

Deliverable 7.2: First Impact Evaluation and Update to Communication, Dissemination, and Exploitation Plan

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* **R**=Document, report; **DEM**=Demonstrator, pilot, prototype; **DEC**=website, patent fillings, videos, etc.; **OTHER**=other

** **PU**=Public, **CO**=Confidential, only for members of the consortium (including the Commission Services), **CI**=Classified

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Executive Summary

This document presents an update of the Communication, Dissemination and Exploitation Plan (CDEP) for ASPECT. It outlines the planned and ongoing activities to maximise the reach and impact of the project's research and its achievements, as well as an evaluation of the impact of activities performed during the first 18 months of the project. The first version of this document (D7.1) was published in month 6, and further updates are expected in M36 and M47.

Among others, the CDEP outlines the aims of ongoing and planned CDE tasks, the main target audiences, the specific activities that will be carried out during the project's lifetime and the purpose of these activities, as well as the exploitation strategy. The communication channels, website, social media strategy, and other practical information, such as visual identity, are also detailed in this document.

About ASPECT

ASPECT aims to set up and demonstrate a seamless climate information (SCI) system with a time horizon up to 30 years and accompanied with underlying research and using climate information for sectoral applications. The project's goal is to improve existing climate prediction systems and to merge their outputs across timescales together with climate projections to unify a SCI as a standard for sectoral decision-making.

The project focus will be on European climate information, but we will also look where there is a wider policy interest (e.g., disaster preparedness) and in regions of European interest. We will maintain a strong link with the WCRP lighthouse activities to exploit learning for explaining and predicting earth system change. To provide a diversity of information, the SCI system will be based on multi-model climate forecasts and will build on learning from projects such as EUCP. It will align with new activities on Digital Twins within Europe, including DestinE. The SCI will combine physical science aspects with those from other disciplines to ensure the information is robust, reliable, and relevant for a range of user-driven decision cases. The information package will incorporate baseline forecasts and projections (plus uncertainty), and will explore new frontiers (e.g., extremes which are of socioeconomic high-level interest).

To ensure success, the research will encompass: an understanding and attribution of various processes along timescales (such as exploring signal-to-noise ratio) and their impact on predictability, new ways of initialisation of the prediction systems, merging predictions with projections, provision of regional SCI for Europe by downscaling (statistical methods, AI) and HighRes models (including convection-permitting models) and innovative post-processing methods enhancing the skill and robustness of the climate forecasts.

1 Introduction

ASPECT aims to improve the provision of seamless climate information for a time horizon of up to the next 30 years, particularly aimed at different sectors, to help improve climate resilience across Europe. The pioneering scientific developments in seasonal to decadal (S2D) forecasts are essential to develop such capabilities, while it is also crucial to ensure that this information is translated in a way that is useful, usable and accessible for stakeholders. The success of the research project not only depends on the results, but also on successful communication, dissemination and exploitation (CDE) to maximise the project reach and impact.

ASPECT is a user-oriented project, and thus effective CDE is crucial to reach and engage users of climate information throughout the project's lifetime. A successful CDE strategy will facilitate a pathway to impact, enabling a legacy for the critical research developed in ASPECT to support adaptation decision making in Europe.

CDE activities will also support user engagement in other WPs, in particular WP4 and WP5, facilitating knowledge exchange between ASPECT researchers and users with the aim to match user needs with project outcomes. Finally, exploitation activities will ensure the legacy of the project beyond its lifetime.

This deliverable outlines the aims of CDE actions, the main target audiences, the specific activities that are being carried out and are planned, including the purpose of these activities. The communication channels, website, social media strategy, and other practical information, such as visual identity, are also detailed in this document.

It should be noted that this deliverable is an update to Deliverable 7.1 which has been adapted according to the project needs. The impact of CDE activities is evaluated in this deliverable and also in further updates (in M36 and M47).

1.1 Aim of the CDE plan

This document focuses on the communication, dissemination and exploitation activities carried out in ASPECT. The key objectives of the CDEP are to:

- Raise awareness about the project and maximise its impact
- Disseminate the project results and new capabilities
- Reach and engage a wide range of audiences
- Facilitate engagement with the user communities (carried out in WP4 and WP5) through tailored, sector-specific material
- Exploit the project developments and capabilities
- Build synergies with other projects and initiatives to exchange knowledge

1.2 Definitions and aims of CDE

Communication, dissemination and exploitation have been defined below with the specific purpose of ASPECT in mind, which includes the overarching aims, timeline, audiences and style of activities.

1.2.1 Communication

The purpose of communication activities is to reach out to society, increasing the project visibility and demonstrating how the project advancements can contribute to tackle climate adaptation challenges. Communication activities aim to promote the project and build awareness about the activities and developments, from the start to the completion of ASPECT. It is important that carefully constructed key messages are communicated at a suitable time and using appropriate language for targeted audiences. Multiple and diverse target audiences have been identified, such as policymakers who are likely to require concise and non-technical communications, and climate researchers who will require specific and technical content. A number of communication tools and channels are used to inform these audiences, including (among others) the project website, social media, press releases, communication material (e.g., videos, infographics, sector-specific material), and news articles. A more detailed description of communication activities can be found in Table 1. Communication activities will be regularly monitored and evaluated to assess their impact.

1.2.2 Dissemination

The primary purpose of dissemination activities is to deliver relevant and tailored information on the outcomes of ASPECT to different target audiences, as well as to promote the project results and their uptake by different groups. Findings will be synthesised and shared to maximise the impact of the project, making sure they are available and accessible to those who can make best use of them. A host of different activities and materials will be prepared, including webinar series, case studies and paper briefings. All activities and outputs will be tailored to the specific target audience, overall aiming to be informative and clear, with the language and level of technical details appropriate to the target audience. The majority of dissemination activities will occur once results have been generated.

1.2.3 Exploitation

Exploitation activities aim to ensure the long-term impact and legacy of the developments and products that are generated throughout the ASPECT project. The exploitation activities will aim to facilitate data, contribute to advance science and ensure the project legacy for future users. For instance, a digital handbook and user training events will be developed to upskill users of the newly generated climate information, while engagement with national meteorological services will maximise the uptake of ASPECT research across Europe. These activities will start once the findings have been developed. The overarching aim is that exploitation activities will cascade and lead to ASPECT research informing business, government and organisational adaptation planning.

2 Target audiences

ASPECT will target a range of different audiences with various levels of expertise in using climate information and different requirements summarised in Figure 1. Within these groups, the project will interact with stakeholders in a range of key relevant socio-economic sectors, including the sectors of the ASPECT Super Users (i.e. agriculture, finance, governance, humanitarian and disaster relief). Each of these stakeholders are interested in information spanning different timescales (seasonal, decadal and longer term), as well as a wide range of spatial scales and regions. The main target audiences are identified below:

- **Climate research community**
We will share the developments in climate predictions with the scientific community to facilitate knowledge exchange and collaboration with researchers, and relevant projects and initiatives.
- **Decision makers in government, businesses and the third sector**
We will engage with decision makers, often non-experts in climate information use, to improve their awareness of the step change in the climate risk information available through ASPECT.
- **Adaptation practitioners**
We will share the enhanced predictions with adaptation practitioners and ensure they are understood and taken up by the adaptation community.
- **Climate forecasters and climate service providers**
We will share seamless information enhancements from ASPECT with the climate forecasters and services communities. This information will represent a step change in available actionable data, which forecasters and national meteorological services can provide their users and other stakeholders to inform adaptation and reduce vulnerability across a range of sectors in Europe.
- **General interest groups and wider society**
We will engage with non-experts and the wider public interested in climate information to enhance the reach of the project, raise awareness about climate information and promote the future uptake and use of this information by wider audiences.

