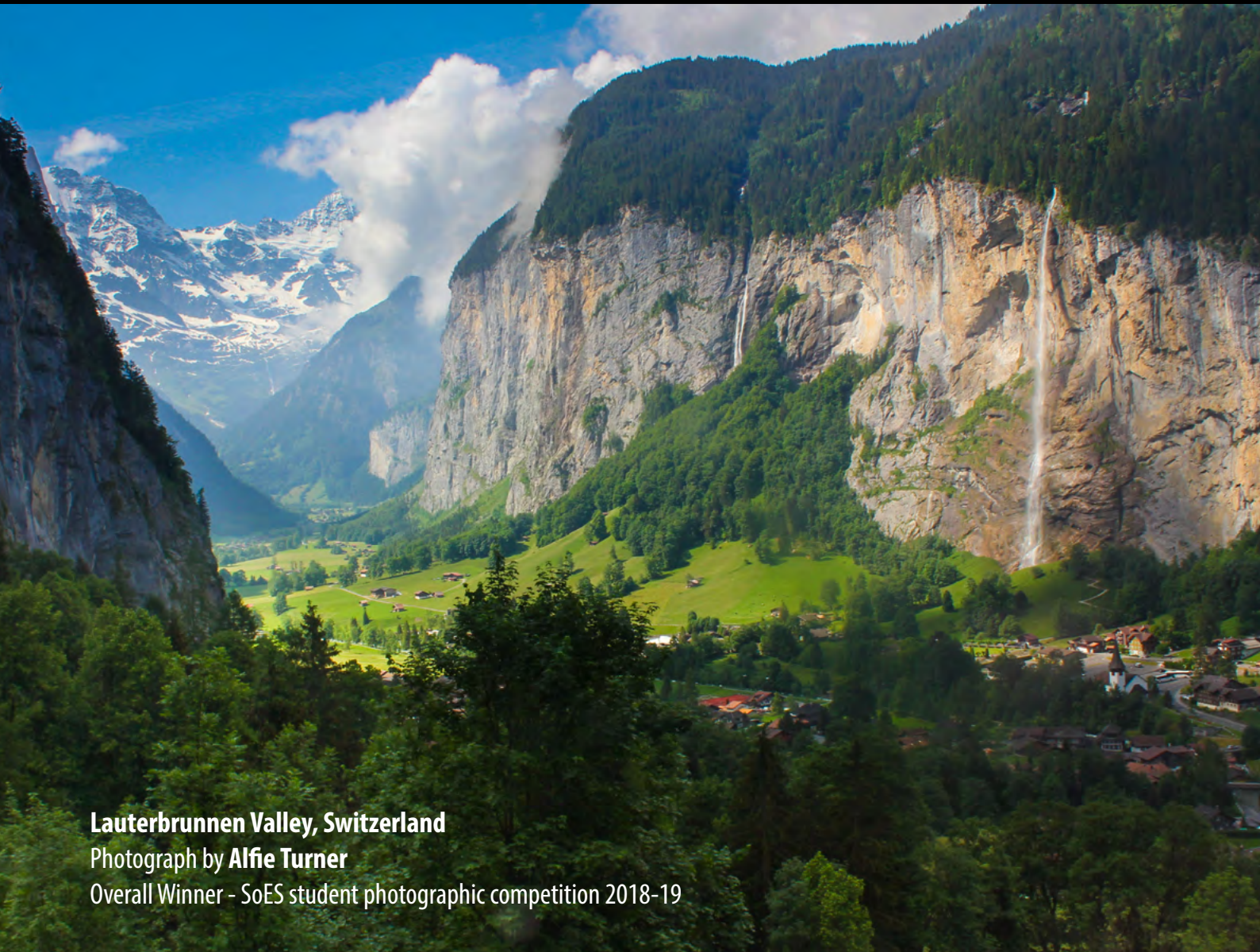


School of Environmental Sciences

Newsletter • No2 • 2018/19



Lauterbrunnen Valley, Switzerland

Photograph by **Alfie Turner**

Overall Winner - SoES student photographic competition 2018-19

URBASIS - New challenges
for Urban Engineering
Seismology

3rd International
Conference for Carceral
Geography

'Inside Out' – the Herdman
Symposium 2019

Earth, Ocean and Ecological Sciences • Geography and Planning

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Any news you would like to share with the School, of work being done, grants awarded, fieldwork, new staff, retirements, facilities, social events or anything else, please submit an article along with any images for the next edition to **SoES Marketing & Communications team** soesweb@liverpool.ac.uk

Introduction from Dean

Dear All,

Whether you are a long-standing, avid regular of the Newsletter, an occasional viewer, a recent student reader or a curious internet visitor... welcome! Whatever your interest in the social and physical aspects of our changing environments, I'm confident you'll be sure to find topics in our latest edition that will interest and surprise you.

Amongst many activities are reports on: hard won research funding successes, to keep our research activities expanding into new topics; international opportunities for our students to develop their knowledge and enthusiasm for our disciplines across the globe; gatherings of colleagues from far and wide to Liverpool to discuss an impressive range of topics from Carceral Geographies and Impact Assessments to billions of years of landscape change across Mars; new research students; new staff, and sparking possibilities for new opportunities for study in the minds of school pupils. Behind all this the annual academic cycle of teaching is constantly evolving with rhythms strongly influenced by the passing seasons.

For many of us the beginning of spring doesn't just mean longer days and hopefully warmer

weather; it means the exodus of hundreds of our students and staff away from campus to take part in field modules across the country and internationally. For Environmental Scientists, perhaps more than many other types of academic, the seasons dictate the cycle and intensity of much of our research activity involving: the migration of sea birds; changing mobility of people; the warming and cooling of ocean currents; the growth and decay of plant and insect life; providing impetus to cultural, commercial and agricultural activity; and driving the probability of hurricanes or flooding or both. Although geological processes are largely immune to such ephemeral external influences, the success of fieldwork and quality of data can sometimes depend on the seasons, especially in remote regions where power for instrumentation relies on solar panels.

So to our many students and staff out and about on field activities over the coming weeks and months, I wish you good luck, good weather and the good sense to know what to do if neither of these materialise!

Best wishes
Doug

Congratulations and celebrations on funding successes

PI	Investigator	Funder	Project Title	Dept	Total Cost	Funder Contribution	Investigator Contribution
PI CO-I	Worden RH (Prof) Faulkner DR (Prof)	Department For Business, Energy And Industrial Strategy (BEIS) (UK)	The ACORN Accelerating CCS Technologies (ACT) ERA-NET COFUND Project	EOES	£46,877.79	£0.00	£0.00
PI CO-I	De Angelis S (Dr) Rietbrock A (Prof)	Society Of Exploration Geophysicists (Usa)	An international partnership to develop volcano monitoring capacities in Guatemala	EOES	£61,472.58	£30,997.20	£15,498.60
PI	Tagliabue A (Prof)	Natural Environment Research Council (NERC)	NSFGEO-NERC: Collaborative Research: Using Time-series Field Observations to Constrain an Ocean Iron Model	EOES	£251,254.00	£201,003.20	£201,003.20
PI	Biggin AJ (Prof)	Natural Environment Research Council (NERC)	DEEP down under: The potential for UK-Australian Palaeomagnetism to contribute to a new paradigm in deep Earth studies	EOES	£98,066.00	£79,771.40	£79,771.40
CO-I	Stanistreet IG (Prof)	British Academy (UK)	New Investigations of fire related interglacial sediments from Beeches Pit, Suffolk	EOES	£32,872.34	£8,415.03	£0.00
PI	Patrick SC (Dr)	International Human Frontier Science Program Organization (FRANCE)	Do seabirds use infrasound to navigate the vast ocean?	EOES	£160,062.62	£105,814.08	£105,814.08
PI	Hackett Pain AJ (Dr)	Natural Environment Research Council (NERC)	MAST-NET: mastling responses to climate change and impacts on ecosystems	G&P	£73,029.04	£61,441.63	£61,441.63
PI	Hackett Pain AJ (Dr)	Department For Business, Energy And Industrial Strategy (BEIS) (UK)	Untangling climate drivers of wildfire in the Northwest Territories	G&P	£2,000.00	£2,000.00	£2,000.00
PI	Isakjee A (Dr)	Antipode Foundation (UK)	Fragile resistance on the EU border: the peaceful geographies of the refugee crisis	G&P	£9,920.00	£9,920.00	£9,920.00
PI	Chiverrell RC (Prof)	Natural Environment Research Council (NERC)	Sediment and contaminant delivery to upland reservoirs following severe wildfire	G&P	£25,951.05	£20,760.84	£20,760.84
PI	Macdonald N (Dr)	Uk Research And Innovation (Ukri) (UK)	UK Climate resilience	G&P	£51,636.64	£41,309.31	£30,981.98
PI CO-I	Cooper JR (Dr) Plater AJ (Prof)	Uk Research And Innovation (Ukri) (UK)	Erosion hazards in a changing climate: making inland communities more resilient	G&P	£180,446.00	£144,356.80	£108,267.60 £36,089.20
PI	Green JA (Dr)	Department For Environment, Food And Rural Affairs (UK)	Darwin Plus Grant	EOES	£323,391.37	£178,562.00	£178,562.00
PI	Edwards B (Dr)	European Commission	New challenges for Urban Engineering Seismology - URBASIS	EOES	£1,207,590.53	£751,401.23	£751,401.23

