



Co-developing case studies with Super Users and exploring the benefits

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Overview

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- Using new seamless climate predictions covering from the next months to the next 30 years, the ASPECT project aims to facilitate climate adaptation in societally important sectors.
- **Co-development of prototype climate services with Super Users.** Interactions through interviews, meetings, workshops and participation in User Forums.
- Use the case studies as the basis of **usability and socio-economic assessment of seamless climate information** in terms of benefits and added value.
- **Use case studies to investigate upscaling, to help support the uptake of near term climate information** by a wider range of users from different socio-economic sectors.

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User-centred approach

Climate information is **co-produced** by working closely with stakeholders from **societally important sectors**, to address their needs, and produce useful and actionable information

- Super Users
- User Forums
- Case studies
- Uptake / upscaling



Super Users' needs



Super Users' case studies & need of seamless climate information

- 

Agriculture – Grape/wine (Codorniu, ES)
Spring frost protection
Water management
- 

Finance – Pensions
Generation & communication of climate risk information for synthetic portfolios
- 

Governance – EU Mission for Climate Adaptation (Emilia-Romagna, IT)
Strategic climate risk assessment
- 

Humanitarian - Disaster response (British Red Cross, UK)
Response planning during extreme events
- 

Humanitarian – Health (Save the Children International)
Anticipatory action for malnutrition

- Identification of Super Users' needs for seamless climate information. Guiding the work of the project technical WPs.

Wine sector

- Climate is an important factor in wine production.
- Current and future climate conditions pose a major challenge to this sector.
- Climate services can support the wine sector in identifying and adequately addressing the expected changes in climate and their impacts.
- Decisions highly influenced by climate variability have been identified at several timescales.



"Climate is an important factor in wine production, with climate change risking grape crops. ASPECT will provide information on spring frosts and water availability over the coming seasons and years, helping Codorníu make decisions to adapt to climate variability and change."

Xavi Bordes
Irrigation Technician, Codorníu
ASPECT Super User

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CLIMATE PROJECTIONS

Spring frost protection

Water management



Wine sector



Forecast quality assessment: Seasonal and multi-annual predictions

Climate predictions of specific climate variables and indicators (extreme precipitation) at different time horizons and locations. Shiny apps are used for interactive visualizations for users.

Downscaled climate information

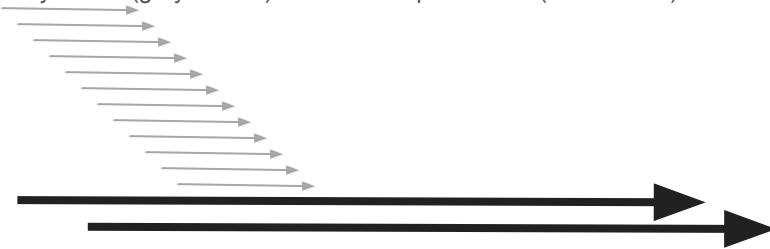
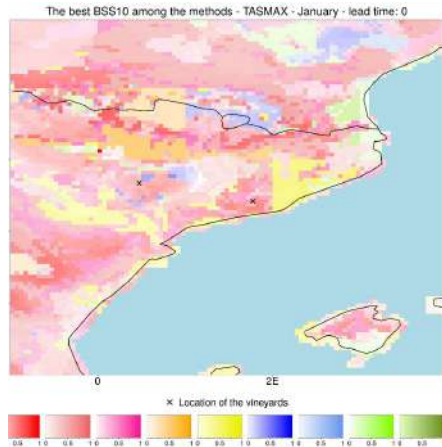
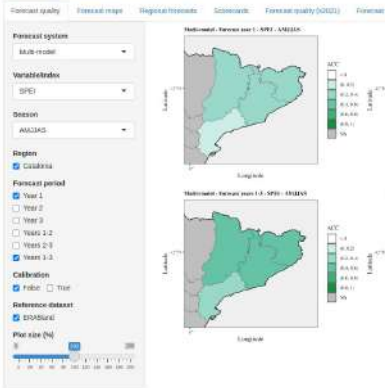
Interpolation methods combined with bias adjustment and regression techniques and analogue-based methods focusing on large-scale atmospheric circulation. Application in Catalonia, ES.

Seamless climate information from seasonal to multi-annual timescales.

Using the already run decadal predictions and constraining the variability using information from seasonal predictions and/or observations, there is potential to obtain more skillful multi-annual to decadal climate predictions.

