

IGES Newsletter

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Back cover: Grattan on TV

Climate History at the source of the Blue Nile: A new IGES project

By Henry Lamb (hfl@aber.ac.uk)

A team from IGES will spend most of next January drilling deep into the sediments below Lake Tana, in northern Ethiopia. This project, funded by a new £430k grant from NERC (Natural Environment Research Council), aims to find out if Lake Tana and its outflow, the Blue Nile, dried out during intense droughts in the last Ice Age.

We already know, from our previous work on short cores from the lake, that it dried out 17,000 years ago, when global climate was disrupted by icebergs flooding the North Atlantic. We think that the lake also dried during previous Atlantic iceberg floods, known as Heinrich events, because seismic imagery shows several earlier desiccation surfaces in the deep sediment sequence.

To test these ideas, we will build a raft for the 1.5-ton drill rig, tow it 10 km to the core site, anchor it in 10 m water depth, and spend several weeks drilling to at least 60m below the lake bed. Most of the heavy work will be done by an Ethiopian crew, leaving us to log the cores, and to investigate the volcanic islands and shores of the lake.



As well as its Aber members - Henry Lamb, Sarah Davies, Mike Marshall and Harry Toland - the research team includes Richard Bates from St Andrews and Mohammed Umer from Addis Ababa. If we can recover intact cores for dating and palaeoclimatic analyses, we should be able to make a significant contribution to understanding how African monsoons and global climate may respond to possible future melting of polar ice. The results will also tell us much about the history of the Nile, and how climate changes influenced the dispersal of early humans from Africa into Asia and Europe.

Understanding the Topographic Evolution of Wales

By Matt Rowberry (mdr03@aber.ac.uk)

Introduction

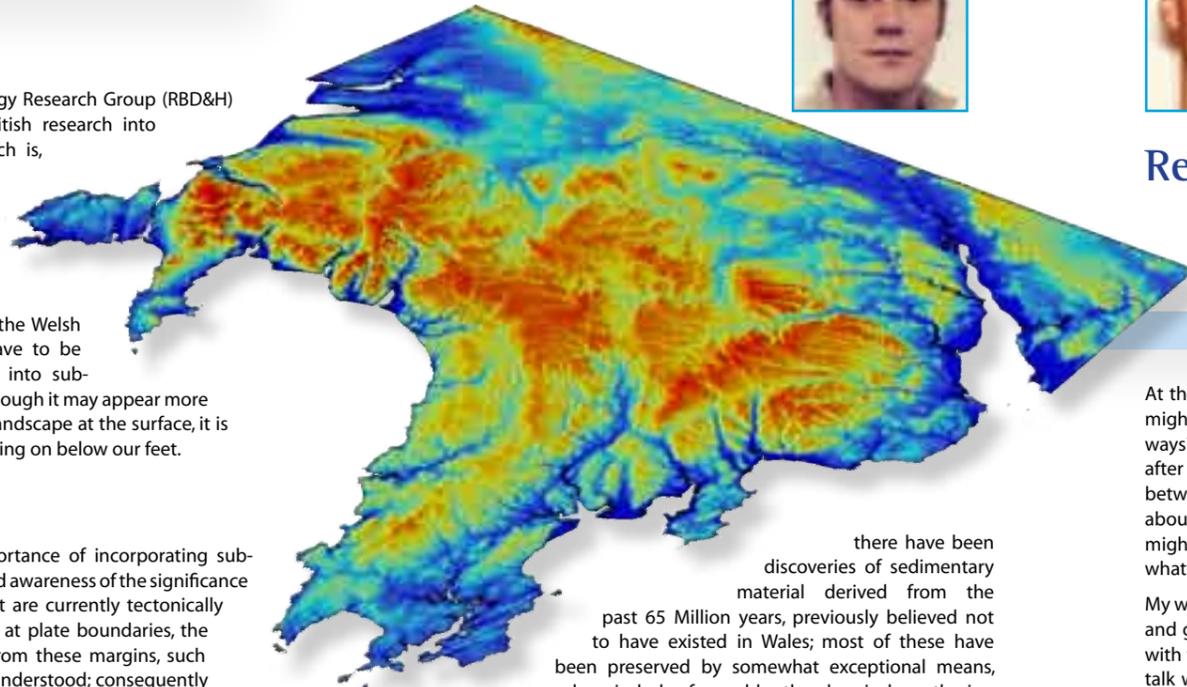
The River Basin Dynamics and Hydrology Research Group (RBD&H) at the IGES is at the forefront of British research into long-term landform evolution. Research is, naturally enough, focused on Wales, with studies incorporating the past 65 Million years of geological time. Over these timescales, tectonics and climate have interacted to produce the landscape we see today. To understand the evolution of the Welsh landscape, many lines of evidence have to be integrated; these can be categorized into sub-surface and surface lines of enquiry. Although it may appear more logical to start an investigation of the landscape at the surface, it is first vital to understand that which is going on below our feet.

