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The Newsletter of

THE BRITISH GEOMORPHOLOGICAL RESEARCH GROUP

Registered Charity 1054260

Mar 2003 No. 88

### BGRG Field Meeting:

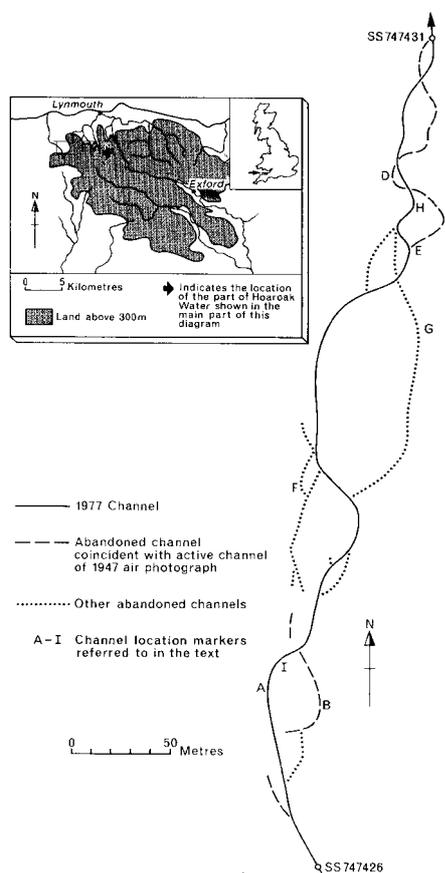
#### Lynmouth Revisited 50 years on

A small group gathered in the Church Hall in Lynton, North Devon in the evening of 14<sup>th</sup> August to hear Tim Burt and Alan Werritty set the scene for the BGRG excursion on the following day to mark the exact 50<sup>th</sup> Anniversary of one of the most dramatic and devastating floods to hit the UK in living memory.

Tim, referring to photographs taken shortly after the 1952 event and to information from classic subsequent investigations, rooted in engineering hydrology, meteorology and geomorphology, reminded us of the exceptional rainfall, the resulting major flood wave and the consequent destruction that affected the catchments of the East and West Lyn draining the northern slope of the Exmoor Upland and especially the picturesque coastal resort of Lynmouth. The rainfall recorded on the 15<sup>th</sup> August 1952, albeit by some unorthodox methods, was one of the three largest catches to be monitored in a 24-hour period in the UK. Some 228 mm was recorded at Longstone Barrow on the high ground of the Chains in the Lyn headwaters, and it is estimated that more than 200 mm fell over an area of 44 km<sup>2</sup>, with maximum intensities in the range 40-50 mmhr<sup>-1</sup>. The rain fell onto ground already saturated by a wet spell in the first fortnight of August 1952 and runoff was exacerbated by steep slopes and high channel gradients. Many trees that had been overthrown in gales of March 1952 were swept into the water courses, where they caused temporary dams against bridges and other structures, which eventually failed to generate a series of storm surges that worsened the

resulting flood wave. Reconstruction of the flood hydrograph suggests a peak flow at Lynmouth in excess of 600 m<sup>3</sup>s<sup>-1</sup> from an upstream catchment area of just in excess of 100 km<sup>2</sup>. The peak hit an unsuspecting resort during the early night of the 15<sup>th</sup> and resulted in the loss of 34 lives, destruction of 93 buildings and the ruining of 132 vehicles.

Alan provided some further information to put Lynmouth in a national context and demonstrated that data from this event had been vital in establishing a reliable envelope curve on a graph, which plotted specific



*Fig. 1 Channel changes in Hoarok Water from Anderson & Calver (1980). © John Wiley & Sons Ltd, reproduced with permission*  
Report continued on page 17

A B.G.R.G. non-publication compiled by Sue McLaren, Department of Geography,  
University of Leicester, Leicester LE1 7RH

### Executive Committee: 2002-2003

Chair	Prof. David Thomas	Sheffield	d.s.thomas@sheffield.ac.uk
Vice-Chair	Prof. Adrian Harvey	Liverpool	amharvey@liverpool.ac.uk
Junior Vice-Chair	Prof. Mark Macklin	Aberystwyth	mvm@aber.ac.uk
Hon. Secretary	Prof. John Wainwright	King's Coll. London	john.wainwright@kcl.ac.uk
Hon. Treasurer	Prof. Michael Thomas	Stirling	m.f.thomas@stirling.ac.uk
Membership Secretary	Dr Mark Powell	Leicester	dmp6@le.ac.uk
Geophemera, ex-officio	Dr Sue McLaren	Leicester	sjm11@le.ac.uk
Publications ex-officio	Dr Jon French	University Coll. London	jfrench@geog.ucl.ac.uk
Education, co-opted	Dr Ian Livingstone	University Coll. Nene	ian.livingstone@nene.ac.uk
PG Reps	Phillpa Noble	Aberystwyth	pln97@aber.ac.uk
	Simon Reid	Leeds	s.reid@geography.leeds.ac.uk
Ordinary members	Dr Mary Bourke	Oxford	mary.bourke@geog.ox.ac.uk
	Dr Louise Bull	Durham	l.j.bull@durham.ac.uk
	Dr Trevor Hoey	Glasgow	thoey@geog.gla.ac.uk
	Dr David Nash	Brighton	d.j.nash@brighton.ac.uk
	Prof. Bernie Smith	Belfast	b.smith@qub.ac.uk

### Editorial, Geophemera 88

Welcome to Geophemera 88. In this issue we have an abridged version of the BGRG's financial report for 2002 as well as the usual information on BGRG and other meetings and reports on recent conferences and field meetings. In addition to reporting material in Geophemera we are now trying to put as much information as possible on the BGRG website. Before Christmas there were some problems with the postal service at the RGS and with the Printers which led to some delays—please accept our apologies. Spare copies of the last edition can be obtained from Chrissie at the RGS. The usefulness of this newsletter depends on it delivering relevant information to the BGRG membership. Please send any conference reports, reviews of research group activities, successful grant applications etc to me by 1 June 2003

Sue McLaren Leicester

Contact the B.G.R.G.

**For further information on the BGRG contact:**

**Honorary Secretary  
Prof. John Wainwright**

Department of Geography, King's College London, The Strand, London, WC2R 2LS  
Tel: 0207 873 2487 Fax: 0207 873 2287 Email: john.wainwright@kcl.ac.uk

**For information regarding membership/change of address  
contact: BGRG Administrator**

**Christine James**

BGRG Administration, The Royal Geographical Society (with IBG), 1 Kensington  
Gore, London SW7 2AR  
Tel: 020 7591 3028 Fax: 020 7591 3001 Email: bgrg@rgs.org

**For information about BGRG meetings and collaboration contact:  
Meetings Officer and Editor of Geophemera**

**Dr Sue McLaren**

Department of Geography, Leicester University Road, Leicester, LE1 7RH  
Tel: 0116 252 3829 Fax: 0116 252 3854 Email: sjm11@le.ac.uk

**For further information about BGRG postgraduate issues  
contact: Postgraduate Rep**

**Phillipa Noble**

Department of Geography & Earth Sciences, University of Wales Aberystwyth,  
Wales SY23 3DB  
Email: pln97@aber.ac.uk

Visit the BGRG Web Site at: <http://www.bgrg.org/>  
Submit electronic copy for *Geophemera* to: sjm11@le.ac.uk

## BULLETIN BOARD

### NEW MEMBERSHIP BENEFIT

BGRG members can now obtain a 15% discount off all Wiley books ordered online via

**[www.wileyeurope.com](http://www.wileyeurope.com)**

Simply enter the code BEW within the discount information field of the shopping cart and fifteen per cent will be automatically deducted from your total price.

### ADVENTURES IN XINJIANG

A field excursion for Geoscientists in the Xinjiang, North West China. Geomorphology, Neotectonics, Desert Processes, Glaciation, Satellite Remote Sensing and GPS—ALL IN ACTION.

September 2003

The 10-day excursion features many fascinating sites in the Turpan and Junggar Basins and the Tian Shan and Altai Shan

Visit [www.hme.uk.com/xinjiang.html](http://www.hme.uk.com/xinjiang.html)

QRA 2nd International Postgraduate Symposium,  
QMUL, 10-12 September 2003

The symposium will provide an opportunity for post-grads to discuss their work with their peers in a relaxed environment. The first two days of oral & poster presentations with guest lectures from two prominent speakers will be followed by a full day field course visiting the Thames estuary. There will be a drinks reception & full social program throughout the conference, including a free dinner. Accommodation for delegates will be arranged in halls of residence. The registration & abstract deadline is 31st July 2003 but taking the 'early bird' option & registering before 31st May 2003 will guarantee you accommodation. The registration fee is £20 (excluding accommodation). For more information go to:

<http://www.geog.qmw.ac.uk/qra/symposium.html> or e-mail: [QRA2003@hotmail.com](mailto:QRA2003@hotmail.com).

