



European Market for Climate Services

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Welcome to EU-MACS

By Adriaan Perrels

Welcome to the first issue of the EU-MACS Newsletter. If you read this as a potential user you may first wish to know what climate services are (see box below) and how your organisation can benefit from them, and next how to find alternative suppliers, how to specify your needs, and how to compare alternative climate services.



In EU-MACS we look for effective ways to provide you with clear answers on these matters. It is therefore important to have you – as current *or* prospective users – on board of this project, especially if your organisation belongs to the sectors **finance, tourism or urban planning**. Next to this Newsletter, to which you can subscribe [here](#), you can consult [the project website](#), and follow us via Twitter @EUMACS_H2020. Don't hesitate to ask questions, send feedback or meet us at events such as the [Climateurope Festival in Valencia](#) (5-7 April) and the EU-MACS seminar in Helsinki (19 June).

Climate services entail information and advice regarding historic weather patterns (climate), seasonal projections (deviations from averages in upcoming months), and long term climate projections (for planning adaptation to climate change). The use of these service can reduce risks and enhance business opportunities e.g. for seasonal tourist services, planning of real estate projects, and assessment of investment portfolios.

EU-MACS should benefit climate service providers as well. EU-MACS aims to unravel how obstacles to better uptake of climate services can be overcome through improvements and innovations in climate services generation, design, delivery, and resourcing. As Alessia Pietrosanti emphasizes in

this Newsletter, such innovations should have a strong orientation on user needs and capabilities, regardless of the underlying enabling effects of scientific and technical novelties. EU-MACS should offer you – as climate service provider – criteria, guidelines, and protocols for effective innovation and effectively matching demand. Therefore, we need your feedback and engagement as much as that of the users. Our first reports will be published in May 2017 (you can find them on our website). You can meet us at the aforementioned events, but also in the 3rd European Climate Change Adaptation Conference, [ECCA2017](#), (June, Glasgow) and in the European Conference on Applied Climatology of the European Meteorological Society, [EMS-ECAMC 2017](#) (September, Dublin). EU-MACS will also closely interact with the [COPERNICUS Climate Change Service](#) (C3S).

EU-MACS will first produce an assessment of the current practices in providing and using climate services, with special reference to experienced barriers and limitations, business model & resourcing options and challenges, quality assurance practices and needs, and a policy relevant innovation framework. Subsequently, we will explore with selected stakeholders how to better design and deliver user optimized climate services for the sectors finance, tourism or urban planning. Finally, a synthesis is made to generalize the findings and produce recommendations for policy makers, climate service providers and users, as well as researchers and consultants. It should be ready by November 2018. EU-MACS will cooperate closely with the sister [project MARCO](#). *Adriaan Perrels is Research Professor at the Finnish Meteorological Institute (FMI) and the coordinator of the EUMACS.*

EU Roadmap for climate services

Interview with Alessia Pietrosanti, Project Advisor, European Commission - Executive Agency for Small and Medium-sized Enterprises.

What is the future for climate services?

EU-MACS: *What are the next steps in implementing the European research and innovation Roadmap for climate services and the role of the ad-hoc expert group in this?*

The ad-hoc expert group concluded its mandate with the development of the Roadmap. Shortly after its release, the European Commission – DG RTD, set up an informal working group for the implementation of the Roadmap. The group comprises the relevant Commission's services, as well as the main international and European programmes and initiatives in this field. It is currently monitoring the Roadmap implementation, mapping the relevant activities and identifying possible implementation gaps. As preliminary results of this stocktaking exercise, several projects and initiatives have been launched or are in pipeline to be, contributing to address the challenges and main activities singled out in the Roadmap. Most of these projects have not been able yet to feed in this process as they have just started, but we expect them to contribute knowledge and experience towards streamlining the Roadmap implementation and its long term

(beyond 2020) development.

EU-MACS. What are the H2020 opportunities for climate services?

H2020 offers many opportunities for developing climate services. Through last year SC5 call we selected six innovation actions for climate services demonstrators for over 22 million Euros total grant, in pipeline to be launched, and this year SC5 call invites proposals for research and innovation actions 'From climate service concepts to piloting and proof-of-concept'. We also opened in the same call a topic on 'Regional modelling', conducive to the development of the next generation services.