Sub-surface evidence

The growing appreciation of the importance of incorporating sub-surface data is largely due to an increased awareness of the significance of plate tectonic theory in regions that are currently tectonically passive. Although obviously important at plate boundaries, the significance of tectonics in areas far from these margins, such as Wales, is only becoming more fully understood; consequently sub-surface evidence is now considered critical to the way we understand landscape evolution. Datasets compiled as a consequence of hydrocarbon exploration demonstrate the extreme complexity of the tectonic history of the Welsh region and suggest that the structure of the Earth's crust is of fundamental importance to the evolution of the landscape. In effect, we can see that crust in the region is composed rather like a mosaic of interacting blocks rather than as a single entity, as has previously been believed; therefore each of these blocks reacts slightly differently to internal or external pressures. One of the biggest challenges facing those researchers examining landscape evolution is to more closely link tectonic events to present-day topography.

Surficial evidence

Surficial evidence comes from two very different methodological techniques. First, computational datasets allow the geomorphological (topographic) characteristics of the terrain to be analyzed at far greater detail than has hitherto been possible. Indeed, the initial impetus for this research comes from the commitment of the research group to using the most advanced and comprehensive digital datasets available, and is consequently the main focus of those researchers examining long-term landscape evolution in the RBD&H research group. Because of the speed at which computational evidence can be obtained, the range of morphometric techniques currently being utilized to characterize the topography would have been impossible to undertake only a few years ago, the results of which are currently in the process of being fully analyzed. Second, in the past twenty or so years, there have been significant advances in field-based investigations. Most notably,



there have been discoveries of sedimentary material derived from the past 65 Million years, previously believed not to have existed in Wales; most of these have been preserved by somewhat exceptional means, such as in holes formed by the chemical weathering of limestone. Nonetheless, this material has, in certain instances, been dated and provides extremely useful age constraints for the development of the landscape. Sedimentary evidence from Anglesey and Pembrokeshire can be related to other deposits in Brittany, Cornwall and Co. Cork. These suggest that a widespread, flat plain may have existed across that which is now the Irish Sea, approximately 23 Million years ago. This would have looked something like the present-day Shaba plains of southern Zaïre. The development of this topographic surface was terminated by renewed crustal movement, leading to the uplift of parts of Wales, and the subsidence of the Irish Sea Basin. Unfortunately, not only is the uplift variable in time and space, but the mechanisms that have caused this uplift appear divergent. This provides a significant intellectual challenge for those of us interested in using computationally-derived data to understand landform evolution.

Use?

Of course it is important that this work is not simply undertaken for academic interest but also has a greater practical application. For example, given the current energy debate and the controversy surrounding future nuclear power stations, findings from these studies can inform policy-makers as to the potential (un)suitability of sites designated as potential waste repositories, where the importance of understanding long time-scales is all too obvious.

Matt Rowberry is a third year PhD Student in IGES and Professor Mark Macklin and Dr. Paul Brewer of the River Basin Dynamics and Hydrology Research Group are his PhD Supervisors.



