

When it comes to global warming, look at the data

By Linda Swift

No Debate

As a scientist – geologist in my case – I don't understand why there is such a controversy about global warming. But, a few months ago I read a Washington Post opinion piece in this newspaper (March 2) that showed again the confusion around the subject.

We need to get away from the passion and look at some of the data.

First, is the climate warming? Yes. Temperature data show a steady increase since the beginning of the Industrial Revolution (mid 19th century). That is not opinion. It's measured. It's real.

Why is the climate warming? The United Nations Intergovernmental Panel on Climate Change (IPCC, 2007) shows that greenhouse gases are far and away the main cause of warming. With the use of fossil fuels, beginning with the Industrial Revolution, we have added significantly to them. In the same period we've cut down forests to supply wood and paper, and paved over green areas for development, destroying plants that remove carbon dioxide from the atmosphere. Measurements of greenhouse gases show clearly an increase beginning in the mid 19th century, accelerating to today. In other words, humans are the cause. Relative to the naturally occurring carbon dioxide, man hasn't added

enough to matter, right? Nope, sorry, but that is very wrong. Over the past 400,000 years, carbon dioxide values (as measured in ice cores) were never higher than 300 ppm (parts per million). But today, that measurement is 380 ppm. That's huge. And it's still increasing.

The bad news is that temperature is continuing to rise, and appears to be rising faster than predicted even just a few years ago.

But hasn't this happened in the past? Yes, but long before humans, or even most mammals, evolved. A question more to the point is: what has temperature done since humans evolved? During that time, we have had glacial and interglacial periods, with the warmest temperatures about what we have now. With further warming we are moving into uncharted territory from a human perspective.

But what can one or two degrees matter? Although we don't know precisely, we do know that increasing warming affects weather patterns, ocean currents, and sea level, which in turn affect agriculture, coastal areas, storms, water supplies and so forth. Estimates based on increasingly reliable models are that a warming of 1 to 3 degrees C (above 1980-1999 levels) could have some pretty dramatic effects. For example, it would likely put up to 30% of all species at risk of extinction. A rise of about 3 feet in sea level would affect about 100 million people.

What or who is the biggest contributor? The U.S. is the largest contributor to emissions, although China will overtake us very soon, maybe even before year end. In the U.S., 85% of 2005 Greenhouse Gas emissions were from fossil fuels, and most of that for generating power, followed by transportation. Globally, the largest "contributor" is land use change – the loss of forests and other plants.

But what about our economy? A review done by the UK Chancellor of the Exchequer (Stern Review, 2006) showed that the risk to the economy of ignoring global warming was about 5 to 20 times more negative than doing something about it.

So what can we do? Ultimately we need a global response, but as the bumper sticker says, "think globally, act locally". Increasing energy efficiency is low hanging fruit. So use energy efficient lights and appliances, or simply turn them off. Think about solar. Reduce driving, use small cars with high gas mileage, or better still, take public transit. Recycle. Forests are cut to make that paper, and energy used to smelt the metal in the cans. And plant a tree. Plant several trees.

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