MAST-NET: Masting responses to climate change and impacts on ecosystems



Photo: Andrew Hacket Pain

PI Dr Andrew Hacket-Pain
Dept G&P
Funder NERC
Total Cost £101,079

MAST-NET is an international network of researchers from Europe, North America and Japan investigating the causes of synchronised and variable seed production in plants (masting).

What is masting?

Most plants do not produce regular annual seed crops, but switch between years of bumper seed crops (known as mast years) and years with low seed production. Intriguingly, these bumper crops occur simultaneously in plants living alongside each other, but the synchronisation can also extend across hundreds of kilometres.

Why is it important?

This highly variable production of seeds is an important process in ecosystems. Masting is beneficial for plants because in years of

bumper seed crops, seed predators cannot consume all the available seeds, which ensures that some survive to germinate the next year. In ecosystems that are influenced by disturbance such as wildfires, windstorms and logging by humans, the timing of the next bumper seed year is also crucial to the ability of plants to regenerate. However, the importance of masting extends beyond plants. Bumper seed crops in forest trees represent a pulse of food resources, and cause population booms and busts in small mammals (e.g. voles and mice) and seed-eating birds (e.g. woodpeckers and great tits). These boom-and-bust cycles of small animal populations have further impacts on ecosystems. For example, tick numbers fluctuate in response to the number of host animals. Ticks act as a host for the Lyme disease pathogen, and research has shown that Lyme infection rates in humans peak two years after mast events.

What questions are we trying to answer?

We need to be able to predict seed crops in “masting” species accurately, and understand whether mast years will become more frequent in the future due to climate change. The mechanisms that regulate masting are still very uncertain, and consequently it is unclear if masting is sensitive to environmental change.

Addressing these questions is necessary for the management of natural ecosystems and agricultural systems that rely on masting species. Furthermore, predicting bumper seed crops will allow us to forecast years of high risk from infectious diseases carried by animal feeding vectors, such as Lyme.

<https://www.liverpool.ac.uk/geography-and-planning/research/mast-net/>

Regional-scale conservation through multi-territory tracking of frigatebirds



PI Dr Jonathan Green
Dept EOES
Funder DEPARTMENT FOR ENVIRONMENT, FOOD AND RURAL AFFAIRS (UK) (DEFRA)
Total Cost £306,000

Jonathan Green and Rhiannon Austin from the Seabird Ecology Group (SEGUL) have been awarded £306,000 from DEFRA's Darwin Plus fund for environmental work in the UK Overseas Territories (UKOTs). Starting from April this year, the grant will support a two-and-a-half year collaborative project in the Caribbean UKOTs entitled

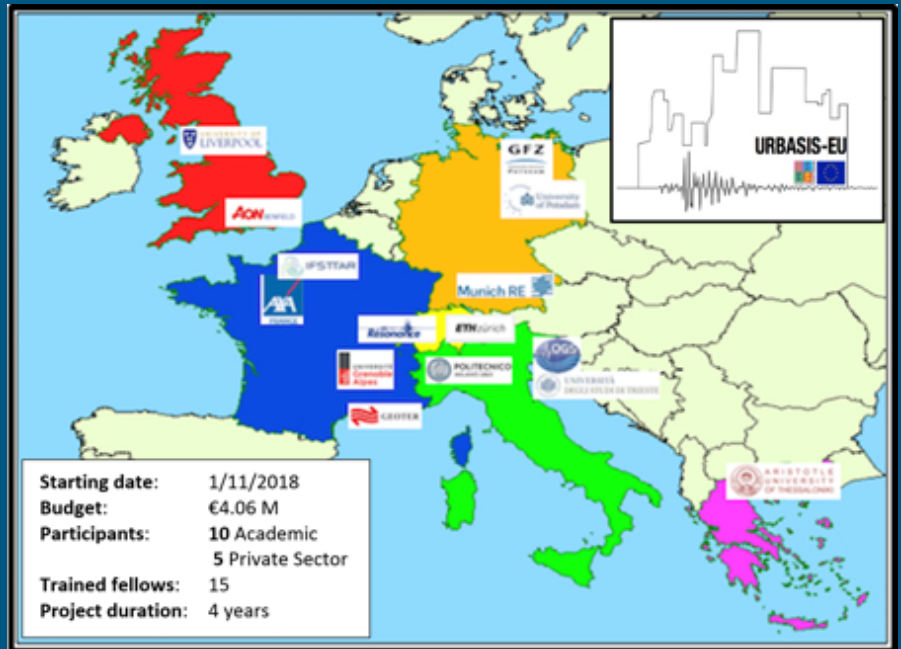
"Regional-scale conservation through multi-territory tracking of frigatebirds". Seabirds are effective indicators of marine biodiversity hotspots and ocean health, and previous work by Dr Austin & Dr Green, also funded by Darwin+, demonstrated the unique ability of magnificent frigatebirds to connect productive offshore and nearshore foraging zones to coastal onshore roosts. In this new project, they will track adult and juvenile magnificent frigatebirds from multiple populations in the Caribbean UKOTs, to inform regional-scale marine and coastal zone management. The project

has partners in all six of the Caribbean UKOTs: The Cayman Islands, Anguilla, British Virgin Islands, Bermuda, Turks & Caicos Islands and Montserrat. A major event of the project will be a regional workshop, to be held in Anguilla, which will engage all six UKOTs, as well as other territories, states and stakeholders in the region. The project aims to identify an approach to define priority areas for management within vulnerable wetlands and marine habitats throughout the Caribbean, of relevance to a range of marine fauna.

URBASIS – New challenges for Urban Engineering Seismology

PI Dr Ben Edwards
Dept EOES
Funder EUROPEAN COMMISSION
Total Cost £1,207,590.53

A new four-year EU funded innovative training networks (ITN) project in engineering seismology has recently been awarded to the University. As part of the project, 15 Early Stage Researchers (PhD students) will be trained at institutions across Europe, encouraging mobility and interdisciplinary research in a broad range of topics related to engineering seismology. Three of the Early Stage Researchers will be hired by Liverpool to join an interdisciplinary team that crosses the School of Environmental Sciences and Institute for Risk and Uncertainty. An extensive programme of secondments between partner institutions and industry will bring various researchers to Liverpool for different periods of time over the project duration. Led by Dr Ben Edwards, Liverpool will coordinate the induced seismicity work package which focusses on the impact of induced earthquakes in close proximity to urban environments. The project includes various training and workshops to be hosted at Liverpool over the four-year period.



