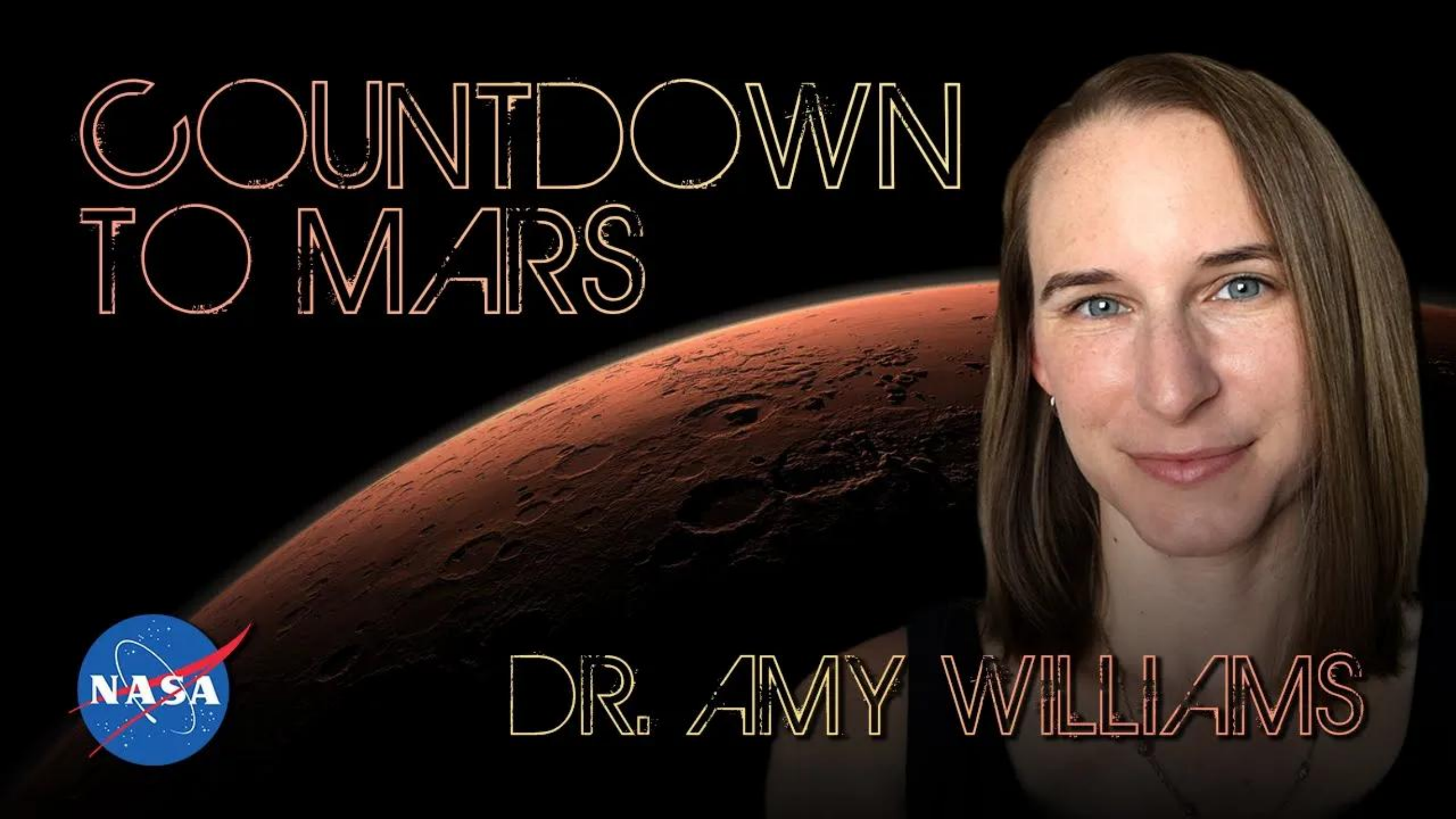
COUNTDOWN TO MARS



DR. AMY WILLIAMS

1
00:00:13,519 --> 00:00:17,359
So, this mission is
really exciting for my research, as the

2
00:00:17,359 --> 00:00:19,760
rover carries instruments that can detect

3
00:00:19,760 --> 00:00:23,680
organic matter.
In particular, the SHERLOC instrument

4
00:00:23,680 --> 00:00:28,240
uses a technique called
deep UV RAMAN, which can detect organic

5
00:00:28,240 --> 00:00:32,960
matter in rocks in Jezero crater.
Prior to the SHERLOC instrument, if we

6
00:00:32,960 --> 00:00:37,760
wanted to detect organic matter on Mars,
we had to scoop or drill a sample,

7
00:00:37,760 --> 00:00:41,040
which is really time and resource intensive.

8
00:00:41,040 --> 00:00:45,039
SHERLOC is unique because it's built
onto the arm of the rover so we can

9
00:00:45,039 --> 00:00:47,360
simply place the instrument on the sample of

10
00:00:47,360 --> 00:00:51,440
interest and learn more about the
organic matter present there.

11
00:00:51,440 --> 00:00:54,880
This will revolutionize our

understanding of the origin,

12
00:00:54,880 --> 00:00:58,700
distribution, and processing of
organic matter on Mars.

13
00:01:02,320 --> 00:01:06,560
The most exciting thing that the
Perseverance rover could discover for me

14
00:01:06,560 --> 00:01:11,920
would be evidence of past life on Mars.
One of the Perseverance rover mission

15
00:01:11,920 --> 00:01:16,080
goals is to perform
several astrobiologically-relevant

16
00:01:16,080 --> 00:01:20,040
investigations
on the geologic materials in Jezero crater.

17
00:01:20,100 --> 00:01:22,320
Some of these include: determining the

18
00:01:22,320 --> 00:01:25,439
habitability of an ancient environment which means

19
00:01:25,440 --> 00:01:29,040
whether life would want to live in that
environment if it were present.

20
00:01:29,120 --> 00:01:31,600
For ancient environments that are interpreted to

21
00:01:31,600 --> 00:01:35,200
have been habitable,
we want to search for materials with

22

00:01:35,200 --> 00:01:38,660
high biosignature
preservation potential.

23
00:01:38,660 --> 00:01:40,560
And, then lastly,

24
00:01:40,560 --> 00:01:44,320
we want to search for potential evidence
for past life

25
00:01:44,320 --> 00:01:49,520
using the observations regarding
habitability and preservation as a guide.

26
00:01:49,800 --> 00:01:54,540
Finding evidence of past life
on Mars would be the most exciting discovery.

27
00:01:54,720 --> 00:01:57,119
It would revolutionize our understanding

28
00:01:57,119 --> 00:02:00,560
of our existence
and life on Earth, when we finally

29
00:02:00,560 --> 00:02:03,759
learn that we are not alone in the Universe.

30
00:02:03,759 --> 00:02:07,520
My mantra on this comes from
Carl Sagan, who said that