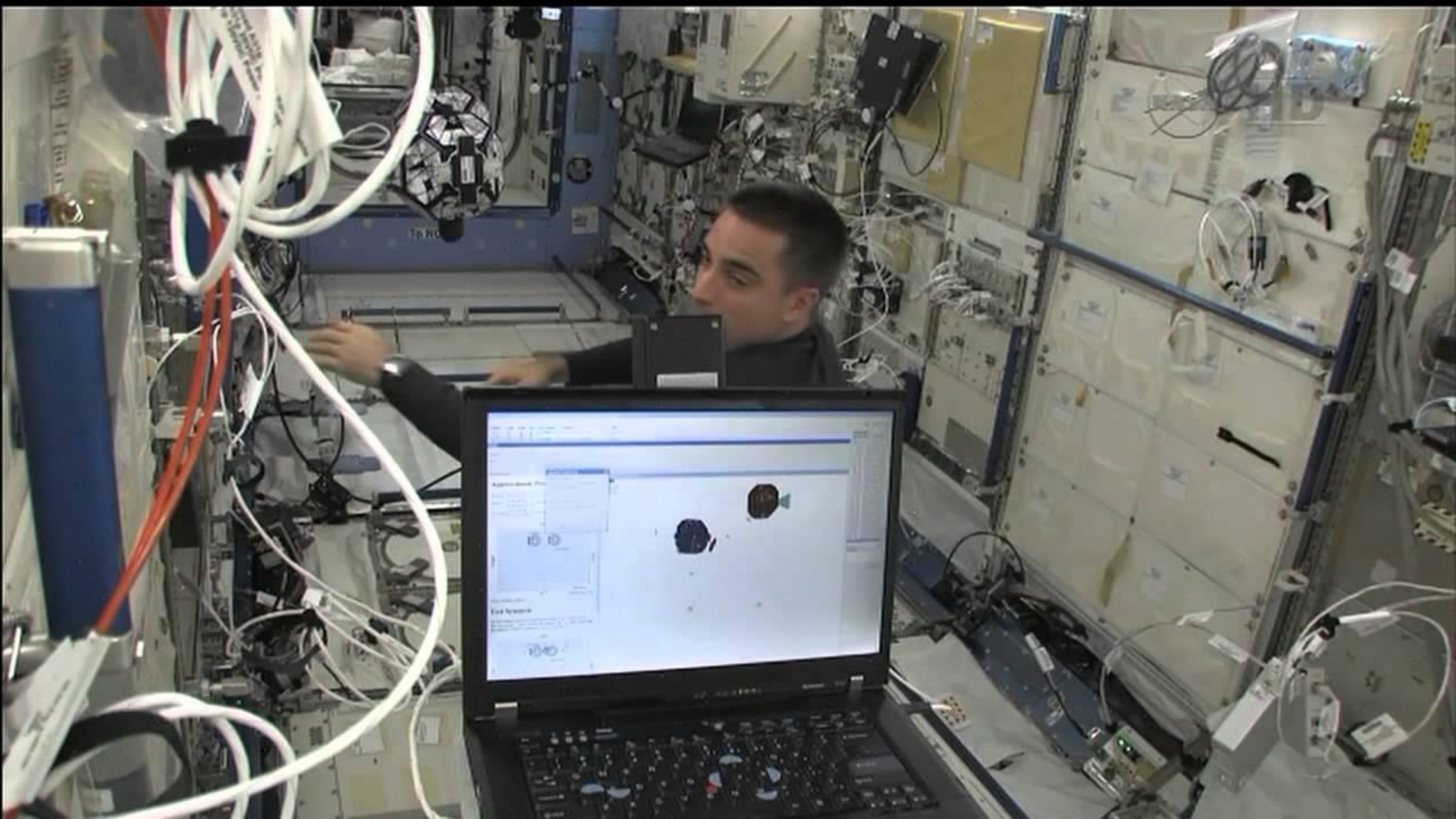

1
00:00:01,300 --> 00:00:02,701
>> Now, why don't
we go ahead and head

2
00:00:02,701 --> 00:00:05,237
out to the Marshall Space Flight
Center in Huntsville, Alabama,

3
00:00:05,237 --> 00:00:08,140
where Lori Meggs is standing
by with a live cut-in.

