

# Explorations of a learned society: the RGS-IBG work to promote quantitative skills

Dr Rita Gardner

Director

# Defra: Flood Zone 3 - land assessed as having a 1 in 100 or greater annual probability of river flooding (>1%) per year (without flood defences)


Enter a postcode or place name:   Other topics for this area...

X: 529,630;Y: 180,109 at scale 1:10,000 [Data search](#) [Text only version](#)

**Map legend**

Click on the map to see what Flood Zone (National Planning Policy Guidance definitions) the proposed development is in.

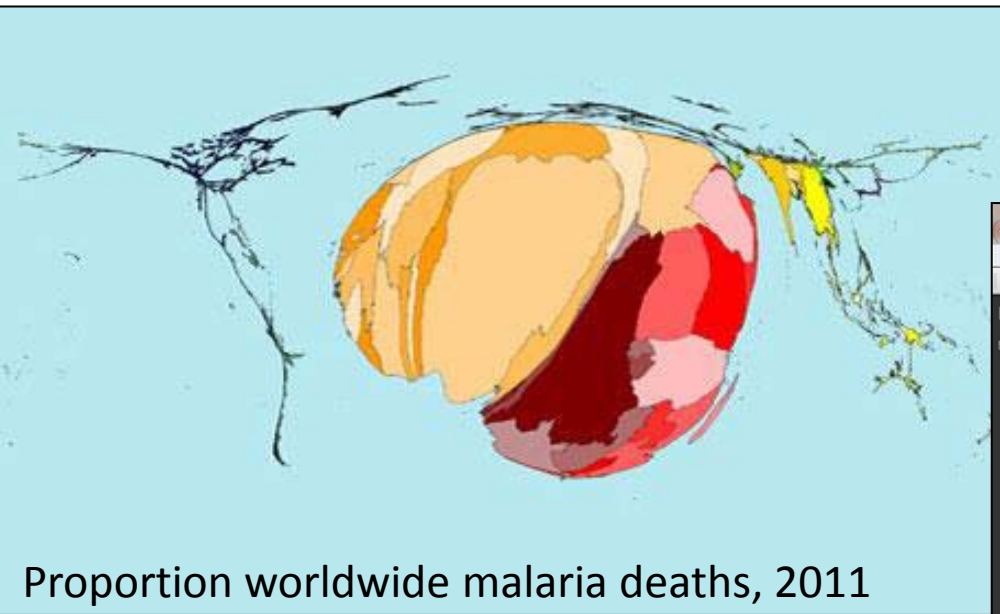
- Flood Map for Planning (Rivers and Sea)
- Flood Zone 3
- Flood Zone 2
- Flood defences (Not all may be shown\*)
- Areas benefiting from flood defences (Not all may be shown\*)
- Main rivers



Customers in Wales - From 1 April 2013 Natural Resources Wales (NRW) has taken over the responsibilities of the Environment Agency in Wales.  
© Environment Agency copyright and database rights 2014. © Ordnance Survey Crown copyright. All rights reserved. Environment Agency, 100026300.  
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[More about flooding:](#)

- A vital discipline in relation to QM
  - Breadth of subject
  - Spatial & non-spatial methodologies
  - Range of primary & secondary data sources
  - Scope of QS
  - Combines discipline specific & generic QM
- Rich applications of QM to inform study, research, policy, public uses & the economy
- Need for improvement in QS recognised e.g. IBR
- **Key messages:**
  - 1: Disciplinary context matters in developing QS because both application and data literacy are end goals
  - 2: Subject specific QS are as important as generic ones



Proportion worldwide malaria deaths, 2011

http://www.rgs.org/NR/rdonlyres/63190615-444... n8research.org.uk rgs.org

Geographical Research Impact: case study 13

Royal Geographical Society with IBG  
Advancing geography and geographical learning

- Helping policy makers to better plan for an ageing population

http://www.n8research.org.uk/assets/files/N8%2... n8research.org.uk

N8 Research Partnership

The impacts of demographic change in the functional economies of the North of England