ASPECT innovation: Illustration of the seasonal forecasts initialized every month (grey arrows) and decadal predictions (black arrow)

Earth System Services



Pensions sector



Increasing climate risk:

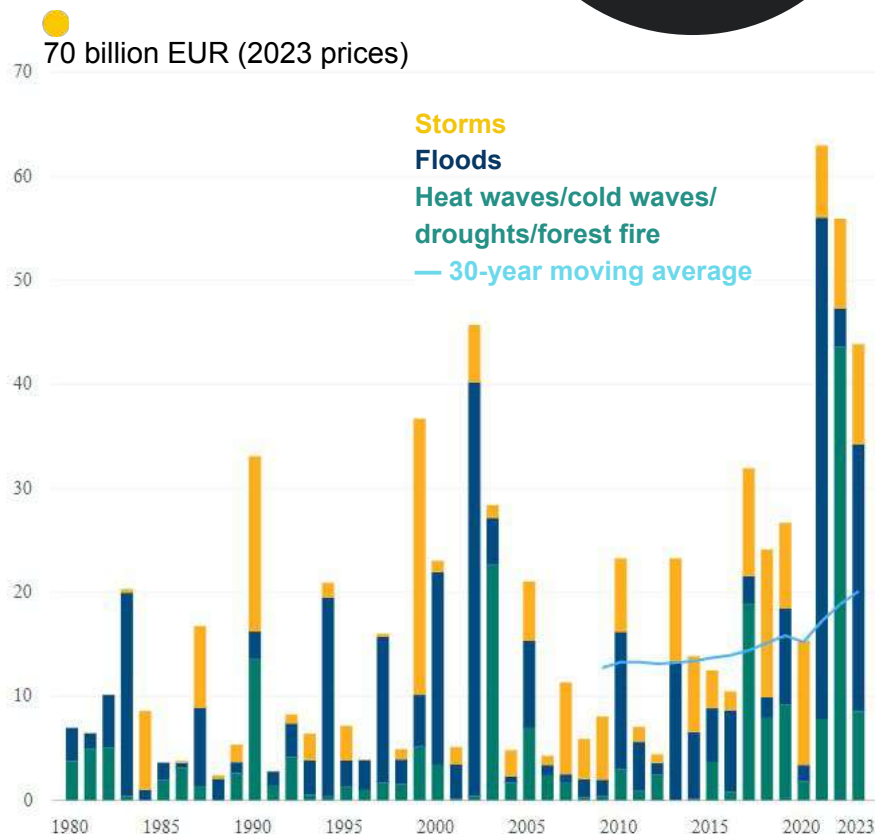
Between 1980-2023, there were economic losses of **EUR 783 billion** in the EU Member States.

- **Flooding** resulted in 44% of these losses, **storms** 29% and **heatwaves** 19%, with **droughts, fire** and **cold waves** 8%.

The financial sector has key role across society, particularly large **pension** funds which hold our future incomes in diverse portfolios of assets.

The pension sector generally has a low appreciation of the **physical risk** associated with climate change.

Contribute to **systemic change** of the sector toward sustainability and steering economic activities toward **socially beneficial outcomes**.



Pensions sector

User engagement across a range of actors within the pensions sector (see right).

Understanding decision making & ways to **drive change** in the sector:

- Empower funds to identify which investments have the **same cost and performance** basis, but which are **less exposed to climate risks**.
- Create change in the market by **raising climate risk** awareness with investors, who influence fund managers.

Our case study will illustrate the potential **underestimation** of **physical and financial** risk carried by funds who are not incorporating future climate information into their investment decision making.

We are considering how inland **flooding** might cause **losses** for **synthetic portfolios of assets** across Europe to demonstrate potential **climate risk** on decadal to climate timescales.



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ClearGlass

TESCO

Tesco PLC Pension Scheme



The Pensions Regulator
Making workplace pensions work



"Climate change can impact a wide range of pension fund investments. ASPECT can provide improved climate information to better understand these risks enabling better risk management and support effective investment decision making."

Professor Iain Clacher

*Pensions expert, University of Leeds &
Centre for Greening Financial Investments
ASPECT Super User*



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Governance sector



- The **EU Mission on Climate Adaptation** will enhance Preparedness and Planning for Climate Resilience in vulnerable regions.
- The Mission aims to provide support in improving comprehension, readiness, and effective management of climate-related risks and opportunities.
- CMCC will collaborate with the EU Mission for the generation of short-term assessment of climate-related risks, complementing projections, support climate service utilization, and early warning system improvement.



"The EU Mission on adaptation to climate change helps regions understand climate risks and supports them toward climate adaptation. ASPECT is working with the Mission's project CLIMAAX to incorporate climate predictions into a new framework and toolkit for regional and local climate risk assessments."

