

## Climate change naysayers going on the offensive

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Climate change deniers are on the offensive.

E-mails with remarkably similar themes claiming that global warming is a hoax have filled my in-box recently. I recently saw fliers at the state Capitol making the same assertions. With the prospects brightening for climate protection legislation, people and organizations opposed to new laws have ramped up their campaigns. Following the model set by the tobacco industry when cancer was linked to smoking, their strategy is to raise doubt about the science of climate change.

One common claim is that despite what computer models say, there is no evidence of global warming. This is nonsense. Rising mean global temperatures have been documented by a great many indicators, not just computer models. For example, surface and satellite measurements, direct observations of sea ice melt and other sources all show that the Earth is undergoing a rapid warming.

Another assertion is that some warming occurred in the last century, but it stopped in 1998 and the Earth is now cooling. Data from the U.S. National Climate Data Center directly refutes this claim. In 2005, the 1998 temperature record was broken, showing that warming did not stop in 1998. More importantly, climate change describes temperature trends over a period of decades, trends that unmistakably show warming. This is different from annual weather patterns, which bounce up and down.

Some deniers accept that the Earth is warming, but claim it is a natural process. The global climate does experience some natural cycles and variations. However, climate scientists rigorously have examined this issue and determined that natural causes such as

volcanic activity and changes in the Earth's orbit cannot explain current warming.

Yet another assertion is that no proof exists that rising carbon dioxide levels cause global warming. Analyses of ice taken from the Greenland and Antarctic ice sheets provide a continuous record going back 1 million years, a record that shows that temperature and the abundance of CO<sub>2</sub> are closely correlated throughout time.

Further, there is no climate theory where rising atmospheric CO<sub>2</sub> levels does not increase global mean temperatures. A "natural greenhouse effect" regulates the Earth's temperature.

Just as the ceiling glass of a vegetable greenhouse traps heat, certain gases — including CO<sub>2</sub>, methane and others — form a heat-trapping "glass ceiling" around the Earth. For millions of years, this ceiling has trapped just enough of the heat leaving the Earth's surface to keep temperatures at livable levels.

Until the industrial revolution began, atmospheric greenhouse gases were relatively stable, averaging between 260 parts per million to 280 parts per million. Today they are 387 ppm, which has intensified the natural greenhouse effect.

Climate scientists are very sure that rising emissions are primarily the result of human burning of fossil fuels and land use changes that depress the Earth's natural ability to sequester CO<sub>2</sub>.

Conspiracy theories also are prevalent. One of the fliers seen in Salem claims that global warming is a hoax perpetuated by those who want to "redistribute wealth." I've received claims that environmental extremists, those who want to regulate industry, and other undesirables promote climate change for selfish reasons.

The leading authority on global warming is the U.N.-sponsored Intergovernmental Panel on Climate Change. Its 2007 report was produced by more than 600 authors from more than 40 countries and reviewed by more than 620 experts and governments. It is considered the most extensively peer-reviewed science document in history.

In addition, virtually every major scientific institution dealing with climate, ocean or atmosphere around the world — from Asia and Australia to Europe, Canada and the United States — agrees that the climate is warming beyond natural variability due primarily to human activities. The many different cultures and political systems within which these organizations exist make it hard to see how they could all be socialists, environmental extremists, or whatever.

What drives climate deniers?

Some are legitimately uncertain about the science. They may have heard the erroneous claims and believe them. Scientifically credible information often helps these individuals make more informed judgments.

For others, climate change is a cultural war. The reality of human-induced climate change threatens their core beliefs about the relationship between people and the Earth, the role of government, or the values upon which society should be based.

But the dominant driver has been an intentional strategy by oil and coal companies.

In his new book “Doubt Is Their Product,” David Michaels, former U.S. assistant secretary of energy for environment, safety and health, shows how ExxonMobil and other fossil fuel companies, and the proxies they fund, have tried relentlessly to create uncertainty through outright denial of well-proven science and constant promotion of misleading claims.

We have the know-how to turn the corner on climate change. Yet the cultural warriors and the fossil fuel industry are willing to put the entire world at risk to protect their ideological and financial interests.

Fortunately, better sense will prevail.

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