However, opportunities to fund climate services are not only given in components of H2020, but also in other EU instruments. Therefore, I suggest to look beyond the 'climate services' label. For example, the SME instrument allows submitting proposals for climate services development (call open with multiple cut-off deadline until the end of the year), and this year under the H2020 sustainable food security call – SFS - there is a topic on 'Earth observation services for the monitoring of agricultural production in Africa'. Beyond H2020, look at the Life Programme, which has a climate component since this programming cycle (next call will open in

spring), Climate-KIC, and the structural funds.

EU-MACS: *What are key points the climate innovators should keep in mind when preparing a proposal?*

Innovators are acquainted to think out of the box, which is excellent, but for ideas to become innovation is essential that they are turned into concrete solutions for users, and provide an added value from their point of view. Instead, I often read proposals more driven by research questions than by end users problems.

When preparing a proposal, it is key to put at the centre users and their needs and also to understand their decision-making procedures, their organisations' logics and constraints and how the proposed services will fit into those and bring added value to them. In the standard H2020 template we also ask for a dissemination and exploitation plan. This is often provided in very simplified terms and IPR issues are neglected, and wrongly so, as they can also determine the failure or success of the proposed services. It is a good practice to address in the proposal also what will happen after the project is over, how the legacy will be managed, what commercial or non-commercial exploitation is envisaged. This not only adds credibility to a proposal but is a success factor to have the uptake of innovations in the society.

In brief, it is a good idea to engage in the proposal, since its preliminary design, also professionals who can act as 'intermediaries' between scientists and end users, and who can address business development, innovation management, marketing and legal issues.

EU-MACS: *What are the medium-to long-term research and innovation priorities (under H2020 and beyond) for climate services, and how EU-MACS could contribute to shaping the future markets with climate services?*

The European Commission EC is now in the process of shaping the future framework programme, and setting longer term Research&Innovation priorities. I think that the vision underpinning H2020 to support activities able to bring solutions to the main challenges of our society will stay the leit motiv,

and in this climate services will have a role to play.

EU-MACS can bring an important contribution towards shaping the future of climate services. Indeed, the project is addressing an area relatively unexplored by looking in a systematic way at the barriers – and ways to overcome those – success factors and enablers the unleashing of the climate services market. However, to make a difference and leave a mark, EU-MACS needs to go beyond filling knowledge gaps in these areas, and deliver information that can be actionable by policy makers and regulators as well as by the supply and demand side actors. For doing this, it is essential that the project is clear on who are the recipients of its findings and recommendations, and that those recommendations are provided in a timely and tailored fashion. Looking at the business models, it will be important that EU-MACS factors in how C3S moving into a fully operational phase will affect the market dynamics and how this could contribute to realize the market potential. More in general, understanding how public and private provision of services, free and commercial services interact in the various cultural and socio-economic contexts of the member states (MS) and beyond will give a contribution towards the shaping of a market able to bring benefits to the society, minimise the risks and costs of climate change and seize the opportunities of building a climate smart economy.

Knowledge Box

Horizon 2020 is the financial instrument implementing the Innovation Union, a Europe 2020 flagship initiative aimed at securing Europe's global competitiveness. It is the biggest EU Research and Innovation programme ever with nearly €80 billion of funding available over 7 years (2014 to 2020).

Roadmap for climate services: in June 2014 the European Commission (EC), established an expert group with the task of proposing a research and innovation roadmap for climate services that could be used for the definition of future actions promoted by the European Commission. Key aspects of the roadmap are: the stakeholder engagement in practical and realistic demonstration of the benefits that climate services

can generate; a series of actions targeted at building engaged communities of users and providers/ purveyors; a sustained flow of new trans-disciplinary science to the operational dimension and supportive feedback; and supporting open access to data and data products

Reports from recent events

ERA4CS Workshop: Implementing the European Roadmap on Climate Services, 02-03/02/2017

Two years passed since the publication of the [EU Roadmap on Climate Services](#). This month, ERA4CS held a workshop (*Synergies, Gaps and Challenges workshop*) in Brussels to examine the progress made and to discuss the enduring bottlenecks. Organised in partnership by Natural Environment Research Council (NERC), Environment Protection Agency (EPA) Ireland, and the Ministry of Education, Universities & Research (MIUR) Italy, the workshop set the stage for presenting work in progress and reflect on the outstanding challenges and evidence gaps.

