

7 December 2005, 11:10 GMT



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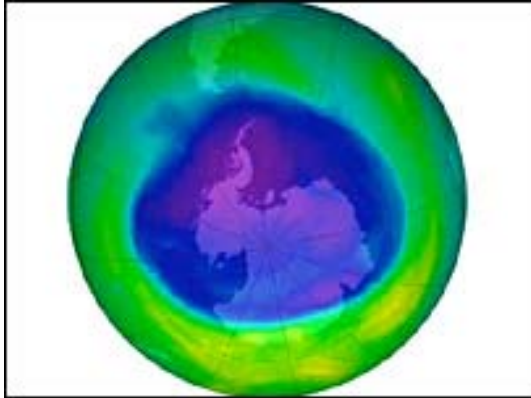


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Delay expected in ozone recovery

By Jonathan Amos

BBC News science reporter, San Francisco



The ozone hole over Antarctica in 2005 was one of the largest

It could take far longer than expected for the ozone "hole" over Antarctica to repair itself, scientists have said.

New research from the US and Canada indicates ozone-eating chemicals are still being released into the atmosphere in large quantities.

The latest modelling predicts the protective gas layer found in the stratosphere will not now recover its health until about the year 2065.

This is a more than a decade later than previous forecasts.

"The reservoirs of ozone-depleting chemicals found in old fridges and air-conditioning systems may be greater than anticipated, and if this continues into the future then the projection of ozone hole recovery in 2050 may have to be extended," said Dale Hurst, from the US National Oceanic and Atmospheric Administration (Noaa).

He was speaking here at the Fall Meeting of the American Geophysical Union.

Dr Hurst was reporting the results of scientific flights through US and Canadian airspace which sampled the atmosphere for the presence of chlorine- and bromine-containing chemicals.

CFC curbs

The production of these halocarbons, as they are known, was restricted by the Montreal Protocol which became effective in 1987 - and it has been very successful.

But the sharp falls in global emissions seen in the early years of the treaty are now levelling off; and it is becoming clear that some chlorofluorocarbons (CFCs), for example, which should have been exhausted in developed countries by now, are still in wide use.



The ozone layer filters out harmful ultra-violet radiation from the sun

"It should be noted of course that CFCs have extremely long lifetimes in the atmosphere," explained Paul Newman, from the US space agency's Goddard Space Flight Center.

"CFC-11 (a foam-blowing agent) has a lifetime of 11 years and CFC-12 (a refrigerant) has a lifetime of 100 years, so they are in the atmosphere for a very long time."

Ozone is a molecule that is composed of three oxygen atoms. It is responsible for filtering out harmful ultra-violet radiation (less than 290 nanometres) from the Sun.

The gas is constantly being made and destroyed in the stratosphere, about 30 km above the Earth. In an unpolluted atmosphere, this cycle of production and decomposition is in equilibrium.

But CFCs and the other Montreal-restricted chemicals will rise into the stratosphere where they are broken down by the Sun's rays. Chlorine and bromine atoms released from the man-made products then act as catalysts to decompose

ozone.

This year's Antarctic ozone hole was among the biggest ever recorded, extending over an area of about 26 million square km.

The thinning that occurs over the Arctic has never matched that in the southern polar region and it is expected to recover sooner, sometime between 2030 and 2040.