

1
00:00:13,240 --> 00:00:18,100
almost two dozen countries are helping

2
00:00:15,919 --> 00:00:21,170
to build the James Webb Space Telescope

3
00:00:18,100 --> 00:00:23,720
Canada is responsible for what some call

4
00:00:21,170 --> 00:00:26,510
the Observatory steering wheel otherwise

5
00:00:23,719 --> 00:00:29,570
known as the fine guidance sensor or FG

6
00:00:26,510 --> 00:00:31,730
s the Canadians are also delivering one

7
00:00:29,570 --> 00:00:34,520
of the four scientific instruments on

8
00:00:31,730 --> 00:00:36,948
the telescope the near infrared imager

9
00:00:34,520 --> 00:00:39,620
and slit width spectrograph to find out

10
00:00:36,948 --> 00:00:41,420
more about the FG s and nearest we are

11
00:00:39,619 --> 00:00:43,669
here at the Canadian Space Agency's

12
00:00:41,420 --> 00:00:46,189
David Florida laboratory in Ottawa

13
00:00:43,670 --> 00:00:48,469
Canada so Carl why did you want to meet

14
00:00:46,189 --> 00:00:50,478
here in a chamber right now we're

15
00:00:48,469 --> 00:00:53,628
standing in front the thermal vacuum

16
00:00:50,478 --> 00:00:56,179
chamber where we tested the instruments

17
00:00:53,628 --> 00:00:57,738
in the vacuum of space and also in the

18
00:00:56,179 --> 00:01:00,289
cold environment and there which is

19
00:00:57,738 --> 00:01:02,238
going to operate so it's key for us to

20
00:01:00,289 --> 00:01:04,429
demonstrate that our system which has to

21
00:01:02,238 --> 00:01:06,920
be very sensitive but also has to be

22
00:01:04,430 --> 00:01:09,280
robust enough to survive the conditions

23
00:01:06,920 --> 00:01:11,780
of the mission was there some other

24
00:01:09,280 --> 00:01:14,090
technology that helped develop the fine

25
00:01:11,780 --> 00:01:16,609
guidance and the nearest yes in fact our

26
00:01:14,090 --> 00:01:18,500
prime contractor comdev Canada developed

27
00:01:16,609 --> 00:01:19,849
some star tracking software for other

28
00:01:18,500 --> 00:01:22,189
missions and also missions that are

29

00:01:19,849 --> 00:01:25,099
currently ongoing so we built on that

30
00:01:22,189 --> 00:01:26,539
heritage to build the software for for

31
00:01:25,099 --> 00:01:29,089
this mission so were there any other

32
00:01:26,540 --> 00:01:31,070
challenges you had to overcome to build

33
00:01:29,090 --> 00:01:33,469
fcs and yours in fact our team has

34
00:01:31,069 --> 00:01:35,539
spread over three time zones so in order

35
00:01:33,469 --> 00:01:37,189
to keep communications flowing and also

36
00:01:35,540 --> 00:01:39,020
getting decisions and as much as real

37
00:01:37,189 --> 00:01:40,189
time as possible that was a challenge

38
00:01:39,019 --> 00:01:41,839
but we had a good team a team that

39
00:01:40,189 --> 00:01:43,789
really believed in the mission so we

40
00:01:41,840 --> 00:01:46,400
were very cohesive and we were able to

41
00:01:43,790 --> 00:01:47,990
overcome that I understand the F GSN

42
00:01:46,400 --> 00:01:49,490
ears are actually here in the building

43
00:01:47,989 --> 00:01:51,079

that's right this is our home so if you

44

00:01:49,489 --> 00:01:53,530

want we can go over and take a look at

45

00:01:51,079 --> 00:01:53,530

them in a tent

46

00:01:56,188 --> 00:02:00,389

on the top here what we have is the fine

47

00:01:58,978 --> 00:02:02,849

guidance sensor they will basically

48

00:02:00,390 --> 00:02:05,009

point the telescope and keep the

49

00:02:02,849 --> 00:02:09,329

telescope stabilized so we get really

50

00:02:05,009 --> 00:02:12,389

sharp images from that on the other side

51

00:02:09,330 --> 00:02:15,420

we have nearest it has particular

52

00:02:12,389 --> 00:02:17,189

capability to detect exoplanets these

53

00:02:15,419 --> 00:02:21,598

are planets that will be circulating

54

00:02:17,189 --> 00:02:23,489

around a star and hopefully at the same

55

00:02:21,598 --> 00:02:26,189

time detect if they have atmospheres and

56

00:02:23,489 --> 00:02:28,289

if they do have atmospheres know exactly

57

00:02:26,189 --> 00:02:29,759

what these atmospheres contain is that

58
00:02:28,289 --> 00:02:31,078
people who love sustaining life now I

59
00:02:29,759 --> 00:02:33,268
understand fine guidance has a

60
00:02:31,079 --> 00:02:35,549
redundancy built in T that's right fine

61
00:02:33,269 --> 00:02:37,799
guidance sensor has two cameras and both

62
00:02:35,549 --> 00:02:39,930
function the same way if we have a

63
00:02:37,799 --> 00:02:41,519
problem with one of the channels we can

64
00:02:39,930 --> 00:02:43,980
switch over to the other one and not

65
00:02:41,519 --> 00:02:45,510
lose any any capability any performance

66
00:02:43,979 --> 00:02:48,179
and the arrests or science instrument

67
00:02:45,509 --> 00:02:50,098
can also perform guidance functions so

68
00:02:48,180 --> 00:02:51,900
it's like as if we have a third level of

69
00:02:50,098 --> 00:02:53,729
redundancy as part of the Canadian

70
00:02:51,900 --> 00:02:55,319
package Thank You Carl for showing us

71
00:02:53,729 --> 00:02:57,988
this fine guidance sensor and the

72
00:02:55,318 --> 00:02:58,679
nearest you're very welcome area so

73
00:02:57,989 --> 00:03:01,139
there you have it

74
00:02:58,680 --> 00:03:03,389
Canada's contribution to the James Webb

75
00:03:01,139 --> 00:03:05,489
Space Telescope thanks for joining us

76
00:03:03,389 --> 00:03:07,639
for yet another edition of behind the

77
00:03:05,489 --> 00:03:07,639
Webb