair; József Tóth (University of Alberta, Canada); Co-Chair-1: José Joel Carrillo Rivera (UNAM, Mexico); Co-Chair-2: Mengui Jin (China University of Geosciences, Wuhan).

The new Chair outlined a recruiting strategy for active supporters and sponsors. Presently, the commission has 125 registered supporters. The commission plans to find sponsors from companies who recognize the role and importance of groundwater flow in earth and

environmental processes. During the Congress, the commission had organised a well attended Technical Session on Regional Groundwater Flow. Twenty-seven oral (5 invited) and several poster presentations were made. A kick-off party for the commission was held on the first evening of the Congress.

Three major events are planned for 2013: i) "Geothermal Applications, Specialities in Groundwater Flow and Resources", IAH Central European Groundwater Conference, May 8-10, Budapest, Hungary; ii) "International Symposium on Regional Groundwater Flow: Theory, Applications and Future Development", Xi'an, China, in late June; and iii) "International Symposium on Hierarchical Flow Systems in Karst Regions", jointly with the IAH Commission on Karst, in Budapest, in September. The next formal meeting will be held in Budapest in September 2013.

Over 30 members of the Commission on Groundwater and Climate Change (IAH-CGCC) met in Niagara Falls to discuss recent activities and future plans. In terms of recent activities, two items are of note. Firstly, the commission and UNESCO-IHP's GRAPHIC programme jointly prepared the book of papers on "Climate change effects on groundwater resources", which was published this year as volume 27 of IAH's International Contributions to Hydrogeology series. Secondly, the commission led a critical review of the relationship between groundwater and climate change that has been accepted for publication in *Nature Climate Change* in late 2012. It is hoped that messages contained in this review might reach a wide audience, including the authors of the 5th Assessment Report of the IPCC.

Several activities of the commission are proposed over the next couple of years. These include special sessions at the AGU 2012 Fall Meeting, the IAH 40th Congress in Perth, and a joint session with the Managed Aquifer Recharge Commission at ISMAR8 in China in 2013. The commission has launched a new website (www.gwclim.org) in collaboration with the UNESCO-IHP GRAPHIC Programme. Other strategic goals discussed at Niagara Falls include: (1) developing benchmark datasets representing aquifer responses to climate variability and change as well as abstraction in different regions of the world; (2) resolving the gap between recharge models and observations; (3) better constraining estimates of groundwater depletion and accumulation; and (4) improving our understanding of the impact of changing permafrost conditions on groundwater resources.

The kick-off meeting of the IAH Groundwater & Ecosystem Network was also held at Niagara Falls, was well attended and many good ideas for the future of the Network were discussed. Since then, the network's members have been hard at work and will focus on four goals for the next year. The first goal was to recruit a second co-director and Alex Gargini from the Italian Chapter has been accepted for that position. Members are interested in producing an IAH publication that explains clearly what groundwater dependent ecosystems are, and to partner with the Italian National Chapter on a publication which outlines ways to forecast, evaluate and mitigate impacts on groundwater dependent ecosystems caused by human activities.

During the conference on groundwater in hard rocks in Prague, a side meeting was held to initiate the setting up of a new IAH commission or network on groundwater in hard rocks. The meeting attracted about 20 people of whom a group of 9 IAH members steered by Uwe Troeger agreed to prepare a proposal for a network to be presented to the IAH Executive and Council for approval.

Following the major overhaul of the commission structure in 2011 the opportunity to establish new commissions and networks remains open. At the conference on arid zone hydrogeology in Hannover in March, some preliminary discussions were held on developing an IAH commission or network from the informal group on this topic within the German National Chapter. Centrally, we can support commissions and networks by publicising their upcoming meetings and activities on the website and in the newsletter and reporting them afterwards.

Early Career Hydrogeologist's Network

IAH's Early Career Hydrogeologists' Network (ECHN) continues to go from strength to strength. The Niagara Falls Congress was a resounding success for early career hydrogeologists, encouraging their involvement in IAH matters, encouraging networking and developing their professional knowledge and careers. The ECHN was able to offer a dedicated early career poster session, its annual meeting and a social function. Of the 900 delegates, 180 were registered as students and around 400 identified themselves on the congress registration form as ECH's. Congress week started with an attractive selection of short courses, ranging from field methods to conceptual modelling. One of the highlights was the half-day course on "The Art of Writing Successful Scientific Papers" by books editor Nick Robins, which provided participants with a useful toolbox of "do's and don'ts" for authoring.