Summary Report

*Ray Hudson* Durham University  
 with *Lisa Buckner* University of Leeds  
*Tom Cannon* University of Liverpool  
*Alan Harding* University of Manchester  
*Kasia Kurowska* Newcastle University  
*Philip Rees* University of Leeds

**“10% of the UK’s economic activity is reliant on Ordnance Survey data”**

# Households likely to include a regular and substantial carer

Hotspot (Kernel Density) map of 6 Mosaic types likely to be involved in a caring situation

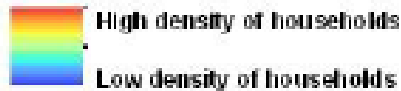
Household profiles included in analysis:

- K49: Low income older couples long established in former council estates
- K50: Older families in low value housing in traditional industrial areas
- L54: Retired people of modest means commonly living in seaside bungalows
- M56: Older people living on social housing estates with limited budgets
- M59: People living in social accommodation designed for older people
- O67: Older tenants on low rise social housing estates where jobs are scarce

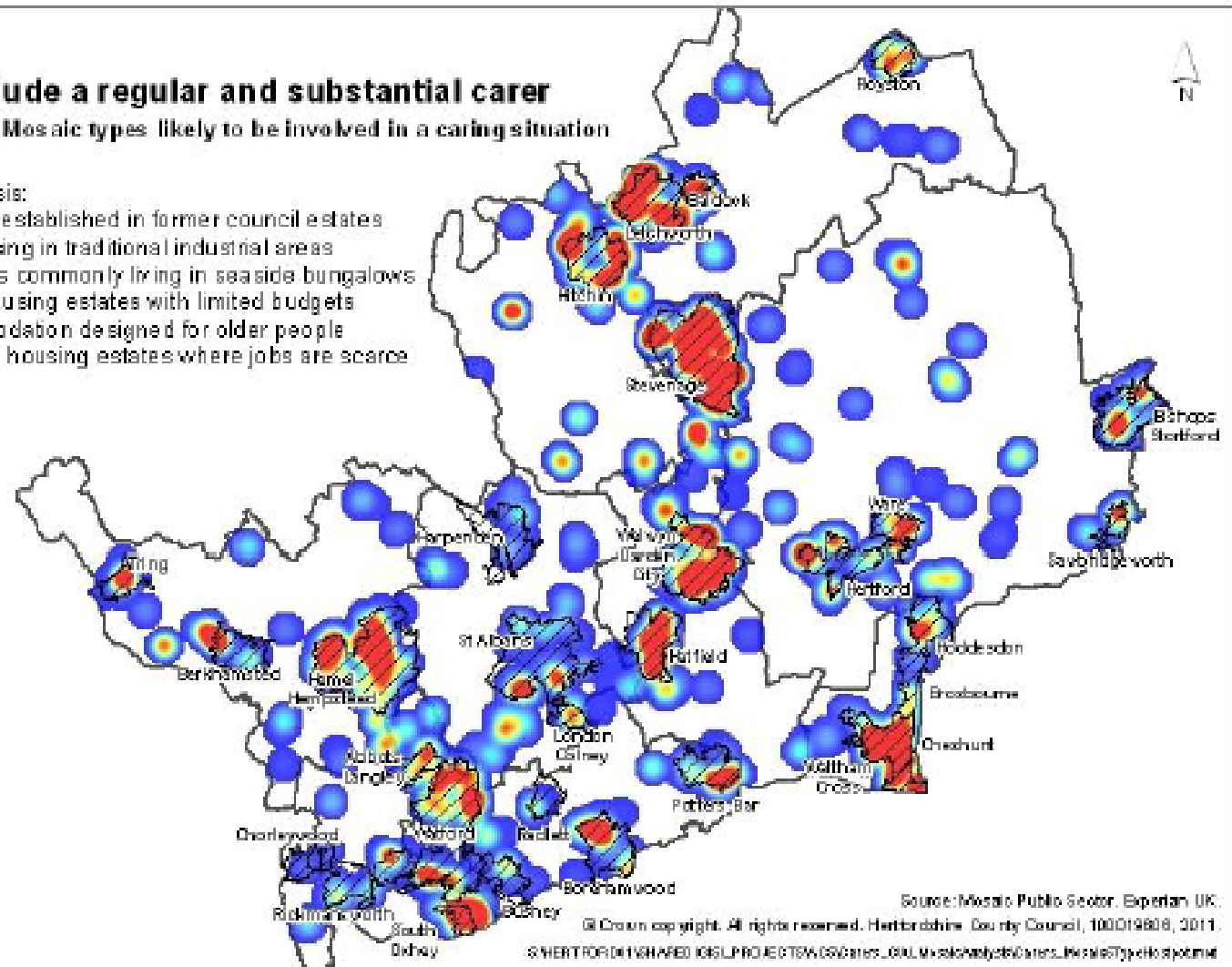
Parameters used to create hotspot layer

Bandwidth: 1000

Cellsize: 100



1:375,000



Source: Mosaic Public Sector, Experian UK.

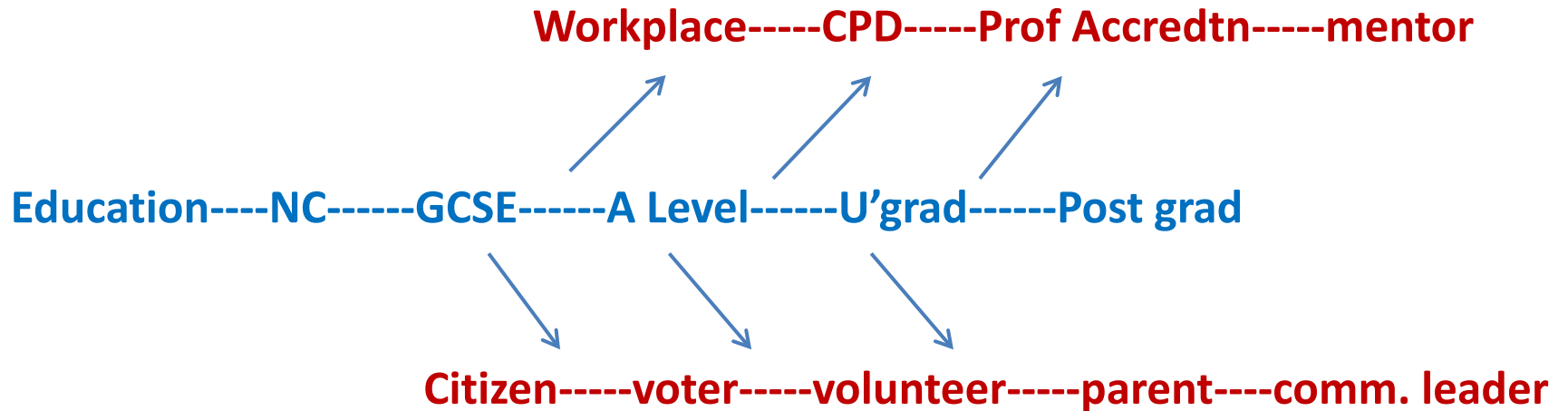
© Crown copyright. All rights reserved. Hertfordshire County Council, 100019808, 2011.

