
NASA

1
00:00:09,910 --> 00:00:07,909
i'm here with jim garvin chief scientist

2
00:00:11,190 --> 00:00:09,920
from goddard space flight center where

3
00:00:12,549 --> 00:00:11,200
you've been involved with the lro

4
00:00:15,110 --> 00:00:12,559
mission for a while

5
00:00:16,790 --> 00:00:15,120
andy goes way back in fact before we

6
00:00:18,390 --> 00:00:16,800
even had a vision for space exploration

7
00:00:21,029 --> 00:00:18,400
a group of us were thinking what do we

8
00:00:22,230 --> 00:00:21,039
need to do with the moon and lro came to

9
00:00:24,390 --> 00:00:22,240
mind and

10
00:00:26,550 --> 00:00:24,400
starting in 2004 we've been on the path

11
00:00:28,550 --> 00:00:26,560
to doing the moon right with lro and

12
00:00:30,710 --> 00:00:28,560
we're getting close now huh really close

13
00:00:32,470 --> 00:00:30,720

i mean geez we just can't wait and in

14
00:00:34,709 --> 00:00:32,480
the next couple months watching this

15
00:00:36,549 --> 00:00:34,719
mission finally fly you know it's like a

16
00:00:38,229 --> 00:00:36,559
lifelong dream for a lot of folks

17
00:00:39,910 --> 00:00:38,239
thinking that that dream really started

18
00:00:41,510 --> 00:00:39,920
way back 40 years ago when we first

19
00:00:43,190 --> 00:00:41,520
landed people on the moon

20
00:00:46,069 --> 00:00:43,200
so what's the sort of historical

21
00:00:47,910 --> 00:00:46,079
importance of of this mission well 40

22
00:00:49,910 --> 00:00:47,920
years ago we sent humans to the moon

23
00:00:51,910 --> 00:00:49,920
we're commemorating that now and back

24
00:00:53,270 --> 00:00:51,920
then we realized there was something

25
00:00:55,110 --> 00:00:53,280
many things we needed to know and we

26
00:00:56,950 --> 00:00:55,120
didn't have the time in the sequence of

27
00:00:58,950 --> 00:00:56,960
apollo missions to do that historically

28
00:01:01,750 --> 00:00:58,960
we're going back now with our eyes wide

29
00:01:03,430 --> 00:01:01,760
open with measurements like really like

30
00:01:05,429 --> 00:01:03,440
none we've ever done for a planet so by

31
00:01:08,469 --> 00:01:05,439
the end of august we'll be mapping the

32
00:01:10,469 --> 00:01:08,479
moon as never done before and lro is the

33
00:01:12,149 --> 00:01:10,479
gateway to the new era of human

34
00:01:14,070 --> 00:01:12,159
exploration that your generation will

35
00:01:15,109 --> 00:01:14,080
get to populate and do it's going to be

36
00:01:17,429 --> 00:01:15,119
cool

37
00:01:19,190 --> 00:01:17,439
and the other one is l cross tell me uh

38
00:01:20,630 --> 00:01:19,200

why this is such a cool mission and how

39
00:01:22,950 --> 00:01:20,640
they're doing something really different

40
00:01:24,870 --> 00:01:22,960
here well l cross is really a big bang

41
00:01:26,789 --> 00:01:24,880
experiment where we use something left

42
00:01:29,109 --> 00:01:26,799
over the upper stage that carries and

43
00:01:31,350 --> 00:01:29,119
pushes lro to the moon to come back

44
00:01:33,109 --> 00:01:31,360
around and impact the moon to basically

45
00:01:34,950 --> 00:01:33,119
try to energize the surface to look for

46
00:01:37,270 --> 00:01:34,960
what could be lurking within it's an

47
00:01:39,030 --> 00:01:37,280
ultimate collisional digging mission and

48
00:01:40,950 --> 00:01:39,040
lro earth-based telescopes and the

49
00:01:42,630 --> 00:01:40,960
shepherding satellite on lcross will all

50
00:01:44,469 --> 00:01:42,640
examine what these permanently shadowed

51
00:01:46,469 --> 00:01:44,479
regions at the lunar poles are like

52
00:01:48,870 --> 00:01:46,479
what's in the what's in the soil there

53
00:01:49,749 --> 00:01:48,880
could it contain frozen water or other

54
00:01:51,190 --> 00:01:49,759
things

55
00:01:52,630 --> 00:01:51,200
what goes into putting together a

56
00:01:54,149 --> 00:01:52,640
satellite like this and getting it to

57
00:01:55,830 --> 00:01:54,159
the point it's at now sitting out on the

58
00:01:58,069 --> 00:01:55,840
launch pad well to build a satellite

59
00:02:00,149 --> 00:01:58,079
like lro and the instruments on it and

60
00:02:02,149 --> 00:02:00,159
the the ground systems to support it and

61
00:02:04,950 --> 00:02:02,159
the vehicle it's it's like building a

62
00:02:06,870 --> 00:02:04,960
cathedral it's a lot of work really it's

63
00:02:09,190 --> 00:02:06,880

like the ultimate jigsaw puzzle and it

64
00:02:10,790 --> 00:02:09,200