URBASIS will address a diverse range of topics in engineering seismology, seismic hazard and risk and induced seismicity. Seismic hazard is typically defined indiscriminately across national or continental regions without distinguishing the most exposed areas. The efforts developed are uniform and non-proportional to the level of risk. URBASIS aims to reverse that trend, focussing in on providing high-resolution site-specific results in urban contexts, from induced seismicity through to low probability catastrophic earthquakes.

Study finds waters west of Europe drives ocean overturning, key for regulating climate

A new international study involving Liverpool ocean scientists has found that the Atlantic meridional overturning circulation (MOC), a deep-ocean process that plays a key role in regulating Earth's climate, is primarily driven by cooling waters west of Europe.

In a departure from the prevailing scientific view, the study published in the journal *Science*, shows that most of the overturning and variability is occurring not in the Labrador Sea off Canada, as past modeling studies have suggested, but in regions between Greenland and Scotland. There, warm, salty, shallow waters carried northward from the tropics by currents and wind, sink and convert into colder, fresher, deep waters moving southward through the Irminger and Iceland basins.

The study, which involved 16 research institutions from seven countries, found that overturning variability in this eastern section of the ocean was seven times greater than in the Labrador Sea, and it accounted for 88 per cent of the total variance documented across the entire North Atlantic over the 21-month study period.

Professor Ric Williams, said: "There is a widespread view that ocean overturning in the North Atlantic is controlled by cooling in the Labrador Sea. However, this field programme has demonstrated a new view that the overturning

changes originate from the high latitude Atlantic east of Greenland."

Duke University Professor Susan Lozier, who led the international observational study that produced the new data, said: "These unexpected findings can help scientists better predict what changes might occur to the MOC and what the climate impacts of those changes will be. To aid predictions of climate in the years and decades ahead, we need to know where this deep overturning is currently taking place and what is causing it to vary."

Penny Holliday from the National Oceanography Centre said: "Overturning carries vast amounts of anthropogenic carbon deep into the ocean, helping to slow global warming. The largest reservoir of this anthropogenic carbon is in the North Atlantic. Overturning also transports tropical heat northward meaning any changes to it could have an impact on glaciers and Arctic sea ice. Understanding what is happening, and what may happen in the years to come, is vital."

Professor Lozier added: "I cannot say enough about the importance of this international collaboration to the success of this project. Measuring the circulation in the subpolar North Atlantic is incredibly challenging so we definitely needed an 'all hands on deck' approach."

The paper 'A Sea Change in Our View of Overturning – First Results from the Overturning in the Subpolar North Atlantic Program' contains data collected over a 21-month period from August 2014 to April 2016.

It is the first from the \$32 million, five-year initial phase of the OSNAP (Overturning in the Subpolar North Atlantic Program) research project, in which scientists have deployed moored instruments and sub-surface floats across the North Atlantic to measure the ocean's overturning circulation and shed light on the factors that cause it to vary.

Ric Williams is the Liverpool PI for the UK OSNAP programme. CITATION: "A Sea Change in Our View of Overturning – First Results from the Overturning in the Subpolar North Atlantic Program," M.S. Lozier, F. Li, S. Bacon, F. Bahr, A.S. Bower, S.A. Cunningham, M.F. de Jong, L. de Steur, B. DeYoung, J. Fischer, S.F. Gary, N.J.W. Greenan, N.P. Holliday, A. Houk, L. Houpert, M.E. Inall, W.E. Johns, H.L. Johnson, C. Johnson, J. Karstensen, G. Koman, I.A. LeBras, X. Lin, N. Mackay, D.P. Marshall, H. Mercier, M. Oltmanns, R.S. Pickart, A.L. Ramsey, D. Rayner, F. Straneo, V. Thierry, D.J. Torres, R.G. Williams, C. Wilson, J. Yang, I. Yashayaev and J. Zhao. *Science*, Feb. 1, 2019. DOI: 10.1126/science.aau6592

'Brexit' and planning – greener or leaner?

As the chaos surrounding the UK's proposed exit from the EU continues, at least one thing has become clearer as the months go by - how much four decades of membership of the European project have moulded British society, economy and the environment. This creates a particularly multi-dimensional challenge for the land use planning system, given its key role in considering social, economic and environmental effects in making decisions about development affecting urban and rural areas.

The RTPI has commissioned research on the prospective future relationship between the planning system and EU environmental regulation from researchers in the Universities of Liverpool (SoES), Cardiff, Dundee, Stirling and Queen's.

EU membership has left a distinctive, though frequently misunderstood, fingerprint on planning. Planning is not formally an EU competence, so the main features of the way planning works, the main legislation, the goals, the processes are essentially the creation of UK governments, national and devolved. Yet the EU and its predecessors have certainly shaped the system. EU structural funds have been important tools for trying to counter-balance the spatial unevenness of development - a game changer in certain regions. The EU has supported cross-border and European-scale thinking in planning and infrastructure. And

significantly in the environmental field, EU membership has shaped aspects of planning regulation, underscoring rights to participation and information, and strengthening the environmental standards that development must meet.

One interim finding is just how little thought has been given to alternative ways of organising the interface between planning and the environment, with the last major assessment coming from the Royal Commission on Environmental Pollution 16 years ago. While some commentators have become exercised about EU 'red tape', in practice such concerns have been directed to a relatively small number of directives, and critics may be seeking very different things. Within the environmental sector there is a vigorous discussion about how to improve particular instruments, such as Environmental Impact Assessment, but rarely are prospective adjustments to EU legislation part of the mix.

So, wherever the relationship between planning and environment is headed, there are no ready-made blueprints for the future. In light of this the project is now moving on to explore possible future scenarios.

Scenario 1 - a tighter, greener framework. One possibility would be to re-work and improve the system of EU environmental standards – for the quality of water, air, and wildlife - and tighten the links to planning as a means of delivery. Such an agenda

could support requirements for external regulatory alignment with the EU that might be required for trade purposes and also uphold Government promises of a 'Green Brexit'. In England, the Government's 25 Year Environment White Paper proposes moves in this direction, though the eventual enforcement powers of related new legislation will also be significant.

Creating clearer environmental goals may also impact planning processes and inject new purpose into planning. This might address claims that the purpose of the system is unclear, notably when compared with EU legislation which is characterised by clear statements of purpose and environmental principles. The UK Government has stated it wants to build on the 'successes achieved through our [EU] membership', so building a clearer focus on environmental goals into planning could be a way of enabling procedures for assessing the environmental impacts of projects and plans – Environmental Impact Assessment and Strategic Environmental Assessment – to focus on the most important outcomes.

Scenario 2 – a more pro-development, flexible, and leaner framework. Another scenario is that the UK leaving the EU could present an opportunity for weakening environmental standards, or for allowing more exceptions in their implementation. Planning matters here because, while

many environmental standards are determined in domains outside the planning system, it is often in planning arenas where claims about the costs of meeting EU standards are have been most sharply debated, whether it is potential restrictions of conserving European wildlife sites, or the interface between development projects and air quality goals – for example in the case of Heathrow’s third runway. Since the 1980s successive governments have talked of ‘lifting the burden’ of, or ‘streamlining’ planning, to deliver a leaner more efficient and responsive system that fosters productivity and economic growth. Today some advocates of Brexit claim that greater regulatory flexibility will deliver dividends for innovation, global competitiveness and affordable housing, and the planning system will be a key arena for the examination of how such claims and the trade-offs they imply might work out on the ground. Any future thinking must also acknowledge devolution. Planning is a highly

devolved function, environment too, with devolved governments in Belfast, Cardiff and Edinburgh already taking policy in very different directions to Westminster. A single UK position on the future environmental dimension of planning seems unlikely, and land-based issues have not been seen as requiring ‘Common Frameworks’ to establish consistency across the UK. However, a governance gap exposed by Brexit is the weakness of mechanisms for coordinating the policy agendas of the UK’s current constituent nations. EU membership created a shared framework for environmental governance and the enforcements of standards, but outside this the scope for divergence increases, raising questions about compatibility, collaboration and competitive pressures.