© HERTFORDSHIRE COUNCIL PROJECTS/WORKING WITH LOCAL MENTAL HEALTH PARTNERS TO PROMOTE WELLBEING

Data mapping in Hertfordshire (Source: Hertfordshire County Council, Mosaic, Experian UK)

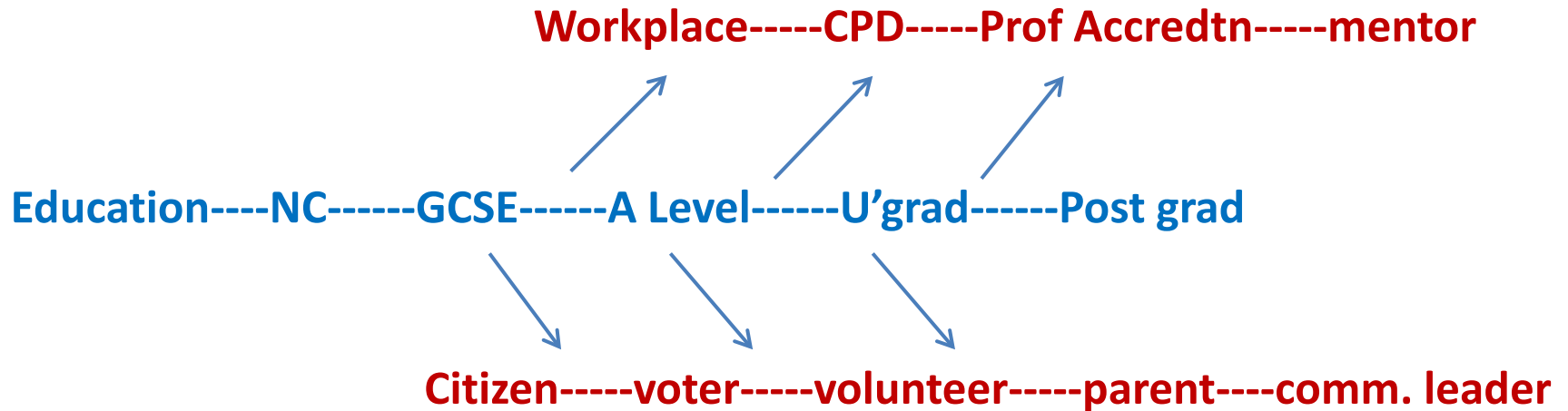


# The pipeline & its pinch points



RGS-IBG works with research, education, wider public, policy and professional geographer audiences

# The pipeline & its pinch points



## Education: the fluid in the pipe

Policy:

curriculum approach & content

Research:

sufficient to understand the issues

Implementation:

relevant advice, networks, training  
support & reinforcement



# The pipeline & its pinch points

## Policy

**NC + GCSE:** Advocacy for EBac; DfE Expert Group; ministerial advice; liaison with officers; liaison with schools; dialogue with AOs; engaging community with consultations; consultation responses; wider collaboration

**A Level:** Advice for Ofqual; advocacy to DfE for full review; ALCAB member; liaison with schools; liaison with HEIs; consultation responses

**U'grad:** Chairing QAA benchmarking review; liaison with HEIs

**Post grad:** Partner in Int. Benchmarking Review; consultation responses (e.g. DTC review); liaison with HEIs

## Research

### Quantitative Methods in Geography

Making the Connections between  
Schools, Universities and Employers



Richard Harris  
Katharine Fitzpatrick  
Catherine Souch

Chris Brunsdon      Scott Orford  
Claire Jarvis        Alex Singleton  
Chris Keylock        Nicholas Tate



# Advice, networks & training support

Browser tabs: <http://www.rgs.org/OurWork/Research+and+Hi>, [n8research.org.uk](http://n8research.org.uk), search, Quantitative Teaching and ...

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Advancing geography and geographical learning

## Quantitative Teaching and Learning in Geography


**Good practice**  
Student work  
Workplace studies


**A critical shortage of skills in quantitative methods (QM) in the UK exists across the educational sector - in schools, universities, and in the workplace.**


**QuanTiLe**  
Quantitative Teaching and Learning in Geography

The ability to understand and manipulate data is an increasingly valuable skill for geography graduates. Quantitative Methods are used in a variety of roles, across a number of diverse, geographically related job sectors. These resources aim to promote the development of Quantitative Methods in UK Higher Education.

