1
00:00:07,849 --> 00:00:05,690
often get asked well how long will

2
00:00:10,040 --> 00:00:07,859
opportunity last and you know I can't

3
00:00:12,200 --> 00:00:10,050
say you know I don't think anyone knows

4
00:00:13,580 --> 00:00:12,210
you know eight years ago we were

5
00:00:15,440 --> 00:00:13,590
scratching our heads and said well maybe

6
00:00:17,300 --> 00:00:15,450
six months if we're really lucky but

7
00:00:19,220 --> 00:00:17,310
here were eight years later and the

8
00:00:21,500 --> 00:00:19,230
rover is still a very good health now

9
00:00:24,769 --> 00:00:21,510
we're at endeavour crater we're seeing

10
00:00:27,890 --> 00:00:24,779
new geology older geology it's a whole

11
00:00:30,080 --> 00:00:27,900
new window on the history of Mars it's

12
00:00:32,780 --> 00:00:30,090
the earliest period of Mars in which

13
00:00:34,850 --> 00:00:32,790

there was water sustained liquid water

14
00:00:36,530 --> 00:00:34,860
on the surface it was in that era that

15
00:00:38,000 --> 00:00:36,540
life started on the earth and so that's

16
00:00:40,130 --> 00:00:38,010
when we think Mars was the most

17
00:00:42,920 --> 00:00:40,140
earth-like and we've already seen

18
00:00:43,970 --> 00:00:42,930
evidence of that era I've reflected in

19
00:00:46,610 --> 00:00:43,980
some of the minerals that we've

20
00:00:48,350 --> 00:00:46,620
discovered at distant location we've

21
00:00:50,660 --> 00:00:48,360
assessed them to be gypsum and that's

22
00:00:52,549 --> 00:00:50,670
significant because these are minerals

23
00:00:54,830 --> 00:00:52,559
that form and water and they form in

24
00:00:56,900 --> 00:00:54,840
place perhaps groundwater came up and

25
00:01:00,080 --> 00:00:56,910
filled cracks and fractures in the

26
00:01:02,450 --> 00:01:00,090
geology that formed these veins of like

27
00:01:04,160 --> 00:01:02,460
toe material that's a great advantage

28
00:01:06,230 --> 00:01:04,170
that you have with a rover that can

29
00:01:12,530 --> 00:01:06,240
travel and move it's not the same stuff

30
00:01:14,660 --> 00:01:12,540
it's new stuff every day right now

31
00:01:17,480 --> 00:01:14,670
opportunities going through her fifth

32
00:01:19,520 --> 00:01:17,490
Martian winter this one's a little more

33
00:01:21,620 --> 00:01:19,530
challenging than the previous winters

34
00:01:23,149 --> 00:01:21,630
because dust continues to accumulate on

35
00:01:25,370 --> 00:01:23,159
the solar arrays which is reduced the

36
00:01:27,940 --> 00:01:25,380
power level so we can produce we had to

37
00:01:30,859 --> 00:01:27,950
take the rover and drive it up on to a

38
00:01:32,749 --> 00:01:30,869

ridge that gives us about a 15-degree

39
00:01:34,100 --> 00:01:32,759
tilt towards the north that's where the

40
00:01:36,170 --> 00:01:34,110
Sun will be in the wintertime because

41
00:01:37,880 --> 00:01:36,180
we're in the southern hemisphere it's

42
00:01:42,399 --> 00:01:37,890
kind of like adjusting your deck chair

43
00:01:47,649 --> 00:01:45,340
in a very unusual way this roving

44
00:01:50,740 --> 00:01:47,659
vehicle when it's stationary allows us

45
00:01:52,749 --> 00:01:50,750
to probe the interior of Mars it's radio

46
00:01:54,700 --> 00:01:52,759
signal now becomes a proxy for

47
00:01:56,080 --> 00:01:54,710
rotational rate of Mars and so we're

48
00:01:58,480 --> 00:01:56,090
going to measure the rotational rate of

49
00:02:01,029 --> 00:01:58,490
Mars very precisely which will give us a

50
00:02:03,339 --> 00:02:01,039
handle on the physical interior of the

51
00:02:05,080 --> 00:02:03,349
planet its distribution of material

52
00:02:10,020 --> 00:02:05,090
inside the size of the core maybe the

53
00:02:12,880 --> 00:02:10,030
fluid state of the core right now

54
00:02:14,770 --> 00:02:12,890
opportunity is alone on the surface of

55
00:02:16,600 --> 00:02:14,780
Mars we had to say goodbye to spirit

56
00:02:19,500 --> 00:02:16,610
after over six years of successful

57
00:02:21,369 --> 00:02:19,510
operation that Rover but soon

58
00:02:23,800 --> 00:02:21,379
opportunity will have company and

59
00:02:27,009 --> 00:02:23,810
that'll be curiosity the next Rover now

60
00:02:29,410 --> 00:02:27,019
curiosity will land a quarter of the way

61
00:02:31,030 --> 00:02:29,420
around the planet from opportunity so

62
00:02:33,759 --> 00:02:31,040
there's some chances of ever meeting up