



LUNAR ICECUBE

ARTEMIS I SECONDARY PAYLOAD

1

00:00:00,867 --> 00:00:03,703

As the Artemis missions journey to the Moon,

2

00:00:03,703 --> 00:00:05,605

finding and understanding water

3

00:00:05,605 --> 00:00:08,575

will be key to establishing a renewed presence there.

4

00:00:08,708 --> 00:00:10,410

Water is critical to life

5

00:00:10,410 --> 00:00:12,946

and can be broken into Hydrogen and Oxygen,

6

00:00:12,946 --> 00:00:15,448

which can serve as rocket fuel.

7

00:00:15,515 --> 00:00:17,117

The Lunar IceCube mission,

8

00:00:17,117 --> 00:00:18,885

led by Morehead State University,

9

00:00:18,918 --> 00:00:21,688

will carry a NASA instrument called BIRCHES

10

00:00:21,688 --> 00:00:24,657

to investigate water ice on the Moon.

11

00:00:24,657 --> 00:00:27,627

Lunar IceCube is a small satellite

12

00:00:27,627 --> 00:00:30,597

designed to provide observations at diverse lunar regions

13

00:00:30,597 --> 00:00:33,233

to better understand the Moon's water cycle.

14

00:00:33,633 --> 00:00:36,236

NASA scientists will use BIRCHES data

15

00:00:36,236 --> 00:00:38,038

to understand where water is,

16

00:00:38,038 --> 00:00:39,172

what its origins are,

17

00:00:39,205 --> 00:00:40,907

and how we can use it.

18

00:00:41,174 --> 00:00:44,010

BIRCHES will also help map water in the exosphere,

19

00:00:44,010 --> 00:00:46,479

an extremely thin volume of atmosphere

20

00:00:46,546 --> 00:00:48,181

surrounding the Moon.

21

00:00:48,181 --> 00:00:50,183

Scientists are interested in understanding

22

00:00:50,183 --> 00:00:53,153

the absorption and release of water in the Moon's regolith,

23

00:00:53,219 --> 00:00:55,555

dust and rocks on the lunar surface.

24

00:00:55,588 --> 00:00:57,857

This research will help scientists and engineers

25

00:00:57,857 --> 00:01:00,827

better understand changes to water on the Moon over time.

26

00:01:01,728 --> 00:01:03,863

BIRCHES uses a similar technology

27

00:01:03,863 --> 00:01:06,166

that flew on the OSIRIS-REx mission,

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00:01:06,199 --> 00:01:08,301

which studied the asteroid Bennu.

29

00:01:08,334 --> 00:01:10,570

However, BIRCHES has been miniaturized

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00:01:10,603 --> 00:01:13,573

to 1/6 the mass of the instrument on OSIRIS-REx

31

00:01:13,573 --> 00:01:16,543

and is roughly the size of an eight-inch tissue box.

32

00:01:17,343 --> 00:01:20,013

The Lunar IceCube spacecraft and BIRCHES instrument

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00:01:20,013 --> 00:01:21,748

will launch as a secondary payload

34

00:01:21,748 --> 00:01:23,416

on the Artemis I mission,