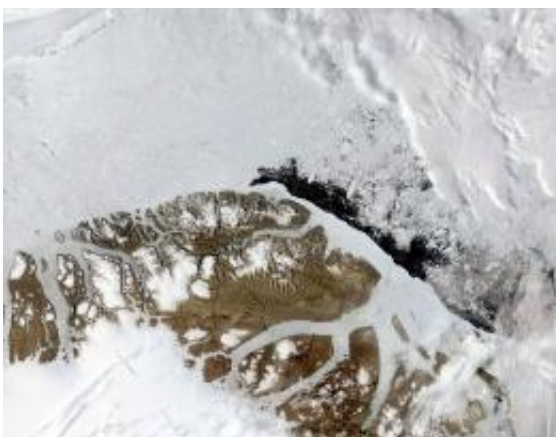


Has warming put 'Dirty Dozen' pollutants back in the saddle?

July 24 2011



Broken ice floes in the Arctic Ocean off the northern coast of Greenland in 2004. "Dirty Dozen" chemicals, including the notoriously toxic DDT, are being freed from Arctic sea ice and snow through global warming, a study published on Sunday suggested.

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The "Dirty Dozen" -- formally known as [persistent organic pollutants](#) (POPs) -- were widely used as insecticides and pesticides before being outlawed in 2001.

They are extremely tough molecules that take decades to break down in

nature. They also bio-accumulate, meaning that as they pass up the food chain, concentrations rise, posing a fertility threat to higher species.

In addition, they are insoluble in water and easily revolatilise, so can swiftly transit from soil and water to the atmosphere in response to higher temperatures.

The study, published in the scientific journal *Nature Climate Change*, looked at atmospheric concentrations of three chemicals -- DDT, HCH and cis-chlordane -- monitored between 1993 and 2009 at a station in Norway's Svalbard Islands and at another in the [Canadian Arctic](#).

The scientists indeed found a long-term downward trend in primary emissions after the Stockholm Convention banned production and trade in the "Dirty Dozen."

But a more complex and disturbing picture emerged when the same data was crunched through a simulation of the effect of global warming on POP concentrations.

It found a slight rise in secondary emissions, from POPs that had been locked in [Arctic ice](#) and snow but were now being gradually released because of warming.

"A wide range of POPs have been remobilised into the Arctic atmosphere over the past two decades as a result of [climate change](#)," said the study, led by Jianmin Ma of the agency Environment Canada in Toronto.

[Arctic warming](#) "could undermine global efforts to reduce environmental and human exposure to these [toxic chemicals](#)," it warned.

Pollution specialist Jordi Dachs of the Institute of Environmental

Assessment and Water Research in Barcelona, Spain, said this news was grim.

The Arctic has been hit two or three times harder than other parts of the planet for warming, and thus could be the forerunner for POP releases from other stores, including the soil and deep ocean.

"It seems likely that persistent pollutants will affect the environment on even longer timescales than currently assumed," said Dachs.

"The remobilisation of pollutants generated by our grandparents... are unwanted witnesses to our environmental past that now seem to be 'coming in from the cold.'"

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