1
00:00:09,200 --> 00:00:06,980
the polar ice caps have been shrinking

2
00:00:11,900 --> 00:00:09,210
in summer and expanding in winter for

3
00:00:14,209 --> 00:00:11,910
millions of years but in the last three

4
00:00:15,890 --> 00:00:14,219
decades the Arctic sea ice at the end of

5
00:00:18,980 --> 00:00:15,900
each summers melt has been getting

6
00:00:22,099 --> 00:00:18,990
steadily smaller the decline was already

7
00:00:23,840 --> 00:00:22,109
alarming but in 2007 when the sea ice

8
00:00:26,420 --> 00:00:23,850
melts shattered the previous record by

9
00:00:27,950 --> 00:00:26,430
almost twenty-five percent researchers

10
00:00:30,980 --> 00:00:27,960
at NASA's Goddard Space Flight Center

11
00:00:34,370 --> 00:00:30,990
wondered is this an anomaly or part of

12
00:00:38,930 --> 00:00:34,380
an even more alarming trend we have had

13
00:00:42,530 --> 00:00:38,940

low ice cover since 1998 in the Arctic

14
00:00:45,529 --> 00:00:42,540
and what that means is that you have

15
00:00:48,799 --> 00:00:45,539
more open water in the region and with

16
00:00:52,700 --> 00:00:48,809
more open water you're getting more

17
00:00:55,459 --> 00:00:52,710
solar energy into the system so the

18
00:00:59,540 --> 00:00:55,469
Arctic Ocean has actually been warming

19
00:01:01,760 --> 00:00:59,550
up as the ice melts less light energy is

20
00:01:03,619 --> 00:01:01,770
reflected back into space and more of

21
00:01:07,190 --> 00:01:03,629
the sun's energy is absorbed into the

22
00:01:09,320 --> 00:01:07,200
ocean which fuels further melting in

23
00:01:11,500 --> 00:01:09,330
march two thousand eight the ice cap

24
00:01:14,450 --> 00:01:11,510
rebounded to a near normal winter level

25
00:01:16,910 --> 00:01:14,460
but much of this ice was thin single

26
00:01:18,890 --> 00:01:16,920
year ice and after a record rate of

27
00:01:21,109 --> 00:01:18,900
melting in the month of August the ice

28
00:01:24,469 --> 00:01:21,119
shrank to its second smallest extent on

29
00:01:26,840 --> 00:01:24,479
record if it keeps on going then the

30
00:01:30,920 --> 00:01:26,850
potential is that you lose the perennial

31
00:01:34,100 --> 00:01:30,930
ice altogether then we'll have a blue

32
00:01:37,420 --> 00:01:34,110
ocean in the Arctic now if the ocean

33
00:01:41,480 --> 00:01:37,430
becomes low there will be a lot of

34
00:01:45,469 --> 00:01:41,490
environmental impacts there are a lot of

35
00:01:47,359 --> 00:01:45,479
ecological impacts chemie so says the 30

36
00:01:49,580 --> 00:01:47,369
years of satellite data we have on

37
00:01:52,490 --> 00:01:49,590
Arctic sea ice suggests that it's not

38
00:01:54,889 --> 00:01:52,500

likely to recover as a scientist he is

39
00:01:58,219 --> 00:01:54,899
intrigued by the trends but personally

40
00:02:00,760 --> 00:01:58,229
he worries about the planets future well

41
00:02:05,859 --> 00:02:00,770
it makes me feel sad

42
00:02:10,779 --> 00:02:05,869
a lot of things can happen in terms of

43
00:02:13,960 --> 00:02:10,789
the impacts to the environment impacts

44
00:02:19,360 --> 00:02:13,970
to the ecosystem not just in the Arctic

45
00:02:21,490 --> 00:02:19,370
but for the whole whole earth and the

46
00:02:25,570 --> 00:02:21,500
ocean is such a big part of the climate

47
00:02:27,430 --> 00:02:25,580
system and you / curve it a little bit

48
00:02:31,150 --> 00:02:27,440
and you're going to chance the climate

49
00:02:33,100 --> 00:02:31,160
of the world one result of such global

50
00:02:34,800 --> 00:02:33,110
climate change has already begun to

51
00:02:37,390 --> 00:02:34,810
emerge at the other end of the earth

52
00:02:39,699 --> 00:02:37,400
summer sea ice minima in the southern

53
00:02:41,949 --> 00:02:39,709
hemisphere have not been declining as

54
00:02:44,229 --> 00:02:41,959
warmer ocean water promotes evaporation

55
00:02:47,800 --> 00:02:44,239
which creates more snow to feed the

56
00:02:50,140 --> 00:02:47,810
Antarctic ice fields NASA scientists are

57
00:02:52,300 --> 00:02:50,150
using a suite of satellites to study sea

58
00:02:54,039 --> 00:02:52,310
ice at both poles trying to better

59
00:02:55,949 --> 00:02:54,049
understand how a complex set of

60
00:02:58,890 --> 00:02:55,959
phenomena such as cloud cover

61
00:03:01,479 --> 00:02:58,900
reflectivity a thickness of the ice

62
00:03:04,390 --> 00:03:01,489
weather patterns like La Nina and El