### MEMBERSHIP SUBSCRIPTIONS

Can all members with outstanding subscriptions (you know who you are!) please pay up as soon as possible. Subscription payments can now be made by credit card via our web page

<http://www.bgrg.org/pages/membership/>

River Restoration Centre, Network Conference 2003 April 28-29 at the  
Marriott Royal Hotel, Bristol

The 4th Annual RRC Network Conference will encompass the themes of Applied river research, project appraisal and setting sound objectives to ensure sustainable river restoration. The main aim of the conference is to show how current research is being applied to river restoration.

For more information refer to the website at [www.therrc.co.uk](http://www.therrc.co.uk) or email at: [rrc@therrc.co.uk](mailto:rrc@therrc.co.uk)



# B.G.R.G. Business



It has been recent practice to publish in *Geophemera* the full annual report of the treasurer for the benefit of the membership, since the timing of the AGM is such that final accounts are not ready at that time. New reporting requirements by the Charity Commission means that the full Trustees' report is now too long for inclusion in *Geophemera* so what follows is an abridged version. The full Trustees' Annual Report is published on the BGRG website.

ACCOUNTS FOR THE YEAR ENDED 31 AUGUST 2002

Charity Number 1054260

REPORT OF THE TRUSTEES  
FOR THE YEAR ENDED 31 AUGUST 2002

## **Status and Administration**

The charity was registered with the Charity Commission on 4 April 1996 (No. 1054260) and the governing document is its constitution, last amended in September 2001.

## **Charitable Objects.**

The charity is established to advance education in the science of geomorphology, in particular through the promotion of research; by the formation of working parties dealing with co-operative research projects; by the publication of the results of such research; by the holding of meetings; and by co-operating with kindred organisations.

## **Relations of the Charity with Other Organisations**

The British Geomorphological Research Group is affiliated to the Royal Geographical Society (with the Institute of British Geographers) and to the Geological Society of London. The charity's permanent office is located at the premises of RGS-IBG.

## **Organisational and Decision Making Structure of the Charity.**

The administration of the charity is overseen by an Executive Committee which normally meets thrice annually. Members of the Executive Committee, who are elected by the membership at the Annual General Meeting, act as trustees during their term of office. Day to day running of the Charity rests with the three principal officers, the Chair, Honorary Secretary and Honorary Treasurer, supported by an employed part-time administrative assistant. Four subcommittees concerned with Publications, Awards, Research, and Education and Outreach report to the Executive Committee.

## **Review of Activities and Achievements**

Membership remains buoyant, despite appearing to have fallen slightly, as the process of identifying lapsed members continues. This is counterbalanced by the attraction of a significant number of new members, especially in the postgraduate category.

In respect of core activities BGRG held two substantial meetings. The annual conference was held at Nottingham, and was most successful with a diverse range of proceedings. Two well attended sessions were mounted at the RGS-IBG meeting in Belfast, one jointly with the Mountain Research Group, which reflected the choice of 2002 as the UN International Year of Mountains. Two field meetings were held during the year. In April the annual field meeting was held in Aberystwyth, in conjunction with a workshop of the Upland Sediment Working Group. A second field meeting to commemorate 50<sup>th</sup> anniversary of the Lynmouth flood took place in August.

BGRG sponsored the annual postgraduate meeting in Leeds, which was highly successful and succeeded in recruiting a substantial number of new postgraduate members. BGRG continued to mount and manage its annual short course

programme in Research Design For Geomorphology Postgraduates. This programme is recognised by NERC (Natural Environment Research Council) and was again held at Cumberland Lodge, Windsor Great Park.

The charity continued its activity of promoting research in geomorphology through its grants policy. A total of 32 research grants was awarded, 26 to postgraduates and 6 to academic staff. Two working groups were sponsored during the year. The Upland Sediment Budget Working Group continued its ongoing activities. Support was granted for the establishment of the Terrestrial Geochemical Sediments and Geomorphology Group for the first year of its operation, which included a contribution to a European Union of Geosciences meeting in Strasbourg, indicative of the international influence of the charity.

Research publication has been maintained and enhanced during the current year. The charity's flagship academic publication, the scientific journal *Earth Surface Processes and Landforms* published through John Wiley and Sons, attracted a significant increase in papers submitted for publication. These included increased contributions from continental Europe and Australia and a wider range of international sources. It maintained its publication rate of 13 volumes per year. The journal has improved its standing in the scientific community, as shown by its increased impact factor in the ISI Geoscience Interdisciplinary category. Two further volumes in the successful *Classic Landforms* series, published jointly with the Geographical Association, and aimed at a more general readership including school students, have been published within the year. The charity's house journal, *Geophemera*, has been revamped to a new and attractive glossy format, whilst simultaneously cutting production costs.

Representations were made on behalf of the charity to a range of statutory bodies. NERC is responsible for science funding policy in the UK as it affects geomorphology and those who practise it. Advice was forwarded in respect of the Earth Systems Science initiative and the NERC strategic plan. The charity has continuing representation on the Geoconservation Commission of the Geological Society, and UK RIGS (Regionally Important Geological and Geomorphological Sites) under the auspices of the Nature Conservancy Council, and part-funded by English Nature.

The charity developed its activities in relation to the wider community through the Education and Outreach subcommittee. A significant development this year is the practical advancement in planning for the development of website educational materials for the use of schools.

Prizes were awarded within the year as follows. The Linton award, recognising substantial achievement went to Professor Michael Thomas. The Gordon Warwick award winner was Dr David Higgitt. The Sweeting prize, for the most outstanding undergraduate dissertation in geomorphology, was won by Peter Rutter of Cambridge University.

The charity's website was established at a time when few such organisations possessed one. This has now been reconfigured, using a format common to both paper and online publications. The first stage was completed by the time of the AGM in September 2002. The foundation has now been laid to develop the site in order to meet a range of functions appropriate to the needs of a contemporary learned society.

### **Developments**

The charity will maintain the existing cycle of activities, and in addition progress a number of new developments. On the publications front, eight Special Issues of *Earth Surface Processes and Landforms* are currently in preparation. In addition, two major volumes, *History of the Study of Landforms Volume IV*, and *Geomorphological Techniques* (3rd Edition) are expected to be completed in 2003. Planning is continuing for a BGRG contribution to the Glasgow Congress of the IGU (International Geographical Union) in 2004. In Education and Outreach, it is planned that the initial phase of geomorphological educational materials will be launched on the charity website in the coming year.

The website will be further developed in the near future. It is planned to provide a discussion list and more facilities available for non-members. A further release, with advanced facilities such as on-line membership application, will be available early in 2003.

### **Financial Activities and Results**

The accounts for 2000-01 embraced the first full year of operation following the restructuring of BGRG finances in 1999-2000. The current year brings further substantial change to the shape of BGRG accounts. This is created largely by the new arrangement whereby the ESP&L editorial royalty is paid directly by Wileys to the managing editor. Additionally, *Classic Landform* (second edition) royalties are also for the first time paid by the GA directly to authors. Thus significant sums of money which formerly passed through the BGRG accounts now no longer do so.

The effect of these changes is twofold. First, annual turnover, which previously was in effect artificially inflated by the brief passage of these significant sums, is now substantially reduced from £41.3k to £24.5k. Secondly, the reduced annual turnover will impact on the Reserve Policy, prescribing a downsizing of the required Reserve target to £25k. This in turn will change the value of the notional surplus, and the sum available for the 8 year further drawdown of assets toward the new reserves target level.

The year has seen a substantial decrease in estimated income (-£16,784), due largely to the revised royalty arrangements. There

has also been a significant decrease in subscription income (-£2,179), due in large part to the inflation of the previous year's subscription income by the retrieval of underpaid subscriptions from 1999-2000. Investment income, mainly comprising bank interest, has decreased by £629.

Expenditure has shown a corresponding decrease (-£17,069). The main contribution to this arises from the revised royalty arrangements, creating a reduction in publications expenditure (-£15,111). There has also been a moderate decrease in research grants expenditure (-£2,611). There are increases in expenditure on education (+£404) and subscriptions (+£611). This latter figure represents 3 years IAG subscription, including two years underpayment arising from the actions of the charity's bank and IAG secretariat respectively. Expenditure on administration and awards and have remained broadly constant.

The year has shown an excess of expenditure over income, before the unrealised loss on investment referred to below, of £5,539. This in line with the expressed wish of the membership that the accumulated assets of BGRG be actively deployed in furthering the interests of geomorphology.

No particular difficulty has been experienced through the year, and overall the BGRG accounts are healthy.

### **Investment Powers, Policy and Performance**

The Charity has powers to invest its reserves, in growth and safety funds. The existing holding in the Jupiter Ecology fund, in a year of falling stock market valuations, has declined to £7,616, representing an unrealised loss of £3,004. This is balanced in part by investment income, mainly interest on the Business Reserve account of £973 representing funds awaiting investment into pooled units at a propitious time. No further investment has been made within the current year.

### **Reserves Policy**

BGRG has set a target for reserves at a level equivalent to annual turnover, in order to cover general contingencies. It is current policy to draw down reserves incrementally to the appropriate level, deploying the funds thus liberated in pursuit of the charity's objectives.

