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Extraction of uncertain information and potential impacts from a GCMs Physical Ensemble.

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The use of GCMs simulations of climate systems in the assesment of potential impacts of future climate change is limited to the ability of the GCMs to simulate the climate and the presence of diverse uncertainty sources. We analyse sets of runs of the {\tt climateprediction.net} project, the largest perturbed physics climate model ensemble available to date. This ensemble is specifically designed to sample climate-model uncertainty and has stored different climate variables in form of global and regional monthly means between 1920 and 2080.

We explore different methodologies for obtaining empirical distributions of climate variables and/or ranges of potential impacts of climate change. A set of model runs is selected by checking the ability of a run to reproduce correlations induced by the model dynamics and its forecasting skill. The runs in the set are considered to contain useful information in the form of ranges of model behaviour.

The aim of our methodology is to produce information useful for stakeholders to analyse potential impacts of future climate.