

Opinion: Joel Smith: There is harm in exaggerating climate change risks

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By Joel B. Smith

Does climate change threaten the existence of our civilization or our existence as a species? Is there a temperature increase beyond which all hell breaks loose?

Before addressing these questions, let me make it clear that the climate is changing because of us; we are on a trajectory to exceed 3 or 4 degrees Celsius of warming above preindustrial levels; there will be many adverse impacts; and reductions to date in greenhouse gas emissions have been woefully inadequate. Therefore, we need to dramatically increase our efforts to reduce and eliminate net greenhouse gas emissions over the coming decades.

Having assessed climate change impacts for more than three decades, and having led the first two Intergovernmental Panel on Climate Change assessments of what levels of climate change may be considered dangerous, it is my contention that we do not need to exaggerate the impacts of climate change. Explaining what the science demonstrates that climate change is already doing and can do in the future should be motivation enough for real action.

The IPCC released a report last fall comparing a 1.5 and 2 degree Celsius warming and concluded 2 degrees warming would pose more harm to society and nature than 1.5 degrees. Nowhere in that report is there any mention of climate change posing an existential risk to society or to humanity itself. Nonetheless, this report and other assessments identify many risks to human health, economic output, and the environment from unmitigated climate change.

There is no single temperature threshold of adverse impacts of climate change. Adverse effects of climate change are already being felt with little more than a 1 degree Celsius increase in temperature over the last century. With each additional increment of warming, adverse impacts tend to increase. But the relationship between warming and impacts can be complex. The impact of climate change on global agriculture is a good example. Crop production is for the most part negatively affected by change in the climate, but the effects of carbon fertilization and adaptation can be positive. This combination of factors makes assessment of agriculture complex. Some studies find that because of carbon fertilization, crop

production could be higher under 2 degrees than 1.5 degrees (but, very importantly, the carbon fertilization effect saturates at higher carbon dioxide concentrations, and thus warming well above 2 degrees is expected to result in reduced crop output). Once the Earth's atmosphere warms by 3 to 4 degrees or more, then the science is clear that we expect many seriously adverse impacts to happen.

So, what is the harm in some exaggeration if it leads to eliminating greenhouse gas emissions? I see several problems. First, this would not be staying true to the best science. Decades of careful scientific research has raised awareness of climate change risks. It is therefore incumbent on us to stick with the best science to help identify the most appropriate solutions. Second, exaggerating the science may lead to some bad outcomes. We risk turning off the public with extremist talk that is not carefully supported by the science. This may be exacerbated by such measures as declarations of climate emergencies. Emergencies are declared by governments to take extraordinary actions. Will such actions be taken? If not, then these declarations are empty gestures, which will lead to cynicism. If yes, then what do governments that have declared emergencies have in mind?

What concerns me most is that posing climate change as a threat to our very existence may lead us to take extreme and reckless measures. Perhaps the most reckless of these is solar geoengineering. For relatively little money, it is entirely feasible for us to inject aerosols into the upper atmosphere to reflect sunlight back into space. But, there are many problems with this approach. Injection of aerosols will disturb weather patterns around the world. This approach will not reduce acidification of the oceans, because CO₂ levels in the atmosphere (much of which gets absorbed by the oceans) will continue to rise. Finally, once we are on the geoengineering path, it will be very hard to get off it, because the repressed warming could snap back.

So, let's keep our heads on by carefully following the science. What we know about climate change already provides sufficient motivation to take ambitious and prudent measures to get control of this problem.

Joel B. Smith, a Boulder resident, was a coordinating lead author and lead author in the last three IPCC assessments, was an author on three U.S. National Climate Assessments, and was co-editor of the USEPA 1989 assessment of climate change impacts on the United States.

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