**Resources**

 Workplace studies »

 Examples of teaching good practice »

 Student work »

**QuanTiLe**

Visit the project website to find:

**Internet links**

- ESRC Quantitative Methods Initiative
- British Academy 'Society Counts'
- Nuffield Foundation
- Royal Statistical Society

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- Good practice
- Student work
- Workplace studies

## Good practice in Teaching Quantitative Methods

These resources offer examples of good practice for the teaching and supported learning of Quantitative Methods at university.



University of Brighton

[Maths and Statistics support centre; the "Pi Shop" \(PDF\)](#)



Cardiff University

[Embedding Quantitative Methods \(PDF\)](#)



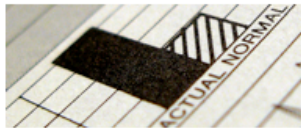
University of Bristol

[Conveying concepts through storytelling \(PDF\)](#)



Cardiff University

[Student summer placement scheme \(PDF\)](#)



University of Durham

[Statistic support advisor \(coming soon\)](#)



University of Southampton

[Diagnostic Testing \(coming soon\)](#)

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**Royal  
Geographical  
Society**  
with IBG

Advancing geography  
and geographical learning

# Young Geographer of the Year 2013

Entries for  
this year's  
competition  
close

11 October 2013

The question for this year's Young Geographer of the Year competition is:  
*'How does either the human or physical geography of your local area compare to that of the rest of the UK?'*

Pupils should use a variety of different sources of geographical information to research their local area and compare it to the national picture. This might include using census or climate data, or examining urban change or flood risk – the choice is open to you to explore data relevant to your local area.

The competition has categories for KS2, KS3, GCSE and A-level students. The Society encourages schools to run their own in-school competition before sending their top entries in to the national competition.

## **Rex Walford Award for student teachers or teaching colleagues new to the classroom**

The same question will also form the basis of the accompanying Rex Walford Award, which is for teachers in either their student training year (for example, PGCE, Schools Direct) or who have just started in the classroom (for example, NTQ, Teach First). Entries should include lesson notes or a scheme of work to cover two or three lessons exploring this issue and we particularly welcome entries that include opportunities for data handling and fieldwork.

For full details of both competitions, please visit [www.rgs.org/YGOTY2013](http://www.rgs.org/YGOTY2013)

Young Geographer of the Year is kindly supported by:



Support is provided by the British Academy as part of its Quantitative Skills programme

Reinforcement

# The pipeline & its pinch points

- Pinch points in geography education pipeline
  - Missing generation of school teachers
  - Inconsistency across specifications at GCSE and A Level
  - Undergraduate negative feedback loop
  - Training highly variable in Masters programmes
  - RGS-IBG making more of what we do
- **Key messages:**
  - 3: transition, continuity, reinforcement & progression in QM and their applications is essential
  - 4: Learned societies as key agencies in coherent subject perspectives across phases, communities & policy makers

# Engaging young people & C21st skills

## How?

- Using the subject
- Using role models
- Using employer skills needs & applications
  
- Looking forwards not backwards
  
- **Key messages:**
  - 5: demonstrate value & relevance rather than enforce study
  - 6: Signal value & relevance in multiple ways and at multiple stages



Good practice  
Student work  
Workplace studies

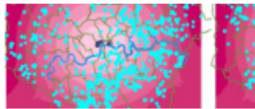
## Student work

These resources showcase outstanding examples of student work which have made use of Quantitative Methods.



