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PARALLEL SESSION A : BENEFITS OF DOWNSCALING
A3: FROM DATA TO INFORMATION - A DISTILLATION DILEMMA

Visual Summaries of Ensemble Regional Projections

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The regional climate projection data available for regional climate change assessments and impact and adaptation studies has become increasingly complex; often multi-model, multi-method and multi-scale. Visual summaries of ensemble projection data can be used to distil and convey key messages about projected regional climate change, but involve challenging decisions about how best to reduce and present the data in order to convey those messages clearly and intuitively.

In this study, various methods of communicating a range of plausible climate scenarios are investigated, with the aim to identify effective methods of communicating ensemble regional projections with varying levels of complexity. Specifically, novel methods of communicating uncertainty within climate model projections on a range of spatial scales are portrayed, improving on existing approaches of communicating a distribution of regional projections. We demonstrate a number of approaches to address the following issues with representing key spatial, temporal and uncertainty characteristics of projection information:

(a) Quantitative information about uncertainty from multi-model GCM spread and distribution can be challenging to express clearly alongside quantitative, spatial projection information. An additional challenge and opportunity exists where multi-method data are available, to show how the datasets relate to one another in an uncertainty context – for example, by indicating where members of a downscaled subset of CMIP5 models sit in the context of the broader CMIP5 ensemble before and after downscaling.

(b) The physically plausible spatial patterns of change generated by individual models can be lost or masked in the context of ensemble uncertainty, when data are regionally averaged or mapped as ensemble averages or percentiles. We demonstrate that showing regionally averaged summary information from multiple models, methods and forcings alongside mapped projections from individual can provide both the uncertainty context and realistic spatial patterns simultaneously.

(c) To provide context for interpreting projected changes in the mean climate state a representation of quantitative estimates of natural variability is required.

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