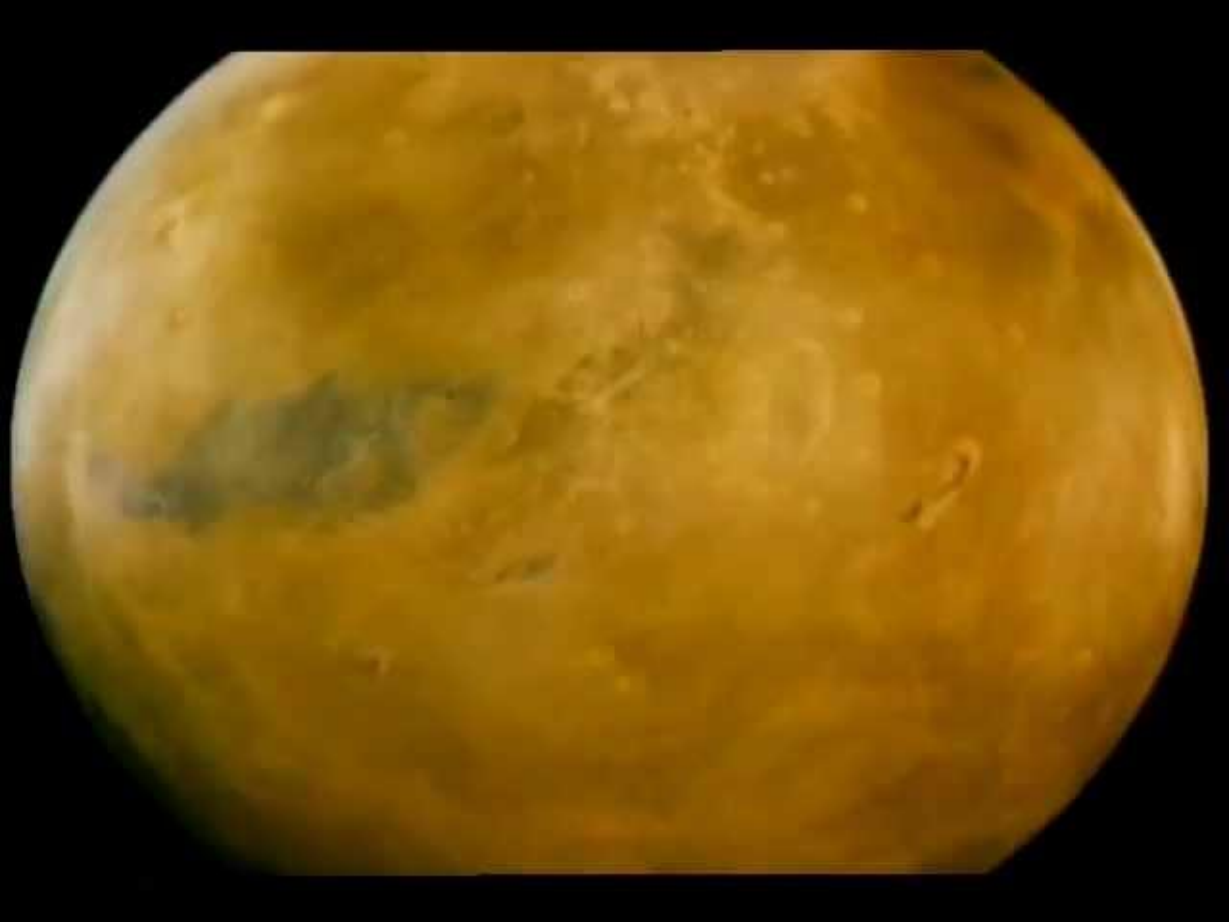

1
00:00:09,080 --> 00:00:06,410
Mars is the world next door the fourth

2
00:00:10,970 --> 00:00:09,090
planet from the Sun and quite likely the

3
00:00:15,169 --> 00:00:10,980
first planet on which human explorers

4
00:00:16,849 --> 00:00:15,179
will one day land spacecraft have

5
00:00:21,800 --> 00:00:16,859
surveyed its immense canyons and

6
00:00:24,109 --> 00:00:21,810
towering volcanoes Landers have

7
00:00:27,830 --> 00:00:24,119
photographed pink skies and a desert

8
00:00:33,760 --> 00:00:27,840
filled with boulders like Earth Mars has

9
00:00:38,869 --> 00:00:36,709
raging dust storms sometimes sweep over

10
00:00:44,900 --> 00:00:38,879
the planet blocking its surface from

11
00:00:46,630 --> 00:00:44,910
view while past missions to Mars have

12
00:00:49,369 --> 00:00:46,640
enhanced our knowledge of the planet

13
00:00:53,450 --> 00:00:49,379

discoveries have led to important new

14
00:00:55,700 --> 00:00:53,460
questions to answer some of these

15
00:00:58,520 --> 00:00:55,710
questions NASA's Jet Propulsion

16
00:01:01,760 --> 00:00:58,530
Laboratory is sending a spacecraft on a

17
00:01:14,770 --> 00:01:01,770
journey in 1992 to map the Martian

18
00:01:22,789 --> 00:01:18,080
unlike Earth Mars lost most of its

19
00:01:25,340 --> 00:01:22,799
atmosphere long ago it grew cold and dry

20
00:01:27,679 --> 00:01:25,350
so cold that some of its thin carbon

21
00:01:32,210 --> 00:01:27,689
dioxide atmosphere froze at the winter

22
00:01:34,550 --> 00:01:32,220
Pole how did a world formed at the same

23
00:01:37,340 --> 00:01:34,560
time and of the same materials as Earth

24
00:01:40,850 --> 00:01:37,350
become so cold parched and relatively

25
00:01:42,950 --> 00:01:40,860
airless dr. Arden all be of the

26
00:01:45,230 --> 00:01:42,960
california institute of technology is

27
00:01:46,789 --> 00:01:45,240
the project scientist representing more

28
00:01:48,260 --> 00:01:46,799
than a hundred scientists throughout the

29
00:01:51,859 --> 00:01:48,270
world who work with the Mars Observer

30
00:01:54,919 --> 00:01:51,869
data to understand these questions about

31
00:01:57,469 --> 00:01:54,929
Mars and to investigate others the Mars

32
00:02:01,279 --> 00:01:57,479
Observer spacecraft will map the entire

33
00:02:04,490 --> 00:02:01,289
surface of the planet much the same way

34
00:02:07,520 --> 00:02:04,500
that Earth orbiting satellites study the

35
00:02:12,289 --> 00:02:07,530
surface of our earth mapping from pole

36
00:02:14,150 --> 00:02:12,299
to pole primary goals of the mission are

37
00:02:17,360 --> 00:02:14,160
to understand the chemical and mineral

38
00:02:19,759 --> 00:02:17,370

