



Inferences of the Equilibrium Climate Sensitivity from the Historical Record

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Recent attempts to diagnose equilibrium climate sensitivity (ECS) from changes in Earth's energy budget point toward values at the low end of the Intergovernmental Panel on Climate Change Fifth Assessment Report (AR5)'s likely range (1.5–4.5 K). These studies employ observations but still require an element of modelling to infer ECS. I will show that their diagnosed effective ECS over the historical period of around 2 K holds up to scrutiny. I will discuss the evidence that these studies underestimate the true ECS from a doubling of carbon dioxide, looking at how ECS exhibits decadal variability and understanding its role, and the role of forcing, in historic decadal variability and near term projections.