No. 79 November 2003

THE NEWSLETTER OF THE BRITISH HYDROLOGICAL SOCIETY

Circulation

Contents

Replacement books sent to flooded Czech institute

BHS AGM report and presentation

Welcome to our new members

EGS/AGU/EUG Joint Assembly
Claire Walsh reports from Nice

Your new Committee members

President's piece by Bruce Webb

More reports from IUGG Sapporo
From Kate Heal and Des Walling

Improved consultation procedure
Collating members' responses using the BHS Mailbase

Book review
David Archer's *Tyne & Tide*

BHS publications: report on sales

Flow monitoring
Peter Ede reports on the AGM meeting

GIS and remote sensing
Dawei Han reports from China

Younger members' grants on offer
Helping under-30s to attend BHS2004

Reservoir safety working group
Howard Wheater needs your feedback

News from members and BHS regional sections and groups

Publications
Latest *HSJ* contents (October 2003 issue)

BHS Committee list for 2003/2004

New international journal launched
Journal of River Basin Management

Forthcoming meetings
BHS National Meetings (fliers enclosed)
Calls for papers for EGU session — Nice &
International storm conference — Brisbane

Diary of forthcoming events

Circulation is published quarterly. It is free to members of the British Hydrological Society and costs £22 to nonmembers on annual subscription.

- Membership enquiries: Tim Fuller, BHS Secretary, Institution of Civil Engineers, 1-7 Great George Street, London SW1P 3AA. *Tel 0207 665 2234, E-mail bhs@ice.org.uk.*
- Editor: John Griffin, CEH Wallingford, Crowmarsh Gifford, Oxon OX10 8BB. *Tel 01491 692395. Fax 01491 692424. E-mail jhgr@ceh.ac.uk.*
- Web pages: **http://www.hydrology.org.uk/**

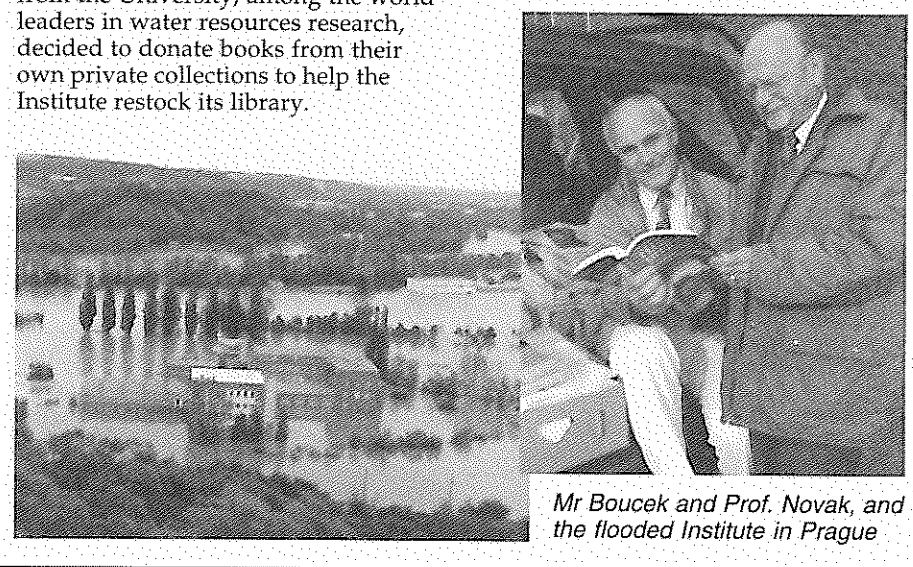
Circulation is produced at CEH Wallingford and indexed in *Geosystems' Hydrotitles* & *GeoArchive* and *NISC HydroROM.*

Sending books from Newcastle

Three retired engineers from Newcastle University came to the aid of the world-famous Water Research Institute in the Czech Republic, which lost thousands of books during last year's flooding in central Europe.

The flooding caused serious damage to the Institute's library in Prague, destroying about 40 tonnes of books and research data. After hearing news of the disaster, three retired academics from the University, among the world leaders in water resources research, decided to donate books from their own private collections to help the Institute restock its library.

Mr Jan Boucek, Deputy Director of the Institute, set off back to Prague with about 600 books and journals, weighing about a third of a tonne, in his Land Rover.



Mr Boucek and Prof. Novak, and the flooded Institute in Prague

The book appeal was launched by Emeritus **Professor Pavel Novak**, joined by **Dr Chandra Nalluri** and **Mr Phil Johnson**, all retired staff members of the University's Department of Civil Engineering (now the School of Civil Engineering and Geosciences).

'We have enjoyed good relations with the Institute in Prague for many years and it was a disaster that so many books and data were lost in the flood,' said Professor Novak.

'My colleagues and I were able to donate some books that the University library also had in stock and others that we thought the Institute perhaps needed more than we did.'

The Institute had cleared its lower floors of books and electrical equipment a few years ago to protect them from the 100-year flood, but this flood was six metres higher than forecast. They had also begun transferring information in their library onto an electronic database, but only 10% had been completed when the flood came.

Mr Boucek said: 'We are very grateful to Newcastle and other research groups in Europe which have come to our aid. The destruction of so many books was a terrible loss to us.'

Professor Novak was Principal Research Associate at the Water Research Institute in Prague and later Director of the Institute of Hydrodynamics at the Czech Academy of Sciences, before coming to England in 1968. He was Professor of Civil and Hydraulic Engineering at Newcastle from 1970 until his retirement in 1983.

Information from Newcastle University Press Office (email press.office@ncl.ac.uk)

20th BHS AGM

The British Hydrological Society Annual General Meeting was held at the Institution of Civil Engineers on *12th September 2003*. This meeting was integrated into the programme of the national meeting on *"Flow monitoring — can we improve quality and reduce costs?"* reported on in *Circulation* (p. 13).

The President, **Peter Walsh**, opened the meeting with a welcome and reported on the past year. He focused on three aspects:

(1) The generosity of a former President and honorary member for donating the annual subscription of three young members, which was reported in *Circulation*: he encouraged others to make similar donations.

(2) The excellent progress being made by Howard Wheater, Adrian Butler and Bruce Webb and their committees for BHS2004, our 2nd International Conference to take place in July 2004 at Imperial College. Almost 400 abstracts had been received.

(3) the UN International Year of Freshwater, marked by the H_2O03 event at CEH Wallingford: he re-emphasised some of the messages from that event, in particular the closing remarks by Professor John Lawton, NERC Chief Executive, who stated that the human race is now consuming 40% of the earth's annual green production and uses 60% of the available fresh water. Both of these have a 30-year doubling period and consequently, even without the effects of climate change, Planet Earth is in a bad way. Hydrologists have a major contribution to make in ensuring the health of the environment and of future generations. Presentations from the H_2O03 meeting would be placed on the BHS website.

He apologised that progress on website redevelopment had been slower than the Committee would have wished, and that progress with the ICE on routes for hydrologists to satisfy their membership requirements had been frustrated by changes at the Institution.

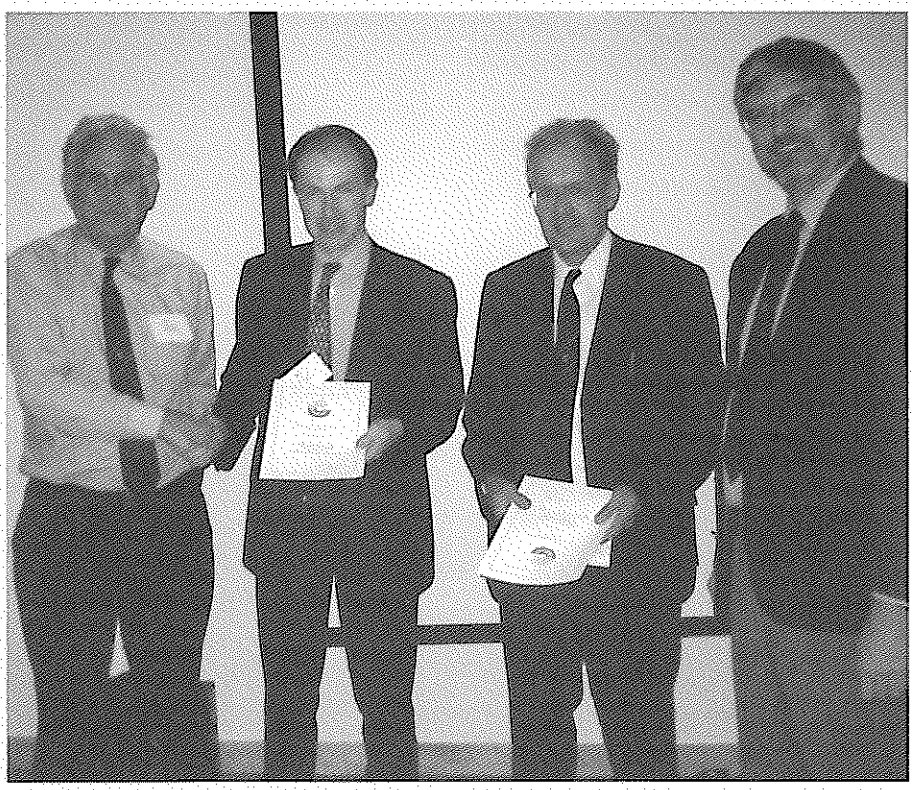
Finally, he expressed his appreciation to everyone in the Society and to staff at the ICE for their support for him in his work as Hon. Secretary and then President over the last five years. It had been a privilege and pleasure to serve the Society, but in the final analysis our success depends upon the team effort, which is considerable, and often goes unnoticed by the wider membership.

The report of the 19th AGM (*Circulation 75*, November 2002) was accepted as an accurate record.

The Hon. Secretary, **Andrew Black**, reported mainly on meetings and publications. Over the reporting year, a successful National Symposium had been held at Birmingham University, six national meetings had been organised, including our annual postgraduate symposium, and joint meetings had been held with the Royal Meteorological Society and the British Dam Society: all had been well attended. The level of regional meetings activity had been more variable, but news was now being received of new meetings planned in several regions.

On publications, the proceedings of the National Symposium had, once again, been published to the usual high standards in time to present to participants at the Symposium. A sale, advertised by flyers with *Circulation*, had resulted in a marked acceleration in the rate of BHS publications sales, and he thanked **Neil Macdonald** for his help as Publications Officer at Dundee, and also **Amy Tavendale** for agreeing to take over this role (see p. 8).

The Hon. Secretary gave the report



Retiring President Peter Walsh (left) and previous President Howard Wheater presenting the Presidents' Prize for the BHS Hydrochronology website to Andrew Black (Hon. Secretary) and Frank Law (also a past President) at the AGM

of the Editor, **John Griffin**. The four planned issues of *Circulation* had been produced, ranging between 8 and 20 pages each. He reminded members that articles short and long are always welcome, including news items and topical photographs and diagrams.

The Hon. Treasurer, **Steve Parsons**, spoke to his written report. Active membership stood at 888. Allowing for non-payers to be removed from the membership, this represented an annual growth of about 4%. A small operating loss of £1924 was significantly less than had been budgeted for, and was more than offset by a healthy surplus of £5244 from the Birmingham Symposium and some modest excesses of income over expenditure for national meetings.

For 2003/04, a net deficit was expected, which was mostly due to increasing expenditure on the web site, a planned increase in travel awards and an increase in the grant to the ICE. The Hon. Treasurer therefore proposed an increase in membership subscription from £22 to £25 for ordinary members and from £11 to £12.50 for students and retired members, from 2004 onwards. This was seconded by Frank Law and carried by the meeting unopposed.

Peter Walsh then turned to prizes. The BHS Student Award 2003 was awarded to **Robert Thorpe** (Exeter University, Biology/Geography) for *Spatial analysis of woodland throughfall*. The two runners-up prizes were awarded to **Stuart Fraser** (Leeds University, Geography) for a study of flooding in :*York – a graded floodplain map*, and **Guy Schumann** (Dundee University, Geography) for *Discharge forecasting from a glaciated Swiss catchment*. The winners' studies and the judging will be reported on later.

