

# Dr Andy South

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I'm excited by the potential to improve data skills and tools, particularly in low income settings and particularly for operational staff. I'm leading a project that I initiated and designed myself to facilitate the use of spatial data in public health in Africa.

I have recent experience in R development, QGIS training, research and management. I have worked in a diversity of settings developing useful and useable software. I work well collaboratively and have the creativity and determination to complete personal projects.

I am active in the R open-source community.

## Employment

2016 to present **Research Associate**. Liverpool School of Tropical Medicine.

- won Wellcome Trust funding for afrimapr, to develop R building blocks for better use of public health data in Africa – [www.afrimapr.org](http://www.afrimapr.org)
- developed and delivered QGIS 5 day courses in English and Spanish to over 200 mosquito control staff from 30 countries <https://etch.lstm.ac.uk/projects/associated-projects/geographical-information-for-vector-surveillance-gives>
- simulating evolution of insecticide resistance and insecticide use strategies
- designed a simple simulation for a computer game of insecticide resistance management
- translated a spatial simulation of tsetse fly populations into R

2012 to 2016 **R developer**. Freelance.

- taught on Data Carpentry course South Africa Nov 2016, codata/RDA summer school Aug 2016, & Software Sustainability visualisation workshop Manchester Jul 2016
- contributed to hackathon for epidemiology datavis see <https://github.com/Hackout2/repijson>
- initiated two winning projects at NHS hackdays
- update & support for R packages rnaturalearth & rworldmap – downloaded >209,000 times
- short contracts for Defra, Cefas, Worldfish & Welsh Assembly.

2011 to 2012 **Class teacher**, 7-8 year olds. Bosbury Primary School, Herefordshire.

2006 to 2010 **Spatial analyst and team leader** Centre for Environment, Fisheries and Aquaculture Science (Cefas), Lowestoft

- Leader of the Spatial analysis team of 6-10 staff using ArcGIS, MapInfo, R & SQL
- Responsible for staff management, recruitment and work allocation
- Analyses of fisheries data stored in complex relational databases
- Initiated and developed rworldmap, an R package to map global data now used worldwide
- Received performance bonus allocated to 5% of staff, won projects from NERC, EU and Defra

2000 to 2006 **Software developer, trainer and researcher** Anatrack Ltd., University of Oxford.

- Designed and developed a software tool for viewing and analysing tracking data
- Tested application, wrote help files, supported users and gave training
- Completed application had 50,000 lines of Java and C++, still being sold today, over 10 years later (www.anatrack.com)

1994 to 2000 **PhD student and Post-doctoral ecologist** University of Newcastle.

Spatial ecology of badgers, red squirrels, and beavers.

- Scientific research, programming, fieldwork and writing papers
- Linking C programs to GRASS GIS using UNIX scripts

## Current technical skills :

- R for data manipulation, display and analysis. Development of R packages
- Web user interfaces using R and shiny
- Version control using Git, Github & Travis
- Interrogation, analysis and visualisation of spatial data using QGIS & R
- Automated document creation using Rmarkdown

## Education

- 2010 - 11 **Postgraduate Certificate of Education**, Primary. Science specialism. Exeter Univ.
- 2008 - 09 **BTEC Level 7** certificate in Leadership and Management.
- 1994 - 98 **PhD**, University of Newcastle upon Tyne. Modelling the Spatial Distribution of Mammals. <https://theses.ncl.ac.uk/dspace/bitstream/10443/175/1/south99.pdf>
- 1989 - 93 University of East Anglia, Norwich and University of California at San Diego, USA  
**BSc (Hons) Biological Sciences. First class.**
- 1981 - 89 Bristol Grammar School. **A-Levels** : Biology (A), Chemistry (A), Geography (A)

## Funding awards

- 2019 £50k Wellcome Trust Open Research Fund, 6 funded from 93 applications.
- 2019 £5k (shared between 3) Wellcome Trust Malaria Data re-use prize
- 2017 £3k Software Sustainability Institute Fellowship

## Selected publications

- South, A et al. (2019) The role of windows of selection and windows of dominance in the evolution of insecticide resistance in human disease vectors **Evol Applications** <https://doi.org/10.1111/eva.12897>
- Tomlinson, S, South, A & Longbottom, J (2019) Malaria Data by District - An open-source web application for increasing access to malaria information. **Wellcome Open Res** <https://doi.org/10.12688/wellcomeopenres.15495.2>
- Thomsen, E, ...South, A, et al. (2018) ResistanceSim - development and acceptability study of a serious game to improve understanding of insecticide resistance management in vector control programmes. **Malaria Journal**, 17: 422.
- South A & Hastings I (2018) Insecticide resistance evolution with mixtures and sequences: a model-based explanation. **Malaria Journal**. <https://doi.org/10.1186/s12936-018-2203-y>
- Killeen G, ...South A et al. (2017) Measuring, manipulating and exploiting behaviours of adult mosquitoes to optimize malaria vector control impact. **BMJ Global Health**.
- Levick B, South A, Hastings I (2017) A Two-locus Model of the Evolution of Insecticide Resistance to Inform and Optimise Public Health Insecticide Deployment Strategies. **PLOS Computational Biology**. <https://doi.org/10.1371/journal.pcbi.1005327>
- Finnie T, South A, Bento A, Sherrard-Smith E, Jombart T (2016) EpiJSON: A unified data-format for epidemiology. **Epidemics**. <https://doi.org/10.1016/j.epidem.2015.12.002>
- South A (2012) Developing creativity and abstraction in representing data. **Primary Science**. 124. 17-20.
- South A (2011) rworldmap A New R package for Mapping Global Data. **The R Journal**.
- Ready J, ... South A, et al. (2010) Predicting the distributions of marine organisms at the global scale. **Ecological Modelling**.
- Lee J, South A, and Jennings S (2010) Developing reliable, repeatable, and accessible methods to provide high-resolution estimates of fishing-effort distributions from vessel monitoring system (VMS) data. **ICES Journal of Marine Science**.
- South A, Kenward, RE & Walls SS (2006) Ranges7 : For the analysis of biological location data. Online manual. ISBN 0-9546327-0-2.
- South A & Kenward, RE (2001) Mate finding dispersal distances and population growth in invading species: a spatially explicit model. **Oikos**.
- South A, Rushton SP & Macdonald DW (2000) Simulating the proposed reintroduction of the European beaver (*Castor fiber*) to Scotland. **Biological Conservation**.
- South A (1999). Dispersal in spatially explicit population models. **Conservation Biology**.

**Languages : Spanish** AS Level grade A 2000. Intermediate & Advanced classes 2002-10. 5 weeks co-teaching GIS in Spanish 2017-18.