The ECHN annual meeting was held at Niagara, and the 70 junior hydrogeologists attending were updated on the network's aims and objectives. A highlight of the function was the photo scavenger hunt which provided a chance to network and socialize. During the congress session "Groundwater for Decision Makers" convened by Andrew Stone, the Network presented an introduction to ECHN and its aims, followed by a lively discussion between members of the ECHN, the new IAH Commission on Groundwater Outreach and the audience on the role of early career hydrogeologists as groundwater advocates. Special focus was given to ECH's and their work during the "Showcasing Early Career Hydrogeologists" poster session. The excellent quality of the contributions gave the judges a hard time in selecting the prize winners.

Greatly encouraged by the feedback in Niagara Falls, the committee are working on possible events for early career hydrogeologists at the Perth congress. The ECHN has established close links with the IAH Commission on Groundwater Outreach and are looking forward to future cooperation. Promoting the ECHN LinkedIN group is certainly a fundamental goal, as this is the place for networking between Congresses. IAH is very pleased with the increasing interest in the group's activities and encourage all junior hydrogeologists to join and to actively take part in job-related discussions, to post items of interest to early career hydrogeologists and to profit from the group's new initiatives.

National Chapters

The number of National Chapters now stands at 44, although not all could be said to be fully functional. Active National Chapters are a major means of bringing scientific and professional benefits to members, and efforts to promote new Chapters continue in several other countries where:

- groundwater is central to national development;
- there are significant numbers of groundwater professionals and
- where IAH ought to be stronger than it is at present.

The British National Chapter, African Vice President and IAH Secretariat continue with their efforts to establish new chapters in Malawi and Tanzania. The Vice President for Eastern Europe and Central Asia has been promoting the establishment of chapters in several of the central Asian countries.

National Chapters have been active in support of regional and national meetings. Reports of these appear in the IAH Newsletter, and more such reports are always welcome. Annual reports received from National Chapters are posted on the IAH website. In March 2011 the Moroccan Secretariat of State for Water and the Moroccan IAH National Chapter organised a workshop in Rabat to celebrate World Water Day. Nearly 100 water resources professionals from the public and private sectors and the universities debated the management and protection of groundwater and pleaded for its rational utilisation. The

meeting was presided over by Jamal Mafoud, the Secretary of State for the Environment and IAH President Willi Struckmeier.

Russian colleagues held an “International Conference on Groundwater and Drinking Water” in April in a resort close to Moscow. Willi Struckmeier gave a speech on the world-wide groundwater situation in the opening session. The meeting was well organised, well attended and provided room for information exchange and discussions of participants mainly from Eastern Europe and Central Asia.

The Irish National Chapter held its 31st annual conference in Tullamore in April on the theme of “Evolving hydrogeology”. 165 people attended, and Willi Struckmeier was an invited keynote speaker. In September the Spanish National Chapter held a three day conference in Zaragoza at which the final session was devoted to an appreciation of former IAH president Emilio Custodio, at which a book dedicated to him was presented.

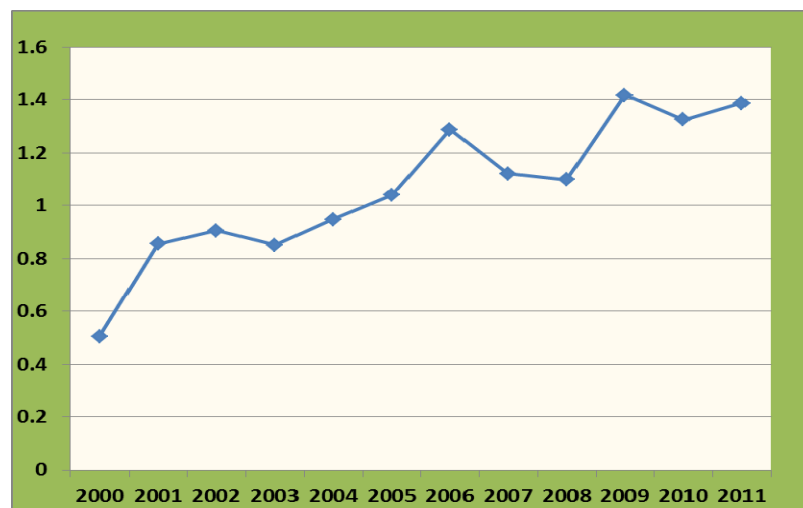
The Executive and Secretariat continue to support existing national chapters and to promote new ones. At the end of 2011 efforts were underway to establish a new IAH chapter in Sweden and a meeting to set up the chapter took place early in 2012. At a conference in El Salvador, IAH Executive member Antonio Chambel convened a meeting to explore the possibility of setting up an IAH chapter for Central America.

