



River Basin Processes and Management Cluster News: 2009

02/03/09

News

Stephen Sitch has joined us today, he is the new reader in integrated and hydrological modelling.

Steve Carver has been awarded a £3.2k contract with The John Muir Trust to carry out a reconnaissance level survey of wildland in Scotland using GIS methods. The maps will be used by JMT to support further development of their wildland policy (see <http://www.jmt.org/policy-wild-land.asp>) and support decisions on land purchase.

New Paper

Crabtree, B; Kelly, S; Green, H; Squibbs, G. and **Mitchell, G.** (2009) Water Framework Directive catchment planning: a case study apportioning loads and assessing environmental benefits of programme of measures. *Water Science and Technology*, 59, 3, 407-416

09/03/09

News

Joseph Holden has been invited to join the NERC programme advisory board and writing panel for the Changing Water Cycle theme.

16/03/09

News

RGS Learning and Leading Fieldwork Apprenticeship

One of our first year BSc students (James Farrell) has been awarded a Royal Geographical Society LLFA awards to work under the guidance of **Lee Brown, Jon Carrivick and Neil Dickson** in Austria during the summer melt season 2009. This year is the first time the apprentice scheme has been offered by the RGS and James's success provides the department with a novel opportunity for demonstrating our commitment to linking research with undergraduate teaching. The award will pay for James to live and work in Austria for at least one month where he will assist the team with ongoing studies into how the summer meltwater flow pulse affects stream hydrology, water quality and benthic macroinvertebrates.

Extreme fieldwork

Neil Dickson and Lee Brown spent a week in the Austrian Alps recently, downloading automatic dataloggers and sampling streams as part of Neil's ongoing PhD, an RGS funded project and to collect data for our ongoing faculty ADF work. Based at 2000-2300m altitude, every day we were working in heavy snow, with air temperature well below zero and approximately 1m of snow falling in some places over the course of the week. Luckily the snow shoes we hired meant we only sunk up to our knees rather than our waist when walking around! The river was covered by some 2-3m of snow in places which meant lots of digging to find our dataloggers and the streams. Three of the six meltwater fed streams were not flowing which was good as it meant fieldwork could be completed more quickly. It certainly put into perspective the feebleness of recent snowfalls in the UK. We were pleased that the dGPS system helped us to find our equipment almost spot on every time, preventing unnecessary exploratory snowpit digging. After digging out the streams, Neil had the honour of collecting macroinvertebrate samples by hand (see attached picture of a stream under 3m of snow).

Jonathan Carrivick, Daniel Carrivick and Dave Rippin have returned from very successful winter field work in arctic Sweden. They measured the depth to bedrock of Karsa glacier using GPR along 5 transects, the depth of snow using probings, and the snow surface topography using dGPS. They also collected snow density measurements and re-installed an Automatic Weather Station at the glacier snout. Temperatures were a modest -15 and they were treated to spectacular views and the aurora borealis. This trip completes two years of ice, snow and weather observations at the Karsa glacier.

New Paper

Holden, J. (2009) Topographic controls upon soil macropore flow. *Earth Surface Processes and Landforms* 34, 345-351.

23/03/09

News

Please find in the attachment an invitation to the NERC Community events on **21st and 24th April 2009** in Bristol and Glasgow at which the head of NERC will be present and updates will be provided on NERC strategy. Registration on the NERC website is now open on a first come first served basis.

New Paper

Keylock, C.J. 2009. Evaluating the dimensionality of "active periods" in turbulent environmental flows defined using Lipschitz/Holder regularity, Environmental Fluid Mechanics DOI:10.1007/s10652-009-9127-6

30/03/09

News

water@leeds convention!

The first **water@leeds** Convention will take place on **Thursday 16 April 2009**. The Convention is an internal one-day event consisting of conference-style presentations in the morning and a workshop format in the afternoon; it is only open to **water@leeds** members and other University of Leeds academics/researchers/research students interested in becoming involved in the initiative. The event will provide an excellent opportunity to form greater collaborative links within **water@leeds**. Further details, including the draft outline programme, are attached. Please do circulate this invitation to your colleagues and research students.

If you would be interested in attending, please register by emailing your name, school, and contact telephone number to **Rebecca Slack**. Thank you to those who have already confirmed, but for those who haven't yet contacted Rebecca, she does need to know as soon as possible. Also, if you have any special dietary requirements, do let us know so that we can make suitable catering arrangements. Please also state a preferred interest for the afternoon workshop.

06/04/09

News

Sara Alexander gave a presentation on the North Atlantic oscillation at Oxford Brookes University last Thursday.

Also Sara left us last Friday and now has got a full-time job with SEPA looking at flood risk.

20/04/09

Book Chapter

Carrivick J.L. 2009. Jokulhlaups from Kverkfjoll volcano, Iceland: modelling transient hydraulic phenomena. In. Burr, D.M., Carling, P.A., and Baker, V.R. (eds.). Megaflooding on Earth and Mars. Cambridge University Press.

27/04/09

News

Adrian McDonald has been Invite to speak at the 42nd IUPAC Congress 2-7 August

Joseph Holden has also been invited as a keynote speaker to the carbon in peatlands conference in Prague, September 2009.

