FACILITATING CLIMATE ADAPTATION USING SEAMLESS PREDICTIONS

THE ASPECT PROJECT

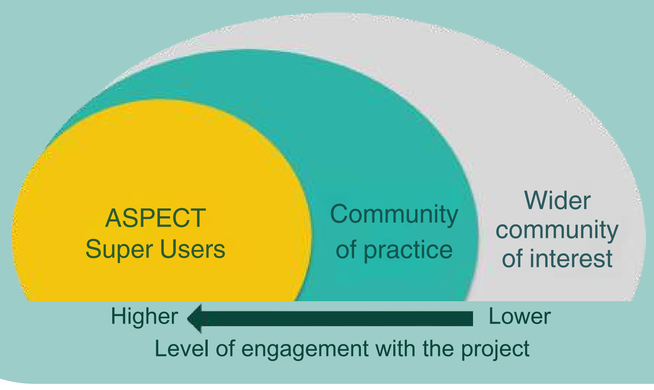
ASPECT

OBJECTIVE

ASPECT is a four-year Horizon Europe project that aims to improve and produce seamless climate predictions covering the next 30 years and embed these into societally important climate change adaptation decisions.

USER-CENTRED APPROACH

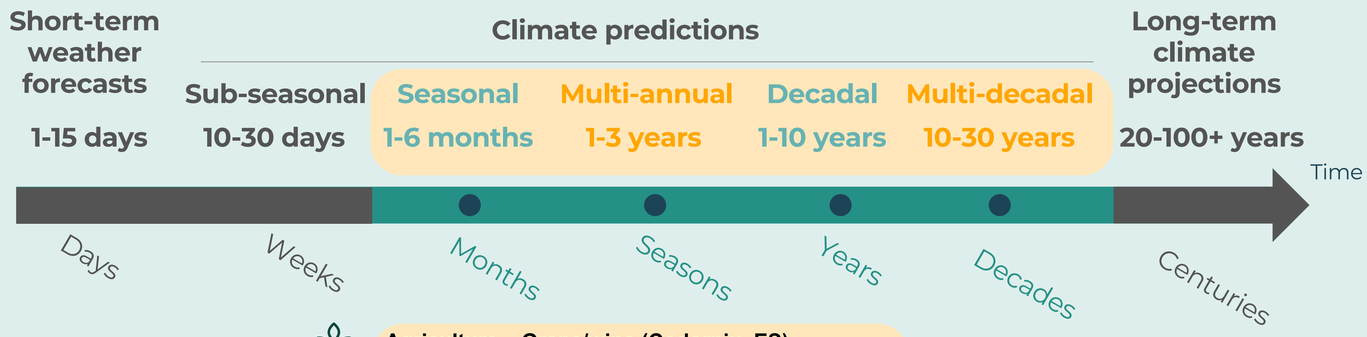
- Working closely with **users from key societal sectors** to make climate information **actionable and usable**.
- Building a **community of practice** for long-term impact and societal transformation.



SEAMLESS PREDICTIONS

Seamless climate predictions provide a single, coherent '*image*' of future climate.

ASPECT is working on methodologies to *join the best forecasts* on seasonal, one to five-year, and five to 30-year timescales, and apply them to user-relevant adaptation decisions.



Super User case studies & seamless climate information needs

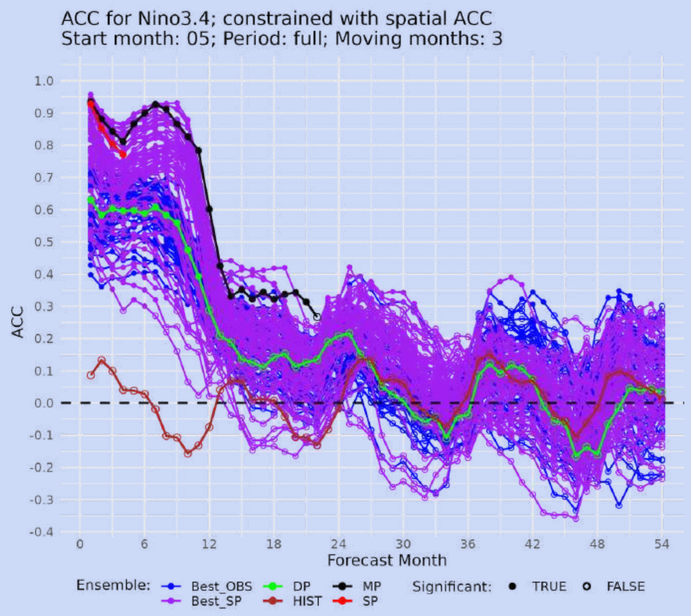
- **Agriculture – Grape/wine (Codorniu, ES)**
  Spring frost protection, Water management
- **Finance – Pensions**
  Generation & communication of climate risk information for synthetic portfolios
- **Governance – EU Mission for Climate Adaptation (Emilia-Romagna, IT)**
  Strategic climate risk assessment
- **Humanitarian-Disaster response (British Red Cross, UK)**
  Response planning during extreme events
- **Humanitarian-Health (Save the Children International)**
  Anticipatory action for malnutrition

