EUCP: European prediction and projection system

Overview of EUCP

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https://www.eucp-project.eu

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EUCP: Overview of research towards a European Climate Prediction system



A busy couple of years for national climate projections





New climate scenarios for Switzerland The CH2018 Climate Change Scenarios show where and how climate change affects Switzerland. "Dry summers", "Heavy precipitation", "More hot days", and "Snow-Scarce Winters" are some of the expected consequences of unchecked climate change.

CH2018 web atlas

UKCP18 and CH2018 both launched in November 2018

Further outputs in 2019

CH2018 Climate Scenarios

NCCS web portal

NCCS about us



1. Towards a seamless near-term European climate prediction system



new varieties

Planting and harvesting dates

Infrastructure for the future and business diversification

Updated forecast as part of WMO activity

WMO Lead Centre for Annual-to-Decadal Climate Prediction

The Met Office is a designated Lead Centre for Annual-to-Decadal Climate Prediction (LC-ADCP). The LC-ADCP collects and provides hindcasts, forecasts and verification data from a number contributing centres worldwide.



Multi-model forecast for 2019-2023



-15 -10 -0.5 20 0.5 10 15



0.4 0.2 0.1 0.05 0.82 0.0 0.62 0.05 0.1 0.2 0.4 mm/day

Collecting and disseminating decadal predictions. Promoting operational activity



- Part of WCRP Grand Challenge on Near Term Climate Prediction
- Based on WMO decadal predictions
- Will be updated each year

ACC for blocking in CESM, lead years: 1-8



Predictability of blocking: Skill assessment in NCAR DP Large Ensemble [P. Athanasiadis et al., submitted]



Forecast quality assessment: CMIP5, pre-CMIP6 and available large ensembles of decadal predictions

Skill of large multi-model ensemble 71 members : years 2-9 : precipitation

Impact of initialisation



Better understanding the benefit of initialization and sources of predictability

Exploring methods to merge predictions and projections





2. Beyond one model-one vote on the 10-40+ year time-scale



Enabling better longterm adaptation planning







Production of constrained climate Projections

The observationally constrained ranges (heavy shading) can be compared to the raw data (light shading) for 9 methods.



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<u>Some consistent information emerges.</u> Most methods agree on the central estimates for summer warming (2.2° to 2.4° in Central Europe; 2.4° to 2.8° degrees in the Mediterranean) and all methods down weight large magnitude temperatures of warming **Large differences remain.** The methods provide different information on what high end warmings can be ruled out.

Challenges: understanding the commonalities and the differences and communication to users.



3. The first pan-European convective permitting model simulations



Produce a port-folio of high impact extreme events for distribution to other WPs and to relevant stakeholders. Develop and test an ensemble of Convection Permitting Regional Climate Model (CL-RCMs) (10 groups, 8 models participating).

Design and complete a large multi-model ensemble of CP-RCM simulations for the European region aimed at assessing the effect of climate change on high impact extreme weather events.

Simulation strategy and doman



+outer most region demonstrators

4. Towards understanding the implications for users of this new climate data



Urban pluvial floods framework







4. Towards understanding the implications for users of this new climate data

- EUCP covers sectors:
 - Wind Energy/ Production
 - Urban (& flash) flooding
 - Coastal Erosion/Flooding
 - Water Security/Availability
- Review/Gap analysis of previous end user requirements
- Weighting of different climate scenarios (CMIP6, WP2), use of CPMs (WP3), use of initialize climate predictions (WP1), etc
- Work at resolution of stakeholder decision is crucial for take up (and do these models provide reliable information at the right scale?)
- Develop/select/test indicators for end users (e.g. superuser JRC, EDF, City of Glasgow, Rotterdam,..)







We are starting our next phase of user interaction



European Climate Prediction system

Upcoming overds / Management

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The first EUCP Internal Newsletter

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Biscover more on the main objectives of the

Project



Get involved

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