all has to play together talk together

65
00:02:13,190 --> 00:02:10,800
in fact electrical tests are going on

66
00:02:15,190 --> 00:02:13,200
now as the as the launch vehicle is

67
00:02:16,790 --> 00:02:15,200
getting ready for its liftoff so it's

68
00:02:18,630 --> 00:02:16,800
it's kind of like building a super bowl

69
00:02:20,150 --> 00:02:18,640
team you start with the building blocks

70
00:02:22,150 --> 00:02:20,160
you got an idea the how it's going to

71
00:02:24,309 --> 00:02:22,160
work the strategy as john madden would

72
00:02:25,510 --> 00:02:24,319
say we're not john madden we're anyway

73
00:02:26,949 --> 00:02:25,520
but anyway

74
00:02:28,309 --> 00:02:26,959
so that's what we've done and over the

75
00:02:30,550 --> 00:02:28,319
last you know

76
00:02:32,070 --> 00:02:30,560
really four years four and a half years

77
00:02:33,990 --> 00:02:32,080
that's what the goddard team with all of

78
00:02:35,350 --> 00:02:34,000
its partners uh really across the world

79
00:02:37,270 --> 00:02:35,360
has done we even have an instrument from

80
00:02:39,350 --> 00:02:37,280
russia yeah five years from the

81
00:02:42,470 --> 00:02:39,360
president's mouth to a launch pad and

82
00:02:45,190 --> 00:02:42,480
like custom made yep and now lro is is

83
00:02:47,509 --> 00:02:45,200
on the pad and the vehicle rolled out um

84
00:02:49,830 --> 00:02:47,519
this morning and it's getting close and

85
00:02:52,390 --> 00:02:49,840
we can all feel you know feel the rocket

86
00:02:54,550 --> 00:02:52,400
motors starting to uh to rumble as we

87
00:02:55,910 --> 00:02:54,560
get back to the road absolutely

88
00:02:57,589 --> 00:02:55,920

anything else that people should know

89
00:02:59,190 --> 00:02:57,599
about this launch that we're getting

90
00:03:00,949 --> 00:02:59,200
ready for here well i think people

91
00:03:02,550 --> 00:03:00,959
should think of lro you know as the

92
00:03:04,550 --> 00:03:02,560
people's mission to the moon it's going

93
00:03:07,030 --> 00:03:04,560
to open the lunar frontier

94
00:03:08,470 --> 00:03:07,040
scientifically and for engineering so

95
00:03:10,309 --> 00:03:08,480
that we can design the systems to get

96
00:03:12,710 --> 00:03:10,319
people back and so i

97
00:03:14,710 --> 00:03:12,720
i can't i'm tingling in excitement over

98
00:03:16,229 --> 00:03:14,720
the discoveries it can make it certainly

99
00:03:17,910 --> 00:03:16,239
well with its instruments from the

100
00:03:20,070 --> 00:03:17,920
lasers to the cameras to the

101
00:03:22,070 --> 00:03:20,080
temperatures but it's also the gateway

102
00:03:24,390 --> 00:03:22,080
to designing the flight systems that

103
00:03:26,550 --> 00:03:24,400
will carry young people back

104
00:03:27,990 --> 00:03:26,560
is really bringing the moon up close as

105
00:03:29,589 --> 00:03:28,000
if you were there and while we're not

106
00:03:30,710 --> 00:03:29,599
walking there you're going to be flying

107
00:03:32,869 --> 00:03:30,720
over the moon as if you're in an

108
00:03:35,589 --> 00:03:32,879
airplane with the data sets the the

109
00:03:37,670 --> 00:03:35,599
images the maps that lro makes so

110
00:03:39,830 --> 00:03:37,680
forever gonna bring the people back into

111
00:03:41,990 --> 00:03:39,840
this wonderful moon that we barely

112
00:03:44,869 --> 00:03:42,000
understand i think lro is is that

113
00:03:46,789 --> 00:03:44,879

mission so you know get involved

114
00:03:48,789 --> 00:03:46,799
love lro

115
00:03:50,789 --> 00:03:48,799
go lro all right all right well thanks

116
00:03:52,229 --> 00:03:50,799
for uh talking to me here sure andy it's

117
00:03:58,830 --> 00:03:52,239
my pleasure i hope you get to go to the

118
00:04:04,149 --> 00:04:01,589
too so the countdown has begun to the

119
00:04:06,550 --> 00:04:04,159
launch of lro and l cross nasa's return

120
00:04:08,070 --> 00:04:06,560
to the moon but remember just because

121
00:04:10,229 --> 00:04:08,080
that atlas has left the launch pad

122
00:04:12,309 --> 00:04:10,239
doesn't mean it's over in only four days

123
00:04:14,309 --> 00:04:12,319
lro will reach orbit around the moon

124
00:04:16,150 --> 00:04:14,319
four months after that l cross will make

125
00:04:17,909 --> 00:04:16,160
impact with the lunar surface and all

126
00:04:20,789 --> 00:04:17,919
through this time we'll be sending back

127
00:04:24,469 --> 00:04:20,799
images topography and cool stuff for you