
NASA
Dr. James Hansen

1
00:00:06,230 --> 00:00:03,510
climate scientists at nasa's goddard

2
00:00:08,150 --> 00:00:06,240
institute of space studies or gis just

3
00:00:10,950 --> 00:00:08,160
released a new analysis of global

4
00:00:13,270 --> 00:00:10,960
average temperatures showing that 2009

5
00:00:14,470 --> 00:00:13,280
was tied as the second warmest year ever

6
00:00:15,910 --> 00:00:14,480
recorded

7
00:00:19,189 --> 00:00:15,920
and looking just at the southern

8
00:00:21,269 --> 00:00:19,199
hemisphere 2009 even broke the record as

9
00:00:22,550 --> 00:00:21,279
the warmest year ever in this half of

10
00:00:25,589 --> 00:00:22,560
the world

11
00:00:27,830 --> 00:00:25,599
in fact 2009 was virtually tied with

12
00:00:32,389 --> 00:00:27,840
five other recent years in its position

13
00:00:37,190 --> 00:00:32,399

as second warmest on record 1998 2002

14
00:00:38,869 --> 00:00:37,200
2003 2006 and 2007 and it was only a

15
00:00:41,430 --> 00:00:38,879
fraction of a percent cooler than the

16
00:00:43,270 --> 00:00:41,440
warmest year 2005.

17
00:00:45,270 --> 00:00:43,280
yet when looking at global temperatures

18
00:00:47,190 --> 00:00:45,280
over a longer time frame these

19
00:00:49,830 --> 00:00:47,200
scientists found a persistent warming

20
00:00:51,430 --> 00:00:49,840
trend over the past three decades with

21
00:00:53,189 --> 00:00:51,440
the average global temperature

22
00:00:55,990 --> 00:00:53,199
increasing by roughly a third of a

23
00:00:59,670 --> 00:00:56,000
degree fahrenheit per decade this past

24
00:01:00,470 --> 00:00:59,680
decade from 2000 to 2009 was the warmest

25
00:01:02,310 --> 00:01:00,480
yet

26
00:01:04,869 --> 00:01:02,320
and when looking back all the way to

27
00:01:07,510 --> 00:01:04,879
1880 the year when precise temperature

28
00:01:09,429 --> 00:01:07,520
record keeping began scientists observed

29
00:01:11,270 --> 00:01:09,439
about a one and a half degree fahrenheit

30
00:01:13,590 --> 00:01:11,280
rise in global temperature

31
00:01:16,070 --> 00:01:13,600
there are already beginning to be

32
00:01:17,990 --> 00:01:16,080
effects of one or two degrees warming

33
00:01:19,830 --> 00:01:18,000
and if we get

34
00:01:21,429 --> 00:01:19,840
five or ten degrees warming

35
00:01:23,030 --> 00:01:21,439
several decades downstream there will be

36
00:01:25,109 --> 00:01:23,040
huge effects

37
00:01:27,350 --> 00:01:25,119
gis scientists came to these results

38
00:01:28,390 --> 00:01:27,360

after analyzing information from three

39
00:01:30,230 --> 00:01:28,400
sources

40
00:01:32,390 --> 00:01:30,240
data from more than a thousand weather

41
00:01:34,630 --> 00:01:32,400
stations around the globe satellite

42
00:01:36,390 --> 00:01:34,640
observations of sea surface temperature

43
00:01:37,590 --> 00:01:36,400
and measurements from antarctic research

44
00:01:39,350 --> 00:01:37,600
stations

45
00:01:40,630 --> 00:01:39,360
so what's the cause of this long-term

46
00:01:42,230 --> 00:01:40,640
warming trend

47
00:01:44,149 --> 00:01:42,240
while there are several natural

48
00:01:46,630 --> 00:01:44,159
processes that can cause subtle climate

49
00:01:49,109 --> 00:01:46,640
warming or cooling like variations in

50
00:01:51,830 --> 00:01:49,119
solar activity fluctuations in ocean

51
00:01:53,429 --> 00:01:51,840
currents and volcanic eruptions climate

52
00:01:55,590 --> 00:01:53,439
scientists believe that the rising

53
00:01:57,749 --> 00:01:55,600
levels of carbon dioxide and other

54
00:01:59,510 --> 00:01:57,759
greenhouse gases are the dominant factor

55
00:02:02,389 --> 00:01:59,520
driving the rise

56
00:02:03,910 --> 00:02:02,399
if we want to limit climate change and

57
00:02:05,270 --> 00:02:03,920
keep it

58
00:02:07,910 --> 00:02:05,280
under

59
00:02:09,430 --> 00:02:07,920
an additional 1 degree celsius or two

60
00:02:11,910 --> 00:02:09,440
degrees fahrenheit

61
00:02:13,750 --> 00:02:11,920
we would need to begin to decrease the

62
00:02:15,430 --> 00:02:13,760
co2 emissions

63
00:02:17,430 --> 00:02:15,440

gradually

64
00:02:19,350 --> 00:02:17,440
so that by the end of the century co2

65
00:02:21,910 --> 00:02:19,360
stopped increasing

66
00:02:24,229 --> 00:02:21,920
so while 2009's temperature may not have

67
00:02:26,309 --> 00:02:24,239
been the global record-breaker it is in

68
00:02:28,229 --> 00:02:26,319
line with the long-term trend telling