For the biennial President's Prize, no award had been made two years ago, so Peter was joined by his immediate predecessor, Howard Wheater, in making this year's award a team effort, in both the giving and the receiving. The prize was awarded for the teamwork in creating the BHS Hydrochronology. Peter commended this as a major achievement, and encouraged all with an interest to visit the site *(http://www.dundee.ac.uk/geography/cbhe/)* to see the wealth of information assembled by **Frank Law**, **Andrew Black**, **Adrian Bayliss**, **Rob Scarrott** and **John Miller**, with assistance given to Frank by **Sandie Clemas**.

He asked Howard to join him and invited Frank and Andrew to receive the prize on behalf of all the members of this team. Frank thanked everyone who had entered data onto the chronology, and especially those copyright holders who had granted permission for their material to be submitted for use. He also encouraged members to continue contributing further data.

Finally, Peter turned to committee changes. **Celia Kirby** and **Steven Wade** had reached the end of their elected terms and Peter thanked them for all their hard work. He welcomed three newly-elected committee members to fill the vacancies: **Louise Heathwaite** (Sheffield University), **Peter Ede** (Mott Macdonald) and **Suzanne Wales** (Halcrow). Suzanne continues her work as younger members' rep on the committee, which she began in the past year as a co-opted committee member. Peter welcomed Steve Parsons to his second term as Hon. Treasurer (elected unopposed), and finally welcomed **Bruce Webb** as his successor as President.

Bruce thanked Peter Walsh for his exceptional and exemplary service to the Society, not least in enhancing the processes by which the Society runs, for raising its profile and for developing the programmes of meetings which lie at the heart of the Society (Bruce's first *President's piece* appears on p. 5). There being no other business, the meeting was closed.

New members

A warm welcome to the following new members of the Society:

Robert Berry	Halcrow Group, Leeds
Dr Judith R. Cudden	Halcrow Group, Leeds
Dr Peter Daldorph	Eastern Hydrology Ltd, Cambridge
Prof. Ian J. Fairchild	School of Geography, University of Birmingham
Dr Chak Fai Fung	CEH Wallingford, Oxfordshire
Dr Matthew Heywood	University of Exeter
May Lee	King's College London
Julian D. Parkin	Environment Agency, Warrington
Robert J. Sargent	Edinburgh
Marie-Laure Segond	EWRE, Imperial College London
Tim Shipton	Environment Agency, Exeter
Michael W. Symons	London

EGS/AGU/EUG Joint Assembly

Nice, France
6 – 11 April 2003

The first joint assembly of the EGS, AGU and EUG was held at the Acropolis in Nice, France. With the assistance of a BHS travel grant, I was able to join more than 11 000 delegates who attended some of the 500 sessions, which included Union symposia, educational symposia, topical sessions, short courses, workshops, keynote and medal lectures and town hall meetings. The range of topics was vast, including seismology, tectonism and sedimentary processes, ocean and atmospheric sciences, planetary science, non-linear processes in geophysics, natural hazards, biogeosciences, energy, resources and the environment, and of course hydrological sciences.

Given the immense size of this event, it was impossible to attend every session, since the majority of the time they were being held in parallel. In the Hydrological Sciences division there were 52 sessions and co-sponsored sessions, in which there were 542 oral presentations and 925 posters. Sessions ranged from climate change impacts on the hydrological cycle to perspectives in soil hydrology, from rainfall modelling to river and estuary restoration.

I found that poster sessions enabled me to take in more presentations and gave more opportunity to discuss ideas with the author. The "hot topics" in the

Hydrological Sciences division, as represented by the number of delegates attending them and the number of abstracts submitted, were: climate change impacts on the hydrological cycle, extremes, forecasting and implications on engineering design; incorporating hydrological process knowledge into catchment modelling; climate-soil-vegetation interactions and controls on analysis and modelling of hydrological extremes (floods and droughts); PUB: a research imitative for Prediction in Ungauged Basins; subsurface fluid energy and solute transport processes: concepts, models and observations; spatial analysis, landscape discretisation and catchment classification for hydrological modelling, and parameter estimation and uncertainty assessment in hydrological modelling: new approaches and future directions.

On Thursday evening, at the hydrological sciences division keynote and medal lecture, over 150 people attended to witness **Georges Vachaud** collect the Henry Darcy Medal for his outstanding contributions to the sustainable management of soil and groundwater systems. The John Dalton Medallist was **Murugesu Sivapalan** for his pioneering contributions to advancing the science of catchment hydrology, and Professor Sivapalan then presented the keynote lecture. He discussed his current research agenda in making predictions of ungauged catchments (the PUB initiative), the main aim of which is to make predictions in catchments where stream flow measurements are lacking, but to use all other datasets apart from streamflow to avoid the traditional modelling reliance on calibration.

Professor Sivapalan's approach is to understand the observed space-time variability of runoff processes (within and between catchments) and to interpret these in terms of the underlying climate-soil-vegetation-topography controls. A further aim is to investigate the interactions between runoff processes and chemical and biological processes which are crucial for water quality predictions (e.g. salinity, sediments, nutrients). These theoretical advances will be used in new process-based models to make predictions of both water quantity and quality, and to validate them in gauged catchments subject to natural and/or human-induced changes in climate, soil and vegetation.

PUB is a call to the hydrological community worldwide to come together under this theme to advance a new hydrological theory. Earlier in the day a whole session was devoted to it, with many internationally renowned speakers discussing their contributions to the initiative. **Prof. Enda O'Connell** (University of Newcastle upon Tyne) described mesoscale catchment experiments to support prediction in ungauged basins; **Prof. Dennis Lettenmaier** (University of Washington) discussed the need for satellite based observations of global surface waters and **Prof. Eric Wood** (Princeton University) presented a remote sensing data assimilation strategy for ungauged basins.

My poster, entitled *"Effect of future climate change on hydrological extremes: inferences for catchment flow management and Atlantic salmon"*, was included in the session convened by **Chris Kilsby** (University of Newcastle upon Tyne) and **Dr E. Toth** (University of Bologna). Other presentations in this session looked at climate change issues such as impacts on lakes, problems for flood prediction and changes in extreme rainfall. A historical view of climate change was also presented, as well as downscaling methods of Global Climate Model rainfall to help to predict future changes in precipitation.

Attending the assembly gave me a valuable opportunity to increase my knowledge in a wide range of hydrological topics. Presenting a poster at an international meeting was a great experience, not least because of the range of feedback I received on my work from a variety of scientists, not just those specialising in hydrology. I would like to express my sincere thanks for the financial assistance given by BHS, which enabled me to attend this assembly.

Claire Walsh
University of Newcastle upon Tyne

New Committee members

We welcome **Frank Farquharson** back onto the BHS Committee as the new Institution of Civil Engineers' nominee and our representative on the ICE Water Board. He was a committee member and BHS Hon. Treasurer in the late 1980s.

Frank has a first degree in environmental sciences, an MSc in hydrology, and is a Chartered Civil Engineer. He has over 30 years' experience, working in over 40 countries, mainly in Africa, south-east Asia and the Indian subcontinent. His experience covers most aspects of hydrology, notably flood estimation, real-time flood forecasting and regional water resources assessment. In recent years he has become increasingly involved in studies of how climate change may affect floods and water resources, in the UK, but primarily in developing countries.

He is head of the Water Resources Group at CEH Wallingford, where he has worked for the past 29 years, beginning with research to extend the rainfall runoff models in the Flood Studies Report and subsequently concentrating on applied consultancy studies, mostly in developing countries.

Before joining CEH, Frank worked for the Thames Water Authority, developing real-time flood forecasting models for the basin and a groundwater augmentation scheme of flows into the lower Thames.

—

Louise Heathwaite graduated in Environmental Sciences at the University of East Anglia and worked for the Soil Survey of England and Wales and MAFF before taking her PhD at Bristol University on wetland hydrochemistry in the Somerset Levels.

After postdoctoral research at Oxford on agricultural pollution, Louise was an environmental hydrologist for the Nature Conservancy Council before joining the Department of Geography at Sheffield in 1989. She was awarded a personal chair in 1998.

Louise's research interests are in solute (especially nutrient) transport, hillslope processes, agricultural pollution and wetland hydrochemistry. Her research uses laboratory simulation and fieldwork at several scales and integrates empirical research with decision-support frameworks to give practical advice to policy makers.

She is on the board of the International Environmental Modelling and Software Society and the Agriculture and Environment Division of the Society of Chemical Industries and has recently been elected a Vice-President of the International Association of Hydrological Sciences.

—

Peter Ede, a newly-elected Committee member, is a Senior Hydrologist with Mott Macdonald in Cambridge, where has been based since 1985. He has worked in more than a dozen countries overseas as well as throughout the UK, covering most aspects of hydrology but with the emphasis usually on low flows rather than floods.

In recent years he has been responsible for yield reviews on almost all of the resource systems in Scotland. Overseas his most extensive assignments have been in Somalia (before the war) and in Indonesia, but he is well used to turning his hand to conditions in a new country, most recently for a dam in Lesotho.

—

Suzanne Wales and **Celia Kirby** continue on the committee with slightly different roles, as explained in the President's piece. **Katie Fawcett**, who works for the Environment Agency in Cardiff, is the new Welsh representative.

President's piece

I am honoured and privileged to become the 11th President of the BHS in the year when the Society marks two decades since its inaugural meeting was held at the Royal Society on 1st November 1983.

Twenty years on from its inception, the Society is in good health, not least as a consequence of the outstanding service of **Peter Walsh**, who has been on the Main Committee for the past six years in the capacities of Elected Member, Honorary Secretary, President Elect and President. During his Presidency and before, Peter has done much to take forward the Millennium strategic reviews, to champion National and Regional BHS meetings and to enhance the efficiency and effectiveness of the Society's workings. It is a pleasure to report that BHS will still benefit from Peter's contribution in the organisation of the Second International Conference, *Hydrology: Science and Practice for the 21st Century*, being held at Imperial College London in July 2004. Under the chairmanship of **Howard Wheater** and **Adrian Butler** respectively, the National and Local Organising Committees have advanced planning for this event significantly. Given the strong interest already expressed through abstract submission, we are looking forward to a highly successful meeting next summer.

Looking back to the very first 'President's Piece' in *Circulation* No. 1, **Mike Mansell-Moullin** commented there on the benefits of keeping close ties between the Society and IAHS (the International Association of Hydrological Sciences). It is therefore very pleasing to record that **Louise Heathwaite** (Sheffield University), recently elected a Vice President of IAHS, joins the Main Committee as an elected representative. Several UK hydrologists now hold office in IAHS and its Commissions, including **Ian Cluckie** (Vice President, International Commission on Remote Sensing), **Chris Soulsby** (Vice President, International Commission on Tracers) and **Bruce Webb** (President Elect, International Commission on Water Quality), and **Alan Gustard** continues as President, International Commission on Surface Water and **Des Walling** as Chairman of IAHS Ltd. Thanks to his dual nationality, we can also claim a half share of **Arthur Askew**, the President Elect of IAHS!

We also welcome onto the BHS Main Committee **Peter Ede** (Mott MacDonald Ltd) as an elected member, **Katie Fawcett** (Environment Agency Wales) as the Welsh Section representative and **Frank Farquharson** (CEH Wallingford), a former Honorary Treasurer, as the member nominated by ICE. **Suzanne Wales** (Halcrow Group Ltd) rejoins the committee as an elected member and continues to serve as the representative for younger members, while **Celia Kirby** has been co-opted with the general brief of BHS publications but also a specific role relating to production of the International Conference volumes. Celia has been a member of the Main Committee, in various guises, since the Society's foundation, and her skills, knowledge, experience and enthusiasm are far too valuable for BHS to forego.

This new Main Committee held its first meeting in early October and one of the most important decisions reached was to go ahead with the commercial redevelopment of the Society's website, a matter that has been on the agenda for some time. We hope in the coming months to make progress on other outstanding issues, including updating of the BHS Research Strategy and discussions with ICE on routes to Chartered Membership.

The latter are likely to be given impetus by Project SLIM (Simple Look into Membership) initiated by the Institution as part of a wider five-year business plan for strategic change and revitalisation. This plan may have significant implications for Associated Societies like our own, not least the amount of administrative support that can be provided from within ICE in the future.

