

MATHEMATICS AND STATISTICS

NEWSLETTER

Summer 2011

CONGRATULATIONS

- Congratulations to Lynsey Thornton, Jorge Fuentes Fernandez and Anna Lisa Restante on the successful defence of their Ph.D. theses. Lynsey is now working for a consultancy firm in Edinburgh, Jorge is a postdoc with the Solar Group and Anna Lisa has a postdoc in K.U. Leuven, Belgium.
- Congratulations to David Devlin for the successful defence of his Ph.D. thesis.
- Congratulations to Sara Munday on successfully defending her thesis “Finite and Infinite Ergodic theory for Linear and Conformal Dynamical Systems”.
- Congratulations to Graeme Boore on successfully defending his thesis “Directed Graph Iterated Function Systems”.
- Congratulations to Dee and Jonathan McDougall-Bagnall on the birth of their baby boy on 15th July. His name is Ethan Jack McDougall-Bagnall and he weighed 7lb 2oz.
- Congratulations to Magda Carr and husband Gary, whose daughter Millie Conacher was born on 15th July weighing in at 8lb 14oz and measuring 55cm.
- Congratulations to Laura Marshall and Rodrigo Wiff on the birth of their son Tiago James Wiff Marshall, who was born on 8th September weighing 7lb 15oz and measuring 51cm. Double congratulations to Laura on the successful defence of her Ph.D. thesis.
- Wedding congratulations to Calum Brown, who married Penelope Whitehorn on May 7th in Milton under Wychwood in the Cotswolds.
- Congratulations to Vasilis Archontis on being awarded a Royal Society University Research Fellowship. This is an excellent achievement, since these are highly competitive awards.
- Congratulations to Sophie Huczynska who has been elected as a member of the British Combinatorial Committee.
- Congratulations to Magda Carr, who has been awarded two projects by HYDRALAB IV to carry out experimental work in the CNRS GAME stratified flume facility in Toulouse. The first project is entitled “Internal flow and near-bed dynamics induced by exchange flows”. Magda will lead a team of 6 academics from the Universities of Bergen, Tallinn and Heriot Watt over an access period of 25 days. The project is worth approximately €38k. The second is entitled “Exploring the role of wave drag in the stable stratified oceanic and atmospheric boundary layer”. Magda will be part of a team of 7 academics from the Universities of Wageningen, Stockholm, Zagreb and Bucharest who will work over 30 access days (worth approximately €46k).

- Congratulations to Ineke De Moortel on her election to the newly formed Young Academy of the Royal Society of Edinburgh, and as a board member of the European Solar Physics Division.
- Congratulations to Charles Paxton who won a teaching award in May for “Dissertation or Project Supervisor in Science/Medicine” awarded by the Student’s Association.
- Congratulations to David Dritschel who, in September, began a 1-year Leverhulme Trust fellowship to study aspects of banded fluid motions in planetary atmospheres and in the Earth’s oceans.

WELCOMES & GOODBYES

- Welcome to new Lecturer in Statistics Michail Papathomas, who comes to us from Coventry University and who is also an Honorary Research Associate at the department of Biostatistics, Imperial College. Michail’s main research interests are in Bayesian Statistics and Biostatistics.
- Welcome to new Teaching Fellow in Statistics, Paul Wilson, who comes to us from the National University of Ireland, Galway.
- Welcome to Paolo Pagano who has started a 2-year PDRA position in the Solar Group funded by the EU Space Weather Infrastructure Forecasting Framework grant.
- Welcome to Roland Langrock who joined the Statistics division on 1st August as a 2-year PDRA working with Ruth King, Len Thomas and David Borchers. Roland completed his Ph.D. in 2011 at the University of Göttingen and is based at CREEM.
- Welcome to Mikael Vedjemo-Johansson who joined CIRCA from 1st of September as a postdoc on the HPCGAP project.
- Welcome to Phil Harrison (who many will remember from his time at CREEM as a Ph.D. student), who started a post-doctoral position with Steve Buckland on biodiversity modelling in August.
- Welcome to Yue-Kin Tsang who joins the fluids group as a postdoc on a 2-year EPSRC grant to work with various members of the group.
- The number and range of workshops that CREEM puts on continues to expand and in July Lindesay Scott-Hayward was appointed to a post-doctoral position dealing with knowledge exchange, to develop and coordinate activities in this area, including development of software and instructional materials for practitioners. We welcome her to this new role.
- Joyce Yuan started a part-time post-doctoral position with Steve Buckland working on biodiversity monitoring. Joyce will be working half-time in this post until early next year, while she completes her Ph.D., and will then switch to full-time.
- Welcome to our new Ph.D. students Rachael Carey (Algebra), Abel Farkas (Analysis), Ruth Hoffmann (Computer Science/Algebra), Gordon Gibb, Julie McCormick, Sarah Platten (all Solar), Ben Swallow and Hannah Worthington (both Statistics).
- Farewell and best wishes to Sara Munday, who will be working at the University of Bremen for the next few months.