Services to Members

Hydrogeology Journal

The *Hydrogeology Journal* (HJ) continues to grow in stature as a premier scientific publication for groundwater professionals. The number of manuscripts submitted to HJ continues to increase – up from 200 per year in 2003 to over 300 by 2008 and 384 in 2012. The number of accepted papers remains around 150 per year, maintaining the Journal at eight issues per year and a target of 1650 pages. This means that the overall acceptance rate has fallen to below 50% in recent years. The “immediate rejects” at the time of submission without review, where the content is judged to be outside the scope of the journal or of very poor scientific quality, have risen from 20% in 2003 to 43% in 2012 out of a total of 225 papers rejected overall (64%), leaving a current acceptance rate of 36%.

Maintaining a balance between high impact factor and broad geographical spread of authors and content remains a key objective. The 2011 impact factor of almost 1.4 is comparable to similar journals and shows a steady overall rise in recent years, as shown below.



Citation evidence shows the importance to the Journal of good theme issues and good review articles. The 2012 theme issue was on the economics of groundwater, 2013 will be on the hydrogeology of cold regions and 2014 shallow thermal systems.

Another important issue for the journal is the need to keep a close eye on the time from submission to acceptance and publication (online and in print), as this is an important factor in author choice when submitting papers to a journal. The time from submission to online publication is currently approximately 9 months and to printing about 12 months. This is a welcome improvement on the 11 and 16 months, respectively, of two years ago. Citation evidence shows the importance to the Journal of good theme issues and good review articles.

The journal editorial team is widely dispersed around the world and meets approximately every 18 months and met in Vienna in December 2012. While the current mode of operation is highly successful and neither IAH nor our publisher sees any immediate need to change it, a key issue for the future is the rise of open access publishing. Obviously a large international company such as Springer has its finger on the pulse of the changing publishing environment and is already embracing open access for some of its journals. Publisher and the journal editorial team keep the situation under review at these meetings and at their annual meeting with Springer in Heidelberg, and report back to IAH Council.

At the editorial meeting in Vienna there was a useful discussion of the broad issue of open access journal publishing. In this approach, the cost is transferred from the readers to the authors, with the fee for articles currently ranging from around €750 to €1500. This would require a different arrangement with the publisher and, moreover, a very different financial model and membership fee structure for the Association.

Young authors prefer open access because it enhances readership of their work and is therefore better for citations. However, they often don't have funds to pay for publishing, and their university or other employer may not either. Some research funders are beginning to insist on open access publishing of the results of work they support, and moreover expect to see this in the budget at the time of proposal.

The life sciences are ahead of the earth sciences in open access publishing. Impact factors there are traditionally higher than in earth sciences, and have gone up to 8-10. The publisher would expect our impact factor to go up to 3 with open access. Some societies in life sciences subsidise open access fees for their journals, with 50% discount to members.

There is also the related issue of "open choice", in which the journal still operates under the present model but allows the option to individual authors for their articles to be freely available for a fee (currently about €2000 or \$3000). This is not a rule but a preference for Springer journals. Only 5-10% of their journals do not allow open choice, but on the other hand not many authors take up this option (presumably due to the cost); only 5% of them in earth sciences and 10% in life sciences. At the moment there is no pressure on us from Springer to move to open access, and it would not be done against our wishes and the Association would be fully consulted all the way.

Books

The International Contributions to Hydrogeology (ICH 28) book on *The History of Hydrogeology* edited by Nicholas Howden and John Mather was published in 2012 and the previous "blue book" ICH 27 on climate change and groundwater continues to sell very well. ICH 29 by Luis Ribeiro on statistical methods in groundwater research is well underway. In our increasingly time-constrained world, the substantial time required for book writing is harder to find, and this affects all learned societies and their publishers. The resulting lack of proposals for ICH books continues to be a cause for concern, and IAH's commissions,

networks and members are being encouraged to support the series, otherwise it would become fragmented and we could be at risk of losing it.

One SP (green book) has been published since the last report. This is the first in an updated format and layout, and is volume SP 17 of selected papers from the Krakow congress: *Groundwater quality sustainability*, edited by Piotr Maloszewski, Stanisław Witczak and Grzegorz Malina. Special Publications of selected papers on groundwater and ecosystems from the IAH congress in Lisbon and from IAH supported conferences in Prague and Pretoria and a volume of conference papers on calcium and magnesium in groundwater are in preparation and various other leads are being followed up.

