



1
00:00:00,000 --> 00:00:02,970
Say goodbye to large ozone holes.

2
00:00:02,990 --> 00:00:05,370
A new study from NASA scientists

3
00:00:05,390 --> 00:00:07,810
suggests by the year 2040,

4
00:00:07,830 --> 00:00:10,930
the Antarctic ozone hole will be permanently smaller

5
00:00:10,950 --> 00:00:12,590
than the giant holes of today.

6
00:00:12,820 --> 00:00:14,430
Since the early 90s,

7
00:00:14,450 --> 00:00:18,180
observed hole sizes have been larger than 12 million square miles

8
00:00:18,200 --> 00:00:20,900
with exact sizes changing each year.

9
00:00:21,140 --> 00:00:26,180
The ozone hole is a seasonal thinning of the ozone layer over Antarctica.

10
00:00:26,200 --> 00:00:29,040
The ozone hole size varies in part due to

11
00:00:29,060 --> 00:00:32,090
levels of ozone-depleting chemicals in the atmosphere.

12
00:00:32,250 --> 00:00:34,900
Man-made chemicals that destroy ozone

13
00:00:34,920 --> 00:00:37,640

are transported from the equator to the poles.

14

00:00:37,660 --> 00:00:41,640

In the Southern Hemisphere, they are trapped by the winds of the polar vortex,

15

00:00:41,660 --> 00:00:45,270

a ring of fast-moving air that circles the South Pole.

16

00:00:45,290 --> 00:00:50,030

Although levels of these chemicals have been declining since the late 1990s

17

00:00:50,050 --> 00:00:51,440

due to the Montreal Protocol

18

00:00:51,460 --> 00:00:54,140

they will remain in the atmosphere for years,

19

00:00:54,160 --> 00:00:56,910

affecting ozone levels well into the century.

20

00:00:56,930 --> 00:00:59,640

High in the atmosphere, the chemicals react

21

00:00:59,660 --> 00:01:02,040

with sheets of iridescent ice clouds

22

00:01:02,060 --> 00:01:04,560

which trigger the destruction of ozone.■■■■■■■

23

00:01:04,580 --> 00:01:06,540

In years with warm temperatures,

24

00:01:06,560 --> 00:01:10,170

fewer ice clouds form, resulting in holes that are smaller.

25

00:01:10,190 --> 00:01:11,990

In years with cold temperatures,

26

00:01:12,010 --> 00:01:15,430

more ice clouds form, resulting in holes that are larger.

27

00:01:15,450 --> 00:01:19,670

But in order to understand how hole sizes will change in the future,

28

00:01:19,690 --> 00:01:22,110

scientists needed a more accurate picture

29

00:01:22,130 --> 00:01:25,190

of levels of man-made chemicals in the atmosphere.

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00:01:25,210 --> 00:01:28,490

Using NASA's AURA satellite, scientists determined

31

00:01:28,510 --> 00:01:32,510

how chemical levels in the ozone hole, varied each year.

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00:01:32,530 --> 00:01:35,700

With this new information, we can look into the future

33

00:01:35,720 --> 00:01:38,130

and say with confidence that ozone holes

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00:01:38,150 --> 00:01:42,350

will be consistently smaller than 8 million square miles by 2040.