
NASA
HD
NASA
SPACESTATION
LIVE

1
00:00:09,750 --> 00:00:06,869
for space station crew members the

2
00:00:11,830 --> 00:00:09,760
football sized orbiting laboratory is

3
00:00:14,230 --> 00:00:11,840
their home away from home for six months

4
00:00:15,509 --> 00:00:14,240
or even even a year

5
00:00:17,349 --> 00:00:15,519
it's where they live and work and

6
00:00:19,429 --> 00:00:17,359
therefore their spacecraft must be

7
00:00:21,109 --> 00:00:19,439
comfortable and efficient

8
00:00:23,429 --> 00:00:21,119
that's where the human factors group at

9
00:00:25,509 --> 00:00:23,439
johnson space center comes in

10
00:00:27,429 --> 00:00:25,519
lori meigs my colleague at nasa's

11
00:00:29,349 --> 00:00:27,439
marshall space flight center in alabama

12
00:00:31,750 --> 00:00:29,359
spoke with a human factors engineer

13
00:00:33,590 --> 00:00:31,760

about the habitability investigation

14
00:00:35,350 --> 00:00:33,600
which is collecting observations about

15
00:00:37,110 --> 00:00:35,360
the relationship between crew members

16
00:00:39,510 --> 00:00:37,120
and their environment and whether

17
00:00:41,990 --> 00:00:39,520
emissions cur

18
00:00:44,310 --> 00:00:42,000
duration impacts how much space crew

19
00:00:45,670 --> 00:00:44,320
members need

20
00:00:47,270 --> 00:00:45,680
we're trying to

21
00:00:48,950 --> 00:00:47,280
assess the habitability of the

22
00:00:50,950 --> 00:00:48,960
international space station so how

23
00:00:53,110 --> 00:00:50,960
people interact with their environment

24
00:00:54,470 --> 00:00:53,120
when they're living and working

25
00:00:55,910 --> 00:00:54,480
we want to get information about how

26
00:00:58,790 --> 00:00:55,920
they're interacting with space station

27
00:01:01,430 --> 00:00:58,800
now so that we can feed it forward into

28
00:01:03,029 --> 00:01:01,440
the design of future space vehicles

29
00:01:04,549 --> 00:01:03,039
we're looking at longer duration flights

30
00:01:05,990 --> 00:01:04,559
in the future so

31
00:01:08,230 --> 00:01:06,000
it's more important to make sure that we

32
00:01:10,469 --> 00:01:08,240
get all of the little details right so

33
00:01:12,870 --> 00:01:10,479
we're asking people to use things like

34
00:01:14,950 --> 00:01:12,880
an ipad application and videos

35
00:01:16,550 --> 00:01:14,960
to document the way they're interacting

36
00:01:18,310 --> 00:01:16,560
with their environment starting with the

37
00:01:19,670 --> 00:01:18,320
when you're iss mission this is

38
00:01:21,590 --> 00:01:19,680

something we really don't think about

39
00:01:24,390 --> 00:01:21,600
the the surroundings i mean that's their

40
00:01:25,749 --> 00:01:24,400
home for six months and now a year so

41
00:01:27,749 --> 00:01:25,759
astronauts come back and say you know

42
00:01:29,910 --> 00:01:27,759
this was bad this is good this is is

43
00:01:32,230 --> 00:01:29,920
that how it kind of works we've looked

44
00:01:34,069 --> 00:01:32,240
at um what feedback we do have from

45
00:01:36,230 --> 00:01:34,079
astronauts so far there's sources like

46
00:01:37,350 --> 00:01:36,240
um the post mission debriefs um the

47
00:01:39,429 --> 00:01:37,360
people who do those debriefs or

48
00:01:41,030 --> 00:01:39,439
co-investigators on the study and so

49
00:01:43,270 --> 00:01:41,040
they've helped us go through it and see

50
00:01:44,230 --> 00:01:43,280
that yes they do comment on things like

51
00:01:45,830 --> 00:01:44,240
um

52
00:01:47,990 --> 00:01:45,840
their the hardware that they interact

53
00:01:50,469 --> 00:01:48,000
with the software they interact with

54
00:01:51,990 --> 00:01:50,479
things that that could be

55
00:01:53,749 --> 00:01:52,000
designs better

56
00:01:55,510 --> 00:01:53,759
things that human factors engineers care

57
00:01:58,310 --> 00:01:55,520
about so they comment about those types

58
00:01:59,990 --> 00:01:58,320
of things in the debriefs um we also

59
00:02:01,429 --> 00:02:00,000
look at there's

60
00:02:03,270 --> 00:02:01,439
notes that crew members make in their

61
00:02:04,550 --> 00:02:03,280
scheduling tool when they're on iss they

62
00:02:06,469 --> 00:02:04,560
can go in and make notes about a

63
00:02:07,910 --> 00:02:06,479

specific task as they go so we go

64
00:02:10,070 --> 00:02:07,920
through and look at those notes and and

65
00:02:11,510 --> 00:02:10,080
we feel like there's um the astronauts

66
00:02:15,430 --> 00:02:11,520
probably have a lot to say about these

67
00:02:18,229 --> 00:02:15,440
things um but we may not be capturing it

68
00:02:20,390 --> 00:02:18,239
as optimally as we could um we also

69
00:02:22,390 --> 00:02:20,400
tested this out during nemo which is an

70
00:02:24,470 --> 00:02:22,400
underwater analog

71
00:02:27,270 --> 00:02:24,480
we sent our ipad app with them and we

72
00:02:29,350 --> 00:02:27,280