However, **John Burland**, who chaired the recent Annual Meeting of Associated Society Chairmen that I attended, was at pains to stress that ICE values highly the learned society role provided by BHS and the 13 other Associated Societies. A working party, chaired by **Quentin Leiper** (ICE Vice-President elect) will be examining the administrative support for Associated Societies. I have been invited to join the group and will be able to contribute to the discussions on this sensitive issue.

Change is also affecting our other parent institution, the Centre for Ecology and Hydrology, which is reorganising its staff and facilities to focus its research on the five science areas of biodiversity, water, biogeochemical cycles, climate change and sustainable economies. We have no reason to believe that these developments will alter significantly the good relationship that BHS has traditionally had with CEH.

With respect to ongoing activities, I can report that the second year of the BHS Student Awards attracted another good crop of excellent dissertations in hydrology. Thanks are due to **Andrew Black** for organising the judging of this competition and to several members of the Main Committee who gave up their time to reading and the difficult task of ranking the entries. Abstracts of the winning dissertations will appear in a future issue of *Circulation*.

The Society will also be publishing on the website the text and selected illustrations of an excellent talk which **Frank Law** gave on behalf of BHS at the H_2O03 event hosted at CEH Wallingford in September as the UK's contribution to the United Nations International Year of Freshwater. The Society also sponsored a prize in the exhibition of freshwater art organised as part of this event to encourage the awareness of freshwater issues among the general public. *[see C+, pp 9–12]*

I would like to conclude this piece by stressing the importance I place on communication between the membership and officers and representatives of the Society. Elsewhere in *Circulation* (p. 7) Andrew Black describes how we shall be using the BHS-HYDROLOGY email list to invite members to comment, if they wish, on consultation exercises addressed to the Society. BHS-HYDROLOGY also provides a very effective mechanism for disseminating information on our activities, and I urge you to join this email list if you are not already a member of it. (For instructions see *www.hydrology.org.uk/BHS_Mailing_List.html*.)

We hope that email, along with other media, will provide a ready channel by which BHS members can express views on how the Society can best develop and serve the interest of its membership. Comments (either negative or positive) to myself or other members of the Main Committee will always be welcome.

Bruce W Webb
b.w.webb@exeter.ac.uk

Travel grants

Travel grants are available to help BHS members whose travel expenses are not met by an employer to attend scientific meetings. The amount will depend on the nature and location of the meeting and the case put forward.

Grants are mainly intended to help younger members, but are open to all. Successful applicants will be expected to write a short report for *Circulation*.

The Exeter Fund, looked after by BHS, offers grants to help British hydrologists take part in IAHS events.

To apply for a grant, please contact the BHS Hon. Treasurer, **Steve Parsons**, Mott MacDonald Ltd, Demeter House, Station Road, Cambridge, CB1 2RS *(tel 01223 463926, email sbp@mm-camb.mottmac.com)*.

More reports from Sapporo

The BHS Exeter Fund supported several members to attend the IAHS events at the 23rd IUGG General Assembly in Japan. We have two more reports on the proceedings: the first from Dr Kate Heal, the second by Prof. Des Walling.

With support from a BHS travel grant, I was fortunate to be able to attend the IUGG2003/IAHS Assembly in July. The main IAHS workshop of interest to me was HW01, Effects of human activities on hydrological and biogeochemical cycling.

The workshop began with an invited presentation from **Roy Sidle** (Kyoto University) who reminded us that hydrological processes do not occur uniformly across catchments. Thus, we need to take account of the spatial distribution of hydrological processes to predict the effects of human activities on catchment water and sediment fluxes.

The workshop was well attended by hydrologists from around the world, with a range of presentations from forest hydrology in tropical Malaysia to industrial pollution of reservoirs in Moldova, via New Zealand, France, Brazil and the Canadian Prairies.

The home team, Japanese hydrology, was strongly represented, particularly in forest hydrology. There is a long history of instrumented catchment studies in Japan, with 81 university experimental forests! I was particularly interested in a study of carbon fluxes in the hydrological cycle of a forest catchment in northern Hokkaido, which found that the carbon export in streamwater is a relatively small component (9%) of annual carbon uptake by the forest (**Hideaki Shibata**, Hokkaido University). Similar results have been found at Edinburgh in our ongoing study of a Sitka spruce forest in the Southern Uplands of Scotland.

With such diverse presentations at the workshop, the usual questions were raised about how to synthesise catchment-specific studies and to tease out generic processes to improve prediction of the effects of human activities on hydrological and biogeochemical cycling. Three different methodologies to start to address these questions were presented.

Jeff McDonnell (Oregon State University) made a detailed comparison of two intensively-studied headwater catchments in Japan and New Zealand. The research team reported that bedrock permeability was the key control on flow pathways and solute concentrations during storm events. In a wider study, **Nobu Ohte** (Kyoto University) compared hydrological and biogeochemical studies of forest catchments in Japan and the USA and found different responses to acid deposition and seasonal patterns of nitrate discharge.

Jake Peters (US Geological Survey) described progress in the USGS geochemical mass balances project, which is comparing five contrasting US catchments, with the ultimate aim of developing a hydrochemical model. Progress on this ambitious project has been slow because of initial difficulties in validating datasets collected by different people.

My own presentation, based on a field and modelling study, emphasised the importance of soil type in predicting whether temperate upland water supply catchments are vulnerable to undesirable manganese concentrations in drinking waters. Nevertheless local detailed understanding of catchment functioning is also required, as demonstrated by **Masaki Hiyashi** (University of Calgary), reporting on a case study of the effects of vegetation and land use on the hydrological cycle of small wetlands of conservation value in the Canadian Prairies. Changes in agricultural practice aimed at preventing the wetlands from drying up actually made the situation worse because the system hydrology was incompletely understood.

In Sapporo I also participated in the IAHS Open Workshop on the Future of Hydrology, organised by the Hydrology 2020 Working Group, of which I am a member. The Working Group's draft intermediate report was presented and feedback from the hydrological community was obtained through discussion in small breakout groups that reported back to a plenary session. The report focused on four themes: the uniqueness of hydrology, the needs of society for hydrology, the effects of advances in technology on hydrology, and critical bottlenecks for the future development of hydrology. More than 50 hydrologists participated in the dynamic workshop discussion, providing valuable input that will be fed into the Working Group's final report, to be published at the 7th IAHS Scientific Assembly in Brazil in April 2005.

Further information about the Working Group and the Intermediate Draft Report are at *http://hydro.iis.u-tokyo.ac.jp/H2020*.

Kate Heal
School of GeoSciences, University of Edinburgh, email k.heal@ed.ac.uk



Participants in the IAHS Future of Hydrology workshop at Sapporo, July 2003 (Courtesy of T. Oki)

The IUGG programme spanned almost two weeks and attracted over 4000 delegates, of whom about 320 attended the IAHS activities, including four symposia and eight workshops.

These assemblies are also the forum for elections and formal business, which any international organisations needs. Hydrologists (UK ones in particular) make important contributions to this work.

The newly-elected IUGG President is **Uri Shamir**, a former President of IAHS and distinguished Israeli hydrologist, who has played an important role in the delicate negotiations over water rights in the Middle East. It is a major achievement for our science to see another hydrologist leading the Union (following **Jim Dooge** some 20 years ago). The UK is still represented in the higher echelons of IUGG by former BHS President **Mike Hamlin**, who was re-elected to the all-important Finance Committee. *[see also Bruce Webb's President's piece on p. 5]*

I suspect that for many, including me, it was necessary to look carefully through the three thick volumes of abstracts each day in order to take in as many interesting papers as possible. IAHS activities were concentrated in one venue, so it was relatively easy to move between sessions, but sometimes a quick dash between buildings was required to take advantage of a session organised by another Association.

To make this work, convenors had to keep closely to the timed programme and inevitably there were some problems. As so frequently at international meetings, some scheduled presenters did not show up and the session had to be suspended. Sometimes chairmen decided instead to allocate extra time to those present. This avoided embarrassing gaps in the programme, but meant that sometimes people entered the lecture hall to find the presentation that they had rushed to hear was just finishing!

The intensive programme of scientific sessions and business meetings was complemented by a very enjoyable Conference Banquet at the Sapporo Beer Garden. Here we were able to savour some fine Japanese cuisine washed down with excellent beer, whilst listening to an impressive display of traditional Japanese drumming. The evening finished with the now obligatory national songs by individual delegations, and when coerced into action, the UK delegation managed a creditable rendition of several verses of *'Ilkley Moor'*.

Two symposia, on *Global change, risk assessment and water management* and *Weather radar and distributed hydrological modelling*, were pre-published as IAHS red books; some of the others will be post-published in the same series. Anyone interested should contact IAHS press at Wallingford for further details or see the website *http://iahs.info*.

My own interests drew me to the symposium on *Erosion prediction in ungauged basins*, which spanned two days. It was marred by the absence of a significant number of speakers, particularly on the first day, but it included many good papers on the problems of predicting erosion and sediment yields in ungauged basins and the application of novel techniques to support erosion and sediment yield investigations.

Interesting papers included one by **Ian Douglas** (Manchester University) on predicting erosion and sediment yields in logged tropical rainforest; **Khawaja Ali** and **Dirk de Boer** presented a large-scale sediment budget for the Upper Indus basin, and **Bent Hasholt**, **Jim Bogen** and **Truls Bonsnes** reviewed current understanding of sediment yields in Greenland and from glacierized basins. Perhaps the most novel work was in a paper by **Yoshimasa Kurashige** and his colleagues, who had successfully dated the packaging of rubbish found in recent sediment deposits to provide a highly precise chronology for the deposits. These and the other papers presented will shortly be published in an IAHS red book.

The workshop *'Towards a science programme for prediction in ungauged basins'* deserves a special mention. IAHS has identified prediction in ungauged basins (PUB) as a key focus for the coming decade. **Kuni Takeuchi** (President of IAHS), **Murugesu Sivapalan** and others have devoted considerable effort to launching this venture. The workshop provided an opportunity to consolidate this activity and to debate the scope and direction of future initiatives.

The opportunity to visit a new part of the world is frequently a welcome bonus of attending IAHS Assemblies. Although I had visited Japan before, this was my first visit to Hokkaido, the northern island. Unlike Honshu, the main island, which has a long cultural history, Hokkaido was only populated and developed at the end of the nineteenth century. Sapporo is therefore much more akin to the North American model of city, with a well-developed grid pattern and many open spaces. The need to watch and wait for traffic lights at each grid intersection greatly increased the time required to walk between the conference venues! Sapporo was the venue for the winter Olympics in 1972 and the winter sports facilities in the surrounding area had undoubtedly helped to promote it as a congress venue. The spacious hotels and conference facilities provided an excellent venue for the Assembly.

I was also fortunate to visit the Department of Physical Geography (Environmental Earth Science) at the University of Hokkaido, where **Professor Kazuomi Hirakawa** and his co-workers introduced me to their fascinating work on the fluvial geomorphology of the island. Because of its recent settlement and development, Hokkaido affords an outstanding opportunity to study the impact of human activity on the fluvial system within a very precise chronological framework. Unlike equivalent areas of temperate Europe, the change from natural forest to extensive agriculture was very abrupt in many areas, and lakes and floodplains contain detailed records of the resulting aggradation and changes in river behaviour.

The next IAHS Scientific Assembly will be held at Foz de Iguassu in Brazil in 2005 and the IUGG selected Perugia in Italy for their 24th General Assembly in 2007. I am very grateful to BHS and the Exeter Fund for supporting my attendance at Sapporo and I would encourage other UK hydrologists to take advantage of the support and attend one of these forthcoming IAHS assemblies. The First Circular for the next Scientific Assembly to be held in Foz de Iguassu will appear shortly on the IAHS website *http://iahs.info*.

Des Walling
University of Exeter

Consultation responses — involving BHS members

The Society is invited periodically to contribute to consultation exercises, often from government departments drafting legislation, for example to implement European Directives, or from the Environment Agency seeking to implement new policies.

By contributing a response, BHS seeks to influence the policy of the consulting department or agency from a hydrological perspective, and this raises the profile of our Society.

Consultation exercises provide opportunities for members with detailed knowledge of particular technical issues to give the benefit of their insights, and participating in a collective BHS response may lend weight to a member's opinions, particularly if reinforced by others.