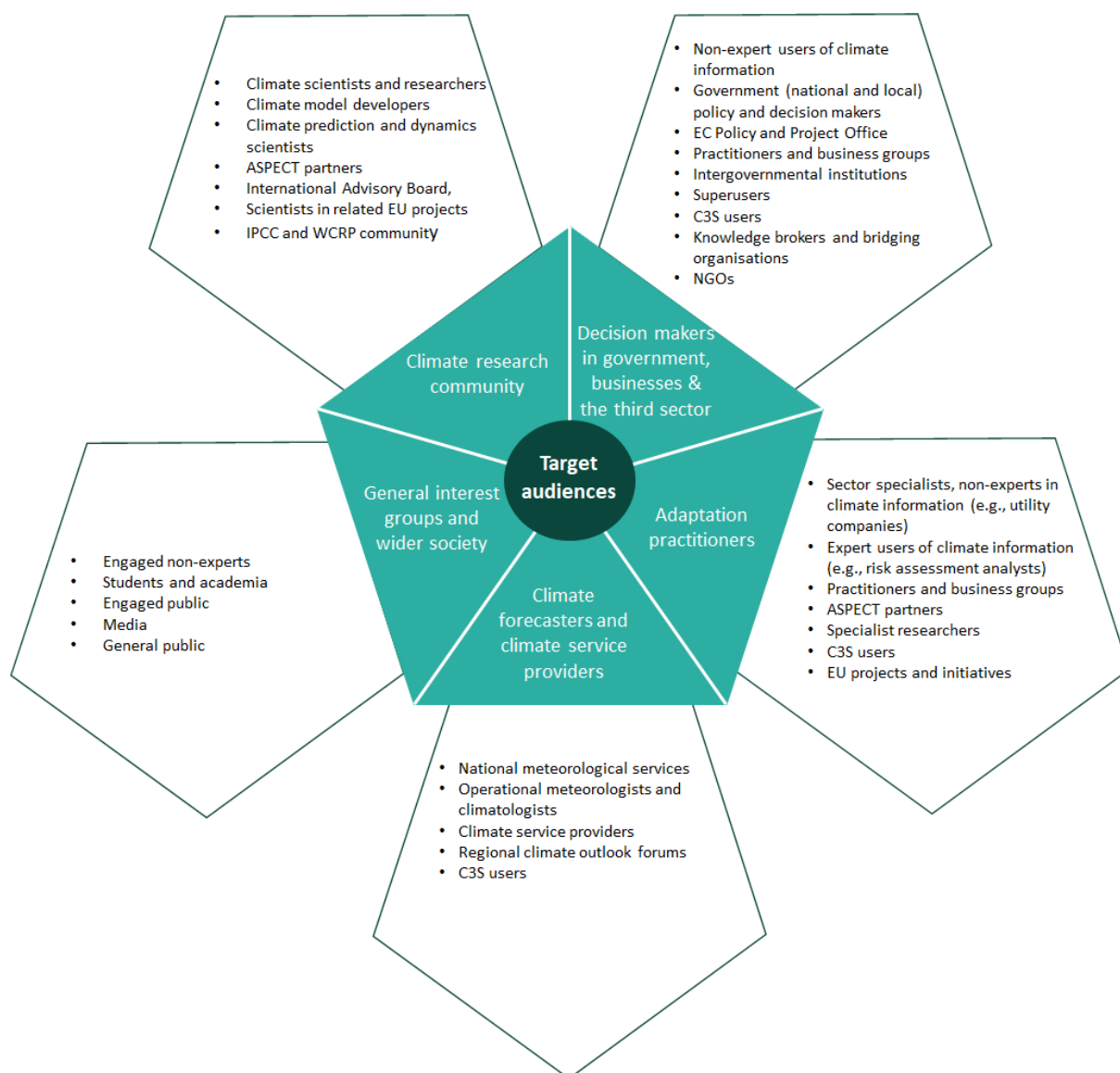


Figure 1. ASPECT target audiences

3 Activities, products and materials

3.1 Overview

A comprehensive list of CDE activities that are planned and underway are outlined in Table 1. Some of the activities have multiple and overlapping audiences or could fall into numerous categories (C, D, E or user engagement); for simplicity, the most important of these are noted in the table below. This plan of activities will be adapted and evolve according to the project needs and their evolution. Sections 3.1-3.3 provide more detail on the strategy and specific activities which are underway or soon to be implemented. Any revisions will be included in this update and forthcoming CDEP updates (D7.5 in M36, and D7.6 in M47). CDE materials will be available in English, while versions in other languages will be prepared when needed, prioritising those materials aimed to support user engagement activities.

Table 1. Planned communication (C), dissemination (D), exploitation (E) and user engagement (UE) activities, including target audience, method/channel of communication and key performance indicator (KPI) targets for monitoring project impact.

Activity	Type	Description and purpose	Target audience	KPI target	Due date (if relevant)	Status/ Comments (updates until M18, June 2024)
Project website	C	The main communication hub for the project, aimed at those involved or interested in the project. It will provide the project description, latest news, events, reports, public deliverables, publications, and all communication material. A 'legacy' version of the website will be available for 5 years beyond the project end.	All	>500 visits over the lifetime of the project	M48	Ongoing Website: www.aspect-project.eu/ Total visits: >2,900 ⇒ <i>KPI achieved</i>
News articles on project website	C	Short news articles about ASPECT advances, activities and events written in accessible language with a focus on societal benefits	All	>6 articles per year	M48	Ongoing 11 articles in 2023, 4 articles in 2024 (by M18) ⇒ <i>KPI achieved</i>
Social media	C	Regular posts on social media will be made to reach a wider community, increase the project visibility and engage stakeholders.	All	>600 followers in total, >200 interactions	M48	Ongoing Twitter : 241 followers, >45,400 impressions LinkedIn : 136 followers, >10,200 impressions Youtube : 6 subscribers
Newsletters	C	Newsletters will be prepared and sent, with the frequency depending on the availability of project updates. The content will include upcoming events, key research highlights and opportunities for collaboration. Subscription to the newsletter has been promoted through the project website.	All, in particular ASPECT partners, Super Users, ASPECT community of practice, and relevant EU-funded projects and initiatives	~2 per year depending on content, >50 subscribers to the newsletter		Ongoing 2 newsletter sent so far, 258 subscribers
Press releases/ briefings	C/D	Press releases and briefing materials will generate interest in the project, communicate about events and disseminate the results at local, regional and EU level. Disseminated on the project website, through social media and communication units of partners' organisations. The timing of press releases will aim to maximise impact.	Media, general public, all	≥3 press releases	M48	Ongoing Two articles / press releases published to date

Videos	C/D	Short videos to raise awareness and inform about key concepts and research conducted in the project to reach diverse audiences through social media and to be used in presentations.	All	≥6 short videos, >200 total views	M6-M48	Ongoing One video done, one under development
Policy briefs	C/D	Aim to co-produce targeted two-page briefs that synthesise and translate information on a specific subject of particular relevance to decision and policymakers. The specific subject matter of each brief will be chosen to maximise the dissemination of key messages that are policy relevant. The briefs will be disseminated through the project communication channels and at relevant events.	Policymakers, adaptation practitioners, other projects and initiatives	≥4 policy briefs		Future plans
Clustering activities	C/D	Collaborating and building synergies with relevant EU-funded projects, initiatives and clusters, including sister projects funded under the same call and other initiatives with partners' involvement (e.g., CORDEX, DestinE, EU Missions, Climateurope2)	Relevant project and initiatives	>5 collaborations		Ongoing Interacted with >15 relevant projects and initiatives, e.g. joined events (see section 3.5) ⇒ <i>KPI achieved</i>
Infographics	C/D	Visually striking and concise representation of key messages/findings from the project for specific audiences with the possibility to be integrated in other dissemination materials such as policy briefs, news articles and the ASPECT digital handbook.	All	>4 infographics, with >100 total engagements with infographics on social media		1 infographic under preparation
Sector-specific dissemination material	C/D	Material tailored to the different sectors of interest of the project developed to facilitate engagement with users and present the application of the project's outcomes to a wider community (e.g. leaflet, poster). Disseminated through the project website and used in the multi-sector user forums.	Adaptation practitioners, non-scientist decision-makers	>100 views >3 sectors targeted		Future plans
Webinar series	C/D	Webinars targeting the different sectors tackled in the project, aimed to promote online discussions among participants (e.g., on scaling up project prototypes) and build capacity. Webinar recordings available on project website.	Adaptation practitioners, non-scientist decision makers and advisors, operational forecasters and climate service providers, early career scientists and students	>300 total attendees		Future plans

