1
00:00:00,010 --> 00:00:04,000
A new NASA study takes a closer look at a group of

2
00:00:04,020 --> 00:00:08,000
chemicals once thought to be harmless to Earth's ozone layer.

3
00:00:08,020 --> 00:00:12,010
Hydrofluorocarbons, or HFCs, are synthetic chemicals found in common

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00:00:12,030 --> 00:00:16,010
household items like refrigerators and air conditioners. They were

5
00:00:16,030 --> 00:00:20,020
created to replace chlorofluorocarbons, a group of ozone-depleting

6
00:00:20,040 --> 00:00:24,030
chemicals found to cause the ozone hole over Antarctica.

7
00:00:24,050 --> 00:00:28,040
But NASA scientists now reveal that HFCs also contribute

8
00:00:28,060 --> 00:00:32,050
to ozone depletion. HFCs were thought to be "ozone-friendly"

9
00:00:32,070 --> 00:00:36,050
because they don"t contain chlorine atoms, which destroy ozone molecules.

10
00:00:36,070 --> 00:00:40,060
Our study is the first to show that as HFC levels

11
00:00:40,080 --> 00:00:44,080
increase, they'll have a weak but measurable effect on the ozone layer.

12
00:00:44,100 --> 00:00:48,080
HFCs trap heat in the atmosphere, raising temperatures.

13
00:00:48,100 --> 00:00:52,090

In the stratosphere, which contains the protective ozone layer,

14
00:00:52,110 --> 00:00:56,100
this warming speeds up chemical reactions that deplete ozone.

15
00:00:56,120 --> 00:01:00,110
Atmospheric concentrations of these chemicals are currently growing around 7

16
00:01:00,130 --> 00:01:04,120
percent a year and are projected to be over 17 times higher by 2050.

17
00:01:04,140 --> 00:01:08,130
Using a NASA computer model, the scientists simulated

18
00:01:08,150 --> 00:01:12,140
the impact of HFCs on the ozone layer. They found

19
00:01:12,160 --> 00:01:16,140
that HFCs will reduce global ozone levels by 0.035%

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00:01:16,160 --> 00:01:20,150
by the year 2050. The ozone

21
00:01:20,170 --> 00:01:24,170
depletion that we calculated was small, but about 100 times larger than

22
00:01:24,190 --> 00:01:28,190
a previous estimate. Studies show an increase in HFC levels

23
00:01:28,210 --> 00:01:32,200
will affect more than the ozone layer. HFCs are strong greenhouse gases

24
00:01:32,220 --> 00:01:36,210
that contribute to the warming of the planet. By the year 2050,

25
00:01:36,230 --> 00:01:40,220
their contribution to global warming could be as large as

26
00:01:40,240 --> 00:01:44,220
20 percent that of carbon dioxide. Now that we better understand

27
00:01:44,240 --> 00:01:48,230
the impacts of these particular greenhouse gases on the ozone layer, our