News and Information

The printed News and Information can be seen as the Association's magazine, with a broadening range of articles and topics which may be of interest to the wider groundwater community as well as to IAH members. It continues to be produced three times each year. Following the redesign and introduction of full colour printing in 2010, we have endeavoured to broaden the scope of the newsletter to include topical news about groundwater from the media as well news of the Association. As a result of this and of receiving larger numbers of contributions from IAH's chapters, commissions and individual members, the three 2012 issues have ranged from 20 to 32 pages with a good mixture of shorter and longer news items, compared to the 12 to 16 pages previously. The Secretariat will continue to work to improve the quality of the newsletter, but as always we depend on the contributions of members to balance the routine information with more unusual news of IAH and groundwater activities around the world.

The IAH e-news, which is produced several times each year provides shorter news items and alerts and goes to some 6000 email addresses; thus having a significantly circulation beyond the IAH membership. As part of the development of improved benefits via the new website, IAH is planning an e-comms policy for disseminating e-news and journal alerts to both members and non-members. The member database and the functionality of the applications that go with the database are being developed to facilitate this.

On-line Services

Improving on-line services is part of a continuing process. The Forward Look questionnaire responses and discussions at the meeting in Reading certainly emphasised the need for major improvement of the website and the services provided by it. Work to improve the main IAH website is being undertaken in stages.

Following the decision of Council in September 2011 to proceed with redevelopment of the IAH website, and after a lengthy consultation and preparation phase, the Secretariat prepared a detailed Web Development Brief. In April 2012 this was sent to seven web design companies, including our present contractor. All submitted proposals, from which the three strongest were selected and the companies visited by the Secretariat for more detailed discussions and presentations during May. Following these meetings and a short opportunity for each to modify their proposals in the light of what they had learnt from the face-to-face discussions, IAH chose to work with Alberon, a company based in Oxford. Several meetings with them during the summer months culminated in an overall design and structure for the new website which was demonstrated at the Niagara Falls congress.

The specification required bidders to price several components of the work separately and it was anticipated that the Association would need to spend some £25,000 for the overall design and building of the website, database integration and enhancement and setting up of provision for space for commissions and national chapters. Additional funds would be required if it was decided to embark on conference abstract management and event booking systems, and greater multi-language content. The clear intention is that this will be a

“dynamic” website which can be changed readily and easily, and further developed. We will be adopting a user-friendly content management system (CMS) which the different parts of IAH will be able to use securely and safely to demonstrate their activities and outputs.

During the latter part of the year, work continued in parallel on the website design and the membership database and the applications needed to build its functionality and improve communications with members.

Meetings

IAH organised, sponsored or co-sponsored several national and international groundwater meetings during 2012. Apart from those mentioned elsewhere in this report, these included the IGWC conference in Aurangabad, India, at which new President Ken Howard was an invited guest. Others included the meeting on Arid Zone Hydrogeology organised by BGR in Hannover in March, the conference on Groundwater in Hard Rocks in Prague in May and the AHLSD congress in Cartagena de Indias in August, and the International Congress on Hydrogeology and Water Resources in Sucre, Bolivia in October. IAH was represented at these by Executive Member António Chambel.

The work of the Burdon Network on Hydrogeology in Developing Countries

The Burdon Network has been more active in 2012 than in recent years. Following the success of earlier book distributions to African colleagues, the distribution planned for 2011 actually took place in 2012 at a cost of £5500. The responses indicated that we had lost contact with a number of our African members, and efforts will be made to trace them. Following the signing of an MoU between the IAH Burdon Network and the African Groundwater Network, a Burdon Fund contribution of £1500 was used to support the latter's activities by providing training materials and financial support to three participants at a training course in Lusaka organised by the African Groundwater Network.

IAH Awards

The IAH awards were announced at the General Assembly meeting in Niagara Falls. The Presidents' Award is made in recognition of outstanding international contributions to the development or application of groundwater science and to furthering the Association and its mission to promote understanding and management of groundwater resources. The 2012 award went to someone who fully meets both criteria – Professor John M (Jack) Sharp.

