
COUNTDOWN
TO MARS
NASA
DR. DAVID DES MARAIS

1
00:00:01,870 --> 00:00:13,749
[Music]

2
00:00:17,430 --> 00:00:14,870
perseverance rover

3
00:00:19,109 --> 00:00:17,440
mission is really an outcome of decades

4
00:00:21,590 --> 00:00:19,119
of research and planning

5
00:00:23,349 --> 00:00:21,600
for astrobiology and particularly my own

6
00:00:24,870 --> 00:00:23,359
research into ancient planetary

7
00:00:26,470 --> 00:00:24,880
environments on earth

8
00:00:28,710 --> 00:00:26,480
their nature and how they've changed

9
00:00:30,550 --> 00:00:28,720
over time of course life's origins and

10
00:00:33,350 --> 00:00:30,560
it's early evolution and

11
00:00:33,590 --> 00:00:33,360
where we would look for evidence of life

12
00:00:35,350 --> 00:00:33,600
on

13
00:00:36,709 --> 00:00:35,360

early earth and then what particular

14
00:00:39,190 --> 00:00:36,719
features you look for

15
00:00:40,630 --> 00:00:39,200
my own personal research is a geochemist

16
00:00:43,030 --> 00:00:40,640
which is basically a

17
00:00:44,549 --> 00:00:43,040
chemist who studies geologic materials

18
00:00:46,630 --> 00:00:44,559
rocks and so forth

19
00:00:47,590 --> 00:00:46,640
and studying early history i'm very

20
00:00:49,510 --> 00:00:47,600
interested in how

21
00:00:51,430 --> 00:00:49,520
life and its environment have affected

22
00:00:53,990 --> 00:00:51,440
each other over time

23
00:00:54,709 --> 00:00:54,000
and therefore really giving insights to

24
00:00:56,950 --> 00:00:54,719
why life

25
00:00:58,150 --> 00:00:56,960
is the way that it is now of course

26
00:01:00,630 --> 00:00:58,160
jezreel crater

27
00:01:02,470 --> 00:01:00,640
is a landing site whose selection is an

28
00:01:03,349 --> 00:01:02,480
outcome of all that research that has

29
00:01:05,910 --> 00:01:03,359
been done on

30
00:01:07,429 --> 00:01:05,920
early earth because it resembles early

31
00:01:10,070 --> 00:01:07,439
earth environments that had

32
00:01:11,830 --> 00:01:10,080
fossils in them ancient environmental

33
00:01:13,510 --> 00:01:11,840
conditions were more habitable on earth

34
00:01:17,990 --> 00:01:13,520
so ancient and

35
00:01:22,149 --> 00:01:19,990
for me i mean it's finding rocks

36
00:01:23,749 --> 00:01:22,159
minerals chemicals and other features

37
00:01:26,390 --> 00:01:23,759
that really demonstrate

38
00:01:27,910 --> 00:01:26,400

that we have an example of ancient

39
00:01:30,630 --> 00:01:27,920
habitable conditions

40
00:01:32,149 --> 00:01:30,640
and potential signatures of life but the

41
00:01:33,830 --> 00:01:32,159
key point here is that

42
00:01:36,069 --> 00:01:33,840
we expect them to be much better

43
00:01:37,270 --> 00:01:36,079
preserved than what we have on the early

44
00:01:40,069 --> 00:01:37,280
earth earth has really

45
00:01:42,149 --> 00:01:40,079
ravaged that record and we have every

46
00:01:42,630 --> 00:01:42,159
expectation that mars has done a better

47
00:01:45,670 --> 00:01:42,640
job

48
00:01:47,830 --> 00:01:45,680
at preservation and so what i loved

49
00:01:49,910 --> 00:01:47,840
as a big discovery would be multiple

50
00:01:52,230 --> 00:01:49,920
features that might be potential

51
00:01:54,230 --> 00:01:52,240
preserved fossils and of course the

52
00:01:56,469 --> 00:01:54,240
ability to collect those samples

53
00:01:58,069 --> 00:01:56,479
and returning them yeah that's that's a

54
00:01:59,270 --> 00:01:58,079
big if you know if we find something

55
00:02:01,350 --> 00:01:59,280
that's really cool

56
00:02:03,030 --> 00:02:01,360
can we get the proper samples from it

57
00:02:05,590 --> 00:02:03,040
that could be returned

58
00:02:06,709 --> 00:02:05,600
so in a way all this would build towards

59
00:02:09,430 --> 00:02:06,719
potentially

60
00:02:11,350 --> 00:02:09,440
establishing mars as a second example of