

# Supporting Information for “Polar amplification as an inherent response of a circulating atmosphere: results from the TRACMIP aquaplanets”

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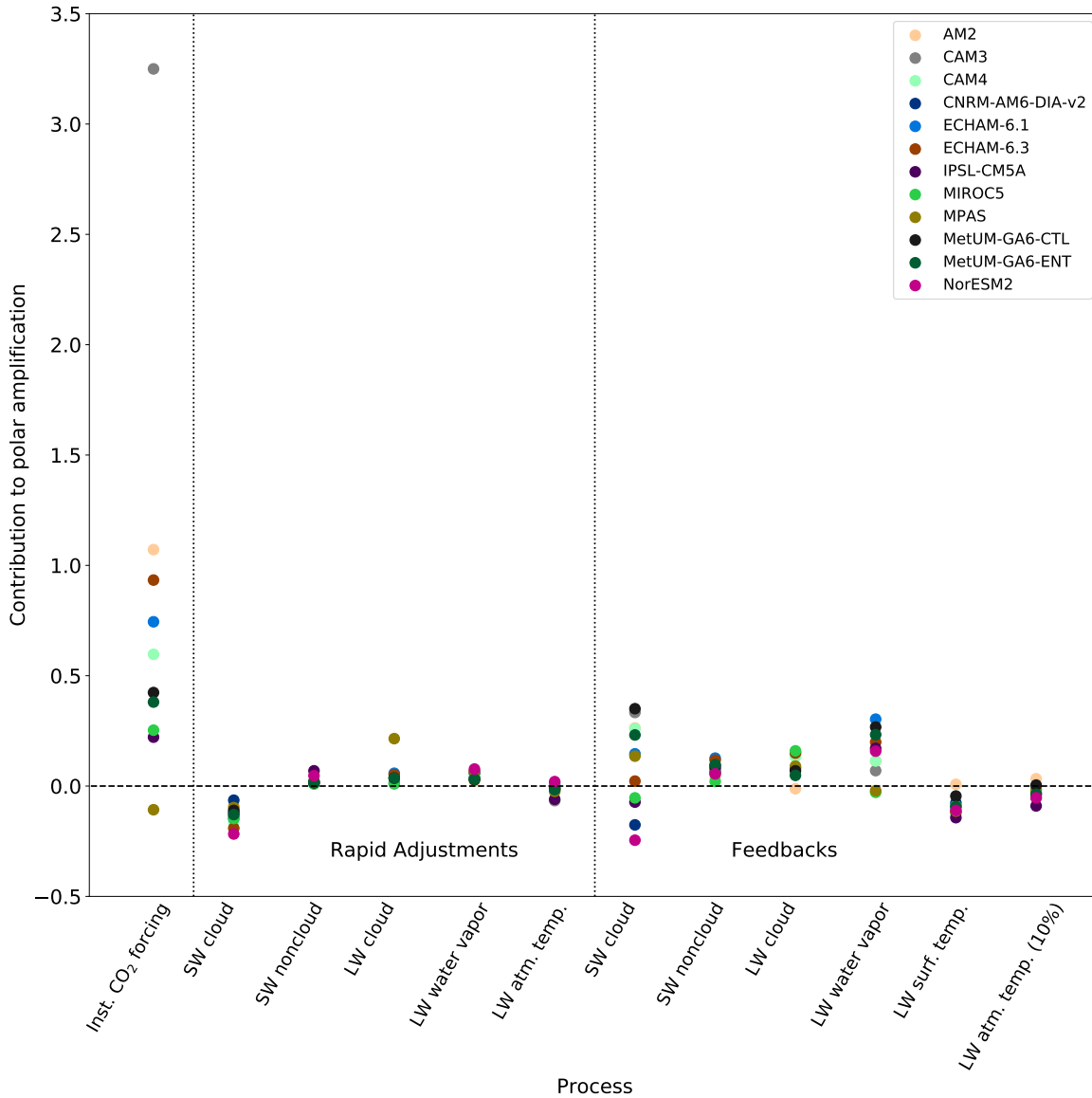
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## Contents of this file