Some twenty-five-experts attended the workshop and engaged in discussion on how to advance *user-driven and science-informed climate services* in Europe. Participants said **innovation was a key** for tackling the three challenges identified in the Roadmap: enabling market growth, building the market framework and enhancing the quality and relevance of climate services.

Over two days the ERA4CS partners gave an overview about [JPI Climate](#) activities implemented over the period 2011-2016, and a general overview of national and supranational climate service activities. A wide range of climate services existing in Europe (e.g. data, modelling, consulting). Providers and users are often difficult to distinguish which creates a need for more in-depth research into climate services value chain and market functioning. Furthermore, there seems to be a growing demand for multidisciplinary products, which harness insights from different disciplines to offer a comprehensive understanding of the challenges at hand. Participants from both public and private sectors identified the most

pressing challenges from various perspectives: service providers, purveyors and end-users. To address them is crucial in shaping the future developments, both within the [ERA4CS](#) ("European Research Area for Climate Services") consortium and beyond. Stakeholders highlighted the need to gather intelligence on market size and potential. This goes hand in hand with a **better understanding of users' needs**, and developing effective communication capable of reaching intended audience and supporting practical decision-making. **Quality and reliability of information** was perceived as crucial to unleash climate services both at national and regional level. Therefore, the development and implementation of adequate standards and evaluation frameworks may help boosting the use of climate knowledge. Participants called also for **further training and education** to boost the capabilities of actors and users in dealing with uncertainty and modelling in the field of climate change.

By investigating over the climate service market, EU-MACS and its twin project [MARCO](#) (Market research for a Climate Services Observatory) are expected to fill these gaps at least to some extent. Through the analysis of market structure, business models, barriers and opportunities EU-MACS will deliver a proper cross-section representation of the market. The project will engage a large variety of stakeholders in the fields of green finance, tourism and urban planning. MARCO, instead, will focus on additional sectors providing detailed insights into the climate service market in Europe and supplying meaningful policy recommendations. The MARCO project will be implemented over a period of 2 years and is coordinated by Climate-KIC. To stay updated and for further information, follow EU-MACS Twitter account (@EUMACS_H2020) and EU-MACS web-portal (www.eu-macs.eu).

Francesca Larosa, Fondazione Eni Enrico Mattei (FEEM) and Euro-editerranean Centre on Climate Change, Venice

Knowledge Box

Era-NET 'European Research Area for Climate Services' is a network funded as an ERA-NET Co-fund action under the European Union's Horizon2020 Framework with the aim of boosting the development of efficient climate services in Europe. It is formed by 45 partner organisations, most of which are coming from countries participating in the Joint programming initiative JPI Climate on 'Connecting climate knowledge for Europe.

The Joint Programming Initiative "Connecting Climate Knowledge for Europe" (JPI Climate) is a pan-European intergovernmental initiative gathering European countries to jointly coordinate climate research and fund new transnational research initiatives that provide useful climate knowledge and services for post-COP21 Climate Action.

Climate-KIC is one of three Knowledge and Innovation Communities (KICs) created in 2010 by the European Institute of Innovation and Technology (EIT). The EIT is an EU body whose mission is to create sustainable growth. Climate-KIC activities are driven by four climate change themes: urban transition, sustainable production systems, decision metrics and finance and sustainable land use.

EU-MACS partners

In each NL we will introduce some of the EU-MACS consortium and cooperating partners, starting with the FMI and Euro-Mediterranean Centre on Climate Change. Next to the brief institutional profile, we include a brief description of ongoing climate services.

The Finnish Meteorological Institute (FMI)

The Finnish Meteorological Institute (FMI) is a research and service agency under the Ministry of Transport and Communications of Finland.

