

Supporting Information for ”The importance of non-CO₂ greenhouse gases to Arctic warming and sea ice loss”

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Figures S1 to S3

Additional Supporting Information (Files uploaded separately)

None

Introduction

Supporting information for the manuscript entitled “The importance of non-CO₂ greenhouse gases to Arctic warming and sea ice loss” is contained in this PDF file. In the Supporting Information, we present Figures S1-S3 to show the radiative feedback analysis and results from CESM1 and CESM2 single-forcing experiments.

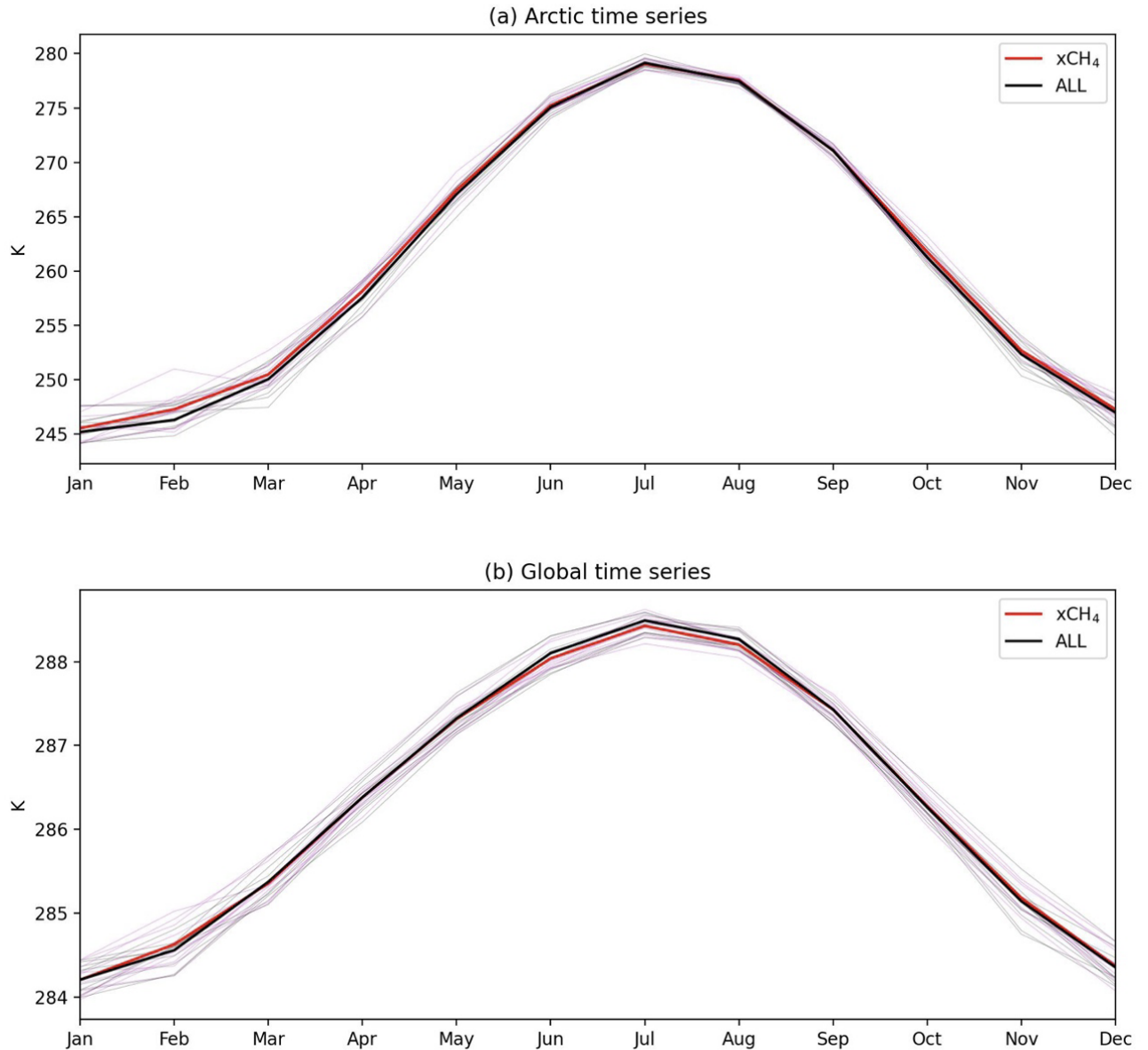


Figure S1. (a) The CESM1 Arctic surface-air temperature for the fixCH₄ (red) and ALL (black) experiments during the first simulation year. (b) The CESM1 global surface-air temperature for the fixCH₄ (red) and ALL (black) experiments during the first simulation year. The thick lines denote the ensemble-mean, while the thin lines present each ensemble member.