nature of the surface the measure the

39
00:02:24,110 --> 00:02:19,769
surface topography and to create a

40
00:02:26,690 --> 00:02:24,120
relief map of the entire planet study

41
00:02:30,229 --> 00:02:26,700
the gravity field and to search for a

42
00:02:32,750 --> 00:02:30,239
magnetic field this mission will help us

43
00:02:35,060 --> 00:02:32,760
to understand the planet's climate now

44
00:02:37,740 --> 00:02:35,070
and in the past

45
00:02:39,990 --> 00:02:37,750
Mars Observer will give us a basic

46
00:02:45,650 --> 00:02:40,000
global understanding of the planet or

47
00:02:47,310 --> 00:02:45,660
future exploration NASA and JPL

48
00:02:50,040 --> 00:02:47,320
contracted with General Electric

49
00:02:53,540 --> 00:02:50,050
Corporation Zastrow space division to

50
00:02:56,700 --> 00:02:53,550
build the spacecraft weighing more than

51
00:02:58,680 --> 00:02:56,710
5,000 pounds Mars Observer was specially

52
00:03:00,570 --> 00:02:58,690
designed for launch aboard a Titan three

53
00:03:04,680 --> 00:03:00,580
rocket booster built by the Martin

54
00:03:09,300 --> 00:03:04,690
Marietta astronautics cool Mars Observer

55
00:03:11,490 --> 00:03:09,310
sits atop his 12 story idea after the

56
00:03:14,220 --> 00:03:11,500
Titan has placed the spacecraft into

57
00:03:16,710 --> 00:03:14,230
Earth orbit a second rocket booster the

58
00:03:19,530 --> 00:03:16,720
transfer orbit stage from orbital

59
00:03:22,140 --> 00:03:19,540
sciences corporation will fire to free

60
00:03:27,500 --> 00:03:22,150
the space craft in Earth's gravity Mars

61
00:03:32,760 --> 00:03:30,750
some of the spacecraft solar panels it's

62
00:03:35,010 --> 00:03:32,770
dish shaped communications antenna and

63
00:03:36,930 --> 00:03:35,020

two booms carrying science instruments

64
00:03:40,830 --> 00:03:36,940
will be partially deployed right after

65
00:03:43,080 --> 00:03:40,840
launch the spacecraft will first unfold

66
00:03:46,229 --> 00:03:43,090
four of its solar panels to begin

67
00:03:49,080 --> 00:03:46,239
drawing solar power then to science

68
00:03:51,120 --> 00:03:49,090
booms will be deployed one carrying the

69
00:03:53,310 --> 00:03:51,130
magnetometer the other supporting the

70
00:03:58,590 --> 00:03:53,320
gamma ray spectrometer that's the way we

71
00:04:01,949 --> 00:03:58,600
will fly to Mars in August 1993 after

72
00:04:04,229 --> 00:04:01,959
333 days in space spacecraft will reach

73
00:04:06,960 --> 00:04:04,239
Mars and enter elliptical orbit around

74
00:04:08,670 --> 00:04:06,970
the planet the flight path will be

75
00:04:10,830 --> 00:04:08,680
carefully adjusted over four months

76
00:04:15,449 --> 00:04:10,840
until Mars Observer is in a nearly

77