The notional split of the £60,000 reserve into growth funds (75%) and safety funds (25%) took place in January 2000. Agreed BGRG policy is to invest the growth element in equity based funds of an ethical nature, and safety funds in a high yielding bank account. The entire reserve was immediately placed in the Abbey National Business Reserve postal account, with a view to incremental transfers into equity funds on the basis of professional advice and according to stock market conditions.

January 2000 saw stock market valuations at an all time high, at a level which has not been regained during the subsequent 20 months. Purchase of a first tranche of pooled fund units was delayed until September 2000, when a £15,000 investment was made in the Jupiter Ecology Fund, with income reinvested. At the same time a capital sum of £15,000 was transferred to the Lloyds TSB current account on standby against the purchase of a further tranche of investment units.

The target level for reserves (annual turnover) has fluctuated widely over the past three years because of changes in the ways the charity's royalty income and expenditure contracts have been organised. New contractual agreements are now in place, and a new level of stability can now be anticipated in the flow of the charity's income and expenditure.

It is intended to invest more fully in equity based funds, on the basis of professional advice, when market conditions become more favourable.

### **Risk Management**

The Trustees will be setting up a risk review group in January 2003 as a means of undertaking an assessment of the risks to which the Charity is exposed, in particular those related to the operations and finances of the trust, and expect to put in place systems designed to mitigate exposure to the major risks.

### **Grant-making Policy**

The Charity awards grants for research projects with the aim of advancing knowledge in geomorphology. Such grants are available to full members and postgraduates. They embrace five specified areas of activity, namely Research Grants, Postgraduate Research Funds, Long Term Geomorphological Monitoring, Promotion of Geomorphology in Schools and Task Forces to Develop Proposals for Major Research Programmes. Grant applications are openly invited on a competitive basis four times annually. Applications are considered and awards made by an expert group. Grant outcomes are monitored as a matter of routine. Grants are also made on a competitive basis to postgraduates delivering a conference presentation.

### **Trustees' Responsibilities**

Charity law requires the trustees to prepare financial statements for each financial year which give a true and fair view of the state of affairs of the charity at the year end and of its incoming resources and resources expended during that year. In preparing those financial statements, the trustees are required to:

- Select suitable accounting policies and then apply them consistently;
- Make judgements and estimates that are reasonable and prudent;
- State whether applicable accounting standards have been followed, subject to any material departures disclosed and explained in the financial statements; and
- Prepare the financial statements on the going concern basis unless it is inappropriate to presume that the trust will continue in operation.

The trustees are responsible for keeping proper accounting records which disclose with reasonable accuracy at any time the financial position of the charity and enable them to ensure that the financial statements comply with the Charities Act 1993. They are also responsible for safeguarding the assets of the trust and hence for taking reasonable steps for the prevention and detection of fraud and other irregularities.

*The accounts comply with the Charities Act 1993, the constitution and the Charities SORP except to the extent that subscriptions and royalties received and editorial payment made are shown on a cash basis as against an accruals basis. The reasons and financial impact are referred to in the Accounting Policies on page 10.*

Approved by the trustees and signed on their behalf by:

*Professor D N Mottershead*

## **INDEPENDENT EXAMINER'S REPORT TO THE MEMBERS OF THE BRITISH GEOMORPHOLOGICAL RESEARCH GROUP**

We report on the accounts of the British Geomorphological Research Group for the year ended 31 August 2002.

### **Respective Responsibilities of the Executive Committee**

As the charity's trustees you are responsible for the preparation of the accounts; you consider that the audit requirement of section 43(2) of the Charities Act 1993 (the Act) does not apply. It is our responsibility to state, on the basis of procedures specified in the General Directions given by the Charity Commissioners under section 43(7)(b) of the Act, whether particular matters have come to our attention.

### **Basis of Independent Examiner's report**

Our examination was carried out in accordance with the General Directions given by the Charity Commissioners. An examination includes a review of the accounting records kept by the charity and a comparison of the accounts presented with those records. It also includes consideration of any unusual items or disclosures in the accounts, and seeking explanations from officers on the Executive Committee concerning any such matters. The procedures undertaken do not provide all the evidence that would be required in an audit, and consequently we do not express an audit opinion on the view given by the accounts.

### **Independent Examiner's statement**

In connection with our examination, no matter has come to our attention:

- 1 which gives us reasonable cause to believe that in any material respect the requirements
  - to keep accounting records in accordance with section 41 of the Act; and
  - to prepare accounts which accord with the accounting records and to comply with the accounting requirements of the Act
 have not been met; or
- 2 to which, in our opinion, attention should be drawn in order to enable a proper understanding of the accounts to be reached.

Lentells, Chartered Accountants, 11 The Crescent, Taunton, Somerset TA1 4EA

**STATEMENT OF FINANCIAL ACTIVITIES**  
**FOR THE YEAR ENDED 31 AUGUST 2002**

	Note	Unrestricted Funds 2002 £	Unrestricted Funds 2001 £
<b>INCOMING RESOURCES</b>			
Donations, legacies and similar income	2	6,772	8,951
Activities in furtherance of the charity's objects	3	16,811	30,787
Investment income	4	1,015	1,644
		-----	-----
<b>Total incoming resources</b>		<b>24,598</b>	<b>41,382</b>
		-----	-----
<b>RESOURCES EXPENDED</b>			
<b>Charitable expenditure</b>			
Grants payable in furtherance of charitable objects	5a	10,686	13,350
Costs of activities in furtherance of charitable objects	5b	7,627	22,170
Management and administration	6	11,824	11,686
		-----	-----
<b>Total resources expended</b>		<b>30,137</b>	<b>47,206</b>
		-----	-----
<b>Net outgoing resources</b>		<b>(5,539)</b>	<b>(5,824)</b>
Net losses on investment assets		(3,004)	(4,408)
		-----	-----
<b>Net movement in funds</b>		<b>(8,543)</b>	<b>(10,232)</b>
		-----	-----
Total funds at 1 September 2001		47,371	57,603
		-----	-----
Total funds at 31 August 2002		<b>38,828</b>	<b>47,371</b>

## BALANCE SHEET AS AT 31 AUGUST 2002

			2002		2001
	Notes	£	£	£	£
<b>FIXED ASSETS</b>					
Investment	8		7,616		10,592
<b>CURRENT ASSETS</b>					
Debtors	9	706		373	
Cash at bank and building societies		34,774		40,226	
		-----		-----	
		35,480		40,599	
<b>CREDITORS: Amounts falling</b>					
<b>due within one year</b>	10	(4,268)		(3,820)	
		-----		-----	
<b>Net current assets</b>			31,212		36,779
			-----		-----
<b>TOTAL NET ASSETS</b>			38,828		47,371
			=====		=====
<b>UNRESTRICTED FUNDS</b>					
	11				
Designated and general funds			38,828		47,371
			=====		=====

Derek Mottershead



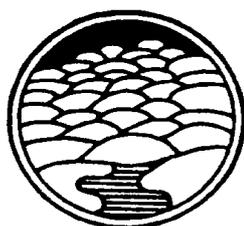
# B.G.R.G. Meetings



Call for papers:

GLOBAL CHANGE: GEOMORPHOLOGICAL AND BIOGEOGRAPHICAL PERSPECTIVES

BGRG & Biogeography Study Group co-hosted session at the RGS (with IBG) Annual Conference, September 3-5 2003



## Call for papers

The Annual Conference of the Royal Geographical Society (with IBG) will in 2003 be held at the RGS (with IBG) headquarters in London, from 3-5 September 2003. The conference theme is 'Geography Serving Society and Environment' and the Chair of Conference is Professor Alan Werritty, former chair of the BGRG. Conference details are posted on <http://www.rgs.org/ACLondon2003>

Physical Geography sessions will be held on Thursday 4 and Friday 5 September. The **BGRG and the RGS (with IBG) Biogeography Study Group** are co-hosting a session:

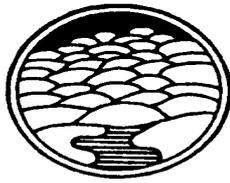
**'Global Change: Geomorphological and Biogeographical Perspectives'**. This session will take place on the afternoon of Thursday 4 September and the morning of Friday 5 September, allowing BGRG delegates to then move on to the BGRG Annual Conference at Oxford (we are exploring the option of directly running a coach between the two venues for the ease of BGRG delegates).

Oral papers are invited on a range of topics within this theme, including:

- Geomorphological and biogeographical evidence of past environmental changes and dynamics;
- Geomorphological and biogeographical futures under predicted climate changes;
- Interactions between vegetation and geomorphic systems.

Initial expressions of interest/ offers of papers should be made to David Thomas, Department of Geography, University of Sheffield ([d.s.thomas@shef.ac.uk](mailto:d.s.thomas@shef.ac.uk)) or Dawn Scott, Biology Division, University of Brighton ([dawn.scott@bton.ac.uk](mailto:dawn.scott@bton.ac.uk)) before the end of March 2003.

British Geomorphological Research Group  
Annual Conference 2003



5 - 7 September 2003

School of Geography  
and the Environment

University of Oxford



## Call for papers

The 2003 Annual Conference will be held in Oxford at the School of Geography and the Environment with accommodation in St Catherine's College. We would like to encourage submission of papers for oral presentations and posters on ALL aspects of geomorphology. Please fill in the Expression of Interest form online at the conference website or in hard copy and return it to Heather Viles if you would like to present a paper or poster at the meeting.