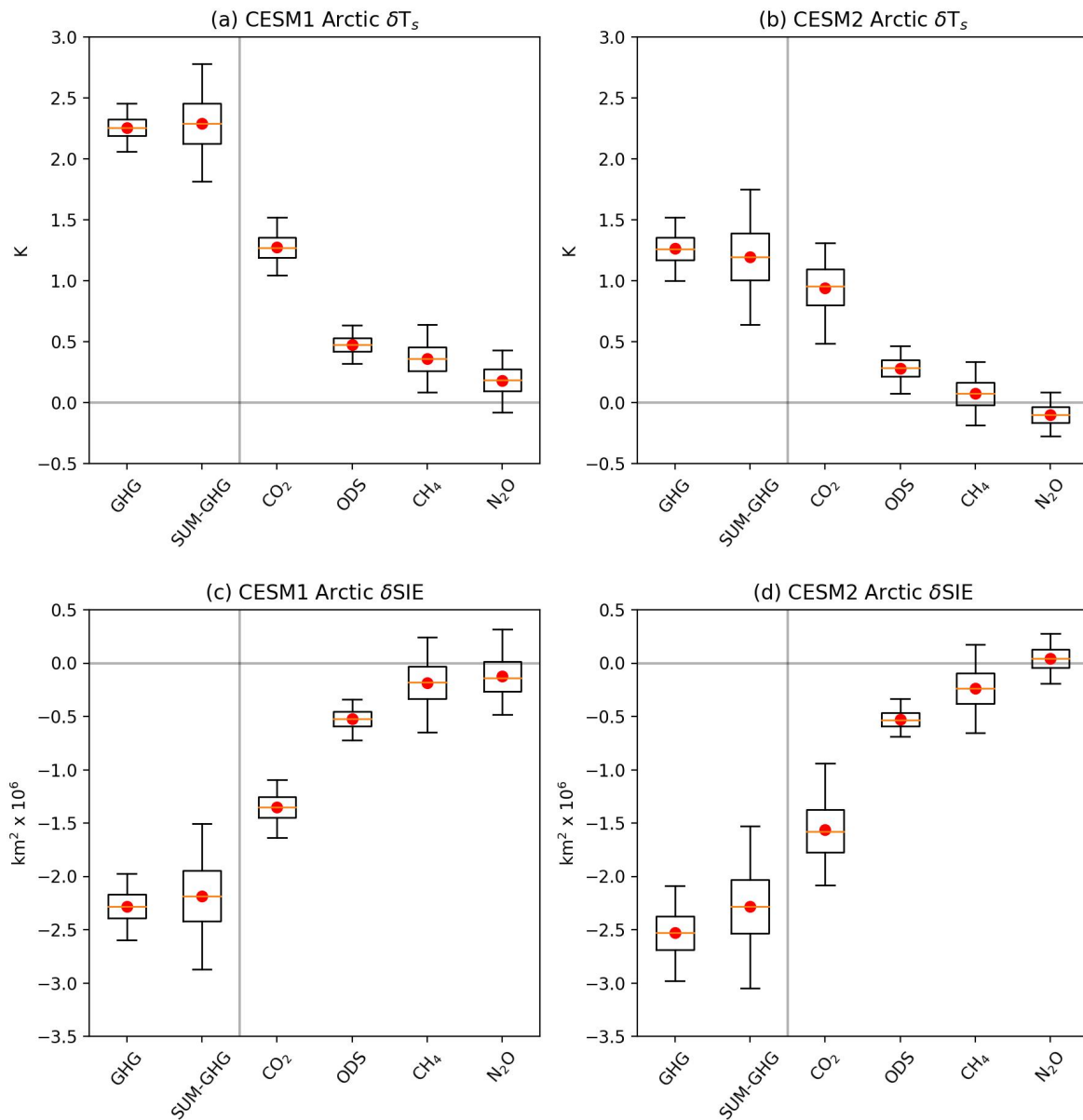


Figure S2. The Arctic and global temperature changes due to each feedback against its global value: (a) ALL, (b) CO₂, (c) non-CO₂, (d) SUM-nonCO₂, (e) CH₄, (f) N₂O, (g) ODS, (h) O₃T, and (i) O₃S. The big dot denotes the ensemble mean over resamples, while the smaller ones represent each resample. The dashed line indicates the one-to-one line.

