

United States Senate

Friends,

Thank you for your interest in one of the climate change cards I keep in my pocket.

For me, the graphs on the card are the simplest and clearest way to show not only the unprecedented and growing amount of CO₂ in our atmosphere, but also its close correlation to global temperatures in the past. As our climate continues to change and we strive to adapt, I think it is important that everyone appreciate the context of our situation with respect to data from the past.

Most of the data on the card is from glacial ice cores taken from Greenland and the Antarctic. As CO₂ is distributed evenly around the world, climatologists and chemists have analyzed the air trapped over hundreds of thousands of years in layers of snow as it falls. Ratios of different hydrogen and oxygen isotopes from each layer indicate how warm the atmosphere was when the given layer of snow fell. Measurements taken at climate stations, such as the one on Mauna Loa in Hawaii, provide data for the more recent past. The full data sets, and further discussion, can be found at the following links:

Ice cores: <http://cdiac.ornl.gov/trends/temp/domec/domec.html>

Mauna Loa: <http://www.esrl.noaa.gov/gmd/ccgg/trends/>

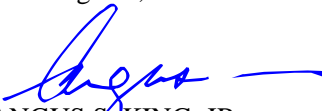
The first graph displays the natural variations in the concentration of CO₂ in our atmosphere over the past eight-hundred thousand years. It shows what is frequently pointed out by those skeptical of the dire nature of our current climate change; that the concentration of CO₂ has risen and fallen over time—between approximately 170 and 300 parts per million (ppm). What it also shows, however, is a sharp increase in atmospheric CO₂ that coincides with the industrial revolution in the mid-1800s—a drastic departure from any cycle or trend in the last million years. Our use of fossil fuels has resulted in atmospheric CO₂ levels that are currently increasing 2ppm each year and will soon surpass 400ppm on a regular basis. As you may know, 350ppm is widely accepted as a level that sustainably avoids catastrophic climate disruption.

The graph on the reverse shows the very close correlation between CO₂ in the atmosphere and average global temperatures. At first glance, one quickly observes that higher levels of CO₂ very closely track higher global temperatures. What got my attention the first time I saw these graphs, and the reason I carry them around to share, is the seeming certainty that with higher and higher levels of CO₂ in our atmosphere, we should anticipate higher and higher average temperatures. This is clear.

Now is the time to address current and near-future climate related challenges. From clean and renewable energy sources, to efficiency technology and standards, to emission-reducing policies and incentives, there are many options at our disposal, many of which can foster economic growth and job creation. Like other complex challenges we have overcome in our past, no one single step will stop or reverse climate change alone; but, in combination, they represent a comprehensive framework that will help us pass on a stable and hospitable climate to future generations. Understanding the changes we are currently on track for, and what is driving them, is the first step.

I frequently discuss the changes that are already afoot, and what might come in the future, with other politicians, business leaders, innovators, community leaders, and people I run into on the street—I'm glad you, too, are interested in continuing the conversation—please share this with your friends, neighbors, and peers. A digital version is here: <http://www.king.senate.gov/download/climate-card>.

Best Regards,

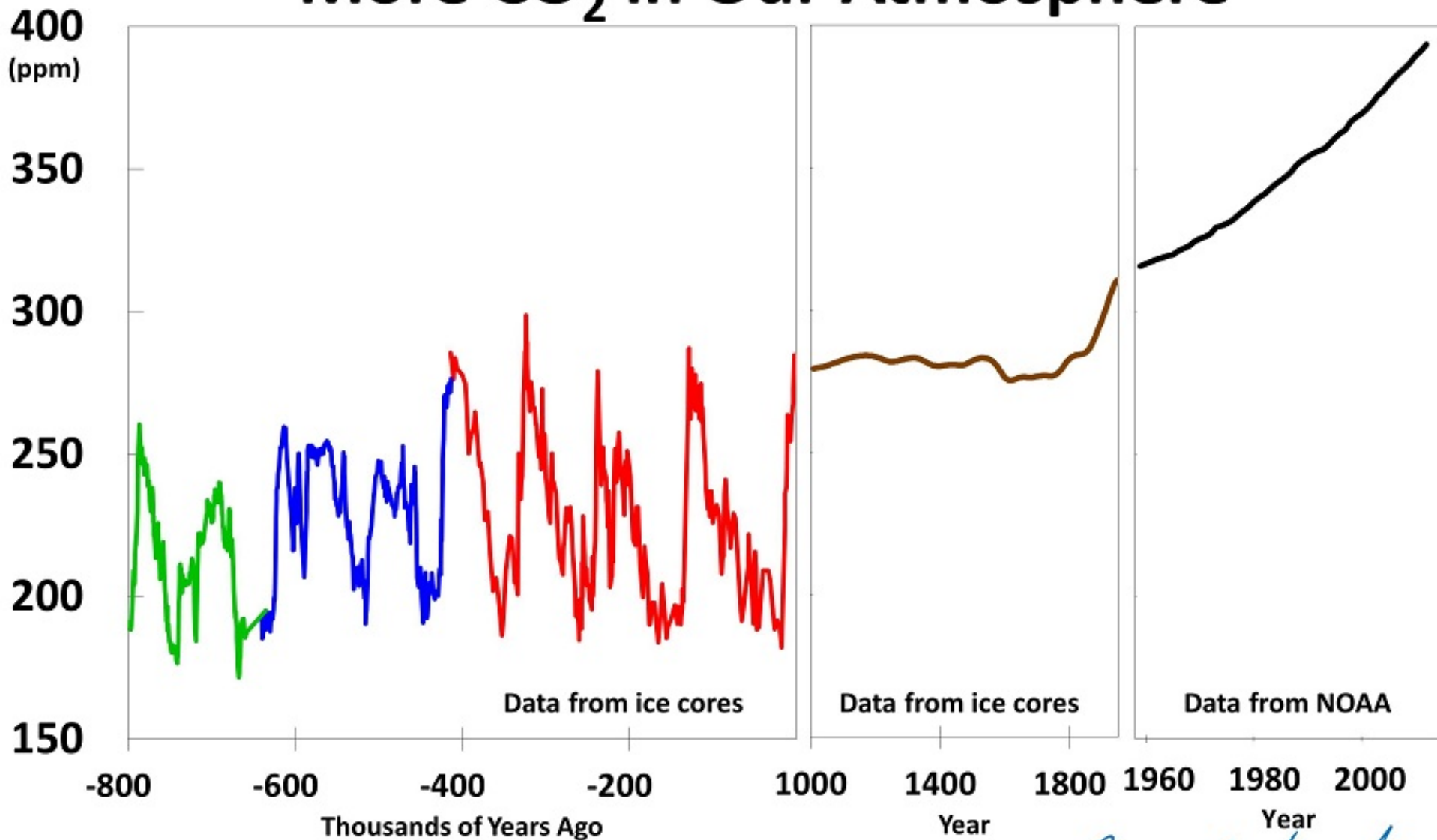


ANGUS S. KING, JR.
United States Senator



<http://www.King.Senate.gov>

More CO₂ in Our Atmosphere



Climate Change in a Nutshell—

August S. King, Jr.

Correlation Between CO₂ and Temperature