- All at CREEM were very sad to say goodbye to Leslie New, who has taken up a position in Washington DC with the Marine Mammal Commission. Her new job involves continuing the research she was doing at CREEM on the consequences of acoustic disturbances on marine mammals at the population level (rather than the level of individual animals).
- We were very sorry to say goodbye to Jie Cheng, who left us at the end of last semester to take up a lecturing post at Xian Jiaotong Liverpool University in Suzhou, China. The university involves a partnership between the universities of Liverpool and Xian Jiaotong and is the first Sino-British university involving research-led universities. We wish Jie the very best in her new post.
- Farewell and best wishes to Tony Samuel who was a Ph.D.+ postdoc with the analysis group, he will be spending the rest of the year at the Australian National University in Canberra. Congratulations to him on obtaining a 4.5 years postdoc position thereafter in Bremen with Bernd Stratmann.

SEMINARS, LECTURES & CONFERENCE TALKS

- Kenneth Falconer was co-organiser of a week long EPSRC Workshop “Dynamical Systems and Dimension Theory” in April at the University of Warwick at which Jonathan Fraser, Xiong Jin and Mike Todd gave talks.
- Ruth King was a member of the programme committee of the 3rd International Biometrics Conference Channel Network Conference held in Bordeaux from 11th-13th April. Ruth also attended the conference and presented a talk on “A general modelling framework for animal movement and migration”.
- Ineke De Moortel chaired a session on ‘MHD waves and oscillations in the solar atmosphere’ at the annual UK Solar Physics meeting in Llandudno (18th-21st April 2011).
- St Andrews hosted the 40th Scottish and Northumbrian Academic Statisticians Meeting in May, with invited talks from a previous staff member who many will remember: Simon Wood, now Professor of Statistics at Bath, as well as from Profs Colin Aitkin of the University of Edinburgh and Hans Skaug of the University of Bergen.
- In May, Andrew Haynes, Alan Hood, Clare Parnell, Jorge Fuentes Fernandez, Vasilis Archontis, Anna Lisa Restante and Kuan Tam attended the final Solaire Network Meeting in Teistungen, Germany. Andrew, Jorge, Vasilis and Anna Lisa each gave a talk.
- Glenna Evans gave a talk at the Conference of Applied Statistics in Ireland held from May 18th-20th.
- Many staff and students from CREEM attended the highly successful Annual Workshop of the National Centre for Statistical Ecology at the University of Bath in June. Lorenzo Milazzo and Janine Illian each gave half-day courses entitled “Scientific Computing (An Introduction)”, and “Spatial modelling with INLA” respectively.
- In June, Andrew Haynes, Alan Hood and Kuan Tam attended the UKMHD meeting in City University, London in June 2011. Andrew and Kuan both gave talks.
- Richard Scott gave a talk at the American Meteorological Society conference on Atmospheric and Ocean Fluid Mechanics, Spokane, Washington, in June, and an invited talk at the ICTP conference on Turbulent Mixing, Trieste, in August.