4
00:00:08,140 --> 00:00:11,043
Lori, we're at the start
of a new expedition.

5
00:00:11,043 --> 00:00:12,144
>> Lori Meggs: That is right.

6
00:00:12,144 --> 00:00:14,046
It's Expedition 37,
but folks here

7
00:00:14,046 --> 00:00:16,415
in the Payload Operations
Integration Center have been

8
00:00:16,415 --> 00:00:18,551
planning and preparing
for this for months.

9
00:00:18,551 --> 00:00:20,453
It comes with any
new expedition.

10
00:00:20,453 --> 00:00:22,788
Joining me now is the
Payload Operations Manager

11

00:00:22,788 --> 00:00:24,790
for Expedition 37,
Becky Grimaldi.

12
00:00:24,790 --> 00:00:25,925
Becky, thanks for
joining us today.

13
00:00:25,925 --> 00:00:26,492
>> Becky Grimaldi: Hi.

14
00:00:26,492 --> 00:00:27,193
Good morning.

15
00:00:27,193 --> 00:00:28,260
Good to have you here.

16
00:00:28,260 --> 00:00:29,095
>> Lori Meggs: Thanks
for wearing pink.

17
00:00:29,095 --> 00:00:30,496
We match. We did not plan that.

18
00:00:30,496 --> 00:00:32,098
Tell us, first of all, what a
Payload Operations Manager does.

19
00:00:32,098 --> 00:00:33,232
>> Becky Grimaldi:
Well, we're --

20
00:00:33,232 --> 00:00:35,734
pretty much, we work a
whole six months worth,

21
00:00:35,734 --> 00:00:37,603
two increments actually,
I'm assigned to.

22
00:00:37,603 --> 00:00:41,340
And we're pretty much making
sure that PYC is ready for all

23
00:00:41,340 --> 00:00:43,843
of the NASA science
experiments that we have coming

24
00:00:43,843 --> 00:00:45,244
up in the next six months.

25
00:00:45,244 --> 00:00:47,513
And we do that through
a lot of coordination

26
00:00:47,513 --> 00:00:51,217
with our counterparts in
Europe and Japan and Houston.

27
00:00:51,217 --> 00:00:54,553
So it's a lot of meetings and
telecons and coordinating,

28
00:00:54,553 --> 00:00:57,223
but we make sure our
readiness is ready to go

29
00:00:57,223 --> 00:00:58,457
so that we have everything ready

30
00:00:58,457 --> 00:01:00,359
in place before it
gets to this room.

31
00:01:00,359 --> 00:01:01,594
>> Lori Meggs: That's right.

32
00:01:01,594 --> 00:01:02,828
It's all the behind-the-scenes,

pretty stuff, right?

33
00:01:02,828 --> 00:01:03,963
>> Becky Grimaldi: Right.

34
00:01:03,963 --> 00:01:04,897
>> Lori Meggs: But it's
not a one-woman show.

35
00:01:04,897 --> 00:01:05,965
>> Becky Grimaldi: No.

36
00:01:05,965 --> 00:01:07,166
>> Lori Meggs: I know
that you guys work

37
00:01:07,166 --> 00:01:08,267
for a really long time.

38
00:01:08,267 --> 00:01:09,168
There's planners.

39
00:01:09,168 --> 00:01:10,069
There's preppers.

40
00:01:10,069 --> 00:01:11,203
Tell us all about that.

41
00:01:11,203 --> 00:01:12,471
>> Becky Grimaldi: Absolutely.

