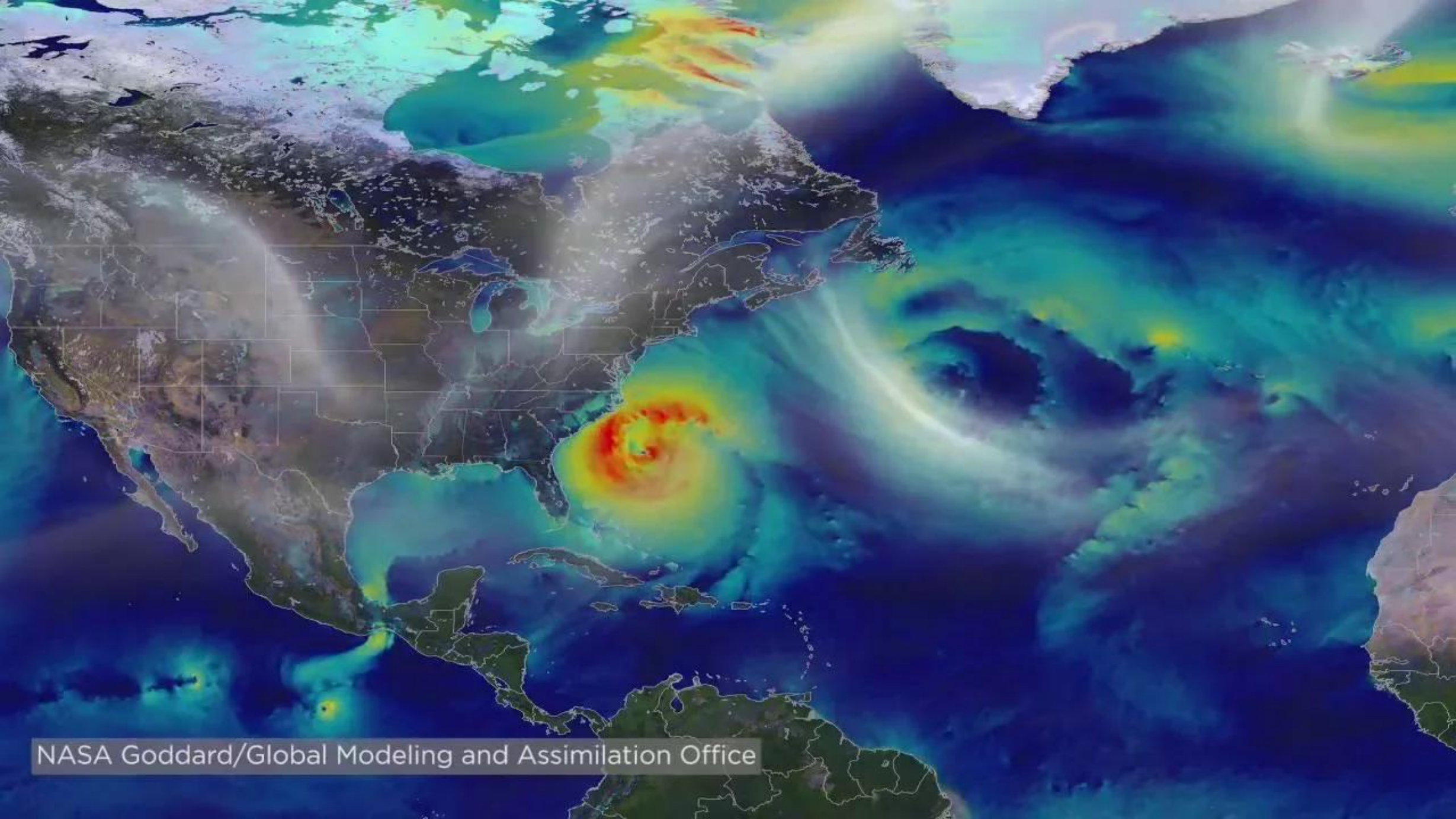
NASA Goddard/Global Modeling and Assimilation Office