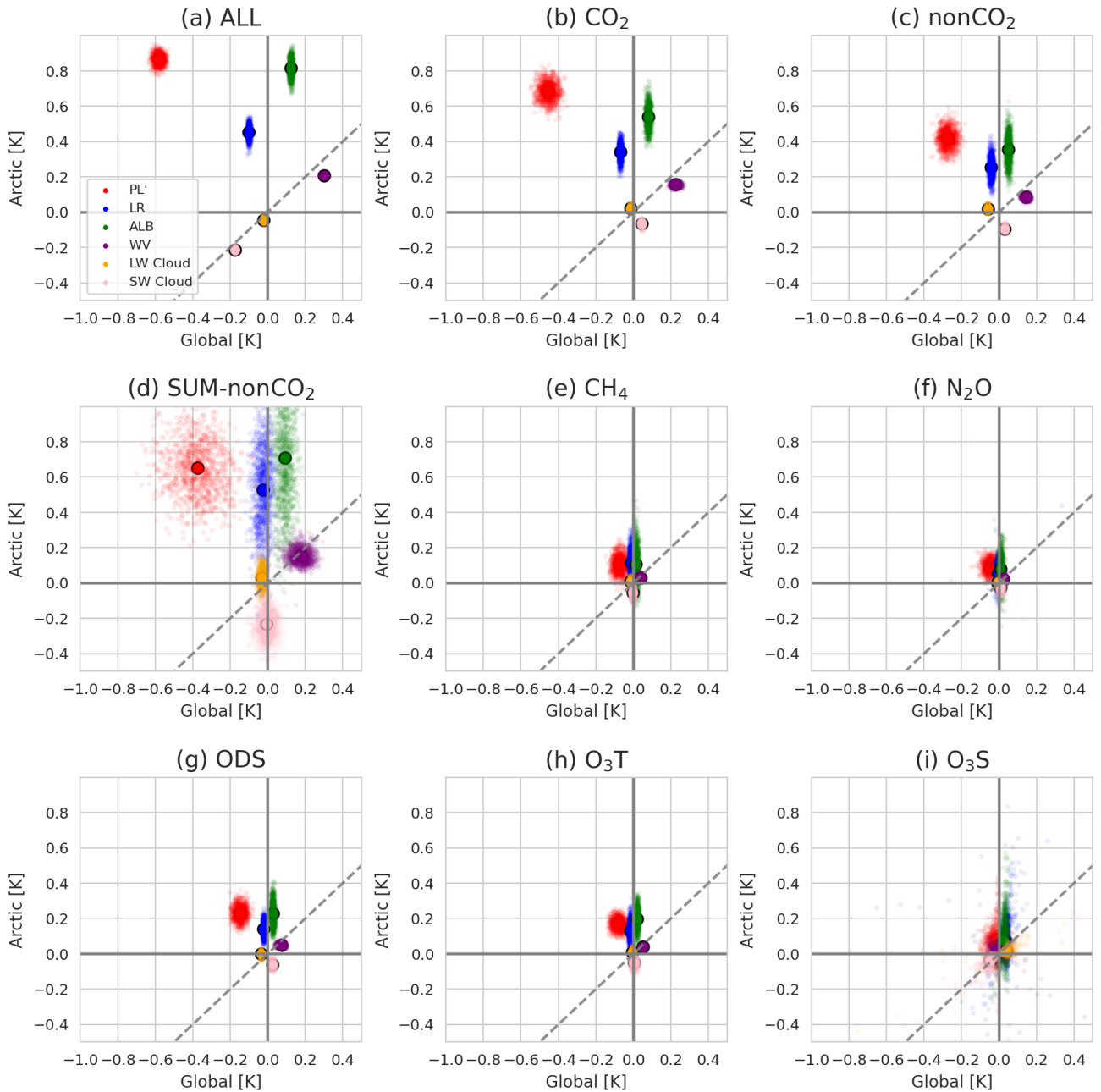


Figure S3. (a) The CESM1 annual Arctic surface air temperature response (δT_s) to each greenhouse gas forcing agent. (b) CESM2 annual Arctic δT_s to each greenhouse gas forcing agent. (c) CESM1 annual Arctic sea-ice extent (SIE) response (δSIE) to each greenhouse gas forcing agent. (d) CESM2 annual Arctic δSIE to each greenhouse gas forcing agent. The uncertainty is estimated by 10,000 bootstrapping random sampling, and the 2.5%-97.5% range is shown in each panel.

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