
PAO
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Exp. 39/40 Lead Increment Scientist
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NASA Public Affairs

1
00:00:06,230 --> 00:00:03,909
hi welcome to the international space

2
00:00:08,390 --> 00:00:06,240
station flight control room um it was a

3
00:00:11,270 --> 00:00:08,400
really exciting night last night we had

4
00:00:14,549 --> 00:00:11,280
expedition 38

5
00:00:15,589 --> 00:00:14,559
ending with the departure of that soyuz

6
00:00:17,830 --> 00:00:15,599
tma

7
00:00:19,830 --> 00:00:17,840
10 and uh with the three crew members

8
00:00:22,310 --> 00:00:19,840
aboard were you able to watch the

9
00:00:24,870 --> 00:00:22,320
landing yes i had it queued up at home

10
00:00:26,790 --> 00:00:24,880
okay watching well with the departure of

11
00:00:29,189 --> 00:00:26,800
expedition 38 crew that kicks off the

12
00:00:30,870 --> 00:00:29,199
expedition 39 mission and so here with

13
00:00:33,590 --> 00:00:30,880

me today we have the space station

14
00:00:35,590 --> 00:00:33,600
program um has a plan for science on

15
00:00:38,549 --> 00:00:35,600
expedition 39 and so here with me today

16
00:00:41,190 --> 00:00:38,559
i have yuri ganart ramirez i said that

17
00:00:44,310 --> 00:00:41,200
correct right good and she is the

18
00:00:45,990 --> 00:00:44,320
expedition 39 increments lead scientists

19
00:00:47,590 --> 00:00:46,000
and so she's going to talk to us a

20
00:00:48,790 --> 00:00:47,600
little about what

21
00:00:50,389 --> 00:00:48,800
science activities we're going to be

22
00:00:52,630 --> 00:00:50,399
doing

23
00:00:54,790 --> 00:00:52,640
okay thank you very much

24
00:00:56,389 --> 00:00:54,800
essentially we are very excited

25
00:00:58,389 --> 00:00:56,399
this increment pair

26
00:00:59,670 --> 00:00:58,399
to start kick off uh continue and

27
00:01:01,270 --> 00:00:59,680
continue with the research we have

28
00:01:02,950 --> 00:01:01,280
started um

29
00:01:05,270 --> 00:01:02,960
one of the focus

30
00:01:07,350 --> 00:01:05,280
areas for this increment will be a lot

31
00:01:09,270 --> 00:01:07,360
of the external uh platforms that we

32
00:01:10,550 --> 00:01:09,280
continue to attach to the international

33
00:01:13,350 --> 00:01:10,560
space station

34
00:01:14,230 --> 00:01:13,360
and one of the unique uh vantage points

35
00:01:17,350 --> 00:01:14,240
for

36
00:01:19,670 --> 00:01:17,360
viewing is

37
00:01:21,990 --> 00:01:19,680
uh of course its location

38
00:01:23,990 --> 00:01:22,000

uh its ability for different platforms

39
00:01:26,230 --> 00:01:24,000
to access it

40
00:01:27,510 --> 00:01:26,240
on a much lower cost than than they

41
00:01:29,990 --> 00:01:27,520
would have to if they had to incur

42
00:01:31,510 --> 00:01:30,000
launch and and all of those

43
00:01:34,149 --> 00:01:31,520
pieces separately

44
00:01:36,710 --> 00:01:34,159
and its ability to both monitor earth

45
00:01:39,030 --> 00:01:36,720
and continue to collect data

46
00:01:40,710 --> 00:01:39,040
on earth sciences as well as a window to

47
00:01:43,270 --> 00:01:40,720
the rest of the universe

48
00:01:46,870 --> 00:01:43,280
so for that um we have during this

49
00:01:48,230 --> 00:01:46,880
expedition uh space63 is

50
00:01:51,109 --> 00:01:48,240
currently planned to launch in a few

51
00:01:53,350 --> 00:01:51,119
days and it will be delivering two

52
00:01:56,069 --> 00:01:53,360
additions for instruments to space

53
00:01:58,069 --> 00:01:56,079
station one of them is the h-dev which

54
00:01:58,950 --> 00:01:58,079
