1
00:00:06,789 --> 00:00:05,030
nasa's perseverance rover has been

2
00:00:08,390 --> 00:00:06,799
working on its science mission

3
00:00:11,430 --> 00:00:08,400
with the help of the super cam

4
00:00:14,549 --> 00:00:11,440
instrument a rock vaporizing laser and

5
00:00:16,870 --> 00:00:14,559
camera that examines rocks and soils

6
00:00:19,029 --> 00:00:16,880
to learn more about super cam we are

7
00:00:21,429 --> 00:00:19,039
joined by hamani kalucha

8
00:00:23,990 --> 00:00:21,439
she's the science payload uplink lead

9
00:00:25,910 --> 00:00:24,000
for super cam operations

10
00:00:27,990 --> 00:00:25,920
so super cam looks out of the big

11
00:00:28,870 --> 00:00:28,000
circular window in the white box on top

12
00:00:31,429 --> 00:00:28,880
of the mast

13
00:00:32,069 --> 00:00:31,439

and it uses spectroscopy which is just

14
00:00:34,229 --> 00:00:32,079
when light

15
00:00:36,549 --> 00:00:34,239
excites atoms in a rock and we get

16
00:00:38,310 --> 00:00:36,559
unique shifted wavelengths back to us

17
00:00:40,470 --> 00:00:38,320
and so we use a combination of lasers

18
00:00:41,990 --> 00:00:40,480
and infrared vision and that lets us do

19
00:00:43,030 --> 00:00:42,000
science even further out than the

20
00:00:45,670 --> 00:00:43,040
robotic arm

21
00:00:46,069 --> 00:00:45,680
the lasers reach 7 meters or 23 feet

22
00:00:48,470 --> 00:00:46,079
away

23
00:00:50,310 --> 00:00:48,480
and the infrared much much further and

24
00:00:51,830 --> 00:00:50,320
that's not even all we have a tiny high

25
00:00:54,150 --> 00:00:51,840
resolution camera

26
00:00:55,670 --> 00:00:54,160
and a microphone to hear mars and that's

27
00:00:57,350 --> 00:00:55,680
how we heard the helicopter

28
00:00:59,110 --> 00:00:57,360
and can you talk about some of the

29
00:01:01,830 --> 00:00:59,120
images supercam has taken

30
00:01:04,229 --> 00:01:01,840
and why they are important to scientists

31
00:01:06,789 --> 00:01:04,239
absolutely so we started by taking out

32
00:01:08,149 --> 00:01:06,799
images and spectra near the rover and as

33
00:01:10,230 --> 00:01:08,159
you can see in this image

34
00:01:12,149 --> 00:01:10,240
the laser actually blows away the dust

35
00:01:14,390 --> 00:01:12,159
and makes these small pits in the rocks

36
00:01:16,149 --> 00:01:14,400
and that lets us analyze material that's

37
00:01:18,390 --> 00:01:16,159
just below the surface of the rock

38
00:01:21,109 --> 00:01:18,400

which is what we care about and then we

39
00:01:22,630 --> 00:01:21,119
can record the sounds of the laser

40
00:01:23,990 --> 00:01:22,640
with our microphone and it tells us

41
00:01:24,789 --> 00:01:24,000
something about the hardness of the

42
00:01:27,590 --> 00:01:24,799
rocks

43
00:01:29,350 --> 00:01:27,600
and then starting sol 26 we were able to

44
00:01:31,109 --> 00:01:29,360
take pictures of these long distance

45
00:01:32,950 --> 00:01:31,119
targets like kodiak

46
00:01:34,950 --> 00:01:32,960
and that really helps the rover team

47
00:01:37,030 --> 00:01:34,960
understand where to drive next for

48
00:01:37,990 --> 00:01:37,040
more close-up analysis and these red

49
00:01:40,069 --> 00:01:38,000
circles you see

50
00:01:41,830 --> 00:01:40,079
is actually the infrared um telling us

51
00:01:43,670 --> 00:01:41,840
about the mineral content of these

52
00:01:46,389 --> 00:01:43,680
faraway outcrops

53
00:01:48,710 --> 00:01:46,399
so that's how super cam figures out more

54
00:01:50,469 --> 00:01:48,720
about the geological history of mars

55
00:01:51,749 --> 00:01:50,479
and we're so excited to see what the

56
00:01:53,429 --> 00:01:51,759
laser can do next

57
00:01:55,990 --> 00:01:53,439
thank you so much for joining us today

58
00:01:59,510 --> 00:01:56,000
hamani to get the latest updates

59
00:02:00,709 --> 00:01:59,520
follow at nasa jpl and at nasa persevere

60
00:02:04,310 --> 00:02:00,719
on social media

61
00:02:06,709 --> 00:02:04,320
and on the mission website mars.nasa.gov