

5.036 What does a 1.5 °C warmer world mean for atmospheric chemistry? .

Early Career Scientist

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Abstract:

One aim to come from the recent COP21 negotiations in Paris was to keep global mean temperature rise this century to well below 2 °C above pre-industrial levels, and to drive efforts towards limiting the temperature increase to 1.5 °C. Our work considers the potential impact of such targets on atmospheric chemistry, including changes in natural emissions from vegetation and lightning, deposition fluxes, stratospheric and meteorological changes that impact air quality (the “climate penalty”). To do this, we draw on the large archive of climate model data from the Coupled Model Intercomparison Project, phase 5 (CMIP5) to examine the spread and robustness of the results. In addition, we demonstrate enhanced climate model agreement when comparing temperature targets (e.g. 2 °C) rather than dates (e.g. 2070-2100).