42
00:01:12,471 --> 00:01:13,873
There's an assistant that
I have, Stephanie Dudley,

43
00:01:13,873 --> 00:01:17,743
who helps me immensely and then,
yes, there are several phases

44
00:01:17,743 --> 00:01:20,112
that we go through to
get things ready for ops.

45
00:01:20,112 --> 00:01:21,981
Pretty much the last
phase before we're

46
00:01:21,981 --> 00:01:24,917
in this room executing
is the people

47
00:01:24,917 --> 00:01:26,652
that are behind this
room, there's about four

48
00:01:26,652 --> 00:01:31,524
or five rooms back there filled
by about 20 different personnel

49
00:01:31,524 --> 00:01:34,393
that usually rotate in
on a six-month basis.

50
00:01:34,393 --> 00:01:37,563
They work Monday through
Friday, eight by five

51
00:01:37,563 --> 00:01:39,765
and they are back there
getting things ready

52
00:01:39,765 --> 00:01:41,000
for this room to execute.

53
00:01:41,000 --> 00:01:44,670
The first one of those
teams is the planning team.

54

00:01:44,670 --> 00:01:47,573
They start building all
the plans that the crew

55
00:01:47,573 --> 00:01:50,576
and the ground team
need to execute

56
00:01:50,576 --> 00:01:53,445
and they start building those
about three weeks out from

57
00:01:53,445 --> 00:01:55,414
when we're getting
ready to execute.

58
00:01:55,414 --> 00:01:57,983
They're filling in all the
information that the crew needs

59
00:01:57,983 --> 00:02:01,987
to do their job and command
windows that we need if a PD is

60
00:02:01,987 --> 00:02:04,990
at a remote site and they need
the command, they're putting all

61
00:02:04,990 --> 00:02:07,026
that on the plan so we
have it all ready to go.

62
00:02:07,026 --> 00:02:08,561
>> Lori Meggs: So, it's kind
of all on their shoulders

63
00:02:08,561 --> 00:02:10,296
of what happens,
what the crew does.

64

00:02:10,296 --> 00:02:11,931
>> Becky Grimaldi: Absolutely,
and it's a lot of coordination.

65
00:02:11,931 --> 00:02:14,667
They work with the international
partners three times a week

66
00:02:14,667 --> 00:02:16,835
to make sure that
everything is coordinated

67
00:02:16,835 --> 00:02:19,071
and that the resources
that we need --

68
00:02:19,071 --> 00:02:20,839
do we have enough video
lines, all that kind

69
00:02:20,839 --> 00:02:22,741
of stuff is coordinated
so everything fits.

70
00:02:22,741 --> 00:02:24,076
>> Lori Meggs: So they
work on a timeline?

71
00:02:24,076 --> 00:02:24,843
>> Becky Grimaldi: Yes.

72
00:02:24,843 --> 00:02:25,678
>> Lori Meggs: All right.

73
00:02:25,678 --> 00:02:27,046
>> Becky Grimaldi: Absolutely.

74
00:02:27,046 --> 00:02:29,048
And then, after that, there's
a team we call the prep team

75
00:02:29,048 --> 00:02:32,051
and they are getting all of
the products ready to make sure

76
00:02:32,051 --> 00:02:34,787
that everything is onboard
and ready to go for the ops.

77
00:02:34,787 --> 00:02:38,157
They start reviewing the
timeline about a week out.

78
00:02:38,157 --> 00:02:40,693
They're also processing
all of our change traffic,

79
00:02:40,693 --> 00:02:44,563
if we need to update it, crew
procedure or any other products

80
00:02:44,563 --> 00:02:46,332
that need to be uplinked
to support the ops.

81
00:02:46,332 --> 00:02:49,301
Sometimes PDs have files,
data files, that need to go

82
00:02:49,301 --> 00:02:52,004
up to support a run,
scripts, that kind of thing.

