
NASA
SPACESTATION
LIVE

1
00:00:09,910 --> 00:00:07,590
i am here with heidi brewer who is the

2
00:00:12,390 --> 00:00:09,920
operations lead for beam beam of course

3
00:00:14,629 --> 00:00:12,400
is the bigelow expandable activity

4
00:00:16,070 --> 00:00:14,639
module that arrived on april 10th and is

5
00:00:17,910 --> 00:00:16,080
getting ready to be expanded for the

6
00:00:19,670 --> 00:00:17,920
first time so we are here with heidi and

7
00:00:23,189 --> 00:00:19,680
she's going to tell us a little bit

8
00:00:26,150 --> 00:00:23,199
about what uh has to go on between today

9
00:00:27,269 --> 00:00:26,160
and its actual scheduled expansion on

10
00:00:29,269 --> 00:00:27,279
thursday

11
00:00:31,830 --> 00:00:29,279
beam was installed on tranquility last

12
00:00:33,030 --> 00:00:31,840
month right so what's been going on

13
00:00:35,110 --> 00:00:33,040

since then

14
00:00:36,709 --> 00:00:35,120
to get it ready for this expansion so

15
00:00:38,229 --> 00:00:36,719
since then on the ground we've been

16
00:00:39,830 --> 00:00:38,239
reviewing our procedures and getting

17
00:00:41,270 --> 00:00:39,840
ready for all the upcoming operations

18
00:00:43,270 --> 00:00:41,280
and making sure that the timeline is in

19
00:00:44,790 --> 00:00:43,280
good shape and then on board jeff has

20
00:00:46,549 --> 00:00:44,800
been performing a lot of our road to

21
00:00:48,869 --> 00:00:46,559
activities this morning he actually

22
00:00:50,389 --> 00:00:48,879
installed some cables for the laptop

23
00:00:52,389 --> 00:00:50,399
that we're going to use for sensor data

24
00:00:53,590 --> 00:00:52,399
collection and then also checked out the

25
00:00:56,150 --> 00:00:53,600
deployment controller that will be used

26
00:00:58,470 --> 00:00:56,160
for deployment on thursday okay so has

27
00:01:01,110 --> 00:00:58,480
it been pretty smooth sailing any any

28
00:01:02,630 --> 00:01:01,120
hiccups so far so good yeah operations

29
00:01:04,869 --> 00:01:02,640
are going well so does that give you a

30
00:01:06,310 --> 00:01:04,879
good feeling then about thursday yes all

31
00:01:08,310 --> 00:01:06,320
right so what is actually going to

32
00:01:10,230 --> 00:01:08,320
happen on thursday how does how do how

33
00:01:11,990 --> 00:01:10,240
do we expand the module

34
00:01:13,990 --> 00:01:12,000
so deployment actually has five

35
00:01:15,109 --> 00:01:14,000
different activities that take place uh

36
00:01:17,030 --> 00:01:15,119
the first one is we're going to be

37
00:01:18,550 --> 00:01:17,040
closing the ascent vent valve beam is

38
00:01:20,710 --> 00:01:18,560

currently in uh

39
00:01:22,789 --> 00:01:20,720
its depressurized state and so we need

40
00:01:24,390 --> 00:01:22,799
to close the the valve first

41
00:01:26,469 --> 00:01:24,400
then after that we'll be cutting the

42
00:01:28,950 --> 00:01:26,479
restraint straps that's holding the

43
00:01:30,149 --> 00:01:28,960
module in its packed configuration and

44
00:01:32,230 --> 00:01:30,159
then the forward bulkhead will be

45
00:01:33,749 --> 00:01:32,240
released then we'll go into expansion

46
00:01:35,429 --> 00:01:33,759
which is the

47
00:01:37,270 --> 00:01:35,439
expansion from its pack configuration to

48
00:01:38,630 --> 00:01:37,280
its full shape and then lastly it'll be

49
00:01:40,950 --> 00:01:38,640
pressurized

50
00:01:41,910 --> 00:01:40,960
so this will be mostly performed by the

51
00:01:43,590 --> 00:01:41,920
crew

52
00:01:45,429 --> 00:01:43,600
okay so you said close the vent valve

53
00:01:47,350 --> 00:01:45,439
i'm guessing that's just basically a

54
00:01:49,990 --> 00:01:47,360
hole that is currently keeping it

55
00:01:50,870 --> 00:01:50,000
unexpanded so that you make it

56
00:01:55,190 --> 00:01:50,880
um

57
00:01:57,590 --> 00:01:55,200
into it and then it expands or how does

58
00:01:59,670 --> 00:01:57,600
that work so uh it actually is currently

59
00:02:01,590 --> 00:01:59,680
open to keep beam at a vacuum and then

60
00:02:03,910 --> 00:02:01,600
it will be closed so that we can provide

61
00:02:05,590 --> 00:02:03,920
air through a different uh location

62
00:02:06,950 --> 00:02:05,600
that's through the hatch okay and then

63
00:02:09,430 --> 00:02:06,960

you mentioned restraint straps have to

64
00:02:10,949 --> 00:02:09,440
