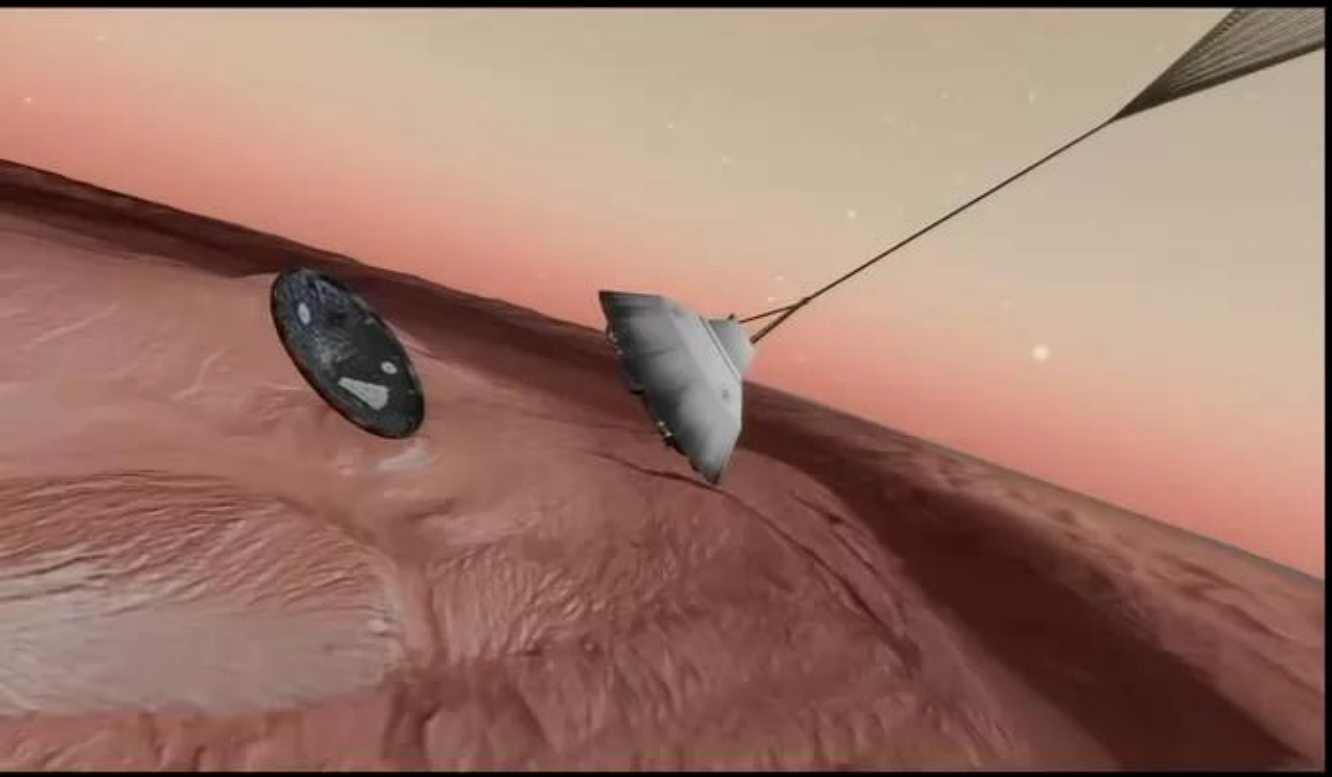
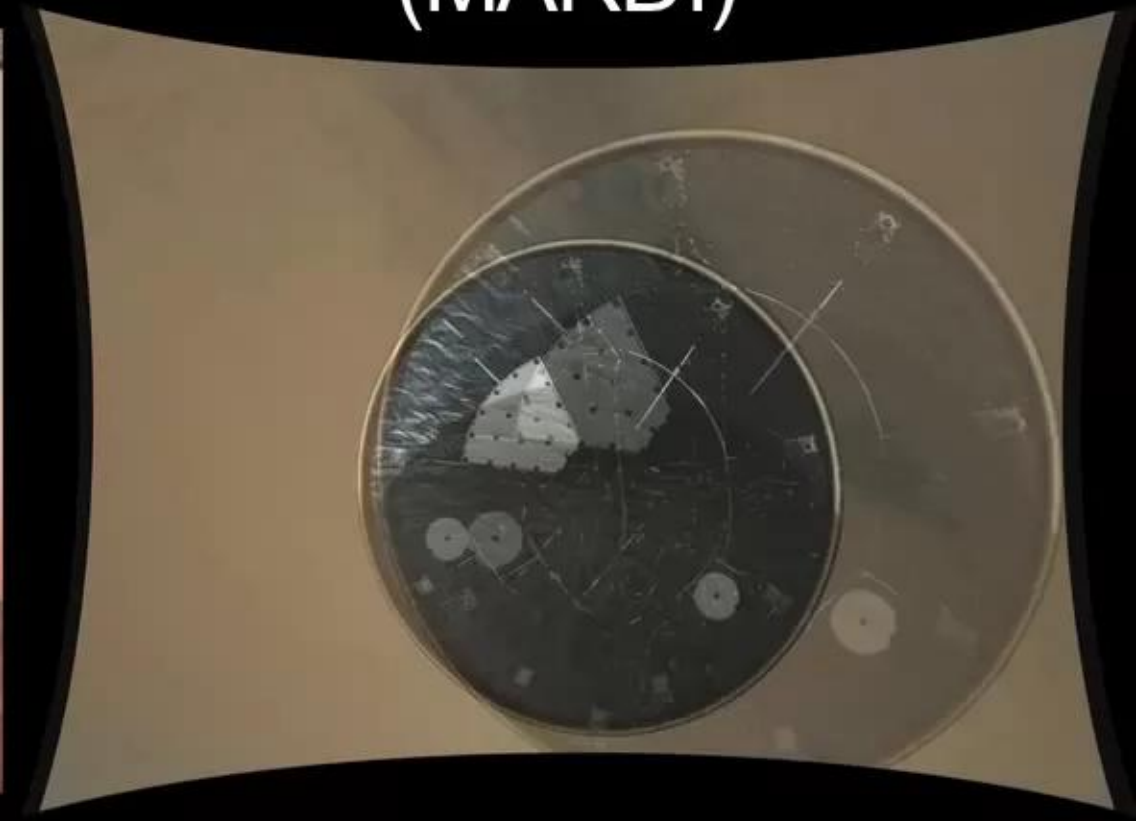
Eyes on the Solar System