Last week **Jonathan Carrivick** attended the European Geophysical Union General Assembly in Vienna, Austria. He gave an invited presentation: Jonathan Carrivick, Vern Manville, Alison Graettinger, and Shane Cronin. 'Rapid landscape change during the 18th March 2007 lahar at Mt Ruapehu, New Zealand' (solicited) (EGU2009-270), as well as three other presentations with other University of Leeds staff and international collaborators: Neil Dickson, Lee Brown, Jonathan Carrivick, and Leo Fureder 'Spatio-temporal habitat heterogeneity across an Alpine stream system'(EGU2009-157), and Jonathan Carrivick, Zihua Xie, Andy Sleigh, and Matthew Hubbard 'Experimental modelling of flow - bed interactions in jökulhlaups' (EGU2009-158, and EGU2009-156).

Stephen Sitch gave two press conferences at the EGU about the China C balance & Diffuse radiation stories (<http://www.h82.eu/webstream/egu2009/index.php?modid=18&a=show&pid=34>) to about a half dozen journalists (mainly from German speaking countries). Articles appeared in, "Die Zeit", "Sueddeutschezeitung" and a radio interview with "Deutschlandfunk".

Also, the CEH/Exeter joint press release (<http://www.ceh.ac.uk/news/press/Plantsabsorbmorecarbonhazyskies.asp>), includes a quote from Stephen which has been picked up in several news reports.

Alexandra Savage presented an oral presentation at the British Soil Science Society's Young Scientists' meeting in Reading on "Methods of Investigating the Effects of Peatland Management on Carbon Cycling"

Katherine Arrell gave an invited lecture to the Lincoln Geographical Association entitled "Modelling glacier mass balance".

Katherine Arrell and Joyce White presented a paper entitled "The Middle Mekong Basin as a Human Landscape in Prehistory: Insights from New Research" at the Geoarchaeology conference in Sheffield.

Katherine Arrell and **Steve Carver** presented their research on "Surface roughness scaling trends" at the GISRUK conference in Durham

Katherine Arrell was elected as secretary of the Royal Geographical Society GIS group.

Katherine Arrell is now the Association of Geographical Information (AGI) local contact organising talk and lectures with geographical businesses within the region - more details of future events shortly.

Joseph Holden presented the following papers at the EGU conference in Vienna 19-24th April 2009:

J. Holden, R.P Smart, P.J. Chapman, A.J. Baird and M.F. Billett, Dinsmore, K. (2009) The role of pipes in carbon transfer in and from peatlands.

Holden, J. (2009) Topographic controls upon soil macropore flow.

Holden, J. (2009) Flow through macropores of different size classes in blanket peat.

Z.E. Wallage, **J. Holden**, T.D. Jones, and **A.T. McDonald** (2009) Microbial activity and dissolved organic carbon production in drained and rewetted blanket peat.

J. Holden, M.J. Kirkby, SN. Lane, DG. Milledge (2009) Overland flow velocity and roughness properties with different vegetation types in peatlands.

Brown, L., Holden, J., Palmer, S. (2009) Effects of peatland burning on hydrology, water quality and aquatic ecosystems.

Holden, J. Bonn A., Walker J., Evans M.G., Worrall F., Davison S., Buckler M. (2009) A study of all UK peatland restoration and management projects

S. J. Ramchunder, L.E. Brown and J. Holden (2009) Impacts of peatland management on stream ecosystems. Geophysical Research Abstracts, 11. EGU Conference, Vienna April 2009

S. Alexander, C. Keylock, and J. Holden (2009) The interaction between the North Atlantic oscillation and river discharge across the pan-North Atlantic region.

New Paper Accepted

Holden, J. Howard, A.J., West, L.J., Maxfield, E., Panter, I., Oxley, J. (2009 in press) A critical review of hydrological data collection schemes for assessing preservation risk for urban waterlogged archaeology: a case study from the City of York, UK. Journal of Environmental Management.

Jackson, R.B., Cook, C.W., Pippen, J.S. & **Palmer, S.M.** Increased belowground biomass and soil CO₂ fluxes after a decade of carbon dioxide enrichment in a warm-temperate forest. **Ecology**.

05/05/09

News

A warm welcome to **Dr Clare Woulds** who joins us as a new water@leeds lecturer. She is a biogeochemist with interests in marine and aquatic processes and her office is B05 of the School of Geography main building.

Last week **Mike Kirkby** was one of the Leeds crowd at the EGU in Vienna, co-chairing sessions on Vegetation & Erosion, Heterogeneity in catchments and Dryland hydrology. He presented a paper on scale effects in runoff generation with **Brian Irvine** and **Erling Dalen**, related to work in their EHFI project, as well as a poster with Brian Irvine and Paul Carling (So'ton). The food was good too.

Pippa Chapman will be attending the British Soil Science Society Spring Conference; Predicting the future for highly organic soils, 5-7 May, Edinburgh. Where she will present the following:

Chapman, P.J., McDonald, A.T., Tyson, R., **Mitchell, G and Palmer S.M.** Changes in water colour between 1986 and 2006 in the How Stean intakes to Scar House Reservoir, North Yorkshire.

