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Hybrid SORS/E4ES: Developing high quality regional climate projections: a framework, applications and recommendations

Objectives

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Abstract: This talk illustrates the quality assessment framework developed by Baldissera Pacchetti et al. (2021a, 2021b) and shows how it is being used to provide guidance on how to improve the quality of the next generation regional climate projections. The framework defines quality of projections in terms of "epistemic reliability", which requires that information about future climate and related probabilities (if applicable) suitably represent the likelihood of different realizations of future climate and that there is an explanation of why this is the case. The framework specifies six quality dimensions to assess information about future regional climate, and the methods used to derive it: transparency, theory, historical empirical adequacy, diversity, completeness and number. Our assessment of the latest generation of UK national projections (UKCP18) showed that these projections do not score highly along all the quality dimensions of the framework (Baldissera Pacchetti et al. (2021b)). To broaden the scope of this work and identify gaps and opportunities for improvement in UK regional information about future climate, we have: (1) conducted a systematic literature review of published work on regional scale future precipitation for the UK and evaluated it with the quality framework and (2) conducted a series of semi-structured interviews with key UK-based experts on regional precipitation change about their assessment of current state-of-the art decision-relevant information about future regional precipitation change. Both the interview protocol and the analysis of the interview are based on the quality assessment framework that evaluates information and the methods used to derived it along the dimensions of the quality framework. Our results show that there are indeed quality gaps and ways in which the research community can achieve high quality regional climate information. However, we note that there isn't always agreement amongst experts about how efforts should be distributed. We end with a series of recommendations derived from the analysis of the interview.

Short Bio: Marina Baldissera Pacchetti's research lies at the intersection of the foundations of physical sciences, the history and epistemology of modeling complex systems and the role of science in society. Her work mostly draws from history and philosophy of science, environmental social science and physical climate science. She is a researcher at the BSC's Earth Sciences Department and at the Sustainability Research Institute at the University of Leeds. Marina earned her PhD from the Department of History and Philosophy of Science at the University of Pittsburgh, and wrote her dissertation under the supervision of Professor Robert Batterman. Before going to Pittsburgh, she completed a MSc in History and Philosophy of Science at the London School of Economics and a BSc in Mathematics and Physics (Joint Honors) at University College London.

Speakers

Speaker: Marina Baldissera Pacchetti, BSC's Earth Sciences Department and Sustainability Research Institute, University of Leeds.
Host: Dragana Bojovic, Earth System Services Group Recognised Researcher, BSC

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