

Study: Southern Ocean saturated with CO2

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WASHINGTON (Reuters) -- The Southern Ocean around Antarctica is so loaded with carbon dioxide that it can barely absorb any more, so more of the gas will stay in the atmosphere to warm up the planet, scientists reported Thursday.

Human activity is the main culprit, said researcher Corinne Le Quere, who called the finding very alarming.

The phenomenon wasn't expected to be apparent for decades, Le Quere said in a telephone interview from the University of East Anglia in Britain.

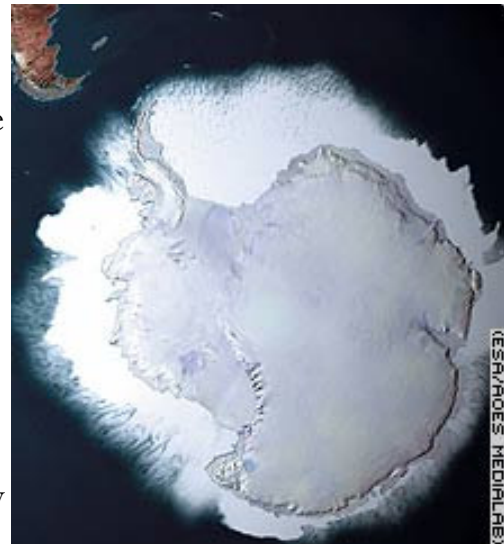
"We thought we would be able to detect these only the second half of this century, say 2050 or so," she said. But data from 1981 through 2004 show the sink is already full of carbon dioxide. "So I find this really quite alarming."

The Southern Ocean is one of the world's biggest reservoirs of carbon, known as a carbon sink. When carbon is in a sink -- whether it's an ocean or a forest, both of which can lock up carbon dioxide -- it stays out of the atmosphere and does not contribute to global warming.

The new research, published in the latest edition of the journal *Science*, indicates that the Southern Ocean has been saturated with carbon dioxide at least since the 1980s.

This is significant because the Southern Ocean accounts for 15 percent of the global carbon sink, Le Quere said.

Increased winds over the last half-century are to blame for the change, Le Quere said. These winds blend the carbon dioxide throughout the Southern Ocean, mixing the naturally occurring carbon that usually stays deep down with the human-caused carbon.



The Southern Ocean around Antarctica is one of the world's biggest reservoirs of carbon.

When natural carbon is brought up to the surface by the winds, it is harder for the Southern Ocean to accommodate more human-generated carbon, which comes from factories, coal-fired power plants and petroleum-powered motor vehicle exhaust.

The winds themselves are caused by two separate human factors.

First, the human-spawned ozone depletion in the upper atmosphere over the Southern Ocean has created large changes in temperature throughout the atmosphere, Le Quere said.

Second, the uneven nature of global warming has produced higher temperatures in the northern parts of the world than in the south, which has also made the winds accelerate in the Southern Ocean.

"Since the beginning of the industrial revolution the world's oceans have absorbed about a quarter of the 500 gigatons of carbon emitted into the atmosphere by humans," Chris Rapley of the British Antarctic Survey said in a statement.

"The possibility that in a warmer world the Southern Ocean -- the strongest ocean sink -- is weakening is a cause for concern," Rapley said.

Another sign of warming in the Antarctic was reported Tuesday by NASA, which found vast areas of snow melted on the southern continent in 2005 in a process that may accelerate invisible melting deep beneath the surface.