Video: Seamless predictions

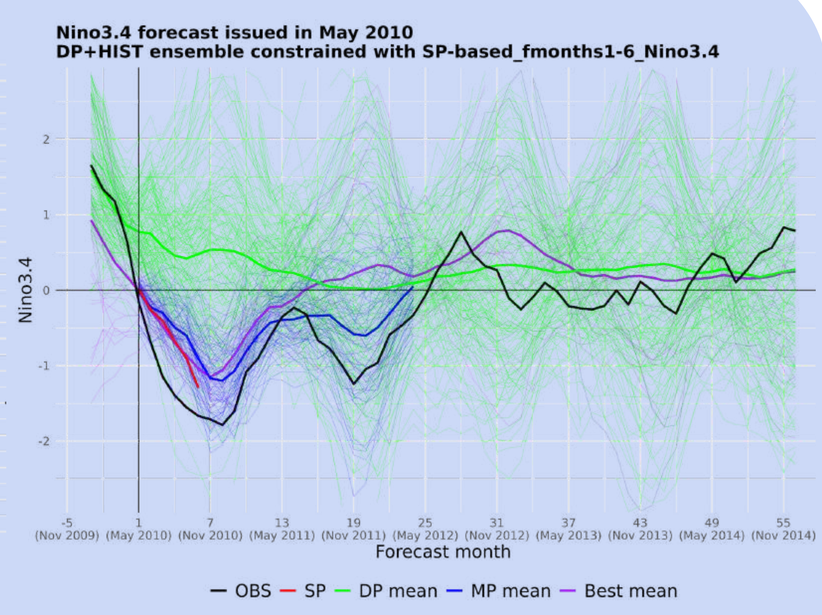
OUR RESULTS SO FAR

- **New experimental protocols** for seasonal-to-decadal (S2D) and decadal-to-projections (D2P)
- Improved **initialisation techniques**
- Worked to **bridge seasonal and decadal predictions** and obtain forecasts for up to 24-36 months ahead
- Explored **mechanisms behind predictability** to help improve prediction skill and its practical use
- Developed a range of methodologies for **spatial downscaling and temporal merging**
- **Seamlessly merged** seasonal, multi-annual and decadal climate forecasts, and improved skill
- **Tailored climate prediction** methods to real-world applications to meet the needs of the project users

Mid-project report



Forecast quality (anomaly correlation coefficient) of the Niño3.4 index (3-month running mean) as a function of forecast month. Results are shown for seasonal predictions (SEAS5, initialized in May; red), multi-annual predictions (4 forecast systems, May; black), decadal predictions (17 forecast systems, initialized late previous year; green), climate projections (historical+ssp245, 32 models; brown), and constraint ensembles based on seasonal predictions (purple) or observations (blue). Delgado-Torres et al. (in prep)



Climate forecasts of the Niño3.4 index issued in May 2010. Results are shown for seasonal predictions (SEAS5, initialized in May; red), multi-annual predictions (4 forecast systems, May; blue), decadal predictions (17 forecast systems, initialized late previous year; green), and seamless predictions (30 members; purple). Delgado-Torres et al. (in prep)

OUR SUPER USERS

AGRICULTURE / WINE

In ASPECT, we work with **Codorniu, a wine producer in Spain**, to provide predictions and tailored indicators (e.g. for spring frost risk) to help inform decision making and climate adaptation.

FINANCE / PENSIONS

ASPECT works with the **private pensions sector** to assess and inform on how climate may impact financial portfolios, and understanding the risks for investment decisions.

GOVERNANCE

ASPECT collaborates with the **Emilia-Romagna region in Italy**, part of the EU Mission on adaptation to climate, to facilitate the use of state-of-the-art, seamless climate information for adaptation.

HUMANITARIAN

ASPECT works with **Save the Children International** to provide predictions for regions in Africa (Malawi and Niger), and assess food security and malnutrition risks for children and mothers.

DISASTER RESPONSE

ASPECT is helping the **British Red Cross** understand climate risks and their impact on emergency operations, in order to support communities to prepare for, respond to and recover from disasters.

Funded by the European Union

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