Engaging with UK Climate Services providers – England
11 November 2014, London

Report of meeting

This workshop was held to bring together organisations (providers and purveyors) that have a role or interest in providing climate services to users to support decision making and other activities.

Aims of the workshop:

- To engage with the future delivery of climate science and climate services in the UK and Europe.
- To contribute to identifying research needs, knowledge gaps and innovations that would support organisations in providing climate related services, and how these can be linked to UK and European Horizon 2020 funding initiatives.
- To explore partnership opportunities, including the role that a network or community of UK providers of climate services could play.

This workshop was one of four held across the UK in partnership with UKCIP, NERC and Oxford University. Other workshops took place in Belfast, Edinburgh and Cardiff during November 2014. A report summarising the findings from all of the workshops will be produced by UKCIP.

Participants

Molly	Anderson	Environment Agency
Ewa	Bloch	Innovate UK
Mark	Broadmeadow	Forestry Commission
Debbie	Clifford	National Centre for Earth Observations
Andy	Croxford	Environment Agency
Geoff	Darch	Atkins
John	Dora	John Dora consulting
Kim	Dowsett	Environment Agency
Robert	Dunford	Oxford University
Fai	Fung	Environment Agency
Perry	Guess	NERC
Andrew	Heather	Mott-MacDonald
Valerie	Holden	HR Wallingford
Keith	James	WRAP
Ceris	Jones	NFU
Majdi	Mansour	British Geological Survey
Mike	Morecroft	Natural England
Anastasia	Mylona	CIBSE
Zebedee	Nii-Naate	Defra
Paula	Orr	Collingwood EP
Ruth	Phillips Itty	Ricardo AEA
Vanessa	Pilley	Defra

James	Porter	Leeds University
Nick	Reynard	Centre for Ecology and Hydrology
Len	Shaffrey	National Centre for Atmospheric Science
Ag	Stephens	BADC
Jean-Noel	Thepaut	ECMWF
Ralf	Toumi	Imperial Collage
Peter	Von Lany	C2HM Hill
Steven	Wade	Met Office
David	Whitleley	Department of Health
Flora	Whitmarsh	Imperial Collage - Grantham Institute
Lesley	Wilson	BSI

Agenda

10:30   Welcome and setting the scene
        Andy Croxford, Head of Research, Environment Agency

10:45   Horizon 2020
        Ewa Bloch, Innovate UK

11:00   Horizon 2020 Climate Services Roadmap
        Roger Street, UKCIP, Oxford University

11:10   Q&A

11:30   Break

11:45   Roundtable activity: Research and innovation needs to support climate-related services in
        the UK and Europe.

12:30   Lunch

13:15   Plenary discussion: Climate services in the UK: enablers and barriers.

        Insights from 4 different providers followed by a facilitated discussion session:
        o Anastasia Mylona, CIBSE
        o Fai Fung, Environment Agency
        o Stephen Wade, Met Office
        o Geoff Darch, Atkins

14:00   Mapping the landscape of service providers: Activity to map and characterise the range of
        different providers of climate-related services in the UK.

14:30   Aligning research and innovation needs with Horizon 2020 and UK opportunities
        Roger Street and Ewa Bloch

14:50   Next Steps
        Molly Anderson, Environment Agency

1. **Setting the scene**

Andy Croxford, Head of Research EA, welcomed participants and set the scene by giving an overview of what the Environment Agency has learnt about Climate Services through their Climate Ready support service.

Andy set out a number of challenges and questions to consider throughout the day:

-   What are the different roles of public and commercial providers?
-   What should the national capability be to enable climate services to meet customer needs? How do we make sure that public money is spent most effectively?
-   Is there sufficient demand yet from decision-makers to enable the climate services market to thrive? If not, how do we generate this?

Presentations:

Horizon 2020 and climate-related services, Ewa Bloch, Innovate UK

The key principles of the Horizon 2020 research and innovation programme were explained together with the range of mechanisms available for funding. Innovate UK work with business, universities and government and are supporting UK applicants to H2020 through a team of national contact points. For more information see: www.h2020uk.org

Climate adaptation is a cross-cutting issue that fits mainly in the H2020 Societal Challenge 5 (SC5) and in particular within the '*Fighting and Adapting to Climate Change'* focus area. SC5 was launched in July 2014, with the first deadline for proposals in April 2015. The European Commission is now working on the 2016/7 work programme with input from Expert Groups working in priority areas, including in climate services.