A. Bonn, **N. Beharry, P.J. Chapman,** C.D. Evans, **J. Holden,** M. Parnell, E. Rowe, **M. Termansen** and F. Worrall. Ecosystems Services of Peat.

Lee Brown, Joseph Holden and Sheila Palmer have obtained a £10,000 buy in to the EMBER project from Yorkshire Water. The funding will ensure that the results of work carried out on Yorkshire Water moorland are communicated directly to the company and will inform future land management to improve raw water DOC concentration, colour, and suspended sediment load.

New ESRC Grant

Holden, J., Reed, M., Burt, TP., **Chapman, P.J., Hubacek, K., Irvine, B., Kirkby, MJ.,** Prell, C., **Stringer, L., Termansen, M.** with Moors for the Future as project partners (2009-2010) Sustainable uplands: communicating and learning to live with change. Award at 80 % FEC is £99,717 (FEC = £124,647).

New Publication

Brown, L.E, Hannah, D.M & Milner, A.M. (2009) ARISE: A classification approach for Alpine River and Stream Ecosystems. *Freshwater Biology* 54: 1357-1369

Milner, A.M., Britain, J.E., **Brown, L.E.,** & Hannah, D.M. (accepted) Water sources and habitat of alpine streams. In: (Eds) Bundi U., Peter, A., Robinson, C., Schädler, B., Truffer, B., Wehrli, B., Weingartner, R., *Alpine Waters*. Springer, Berlin.

Shilong Piao, Jingyun Fang, Philippe Ciais, Philippe Peylin, Yao Huang, **Stephen Sitch,** Tao Wang, The carbon balance of terrestrial ecosystems in China, *Nature* 458, 1009-1013 (23 April 2009)
doi:10.1038/nature07944 Letter

Lina M. Mercado ,Nicolas Bellouin, **Stephen Sitch,** Olivier Boucher, Chris Huntingford, Martin Wild, Peter M. Cox, Impact of changes in diffuse radiation on the global land carbon sink, *Nature* 458, 1014-1017 (23 April 2009) doi:10.1038/nature07949 Letter

12/05/09

News

Joseph Holden is hosting the British Society for Geomorphology research committee on Thursday this week

River Basins cluster talk this week: **Alexandra Savage** will discuss Peatland Management and Carbon Losses & **Richard Coppel** will talk about quantitative peat models. Room 1.36, Thursday 14th May, 12-1pm. All welcome.

Alexandra Savage presented a poster on "Methods to Determine the Impact of Land Management on Carbon Emissions from Peatlands" at the British Soil Science Society's spring conference "Highly Organic Matters" in Edinburgh.

Paul Kay gave a seminar on pollution mitigation in agricultural and moorland water supply catchments at the Macaulay Institute during a recent two-day visit. He also attended a field day organised for various funding organisations, including SEPA and the Scottish Government, to see some of Macaulay's work. Various contacts were made which have resulted in the initiation of several proposals.

New Paper

Kay, P. (2009). Are we doing enough to reduce diffuse water pollution from agriculture? International Water Association W&RBM newsletter, May 2009. pp. 22-23.

19/05/09

News

21st May AGI Seminar: How to use your spatial skills to save lives

Please come along to the Association for Geographical Information (AGI) Northern Group Meeting on the 21st May.

This is the first of a new series of seminars which are hosted by the School of Geography. These seminars are open to all members of the AGI and the University, and act as networking events for local geographically related organisations and companies and ourselves!

The next seminar is on the **21st May** and will start with tea and coffee in the School of Geography foyer and then a seminar by **Helen Wood at 5:00 pm in Room 1.40** entitled: **How to use your spatial skills to save lives: Volunteering with MapAction**. A great chance to talk to local employers and organisations!

27/05/09

News

Lee Brown and **Jonathan Carrivick** were invited to a NERC meeting in Birmingham last week to discuss the scientific basis for a possible future NERC call on the subject of the Arctic.

Andy Baird attended an NSF-funded workshop on Peatlands and Carbon Cycling Modeling at the University of New Hampshire on 14 and 15 May where the main focus was on how peatlands should be incorporated into climate models. Andy gave two short presentations at the meeting. The invitation meeting brought together specialists on peatlands (peat accumulation, peatland vegetation, and peatland carbon gas dynamics) and climate modellers. The main outcomes of the meeting will be published in the American Geophysical Union's Newsletter Eos, while a more detailed review of the discussions will form an academic paper.

01/06/09

News

Joseph Holden is hosting the British Society for Geomorphology Executive Committee in the School on **01 June**.

Dr Clare Woulds will host the River Basins Cluster Meeting talk on **4th June**, entitled 'Biological carbon processing in marine sediments'. School of Geography, **12-1pm, Room 1.36**. All welcome.

08/06/09

News

Andy Baird, Joe Holden, and Pippa Chapman have been awarded a contract worth £25k from Defra to review research on methane emissions from restored peatlands. The project will involve literature review, a questionnaire survey of peatland scientists and a workshop at Leeds.

New Grant

Joseph Holden, Richard Smart, Pippa Chapman, Andy Baird (with Mike Billett and Kerry Dinsmore, CEH Edinburgh). The role of natural pipes in carbon cycling in peatlands: Using radiocarbon analysis to identify the source and age of carbon being released by pipes in blanket peat. NERC Radiocarbon Facility; 64 dates at a value of £33280.

