1
00:00:22,040 --> 00:00:18,310
this stark environment looks like Mars

2
00:00:24,410 --> 00:00:22,050
in a way it is for planetary scientists

3
00:00:27,920 --> 00:00:24,420
chris mckay of NASA's Ames Research

4
00:00:30,620 --> 00:00:27,930
Center his specialty is the study of

5
00:00:33,139 --> 00:00:30,630
life in the universe instead of

6
00:00:35,930 --> 00:00:33,149
traveling to Mars makeda is the next

7
00:00:38,209 --> 00:00:35,940
best thing he leads a diversified team

8
00:00:41,030 --> 00:00:38,219
of scientists into the remote dry

9
00:00:47,400 --> 00:00:41,040
valleys of Western Antarctica near the

10
00:00:50,790 --> 00:00:48,990
and spend a couple of months a year

11
00:00:53,720 --> 00:00:50,800
probing the seemingly lifeless

12
00:00:56,010 --> 00:00:53,730
environment for clues to its makeup

13
00:00:59,130 --> 00:00:56,020

studying this barren and frozen

14
00:01:01,590 --> 00:00:59,140
ecosystem allows scientists to approach

15
00:01:06,330 --> 00:01:01,600
the investigation of Mars with a more

16
00:01:08,430 --> 00:01:06,340
educated I the dry Valley region is a

17
00:01:10,770 --> 00:01:08,440
place where temperatures dipped to minus

18
00:01:13,550 --> 00:01:10,780
60 degrees fahrenheit in the winter and

19
00:01:15,930 --> 00:01:13,560
are rarely above freezing in the summer

20
00:01:18,090 --> 00:01:15,940
what startled researchers when they

21
00:01:20,150 --> 00:01:18,100
began their studies about 10 years ago

22
00:01:23,100 --> 00:01:20,160
was the discovery that microorganisms

23
00:01:27,090 --> 00:01:23,110
were living in the sandstone boulders

24
00:01:29,310 --> 00:01:27,100
along the valley wall research assistant

25
00:01:34,529 --> 00:01:29,320
who studies beneath the rugged surface

26
00:01:36,690 --> 00:01:34,539
which is actually a frozen lake hardly

27
00:01:40,219 --> 00:01:36,700
what most of us consider a lake but

28
00:01:44,010 --> 00:01:40,229
nonetheless after taking my sales

29
00:01:49,559 --> 00:01:44,020
13 feet down into the US scientists we

30
00:01:52,620 --> 00:01:49,569
find its liquid component in 10 below

31
00:01:57,440 --> 00:01:52,630
zero whether a diver Don scuba gear in

32
00:01:57,450 --> 00:02:00,920
sample food

33
00:02:07,389 --> 00:02:04,040
from the lake mother once inside the

34
00:02:10,850 --> 00:02:07,399
Iceman politely finishes very quickly

35
00:02:13,280 --> 00:02:10,860
the absence of swimming aquatic life is

36
00:02:19,850 --> 00:02:13,290
immediately noticed the crystal clear

37
00:02:22,090 --> 00:02:19,860
water and moderate deaths a thin carpet

38
00:02:24,860 --> 00:02:22,100

of algae can be seen covering the bottom

39
00:02:27,740 --> 00:02:24,870
these primitive organisms called

40
00:02:29,990 --> 00:02:27,750
stromatolites in their fossilized state

41
00:02:32,360 --> 00:02:30,000
may offer one of the best clues about

42
00:02:35,030 --> 00:02:32,370
life on another planet according to

43
00:02:38,330 --> 00:02:35,040
chris mckenna we think that these

44
00:02:40,280 --> 00:02:38,340
organisms are very good analogue to what

45
00:02:42,020 --> 00:02:40,290
we think might have existed on Mars lake

46
00:02:44,000 --> 00:02:42,030
and even to what we think might have

47
00:02:46,190 --> 00:02:44,010
existed on early Earth but we're

48
00:02:48,550 --> 00:02:46,200
studying these organisms to see how they

49
00:02:51,410 --> 00:02:48,560
produce energy capturing sunlight

50
00:02:53,420 --> 00:02:51,420
photosynthesis how they respire look

51
00:02:56,150 --> 00:02:53,430
where they get their nutrients and how

52
00:02:59,770 --> 00:02:56,160
just a whole ecology of a lake that's

53
00:03:02,330 --> 00:02:59,780
under her perennial constant ice-covered

54
00:03:05,420 --> 00:03:02,340
photographic evidence from NASA Viking

55
00:03:08,210 --> 00:03:05,430
spacecraft suggests that Mars had lakes

56
00:03:10,220 --> 00:03:08,220
at one time comparative studies in

57
00:03:13,400 --> 00:03:10,230
Antarctica tell us that life-sustaining

58
00:03:17,420 --> 00:03:13,410
water could have existed below frozen

59
00:03:19,880 --> 00:03:17,430
lakes on early Mars since Mars died an

60
00:03:22,789 --> 00:03:19,890
early death it may hold good fossil

61
00:03:26,360 --> 00:03:22,799
evidence of first life on the mysterious

62
00:03:28,460 --> 00:03:26,370
red planet a sort of life's last stand

63
00:03:31,490 --> 00:03:28,470

on Mars could have been a swim in one of

64
00:03:33,970 --> 00:03:31,500
these frozen lakes and so if we study

65
00:03:36,650 --> 00:03:33,980
the Antartic Lakes we might be able to

66
00:03:43,230 --> 00:03:36,660
come up with methods to find evidence

67
00:03:46,030 --> 00:03:43,240
for this last biological event on Mars

68
00:03:48,430 --> 00:03:46,040
using the frozen lakes of Antarctica as

69
00:03:50,940 --> 00:03:48,440
a laboratory is an important first step

70
00:03:53,650 --> 00:03:50,950
in the future exploration of Mars

71
00:03:55,990 --> 00:03:53,660
knowing where life might have existed on

72
00:03:58,750 --> 00:03:56,000
the dead planet may lead us to the first