



Towards a leading role on climate services in Europe: A research and innovation roadmap

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ABSTRACT

The European Commission established an *ad hoc* Expert Group to develop a framework for action towards growing a strong and flourishing climate service sector across Europe. The growth of this sector is seen as essential to meeting the challenges associated with building resilience and sustainability across Europe and in member states, and for enhancing their capacities to deliver climate services in a global market. The resulting research and innovation roadmap articulates an agenda and shared approach that are based on building on enhancing existing investments, focusing on solution-oriented activities and specific actions that are using Horizon 2020 (and other funding programmes) as a bridge between users and the science. This short communication provides a personal overview by one of the members of the Expert Group on the thinking that guided the development of the Roadmap for climate services and provides insights on how it is being taken forward.

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The report, published in March 2015, 'A European Research and Innovation Roadmap for Climate Services',¹ is intended to offer a coherent and focused framework for prioritising actions to be implemented through Horizon 2020 and other funding programmes to 2020 and beyond. It is not a European Commission document, but is recognised by the Commission as a significant contribution to their plans for investment in research and innovation to facilitate the development of a market for climate services that provides social and economic benefits across Europe.

The Roadmap is the result of the work of an *ad hoc* Expert Group,² established by the European Commission, and which benefitted from

the involvement of a larger supportive group of experts and on input from focused stakeholder consultations. In realising this Roadmap, the intention was that the suggested framework for action will be able to leverage existing initiatives at EU and national levels, and stimulate and enable initiatives within the private sector, towards growing a strong and flourishing climate services sector across Europe and beyond.

This short communication is intended to offer a personal commentary, as a member of the Expert Group, on the thinking behind the development of the Roadmap and insight on the ideas and reasoning which guided its development.

When initiating the Roadmap, clarity and agreement on the vision was fundamental. The focus on growing the market was seen as a means for building resilience and sustainability in the context of climate change across Europe and member states, and for enhancing their capacity to deliver climate services within the global market.

The Roadmap clearly gives primacy to a service perspective on climate services – user-driven and science informed. This means beginning with users' needs based on an understanding of how decisions are made and existing and potential uses of climate services in the decision making processes. The vision also embraces an approach to research and innovation based on co-design, co-development and co-evaluation of climate services, and on the

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¹ 'A European Research and Innovation Roadmap for Climate Services', European Commission, Directorate-General for Research and Innovation, European Union 2015, Print: ISBN 978-92-79-44341-1, doi:[10.2777/702151](https://doi.org/10.2777/702151), KI0614177ENC; PDF: ISBN 978-92-79-44342-8, doi:[10.2777/750202](https://doi.org/10.2777/750202), KI0614177ENN. <http://bookshop.europa.eu/en/a-european-research-and-innovation-roadmap-for-climate-services-pbKI0614177/>.

² Membership of *ad hoc* Expert Group:
Roger Street, Director of the UK Climate Impacts Programme (UKCIP), University of Oxford and member of the Joint Programming Initiative on Climate
Martin Parry, Centre for Environmental Policy, Imperial College London and Department of Geography, University of Birmingham
Jesse Scott, Member of the Gas, Coal, and Power Markets team, International Energy Agency, Paris
Daniela Jacob, former Acting Director (now Director) of the Climate Service Center 2.0, Hamburg, renamed Climate Service Center Germany (GERICS)
Geesthacht, Hamburg

Tania Runge, Senior Policy Advisor, Copa Cogeca secretariat
Environmental issues: water management, biodiversity (European Farmers, European Agri Cooperatives)
Chair of the Stakeholder Advisory Board of FACCE JPI

demonstration of the value to decision making as the basis for growing the climate service market.

As part of the vision, clarity on how climate services are defined was critical. For the scope of the Roadmap, a broad meaning for the term ‘climate services’ is used:

The transformation of climate-related data – together with other relevant information – into customised products such as projections, forecasts, information, trends, economic analyses, assessments (including technology assessments), counselling on best practices, development and evaluation of solutions and any other service in relation to climate that may be of use for the society at large.

As such, climate services in the context of the Roadmap include data, information and knowledge that support adaptation, mitigation and disaster risk management.

Translating this vision into a research and innovation roadmap in support of climate services required an understanding of the nature and scope of the decisions being made and thereby the potential demand for climate services. The difficulty is that the demand for climate services is relatively unknown and fragmented. Furthermore, there is anecdotal evidence that suggests that people are often using climate services without labelling it as such.