will allow a high definition view of the

55
00:02:00,310 --> 00:01:58,960
earth

56
00:02:02,310 --> 00:02:00,320
and

57
00:02:04,149 --> 00:02:02,320
main concept is to test

58
00:02:06,870 --> 00:02:04,159
cosmic

59
00:02:11,029 --> 00:02:06,880
impact on the cameras and figure out how

60
00:02:15,270 --> 00:02:12,630
the other external platform that's

61
00:02:16,949 --> 00:02:15,280
coming up with spacex 3

62
00:02:19,830 --> 00:02:16,959
is opals

63
00:02:21,670 --> 00:02:19,840

and this is a pretty

64
00:02:24,710 --> 00:02:21,680
interesting device which is going to

65
00:02:27,510 --> 00:02:24,720
continue to advance our understanding on

66
00:02:30,630 --> 00:02:27,520
communication via laser

67
00:02:32,630 --> 00:02:30,640
and essentially from jpl there will be

68
00:02:34,790 --> 00:02:32,640
a b con that will be sent when the space

69
00:02:37,190 --> 00:02:34,800
station is scheduled to pass over

70
00:02:39,030 --> 00:02:37,200
and it will lock in with the opel's

71
00:02:42,150 --> 00:02:39,040
device and the opels device will send a

72
00:02:44,070 --> 00:02:42,160
video down via laser communication and

73
00:02:46,070 --> 00:02:44,080
that hopefully will advance our

74
00:02:48,070 --> 00:02:46,080
understanding and ability to communicate

75
00:02:51,350 --> 00:02:48,080
a lot more data

76
00:02:52,710 --> 00:02:51,360
in an essentially a faster time right so

77
00:02:54,229 --> 00:02:52,720
so we're kind of talking about some of

78
00:02:55,910 --> 00:02:54,239
the science the activities that um we'll

79
00:02:57,750 --> 00:02:55,920
be looking at outside the complex but

80
00:03:00,550 --> 00:02:57,760
real quick let's just back up a little

81
00:03:02,710 --> 00:03:00,560
bit and explain to me what goes into the

82
00:03:04,630 --> 00:03:02,720
planning like

83
00:03:06,470 --> 00:03:04,640
being the increment lead you know you're

84
00:03:07,990 --> 00:03:06,480
assigned this is your this is going to

85
00:03:09,830 --> 00:03:08,000
be your mission and what kind of science

86
00:03:11,030 --> 00:03:09,840
how do you go about you know what are

87
00:03:13,750 --> 00:03:11,040
the priorities and what things we're

88
00:03:16,550 --> 00:03:13,760

going to go ahead and begin

89
00:03:18,470 --> 00:03:16,560
well we start off with the planning of a

90
00:03:20,949 --> 00:03:18,480
a research complement if you would for

91
00:03:23,830 --> 00:03:20,959
an increment pair in this case 39 and 40

92
00:03:25,750 --> 00:03:23,840
will go together and when we

93
00:03:29,110 --> 00:03:25,760
start that process

94
00:03:30,470 --> 00:03:29,120
roughly 12 to 18 months in advance

95
00:03:32,949 --> 00:03:30,480
collecting inputs from the various

96
00:03:33,910 --> 00:03:32,959
scientists and this is a multilateral

97
00:03:34,869 --> 00:03:33,920
effort

98
00:03:37,110 --> 00:03:34,879
with

99
00:03:38,470 --> 00:03:37,120
our usos partners

100
00:03:40,550 --> 00:03:38,480
involved as well

101
00:03:42,390 --> 00:03:40,560
and all of that comes together there's a

102
00:03:44,949 --> 00:03:42,400
special group that puts all that plan

103
00:03:46,949 --> 00:03:44,959
together and

104
00:03:49,430 --> 00:03:46,959
looks at all the different um

105
00:03:51,430 --> 00:03:49,440
resources that you need uh including the

106
00:03:52,550 --> 00:03:51,440
crouton power

107
00:03:55,429 --> 00:03:52,560
up mass

108
00:03:57,990 --> 00:03:55,439
down mass cold stowage

109
00:03:59,350 --> 00:03:58,000
et cetera and all the different

110
00:04:00,869 --> 00:03:59,360
resources that might be needed for a

111
