



## User co-design of state-of-the-art climate model simulations: towards a better-informed society

Erika Palin (1), Dragana Bojovic (2), Galina Guentchev (1), Eveline van der Linden (3), and Isadora Christel (2)  
(1) Met Office Hadley Centre (UKMO), FitzRoy Road, Exeter EX1 3PB, United Kingdom, (2) Barcelona Supercomputing Center (BSC), Nexus II Building, C/ Jordi Girona 29, 08034 Barcelona, Spain, (3) Royal Netherlands Meteorological Institute (KNMI), PO Box 201, NL-3730 AE De Bilt, Netherlands

A wide range of decision-makers need information from climate projections, to respond and adapt to climate change. However, a common barrier to using climate information is a lack of understanding by users of what information can reasonably be provided by state-of-the-art climate science, and by climate scientists of what information is required by users for it to be usable in practical decision-making. The PRIMAVERA (“PRocess-based climate sIMulation: AdVances in high-resolution modelling and European climate Risk Assessment”) project addresses this by applying a co-design approach aiming to tailor its scientific outputs to the user needs, whilst ensuring that scientific integrity is maintained, and avoiding overinterpretation of / overconfidence in the science.

The main outputs of PRIMAVERA will be high-resolution (~25 km) global climate model simulations for the period 1950–2050, and an assessment of the ability of these models to simulate societally important processes. The expectation is that these models will be capable of simulating and predicting regional climate with unprecedented fidelity compared to traditional resolution (>100 km) models. Higher-resolution (both spatial and temporal) projections are vital to assess how the risk of high-impact climate events, such as heat waves, floods, and droughts, is projected to change over the coming decades. PRIMAVERA will explore the extent to which this increased resolution improves the representation of the physical processes behind these high-impact events, and therefore how these new simulations could support European climate risk assessment activities, with the aim of bringing benefits to governments, business and society in general.

Representing a partnership of 19 European key climate research organisations, PRIMAVERA goes beyond simple information dissemination, encouraging information exchange between decision-makers and project scientists. In particular, we have launched a dialogue with practitioners, users and decision-makers in transport, energy, insurance, agriculture and other key European sectors. A user interface platform is being developed to facilitate this information exchange. The collaborative approach between providers and users will help scientists understand decision-makers’ short-term (operational) and longer-term (planning) strategies that are affected by climate variability. Additionally, various user engagement activities (survey, interviews, workshops) are exploring in detail the potential risk posed by future climate variability to these identified strategies in a series of case studies. Ultimately, user feedback gathered in the first part of PRIMAVERA will shape the design of a second set of very high resolution (~6-25km) simulations to be run later in the project.

This presentation will share experience from the co-design activities and highlight the key messages emerging from user engagement and how they shape the next steps both within and beyond the project.

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