- Kenneth Falconer gave a talk in memory of Benoit Mandelbrot at a conference “Self-similarity and Related Fields” in Le Touquet on the north coast of France in early June. The conference was mainly on aspects of probability theory and was held in a room in the casino, convenient for those who wished to indulge in applied probability!
- Several members of the Analysis Group attended the conference “Fractals and Related Fields” on the exotic Ile de Porquerolles just off the French Mediterranean coast from 13th - 17th June. Kenneth Falconer gave the opening lecture and Lars Olsen gave an invited talk, with Jonathan Fraser and Xiong Jin also contributing talks.
- Ineke De Moortel gave contributed talks at the annual BUKS meeting (27th - 29th June, Palma, Majorca), the LOOPS V workshop (29th June - 2nd July, Palma, Majorca) and the 13th European Solar Physics Meeting (12th - 16th July, Rhodes).
- Charles Paxton organised a scientific meeting at the Zoological Society of London in July.
- Colva Roney-Dougal, who (along with Hillary Weller from the University of Reading) is the LMS Popular Lecturer in 2011 gave her first lecture entitled “Symmetry, Chance and Determinism” at the Institute for Education in London in July, to an audience of around 550. She will give the next one at the end of September at the University of Birmingham.
- Sophie Huczynska attended the British Combinatorial Conference, held at Exeter University from 8th - 13th July, where she gave a talk entitled “Sum-free sets - what lies beyond?”. Vince Vatter (a former postdoc here and visitor to the department over the summer) also attended the conference.
- Ruth King was an invited speaker at the joint meeting on “Showcasing UK administrative data: innovative research, methodologies and modes of access” between the Royal Statistical Society and the Administrative Data Liason Service (funded by ESRC). This meeting took place in London on the 11th July. The meeting was well-attended with over 100 delegates from both academia and government.
- Max Neunhoffer, Steve Linton, Colva Roney-Dougal and Alexander Konovalov attended the Computational Group Theory meeting at Oberwolfach from 31st July - 5th August. Talks were given by Max, Steve and Colva.
- In August, Clare Parnell and Andrew Haynes attended the (invitation only) International Cambridge Workshop on Magnetic Reconnection 2011, in New Hampshire, USA. Clare gave an invited talk entitled, “Aspects of Separator Reconnection” and a talk on “Formation and sudden dissipation of a 2D MHS current sheet”. Andrew gave an invited talk entitled “Magnetic skeletons of the Earth’s magnetosphere with 45deg northward IMF”.
- In August Mike Todd attended the Equadiff 2011 conference in Loughborough, giving an invited talk in the session on statistical properties of dynamical systems.
- David Borchers, Janine Illian and Joyce Yuan attended the 58th Congress of the International Statistical Institute in Dublin in the week of the 22nd August. David gave an invited talk entitled “Cetacean Abundance Estimation: Novel Applications of Distance Sampling, Mark-Recapture and Survival Analysis Methods” and Janine gave an invited talk entitled “Spatial Modelling in a Marine Environment When Sampling with Unknown Inclusion Probabilities”.
- Alan Hood presented a lecture on the “Numerical Modelling of MHD waves and instabilities” at the first joint UK-Ukraine meeting on Solar Physics and Space Science. The meeting was held during the week of 29th August in the SPA Hotel Dubna in Alushta on

the Black Sea. The highlight was an entertaining taxi drive to the airport at 4.00am (both sides of the road being used to negotiate tight bends on steep slopes!)

- Thomas Neukirch and Ineke De Moortel gave lectures at the STFC Advanced Summer School in Solar Physics, which was held in Glasgow from 29th August - 2nd September.
- In September, Len Thomas gave a talk at a NATO Navy-sponsored conference on Effects of Sound on Marine Mammals in Amsterdam.
- Calum Brown and Angelika Studeny attended the 2011 European Regional Conference of The International Environmetrics Society, titled “Spatial 2 - Spatial Data Methods for Environmental and Ecological Processes”, Sept 1st -2nd, in Foggia and Baia delle Zagare, Italy. Calum gave a talk on “Comparison of spatial statistics for identifying underlying process in forest ecology” and Angelika won a prize for best poster in her subject group.
- Duncan Mackay attended an international team meeting at ISSI, Bern between the 5th - 10th September where he presented a talk on “Helicity Injection from Supergranular Cells”.
- From 12th -16th September, Richard Scott, David Dritschel, and Hanna Plotka attended the 13th European Turbulence Conference in Warsaw, presenting talks and a poster. The meeting was attended by 500 participants, not only from Europe but also many from North America and Asia.
- Ruth King and Roland Langrock attended the meeting on “Mathematical and Theoretical Ecology 2011: Linking models with ecological processes” which took place from the 19th - 21st September at the University of Essex, Colchester. Ruth was a keynote speaker at the meeting and presented “A review of state-space modelling of mark-recapture-recovery data” and Roland presented a talk on “Modelling the feeding behaviour of a population of Madagascan grey mouse lemurs via nonhomogeneous mixed hidden Markov models”.
- Colva Roney-Dougal was a “Morning Lecturer” at the BMC this year, and gave a talk called “Minimal and probabilistic generation of finite groups”.
- Janine Illian was invited by Tilman Gneiting to the University of Heidelberg, Germany and gave a talk on “Ecological applications of spatial point process theory – examples of spatial complexity”.
- Len Thomas attended two working group meetings on related topics: one in Barrow, Alaska, on the cumulative effects of sound on marine mammals, and one in Andros Island, Bahamas, on the population consequences of acoustic disturbance.
- Janine Illian gave an invited talk at, Yeditepe International Research Conference on Bayesian Learning in Istanbul on “A class of non-separable spatio-temporal point process models”.
- Janine Illian gave a talk at the Spatial Ecology and Conservation Conference, entitled “Spatial and Spatio-temporal point process modelling in population ecology”.

