

## Regarding Anderegg et al. and climate change credibility

The study by Anderegg et al. (1) employed suspect methodology that treated publication metrics as a surrogate for expertise. Credentialed scientists, having devoted much of their careers to a certain area, with multiple relevant peer-reviewed publications, should be deemed core experts, notwithstanding that others are more or less prolific in print or that their views stand in the minority. In the climate change (CC) controversy, a priori, one expects that the much larger and more “politically correct” side would excel in certain publication metrics. They continue to cite each other’s work in an upward spiral of self-affirmation. The authors’ treatment of these deficiencies in *Materials and Methods* was unconvincing in the skewed and politically charged environment of the CC hubbub and where one group is in the vast majority (1). The data hoarding and publication blockade imbroglio was not addressed at all. The authors’ framing of expertise was especially problematic. In a casting pregnant with self-fulfillment, the authors defined number of publications as *expertise* (italics). The italics were then dropped. Morphing the data of metrics into the conclusion of expertise (not italicized) was best supported by explicit argument in the *Discussion* section rather than by subtle wordplay. The same applied to *prominence*, although here the authors’ construct was more aligned with common usage, and of course, prominence does not connote knowledge and correctness in the same way as expertise.

Scientific merit does not derive from the number, productivity, or prominence of those holding a certain view—truth by majority rule or oligarchical fiat. The history of science is replete with views (e.g., a geocentric universe or the immutability of species) that were widely held, held by the most prominent of men, and wrong. Here, we do not have homogeneous consensus absent a few crackpot dissenters. There is variation among the majority, and a minority, with core competency, who question

some underlying premises. It would seem more profitable to critique the scientific evidence than count up scientists, publications, and the like. Policy needs may require action before scientific certainty, but one should not confuse taking a stand with obliteration of the factual and interpretive uncertainties underlying that stand. The majority of climate scientists favor some form of anthropogenic CC (and that view is not disputed here). That they overshadow the small minority of dissenters in certain publication metrics is to be expected as almost tautological.

In the logical fallacy of an ad hominem argument, the characteristics, qualities, or failings of adversaries rather than the merits of their case are argued. Here, the authors addressed the worth of CC critics (and agnostics) as scientists rather than the validity of their science (1). Regarding purely scientific questions, it may be justified to discount nonexperts. However, here, dissenters included established climate researchers. The article undermined their expert standing and then, extrapolated expertise to the more personal credibility. Using these methods to portray certain researchers as not credible and, by implication, to be ignored is highly questionable. Tarring them as individuals by group metrics is unwarranted.

Publication of this article as an objective scientific study does a true disservice to scientific discourse. Prominent scientific journals must focus on scientific merit without sway from extracurricular forces. They must remain cautious about lending their imprimatur to works that seem more about agenda and less about science, more about promoting a certain dogma and less about using all of the evidence to better our understanding of the natural world.

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1. Anderegg WRL, Prall JW, Harold J, Schneider SH (2010) Expert credibility in climate change. *Proc Natl Acad Sci USA* 107:12107–12109.

Author contributions: L.B. wrote the paper.

The author declares no conflict of interest.

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