15/06/09

Paper Accepted

Brown, L.E., Cereghino, R. & Compin, A. Endemic aquatic invertebrates from southern France: diversity, distribution and conservation implications. Biological Conservation

New Publication

O'ishi, Ryouta; Abe-Ouchi, Ayako; Prentice, I. Colin; **Sitch, Stephen** Vegetation dynamics and plant CO₂ responses as positive feedbacks in a greenhouse world Geophys. Res. Lett., Vol. 36, No. 11, L11706

<http://dx.doi.org/10.1029/2009GL038217>

22/06/09

News

Adrian McDonald attended the Regional Flood Defence Committee as Minister's Delegate and is part of the group formulating a response to the draft Water and Floods Bill. Adrian also attended the first steering group meeting of a NERC knowledge transfer grant held by several northern universities. Adrian has been invited to attend Arup's global research review launch and has also been invited to chair and contribute to the RGS water Policy meeting.

Avijit Gupta attended an international symposium on Developing Countries Facing Global Warming: a Post-Kyoto Assessment, organised by the Royal Academy for Overseas Sciences, Belgium and the United Nations in Brussels, 12-13 June 2009. He was invited to present a paper on Effect of Global Warming on Large Rivers, Deltas and Coastal Zones.

New Papers

A special issue of Deep Sea Research Part II has just come out with three papers by Clare Woulds:

Woulds, C., J. H. Andersson, et al. (2009). "The short-term fate of organic carbon in marine sediments: Comparing the Pakistan margin to other regions." Deep Sea Research Part II: Topical Studies in Oceanography 56(6-7): 393-402.

Woulds, C. and G. L. Cowie (2009). "Sedimentary pigments on the Pakistan margin: Controlling factors and organic matter dynamics." Deep Sea Research Part II: Topical Studies in Oceanography 56(6-7): 347-357.

Woulds, C., M. C. Schwartz, et al. (2009). "Porewater nutrient concentrations and benthic nutrient fluxes across the Pakistan margin OMZ." Deep Sea Research Part II: Topical Studies in Oceanography 56(6-7): 333-346.

29/06/09

News

Pippa Chapman, Sheila Palmer, Richard Smart and Rebecca Bartlett will be attending the Biogeomon conference in Helsinki, Finland from 29 June - 03 July where they will present the following research:

Pippa Chapman, Adrian McDonald, Rosa tyson, Sheila Palmer and Gordon Mitchell. Changes in the spatial variability of water colour in sub-catchments of the River Nidd, UK between 1986 and 2006.

Sheila Palmer, Geertje van der Heijden, Joanna Clark, Pippa Chapman. Effects of acid sulphate and sea-salts on aluminium solubility and speciation: potential contradictory effects in organic and mineral soils.

Richard Smart, Pippa Chapman, Andrew Baird, Mike Billet and Joseph Holden. The role of natural pipes in carbon transfer in northern peatlands

Rebecca Bartlett, Simon Bottrell and Pippa Chapman. Complex response of dissolved organic carbon to acidification in organic soils.

KAY, P. (in press). Book review: Ravenscroft, P., Brammer, H. and Richards, K. (2009). Arsenic Pollution: A Global Synthesis. Area.

06/07/09

News

Andy Baird will be co-leading a field-based research project between 05 and 10 July at a peatland in W Wales. A team of researchers from the UK, Canada, US, and Switzerland will be using ground-penetrating radar and resistivity surveys to map the subsurface structure of the raised bog. The data will provide useful information on the developmental history of the site and will provide data with which to test computer models of bog development.

Adrian McDonald was invited to attend the launch of the Arup Research programme in London on 30 June.

New Papers

Blundell, A., et al., Controlling factors for the spatial variability of soil magnetic susceptibility across England and Wales, Earth-Science Reviews (2009), doi:10.1016/j.earscirev.2009.05.001

A Arneeth, **S Sitch** et al. (2009) From biota to chemistry and climate: Towards a comprehensive description of trace gas exchange between the biosphere and atmosphere. Biogeosciences. MS No.: bg-2009-175 (submitted).

New Grants Submitted

Gloor, M., Holden, J and Venevskiy S. (with Heinemeyer, A. - York) Predicting the evolution of the organo-mineral soil continuum with targeted measurements and models. NERC £344,696 to SoG FEC (£275,757 at 80%) - total grant = £780,509 (£624,407 at 80%)

Holden, J. and Brown, L. NERC Consortium bid with York, Imperial, Aberystwyth, Edinburgh. The peatflow project - Impact of Management Intervention on Ecosystem Services of Peatlands. Total bid = £3.5M, SoG component = £523,130

Holden, J. and Grayson, R. Monitoring of Stean Moor restoration. Natural England, Environment Agency and Yorkshire Water tripartite funding. £66K

Successes

water@leeds has achieved £1.2M in new awards in its first 10 months. This above and beyond the ongoing baseline research activity and has been down to water@leeds activity and the excellent efforts of all involved.

Date for your Diaries

water@leeds official external launch event is **11 November 2009** - please put this date in your diaries.

