

1
00:00:11,869 --> 00:00:17,250
the mid-infrared instrument or Miri on

2
00:00:15,000 --> 00:00:19,589
the James Webb Space Telescope is unique

3
00:00:17,250 --> 00:00:20,969
in a number of ways first of all it

4
00:00:19,589 --> 00:00:23,219
looks at a different part of the

5
00:00:20,969 --> 00:00:25,618
electromagnetic spectrum than the other

6
00:00:23,219 --> 00:00:28,918
instruments do it looks at mid infrared

7
00:00:25,618 --> 00:00:31,320
frequencies second of all it takes both

8
00:00:28,919 --> 00:00:33,210
pictures and spectra to find out more

9
00:00:31,320 --> 00:00:35,369
about the Miri we have with us the

10
00:00:33,210 --> 00:00:35,789
European principal investigator Gillian

11
00:00:35,369 --> 00:00:38,359
right

12
00:00:35,789 --> 00:00:41,369
Gillian it looks at the mid infrared

13
00:00:38,359 --> 00:00:43,799
range of frequencies what isn't it

14
00:00:41,369 --> 00:00:46,500
infrared mid infrared means we look at

15
00:00:43,799 --> 00:00:48,689
longer wavelengths compared to what the

16
00:00:46,500 --> 00:00:51,509
other instruments do which is described

17
00:00:48,689 --> 00:00:55,469
as near-infrared it's better at looking

18
00:00:51,509 --> 00:00:58,500
through dust it's also more sensitive to

19
00:00:55,469 --> 00:01:01,799
different colors of objects lots of

20
00:00:58,500 --> 00:01:04,739
molecules that might indicate life on

21
00:01:01,799 --> 00:01:07,709
other planets those molecules make

22
00:01:04,739 --> 00:01:08,909
spectra in the mid infrared it takes

23
00:01:07,709 --> 00:01:11,279
pictures and spectra

24
00:01:08,909 --> 00:01:13,320
why the - yes because to do our science

25
00:01:11,280 --> 00:01:15,659
we want to be able to take both pictures

26
00:01:13,319 --> 00:01:17,639
and spectra so I suppose in an ideal

27
00:01:15,659 --> 00:01:20,490
world we'd have had two mid infrared

28
00:01:17,640 --> 00:01:22,799
instruments on JWST but there wasn't

29

00:01:20,489 --> 00:01:25,500
space so we built it into just one

30
00:01:22,799 --> 00:01:26,879
instrument that does both things and I

31
00:01:25,500 --> 00:01:29,040
understand we have a real

32
00:01:26,879 --> 00:01:31,379
honest-to-goodness Miri right here at

33
00:01:29,040 --> 00:01:33,180
Rutherford Appleton Laboratory right yes

34
00:01:31,379 --> 00:01:35,039
we're all really excited because we've

35
00:01:33,180 --> 00:01:36,450
just finished putting the flight model

36
00:01:35,040 --> 00:01:39,180
of the instrument together and we're

37
00:01:36,450 --> 00:01:41,728
about to start testing so Julian this is

38
00:01:39,180 --> 00:01:43,350
the Miri huh yes this is the Miri this

39
00:01:41,728 --> 00:01:46,079
is the flight instrument so we need to

40
00:01:43,349 --> 00:01:49,439
be very careful Murray deliberately has

41
00:01:46,079 --> 00:01:53,250
a very modular design so that each

42
00:01:49,439 --> 00:01:56,519
module for example this box here can be

43
00:01:53,250 --> 00:01:58,319

built and tested by itself before we

44

00:01:56,519 --> 00:02:00,060

build it into the rest of the instrument

45

00:01:58,319 --> 00:02:02,158

did you build these modules or you know

46

00:02:00,060 --> 00:02:04,560

we had different modules built in

47

00:02:02,159 --> 00:02:06,719

different parts of Europe it's that way

48

00:02:04,560 --> 00:02:08,610

we could use the skills of a lot of

49

00:02:06,719 --> 00:02:10,739

different Institute's all of which have

50

00:02:08,610 --> 00:02:13,290

very specialist knowledge about certain

51

00:02:10,739 --> 00:02:14,908

areas of how to do instruments and we

52

00:02:13,289 --> 00:02:17,310

could bring it all together to create

53

00:02:14,908 --> 00:02:18,590

the Miri but the Miri is both a

54

00:02:17,310 --> 00:02:20,959

spectrometer and and

55

00:02:18,590 --> 00:02:22,700

yes that's right so the spectrometer in

56

00:02:20,959 --> 00:02:25,370

this when it's this way around the

57

00:02:22,699 --> 00:02:27,079

spectrometer sits on the top but we can

58
00:02:25,370 --> 00:02:28,939
turn the instrument over so we could

59
00:02:27,080 --> 00:02:30,860
take a look at the imager the light

60
00:02:28,939 --> 00:02:33,949
would come in here from the telescope

61
00:02:30,860 --> 00:02:35,989
and it hits the mirror which turns it

62
00:02:33,949 --> 00:02:38,449
and sends it to the middle of the

63
00:02:35,989 --> 00:02:41,239
instrument most of the light is then

64
00:02:38,449 --> 00:02:43,339
sent to the imager so that we can take

65
00:02:41,239 --> 00:02:46,159
pictures with the imager and a very

66
00:02:43,340 --> 00:02:48,349
small fraction of the light is sent to

67
00:02:46,159 --> 00:02:51,199
the spectrometer for us to do

68
00:02:48,349 --> 00:02:52,340
spectroscopy Julien thanks so much for

69
00:02:51,199 --> 00:02:55,759
showing us your Miri

70
00:02:52,340 --> 00:02:58,580
you're very welcome as you can see the

71
00:02:55,759 --> 00:03:00,769
Miri is basically two instruments in one

72

00:02:58,580 --> 00:03:03,290

and it will be able to do its job

73

00:03:00,769 --> 00:03:05,629

because of the help of international

74

00:03:03,289 --> 00:03:09,489

partners thanks for joining us from

75

00:03:05,629 --> 00:03:09,489

another edition of behind the Webb

76

00:03:16,280 --> 00:03:18,340

you