## Provisional programme

### Friday 5<sup>th</sup> September

- BGRG Limited Life Working Group on Geochemical Sediments and Geomorphology Final Meeting
- Frost lecture

### Saturday 6<sup>th</sup> September

- Paper and poster sessions
- BGRG AGM
- Conference dinner

### Sunday 7<sup>th</sup> September

- Paper and poster sessions

Deadline for receipt of abstracts: 1<sup>st</sup> April 2003

Deadline for registration at reduced rates: 1<sup>st</sup> July 2003

## RGS/IBG conference link-up

New this year! The BGRG Annual Conference in Oxford will dovetail with the RGS/IBG conference in London (3<sup>rd</sup> to 5<sup>th</sup> September) allowing attendance at both with a highly attractive Joint Conference Rate to cover geomorphology sessions at the RGS/IBG and the whole BGRG. Details will be posted on the conferences web sites when they have been finalized.

**BGRG Conference Web page** <http://www.geog.ox.ac.uk/news/conference07.html>

Local organizing committee: Heather Viles, John Boardman, Mary Bourke, Andrew Goudie, Greg Tucker. For further information contact: [heather.viles@geog.ox.ac.uk](mailto:heather.viles@geog.ox.ac.uk)

# BGRG Working Group

Terrestrial Geochemical Sediments & Geomorphology

## Recent Technological Advances in the Analysis of Terrestrial Geochemical Sediments

University of Leicester, UK

June 4th 2003

The main aim of this symposium is to bring together researchers from a range of disciplines including geomorphology, sedimentology and geochemistry to discuss new technological developments in analytical techniques available in the study of surface and near surface geochemical sediments. The meeting intends to bring together researchers who have expertise of different types of geochemical sediments and to discuss the usefulness of the wide range of techniques now available.

For further details contact Sue McLaren at [sjm11@le.ac.uk](mailto:sjm11@le.ac.uk)

Closing date for receipt of abstracts is May 19<sup>th</sup> 2003

## BGRG Spring Field Meeting 2003

North York Moors and Coast, 9-11 May

### Friday 9 May

Symposium on "Unstable Ground".

Keynote speakers will include Professor Mike Crozier (Victoria U., New Zealand).

### Saturday 10 May

Field Day: Saltburn-by-the-Sea; Boulby; Staithes; Sandsend; Whitby Harbour, Esk Valley.

### Sunday 11 May

Field Day: Scarborough, Caton Bay, Filey Brigg.

Fieldsites will illustrate recent applied research & involve representatives from academia, industry & government agencies.

**Logistics:** The meeting will be based in hotel accommodation in Scarborough. Minibus transport is provided throughout the trip. The fee includes registration, field guide, transport, reception, bed, breakfast & evening meal on Friday and Saturday. Tea/coffee & a sandwich lunch will be included on Friday but the cost of lunches on Saturday & Sunday is not included. Please enquire if accommodation is required on Thursday evening. Some delegates may be interested in a symposium on "Fieldwork Practice & Scholarship". This takes place on Monday 12 May at the University of Leeds. Onward transport & discounted registration can be provided

**Call for Papers:** Papers & posters are invited for the one-day meeting on the theme "Unstable Ground". The symposium will commence at 11 am on Friday 9 May & precede the field meeting. The meeting covers the following themes: landslide processes & mechanisms; subsidence; material properties & engineering geology; landscape sensitivity & integrated catchment management. Submitted abstracts should not exceed 300 words. A journal special issue is under negotiation. Deadline for abstract submissions has been extended to 1 March 2003.

**Abstract submission deadline 1 March 2003. Please submit application form (this can be obtained from the BGRG web site) & payment before 31 March 2003**

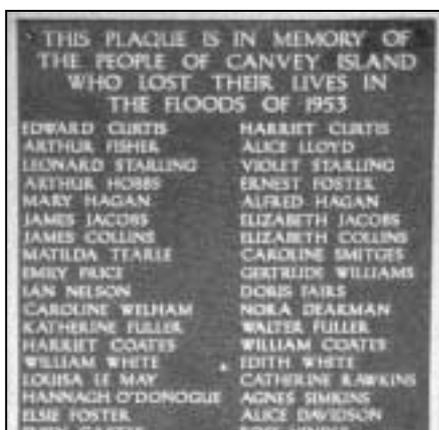
<http://www.geography.dur.ac.uk/news/conference.html>

# The Big Flood

## An International Scientific Meeting at the Royal Society (London)

### First Announcement

please see <http://www.arct.cam.ac.uk/curbe/floods.html#bigflood> for updates



Fifty years ago, on the night of 31 January to 1 February 1953, a storm surge in the southern North Sea resulted in catastrophic flooding on the coasts of England and the Netherlands, claiming over 2,000 lives. Although sea defences were subsequently strengthened and raised in both countries, the risk today may have increased due to sea-level rise, extensive development in vulnerable areas, and a lack of awareness of vulnerability.



New bungalows sited behind sea defences in eastern England.

With speakers from around the North Sea basin, the Meeting's preliminary programme is:

<p><i>Morning: Physical background</i></p> <ul style="list-style-type: none"><li>·Keynote talk: Storm surge histories</li><li>·Meteorology of North Sea storms</li><li>·Storm surges in the southern North Sea</li><li>·Present condition of sea defences</li><li>·Inundation modelling of coastal floods</li></ul>	<p><i>Afternoon: North Sea storm surge impacts</i></p> <ul style="list-style-type: none"><li>·Risk perception and policy</li><li>·Public health and social impacts</li><li>·Ecosystem impacts</li><li>·London's vulnerability</li><li>·Keynote talk: Where should we be going?</li></ul>
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### The Big Flood will take place at the Royal Society

(6-9 Carlton House Terrace, London) on 23 May 2003.

The cost for attending **The Big Flood** is £70. Discounted fees are available to members of academic institutions (£35), to all BGRG members (£35), and to students (£10). If you would like lunch at the Royal Society, please add £22 to the fee. Attendees must register by **28 April 2003**. Registration forms and payment details are available at <http://www.arct.cam.ac.uk/curbe/floods.html#bigflood> or by contacting Maria Sylvester at Cambridge Architectural Research Ltd:

email: [maria@carltd.com](mailto:maria@carltd.com); post: Unit 6, 23-25 Gwydir Street, Cambridge CB1 2LG, U.K.

phone: +44 1223 460475; fax: +44 1223 464142

**The Big Flood** is organised by CURBE (Cambridge University Centre for Risk in the Built Environment); <http://www.arct.cam.ac.uk/curbe>

**The Big Flood** is sponsored by the Risk Group, the Tyndall Centre, RMS Ltd., Halifax General Insurance Services Limited, and the British Geomorphological Research Group

**The Big Flood** contributes to Research Theme 4 "Sustaining the Coastal Zone" of the Tyndall Centre for Climate Change Research.

# Soil erosion and sediment redistribution in river catchments: measurement, modelling and management in the 21<sup>st</sup> Century

9- 11 September 2003

National Soil Resources Institute, Cranfield University at Silsoe, UK

The conference aims to review and update the major achievements recently made in soil erosion and sediment redistribution research and management, and identify future requirements. Taken at a river basin or catchment scale the conference will examine the developments made in three themes – measurement, modelling and management. Each thematic session will be introduced by a keynote presentation providing an overview of the state of art, followed by invited contributions and accepted presentations. This conference aims to bring together key players who work on river basin soil erosion and sediment redistribution, from source to sink, from field to river, from academia to to policy and industry. and policy

## Provisional Programme and Invited Speakers

### Tuesday 9<sup>th</sup> September:

Registration followed by Welcome speeches

#### Theme: *Measurement*

Prof. Des Walling (University of Exeter, UK) (*keynote*); Prof. Ellen Petticrew (University of Northern British Columbia, Canada); Prof. Ian Foster (Coventry University, UK)

NSRI erosion laboratory and facility tour

### Wednesday 10<sup>th</sup> September:

#### Theme: *Modelling*

Prof. Mark Nearing (National Erosion Laboratory, Purdue University, USA) (*keynote*); Prof. Victor Jetten (Utrecht University, The Netherlands); Prof. Colin Thorne (University of Nottingham, UK); Dr John Quinton (Lancaster University, UK)

Field excursion

Conference dinner

### Thursday 11<sup>th</sup> September:

#### Theme: *Management*

Prof. Roy Morgan (Cranfield University at Silsoe, UK) (*keynote*); Dr Jos Brils (TNO, The Netherlands); Dr Jane Rickson (Cranfield University at Silsoe, UK)

Software/methods/technology demonstrations

**Proceedings:** It is intended to publish suitable papers presented at the conference, either in an edited book or in a journal special issue. Manuscripts should be submitted at the conference or soon after (deadline to be confirmed).