14/07/09

News

Welcome to **Kerry-lyn Johnston** who will be working on the EMBER project with Lee, Joe & Sheila for the next three years.

Chris Keylock is involved in a mid-range facility bid to EPSRC for 3.68M for the development of a new national wind tunnel facility, led by Aeronautics at Imperial College.

20/07/09

News

Ecological Networks Workshop

Last week, Lee Brown attended the first in a series of four workshops on the subject of ecological networks at the Centre for Population Biology at Silwood Park, West London. The workshop was attended by researchers from Sheffield Uni, Queen Mary London, Imperial College, CEFAS, NERI Denmark, Uni of Barcelona and Alfred Wegener Institute Germany. The group's aim is to critically evaluate our current understanding of ecological networks (food webs, host-parasitoid webs, plant-pollinator interactions, combinations of these network types) and consider the potential effects of climate change on network structure and function. A particular focus is on ecosystems at high latitude/altitude because they are considered as 'sentinel' systems due to their high sensitivity to climate change. The group is aiming to produce literature reviews and new data papers, lobby for funding into high latitude/altitude ecosystems and prepare applications for consortium funding.

Johnston, K. and Robson, B.J. (2009). Habitat use by five sympatric Australian freshwater crayfish species (Parastacidae). *Freshwater Biology*, **54**: 1629-1641.

27/07/09

News

Avijit Gupta attended the 7th International Conference on Geomorphology in Melbourne, 6-11 July 2009. He organised two special sessions on large rivers and chaired one. He also presented a paper (with S.C. Liew) on Mapping short-term changes in large rivers: balancing image resolution and morphological scale.

The International Association of Geomorphologists Working Group on Large rivers was closed after 12 years with a successful record of participating in 9 conferences, organising 6 field trips, and publishing a number of papers in 5 special issues of peer-reviewed journals. It was replaced by a new working group on the Effect of Climate Change on Large Rivers and Deltas. Avijit Gupta continues to be the chair. The other committee members of the group at present include Zhongyuan Chen (East China Normal University), Gordon Grant (USDA Forest Service), Ian Rutherford (Office of Water, Department of Sustainability and Environment, Victoria), Mike Slattery (Texas Christian University) and David Higgitt (National University of Singapore).

Andy Baird, Pippa Chapman and Joseph Holden hosted a Defra workshop on methane from restored peatlands with scientists from across the UK

Joseph Holden has contributed to a book for elementary school children in Canada explaining the importance of peat bogs

Bevan, R.J., **SLACK, R.J.**, Holmes, P. & Levy, L.S. (2009) An assessment of potential cancer risk following occupational exposure to ethanol. *Journal of Toxicology and Environmental Health, Part B*, 12: 188-205.

Holden, J. and Gell, K.F. (2009) Morphological characterization of solute flow in a brown earth grassland soil with crane fly larvae burrows (leatherjackets). *Geoderma*, 152, 181-186.

03/08/09

News

Congratulations to **Sarah and Lee Brown** on the birth of their baby daughter Romilly Victoria Brown who was born last Saturday at 6lb 13oz. Mother and baby are doing well.

New Paper Accepted.

Worrall, F., Evans M.G., Bonn, A., Reed, M.S., Chapman, D., **Holden, J.** (in press) Can carbon offsetting pay for upland ecological restoration? *Science of the Total Environment*.

Blundell, A., Hannam, J.A. Dearing, J.A., Boyle, J.F. (In press). Detecting atmospheric pollution in surface soils using magnetic measurements: A reappraisal using an England and Wales database. *Environmental Pollution*.

10/08/09

News

There was an article in the Yorkshire Post on 06 August about the EMBER project involving **Lee Brown, Joseph Holden, Sheila Palmer and Kerrylyn Johnston**.

New Grant Awarded

Pippa Chapman, Sheila Palmer and Paul Kay with Cranfield University. Characterisation of dissolved organic carbon from different sources. Yorkshire Water, £55 000.

17/08/09

No News

24/08/09

New Papers

Reed MS, Bonn A, Slee W, Beharry-Borg N, Birch J, Brown I, Burt TP, Chapman D, **Chapman PJ**, Clay G, Cornell S, Fraser EDG, **Holden J**, Hodgson J, Hubacek K, **Irvine B, Jin N, Kirkby MJ**, Kunin W, Moore O, Moseley D, Prell C, Quinn C, Redpath S, Stagl S, Stringer LC, Termansen M, Thorp S, Towers W, Worrall F (in press, 2009) The future of the uplands. *Land Use and Management*.

Fewtrell, L., Kay, D. and **McDonald, A.** (2009) *Rainwater harvesting – an HIA of rainwater harvesting in the UK*. In Fewtrell, L. and Kay, D. (eds) *Health Impact Assessment for Sustainable Water Management*. IWA Publishing. London ISBN 1843391333. pp45-68.

Mitchell, G., McDonald, A.T. and Clarke, M. (2009) Applications of an urban diffuse pollution model to support WFD investment appraisal. In Gallo, M. and Ferrari, M. (eds) *River Pollution Research Progress*. ISBN 978-1-60456-643-7

Conference presentations

McDonald, A. (2009) Key Water Issues. Invited Chair's comments at the All Party Parliamentary Water Policy Group. RGS. London. July 2009.

