CLIMATE CHANGE: Deniers Jump on NASA Gaffe, While Greenland on Verge of Meltdown

by Stephen Leahy via reed - IPS *Thursday, Aug 16 2007, 11:31pm*
international / environment / other press

> TORONTO, Aug 16 (IPS) - Scientists warn that climate change tipping points are imminent, and will lead to potentially catastrophic events like a seven-metre sea level rise. Meanwhile, conservatives in the North American media are focusing on a NASA admission of a climate calculation error.

First the error.

U.S. and Canadian mainstream media and Internet news sites devoted tens of thousands of words over the past week to NASA's Goddard Institute for Space Studies admission that it made a calculation error ranking 1998 as the warmest year on record in the United States when it should have been 1934.

While the difference is only a few hundredths of a degree, the climate change deniers variously cite this as evidence of NASA (U.S. National Aeronautics and Space Administration) incompetence and cover-up, and more proof that global warming is a hoax.

The neo-conservative U.S. network Fox News reported Aug. 9 that "the discovery of an embarrassing temperature error rained on their (the 'alarmists') parade." Canada's National Post on Monday said the reasons given for climate change "hysteria" were "no longer true".

The Washington Post and the Toronto Star both noted the reaction of conservatives in the media and in the blogosphere, including outspoken radio talk-show host Rush Limbaugh, who said: "We have proof of man-made global warming. The man-made global warming is inside NASA. The man-made global warming is in the scientific community with false data."

Forgotten in all this is that U.S. temperatures are only a small part of the global mean average temperatures, which remain unchanged even with NASA's re-calculation. Nine of the 10 hottest years globally have occurred in the last decade, although that is not the case in the United States, where there were several very warm years in the 1930s.

Now the warning: The complete collapse of the massive Greenland Ice Sheet -- which has a mean height of about two kilometres -- now appears inevitable, and could raise sea levels seven metres.

"It's a sobering message, I think," says Tim Lenton, of the School of Environmental Sciences at Britain's University of East Anglia.

Lenton's research group surveyed climate and glacial experts around the world and the consensus is that the recent evidence shows that rising temperatures will soon reach the Greenland Ice Sheet's "tipping point", where it will break up within 300 years, raising sea levels by seven metres and flooding millions out their homes long before the year 2300.

Recent calculations show the Greenland collapse could be triggered by temperature rise of just 1 degree Celsius warmer than today. This is an example of what scientists call a "non-linear response", in which a small change can make a big difference, more commonly described as "tipping points".

And this point is coming much sooner than it looks. Due to a time lag in the atmospheric warming response, even if there were no more greenhouse gas emissions from this day forward, temperatures would still rise another 0.6 degrees Celsius.

"I don't want to say the Greenland meltdown is inevitable, but it will be very difficult to avoid," Lenton told IPS.

James Hansen, head of NASA's Goddard Institute for Space Studies, believes that without drastic international efforts, a sea level rise of up to five metres is possible before the end of this century.

"In my opinion, if the world warms by 2 to 3 degrees Celsius, such massive sea level rise is inevitable, and a substantial fraction of the rise would occur within a century," Hansen wrote in the Jul. 25 issue of New Scientist magazine.

He notes that the last time the Earth was that much warmer was around three million years ago: "It was a dramatically different planet then, with no Arctic sea ice in the warm seasons and sea level about 25 metres higher, give or take 10 metres."

This Northern Hemisphere summer, the amount of sea ice in the Arctic is 30 percent lower than normal, and is expected to be the lowest ever recorded, the U.S. National Snow and Ice Data Centre (NSIDC) reported last week. It may be that the Arctic sea ice has already passed its tipping point, in which warming temperatures and a "positive ice-albedo feedback" (ice reflectivity) will inevitably result in less and less ice until the Arctic is ice-free in the summer, says Lenton.

While sea ice does not result in sea level rise, it adds more fresh, cold water to the North Atlantic which, along with massive amounts of Greenland Ice Sheet meltwater, has the potential to slow or reverse the Atlantic Ocean thermohaline circulation (THC).

The THC, sometimes called the ocean conveyor belt, drives the deep currents in the oceans around the world. In the Atlantic Ocean, warm waters from the Gulf of Mexico are transported north-east to help moderate temperatures in the British Isles, Ireland and Northern Europe.

The THC is another potential climate tipping point where a rapid shift could occur. If the Atlantic THC reversed, not only would Northern Europe cool, the southern oceans around Antarctica would warm, according to Lenton's analysis soon to be published.

"It's a case of 'domino dynamics'. These are interrelated systems where a change in one affects the others," he said.

A warmer Southern Ocean will rapidly accelerate the current slow rate of melting of the vast West Antarctic ice sheet. A complete collapse of that ice sheet would raise sea levels an additional four to six metres, but that point is unlikely to be reached for another 300 years.

Global temperature rise between 3 to 6 C degrees will not only melt a lot of ice, it will greatly strengthen the El Niño Southern Oscillation, research shows. Among its impacts will be severe droughts in South-east Asia, the Amazon and elsewhere. El Niño is a cyclical climate phenomenon arising from a warm Pacific Ocean surface current travelling from west to east.

The Intergovernmental Panel on Climate Change estimates a temperature rise this century of at least 1.4 C to as much as 6.4 C degrees in its 2007 assessment report.

"The Indian summer monsoon system could also be in for a rocky ride this century," says Lenton. The Indian monsoon system appears to be sensitive to changes in conditions, switching on and off unpredictably with climate change and affecting millions of people.

Of all these potential events, the melting of Greenland Ice Sheet is both the first and most likely tipping point we will reach. Preparations for coping and adapting to the resulting sea level rise would have to begin now. In addition, strict mitigation efforts are also needed to reduce both the speed and extent of sea level rise and to avoid crossing other potential tipping points, he said.

The public and policy-makers need to be aware of this non-linearity -- that climate change impacts will not be gradual. "Change can come quickly and with a huge escalation in damages and costs," Lenton warns.

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