Scientific publications	D	Sharing public project reports and publications in peer-reviewed journals will disseminate key project findings to the scientific community and climate adaptation community	Climate research community, adaptation practitioners, operational forecasters and climate service providers	>10 publications		12 peer-reviewed journal publications to date, 3 more submitted ⇒ <i>KPI achieved</i>
Paper briefings	D	Digested briefings of specific ASPECT papers and their implications will be disseminated through the project communication channels to ensure the key messages from the research also reach non-technical audiences.	Academia (beyond climate science community), adaptation practitioners, non-expert decision-makers	>10 paper briefings (*see note)		Ongoing 1 paper briefing done, 1 further briefing under development
ASPECT Shorts	C/D	Short infosheets on concepts behind ASPECT research and results.	All audiences	>5 shorts	M48	Future plans
Participation in relevant events	D	Presentations in relevant events that can help engaging with interested audiences while increasing the reach of project results, e.g., European Geophysical Union (EGU), European Meteorological Society (EMS), European Climate Change Adaptation (ECCA)	Research community, adaptation practitioners, relevant EU-funded initiatives	>10 conference/workshop presentations		Ongoing Participation in >14 conferences / events (more information in Section 3.8) ⇒ <i>KPI achieved</i>
Case study booklet	D	Appealing document describing the co-production process followed for the development of the case studies and their application. Disseminated through the project communication channels.	Academia, adaptation practitioners, climate service providers	>100 views, >50 interactions	M42	Future plans
Digital Handbook	C/D/E	A digital environment available through the project website to support stakeholders in applying and navigating the results of the project in diverse socio-economic sectors and contexts. The handbook will focus on climate information that can be obtained through the workflow (WP6), integrating examples from case studies (WP4), description of the science behind the climate information, and description of the production chain (WP1 and WP3) in a comprehensible language for non-scientist target audiences.	Non-technical decision makers, adaptation practitioners	>200 views and interactions	Beta version by M36	Future plans
User training events (in collaboration with WP5) (**see note)	D/E	Support a user training event, organised in collaboration with WP5 and other WPs, to train new and existing users of climate predictions on the use of the delivery system developed in the project, building on foundations of the webinar series delivered earlier in the project.	Adaptation practitioners, non-technical decision makers, national meteorological services, climate service providers	>25 participants	M42	Future plans

Case studies	D/UE	Case studies co-developed with superusers from different socio-economic sectors to co-explore how different types of climate-related information (e.g. climate variables, indicators, risk indices, etc.) at various time-scales can help inform decisions for adaptation to climate change	Super Users, adaptation practitioners, climate service providers	≥5 case studies	M42	Future plans
Engagement with national meteorological services	E	Support engagement with national meteorological services. Activities will include 1-2-1 consultations to understand their needs and challenges, involvement of the meteorological services in the design of the ASPECT delivery system, and tailored engagement to support and monitor the meteorological services as they begin to incorporate the new information and approaches into their own workflows, products and services.	National meteorological services	≥5 national met services engaged	M48	Future plans
Multi-sector user forums	D/UE	Support annual multi-sector user forums to create a physical, virtual or hybrid space of interaction between ASPECT scientists and users of climate information	Adaptation practitioners, non-technical decision makers and advisors	>200 participants in total	M48	First user forum in two parts (Mar and Apr 2023); Second User Forum (Feb 2024) Total: >260 participants ⇒ <i>KPI achieved</i>

*Note: The KPI for paper briefings has been amended compared to that originally mentioned in the proposal (reduced from >25 to >10) to reflect recent feedback and learning from other projects, which found that there was limited engagement from our target audience with paper briefings. We are, therefore, focusing our efforts on materials that we anticipate will be more of interest to our target audiences, such as the ASPECT Shorts, which is a new activity aiming to produce at least 5 brief infosheets to explain ASPECT concepts and results.

**Note: Apart from the user training event, WP7 is supporting activities organised by other WPs, such as the User Forums. These are marked without bold in the table above.

More details on specific activities are provided in the following sections.

3.2 Videos

Short bespoke videos will raise awareness for the ASPECT project, communicate key concepts and share research highlights. A video introducing the project has recently been published on YouTube (ASPECT project | Facilitating seamless climate adaptation, <https://youtu.be/65W3QG3-Cao>) and a further video is in development to communicate the concept of seamless climate predictions. The videos will be shared widely on all project social media channels and embedded on the project website.

3.2.1 Introductory video

A storyboard of images from the introductory video is shown in Figure 2. The video content covers:

- An introduction to ASPECT project aims and the context of the existing research landscape
- The user-centred approach used in ASPECT
- The expected benefits from ASPECT research

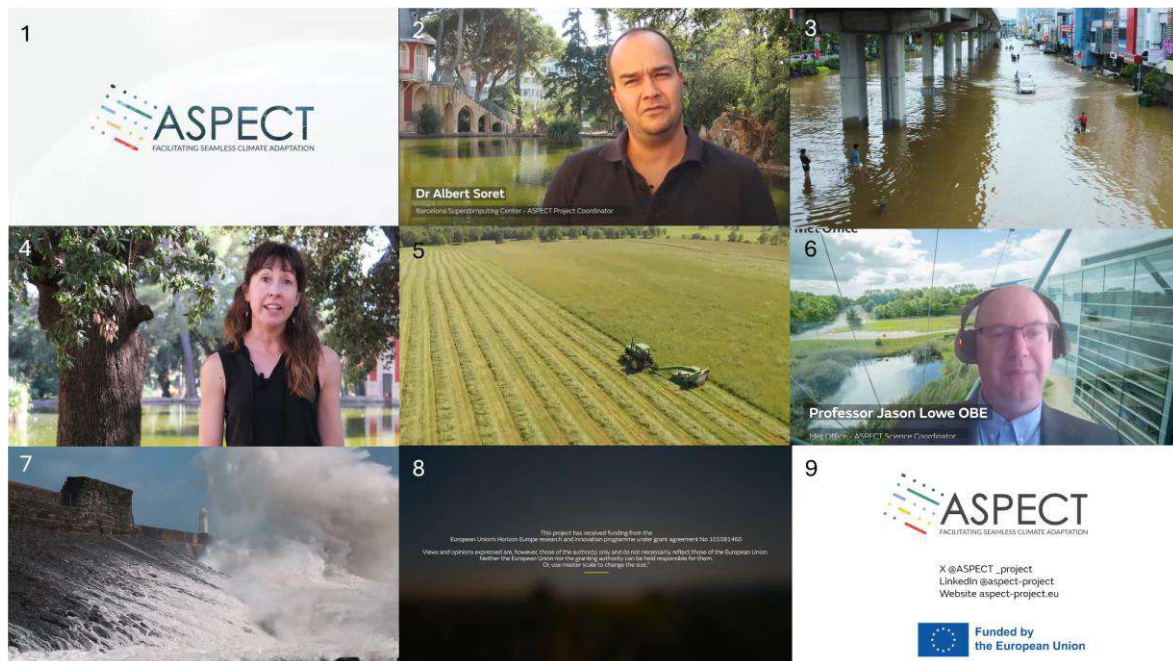


Figure 2. Frames from the introductory video

3.2.2 Seamless climate prediction explainer video

A video explaining seamless climate predictions is in preparation. The aim of the video is to explain this concept and show how ASPECT will further our understanding in this area. A storyboard of the video is shown in Figure 3.

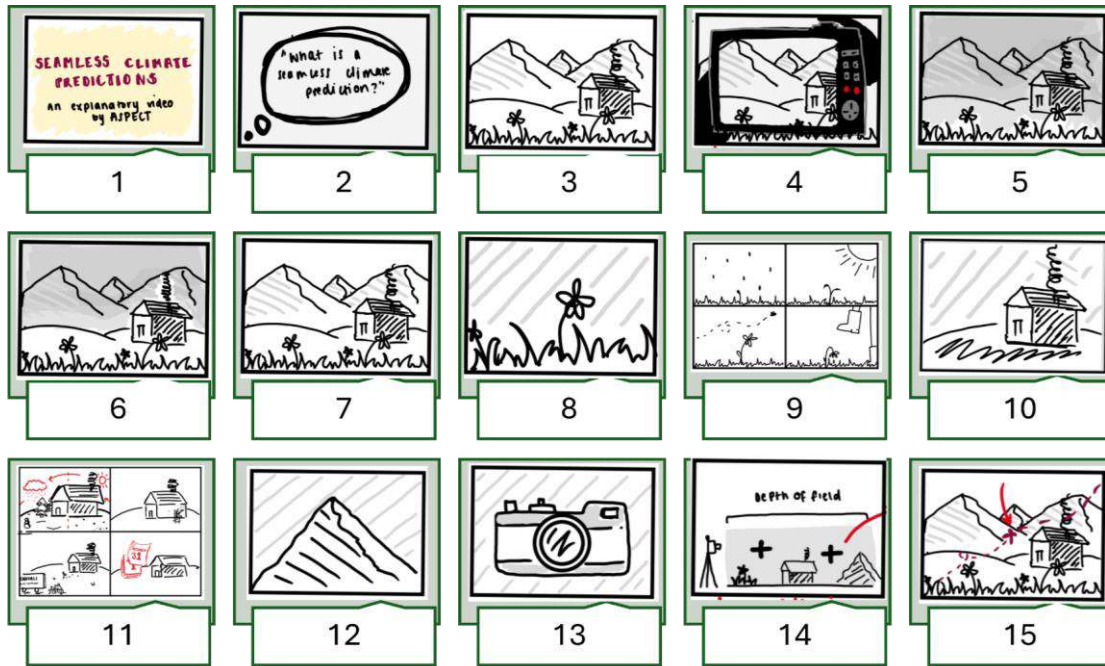


Figure 3. Storyboard of seamless climate predictions video

3.3 Material

Paper briefings are being prepared for high-impact publications, or those with a wider policy or sectoral interest. The paper briefings will be written in an accessible way to maximise the audience reach. The briefings will take the following structure:

- introduction
- context, which provides background information to help the reader understand the novelty or significance of the new research
- a summary of the key findings from the paper
- implications of the research

Furthermore, we have prepared two **posters** so far, providing an overview of the ASPECT project and introduction to seamless predictions, as well as an overview of the results of the WP5 survey on climate information use. These posters were presented at the C3S General Assembly 2024, and will be used in future activities, as needed. These can be found in the Resources section of the project website.

