



1  
00:00:07,760 --> 00:00:06,110  
I was one of the optimists that felt the

2  
00:00:09,950 --> 00:00:07,770  
rover's would survive the first winter

3  
00:00:11,990 --> 00:00:09,960  
and that we would have an extended

4  
00:00:14,560 --> 00:00:12,000  
mission but I never thought they would

5  
00:00:17,990 --> 00:00:14,570  
last through three Martian winters and

6  
00:00:19,849 --> 00:00:18,000  
continue to explore for five years we

7  
00:00:21,019 --> 00:00:19,859  
thought that you know we we were going

8  
00:00:23,029 --> 00:00:21,029  
to be lucky if we got three months out

9  
00:00:24,620 --> 00:00:23,039  
of these Rovers we've got five years out

10  
00:00:26,630 --> 00:00:24,630  
of these Rovers and they just keep going

11  
00:00:28,130 --> 00:00:26,640  
and it seems like every day is better

12  
00:00:29,179 --> 00:00:28,140  
than the day before the mission just

13  
00:00:30,950 --> 00:00:29,189

keeps getting better and better and

14

00:00:32,269 --> 00:00:30,960

better the longer it goes how do I feel

15

00:00:39,160 --> 00:00:32,279

about the fact that it's going on for

16

00:00:43,400 --> 00:00:41,840

everyone on the planet Earth is sharing

17

00:00:46,160 --> 00:00:43,410

in the experience of exploring the

18

00:00:48,200 --> 00:00:46,170

surface of Mars through our to surrogate

19

00:00:51,860 --> 00:00:48,210

children Spirit and Opportunity you're

20

00:00:53,119 --> 00:00:51,870

seeing Mars with 3d color stereo vision

21

00:00:54,740 --> 00:00:53,129

just as if you were standing there

22

00:00:56,540 --> 00:00:54,750

yourself the rover's are just about your

23

00:00:58,279 --> 00:00:56,550

height and so they see the world from

24

00:00:59,869 --> 00:00:58,289

your perspective and just as you would

25

00:01:02,479 --> 00:00:59,879

see it if you were there now they are

26  
00:01:04,369 --> 00:01:02,489  
well-named opportunity really has been

27  
00:01:06,440 --> 00:01:04,379  
incredibly opportunistic and lucky it

28  
00:01:08,450 --> 00:01:06,450  
basically found water from its Lander

29  
00:01:10,370 --> 00:01:08,460  
found its own heat shield we were able

30  
00:01:11,750 --> 00:01:10,380  
to examine for the first time a heat

31  
00:01:14,539 --> 00:01:11,760  
shield that was used on another planet

32  
00:01:16,550 --> 00:01:14,549  
cuz it happened to land nearby spirit

33  
00:01:20,240 --> 00:01:16,560  
really has had to have a lot of spirit

34  
00:01:23,240 --> 00:01:20,250  
to to keep going when we were hit by

35  
00:01:24,859 --> 00:01:23,250  
dust storms we get cleaned off and

36  
00:01:26,570 --> 00:01:24,869  
that's what's enabled or over to survive

37  
00:01:27,649 --> 00:01:26,580  
this long when we broke the right front

38  
00:01:29,960 --> 00:01:27,659

wheel we've made one of the major

39

00:01:32,120 --> 00:01:29,970

scientific discoveries by dragging this

40

00:01:34,010 --> 00:01:32,130

wheel behind us we're digging this

41

00:01:35,210 --> 00:01:34,020

trench and we're seeing what's under the

42

00:01:36,360 --> 00:01:35,220

surface and what we're finding

43

00:01:38,640 --> 00:01:36,370

everywhere

44

00:01:41,460 --> 00:01:38,650

look are these salts and minerals like

45

00:01:45,260 --> 00:01:41,470

silicon and sulfur that had to have been

46

00:01:49,050 --> 00:01:45,270

put there by hot water this last winter

47

00:01:51,660 --> 00:01:49,060

when we had to park for more than nine

48

00:01:53,820 --> 00:01:51,670

months in the same location because we

49

00:01:56,280 --> 00:01:53,830

just didn't have enough power to to

50

00:01:58,950 --> 00:01:56,290

drive the one thing we could still do

51  
00:02:00,870 --> 00:01:58,960  
was take pictures and we did take over

52  
00:02:04,050 --> 00:02:00,880  
the course of many many weeks sort of

53  
00:02:07,260 --> 00:02:04,060  
one frame at a time this beautiful

54  
00:02:09,840 --> 00:02:07,270  
high-resolution full-color image of the

55  
00:02:12,000 --> 00:02:09,850  
location around spirit and it's one of

56  
00:02:15,860 --> 00:02:12,010  
the most detailed highest resolution

57  
00:02:18,890 --> 00:02:15,870  
images we've ever taken from the ground

58  
00:02:24,090 --> 00:02:18,900  
get the victoria was great I mean it was

59  
00:02:25,980 --> 00:02:24,100  
21 months of trudging endlessly across

60  
00:02:28,500 --> 00:02:25,990  
these Plains and hardly seeing the

61  
00:02:29,820 --> 00:02:28,510  
scenery change at all I mean you know

62  
00:02:31,410 --> 00:02:29,830  
Victoria is out there we've got the

63  
00:02:33,300 --> 00:02:31,420

orbital images we know where it is we

64

00:02:36,000 --> 00:02:33,310

know how far it is room measuring

65

00:02:38,990 --> 00:02:36,010

distance to the nearest meter and then

66

00:02:42,750 --> 00:02:39,000

one day we're right at the rim of it

67

00:02:44,820 --> 00:02:42,760

there's just this spectacular scenery

68

00:02:48,780 --> 00:02:44,830

this fabulous geology laid out in front

69

00:02:51,750 --> 00:02:48,790

of us and yeah the combination of just

70

00:02:53,280 --> 00:02:51,760

what a glorious view it was plus how so

71

00:02:55,949 --> 00:02:53,290

much effort that went into getting there

72

00:02:57,570 --> 00:02:55,959

pulling up to the rim of Victoria was to

73

00:03:00,930 --> 00:02:57,580

me one really special moments in the

74

00:03:02,820 --> 00:03:00,940

whole measure one of the most memorable

75

00:03:05,880 --> 00:03:02,830

and poetic images from the entire

76

00:03:08,100 --> 00:03:05,890

mission is an image that spirit took of

77

00:03:10,199 --> 00:03:08,110

the earth it was a very first picture

78

00:03:12,570 --> 00:03:10,209

that has ever been taken of the earth

79

00:03:14,930 --> 00:03:12,580

from the surface of another planet earth

80

00:03:17,210 --> 00:03:14,940

is the evening star

81

00:03:19,460 --> 00:03:17,220

mars is such a complicated place and

82

00:03:23,170 --> 00:03:19,470

these are such capable vehicles that

83

00:03:25,460 --> 00:03:23,180

they will never come a time we've done

84

00:03:27,680 --> 00:03:25,470

regardless of weather when this mission

85

00:03:30,910 --> 00:03:27,690

ends whether it's tomorrow or five years

86

00:03:34,010 --> 00:03:30,920

from now there's always going to be some