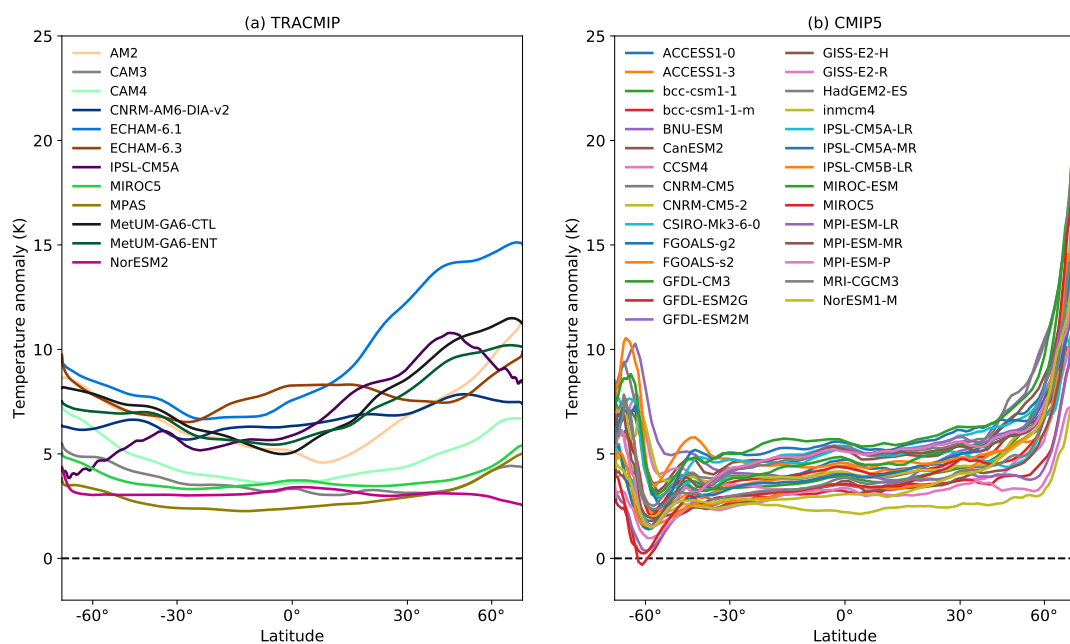
1. Figures S1 to S4

## Introduction

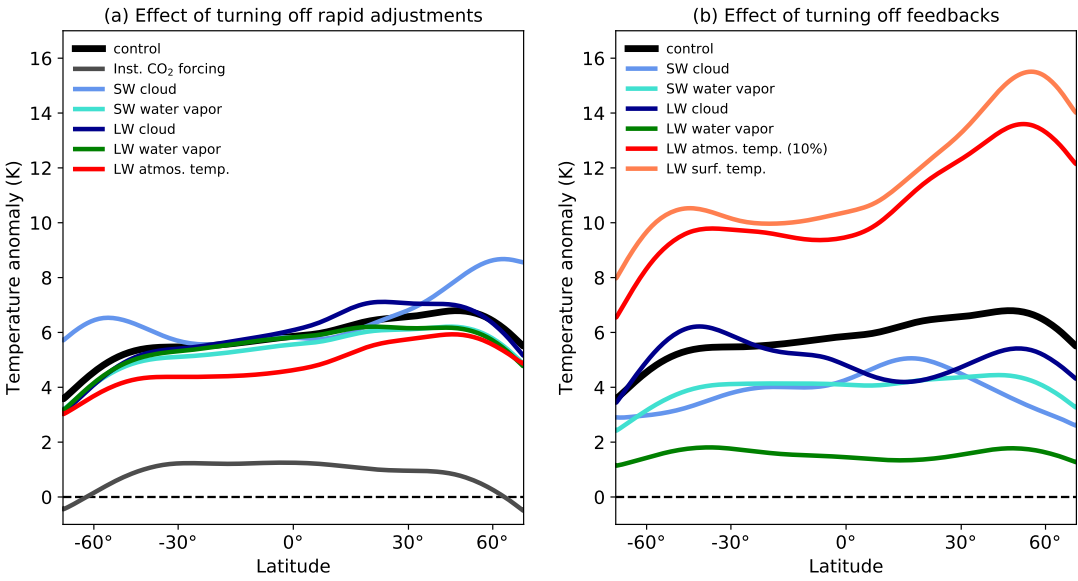
This document contains additional figures showing contributors to polar amplification for individual models (Figure S1), a comparison of TRACMIP vs. CMIP5 polar amplification (Figure S2), and results from using a dry instead of a moist energy balance model (Figures S3-S4).



