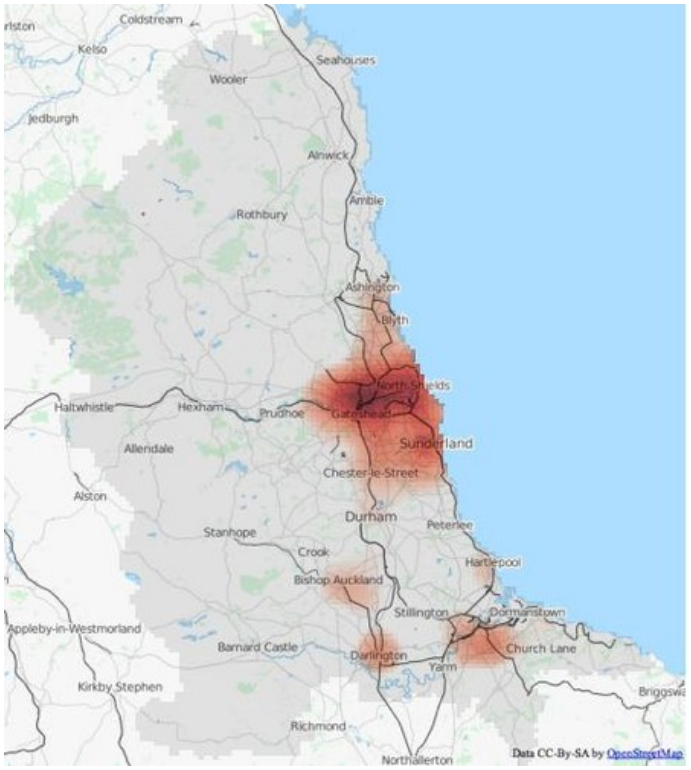
Peter Diggle

- Distinguished University Professor
- RSS President (2014-2016)
- Spatial and Longitudinal Analysis
- Biomedical, Health, Environmental Applications

Campylobacter

enigma The Study of Campylobacter

- Most common cause of GI illness in England and Wales
- Integrate heterogeneous data collections
- Produce incidence maps
- Predict risk
- Target controls



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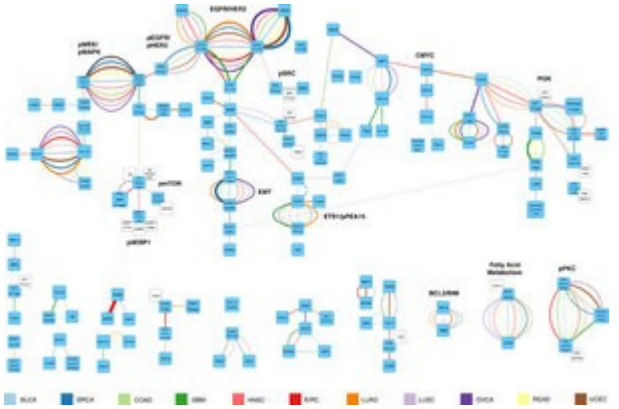
Frank Dondelinger

- Anniversary Lecturer in Biostatistics
- Statistical Genomics
- Disease Outcome Prediction
- Genetic Trait and Phenotype Prediction
- Networks and Pathway Inference
- Hierarchical Bayesian Modelling
- Analysis of Heterogeneous Datasets
- Systems Biology and Dynamical Modelling

Signalling Pathway Reconstruction

- Using a Pan-Cancer Proteomics Dataset
- 181 proteins in 11 tumour types
- Graphical Gaussian models
- Reconstruction of known and novel pathways.
- Enabling new stratification and classification of cancer subtypes.