Our ability to respond to these consultations depends entirely on volunteers' efforts, and the Committee is mindful of the time pressures under which potential volunteers work. We are therefore trying a streamlined mechanism for responding to future consultations:

1. We will post notification via the BHS-HYDROLOGY email list, to which many members belong. This will identify the scope of the consultation, the time scale, a web address for the consultation documents (if available),

and details of the person to whom comments should be sent (normally a committee member).

2. Comments will be welcome from all members, either as a brief reply (perhaps sent immediately) on specific aspects of the consultation, or a more detailed response that may deal in depth with more of the consultation document. Members will be encouraged to refer to individual sections or paragraphs of the document, and should indicate whether they would wish their names to be associated with the Society's submission.

3. The person collating responses will then produce a single response on behalf of the Society, for final checking and submission by the President.

Email provides by far the most effective mechanism for sharing ideas and working together on responses. If you are not already a member of the BHS-HYDROLOGY email list, further information and instructions are available at *www.hydrology.org.uk* — follow the Electronic Mailing List link.

Once submitted, responses will be posted on the Society's website. On occasions the Committee might judge a consultation exercise to fall outwith the scope of the Society's interests, or responses from members might not be forthcoming, in which cases a null response may be submitted.

Andrew Black, Hon. Secretary

Book review

Successor to *Land of singing waters*

Tyne and tide, Edited by David Archer, Daryan Press. 2003. 269 pp. Hardback £18.95 (ISBN 0-9544944-1-5), paperback £15.95 (ISBN 0-9544944-0-7).

This is the latest book from hydro-enthusiast **David Archer**, Principal Hydrologist with JBA. Following his study of the history of flooding of the Tyne in *'Land of singing waters'*, written over a decade ago, this book now takes a much broader perspective. And recognising that a broader approach inevitably means a danger of spreading expertise too thinly, he has brought in nine contributors. They include former colleagues at Northumbrian Water Authority, Environment Agency staff, Newcastle University, several Geordies (by birth or adoption) and enthusiastic Tyne fishermen — the Tyne is now the prime salmon fishing river in England.

There are 16 chapters (six of them written solely by David), which cover topics such as hydrology, geomorphology and ecology, plus fishing, sport, river pollution, industry, bridges and other ways of crossing the Tyne. The concluding chapter considers music and verse, from the Northumberland Smallpipes to Dire Straits!

Any review can only provide a snapshot of such a wide-ranging book. A feature worth remarking upon, and a great strength of this book, is that many of the contributors have been involved with the Tyne for 20 or 30 years, gaining a real historical perspective and context. This is shown in many ways through the book.

The chapter *'White Elephant or White Knight'* presents a 30-year perspective of the role and impact of Kielder Reservoir since the Government approved the scheme in 1973. It extends and updates the paper of the same name presented a decade ago to BHS members at the Fourth National Hydrology Symposium in Cardiff.

One example of the strengths of local knowledge is given by a certain 'experienced geomorphologist', who after a decade working on the Tyne mainly in the 1980s and 1990s, judged that 'direct channel modification had been limited' — whilst in fact in a chapter provocatively entitled 'The rape of the Tyne', David reveals that commercial gravel extraction from the river had been a major industry right up to the late 1960s. By carefully piecing together information from retired workers he was able to estimate that this affected over 30% of the total river length, with an estimated 4.5 million tonnes removed since the First World War. By way of balancing local and scientific knowledge, he demonstrates the limitations of 'local experience' in the situation where there was strong public opinion that Kielder Reservoir had reduced downstream summer low flows in the Tyne, when in fact actual data using flow duration curves refuted this.

The book should appeal to many professional hydrologists, engineers and students, as well as to the more scientifically minded layperson, especially those with a direct knowledge and interest in the Northeast.

It is well illustrated with graphs, sketches and photographs (mainly in colour and taken by the author) and is pleasantly free of typos. There are separate reference lists by subject and by place name. An added attraction is that proceeds from the book support WaterAid. Copies are available from the author at Daryan Press, 2 Welburn Close, Ovingham, Northumberland, NE42 6BD. Copies ordered directly can be delivered postage free. Copies can also be ordered through the web site at ***www.daryanpress.co.uk***.

Mark Robinson
CEH Wallingford

Publications sales report

A review of publication sales since October 2000 and analysis of the extraordinary sale since June 2003

The British Hydrological Society produces a series of Occasional Papers with the aim of providing relevant, up-to-date information for its members and other individuals interested in current hydrological practice and policy. The series has now extended to 13 papers. Symposium Proceedings are also produced following the biennial BHS national hydrology symposia, of which there have now been eight.

Occasional Papers and Symposium Proceedings form the basis of the BHS publication sales, supplemented with the Exeter volumes, the product of the International Conference *'Hydrology in a Changing Environment'* held at Exeter University in 1998 (all copies of Volume I having now been sold).

Over the last three years Occasional Papers 12 and 13 have been released and sold well, together with the Proceedings of the 8th National Hydrological Symposium, held at the University of Birmingham in 2002. Sales over the last three years totalled 100, providing important additional financial support to the Society.

During the last three months the extraordinary sale of publications has been very successful in reducing the stock held by the Society, and increasing revenue. Sales during this period have accounted for nearly half of all sales during the last three years. The multiple purchase option, consisting of Occasional Papers 11, 12 and 13 at the reduced price of £30, has been particularly popular, as has the multiple purchase option of Symposium Proceedings 6, 7 and 8 for £40. The sale is still going on for the rest of this year and publications can now be ordered from **Amy Tavendale** (address below). An updated publications flyer is being sent out with *Circulation*.

All payments must be made by cheque, payable to the **British Hydrological Society**. Please address publication orders to:

Amy Tavendale, Department of Geography, University of Dundee, Dundee, DD1 4HN *(email a.c.w.tavendale @dundee.ac.uk)*.

Neil Macdonald
University of Birmingham
(N.Macdonald@Bham.ac.uk)

The Committee thanks Neil for all his hard work and efficiency looking after BHS publications sales over the last three years and we wish him well in his new appointment at Birmingham.

C+ Circulation PLUS

H_2O03 — the UK event for the UN International Year of Freshwater 2003

C+ presents a summary of the UK's contribution to the UN International Year of Freshwater, based around a two-day event at CEH Wallingford, and a detailed article by Frank Law, BHS President from to, who was the speaker representing the Society on the first day of H_2O03.
Please submit any ideas for future C+ articles to the editor.

The aim of the UN International Year of Freshwater was to increase awareness of freshwater, both here and overseas, its management and protection, and the importance of improving access to safe water for human beings and wildlife.

H_2O03, the official UK initiative to mark the year, included:

- the launch of a national collection of freshwater sites,
- painting and literary competitions,
- a freshwater survey, and
- the chance to vote for your favourite freshwater site.

Activities culminated in an event at the Centre for Ecology and Hydrology, Wallingford, in September, where prizes were awarded and an exhibition held to showcase the winning entries.

Tuesday 9th September 2003

Water for life: the UK working as one

It is rare that representatives from across the full breadth of the water sector come together at a single conference. In the UN International Year of Freshwater it is very fitting that we did so, and with the aim to work together to achieve sustainable freshwater management, both nationally and globally.

Water for life: the UK working as one provided a platform for key organisations to state what they will need from each other to meet this great challenge. The audience of 150 invited guests from across the country represented the range of water-related interests. The British Hydrological Society was part of this process and **Frank Law**'s presentation is reproduced here. The Society will publish his and the other visual presentations on the website.

The speakers were welcomed by **Prof. Pat Nuttall**, Director, Centre for Ecology and Hydrology, and the keynote address on the UN International Year of Freshwater and the UK government's part in it was given by **Hilary Benn MP**, then Minister of State for International Development (now promoted to Secretary of State). He had to respond to some challenging questions from scientists and engineers in the audience.

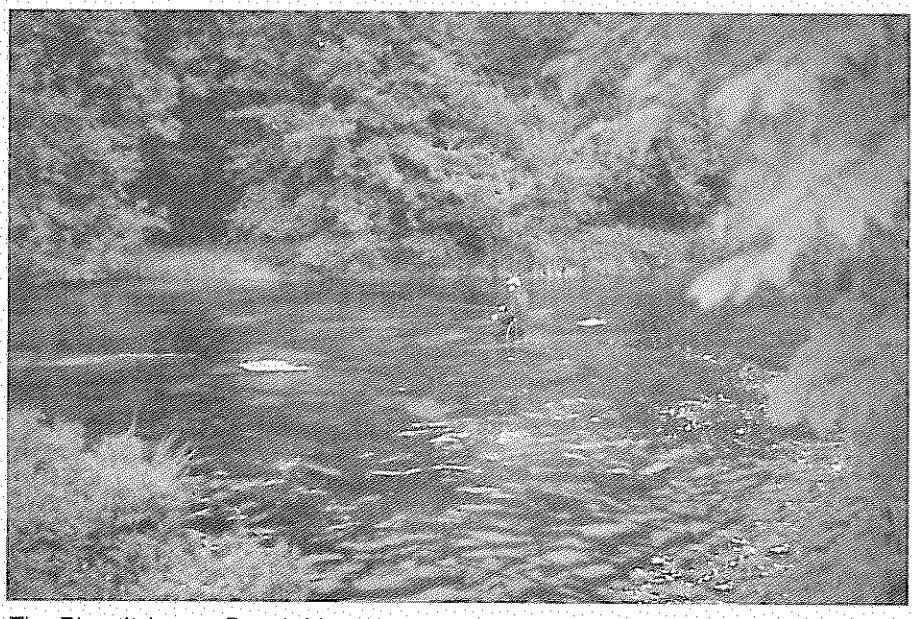
Prof. Alan Jenkins, just appointed Director of Water at the Centre for Ecology and Hydrology, outlined CEH's emphasis on its five science programmes, with Water at the centre, linked to Biodiversity, Climate change, Biogeochemical cycles and Sustainable economies.

Peter Ewins, Chief Executive of the Met Office, described the MOSES and urban drainage models, their work on the impacts of climate change on rainfall and river flow, and the uses of weather radar.

Les Peacock, Head of International Freshwater at Defra, spoke about the practical results that PAWS (Partners for Water and Sanitation) was achieving in Africa, based on principles of openness, mutual respect and involving all stakeholders in the communities where they are working.

After a short discussion and questions and a morning break to view the exhibition, **Ian Barker**, Head of Water Resources at the Environment Agency, spoke about their role in protecting the freshwater environment and conserving water resources.

Pamela Taylor, Chief Executive of Water UK, in a powerful presentation, pointed out that we faced a huge challenge in meeting world needs for water and far more professionals had



The River Itchen at Brambridge, Hampshire, the winning photograph taken by Rod Murchie of the Environment Agency

to be trained to tackle that problem.

Martin Walshe, Senior Water Advisor at DFID, began on Mars but came back to Earth with the five Dublin Principles and the UN Millennium Goals. The contribution of water to world poverty reduction will only be realised if it is set in the context of social and economic development and environmental improvement.

After lunch there was a fascinating presentation on the UK contribution to international freshwater issues by **Dr Andras Szöllösi-Nagy**, Secretary to UNESCO's International Hydrology Programme. The IHP's sixth phase will focus on *Water Interactions: Systems at Risk and Social Challenges*, linking to FRIEND, HELP, WWAP, the UN World Water Development Report and conflict mediation (water for peace). See *www.unesco.org/water* for details of all the worldwide programmes under the UNESCO umbrella.

Frank Law followed with a British hydrological perspective *(see below)*.

The consultants' view was outlined by **Dr Colin Fenn**, Chair of CIWEM's Water Resources Panel and managing director of HR Wallingford. He was speaking for a very mixed bunch, at the end of the food chain, but all of them were experts, together making up a significant contribution to the UK economy and to sustainable water management worldwide. Investment had to lead to sustained action with local community leadership, combining partnership, engagement, skills and value for money.

Ravi Narayanan, the Director of WaterAid, showed how the charity had grown from the concern of the UK water industry to serve nearly 8 million people in 15 countries, but over 1 billion remained without fresh water and 2.36 billion lack sanitation. He identified barriers to bridging the gap: finance policy, technology and governance, and he finished by urging DFID to prioritise water once more and to reassert international leadership.

