

Supplementary Figures for: *A Novel Heuristic Method for Detecting Overfit in Unsupervised Classification of Climate Model Data*, 2023,
Environmental Data Science

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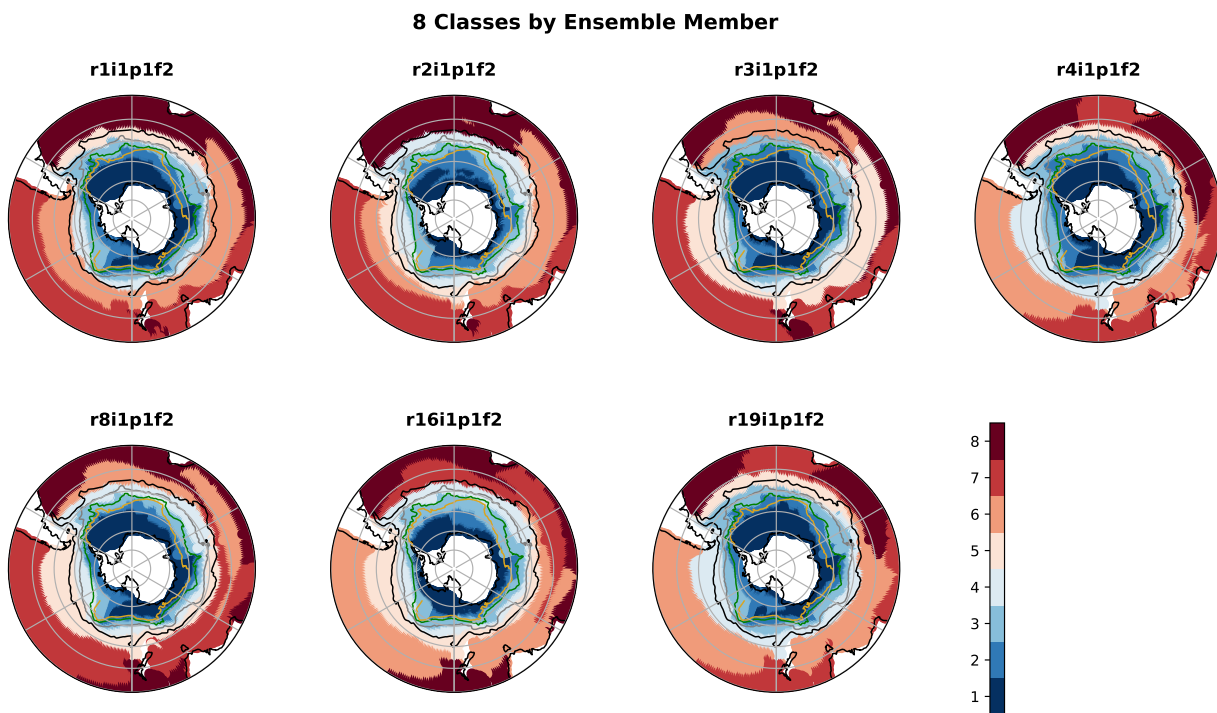


Figure S1: Results of an 8 class Gaussian Mixture Model fit to 2001-2017 Southern Ocean temperature profiles from the UK-ESM CMIP6 historical ensemble, see main manuscript for more details. The mode or most common class at each point in the Southern Ocean, with the colours corresponding to the classes.