Planners are used to handling multi-dimensional problems, and the planning system has long been caught up in wider debates about

effective regulation, the public interest and the UK’s constitutional order. But unsurprisingly perhaps Brexit raises the stakes on all of them.



Research concludes that EU environmental legislation has delivered environmental improvements in the UK, and the benefits are especially clear for those Directives which institute clear goals and targets, and where in turn the European Commission and the European Court of Justice can monitor and enforce implementation. Will a potential ‘Brexit’ jeopardise some of this progress and see the UK once again attributed the unenviable sobriquet of ‘The Dirty Man of Europe’ (Rose, 1991)

Land Value Capture

Staff in the Department of Geography and Planning have recently won a large multi-institutional grant from the Economic and Social Research Council (ESRC).

The grant brings together researchers from Liverpool (Alex Lord, Rich Dunning,

Guanpeng Dong, Yiquan Gu and, director of the Heseltine Institute, Mark Boyle) with colleagues from the Sorbonne in Paris, Nijmegen in the Netherlands, Tongji in Shanghai and XJTLU.

The focus on the research will be on using Land Value Capture - a financial contribution exacted

from the development process - to mitigate the impacts of externalities. A particular focus of the research will be on using this policy instrument to confront poor air quality in China. At over £1,500,000 this is a significant three-year award that will be led by Liverpool.

ESPON project on Cross border Territorial Impact Assessment (TIA CBC)



A graphical summary of the workshop

This Environmental Assessment and Management Research Centre project aims to test a new methodology for ex-post Territorial Impact Assessment, using the case study of the border region in Northern Ireland and the Republic of Ireland. The pilot study for the European Territorial Observatory Network is being tested simultaneously with European partners for border regions in Norway/Sweden; Germany/Netherlands; Romania/Bulgaria and Spain/Portugal. The project objective is to find the best way

to measure the territorial impact of cross border collaboration programmes, in the case of border region Ireland this is INTERREG A. The team engaged with local experts in the region who work in the societal, economic and environmental fields of Health and Social Care, SME Research and Innovation and River Water Quality. The methodology is in the form of Targeted Analysis used to evidence cross-border collaboration through the production of relevant indicators. Data collection through desktop case study and

workshops following a set logic chain, were held in the region with the support of graphic recording as a participation technique. Once the indicators were selected and approved by the local experts, data was transposed into maps to determine the impact of the programme on the territorial region. The results of the five case studies will be used to improve and upscale the methodology for other European cross border collaboration programmes (<https://www.espon.eu/TIA-CBC>).

Postgraduate research across Environmental Sciences



Carmine Donatelli - Environmental Change, G&P

“ Impact of Hurricane Sandy on the salt marshes of Chincoteague Bay, Virginia, and Barnegat Bay”

Supervisors Dr. Nicoletta Leonardi, Prof. Andy Plater

Located at the delicate interface between marine and terrestrial environments, salt marshes are ecosystem-based flood defences that help reduce the impact of storms and hurricanes on coastal communities. In order to understand wetlands behaviour under different climate conditions, we are using the numerical model COAWST (ROMS+SWAN+WRF).



Jenny Jardine - Oceans and Climate, EOES

“ Using ocean gliders to understand the physical control on phytoplankton variability in coastal and shelf seas”

Supervisors Prof. Claire Mahaffey, Matthew Palmer (NOC), Jason Holt (NOC), Adam Mellor (AFBI)

Accounting for up to 30 per cent of oceanic primary production, shelf seas are important components to global biogeochemical cycles, despite covering only ~7 per cent of the Earth's surface. Understanding the physical processes that control phytoplankton productivity in shelf seas is vital to predict and understand future climate change. During my PhD, particular areas of research will focus on the role of turbulent motion within the pycnocline and how this interacts with local biogeochemistry e.g. the diapycnal nitrate flux. There is also the potential for developing new parameterisations of turbulence, extending the capability of gliders for studying ocean mixing.



Kieran Newman - Environmental Change, G&P

“ Simulation and Validation of Combined Waves and Tides in Complex Near-Shore Environments”

Supervisors Prof. Andy Plater, Paul Bell (NOC), Jenny Brown (NOC),

Coupled models of waves, tides, and surge, and their interactions in coastal environments, can often be significantly influenced by the complex bathymetry in the domain. Accurate knowledge of this bathymetry and its evolution is thus important to improve the accuracy of such models. One method of obtaining bathymetric information is through the use of X-band radar data. However, this method is dependent on accurate water level information, currently provided by single point tide gauge measurements. There is potential to improve the accuracy of both the models (by incorporating bathymetric information from radar measurements) and the methods to analyse radar data (by modelling to give spatial variations in the tidal height and wave set-up).

Postgraduate research



Stephanie Law - Ecology and Marine Biology, EOES

“ Vertical stratification of ants in tropical rainforests ”

Supervisors Prof. Kate Parr, Matthew Spencer and Paul Eggleton (Natural History Museum, London)

Tropical rainforests are threatened by logging, fragmentation and habitat modification. Up to 60 per cent of all arthropod biomass can be accounted for by ants. These ants play important and varied ecological roles and are often considered as indicator species. Improving understanding of the ecology of this taxa will aid future ecological predictions for modified forests. My research aims to quantify interactions between ant communities in different strata. Specifically I will try to determine to what extent ground ants influence the spatial distribution of arboreal and subterranean ants. I also aim to try to quantify to what extent ground ants influence resource use and predation in the canopy. To achieve this I will be sampling in an experimental suppression plot where the ground ants have been removed.



Daniele Thallner - Geomagnetism, EOES

“ What on Earth was the magnetic field doing just before the Cambrian Explosion of life? ”

Supervisors Prof. Andy Biggin, Mimi Hill, Phil McCausland (Brock University) Nick Swanson-Hysell (UC Berkeley)

The Neoproterozoic was a time of continental break-up, extreme climatic changes and diversification of early life that concluded in the Cambrian Explosion of life. Palaeomagnetic measurements from the Ediacaran period (635-541 Ma) also display an anomalous behaviour of Earth's magnetic field. In contrast to the conventional geomagnetic dipole field, geocentric and aligned with Earth's rotational axis, records of the palaeomagnetic field, stored in rocks in several locations in Laurentia and Baltica, suggest that the geomagnetic field in the Ediacaran spent several periods with poles at the geographic equator. If this is the result of continental movement with unmatched velocity or of a highly instable magnetic field with high reversal rates is still widely discussed. This project aims to gain a better understanding of the ancient geomagnetic field of the Ediacaran period by analysing the strength of the field and to investigate the wider implications for the evolution of Earth's interior.



Xinxin Cao - , Planning, Environmental Assessment and Management , G&P

“ Governing Neighbourhoods: the UK, Taiwan and China ”

Supervisors John Sturzaker, Mingchi Chen (National Tsing Hua University)

I come from China, and have completed my undergraduate and postgraduate study at the University of Liverpool because I really believe our university is the best one in the UK! I also work as a Course Representative in our School. Now, I am a PhD student at the university, and I focus on neighbourhood governance among the UK, Taiwan and China. Neighbourhood governance is of growing concern in world wider academic communities. The research is under a dual PhD scheme, which involves research activities within the UK, China and Taiwan. Although there are many evidences that show the development of neighbourhood governance in the eastern world is derived from western theories, there is little known about this governance among the UK, China and Taiwan. The purpose of this study is to fill the gap by exploring neighbourhood governance in the UK, China and Taiwan.

