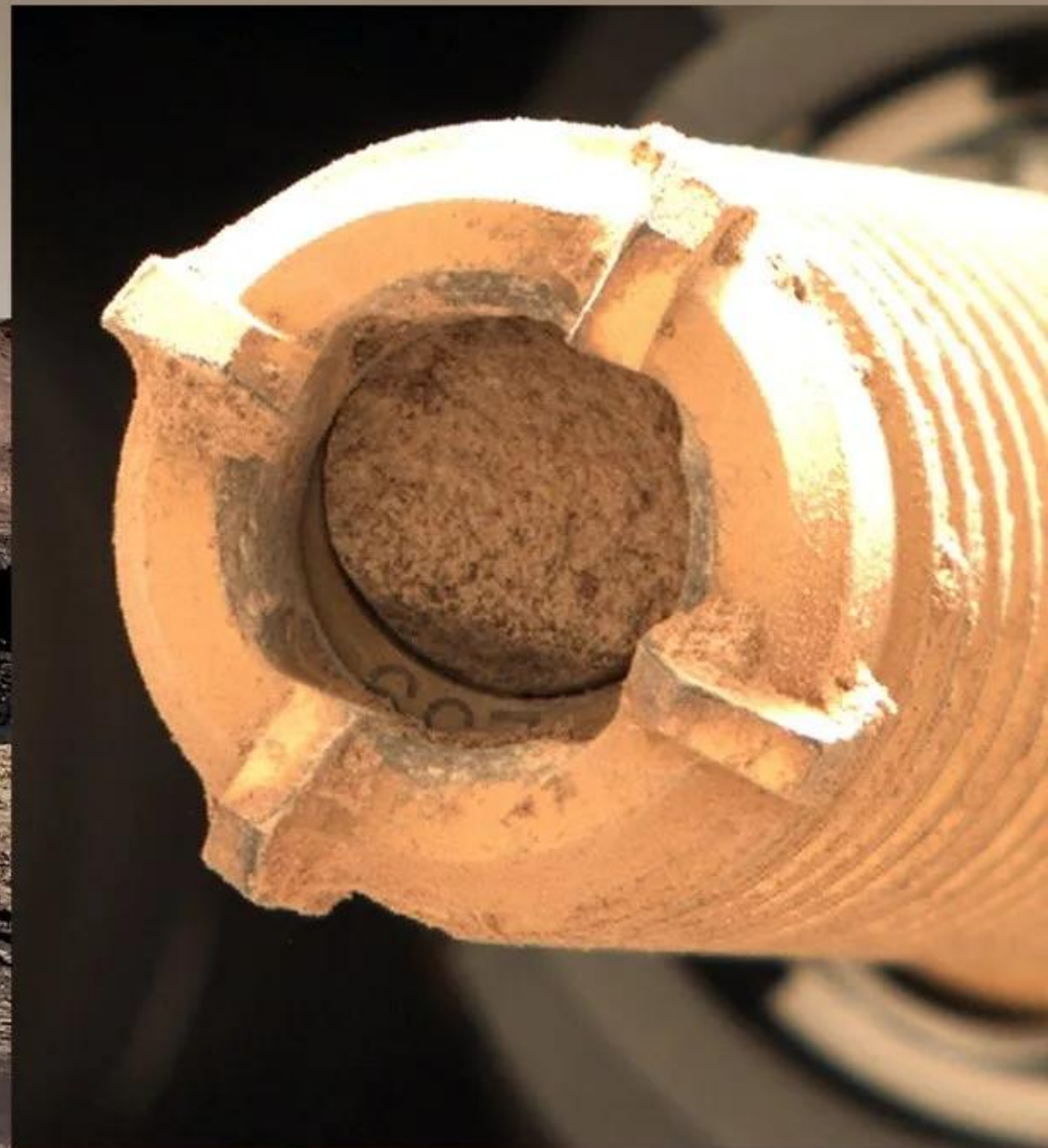


HOW DO WE GET MARS SAMPLES SAFELY TO EARTH?



Jet Propulsion Laboratory
California Institute of Technology



1
00:00:04,249 --> 00:00:01,969
the perseverance Rover is filling up

2
00:00:06,349 --> 00:00:04,259
tubes just like this with Rocky material

3
00:00:08,570 --> 00:00:06,359
from Mars and it's my job to protect

4
00:00:10,610 --> 00:00:08,580
them what kind of testing are we doing

5
00:00:13,770 --> 00:00:10,620
now to make sure that they survive their

6
00:00:17,290 --> 00:00:13,780
Journey back to Earth let's take a look

7
00:00:20,390 --> 00:00:17,300
[Music]