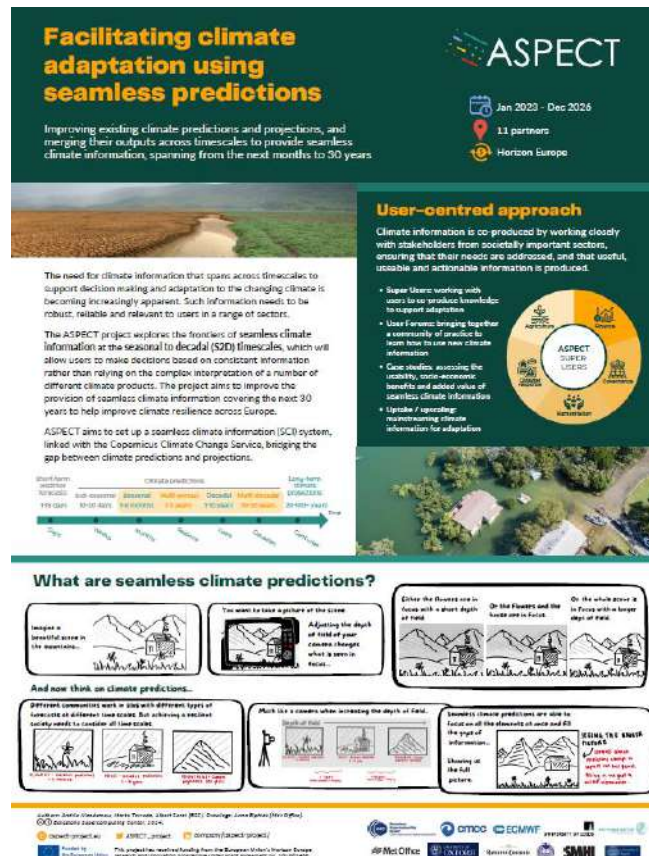


Figure 4. Poster providing an overview of the project and introduction to seamless climate predictions.

3.4 User engagement

User engagement (leading to the coproduction of climate information and services) is a core foundation of the project. User engagement activities are led by WPs 4 and 5. WP7 has contributed to user engagement activities by supporting the organisation of User Forums, assisting in the preparation of appropriate materials to engage users, alongside providing dedicated resources for communication activities. For more information on the User Forums, please refer to the Report on the annual multi-sector user forum (Deliverable 5.2).

ASPECT partners will provide training to the users of the research developed in ASPECT, with support from WP7; the target audiences will be national meteorological services, decision makers, and adaptation practitioners. The training will aim to allow the (potential) users of climate information to understand how the seasonal to decadal forecasts have been produced, how to use the delivery system produced in the project, and how to apply the new information appropriately. The training offer and level will be tailored to the user requirements and level, based on user engagement work, which is currently underway, led by WP5.

Besides these interactions, ASPECT is also exploring ways of engaging with different levels of potential users and purveyors of climate information, in particular those who have expressed interest in becoming Super Users, thus building a “community of practice”. Developing an engagement strategy is currently underway, and will be addressed further in the next update of the CDEP.

3.5 Clustering / Collaborations

The ASPECT project will build on previous knowledge, and aim to collaborate, share knowledge and exploit synergies with a range of existing national, European and international initiatives and projects, such as (but not limited to) those listed in Table 2. Scientific collaboration with new projects and programmes (such as WCRP Lighthouse activities and Destination Earth) will be sought out. In particular, ASPECT will engage with sister projects (e.g. Impetus4Change), as well as other EU projects (e.g. Climateurope2 and nextGEMS). This will also allow the project to reach a wider group of stakeholders.

To aid scientific collaboration, and to enhance the cooperation and leadership, a number of named “ASPECT collaboration champions” have been appointed from other WPs across the project, who are already engaged in ongoing large-scale initiatives of interest to ASPECT. Several meetings have been held with the champions to identify and initiate possibilities for collaboration with these initiatives, and help knowledge interchange between the project and the initiatives. Potential suggestions include joint sessions to share lessons learned and identify results of potential interest to both sides. The role of the champions in serving as representatives for the project will become more active as important and relevant results become available.

Table 2. Ongoing projects or initiatives relevant to ASPECT.

Relevant ongoing project / initiative	Brief description
Climateurope2	Climateurope2 aims to develop future equitable and quality-assured climate services of greater value to society, which will provide trustworthy, user-relevant and usable information.
Destination Earth (DestinE)	Destination Earth (DestinE) is an initiative to develop a highly accurate digital model of the Earth on a global scale.
EU Mission: Adaptation to Climate Change projects, such as CLIMAAX , Mission Implementation Platform for Adaptation to Climate Change and Regions4Climate	The Mission on Adaptation to Climate Change focuses on supporting EU regions, cities and local authorities in their efforts to build resilience against the impacts of climate change.
Impetus4Change	Impetus4Change is improving near-term climate predictions for social transformation in regions and cities in Europe.
Next Generation Earth Modelling Systems (NextGEMS)	NextGEMS is building prototypes for a new generation of Earth system models to advance science, guide policy, and inform applications to support sustainable management of our planet.
World Climate Research Programme (WCRP) Lighthouse activities	The World Climate Research Programme (WCRP) has transdisciplinary lighthouse activities covering a range of topics the most relevant to ASPECT are: Digital Earths; and Explaining and Predicting Earth System Change
World Meteorological Organisation Global Annual to Decadal Climate Update (GADCU)	The GADCU is published annually (in May) and summarises the predicted future of the global climate over the next year and the next five years based on an ensemble of four global climate model predictions.

Some of the interactions are shown below, while further are described in other relevant sections of this document (see detailed event information in “Other activities”):

- Participation in Impetus4Change kick-off meeting, presenting ASPECT
- Participation in EERIE project’s kick-off meeting, presenting ASPECT
- Joint meeting between ASPECT and Impetus4Change to define synergies with DestinE
- Internal presentations and interactions with WCRP Lighthouse activity on the topic "External forcing of the North Atlantic Oscillation".

3.5.1 Interactions with RCOFs

Since the early stages of the project, ASPECT has been working on building relationships with national meteorological centres, Regional Climate Outlook Forums (RCOFs) and other similar communities, as several project partners are actively involved in these networks, such as the Republic Hydrometeorological Service of Serbia.

RCOFs, initiated by the World Meteorological Organization, bring together national, regional and international climate experts with the aim to provide consensus based climate prediction for the upcoming season of summer or winter. RCOFs have spread to many regions across the world. In Europe, there are two RCOFs: the South East European Climate Outlook Forum (SEECOF) and the Mediterranean Climate Outlook Forum (MedCOF). MedCOF integrates already existing COFs in the region, PRESANORD (RCOF for North Africa) and SEECOF, and additionally integrates Western European and Middle Eastern Mediterranean countries. The core concept of all the RCOFs is delivering consensus based climate outlook products to end users. The products are tailored to meet the local conditions and disseminated by each National Meteorological and Hydrological Service (NMHS).

Besides RCOFs, ASPECT has also established communication with the EUMETNET network of European NMHS, more specifically with the EUMETNET Climate, Numerical Weather Prediction and Climate Scenarios expert teams.

EUMETNET was created as an association with a primary mission to help cooperation and collaboration among its members and to represent them externally on a collective basis, particularly when communicating with European organisations, especially the EU and EC. The focus of cooperation between members has been on the core capabilities of the members, in particular: observing systems, data processing, basic forecasting products, research and development, training, coordination of technical assistance, and production of essential output information to end-users, especially the citizens of Europe.