83
00:02:52,004 --> 00:02:53,472
They're processing
the paperwork,

84
00:02:53,472 --> 00:02:56,408
making sure those products
are onboard in time

85
00:02:56,408 --> 00:02:57,743
and reviewing the timeline,

86
00:02:57,743 --> 00:02:59,745
making sure everything is
complete so that they can hand

87
00:02:59,745 --> 00:03:03,682
over a complete product to this
room and it's ready to execute.

88
00:03:03,682 --> 00:03:05,718
>> Lori Meggs: But they really
have to be on their toes, right?

89
00:03:05,718 --> 00:03:06,919
>> Becky Grimaldi:
Oh, absolutely.

90
00:03:06,919 --> 00:03:09,021
The prep team is staffed
by all the increment leads

91
00:03:09,021 --> 00:03:11,657
of the same positions that
you see in the room here.

92
00:03:11,657 --> 00:03:13,859
And they have been
working the increment

93
00:03:13,859 --> 00:03:17,696
at least six months before-hand,
before they get here,

94
00:03:17,696 --> 00:03:19,798
doing reviews and making
sure they understand,

95
00:03:19,798 --> 00:03:21,867
especially for new things
that we haven't done before,

96
00:03:21,867 --> 00:03:23,535
making sure we understand
everything about it,

97
00:03:23,535 --> 00:03:26,772
any constraints, things
that can't operate together.

98
00:03:26,772 --> 00:03:29,108
We need to know all that so
we can lay everything out

99
00:03:29,108 --> 00:03:30,542
and have everything good to go.

100
00:03:30,542 --> 00:03:32,678
So, this room cannot operate

101
00:03:32,678 --> 00:03:34,446
without those two
rooms back there.

102
00:03:34,446 --> 00:03:37,650
There's also folks that are
uplinking our crew procedures

103
00:03:37,650 --> 00:03:39,018
for us, PODF Support.

104
00:03:39,018 --> 00:03:40,719
We have a payload
systems engineer

105
00:03:40,719 --> 00:03:43,389
that is reviewing

anomalies to make sure

106
00:03:43,389 --> 00:03:46,258
that we can get things back up
and running when we need to.

107
00:03:46,258 --> 00:03:48,360
So, there's a lot, a
lot of work that goes

108
00:03:48,360 --> 00:03:51,130
on behind the scenes before
this room is ready to go.

109
00:03:51,130 --> 00:03:53,699
>> Lori Meggs: And here I
thought it was all just you.

110
00:03:53,699 --> 00:03:54,667
>> Becky Grimaldi:
[Laughing] I wish.

111
00:03:54,667 --> 00:03:55,834
>> Lori Meggs: Let's
talk about some

112
00:03:55,834 --> 00:03:57,002
of the exciting new
research that's coming up.

113
00:03:57,002 --> 00:03:58,704
You've got a SpaceX
launch, an orbital launch.

114
00:03:58,704 --> 00:04:00,773
Tell us what we're going
to see in this expedition.

115
00:04:00,773 --> 00:04:01,974
>> Becky Grimaldi: Absolutely.

116
00:04:01,974 --> 00:04:03,075
The orbital launches will
be the first increment

117
00:04:03,075 --> 00:04:04,543
that has an orbital
launch, a new vehicle

118
00:04:04,543 --> 00:04:05,944
that can take science
to the space station.

119
00:04:05,944 --> 00:04:07,079
It's very exciting.

120
00:04:07,079 --> 00:04:10,115
We're going to have two
launches in Increment 37

121
00:04:10,115 --> 00:04:12,951
and Increment 38
to watch out for.

122
00:04:12,951 --> 00:04:14,820
A couple of the new payloads.

123
00:04:14,820 --> 00:04:17,056
We have some satellite
operations

124
00:04:17,056 --> 00:04:19,425
and on the second orbital
launch, there's going

125
00:04:19,425 --> 00:04:21,894
to be a payload called
Slosh go up that is going

126

00:04:21,894 --> 00:04:25,064
to use this sphere satellites
that we've used before

127
00:04:25,064 --> 00:04:27,566
and it's going to
study fluid sloshing

128
00:04:27,566 --> 00:04:31,136
in like engines, engine tanks.