1
00:00:04,710 --> 00:00:02,310
in order to improve hurricane forecasts

2
00:00:07,190 --> 00:00:04,720
scientists model storms of the past we

3
00:00:09,830 --> 00:00:07,200
model old storms because it gives us a

4
00:00:11,990 --> 00:00:09,840
way to compare the simulations to

5
00:00:14,549 --> 00:00:12,000
observations and try to assess the

6
00:00:16,870 --> 00:00:14,559
physical processes within storms and

7
00:00:18,870 --> 00:00:16,880
also how well those processes are

8
00:00:20,550 --> 00:00:18,880
represented in the forecast models

9
00:00:22,230 --> 00:00:20,560
because that's key to improving

10
00:00:23,750 --> 00:00:22,240
forecasts in the future with

11
00:00:25,509 --> 00:00:23,760
improvements in computing power

12
00:00:28,630 --> 00:00:25,519
researchers have been running ensemble

13
00:00:31,109 --> 00:00:28,640

forecasts instead of a single forecast

14
00:00:33,750 --> 00:00:31,119
we run a whole series of forecasts where

15
00:00:35,270 --> 00:00:33,760
you you make slight variations to the

16
00:00:37,270 --> 00:00:35,280
initial information that goes into the

17
00:00:39,270 --> 00:00:37,280
models and then see how much spread you

18
00:00:41,270 --> 00:00:39,280
get within those forecasts running

19
00:00:43,190 --> 00:00:41,280
ensembles gives us a visual description

20
00:00:45,590 --> 00:00:43,200
of the level of uncertainty associated

21
00:00:47,590 --> 00:00:45,600
with forecasting tropical storms and the

22
00:00:49,190 --> 00:00:47,600
average of over all those ensembles

23
00:00:51,350 --> 00:00:49,200
usually gives you a better forecast than

24
00:00:53,350 --> 00:00:51,360
if you ran just a single forecast model

25
00:00:55,590 --> 00:00:53,360
one way to test forecast models is to

26
00:00:57,990 --> 00:00:55,600
re-analyze past storms it's very

27
00:00:59,990 --> 00:00:58,000
important to study the worst possible

28
00:01:02,389 --> 00:01:00,000
storms in history because those are the

29
00:01:04,630 --> 00:01:02,399
ones that really put the system to a

30
00:01:06,950 --> 00:01:04,640
challenge nasa and noaa cooperate in

31
00:01:08,710 --> 00:01:06,960
satellite systems and sharing data as

32
00:01:10,870 --> 00:01:08,720
well as experiments and modeling

33
00:01:12,469 --> 00:01:10,880
research all of which enable noaa and

34
00:01:15,030 --> 00:01:12,479
other agencies to provide better

35
00:01:16,630 --> 00:01:15,040
forecasts of tropical cyclones when noaa

36
00:01:19,030 --> 00:01:16,640
a national hanukkah center issues a

37
00:01:21,429 --> 00:01:19,040
forecast the better the forecast is

38
00:01:22,789 --> 00:01:21,439

historically the more likely that people

39
00:01:25,030 --> 00:01:22,799
would trust

40
00:01:26,710 --> 00:01:25,040
the forecast and decision makers will

41
00:01:29,270 --> 00:01:26,720
make the right decisions and they will

42
00:01:31,350 --> 00:01:29,280
tell what place has to be evacuated and

43
00:01:32,950 --> 00:01:31,360
what place can stay to get a clearer

44
00:01:35,350 --> 00:01:32,960
look at the processes inside the

45
00:01:38,069 --> 00:01:35,360
hurricane nasa's global precipitation

46
00:01:40,149 --> 00:01:38,079
measurement microwave imager or gmi

47
00:01:41,910 --> 00:01:40,159
gives us an x-ray beneath the clouds if

48
00:01:44,469 --> 00:01:41,920
you have a storm that maybe isn't well

49
00:01:47,109 --> 00:01:44,479
defined doesn't have a visible eye with

50
00:01:49,830 --> 00:01:47,119
the gmi and similar instruments you're

51
00:01:51,670 --> 00:01:49,840
able to see the the rainfall structure

52
00:01:53,590 --> 00:01:51,680
underneath those clouds so you can see

53
00:01:56,230 --> 00:01:53,600
the ring of heavy precipitation in the

54
00:01:57,990 --> 00:01:56,240
eye wall as well several the rain bands

55
00:02:00,069 --> 00:01:58,000
and that really helps to tell us a lot

56
00:02:01,830 --> 00:02:00,079
about how the storm is evolving and how

57
00:02:04,389 --> 00:02:01,840
that might relate to the intensity of

58
00:02:06,469 --> 00:02:04,399
the storm representing those small scale

59
00:02:08,389 --> 00:02:06,479
eye processes in global models has been

60
00:02:10,229 --> 00:02:08,399
an ongoing area of research

61
00:02:12,470 --> 00:02:10,239
by increasing resolution and increasing

62
00:02:15,030 --> 00:02:12,480
of course the quality of the physical

63
00:02:15,910 --> 00:02:15,040

processes representation inside the

64
00:02:19,670 --> 00:02:15,920
model

65
00:02:22,550 --> 00:02:19,680
better and better they make hurricanes

66
00:02:24,710 --> 00:02:22,560
that are smaller more compact closer to

67
00:02:26,470 --> 00:02:24,720
their real sides and the eye becomes