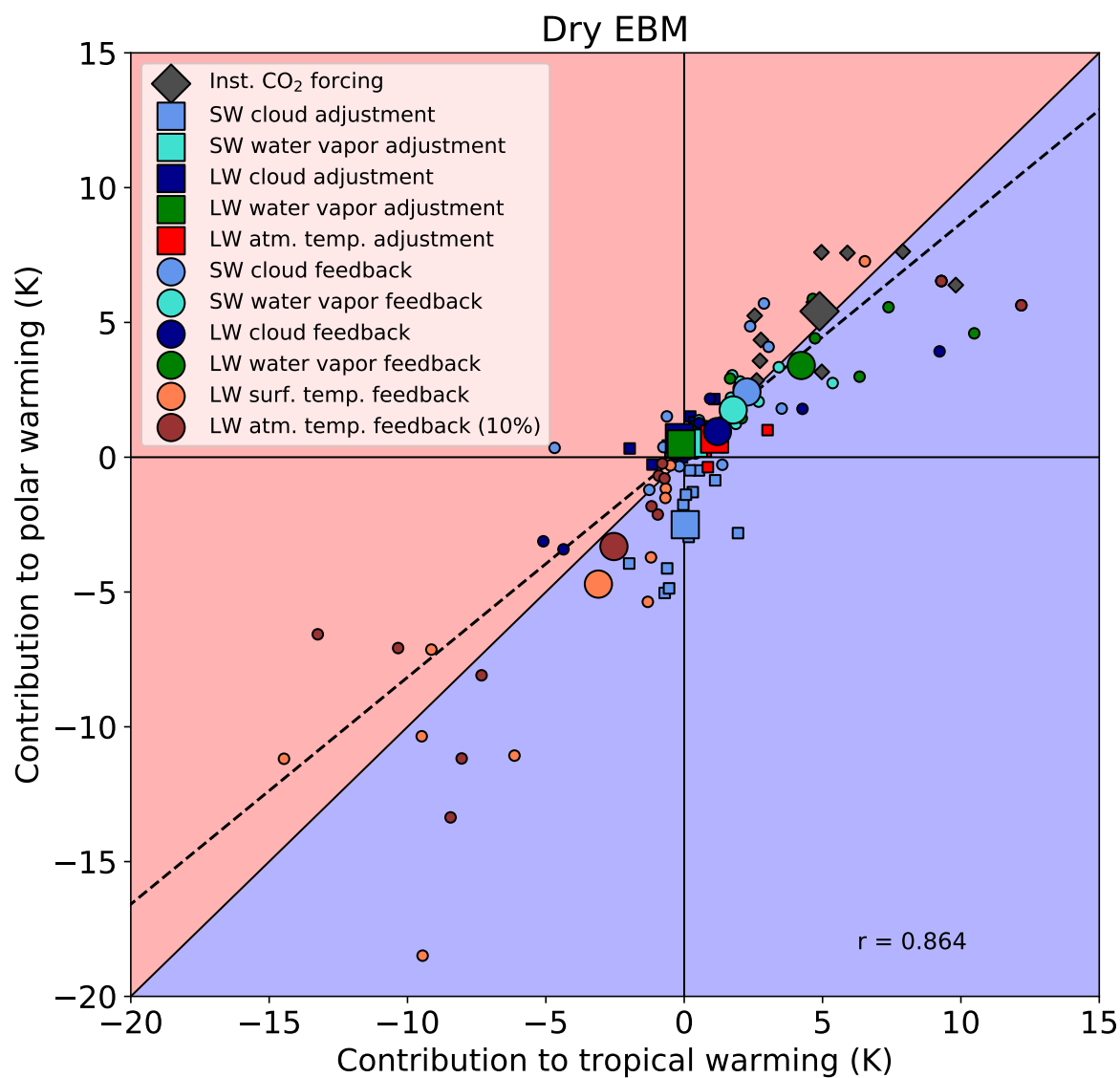
**Figure S1.** Polar amplification (ratio of warming poleward of 70° to warming equatorward of 30°) in control experiment minus that when each forcing or feedback component is turned off. CAM3 is an outlier for the instantaneous forcing case because the global mean warming and warming poleward of 70° have opposite signs, resulting in a negative value for polar amplification calculated this way. A few cases are missing because clear-sky LW radiation flux output was not available for NorESM2, and CNRM-AM6-DIA-v2 had some zero values of specific humidity which caused errors in the water vapor kernel calculation.



**Figure S2.** Zonal mean temperature anomalies for TRACMIP Aqua4xCO<sub>2</sub> - AquaControl (left) and CMIP5 Abrupt4xCO<sub>2</sub> - piControl (right). Last 20 years of simulation used for CMIP5.



**Figure S3.** As in Figure 3a,b but with EBM diffusing only dry static energy.



**Figure S4.** As in Figure 4a but with EBM diffusing only dry static energy.