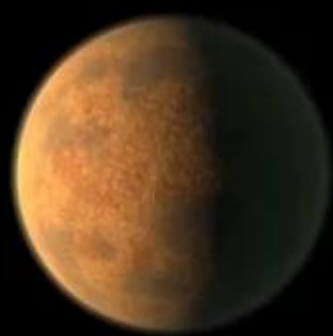
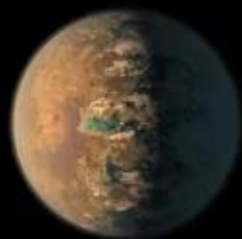




b



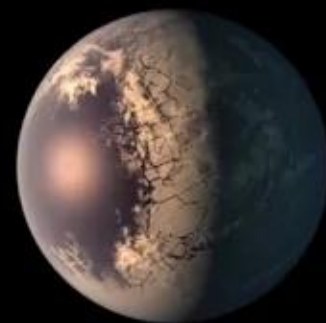
c



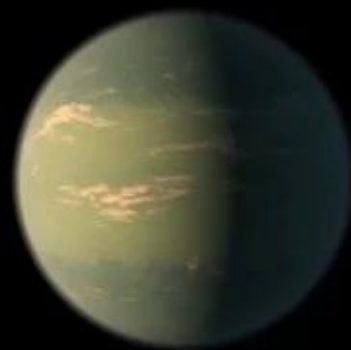
d



e



f



g

1
00:00:00,499 --> 00:00:01,968



2
00:00:02,001 --> 00:00:05,071

A treasure trove
of planets found

3
00:00:05,104 --> 00:00:10,143

Astronomers are celebrating
a new discovery.

4
00:00:10,176 --> 00:00:13,112

Sean Carey, Manager, Spitzer
Science Center, Caltech IPAC

5
00:00:13,145 --> 00:00:14,981

The big news is that
around a very nearby

6
00:00:15,014 --> 00:00:16,983

cold, small star we
found seven rocky,

7
00:00:17,016 --> 00:00:19,685

Earth-sized planets, all of
which could potentially

8
00:00:19,718 --> 00:00:20,787

have liquid water.

9
00:00:20,820 --> 00:00:23,890

Three of them orbit in
the habitable zone

10
00:00:23,923 --> 00:00:25,291

around the star.

11
00:00:25,324 --> 00:00:27,326

And liquid water could exist on

any of the seven planets

12

00:00:27,359 --> 00:00:29,328
given the right conditions.

13

00:00:29,361 --> 00:00:31,330
Nikole Lewis, James Webb
Telescope Project Scientist,

14

00:00:31,363 --> 00:00:32,331
Space Telescope Science
Institute

15

00:00:32,364 --> 00:00:33,399
For me it's mind-blowing.

16

00:00:33,432 --> 00:00:34,400
The first time I saw what
the system had in it,

17

00:00:34,433 --> 00:00:35,835
I was just like, "You got to be
kidding me!"

18

00:00:35,868 --> 00:00:37,003
Then I looked at
the data myself.

19

00:00:37,036 --> 00:00:38,604
I'm like, "Yup,
there they all are."

20

00:00:38,637 --> 00:00:41,007
It's just, I would have
never predicted this.

21

00:00:41,040 --> 00:00:44,710
It's beyond, you know, anything
I could've ever dreamt of.

22

00:00:44,743 --> 00:00:47,346

The planetary system
is called TRAPPIST-1

23

00:00:47,379 --> 00:00:49,248

after the Belgian-operated
telescope in Chile.

24

00:00:49,281 --> 00:00:54,087

TRAPPIST found two
planets in 2016.

25

00:00:54,120 --> 00:00:56,722

NASA's Spitzer Space
Telescope, with the help of

26

00:00:56,755 --> 00:00:59,559

ground-based telescopes,
discovered five more.

27

00:00:59,592 --> 00:01:01,461

Michael Gillon, Principal
Investigator, TRAPPIST,

28

00:01:01,494 --> 00:01:02,929

University of Liege, Belgium

29

00:01:02,962 --> 00:01:04,363

I felt super-excited.

30

00:01:04,396 --> 00:01:06,232

Amazed by the very existence
of this system...

31

00:01:06,265 --> 00:01:08,601

was kind of... of
yeah... of shock.

32

00:01:08,634 --> 00:01:13,306

The TRAPPIST-1 planets are extremely close to one another.

33

00:01:13,339 --> 00:01:17,677

From a planet's surface

34

00:01:17,710 --> 00:01:22,548

you could easily see other TRAPPIST-1 planets in the sky.

35

00:01:22,581 --> 00:01:24,117

If you were standing on one of these planets

36

00:01:24,150 --> 00:01:25,451

you'd actually see a lot of them

37

00:01:25,484 --> 00:01:26,953

sort of in the sky whipping by

38

00:01:26,986 --> 00:01:28,621

on these very short orbital periods.

39

00:01:28,654 --> 00:01:32,158

NASA's James Webb Telescope, launching in 2018,

40

00:01:32,191 --> 00:01:35,761

could teach us even more about the TRAPPIST-1 system.

41

00:01:35,794 --> 00:01:38,064

It will be able to detect the chemical fingerprints of

42

00:01:38,097 --> 00:01:40,733

water, methane and oxygen of potential atmospheres,

43

00:01:40,766 --> 00:01:44,137

key ingredients in
assessing habitability.

44

00:01:44,170 --> 00:01:47,773

It is an excellent,
fantastic discovery.

45

00:01:47,806 --> 00:01:52,211

All images of planets are
artist's conceptions.

46

00:01:52,244 --> 00:01:53,980

Jet Propulsion Laboratory