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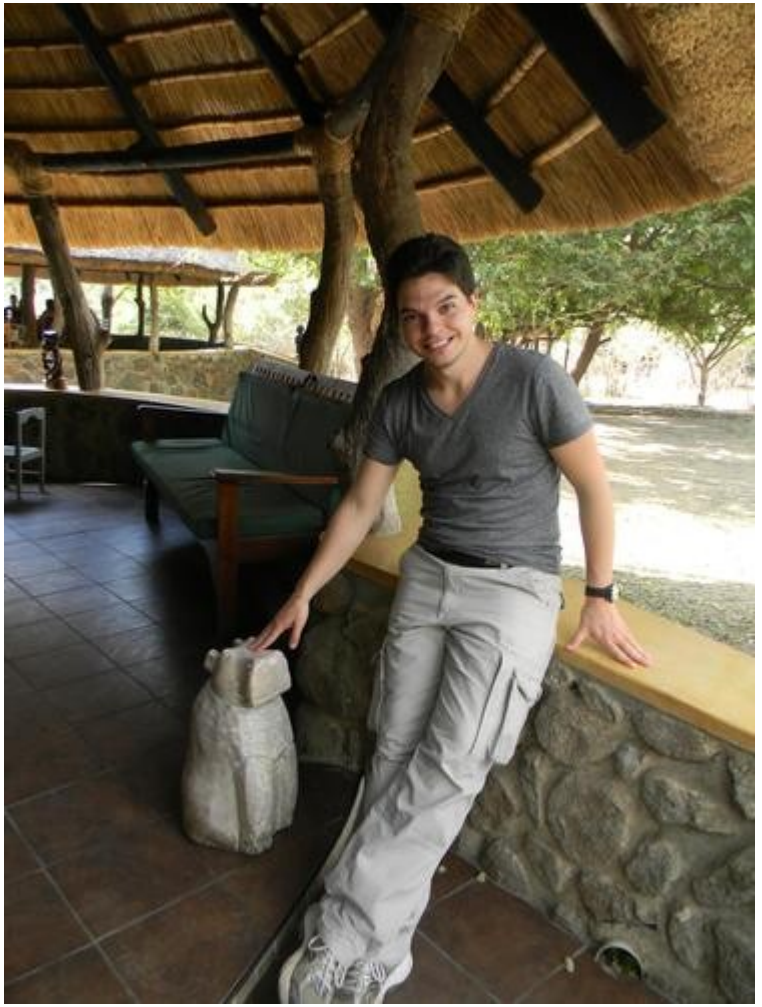
Emanuele Giorgi

- MRC Research Fellow
- Recent CHICAS PhD completion
- Spatio-temporal Statistics
- Prevalence Mapping



Malaria Control in Malawi

- Intervention Effectiveness
- Monitoring and Evaluation Tool
- With Wageningen, Amsterdam, Malawi, Liverpool
- Aiming for 80% morbidity reduction

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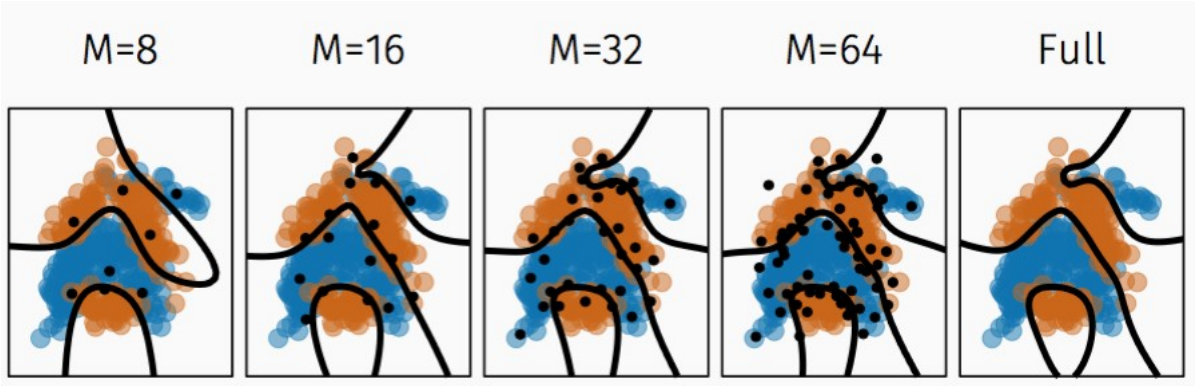
James Hensman

- MRC Fellowship Lecturer in Biostatistics
- Statistical Machine Learning
- Gaussian Process Models
- Bioscience and Epidemiology Applications

Scaling Gaussian Processes

- GPs are popular and useful statistical models
- Computation is $O(n^3)$
- Becomes slow with Big Data
- Developed algorithm for better than $O(n^3)$ performance with little accuracy sacrifice