Researching contemporary urban movements: parkour and bike trials

By Stephen Saville (sjs99@aber.ac.uk)

At the heart of my research is a simple but profound curiosity: what might places be like when we move in and through them in different ways? What, for example, might functional modernist rooftops 'be', after spending hundreds of hours jumping, rolling, flipping and flying between them? How might we feel and move in, the spatial forms about us after they have caused a hundred bruises and worse? How might we want to be in our environment when it has taught us that what seemed impossible can so often become routine?

My wonder at being active in space has been with me since childhood and games of running in the woods, climbing trees and riding bikes with friends. Study in geography has focused this wonder and let me talk with others about it. My research has given some answers, and lots more questions.

I recently returned from a research trip in Sydney, where I was a guest to various Australian academics and freerunners. Both are interested in changing space, but in different ways. If the city of Sydney was transformed by the seemingly crazy actions of the freerunners, it was made anew when they had me joining in.

Of course I didn't just do what they did, nor could I have. I started slowly, honing skills and learning new body coordinations. As I did so the streets came alive with possibilities. 'Space' - this thing we geographers are so fond of thinking about - was something new each second. In my worries, hopes and contemplative reflections space was shaped about me. A solid wall, high one minute, became low the next when I realised I could now jump/vault/climb it, and then huge some time later when I hurt myself with an experimental and not-quite developed enough technique.

On the journey home to Wales, I stopped off in Chicago, where I talked about my wonder for some



of these things at a geography conference. My talk focused on another research interest, 'bike trials' (a sport where the rider attempts to overcome obstacles on a bike). In the course of this short presentation I was surprised by the number of gasps and 'ooos' that came from the hardened academic audience. Some of what I was showing them was causing more than just a 'thinking' response. There were clearly some who were relating what I showed them to their own bodies; their own movements and relations with space. After many years of thinking and reflecting on space, it is comforting to know we can still feel space.

I am now coming towards the end of my hands-on bike trials research and looking back on the journey; on some of the creative high and low points of riding bike trials: everything has changed. My bike and body, the places and obstacles, the riders I rode with, even the sport as a whole - which has been taken to new levels, where people who have not witnessed it before (and there are quite a few), really struggle to believe what they are seeing when a bike is 'ridden' over a post box or off a roof. Being intimately involved in such changes myself, and sharing the pain, pleasure, fear and exhilaration, of actions in space, my research has a life and meaning to me that goes well beyond an office and books.

Stephen John Saville is a PhD student at IGES, his thesis title is 'Performing non-representable places of mobility: tai chi, parkour, bike trials and the body'.





IGES research on EU Bathing Waters to support evidence-based environmental standards



By Professor David Kay
(dvk@aber.ac.uk)

In 2006, the European Commission recently published a new Bathing Water Directive. It recognised the need to generate new scientific information if standards for bathing waters in Europe were to be truly evidence-based. Article 14 of the Directive notes the need for research focused on Epidemiology and new molecular methods for pathogen identification. Against international competition IGES won two EU Framework Programme grants worth almost 5m euro to lead both investigations. With 21 EU partners, we are investigating new virological measurements to ensure the safety of bathing waters (virobathe.org).

The second study is implementing 8 randomised controlled trials of volunteers in Hungary and Spain. This research approach was recommended by World Health Organisation to underpin development of the first WHO Guidelines for Recreational Water Environments published in 2003 with a major input from IGES staff. The first trial took place this month in Hungary using a channel of the River Danube south of Budapest at the town of Domsod. Some 650 volunteers turned out for the first study and were randomised into bathers and non-bathers. The non-bathers had organised games such as a climbing wall, sumo-wrestling, football and many other activities or they just rested in the sun; whilst bathers underwent a 10 minute dip in the Danube. At the same time water samples were collected from clearly marked in 20m swim zones and analysed for microbiological and chemical parameters. All volunteers received a packed lunch and project tee shirt. The study was covered by 4 European TV crews and featured prominently on the news.