Towards a European market for climate services, Roger Street, UKCIP

The European Commission have established an Expert Group on climate services to develop a long-term research and innovation roadmap for H2020 investment in climate services and to identify the demand-side measures that could facilitate the growth of the market. This roadmap will be delivered by end 2014 (targeting the 2016/7 investment cycle) and a workshop to present the work and engage with the European climate services community will be held in Brussels in Feb/March 2015.

Outputs from this England workshop (and those in Northern Ireland, Scotland and Wales) will be used to help ensure UK priorities are included in the roadmap and it is hoped there will be representation from the workshop at the meeting in Brussels.

2. **Research and innovation needs to support climate-related services in the UK and Europe.**

A roundtable activity in small groups focussed on the question '*Where do you think the research and innovation gaps are in delivering climate-related services in the UK and Europe?'*

Responses were captured on post-its and added to flip charts under the following headings: core data and resources, customer insight, networks/delivery landscape, innovation, or other. The write-up of this activity is captured below.

<u>Core data and resources</u>
- Converting climate projection parameters (e.g. UKCP09) into river flows, drought sequences etc and to enable adaptation planning (in water resources)
- Joined up datasets e.g. climate and socio-economic
- Develop better quantification of ecosystem carbon sequestration and storage
- Embedding learning across generations and in organisations by bringing consistency in how organisations access and use data
- Will improved resolution be better? (hiding uncertainty)
- Better understanding of ecosystem response to climate and extreme events
- Availability of socio-economic/vulnerability data
- Better integration of private and public data to support business decisions and provision of services
- Cost implications of data mashing and synthesis given the vastness of data
- Making decisions consolidating the uncertainty in the analysis
- Licences, large data sets and cost of data (e.g. historic climate observations from the Met Office needed for the insurance industry)
- Data – lots available but not necessarily easy to know what your question of it is
- Research not developed enough/lack of data
- Business model examples for climate change
- Real time monitoring systems for now
- Need to understand why UKCP09 (probabilistic) scenarios didn't really lead to improved adaptation decisions?
- Seasonal forecasts for farmers
- Cold weather and heat wave plans – research to regionalise it
- Need to get people thinking about weather
- Do we do ourselves a dis-service by being so open and honest about uncertainty
- Models/projections for urban flash/surface water flooding (short duration intense rainfall)
- Integrated/consistent land use, socio-economic and climate scenarios
- Working with natural processes – do we have the basic knowledge and tools to do this?
- What can you do locally?
- Bottom-up vulnerability focussed assessment of climate change risk
- Mismatch between (and confidence in) supply and demand of climate projections (demand for engineers – time series, stochastic, extremes)
- Communications important
- Synthesis activities
- Test effectiveness of adaptation measures – scientific assessment of whether action is working where implemented
- Lack of information on costs of climate impacts
- Lack of availability of climate data at appropriate scale and temporal resolution, open data in the UK including for commercial use

<u>Customer insight</u>
- What info do you use, what are the options? Quantifying risk (assessment) and putting a number on it. Need to balance detail and general, shifting the risk in the supply timeframe (5yrs) not 25 yrs
- Generic guidance/methodology needed not case studies
- Customers don't always understand the issues and/or de-prioritise them against short-term issues, More 'nudges' needed
- Difference between specialist and non-specialist data – they need different things