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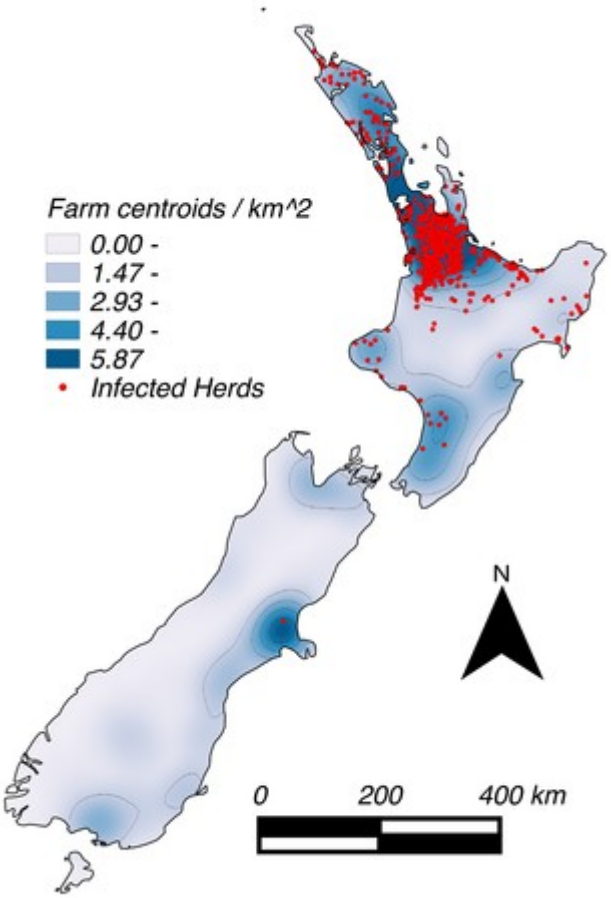
Chris Jewell

- CHICAS Senior Lecturer
- Disease Outbreak Response
- Zoonotic Diseases
- Stochastic Dynamic Infection Models
- High Performance Computing, including GPU Programming

Vector-borne Disease Inference

- Methodology for forecasting
- Fitting algorithms from case data
- Predicting risk surfaces
- Data assimilation



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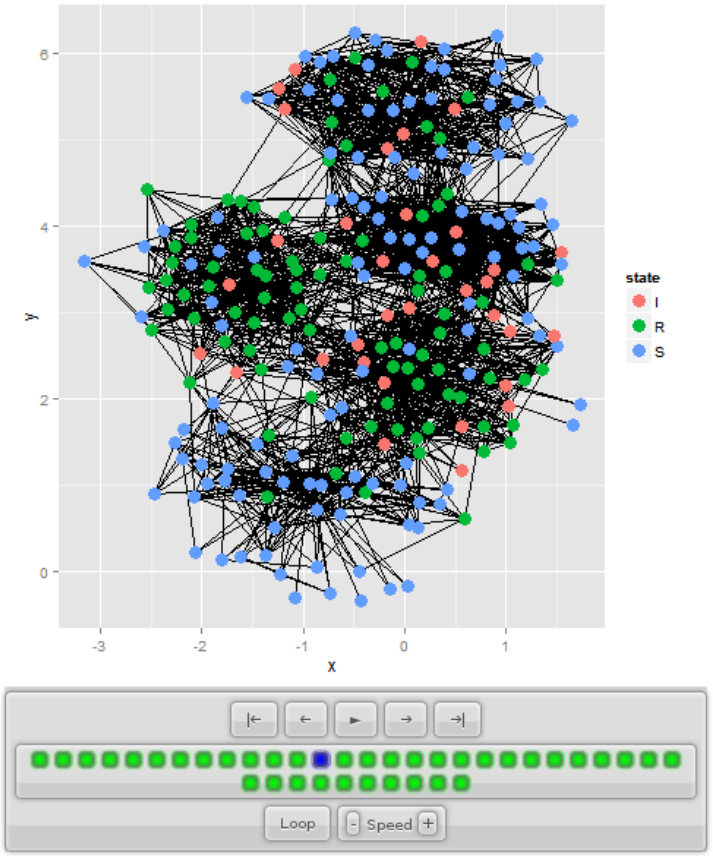
Tom Keegan

- Lecturer in Epidemiology
- Environmental and Occupational Epidemiology
- Exposure Measurement and Modelling

Infections and Networks

- Influenza Transmission
- Social Network Graph Models
- Vaccination Scheme Design



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Jo Knight

- Anniversary Reader in Statistical Genetics
- Psychiatric Genetics
- Genetic Data Integration
- Epigenetics