The local organisers were Dr. Mihaly Kadar and Dr. Marta Vargha of the Fodor Joseph National Public Health Centre National Institute of Environmental Health Department of Water Hygiene, Budapest. They will conduct three more such studies at different sites in 2006 and 2007. Parallel work is planned at Spanish beaches by Prof. Dr. M. Jose Figueras of Unitat de Biologia i Microbiologia, Facultat de Medicina i Ciències de la Salut, Universitat Rovira i Virgili, REUS.



The results of both studies will be reported at the EU Green Week Meeting in 2008 and in scientific journals.

Contact David Kay (dvk@aber.ac.uk) for more information.

OFF THE BOOKSHELF

'Spaces of Sustainability' being published this Autumn



Mark Whitehead has recently completed a volume on the links between the discipline of geography and the study of sustainable development. Drawing on Mark's research on sustainability in the European Union, Latin America, North America, Asia, Africa, the Arctic and various post-socialist states, this book provides a comprehensive guide to the

geographical dimensions of and barriers to the creation of a more sustainable society. 'Spaces of Sustainability' is being published by Routledge during the Autumn.

Dr. Mark Whitehead (maw@aber.ac.uk) is a Lecturer in IGES's New Political Geographies research group.



Super-eruption Report

With natural disasters ever prevalent in the news, Dr. John Grattan was one of a group of scientists commissioned to assess the risk and impact of Supervolcanic eruptions. The report is written to be accessible to politicians

and policymakers and contains lots of fun detail about the potential for death and destruction. You can download a PDF version of the report or order a free printed copy from the following URL: www.geolsoc.org.uk/template.cfm?name=Super1.

Dr. John Grattan (jpg@aber.ac.uk) is a Reader in IGES's Quaternary Environmental Change Research Group.



RESEARCH NOTES



Dr. Mark Whitehead (maw@aber.ac.uk) has recently returned from a National Institute of Regional and Spatial Analysis Fellowship in Ireland. As part of his Fellowship award, Mark gave a series of lectures to students at Mary Immaculate College, University of Limerick, and presented research seminars on sustainable urban development at the University of Limerick and University College Dublin. Mark also used his time in Ireland to develop his work on the rise of the Fair Trade City movement in Europe and worked closely

with members of the Fair Trade Limerick committee. Such research reflects IGES' own commitment to exploring ways of creating more ethically oriented and geographical aware communities.

Professor Mark Macklin (mvm@aber.ac.uk) is presently a Visiting Professor at the University of Arizona (Tucson, USA), sponsored by the Departments of Anthropology, Geosciences and Hydrology. The primary purpose of his sabbatical leave from Aberystwyth is to undertake research on the impact of natural and anthropogenic-induced environmental change on riverine societies and civilizations from pre-historic times through to the modern period. He certainly won't be re-inventing a rightly discredited neo-environmental determinism (!) but he is trying to explore, (in the light of significant recent advances in the fields of archaeology, palaeoclimatology, geochronology and fluvial geomorphology), the degree to which short- and longer-term river dynamics may have shaped human societies with respect to issues such as technological innovation, environmental management and belief systems. This 6 month project has three objectives:

- (i) To undertake a global review of prehistoric, historical and modern human-river environment interactions.
- (ii) To develop a new empirical and theoretical perspective of how past and present societies living in a riverine context have perceived, adapted to and managed changing environmental conditions that can occur gradually or very rapidly.
- (iii) To identify a series of new inter-disciplinary research agendas and projects that will sustain the River Basin Dynamics and Hydrology Research Group (RBDHRG) at the University of Aberystwyth (UWA), and the new Centre for Catchment and Coastal Research, over the next five to ten years.

In relation to the third objective, he has been invited to lecture at the Department of Earth and Planetary Science, University of California (Berkeley), Department of Geology University of California (Davis), Department of Geography, University of South Carolina (Columbia), and Department of Geography, University of Kentucky, (Lexington).