The day concluded with a chaired discussion involving a panel drawn from speakers and guests, ably chaired by **David Stanton**, formerly the UK Ambassador at UNESCO.

Wednesday 10th September 2003

The second H_2O03 day at CEH Wallingford was chaired by **Prof. John Lawton** (NERC Chief Executive) and provided an opportunity for the general public and members of interest groups to meet in an informal setting to discuss freshwater issues, to view the exhibitions of freshwater art and writing and preview the National Collection of Freshwater Sites, and to honour the prizewinners in the three H_2O03 competitions.

During the day, BHS members and the other host organisations took the opportunity to engage with the audience and to discuss some of the issues highlighted by the exhibits. An actor read the written entries, while the photographs forming the national collection were shown on numerous computer monitors and the paintings were mounted on display stands.

The National Collection of freshwater sites is still open to further contributions, and you can add a picture and words about your favourite UK freshwater site at *http://www.freshwatersites.org.uk*.

Hydrology – a sustainable profession?

UN International Year of Freshwater Seminar, H_2O*03*
CEH Wallingford, 9 September 2003
A talk given by Frank M. Law, Past President, British Hydrological Society

Recent trends

Hydrology has often led the way as a numerical science. Risk management is now the order of the day, but hydrologists have used probability techniques for five decades. As soon as computing power became available, hydrologists began to simulate catchment response and water supply system performance. When digital mapping became possible, hydrologists showed how it could be used swiftly and effectively for pollution control, hydropower assessment and flood management.

So comprehensive are some of these techniques that it seemed possible that hydrologists in Britain were working themselves out of a job. With the advent of the national Low Flows Study, the second generation Flood Estimation Handbook and accompanying software, suddenly even children could get high or low flow estimates for anywhere on the nation's rivers. (Only coastal fen ditches or culverted urban streams seemed intractable.)

However the new Millennium has also seen the arrival of ever wider public consultation over plans, whether by local, regional or national government. Consultation procedures have become more pervasive and diverse, both in their types and their timing, before, during and after a project. Can hydrology cope with becoming a social science in consequence? For that is where Catchment Management Plans and their successors under the Water Framework Directive are taking us.

Related specialisations

There is an irony that most laymen will know about the water cycle, from clouds to land to sea and back to the clouds, and yet few realise that hydrologists deal only (and partially) with water during its landward phase.

Our links with meteorologists and climatologists, with limnologists and hydro-ecologists, with geomorphologists, sedimentologists and oceanographers, are not always as effective as society expects. One example of this was the strong view of the ICE Presidential Commission that wrote in *Learning to Live with Rivers* for Government in 2001:

"The main modelling area of direct relevance to flooding is that of hydrodynamics, where the catchment hydrology is related to the channel hydraulics to predict flooding. However, since the introduction of the 1975 Flood Studies Report, there has been an increasing disconnection between these two disciplines, which must be addressed." [p. 28]

The Commission's members firmly believe that hydraulics professionals must reunite with hydrologists if flood flow, flood level, river energy and debris load are to be properly predicted in flood risk management. Digital floodplain maps need to show water depth, velocity and unit energy so that they carry more meaning, tasks that require hydraulics/hydrology integration.

Having been convinced by my colleagues' views on that team, I would now go further and look for the day,

not many decades on, when the complete water cycle will be within the role of the 'super-hydrologist'. (A better name is needed but 'cycle-ologist' will not do or confusion will reign!) She or he will be assisted by others skilled in only one segment of the world of water.

In my view, this new alignment will only come about if there are advances in the debating, writing, negotiating and chairmanship skills of our profession. Are university courses adjusting quickly enough? Can we emulate our American cousins who seem to emerge from college more eloquent than new graduates in Britain?

In 1994 BHS published, after careful consultation, its national research strategy, *Sustainability in a Changing World: the Key Role of Hydrology*. For some time, despite its general welcome in high circles, it seemed to have had no influence. Then NERC took up a specific initiative led from university hydrology groups that emerged as the LOCAR-NICHE programme. It is currently under way, with a total 5-year funding of £9.75 m, and has the following broad objectives:

"Lowland Catchment Research (LOCAR) will undertake detailed, interdisciplinary programmes of integrated hydro-environmental research relating to the input-storage-discharge cycle and in-stream, riparian and wetland habitats within groundwater dominated systems."

The new feature is venturing into complex lowland catchments, with all the confusion of human interference in natural processes. That is the imperative for hydrologists in the coming era, to take full account of human water uses (and abuses) and to be able to find remedies to contamination and over-consumption in a form that society will accept in the localities affected.

The laudable aim in LOCAR is much closer integration of science disciplines at a catchment scale, not least because of the groundwater element that is so important in such areas. The NICHE funding goes in part to support LOCAR instrumentation in three lowland basins:

- The Frome and Piddle (Dorset);
- The Pang (Berkshire);
- The Tern (Shropshire).

Previously science sought a clean signal in specific pristine areas (usually in the uplands) with few if any inhabitants. It led to a good understanding of the modifications by/of soil, rock and vegetation as rainwater travelled to the sea, but it did little or nothing about the knowledge needed by society of the larger changes brought about by human beings and their engineering infrastructure.

The 1994 BHS research strategy identified about 330 staff working in hydrological R&D in 1992/3: it is doubtful if that number now exceeds 250. They were funded at a level of £16m/year, or about 0.2% of UK water industry turnover. Just 30p/year per head of the population did not seem excessive for a subject where value increases as water extremes become a regular problem for the community.

It was sobering to hear **Pamela Taylor** (for Water UK) say to this event that far too few graduates were being trained for the demands that society has in the water sector.

The Institution of Civil Engineers is conducting a skills review, in part to follow up the identified need for more flood risk management staff in this country. Although it has yet to report, **Dr Stephen Huntington** (Chief Executive of HR Wallingford), who chairs the review, has indicated that three barriers to greater numbers of engineering trainees are likely to be highlighted:

A The subject is seen as 'hard' by school students;
B The engineer's image is not 'cool' at present in Britain;
C A choice has to be made too early, say at age 13, compared with a decade later for accountancy.

We await the formal report with interest but meanwhile note the wider debate about the appropriate form of education in mathematics needed by future engineers. Might learning some of the fundamentals be relaxed, providing there are ways to use and appraise software that verifiably accelerates the solution?

Changing roles in a changed culture

Hydrologists are well positioned for the future as a profession, even if some individuals within it are not. That is because the traditional qualification route through civil engineering has long been augmented and outstripped in the United Kingdom from the ranks of geographers and environmental scientists. Indeed, was it not at Wallingford that the late, great Prof. Eamon Nash foresaw the coming of undergraduate degrees in hydrology?

That has since drawn nearer with the advent of a Water Science bachelor's degree course at the University of Wales, Aberystwyth.

The flood disasters of Easter 1998 and the winters of 2000 and 2003 are still clear in people's memories. Consider how our society has changed dramatically since the March 1947 floods, for the repeat of which so many defences are designed.

Most of the lessons being learned from them are that human impact is diverse, deeply felt* and harder to handle than engineering solutions. Those making flood forecasts (whether good ones or error-strewn) need to have the recipient families and lone individuals more in mind. Terminology has to be found that will express risk exactly in time and space. That challenge is severely taxing the Met Office expertise for daily weather



Figure 1 *March 1947: The servant brings his Maidenhead master home!*

* I recommend reading the full story on the ThamesAwash website, now at: *http://www.shockerz.org/thames/stories.php*

forecasts: hydrologists are not likely to do better without a great deal of communications research. The Environment Agency has devised a wide-ranging communications policy to clarify floodplain risks: for those living and working in Wallingford it is worth noting just how large are the changes that have already been published on the Agency's web site showing the indicative 1% chance flood extent.

Much more understanding needs to go into assessing the consequent human response to being pushed out of one's home for months by the drying out and repair process. It took the 1993 Yorkshire water supply system crisis to make the profession realise that the soulless OFWAT levels of service for infrequency of standpipes in the streets did not anticipate community revulsion at lack of water for hospitals and old peoples' homes. Similar strong feelings are engendered when localised sewer flooding is repeated with no sign of anyone targeting the problem with new investment.

The skill that a hydrologist brings to a flood or drought incident is an understanding of the laws of extremes: their duration, inter-event frequency and the cap that there is on their magnitude. Potentially that enables a calm and reasoned response to assist the community and its emergency services to cope.



Figure 2 *March 1947: Space to play, and no cars to float away: Great Knollys Street, Reading*

Community roles overseas

At least two staff have left BGS Wallingford in recent years to work through charitable technical assistance organisations as village hydrogeologists in Africa. Similarly there ought to be a role for 'village hydrologists', able to identify and initiate reliable and treatable water sources.

But who would fund those willing to go? Might a new imperialism spring up if they were commissioned, not by village leaders in the developing world, but by some distant organisation determined to do good, come what may?**

How can volunteers be matched with requests at such a distance? VSO, WaterAid, Oxfam, Tearfund and others all have their local partner organisations across the globe but water well sinking seems far better managed by them than the wider options that an able hydrologist can identify. Maybe the constraint is the inability of most modern hydrologists to incorporate appropriate engineering technology into their range of skills.

A coming contribution

Next year sees the 2nd international conference organised by BHS. About 400 abstracts have already been offered and sifted. One of the attractive themes that will be followed exemplifies the integrated future that has moved to the centre stage of our work:

Theme 4 "Interdisciplinary hydrological science and its application" looks at studies at the interface between hydrology and other disciplines, including work in ecohydrology and biogeochemistry. It will also address work that links hydrology to the social sciences, and provides interfaces between hydrological sub-disciplines, such as studies of surface water/groundwater interactions and flow/quality relationships. This theme will report results from international programmes, such as HELP, and national research initiatives, such as CHASM/LOCAR in the UK.

Perhaps there is the 'danger' that every other professional and amateur group will move into river basin management with their views, skills and preconceptions. That challenge to our way of working we must learn to welcome honestly, attempting to show that vision and good leadership (or support) can be given by hydrologists, because we have the facts and trends at our fingertips.

I commend that conference to you.

Frank M Law



Figure 3 *March 1947, when milk was still delivered by horse-drawn cart*

** Since this talk, many will have received the UNICEF appeal literature over the name of hydrologist Adane Bekele for the Omo District Water Project. Perhaps that is the start of long-awaited growth in this much-needed activity.

Flow monitoring – can we improve quality and reduce costs?

BHS National Meeting
ICE, London
12 September 2003

There was an excellent attendance of about 80 people for this meeting at the ICE — indeed it was "sold out" several weeks in advance. The President, Peter Walsh, introduced the meeting by referring to the UN International Year of Freshwater. Having in mind recent alleged activities close to Great George Street, he suggested that there may be a need to "sex-up" data collection.

The themes of the day were quality and cost. Peter raised the question: "Can we afford not to measure?"

The morning session contained four presentations, concentrating on recent technological developments. **Kevin Oberg** (Head of hydro-acoustics, US Geological Survey) gave us an international perspective with his keynote address on US experience of new technology for river gauging. He outlined the role of USGS, which has around 7000 flow gauging stations, around 90% of them now telemetered, mostly by satellite. Major administrative challenges come from having around 600 funding organisations. Kevin explained how the Acoustic Doppler Current Profiler (ADCP) is changing operations, and how the technology has rapidly improved. USGS use ADCPs for flows from less than 0.2 m^3s^{-1} to over 30000 m^3s^{-1}. They are particularly useful in tidal situations because of the speed of measurement and their ability to deal with multi-directional flow. Kevin showed some very interesting flow visualisations.

Dave Gibbard (Thermo Electron) introduced a commercial view and turned to ultrasonic multi-path time-of-flight velocity measurement. This technology involves continuous measurement and potential improvement on traditional methods of weirs and ratings. Dave outlined the basic principles, including sets of beams at different depths and the possibility of crossed paths for skewed flow conditions. One key advantage is that it addresses the problems of backwaters. Dave mentioned disadvantages, such as weed growth, but of course this can affect traditional methods as well. Examples of applications included the Thames and Severn, plus smaller rivers and a range of channels and conduits.