FMI work is spread across two main areas of expertise: Weather and Safety and Research and Development. Within the former, there are nine research divisions: Climate Service Centre, Climate Research, Atmospheric Composition Research, Meteorological Research, Earth Observation, Arctic Research, Atmospheric Research Center of Finland, Expert Services.

In addition to being a leading expert in several research areas, Finnish Meteorological Institute

is also committed to help other countries, especially the developing world, in the development of their meteorological services. The FMI takes an active part in European and global research and development programmes and works closely with other meteorological services around the world to improve their capacity.

Euro-Mediterranean Centre on Climate Change (CMCC)

The Fondazione Centro Euro-Mediterraneo sui Cambiamenti Climatici is a non-profit research organisation. Its mission is to analyse and model climate systems and its interactions with society, and to provide reliable, rigorous, and timely scientific assessment capable to inform decision making, stimulate sustainable growth, protect the environment, and develop science driven adaptation and mitigation policies. CMCC collaborates with experienced scientists, economists, and technicians, which work together in order to provide full analyses of climate impacts on various systems such as agriculture, ecosystems, coasts, water resources, health, and economics. CMCC also supports policymakers in setting and assessing costs, mitigation, and adaptation policies.

CMCC research is spread across eight research divisions on climate science: Advanced Scientific Computing (ASC) Division; Climate Simulation and Prediction (CSP) Division; Economic analysis of Climate Impacts and Policy (ECIP) Division; Impacts on Agriculture, Forests and Ecosystem Services (IAFES) Division; Ocean modelling and Data Assimilation (ODA) Division; Ocean Predictions and Applications (OPA) Division. Risk Assessment and Adaptation Strategies (RAAS) Division; Regional Models and geo-Hydrological Impacts (REHMI) Division.

AGRO ADAPT

AGRO ADAPT (*Service for local and economy wide assessment of adaptation actions in agriculture*) is a Climate-KIC project within the Climate Smart Agriculture Booster (CSAb). Building on cutting-edge economic models at farm and regional level, AGRO ADAPT will deliver a service able to anticipate, design, and prepare the ground for autonomous or policy induced climate adaptation to the increasing frequency and intensity of floods and droughts

in European agriculture. The service targets (i) business operators (e.g. insurers), enabling them to anticipate the regional transformations of agricultural market and production, and farm holding structure; and (ii) regional and national authorities, which can improve their understanding of local and cumulative effects of the farm-level adaptation to climate variability and change on economic outputs and underlying natural resource demand. For more information, visit the [dedicated webpage on CMCC portal](#).

COPERNICUS SEASONAL FORECAST

In the framework of the C3S project on Seasonal Forecast provision, CMCC has developed a new seasonal forecasting system that provides 6-months ensemble predictions, every month, with starting date the first of the month and that will be made available by the 10th of the month. The new CMCC seasonal prediction system (SPS.v3) that will be implemented for the Pre-Operational Phase of the project is built around the new CMCC climate model and, compared to the old system, has higher resolution in both the atmosphere and the ocean. The new CMCC seasonal prediction system developed within the Copernicus project is improved in many respects, with a more advanced seasonal prediction model, which features substantially higher spatial resolution, a better initialisation strategy and procedure and a larger forecast ensemble size.

For more information, have a look at the [project description](#) or read the [Copernicus Climate Change Service \(CS3\) Seasonal Forecast presentation](#).

SECTEUR

The SECTEUR contract (Sector Engagement for C3S – Translating European User Requirements), led by the Institute for Environmental Analytics (IEA), aims to understand the requirements of climate information and impact indicators across a number of sectors: agriculture, forestry, coasts, health, transport, insurance and tourism. To achieve this goal, SECTEUR has implemented a survey in five languages, which is coming to closing in April (here). Dr Maria Noguer, SECTEUR Project Manager, based at the IEA, says: “The survey takes an average of 10 to 15 minutes to complete. The results will inform the

development of C3S and the provision of free climate information from 2018. The contract partners include: Helmholtz-Zentrum Geesthacht (Germany); University of Leeds (UK); Met Office (UK); Telespazio VEGA (UK); Alterra Wageningen UR (The Netherlands); Centro Euro-Mediterraneo sui Cambiamenti Climatici (Italy); Institut Català de Ciències del Clima (Spain); Tecnalia (Spain), Barcelona Supercomputing Centre (Spain); Tec Conseil (France); with input from kMatrix (UK) and the University of Oxford (UK). The project runs until August 2017.