Professor Tony Jones (jaj@aber.ac.uk) has been appointed the International Geographical Union's key reference person for the Groundwater initiative in the United Nations International Year of Planet Earth 2008-9, and the brochure he helped to write for the ICSU Geo-Unions Joint Science Committee on Groundwater is now published, setting out research priorities.

Tony convened six sessions at the IGU Regional Conference in Brisbane in July. A wide variety of aspects of water sustainability were covered in some 30 papers, ranging from identifying problems to presenting new analytical techniques and solutions, with papers by engineering hydrologists as well as geographers. Delegates from the USA, Canada, the UK, China, India, Australia, Croatia, the Czech Republic, the Philippines, Brunei, Armenia, Japan, and Portugal pooled expertise, and meetings were so well attended that two extra sessions had to be added to the initial allocation. Tony delivered a research paper based on work for the new world water atlas and two joint papers, on extending or 'hindcasting' flow records using a method developed for climate change impacts and on reconstructing natural riverflows. He also attended two meetings convened by the IGU Executive for chairs of Commissions, one planning for the next IGU Congress in Tunisia in 2008, the other planning the IGU contribution to the UN International Year of Planet Earth.

Dr. Richard Essery (rie@aber.ac.uk) has received CAN\$20,000 to participate in a network on improved modelling of hydrometeorological processes in cold regions, funded by the Canadian Foundation for Climate and Atmospheric Sciences.

Dr. Rhys Jones (raj@aber.ac.uk) has recently won an Arts and Humanities Research Grant to extend his upcoming research leave for an additional semester. The extra period of research leave will enable him to complete a book (with Carwyn Fowler – formerly a RA in IGES) on Placing and Scaling the Nation, to be published by the University of Wales Press. As well as making an important contribution to our understanding of neglected geographies of the nation, the book will also comprise an in-depth examination of the importance of the town and university of Aberystwyth for the reproduction of the Welsh nation. Staff and members will be glad to hear that their identities will be anonymised in the book!

Dr. Richard Essery (rie@aber.ac.uk) and Dr. Nick Rutter (nkr@aber.ac.uk) have received £4000 from the UWA research fund for a study of surface mass and energy balances on the Tsanfleuron glacier, Switzerland. This complements work that Dr. Bryn Hubbard, (byh@aber.ac.uk) Dr. Dave Chandler and Dr. Owain Bayley are conducting on temperature profiles within the glacier as part of a NERC project. All of the above-named will be out on the ice in August.

Professor Tony Jones (jaj@aber.ac.uk) has been awarded a grant from the NATO Advisory Panel on Environmental Security to mount an Advanced Research Workshop on "Natural Disasters and Water Security: Risk Assessment, Emergency Response and Environmental Management". The award is for €40,000. Tony will act as Nato country co-director in collaboration with Professor Trahel Vardanian, a member of the Executive Committee of Tony's IGU Commission for Water Sustainability. The workshop will be held in Yerevan in October 2007.



WHERE ARE THEY NOW?....

Dr. Sarah Jenkins Former IGES PhD Student



"After leaving Aberystwyth, I spent four months doing voluntary work with Raleigh International in Ghana, before getting a job with the Centre for Economic and Social Inclusion. They are a not-for-profit research consultancy, think tank-type organisation who work with the public sector on social policy issues and disadvantaged groups (e.g. unemployment, homelessness, regeneration and lone parents). During my time there, I was involved in a variety of topics, but was also allowed to follow the policy areas that I was interested in.

In addition to field work for projects, I was regularly meeting with senior Government officials, writing policy papers and responding to consultations. During my employment, I have also written a Guide for Working Families which they are shortly publishing. It was my idea, and my employer has backed me to do it. I have recently moved jobs to work for GHK Consulting who do very similar work.

My degree in geography has given me a great basis of understanding on which to build specific policy knowledge. In fact, the majority of people in both the organisations have geography backgrounds, (one of the directors who interviewed me in my new position had a PhD from Aberystwyth!)"