8
00:00:22,849 --> 00:00:20,400
we are close to the base of a nearly 90

9
00:00:25,130 --> 00:00:22,859
foot drop tower here at NASA's jet

10
00:00:27,050 --> 00:00:25,140
propulsion laboratory places like this

11
00:00:29,689 --> 00:00:27,060
are designed to help test out NASA's

12
00:00:32,569 --> 00:00:29,699
most ambitious campaign to date so our

13
00:00:35,389 --> 00:00:32,579

sample returns I'm Raquel Villanueva

14

00:00:37,490 --> 00:00:35,399

here with Aaron Yazzie he's in charge of

15

00:00:40,130 --> 00:00:37,500

keeping the sample tube safe on their

16

00:00:42,049 --> 00:00:40,140

journey home so Erin what's the plan

17

00:00:44,869 --> 00:00:42,059

from our sample Richard Mar's sample

18

00:00:48,529 --> 00:00:44,879

return is the next leg in us being able

19

00:00:50,450 --> 00:00:48,539

to bring back Rocky samples from Mars to

20

00:00:52,670 --> 00:00:50,460

Earth so that we can study them here and

21

00:00:54,950 --> 00:00:52,680

look for signs of ancient life what kind

22

00:00:56,510 --> 00:00:54,960

of testing is being done here at JPL to

23

00:00:58,729 --> 00:00:56,520

prepare the sample tubes for their

24

00:01:00,709 --> 00:00:58,739

Journey back to Earth the sample tubes

25

00:01:02,569 --> 00:01:00,719

have already gone through a lot of

26

00:01:04,310 --> 00:01:02,579

testing to date but we're going to

27

00:01:06,350 --> 00:01:04,320

continue testing to make sure that they

28

00:01:09,230 --> 00:01:06,360

can survive every leg of this Mission

29

00:01:12,410 --> 00:01:09,240

some of them involved mimicking Mars

30

00:01:13,730 --> 00:01:12,420

environment practice robotic handling of

31

00:01:16,070 --> 00:01:13,740

the tubes making sure that they can

32

00:01:18,010 --> 00:01:16,080

survive each of those steps the launch

33

00:01:20,210 --> 00:01:18,020

environment The Landing environment

34

00:01:21,950 --> 00:01:20,220

speaking of final descent back to Earth

35

00:01:23,749 --> 00:01:21,960

that's what the engineers are working on

36

00:01:25,910 --> 00:01:23,759

behind us can you tell us a little bit

37

00:01:28,670 --> 00:01:25,920

more about those tests the tower behind

38

00:01:30,710 --> 00:01:28,680

me is actually able to mimic the event

39

00:01:33,649 --> 00:01:30,720

from when the canister holding the

40

00:01:34,670 --> 00:01:33,659

sample tubes will land back on Earth one

41

00:01:36,590 --> 00:01:34,680

of the designs that we're currently

42

00:01:38,210 --> 00:01:36,600

testing out is what kind of crushable

43

00:01:40,910 --> 00:01:38,220

material we want we might want to use

44

00:01:42,530 --> 00:01:40,920

inside of that assembly so this right

45

00:01:44,030 --> 00:01:42,540

here is actually a piece of titanium

46

00:01:47,870 --> 00:01:44,040

crushable that we're going to use with

47

00:01:50,510 --> 00:01:47,880

this Mast simulator to see how best to

48

00:01:52,609 --> 00:01:50,520

cradle and protect these tubes when they

49

00:01:54,109 --> 00:01:52,619

land back on Earth what is being done to

50

00:01:56,149 --> 00:01:54,119

ensure that this is a successful

51
00:01:59,210 --> 00:01:56,159
campaign we are currently partnering

52
00:02:01,130 --> 00:01:59,220
with agencies across the U.S and around

53
00:02:03,050 --> 00:02:01,140
the world the most predominant one being

54
00:02:05,810 --> 00:02:03,060
the European Space Agency we're actually

55
00:02:07,670 --> 00:02:05,820
working on building a hundred more test

56
00:02:09,290 --> 00:02:07,680
tubes that we can distribute to all

57
00:02:11,089 --> 00:02:09,300
these teams so they can do all their

58
00:02:13,490 --> 00:02:11,099
testing and and ensure that everything

59
00:02:15,530 --> 00:02:13,500
will work like they designed it to what

60
00:02:17,630 --> 00:02:15,540
are you most excited about when it comes

61
00:02:20,390 --> 00:02:17,640
to More Sample return I am really

62
00:02:21,949 --> 00:02:20,400
excited about all the information that

63
00:02:24,710 --> 00:02:21,959

these Little Rock samples hold inside

64

00:02:27,650 --> 00:02:24,720

them especially the exciting probability

65

00:02:30,170 --> 00:02:27,660

that we could find ancient life

66

00:02:32,809 --> 00:02:30,180

for me personally I come from an area in

67

00:02:35,750 --> 00:02:32,819

the U.S that looks like Mars the Navajo

68

00:02:38,630 --> 00:02:35,760

Nation is a rocky desert landscape and

69

00:02:40,910 --> 00:02:38,640

it really reminds me uh how similar

70

00:02:41,690 --> 00:02:40,920

rocky planets and our solar system can

71

00:02:43,190 --> 00:02:41,700

be

72

00:02:44,990 --> 00:02:43,200

it's a very cool perspective to bring

73

00:02:47,990 --> 00:02:45,000

with you thank you for your time Erin

74

00:02:49,490 --> 00:02:48,000

thank you and NASA is sending your name

75

00:02:51,710 --> 00:02:49,500

to Mars so if you'd like to get a

76

00:02:54,229 --> 00:02:51,720

boarding pass like Aaron has right here

77

00:02:56,150 --> 00:02:54,239

please follow the link below and to keep

78

00:02:59,390 --> 00:02:56,160

up with the latest updates follow at

79

00:03:01,369 --> 00:02:59,400

NASA JPL and at NASA Mars or take a

80

00:03:03,560 --> 00:03:01,379

deeper dive on the mission websites at