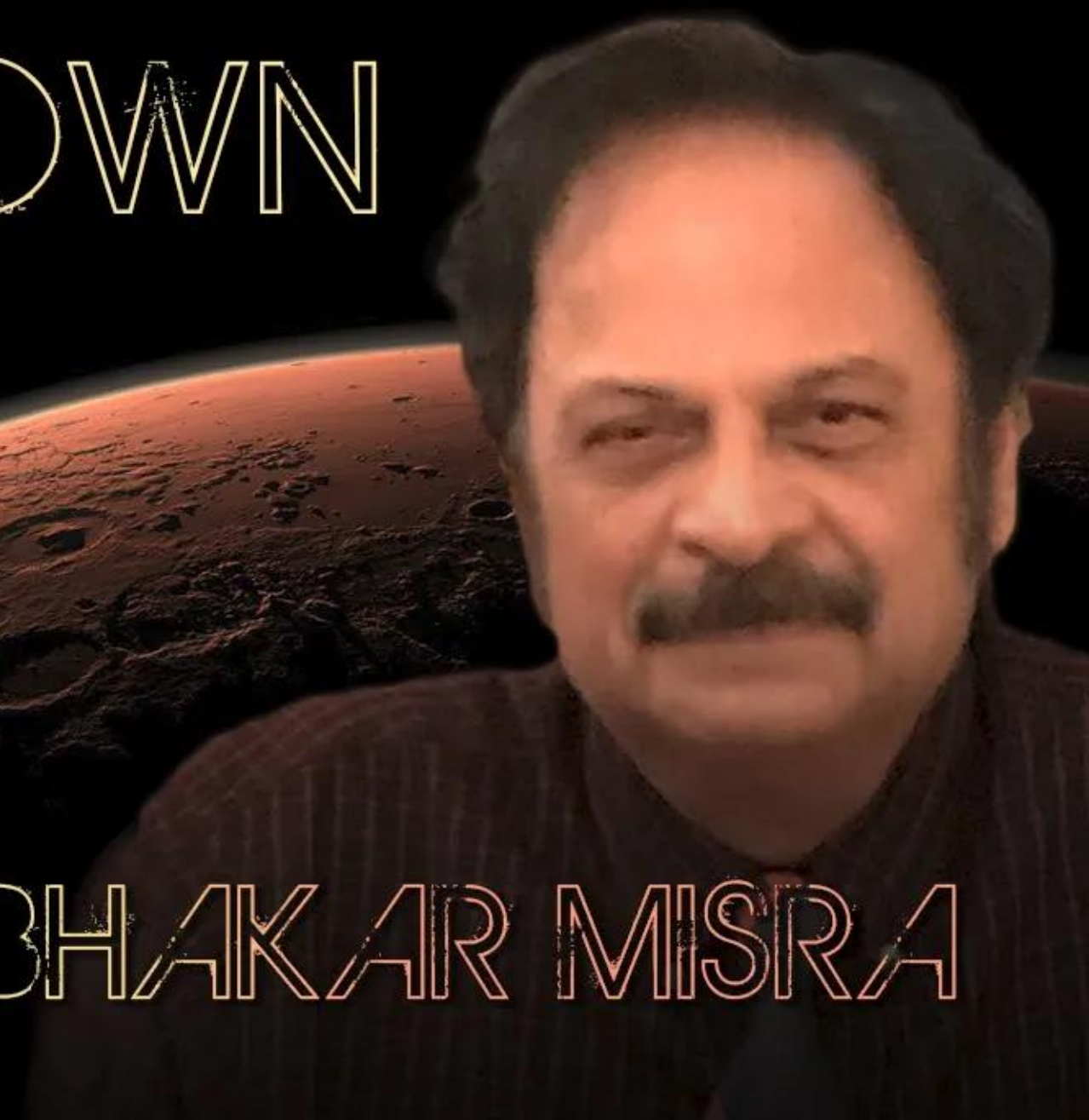


COUNTDOWN TO MARS



DR. PRABHAKAR MISRA



1
00:00:00,450 --> 00:00:13,669

[Music]