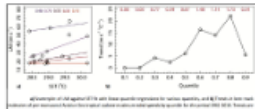
University of Liverpool

Jodie Richardson (PDF)



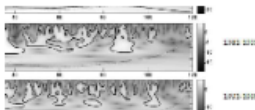
London School of Economics

Rebecca Hannam (PDF)



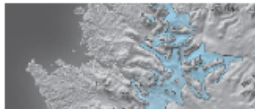
Durham University

Jessica Benjamin (PDF)



University of Nottingham

James Harris (PDF)



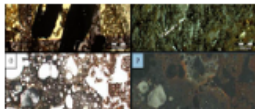
Queen Mary University of London

Ben Chandler (PDF)



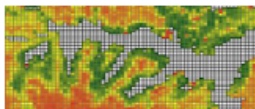
Durham University

Timothy Lane (PDF)



University of Stirling

Huw Smith (PDF)



Durham University

Kirsten Lees (PDF)



Queen Mary University of London

Tim Evans (PDF)

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# Subject

[www.rgs.org/QuanTile](http://www.rgs.org/QuanTile)

## Role models



*“To initiate a project you need to put together a sound business case which outlines why you’re going to do something, the benefit it’s going to bring and what the impacts will be for the community. You can’t do this without working with the data behind the issue.” - Catherine*

*“An understanding of what the community will look like in the coming years is a crucial part of the way we plan our current projects. We analyse data available to us now to plan for the future. A basic understanding of numbers and a level of confidence in using and manipulating them to strengthen an argument is really valuable.” - Sarah*



*“In the public sector it’s increasingly important to have an evidence base for planned interventions and to really have an understanding of the needs of your local community. A lot of that is about analysing data.” - Hannah*



# Geography Ambassadors talk to 30,000 school pupils per year about careers

The screenshot shows a web browser window displaying the Royal Geographical Society (RGS) website. The browser's address bar shows the URL <http://www.rgs.org/OurWork/Schools/Careers+z>. The page features a navigation menu with links for Home, What's new, Follow us, Search, Contact Us, and Sign in / Register. A breadcrumb trail indicates the current location: Home > Our work > Schools and education > Careers and Further Study > Promoting and supporting geography in your school or college. The main navigation includes About us, Our work (highlighted), What's on, Geography today, Press & Media, Networks, and Join us. The page title is "Geography Ambassador scheme". The main content area describes the scheme as a way to recruit, train, and support geography students to act as ambassadors in classrooms. It includes a photograph of two young people wearing "G" superhero-style t-shirts. A sidebar on the right contains the RGS logo and a list of links: Accessibility statement, Terms and Conditions, Cookie use, Contact Webmaster, Download Adobe Reader, and a disclaimer.

Home What's new Follow us » Search Contact Us Sign in / Register

You are here: Home » Our work » Schools and education » Careers and Further Study » Promoting and supporting geography in your school or college »

About us **Our work** What's on Geography today Press & Media Networks Join us

Geography Ambassador scheme

## Geography Ambassador scheme

**Resources to promote geography in your school**  
**Careers and progression materials to download**

**The Geography Ambassadors scheme recruits, trains and supports undergraduate, postgraduate and graduate geographers from universities and business to act as ambassadors for geography in the classroom and beyond.**

This is a great way to introduce students to the benefits of studying geography and encouraging them to pursue the subject not only beyond the compulsory stages, but also into higher education and employment.

The ambassadors act as positive role models for pupils and illustrate, via a range of fun, interactive and informative sessions, the specific and transferable skills they have developed as a geographer. The scheme works closely with schools, universities and businesses and offers opportunity for all to strengthen their links with each other on a local scale.

Ambassador visits are arranged and coordinated via our [Find Geography Ambassadors website](#), as well as through the project officer for the scheme.



