1
00:00:05,130 --> 00:00:02,610
a prime responsibility of the Mars

2
00:00:07,740 --> 00:00:05,140
Reconnaissance Orbiter has been to

3
00:00:10,289 --> 00:00:07,750
search out new landing sites for future

4
00:00:12,119 --> 00:00:10,299
missions both to find places that are

5
00:00:14,159 --> 00:00:12,129
scientifically interesting on the planet

6
00:00:16,679 --> 00:00:14,169
that have great potential for future

7
00:00:18,900 --> 00:00:16,689
discovery once we land there but also to

8
00:00:22,800 --> 00:00:18,910
make sure and de certify that we'll be

9
00:00:24,540 --> 00:00:22,810
able to land there safely next up is the

10
00:00:27,029 --> 00:00:24,550
Mars Science Laboratory to be launched

11
00:00:29,909 --> 00:00:27,039
in 2011 it will set down on the planet

12
00:00:31,650 --> 00:00:29,919
in 2012 over three dozen sites have been

13
00:00:34,020 --> 00:00:31,660

looked at intensively by the Mars

14
00:00:37,290 --> 00:00:34,030
Reconnaissance Orbiter and from that the

15
00:00:39,450 --> 00:00:37,300
final landing sites have emerged in the

16
00:00:42,630 --> 00:00:39,460
northern hemisphere of Mars the

17
00:00:44,460 --> 00:00:42,640
marvelous area is important because of

18
00:00:46,860 --> 00:00:44,470
the diversity of the mineral signatures

19
00:00:49,590 --> 00:00:46,870
that you see the great channel that cuts

20
00:00:51,150 --> 00:00:49,600
across this was carved by water but even

21
00:00:53,460 --> 00:00:51,160
the highlands here were affected by

22
00:00:55,230 --> 00:00:53,470
water and the craters that are there we

23
00:00:58,350 --> 00:00:55,240
see different mineral signatures in the

24
00:01:00,840 --> 00:00:58,360
different layers indicating the episodic

25
00:01:03,000 --> 00:01:00,850
activity of water at the planet or the

26
00:01:10,860 --> 00:01:03,010
mixing of soils by impacts in the early

27
00:01:16,320 --> 00:01:12,830
in the southern hemisphere at mars

28
00:01:17,730 --> 00:01:16,330
holding crater 60 miles across is very

29
00:01:19,680 --> 00:01:17,740
interesting because there is a channel

30
00:01:22,050 --> 00:01:19,690
that goes into the crater and here

31
00:01:24,510 --> 00:01:22,060
you're looking at the front to that the

32
00:01:27,390 --> 00:01:24,520
Delta indicating that water once flowed

33
00:01:30,390 --> 00:01:27,400
into the crater ponding as an inland sea

34
00:01:34,680 --> 00:01:30,400
or lake and then breach the far wall and

35
00:01:37,020 --> 00:01:34,690
ran out leaving layers in those layers

36
00:01:39,450 --> 00:01:37,030
we expect to find evidence of the past

37
00:01:41,970 --> 00:01:39,460
chemistry the action of water how long

38
00:01:44,160 --> 00:01:41,980

it was there they may also have the

39
00:01:47,130 --> 00:01:44,170
potential to preserve bio signatures

40
00:01:48,840 --> 00:01:47,140
that is evidence of past life if life

41
00:01:55,020 --> 00:01:48,850
had ever developed on the planet and

42
00:01:59,280 --> 00:01:57,300
the outstanding characteristic of Evers

43
00:02:02,250 --> 00:01:59,290
wall crater the thing that calls out to

44
00:02:04,230 --> 00:02:02,260
land in this area is that it has a delta

45
00:02:06,060 --> 00:02:04,240
formation like that of the Mississippi

46
00:02:08,730 --> 00:02:06,070
River in which it's obvious that

47
00:02:10,559 --> 00:02:08,740
material is float in a channel out of

48
00:02:13,290 --> 00:02:10,569
the Highlands down into this crater and

49
00:02:15,090 --> 00:02:13,300
formed a delta formation highly

50
00:02:16,920 --> 00:02:15,100
structured and layered meaning that

51
00:02:19,710 --> 00:02:16,930
there were many episodes of water

52
00:02:21,870 --> 00:02:19,720
flowing into the crater those layers

53
00:02:24,540 --> 00:02:21,880
could be preserving not only the history

54
00:02:26,760 --> 00:02:24,550
of this area as it formed over time in

55
00:02:29,100 --> 00:02:26,770
Mars and the activity of water on its

56
00:02:31,290 --> 00:02:29,110
surface but it's the kind of formation

57
00:02:33,509 --> 00:02:31,300
that could also preserve evidence of

58
00:02:37,600 --> 00:02:33,519
past life if that life had developed on

59
00:02:42,320 --> 00:02:39,650
Gale Crater in the southern hemisphere

60
00:02:44,960 --> 00:02:42,330
of Mars near the equator is an

61
00:02:47,330 --> 00:02:44,970
attractive landing site because it's a

62
00:02:49,820 --> 00:02:47,340
very deep crater more than three miles

63
00:02:51,290 --> 00:02:49,830

deep and yet at one time it must have

64
00:02:53,540 --> 00:02:51,300
been completely filled because it's

65
00:02:56,450 --> 00:02:53,550
central mound actually extends above the

66
00:02:58,270 --> 00:02:56,460
crater rim today evident in here are

67
00:03:01,610 --> 00:02:58,280
many different kinds of minerals

68
00:03:03,580 --> 00:03:01,620
sulfates sediments clay materials that

69
00:03:06,410 --> 00:03:03,590
indicated the action of water and

70
00:03:08,030 --> 00:03:06,420
because of that action of water the