McDonald, A, Clarke, M., **Boden, P.** and Kay, D. (2009). 'Social Justice and Water' Invited Keynote address to the 42nd Conference of the International Union for Pure and Applied Chemistry. SEEC. Glasgow. 06 August 2009

07/09/09

News

Jonathan Carrivick gave two presentations at the 34th International Glaciological Society British Barnch meeting in Sheffield. One on 'Geomorphological evidence towards a deglacial control on volcanism', and one on 'Experimental insights to dam break outburst flood propagation and transient hydraulics'.

Jonathan Carrivick, Kate Staines and **Andy Evans** have returned from fieldwork in southern Iceland. They were examining the geomorphology and sedimentology of outwash plains near Solheimajokull, using a combination of GPR, dGPS and conventional surveys. For one week (of five) they staffed an Earthwatch Institute expedition, on which four members of the public were guided in environmental field research concepts and techniques. This was the first field campaign of Kate's PhD research.

New Papers

Reed MS, Arblaster K, Bullock C, Burton R, Davies AL, **Holden, J**, Hubacek K, May R, Mitchley J, Morris J, Nainggolan D, Potter C, Quinn CH, Swales V, Thorp S (2009) Using scenarios to explore UK upland futures. *Futures*, 41, 619-630.

Holden, J. Howard, A.J., West, L.J., Maxfield, E., Panter, I., Oxley, J. (2009) A critical review of hydrological data collection schemes for assessing preservation risk for urban waterlogged archaeology: a case study from the City of York, UK. *Journal of Environmental Management*, 90, 3197-3204.

Brown, L.E., Céréghino, R. & Compin, A. 2009. Endemic aquatic invertebrates from southern France: diversity, distribution and conservation implications. *Biological Conservation* 142: 2613-2619

14/09/09

New Paper

Armstrong A., **J. Holden**, **P. Kay**, **A.T. McDonald**, S. Gledhill, M. Foulger and A.Walker (2009) Drain blocking techniques on blanket peat: a framework for best practice. *Journal of Environmental Management*, 90, 3512-2519.

21/09/09

News

Joseph Holden presented a paper on behalf of other Basin's co-authors at the Annual Conference of the British Society for Geomorphology in Durham last week: "**Holden, J. Smart, R.P. Chapman, P.J. Baird A.J.** Billett, M.F. and Dinsmore, K. (2009) Pipe erosion and carbon flux in peatlands." Joe also chaired one of the sessions and had also produced a strategy document for the BSG which fully engaged its members during a 2 hour discussion/feedback session at the AGM.

28/09/09

News

Steve, Jonathan and Neil have just returned from Kaprun, Austria where they attended the Fourth Symposium of the Hohe Tauern National Park for Research in Protected Areas. Steve gave a paper on "Multi-scale modelling of spatial variations in perceived wildness in the Hohe Tauern and Cairngorm National Parks" while Jonathan gave a paper with Leo FÜREDER "Spatio-temporal dynamics of high alpine streams: impetus for ecosystem structure and function". Neil presented a post on his PhD work on "Spatial and temporal changes in the morphology of an alpine braidplain characterized by high resolution digital survey".

Lee Brown was invited to the National Ecosystem Assessment freshwater group workshop in Bristol last week. The NEA aims to review the state and value of the UK's natural ecosystems: more info available here: www.unep-wcmc.org/eap/ukNationalEA.aspx

New award - **Alexandra Savage** was awarded £400 from the British Hydrological Society to support her presentations at a conference in Bratislava.

Clare Woulds has just been awarded a Royal Society international travel grant (£1650), which will allow her to travel to the Netherlands to collaborate with Dr Filip Meysman on a project entitled 'Quantifying the Global Impact of Fauna on Carbon Cycling and Burial in Continental Margin Sediments'.

Stephen Sitch gave two presentations at the ICDC8 CO2 conference in Jena, Germany:

"BENCHMARKING COUPLED CLIMATE-CARBON MODELS AGAINST LONG-TERM ATMOSPHERIC CO2 MEASUREMENTS".

Patricia Cadule (Gif-sur-Yvette, Paris/F), Pierre Friedlingstein (Gif-sur-Yvette/F, Bristol/UK), Laurent Bopp (Gif-sur-Yvette/ F), Stephen Sitch (Leeds, Wallingford/UK), Chris Jones (Exeter/UK), Philippe Ciais (Gif-sur-Yvette/F), Shilong Piao (Beijing/ CN), Philippe Peylin (Thiverval-Grignon/F)

"IMPACT OF CHANGES IN DIFFUSE RADIATION ON THE GLOBAL LAND CARBON SINK".

Lina Mercado (Wallingford/US), Nicolas Bellouin (Exeter/UK), Stephen Sitch (Leeds/UK), Olivier Boucher (Exeter/UK), Chris Huntingford (Wallingford/US), Martin Wild (Zurich/CH), Peter M. Cox (Exeter/UK)

Last Wednesday **Chris Keylock** gave a talk on his avalanche research at the Lincoln branch of the Geographical Association.

New Paper

Johnston, K. and Robson, B.J. (2009). Commensalism used by freshwater crayfish species to survive drying in seasonal habitats. *Invertebrate Biology*, **128(3)**: 269-275.