RESEARCH VISITS & VISITORS

- Wolfgang Kimmerle (Stuttgart) visited Alexander Konovalov in the 2nd half of April.

- Nik Ruskuc hosted research visits by several collaborators well known to many in the School: Alan Cain (formerly a Ph.D. student and RA with us, currently in Porto) visited in May and August; Vince Vatter (former RA with us, currently in Gainesville, Florida) visited in June and July; Rick Thomas (Leicester) visited in August.
- Mike Todd visited the University of Porto for a week in May to discuss joint work on extreme value theory for dynamical systems with the ergodic theory group there.
- From 9th -13th May, Ineke De Moortel visited Dr Scott McIntosh at the High Altitude Observatory in Boulder, US, where she gave a seminar on “3D Numerical Simulations of Coronal Loops Oscillations”.
- Calum Brown visited Dr I Fang Sun at Tunghai University in Taiwan in June to collaborate on the analysis of data from two Taiwanese rainforest plots using spatially explicit modelling and statistics.
- Xiong Jin visited Universit Paris Nord (Paris 13) in June to work with Julien Barral on multifractal processes.
- Karen Meyer was in Boston at the Harvard-Smithsonian Center for Astrophysics for a 6 week research visit, from June 5th to July 16th . She also gave a seminar while there.
- Earl Becker from the Alaska Department of Fish and Game, visited Steve Buckland in June and July to collaborate on method development for aerial survey distance sampling methods.
- Lars Olsen visited East China Normal University in Shanghai in August where he gave several talks. He was well-looked after by our former research student Jun Miao who is now a lecturer at the university.
- Cameron Walker from the University of Auckland, New Zealand is visiting Monique MacKenzie and Carl Donovan for 3 months to October to continue joint research on Spatially Adaptive Local Smoothing methods.
- Max Neunhoffer made a research visit to the University of Western Australia at Perth visiting Akos Seress and Cheryl Praeger from 19th August-16th September. He gave a talk on “Algorithmic Generalisations of Small Cancellation Theory” in their group theory seminar.
- Rick DeVore from the US Naval Research Laboratory visited Duncan Mackay between the dates of 21st August-4th September to work on a joint project on magnetic helicity injection in supergranular cells.
- Antony Overstall (University of Southampton) visited Ruth King and presented a Statistics seminar on the 5th September. (Antony will also be joining the Statistics division on the 1st October as a 1-year PDRA working with Ruth King)
- In early September Ali Mohebalhojeh from the University of Tehran came to collaborate with David Dritschel and Richard Scott on equatorial atmospheric dynamics, in particular new mathematical and numerical models.
- Rob Schick from Duke University visited Len Thomas and John Harwood for a week in September to discuss population consequences of acoustic disturbance and movement modelling.

- Luxiang Lin from the Chinese Academy of Sciences at Xishuangbanna Tropical Botanical Garden visited Calum Brown for a week in September to collaborate on the spatial analysis of rainforest plot data.
 - Juan Morales from the Universidad Nacional del Comahue Argentina visited Ruth King, Len Thomas, Roland Langrock and Jason Matthiopoulos (Biology) from 7th September to 22nd September to work on developing new statistical methods for analysing complex animal telemetry data. This visit was funded by a current EPSRC grant.
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WORKSHOPS, SUMMER SCHOOLS & EVENTS ORGANISED