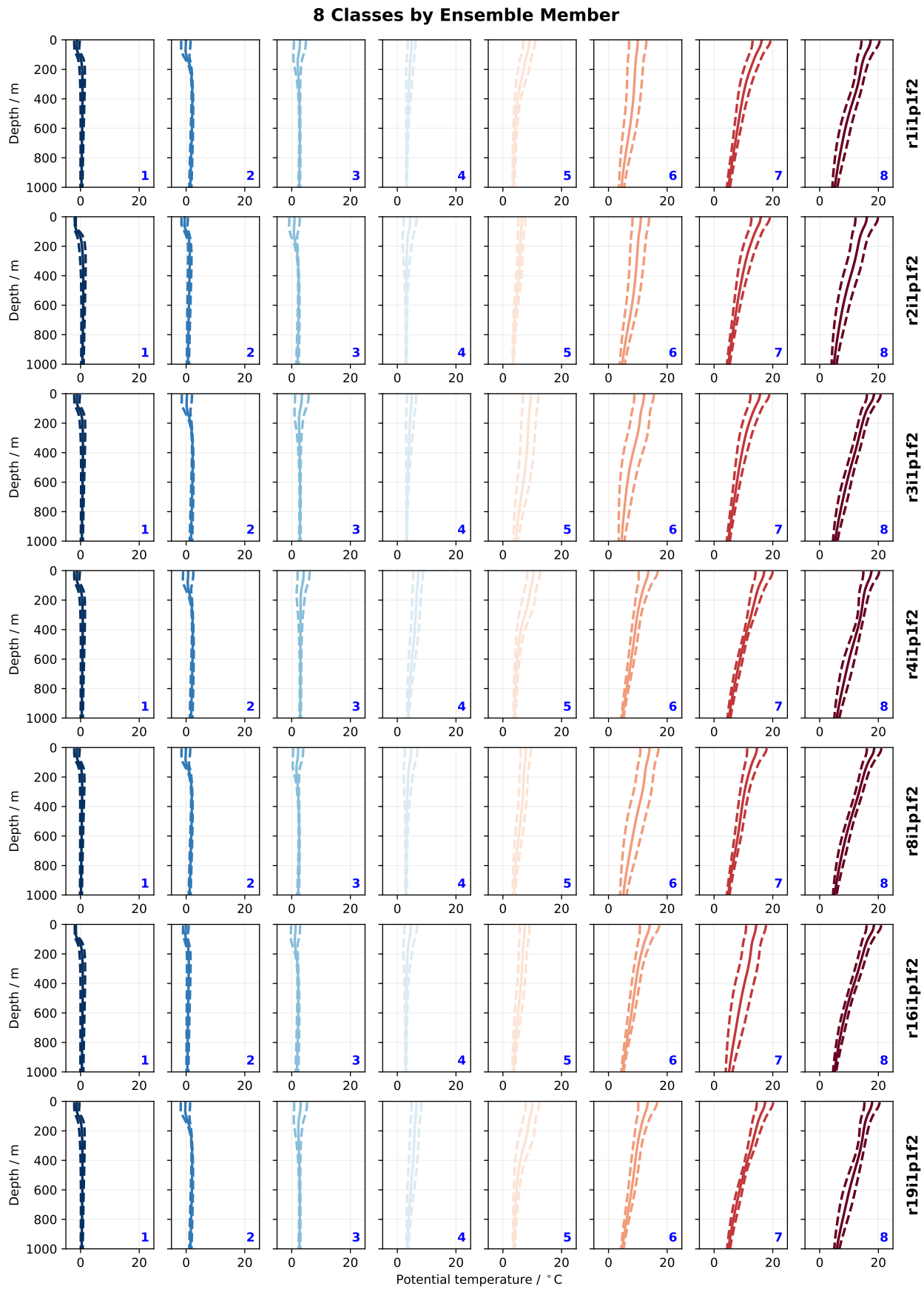


Figure S2: Results of an 8 class Gaussian Mixture Model fit to 2001-2017 Southern Ocean temperature profiles from the UK-ESM CMIP6 historical ensemble, see main manuscript for more details. Each row corresponds to a different ensemble member as labelled. Each column shows the time mean and standard deviation temperature profiles of each class, sorted by the temperature at 5m depth.