**Call for abstracts:** Please send an abstract (ideally as an e-mail attachment, & no more than 200 words) to either Alison Collins ([a.j.collins@cranfield.ac.uk](mailto:a.j.collins@cranfield.ac.uk)) or Phil Owens ([Philip.owens@bbsrc.ac.uk](mailto:Philip.owens@bbsrc.ac.uk)) by 31<sup>st</sup> March 2003. Decisions will be made by 30<sup>th</sup> April 2003. Final registration is likely to be 30<sup>th</sup> June 2003.

**Conference website:** For further information and copies of the registration form please go to the conference website:

[www.cranfield.ac.uk/nsri/conference/www.silsoe.cranfield.ac.uk/nsri/conference/](http://www.cranfield.ac.uk/nsri/conference/www.silsoe.cranfield.ac.uk/nsri/conference/)

If you have any problems with the website, or need further information, then please contact Alison or Phil.



# Reports



## International symposium on Land Use Change & Geomorphic, Soil & Water Processes in Tropical Mountain Areas

Quito-Cuenca, Ecuador,

16– 21 December 2002

This symposium, organised by Gerard Govers on behalf of the Laboratory for Experimental Geomorphology, K.U. Leuven; the Institute for Biodiversity and Ecosystem Dynamics, University of Amsterdam; PROMAS, University of Cuenca; Projecto Paramo ECOPAR; GCTE Focus 3, Soil Erosion Network and the IGU Commission Geomorphic Challenges of the 21<sup>st</sup> Century, was an excellent opportunity to escape preparations for Christmas for the exciting geomorphology of Ecuador. It attracted participants from a wide range of discipline backgrounds (including Geomorphology, Agriculture, Pedology, Forestry, Geology and Engineering) and countries (including Ecuador, Thailand, Peru, Belgium, the Netherlands, United States, United Kingdom, Colombia, Costa Rica, France, Mexico, Canada, Honduras and Germany), promising stimulating exchanges of ideas and lively discussion.

It began in Quito with a day of papers on the theme of geomorphic, soil and water processes, and the effects of land-use change on these processes (Jean Poesen on gully erosion, tillage erosion and soil conservation in the Ethiopian Highlands, Michel Hermelin on erosion rates in soils derived from volcanic ashes in Colombia, Lieven Claessens on modelling the effects of shallow landsliding on long-term landscape dynamics, Christian Valentin on effects of slope gradient on decreasing runoff in Laos and Thailand, Raoul Vazquez on the main measures for evaluating the performance of distributed hydrological models, Jozef Deckers on animal-powered tillage erosion assessment in the Southern Andes region of Ecuador, Anton Rijdsdijk on sediment contribution from tributary gullies, mass wasting and bank erosion in East Java, Indonesia, Luis Jerves on the monitoring and management of sedimentation in the Paute reservoir near the important hydro-electric power plant, Veerle Vanacker on spatial variation of suspended sediment concentration in a tropical Andean river system, Pascal Podwojewski on the influence of soil properties and land use on the water availability of

the parámos in the Andes of Ecuador, Wouter Buytaert on the use of a linear reservoir model to assess impacts of land use changes on the hydrology of mountainous parámo catchments in south Ecuador, Gerard Govers on spatial modelling of the impact of deforestation on landslide susceptibility, Christopher Woltemade on the influence of land use and geology on geomorphic response to hurricane Mitch in mountainous northwestern Nicaragua, Eric Cammeraat on land use change and its consequences for land degradation in the lake Baringo area in Kenya, Robert Hofstede on participatory mapping to involve the community in parámo management in Ecuador).

*Figure: Large debris avalanche in the Machangara catchment*



The following day was a field day (13 hours) to Cangahua (Cayambe), where inappropriate land use (cropland) leads to extensive water and tillage erosion resulting in the exposure of duripan (locally named cangahua or tepetate in Mexico). There was a lively discussion by several participants on its origin. During that day we witnessed the devastating effects of ash fall caused by the November (2002) eruption of the Reventador volcano: e.g. collapsed greenhouse roofs under the weight of 5 - 10 mm of volcanic ash and eroded teeth of cows grazing rangelands covered by this ash. It also became clear that ash fall significantly contributes to an increase in potential energy of these Andean landscapes! On our way back to Quito, we travelled through the Oyacachi glaciated valley and the Cayambe Coca Reserve with wet parámo landscape.

The final day of the Quito part of the symposium saw us yet again in the field where we had the opportunity to inspect the hazards of road building in a steep mountain environment. Is it wise to stand on the outside of a tension crack to look down into a valley a hundred metres below? We vigorously debated the usefulness of planting eucalyptus forests to sequester carbon, and surprised the local population by appearing in the most unlikely places in our bus. Near La Merced village, we observed extensive cangahua (duripan) exposure and badland development as a consequence of past land use. The last stop of the day, before we boarded the plane to Cuenca, was a lava flow from 1750, now providing a handy source of building material. At the airport we elbowed our way to the front of the queue (no reserved seats) to claim the recommended window seats on the right-hand side for the best views.

In Cuenca, the format was repeated. We began with a day of papers first continuing the theme of the effects of land use change on geomorphic, soil and water processes (Jean-Paul Briquent on soil erosion under land-use change in Laos and Thailand, Anton Rijdsdijk on runoff and sediment production from rural roads in E. Java, Samuel Rivera on the effect of management practices on discharge and water quality in central Honduras, Carol Harden on effects of land use change on rivers in the Paute basin and Anton Van Rompaey on effects of changes on landscape connectivity on river regimes and sediment yield). After coffee we moved to the theme of sustainable land and water management (Olav Slaymaker on the MANRECUR project, Andreas Mende on geopotential mapping, Coen Bussink on using GIS for decision making in the Peruvian Andes, Gladys Lopez Rivadeneyra on recuperation of degraded soils from effects of the oil industry in the Peruvian forests, Jan Sevink on carbon stocks and sequestration in the high Andes, Iginio Emmer on land use change projects under the Kyoto protocol, Gerd Werner on sustainable rehabilitation of degraded volcanic soils in Mexico and Chile and Jan-Peter Lesschen on the use of trade-off analysis to investigate interrelationships between potato productivity, tillage erosion and pesticide leaching). The paper session concluded with a general discussion which raised several important issues and which prompted a good deal of participation. The day concluded with a visit to the PROMAS (Programa para el Manejo de Agua y Suelo) centre in the University. In the evening we were entertained to a conference dinner with fireworks and dancing. The former included devices that are a cross between a hot-air balloon and a paper lantern that are released and float up into the sky. They provided an opportunity for budding meteorologists (or meteorologists manqué) among us to study vertical atmospheric profiles.

The next day, a short field excursion of 12 hours, took us

first to the Josefina landslide (which we had seen from our well chosen seats as we came into land 2 days before). In 1993, this landslide blocked the valley of the Rio Paute with about 20 million m<sup>3</sup> of sediment, causing a lake to accumulate behind it that reached a maximum of 60 m depth and 10 km length. The breach in the dam that was created to drain the lake caused a peak flow discharge 8000 m<sup>3</sup> s<sup>-1</sup> down a channel with an average discharge of 40 m<sup>3</sup> s<sup>-1</sup>. Engineering works (drop structures) continue to stabilise the site, but inspection of the valley downstream of the landslide showed that there exist several other similar sites for an event of similar magnitude in the future. Our second stop of the day was to the Burgay catchment, where we inspected channel change in response to recent land-use change, but failed to provide a satisfactory explanation for a deposit we inspected adjacent to old braided channel. Our final visit of the day/evening was to the Machangara catchment where, despite the protestations of our bus driver that he'd not been told it was this far, we climbed through a glaciated valley up to 3500 m to the Paramo observing another large landslide that had eroded a kame terrace. The landscape was spectacular, but it was probably a relief that it was dark as we descended the narrow track.

Our final day saw us on the road again, this time to Guayaquil, where the conference ended for those not going on the post-conference excursion back to Quito. There was one planned stop in Santa Isabel to look at the effects of irrigation agriculture on soils and erosion processes. As ever, however, we managed more than the planned number of stops, including Cumbe where, as we stood in the rain, we were informed by Jean Poesen that 'in principle, this is a dry location'. After Santa Isabel we did visit a site dry in practice and in principle. The rainfall gradient from this location (around 200 mm a<sup>-1</sup>) to the coast was dramatic. In 20 minutes we went from a site with almost no vegetation to a lush tropical vegetation with coffee, cacao and where we could buy bananas by the roadside. We were late, as usual, arriving in Guayaquil, but none of us cared.

During the post-conference excursion a spectacular transect was made through several bio-geographical regions: from the coastal plain (port of Guayaquil) through the western and eastern cordillera (over 4000 m a.s.l. with Mount Chimborazo (6310 m a.s.l.), glaciers, wind, sheet and rill erosion) to Riobamba (located at the footslope of the active Tungurahua volcano) where we visited an impressive valley draining to the Oriente (with hanging valleys, old basalt flows, recent lahars, reservoir siltation problems and rather unstable valley sides) before returning to Quito. The landscapes were spectacular, and the field discussions both informative and stimulating.

Tony Parsons, University of Leicester

Jean Poesen, Catholic University, Leuven.

runoff against catchment area for major UK floods. This envelope curve indicates, for example, that data from the event affecting the River Findhorn in August 1970 may be suspect. The evening briefing was suitably rounded off by a visit to a local hostelry.