**Undergraduates, postgraduates and graduates**

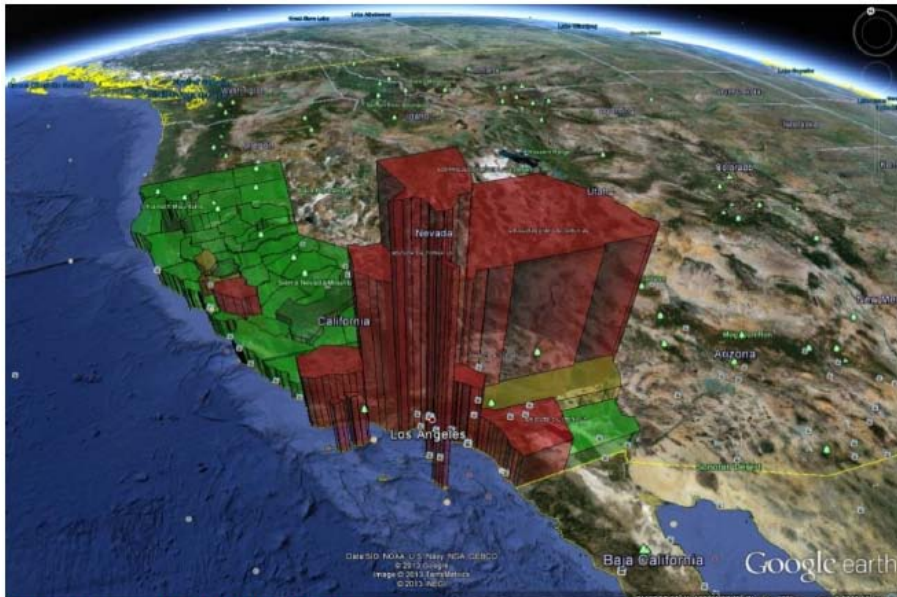
### What will ambassadors offer?

Ambassadors can participate in a variety of things on the scheme. Often they will be delivering lively, activity-based sessions to a group of school on a mutually agreed theme such as:

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**The role:** “I head up the **catastrophe and exposure** function within the syndicate. Working with a number of colleagues we **assess and quantify the level of catastrophe risk** that we could potentially be exposed to from different types of **extreme event**.”

**The skills:** “We call upon a number of very robust **catastrophe modelling platforms**. There’s a need to **understand their limitations** and scope to assess the risk we are exposed to. We **communicate that risk information** and intelligence to decision makers in the organisation in a way that can assist that **decision making process**.”



Risk imagery used by Mitsui (Source: AgencyPort)



## Workplace studies

These case studies aim to demonstrate the importance of Quantitative Methods and how they are applied in the workplace.



### Overview

An introductory video to the Quantile workplace studies

[Project Poster \(PDF\)](#)



### Environmental consultancy

Paul Morgalla, Atkins

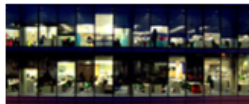
[Workplace study \(PDF\)](#) [Poster \(PDF\)](#)



### Environmental sector

Mark Berry, Environment Agency

[Workplace study \(PDF\)](#) [Poster \(PDF\)](#) [Video](#)



### Financial sector

Steve Hulme, CapitalOne

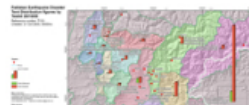
[Workplace study \(PDF\)](#) [Poster \(PDF\)](#) [Video](#)



### GIS and mapping

Rob Sharpe, Esri UK

[Workplace study \(PDF\)](#) [Poster \(PDF\)](#) [Video](#)



### Humanitarian sector

Ming Lee, MapAction

[Workplace study \(PDF\)](#) [Poster \(PDF\)](#)



### Local Government

Hertfordshire County Council

[Workplace study \(PDF\)](#) [Poster \(PDF\)](#) [Video](#)



### Risk industry

Matt Foote, Mitsui Sumitomo

[Workplace study \(PDF\)](#) [Poster \(PDF\)](#) [Video](#)



### Central Government

Emily Connolly, Department for Environment, Food and Rural Affairs

[Workplace study \(PDF\)](#)

