



1

00:00:01,020 --> 00:00:03,150

Narrator: A team at NASA's Ames Research Center

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00:00:03,150 --> 00:00:06,390

has created a lunar surface analog, or simulated

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00:00:06,390 --> 00:00:09,150

lunar environment, to study lighting conditions

4

00:00:09,150 --> 00:00:12,630

experienced at the unexplored poles of the moon.

5

00:00:12,630 --> 00:00:14,070

Uland Wong: One of the biggest challenges is

6

00:00:14,070 --> 00:00:16,500

figuring out the lighting conditions and

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00:00:16,500 --> 00:00:18,500

the issues with depth perception

8

00:00:18,500 --> 00:00:20,520

at the poles of the Moon.

9

00:00:20,520 --> 00:00:23,110

The lighting is at a very low angle, close to

10

00:00:23,110 --> 00:00:25,680

the horizon at all times of the day.

11

00:00:25,680 --> 00:00:28,020

This creates very long shadows

12

00:00:28,020 --> 00:00:30,680

and high contrast scenes.

13

00:00:30,680 --> 00:00:32,820

Narrator: Researcher Uland Wong is leading a team

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00:00:32,820 --> 00:00:35,250

to study these unique lighting and terrain

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00:00:35,250 --> 00:00:37,020

conditions that pose a challenge

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00:00:37,020 --> 00:00:39,320

for navigating a rover.

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00:00:39,320 --> 00:00:43,350

Uland: Imagine driving through terrain blanketed

18

00:00:43,350 --> 00:00:45,530

after a snow storm.

19

00:00:45,530 --> 00:00:49,100

It's almost the same as driving on the Moon.

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00:00:49,100 --> 00:00:50,700

Narrator: The team has created a dozen

21

00:00:50,700 --> 00:00:53,470

scenarios of exact recreations of craters

22

00:00:53,470 --> 00:00:56,240

and boulders at the poles of the Moon.

23

00:00:56,240 --> 00:00:58,180

In addition to lighting conditions,

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00:00:58,180 --> 00:01:00,840

they also simulate the lunar soil.

25

00:01:00,840 --> 00:01:03,590

Uland: We have a special soil called regolith

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00:01:03,590 --> 00:01:07,080

that is made to be very similar to the soil

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00:01:07,080 --> 00:01:08,620

on the Moon.

28

00:01:08,620 --> 00:01:11,320

It has unique reflective properties because of

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00:01:11,320 --> 00:01:14,030

space weathering processes that you don't find

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00:01:14,030 --> 00:01:18,630

on Earth because of the atmosphere and water erosion.

31

00:01:18,630 --> 00:01:21,700

No robotic mission has ever explored the poles

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00:01:21,700 --> 00:01:24,820

of the Moon and we don't know very much about

33

00:01:24,820 --> 00:01:27,810

these unique lighting conditions and how they might

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00:01:27,810 --> 00:01:30,520

affect robots navigating and exploring

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00:01:30,520 --> 00:01:33,380

the unknown terrain.