Quoting the Heritage Foundation about climate change, as do Ron and Debbie Boggs in their recent “conspiracy theory” editorial, is like quoting Joe Camel about the healthiness of smoking. What the very real scientific consensus on climate change really means: The **burden of proof** lies with those who would disregard mainstream science to deny that the burning of fossil fuels is the primary cause of climate change.

Climate change isn’t just an idea or opinion. It is based on data and understandings that have been accumulating, challenged and reviewed for nearly two centuries. The basic energy balance of the planet was calculated by Joseph Fourier in the early 1800’s. The characteristics of the solar radiation that warms the Earth, and of the radiation Earth emits to cool itself, have been understood since the 1800’s. So have the spectral absorption properties of carbon dioxide.

In fact, 19th century scientists wrote about the possibility of fossil-fuel induced global warming. They lacked, however, the ability to measure the amount of fossil fuels being consumed, the increase of carbon dioxide in the atmosphere, and the resulting increases in temperature of the oceans, ground and air.

Twenty-first century scientists can and do measure these quantities. We know that carbon dioxide is responsible for 35% of the natural greenhouse effect that keeps Earth warm enough for water to be a liquid and for life to survive and thrive. We also know that humans have added an extra 40% more carbon dioxide into the atmosphere beyond the natural maximum.

Carbon dioxide increases that are this big and this fast are totally unnatural. Humans have added more carbon dioxide to the atmosphere since the beginning of the industrial era than the natural differences between ice ages and the intervening warm periods. We have added more than two-thirds of that total during my lifetime. No one should be surprised that the climate is beginning to respond to this rapid increase.

David Carpenter