Thomas Lord Former IGES Undergraduate Student

"Since graduating in 2001, I have been travelling twice and suffered various jobs to fund it. I now have a proper job and work for the Foreign and Commonwealth Office in the Drugs and International Crime Department. We work to reduce the harm to the UK from all types of international

crime by political engagement with foreign governments, co-ordinating co-operation between UK and overseas law enforcement agencies and funding capacity building projects.

The reasons for embarking on a career in the FCO are very similar to the reasons I studied geography. At the FCO you are encouraged to change departments on a regular basis therefore you work on numerous topics throughout your career rather than focussing on one specific subject. For instance, following my first 18 months with the FCO working on financial crime I am looking to get a new job which could be anything from consular assistance or a geographical desk to another global issue such as Climate Change and Energy Policy.

Following my next 18 month job I will be looking to get an overseas posting which could be anywhere in the world and would be for 3 years. This of course is the real bonus of working the FCO. The opportunity to live and work in another country and experience life there is one that I am really looking forward to.

The experience and skills I gained while at Aber have helped me immensely since leaving, but the most useful nugget of knowledge that sticks out in my mind is one that I learnt while on a sun baked field trip to Ireland, namely that the head off a freshly poured pint of Guinness is without doubt the best cure for sunburn."

TEACHING NOTES

IGES and E-learning Support

From Rosa Soto (ess@aber.ac.uk)

IGES has been leading the way in the e-learning revolution, as the first department at Aberystwyth to have set up 'Student Information' sites for every module on the Blackboard learning system. Students are now able to login to Blackboard from any computer on the University's network, 24/7, and find lecture slides and learning resources for their modules as well information on assignments and advice about departmental policies. They can also download assignment cover sheets, consult IGES procedures on special circumstances, refer to assessment criteria, check staff availability, find out who their student representatives are, and follow links to useful websites, such as the Language and Learning Centre, to name just a few of the options available.

Students are already benefiting from this new resource. Our end-of-year evaluations reported that over 70% of students found the information available on Blackboard useful, and a similar number said that they could easily find information about their courses on Blackboard when they needed it.

The department is now exploring more ways of using Blackboard, including more interactive uses including discussion boards, blogs, online tests and the electronic submission of coursework. Some of these have already been successfully piloted for individual modules.

For further information or advice please contact Rosa Soto (ess@aber.ac.uk).

IGES Undergraduates return to New Zealand

From Dr. John Grattan

The second field course to New Zealand was another great success. We explored glaciers and volcanoes and everyone managed to maintain their morale throughout the 18 day trip down under. (see main background pic).

MSc Students doing field research in Sweden

From Bryn Hubbard

IGES now has nine MSc Degree schemes, including and MSc in Glaciology (see <http://www.aber.ac.uk/iges/postgrad/prospective/> for more information). Glaciology MSc Students recently returned from doing research on the Stor Glacier at the Swedish research station at Tarfala.



Richard Gravelle (from New Zealand) and Eleri Evans (from Wales) flying the Welsh flag in high Arctic Sweden. Stor Glacier near the Swedish Research Station at Tarfala in background.

New Geography Degree Schemes

From Dr. Mike Woods (zpz@aber.ac.uk) & Catherine Bean (cbb@aber.ac.uk)

Flexibility has always been one of the key attractions of studying Geography at Aberystwyth. We were the first university to offer Geography through both BA and BSc degrees, and students have long had the ability to specialise in human geography or in physical geography or to combine the two sides of the discipline. From next year, these options will be made even clearer by a restructured package of Geography degrees.

New students arriving in September 2007 will have the choice of registering for BA Human Geography (L700), BSc Physical Geography (F840) or BSc Geography (F800). Whilst the first two schemes will enable students to focus on human geography or physical geography respectively, students on the restructured BSc Geography scheme will study a mixture of human and physical geography, with a new tutorial syllabus and new fieldtrips aimed exploring the connections between the two. The changes have been introduced partly to make the flexible choices available at Aberystwyth clearer to prospective students, but also to reflect trends in A Level studies, with more students wanting to specialise in human or physical geography right from the start of their degree.