At the beginning of the ASPECT project, participants of the SEECOF, MedCOF and EUMETNET Climate expert team were informed about the project, and later invited to participate in User Forums. Since the activities in the SEECOF are conducted online in the form of a forum, a separate section was created in order to inform participants on the objectives of the project. Sharing information on the project activities and results with these communities will continue throughout the project.

An online workshop is currently under preparation, where ASPECT project as well as producers of decadal predictions from European NMHSs can present and discuss their work. Realisation of the workshop is expected by the end of the year 2024.

3.6 Publications

There have been 12 peer-reviewed journal articles published from ASPECT to date, as well as several posters. Currently, 3 more papers are in the submission stage. All ASPECT-funded papers are available on the project website under the “[Resources > Journal papers](#)” section, and are promoted through the project channels.

The details of the project publications so far can be seen below:

- Delgado-Torres C., Donat M.G., Soret A., et al. (2023). Multi-annual predictions of the frequency and intensity of daily temperature and precipitation extremes. *Environ. Res. Lett.* 18, 034031. <https://doi.org/10.1088/1748-9326/acbbe1>
- Pérez-Zanón N., Ho A.C., Chou C., et al. (2023). CSIndicators: Get tailored climate indicators for applications in your sector. *Climate Services* 30, 100393. <https://doi.org/10.1016/j.cliser.2023.100393>
- Donat, M. G., Delgado-Torres, C., De Luca, P., et al. (2023). How credibly do CMIP6 simulations capture historical mean and extreme precipitation changes? *Geophysical Research Letters*, 50, e2022GL102466. <https://doi.org/10.1029/2022GL102466>
- Chou C., Marcos-Matamoros R., López-Nevado J., et al. (2023). Comparison of five strategies for seasonal prediction of bioclimatic indicators in the olive sector. *Climate Services*, 30, 100345. <https://doi.org/10.1016/j.cliser.2023.100345>
- Chou C., Marcos-Matamoros R., Palma Garcia L., et al. (2023). Advanced seasonal predictions for vine management based on bioclimatic indicators tailored to the wine sector. *Climate Services*, 30, 100343. <https://doi.org/10.1016/j.cliser.2023.100343>
- De Luca P., Delgado-Torres C., Mahmood R., et al. (2023). Constraining decadal variability regionally improves near-term projections of hot, cold and dry extremes. *Environ. Res. Lett.* 18, 094054. <https://doi.org/10.1088/1748-9326/acf389>
- Liu, Y., Donat, M.G., England, M.H. et al. Enhanced multi-year predictability after El Niño and La Niña events. *Nat Commun* 14, 6387 (2023). <https://doi.org/10.1038/s41467-023-42113-9>
- Dunstone, N., Smith, D.M., Hardiman, S.C. et al. (2023). Windows of opportunity for predicting seasonal climate extremes highlighted by the Pakistan floods of 2022. *Nat Commun* 14, 6544. <https://doi.org/10.1038/s41467-023-42377-1>
- Polkova I., Swingedouw D., Hermanson L., et al. (2023). Initialization shock in the ocean circulation reduces skill in decadal predictions of the North Atlantic subpolar gyre. *Front. Clim.* 5:1273770. <https://doi.org/10.3389/fclim.2023.1273770>
- Ermis S., Leach N. J., Lott F. C., et al. (2024). Event attribution of a midlatitude windstorm using ensemble weather forecasts. *Environ. Res. Climate* 3, 035001. <https://doi.org/10.1088/2752-5295/ad4200>
- Mindlin J., Vera C. S., Shepherd T. G., et al. (2024). Assessment of plausible changes in Climatic Impact-Drivers relevant for the viticulture sector: A storyline approach with a climate service perspective. *Climate Services* 34, 100480. <https://doi.org/10.1016/j.cliser.2024.100480>
- Delgado-Torres C., Donat M. G., Soret A. M. (2024). Decadal climate prediction and predictability for climate services. *Doctoral Thesis*. <http://hdl.handle.net/2445/210812>
- Pohlmann, H., and Müller, W. A. (2024). The North Atlantic climate variability in single-forcing large ensemble simulations with MPI-ESM-LR. *EGU Abstract*, EGU24-1411. <https://doi.org/10.5194/egusphere-egu24-1411>
- Karami et al. (2024). Unravelling the impact of subpolar gyre variability on climate extremes and variability: Insights from an ensemble atmospheric model study. *EGU Abstract*, EGU24-15292. <https://doi.org/10.5194/egusphere-egu24-15292>
- Dunstone et al. (2024) Will 2024 be the first year that global temperature exceeds 1.5°C? *Atmospheric Science Letters* <https://doi.org/10.1002/asl.1254>

3.7 Newsletters

The project has built a community of over 250 people who are subscribed to the project’s mailing list. Periodic newsletters are sent to these subscribers, as well as emails inviting them to the User Forums or sharing other project related information.

To date, two newsletters have been shared, which included information on the latest project news, including the new Super Users announcement and high profile research outcomes, publications and upcoming events of interest. An excerpt of a newsletter is shown in Figure 5 below. Forthcoming newsletters will continue to share the latest highlights from ASPECT in an accessible and engaging way.

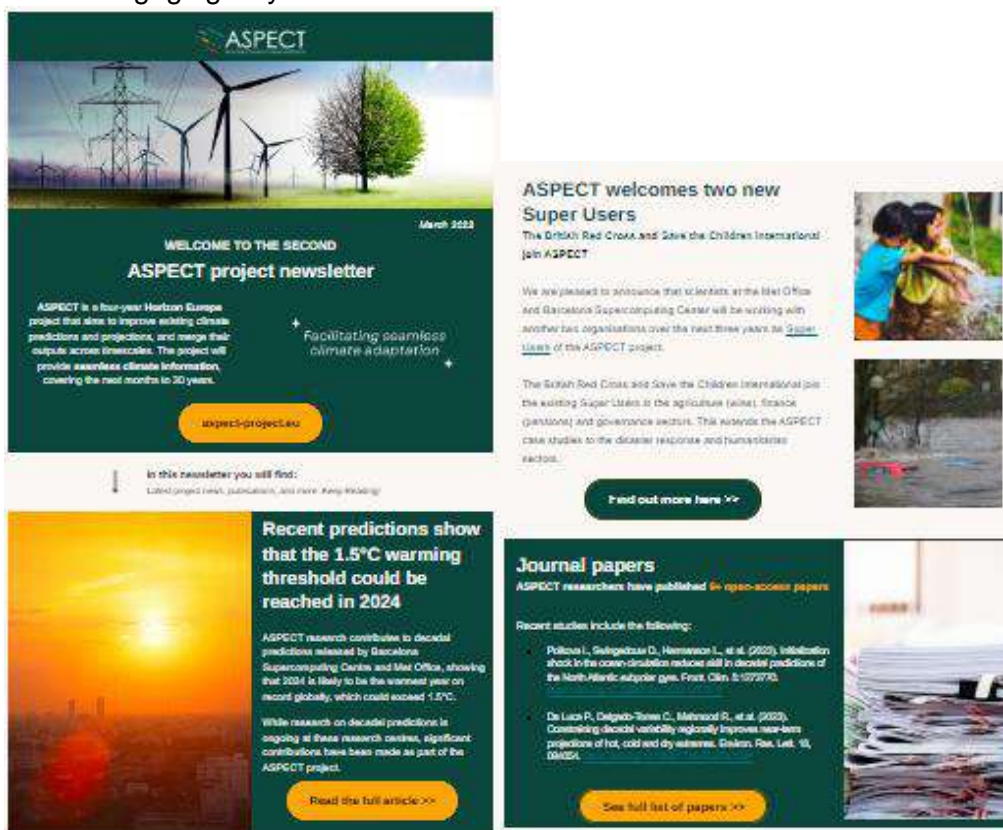


Figure 5. An excerpt from an ASPECT newsletter.