05/10/09

News

Joseph Holden, Andy Baird, Richard Coppell, Richard Smart and Alexandra Savage all presented papers and posters at the NSF Peatnet - carbon in peatlands - conference in Prague last week.

Andy Baird gave an e-lecture at the PeatNet Symposium in Prague. The title of the symposium was 'The Role and Importance of Peatlands in the Global Carbon Cycle: Past, Present, and Future' while Andy's lecture was on 'Known unknowns? The problem of spatial variability when representing peatlands in linked land surface schemes (LSS) – global climate models (GCMs).'

Andy Baird, Joe Holden, and Pippa Chapman have completed a project for Defra entitled 'A Literature Review of Evidence on Emissions of Methane in Peatlands'.

Mitchell, G. (2009) Sustainability of urban form futures: evidence from two contrasting urban regions. Invited talk to the Department for Transport, Great Minster House, London, 2nd October 2009.

13/10/09

News

Alexandra Savage gave a presentation entitled "The Role of Land Management on Carbon Cycling in Peatlands" at the 2nd international Biohydrology conference in Bratislava. The next BioHydrology conference is to be held in Landau in 2012.

Alexandra Savage presented a poster on "Managing Peatlands to Reduce Carbon Emissions" at PeatNet's 2nd International Symposium "Peatlands in the Global Carbon Cycle" in Prague.

The autumn edition of Planet Earth has an article by **Clare Woulds** in it, about some outreach work she has done in the last year. It can be found at this address.

<http://www.nerc.ac.uk/publications/planetearth/2009/autumn/aut09-updates.pdf>

Mitchell, G. (2009) Sustainability of urban form futures: evidence from two contrasting urban regions. Invited talk to the Department for Transport, Great Minster House, London, 2nd October 2009.

New Paper

Keylock, C.J. 2009. Evaluating the dimensionality and significance of "active periods" in turbulent environmental flows defined using Lipschitz/Hölder regularity, *Environmental Fluid Mechanics* 9, 509-523.

New Grant

Grayson, R., Holden, J and Kay, P. (2009-2011) £46280. Peat restoration monitoring on Stean Moor. Natural England and Environment Agency.

19/10/09

News

Adrian McDonald co-authored a chapter for a World Health Organisation meeting in North Carolina on non-human pathogens.

New Publication

Woodward, G., Perkins, D. & **Brown, L. E.** (in press) Climate warming impacts on freshwaters: from individuals to ecosystems. *Philosophical Transactions of the Royal Society B*.

26/10/09

News

Pippa Chapman and **Joseph Holden** produced an excellent IMPACT case study for REF by being co-organisers of a major workshop for Defra and other government agencies, charities and NGOs last week. 60 end-users attended the event in the Peak District over two days where the focus was on disseminating work from the Ecosystem Services of Peat project and enabling two-way exchange of ideas on how such work could be used and developed in the future to inform policy-making and management decisions. Feedback has been excellent and the work will lead to new policies and further roll-out of the service mapping, valuation and data management tools developed.

Paul Kay and **Richard Grayson** gave platform presentations at the 13th International Specialized Conference on Diffuse Pollution and Integrated Watershed Management, held by the International Water Association in Seoul, 12-15 October. Paul also gave an invited talk at a workshop on Diffuse Pollution Management in Rural Areas and the Saemangeum Catchment, organised by the Korea Rural Community Corporation and Korea INWEPP. This has already resulted in an invite to present at a symposium to be held at Ibaraki University, Japan, in February 2010 discussing diffuse pollution from agriculture and future research opportunities.

On Wednesday 21 October, **Jonathan Carrivick** gave an invited seminar at the University of Hull, on 'outburst floods and ice-volcano interactions'.

Pippa Chapman was invited to give a talk on the 'transport mechanisms of DOC' at the first meeting of a NERC-funded Carbon Landscape And Drainage (CLAD) knowledge exchange network, 20-21 October, Glasgow.

New Grant

Richard Grayson and **Paul Kay**.

Colour risk mapping in upper Nidderdale. £2,200.

Natural England, Nidderdale AONB and Yorkshire Water.

New PhD students in River Basins cluster

The School of Geography would like to welcome all the new PhD students in the River Basins cluster. These are:

Nichola Dodd, Supervisor: Andy Baird

Project title: Ecohydrological self organisation in temperate hillslopes

Stephen Hughes, Supervisors: Paul Kay/Lee Brown

Project title: The impact of pharmaceuticals and personal care products (PPCPS) on UK river ecosystems

Jorge Ramirez, Supervisors: Andy Baird/Mike Kirkby

Project title: Modelling methane ebullition in peatlands

Chris Williams, Supervisors: Jonathan Carrivick/Katherine Arrell/Steve Carver

Project title: Calculating seasonal glacier melt due to climate change

02/11/09

News

The River Basins cluster meeting this week will be hosted by **Pippa Chapman** to discuss "Impact of upland land management on water quality". **05 November, 12-1pm in Room 1.36**, All welcome.

09/11/09

No News

16/11/09

News

Andy Baird's new book is out:

Baird, A.J., Belyea, L.R., Comas, X., Reeve, A.S. and Slater, L.D. (eds) (2009) Carbon cycling in northern peatlands. AGU monographs, Washington DC.

