



1

00:00:00,000 --> 00:00:02,790

Narrator: NASA's Kepler Mission has discovered the

2

00:00:02,810 --> 00:00:05,570

first Earth-size planet orbiting in the habitable

3

00:00:05,590 --> 00:00:09,600

zone of a star outside of our solar system.

4

00:00:09,620 --> 00:00:13,360

The newly discovered planet is called Kepler-186f

5

00:00:13,380 --> 00:00:16,340

and is about 10 percent larger than Earth.

6

00:00:16,360 --> 00:00:18,990

Elisa Quintana: Kepler-186f is the first validated

7

00:00:19,010 --> 00:00:20,870

Earth-size planet in the habitable zone of its

8

00:00:20,890 --> 00:00:24,240

star. It's the outmost of five planets to orbit a

9

00:00:24,260 --> 00:00:27,440

star that is smaller and cooler than the sun.

10

00:00:27,460 --> 00:00:31,220

This planet orbits its star every 130 days and so

11

00:00:31,240 --> 00:00:34,310

this places it in the habitable zone, where it's

12

00:00:34,330 --> 00:00:36,130

in a region where it could have liquid water

13

00:00:36,150 --> 00:00:37,680

on its surface.

14  
00:00:37,700 --> 00:00:41,210  
Narrator: Kepler-186f resides in the Kepler-186

15  
00:00:41,230 --> 00:00:44,260  
system, about 500 light-years from Earth in the

16  
00:00:44,280 --> 00:00:46,570  
constellation Cygnus.

17  
00:00:46,590 --> 00:00:49,060  
Thomas Barclay: This planet, Kepler-186f, orbits

18  
00:00:49,080 --> 00:00:52,680  
a star that is cooler and dimmer than the sun.

19  
00:00:52,700 --> 00:00:54,280  
So while we may have found a planet that is

20  
00:00:54,300 --> 00:00:56,710  
the same size as Earth and receives a similar

21  
00:00:56,730 --> 00:01:00,670  
amount of energy as to what Earth receives,

22  
00:01:00,690 --> 00:01:02,490  
it orbits a very different star.

23  
00:01:02,510 --> 00:01:05,720  
So, perhaps instead of an Earth twin, we've

24  
00:01:05,740 --> 00:01:07,800  
discovered an Earth cousin.

25  
00:01:07,820 --> 00:01:10,460  
Narrator: On the surface of Kepler-186f, the

26  
00:01:10,480 --> 00:01:13,440  
brightness of its star at high noon is only as

27  
00:01:13,460 --> 00:01:16,390  
bright as our sun appears to us about an hour

28  
00:01:16,410 --> 00:01:18,230  
before sunset.

29  
00:01:18,250 --> 00:01:21,480  
Scientists believe Kepler-186f is likely to be a

30  
00:01:21,500 --> 00:01:24,730  
rocky world, but are unable to confirm its mass

31  
00:01:24,750 --> 00:01:26,430  
and density.

32  
00:01:26,450 --> 00:01:28,930  
Thomas Barclay: This is one of the big milestones

33  
00:01:28,950 --> 00:01:32,060  
that we've been looking for in our attempts to

34  
00:01:32,080 --> 00:01:35,200  
find out if there are places just like home and if

35  
00:01:35,220 --> 00:01:38,640  
there's life out there. One of the big steps is

36  
00:01:38,660 --> 00:01:41,360  
to say "Is there somewhere that looks, to all

37  
00:01:41,380 --> 00:01:44,530  
intents and purposes, like Earth?" Well, we don't

38  
00:01:44,550 --> 00:01:47,640

know just yet, but we know that there are at least

39

00:01:47,660 --> 00:01:50,040

places that look similar.

40

00:01:50,060 --> 00:01:52,480

Narrator: Managed by NASA's Ames Research Center,

41

00:01:52,500 --> 00:01:54,680

the Kepler mission collected this data using a

42

00:01:54,700 --> 00:01:57,120

space-based telescope to search one part of the

43

00:01:57,140 --> 00:02:00,640

galaxy for potentially habitable planets.