



ESO Video

1

00:00:00,000 --> 00:00:03,500

NARRATOR: NASA's Kepler mission has confirmed the discovery

2

00:00:03,520 --> 00:00:06,910

of the first Earth-size planets outside our solar system

3

00:00:06,930 --> 00:00:09,330

orbiting a sun-like star.

4

00:00:09,350 --> 00:00:13,690

Located about 1,000 light years from Earth, the Kepler-20 solar system

5

00:00:13,710 --> 00:00:18,120

has five planets orbiting a star similar to the Sun.

6

00:00:18,140 --> 00:00:21,340

Kepler-20f, the 4th planet in the system,

7

00:00:21,360 --> 00:00:24,340

orbits its star every 19.6 days

8

00:00:24,360 --> 00:00:28,200

and has a surface temperature of 800 degrees Fahrenheit.

9

00:00:28,220 --> 00:00:32,180

Kepler-20e has an orbital period of 6.1 days

10

00:00:32,200 --> 00:00:36,430

and has a surface temperature of 14-hundred degrees Fahrenheit.

11

00:00:36,450 --> 00:00:39,600

It is about 90 percent the size of Earth.

12

00:00:39,620 --> 00:00:42,580

Kepler-20f is slightly larger than Earth,

13

00:00:42,600 --> 00:00:46,200

with a radius that is 3 percent larger.

14

00:00:46,220 --> 00:00:49,470

The extreme temperatures and proximity to their host star

15

00:00:49,490 --> 00:00:52,380

means that the planets are not in the habitable zone,

16

00:00:52,400 --> 00:00:56,360

the region where liquid water could exist on the surface.

17

00:00:56,380 --> 00:01:00,490

These discoveries are a validation of the complex data analysis process

18

00:01:00,510 --> 00:01:02,930

that the Kepler team is using to detect transits

19

00:01:02,950 --> 00:01:06,360

of Earth-sized planets in front of their stars.

20

00:01:06,380 --> 00:01:09,970

Scientists hope to eventually find Earth-size, habitable planets

21

00:01:09,990 --> 00:01:13,500

with liquid water that could sustain life as we know it.

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00:01:13,520 --> 00:01:15,430

Kepler is on a three-and-a-half year mission

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00:01:15,450 --> 00:01:19,960

to search for Earth-size planets in our galaxy.