For more information visit the [website](#), connect on [Twitter](#) at or access and complete [the survey](#).

OCEANLAB

OceanLab is the Ocean Predictions and Applications (OPA) Division of CMCC. The OPA Division deals with the development of models and methods for interdisciplinary research on marine operational forecasting), on the interactions between coastal areas and the open ocean, on the development of services and applications for all maritime economy sectors, including transport security and management of coastal areas and marine resources, in the context of climate change adaptation problems. CMCC Foundation is leading the CMEMS Med MFC service, the Monitoring Forecasting Centre of the Mediterranean Sea within the EU Copernicus Marine Environment Monitoring Service. Within CMEMS, CMCC is also part of the team of the Black Sea MFC service, the Black Sea Monitoring Forecasting Centre, which releases the same products on physics, biogeochemistry and waves for the Black Sea. CMCC also participates to the project SECTEUR as leader of the Coastal Areas sector, in analyzing needs and user requirements for climate data and climate impact indicators to be of use for the Copernicus Climate Change Service.

For further information, visit [OceanLab webpage](#).

Recent publications

Vaughan, C., Buja, L., Kruczkiwicz, A., & Goddard, L. (2016). **Identifying research priorities to advance climate services**. *Climate Services*, 4, 65–74

[.dx.doi.org/10.1016/j.cliser.2016.11.004](https://dx.doi.org/10.1016/j.cliser.2016.11.004)

This paper reports the results of an international survey to gauge community perspective on research priorities for climate

services, highlighting several areas in which respondents agree on the need for future work. The survey results indicate an overarching interest in research that can better connect climate information to users, particularly around the communication of climate information, the mapping of climate information needs, and the evaluation and prioritization of capacity building efforts. To support climate-related research, survey respondents underscore the need to continually develop and maintain the observational network. In analyzing these results, the paper offers guidance to researchers and to other members of the climate services community that may find these priorities useful in directing their own work to address the challenges posed by climate variability and change.

Monfray, P., & Bley, D. (2016). **JPI Climate: A key player in advancing Climate Services in Europe**. *Climate Services*, 4, 61–64. dx.doi.org/10.1016/j.cliser.2016.11.003

For JPI Climate (www.jpi-climate.eu), as a Joint Programming Initiative of 17 European countries dedicated to "Connecting Climate Knowledge for Europe" through their respective climate research funding and performing organisations. Advancing climate services research was then identified as one of the four priority working groups of JPI Climate, specifically dedicated to CS with the view to produce science-based client oriented information about projected regional climatic changes and regional and sectoral impacts based on a sound understanding of user needs. The ERA-NET "European Research Area for Climate Services" (www.ERA4CS.eu) was launched in January 2016 to boost the development of efficient CS in Europe. In March 2016, a large joint call was launched by the ERA4CS partners, contributing either with cash or in-kind resources, and co-funded by the EC. A total budget of about 72 M€ will be potentially available to support 3-year research projects involving at least three countries. The 2016 call places an emphasis on integrated research that creates a bridge between observations, model development, operational products, translation of information and user uptake.

Cortekar, J., Bender, S., Brune, M., & Groth, M.

(2016). **Why climate change adaptation in cities needs customised and flexible climate services**. *Climate Services*, 4, 42–51. <http://doi.org/http://dx.doi.org/10.1016/j.cliser.2016.11.002>

Cities are key players in climate change adaptation and mitigation due to a spatial concentration of assets, people and economic activities. They are thus contributing to and especially vulnerable to climate change. Identifying, planning, implementing and monitoring respective measures in cities is challenging and resource consuming. The paper outlines challenges for adaptation, discusses most common approaches and argues why implementation of theoretical methods has its shortcomings. Based on case studies, an innovative, practice-oriented approach has been tested to develop a climate service prototype product. It provides a general framework that allows a flexible and customised support for cities to adapt to expected impacts of a changing climate.