SoG chapters include:

Baird, A.J., Belyea, L.R., and Morris, P.J. Upscaling of peatland-atmosphere fluxes of methane: small scale heterogeneity in process rates and the pitfalls of bucket and slab models 37-54.

Coulthard, T.J., Baird, A.J., Ramirez, J. and Waddington, J.M. Methane dynamics in peat: importance of shallow peats and a novel reduced complexity approach for modelling ebullition. 173-186.

Holden, J., Smart, R.P., Chapman, P.J., Baird, A.J., and Billett, M.F. The role of natural soil pipes in water and carbon transfer in and from peatlands, 251-264.

New Paper

Carrivick, J.L. in press. Dam break - outburst flood propagation and transient hydraulics: a geosciences perspective. Journal of Hydrology. Accepted 05.11.09.

23/11/09

News

Chris Keylock has joined the Editorial Board for *Transactions of the Institute of British Geographers*.

New Papers

Corinne Le Quéré, Michael R. Raupach, Josep G. Canadell, Gregg Marland, Laurent Bopp, Philippe Ciais, Thomas J. Conway, Scott C. Doney, Richard A. Feely, Pru Foster, Pierre Friedlingstein, Kevin Gurney, Richard A. Houghton, Joanna I. House, Chris Huntingford, Peter E. Levy, Mark R. Lomas, Joseph Majkut, Nicolas Metz, Jean P. Ometto, Glen P. Peters, I. Colin Prentice, James T. Randerson, Steven W. Running, Jorge L. Sarmiento, Ute Schuster, **Stephen Sitch**, Taro Takahashi, Nicolas Viovy, Guido R. Van Der Werf and F. Ian Woodward (2009) Trends in the sources and sinks of carbon dioxide. Nature Geoscience. Published online: 17 November 2009 | doi:10.1038/ngeo689

Carrivick, J.L. In press. Dam break - outburst flood propagation and transient hydraulics: a geosciences perspective. Journal of Hydrology. Accepted 05.11.09.

Gupta, A. (2009) Geology and landforms of the Mekong Basin, In: The Mekong: Biophysical environment of an international river basin (I.C. Campbell, Ed.), Elsevier, Amsterdam, 29-51.

New Grant Proposal

Kay, P., Holden, J., McDonald, A., Chapman, P., Mitchell, G., Horan, N., Wright, N., Stentiford, E., Noakes, C., Sleigh, A., Mortimer, R., Parsons, D., Burgess, T., Beharry-Borg, N., Hubacek, K. and Jackman, A. Yorkshire Water AMP5 framework agreement. Potential income to water@leeds 2010-15 c.£2M.

30/11/09

New Paper

Mohammad Abou Romieh, Rob Westaway, Mohamad Daoud, Yousef Radwan, Rayan Yassminh, Ahlam Khalil, Abeer al-Ashkar, Susan Loughlin, **Katherine Arrell**, and David Bridgland (2009) Active crustal shortening in NE Syria revealed by deformed terraces of the River Euphrates. *Terra Nova*. **21**(6) 427-437

Woulds C., Cowie G., Middelburg J. J., 2009, A method for the quantitative detection of 13-C labelled amino acids and aldoses in marine sediments and fauna, Organic Geochemistry, doi:10.1016/j.orggeochem.2009.10.005.

<http://dx.doi.org/10.1016/j.orggeochem.2009.10.005>

08/12/09

News

Katherine, Ian, Katy and others have submitted an application to the WUN Research Development Fund, entitled 'Arctic Environments: Vulnerabilities and Opportunities (AEVO)' for £32,000 with colleagues from Sheffield, Southampton, Alberta, Madison and Bergen.

Welcome to Jihui Gao who has come to start a PhD under the supervision of Joseph Holden.

New Grant Proposal

Kay, P. and Ashcroft, A. A reconnaissance of emerging pollutants in English waterbodies. Outline proposal to the Leverhulme Trust. £103K.

Accepted for Publication:

Kettridge, N., and **Baird, A.J.** Simulating the thermal behaviour of northern peatlands with a 3-D microtopography. Journal of Geophysical Research - Biogeosciences.

14/12/09

News

Joseph Holden presented his overview report written for the Environment Agency on the impacts of blocking peatland drains to a large audience of national stakeholders last week in the Peak District. This EKT work with the group of stakeholders has so far yielded two funded projects worth c £50000 and a range of changes in practice and policy.

The work demonstrates the benefits of persevering (through 12 meetings!) with communicating science to policy-makers and practitioners.

Congratulations to **Stephen Sitch** who has made into the top 25 most cited climate change scientists of the last decade. <http://sciencewatch.com/ana/fea/09novdecFea/>

Joseph Holden hosted the British Society for Geomorphology Research Committee last week.

Paper Accepted for Publication

Baird, A.J., Stamp, I., Heppell, C.M., and Green, S.M. (2009) In press. CH₄ flux from peatlands: a new measurement method. Ecohydrology.

New Grant Proposal

Kay, P., Holden, J and McDonald, A. Impacts of upland management on flooding. Yorkshire Water. £6K.