129
00:04:31,136 --> 00:04:36,108
And it's going to take two
satellite and hook the fluid,

130
00:04:36,108 --> 00:04:38,877
piece of hardware between them
and then the satellites can fly

131
00:04:38,877 --> 00:04:42,114
around and it's going to
videotape how the fluid moves

132
00:04:42,114 --> 00:04:46,018
in -- it's a clear vessel that
they can watch and they're going

133
00:04:46,018 --> 00:04:47,820
to compare that to
their computer models

134
00:04:47,820 --> 00:04:48,921
that they've generated
on the ground

135
00:04:48,921 --> 00:04:50,656
to see how close those
computer models are

136
00:04:50,656 --> 00:04:51,724

to how it really works.

137
00:04:51,724 --> 00:04:52,825
>> Lori Meggs: So it
is really sloshing?

138
00:04:52,825 --> 00:04:54,360
>> Becky Grimaldi: It
is really sloshing.

139
00:04:56,161 --> 00:04:55,127
[Laughing]

140
00:04:56,161 --> 00:04:57,096
That won't be fun
for the crew at all.

141
00:04:57,096 --> 00:04:57,796
>> Becky Grimaldi:
Oh, of course.

142
00:04:57,796 --> 00:04:59,031
That will be a fun one.

143
00:04:59,031 --> 00:05:00,065
And then, speaking of
satellites, we're also going

144
00:05:00,065 --> 00:05:01,867
to do some satellites outside.

145
00:05:01,867 --> 00:05:05,904
If you didn't know, the
Japanese module has an airlock

146
00:05:05,904 --> 00:05:06,939
and they have the capability

147
00:05:06,939 --> 00:05:09,241

to send some small
satellites outside

148
00:05:09,241 --> 00:05:11,910
that we can actually
deploy out into space.

149
00:05:11,910 --> 00:05:17,216
The orbital flight will have a
couple dozen small satellites go

150
00:05:17,216 --> 00:05:20,285
up on it that are going to be
deployed using a new hardware

151
00:05:20,285 --> 00:05:23,889
by the Nanorex team, and the
satellites can be as small

152
00:05:23,889 --> 00:05:29,094
as a ten centimeter cube
or multiples of that.

153
00:05:29,094 --> 00:05:31,897
The crew will load the
satellites on a table

154
00:05:31,897 --> 00:05:35,000
in the gem airlock and
then it goes outside

155
00:05:35,000 --> 00:05:37,469
and then the gem
arm picks that up,

156
00:05:37,469 --> 00:05:39,738
points it down towards the
ground and then they kind

157
00:05:39,738 --> 00:05:44,143

of deploy out at the particular
time that they need to go.

158
00:05:44,143 --> 00:05:46,111
So that's going to
be very interesting.

159
00:05:46,111 --> 00:05:49,681
And that Nanorex hardware is new
for us and that's, certainly,

160
00:05:49,681 --> 00:05:51,150
a new, exciting thing
that we get to do.

161
00:05:51,150 --> 00:05:54,386
And it's always neat to watch
the external stuff go on.

162
00:05:54,386 --> 00:05:56,355
>> Lori Meggs: And I understand
that the crew is going

163
00:05:56,355 --> 00:05:58,657
to become sub-farmers, right?

164
00:05:58,657 --> 00:05:59,725
>> Becky Grimaldi: Yes.

165
00:05:59,725 --> 00:06:01,693
And on the SpaceX
flight, there's going

166
00:06:01,693 --> 00:06:06,899
to be a payload called Veggie
and it is an expandable habitat

167
00:06:06,899 --> 00:06:08,500
that goes inside
an express rack.

168
00:06:08,500 --> 00:06:12,104
It takes up two lockers
and it has media and lights

169
00:06:12,104 --> 00:06:14,807
and it will let them
grow vegetables.