Dr Michael Teufel (Nivus Group) discussed the cross-correlation method for small channels. This gives high accuracy in pipes and small channels (<2%) and has the benefits of low mounting costs and ease of servicing. It could be applied in larger channels or small rivers by using multiple sensors, but accuracy would then tend to decrease. In response to a question from Rod Hawnt, Michael confirmed that multiple sensors could be connected to a single meter.

The final morning paper by **Randy Marsden** (RDI), on advances in ADCP technology for open channels, quantified improvements over the past 20 years. In 1982 a 35kg unit plus boat plus several men could measure a river 50m wide and 10m deep flowing at 0.5 ms^{-1} and expect accuracy of ±10%; now one man has a 5kg unit including boat and can measure a 5m channel as little as 0.3m deep to ±2%: in summary, "simpler, safer, cheaper". Randy also described horizontal ADCPs and the index velocity method. Future developments are likely to include phased array transducers, and inevitably further improvements in size and in speed of processing. Fish counting can be done, but it is more difficult to meet the likely demands for classifying by type and size. In Florida crocodiles may affect measurements, but anything is better than wading! Other parameters might be measured: perhaps the "holy grail" is continuous measurement of total sediment load.

After lunch and the BHS AGM (reported elsewhere), the afternoon session was chaired by **Rod Hawnt** (Hydro-Logic). His colleague **Stewart Child** opened by discussing method selection for continuous measurement, both in rivers and treatment works. He pointed out the difference between user requirements/perception and hydrometric reality. The typical perception of current meter measurement was a worst case of ±10% at low flows and ±20% for flood flows, whereas the reality in rivers may be more like ±50% and ±100% respectively. Stewart showed various examples of gauging station installations in the UK, and described some of the problems facing the Environment Agency, such as fishery interests objecting to measuring structures. Health and safety requirements are increasingly important, but are often now OTT (not the well-known make of current meter … !). This was not the case in his work in Botswana, and he continued the crocodile theme by showing a picture of his children's former swimming spot. To close, Stewart introduced us to EELS — 'electronic era laziness syndrome' — and stressed the need for quality control and the storage of raw data, not just flows computed on site.

The emphasis then shifted towards regulatory issues. **David Tyler** (Anglian Water) discussed the challenge for water companies in relation to monitoring policy for consented discharges. These are controlled in terms of both quality and quantity, with attention tending to shift towards the latter. Laws and regulations from 1848 onwards had gradually tightened standards. The latest scheme (MCERTS) is due to start in January 2004, including performance requirements to measure the daily volume within ±8%. There are many problems, because the vast majority of open channel measurement systems do not meet the relevant British Standards. MCERTS has scope for concessions from the BS, but the scale of the shortfall suggests that problems lie ahead. David explained that Anglian Water sees measurements not just as a means of meeting obligations, but also as a tool for asset management, including charging.

Andrew Godley (WRc) covered the state of research into open channel flow measurement techniques. The subject had been neglected for many years but has become more of an issue in the light of the Urban Waste Water Treatment Directive and the fact already reported by David Tyler that many measurement systems are not up to scratch. Andrew described three principal issues: firstly, low flows at small works that are at the limit of many measurement techniques, secondly, the uncertainty associated with measurements, particularly where the structure does not comply with the appropriate BS, and thirdly, how can

the monitoring be achieved at minimum cost. There are some very onerous (and perhaps unrealistic) accuracy requirements: instrument tolerances may push output beyond allowable limits before hydraulic conditions are even considered. Andrew concluded that there is still plenty of research to be done!

In the final presentation **Dave Stewart** (EA) and **Rob Lamb** (JBA Consulting) described the river flow gauging station classification project, which assessed the quality of data obtained from the gauging station network. The aim was to provide information in a form that people would use, since the initial survey showed that over 80% of data users were not using the previous classification system. A procedure was developed so that a clear numerical output could quickly be obtained from various attributes. Rob showed examples of the spreadsheets and the colour-coded output. One bad attribute drags the score down, but this also helps to identify where remedial work might be beneficial.

Some interesting aspects arose during the discussion period. Peter Walsh asked what the USGS might be able to teach us, but our American visitors were too modest to reply! Peter then gave an indication of his thinking by referring to the availability of up-to-date flow data on the web for gauging stations in America and Australia, and similar developments in Scotland, and asked when the same might apply in England and Wales. Dave Stewart said that the need to upgrade telemetry systems made this unlikely for at least 18 months. **Andrew Black** (Dundee University) then drew the meeting to a close with a succinct summary.

Can I end with a plea that questions and answers in discussion sessions be addressed clearly to the meeting. I'm sure that all the discussion was interesting, but to those on the far side of the room some of it seemed more like a private conversation. Notwithstanding that, this meeting was a great success, and our thanks go to Rod Hawnt for arranging such an interesting selection of presentations, and of course to all the speakers. This report has only touched on the mass of detail in the presentations, and readers are urged to look at the available presentation material via the BHS website.

Peter Ede
Mott Macdonald

Copy deadline for *Circulation* No. 80 6th January 2004

GIS and remote sensing in hydrology

16-19 September 2003 Yichang, China

This is the first of a series of conferences on GIS and remote sensing application in hydrology, water resources and environment [1]. The objectives are to review and report the advancements in this subject, to share the experiences of scientists, engineers, NGOs and policy makers, to discuss the technical, societal and economical aspects of the Three Gorges Project on the Yangtze River and to investigate the project and basin after the Three Gorges Reservoir has retained water, and to provide an exhibition of hardware and software products in GIS and remote sensing.

This conference attracted more than 280 researchers, practitioners, educators and public officials from about 35 countries and regions, and included 11 keynote papers by distinguished international scientists and roughly 400 abstracts. I was pleased to see many participants from China who would normally be unable to attend this type of international conferences if it were held abroad.

The symposium was divided into plenary and parallel sessions. It was useful to attend the plenary sessions where keynote speakers presented their latest research activities. Among the highlights, Dr Arthur Mynett (WL Delft Hydraulics) gave a talk on Environmental Hydroinformatics, featuring extraction from remote sensing images for water resources management, Prof. Kuniyoshi Takeuchi (President of IAHS) informed us about progress on PUBs and Prof. Ian Cluckie (University of Bristol) gave an interesting talk on future prospects for flood risk management and weather radar. The two keynote speakers from China showed us some fascinating work carried out by our Chinese counterparts on the Three Gorges Project and the Digital River project. It was a precious opportunity to meet so many leading experts in the field at the same venue (an important attraction in attending international conferences).

My paper was on "Optimum quantisation of remote sensed rainfall



Figure 1 *The opening ceremony of the conference on GIS and remote sensing*

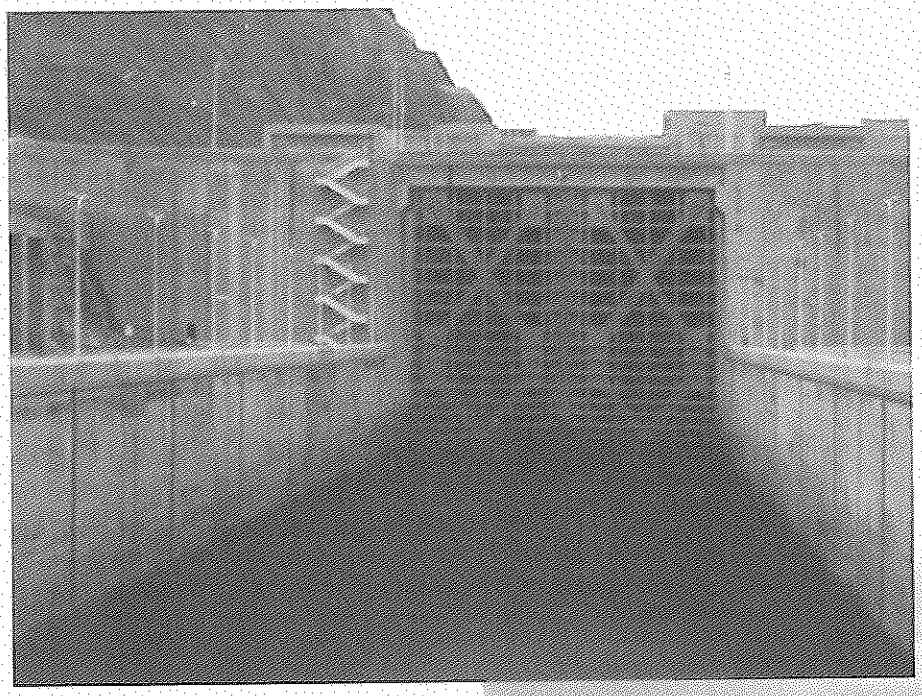


Figure 2 *One of the five ship locks at the Three Gorges site*



Figure 3 *Overview of the Three Gorges Project dam*

data" [2]. Quantisation plays an important role in using remotely sensed data. It is known that quantitative precipitation measurements using remote sensing technology involve extensive conversion of data from analog to digital signals. Modern digitizers can carry out A/D conversion with various different quantisation lengths (e.g. 8 bits, 16 bits). However, despite extensive research in remote sensing technology, many factors influence the accuracy of the measured data (e.g. conversion of infrared signal to rainfall or microwave reflectivity to rainfall has huge uncertainty in many cases). Longer quantisation length may mislead users and could reduce the data quality, which is in contradictory to intuition. In addition, for hydrological applications, lower quantisation length may be sufficient because of the lower pass filtering effects from the catchments. The paper also showed that when quantization number is decided, the maximum entropy method is very effective in deciding the optimum quantisation scheme. The audience feedback was very positive and I had some constructive discussions with a few interested delegates.

In addition to the conference, the visit to the Three Gorges Dam site was another highlight. This was my second trip to the dam site and already I could see major changes since my last visit two years ago. I noticed the operation of five stages of ship locks (Figure 2), the spillways and the turbines (Figure 3). The discharge at the dam site was 26,000 m^3s^{-1} during our visit, which was huge in comparison to British rivers, but it a small quantity for the Yangtze River. The water level in the reservoir was raised to 135 m above sea level (the downstream water