Next on the agenda

Check the next events for February – September 2017 to stay updated on climate services

Open data week @ ECMWF (UK)

Feb 28 – Mar 5

Workshop on improving the socio-economic impact of NWP data, 28 February – 1 March

The workshop will provide a forum to discuss the challenges of disseminating meteorological data into the future and how ECMWF and NMSs can ensure that the economic value of weather information can continue to be realised by the private market.

Attendance: Attendance to the workshop is by invitation only.

16th Workshop on Meteorological Operational Systems (MOS), 1-3 March

The workshop on Meteorological Operational Systems (MOS) is biennially organised by ECMWF and reviews current and future developments of operational systems at ECMWF and National Weather Services. In 2017, the workshop will focus on how (open) data can be best brought to users.

Registration: closed.

#OpenDataHack @ECMWF – Beyond weather: explore creative uses of open data, 4-5 March
Developers, experts, students, data wranglers, data journalists, data enthusiasts, makers, artists – you are invited to join the meteorologists, scientists and engineers at #OpenDataHack on 4 and 5 March 2.

More information on the Open Data Week under: <http://www.ecmwf.int/en/learning/workshops/open-data-week-at-ecmwf>

Climateurope Festival @Valencia (Spain)

Apr 5 @9:00am – Apr 7 @4:00pm

The first edition of the Climateurope Festival will take place in Valencia, 5-7 April, 2017. It will be an opportunity to meet, share ideas, and experience on the state and the future of climate services, climate Observations and Earth-System Modeling in Europe.

Further information can be found at https://www.climateurope.eu/event/climateurope-festival/?instance_id=3

Climate Prediction Applications Science Workshop 2017 @ Alaska Center for Climate Assessment & Policy, May 2 – May 4

CPASW will bring together climate researchers, information producers, and users to share developments in the research and applications of climate predictions for societal decision-making.

Further information under the webpage <https://accap.uaf.edu/cpasw>

3rd European Climate Change Adaptation Conference – Our Climate Ready Future @ Glasgow. Jun 5 – Jun 9

The theme of ECCA 2017 is 'Our Climate Ready Future'. The vision is that this conference will inspire and enable people to work together to discover and deliver positive climate adaptation solutions that can strengthen society, revitalise local economies and enhance the environment. ECCA2017 will bring together the people who will deliver action on the ground – from business, industry, NGOs, local government and communities – to share knowledge, ideas and experience with researchers and policymakers. ECCA 2017 is held in Europe but the focus will be global. Participants from over 60 countries on five continents have already registered their interest or submitted abstracts. Full details can

be accessed [here](#).

EU-MACS seminar – towards better matches of demanded and provided climate services @FMI, Helsinki (Finland), Jun 19

The EU-MACS project will present findings on gaps in climate service market development, and discuss the better matching of needs with experts from finance, tourism, and urban planning. The seminar is organized back-to-back with the 11th Geo European projects workshop at the same location. For details on the seminar: <http://eu-macs.eu/event/eu-macs-mid-term-seminar-19-21-6-2017/#>

Sixth International Conference on Climate Change Adaptation @ Chestnut Conference Centre, Sept 16 – Sept 17

The Sixth International Conference on Climate Change Adaptation 2017 (CCA 2017) will be held on 16-17 September, 2017 at the Chestnut Conference Centre, University of Toronto, Canada. This year will focus on "Reducing Vulnerability through Adaptation". Programme and full details:

<http://www.globalclimate.info/>

Innovate 4Climate: Finance&Markets Week @Palau de Congressos de Barcelona, Barcelona (Spain)

Innovate4Climate is a new global dialogue of government, multilateral, business, banking and finance leaders focused on greening the finance sector and shaping the next generation of climate finance and policy instruments by identifying the most efficient and high-impact ideas for climate action. In these uncertain times, we are doubling down on our mission to create a more sustainable future. The event is organised by the World Bank and Fira Barcelona. Further information under

<http://www.innovate4climate.com/en/home>

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