COMPUTER SIMULATION

Mars Descent Imager (MARDI)



1
00:00:06,970 --> 00:00:04,430
right now we're a few seconds before

2
00:00:09,140 --> 00:00:06,980
parachute deploy we're coming up on our

3
00:00:11,540 --> 00:00:09,150
suffer maneuver that stands for

4
00:00:14,839 --> 00:00:11,550
straighten up and fly right all the

5
00:00:17,029 --> 00:00:14,849
swinging cats in the team love a little

6
00:00:18,980 --> 00:00:17,039
Nat King Cole and Frank Sinatra and

7
00:00:20,720 --> 00:00:18,990
that's a favorite song of ours here

8
00:00:22,429 --> 00:00:20,730
you're seeing us moving a little over a

9
00:00:24,950 --> 00:00:22,439
thousand miles an hour and we're just

10
00:00:27,050 --> 00:00:24,960
getting ready to remove our ballast

11
00:00:28,759 --> 00:00:27,060
masses that we've used to develop lift

12
00:00:30,230 --> 00:00:28,769
previously through flight we're getting

13
00:00:32,209 --> 00:00:30,240

rid of them to straighten up and prepare

14
00:00:33,790 --> 00:00:32,219
for heatshield separation and for

15
00:00:36,260 --> 00:00:33,800
parachute deployment

16
00:00:39,080 --> 00:00:36,270
we're also rolling the vehicle to an

17
00:00:41,000 --> 00:00:39,090
attitude where the radar will be able to

18
00:00:45,310 --> 00:00:41,010
lock up most effectively on the ground

19
00:00:50,690 --> 00:00:48,049
now we've deployed the parachute we are

20
00:00:53,750 --> 00:00:50,700
slowing down dramatically that's about

21
00:00:56,619 --> 00:00:53,760
800 miles an hour Mach 1.7 at Mars and

22
00:00:59,660 --> 00:00:56,629
it gives us about a 12 g deceleration

23
00:01:02,119 --> 00:00:59,670
here we have a split-screen view on the

24
00:01:05,539 --> 00:01:02,129
left is a computer simulation driven by

25
00:01:07,130 --> 00:01:05,549
eyes on the solar system and there's

26
00:01:08,810 --> 00:01:07,140
heat shield separation and now you see

27
00:01:12,890 --> 00:01:08,820
in the right hand of the screen the view

28
00:01:14,960 --> 00:01:12,900
from directly below the rover we are now

29
00:01:18,410 --> 00:01:14,970
looking with the marty imager at the

30
00:01:21,260 --> 00:01:18,420
surface of mars in a new way we get some

31
00:01:25,999 --> 00:01:21,270
black sand dunes underneath us there and

32
00:01:29,780 --> 00:01:26,009
that red iron rich soil that gives Mars

33
00:01:31,969 --> 00:01:29,790
its natural color the attitude that we

34
00:01:33,530 --> 00:01:31,979
have is governed by the trim angle of

35
00:01:35,630 --> 00:01:33,540
attack of the parachute and that slowly

36
00:01:37,819 --> 00:01:35,640
walks around so it gives us sort of a

37
00:01:41,270 --> 00:01:37,829
tour of the neighborhood where we'll be

38
00:01:43,160 --> 00:01:41,280

landing and now as we've turned over

39
00:01:44,960 --> 00:01:43,170
more the sand dunes are not centrally

40
00:01:46,429 --> 00:01:44,970
present they're off at the edge of the

41
00:01:47,899 --> 00:01:46,439
image and we're looking more straight

42
00:01:51,140 --> 00:01:47,909