be cut out is that how does that happen

65
00:02:12,390 --> 00:02:10,959
so the most of the sequence will be

66
00:02:13,830 --> 00:02:12,400
performed by using the deployment

67
00:02:15,589 --> 00:02:13,840
controller that jeff checked out this

68
00:02:17,350 --> 00:02:15,599
morning most of it is an automated

69
00:02:19,670 --> 00:02:17,360
sequence then we'll pause after the

70
00:02:23,350 --> 00:02:19,680
first couple steps then he will perform

71
00:02:24,630 --> 00:02:23,360
some manual expansion through the hatch

72
00:02:26,070 --> 00:02:24,640
and then we'll complete it by doing

73
00:02:28,150 --> 00:02:26,080
pressurization

74
00:02:29,750 --> 00:02:28,160
which is using the controller again okay

75
00:02:31,030 --> 00:02:29,760
so what's the difference between manual

76
00:02:33,509 --> 00:02:31,040
expansion and

77
00:02:35,430 --> 00:02:33,519
non-manual i guess robotic

78
00:02:36,869 --> 00:02:35,440
so the manual expansion is the first

79
00:02:39,430 --> 00:02:36,879
portion which is going to take us from

80
00:02:40,949 --> 00:02:39,440
the pack configuration to the full shape

81
00:02:42,949 --> 00:02:40,959
so we'll be able to see

82
00:02:44,869 --> 00:02:42,959
the beam basically at its full shape and

83
00:02:46,710 --> 00:02:44,879
then the pressurization that last part

84
00:02:49,190 --> 00:02:46,720
of the expansion will take it from a

85
00:02:50,869 --> 00:02:49,200
lower pressure to its full pressure okay

86
00:02:52,710 --> 00:02:50,879
what what does jeff have to do for the

87
00:02:55,589 --> 00:02:52,720
manual expression is it expansion is it

88
00:02:57,589 --> 00:02:55,599

just pressing buttons or is it anything

89
00:02:59,350 --> 00:02:57,599
out of the ordinary he'll be opening and

90
00:03:00,869 --> 00:02:59,360
closing a valve and he's using equipment

91
00:03:02,830 --> 00:03:00,879
that he's used for a number of other

92
00:03:05,350 --> 00:03:02,840
machines okay interesting all right well

93
00:03:07,030 --> 00:03:05,360
um how much bigger will it actually get

94
00:03:09,110 --> 00:03:07,040
how can you give us an idea of you know

95
00:03:11,589 --> 00:03:09,120
how small it is now and how big it'll be

96
00:03:13,430 --> 00:03:11,599
at the end so once the beam is fully

97
00:03:15,350 --> 00:03:13,440
expanded it's going to be a little under

98
00:03:17,670 --> 00:03:15,360
four and a half times its current volume

99
00:03:19,910 --> 00:03:17,680
so it's going to be expected quite a

100
00:03:22,869 --> 00:03:19,920
yeah and then once it's at its

101
00:03:24,630 --> 00:03:22,879
optimal volume is it roughly the same as

102
00:03:25,430 --> 00:03:24,640
the other modules on the space station

103
00:03:27,670 --> 00:03:25,440
or

104
00:03:28,630 --> 00:03:27,680
a little smaller it's a little bit

105
00:03:30,949 --> 00:03:28,640
smaller

106
00:03:32,869 --> 00:03:30,959
yeah but still big enough for a person

107
00:03:34,070 --> 00:03:32,879
to get inside i'm sure yes that's right

108
00:03:35,990 --> 00:03:34,080
and we'll be outfitting it with a number

109
00:03:37,350 --> 00:03:36,000
of different sensors okay what will the

110
00:03:38,710 --> 00:03:37,360
sensors do

111
00:03:41,750 --> 00:03:38,720
we'll have sensors to collect

112
00:03:44,149 --> 00:03:41,760
information on radiation and also impact

113
00:03:46,630 --> 00:03:44,159

detection to see what the mmod is like

114
00:03:48,949 --> 00:03:46,640
in that area of space station an mmod

115
00:03:51,670 --> 00:03:48,959
just for people who don't know is micro

116
00:03:53,270 --> 00:03:51,680
meteoroid orbital debris that's correct

117
00:03:54,949 --> 00:03:53,280
and then also temperature i haven't

118
00:03:56,550 --> 00:03:54,959
mentioned that one okay

119
00:03:58,390 --> 00:03:56,560
all right so um

120
00:04:00,390 --> 00:03:58,400
for the orbital debris detection i guess

121
00:04:02,789 --> 00:04:00,400
that's important because this is not our

122
00:04:05,509 --> 00:04:02,799
standard module we want to know how it

123
00:04:06,949 --> 00:04:05,519
reacts if it is hit by orbital debris if

124
00:04:08,710 --> 00:04:06,959
we would expect it to leak that sort of

125
00:04:10,229 --> 00:04:08,720
thing is that part of the the whole

126
00:04:12,470 --> 00:04:10,239
point of having beam on the space

127
00:04:14,869 --> 00:04:12,480
