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OPINION

# Scientists certain human activity causes climate change

**Pick and choose:** Dealing with contrarians using dirty tactics is like a game of whack-a-mole

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**T**he problem with the public conversation about climate change is that not everyone plays by the same rules.

The majority of scientists follow the scientific method — a systematic approach to building knowledge. Starting in the 1820s, scientists began accumulating evidence, through the slow process of hypothesis testing and data collection, that adding carbon dioxide and other heat-trapping greenhouse gases to the atmosphere would warm the planet.

Now, after almost two centuries of research, scientists are as certain that human activity causes climate change as doctors are that cigarette smoking causes cancer.

On the other hand, many opponents of the scientific consensus on climate, like Tom Harris, author of the recent column Climate rhetoric undermines rational decision-making, and executive director of the International Climate Science Coalition, don't need to play by the rules of science.

They can grab onto whatever argument supports their conclusion, regardless of relevance or accuracy. If my students used that approach, they would fail.

For climate scientists, dealing with climate contrarians like Harris and his colleagues is

like playing a game of whack-a-mole.

The very name of Harris' organization is itself a flag of convenience. The organization may use the words "climate science," but it produces nothing of the sort. It is a lobby group devoted to opposing any plans to address climate change and carbon pollution. It does not produce any original science.

His column is a textbook example of the 'dirty' tactics used by many in the contrarian community. It is full of cherry-picked nuggets about carbon dioxide and climate change that sound convincing, but do not hold up to scientific scrutiny.

You can place these in three categories.

First, there are statements which are scientifically meaningless. For example,

Harris suggests that carbon dioxide could not be a pollutant, because it is an invisible gas essential to plants.

In fact, lots of natural, invisible chemicals become dangerous at higher concentrations.

Take nitrate, a form of nitrogen. It is an essential nutrient used by gardeners and farmers to fertilize plants. But put too much in your drinking water, and it becomes an invisible killer.

Second, there are statements that are vaguely true, in general, but irrelevant in this context. This includes the claim that "Past ice ages demonstrate that climate change is normal."

Sure, the climate has changed in the past. However, the ice ages were caused by naturally occurring variations in the earth's orbit that happen during

tens to hundreds of thousands of years. The recent climate change is driven by human activity, and it is occurring at a rate not experienced in the history of human civilization.

Finally, there are the statements that are just plain wrong. The most egregious is the claim, often repeated by climate skeptics, that "global warming" has been "virtually non-existent during the past 17 years."

The planet has not stopped warming. The planet has been adding heat at roughly the same rate for decades, because of our emissions of carbon dioxide and other heat-trapping gases.

During the past decade, more of that heat has gone into the deep ocean, due to natural cycles, so the atmosphere has not steadily broken global surface temperature records. The

vin of that deep ocean heating will soon give way to the yag of atmospheric warming, and Harris and colleagues will be off in search of another flag to fly.

There is, I'll admit, one thing that Harris got right. He ends the column by arguing that "deceptive language is dangerous because it influences millions of people, and ultimately, important government policy."

I agree. I'm tired of this game of whack-a-mole. We need to stop publishing the deliberately deceptive claims of contrarians like Harris, and get on with addressing the challenge of climate change.

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