2
00:00:17,910 --> 00:00:14,390

the mars

3
00:00:20,150 --> 00:00:17,920

2020 mission with the perseverance rover

4
00:00:21,590 --> 00:00:20,160

and the ingenuity helicopter really

5
00:00:24,070 --> 00:00:21,600

resonates with us

6
00:00:25,830 --> 00:00:24,080

my students my research associates and

7
00:00:28,230 --> 00:00:25,840

myself

8
00:00:29,589 --> 00:00:28,240

in particular the jezreel crater which

9
00:00:33,110 --> 00:00:29,599

is the landing site

10
00:00:35,750 --> 00:00:33,120

for the perseverance rover it has been

11
00:00:37,190 --> 00:00:35,760

photographed previously by the mars

12
00:00:40,470 --> 00:00:37,200

reconnaissance orbiter

13
00:00:43,510 --> 00:00:40,480

in 2007 and showed evidence

14

00:00:46,310 --> 00:00:43,520
of an ancient delta within it the

15

00:00:47,190 --> 00:00:46,320
sediments containing the hydrous clay

16

00:00:50,630 --> 00:00:47,200
minerals

17

00:00:53,189 --> 00:00:50,640
and the carbonates at the crater site

18

00:00:53,990 --> 00:00:53,199
have been thought to be transported by

19

00:00:56,709 --> 00:00:54,000
water

20

00:00:57,270 --> 00:00:56,719
from nearby highlands billions of years

21

00:00:59,910 --> 00:00:57,280
ago

22

00:01:00,950 --> 00:00:59,920
in such a deltaic setting they would be

23

00:01:03,670 --> 00:01:00,960
favorable

24

00:01:04,950 --> 00:01:03,680
for the accumulation and preservation of

25

00:01:07,990 --> 00:01:04,960
organic matter

26
00:01:13,750 --> 00:01:08,000
and perhaps it would be a potential sign

27
00:01:16,310 --> 00:01:13,760
of life on mars

28
00:01:17,749 --> 00:01:16,320
as the mars exploration program enters

29
00:01:21,190 --> 00:01:17,759
the third decade

30
00:01:23,429 --> 00:01:21,200
the mars 2020 mission builds on the

31
00:01:24,950 --> 00:01:23,439
successes of the previous orbiters

32
00:01:27,830 --> 00:01:24,960
landers and rovers

33
00:01:29,270 --> 00:01:27,840
that have now firmly established the

34
00:01:32,149 --> 00:01:29,280
presence of

35
00:01:33,429 --> 00:01:32,159
sustained liquid water and habitable

36
00:01:36,310 --> 00:01:33,439
environments

37
00:01:37,350 --> 00:01:36,320
by addressing the key astrobiology

38
00:01:40,469 --> 00:01:37,360

question

39

00:01:41,749 --> 00:01:40,479

are there potential signs of past

40

00:01:45,590 --> 00:01:41,759

microbial life

41

00:01:46,469 --> 00:01:45,600

on mars or alternately are there bio

42

00:01:50,469 --> 00:01:46,479

signatures

43

00:01:53,350 --> 00:01:50,479

on mars that perseverance can detect

44

00:01:54,310 --> 00:01:53,360

now as we are gearing to send humans to

45

00:01:57,350 --> 00:01:54,320

mars

46

00:01:58,870 --> 00:01:57,360

and therefore there is now an even more

47

00:02:02,630 --> 00:01:58,880

urgent need

48

00:02:06,389 --> 00:02:02,640

to detect signs of extinct or extent

49

00:02:09,190 --> 00:02:06,399

life on mars before human presence

50

00:02:10,630 --> 00:02:09,200

contaminates the surface of mars the

51

00:02:18,130 --> 00:02:10,640

fiery red planet

52

00:02:23,110 --> 00:02:20,830

[Music]