The following morning, the group rendezvoused at Exe Head Bridge in murky, but not inclement weather, ready for a walk up into the Chains of Exmoor and along the upper reaches of the Hoarok Water. The purpose of this excursion was to observe evidence of the geomorphological impact of the Lynmouth event on the hillslope, floodplain and river channel environment and how the landscape had recovered in the subsequent half century. In following this route, the group had the benefit of previous work undertaken in mapping active and abandoned channels *ca.* 25 years after the Lynmouth storm (Anderson & Calver, 1980; Fig. 1).

After a somewhat 'sticky' start traversing the floor of the Exe, which even in the height of summer is sufficiently wet to defeat those not shod in fully waterproof footwear, the party reached the headwaters of Hoarok Water where shallow landslides formed in the 1952 rainstorm are still visible, albeit in a partly revegetated state (Fig. 2).

Further down Hoarok Water, channels that were cut off and abandoned during the Lynmouth flood are clearly evident (Fig. 3). These are associated with boulder berms that were probably deposited in the same event, although Mark Macklin reminded the party that the Exmoor valleys, similar to those in many other UK uplands, have been affected by a number of large floods throughout the Holocene, which can be traced in a common sequence of erosional and depositional features.

Evidence from photographs taken in the months immediately following the Lynmouth disaster reveal the floor of



*Fig. 2 August 1952 landslide shortly after the event (upper) and in August 2002 (lower).*



*Fig. 3 Mark Macklin and Tim Burt stroll up the abandoned channel marked 'B' on Fig. 1.*

Hoarok Water had experienced substantial deposition of coarse material during the event (Fig. 4). In the subsequent 50 years, finer sediment has filled in and vegetation has regrown on the floodplain surface, so that the nature of the 1952 flood deposits can only now be fully appreciated from exposures in river banks (Fig. 4). In walking along the banks of Hoarok Water, the party observed sections which testify to a longer history of valley floor development, and suggested a



*Fig. 4 Boulder spreads in Hoarok Water soon after the Lynmouth storm (upper) & the present appearance of the valley floor at the same location (middle)- the arrow indicates the scar created by the abandoned channel marked 'C' on Fig. 1. The lower photograph shows the depth of coarse flood deposits on the present floodplain.*

sequence of point bar deposition, bog formation and organic matter accumulation and alluviation of finer sediment (Fig. 5).

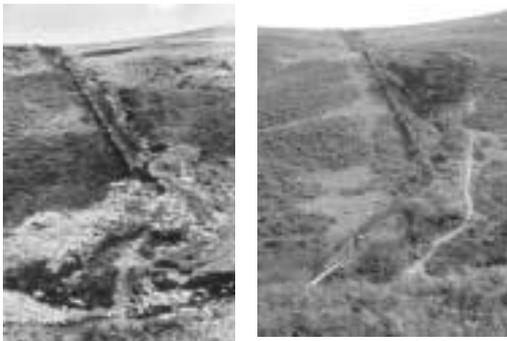
The group paused to rest and snack in view of the eponymous Hoarok, & then retraced its footsteps, getting a good view of a gully feature following



*Fig. 5 Adrian Armstrong and Colin Clark puzzle over the sequence of valley floor development exposed in the channel bank upstream of site 'E' marked on Fig. 1.*



a field boundary on the east side of the valley which had suffered substantial erosion in the 1952 storm with deposition of a small alluvial fan where it met the valley floor (Fig.6).



*Fig. 6 The east slope of Hoarok Water soon after August 1952 (left) and in August 2002.*

In contrast to conditions pertaining 50 years earlier, the party made its way back to Exe Head in pleasant sunshine having enjoyed a most successful field trip organised by Tim and Alan.

Bruce Webb, Exeter University

Reference: M.G. Anderson & A. Calver (1980) Channel plan changes following large floods. In: *Timescales in Geomorphology* (Ed. by R.A. Cullingford, D.A. Davidson & J. Lewin), 43-52. J. Wiley & Sons Ltd.

## Marjorie Sweeting Dissertation Prize 2002

The Sweeting Prize is awarded annually by the BGRG for the best geomorphology dissertation submitted as part of an undergraduate degree in a UK HE institution. For 2002, 15 entries were received.

The decision of the adjudicators was that the prize be awarded to: **Katie Szkornik**, Department of Geography, University of Durham, for her thesis entitled 'Applying a microfossil-based transfer function to establish new sea-level curves at Cowbit Wash, Fenland'.

Runner-up was: **Oscar Pettersson**, School of Geographical Sciences, University of Bristol, for his study entitled 'The development of a technique to measure water film thickness and the study of the flow hydraulics and dissolutorial characteristics on Plaster of Paris rillenkarrén channels'.

Katie Szkornik's dissertation represented an extremely well-executed project. Its rationale was clear, the field and laboratory techniques were competently undertaken and clearly reported, the analysis was sound and the conclusions well-founded in the data. The topic was interesting and entirely appropriate for an undergraduate project. This was an impressive scientific study.

As a general observation, the panel was struck by the fact that all the projects embraced some very sound work, but the quality of reporting, which is integral to the overall quality of the work as a piece of science, often let the candidates down. Members of the panel were frequently disappointed by the quality of key elements such as rationale, aims and objectives. Candidates too often failed to explain themselves properly.

As a panel whose recent experience is in post-'92 universities, we noted the fact that all but one of this year's submissions were from 'old' universities. We would like to see more dissertations submitted from the 'new' universities and university colleges in the future.

Stephan Harrison

Ian Livingstone

Derek Mottershead

# MISCELLANY

## *Thesis abstracts*

### **THE USE OF GEOGRAPHICAL INFORMATION SYSTEMS (GIS) & REMOTE SENSING TO INVESTIGATE GROUNDWATER QUALITY IN THE AZRAQ BASIN, JORDAN**

**Rida Al Adamat (Doctor of Philosophy) School of Science & the Environment,**

**Coventry University**

Jordan is a country that faces "absolute water scarcity" and may not be able to meet its water needs by the year 2025. Groundwater is the major water resource for many areas of the country and the only source of water in some areas. Most of the groundwater basins in Jordan are already exploited beyond their estimated safe yield. Total safe yield for all basins was estimated to be  $ca. 418.5 \times 10^6 \text{ m}^3 \text{ yr}^{-1}$  yet the consumed water from these basins was  $479 \times 10^6 \text{ m}^3 \text{ yr}^{-1}$ . Groundwater is the second largest contributor to the irrigation sector at  $258.4 \times 10^6 \text{ m}^3 \text{ yr}^{-1}$  and it is the largest source for domestic consumption at  $182.8 \times 10^6 \text{ m}^3 \text{ yr}^{-1}$ .

A variety of human activities stemming from agricultural, industrial, community and residential sources, as well as the misuse of groundwater resources, have contributed to the deterioration of groundwater quality in Jordan. There are three types of pollution that affect groundwater (i) use and overuse of biocides and fertilizers and irrigation return flows, (ii) cesspools in towns, villages and refugee camps and (iii) use of vehicles with oil spills, lead and corroded particles.

In this study, the groundwater resources in the basalt aquifer of the Azraq Basin have been evaluated through the use of GIS and remote sensing. Remote sensing was used to map the agricultural activities in the study area between 1990 and 2000 using several satellite images and aerial photographs. It was estimated that the cultivated area changed from  $ca. 29 \text{ ha}$  in 1990 to 185, 442 and 1087 ha in 1992, 1998 and 2000 respectively.

The DRASTIC model was implemented within a GIS environment to investigate the groundwater vulnerability. It was found that  $ca. 84\%$  of the study area had moderate vulnerability and the remainder had low vulnerability.  $Ca. 15\%$  of the study area had possible sources of contamination and moderate groundwater vulnerability,

while only  $ca. 3\%$  of the study area had a low vulnerability and no possible source of contamination. There was no statistically significant difference between the average nitrate concentrations for wells in low and moderate risk areas (Mann Whitney U test,  $p < 0.05$ ). However, it was found that six wells in the moderate vulnerability zone had nitrate concentrations greater than the maximum nitrate concentration in the low vulnerability zone.

A GIS-based model was developed to estimate nitrate leaching from cesspools and agricultural land. It was found that nitrate leaching from agricultural sources was much higher than that derived from cesspools. It was estimated that  $ca. 0.3$  to  $0.7 \text{ kg household}^{-1} \text{ year}^{-1}$  could leach to groundwater from cesspools in the study area. The estimated nitrate leaching from agricultural sources could reach up to  $483,281 \text{ kg year}^{-1}$ .

Several management scenarios were implemented within a GIS environment to minimise nitrate leaching from both cesspools and agricultural fields. It was estimated that emptying the cesspools on regular basis ( $ca. 2$  months) could minimise or eliminate nitrate leaching from this source. Farmers could use information on available nutrient concentrations in the soil, irrigation water and organic manures to estimate the optimum fertiliser requirement. This scenario could reduce nitrate leaching by up to 99%.

Other scenarios were suggested in order to minimise nitrate leaching from cesspools that included better design criteria and the possibility of constructing a local sewage treatment plant in the area.

