ERA4CS - Additional Activity - Climate Services - Synergies, Gaps and Challenges workshop

BELSPO, 231 Avenue Louise, Brussels — 2nd and 3rd February 2017

Workshop overview

This ERA4CS Additional Activities Task 7.4 workshop drew participants from Europe with diverse interests in climate services and in furthering understanding of related issues and efforts needed to address them. Participants included researchers, members of related networks and practitioners within the climate service community).

To facilitate the discussions, participants were presented with the following background information:

- Background to the ERA4CS and JPI Climate Strategic Research and Innovation Agenda.
- European Research and Innovation Roadmap for Climate Services
- Climate, Changed: Research and innovation challenges from a DG-RTD perspective
- Market Research for a Climate Service Observatory (MARCO)
- Sector Engagement for C3S: Translating European User Requirements (SECTEUR)

Participants also were provided with an overview of the results and initial analysis from the ERA4CS Additional Activity tasks. This included overviews from the three tasks that are feeding into Task 7.4 – a mapping and evaluation of related JPI Climate activities (Task 7.1), identified and mapped national climate service activities across the ERA4CS member countries (Task 7.2) and international climate service activities (Task 7.3). This also included an overview of the results of an initial analysis of the three tasks' outputs by Task 7.4 that drew out complementarities, redundancies and synergies, gaps needing further attention by the climate service community, and research and knowledge gaps identified in the three tasks' reports, and identified further gaps in the evidence available.

These background presentations and the provided overviews were then used to engage participants in discussions through break-out sessions with the aim of adding to the analyses undertaken by the three tasks. A focus was placed on identifying evidence and /or sources to fill identified gaps; additional evidence gaps and challenges towards understanding and moving forward climate services, and potential sources of information that could help better understand the nature and scope of those gaps and challenges; and the potential role of the JPI Climate in addressing these.

The results of the discussions within the break-out groups are summarised in the attached Annex.

Next Steps

The ERA4CS Additional Activities Task 7.4 team will continue to gather evidence to inform its analysis. This includes drawing on sources and other information provided during this workshop, but also further engaging the broader community. There will be a targeted webinar (March 2017) to provide an opportunity for people from the community that could not participate in the workshop to provide further evidence. We will also be holding sessions during the ClimatEurope Festival (Valencia, Spain 5-7th April 2017), including as part of a session on getting involved in the framework to support and grow the climate service market. Furthermore, JPI Climate / ERA4CS is planning a representation at the ECCA 2017 in Glasgow (05th-08th June) potentially contributing to a climate service event organised by the Commission on Monday, 05th June mid-day – input and contributions from this group would be most welcome

We will be continuing to gather further evidence together and adding to our initial analysis until May 2017 when we will be finalising our analysis and pulling together our report which is due to the ERA4CS in June 2017. The results of Task 7.4 will be feeding into the JPI Climate Scoping Forum planned for this autumn to provide input into future implementation activities.

Annex 1.

Summary of Break-out Session Discussion: Gaps, Potential Sources, and Issues and Implications

Issue	Gap	Source	Issues and Implications
Standards and reliability of data	• scenarios don't take into account extreme events – standardisation and reliability of data and appropriateness to sector needs • time series poorly defined or used • are we getting to a level of resolution that allows homogeneity • Dealing with the data available and being produced is a big issue - we have lots of data. The gap is analysing, translating and communicating the results, as well as sharing it. • Understanding what climate services users are using and how they are being used – linked to existing standards and those being developed.	Copernicus 3CS (e.g., DECS and Q4CS) Space, large data holders, WMO, water ISO, CEN National Met Services and the release of national climate services – MeteoSwiss scenarios* and UK projections to be released 2018). Learning from these and similar efforts GTNP (specific project – permafrost data – all cleaned and standardised & available in one place (Example given – work around the Rhine by INSA-Strasbourg] Socioeconomic data being collected from a number of countries when combining this with climate data, realise you cannot use much of it.	Are data held nationally and the data in Copernicus the same data? Is it consistent? Can JPI Climate check that what is on offer is consistent and that there is no divergence Role of the EU and JPI Climate facilitating collaboration across all Met Services [within Europe] to avoid duplication [link to effort by NL to bring European Met Services together] Need for "a recognised data seal of approval" (i.e. in absence of standards knowledge that data has been peer reviewed). JPI-Climate – sharing experiences and identifying research Work with the Water JPI for possible synergies on these aspects