had them use it during a 14 day mission

73
00:02:32,710 --> 00:02:29,360
we got some great feedback to give to

74
00:02:35,190 --> 00:02:32,720
the nemo analog facilities people

75
00:02:36,630 --> 00:02:35,200
we got great feedback about the app and

76
00:02:38,710 --> 00:02:36,640
some lessons learned about how to

77
00:02:39,990 --> 00:02:38,720
improve it for space station

78
00:02:42,470 --> 00:02:40,000
and we did the same thing with hera

79
00:02:44,309 --> 00:02:42,480
which is a ground-based analog it's a

80
00:02:46,869 --> 00:02:44,319
building that sits on site at johnson

81
00:02:49,030 --> 00:02:46,879
space center and we had people use that

82
00:02:50,470 --> 00:02:49,040
for a seven-day mission they used

83
00:02:52,150 --> 00:02:50,480
application they took videos just the

84
00:02:54,070 --> 00:02:52,160
way that we are asking the astronauts to

85
00:02:56,710 --> 00:02:54,080
take videos during the space flight

86
00:02:58,470 --> 00:02:56,720
study um another component of the study

87
00:03:00,550 --> 00:02:58,480
to capture the same type of information

88
00:03:02,470 --> 00:03:00,560

is we're going to have a live conference

89
00:03:04,070 --> 00:03:02,480
with astronauts that'll be questions

90
00:03:05,270 --> 00:03:04,080
that are just the same type of things

91
00:03:07,190 --> 00:03:05,280
they always ask during post mission

92
00:03:09,589 --> 00:03:07,200
debriefs but the hope is that if we ask

93
00:03:11,190 --> 00:03:09,599
it closer to real time we might get a

94
00:03:13,030 --> 00:03:11,200
little bit of recall on issues they may

95
00:03:14,470 --> 00:03:13,040
have encountered and and it's not just

96
00:03:15,990 --> 00:03:14,480
negative issues either it's positive

97
00:03:18,550 --> 00:03:16,000
things like we like the way you did this

98
00:03:20,309 --> 00:03:18,560
let's make sure we do that in the future

99
00:03:22,790 --> 00:03:20,319
let's talk a little bit about the

100
00:03:24,550 --> 00:03:22,800
ipad app how does that work so um the

101
00:03:27,270 --> 00:03:24,560
app is called the space habitability

102
00:03:30,309 --> 00:03:27,280
observation reporting tool um i-short

103
00:03:32,949 --> 00:03:30,319
it's an application that allows users to

104
00:03:34,630 --> 00:03:32,959
provide responses using text photo video

105
00:03:36,070 --> 00:03:34,640
audio recordings basically trying to

106
00:03:37,910 --> 00:03:36,080
provide them lots of options with any

107
00:03:39,350 --> 00:03:37,920
way they want to tell us about something

108
00:03:40,630 --> 00:03:39,360
they they can tell us

109
00:03:43,190 --> 00:03:40,640
what do we hope to learn from this are

110
00:03:44,789 --> 00:03:43,200
there earth applications too um one of

111
00:03:45,670 --> 00:03:44,799
the big things that we're trying to look

112
00:03:47,430 --> 00:03:45,680
at is

113
00:03:49,430 --> 00:03:47,440

called net habitable volume so it's how

114
00:03:51,190 --> 00:03:49,440
much space do you need in the entire

115
00:03:53,190 --> 00:03:51,200
vehicle to get the tasks accomplished

116
00:03:54,710 --> 00:03:53,200
that you need to accomplish so we'll be

117
00:03:57,190 --> 00:03:54,720
looking at things like

118
00:04:00,309 --> 00:03:57,200
how frequently do they use this area if

119
00:04:02,309 --> 00:04:00,319
we can capture video of postures of them

120
00:04:04,789 --> 00:04:02,319
performing a medical sim task for

121
00:04:06,710 --> 00:04:04,799
instance and some people that are very

122
00:04:07,589 --> 00:04:06,720
interested in that kind of thing too

123
00:04:09,509 --> 00:04:07,599
would be

124
00:04:11,589 --> 00:04:09,519
oil and gas industry they design

125
00:04:12,710 --> 00:04:11,599
platforms that are very cramped spaces

126
00:04:15,429 --> 00:04:12,720
that people have to stay in for a pretty

127
00:04:18,789 --> 00:04:15,439
long amount of time the navy

128
00:04:20,150 --> 00:04:18,799
submarines um there are several earth

129
00:04:21,590 --> 00:04:20,160
industries that are interested in the

130
00:04:23,350 --> 00:04:21,600
same type of thing and we've worked with

131
00:04:24,710 --> 00:04:23,360
them to to come up with what we think

132
00:04:26,310 --> 00:04:24,720
the important tasks are that are going

133
00:04:28,550 --> 00:04:26,320
to drive you to have a bigger volume but

134
00:04:30,950 --> 00:04:28,560
basically and for nasa and for some of

135
00:04:32,710 --> 00:04:30,960
the earth applications like oil and gas

136
00:04:34,870 --> 00:04:32,720
the volume that you provide means it

137
00:04:37,670 --> 00:04:34,880
costs money to provide it so everybody

138
00:04:39,749 --> 00:04:37,680

wants to to get by with as small of a

139
00:04:40,550 --> 00:04:39,759
volume as you can but as human factors

140
00:04:41,749 --> 00:04:40,560
people

141
00:04:43,350 --> 00:04:41,759
our concern is that we want to make sure