

Please Talk with Your Grandfather

Two topics, one old and bedraggled, one important:

1. Swift-Boating

In 1976, with four colleagues, I wrote my first paper on climate (*Science*, **194**, 685-690, 1976). Based on the suggestion of Yuk Yung, one of the co-authors, we examined, for the first time, whether several human-made trace gases might have an important greenhouse effect (until then, only carbon dioxide and chlorofluorocarbons had been considered). We found that methane and nitrous oxide were likely to be important, though measurements of how these gases might be changing were not yet available. Starting then I became interested, very interested, in the Earth's climate; indeed, two years later I resigned as Principal Investigator of an experiment on its way to Venus so that I could devote full time to studies of the Earth's climate.

So it was a bit of a surprise when I began to be inundated a few days ago with reports that I had issued proclamations five years earlier, in 1971, that the Earth was headed into an ice age. Here is how this swift-boating works.

First on 19 September 2007 a Washington Times article by John McCaslin reported that a 9 July 1971 article by Victor Cohn in the Washington Post had been discovered with the title "U.S. Scientist Sees New Ice Age Coming". The scientist, S.I. Rasool, is reported as saying that the world "could be as little as 50 or 60 years away from a disastrous new ice age".

This is an old story: Rasool and (Steve) Schneider published a paper in *Science* on that day noting that if human-made aerosols (small particles in the air) increased by a factor of four, other things being equal, they could cause massive global cooling. At Steve's 60th birthday celebration I argued that the Rasool and Schneider paper was a useful scientific paper, an example of hypothesis testing, in the spirit of good science. But what is the news today?

Mr. McCaslin reported that Rasool and Hansen were colleagues at NASA and "Mr. Rasool came to his chilling conclusions by resorting in part to a new computer program developed by Mr. Hansen that studied clouds above Venus."

What was that program? It was a 'Mie scattering' code I had written to calculate light scattering by spherical particles. Indeed, it was useful for Venus studies, as it helped determine the size and refractive index of the particles in the clouds that veil the surface of Venus. I was glad to let Rasool and Schneider use that program to calculate scattering by aerosols. But Mie scattering functions, although more complex, are like sine and cosine mathematical functions, simply a useful tool for many problems. Allowing this scattering function to be used by other people does not in any way make me responsible for a climate theory.

Yet as this story passes from one swift boater to another it gets juicier and juicier, e.g.:

Global Warming Scientist Once Warned of 'Ice Age' By Doug Ware – KUTV.com

WASHINGTON – A NASA scientist, who is now sounding the alarm over global warming's threat to the planet, once believed that pumping too many greenhouse gases into the air would have the opposite effect – a modern day ice age.

James Hansen is currently among scientists who believe that carbon dioxide emissions are warming the planet's atmosphere – posing a grave threat to the environment and humans'

ability to adapt to it. Many others – like public preachers Al Gore and Leonardo DiCaprio – share the same view in what seems to be the “hot button” issue of the moment.

But 36 years ago, it appears, Hansen had a completely different warning – in what may be the scientific equivalent of a grandiose political ‘flip-flop’.

In a Washington Post story dated July 9, 1971, Hansen – then a research associate at Columbia University – warned of a modern day ice age, which would cause the planet’s temperature to plummet as many as six degrees.

The reason, he said then, was a fine dust emitted into the air via carbon dioxide pollution that would eventually become so dense that it would block sunlight and result in cooler temperatures – a scenario exactly the opposite of what leading climatologists say is happening now, that greenhouse gases are trapping heat inside the Earth’s atmosphere.

Hansen and one of his research partners believed that the problem was so severe that the “ice age” could happen between five and ten years after the report – putting the prediction for extreme global cooling between about 1976 and 1981.

It didn’t happen.

Now a scientist for NASA, Hansen is facing criticism by some for an immense change of heart. How could he have predicted something so importunate at the time – only to make a 180-degree turn 35 years later, and completely head in the opposite direction?

In fact the 1971 report even claims that Hansen and his associate dismissed the idea of global warming.

“They found no need to worry about the carbon dioxide that fuel-burning puts in the atmosphere,” the Washington Post report said.

It is little wonder that I have been getting nasty e-mails the past several days. But enough of swift-boating. There is another dirty trick that is more important.

2. Please Talk with Your Grandfather

The bottom line of talks that I have been giving recently on global warming concerns the generational inequity. Those making the mess are not the ones who will pay – it is their children and grandchildren. I note that the people best able to solve the problem are the “captains of industry”. If, rather than buying influence in government aimed at resisting change and rather than encouraging swift-boaters and contrarians, they would instead influence government to point the country in an economically sensible way toward the inevitable future “beyond fossil fuels”, the global warming problem could be solved readily.¹

For whatever reasons, our captains have chosen to emphasize short-term profits. The captains are not stupid, though. They did not get to be the CEOs without being pretty smart. Thus is born a strategy to appeal to them through their grandchildren. Now here is the dirty trick that some of them are coming up with, which is much more effective than swift-boating, indeed,

¹ As I have noted elsewhere, that requires two fundamental actions: (1) a moratorium on new coal-fired power plants until technology is ready that actually captures and sequesters the CO₂, with phase-out of old-technology plants in coming decades, (2) a gradually rising price on carbon emissions. These two fundamental requirements must be supported by many actions that encourage energy efficiency, and renewable and CO₂-free energies, e.g., utilities should be rewarded based on energy and carbon efficiencies, not on the amount of energy that they sell.

at present it may be the greatest threat to the planet: they pretend to acknowledge global warming and pretend to be doing something about it.

One now sees advertisements by EXXON/Mobil, and other giants, to the effect that they have become “green”. And personal statements of CEOs often acknowledge the reality of global warming and its potential importance. Nobody wants to be remembered as a dinosaur, as a crook who stole from future generations. But it turns out that the fraction of their huge resources devoted to becoming an energy company, as opposed to a fossil fuel company, is minuscule.

This pretending to acknowledge global warming while continuing business-as-usual serves mainly to cover one’s backside. Such people may feel better, having eased their consciences.

So the task is back to you, young people. Let your parents and grandparents know that you understand posturing. Appealing on a personal level and expecting accountability can still be effective. Don’t let them off the hook.

“Hey, Grandfather, it’s my planet too!”

Of course, these are just my personal opinions.

Jim Hansen