	• missing biological and socio-economic data – need to Invest in data infrastructure for climate and ocean observations - long term funded infrastructure (e.g. buoys / ships to maintain data acquisition and quality control)	GOOSE GECOS CMEMS COPERNICUS	National level actors need to do more on this and be better coordinated. Role for JPI Climate especially re socio-economic data
Uncertainty	• CCA and CC are inherently uncertain – how to provide guidance on how to use uncertainty for users / users are used to dealing with uncertainty / CC is just one more thing. • Uncertainty and its use in decision making and what that means for those providing information, including its uncertainty – how to explain this to providers and purveyors, as well as decision makers and work this out in the right away	Decision frameworks / decision theory Research in other areas such as ECRA and JRC. Risk evaluation has an ISO Standard BUT still not done consistently**! Mainstreamed into most CS projects (e.g. SECTEUR – within C3S is looking at users' requirements for data in targeted sectors) COPERNICUS can deal with uncertainty of data – what are they doing?	Training and building capacity to deal with uncertainty – national level action Important to know what level of certainty you need for the decisions you are making
Pricing	• Is there a right or wrong way to price CS? What is best practice? • need to understand the mechanisms and the funding of data collection plus barriers to market development • Need to co design information – look at models of other providers of big data e.g. AIR B&B • Need to identify the barriers to the uptake of CS (they are not homogenous) and make a call on where to prioritise (e.g. well	Case studies? EUMAX – will try to determine into the optimal form of funding for CS – will address it as a barrier MARCO / EUMACs work on business models MARCO and EUMACS will provide information	Guidance re pricing non- public good CS? What data needs to be paid for to ensure good quality CS What is the boundary between public and private markets? Can public sector out compete private actors?

	developed markets or new markets?)	Price of Satellite data is often expensive (from private companies), but this is better resolution than that available from public sources. Copernicus may resolve some of this but resolution may still not be sufficient for some applications.	Guidance on what is fair to pay? JPI Climate could review outputs of EUMACS and MARCOS and make sure this aspect is adequately dealt with
Transparency	The move to more transparency of data and information has started but still no consensus re how much transparency to aspire to and by when	EC / International standards / emerging practice form other sectors (e.g. finance) OASIS WMO have standards for collection of weather data (standards for weather stations) CSA - PLACARD is doing this [NB time limited what happens beyond the project? ECCA – Climate adaptation community acknowledged this at last conference. Integrating the disaster risk community will be addressed at their Lisbon Conference in 2 years.	ISO and CEN standards See JPI Climate actions below re making ongoing and past work available to community and public Need to learn from this – apply to Climate data collection. Is this something the JPI - Climate could look at? Is there more that can be done in conjunction with other JPIs? How do we keep the momentum of communities going when projects complete***? Is this something for JPI Climate (and other JPIs) How can JPI Climate engage with major conferences (e.g., ECCA Conference in Lisbon 2019)
Issue	**Gap**	**Source**	**Issues and Implications**
Capacity building and training	• Gap in EU MS and in developing countries re how we analyse, organise, communicate and use data	Climate-KIC (education is within their "knowledge triangle" – may be at a HEI/University level.	Training and capacity building to understand climate services

	• New users of CS need to be trained in how to use it • Education and continuing professional development on CC and CCA – this happens at national level but there is no pan-European standard • The potential contribution of CPD activities – varies between countries and sectors • What is the role of climate service 'case (learning) studies'?	Sweden is teaching pupils about SDGs in schools. EduArctic (project involved in getting Arctic into high schools – European wide project). Water JPI are preparing a call that includes the SDGs.	Explore the opportunity that the SDG's may bring – may be easier to get into HEI level education but harder to get into earlier education (school level). Could future calls include educational strategies? Need to move away from solely siloed environmental perspective. Role for JPI? [A potential problem could be that JPI Climate reps are not those involved in education departments within countries) Could JPIs together lobby to take SDGs in education seriously across the EU? Training to convey standards associated with methodologies for developing and using climate services – bureaus are developing like mushrooms with little guidance or means of developing QA/QC and standards – need for a framework – does this fit into JPI Climate people – what are the elements
Knowing the providers /	• Need more insight into the market structure	ERA4CS?	Key role for JPI Climate to inform

reducing duplication and maximizing synergies	• Need data on the use of data – it is available but not harvested and analysed • Need to better understand the decision making process (and other uses of climate services) to ensure the data is relevant or know what data can be used.		reducing the potential of duplication and synergies – synthesising and sharing that information with members and beyond
Private sector	• Need to better understand the decision making processes in a company and the complexity of information they need to make decisions • Understand better how companies are already using CS – e.g. infrastructure / oil and gas industry / insurance industry / off shore infrastructure - have they been included in the work to date? • What is done by the private sector and public sector and where should the public sector intervene within the private sector – The Netherlands, Germany, The UK – more of discussion on market distortion • Developing market for climate services – if as Task 7.2 suggests only 5% commercial providers/purveyors – who are the main providers and users – what companies – start with those identified - could be biases in this analysis and therefore caution when using this •	Climate KIC - Start-ups and innovation within SME MARCO and EU-MACS Acclimatise/ The Netherlands – CAS Analysis by Commission - DG CLIMA Roadmap interviews Copernicus RESIN, EU-CIRCLE, CIRCLE Federation of small businesses – are there something similar within other countries - users Pharmaceutical companies as potential model of the thinking process [can things be learned from this industry, who develop drugs with long development/lead in times – for CS development markets may not be there yet could we therefore learn anything from how pharma companies approach this)	JPI Climate – synthesis drawing on national and European projects of the knowledge and research needed in this area and others – rather than going after the end-users
Who should provide CS? Developing the CS market	• Closest to CS market is the weather forecast sector – learn how this mkt has developed – possible business models.	Capture what is happening and who is doing what in Copernicus, MARCO and EU-MACS, etc. – to be captured	JPI Climate should be bringing together different countries and could explore different models