It is clear that the current demand for climate services is less than what is required to deliver the benefits reflected in the vision and that the potential market is largely untapped. This suggests that there is a need to better understand the existing and potential demand (i.e. market potential), but also to understand why the demand is relatively unknown and fragmented at present. Reasons identified for the lack of demand are that the community and infrastructure needed to support climate services is insufficient for the task at hand and that the services available are primarily supply-driven and to some degree user-informed. As such, delivering on the vision will require addressing these shortcomings.

Climate services stakeholders’ perspectives were sought as a means of further informing the development of the Roadmap. This was achieved through an online consultation process and a focused user-oriented survey and follow-up interviews involving current and potential end-users and intermediary organisations (purveyors) who are taking the information and adding value to it before moving it on.

Their perspectives were critical to informing the translation of the vision into the challenges and activities. Stakeholders identified drivers or reasons encouraging the use of climate services (e.g., economic and corporate social responsibility benefits, and responding to policy); constraints in using climate services (e.g., integration into existing decision framings and processes, and translating implications into economic terms); and attributes and modes of required services (e.g., reliability, fit-for-purpose, usability, trust, and the balance between freely available services and services for a fee). They also identified priorities that would require action within the Roadmap:

- A strong focus on the demand side and on the provider/user interface;
- Multi-disciplinary approach and innovation – prioritising of research efforts and the co-design, co-delivery of innovation towards fit for purpose services;
- Building capacities and communities of practice – supporting the innovations and including those who work at the user–provider interface;
- Further requirements – quality control, standards, certification, reinforcing relationships and building trust;
- Integrating climate information with multiple data sources;
- Being consistent with the users’ existing decision making framing and practices;

- Improving regional modelling capabilities, and the capacity to provide regional and sector-based assessments on relevant timescales.

Delivering on the vision required that the Roadmap also reflects and builds on the existing initiatives both within Europe and internationally: the climate services landscape (see Fig. 1).

Taking account of these considerations in light of the vision for the Roadmap led to the development of three overarching challenges: enabling market growth; building the market framework; and enhancing the quality and relevance of climate services. Delivering on these challenges will provide evidence, knowledge and innovations that will identify and deliver opportunities for fuelling market growth. The challenges are also seen as the means of providing a viable and vibrant climate services community (both demand and supply) across Europe that is central and critical to growing the climate services market.

Each of the challenges (and associated activities) begins with understanding users’ needs and capabilities and then bridging these with today’s capabilities and tomorrow’s possibilities for meeting these needs. The use of transdisciplinary approaches (e.g., co-design, co-delivery, co-production, and co-evaluation) when delivering research and innovation is critical. Similarly, fundamental to growing the market is the ability to demonstrate the added value of using climate services from the perspective of the users.

Challenge 1: enabling market growth

This first challenge is to develop a comprehensive understanding of the demand and supply side of the climate services market across Europe; providing an initial snapshot of the market, the potential for growth and the support required to grow that market. True to the vision, and fundamental to identifying the potential for growth, is building the demand for such services and the capacities to use and provide climate services. In the case of the former, the Roadmap is calling for activities demonstrating and promoting the added value of climate services for decision-making and the resulting decisions from the users’ perspectives – an essential element to growing the demand.

Critical to enabling market growth are the synergistic relationships between the players on the supply-side. Although competition will always be important to drive the market, there also needs to be a supportive and collaborative community. Activities and specific actions under this challenge have been included to provide opportunities for collaborations among those providing climate services (e.g., the COPERNICUS Climate Change Service, national climate services, and private sector providers and purveyors) to support and strengthen the required growth. The requirement is for a vibrant, healthy market dynamic. This includes a balance between a broad and consistent layer of public, free, open access climate services plus customised high added-value services available for a fee. Both are as essential to fuelling market growth.

Challenge 2: building the market framework

The second challenge reflects the need to build and support the sustainability of a vibrant and viable European climate services community, engaging users, providers, purveyors, innovators and researchers. It also reflects the need to improve on the current community model to deliver the vision. Activities are intended to provide a platform for engagement that enables and empowers the community to work together on issues and challenges associated with growing the climate services market. This begins with demonstrating the value of engagement within the community and delivering benefits for all engaged. It includes providing fora to build and expand the capacity of those using, developing and delivering climate

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