Recent success in the SoES Postgraduate community

RTPI NW Moss Madden Student Awards

The Moss Madden Student Award is presented in memory of Professor Moss Madden, a former Head of the Department of Civic Design at the University of Liverpool, former Chair of RTPI NW and world renowned figure in planning research and education.

Both an undergraduate and postgraduate award is awarded each year to recognise the best dissertations/final projects from

accredited planning courses in the region, as judged by representatives of the RTPI NW Regional Activities Committee. These are not necessarily the highest scoring dissertations, but those that are key to planning in the North West, whether they focus on housing, conservation, or even wind farms at sea. A number of very high-quality submissions were received this year, which successfully researched topical

ideas and best practice methods for Local Planning Authorities, consultancies and developers to consider in the future.

Postgraduate winner - James McGowen (University of Liverpool) *'Are local authorities facilitating community-led regeneration schemes? A study of Four Streets and Ten Streets, Liverpool!'*

PG Reps 2018-19

Rose Longstaff, Ryan Willmott, Joseph Scaife and Natascia Pannozzo are the School of Environmental Sciences PGT student reps for this academic year. You can find our contact details in the Guild website, the School intranet and on the boards in the student support offices. We would like to invite you to join a private Facebook group that we have recently created just for PGT students in the School of Environmental Sciences, where we can discuss issues related to our study experience to raise during SSLC meetings. We can use it to gain feedback from you and give you info and updates.

Link to join the Facebook group: <https://www.facebook.com/groups/2052031668166399/>
We would also like to remind you that there is a LinkedIn group



G Reps l to r: Joseph Scaife, Natascia Pannozzo, Ryan Willmott and Rose Longstaff
Photo: Suzanne Yee

which is open to PGT and PGR students as well as staff, where suggestions and feedback can be shared. We hope that you will join and contribute, **Your Reps.**

Link to LinkedIn group: <https://www.linkedin.com/groups/13607741/>

3rd International Conference for Carceral Geography

On 17th and 18th December 2018, over 80 delegates from a range of countries and academic disciplines attended the 3rd International Conference for Carceral Geography. The two-day event was hosted by the School of Environmental Sciences, University of Liverpool in conjunction with the Power, Space and Cultural Change research group in the Department of Geography and Planning. The event was organised by Dr Jennifer Turner in conjunction with the Carceral Geography Working Group (CGWG) of the Royal Geographical Society – Institute of British Geographers (RGS-IBG) and The International Criminological Research Unit (ICRU).

The 3rd International Conference for Carceral Geography followed the success (and snow) of the two previous conferences held at University of Birmingham in 2016 and 2017. As with its forerunners, this conference provided an opportunity for presentation and discussion of work on all forms of carcerality; camps, confinement, custody, detention and incarceration, from carceral geographers, and scholars, scholar-activists and practitioners from all disciplines.

The conference featured eight paper sessions, with 29 papers from 39 authors from across the globe. SoES was privileged to be able to welcome Professor Dominique Moran and Professor Chris Philo as keynote speakers. Delegates were also invited to a drinks reception and



exhibition event including the photographic work of Dr Annie Pflugst (Goldsmiths, University of London), Dr Anna Schliehe (The Comparative Penology Group, University of Cambridge) and a musical performance from Lucy Cathcart Frödén (University of Glasgow and Vox Liminis). Dedicated theme sessions include: Carceral legitimacy; Mobilities and Change; Health, Body and Mind; Carceral Landscapes; amongst others.

The programme considered the conference theme of both

Keynote speakers

Above top: Professor Dominique Moran (University of Birmingham) Photo: Suzanne Yee

Above: Professor Chris Philo (University of Glasgow) with an introduction from Dr Jen Turner. Photo: Adam McShane

“counterpoints and counter-intuition”, which was intended to encourage both a diversity of perspectives on the carceral, and to stimulate discussion of that which is or was unanticipated, had been unimagined, or was unforeseen. ‘Counterpoint’ is a term used in musical theory to describe the relationship between voices that are simultaneously independent yet interdependent.

The term is deployed here to describe the differing perspectives which characterise carceral research – including scholar-activism aligned to abolitionism or reductionism, and research conducted within and with the formal approval of, carceral establishments.

We see all of these voices as purposeful and productive, and through this theme we seek to highlight both their independence, and the interdependences between them. Across the two days a vibrant set of papers that engaged with these ideas through a range of themes, such as through notions of contrasts and contradiction, binaries and boundaries, and, of course, the very legitimacy of carcerality.

Through the theme of ‘carceral counter-intuition’ papers, this conference explored the unexpectedness of carcerality, its unimagined forms and its unforeseen aspects – and simultaneously interrogated their apparently counter-intuitive nature. Carceral geographers and others have noted that the carceral exists in unexpected places beyond the formal contours of detention or prison; carceral scholarship is increasingly identifying previously under-recognised aspects and consequences of confinement, and innovative methodologies are uncovering under-researched elements of carceral experience.

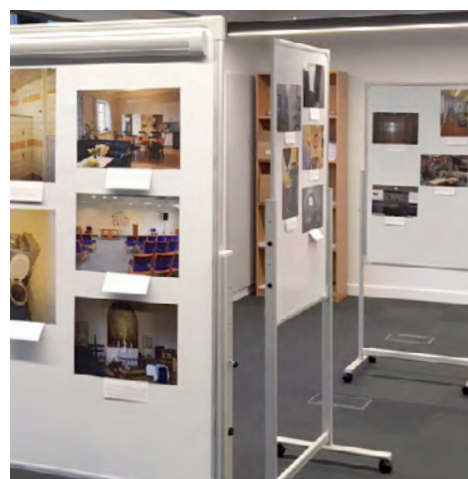
At this conference presentations explored the expansion of our carceral understandings into

a variety of different spaces, from countryside to science fiction! The conference was well-attended by scholars at a variety of career stages from multiple disciplines – this included undergraduate students from within SOES and other institutions in the UK, as well as doctoral students in the US and Canada. The organisers are grateful for the financial and logistical support provided by SOES, which enabled our staff and students to engage with and learn from the fascinating and impactful research that is being conducted within Carceral Geography.

Audio recordings and slides from each conference presentation (including keynote talks) are freely available at www.carceralgeography.com



Delegates at the reception and exhibition event
Photos: Kimberley Peters



'Leadership in Impact Assessment' International symposium at the Foresight Centre

This international symposium, organised by the Environmental Management and Assessment Research Centre and held at the Foresight Centre on 21 January 2019, was attended by 63 participants (about half of which from the private sector, 10 from public authorities and the remainder from academia), representing over 15 countries. It was funded by the Industrial Strategy Higher Education Innovation Fund (Research England) and was followed by a roundtable on 22 January with ten key representatives from the IA

community. Different leadership models were discussed, ranging from leadership provided by membership-based organisations, over public agencies to universities. The resulting 'Liverpool initiative' on how IA as a decision support instrument which in post-factual times is under threat can be supported and leadership be exerted, will be followed up by further meetings. A recording of the event is available here: <https://www.liverpool.ac.uk/geography-and-planning/research/spatial-planning-impact-assessment/symposium/>



From Linear to Circular Economy

Thomas Fischer presented on Strategic Environmental Assessment (SEA) in the context of the Circular Economy at the WHO Meeting 'From Linear to Circular Economy: Health Implications of Sustainable Consumption and Production (SDG 12), Bonn, 12-12 November. <http://www.euro.who.int/en/publications/abstracts/circular-economy-and-health-opportunities-and-risks-2018>

Impact Assessment in a post-truth age

Thomas Fischer also presented on Impact Assessment in a post-truth age at the Nordic Baltic Impact Assessment Conference on Environmental Considerations in Tallinn, September/October 2018. <https://www.tlu.ee/en/programme>

8th NTHU-UoL bilateral workshop in Taiwan

In November (26th-30th) 2018 two of the School of Environmental Sciences new lecturers Dr Chia-Lin Chen and Dr Jonny Higham travelled as part of a Faculty of Engineering and Science delegation to the National Tsing Hua University (NTHU) in Taiwan for the 8th bilateral workshop, this year coordinated by Prof. Eann Patterson from UoL and Prof. Yuan-Chieh Chang from NTHU. UoL and NTHU alternate to host the workshop.