Immunity & Schizophrenia

- Study enrichment of genetic risk variants in immune genes.
- Compare genetic profile of immune diseases with that of Schizophrenia
- Explore the role of the major histocompatibility loci in Schizophrenia

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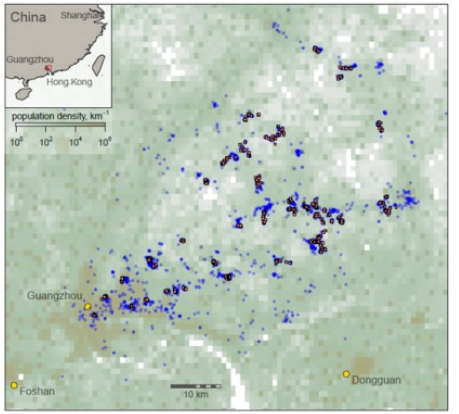
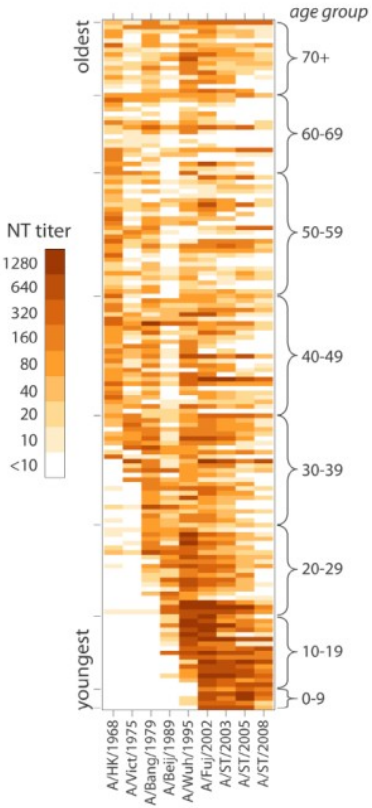
Jonathan Read

- Senior Lecturer in Epidemiology
  - Infectious diseases
  - Pathogen transmission and evolution
  - Human interaction patterns
  - Field-based and modelling studies
  - Worked on seasonal and pandemic influenza, Ebola, RSV, norovirus, rotavirus, pneumococci
  - Studies in China, Hong Kong, UK, USA, Malawi, Thailand, Indonesia, Vietnam

Fluscape

- Open cohort study
  - Guangdong province, China
  - Approx. 1,000 households
  - Approx. 2,000 individuals
  - 4 years field-work
  - Measure contact and travel patterns
  - Serological analysis of antibody titres to recent and historic influenza strains
  - Statistical analysis and modelling (simulation)





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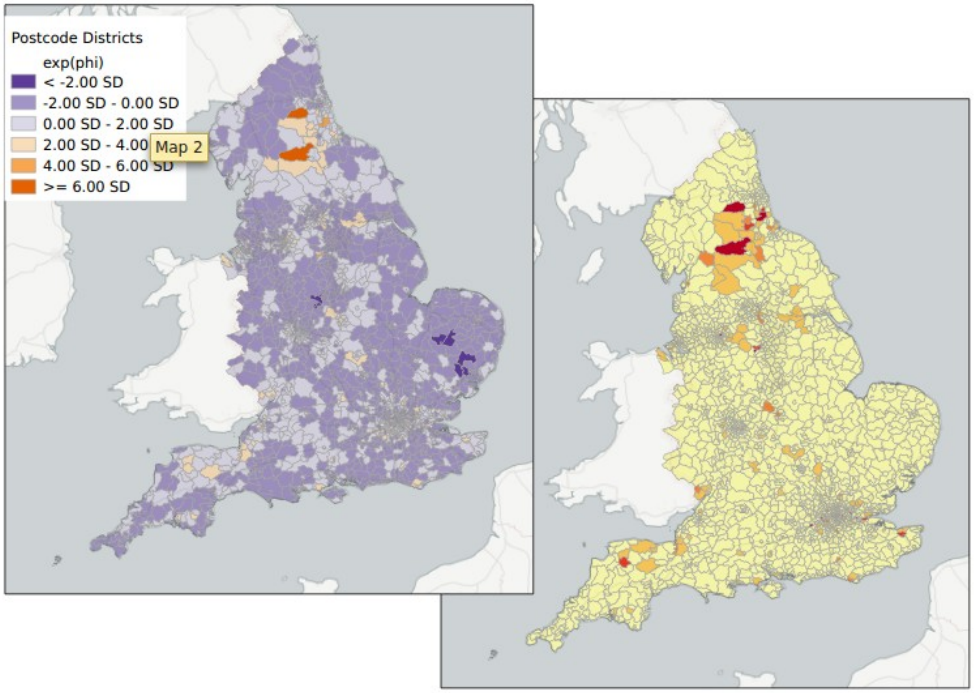
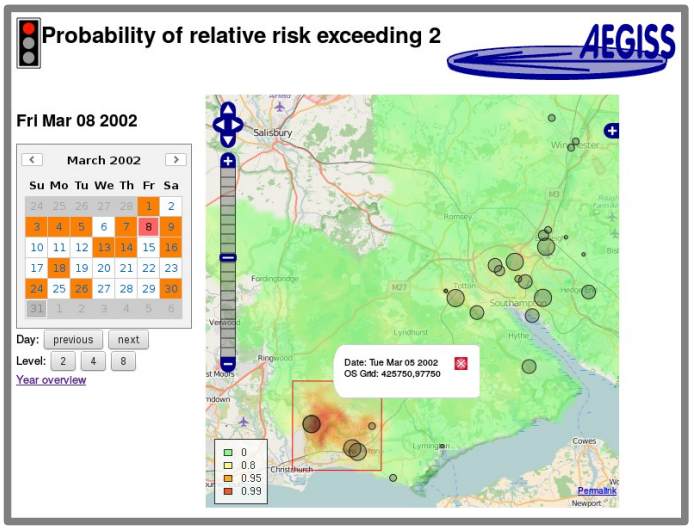
Barry Rowlingson

