

Report on the second meeting of the Forum for Quantitative Science

*A knowledgescotland Open House event held on 20 March 2012 at the
Royal Society of Edinburgh*

Introduction

The Forum for Quantitative Science (FQS) was set up to bring together those with a particular interest in the quantitative sciences from CAMERAS organisations and the Scottish Government's Main Research Providers (MRPs).

The first FQS meeting was held on 3 November 2010 and focussed on exchanging information about the quantitative science activities and interests of the member organisations. It was also agreed that subsequent meetings should focus on particular themes, these being selected to be of wide relevance.

A meeting on the theme of 'networks' was the most popular choice of amongst participants of the first meeting and hence formed the focus of the second meeting. Network science is used to describe and study complex systems existing in numerous fields, and involves both defining and summarising properties of networks as well as studying processes taking place on networks. Applications relevant to FQS members include monitoring stations on rivers systems, epidemiology in relation to animal populations and the molecular interactions taking place within living cells.

The Event

The FQS Networks Workshop was held on 20 March 2012 at the Royal Society of Edinburgh. All the CAMERAS organisations and MRPs were invited to send representatives with some interest in quantitative science. The attendees are listed in Appendix 1.

The programme for the event is given in Appendix 2. A guest speaker, Prof Brendan Murphy of University College Dublin, gave an introductory presentation on definitions, properties and representation of networks, using social networks for illustration. There were then five further presentations from FQS members. Slides from the presentations are available on the FQS website at <https://www.bioss.ac.uk/FQS/index.html>. Following the presentations, there was a discussion in which representatives of organisations not covered by the presentations gave a summary of their interests in networks. The timetable included ample opportunity to meet (network, even) with other participants, at coffee at the start, over lunch, and following the general discussion.

Evaluation and future meetings

A questionnaire was sent to attendees and those FQS representatives who did not attend. The results are presented in Appendix 3. Generally the response was positive, with good support for further meetings. Based on this questionnaire, it is likely that this will be a workshop on "modelling in time and/or space". We will use the feedback to help plan the next meeting.

Appendix 1 – Attendees

Nabeil Salama	Marine Scotland
Megan Davies	Scottish Natural Heritage
Mark Hallard	Scottish Environment Protection Agency
Travis Poole	Scottish Water
Efthalia Anagnostou	Scottish Water
Andy Peace	Forest Research
Thomas Connolly	Forest Research
Cath Milne	Scottish Agricultural College
Gareth Hughes	Scottish Agricultural College
Christina Umstatter	Scottish Agricultural College
Stewart Burgess	Moredun
Ruth Zadoks	Moredun
Leighton Pritchard	The James Hutton Institute
Alessandro Gimona	The James Hutton Institute
Nick Birch	The James Hutton Institute
Runxuan Zhang	The James Hutton Institute
Lionel Dupuy	The James Hutton Institute
Pete Hollingsworth	Royal Botanic Garden Edinburgh
Brendan Murphy	University College Dublin
David Elston	Biomathematics & Statistics Scotland
Chris Glasbey	Biomathematics & Statistics Scotland
Adrian Roberts	Biomathematics & Statistics Scotland
Glenn Marion	Biomathematics & Statistics Scotland

Appendix 2: Programme

10:30	Refreshments	
10:50	Welcome	David Elston, BioSS
11:00	Introduction with social network applications	Brendan Murphy, University College Dublin
12:00	Transcriptomic and network analysis of the temporal host response to skin infestation with the ectoparasitic mite <i>Psoroptes ovis</i>	Stewart Burgess, Moredun Research Institute
12:20	Networks in plant pathology: reconstruction of pathogen metabolism, and interactions at the plant-pathogen interface	Leighton Pritchard, The James Hutton Institute
12:40	Lunch	
13:40	Habitat connectivity through circuit theory: a method to assess its biological significance	Alessandro Gimona and Laura Poggio, The James Hutton Institute
14:00	Use of network analysis to explain re-emergence of pathogens in cattle populations	Ruth Zadoks, Moredun Research Institute
14:20	Refreshments	
14:50	Social and spatial networks in epidemiology and beyond	Glenn Marion, BioSS
15:20	Discussion	
16:15	Finish	

Appendix 3 – Survey Results

Introduction

A request to complete an anonymous online survey was sent two months after the event to all CAMERAS/MRP attendees plus those FQS members who weren't present. A reminder was sent shortly before the close. In total, 17 people responded to the survey.

The main objectives of the survey were to evaluate the utility of the event and to seek views on the desirability and format of further meetings.

The conclusions drawn from the survey are given below, followed a summary of responses to each question.

Conclusions to be drawn from the survey

The response rate for the survey was reasonably high. It seems likely that all organisations were covered.

The first part of the survey was about the respondent: which group of organisations and their profession. The range of professions represented was much broader than for the previous meeting when a majority classed themselves as statisticians.

The second part of the survey concentrated on views about the meeting in March 2012 (those who did not attend did not answer this part). As well as providing pro-forma responses, useful comments were made that will help improve the next meeting.

Most found the meeting of some use; two, however did not. All were happy at the level of the presentations. Most thought that the format of the meeting was okay, though a minority thought that the talks were too short, that there was too little time for discussion, that the meeting was too small or that the opportunities for networking could have been better. Of the two people who did not find the meeting useful, one commented that the meeting could have been bigger and the aim clearer, the other commented that the theme of the meeting was not linked to their field but found the meeting interesting.