The purpose of the workshop was to generate new collaborations and proposals for dual PhD projects. The theme of the workshop was the UN Sustainable Development Goal 9: Industry,

innovation and infrastructure. During the visit the UoL delegates were paired with NTHU academics with similar research interests. Both Chia-Lin and Jonny with their NTHU partners Dr Chan-Yuan Wong (Institute of Technology Management) and Prof. Chao-An Lin (Computational Fluid dynamics Laboratory, Department of Power Mechanical Engineering) successfully applied for funding for a PhD studentship. Chia-Lin's project PhD student will focus on "the effects of high-speed rail on innovation and high-tech science landscape in Taiwan" and Jonny's on "the shear instabilities created when mixing non-Newtonian and Newtonian fluids".

The dual PhD programme provides a four-year fee waiver and monthly contribution to living expenses of 10,000 NTD for students who apply for approved projects. Students must spend at least one year in each institution but a total of two years in each is preferred. New projects are approved annually and jointly by NTHU and UoL based on proposals submitted by pairs of supervisors, ie, one from each institution. For the past seven years we have used the bilateral workshop to bring supervisors together and develop proposals. This well-established UoL-NTHU programme has already graduated about half a dozen PhD students and has about two dozen students enrolled.



The School welcomes new members of staff



Anne Davies – Research and Finance Administrator

I'm joining the School finance team on a secondment for one year. I joined UoL in 2008, working in the finance office of Chemistry. Following the merger with Physics and Maths as the School of Physical Sciences, I worked in the School Office in the finance team. Prior to University life I worked for a timber merchants, builders & joinery manufacturing company for almost 28 years. My role as Operations Supervisor provided

me with a wide and varied amount of experience in customer sales, purchasing and sales ledger finance. Whilst working full-time I enjoyed attending evening classes to learn new skills and socialise and in 2006 I completed a degree in Business Management BA (Hons). I'm looking forward to my new role which I see as an excellent opportunity to meet new people and widen my experience, particularly in areas of Research Finance and CONSULT Projects.

David Parkin – Research and Finance Team

I graduated from Bangor University in Business Studies and Finance. I previously worked at the Institute of Veterinary Sciences before moving to the School of Physical Sciences, both roles based within the finance team.

I am looking forward to working in the School of Environmental Sciences, Research and Finance Team, where my role will involve support for the wider team and being the first point of contact for the many visitors to the office.



Domenico Meduri – Postdoctoral Research Associate, EOES

I joined SoES in January 2019 after a PhD at the Max Planck Institute for Solar System Research (Göttingen, Germany) and a postdoctoral position at the Institut de Recherche en Astrophysique et Planétologie (Toulouse, France).

My research activity lies in the field of geophysical and astrophysical fluid dynamics. I am particularly interested in the internal origin and evolution of the Earth's

magnetic field, which I investigate using 3-D global numerical dynamo simulations. Within the DEEP group led by Andy. Biggin, I currently focus on understanding the geodynamo variability on timescales of tens of millions of years and longer. Such long-term variations are generally ascribed to mantle convection processes and inner core growth. Our aim is to determine whether numerical geodynamo models accounting for such processes comply with palaeomagnetic observations and constraints.

Faculty of Science & Engineering

Pilot student international mobility activities

The University of Liverpool is committed to supporting undergraduate students in obtaining experience of volunteering, working and studying overseas. As part of this commitment, this year the Faculty of Science & Engineering is offering financial support to help Faculty of Science & Engineering students meet the cost of piloting a range of international mobility activities, whether staff or student-organised, with a view to learning lessons to pass on to future cohorts of students.

This support will comprise a financial subsidy of £250 to £750, plus free travel insurance.

Some activities undertaken by students last year include:

- Mangrove restoration and English language teaching, Maldives
- School infrastructure, teaching and homestay project, Fiji
- Church-based scheme teaching English in schools, Nairobi, Kenya
- Charity working with Roma people in Hungary
- Unpaid internship at a power company, China

The following students have undertaken volunteering projects with help from the new Faculty of Science and Engineering Pilot Student International Mobility Scheme.



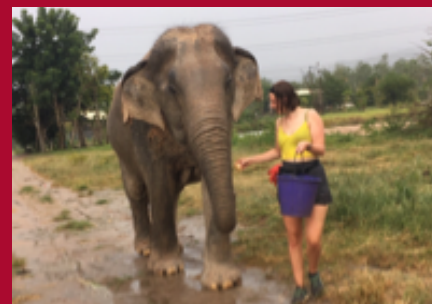
**Anna Scott, (BA Geography)
Help Refugees, France.**

What did you do? 'I worked in the warehouse, sorting clothes, sleeping bags and tents ready for distribution. I also worked with the refugee community kitchen to prepare meals everyday. I spent time compiling news articles from foreign countries to keep the people in the camps updated with news from their home countries. Finally I went out in the food distribution van and visited several camps where we served meals to the people in need. The whole experience lasted eight days.'



**Ben Sacarello, (BA Geography)
Camp America.**

What was the highlight of the trip?
The highlight of my trip was meeting great people from all corners of the world who I intend on visiting in the coming years.



**Amelia Scott, (BSc Env Science)
Elephant Conservation, Thailand.**

What did you learn/gain from working/studying/volunteering overseas? 'I learnt a lot about the tourist industry in Asia, also I gained a lot of independence by travelling - we travelled for five weeks in total around the volunteering week, and visited Vietnam, Cambodia and South Thailand.'



**Zoe Davidson, (BA Geography)
Homestay and School refurbishment, Fiji.**

Has this helped boost your employability? 'It boosted my employability because I gained real life experience working in challenging environments which gave me an insight into different cultures and ways of life. It has also developed my basic skills such as teamwork, leadership, relationship building, self-awareness and resilience, which are key for employability.'

'Inside Out' – the Herdman Symposium 2019

Why 'Inside Out'? - On Saturday 16 February 2019 Symposium conveners Millie BurrIDGE and Dan Harrison (final year Geophysics students) invited six speakers to take participants on a journey from the centre of the Earth to the 'next planet out'.

The annual Symposium is one of the main events in the calendar of the Herdman Society: organised largely by students, it attracts a very wide-ranging audience, which includes Earth Science alumni, A-Level students, members of local and regional geological societies, as well as students and staff from the

University. Over 330 people registered to attend this year: probably a record.

The six excellent speakers each provided a snapshot of current understanding and leading research in their areas. First, Chris Davies from Leeds University provided an overview of the history of the Earth's magnetic field over more than 4 billion years. He highlighted how our planet's protective shield has developed as the solid part of Earth's iron core started to freeze and circulation developed in the liquid outer core. Chris Ballentyne from Oxford then discussed the

origin and magnitude of the deep hydrosphere in the crystalline crust and evidence that it supports life forms that have not been at the surface for more than a billion years. In the final talk of the morning Yan Lavallee (Liverpool) brought the subject to the surface discussing his latest research in volcanology including how magmatic systems 'breathe' and how current research incorporates frictional melting experiments and data from deep boreholes in magmatically active areas.

Lunch and refreshment breaks were efficiently organised by more than 30 student volunteers including the Herdman Society committee and several first year recruits: in the course of the day they produced well over 1000 hot drinks, lunch (sandwiches provided by University catering), soft drinks, fruit, biscuits and a wine reception - very efficiently and with minimal queuing. Their cake sale and book stall raised over £100 in aid of the charity 'Geology for Global Development'.