down at where we're eventually going to

43
00:01:58,700 --> 00:01:54,290
we saw a lot less attitude disturbance

44
00:02:00,440 --> 00:01:58,710
than we thought we were going to you can

45
00:02:02,780 --> 00:02:00,450
see sort of a little bit of motion in

46
00:02:09,350 --> 00:02:02,790
that Marty image just a little bit of

47
00:02:11,630 --> 00:02:09,360
motion in that Marty you mentioned and

48
00:02:13,670 --> 00:02:11,640
so we go from that eight hundred miles

49
00:02:17,620 --> 00:02:13,680
now we're rapidly down now we're running

50
00:02:20,420 --> 00:02:17,630
at about little under 300 miles an hour

51
00:02:23,570 --> 00:02:20,430
we were very happy with this nice sort

52
00:02:28,160 --> 00:02:23,580
of calm view of the ground as we slowly

53
00:02:30,230 --> 00:02:28,170
approach now we're moving at about a

54
00:02:34,640 --> 00:02:30,240
little less than 200 miles an hour and

55
00:02:36,740 --> 00:02:34,650
we're coming up on our separation of the

56
00:02:38,210 --> 00:02:36,750
power descent vehicle and our transition

57
00:02:41,290 --> 00:02:38,220
from parachutes to rockets and that

58
00:02:45,740 --> 00:02:44,120
we're now under powered flight you see

59
00:02:47,420 --> 00:02:45,750
that the motions of the vehicle become a

60
00:02:49,280 --> 00:02:47,430
little bit more smooth through the Marty

61
00:02:50,900 --> 00:02:49,290
imager but you also see that we start

62
00:02:53,900 --> 00:02:50,910
some big sloughs those are sloughs

63
00:02:56,390 --> 00:02:53,910

associated with the attitude excursions

64
00:02:57,920 --> 00:02:56,400
during the divert maneuver we're getting

65
00:02:59,660 --> 00:02:57,930
out of the way of that parachuting back

66
00:03:05,960 --> 00:02:59,670
shell so we Slough first to one side

67
00:03:11,119 --> 00:03:05,970
then to another side moving at 32 meters

68
00:03:16,380 --> 00:03:13,920
now we start decelerating that kicks up

69
00:03:20,099 --> 00:03:16,390
the dust we're slowing down to just

70
00:03:21,990 --> 00:03:20,109
under two miles an hour and now about 60

71
00:03:24,660 --> 00:03:22,000
feet if we separate the Rover and you'll

72
00:03:26,399 --> 00:03:24,670
see boom the wheel come into view in the

73
00:03:28,619 --> 00:03:26,409
Marty imager that means we're in the sky

74
00:03:30,929 --> 00:03:28,629
crane mode and we've deployed the

75
00:03:33,990 --> 00:03:30,939
mobility now we're just continuing down

76
00:03:35,369 --> 00:03:34,000
at about 1.7 miles an hour gently

77
00:03:39,509 --> 00:03:35,379
towards the surface we're kicking up a

78
00:03:41,339 --> 00:03:39,519
little bit of dust and now we're quiet

79
00:03:42,780 --> 00:03:41,349
as far as the rover nose nothing's

80
00:03:44,729 --> 00:03:42,790
happened but at this point now the

81
00:03:48,750 --> 00:03:44,739
descent stage has started to fly away or

82
00:03:51,059 --> 00:03:48,760
its impact with the surface once the

83
00:03:53,640 --> 00:03:51,069
dust settles and we deploy our