9 Classes by Ensemble Member

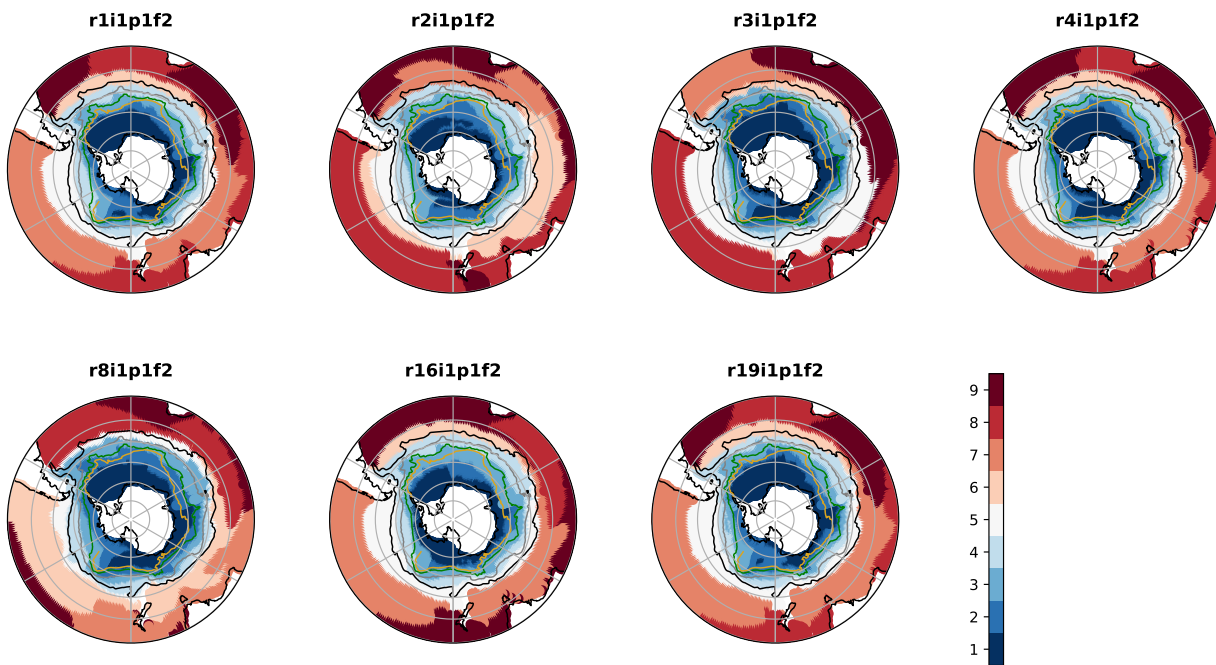


Figure S3: As in figure S1, but for 9 class Gaussian Mixture Model.

9 Classes by Ensemble Member

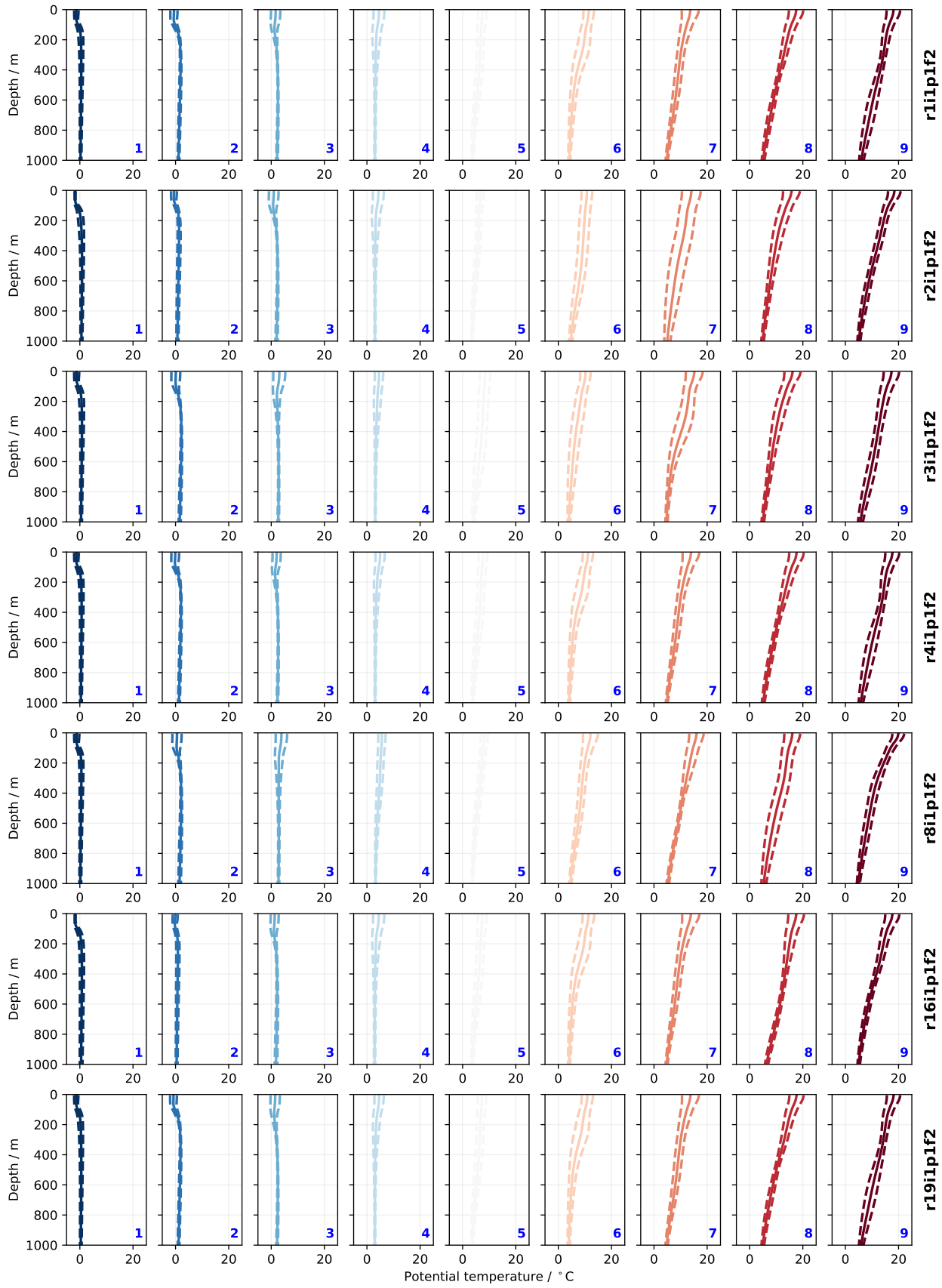


Figure S4: As in figure S2, but for 9 class Gaussian Mixture Model.