The student conveners with their six invited speakers (L-R, Dan, Yan, Chris B., Sarah, Jennifer, Chris D. Joel and Millie)

The welcome team



Current students networking with alumni, staff and postgrads on the Friday evening



Geography Ambassadors training

The afternoon session was as exciting as the morning's. Jennifer McElwain (Trinity College Dublin) outlined how terrestrial plants have responded to huge changes in carbon dioxide levels over the last 400 million years. Her research group are able to quantify past atmospheric concentrations using stomatal density measurements on fossil leaves backed up by experiments on plants grown in analogue conditions that are toxic to human life. Sarah Boulton from Plymouth University then showed how a wide variety of geomorphological data can be used to determine that the High Atlas Mountains have been high for many millions of years. Finally Joel Davis (Natural History Museum) demonstrated how the surface of Mars was shaped billions of years ago by rivers lakes and seas, which shaped features that that can still be imaged today.

The Herdman Symposium has been held every year for over 40 years: it is clearly going from strength to strength. Over the last five years it has been twinned with a careers networking event on the preceding Friday evening; this year it involved more than 40 alumni and a greater number of current students. The weekend as a whole has thus become a key event for the Earth Sciences at Liverpool and a showcase for our subject. It is probably the largest, inexpensive and most demographically inclusive (16 to >80 year olds) annual Earth Science event in the country.

Our newest cohort of RGS-IBG Geography Ambassadors was trained on 7th November 2018 to prepare for their first school sessions.



Gemma Bishop introduces the training session

Taking place within the University, the three-hour training session provided the trainee Ambassadors with a more detailed overview of the programme and an introduction to the Society; insight into how to effectively plan, design and run sessions including adaptive interactive activities that can be used; and the expectations of the Ambassador role. Our Ambassadors provide free sessions for schools across England, Wales, Northern Ireland and Scotland, in partnership with the Royal Scottish Geographical Society. The sessions introduce pupils to the benefits of studying Geography and raise awareness of the career opportunities available. They can also focus on more specific areas of the examination specification as well as the importance of the discipline to everyday life. Booking an Ambassador visit is an important opportunity for schools and teachers to encourage even more pupils to choose to study Geography within their schools and at university.

Our Ambassadors have now become part of an active community of over 900 Geography volunteers and will make a direct, positive impact on pupils' understanding and enthusiasm for Geography, expand their geographical and professional networks, as well as obtaining excellent experience to add to their CV.

Interested in becoming a Geography Ambassador? [Find out more](#). Want to schedule an Ambassador visit? [Find out more](#)

Trainees work on adaptive interactive activities: Photos: Suzanne Yee



Geophysics day for Sedbergh School Students

A group of A-level Geology students from Sedbergh School visited the University of Liverpool on 21st November 2018 for a day focusing on Geophysics. Their hosts for the day were Maggie Williams, Peter Williams, Anthony Lamur, Ben Edwards, Simon Lloyd and Mike Allen. Most of the activities were based in the Central Teaching Laboratories, but others were held in the Jane Herdman Laboratories.

The Sedbergh students spent the first part of the day looking at seismic hazards and the impacts of earthquakes. As part of this session the students worked in

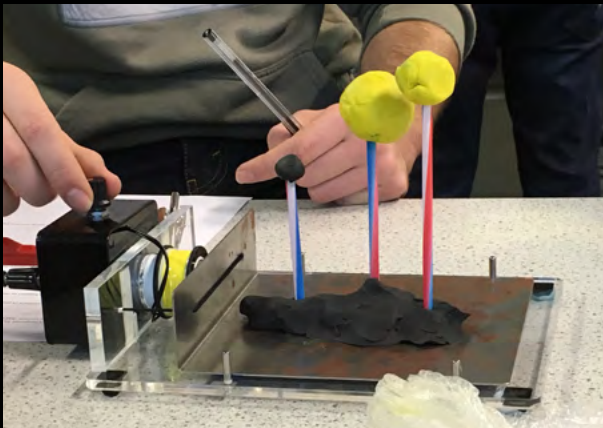
small groups and used shake tables to investigate the effects of earthquakes and the design of buildings.

During the lunch break there was ample time for further discussion. Students were then given the opportunity to see the Scanning Electron Microscope (SEM) in use before starting the two main Geophysics activities of the day. The first Geophysics activity was a hands-on activity that involved students in testing different types of seismometers. This was followed by an exploration geophysics exercise which was an outdoor exercise on refraction seismology.

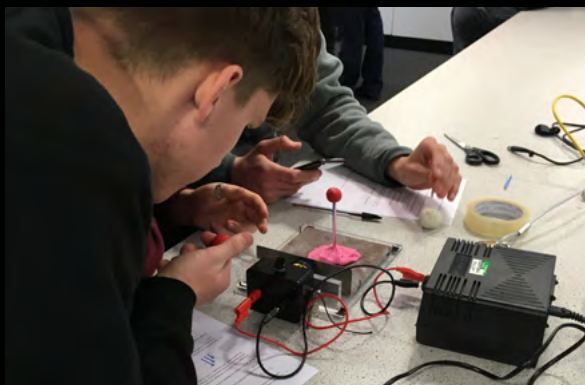
Before they left small groups of students were able to visit to the Rock Deformation Laboratory in the Jane Herdman Building. Here Mike Allen outlined some of the work at the leading edge of research within experimental rock deformation that was carried out in this laboratory. While they were in the laboratory students were able to see some of the rock samples being prepared for testing in this lab.

Maggie Williams
Department of Earth, Ocean and
Ecological Sciences

Using a shake table in the CTL



Mike Allen explaining a research theme in the Rock Deformation Laboratory and Students undertaking the refraction seismology exploration exercise



Earth Science Week 2018

Two A-level microscopy masterclasses for students from City of Stoke-on-Trent Sixth Form College and Alun School were organised to celebrate Earth Science Week 2018 which ran from 13th-21st October. These two one-day events, aimed at 16 to 18-year olds studying A-level Geology, were set up by Maggie Williams & Lis Rushworth. Students used the suite of optical microscopes in the Central Teaching Laboratory and discovered how to identify rock types in thin section and recognise different microfossils in grain mounts.

In the morning session, students were encouraged to work in small groups and used worksheets showing identification characteristics of samples of different rock types in hand specimen and thin section. Students used petrological microscopes and were shown how to use the cameras attached to the microscopes to capture images of the rocks in thin section. By the end of this session each group produced three annotated thin section photographs on

an e-poster. Posters were then shared with the other groups in the class and students received peer feedback on their posters. For the afternoon session, students undertook further self-directed learning and concentrated on looking at microfossils. Students used zoom microscopes to identify characteristics of different microfossil types in grain mounts and took photographs of different microfossils. Working in groups, students produced a second e-poster about microfossils and the palaeoenvironmental information these fossils provided. Groups then received peer feedback on their posters after sharing their posters with the other groups in the class. During the day students were also given the opportunity to see a Scanning Electron Microscope (SEM) being used and were shown how this type of microscope could give more detailed information about the texture and mineralogy of sedimentary rocks.

At the end of the masterclass, students were given a problem to solve, encouraged to identify

mystery materials - and given an opportunity to play rock and fossil bingo - and win prizes! Prizes were generously provided by the Geological Society of London.

Comments received at the end of the day included:

“Great Day – hands-on activities using equipment not available in school. Also, it was a good insight into Earth Sciences at university.”

“I really enjoyed the masterclass today. I felt the layout of the day was the best way for me to learn! I learnt lots – and you were super nice. It was lovely to meet you.”

“Everything was amazing! The practical work was very interesting and highly educational, the resources provided will be highly beneficial on the future of my A-level course, and the overall experience has given an idea what university study would be like and the sort of practical work involved.”

