1
00:00:00,000 --> 00:00:04,050
When it comes to hurricanes, research has come a long

2
00:00:04,070 --> 00:00:08,110
way to help predict when and where a storm will hit.

3
00:00:08,130 --> 00:00:12,160
Forecasting intensity is a much bigger challenge, and

4
00:00:12,180 --> 00:00:16,210
an instrument called HIWRAP will investigate the strength of a storm.

5
00:00:16,230 --> 00:00:20,250
The HIWRAP instrument will fly aboard an aircraft to study storms

6
00:00:20,270 --> 00:00:24,280
from the very large down to the very small scale.
Braun: And because those smaller

7
00:00:24,300 --> 00:00:28,330
scales tend to be much chaotic and difficult to predict,

8
00:00:28,350 --> 00:00:32,350
and the interactions between those smaller scales and the large scales is far more

9
00:00:32,370 --> 00:00:36,350
complex, it makes it a huge challenge to try to

10
00:00:36,370 --> 00:00:40,410
improve intensity forecasts.
The High-Altitude Imaging

11
00:00:40,430 --> 00:00:44,500
Wind and Rain Airborne Profiler, or HIWRAP, is a

12
00:00:44,520 --> 00:00:48,560
radar designed to examine the factors of storm intensity.

13
00:00:48,580 --> 00:00:52,610
Braun: The HIWRAP Doppler radar is a dual-frequency radar, so it has two frequencies

14
00:00:52,630 --> 00:00:56,650
that measure at two different angles and as the plane is

15
00:00:56,670 --> 00:01:00,700
flying, it's sort of scanning in a cone.

16
00:01:00,720 --> 00:01:04,730
And as it's flying over a particular target--say, the eyewall of a storm--by scanning

17
00:01:04,750 --> 00:01:08,750
in a cone it looks first one way, and then sees the storm from a different direction.

18
00:01:08,770 --> 00:01:12,760
And that's what allows us then to measure the three-dimensional

19
00:01:12,780 --> 00:01:16,850
winds and precipitation within the storm.
Because the storm and the aircraft

20
00:01:16,870 --> 00:01:20,920
are both moving, the HIWRAP must send out 5,000 pulses

21
00:01:20,940 --> 00:01:24,980
a second to get an accurate read on precipitation particles,

22
00:01:25,000 --> 00:01:29,040
like rain or ice. The signals that bounce back reveal the type,

23
00:01:29,060 --> 00:01:33,090
size, and distribution of rain or ice particles, as well as

24
00:01:33,110 --> 00:01:37,130
how fast the particles are moving. The speed of the particles can help determine

25

00:01:37,150 --> 00:01:41,160
the wind and circulation in a storm. HIWRAP will provide

26
00:01:41,180 --> 00:01:45,210
scientists with years of unprecedented data that will allow them to