Past warming trend constrains future warming in CMIP6 models

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Future global warming estimates have been similar across past assessments, but several climate models of the latest Sixth Coupled Model Intercomparison Project (CMIP6) simulate much stronger warming, apparently inconsistent with past assessments. Here we show that projected future warming is correlated with the simulated warming trend during recent decades across CMIP5 and CMIP6 models, enabling us to constrain future warming based on consistency with the observed warming. These findings carry important policy-relevant implications: the observationally-constrained CMIP6 median warming in high emissions and ambitious mitigation scenarios is over 16% and 14% lower by 2050 compared to the raw CMIP6 median, respectively, and over 14% and 8% lower by 2090, relative to 1995-2014. Observationally-constrained CMIP6 warming is consistent with previous assessments based on CMIP5 models, and in an ambitious mitigation scenario, the likely range is consistent with reaching the Paris Agreement target.

Reference:


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