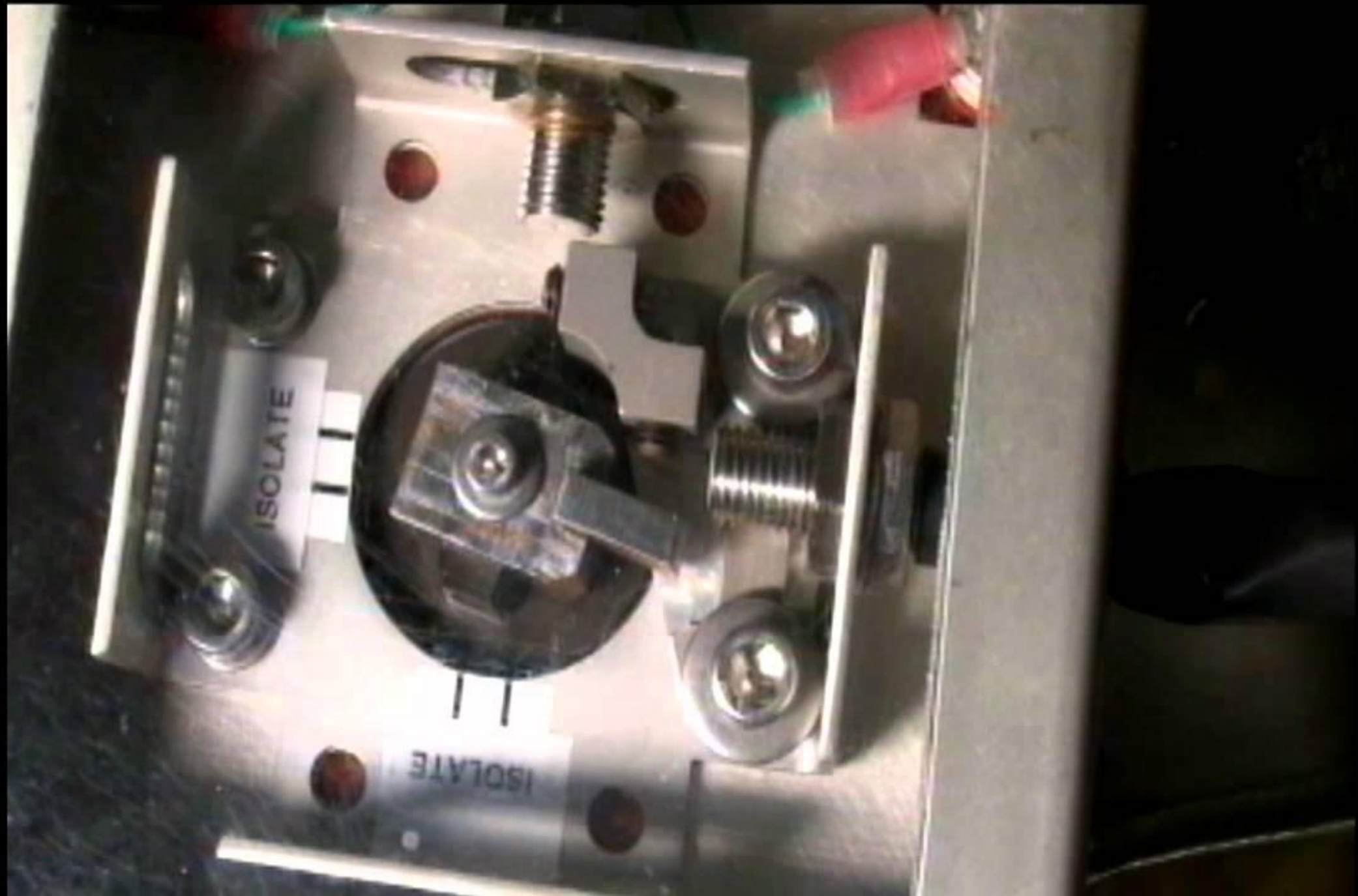
ISOLATE
ISOLATE

1
00:00:03,830 --> 00:00:01,990
the international space station crew

2
00:00:06,070 --> 00:00:03,840
members as we've seen have been working

3
00:00:08,230 --> 00:00:06,080
on a variety of

4
00:00:09,990 --> 00:00:08,240
experiments that are focused on the

5
00:00:12,390 --> 00:00:10,000
human body today

6
00:00:14,310 --> 00:00:12,400
but the space station is also a test bed

7
00:00:16,070 --> 00:00:14,320
for new technologies

8
00:00:17,990 --> 00:00:16,080
today we can learn a little bit more

9
00:00:20,470 --> 00:00:18,000
about an ongoing technology

10
00:00:23,029 --> 00:00:20,480
investigation that could help us when

11
00:00:25,029 --> 00:00:23,039
traveling much deeper into space

12
00:00:26,950 --> 00:00:25,039
let's go to the payload operations

13
00:00:28,950 --> 00:00:26,960

center at nasa's marshall space flight

14
00:00:30,710 --> 00:00:28,960
center where lori meigs is there to tell

15
00:00:32,790 --> 00:00:30,720
us more

16
00:00:34,630 --> 00:00:32,800
learning ways to filter and renew cabin

17
00:00:37,190 --> 00:00:34,640
air is one of the objectives of the

18
00:00:39,590 --> 00:00:37,200
amine swingbed payload it's vital to

19
00:00:42,229 --> 00:00:39,600
deep space exploration especially if we

20
00:00:43,510 --> 00:00:42,239
want to cut the demand for resupply of

21
00:00:45,510 --> 00:00:43,520
the essentials

22
00:00:46,709 --> 00:00:45,520
the mean swing bed is a technology

23
00:00:48,790 --> 00:00:46,719
demonstration

24
00:00:49,670 --> 00:00:48,800
of a carbon dioxide and water removal

25
00:00:51,510 --> 00:00:49,680
system

26
00:00:53,670 --> 00:00:51,520
it's the baseline technology for the

27
00:00:55,990 --> 00:00:53,680
orion program for what they want to use

28
00:00:58,630 --> 00:00:56,000
to control uh carbon dioxide humidity

29
00:01:00,630 --> 00:00:58,640
levels on the spacecraft we're testing

30
00:01:02,709 --> 00:01:00,640
it out on the space station to see how

31
00:01:04,869 --> 00:01:02,719
well it performs in the microgravity

32
00:01:06,550 --> 00:01:04,879
environment but also to understand from

33
00:01:09,030 --> 00:01:06,560
the ground what it takes to operate a

34
00:01:10,789 --> 00:01:09,040
payload a lot of our people in our team

35
00:01:12,630 --> 00:01:10,799
are technology developers and really

36
00:01:15,270 --> 00:01:12,640
don't have a good insight into the ops

37
00:01:17,270 --> 00:01:15,280
world and so this is a great bridge

38
00:01:18,469 --> 00:01:17,280

for technology people to see what ops is

39
00:01:20,230 --> 00:01:18,479
all about

40
00:01:23,429 --> 00:01:20,240
so how does it work so the way that it

41