	• People are already using weather and ocean data – how to move them on to climate services. • Disaster risk management requires understanding of extremes now – this opens a gateway for CS • What are the various roles players are playing – brokers and online providers/purveyors • Purveyors may be closer to the users/clients and therefore may understand their needs better. Could potential purveyors (trusted sources) be better engaged to act as the intermediaries, providing advice that is built into the information that is provided?	in JPI Climate future work Met Service providers are fragmented across EU. Sometimes (in some countries) their services displace private sector. Could draw examples from space markets – Commission has done studies	and understanding why and where – share experiences and find synergies and lessons learnt Should there be encouragement to enable a competitive market – i.e. setting a mandate for core services for (public) met services, which would enable development of downstream services by private actors [who could do this – Nationally political]. For example, Met services 'kick starting the value chain?"
Defining CS	• What is a definition that can work? what are the boundaries of CS for JPI climate? People unable to classify themselves as users/ providers/ purveyors. • Economic parameters to help define • Are there downsides to having a definition – why and where does it matter whether there is a definition • Acknowledgement of differences may be all that is needed • More about what is being done • Is there more of a need to define what is a weather service and a climate service? How does this related to a seamless prediction environment? • How within concept of climate change do we define climate service such as we are bridging DRR (often short-term focussed)	Case studies Terminology – MARCO, but not a position on the definition – the ecosystem or a picture as to who are playing. DR management community within the KMDRR Climate Knowledge brokers WMO GFCS – need to ensure that this goes beyond just WMO defining CS Climate data from space – coordinated within Reading	May be easier to say what should not be included? Although it would be good to have stronger alignment with the definition used by the GFCS. [Currently European definition is moving away from that of the WMO]. Taking the existing Roadmap definition as a starting – towards defining a scope. Is this a JPI Climate role? What are the boundaries of climate services from the perspective of JPI Climate? Some type of boundaries and work sharing – do we leave this

	and CAA (medium to longer term focussed) and linking to policy – supporting the future climate – interesting application, but how within one organisation? • Does the definition(s) create barrier to commercial engagement – too many players		to the market or define it from the upper levels? JPI Climate could provide fora for discussions to better understand and mapping (changes continuously)

*METEOSWISS working to improve the uptake of their climate scenarios – working to understand how to better communicate the data. This will include increasing the reliability of the data, making it more accessible and translating it into useable formats (i.e. not just supplying raw data). They are targeting non expert users, and are engaging stakeholders (co-design), this may be easier in Switzerland as many EU HQ's of global companies are based in Switzerland therefore they have more direct access. Noted that modellers are not normally experts in translation and communications and therefore should not be expected to be such.

** Risk Management /Evaluation have standards (ISO) but still not done consistently. Risk Analysis is sector dependent and there are inconsistencies.

***GTNP (Permafrost) project has this problem. Originally funded with the Alfred Wegener Institute and Arctic Portal, project has cleaned, standardised permafrost data and archived it in a 'portal' but the funding has finished. Arctic Portal are still running this (but at a loss to the organisation) in the hope that additional funding will be found. This is a source of information for researchers, governments, commercial organisations but there is uncertainty as to who will pay for it in the longer term.

Opportunities/Challenges

There is a need to understand what is happening in terms of supportive research at the national, European and international levels, including direction of travel – build on that available within the Task 7.1, 7.2 and 7.3 reports. This should be a continuing role within JPI Climate.

Some people are common to a number of the H2020 CS projects and this could help to ensure some links – but this is not adequate yet.

- Potential contribution for ClimatEurope, but is there also a role for JPI Climate within or outside ClimatEurope?

Within C3S, a very few people have an overview of the projects and their activities (e.g., Jean-Noel Thepaut) but this information is not available to the wider community

There is a lack of relevant communication between past and present projects, including across the EC Framework Programmes and at the national level. Is there a role for JPI Climate in facilitating this communications, especially at the national and the EC levels? This would need to be more than a list of projects.

There is a role for JPI Climate in aligning and streamlining the flow of information at the national level. This could include mapping what is being done and where, including a time dimension and a forward look (what will come and when).

There is a need to identify and better understand what is going on in non-JPI-Climate countries within Europe and by whom – to support the widening agenda

There is a need to better understand the social and technological challenges associated with climate services – cultural issues

What does the dynamic and flexible user-purveyor-provider chain mean for the JPI Climate and development of climate services?

A sector perspective may not be sufficient to understand the market (including dependencies and interdependencies, as well as supply and value chain considerations). There is however a need for understanding where sector developments are occurring and how that may impact on the need for climate services. This should include acquiring information from the different sector's professional organisations. JPI Climate may need to engage these, potentially working with the associated JPI (Water, FACCE, Oceans and Urban Europe), however, JPI Climate should activities in this area should focus on the implications for research.