00:04:18,599 --> 00:04:15,459
circular orbit around the poles at that

78
00:04:21,000 --> 00:04:18,609
time all booms will be fully deployed in

79
00:04:22,879 --> 00:04:21,010
other words the spacecraft will open up

80
00:04:25,459 --> 00:04:22,889
like a flower

81
00:04:29,200 --> 00:04:25,469
the spacecraft will keep its scientific

82
00:04:31,790 --> 00:04:29,210
payload continuously pointed at Mars

83
00:04:35,360 --> 00:04:31,800
seven science instruments will spend an

84
00:04:42,550 --> 00:04:35,370
entire Martian year about 687 earth days

85
00:04:42,560 --> 00:04:54,090
you

86
00:04:58,900 --> 00:04:56,860
acting as a remote weather station mars

87
00:05:04,990 --> 00:04:58,910
observer will report on the planets thin

88
00:05:09,620 --> 00:05:07,820

volcanoes and other landforms will be

89
00:05:11,510 --> 00:05:09,630
studied to determine the geological

90
00:05:15,920 --> 00:05:11,520
processes that have shaped the surface

91
00:05:23,810 --> 00:05:18,800
a search will be conducted for evidence

92
00:05:26,029 --> 00:05:23,820
of a magnetic field scientists will want

93
00:05:27,710 --> 00:05:26,039
to know if water once flowed on Mars as

94
00:05:31,850 --> 00:05:27,720
the Mariner and Viking missions

95
00:05:33,590 --> 00:05:31,860
suggested if so where is it now were

96
00:05:39,170 --> 00:05:33,600
conditions for life on Mars more

97
00:05:41,390 --> 00:05:39,180
favorable in the distant past JPL's

98
00:05:43,460 --> 00:05:41,400
advanced multi mission control center

99
00:05:50,210 --> 00:05:43,470
will be supported by NASA's Deep Space

100
00:05:52,370 --> 00:05:50,220
Network the mission will be the first to

101
00:05:54,200 --> 00:05:52,380
provide a database at JPL that

102
00:05:59,779 --> 00:05:54,210
scientists will be able to access from

103
00:06:01,730 --> 00:05:59,789
their home institutions specially

104
00:06:07,090 --> 00:06:01,740
designed workstations will connect them

105
00:06:11,380 --> 00:06:09,160
as part of an international effort

106
00:06:13,090 --> 00:06:11,390
Russian instrument packages will be

107
00:06:18,610 --> 00:06:13,100
landed on the Martian surface in the

108
00:06:20,500 --> 00:06:18,620
mid-1990s Mars Observer carries a radio

109
00:06:24,160 --> 00:06:20,510
system supplied by the french space

110
00:06:26,560 --> 00:06:24,170
agency to support these missions this

111
00:06:28,600 --> 00:06:26,570
radio system will allow the spacecraft

112
00:06:34,910 --> 00:06:28,610
to receive and relay data from the

113
00:06:40,220 --> 00:06:37,700

as the data is processed the Mars

114
00:06:42,500 --> 00:06:40,230
Observer mission will help us understand

115
00:06:46,250 --> 00:06:42,510
the evolution of our planetary neighbors