station yes it's just taking a look at

128
00:04:17,349 --> 00:04:14,879
how beam performs compared to the

129
00:04:19,030 --> 00:04:17,359
standard aluminum module okay how

130
00:04:20,710 --> 00:04:19,040
what kind of feedback will you get on

131
00:04:23,110 --> 00:04:20,720
that do we

132
00:04:25,270 --> 00:04:23,120
get a warning when it's hit or

133
00:04:27,430 --> 00:04:25,280
tell us what to expect the sensors will

134
00:04:29,270 --> 00:04:27,440
be polling and collecting data over a

135
00:04:31,030 --> 00:04:29,280
period of time and most of the data is

136
00:04:33,270 --> 00:04:31,040
going to be sent over to a laptop that's

137
00:04:35,270 --> 00:04:33,280
housed in node three and then the ground

138
00:04:37,110 --> 00:04:35,280

will send a command up to get the

139
00:04:38,629 --> 00:04:37,120
information down to the ground and it'll

140
00:04:39,749 --> 00:04:38,639
be analyzed by the analysts on the

141
00:04:41,350 --> 00:04:39,759
ground

142
00:04:43,430 --> 00:04:41,360
the crew will also go inside and

143
00:04:44,710 --> 00:04:43,440
retrieve some radiation

144
00:04:47,030 --> 00:04:44,720
badges that they'll be deploying every

145
00:04:48,790 --> 00:04:47,040
couple months okay so you mentioned

146
00:04:50,469 --> 00:04:48,800
they'll go inside but they won't stay

147
00:04:52,629 --> 00:04:50,479
inside for long periods of time is that

148
00:04:54,150 --> 00:04:52,639
the intent they won't move into this one

149
00:04:56,310 --> 00:04:54,160
and start living there that's correct

150
00:04:58,310 --> 00:04:56,320
it's mostly for sensor data collection

151
00:05:00,790 --> 00:04:58,320
okay so it's basically a demonstration

152
00:05:03,590 --> 00:05:00,800
to to figure out if this is technology

153
00:05:05,510 --> 00:05:03,600
that that will work long term in space

154
00:05:06,710 --> 00:05:05,520
yes why is that important why do we need

155
00:05:07,909 --> 00:05:06,720
to know

156
00:05:10,629 --> 00:05:07,919
because

157
00:05:12,150 --> 00:05:10,639
the expandable feature of this module is

158
00:05:13,590 --> 00:05:12,160
that it takes up a little bit less space

159
00:05:15,270 --> 00:05:13,600
to get to orbit it's a little bit less

160
00:05:17,029 --> 00:05:15,280
mass to get to orbit and so if we're

161
00:05:19,670 --> 00:05:17,039
able to utilize it in the same way that

162
00:05:21,189 --> 00:05:19,680
we do our traditional aluminum modules

163
00:05:24,230 --> 00:05:21,199

then it may be game changing in the

164
00:05:26,469 --> 00:05:24,240
future for future exploration why is

165
00:05:28,550 --> 00:05:26,479
that why is it important to have the the

166
00:05:30,550 --> 00:05:28,560
smaller ones available

167
00:05:32,550 --> 00:05:30,560
we should be able to send more things up

168
00:05:34,710 --> 00:05:32,560
into space and do more science and more

169
00:05:35,909 --> 00:05:34,720
research great that sounds very

170
00:05:37,830 --> 00:05:35,919
promising

171
00:05:39,749 --> 00:05:37,840
um so you mentioned that the crew will

172
00:05:41,830 --> 00:05:39,759
be taking some samples over the next

173
00:05:44,390 --> 00:05:41,840
couple of years right yes the next two

174
00:05:46,310 --> 00:05:44,400
years okay um how often would you say

175
00:05:47,830 --> 00:05:46,320
what kind of how will they take them

176
00:05:49,749 --> 00:05:47,840
is it similar to the other samples they

177
00:05:51,350 --> 00:05:49,759
take at the space station or yes it'll

178
00:05:53,510 --> 00:05:51,360
be very similar actually we'll be

179
00:05:55,670 --> 00:05:53,520
collecting information on microbial

180
00:05:56,870 --> 00:05:55,680
samples so both surface samples and also

181
00:05:59,749 --> 00:05:56,880
air samples

182
00:06:01,270 --> 00:05:59,759
and then the radiation samples okay

183
00:06:04,390 --> 00:06:01,280
all right well tell us just what what

184
00:06:05,990 --> 00:06:04,400
your role in all of this is

185
00:06:07,590 --> 00:06:06,000
so i am the operations lead i've been

186
00:06:09,749 --> 00:06:07,600
helping put together the timeline and

187
00:06:12,390 --> 00:06:09,759
sort of telling the story of beam and

188
00:06:13,189 --> 00:06:12,400

integrating it with the operations team

189
00:06:14,870 --> 00:06:13,199
so

190
00:06:16,309 --> 00:06:14,880
looking forward to having it actually