**Ensemble methods in downscaling projections**

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Due to time and resource limitations, creating a regional climate (dynamically downscaled) projection ensemble requires choices to be made concerning the set of Global Climate Model (GCM) projections to downscale from, and the set of regional climate models (RCMs) to downscale with. Most commonly these choices have been made based on convenience. That is, both the global and regional models are chosen based on familiarity, and ease of access. Occasionally model performance has also been considered (Corney et al. 2010). Often the limitations are such that the RCM and GCM subsets are relatively small, leading to a biased regional projection ensemble that under-samples the uncertainty in the future climate. Attempts have been made to increase the sampled range such as the sparse matrix GCM-RCM pairing adopted in the North American Regional Climate Change Assessment Program (NARCCAP; Mearns et al. 2013). Explicit consideration of the full GCM ensemble spread has also been suggested (Whetton et al. 2012) and implemented within a regional projection project (Evans et al. 2014). This talk will discuss two questions: What are the desired properties of the regional climate projection ensemble? And how can we create our ensemble, within resource constraints, to achieve them?

# References

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