



1
00:00:00,400 --> 00:00:04,600

[Music]

2
00:00:04,600 --> 00:00:07,600

The future of human space exploration is being driven

3
00:00:07,600 --> 00:00:10,966

by what we can discover and accomplish on the Moon.

4
00:00:10,966 --> 00:00:12,800

And with NASA's confirmation of ice

5
00:00:12,800 --> 00:00:15,000

existing at the lunar South Pole,

6
00:00:15,000 --> 00:00:18,433

the critical task of finding and mapping where water exists,

7
00:00:18,433 --> 00:00:23,966

what form it is in, and where it came from, can now begin.

8
00:00:23,966 --> 00:00:26,100

Leading us on that journey will be NASA's first

9
00:00:26,100 --> 00:00:29,800

mobile robotic mission on the Moon, known as VIPER –

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00:00:29,800 --> 00:00:33,133

the Volatiles Investigating Polar Exploration Rover.

11
00:00:33,133 --> 00:00:36,100

It will be delivered to the Nobile region of the South Pole

12
00:00:36,100 --> 00:00:39,900

as part of NASA's Commercial Lunar Payload Services initiative.

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00:00:39,900 --> 00:00:43,700

This region sits just outside of the western rim of Nobile Crater,

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00:00:43,700 --> 00:00:47,133

and covers an area of 36 square miles.

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00:00:48,000 --> 00:00:50,066

As the first-ever resource mapping mission

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00:00:50,066 --> 00:00:52,600

on the surface of another celestial body,

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00:00:52,600 --> 00:00:54,533

VIPER will roam the surface equipped with

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00:00:54,533 --> 00:00:56,733

three science instruments and a drill

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00:00:56,733 --> 00:00:59,766

to detect and analyze various lunar soil environments

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00:00:59,766 --> 00:01:02,800

at a range of depths and temperatures.

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00:01:02,800 --> 00:01:05,500

The rover will venture into permanently shadowed craters,

22

00:01:05,500 --> 00:01:08,066

some of the coldest spots in the solar system,

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00:01:08,066 --> 00:01:11,200

where ice reserves have been preserved for billions of years.

24

00:01:15,866 --> 00:01:17,766

NASA had four critical parameters

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00:01:17,766 --> 00:01:20,233

when choosing a landing site for VIPER:

26

00:01:20,233 --> 00:01:22,033

available sunlight,

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00:01:22,033 --> 00:01:25,800

Earth visibility for communications from the Moon to the Earth,

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00:01:25,800 --> 00:01:27,866

data showing the potential presence of water

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00:01:27,866 --> 00:01:29,433

and other resources,

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00:01:29,433 --> 00:01:32,433

and terrain that is well-suited for VIPER to navigate.

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00:01:37,066 --> 00:01:43,666

The area to the west of Nobile crater met these conditions.

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00:01:43,666 --> 00:01:47,100

Once on the surface, VIPER's mission will last 100 days

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00:01:47,100 --> 00:01:49,533

and cover between 10 to 15 miles.

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00:01:49,533 --> 00:01:52,066

And while a baseline traverse route through the Nobile region

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00:01:52,066 --> 00:01:54,100

has been identified for the rover,

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00:01:54,100 --> 00:01:57,033

the scientific discoveries VIPER makes along the way

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00:01:57,033 --> 00:02:00,166

will actually influence where the mission team sends it next,

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00:02:00,166 --> 00:02:05,066

so it's planned route will most likely change.

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00:02:05,066 --> 00:02:08,400

During its travels, VIPER will visit at least six locations

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00:02:08,400 --> 00:02:11,400

where data suggest ice could be found.

41

00:02:18,033 --> 00:02:19,666

By helping determine the locations

42

00:02:19,666 --> 00:02:22,333

of where water and other resources exist,

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00:02:22,333 --> 00:02:24,133

VIPER's findings will help pave the way

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00:02:24,133 --> 00:02:28,033

for future landing sites under NASA's Artemis program.

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00:02:28,033 --> 00:02:30,566

The prospects of achieving a long-term human presence