- CHICAS Research Fellow
- Spatial Epidemiology
- Statistical Software Development
- Visualisation and Graphics
- Geographic Information Systems
- Web System Development

AEGISS2

- Integration of Human and Veterinary Case Data
- Vet Data via SAVSNET
- Human Data via NHS111
- Rapid Detection of Disease Outbreaks





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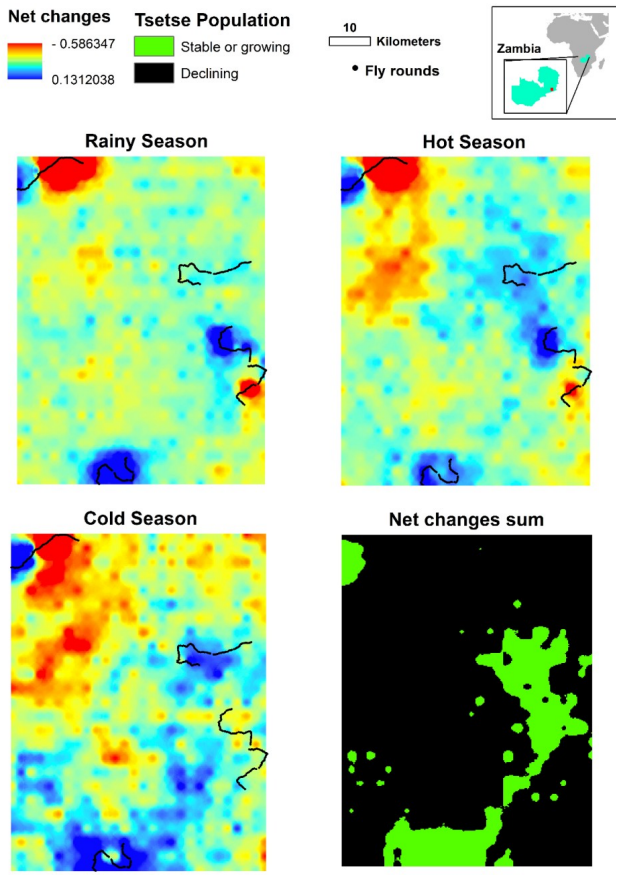
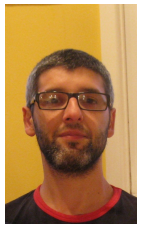
Luigi Sedda

- Anniversary Lecturer in Spatial Epidemiology
- Vector-borne disease mapping
- Emergence and spread
- Species Distribution
- Disease Control

Mapping Vector Hot-Spots

- Determine vector and host population dynamics
- Tsetse fly distribution analysis
- Map stable/growing tsetse fly zones
- With Lancaster, Liverpool STM, Southampton University





