1
00:00:18,380 --> 00:00:15,799
ozone is an invisible upper atmospheric

2
00:00:20,720 --> 00:00:18,390
gas that protects all forms of life on

3
00:00:24,050 --> 00:00:20,730
earth for most of the sun's damaging

4
00:00:26,990 --> 00:00:24,060
radiation radiation that can cause skin

5
00:00:29,960 --> 00:00:27,000
cancer I damage and suppression of the

6
00:00:33,020 --> 00:00:29,970
immune system the harvesting of fish and

7
00:00:35,000 --> 00:00:33,030
plant life are also affected a vast

8
00:00:38,020 --> 00:00:35,010
amount of aquatic life has its

9
00:00:40,729 --> 00:00:38,030
beginnings in the oceans near Antarctica

10
00:00:43,010 --> 00:00:40,739
false-color imagery of the South Pole

11
00:00:45,350 --> 00:00:43,020
from NASA's Nimbus seven satellite

12
00:00:48,560 --> 00:00:45,360
provides scientists with a roadmap of

13
00:00:50,209 --> 00:00:48,570

daily changes in the ozone by tracking

14
00:00:52,819 --> 00:00:50,219
this imagery for the past nine years

15
00:00:55,729 --> 00:00:52,829
they have discovered a trend normal day

16
00:00:57,950 --> 00:00:55,739
each spring over Antarctica a hole in

17
00:01:01,189 --> 00:00:57,960
the ozone develops and it has been

18
00:01:03,170 --> 00:01:01,199
getting larger year by year to date as

19
00:01:06,380 --> 00:01:03,180
much as fifty to sixty percent of the

20
00:01:08,359 --> 00:01:06,390
ozone in this area has been lost these

21
00:01:10,160 --> 00:01:08,369
discoveries prompted a coordinated

22
00:01:13,460 --> 00:01:10,170
series of you a dark pink ozone

23
00:01:16,640 --> 00:01:13,470
experiments west VA an international

24
00:01:19,730 --> 00:01:16,650
effort including some 150 scientists and

25
00:01:21,859 --> 00:01:19,740
engineers of NASA National Oceanic and

26
00:01:24,740 --> 00:01:21,869
Atmospheric Administration National

27
00:01:27,260 --> 00:01:24,750
Science Foundation and Industry work

28
00:01:30,140 --> 00:01:27,270
for months to study this alarming

29
00:01:32,180 --> 00:01:30,150
environmental issue scientists used

30
00:01:34,610 --> 00:01:32,190
ground-based instruments and launched

31
00:01:36,680 --> 00:01:34,620
balloon born payloads to sample air

32
00:01:39,920 --> 00:01:36,690
chemistry at mcmurdo station in

33
00:01:42,560 --> 00:01:39,930
Antarctica at the same time NASA's dc-8

34
00:01:45,230 --> 00:01:42,570
flying laboratory study the lower

35
00:01:47,990 --> 00:01:45,240
atmosphere making long missions from

36
00:01:51,650 --> 00:01:48,000
Punta Arenas Chile into the area of

37
00:01:54,200 --> 00:01:51,660
ozone depletion NASA's high-flying er-2

38
00:01:56,510 --> 00:01:54,210

plane carrying a single pilot and a

39
00:01:58,190 --> 00:01:56,520
handful of sampling instruments feed

40
00:02:01,940 --> 00:01:58,200
directly into a layer of atmosphere

41
00:02:04,070 --> 00:02:01,950
where the ozone was depleted a number of

42
00:02:06,230 --> 00:02:04,080
activities contributing to ozone loss

43
00:02:09,290 --> 00:02:06,240
have been pinpointed by the scientific

44
00:02:11,140 --> 00:02:09,300
and policy community no longer Duke and

45
00:02:14,330 --> 00:02:11,150
aerosol products contain

46
00:02:16,160 --> 00:02:14,340
chlorofluorocarbons or CFCs but these

47
00:02:18,170 --> 00:02:16,170
harmful gases still get into the

48
00:02:20,540 --> 00:02:18,180
atmosphere because they are used as

49
00:02:23,420 --> 00:02:20,550
refrigerants fire retardants phone

50
00:02:26,240 --> 00:02:23,430
blowing agents and solvents as long as

51
00:02:29,000 --> 00:02:26,250
this persists ozone will continue to be

52
00:02:31,699 --> 00:02:29,010
lost initial findings from the summers

53
00:02:34,180 --> 00:02:31,709
ozone expedition verify that there is a

54
00:02:36,830 --> 00:02:34,190
complex interplay between CFCs

55
00:02:38,720 --> 00:02:36,840
chlorine-containing gases and the

56
00:02:41,090 --> 00:02:38,730
meteorology in certain parts of the

57
00:02:43,490 --> 00:02:41,100
world ice crystals in the upper

58
00:02:46,880 --> 00:02:43,500
atmosphere convert the gases into a

59
00:02:48,860 --> 00:02:46,890
byproduct that destroys ozone these ice

60
00:02:51,020 --> 00:02:48,870
crystals usually early form in the

61
00:02:53,990 --> 00:02:51,030
atmosphere the South Pole because it

62
00:02:55,729 --> 00:02:54,000
gets so cold this may explain why other

63
00:02:58,310 --> 00:02:55,739

parts of the world aren't dramatically

64
00:03:00,110 --> 00:02:58,320
affected by the depletion of science I

65
00:03:02,330 --> 00:03:00,120
still do not understand all the

66
00:03:04,670 --> 00:03:02,340
mechanisms of change but thanks to the

67
00:03:07,130 --> 00:03:04,680
work of so many we will soon have a more

68
00:03:09,350 --> 00:03:07,140
complete understanding of ozone loss and

69
00:03:12,440 --> 00:03:09,360
its threat to the world environment in

70
00:03:14,690 --> 00:03:12,450
the early 1990s a new generation of