- In June 35 participants attended a three-day workshop entitled “Statistical modelling in the assessment of offshore wind farm impacts upon seabird and marine mammal populations”. Participants were environmental consultants, energy developers, regulators and governmental advisors all involved in Scotland’s growing offshore renewable energy industry. Steve Buckland, Monique MacKenzie and Eric Rexstad delivered a series of lectures and moderated discussions regarding best practices.
- In July Monique MacKenzie, Carl Donovan, David Borchers, Lindesay Scott-Hayward, Darren Kidney and Theoni Photopoulou ran a workshop on Statistical Modelling for ecologists in the Kruger National Park, South Africa. It was attended by some 40 participants from the South African National Parks Service and the University of Pretoria. The workshop was a great success both in terms of knowledge exchange and game viewing. Close encounters with hungry hyenas in our camp added an element of excitement that we don’t get when presenting this workshop locally!
- In July Len Thomas conducted a workshop of Introductory Distance Sampling methods in Arusha, Kenya and was treated to a guided safari by the local workshop coordinator afterwards.
- Ruth King co-organised a training workshop with Prof Byron Morgan and Dr Rachel McCrea (University of Kent) on “Bayesian Capture-Recapture” at CREEM from 4th - 6th July. A total of 23 participants attended the 3-day workshop.
- During the week of 18th July David Borchers conducted a workshop on spatially explicit capture-recapture methods for surveying cryptic species with remote sensing methods at the South African National Biodiversity Institute in Cape Town, South Africa. Workshop-related activities included walking up one mountain to visit an endangered mountain frog species study site and up another mountain to visit a leopard study site.
- In August Len Thomas, Tiago Marques and Danielle Harris conducted a workshop on estimating whale and dolphin density from passive acoustics (i.e., listening for their calls) as part of a conference on bioacoustics held at Mount Hood, Oregon. Len, Tiago, Danielle and Marjolaine Caillet (and new baby Matisse) gave talks at the conference (Matisse’s talk was particularly inspiring).
- From 8th -12th August Max Neunhoffer assisted at a summer school on Matrix Group Recognition in Germany. He gave a lecture series there and helped to organise the exercise classes.
- CIRCA hosted the summer school “Advanced techniques in computer algebra systems development” on August 29th - September 2nd.

- During the weeks of the 29th August and 5th September, CREEM conducted two Distance Sampling training workshops (Introductory and Advanced). Some 40 participants from 11 countries attended these workshops.
 - The Solar Group hosted the STFC Introductory Course in Solar System Plasma Physics from 5th - 9th September. The funding we received by the Science and Technology Facilities Council (STFC) was about 20k. The school was attended by 28 students from all around the UK, most of whom are about to start their Ph.D.s. It was organised by Thomas Neukirch (Course Director), Fiona MacFarlane (Course Secretary), Clare Parnell and Alan Hood (Organizing Committee Members). Thomas and Clare gave lectures at the School.
 - During the week of the 12th September, CREEM hosted a 5-day research meeting on the analysis of animal movement data organised by Ruth King, Len Thomas, Juan Morales (Argentina) and Jason Matthiopoulos (Biology). There were 17 participants, all research leaders in various aspects of the problem, from Finland, Spain, Argentina, US and UK.
 - Janine Illian organised a meeting of the Royal Statistical Society (Environmental Statistics Section) on “Recent advances in spatial statistics in ecology” at CREEM. Speakers included Finn Lindrøgen (Norwegian University of Science and Technology, Trondheim, Norway) and David Miller (University of Bath).
 - Janine Illian organised (with Angelika Studeny and Calum Brown) A joint workshop/research retreat with Dr. Justin Travis’ group, Aberdeen, in Kingairloch in the Highlands with visitors from France and Australia.
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OTHER NEWS

- Many thanks to Sophie Huczynska the outgoing editor of this newsletter for all her hard work compiling previous issues. She passes the job of editor along to Stuart King.
 - In July Ruth King took over as Statistics stream leader within the SMSTC.
 - In early July, Kenneth Falconer took part in the British Race Walking Championship 100 mile event, and finished in 22 hours 54 minutes. Congratulations to him for winning the medal for the fastest competitor in his age section, he assures us that 84 laps of Lingfield Racecourse is excruciatingly boring!
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NEXT ISSUE

Please send material for the next Newsletter to: mcsupdate@mcs.st-andrews.ac.uk