Cinzia Alessandrini

*Regional Agency for Environment, Prevention and Energy of Emilia Romagna Region
ASPECT Super User*

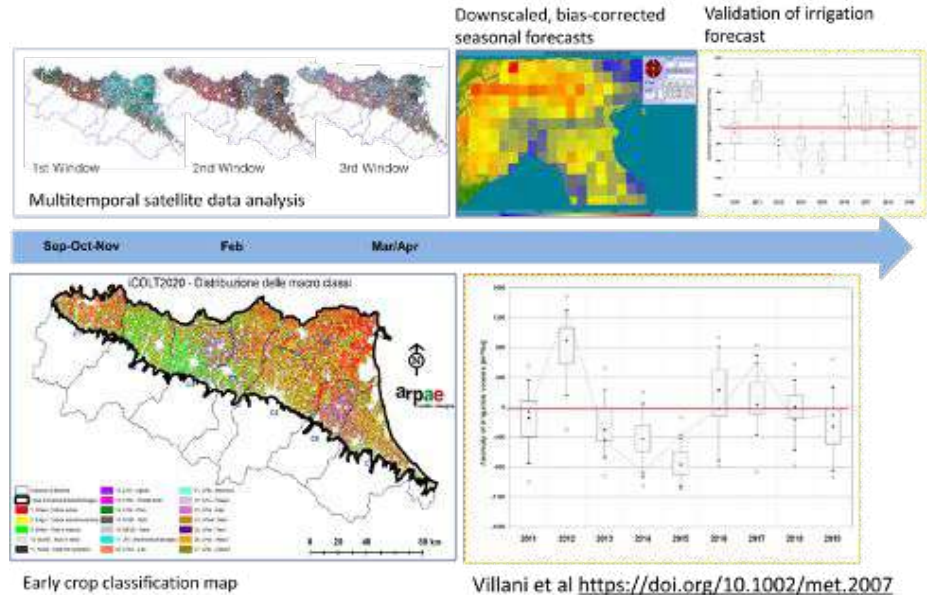


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Governance sector



- Development of demonstration pilots in priority areas.
- **Emilia-Romagna** is one of the **one of the most hazard-prone areas in Italy**, susceptible to a range of climate risks, including floods, heatwaves, droughts, floods, coastal erosion and sea water intrusion.
- Simultaneously, Emilia-Romagna, along with cross- and sub-regional administrative entities such as the River Basin Authority, the city of Bologna, and Water Boards, are recognized as **leaders in advancing climate knowledge and innovation.**



British Red Cross

The **British Red Cross** are considering their **future operations**, as the increasing frequency and intensity of extreme weather events caused by climate change challenges their **capacity** to respond.

Extensive **user engagement** with:

Climate Adaptation Lead
Climate Adaptation Group of
Emergency Responders
Vulnerability Specialists



Red Cross and Red Crescent Societies around the world help people prepare for, respond to and recover from extreme weather-related disasters such as droughts, heatwaves, wildfires and floods. The British Red Cross currently uses weather and climate information in short term decision-making and seasonal planning. Working with ASPECT will help us use climate information in longer term adaptation planning and decision-making.



Dr Ellie Murtagh

*UK Climate Adaptation Lead,
British Red Cross
ASPECT Super User*

Our case study will focus on risks from **extreme heat** and **prolonged hot weather** in the future.

During previous extreme heat events, some regions have reported being **depleted of resources** after 3 – 4 days. If extreme events last longer, and become more frequent, the British Red Cross may have to change how they respond to these events to avoid running out of supplies.






Key decision:

Procurement and prioritisation of appropriate resources for contingency planning over the next decade/s, e.g.

- Workwear
- Vehicles
- Locations of resources

We aim to add value from **seasonal** and **decadal climate information** to the high resolution climate projection information available over the UK from [UK Climate Projections](#) (now easily accessible to users at [Local Authority level](#)).

4. Certain groups are particularly vulnerable to heat risk.

At-risk groups:	 People aged 75+	 People with chronic and underlying health conditions	 People with a drug or alcohol addiction
 People with a mental health condition	 People who have a severe physical or learning disability or have limited mobility	 People living and working in urban settings	
 Economically or socially marginalised groups	 People who are homeless	 People living alone or who are socially isolated	 People who work outdoors
 People living in top-floor flats	 People living in care homes	 People who are pregnant	 Babies and young children

Humanitarian sector



- We will co-develop prototype climate services around the **provision of appropriate water, nutrition, sanitation and hygiene**, to support Save the Children to **protect maternal and child health** around the world.
- The climate information will be used for the development of climate-smart nutrition initiatives.
- BSC will assess the forecast quality for seasonal and multi-annual predictions of mean and **extreme temperature and precipitation**, and drought indicators **in Africa** (the country will be selected by taking into account data availability)



Save the Children is excited to be working with the European project ASPECT in improving our response to the health and nutritional impacts of climate change on children and communities.

Dr Revati Phalkey

*Global Director Health and Nutrition,
Save the Children International
ASPECT Super User*



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CLIMATE PROJECTIONS

Nutrition sensitive adaptation plan

Policy and advocacy for nutrition

Final remarks



- The **co-development process** is more advanced for the Agriculture, Governance and Financial sectors as these Super Users have been with us since the start of the project.
- **New Super Users:** We are developing our understanding of the Super Users' needs and decision making context for the Disaster Response and the Humanitarian sectors.
- **New relationships** with Super Users take time to develop and spin up the co-production process.
- **Co-exploration** of the best options for the **delivery of the climate services** defined by using an agile approach and initial understanding of appropriate formats for each Super User.
- Appropriate **communication methods** for different Super Users, considering how this might be scalable to a wider range of users.





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