

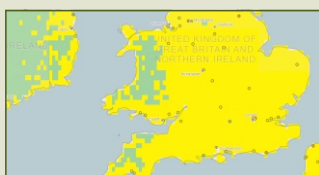
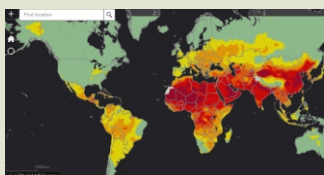
# SAMBa Newsletter

Issue 7, January 2017



## Making an impact in mapping exposure to air pollution

Air pollution has adverse impact on human health and so there is a need for accurate estimates of the potential exposure to it. SAMBa student Matt Thomas has been working collaboratively with international experts and the World Health Organisation (WHO) to develop a model that utilises information from multiple sources to produce high-resolution estimates of exposures throughout the world. Gavin Shaddick, SAMBa co-Director and one of Matt's PhD supervisors, led the international research team who developed the model. Matt has developed the practical implementation of the model using high-performance computing and has delivered tools that allow visualisation of the results. An interactive on-line map was released in September and so you can investigate how air pollution levels vary round the globe and in your local area [here](#). The model estimates that 92 per cent of the world's population live in areas where levels of air pollution exceed WHO recommended limits, a finding that was widely reported by media worldwide.



## New intake of SAMBa students arrives

In September we welcomed our 3rd cohort to SAMBa, taking the total number of students to 33. In addition, we have a further 3 students who have joined the department and are affiliated to SAMBa. They are undertaking research on projects in wireless networks, branching processes and space weather with our partners BT, Amec Foster Wheeler and the Met Office, respectively. Our new students represent 7 nationalities and a broad range of statistical applied mathematics interests.



We are excited to be welcoming back Sandra Palau Calderon, who spent 5 months visiting us as a PhD student in 2015. Sandra has been awarded a Newton Fellowship to return to the University as a postdoc, working in Prob-L@B.

### Coming up...

- 23<sup>rd</sup> - 27<sup>th</sup> Jan IMPA-Bath Workshop in Mathematics
- 27<sup>th</sup> Jan Bath-RAL Numerical Analysis day
- 30<sup>th</sup> Jan - 3<sup>rd</sup> Feb ITT5
- 8<sup>th</sup> Feb SAMBa Away Day
- Mar Where's the Maths?
- 1<sup>st</sup> Mar Bath SIAM-IMA Student Conference
- 7<sup>th</sup> Mar Inter CDT pub quiz
- 30<sup>th</sup> Mar - 7<sup>th</sup> Apr BUC6: Applied analysis
- 10<sup>th</sup> Apr Developing efficient methodologies for modelling stochastic dynamical systems in biology
- 20<sup>th</sup> - 21<sup>st</sup> Jun SAMBa Summer conference
- 21<sup>st</sup> Aug - 1<sup>st</sup> Sep SAMBa-WIAS summer school

Congratulations to our cohort 2 student, Robbie Peck who was one of the winners in the Smith Institute's TakeAIM competition. This rewards PhD students who articulate their research for a general audience in just 200 words. Robbie's description of Self Designing Clinical Trials won him a £200 prize.

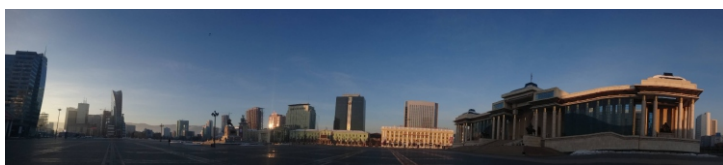
## Athena SWAN award for Maths at Bath

We are very proud that the Mathematical Sciences department at the University of Bath has attained an Athena SWAN Bronze Award. The department offers an inclusive and supportive place to work and study. We are pleased that this has been recognised and that SAMBa played some part in the success.



## Braving the cold for data science

Ulaanbaatar, the capital of Mongolia is the fifth most polluted city in the world and WHO findings show that 1 in 10 deaths in Mongolia are due to the impact on health from air pollution. In November, in temperatures of  $-30^{\circ}\text{C}$ , staff and students from SAMBa joined a Mathematical Sciences and Institute of Policy Research (IPR) visit to the National University of Mongolia. During this visit, participants met academics and policy makers dealing with the problem of air pollution, and the associated health issues. Four students from SAMBa also delivered a short course on using data science and statistics in research to 130 participants from universities, government institutes, and industry in Ulaanbaatar, which will go some way to helping researchers in Mongolia better utilise and interpret their data.



[View our wonderful SAMBa video on YouTube](#)



**We've been visiting:** BT, Ipswich · BIRS, Canada · IMPA, Rio de Janeiro · National University of Mongolia · Oaxaca, Mexico · Peking University, China · Roche, Welwyn Garden City · Royal Statistical Society, London · Schlumberger, Cambridge · Unicamp, São Paulo · Universidad de Costa Rica · University of Turin · University of Warwick · University of York · Universität Heidelberg · Weierstrass Institute, Berlin · WHO, Bonn & Tallinn

Adwaye Rambojun won our inaugural SAMBa blog prize, awarded annually to the best student entry, as judged by the Faculty of Science's Marketing and Communications Team. Adwaye described his experience of attending workshops and conferences during his first year of SAMBa and how it shaped his choice of project. Marketing and Communications Manager, Simone Dumergue, commented: "His blog conveys the diversity of applications for applied mathematics (both the topics and the different sectors), and the really interesting exposure that he is able to have as a SAMBa student." To read Adwaye's story and more from our students, visit [our blog](#).

In November, our co-Director, Paul Milewski, and cohort 2 student Aoibheann Brady travelled to Brazil for the first U4C – University of Four Continents – meeting. This network is made up of the University of Bath, Zhejiang University in China, University of Stellenbosch in South Africa and the University of Campinas (Unicamp) in Brazil. The aim of the network is to develop opportunities in research, through academic collaboration and doctoral studies. The meeting was held at the Unicamp campus and Paul and Aoibheann were chosen to represent both Mathematical Sciences and SAMBa. Aoibheann said: "I've found potential areas of collaboration with the environmental and sustainability community and it was a pleasure to meet such an engaged group of people."



## MRes Transfer Days

Our second cohort presented on a wide range of research topics, from condensation in branching processes to parasite epidemiology, at our MRes Transfer Days in October. This is a chance for students to describe the work they have carried out during their summer projects and to look forward to their PhD research. It marks the transition of students from the MRes to the PhD stage of SAMBa, and we are pleased to report that all 13 students successfully progressed.

For more details on all these stories and to see how you can get involved, visit the SAMBa website: [bath.ac.uk/samba](http://bath.ac.uk/samba)



Website: [www.bath.ac.uk/samba](http://www.bath.ac.uk/samba)  
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