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Climate change prediction: Erring on the side of least drama?

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Abstract

Over the past two decades, skeptics of the reality and significance of anthropogenic climate change have frequently accused climate scientists of "alarmism": of over-interpreting or overreacting to evidence of human impacts on the climate system. However, the available evidence suggests that scientists have in fact been conservative in their projections of the impacts of climate change. In particular, we discuss recent studies showing that at least some of the key attributes of global warming from increased atmospheric greenhouse gases have been under-predicted, particularly in IPCC assessments of the physical science, by Working Group I. We also note the less frequent manifestation of over-prediction of key characteristics of climate in such assessments. We suggest, therefore, that scientists are biased not toward alarmism but rather the reverse: toward cautious estimates, where we define caution as erring on the side of less rather than more alarming predictions. We call this tendency "erring on the side of least drama (ESLD)." We explore some cases of ESLD at work, including predictions of Arctic ozone depletion and the possible disintegration of the West Antarctic ice sheet, and suggest some possible causes of this directional bias, including adherence to the scientific norms of restraint, objectivity, skepticism, rationality, dispassion, and moderation. We conclude with suggestions for further work to identify and explore ESLD.

Highlights

▸ Climate scientists are not alarmists but have underestimated recent climate changes. ▸ We identify a directional bias toward erring on the side of least drama (ESLD). ▸ ESLD is an internal pressure arising from norms of objectivity, restraint, etc. ▸ ESLD may cause scientists to underpredict or downplay future climate changes.

Previous article in issue

Next article in issue

Keywords

Climate change; Prediction; Scientific norms; Scientific assessment; Erring on the side of least drama