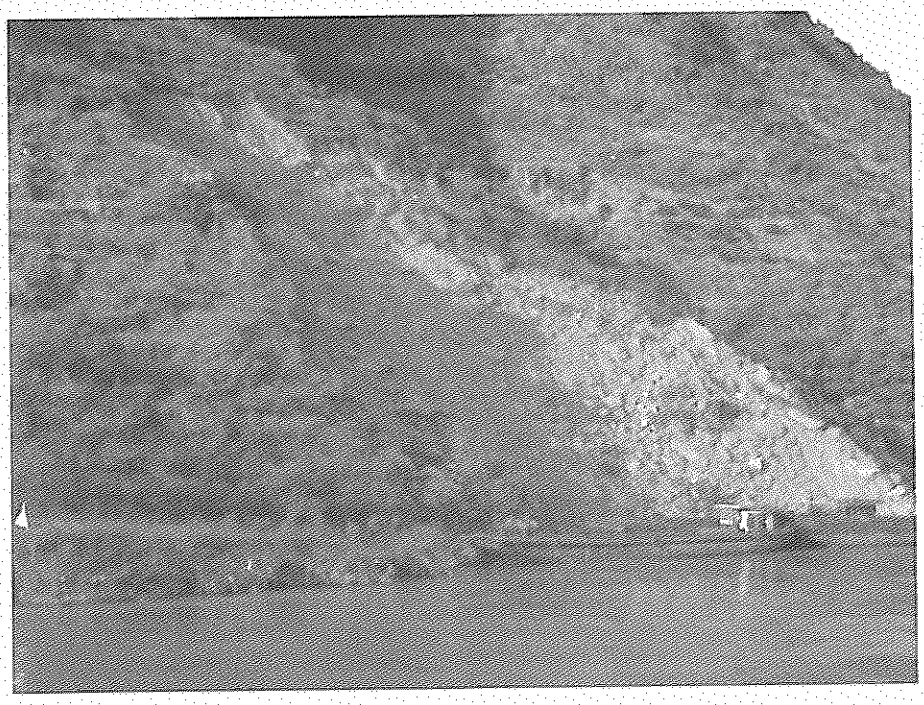


Figure 4 *A landslide caused by the reservoir impoundment*

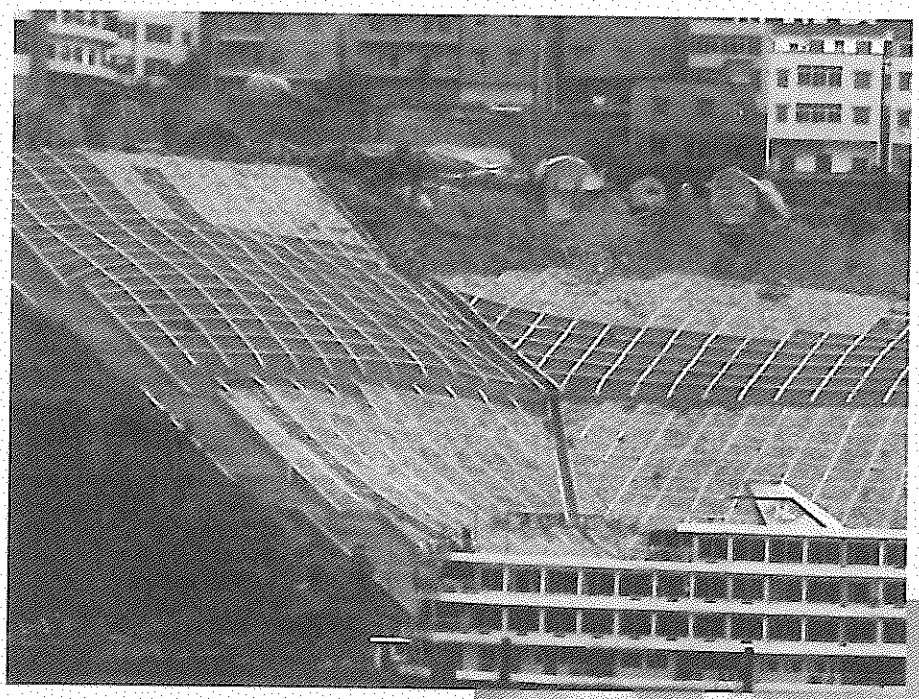


Figure 5 Slope stabilisation works, with a river boat in the foreground

level was at 69 m ASL). During our boat trip along the river, some landslides were visible (Figure 4) and a few slope stabilisation projects were carried out by the Three Gorges Project company (Figure 5). In the final leg of our trip, we visited an urban flood defence system in Guanzhou city (Figure 6) and it was expected that some further collaboration with a local university on urban drainage modelling would be explored.

To summarise, this trip was very fruitful and successfully achieved all my objectives. The conference was of definite benefit to my future research and teaching activities. The support I had from the British Hydrological Society and the Royal Academy of Engineering was very helpful, and without it my trip would have been impossible.

Dr Dawei Han
Water and Environment Management Research Centre, University of Bristol

References

[1] http://www.hydroinfor.zsu.edu.cn/
[2] Optimum quantisation of remote sensed rainfall data, D. Han and I.D. Cluckie, International Conference of GIS and Remote Sensing in Hydrology, Water Resources and Environment, Yi Chang city, China, 16-19 September.



Figure 6 Urban flood defence project in Guanzhou

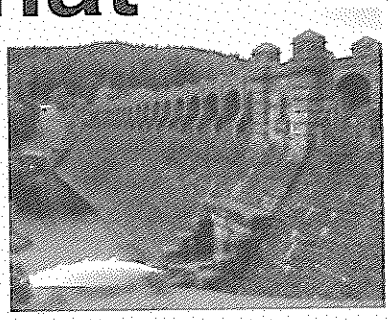
Younger members — apply now for BHS2004 funding!

Are you under 30 and interested in support to attend the BHS2004 International Conference in July 2004?

Thanks to the generous support of the Environment Agency, Young Person's Fellowships are available to assist with costs of attending BHS2004.

Applications are due by 8th December: send to Prof. Howard Wheater (h.wheater@ic.ac.uk). Please see the BHS2004 2nd circular for a form and details (www.hydrology.co.uk/BHS2004/).

Reservoir safety: what are your views?



The Reservoir Safety Working Group of the ICE has recently been reconstituted, with support from DEFRA. BHS is formally represented by **Howard Wheater**, and **David Macdonald** has been co-opted to provide additional hydrological advice. The Group is aiming to provide strategic advice to DEFRA on research needs and priorities in this area and is seeking input from BHS members to establish a research agenda. There is at present little funding available in this area, so an associated aim is to build funding partnerships and demonstrate to DEFRA the needs of industry for improved guidance on reservoir safety.

Many BHS members will be aware of concerns regarding the use of *Flood Estimation Handbook* methods to estimate extreme floods up to 10,000 years return period, in comparison with FSR methods for 10,000 year and PMP estimation.

The Group has overseen a review by **Prof. Sir David Cox FRS** of the estimation of extreme rainfall, and a revision of 'Interim Guidance for Panel Engineers' is currently being drafted. The current perception of the Group is that research needs include improvements to statistical and meteorological methods of extreme rainfall estimation, the treatment of snowmelt, and rainfall-runoff estimation methods for these high return period events, supported by data mining and analysis.

Please take a few moments to put down your views on these or other relevant issues, with their relative priorities, and email them to me at *h.wheater@ic.ac.uk* .

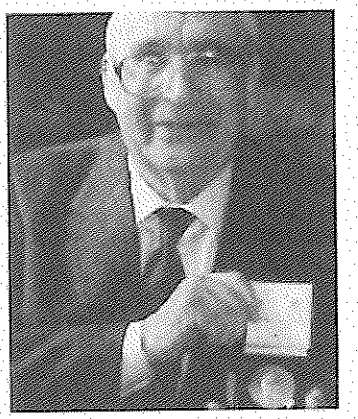
Howard Wheater
Imperial College London

News from members

ICE Medal for Honorary Member

Congratulations to **Professor James Dooge**, an Honorary Member of BHS, who has recently been awarded the Institution of Civil Engineers' international medal in recognition for his work in hydrology.

He was President of the International Commission on Water Resources from 1971 to 1975 and chaired the World Climate Impact Studies Programme's scientific advisory panel throughout the 1980s.



Professor Jim Dooge receiving the ICE International Medal (photo courtesy of New Civil Engineer)

Professorship for Paul Bates

Congratulations to Committee member **Professor Paul Bates**, who has been promoted to a personal chair in hydrology in the Geography Department at Bristol University.

Neil moves to Birmingham

Best wishes to **Neil Macdonald** as he leaves Dundee for a post-doctoral post in the Geography Department at Birmingham University. Amy Tavendale has taken over the sales of BHS publications from Dundee.

Promotion for Jenny Pickles

Following her success in becoming a Chartered Member of CIWEM, former committee member **Jenny Pickles** has been promoted to Principal Modeller at Bullen Consultants' Bradford Office.

Jenny will now be responsible for all projects involving hydrological and hydraulic modelling in Bullen's River and Coastal Management Groups, ensuring consistency and quality in this expanding area of their work.

ASCE Medal for Pavel Novak

Congratulations to **Professor Pavel Novak** (Emeritus Professor at the University of Newcastle upon Tyne, pictured on the front page) who has been awarded the prestigious ASCE Hydraulic Structures Medal for 2003 for his long career in hydraulic engineering publications and his key role in hydraulic structures research.

BHS South East Section

The Southern Section of the BHS has recently been re-established as the South East Section, and the first committee meeting took place on 13th August 2003. **Peter Midgley** has taken over the Chair from **Adrian Butler**, who is standing down. The full committee is listed below.

Following a recent survey and review of the BHS regions, it became clear that the name "Southern" did not accurately reflect the geographical basis of a number of those who attended and supported its section meetings. In particular, there was a concern that those members living and working in East Anglia were not clearly integrated into the regional structure of the BHS. Therefore at the national committee meeting in October 2002 it was decided that the section should be renamed **South East**. We hope that this will meet with members' approval and that in our new guise we will continue to attract good support at our meetings.

The 2003/04 South East Section programme will be kicked off on 27th November with an interesting discussion on the *Early experiences of catchment abstraction management strategies (CAMS)* with Jacob Tompkins (Water UK) and Tom Nichols and Daniel Wykeham (Environment Agency). The meeting on 22nd January on *Water & poverty: redressing the balance* will have speakers from Cranfield University's Silsoe campus and an NGO representative, and on

18th March we will look at advances in spatial rainfall representation.

A flier with the programme of meetings was circulated with the August edition of *Circulation* and the meetings are listed in the Diary section. Further details will appear in future editions of *Circulation* and enquiries should be directed to Helen Procter *(tel 01903 703822, fax 01903 703817, email helen.procter@environment-agency.gov.uk).*

South East Section Committee

Chair: Peter Midgley (Environment Agency, Worthing), Technical Secretary: Helen Procter (Environment Agency, Worthing), Committee: Joe Pearce (Environment Agency, Worthing), Dr Adrian Butler (Imperial College London), Roger Simpson (Jacobs Gibb, Reading), Julian Smith (KBR, Leatherhead), Dr Gareth Old (CEH, Wallingford), Dr Tim Hess (Cranfield University, Silsoe), Steve Tuck (Thames Water, Reading).

Scottish Hydrological Group news

The committee's appreciation is extended to **Dr Andrew Black**, who has completed two years as Chairperson of the Scottish Hydrological Group.

Andrew has committed considerable time and effort to the Group, not only in his role as Chairperson, but also nine years on the committee, three of them as Honorary Secretary.

Thanks to his many efforts over this time, the group has enjoyed an interesting and very well attended annual programme of hydrological meetings. The highlight of these must be the *Hydrology in Scotland 2000* Symposium, which culminated in the papers being published in a special issue of the journal *Science of the Total Environment*. The SHG look forward to Andrew's continued participation in the Group's activities.

A warm welcome to new members on the committee: **David Martin** (independent consultant), takes over the responsibility of Chairperson. **Robert Bone** (Ewan Associates) and **Pascal Lardet** (Halcrow Group) join as elected members.

Michael Cranston (Scottish Environment Protection Agency, Hon. Secretary), Nigel Goody, (SEPA), Ian Gowans (Faber Maunsell), Paul Hart (Posford Haskoning), Julie Hawkins (Scottish Water, Glasgow), Dr Tim Jolley (SEPA — BHS rep.) are the other members of the committee.

For up-to-date information on the Group's activities, see the SHG website: *http://www.dundee.ac.uk/geography/shg/.*

Michael Cranston
SHG Honorary Secretary

South West Section news

Over the summer the South West section reorganised. **Paul Bates** took over the chair from **Ian Cluckie**, **Graeme Boyce** agreed to take over as acting secretary, and the committee is now as follows:
Chair: Paul Bates (Bristol, Geography), Secretary: Graeme Boyce (Met Office, Exeter), Members: Bruce Webb (Exeter, Geography), Dragan Savic (Exeter, Civil Engineering), Dawei Han (Bristol, Civil Engineering), Ian Cluckie (Bristol, Civil Engineering).

The committee would like to record their thanks to Ian for his pivotal role in re-establishing the section over the last three years. They are planning a programme including spring and autumn meetings in 2004, and details will appear in *Circulation* next time.