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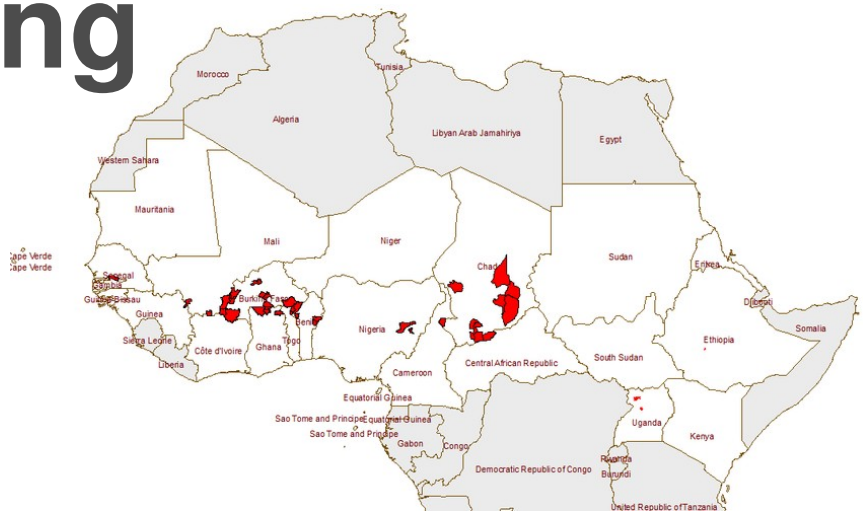
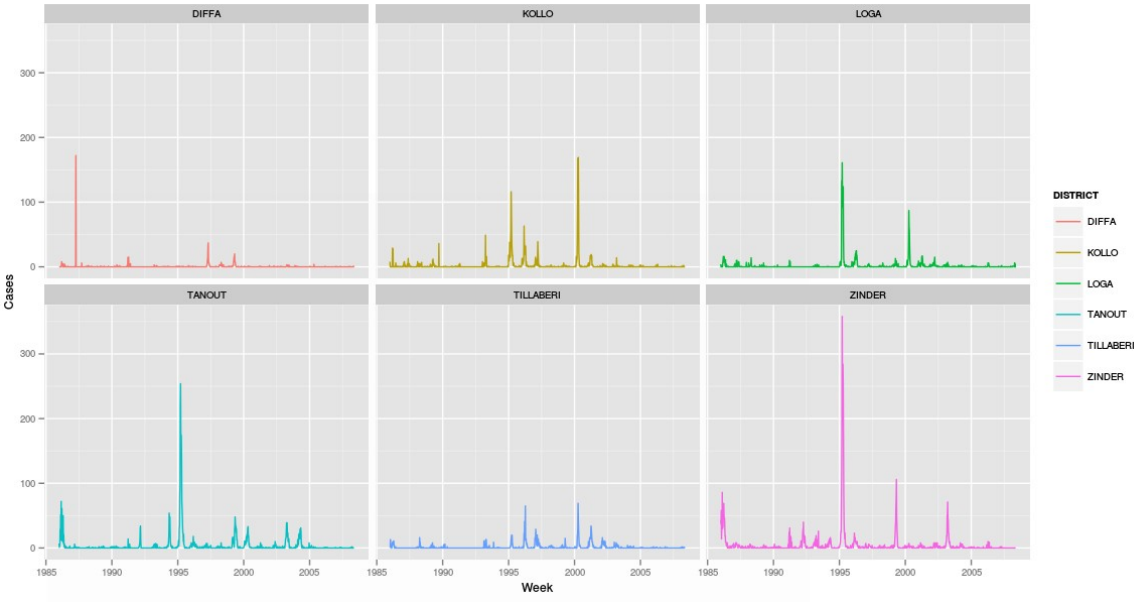
Ben Taylor

- Lecturer in Statistics
  - Methodological and computational aspects of log-Gaussian Cox Processes.
  - Combining data recorded at multiple spatial scales.
  - Filtering methodology and applications.
  - Forecasting meningitis incidence in sub-Saharan Africa in collaboration with the World Health Organisation.
  - Spatial prediction of campylobacter in the UK.
  - Spatial modelling of survival outcomes

Meningitis Forecasting

- Weekly District Case Counts
- Dynamic Linear Model
- Epidemic Alert and Forecast
- Weekly Reports Delivered to WHO





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