Jack has been Professor of Geology at the University of Missouri from 1974 to 1982 and at The University of Texas since 1982. His research interests and scientific publications range over several areas of groundwater science, including the hydrogeology of large sedimentary basins and of fractured rocks, the effects of urbanisation on groundwater and karst groundwater systems. The high quality of his research has been recognised by receipt of the Founders and Theis Awards of the American Institute of Hydrology and the Meinzer and Distinguished Service Awards of the Hydrology Division of Geological Society of America.

Jack has been an IAH member for many years, active in the IAH commissions, Associate Editor of the Hydrogeology Journal from 1994-1997 and convener of sessions at many IAH congresses. He was IAH Vice President from 1996-2000 and treasurer from 2004 to 2008, and also chair of the US national committee from 2004 to 2008, and remains on the US chapter executive committee. Jack has also been President of the Geological Society of America and Vice President for academic affairs of the American Institute of Hydrology. Jack is a worthy recipient of the award, and warmly thanked the Association in his response.

The general assembly approved the award of Honorary Membership to József Tóth. Following study in his native Hungary and at the University of Utrecht, he spent 20 years

with the Alberta Research Council as a hydrogeologist, and introduced hydrogeology to the University of Alberta (1966-70) and Calgary (1978-80) and was a professor in the Department of Geology at the University of Alberta from 1980 until his retirement in 1996. In 2008 he also became Professor at the Eötvös Loránd Science University in Budapest, where he lived and taught from 2005 to 2008.

Joe Tóth's research interests are mainly in the hydraulics, geological and environmental effects and utilization of regional groundwater flow, as reflected in his numerous publications and awards. In 1965, Joe was the first recipient of GSA's Meinzer Award and subsequently has received the NGWA's M. King Hubbert Science Award for 2003 and the Theis Award for 2004 from the American Institute of Hydrology. Both of this year's recipients have thus had their scientific standing recognised well beyond IAH. Joe was a founder member and president (1972-1984) of the IAH Canadian National Chapter and IAH Vice President (1978-1982). He was an Associate Editor of "Hydrogeology Journal" from its inception in 1992 to 2000, and received the IAH Presidents' Award in 1999. Joe has also been instrumental in establishing the new IAH commission on regional groundwater flow.

The IAH Distinguished Associate Award is presented annually to a person who is not a groundwater professional but has made an outstanding contribution to the understanding, development, management and protection of groundwater resources internationally. The Award for 2012 goes to Dr Uschi Eid, Vice-Chair of the United Nations' Secretary General's Advisory Board on Water and Sanitation (UNSGAB). Dr Eid is a socio-economist by training and a long standing member of the Green Party in Germany and served for 20 years in the German Bundestag. She was appointed Parliamentary Secretary of State in the Federal Ministry for Economic Cooperation and Development in 1998 and was the Personal G8 Africa Representative of the German Federal Chancellor from 2001 to 2005. During this period she developed a focus on the water supply and the sanitation sectors.

In 2004 the UN Secretary General appointed Dr Eid as a member of UNSGAB, which provides advisory services to the UN system in the water and sanitation sector. As Vice-Chair of UNSGAB, she plays an active role in promoting water supply and sanitation issues on the political development agenda. She fought at a high level for the water and sanitation related Millennium Development Goals and for the International Year of Sanitation. She strongly supported the IAH-sponsored symposium "Coupling Sustainable Sanitation and Groundwater Protection" in Hannover in 2008 where the relationship between wastewater treatment and management and groundwater resource protection was addressed. Uschi Eid has also been active in lobbying for a new Sustainable Development Goal on Sanitation and Wastewater Management at the recent Rio+20 Conference on Sustainable Development. IAH is pleased to acknowledge Uschi's personal contribution to the enhancement of wastewater management and groundwater protection worldwide with this award. She was not able to come to Niagara Falls, but the award was presented to Uschi in October at a meeting in Osnabrück in the presence of the Prince of Orange.

The Time Capsule Project

The Time Capsule Project continues its efforts to record the work and life of some of the pioneers of hydrogeology and of IAH. In 2012, two interviews have been taped and edited: Allan Freeze by his son Geoff (hydrogeologist at Sandia National Laboratory), and Gedeon Dagan by Aldo Fiori (Università di Roma Tre, Italy). The first of these videos was sponsored by the Sandia National Laboratory and the second had support from Tel Aviv University. Both of these have been edited in preparation for posting on the Time Capsule website. Jean Margat was interviewed in July 2012 by a panel of French hydrogeologists (Bernard Blavoux of the University of Avignon and Nathalie Dorfliger, Laurence Cherry, Serge Lallier, and Damien Salquebre from BRGM) and this video is being edited by BRGM.

