

## Supplementary Information for

# Robust but weak winter atmospheric circulation response to future Arctic sea ice loss

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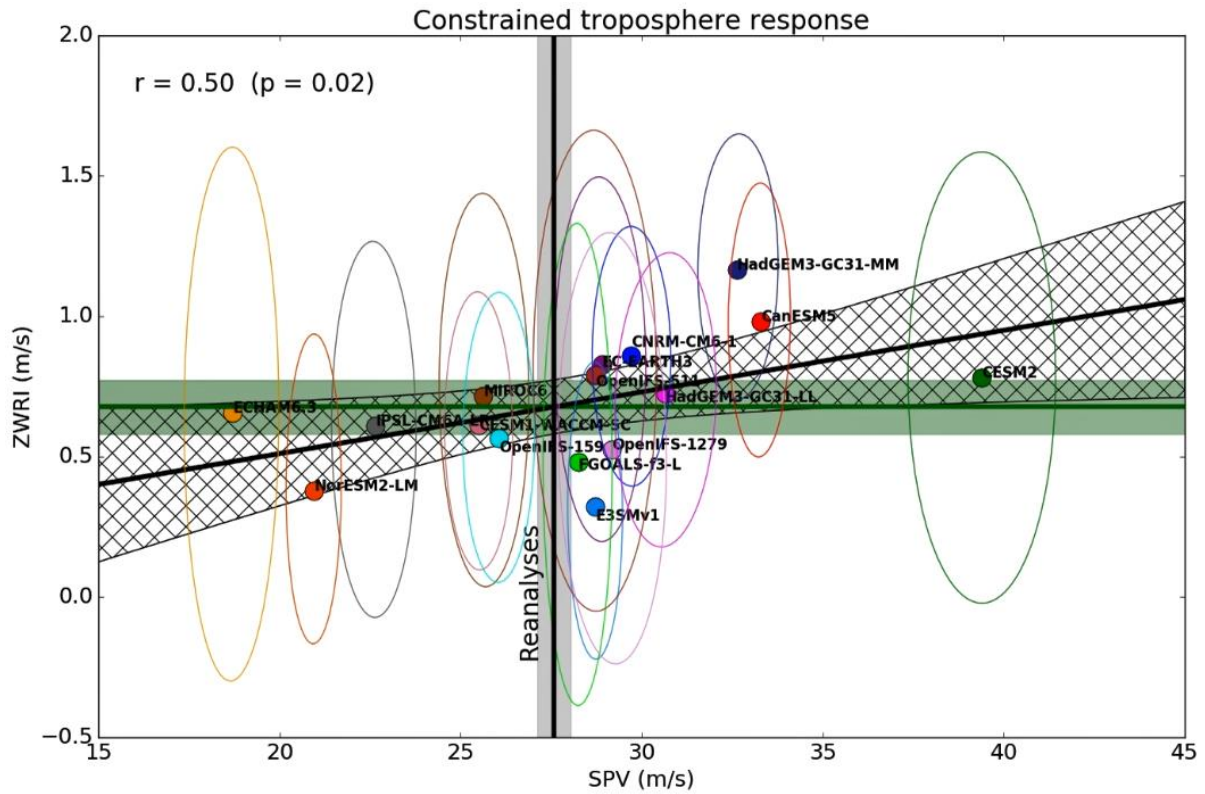
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**Supplementary Figure 1:** Emergent constraint based on the ensemble regression (ER) between background strength of stratosphere polar vortex (SPV) and the zonal wind response index (ZWRI). Black line shows the regression with hatching showing the 95% confidence interval. Horizontal green line shows the constrained ensemble mean response, with the shading showing its 95% confidence interval (Methods). Vertical black line and grey shading shows the mean and range of eddy feedback from the reanalyses. Ellipses show the 95% uncertainties obtained by bootstrapping with replacement the ensemble members. All data are for DJF.