00:01:26,550 --> 00:01:23,439
works is uh cabin air is forced through

42
00:01:27,270 --> 00:01:26,560
our swing bed there's a bed a and a bed

43
00:01:36,789 --> 00:01:27,280
b

44
00:01:38,630 --> 00:01:36,799
and um

45
00:01:40,469 --> 00:01:38,640
on one bed while the other bed is

46
00:01:41,990 --> 00:01:40,479
exposed to space vacuum

47
00:01:44,230 --> 00:01:42,000
and so a valve

48
00:01:46,630 --> 00:01:44,240
controls the airflow between one bed and

49
00:01:49,429 --> 00:01:46,640
the other and every so often every six

50
00:01:51,109 --> 00:01:49,439
to 20 minutes the valve rotates changes

51
00:01:52,550 --> 00:01:51,119
positions and then the bed that was

52
00:01:54,389 --> 00:01:52,560
loaded up with all that carbon dioxide

53
00:01:56,870 --> 00:01:54,399
humidity is then vented out to space

54
00:01:59,030 --> 00:01:56,880
vacuum and so this is a process that uh

55
00:02:01,590 --> 00:01:59,040
is regenerable we don't save the carbon

56
00:02:04,630 --> 00:02:01,600
dioxide humidity but the sorbent media

57
00:02:06,149 --> 00:02:04,640
can be used for a very long time

58
00:02:08,389 --> 00:02:06,159
so how does this help with future

59
00:02:10,469 --> 00:02:08,399
exploration so this was a demonstration

60
00:02:12,470 --> 00:02:10,479
of the technology that orion plans on

61
00:02:13,830 --> 00:02:12,480
using for their

62
00:02:15,270 --> 00:02:13,840
main system for controlling carbon

63
00:02:17,830 --> 00:02:15,280

dioxide humidity

64
00:02:20,229 --> 00:02:17,840
and the additional things that we added

65
00:02:21,910 --> 00:02:20,239
into it water save functions and air

66
00:02:23,990 --> 00:02:21,920
safe functions were very specific to

67
00:02:25,350 --> 00:02:24,000
originally an iss application because

68
00:02:27,190 --> 00:02:25,360
they don't want to lose a lot of water

69
00:02:29,030 --> 00:02:27,200
vapor

70
00:02:31,589 --> 00:02:29,040
so these new new components that we

71
00:02:33,990 --> 00:02:31,599
added involving a desiccant system

72
00:02:35,430 --> 00:02:34,000
that would be able to be applied to

73
00:02:37,270 --> 00:02:35,440
missions that are of longer duration

74
00:02:38,550 --> 00:02:37,280
than say orion when you want to start

75
00:02:40,309 --> 00:02:38,560
worrying about how much water vapor

76
00:02:41,910 --> 00:02:40,319
you're venting overboard how long does

77
00:02:42,949 --> 00:02:41,920
this demonstration last well the demons

78
00:02:46,710 --> 00:02:42,959
the

79
00:02:48,390 --> 00:02:46,720
science started back in may of 2013 and

80
00:02:50,229 --> 00:02:48,400
we just finished this past february in

81
00:02:52,150 --> 00:02:50,239
terms of collecting the science we did a

82