### **SPATIO-TEMPORAL DYNAMICS & HYDROGEOMORPHIC IMPLICATIONS OF SOIL WATER REPELLENCY WITHIN EUCALYPTUS FORESTS IN NORTH-CENTRAL PORTUGAL**

**Gemma Leighton-Boyce (Doctor of Philosophy) Department of Geography,**

**University of Wales**

This thesis investigates spatio-temporal variations in soil water repellency and their hydrogeomorphic effects within eucalyptus plantations in north-central Portugal. Rainfall simulation with and without wetting agents were used to quantify the effects of repellency on overland

flow, slopewash, splash detachment and wetting patterns at the small-plot scale on long-unburnt and recently burnt terrain. Monitoring over 16-months (>9000 paired repellency and soil moisture measurements) was carried out at four different sites at meso-(2 m) and micro-scales (10 cm) to establish spatio-temporal repellency patterns.

Repellency increased overland flow generation 16-fold on unburnt terrain at the small-plot scale. Responses on burnt terrain were similarly enhanced with a mean overland flow coefficient of 70% being recorded. Where present, eucalyptus litter layer greatly reduced overland flow and erosion by providing considerable moisture storage and protection. Repellency extent varied seasonally, being widespread following prolonged dry periods and minimal following prolonged wet periods. At its maximum, it was spatially contiguous under 10-year-old eucalyptus stands, but discontinuous under younger stands ( $\leq 5$  years). Discontinuously repellent terrain included wettable soil columns dispersed over the slope area. Regardless of season or extent of repellency, where repellency was recorded it was mainly of extreme severity ( $\geq 36\%$  Ethanol).

Repellency begins to break down following  $>50$  mm but  $\leq 140$  mm rainfall and may become re-established (from minimal extent to contiguous surface repellency) after  $\leq 22$  days of generally dry weather. Where soils were continuously repellent following long dry periods, these soils were wettable at moisture contents  $\geq 27\%$  vol. and repellent at  $\leq 14\%$  vol. Between these thresholds soils could be wettable or repellent.

Implications of the spatio-temporal repellency patterns found for slope and catchment hydrogeomorphic responses are explored. Critically, repellency is most likely to enhance responses where it is contiguous or near contiguous and storms are intense, and sufficient in size to exceed the litter storage capacity. Responses are likely to be limited to the first storms where they are of considerable size and intensity following a prolonged dry period, after which repellency begins to break down. On partially repellent slopes, the well-dispersed and vertically connected wettable soil areas provide sinks for locally generated overland flow and hence reduce the hydrogeomorphic effects of even extreme severity.

## **VEGETATION IN THE EPHEMERAL CHANNELS OF SOUTHEAST SPAIN: ITS IMPACT ON AND RESPONSE TO MORPHOLOGICAL CHANGE**

**Jenny Mant (Doctor of Philosophy) Department of Geography**

**University of Portsmouth**

The importance of the influence of vegetation on the hydrological cycle and its impacts on channel

morphology has, in recent years, been accepted. To date research has centred on perennial channels with particular reference to bank stability. How plants respond to flow and how they affect the morphology of the surrounding channel bed in semi-arid ephemeral channels of the Mediterranean basin has not been addressed.

It is hypothesised that:

1. The resistance of channel vegetation varies with species, channel conditions and flow dynamics and that their ability to recover will be dependent on the sequencing, size and timing of the flows.
2. Channel morphological change attributed to the presence of vegetation is related to a combination of their above- and below-ground attributes.

A range of methods was employed to address these issues. Field data were collected from a number of reaches from the Guadalentin basin in southeast Spain chosen to represent the range of conditions found in southwest Iberian Mediterranean ephemeral channels as defined by ecoregion map boundaries. Apparatus was designed to collect information about the theoretical resistance of plants to flow events and to provide details of channel morphological change and planform mapping of vegetation groups. Quadrats were implemented to provide data about plant dynamics and sensitivity. Aerial photography allowed for longer change analysis.

Results identify the key plants critical in determining morphological change and maintaining channel stability in these channels. Above-ground plant structure has been shown to be highly significant in vegetation's ability to recover from flow events and to influence the impacts on channel morphology; below-ground attributes help explain erosion patterns around a plant and its resistance to removal from the channel bed. The effectiveness of both of these varies through time. Data has not only been collected from smaller scale investigations but the role of vegetation in the adjustment of channel form at the reach scale has also been evaluated. The thresholds of change, however, vary.

Sequencing and magnitude of events has been found to be critical to the ability of plants to recover from flow and thresholds of change in vegetation behaviour have been identified that can determine when and where erosion or deposition is most likely to occur as a result of vegetation. These findings have important consequences for future channel stability and management of these channels in the light of predicted increasing desertification.

## Grants Available From the B.G.R.G.

The B.G.R.G. runs a range of different grant programmes spanning research and education initiatives and conference travel. Full details of eligibility, and application forms are available on the B.G.R.G. Website at <http://www.bgrg.org/>  
The main categories of grant available are:

### Research Grants

Funds are available to contribute to small projects or specific costs of research. These grants are available to all non-postgraduate members of the B.G.R.G. and are judged on their scientific merit. Maximum £1000

### Postgraduate Research Funds

Funds available to all postgraduate members registered for a higher degree. They are primarily to support students who do not receive full funding, or where an opportunity has arisen to add value to an existing PhD programme. Maximum £500

### Postgraduate Conference Fund

This fund assists postgraduate members in presenting a paper or poster at a conference and is intended to cover part of the total cost of registration, accommodation and travel.

### B.G.R.G. Fixed Term Working Groups

The B.G.R.G. funds up to three working groups at one time to enable members to meet to discuss specific topic areas Funding up to £500/year

### Long Term Geomorphological Monitoring

Aims to supply small sums (up to £200 pa) to support individuals to maintain long term monitoring sites (at least 10 years)

### Promotion of Geomorphology in Schools

Grants of up to £500 for projects involving school teachers and pupils that will raise the profile of Geomorphology in schools

### Task forces to develop proposals for major research projects

Funding of up to £1000 available for groups of members aiming to develop major proposals for submission to external funding bodies.



Diary

Diary

## BGRG Sponsored Meetings

### 2003

- |               |   |
|---------------|---|
| April 7-9     | Braided Rivers conference, Birmingham<br><i>Contact: g.smith.4@bham.ac.uk</i>                                       |
| May 9-11      | Spring Field Meeting<br>North Yorkshire moors & coast<br><i>Contact: d.l.higgitt@durham.ac.uk</i>                   |
| June 4        | BGRG WG—TGSG Techniques for analyzing terrestrial geochemical sediments, Leicester. <i>Contact : sjm11@le.ac.uk</i> |
| June 8-13     | Alluvial fans conference, Sorbas, Spain. <i>Contact: alluvialfans@plymouth.ac.uk</i>                                |
| September 3-5 | Sessions at the RGS/IBG, London, <i>initial contact: d.s.thomas@shef.ac.uk</i>                                      |
| September 5-7 | BGRG AGM, Oxford, <i>contact heather.viles@geog.ox.ac.uk</i>  |

## DIARY

## New Grants

Institution	Investigator(s)		
QMUL	G. Wharton, R. Wotton, Bass, J. Heppell, K & Trimmer, M.		
Title	Funding Body	Start Date	Amount
Fine sediment & nutrient dynamics of lowland permeable streams: establishing the significance of biotic processes for sediment modification	NERC	October 1 2002	£288,000