- Uncertainty an excuse for inaction – looking for reasons not to act
- Getting people to play, explore uncertainty in interactive system/argue through decisions (temp, ppt, emissions scenario)
- Uncertainty good for the insurance industry (money making opportunity but Hurricane Andrew nearly bankrupted the industry). Spreading the risk between companies and the state
- Providing information in a useable format
- Multidisciplinary approach to vulnerability and impact modelling
- Do people need what they want? Are you talking to the right person in that organisation?
- Do sectors need different resolutions?
- Is it climate data or meteorological data that is needed?
- Relationship between supply chains and the use of knowledge
- Provision of info not enough – timeframe, spatial resolution, regulation not systematic for decision making – is perfect climate data necessary?
- Promotion of best practices to ensure climate information is used appropriately
- Sharing best practice with similar/common interest organisations
- Barrier of commercial confidentiality
- Who is doing what? Need to understand
- Businesses operating in this sector already have good customer insight but LEPs etc don't have the money to employ such services therefore is there a role of government to support the provision of such knowledge to enhance local/regional strategies
- Integrating different sources if information (weather, river levels etc)
- Mechanisms to highlight volume of market opportunities and different approaches for different sectors
- How do users understand how to choose between different research/evidence
- Better access to real time information
- Understanding how data has been used and sharing this information in a consistent way
- Framework for identifying user
- Research on aspects of rural access to health services at times of disaster
- Develop common methodologies within each sector – should these be lead from within the sector?
- Lack of knowledge from the client (educating the client)
- More work on translation and communication, risk management, distinguish which parts are more known and which parts are uncertainties
- Lack of research and translation on decision-making under uncertainty

Networks/delivery landscape
- Importance of sustainability of expertise as well as data
- Public profile – importance of now. Right champion for right audience
- Insurance industry doesn't share data (competitive edge) – can be a barrier
- Impact of flooding on local health services
- Better networks and partnerships with provides/purveyors and users to drive utility - bottom-up
- Should be a group of UK providers/purveyors who meet regularly. How to do that? Service providers are very diverse
- Adaptation Sub-Committee – would this be a good forum for Climate Services?
- Having the governance structure that permits capacity building. His could be based on a system of systems demonstration/model
- Stronger facilitation of partnership between public and private organisations to deliver services

- Climate services network to be mainstreamed in organisations
- Legacy of research, evidence and outputs to maintain availability – knowledge management issues
- Delivery landscape – where's the right place and what is the right scale to bring data together? e.g. city scale with data brought together by business at local/regional scale and delivering local services
- Need for advocacy of climate change action
- Importance of sustainability of expertise as well as data
- Potential lack of knowledge about what services are already available. NB Also being encompassed within client-based projects as a component as opposed to a singular service
- Aldersgate Group (an alliance of leaders from business, politics and society that drives action for a sustainable economy, http://www.aldersgategroup.org.uk/)

Innovation
- Developing 'easy to use' methods for building a business case for investment in adaptation
- Better understanding and clarity on uncertainty
- Decision-making under uncertainty
- Good data on costs and benefits is missing. Need to create the stimulus and space to try out services and derive the numbers e.g. via Innovate UK data call – opportunity under H2020
- Economic argument
- Business risk management (case studies
- More knowledge on regional climate
- Ecosystem based adaptation for flood/drought risk management
- Cross-sectoral approaches that integrate climate with socio-economics
- Different thresholds for difference sectors of the economy
- Develop standards and certification for data providers and also relevant business processes – best practice
- Organisation/sector level business case (methodology)
- Danger of silo-thinking where web-based tools that simplify the modelling don't link across sectors
- How to convince users to invest in capacity to be able to contribute to and draw on research
- Understanding how climate /weather info fits into the decision-making processes of different user groups (e.g. climate uncertainty within other process uncertainties)
- Identify the market opportunities of introducing climate/weather services in industry day-to-day practices
- Decadal prediction (and modelling in general). Big user demand but science not there yet (efforts required in climate modelling, resolution etc.)

Other
- Find a term to replace 'climate services'
- Need some realistic scaremongering – global climate change politics has failed to date
- Need more 'nudge' to inform and influence acceptance, application, awareness etc.
- Testing of the effectiveness of adaptation/mitigation actions
- Demonstrating that we can adapt/mitigate
- Standardisation and codes of practice - worthwhile but time-consuming and potentially too top-down, could be a barrier to entry

3. Climate Services in the UK: facing barriers and opportunities

Within this session we had insights from 4 different providers of climate services followed by a discussion.

