

Regional and Global Climate Forcings - The Need to Move Beyond a Focus of the Radiative Forcing of the Well-Mixed Greenhouse Gases

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The needed focus for the study of climate forcings is on the regional and local scales. Global averaged forcings are only be important to the extent that they provide useful information on these space scales. Global and zonally-averaged surface temperature trend assessments that are used to assess climate forcings, besides having major difficulties in terms of how this metric is diagnosed and analyzed, do not provide significant information on the climate forcings on the regional scales. Examples of the major role of heterogeneous climate forcings, including how their effects teleconnect globally, will be presented at the meeting.

In terms of climate forcings on the regional and local scale, the IPCC Reports, the CCSP Report on surface and tropospheric temperature trends, and the U.S. National Assessment have overstated the role of the radiative effect of the anthropogenic increase of CO₂ relative to the role of the diversity of other human climate forcing on global warming, and more generally, on climate variability and change.

In addition, the concept of where climate system heat changes fits into the broader perspective of climate variability and change will be discussed. Global warming is not equivalent to climate change. Significant, societally important climate change, due to both natural- and human- climate forcings, can occur without any global warming or cooling.

A conclusion of our research is that to seek to significantly influence regional and local-scale climate based on controlling CO₂ emissions alone is an inadequate policy for this purpose.