



1
00:00:19,109 --> 00:00:16,550
ozone is an invisible upper atmospheric

2
00:00:21,670 --> 00:00:19,119
gas that protects all forms of life on

3
00:00:23,189 --> 00:00:21,680
earth for most of the sun's damaging

4
00:00:28,070 --> 00:00:23,199
radiation

5
00:00:29,109 --> 00:00:28,080
damage and suppression of the immune

6
00:00:31,269 --> 00:00:29,119
system

7
00:00:33,110 --> 00:00:31,279
the harvesting of fish and plant life

8
00:00:35,590 --> 00:00:33,120
are also affected

9
00:00:39,190 --> 00:00:35,600
a vast amount of aquatic life has its

10
00:00:41,510 --> 00:00:39,200
beginnings in the oceans near antarctica

11
00:00:44,389 --> 00:00:41,520
false color imagery of the south pole

12
00:00:46,549 --> 00:00:44,399
from nasa's nimbus-7 satellite provides

13
00:00:48,630 --> 00:00:46,559

scientists with a road map of daily

14

00:00:50,549 --> 00:00:48,640

changes in the ozone

15

00:00:53,590 --> 00:00:50,559

by tracking this imagery for the past

16

00:00:56,229 --> 00:00:53,600

nine years they have discovered a trend

17

00:00:58,549 --> 00:00:56,239

each spring over antarctica a hole in

18

00:01:01,189 --> 00:00:58,559

the ozone develops and it has been

19

00:01:03,590 --> 00:01:01,199

getting larger year by year

20

00:01:06,789 --> 00:01:03,600

to date as much as 50 to 60 percent of

21

00:01:08,950 --> 00:01:06,799

the ozone in this area has been lost

22

00:01:14,710 --> 00:01:08,960

these discoveries prompted a coordinated

23

00:01:20,149 --> 00:01:17,270

including some 150 scientists and

24

00:01:22,469 --> 00:01:20,159

engineers from nasa the national oceanic

25

00:01:24,950 --> 00:01:22,479

and atmospheric administration national

26
00:01:27,350 --> 00:01:24,960
science foundation and industry worked

27
00:01:29,830 --> 00:01:27,360
together for four months to study this

28
00:01:32,149 --> 00:01:29,840
alarming environmental issue

29
00:01:34,550 --> 00:01:32,159
scientists used ground-based instruments

30
00:01:37,190 --> 00:01:34,560
and launched balloon-borne payloads to

31
00:01:38,710 --> 00:01:37,200
sample air chemistry at mcmurdo station

32
00:01:41,510 --> 00:01:38,720
in antarctica

33
00:01:44,389 --> 00:01:41,520
at the same time nasa's dc-8 flying

34
00:01:47,030 --> 00:01:44,399
laboratory studied the lower atmosphere

35
00:01:50,310 --> 00:01:47,040
making long missions from punta arenas

36
00:01:53,590 --> 00:01:50,320
chile into the area of ozone depletion

37
00:01:56,069 --> 00:01:53,600
nasa's high-flying er-2 plane carrying a

38
00:01:58,469 --> 00:01:56,079

single pilot and a handful of sampling

39

00:02:00,469 --> 00:01:58,479

instruments flew directly into a layer

40

00:02:01,990 --> 00:02:00,479

of atmosphere where the ozone was

41

00:02:03,990 --> 00:02:02,000

depleted

42

00:02:06,310 --> 00:02:04,000

a number of activities contributing to

43

00:02:08,790 --> 00:02:06,320

ozone loss have been pinpointed by the

44

00:02:11,110 --> 00:02:08,800

scientific and policy community

45

00:02:14,710 --> 00:02:11,120

no longer do canned aerosol products

46

00:02:16,710 --> 00:02:14,720

contain chlorofluorocarbons or cfcs but

47

00:02:18,790 --> 00:02:16,720

these harmful gases still get into the

48

00:02:21,190 --> 00:02:18,800

atmosphere because they are used as

49

00:02:23,510 --> 00:02:21,200

refrigerants fire retardants foam

50

00:02:26,070 --> 00:02:23,520

blowing agents and solvents

51
00:02:27,830 --> 00:02:26,080
as long as this persists ozone will

52
00:02:30,150 --> 00:02:27,840
continue to be lost

53
00:02:32,390 --> 00:02:30,160
initial findings from the summer's ozone

54
00:02:35,190 --> 00:02:32,400
expedition verify that there is a

55
00:02:37,350 --> 00:02:35,200
complex interplay between cfcs

56
00:02:39,270 --> 00:02:37,360
chlorine-containing gases and the

57
00:02:40,390 --> 00:02:39,280
meteorology in certain parts of the

58
00:02:42,470 --> 00:02:40,400
world

59
00:02:45,270 --> 00:02:42,480
ice crystals in the upper atmosphere

60
00:02:47,030 --> 00:02:45,280
convert the gases into a by-product that

61
00:02:49,270 --> 00:02:47,040
destroys ozone

62
00:02:51,509 --> 00:02:49,280
these ice crystals usually only form in

63
00:02:54,390 --> 00:02:51,519

the atmosphere of the south pole because

64

00:02:55,670 --> 00:02:54,400

it gets so cold this may explain why

65

00:02:58,470 --> 00:02:55,680

other parts of the world aren't

66

00:03:00,470 --> 00:02:58,480

dramatically affected by the depletion

67

00:03:02,869 --> 00:03:00,480

scientists still do not understand all

68

00:03:05,030 --> 00:03:02,879

the mechanisms of change but thanks to

69

00:03:07,190 --> 00:03:05,040

the work of so many we will soon have a

70

00:03:09,190 --> 00:03:07,200

more complete understanding of ozone

71

00:03:10,390 --> 00:03:09,200

loss and its threat to the world

72

00:03:13,030 --> 00:03:10,400

environment

73

00:03:15,589 --> 00:03:13,040

in the early 1990s a new generation of