

1  
00:00:12,640 --> 00:00:18,080  
we're here at the Marshall Space Flight

2  
00:00:15,080 --> 00:00:20,210  
Center in Huntsville Alabama known for

3  
00:00:18,079 --> 00:00:22,909  
its long history in propulsion research

4  
00:00:20,210 --> 00:00:25,130  
but this NASA site is still a big player

5  
00:00:22,910 --> 00:00:27,919  
this time for the James Webb Space

6  
00:00:25,129 --> 00:00:29,539  
Telescope we're right outside the vacuum

7  
00:00:27,919 --> 00:00:32,240  
chamber where the mirrors for the Webb

8  
00:00:29,539 --> 00:00:34,219  
Space Telescope are being tested back in

9  
00:00:32,240 --> 00:00:35,890  
the 90s this facility was used to test

10  
00:00:34,219 --> 00:00:39,560  
out one of NASA's Great observatories

11  
00:00:35,890 --> 00:00:41,509  
the Chandra x-ray Observatory we have

12  
00:00:39,560 --> 00:00:43,609  
here the project scientist for Chandra

13  
00:00:41,509 --> 00:00:45,619  
Martin Weiskopf can you tell us a little

14  
00:00:43,609 --> 00:00:48,109  
bit about the differences between Hubble

15  
00:00:45,619 --> 00:00:50,209  
and Chandra and James Webb these are

16  
00:00:48,109 --> 00:00:51,530  
observatories that look at different

17  
00:00:50,210 --> 00:00:53,840  
parts of what we call the

18  
00:00:51,530 --> 00:00:56,510  
electromagnetic spectrum that is light

19  
00:00:53,840 --> 00:00:59,090  
at various different energies from

20  
00:00:56,509 --> 00:01:01,428  
x-rays where it takes a lot of energy to

21  
00:00:59,090 --> 00:01:03,829  
produce them to visible light where the

22  
00:01:01,429 --> 00:01:06,140  
Hubble Space Telescope operates and the

23  
00:01:03,829 --> 00:01:09,019  
near-infrared where the James Webb

24  
00:01:06,140 --> 00:01:11,000  
telescope will operate in this way by

25  
00:01:09,019 --> 00:01:13,519  
studying objects in the universe we can

26  
00:01:11,000 --> 00:01:15,349  
learn a lot about them that we can't

27  
00:01:13,519 --> 00:01:17,450  
learn by just simply looking at one

28  
00:01:15,349 --> 00:01:21,109  
wavelength what kind of information can

29

00:01:17,450 --> 00:01:23,750  
be gleaned from x-rays x-ray astronomy

30  
00:01:21,109 --> 00:01:25,489  
is a system that brought the first

31  
00:01:23,750 --> 00:01:28,489  
discoveries of black holes in the

32  
00:01:25,489 --> 00:01:30,679  
universe so we look at very interesting

33  
00:01:28,489 --> 00:01:33,798  
astronomical objects at very great

34  
00:01:30,680 --> 00:01:36,560  
distances and conjunction with Hubble

35  
00:01:33,799 --> 00:01:38,750  
Webb will be looking to identify many

36  
00:01:36,560 --> 00:01:41,240  
Chandra sources that are not seen with

37  
00:01:38,750 --> 00:01:43,040  
Hubble now we're outside the facility

38  
00:01:41,239 --> 00:01:45,078  
where the mirror testing is being done

39  
00:01:43,040 --> 00:01:47,270  
and you can't help but see this long

40  
00:01:45,078 --> 00:01:50,359  
tube that is connected to the building

41  
00:01:47,269 --> 00:01:52,968  
itself I'm told it's almost six football

42  
00:01:50,359 --> 00:01:56,468  
fields long Martin what was this tube

43  
00:01:52,968 --> 00:01:59,478

used for this tube is very important for

44

00:01:56,468 --> 00:02:02,449

separating the telescope that was on the

45

00:01:59,478 --> 00:02:04,759

Chandra x-ray Observatory from x-ray

46

00:02:02,450 --> 00:02:07,759

sources located at the other end of the

47

00:02:04,759 --> 00:02:10,490

building it has to be this length in

48

00:02:07,759 --> 00:02:13,370

order to make those x-ray sources appear

49

00:02:10,490 --> 00:02:15,770

like tiny stars so that we could

50

00:02:13,370 --> 00:02:18,319

determine whether our x-ray telescope

51

00:02:15,770 --> 00:02:20,360

could distinguish small objects in the

52

00:02:18,319 --> 00:02:22,090

sky why is it still here Chandra was

53

00:02:20,360 --> 00:02:25,250

tested in the mid night

54

00:02:22,090 --> 00:02:27,709

it's still here because it's very very

55

00:02:25,250 --> 00:02:29,959

useful for many programs the vacuum

56

00:02:27,709 --> 00:02:33,140

chamber is being used to test the web

57

00:02:29,959 --> 00:02:36,050

optics and we hope to be testing x-ray

58  
00:02:33,139 --> 00:02:37,729  
telescopes in future programs well

59  
00:02:36,050 --> 00:02:40,430  
thanks for your time Martin quite

60  
00:02:37,729 --> 00:02:42,500  
welcome the testing here for the Chandra

61  
00:02:40,430 --> 00:02:46,069  
Observatory ran about six months from

62  
00:02:42,500 --> 00:02:48,049  
1996 to 1997 then to telescope was sent

63  
00:02:46,068 --> 00:02:50,629  
off to be integrated with the rest of

64  
00:02:48,049 --> 00:02:54,349  
the observatory Chandra was launched on

65  
00:02:50,629 --> 00:02:58,030  
July 23rd 1999 thanks for joining us for

66  
00:02:54,348 --> 00:02:58,030  
another edition of behind the Webb