1
00:00:03,270 --> 00:00:01,510
for taking the time to be with us today

2
00:00:05,510 --> 00:00:03,280
thank you

3
00:00:07,349 --> 00:00:05,520
now we're out of building 4718 and the

4
00:00:09,030 --> 00:00:07,359
x-ray calibration facility where we're

5
00:00:10,629 --> 00:00:09,040
joined by jeff kegley who's going to

6
00:00:11,990 --> 00:00:10,639
tell us a little bit about his mission

7
00:00:13,749 --> 00:00:12,000
here at nasa

8
00:00:15,509 --> 00:00:13,759
as part of the optics office and the

9
00:00:17,189 --> 00:00:15,519
science and mission systems directorate

10
00:00:19,269 --> 00:00:17,199
here at the center we're chartered to

11
00:00:21,029 --> 00:00:19,279
test and evaluate the optics and

12
00:00:22,550 --> 00:00:21,039
subsystems

13
00:00:24,390 --> 00:00:22,560

related to large space telescope

14
00:00:25,670 --> 00:00:24,400
observatories well tell us about some of

15
00:00:27,349 --> 00:00:25,680
the projects that you've seen come

16
00:00:29,349 --> 00:00:27,359
through here the facility was

17
00:00:31,269 --> 00:00:29,359
specifically built to do the ground

18
00:00:33,510 --> 00:00:31,279
testing calibration of the chandra x-ray

19
00:00:35,190 --> 00:00:33,520
observatory since that time we've done

20
00:00:36,310 --> 00:00:35,200
other x-ray telescopes including the

21
00:00:39,190 --> 00:00:36,320
solar b

22
00:00:41,830 --> 00:00:39,200
and several solar x-ray imagers so jeff

23
00:00:43,430 --> 00:00:41,840
what makes this facility so unique

24
00:00:44,950 --> 00:00:43,440
facilities actually unique in two

25
00:00:47,590 --> 00:00:44,960
capabilities

26
00:00:49,430 --> 00:00:47,600
it's the world's largest x-ray telescope

27
00:00:51,750 --> 00:00:49,440
calibration facility

28
00:00:53,670 --> 00:00:51,760
and we have the unique capability of

29
00:00:56,470 --> 00:00:53,680
being able to test optics down to minus

30
00:00:58,709 --> 00:00:56,480
440 degrees fahrenheit so to simulate

31
00:01:00,229 --> 00:00:58,719
the the environment of space exactly

32
00:01:01,670 --> 00:01:00,239
well i think part of the uniqueness of

33
00:01:03,910 --> 00:01:01,680
the facility itself is also in its

34
00:01:06,070 --> 00:01:03,920
design and part of the reason is where

35
00:01:07,750 --> 00:01:06,080
lori is right now well jeff we come

36
00:01:09,350 --> 00:01:07,760
outside now to probably the most

37
00:01:11,109 --> 00:01:09,360
eye-catching feature of this facility

38
00:01:12,710 --> 00:01:11,119

tell me what we're looking at here

39
00:01:15,350 --> 00:01:12,720
yeah lori this is we could ask about

40
00:01:16,789 --> 00:01:15,360
this a lot this is our x-ray guide tube

41
00:01:19,109 --> 00:01:16,799
in order to do a ground test or

42
00:01:21,030 --> 00:01:19,119
calibration of an x-ray telescope or the

43
00:01:22,950 --> 00:01:21,040
optics or detectors associated with that

44
00:01:24,950 --> 00:01:22,960
telescope you have to have the x-ray

45
00:01:26,789 --> 00:01:24,960
source a long distance away so that the

46
00:01:28,469 --> 00:01:26,799
x-rays are nearly parallel when they get

47
00:01:30,710 --> 00:01:28,479
to the test article down here on this

48
00:01:31,830 --> 00:01:30,720
end so how far away are we talking about

49
00:01:34,069 --> 00:01:31,840
here

50
00:01:35,350 --> 00:01:34,079
this this facility is actually over 1700

51
00:01:37,030 --> 00:01:35,360
feet long

52
00:01:38,550 --> 00:01:37,040
wow and that actually leads into

53
00:01:40,310 --> 00:01:38,560
whatever you're testing then right

54
00:01:41,910 --> 00:01:40,320
exactly the x-ray telescope for its

55
00:01:44,069 --> 00:01:41,920
