COUNTDOWN TO MARS

DR. KENNDA LYNCH

1
00:00:13,440 --> 00:00:17,440
The mars 2020 mission is really
important to me and my research because

2
00:00:17,440 --> 00:00:20,960
I study paleo lake basins here on earth and I

3
00:00:20,960 --> 00:00:24,160
study life that can live in the
sediments of paleo lake basins

4
00:00:24,160 --> 00:00:27,359
and look at what that could mean
for life on mars,

5
00:00:27,359 --> 00:00:31,599
and for the 2020 mission, Perseverance is
going

6
00:00:31,599 --> 00:00:35,040
to a paleo lake basin; it's going to
Jezero crater

7
00:00:35,040 --> 00:00:38,480
and it has this beautiful delta deposit

8
00:00:38,480 --> 00:00:43,520
that in the bottom of it has
some specific deposits called bottom set

9
00:00:43,520 --> 00:00:47,580
deposits and those are extremely
exciting and relevant to my work.

10
00:00:50,400 --> 00:00:54,559
The most amazing result that I, that we
could get for

11
00:00:54,559 --> 00:00:58,079

my research and my interest would be a

12
00:00:58,079 --> 00:01:01,520
detection of a possible biosignature in
the delta

13
00:01:01,520 --> 00:01:05,199
bottom set deposits of Jezero crater
and that's because those bottom set

14
00:01:05,199 --> 00:01:10,000
deposits are an amazing environment.
Here on Earth we know that bottom set

15
00:01:10,000 --> 00:01:14,400
deposits
in paleo lakes on Earth are excellent

16
00:01:14,400 --> 00:01:18,320
areas for high organics and biosignature preservation.

17
00:01:18,320 --> 00:01:22,400
So, if we could detect something in the
deposits, the bottom step deposits, on

18
00:01:22,400 --> 00:01:25,600
Mars that would be an amazing result
especially because it could have come

19
00:01:25,600 --> 00:01:29,600
from multiple different habitable zones:
it could have come from the delta, what we

20
00:01:29,600 --> 00:01:33,520
call the the watershed
the area of the tributaries all the

21
00:01:33,520 --> 00:01:37,000
rivers and streams that flowed into Jezero crater,

22
00:01:37,100 --> 00:01:39,040
to create the lake that was there
at one point.

23
00:01:39,040 --> 00:01:42,479
It could have come from the Jezero
paleo lake itself when the lake body was

24
00:01:42,479 --> 00:01:44,799
present and
there could have been life living in

25
00:01:44,799 --> 00:01:46,960
the lake that fell to the bottom and preserved.

26
00:01:46,960 --> 00:01:50,240
Or, it could have been in, most
importantly from my research perspective,

27
00:01:50,240 --> 00:01:53,439
it could have been
from a transitional habitable zone that

28
00:01:53,439 --> 00:01:56,399
happened in the near subsurface after
the lake water started to

29
00:01:56,399 --> 00:02:00,560
evaporate away while mars was drying out.
Life could have moved into

30
00:02:00,560 --> 00:02:03,520
the near subsurface and survived in
groundwater moving through the lake deposits,

31
00:02:03,520 --> 00:02:05,680
and we would be able to see that in

32
00:02:05,680 --> 00:02:10,000

those bottom set deposits
with the biosignature detection and that

33
00:02:10,000 --> 00:02:13,760
would be fascinating for
many reasons one of which also is that

34
00:02:13,760 --> 00:02:16,640
it would help us
guide our research and our

35
00:02:16,640 --> 00:02:20,000
exploration of the mars subsurface
because we do believe that Mars'

36
00:02:20,000 --> 00:02:23,520
subsurface was a habitable
zone for ancient life and could still be

37
00:02:23,520 --> 00:02:27,200
a habitable zone today,
albeit much deeper, it could be a