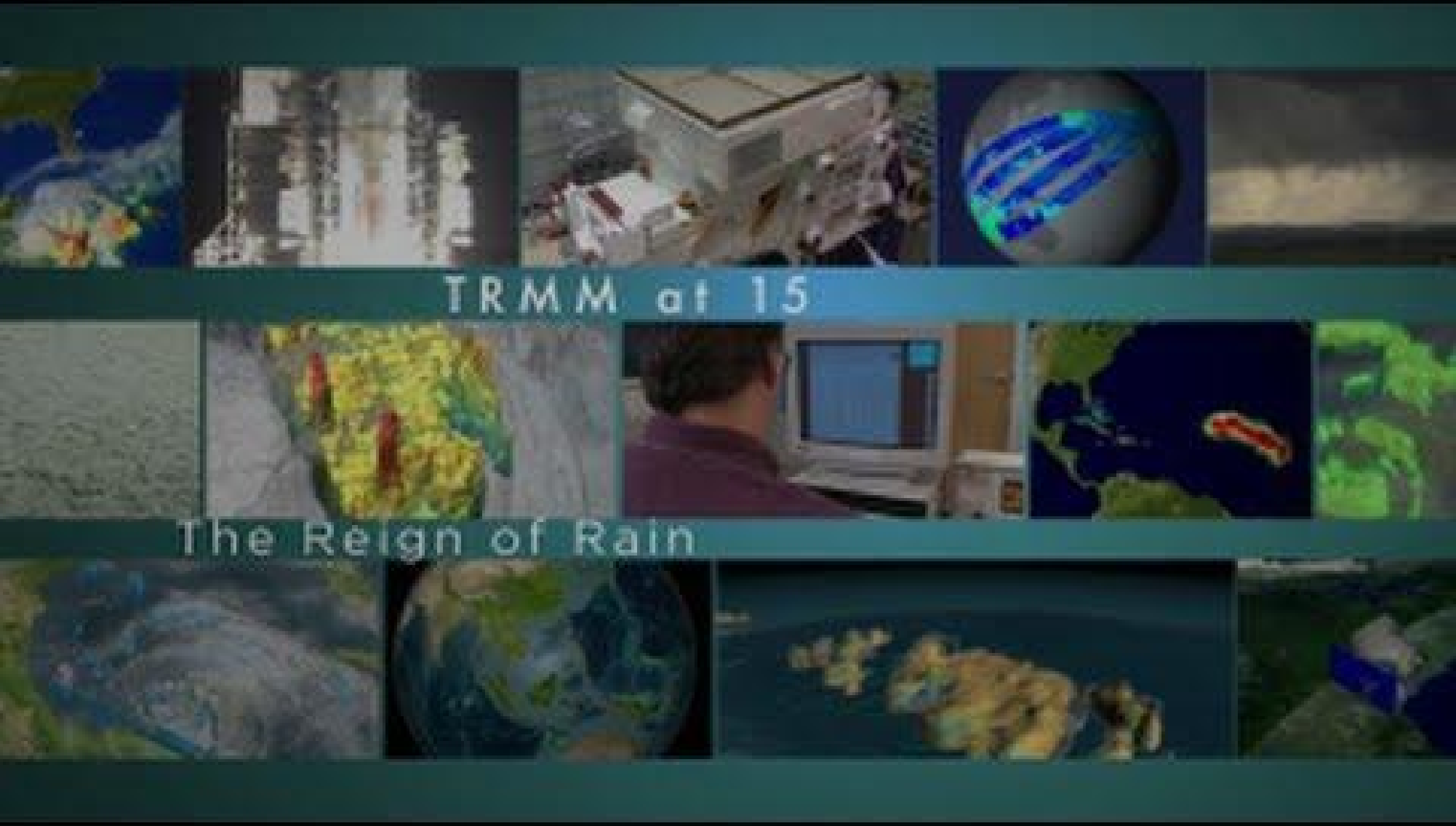
TRMM at 15
The Reign of Rain

1
00:00:00,010 --> 00:00:04,150
Scott Braun: TRMM is the

2
00:00:04,170 --> 00:00:08,290
Tropical Rainfall Measuring Mission. It was launched in November of 1997,

3
00:00:08,310 --> 00:00:12,350
originally designed as a five-year

4
00:00:12,370 --> 00:00:16,420
mission, but we've gone now for fifteen years.