Other BHS regions

For details of the activities of the other BHS regional sections, please contact one of the representatives below or follow the link on the BHS website, ***www.hydrology.org.uk*** :

Midlands Section

Dr Chris Bradley, School of Geography and Environmental Sciences, University of Birmingham, Edgbaston, Birmingham B15 2TT *(tel 0121 414 3878, email c.bradley@bham.ac.uk)*

Welsh Section

Dr Katie Fawcett, Environment Agency Wales, Cambria House, 29 Newport Road, Cardiff CF24 0TP *(tel 029 2077 0088 ext. 6128, fax 029 2046 6413, email katie.fawcett@environment-agency.gov.uk)*

Pennines Hydrological Group

Dr Hilary Smithers, Environment Agency, North West Region, Richard Fairclough House, Knutsford Road, Warrington, Cheshire, WA4 1HG *(tel 01925 653999, email hilary.smithers@environment-agency.gov.uk).*

Publications

IAHS *Hydrological Sciences Journal*

Contents of *Vol. 48 No. 5 (October 2003)*

Scientific papers

A. J. Abebe & R. K. Price: *Managing uncertainty in hydrological models using complementary models*

M. L. Anderson, M. L. Kavvas & M. K. Mierzwa: *Developing probabilistic representations of climatic influences on hydrological response using a coupled hydrological–atmospheric model*

Matthew R. Hipsey, Murugesu Sivapalan & Merab Menabde: *A risk-based approach to the design of rural water supply catchments across semiarid Western Australia*

Emmanuelle Petelet-Giraud, Philippe Négrel & Joel Casanova: *Variability of $^{87}Sr/^{86}Sr$ in water draining granite revealed after a double correction for atmospheric and anthropogenic inputs*

Ian Littlewood: *Improved unit hydrograph identification for seven Welsh rivers: implications for estimating continuous streamflow at ungauged sites*

Amilcare Porporato & Luca Ridolfi: *Detecting determinism and nonlinearity in river-flow time series*

Luca Ridolfi, Paolo D'Odorico, Amilcare Porporato & Ignacio Rodriguez-Iturbe: *The influence of soil moisture dynamics on gaseous emissions of NO, N_2O and N_2*

Jean Emmanuel Sicart, Pierre Ribstein, Bernard Francou & Robert Gallaire: *Etude des précipitations et de la fonte sur un glacier tropical: le glacier du Zongo, Bolivie, 16°S*

Sevinç Sirdas & Zekai Sen: *Spatio-temporal drought analysis in the Trakya region, Turkey*

Y. Srinivasa Rao & D. K. Jugran: *Delineation of groundwater potential zones and zones of groundwater quality for suitable domestic purposes using remote sensing and GIS*

N. Subba Rao: *Groundwater quality: focus on fluoride concentration in rural parts of Guntur district, Andhra Pradesh, India.*

—

Members may use CEH Wallingford's Library by appointment to consult *HSJ* and other journals *(tel 01491 692266).*

Email network

Keep in touch with other hydrologists in Britain through the BHS electronic mailbase.

To join this free service, see the website or contact Jenny Thorne *(jthorne@south-west-water.co.uk).*

BHS Committee 2003/2004

The 2003/04 Committee members are as follows, with telephone numbers and email addresses. One elected member is designated as representing younger members (Suzanne Wales). There is no President-elect this year, the first of Bruce Webb's Presidency.

Elected officers and members

President:	Prof. Bruce Webb	01392 263334	b.w.webb@exeter.ac.uk
Hon. Secretary:	Dr Andrew Black	01382 344433	a.z.black@dundee.ac.uk
Hon. Treasurer:	Steve Parsons	01223 463926	sbp@mm-camb.mottmac.com
	Prof. Paul Bates	0117 928 9108	paul.bates@bristol.ac.uk
	Murray Dale	01392 884896	murray.dale@metoffice.com
	Prof. Louise Heathwaite	0114 222 7951	a.l.heathwaite@sheffield.ac.uk
	Joe Pearce	01903 703874	joe.pearce@environment-agency.gov.uk
	Dr Hilary Smithers	01925 653999	hilary.smithers@environment-agency.gov.uk
	Peter Ede	01223 463690	pfe@mm-camb.mottmac.com
	Suzanne Wales	01793 816621	waless@halcrow.com
	Dr Sue White	01525 863140	sue.white@cranfield.ac.uk

Nominated representatives and others

South East Section	Peter Midgley MBE	01903 703804	peter.midgley@environment-agency.gov.uk
South West Section	Prof. Paul Bates	0117 928 9108	paul.bates@bristol.ac.uk
Midlands Section	Dr Chris Bradley	0121 414 3878	c.bradley@bham.ac.uk
Pennines Hydrological Group	Dr Hilary Smithers	01925 653999	hilary.smithers@environment-agency.gov.uk
Welsh Hydrological Group	Dr Katie Fawcett	029 20770088	katie.fawcett@environment-agency.gov.uk
Scottish Hydrological Group	Dr Tim Jolley	01738 627989	tim.jolley@sepa.org.uk
UK Committee for IAHS	Prof. Bruce Webb	01392 263334	b.w.webb@exeter.ac.uk
CEH Wallingford	Dr Ian Littlewood	01491 692385	igl@ceh.ac.uk
ICE	Frank Farquharson	01491 692422	fakf@ceh.ac.uk
CIWEM	Dr Hilary Smithers	01925 653999	hilary.smithers@environment-agency.gov.uk
Publications Editor	Dr Celia Kirby	01491 837677	celia.kirby@btinternet.com
Hon. Editor of *Circulation*	John Griffin	01491 692395	jhgr@ceh.ac.uk

Secretary to the Committee Tim Fuller (ICE) 0207 665 2234 bhs@ice.org.uk fax 0207 799 1325

Subcommittee chairs

Policy initiatives: Bruce Webb
Meetings: Andrew Black
Membership: Steve Parsons

Investment (and the Exeter Fund management committee): Bruce Webb
International: Louise Heathwaite

Education and training: Joe Pearce
Publications: Celia Kirby
Internet: John Griffin

New International Journal of River Basin Management

This new journal (*http://www.jrbm.net/*) is a response by the scientific and professional community to the World Water Vision and calls by the World Water Council and Global Water Partnership for an integrated approach to water resources management.

The journal will play a specific role in promoting a cross-sectoral approach encompassing all aspects of river and floodplain management, with a truly global perspective, and available to subscribers at a reasonable price.

Launched at the Third World Water Forum in Kyoto in March 2003 with overwhelming interest, the journal will be published in four issues per year.

Papers will be accepted in all areas of river and floodplain management including catchments, wetlands and estuarine systems. See *www.jrbm.net*.

Forthcoming BHS and other meetings

BHS National Meeting
PREDICTING AND MANAGING HYDROLOGICAL DISASTERS
Institution of Civil Engineers, London
Wednesday 11 February 2004

With a distinctly international flavour, speakers at this full-day meeting will be talking about new techniques in forecasting and managing hydrological disasters, including presentations on seasonal forecasting for water availability in West Africa, flood forecasting in Algeria, flood mitigation measures in Malaysia, an NGO's perspective on managing a hydrological disaster, and how we manage our own 'hydrological disasters'.

Capacity is limited. Book using the form on the flier enclosed with *Circulation* or contact Tim Fuller.

BHS / BES / EA Joint Meeting
INTEGRATING WETLAND HYDROLOGY AND ECOLOGY IN THE UK
Institution of Civil Engineers, London
Wednesday 31 March 2004

Wetlands are increasingly recognised as important elements of the UK landscape, regulating the hydrological cycle and providing habitats for many species. Successful management of

wetlands depends on understanding all the hydrological and ecological processes.

Meeting the requirements of the EU Habitats and Water Framework Directives is a key driver for government agencies and research.

This full-day meeting comprises presentations of wetland studies by UK researchers. For a draft programme and further details please contact Mike Acreman *(man@ceh.ac.uk)*.

The cost is £30 for members. The British Ecological Society will pay some students up to 50% of their total costs (including travel and subsistence): contact *hazel@BritishEcologicalSociety.org*.

Capacity is limited: complete the form on the flier as soon as possible or contact Tim Fuller at the ICE.

Call for papers
EGU SESSION ON FLOOD PLAIN RISK
Nice, France
25–30 April, 2004

Paul Bates would like to draw your attention to the session NH9.01 on *Flood plain risk* that he is helping to convene with Giuseppe Aronica and Felix Frances at next year's European Geophysical Union assembly in Nice *(http://www.copernicus.org/EGU/ga/egu04/index.html)*.

They encourage papers on flood hydraulics, flood inundation modelling, floodplain risk assessment, uncertainty analysis and floodplain management, including new approaches to modelling, data collection, calibration, validation and analysis. Details of many other hydrological sessions are to be found on the EGU web pages.

For further information, contact Paul (see Committee list) or look at the website *http://www.cosis.net/members/meetings/sessions/information.php?p_id=76&s_id=1645*.

Call for Papers
INTERNATIONAL CONFERENCE ON STORMS
Brisbane, Australia
5–9 July 2004

WMO is co-sponsoring this International Conference, which will be held in association with its own Second Regional Technical Conference on Tropical Cyclones, Storm Surges and Floods immediately before. It is also held in conjunction with the annual conferences of the Australian Meteorological and Oceanographic Society (AMOS) and the Meteorological Society of New Zealand.

Experts from countries around the Bay of Bengal, Arabian Sea and the Typhoon Area are expected to attend both meetings.

The multi-disciplinary conference will consider storms on all scales of the global atmosphere and hydrosphere using an end-to-end approach, featuring the science of storms, observations, dynamics, prediction on all time scales, impacts, risk assessment and mitigation.

As well as invited presentations on focus topics, papers and poster presentations are welcomed on all aspects of storms, and short workshops or tutorials are planned.

Leading experts from Australia, the USA and India have been invited as keynote speakers in plenary sessions. For up-to-date information please see the web site: *http://www.stormsconf.org.au/general/speakers.asp*.

Potential authors must send an extended abstract (up to two A4 pages) to *stormsconfpaper@bom.gov.au* before **1 March 2004**. For information see *http://www.stormsconf.org.au/papers/call.asp*.

Full information about the conference is at *http://www.stormsconf.org.au*, or email *stormsconf@bom.gov.au*.

Diary

27th November 2003
BHS South East Section meeting
"Catchment Abstraction Management Strategies (CAMS) — early experiences"
Venue: ICE, London; Time: 18:00
Contact: Helen Procter *(tel 01903 703822, email helen.procter@environment-agency.gov.uk)*

3rd December 2003
Scottish Hydrological Group meeting
"Postgraduate research in hydrology and hydraulics (Scotland)"
Venue: Heriot-Watt University
Time: 18.00 (tea at 17:30)
Contact: Mike Cranston *(tel 01738 627989, fax 01738 630997, email michael.cranston@sepa.org.uk)*

14th January 2004
Scottish Hydrological Group joint meeting with SHSG
"Sewer Flooding in Glasgow"
Venue: Glasgow University
Time: 18.30 (tea at 18.00)
Contact: Mike Cranston *(see above)*

22nd January 2004
BHS South East Section meeting
"Water & poverty— redressing the balance"
Venue: ICE, London; Time: 18:00
Contact: Helen Procter (see above)

11th February 2004
BHS National meeting
"Prediction of hydrological disasters"
Venue: ICE, London; Time: 10:00
Contact: Murray Dale *(tel 01392 884896, email murray.dale@metoffice.com)*

11th February 2004
Scottish Hydrological Group meeting
"Water resource strategies in Scotland"
Venue: G10 Rankine Building, Glasgow University; Time: 18.30 (tea at 18.00)
Contact: Mike Cranston *(see above)*

11th March 2004 ***(not 10th)***
Scottish Hydrological Group meeting
"Indices of flooding in afforested catchments" — David Archer
Venue: Edinburgh University
Time: 18.30 (tea at 18.00)
Contact: Mike Cranston *(see above)*

18th March 2004
BHS South East Section meeting
"Advances in spatial rainfall representation"
Venue: ICE, London; Time: 18:00
Contact: Helen Procter *(see above)*

31st March 2004
BHS National Meeting with British Ecological Soc. & Environment Agency
"Integrating wetland hydrology and ecology in the UK"
Venue: ICE, London Time: 10.00
Contact: Mike Acreman, CEH *(tel 01491 838800, email man@ceh.ac.uk)*

21st April 2004
Scottish Hydrological Group meeting
"Moray flood alleviation scheme"
Venue: Elgin (half-day, p.m.)
Contact: Mike Cranston *(see above)*

12th May 2004
BHS South East / National meeting
"Water on our doorsteps: hydrology of urban areas in the UK"
Venue: CEH Wallingford; Time: 10:00
Contact: Helen Procter *(see above)*

10th June 2004
BHS South East Section meeting
"Hydroecology and the Habitats Directive", followed by site visit to the River Itchen
Venue: Environment Agency, Hants Area Office; Time: 12:00
Contact: Helen Procter (see above)

12th–16th July 2004
BHS International Conference
"Hydrology: science and practice for the 21st century"
Venue: Imperial College, London
Contact: Dr Adrian Butler, Dept of Civil & Environmental Engineering, Imperial College, London SW7 2BU *(tel 0207 594 6122, email a.butler@ ic.ac.uk, website www.hydrology.org.uk/bhs2004)*

Copy deadline for *Circulation* No. 80
6th January 2004