Common Dreams NEWS CENTER
Breaking News & Views for the Progressive Community
www.commondreams.org

*Published on Friday, February 17, 2006, by the Independent/UK*

# Climate Change: On the Edge

## Greenland Ice Cap Breaking Up at Twice the Rate It Was Five Years Ago, Says Scientist Bush Tried to Gag

**by Jim Hansen**

A satellite study of the Greenland ice cap shows that it is melting far faster than scientists had feared - twice as much ice is going into the sea as it was five years ago. The implications for rising sea levels - and climate change - could be dramatic.

Yet, a few weeks ago, when I - a NASA climate scientist - tried to talk to the media about these issues following a lecture I had given calling for prompt reductions in the emission of greenhouse gases, the NASA public affairs team - staffed by political appointees from the Bush administration - tried to stop me doing so. I was not happy with that, and I ignored the restrictions. The first line of NASA 's mission is to understand and protect the planet.

This new satellite data is a remarkable advance. We are seeing for the first time the detailed behavior of the ice streams that are draining the Greenland ice sheet. They show that Greenland seems to be losing at least 200 cubic kilometers of ice a year. It is different from even two years ago, when people still said the ice sheet was in balance.

Hundreds of cubic kilometers sounds like a lot of ice. But this is just the beginning. Once a sheet starts to disintegrate, it can reach a tipping point beyond which break-up is explosively rapid. The issue is how close we are getting to that tipping point. The summer of 2005 broke all records for melting in Greenland. So we may be on the edge.

Our understanding of what is going on is very new. Today's forecasts of sea-level rise use climate models of the ice sheets that say they can only disintegrate over a thousand years or more. But we can now see that the models are almost worthless. They treat the ice sheets like a single block of ice that will slowly melt. But what is happening is much more dynamic.

Once the ice starts to melt at the surface, it forms lakes that empty down crevasses to the bottom of the ice. You get rivers of water underneath the ice. And the ice slides towards the ocean.

Our NASA scientists have measured this in Greenland. And once these ice streams start moving, their influence stretches right to the interior of the ice sheet. Building an ice sheet takes a long time, because it is limited by snowfall. But destroying it can be explosively rapid.

How fast can this go? Right now, I think our best measure is what happened in the past. We know that, for instance, 14,000 years ago sea levels rose by 20m in 400 years - that is five meters in a century. This was towards the end of the last ice age, so there was more ice around. But, on the other hand, temperatures were not warming as fast as today.

How far can it go? The last time the world was three degrees warmer than today - which is what we expect later this century - sea levels were 25m higher. So that is what we can look forward to if we don't act soon. None of the current climate and ice models predict this. But I prefer the evidence from the Earth's history and my own eyes. I think sea-level rise is going to be the big issue soon, more even than warming itself.

It's hard to say what the world will be like if this happens. It would be another planet. You could imagine great armadas of icebergs breaking off Greenland and melting as they float south. And, of course, huge areas being flooded.

How long have we got? We have to stabilize emissions of carbon dioxide within a decade, or temperatures will warm by more than one degree. That will be warmer than it has been for half a million years, and many things could become unstoppable. If we are to stop that, we cannot wait for new technologies like capturing emissions from burning coal. We have to act with what we have. This decade, that means focusing on energy efficiency and renewable sources of energy that do not burn carbon. We don't have much time left.

*Jim Hansen, the director of the NASA Goddard Institute for Space Studies in New York, is President George Bush's top climate modeller.*



###