5
00:00:16,440 --> 00:00:20,460
Music.
Fifteen years and thousands of

6
00:00:20,480 --> 00:00:24,600
storms later, TRMM has contributed to the advancement of scientific milestones.

7
00:00:28,690 --> 00:00:32,690
TRMM has advanced research in the areas of agriculture,

8
00:00:32,710 --> 00:00:36,730
disease tracking, precipitation physics, and natural hazards.

9
00:00:36,750 --> 00:00:40,750
Scott: We get roughly three hourly rainfall estimates

10
00:00:40,770 --> 00:00:44,830
across much of the globe at fairly high resolution, and these

11
00:00:44,850 --> 00:00:48,930
rainfall estimates are used to monitor major rainfall events, and to

12
00:00:48,950 --> 00:00:52,970
look for events that might lead to significant flooding

13

00:00:52,990 --> 00:00:57,120
and even landslides, and there are a number of groups that have been using it

14
00:00:57,140 --> 00:01:01,170
as sort of an early warning system.

15
00:01:05,400 --> 00:01:09,480
TRMM's unforseen longevity has provided more

16
00:01:09,500 --> 00:01:13,500
robust information on weather and climate patterns that can only be seen

17
00:01:13,520 --> 00:01:17,530
after years of observations. This decade and a half of data

18
00:01:17,550 --> 00:01:21,570
lets scientists see variations in rainfall from year to year, how El Nino

19
00:01:21,590 --> 00:01:25,590
affects rain patterns worldwide, and the anatomy and lifecycle

20
00:01:25,610 --> 00:01:29,670
of major storms, like hurricanes.
Scott: It's also proven

21
00:01:29,690 --> 00:01:33,730
to be an extremely useful satellite for understanding hurricanes,

22
00:01:33,750 --> 00:01:37,790
partly because its orbit stays within the tropics, so you get

23
00:01:37,810 --> 00:01:41,870
much more frequent observations. And it's just provided a wealth of

24
00:01:41,890 --> 00:01:45,930
rainfall information over its relatively short time period

25
00:01:45,950 --> 00:01:49,970

that, in many ways, surpasses all of the information we have

26
00:01:49,990 --> 00:01:54,010
prior to that.

27
00:01:54,030 --> 00:01:58,050
From giant storms

28
00:01:58,070 --> 00:02:02,070
to individual droplets: TRMM also provides scientists with

29
00:02:02,090 --> 00:02:06,080
data on the precise physics of falling rain drops.
Scott: TRMM has a unique

30
00:02:06,100 --> 00:02:10,160
set of instruments, including the first and only precipitation radar in space

31
00:02:10,180 --> 00:02:14,250
It also has a microwave imager, which is an instrument

32
00:02:14,270 --> 00:02:18,330
that can give you the equivalent of an X-ray of a storm, whereas the radar

33
00:02:18,350 --> 00:02:22,390
is giving you more of a CAT scan of the storm. It provides

34
00:02:22,410 --> 00:02:26,430
extremely valuable information on the structure, rainfall structure,

35
00:02:26,450 --> 00:02:30,470
of storms, which tells us something about how

36
00:02:30,490 --> 00:02:34,500
the storm is responding to its environment, whether or not it might intensify

37
00:02:34,520 --> 00:02:38,530
or weaken in the upcoming hours.

38
00:02:38,550 --> 00:02:42,540
Building on TRMM's success will be the Global Precipitation Measurement, or GPM,

39
00:02:42,560 --> 00:02:46,560
mission. Its two instruments are more advanced and more sensitive versions

40
00:02:46,580 --> 00:02:50,640
of TRMM's microwave imager and precipitation radar.

41
00:02:50,660 --> 00:02:54,710
GPM's orbit will also extend coverage beyond the tropics, and provide

42
00:02:54,730 --> 00:02:58,760
measurements of light to heavy rain and snow, expanding TRMM's legacy