3.8 Events and other activities

Besides the aforementioned activities, ASPECT partners have participated in a large number of events and scientific conferences, engaging with the scientific community, general public and other project audiences, thus bringing visibility to the project and results. A non-comprehensive list of relevant events in which ASPECT partners have participated is shown below:

- **Climateurope2 webstival** (March 2023) - Actively involvement and holding the first User forum at the webstival, titled "Adaptation-oriented seamless predictions of European climate"
- **Oxford Climate Research Network - Annual Event** (May 2023 and March 2024) - Poster presentation on ASPECT project at the event

- **6th European Climate Change Adaptation Conference (ECCA) 2023** (June 2023) - Co-hosting session on "Communities of Practice: Engagement Strategies", together with Climateurope2 and TRUST projects
- **Business Travel Association Planet Plan Conference** (July 2023) - Introductory presentation on weather and climate risk to transport sector including brief overview of ASPECT and Super User Competition
- **C3S General Assembly** (Sept 2023 and June 2024) - Several posters presented by ASPECT partners
- **UK Regulators Network Young Professionals Conference event** (Sept 2023) - introductory presentation on weather and climate risk to transport sector including brief overview of ASPECT and Super User Competition
- **Climateurope2 Festival** (March 2024) - Keynote talk on survey findings, pitch presentation and interactive round table of ASPECT concepts (info [here](#))
- **EGU 2024** (April 2024) - Presentation of several posters (info [here](#))
- **NCAR Workshop on Predictability across time scales** (April 2024) - Presentation by ASPECT partners
- **River Basin conference (CLIMAX-PO)** (April 2024) - Participation of ASPECT partners
- **Workshop on Climate Prediction and Services over the Atlantic-Arctic region** (May 2024) - ASPECT participating in organisation of the workshop in Bergen, Norway, together with Impetus4Change, Climate Futures, CoRea, and Roadmap Oceans. There was a large number of presentations and sessions from partners (info [here](#))
- **Local event on climate change and drought in Catalonia** (May 2024) - Participation in roundtable together with Lobelia Earth (specialised in Earth Observation to address the climate emergency).

Other activities include the publication of [press releases and news articles](#) by the Barcelona Supercomputing Center and the Met Office on recent decadal predictions, which included ASPECT results. Furthermore, a [blog post](#) was published by the Met Office on “Seamless decision-making for climate adaptation”, as well as an [article](#) from a Spanish business school interviewing Albert Soret, the project coordinator.

4 Website

A website (<https://www.aspect-project.eu/>) has been developed for the ASPECT project, which is an important base where project information, updates, publications and communication materials are collected. The website targets all project audiences, with diverse backgrounds.

A key component of the website is the news section, where articles offer relevant updates of the latest project events and developments.

The website provides a dynamic and constantly evolving environment, a space that changes as the project activities grow and is adapted to provide the best visibility for the different activities. Additionally, it has a visually appealing and user-friendly design, with a responsive layout that can adapt to different screen sizes. The website is optimised for search engines, ensuring that it is easily discoverable by interested parties. The site development took place during M1 and is continuously updated according to user needs. A legacy version of the website will be available for 5 years beyond the project’s end.

4.1 Layout

In its current version, the ASPECT website is organised into five sections plus the homepage. These include the following:

- **Homepage:** this highlights the vision and mission of the project, and includes the latest information on project news and activities.
- **Project:** this section provides information on the project and its research, objectives and partners.
- **Get involved:** this includes information on the User Forums and Super Users. Additional sections are added as needed, for example a section on the Super User competition for recruiting two additional users (WP4), as well as information on the survey conducted by WP5, and later removed when the tasks were completed.
- **Resources:** this section compiles all relevant project resources, including scientific publications, public deliverables, and communication and dissemination material generated by the project (e.g. videos, paper briefings, infosheets).
- **News & Events:** here, articles on project news are published, as well as a list of events organised by ASPECT, or in which partners participate.
- **Contact:** this page includes information to get in touch with the project.

Additionally, links to the project's social media channels (top right), a link to join the mailing list (banner at the bottom of pages), and the project funding information (footer) are available throughout the website.

The News & Events section is the most dynamic part of the website. Here, updates on the project activities and events are collated. These sections are populated as ASPECT activities develop during the project, to keep track of all activities related to the project or in which the project is involved, including news on User Forums, Super Users, project research (e.g. publications of interest to the general public), and conference / event participation, among others. In the page dedicated to the events, the users can find more information about the project upcoming and past events, such as webinars, workshops and conferences, as well as some relevant climate services events.

Additional sections will be added progressively, according to the needs of the project. Suggestions for future sections include: a "Research" section, with information on the different research lines / WPs; a "Clustering" section will resume the interactions of ASPECT with other initiatives.

Further information on the different sections and their design can also be found in the first version of the CDEP (Deliverable 6.1).

Facilitating seamless climate adaptation

Improving existing climate prediction and projections, and merging their outputs across timescales to provide seamless climate information, spanning for the next months to 30 years

[READ MORE](#)



Figure 6. Part of the home page of ASPECT project, with brief information on the project and menus of different sections appearing in the top bar.

4.2 Analytics

Between the release of the first version (January 2023, M1) and June 2024 (M18), there have been about 2,900 visits to the project website (*KPI: >500 visits - target reached*), with more than 6,500 page views and an average visit time of almost 3 minutes.



Visitors were mainly from the UK (706 visits), Spain (453 visits), Italy (400 visits), USA (271 visits) and Germany (180 visits).



Figure 7. Map images showing the countries from which users have visited the ASPECT website. More than 80% of total visits were from European countries.

The top five visited pages included the following:

- Home page - *1,503 unique views*
- News article / page on Super User competition: “Become a Super User in ASPECT” - *429 unique views*
- “About” page: *344*
- “News” page: *342*
- News article: “ASPECT’s User Forum 2024 takes place in January” - *314 unique views*

5 Social media strategy

Social media channels are valuable platforms to reach a wide community, increase visibility and raise awareness, providing the opportunity for the project to reach new members of the target audiences. The scientific community and relevant research projects are also active on social media, meaning it can also be a useful platform to reach these groups. Policy makers and other target stakeholders can also be reached through social media via engaging non-technical messages.

Three social media channels are being used to engage with the project’s target audiences (identified in Section 2): Twitter, LinkedIn and YouTube. Social media activities are planned internally, and all project partners encouraged to follow and engage with ASPECT’s social media, sharing information about news, events, and other content covered by the project.

The current total audience across the project’s social media accounts is 383 as of June 2024 (KPI target: 600 followers).

At the end of the project lifetime, the social media activity will cease. The accounts will remain available for a further year to allow content to be accessed but a message will be posted to explain the project has ended and that the accounts are not monitored. As much content as possible will be hosted on the project website to facilitate a legacy for 5 years from the project end.

5.1 Twitter

5.1.1 Strategy

An ASPECT Twitter account has been established to share news, results and key messages from the project. The Twitter page can be found using the handle [@ASPECT_project](#), and is signposted from the project website and presentations.

The account is mainly maintained by the Met Office, with contributions by the BSC and other project partners, who are responsible for supporting the preparation of new content. The target audiences for Twitter include the scientific community, public and private organisations and businesses, related research projects, the media and the engaged general public.

The content published on the project’s Twitter account includes the following:

- upcoming events organised by the project, or events in which ASPECT partners are participating
- project news, such as updates on the project activities, material and publications, all of which will be featured on the project website

- research findings synthesised into accessible outputs (such as infographics) for a non-technical audience
- links to reports, info sheets and other material prepared in ASPECT
- videos summarising key messages or concepts from ASPECT research
- opportunities to collaborate with the project, such as the call for evidence, the opportunity to become a Super User or participate in user forums
- latest news related to climate adaptation (e.g. related to the IPCC, State of the Climate etc.)
- relevant research findings or events from other relevant research projects or organisations

The aim is to post at least 1-2 times per week, including original content, as well as reposting relevant content from other research projects and initiatives and ASPECT scientists. ASPECT tweets will, when possible, tag other scientists, projects and organisations to maximise interactions. A number of handles and discoverable hashtags have been identified for use in regular tweets to expand reach and boost engagement, and are outlined in Table 3. When composing original content, the purpose, audience, and any overlap with other initiatives will be considered. This will inform the choice of hashtags and handles chosen to be included. If there are ASPECT events occurring, wherever possible, live tweets will be published during the event to spark conversations and enhance connections.

Table 3. Identified twitter handles and hashtags for regular use in original content.

Handles	Hashtags
@ASPECT_project	#climate
@HorizonEU	#climatechange
@cinea_eu	#climateadaptation
	#adaptation
	#HorizonEU
	#resilience
	#userforum
	#climateservices
	#seamless

5.1.2 Analytics

The ASPECT Twitter account currently has 241 followers (as of June 2024), having progressively built a following since its establishment (Figure 8).