00:04:02,470 --> 00:04:00,879
particular investigation

112
00:04:04,229 --> 00:04:02,480
they put all that plan together and as

113
00:04:06,229 --> 00:04:04,239

they look at all that the priorities are

114
00:04:07,509 --> 00:04:06,239
always looked at

115
00:04:09,190 --> 00:04:07,519
from two different perspectives you have

116
00:04:11,509 --> 00:04:09,200
your long-term range

117
00:04:12,789 --> 00:04:11,519
goals as well as your short term

118
00:04:15,350 --> 00:04:12,799
and

119
00:04:17,509 --> 00:04:15,360
there are depending on the resources

120
00:04:19,909 --> 00:04:17,519
that each investigation needs you look

121
00:04:21,749 --> 00:04:19,919
at viability of the samples and whether

122
00:04:23,430 --> 00:04:21,759
or not you can repeat something if you

123
00:04:24,710 --> 00:04:23,440
don't accomplish it within a certain

124
00:04:26,710 --> 00:04:24,720
time period

125
00:04:27,830 --> 00:04:26,720
and how much of it

126
00:04:29,510 --> 00:04:27,840
impacts

127
00:04:31,110 --> 00:04:29,520
loss of science versus

128
00:04:33,990 --> 00:04:31,120
just a deferral

129
00:04:35,350 --> 00:04:34,000
of a particular data collection so all

130
00:04:36,230 --> 00:04:35,360
of these different pieces are put

131
00:04:38,790 --> 00:04:36,240
together

132
00:04:40,390 --> 00:04:38,800
and we inherit that after the strategic

133
00:04:41,590 --> 00:04:40,400
time frame into the tactical time frame

134
00:04:43,030 --> 00:04:41,600
about

135
00:04:44,469 --> 00:04:43,040
well roughly

136
00:04:45,830 --> 00:04:44,479
a year about

137
00:04:46,950 --> 00:04:45,840
approximately before the increment

138
00:04:49,270 --> 00:04:46,960

starts

139
00:04:51,749 --> 00:04:49,280
and then we continue

140
00:04:53,510 --> 00:04:51,759
that process as a science matures and we

141
00:04:56,070 --> 00:04:53,520
understand the investigations better and

142
00:04:57,909 --> 00:04:56,080
vehicles move and adjust

143
00:04:59,350 --> 00:04:57,919
those those investigations with the

144
00:05:01,189 --> 00:04:59,360
priorities

145
00:05:02,950 --> 00:05:01,199
we work together

146
00:05:04,150 --> 00:05:02,960
with the stakeholders and make sure that

147
00:05:06,870 --> 00:05:04,160
we continue

148
00:05:11,029 --> 00:05:06,880
to understand all the different pieces

149
00:05:13,670 --> 00:05:12,790
and then right now we are starting now

150
00:05:15,189 --> 00:05:13,680
the

151
00:05:18,150 --> 00:05:15,199
real-time process

152
00:05:20,390 --> 00:05:18,160
and what we continue is a dialogue on a

153
00:05:22,710 --> 00:05:20,400
weekly basis through the irt which

154
00:05:25,990 --> 00:05:22,720
essentially convenes multilaterally as

155
00:05:28,070 --> 00:05:26,000
well as we review every week uh four

156
00:05:29,909 --> 00:05:28,080
weeks look ahead uh we start looking at

157
00:05:32,310 --> 00:05:29,919
the science complement and okay and the

158
00:05:35,510 --> 00:05:32,320
priorities adjustments okay as necessary

159
00:05:37,990 --> 00:05:35,520
okay a lot of planning goes into this so

160
00:05:39,909 --> 00:05:38,000
um also so we talked some about the

161
00:05:42,070 --> 00:05:39,919
research that's going on outside the

162
00:05:44,230 --> 00:05:42,080
complex but the crew members themselves

163
00:05:46,550 --> 00:05:44,240

are actually research subjects can you

164
00:05:47,909 --> 00:05:46,560
tell me some of what human research

165
00:05:49,510 --> 00:05:47,919
projects that are

166
00:05:51,670 --> 00:05:49,520
studies that we're doing right now for

167
00:05:53,670 --> 00:05:51,680
expedition 39 and 40.