170
00:06:14,807 --> 00:06:17,676
And I think the lettuce may
be one of the first ones

171
00:06:17,676 --> 00:06:19,111
that they grow this time.

172
00:06:19,111 --> 00:06:20,846
>> Lori Meggs: Now, will
they eat that or is it just,

173
00:06:20,846 --> 00:06:22,614
they grow it, they bring it
back and have it studied first.

174
00:06:22,614 --> 00:06:23,782
>> Becky Grimaldi: I think
that's the end result,

175
00:06:23,782 --> 00:06:25,083
is for them to eat it.

176
00:06:25,083 --> 00:06:26,018
>> Lori Meggs: Okay.

177
00:06:26,018 --> 00:06:27,252
>> Becky Grimaldi:
The seeds go up.

178
00:06:27,252 --> 00:06:29,955

They actually will plant
and water them up there

179
00:06:29,955 --> 00:06:32,825
and then the veggie hardware
is kind of expandable

180
00:06:32,825 --> 00:06:35,060
so it has a bellows and
they can make it bigger

181
00:06:35,060 --> 00:06:36,128
as the plants grow.

182
00:06:36,128 --> 00:06:38,297
It will give them
light and circulate air

183
00:06:38,297 --> 00:06:40,732
and then the crew will have
to water them periodically.

184
00:06:40,732 --> 00:06:42,868
So, that's certainly
something for the future.

185
00:06:42,868 --> 00:06:45,437
We need to have vegetables
for the crew to eat,

186
00:06:45,437 --> 00:06:47,639
so it's something
interesting to do.

187
00:06:47,639 --> 00:06:48,907
>> Lori Meggs: A much -- much
different than growing them

188
00:06:48,907 --> 00:06:50,108
down here on earth, I'm sure.

189
00:06:50,108 --> 00:06:50,642
>> Becky Grimaldi: Oh, yeah.

190
00:06:50,642 --> 00:06:51,977
Absolutely.

191
00:06:51,977 --> 00:06:53,812
>> Lori Meggs: But maybe they'll
be good gardeners by then.

192
00:06:53,812 --> 00:06:57,249
Also, let's lastly talk about
-- you're also on Expedition 38,

193
00:06:57,249 --> 00:06:59,451
so as you just talked about,

194
00:06:59,451 --> 00:07:01,086
all that planning is
going on right now.

195
00:07:01,086 --> 00:07:02,354
>> Becky Grimaldi: Oh, yes.

196
00:07:02,354 --> 00:07:05,991
And we're looking for things,
all the launch manifests

197
00:07:05,991 --> 00:07:08,894
and changes for what's
going to fly to get ready.

198
00:07:08,894 --> 00:07:11,964
We have to do reviews months in
advance for products and things,

199
00:07:11,964 --> 00:07:13,632
so yeah, we're all

ready preparing

200
00:07:13,632 --> 00:07:16,735
for that orbital flight and the
SpaceX flight that's in January.

201
00:07:16,735 --> 00:07:18,704
We're all ready preparing
for those now.

202
00:07:18,704 --> 00:07:20,439
>> Lori Meggs: So Day
1 of Expedition 37

203
00:07:20,439 --> 00:07:22,808
and you guys are
really busy back here.

204
00:07:22,808 --> 00:07:24,409
Cliff, Cliff Jones back there

205
00:07:24,409 --> 00:07:25,244
>> Becky Grimaldi: Yes.

206
00:07:25,244 --> 00:07:26,245
>> Lori Meggs: at the helm today

207
00:07:26,245 --> 00:07:27,012
as the Payload Operations
Director.

208
00:07:27,012 --> 00:07:28,380
>> Becky Grimaldi: He is.

209
00:07:28,380 --> 00:07:29,214
>> Lori Meggs: Thank you so
much, Becky, for filling us in.

210
00:07:29,214 --> 00:07:29,915

>> Becky Gramaldi: Absolutely.

211
00:07:29,915 --> 00:07:30,949
Thank you for coming.