



1

00:00:00,010 --> 00:00:04,030

VO: The Tropical Rainfall Measuring Mission, or TRMM, was launched in November

2

00:00:04,050 --> 00:00:08,050

of 1997 to precisely measure falling rain throughout

3

00:00:08,070 --> 00:00:12,070

the tropics. Eighteen years and thousands of storms later, TRMM has contributed

4

00:00:12,090 --> 00:00:16,090

to the advancement of scientific milestones.

5

00:00:16,110 --> 00:00:20,110

TRMM has advanced

6

00:00:20,130 --> 00:00:24,120

research in the areas of agriculture, disease tracking,

7

00:00:24,140 --> 00:00:28,160

precipitation physics, and natural hazards.

Scott: We get

8

00:00:28,180 --> 00:00:32,190

roughly three hourly rainfall estimates across much of the globe

9

00:00:32,210 --> 00:00:36,220

at fairly high resolution, and these rainfall estimates are used to

10

00:00:36,240 --> 00:00:40,230

monitor major rainfall events and to look for events

11

00:00:40,250 --> 00:00:44,250

that might lead to significant flooding, even landslides,

12

00:00:44,270 --> 00:00:48,280

and there are a number of groups that have been using it as sort of an early warning

13

00:00:48,300 --> 00:00:52,290  
system.

14

00:00:52,310 --> 00:00:56,310  
VO: TRMM's unforeseen

15

00:00:56,330 --> 00:01:00,340  
longevity has provided more robust information on weather and climate patterns

16

00:01:00,360 --> 00:01:04,380  
that can only be seen after years of observations. This nearly two decades

17

00:01:04,400 --> 00:01:08,410  
of data lets scientists see variations in rainfall from year to year,

18

00:01:08,430 --> 00:01:12,430  
how El Nino effects rain patterns worldwide, and the anatomy

19

00:01:12,450 --> 00:01:16,460  
and life cycle of major storms, like hurricanes.  
Scott: It's also proven to be

20

00:01:16,480 --> 00:01:20,480  
an extremely useful satellite for understanding hurricanes

21

00:01:20,500 --> 00:01:24,490  
partly because its orbit stays within the tropics so you get much more

22

00:01:24,510 --> 00:01:28,500  
frequent observations. And it's just provided a wealth of

23

00:01:28,520 --> 00:01:32,510  
rainfall information over its relatively short time period that

24

00:01:32,530 --> 00:01:36,540  
in many ways surpasses all of the information that we had prior

25

00:01:36,560 --> 00:01:40,550

to that.

26

00:01:40,570 --> 00:01:44,590

VO: From giant storms

27

00:01:44,610 --> 00:01:48,590

to individual droplets, TRMM also provides scientists with data on the

28

00:01:48,610 --> 00:01:52,610

precise physics of falling raindrops.

Scott: TRMM has a unique set of

29

00:01:52,630 --> 00:01:56,630

instruments, including the first and only precipitation radar in space,

30

00:01:56,650 --> 00:02:00,640

it also has a microwave imager, which is an instrument that can give you

31

00:02:00,660 --> 00:02:04,640

the equivalent of an X-ray of a storm, whereas the radar is giving you

32

00:02:04,660 --> 00:02:08,680

more of a CAT scan of the storm. It provides

33

00:02:08,700 --> 00:02:12,720

extremely valuable information on the structure, rainfall structure,

34

00:02:12,740 --> 00:02:16,750

of storms, which tells us something about how the

35

00:02:16,770 --> 00:02:20,780

storm is responding to its environment, whether or not it might intensify

36

00:02:20,800 --> 00:02:24,800

or weaken in the upcoming hours.

37

00:02:24,820 --> 00:02:28,820

VO: As TRMM's mission ends, the Global Precipitation Measurement mission builds

38  
00:02:28,840 --> 00:02:32,830  
on TRMM's objectives. Launched in early 2014,

39  
00:02:32,850 --> 00:02:36,840  
GPM's two instruments are more advanced and more sensitive versions of TRMM's microwave

40  
00:02:36,860 --> 00:02:40,850  
imager and precipitation radar. GPM's orbit extends