168
00:05:55,830 --> 00:05:53,680
certainly we have a continuation of a

169
00:05:57,909 --> 00:05:55,840
lot of our human research subjects that

170
00:05:59,350 --> 00:05:57,919
have started previous

171
00:06:02,150 --> 00:05:59,360
expeditions

172
00:06:04,469 --> 00:06:02,160
we continue uh certainly

173
00:06:07,270 --> 00:06:04,479
to make

174
00:06:08,469 --> 00:06:07,280
additional collections on ocular health

175
00:06:10,469 --> 00:06:08,479
which is a big

176
00:06:12,150 --> 00:06:10,479
priority to understand

177
00:06:14,070 --> 00:06:12,160
what the visual impairment

178
00:06:15,670 --> 00:06:14,080
for the crew members can be

179
00:06:17,510 --> 00:06:15,680
due to microgravity

180
00:06:19,670 --> 00:06:17,520
so we will continue definitely with

181
00:06:21,350 --> 00:06:19,680
those investigations

182
00:06:23,749 --> 00:06:21,360
we also have a

183
00:06:26,469 --> 00:06:23,759
continuation of other investigations uh

184
00:06:28,469 --> 00:06:26,479
for example microbiome which

185
00:06:30,230 --> 00:06:28,479
it's pretty neat

186
00:06:31,830 --> 00:06:30,240
the best way i can think of describing

187
00:06:34,469 --> 00:06:31,840
it is you look at the human body as its

188
00:06:36,150 --> 00:06:34,479

own little micro cosmos if you would

189
00:06:38,390 --> 00:06:36,160
and all of the different organisms that

190
00:06:40,870 --> 00:06:38,400
live in the human body have to be

191
00:06:43,029 --> 00:06:40,880
living in harmony for your immune system

192
00:06:45,110 --> 00:06:43,039
to work correctly and in balance so you

193
00:06:46,870 --> 00:06:45,120
don't get sick

194
00:06:49,110 --> 00:06:46,880
and that happens here

195
00:06:50,309 --> 00:06:49,120
exactly exactly and in microgravity it's

196
00:06:52,070 --> 00:06:50,319
even

197
00:06:53,990 --> 00:06:52,080
heightened uh so

198
00:06:54,870 --> 00:06:54,000
we're trying to understand

199
00:06:55,990 --> 00:06:54,880
the

200
00:06:58,150 --> 00:06:56,000
environment

201
00:07:00,230 --> 00:06:58,160
interactions with that microbiome which

202
00:07:02,950 --> 00:07:00,240
is a human being so that's a lot of

203
00:07:05,029 --> 00:07:02,960
exciting research in that regard

204
00:07:07,270 --> 00:07:05,039
we also have a new investigation during

205
00:07:09,430 --> 00:07:07,280
our increment and this is a jaxa feature

206
00:07:13,029 --> 00:07:09,440
investigation that

207
00:07:16,550 --> 00:07:15,270
if we can devise a good counter measure

208
00:07:19,270 --> 00:07:16,560
for muscle

209
00:07:21,029 --> 00:07:19,280
atrophy as as you know with zero g

210
00:07:24,550 --> 00:07:21,039
muscles

211
00:07:25,909 --> 00:07:24,560
suffer from that that problem and

212
00:07:28,870 --> 00:07:25,919
they are looking at a new way to

213
00:07:30,469 --> 00:07:28,880

exercise using an electrical stimulus to

214
00:07:32,070 --> 00:07:30,479
the muscles

215
00:07:34,070 --> 00:07:32,080
which would be instead of having the

216
00:07:35,029 --> 00:07:34,080
bulky exercise devices that we have

217
00:07:37,110 --> 00:07:35,039
today

218
00:07:39,189 --> 00:07:37,120
could possibly augment that and even

219
00:07:41,749 --> 00:07:39,199
become a possible substitute for longer

220
00:07:43,270 --> 00:07:41,759
missions where you have a much smaller

221
00:07:45,510 --> 00:07:43,280
set where you

222
00:07:47,749 --> 00:07:45,520
adjust your electrical devices to the

223
00:07:50,150 --> 00:07:47,759
exercises that you will perform in this

224
00:07:51,189 --> 00:07:50,160
case we're going to do curls okay to

225
00:07:53,749 --> 00:07:51,199
assess how

226
00:07:55,670 --> 00:07:53,759
how good that is and how positive an

227
00:07:57,350 --> 00:07:55,680
impact it has on the muscle development

228
00:07:59,510 --> 00:07:57,360
well that's a new exciting human

229
00:08:01,749 --> 00:07:59,520
research well thank you so much that's a

230
00:08:03,589 --> 00:08:01,759
great overview again that's a lot of the

231
00:08:05,430 --> 00:08:03,599
science that's we have continued science

232
00:08:06,950 --> 00:08:05,440
we have some new stuff that's happening

233
00:08:11,270 --> 00:08:06,960
and uh

234
00:08:12,550 --> 00:08:11,280
congratulations and best of luck to you