optics and detectors actually are in a

56
00:01:45,590 --> 00:01:44,079
vacuum chamber and clean room in the

57
00:01:47,590 --> 00:01:45,600
building all right i think that's where

58
00:01:49,190 --> 00:01:47,600
bill is i think he's actually put on a

59
00:01:51,429 --> 00:01:49,200
suit and ready to go

60
00:01:54,149 --> 00:01:51,439
yes lori i lost the coin toss and so i'm

61
00:01:55,670 --> 00:01:54,159
dressed head to toe in a clean suit and

62
00:01:56,870 --> 00:01:55,680
we're joined by jeff again and jeff

63
00:01:58,230 --> 00:01:56,880

explain to everyone why we're dressed

64
00:01:59,670 --> 00:01:58,240
like this

65
00:02:02,149 --> 00:01:59,680
testing x-ray

66
00:02:04,469 --> 00:02:02,159
optics or direct incident optics for

67
00:02:06,389 --> 00:02:04,479
telescopes or their detectors

68
00:02:08,389 --> 00:02:06,399
it's ins they're extremely sensitive to

69
00:02:11,190 --> 00:02:08,399
contamination and so you have to work in

70
00:02:13,589 --> 00:02:11,200
a class 1000 clean room like this and

71
00:02:15,270 --> 00:02:13,599
have an extremely clean vacuum chamber

72
00:02:16,949 --> 00:02:15,280
so explain to everyone well what these

73
00:02:19,350 --> 00:02:16,959
gentlemen are doing right now

74
00:02:21,430 --> 00:02:19,360
we assemble hardware out here for test

75
00:02:23,350 --> 00:02:21,440
work and then in the clean environment

76
00:02:25,110 --> 00:02:23,360
and then we're able to simply roll it

77
00:02:26,470 --> 00:02:25,120
into the vacuum chamber on these rail

78
00:02:29,270 --> 00:02:26,480
systems and that's what these guys are

79
00:02:31,190 --> 00:02:29,280
doing then we close the large

80
00:02:32,949 --> 00:02:31,200
door on the chamber and then we're able

81
00:02:34,710 --> 00:02:32,959
to simulate the environment we need to

82
00:02:36,869 --> 00:02:34,720
for the test and dropping the

83
00:02:38,470 --> 00:02:36,879
temperature in that chamber is one of

84
00:02:40,390 --> 00:02:38,480
the unique capabilities here right

85
00:02:43,190 --> 00:02:40,400
exactly we have the capability in this

86
00:02:44,790 --> 00:02:43,200
chamber now to drop to to minus 440

87
00:02:46,630 --> 00:02:44,800
degrees fahrenheit

88
00:02:49,830 --> 00:02:46,640

and and the end of the chamber is where

89
00:02:51,589 --> 00:02:49,840
the evacuated x-ray guide tube yes long

90
00:02:53,270 --> 00:02:51,599
through that lorry was that outside

91
00:02:54,869 --> 00:02:53,280
exactly now tell us a little bit about

92
00:02:57,350 --> 00:02:54,879
the big project you've got coming up

93
00:02:59,430 --> 00:02:57,360
we're really excited about it we we're

94
00:03:02,070 --> 00:02:59,440
going to test the flight mirrors for the

95
00:03:03,750 --> 00:03:02,080
james webb space telescope project over

96
00:03:05,589 --> 00:03:03,760
the next four years

97
00:03:07,110 --> 00:03:05,599
we're currently this summer we're

98
00:03:09,350 --> 00:03:07,120
getting ready and that's we're working

99
00:03:11,270 --> 00:03:09,360
right now getting ready to test

100
00:03:12,790 --> 00:03:11,280
the backplane structure to demonstrate a

101
00:03:14,070 --> 00:03:12,800
technology readiness level for that

102
00:03:15,270 --> 00:03:14,080
program also

103
00:03:16,869 --> 00:03:15,280
jeff we look forward to hearing about

104
00:03:18,390 --> 00:03:16,879
those results thanks very much for

105
00:03:20,149 --> 00:03:18,400
letting us come visit you today

106
00:03:21,750 --> 00:03:20,159
and thank you for joining us on the

107
00:03:23,750 --> 00:03:21,760
program for laurie makes who's sitting

108
00:03:25,670 --> 00:03:23,760
comfortably in the conference room i'm