
NASA
801
N801NA

1
00:00:00,600 --> 00:00:07,060
[music]

2
00:00:07,260 --> 00:00:09,900
Space researchers consider the most likely location

3
00:00:09,980 --> 00:00:13,180
for discovering potential primitive life-forms on Mars

4
00:00:13,260 --> 00:00:14,400
to be in caves.

5
00:00:14,640 --> 00:00:15,920
But, how do they find them?

6
00:00:16,640 --> 00:00:19,040
That was the goal of a recent NASA
funded airborne

7
00:00:19,040 --> 00:00:21,600
and ground study designed to aid in the detection of

8
00:00:21,600 --> 00:00:25,140
caves on the Earth, the Moon and Mars.

9
00:00:25,140 --> 00:00:27,940
The purpose of this study is to learn how to

10
00:00:27,940 --> 00:00:29,320
detect caves on Earth,

11
00:00:30,340 --> 00:00:31,920
and then apply the techniques that we developed

12
00:00:31,960 --> 00:00:33,560
for detecting caves on earth to looking for

13

00:00:33,580 --> 00:00:34,680
caves on Mars.

14
00:00:35,640 --> 00:00:37,400
When a doctoral candidate at

15
00:00:37,400 --> 00:00:39,780
Northern Arizona University in Flagstaff

16
00:00:39,820 --> 00:00:42,260
and a researcher at the SETI Institute

17
00:00:42,560 --> 00:00:44,540
flew two missions aboard a NASA King Air

18
00:00:44,640 --> 00:00:47,020
research aircraft in April
2011.

19
00:00:47,720 --> 00:00:50,600
The flights over lava fields in California's Mojave Desert

20
00:00:50,880 --> 00:00:53,460
collected both thermal and visual imagery to aid

21
00:00:53,460 --> 00:00:54,880
in detection of caves.

22
00:00:55,460 --> 00:00:58,020
We are basically coupling

23
00:00:58,280 --> 00:00:59,180
those ground-based measurements

24
00:00:59,180 --> 00:01:01,540
that were currently collecting with,

25
00:01:02,140 --> 00:01:04,880

the thermal imaging data and the VIS data

26
00:01:04,890 --> 00:01:06,280
that we're collecting, as well.

27
00:01:06,280 --> 00:01:07,799
Through developing techniques for detecting

28
00:01:07,799 --> 00:01:10,420
caves on Earth, we can then take those

29
00:01:10,420 --> 00:01:12,930
techniques and use them to look for

30
00:01:12,930 --> 00:01:14,420
caves on Mars.

31
00:01:15,300 --> 00:01:17,460
NASA Goddard engineer Mersey Shambala

32
00:01:17,460 --> 00:01:19,920
operated a NASA photo detector that

33
00:01:19,920 --> 00:01:21,780
imaged the temperature variations of the

34
00:01:21,780 --> 00:01:24,040
caves and surrounding surface that occur

35
00:01:24,040 --> 00:01:26,380
as a result of the heating effects of the Sun.

36
00:01:27,160 --> 00:01:29,280
This thermal data will be compared with similar

37
00:01:29,280 --> 00:01:30,760
ground-based measurements.

38
00:01:32,200 --> 00:01:34,360
Wynne noted that there's a secondary reason

39
00:01:34,360 --> 00:01:36,600
for developing cave detection technology.

40
00:01:36,960 --> 00:01:39,240
Another important aspect of the study

41
00:01:39,240 --> 00:01:41,500
as it relates to the importance of Martian caves,

42
00:01:41,900 --> 00:01:44,700
is that, these caves could also serve as

43
00:01:44,700 --> 00:01:46,440
astronaut shelters.

44
00:01:49,040 --> 00:01:51,420
Wynne envisions this research will contribute to the

45
00:01:51,420 --> 00:01:54,120
development of selection criteria that
could identify

46
00:01:54,120 --> 00:01:57,420
suitable cave targets for future robotic exploration

47
00:01:57,560 --> 00:01:59,980
If life ever existed on Mars