The final part of the survey focussed on the possibilities for future meetings. Nearly all the respondents expressed support for further meetings, with a couple being unsure. There was support for a wide range of topics to form the theme for the next meeting, with the greatest support for "Modelling in time and/or space". This included both of the respondents who stated they did not find the meeting useful and four out of the five CAMERAS respondents. Most thought that the meeting should be annual but some thought that they should be more frequent; one of these wanted quarterly meetings.

Responses to each question

Q1: What group of organisations do you work for?

Answer Options	Number of responses
SEPA, SNH, Forest Research, Marine Scotland, Scottish Water	5
SAC, James Hutton Institute, Moredun, Rowett, RBGE	9
BioSS	3
Total	17

Q2: How would you describe yourself?

Answer Options	Number of responses
Statistician	5
Mathematical Modeller	4
Bioinformatician	3
Quantitative Scientist	4
Other	6

Note that all 17 responded to this question. Of those, three said that two descriptions applied to them and one selected three descriptions. The responses under “Other” included: “biological scientist”, “population modeller/epidemiologist”, “molecular biologist”, “economist”, “computational biologist” and “quantitative spatial and landscape ecologist”.

Q3: Did you attend this event?

Answer Options	Number of responses
Yes	14
No	3
Total	17

Those answering “no” did not answer questions 4 to 10.

Q4: How useful did you rate this meeting?

Answer Options	Number of responses	Proportion
Very useful	7	50.0%
Quite useful	5	35.7%
Not useful	2	14.3%
Total	14	100.0%

Q5: How was the level of presentation?

Answer Options	Number of responses	Proportion
Too technical	0	0.0%
About right	14	100.0%
Too light	0	0.0%
Total	14	100.0%

Q6: How was the length of the talks?

Answer Options	Number of responses	Proportion
Too long	0	0.0%
About right	12	85.7%
Too short	2	14.3%
Total	14	100.0%

Q7: Was there sufficient time for discussion?

Answer Options	Number of responses	Proportion
Too much time	0	0.0%
About right	11	78.6%
Too little time	3	21.4%
Total	14	100.0%

Q8: How was the size of the meeting?

Answer Options	Number of responses	Proportion
Restrictively small	2	14.3%
About right	12	85.7%
Too large	0	0.0%
Total	14	100.0%

Q9: How were the opportunities for networking before the meeting and over lunch?

Answer Options	Number of responses	Proportion
about right	12	85.7%
too short	1	7.1%
too long	0	0.0%
not sufficiently structured	1	7.1%
Total	19	100.0%

Q10: Have you any suggestions as to how the event might have been improved?

Eight responses were made:

More participants, clearer aim. "Not useful" is too negative a score, but "quite useful" would be too positive in terms of the benefits gained from the time invested.

A bit more time for networking and discussions would have been useful - but I am not sure it needed anything structured like break out groups.

I would have liked a list of abstracts or Key highlights before the meeting for information.

Time-keeping could do better with talks.

It could have had more structure and 'meat'.

Most of the talks were ok, but I thought that the overall theme was poorly served and there was not enough attempt to link individual projects to the central theme.

Form some break out groups discussing commonalities about sub areas.

The event would have been more useful if this was more linked to my field but this is something I was aware in advance. However, it was very interesting and I am sure it has been useful for other attendants.

Q11: Would you like further meetings of quantitative specialists from the MRPs and CAMERAS partners?

Answer Options	Number of responses	Proportion
Yes	15	88.2%
No	0	0.0%
Don't know	2	11.8%
Total	17	100.0%

Q12: We are considering workshop topics for the next meeting. Please indicate which of the following would be relevant to your organisation (tick as many as you like).

Answer Options	Number of responses	Proportion
Monitoring	9	56.3%
Extremes	7	43.8%
Modelling in time and/or space	13	81.3%
Interdisciplinary research - how and why	8	50.0%
Surveys	8	50.0%
Species distribution modelling	8	50.0%
Penalised and additive regression	5	31.3%
Networks (again!)	4	25.0%
Other (please specify)	0	0.0%

One person skipped this question. All except one of the rest ticked more than one option.

Q13: How frequent should FQS meetings be?

Answer Options	Number of responses	Proportion
Every year	11	64.7%
More frequent than annual	6	35.3%
Less frequent than annual	0	0.0%
Total	17	100.0%

Two respondents gave a clarification of their choices:

It all depends on the content and availability of expert speakers. If they are in areas of high demand and there are lots of good potential speakers, then the meeting should be held sooner. However if they are in limited areas, then it should be regular enough to keep people interested in the forum. (Responded “Every year”)
4 times a year (Responded “More frequent than annual”)

Q14: Do you have any suggestions for improvements to the Forum for Quantitative Science website?

Two responded to this:

Wider advertisement. I only heard about it through word of mouth. I do not really know the purpose of the forum, but I would imagine an aspect would be to reach a greater target group of people as possible.
Best way to make improvements is through people's feedback so the questionnaires is a good way to identify what subjects people want to hear about and how they would like the meeting to be structured.

Q15: Any further comments?

Three responded to this:

Thanks for organizing.
The introduction talk was excellent and helped by the manuscript emailed out before hand. I think a more structured session where each member formally prepared a couple of slides describing their work area and potential uses of the technical method (network theory in this case). I felt a little put-on-the-spot at the time and really suffered from esprit d'escalier after leaving. Overall a really great day showing a wide ranging application of networks.
Would be good perhaps to have Q&A 'how to' or clinic type open session for all to learn from.