## New Postgraduate Students

University	Student	Place of Graduation	Research Topic	Funding Body	Supervisor(s)
Birmingham	Ann England	Sheffield	Late Holocene Palaeoecological change, Turkey	NERC	Dr Eastwood
Dundee	Amy Tavendale	Leeds	Flood management	Department	A. Black
Dundee	Kirsty-Anne Wilson	Dundee	Diffuse pollution	University	A. Reeves
Cambridge	Hillary McMillan	Cambridge	Flood forecasting, Cambridgeshire	NERC	Dr Brassington
Cambridge	Rosalind Turner	QMUL	Wave energy attenuation at the cliff-mudflat-saltmarsh transition	CCRU Est Proc.	Dr Spencer
Cambridge	Anna Nelson	Minnesota USA	Soft sediment deformation beneath a surge-type glacier, Iceland	Self	Dr Willis
Cambridge	Maria Papanikolaou	Athens	Quaternary coastal palaeogeographic reconstructions, Eastern Mediterranean	Greece State Scholarship	Dr Gibbard
Leicester	Jennifer Ann Dickie	Stirling	Geomorphic processes & land cover change, semi-arid Karoo, S. Africa	NERC	Prof. Parsons
Manchester	James Rothwell	Manchester	Heavy metal export from eroding blanket peat catchments	Department	Dr Evans, Dr Allott
Manchester	Sarah Crowe	Durham	Effects of gully blocking as a method of moorland erosion control	Self/Department	Dr Evans, Dr Allott
Manchester	Eleanor McTeague	Manchester	Signals of environmental change from the clastic	Self/Department	Dr Evans, Dr
Manchester	Steve Daniels	Manchester	Spatial & temporal variability in streamwater acidity in moorland catchments	Self/Department	Prof Agnew, Dr Evans, Dr Allott
Cardiff	Neil Ross	RHUL	Ramparted ground-ice depressions in Wales: distribution, conservation status, nature & origin	Countryside Council for Wales/Univ	Prof Harris, Dr Campbell, Dr Brabham
Chester/ Liverpool	Elizabeth Maher	Liverpool	Applications of mineral magnetic analyses to sediment provenance, SE Spain	Chester College	D. France, A. Harvey, R. Alexander
Edinburgh	Lindsay Sugden	Edinburgh	Modelling tephra routeways through glacial systems in Iceland	Carnegie Trust	Dr Hulton, Dr Dugmore
Edinburgh	Krista McKinzey	New Zealand	Little Ice Age history of Iceland revised: chronology & climatic implications	Department	Dr Dugmore, Prof Sugden
Edinburgh	Kerry-Anne Mairs	Edinburgh	Assessment of farm abandonment, Iceland using techrochronology	AHRB	Dr Dugmore
Edinburgh	Emma Hill	Liverpool	Quantitative reconstruction of eutrophication histories in central Mexican lakes	NERC	Dr Metcalfe
Edinburgh	Gloria Olaya	Venezuela	Use of remote sensing in the application of the continuous cover forestry system	Zulia Univ. Venezuela	Dr Malthus
Edinburgh	Abdul Al Khulaidi	Egypt	Interpretation of aerial photography & satellite images to map vegetation change, Yemen	Govt of Yemen	Prof Furley
Edinburgh	Ashta Boestani	Edinburgh	Nature conservation assessment, East Kalimantan, Indonesia	Gibbon Foundation	Prof Furley
Edinburgh	Sophie Hellsten	Stockholm	Spatially distributed ammonia emissions inventory for the UK	NERC (CASE)	Mr Place
Edinburgh	Shelley Werner	Edinburgh	Dal Riata: can assessment of site morphology & settlement distribution demonstrate links between W		Dr Mackaness
Exeter	Deborah Ballentine	Ulster	Implications of catchment sediment budgets for phosphorous transfer through drainage basins	NERC (LOCAR)	Prof Walling, Mr Leeks (CEH)
Exeter	Naomi Holmes	Exeter	Comparing biotic palaeoclimatic proxies for the last	NERC	Prof Caseldine,

## New Postgraduate Students (continued)

University	Student	Place of Graduation	Research Topic	Funding Body	Supervisor(s)
Exeter	Daniel Stroud	Bath Spa	Modelling climate change SW England	Self	Prof Brown, Prof Caseldine
Hull	Natalie Horsfield	Hull	Satellite precipitation monitoring for applied	EPSRC & DTA	Dr Bellerby, Dr
Hull	Gavyn Rollinson	Cambourne	Infiltration & preservation of fine sediment in gravel	University	Dr McLelland, Dr
Hull	Andy Twigg	Hull	Estuarine processes & sediment flux	DTI (TCS)	Prof Hardisty
Hull	Tracy Yates	Hull	Holocene human impact in the Talley Lakes, Wales	Self	Dr Reed, Dr
Keele	Emily McMillan	Glasgow	Influence of rainfall variations on the properties of Holocene speleothems, SE Spain	University	Prof Fairchild
Loughborough	John Dudley		Sediment transport in steps and pools	Department	Prof Reid, Dr Rice
Loughborough	Martin Austin		Swash zone morphodynamics on gravel beaches	Department	Dr Masselink
Loughborough	Natasha Todd-		Gravel particle transport pathways in gravel-bed	Department	Dr Rice, Prof Reid
Manchester Metropolitan	Jessica Coyle	Sheffield	Assessing the contribution of suspended sediment to the total contaminant flux in an urban river,	HFCE	Dr Taylor
Oxford	Lee Arnold	Oxford	Luminescence dating of Quaternary environments	University	Dr Stokes, Dr
Oxford	Parris Lyew-Ayee	West Indies	Material properties of karst Limestone, Jamaica	Self	Dr Viles, Dr Tucker
Oxford	Peter Solyom	Budapest	Modelling the dynamics of gully & arroyo development on military manoeuvre sites, Colorado		
Oxford	Steven Ward	Oxford	Environmental changes in the deserts of the UAE	RA, Luminescence	Prof Goudie
Queen's Belfast	Auden Clarke	London	Archaeological applications of GIS	Dept of Education	Dr Lilley
Queen's Belfast	Julian Carolan	Reading	Sea level change, western Ireland	Dept of Education	Dr Ruffell
Queen's Belfast	Melissa Harman	Durham	Testate ameoba	Dept of Education	Dr Roe
Queen's Belfast	Christine Doherty	Belfast	Holocene sea level change	Dept of Education	Dr Roe
Southampton	Richard Breakspear	Southampton	Antidune dynamics in fine gravel & sand mixtures	Department	Prof Carling
Southampton	Karen Anderson	Southampton	Vicarious calibration of remote sensed data	John Lewis/ Dept	Dr Milton
Southampton	Alistair Brown	Plymouth	Holocene climate change Cumbria	NERC	Prof Barber, Dr Hughes
Southampton	Michael Grant	Reading	Palaeoecology of human impact in the New Forest	John Lewis	Prof Barber
Sheffield	Nicholas Ketteridge	Sheffield	Measuring & modelling the thermal behaviour of northern peatlands	Department	Dr Baird, Dr Bryant
Sheffield	Graham Davies	Sheffield	Environmental variability in sedentary pastoral systems, Botswana	ESRC/NERC	Prof Thomas, Dr Twyman
Sheffield	Susan Packman	University of Wales	Palaeoenvironmental sediment dynamics in east central Texas	NERC	Dr Bateman, Prof Frederick

## Diary Part 2

Events Convened by organisations other than the BGRG

Date	Conference	Location	Abstracts	Contact
<b>2003</b>				
<b>Mar. 4-8</b>	Soils in Archaeological and Cultural context session at AAG	New Orleans	25 Sept	beacht@georgetown.edu <a href="http://www.aag.org">http://www.aag.org</a>
<b>Mar. 26-30</b>	QRA field meeting—Western Highland Boundary, Scotland	Glasgow		devans@geog.gla.ac.uk
<b>Apr. 28-29</b>	RRC Network Conference	Bristol		rrc@therrc.co.uk
<b>May 8-12</b>	QRA field meeting northern highlands, Scotland	Stirling		rt1@stir.ac.uk
<b>May 14</b>	Windy Days	Northampton	11 Apr	Ian.Livingstone@northampton.ac.uk
<b>May 23</b>	The Big Flood	London		maria@carltd.com
<b>July 23-31</b>	XVIth INQUA Congress	Reno, U.S.A.		<a href="http://inqua2003.dri.edu/inqua_home.htm">http://inqua2003.dri.edu/inqua_home.htm</a>
<b>Aug 20-28</b>	Fluvial Systems	China		Z.chen@sklec.ecnu.edu.cn
<b>Sept</b>	Field Excursion	N.W. China		<a href="http://www.hme.uk.com/xinjiang.html">www.hme.uk.com/xinjiang.html</a>
<b>Sept 9-11</b>	Soil erosion & sediment redistribution in river catchments	Silsoe		a.j.Collins@cranfield.ac.uk
<b>Sept 10-12</b>	QRA 2nd Postgraduate Symposium	London		QRA2003@hotmail.com
<b>2004</b>				
<b>Jan 6-9</b>	Annually banded records in the Quaternary	Bangor		oss048@bangor.ac.uk

## JOINING THE BRITISH GEOMORPHOLOGICAL RESEARCH GROUP

### Why join the BGRG?

- Contact with a world-wide body of geomorphologists;
- Geophemera, the tri-annual newsletter of the BGRG containing news, views, reports, forthcoming conference announcements, registers of new students & grants and much, much more;
- access to a variety of research & conference funding opportunities; funds targeted directly at postgraduates;
- opportunities to attend fixed-term working groups on specific developments or topic areas within Geomorphology, postgraduate training workshops, conferences & field trips;
- discounted subscriptions to Earth Surface Processes & Landforms (£65) and other Journals – e.g. Hydrological Processes, Journal of Quaternary Science (£85 each) & Geomorphology.

### How do I join and how much does it cost?

Please print out a membership form from the BGRG website, complete the form, & send it to the BGRG Administrator (Christine James) together with your subscription. The form will be used both as a record of your wish to take up membership of the BGRG & to establish a computerised database of members. The information will be used in the strictest confidence (under the Data Protection Act) all members will have access to their own records on request. The annual subscription rate to the BGRG is £20 for full membership (or £50 for five years for overseas members). Unwaged, fulltime students & retired members pay £8 per year whilst postgraduate students may pay £20 for a three-year membership, commencing at the beginning of their research project. Subscriptions may be paid by standing order (by completing the form from the website & sending to your bank & the BGRG Administrator), cheque, or money order. Administration costs can be reduced if members pay by standing order. Cheques should be made payable to the British Geomorphological Research Group & made out in pounds sterling. Other currencies cannot be accepted.