
NASA
June 2014
nasa.gov/earth

1
00:00:04,230 --> 00:00:02,149
earth's rising seas are some of the most

2
00:00:06,150 --> 00:00:04,240
visible signs of our warming planet over

3
00:00:07,829 --> 00:00:06,160
the last 20 years nasa's satellites

4
00:00:09,669 --> 00:00:07,839
airborne missions and field campaigns

5
00:00:11,990 --> 00:00:09,679
have shown a steady rise in global sea

6
00:00:13,589 --> 00:00:12,000
levels as the world's polar ice sheets

7
00:00:15,910 --> 00:00:13,599
melt here to tell us more about this is

8
00:00:18,230 --> 00:00:15,920
dr tom wagner from nasa's goddard space

9
00:00:19,990 --> 00:00:18,240
flight center um start by telling us you

10
00:00:22,150 --> 00:00:20,000
know you have some new images what do

11
00:00:24,230 --> 00:00:22,160
these new images show us

12
00:00:25,830 --> 00:00:24,240
about sea level rise you know they show

13
00:00:27,830 --> 00:00:25,840

us two really important things you know

14
00:00:30,150 --> 00:00:27,840
and the first thing is this sea levels

15
00:00:32,069 --> 00:00:30,160
are rising around the world and in the

16
00:00:34,549 --> 00:00:32,079
last 20 years they've risen by over

17
00:00:36,069 --> 00:00:34,559
three inches on average and we know this

18
00:00:37,670 --> 00:00:36,079
number really well it's actually

19
00:00:39,590 --> 00:00:37,680
recorded by a number of different

20
00:00:41,510 --> 00:00:39,600
satellites that go over the earth and

21
00:00:43,990 --> 00:00:41,520
bounce radar signals off the ocean to

22
00:00:45,270 --> 00:00:44,000
determine its height the other amazing

23
00:00:46,790 --> 00:00:45,280
thing though is that the ocean has

24
00:00:48,310 --> 00:00:46,800
topography you know you can almost think

25
00:00:50,470 --> 00:00:48,320
of it like a mountain range with peaks

26
00:00:51,990 --> 00:00:50,480
and valleys and the coast of california

27
00:00:54,389 --> 00:00:52,000
in this case actually is a little bit of

28
00:00:56,869 --> 00:00:54,399
a valley right now and this is caused by

29
00:00:58,549 --> 00:00:56,879
a combination of wind and ocean currents

30
00:01:00,229 --> 00:00:58,559
but what people really need to take away

31
00:01:02,150 --> 00:01:00,239
is that sea levels rising and it's going

32
00:01:04,789 --> 00:01:02,160
to continue to rise and it's rising

33
00:01:09,830 --> 00:01:04,799
enough that it's already impacting us

34
00:01:14,070 --> 00:01:12,230
what's causing sea levels to rise what's

35
00:01:16,230 --> 00:01:14,080
causing sea level rise are two basic

36
00:01:19,190 --> 00:01:16,240
things one is that as the planet warms

37
00:01:21,429 --> 00:01:19,200
up the volume of the ocean expands and

38
00:01:23,830 --> 00:01:21,439

that's about half of the sea level rise

39
00:01:25,749 --> 00:01:23,840
the other half comes from melting of ice

40
00:01:27,590 --> 00:01:25,759
that's on land in particular the

41
00:01:29,749 --> 00:01:27,600
glaciers and ice caps of alaska and

42
00:01:31,910 --> 00:01:29,759
canada and also the major ice sheets of

43
00:01:33,510 --> 00:01:31,920
greenland and antarctica and we have

44
00:01:35,830 --> 00:01:33,520
this other amazing satellite called

45
00:01:38,230 --> 00:01:35,840
grace which actually allows us to map

46
00:01:39,429 --> 00:01:38,240
changes in the weight of the ice sheets

47
00:01:42,069 --> 00:01:39,439
and what we found is that in the

48
00:01:43,429 --> 00:01:42,079
greenland case we're not only losing ice

49
00:01:44,789 --> 00:01:43,439
but the ice loss seems to be

50
00:01:46,230 --> 00:01:44,799
accelerating and that's something that

51
00:01:48,389 --> 00:01:46,240
we're trying to account for in our

52
00:01:50,389 --> 00:01:48,399
models as we move forward

53
00:01:52,789 --> 00:01:50,399
what is nasa doing to understand how

54
00:01:54,469 --> 00:01:52,799
much sea level could rise in the future

55
00:01:55,910 --> 00:01:54,479
nasa is doing three basic things you

56
00:01:57,270 --> 00:01:55,920
know one is we're developing the

57
00:01:59,270 --> 00:01:57,280
technologies

58
00:02:01,670 --> 00:01:59,280
to study sea level rise and then we're

59
00:02:03,830 --> 00:02:01,680
deploying them on satellites and also on

60
00:02:05,749 --> 00:02:03,840
aircraft to measure how fast the ocean

61
00:02:07,190 --> 00:02:05,759
is going up but we're also trying to

62
00:02:08,790 --> 00:02:07,200
understand the processes that are

63
00:02:11,350 --> 00:02:08,800

driving the ice loss and that's why we

64
00:02:13,510 --> 00:02:11,360
put scientists out in the field to study

65
00:02:15,270 --> 00:02:13,520
what's going on with the ice itself both

66
00:02:17,190 --> 00:02:15,280
on the ice and in the oceans around the

67
00:02:19,430 --> 00:02:17,200
ice because that's an important factor

68
00:02:21,670 --> 00:02:19,440
and then finally we pull all that data

69
00:02:23,030 --> 00:02:21,680
together into models and those models

70
00:02:25,350 --> 00:02:23,040
are important for us to understand the

71
00:02:27,350 --> 00:02:25,360
processes of ice loss and also to do the

72
00:02:29,350 --> 00:02:27,360
forecast into the future to kind of

73
00:02:33,110 --> 00:02:29,360
produce those numbers that society needs

74
00:02:35,110 --> 00:02:33,120
to plan for 10 50 100 years out

75
00:02:37,110 --> 00:02:35,120
and where can we learn more and see some

76
00:02:39,430 --> 00:02:37,120
of these images one of the best places

77
00:02:41,509 --> 00:02:39,440
to go is nasa.gov backslash earth where

78
00:02:43,430 --> 00:02:41,519
you can learn all about the work that

79
00:02:44,949 --> 00:02:43,440
we're doing right now the data sets that

80
00:02:46,710 --> 00:02:44,959
are available to see and also learn