In addition to the production of these video interviews, the main activity in 2012 has been to rebuild the web site, <http://timecapsule.iah.org> which will become available in 2013, replacing the previous website. Plans for 2013 include interviews with John Cherry and Mary Anderson, and early preparations are underway to interview Wolfgang Kinzelbach. Visits to the website were up again in 2012 compared to 2011, and IAH continues to provide financial support to the Time Capsule Project as part of its educational programme.

International Liaison

IAH believes that groundwater is not well enough understood and appreciated in the integrated water resources management arena. The Association continues to advocate for improved governance and policy provisions, backed up by suitable institutional arrangements to help rectify this situation. With this objective, IAH was involved in convening two sessions at the sixth World Water Forum in Marseille and participated in several other sessions and side events. These global gatherings attract thousands of people and the programme of sessions, discussions, meetings, and exhibitions is on a huge scale. It is good for IAH to help ensure that the voice of the professional hydrogeologist can be heard.

IAH participants came away from the forum with the clear view that water links to practically all aspects of national and international relations. The forum ended with a Ministerial Declaration undertaking to address the many key present and future water issues. However such declarations have limited impact unless civil society, professional bodies and NGO's actively engage in dialogue with their own governments. In this connection, IAH with its many national chapters is in a good position to promote the integration of the science of hydrogeology into water policy.

IAH participated in the international conference "Planet Under Pressure" in London, contributing to the sessions on integrated water management. IAH was represented by Secretary General Shammy Puri, Alan MacDonald, chair of our Burdon Network and Richard Taylor, chair of the Climate Change Commission. Their contributions to the panel discussions stressed that aquifers provide key buffers in times of drought and that good land management and changes in practices are key to ensuring that aquifer replenishment continues for sustainable development. More information can be obtained from the conference web site, <http://www.planetunderpressure2012.net>

During 2012 IAH signed two Memoranda of Understanding to help develop our international collaboration. The first was with IGRAC (the International Groundwater Assessment Centre based at Delft in the Netherlands). IAH President Willi Struckmeier and Dr Neno Kukuric, Director of IGRAC, signed the MoU at the World Water Forum in Marseille. While IGRAC and IAH have already been working together for some years, the MoU formalises and simplifies cooperation between the two. The opportunity was taken to discuss possible activities and opportunities to combine efforts and expertise to enhance further collaborate on international groundwater projects in the future. The scope of IGRAC's work programme can be seen at <http://www.un-igrac.org>.

The second was with the African Groundwater Network, with whom IAH's Burdon Network has had informal links for some time. As an immediate outcome of the latter, the Burdon Fund provided support to an African Groundwater Network training course in Lusaka in April with course material and by providing support for three participants to attend the course. We look forward to working with both of these partners in the future.

IAH continues to advocate for improved governance and policy provisions, backed up by suitable institutional arrangements. These aims can be realised through participating in international projects. To this end, IAH is a partner with the UN's Food and Agriculture Organisation (FAO) and UNESCO in a three year project on groundwater governance which

aims to accelerate the adoption of improved groundwater governance by developing a global framework for action based on regional and local experiences.

In the second year of the project the main activity was a series of regional consultations. These were intended to enable the project to gather experience and perspectives from the regions to support the information provided by the thematic papers prepared earlier. Regional consultations were held for Latin America and the Caribbean in Montevideo, for Sub Saharan Africa in Nairobi, for the Middle East and North Africa in Amman and for Asia in China during 2012 and for Europe in March 2013.

One of IAH's longest scientific collaborations has been with the Worldwide Hydrogeological Mapping and Assessment Programme (WHYMAP). This joint programme of UNESCO, CGMW (Commission for the Geological Map of the World), IAH, IAEA and BGR (the Federal Institute for Geosciences and Natural Resources, Germany) was established in 1999. Many universities and scientific organisations, including IGRAC and the Global Runoff Data Centre (GRDC) contribute to the WHYMAP network. WHYMAP collects, compiles and collates groundwater related information at continental and global scales to aid global discussion of water issues by making groundwater resources more visible. A new map of "River and Groundwater Basins of the World" was launched at the World Water Forum in Marseille. It has been prepared to help water resource policy makers and planners visualise at a broad scale the interaction between surface water systems and the underlying groundwater resources and to promote their conjunctive use and management. More information is available at <http://www.whymap.org/whymap/>.

**John Chilton,
Executive Manager IAH
August 2013**