

UK socioeconomic scenarios for climate research and policy

A project commissioned by the Met Office (within the UKCR Programme), carried out by Cambridge Econometrics, UK Centre for Ecology & Hydrology, University of Edinburgh and University of Exeter

The context for the project

There are key questions relating to the climate resilience of the UK that need future research, which require robust exposure and vulnerability data to be able to properly address. This project will produce internally consistent future socioeconomic scenarios for the UK, as the basis for further climate resilience research.

At the international level, several global socioeconomic scenario exercises have emerged from the climate change and biodiversity/ecosystem service communities, including the IPCC SRES scenarios and the IPCC RCP-SSP framework. Many of these global scale scenarios have been interpreted and downscaled to regions, including Europe and the UK. However, these tend not to be comprehensive in treating the full range of possible socioeconomic change drivers or are not easy to map to international scenarios.

While the UK Climate Projections 2018 produced by the Met Office provides a set of downscaled climate projections for the UK, no regionally enriched versions of the global SSPs are publicly available for the UK to combine with these RCP-based climate projections. This new project aims to fill this gap by developing a set of internally consistent socioeconomic scenarios for the UK that is coherent with the IPCC SSPs, and which will provide the basis for further UK research on climate risk and resilience.

Key project aims and objectives

The project has various objectives: to identify key socioeconomic indicators needed to address climate resilience issues; to downscale the existing global and European SSPs for the UK by extending them spatially, temporally and sectorally; to develop a modelling framework that captures the interrelationships between different socioeconomic indicators in the scenario narratives; to create internally consistent quantitative projections for the key socioeconomic indicators; and to publicise the new scenarios to the UK climate resilience community.

Project outputs

Our approach involves downscaling and extending the SSPs for the UK, to support more detailed analyses of climate risk and resilience. The research will build upon existing work that has been led by the project team on extending the global SSPs (including the EU-funded IMPRESSIONS project led by CEH¹, developing a set of socioeconomic projections for the UK led by CE² the UK-SCAPE project led by CEH³).

The final project outputs will consist of a set of narratives, semi-quantitative trends, quantifications for specific variables and visualisations of the interrelationships between those variables for a nested set of UK and country-specific SSPs that are consistent with the global/European context. This will allow UK-specific research by the climate resilience community that is consistent with the IPCC process, including research and analysis for the fourth Climate Change Risk Assessment.

The roles of the User Panel and Advisory Panel

An important aspect of the project is engagement with the climate resilience community, who are potential users of the scenarios. A User Panel, consisting of stakeholders and researchers from different disciplines relevant to climate resilience research, are providing the project team with input and feedback throughout the project. The role of the separate Advisory Panel is to support the project team in ensuring the outputs of the project are directly usable within the UKCR SPF programme in general and meet the requirements of future CCRA4 (i.e. CCRA4).

¹ www.impressions-project.eu

² <https://www.theccc.org.uk/wp-content/uploads/2019/07/Consistent-Set-of-Socioeconomic-Dimensions-Final-Report-Cambridge-Econometrics.pdf>

³ <https://www.ceh.ac.uk/uk-scape/speed-spatially-explicit-projections-environmental-drivers-and-impacts>