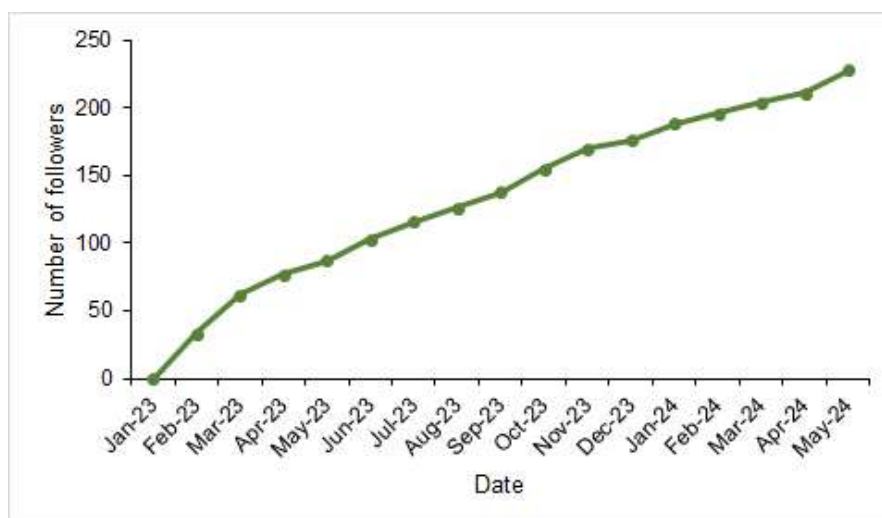


Figure 8. Number of Twitter followers.

Between January 2023 and June 2024, there have been 218 posts in the ASPECT Twitter account, including original posts and retweets. The account has received a total of 45,400 impressions (i.e. the number of times users saw the post) and 2,732 engagements (i.e. the number of times a user has interacted with a post), with about 423 URL clicks on posts that included links.

The social media engagement and reach is expected to continue growing over the lifetime of the project. Data on the followers and reach of the content are gathered on a monthly basis to monitor the account progression.

5.2 LinkedIn

5.2.1 Strategy

A LinkedIn public project page (<https://www.linkedin.com/company/aspect-project/>) has been established for ASPECT. The LinkedIn page is externally facing with the intention of sharing events and showcasing the project to external professionals such as scientists, policy makers and businesses. The specific content that is posted on the page is listed below. The aim is to post at least on a monthly basis, with all project partners responsible for supporting the preparation of new content. Project partners who use LinkedIn are encouraged to share posts to capitalise on existing networks and contacts to disseminate important project deliverables and key messages.

Planned content for the LinkedIn page:

- upcoming events organised by the project, or events in which ASPECT partners are participating
- research findings synthesised into accessible outputs (such as infographics) for a non-technical audience
- links to reports, info sheets and other materials prepared in ASPECT
- videos summarising key messages or concepts from the research
- opportunities to collaborate or input into research, such as the call for evidence or the opportunity to become a superuser or participate in user forums

5.2.2 Analytics

The ASPECT LinkedIn page currently has 136 followers (as of June 2024). The ASPECT social media accounts were established at the beginning of the project and have progressively built a following since its establishment (see Figure 9).

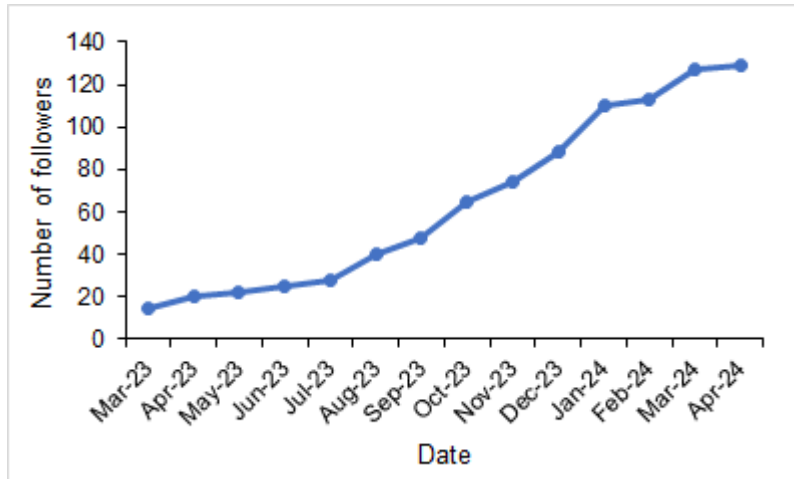


Figure 9. Number of LinkedIn followers.

Between March 2023 and June 2024, there have been 75 posts in the ASPECT account, including original posts. The account has received 10,200 total impressions (i.e. the number of times users saw the post) with >300 URL clicks on posts that included links. The social media engagement and reach is expected to continue to grow over the lifetime of the project.

5.3 YouTube

5.3.1 Strategy

A YouTube channel (@ASPECT_project, https://www.youtube.com/@ASPECT_project) has been set up for ASPECT which will host videos that summarise key research, outcomes and messages from the project as well as recordings of events. The videos will provide valuable and engaging content for sharing on social media, as well as material for training and presentations. The primary audience for the video content are stakeholders who are external to the project but likely to be interested in the outputs, such as decision makers in government, businesses and the third sector. The video content and language will therefore be accessible and engaging.

Six short bespoke videos will be produced for the project. One video has been produced and another is currently under development with the aim it will be finalised in the next few months. Videos will be named to maximise discoverability and engagement. The YouTube channel will also host recordings of events such as webinars and user forums to allow participants to refer back to information or stakeholders to engage if they were unable to attend events. Videos of longer recordings will be divided into chapters to enable users to easily navigate to the relevant content. Playlists have been created for related videos, for example, for the User Forum recordings.

5.3.2 Analytics

Currently, there are 3 recordings on the ASPECT YouTube channel, these have accrued a total of 168 views (as of June 2024).

6 Visual identity

The ASPECT visual identity was created by a user experience expert at the Barcelona Supercomputing Center, aiming to establish a recognisable and coherent ‘brand’ for the project that will be used in all project material. The design took into account basic accessibility requirements, such as selecting a colour-blind friendly palette, and the integration of elements that conveyed the ‘seamless’ concept (lines and dots). The visual identity pack includes the project logo, a colour palette, typefaces, and templates for various support materials, such as presentations and deliverables. Logos, templates and the visual identity guide are available in the ASPECT internal repository.



Figure 10. Project logo, for both white and dark backgrounds.

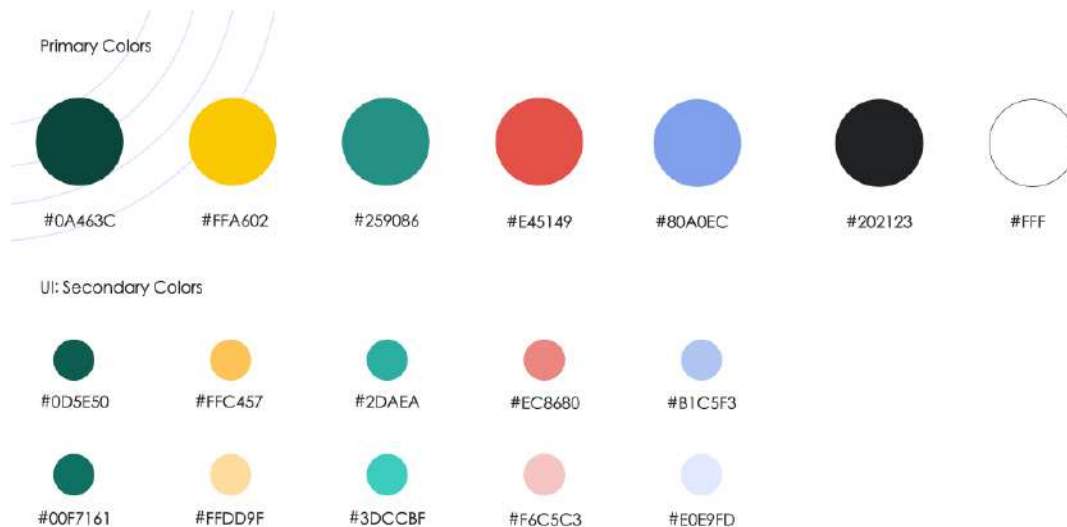


Figure 11. Colour palette used in ASPECT.

7 Exploitation

Exploitation activities ensure the long-term impacts and legacy of the developments and products that are generated throughout ASPECT. WP7 will coordinate a range of exploitation activities; the combination of all exploitation activities aim to achieve science, user, and data legacy. The data legacy from the project will be primarily achieved through the data delivery

system which will be supported by the digital handbook. Scientific legacy will be achieved through ongoing engagement activities with relevant initiatives and scientific networks. Targeted user engagement and training will aim to achieve take up of the data and advances from ASPECT. More detail on the planned exploitation activities are detailed in the sections below.

The key results from ASPECT for exploitation will be identified through collaboration with ASPECT User Engagement Committee. The members of the committee span across a range of areas within ASPECT and includes those engaging directly with ASPECT users, meaning the committee is well placed to advise on the results to prioritise for exploitation.