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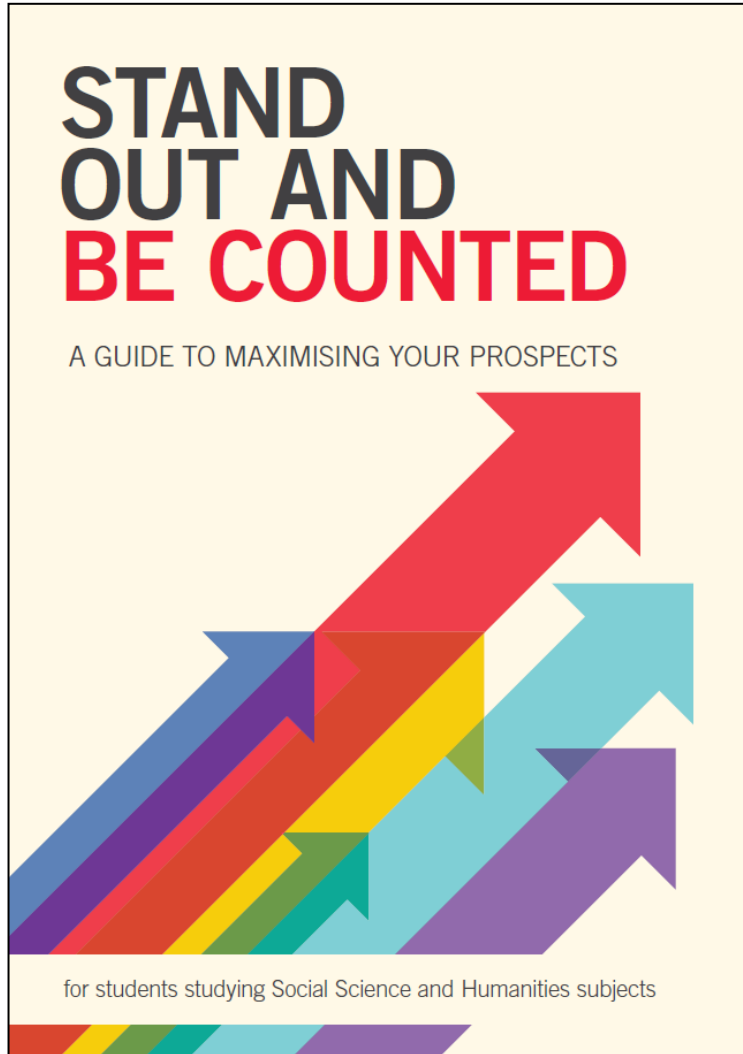
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Employer applications

## Employer needs

British Academy

‘QS underpin effective evidence-based planning and procedure in the public, private and other sectors, as well as ‘blue skies’ thinking. However there is a QS deficit in the UK, with 55% of employers reporting widespread QS weaknesses amongst their employees ...’





national union of students



**Working towards your future**  
Making the most of your time  
in higher education



## CBI

So what are these attributes, skills and knowledge?

- Self-management
- Team working
- Business & customer awareness
- Problem solving
- Communication
- Application of numeracy
- Application of IT





## NERC: Most Wanted Skills:

1. Modelling
2. Multi-disciplinarity
3. Data management
4. Numeracy
5. Translating research into practice
6. Fieldwork
7. Risk and uncertainty

## ESRI UK SURVEY, 2010: 200 business leaders

- Critical thinking (78%)
- Analytical skills (76%)
- Understanding & interpreting complex data (71%)
- Advanced technology (57%)
- Understanding socio-economic environments (54%)

# Future challenges

1. Agreeing desired outcomes and impacts
2. Ensuring resources & appropriate distribution
3. Building flexibility into our approach
4. Remembering & accommodating all phases
5. Avoiding the pendulum swing



- 1. Learned Societies can lead this agenda for their disciplines**
  - Knowledgeable voice & critical friend
  - Network for discipline & its communities
  - A trusted research resource to evaluate pinch points
  - Capacity to work across institutions and phases
  - Capacity to work across sectors – education, employers, public & policy
  - Ability to embed & support longer term continuity for this agenda
- 2. Strong involvement of individual social science disciplines matter to complement voices of academies and mathematicians**
- 3. The purpose of enhancing QS is in their application in study, research, work and life**
- 4. Disciplines are the glue in the agenda**