Maggie Williams
Department of Earth, Ocean and
Ecological Sciences



Students working in groups

'Last Straw' LUMOS – *Get involved*

Getting involved in Liverpool University Marine Biology and Oceanography Society (LUMOS) has enriched my university experience, allowing me to explore opportunities to organise and get involved in a variety of activities, hearing from guest speakers, beach cleans, socials and taking on a committee role, ensuring there is always something for everyone. Every year a new committee gather to brainstorm ideas on how to make LUMOS better than last year. This year we have focussed on bringing students together, bridging the gaps between courses and year groups and sharing our passion for the marine environment.

One of the LUMOS' most rewarding schemes is our involvement in 'Societies in Schools', where our team of volunteers, coordinated by Kate Dunning (Community-liaisons Officer), has the opportunity to deliver a marine science workshop to local schools for student's Years 3 to 10. After the extensive training and safeguarding, the volunteers were prepped to deliver a lesson plan focussed on raising awareness for plastic pollution. Through the use of quizzes, interactive videos and a fun activity of making a fish out of a plastic bottle, why wouldn't you get involved because let's face it, who doesn't love a bit of messy arts and crafts?

Our team has also been honoured to present our lesson plans through the IntoUniversity scheme, which provides support for young people from disadvantaged backgrounds

to inspire them to consider the idea of going to university despite economic limitations that may prevent this. Research shows that young people from economically deprived areas are nearly four times less likely to go to university than those from advantaged areas. Helping address this issue breaks down the barriers that prevent the future generation from reaching their full potential. Raising awareness with young people is a great way to address plastic pollution, teaching them from a young age to respect our environment and to reduce, reuse and recycle. Although making fish from plastic bottles is great fun, this workshop brings a serious matter to light, demonstrating that if we don't reduce plastic pollution now, there will be more plastic than fish in the ocean by 2050.

LUMOS has also implemented the 'Liverpool's Last Straw' campaign, which is a clear example of how a small group of ambitious students can make a big change. LUMOS campaigned to bars on the University campus and asked them to stop stacking plastic straws and educating them on environmentally friendly alternatives. LUMOS has two accredited bars on campus, the Sphinx and the AJ, which now use biodegradable straws. This year LUMOS has even bigger goals, with plans to address bars and restaurants outside of the university campus, ensuring we can get our LUMOS approved certificate hanging in venues across the city.

There are still lots of activities left for this academic year. We have some great courses coming up at a discounted price for our members, including the Marine Mammal ID Course and a Marine Mammal Rescue Course. As April approaches, it is also time to say goodbye to our 2018/19 committee and encourage a new group of marine enthusiasts to run for committee to see what they can bring to LUMOS. For more information on what we have coming up you can find us @LUMOS on Facebook and Instagram.

Áine Crossan

SoES Student Photographic Competition 2018 – 19



Congratulations to **Alfie Turner** for the overall winning image,
Lauterbrunnen Valley, Switzerland
(above and cover) entered into this year's SoES Photographic Competition.

Overall winner Landscape £100 prize:

Lauterbrunnen Valley, Switzerland – Alfie Turner, BSc Ocean Sciences

Culture £50 prize:

Milujem ťa (Adoration) – Shaun Blance, BSc Environmental Science

Fieldwork £50 prize:

Sampling in Maldivian waters – Edward Doherty, Phd

Highly commended

Traditional Bolivian Cholita - Polly O'Mahony-Webster

Dip and strike of Geologists - Chris Owen

Ladybower Reservoir - Helen Hatch

Hinterland - Danial Owen

An image gallery can be viewed from this link to the School website or by copying and pasting it into your browser.

<https://www.liverpool.ac.uk/environmental-sciences/photo-competition-2018-19/>

Businesses get ready to love clean growth



A leading environmental collaboration between two of Liverpool's universities is supporting the Year of Environment 2019 by hosting a social event aimed at helping businesses get the most out of becoming more sustainable.

On the evening of Thursday 21st February, the 'Clean Growth Social' at Love Lane Brewery Bar & Kitchen (formerly H1780 Tap & Still) in the Baltic area was a chance for local SMEs to get involved in actively supporting the biggest celebration of the city region's environment in a decade. They learned just what is on offer from the ERDF funded Low Carbon Eco Innovatory project and what they can do to improve their business.

Hosted by local TV presenter and sustainability campaigner Simon O'Brien, businesses heard how he sees clean growth being a key driver for the city region's economy, as well as offering insights into sustainability opportunities for businesses. Alongside refreshments, there was also a chance for networking with academics and businesses engaged in improving the environment.

Eight businesses were offered the chance for free to engage specifically on the themes of the Year of the Environment 2019 through working with students, local authorities and academics to research just how Liverpool city region is performing, with further

insights and event opportunities the business can use in their own promotions.

LCEI project manager at the University of Liverpool, Dr Matt Fulton says, "Lots of businesses from a wide variety of industries in the city region have already benefited from the support the Low Carbon Eco Innovatory can give. As the leading low carbon project in the city region, it makes sense for us to link up with a great initiative like the Year of the Environment to help businesses get involved. We hope the clean growth social has been a great opportunity for businesses to see how they can make a difference."

Dates for your diary

APRIL

16th: S&E Faculty Forum @1pm in Sensor City

30th: NERC standard grant pitching event for July 2019 submissions @1pm in the Map Library, Jane Herdman

MAY

1st: Next School Forum @12pm in the GIC, Roxby

1st: School of Environmental Sciences Careers Fair 2019 GeoFlex from 13:00-17:00

23rd: VC Visit to the School @3.15pm GIC, Roxby

JUNE

19th: Derrington Grant Writing workshop - GIC, Roxby

JULY

10th: School Away Day @Ness Gardens

10th: School Staff Awards - Nomination system will go live on the 29th April with deadline of 10th June with awards being presented at the away day on the 10th July

NOVEMBER

Wellbeing Event - November (Date tbc)

Continuing Education plans fresh approach towards Civic Engagement

Continuing Education (CE) at the University of Liverpool has a newly appointed Academic Director in Dr Glenn Godenho. Glenn plans to build on previous successes, experiences and connections to find innovative and creative ways to develop CE and deliver the full range of our Institution's cutting-edge research and scholarship to our local communities.

For over 100 years, CE has been offering educational opportunities to the city region. Students (who range from 16 to 96 years old) come to CE to learn a new language, find out about Liverpool's cultural heritage, develop key skills and experiences for their CVs, explore the creative arts and natural sciences, and much more.

Dr Godenho said: "We're a unique and valuable pool of resource—one that not many Universities can boast about—here to help Departments and Institutes across all three Faculties with their community engagement priorities. We're adding a range of activity to our existing portfolio, such as: working with Departments

to deliver public lectures across the city; collaborating with researchers to enhance Impact; and creating activity that Widens Participation and ultimately leads to Undergraduate application. In this way, CE can really contribute to our ambition of being one of the top 100 universities globally by 2026.

I've spoken to a lot of people already, but there are lots of you that I haven't engaged with yet, so do get in touch with me if you would like to discuss ways to bridge the gap between your work and our public."

A shop-window for the University

With a wealth of expertise in community engagement, there is plenty of scope for CE to become an even bigger shop-window for our research and scholarship. And flexibility is key: CE operate all year-round, into the evenings, on campus, and with partners across Merseyside. All are welcome, and CE aims to be as accessible as possible, providing free talks in libraries, colleges, museums and galleries throughout Merseyside.



For example, A Night at the Races brings together expertise from the Veterinary Institute, Management School, and the Walker Art Gallery to celebrate our relationship with the Grand National through a series of talks.

For more information about Continuing Education, including courses on offer, please visit: <https://www.liverpool.ac.uk/continuing-education/>

For further questions or queries, or to get involved with the Continuing Education programme please email: conted@liverpool.ac.uk