An internal exploitation workshop was held at the beginning of 2024 to discuss and coordinate the forthcoming exploitation activities. The exploitation activities will build on information gathered on user needs and preferences across the project to ensure they are as useful and usable as possible. Additional workshops and targeted activities will be held to continue to coordinate and link up the exploitation activities to ensure they provide a comprehensive and aligned package when they are finalised.

7.1 Supporting the data delivery system

A key longer-term impact of the project will be the increased uptake of adaptation information across sectors, tiers of decision making and geographies. A key component of this legacy is the data delivery system which will enable users of climate information to access the datasets from ASPECT. A delivery system will be designed and implemented for the data and methods produced by ASPECT; this will enable scaling up the use of climate risk information on the 1–30-year time-scale from beyond a few pilot studies to become a mainstream tool in adaptation. The data delivery system development and implementation will draw on all WPs with a particular focus on WP5 (for evidence and approach to scaling up), WP6 (delivery system) and WP7 (for providing support in ensuring the data legacy for the project).

7.2 Digital handbook

A digital handbook will provide a digital environment to support stakeholders in navigating the data delivery system, exploiting their potential, and demonstrating any potential uses for which climate predictions are critical in realising adaptation options in several socio-economic sectors and contexts. The digital handbook will be built with multimedia and a flexible structure that will allow customised navigation for the different types of target users, with particular reference to decision-makers in the field of policy, business, and civil society. The handbook will focus on climate information, insights and intelligence, which will be obtained from climate data through the developed workflows (WP6) and will also integrate examples from case studies (WP4), description of the science behind the climate information, and description of the production chain (WP1) in a comprehensible language for non-scientist target audiences. The digital handbook will also highlight links and connections between the project's results and European initiatives whose online resources are helpful for the exploitation and application of climate information for adaptation actions.

7.3 The uptake of scientific advances

The uptake of new scientific developments from ASPECT, including data, novel methodologies and learning, by other scientists and ongoing projects in climate prediction and adaptation is fundamental to the long-term impact of the project and seeding of future developments. Scientific publications are a key route to this, where there has already been success with 12 peer-reviewed journal articles published so far, alongside active collaboration during the project

lifetime. A key component of the scientific exploitation strategy is the nominated ‘champions’ for key initiatives (including CORDEX, Destination Earth and EU-missions). The champions have developed a strong awareness of ASPECT research with these important leadership initiatives and will continue to strengthen links between the projects.

7.4 Supporting user training

A user training event, organised in collaboration with WP5 and other WPs, will deliver training on the use of the delivery system developed in the project. The design, pitching and delivery of the user training event will be tailored to the user needs and will draw on the learnings from activity 7.5 and the ongoing user engagement in WPs 4 and 5. The primary aim of this activity is to ensure that key users are confident in using the data delivery system and supporting materials. It is anticipated that this activity will fall towards the end of the project when such systems and materials are available.

7.5 Targeted engagement

WP7 will support the final component of scaling up the outputs of ASPECT by aiming to increase the uptake of ASPECT data sets and advances through focused engagement with several key users of climate information. Engagement will draw on the already established ASPECT community of practice alongside targeted engagement with additional national meteorological services (NMS). Several of these institutions are considered as partners or as part of the project’s external international advisory board, and the aim is to work closely with up to 10 additional national services or organisations across Europe to embed the ASPECT outputs into their service and to learn from them to improve the delivery system. The additional NMSs will be selected to achieve an optimal geographical coverage and complement the Super Users and user communities in WPs 4 and 5. The upcoming engagement with RCOFs will provide an opportunity to spark interest in the project and build relationships with new NMS.

8 Internal communication and interactions across the project

To ensure interactions among the different project partners and WPs, a number of communication channels have been established. These are detailed below.

8.1 Mailing lists

Mailing lists have been established for each WP to regularly communicate among project partners. To avoid communication overload for members not directly involved, each work package has its own mailing list, used for internal communication and organisation. All members of the ASPECT consortium have the opportunity to choose which mailing lists they would like to be included on, this has allowed partners to be included in relevant communications which strengthens internal interactions.

8.2 Project wiki

ASPECT partners all have access to an internal online wiki website. The wiki is a repository for project material and information including project documents, branded templates, information on reporting, partner contact details and a risk register. The wiki also includes information on

how to acknowledge the project in the publication or communication of results (including the EU emblem, sentence with the grant agreement number).

8.2.1 Reporting and monitoring the impact of CDE activities

On the project wiki there is a dedicated CDE page with a link to a table for reporting events, activities or outputs that ASPECT organise, participate in or produce. The reporting table captures ASPECT presentations at events, scientific publications, activities and materials produced, user engagement, proposed events and clustering activities. This information will help to assess the ongoing level of engagement and outputs from ASPECT partners and enable the progress towards impact and the respective KPIs to be monitored.

8.3 Meetings

In ASPECT we have several meeting series established to facilitate collaborative working and join up across the project. Virtual WP meetings are held on a monthly basis, where partners design, execute, track, and assess the activities planned in their WPs and the CDEP. Representatives from other WPs attend other WP monthly meetings where possible to facilitate effective collaboration and regular interactions across the project. Bi-monthly progress meetings with the project management board track overall project progress. There are additional meetings held by the user engagement committee to prepare project activities for building the communities of practice. In addition, to obtain an overview of the advances of different WPs and upcoming activities, on-demand meetings are held on a needs basis.

Furthermore, although not originally planned at the proposal stage, internal webinars are organised by WP7 as needed, where partners present their latest developments and engage in discussion with the consortium. This enhances knowledge exchange and interaction between the different WPs.

9 Evaluation and risks

9.1 Impact evaluation and CDEP updates

As we are currently in M18 of the project, the communication, dissemination and exploitation activities have advanced significantly since the first CDEP (M6, June 2023). The different activities and their status are being closely monitored on a regular basis to ensure the progress is on track. Updates on the KPIs and impact of the activities are discussed throughout the CDEP in the corresponding sections. It should be noted that the KPIs of most of the activities have either already been achieved or are on good track to achieve early on in the project. For instance, the website has already been visited by over 2,900 people in the first 18 months, with an original target of 500 visits. More information can be found in Table 1.

A second evaluation and update to the CDEP will take place in December 2025 (Deliverable 7.5). This will provide another opportunity to take stock of the progress of the first year and identify opportunities to improve. In November 2026, a final impact evaluation and communication plan of project legacy will be published (Deliverable 7.6).

9.2 Potential barriers and risks

The potential barriers or risks to success of ASPECT CDE have been listed in Table 4. The potential likelihood and severity have been considered with proportionate mitigation measures proposed. The risks identified are being monitored and have been updated to reflect the current project status.

Table 4. Risks identified, related to CDE. High (H), Moderate (M) and Low (L) likelihood and severity are assigned to each risk.

Risk or barrier	Likelihood and severity (H/M/L)	Proposed risk-mitigation measures and status
<p>Barriers to impact may occur if ASPECT encounters difficulties in engaging stakeholders and recruiting users, or users who do engage show reluctance to embrace new methods.</p>	<p>Likelihood: L Severity: H</p>	<p>ASPECT is aware of the need to build relationships and trust with users through the project lifetime, while limiting the risk of ‘stakeholder fatigue’. The activities so far have focused on building relationships with the project Super Users, as well as a larger pool of potential users of climate information, ensuring a wider reach.</p> <p>Successful engagement has been achieved, as seen by the large number of participants in User Forums and the large number of applications for new Super Users. We’ve learned in the project that engagement activities benefit from a flexible approach, therefore we will likely incorporate additional engagement activities to keep the momentum between User Forums and keep the community of interest engaged.</p>
<p>Barriers to collaboration may occur if results are insufficiently relevant, or if there is a lack of credible routes to key initiatives.</p>	<p>Likelihood: L Severity: H</p>	<p>ASPECT’s approach of engaging with key initiatives through embedded champions will help to initiate and maintain key links and enable us to maintain a two-way dialogue to ensure shared objectives are reached.</p>
<p>Upsurge in COVID infections requiring lockdown</p>	<p>Likelihood: L Severity: L</p>	<p>This is no longer considered an active risk. In the case of future pandemics, all partners are now experienced at working under local lockdown and limited travel situations, with protocols improving over the past few years. These protocols can be reintroduced as needed.</p>
<p>Scientific barriers in the research</p>	<p>Likelihood: L Severity: L</p>	<p>Identifying scientific barriers as we answer research questions is a normal part of research and will inform future use of climate information. For those aspects most relevant for informing future adaptation, we will deploy various methods to address such barriers. For instance, we will examine several ways to merge information across time-scales and have multiple downscaling methods. Research also builds on established models and theories, and we have experienced researchers leading WPs.</p>