1
00:00:00,000 --> 00:00:04,830
(Music)

2
00:00:04,830 --> 00:00:06,600
Narrator: While a total solar eclipse is a rare

3
00:00:06,600 --> 00:00:09,250
opportunity to learn more about our sun,

4
00:00:09,250 --> 00:00:11,270
NASA's Kepler Mission has been studying

5
00:00:11,270 --> 00:00:13,930
distant stars for an eclipse-like event called

6
00:00:13,930 --> 00:00:16,590
a planetary transit.

7
00:00:16,590 --> 00:00:19,210
Using a space based telescope, scientists from

8
00:00:19,210 --> 00:00:21,410
Ames Research Center have been measuring

9
00:00:21,410 --> 00:00:23,420
the changes in the brightness of stars as

10
00:00:23,420 --> 00:00:27,040
their planets orbit or transit in front of them.

11
00:00:27,040 --> 00:00:29,950
Kepler has confirmed more than 2,500 exoplanets

12
00:00:29,950 --> 00:00:32,870
or planets beyond our solar system.

13
00:00:32,870 --> 00:00:35,150

Many of these are similar to Earth in size

14
00:00:35,150 --> 00:00:37,840
and distance from their sun.

15
00:00:37,840 --> 00:00:40,670
Studies using Kepler data have revealed a vast

16
00:00:40,670 --> 00:00:43,650
range of planet types and sizes and future

17
00:00:43,650 --> 00:00:45,420
discoveries could help enable

18
00:00:45,420 --> 00:00:48,440
the search for life in the galaxy.

19
00:00:48,440 --> 00:00:51,290
Another major effort at NASA Ames to use eclipses

20
00:00:51,290 --> 00:00:55,230
to study stars in deep space is called SOFIA

21
00:00:55,230 --> 00:00:57,190
or the Stratospheric Observatory

22
00:00:57,190 --> 00:01:00,350
for Infrared Astronomy.

23
00:01:00,350 --> 00:01:04,160
SOFIA is a modified Boeing 747SP aircraft that

24
00:01:04,160 --> 00:01:07,670
makes celestial observations in the infrared part

25
00:01:07,670 --> 00:01:10,180
of the electro-magnetic spectrum.

26
00:01:10,180 --> 00:01:13,570
Flying up to 45,000 feet, SOFIA operates above

27
00:01:13,570 --> 00:01:16,890
99 percent of the Earth's water vapor that absorbs

28
00:01:16,890 --> 00:01:20,130
most of the infrared light from space.

29
00:01:20,130 --> 00:01:22,550
One example of SOFIA's unique qualities as an

30
00:01:22,550 --> 00:01:25,400
airborne observatory occurred when researchers

31
00:01:25,400 --> 00:01:27,940
recorded infrared imagery of Pluto

32
00:01:27,940 --> 00:01:31,140
as it eclipsed a distant star.

33
00:01:31,140 --> 00:01:34,240
What we learn from missions like Kepler and SOFIA

34
00:01:34,240 --> 00:01:36,880
could help us to better understand the mysteries