Presentations:
- Anastasia Mylona, Chartered Institution of Building Services Engineers (see presentation)
- Fai Fung, Environment Agency
- Steven Wade, Met. Office (see presentation)
- Geoff Darch, Atkins

Key points raised in plenary:

- The lack of regulation on adaptation is limiting demand, with the indirect effect that the number of experts working in the area is falling and there is a shrinking pool of skills and knowledge. Training within any funding programme is vital to ensure there is the capacity of skilled researchers to meet the climate services demand.
- There is a barrier around accessing and using data – this can be resource intensive (time and money is required to obtain data and licence agreements, investments in skills to translate and add value) Data need to be more accessible to help inform decisions.
    - COPERNICUS, http://www.copernicus.eu/, can be an enabler through their provision of open data
    - NERC and other research councils are working to improve data sharing
    - Innovate UK leads an environmental data competition
- There is a lack of clarity between public and private sector provision of both data and value-added information – who should pay for what, and what are their roles and responsibilities? Where should public money be spent?
- A better understanding of the customer base is needed and engagement with both users and researchers. UKCP09 was a step forward in the communication and use of climate information, but there is still a need to address the limited skills and capacity available in broader end user groups.
- There is need for a better understanding of how infrastructure and service assets perform in the current climate and how/which metrics can support this understanding. There is also an issue of scale. It may be possible to assess the vulnerability of one asset at a single point but there is also a need to look at the wider implications (whole system impact, interdependencies etc.)
- Need to improve support for decision making within a range of different uncertainties (climate, socio-economic etc.)
- Need to understand what type and/or level will influence a decision and move away from ever increasing detail/precision. Recognise that cost/benefit analysis often drives decisions.

- Ways of working together within the UK:
    - A stronger national voice promoting UK priorities could influence future European programmes more effectively, and help ensure coordinated national programmes to support European opportunities
    - Need to build on the UK being seen as a leader in this field (for now)
    - Partnership working can help tackle barriers and overcome the disconnect between researchers, providers and users.

- o There is space for research councils and other funding agencies to stimulate and support this work, but support from Government departments and end-users is also needed to drive demand
- o More national join-up (and funding) to help access H2020 opportunities would facilitate proposals to address UK priroties – possibly via Innovate UK, LWEC etc.
- o Could we have something at a national level which is similar to the European Climate Services Partnership but focusses on specific national/regional/local UK needs? This would need to have strong engagement with users.
- o The UK Water Research and Innovation programme (UKWRIP) http://www.ukwrip.org/ was created to facilitate collaboration within the water sector. Could we do something similar for climate services?

4. Mapping the landscape of service providers

The participants were asked to complete a short pre-prepared questionnaire which was designed to help map the landscape of service providers, and characterise the range of different providers of climate-related services in the UK.

5. Aligning research and innovation needs with Horizon 2020 and UK opportunities

Drawing across the roundtable discussions and plenary sessions, the following overarching elements reflecting climate services needs within the UK were highlighted:

Demonstration to stimulate action and learning and to highlight the added value of climate services. This could include peer-to-peer work, case studies and pilot studies looking at both the specific outcomes and the processes used to achieve impact. Overcoming the barrier of lack of knowledge and information would promote the use of climate services within adaptation measures. Demonstrating the value of climate services in the decision-making framework would also inform the debate on public versus private funding.

Integration of data and information to support decision making including the understanding and application of uncertainty. By starting with the decision it would be possible to develop a better understanding of how the decision may change under different scenarios. Climate uncertainty needs to be better integrated with uncertainties in other areas e.g. socio-economic, hydrological etc.

Understanding the landscape including what can be done to facilitate better working across sectors, within private/public partnerships and within regions. There is a need to understand what evidence, information and knowledge is available and where, and to ensure the appropriate infrastructure is in place to access the information.

Understanding users and their decisions, including differences in approaches, how this manifests itself in practice and how best to integrate evidence into the various decision-making processes.

6. Next Steps

Reports from the four workshops, and links to relevant climate services initiatives, will be prepared and shared with all participants. (EA/UKICP, by mid Dec 2014)

A summary note from the workshops highlighting common areas of interests and regional/sectoral differences will be prepared to inform the on-going Horizon2020 mapping exercise. (UKCIP, by end Dec 2014)

The roadmap will be circulated to all participants once it has been finalised by the Commission in early 2015. (UKCIP)

Anyone interested in participating in the H2020 roadmap workshop to be held in Brussels in Feb/March 2015 should contact Roger Street (roger.street@ukciop.org.uk).

Information on relevant calls from the Horizon2020 programme will be passed on to all participants as they arise. (UKCIP, 2015 onwards)

The Environment Agency will consult on developing a proposal for a UK providers network to inform national capability and enable partnership opportunities (EA, 2015 onwards)