00:02:53,430 --> 00:02:52,160
thousand hours of operations

83
00:02:55,030 --> 00:02:53,440
the experiment however is going to be

84
00:02:58,630 --> 00:02:55,040
staying on longer

85
00:03:00,390 --> 00:02:58,640
because we provide a capability we can

86
00:03:01,910 --> 00:03:00,400
scrub carbon dioxide

87
00:03:03,509 --> 00:03:01,920
when other systems may be needing

88
00:03:05,830 --> 00:03:03,519

maintenance or something we can provide

89
00:03:07,030 --> 00:03:05,840
contingency support so it's really up to

90
00:03:08,390 --> 00:03:07,040
the program how long they want us to

91
00:03:10,229 --> 00:03:08,400
stay up there

92
00:03:11,910 --> 00:03:10,239
did any of the work in huntsville at the

93
00:03:13,350 --> 00:03:11,920
payload operations integration center

94
00:03:15,350 --> 00:03:13,360
did did you work with them anyway very

95
00:03:17,670 --> 00:03:15,360
closely and uh i think one of the things

96
00:03:20,550 --> 00:03:17,680
i started doing recently was dedicating

97
00:03:22,470 --> 00:03:20,560
a team just for our payload so rather

98
00:03:24,550 --> 00:03:22,480
than a payload

99
00:03:25,990 --> 00:03:24,560
operations manager working over a

100
00:03:28,070 --> 00:03:26,000
variety of payloads we had one

101
00:03:30,630 --> 00:03:28,080
particular payload operator or

102
00:03:32,070 --> 00:03:30,640
operations manager that was on for us as

103
00:03:33,350 --> 00:03:32,080
well as they helped write all of our

104
00:03:35,350 --> 00:03:33,360
procedures to turn them into the

105
00:03:36,869 --> 00:03:35,360
official format that they need to be so

106
00:03:39,110 --> 00:03:36,879
we work very closely with the folks at

107
00:03:42,070 --> 00:03:39,120
marshall to operate this payload as well

108
00:03:43,990 --> 00:03:42,080
as getting it up on orbit

109
00:03:45,910 --> 00:03:44,000
and taking a live look they are working

110
00:03:48,229 --> 00:03:45,920
with the amine swingbed folks this

111
00:03:50,390 --> 00:03:48,239
morning it is active and and they are

112
00:03:52,149 --> 00:03:50,400
doing their part to assist there

113
00:03:53,990 --> 00:03:52,159

craig cruzen is the payload operations

114
00:03:56,149 --> 00:03:54,000
director today leading the team now

115
00:03:58,309 --> 00:03:56,159
later today they'll be doing some work

116
00:03:59,750 --> 00:03:58,319
with the opals

117
00:04:01,830 --> 00:03:59,760
experiment and that's the laser

118
00:04:03,589 --> 00:04:01,840
communications experiment so a lot of

119
00:04:05,589 --> 00:04:03,599
work going on today busy here in

120
00:04:06,949 --> 00:04:05,599
huntsville as usual that'll do it for us

121
00:04:08,949 --> 00:04:06,959
here at the payload operations