IGES is also introducing a new range of Major/Minor and Joint Honours combinations in Human Geography and Physical Geography. New combinations include Human Geography with Business and Management, History, International Politics, and Marketing (Major); Human Geography and Spanish (Joint Honours); Physical Geography with Computer Science, Education, and Maths (Major); and Physical Geography and Education, French, German, and Spanish (Joint Honours).

More details are available in the 'Geography at Aberystwyth' brochure, and on the IGES website. In addition to the Geography degree schemes, we still have our well-established BSc Environmental Earth Sciences and BSc Environmental Science degree schemes. The Environmental Earth Sciences degree scheme concentrates on exploring the interactions between the atmosphere, the Earth's surface, and the rocks beneath our feet. It places great emphasis on Earth-surface processes and their links with the underlying geology, the atmosphere and human activity, especially in the context of global environmental change. Environmental Science studies the processes that shape the physical, chemical and biological characteristics of the natural world, concentrating on the impact that people have on the Earth through their activities and on the effects that the natural world has on the activities of humans.

General Announcements

Macklin and Lucas row from Ireland to Wales!

Professor Mark Macklin and Dr. Richard Lucas recently competed in the Celtic Challenge, in which participants row in Celtic long-boats 90 miles across the Irish Sea from Arklow, Ireland to Aberystwyth, Wales. Macklin competed as a member of the Aberystwyth Rowing Club's Men's Team, which finished in 15 hours and 17 minutes!

Richard Lucas (and his wife) competed on the Aberystwyth Rowing Club's Mixed Team which finished in 17 hours 42 minutes (it should be noted that Mark's wife, Judith Macklin, also completed the race, but as a member of the Woman's Team). The two husband and wife teams now join an extremely small and select group of (frankly deranged) individuals who can look out across the Irish Sea from Aberystwyth's shores and say "I rowed across that puddle."



Weddings!

Two members of IGES recently snuck away to get married (not to each other). Both Dr. Shaun Richardson (Director of Fluvio Environmental Consultancy) and Stephen Saville chose July to ring the wedding bells with their respective partners. Congratulations to each.

Grattan on TV

Dr. John Grattan has been busy working with the BBC and America's ABC news. In the past year he has appeared in two documentaries, which explore Super Volcanoes, additionally he has just spent some time working with the BBC's Timewatch team making a documentary about the Laki Fissure eruption.

Serious Literature Review



For those of you who suspect some of our senior members of staff have no contemporary cultural references here is proof of the opposite. Professor Mike Hambrey is seen here in New Zealand catching up on the lives of Jade and Chantelle.

He is pictured here with the film crew and directors on the roof of Chartres cathedral looking suitable cheerful as he describes the unpleasant deaths of thousands of people. The programme should be broadcast in the autumn of 2006.



University Open Day - Saturday 28th October 2006

Deciding on the right degree and place to study for three years is a very big step to make, which is why we encourage potential applicants to visit the Institute and University. The Open Day is an excellent opportunity to see the University's superb location and the excellent facilities which are available. Visiting the Institute of Geography & Earth Sciences gives visitors the opportunity to meet staff to discuss our degree schemes and any aspect of the admissions process. Campus tours are also arranged to include the University libraries, computer facilities, the University's sports facilities, the Arts Centre and Student Halls of Residence. For further details on the Open Day please visit: <http://www.aber.ac.uk/en/prospectus/open-days>.

UCAS applicants can also take the opportunity to visit the Institute on one of our six visiting days which take place in February, March and April. Further details of these visiting days will be sent directly to all UCAS applicants who apply for one of our undergraduate degree schemes.

However, if these dates are not suitable, the Institute is always happy to arrange additional visits.

For further information please visit our Institute web site:

www.aber.ac.uk/iges, or alternatively:

e-mail: iges-admissions@aber.ac.uk

or telephone 01970 622596.

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