
E.T.
VSVN

1
00:00:43,150 --> 00:00:40,500
[Music]

2
00:00:56,850 --> 00:00:43,160
t-minus one minute

3
00:01:23,640 --> 00:01:10,560
[Music]

4
00:01:23,650 --> 00:01:38,030
we are go for launch t-minus 10 9 6

5
00:01:42,170 --> 00:01:40,180
[Music]

6
00:01:43,850 --> 00:01:42,180
we're here to talk to you today about

7
00:01:47,180 --> 00:01:43,860
Space Station research and how we

8
00:01:48,740 --> 00:01:47,190
communicate about it I'm Rachel and I'm

9
00:02:22,100 --> 00:01:48,750
Perrin and we're coming to you from

10
00:02:22,110 --> 00:02:31,020
[Music]

11
00:02:36,309 --> 00:02:33,970
hello everyone and welcome back to day

12
00:02:39,130 --> 00:02:36,319
two of our NASA social for the demo2

13
00:02:41,710 --> 00:02:39,140

mission tomorrow we will return the

14
00:02:43,839 --> 00:02:41,720
capability of human spaceflight to US

15
00:02:46,360 --> 00:02:43,849
soil with the launch of NASA astronauts

16
00:02:48,370 --> 00:02:46,370
Bob Behnken and Doug Hurley to the

17
00:02:50,470 --> 00:02:48,380
International Space Station we have a

18
00:02:53,339 --> 00:02:50,480
full day of great shows for you guys

19
00:02:56,080 --> 00:02:53,349
today I'm Madison Tuttle here with NASA

20
00:02:57,880 --> 00:02:56,090
communications and with me taking all

21
00:02:59,970 --> 00:02:57,890
your questions on social media is my

22
00:03:02,680 --> 00:02:59,980
partner in crime Stephanie Plzen ski

23
00:03:04,150 --> 00:03:02,690
thanks Madison hey everyone I'm

24
00:03:06,339 --> 00:03:04,160
Stephanie impluse in ski with NASA

25
00:03:08,350 --> 00:03:06,349
communications and next up we're gonna

26
00:03:10,330 --> 00:03:08,360
hang out with two incredible women from

27
00:03:11,830 --> 00:03:10,340
Johnson Space Center and they're gonna

28
00:03:14,410 --> 00:03:11,840
be talking a little bit more about the

29
00:03:15,970 --> 00:03:14,420
International Space Station as always if

30
00:03:17,589 --> 00:03:15,980
you have a question feel free to leave

31
00:03:19,600 --> 00:03:17,599
it in the comments section and we may

32
00:03:22,930 --> 00:03:19,610
answer it live here on this segment so

33
00:03:25,030 --> 00:03:22,940
as Steph said we have two great guests

34
00:03:28,120 --> 00:03:25,040
with us today but first we want to roll

35
00:03:34,449 --> 00:03:28,130
a video that kind of talks about Space

36
00:03:36,400 --> 00:03:34,459
Station research and I'm very excited to

37
00:03:38,590 --> 00:03:36,410
get to talk with you guys today I wish

38
00:03:40,210 --> 00:03:38,600

we could be together in person I usually

39
00:03:42,069 --> 00:03:40,220
get to hang out with you guys whenever

40
00:03:44,289 --> 00:03:42,079
there's a launch down at Kennedy Space

41
00:03:46,240 --> 00:03:44,299
Center but since we couldn't be there

42
00:03:48,009 --> 00:03:46,250
together in person today we're gonna

43
00:03:49,809 --> 00:03:48,019
have a chance to talk to you about some

44
00:03:52,539 --> 00:03:49,819
really amazing stuff that's happening on

45
00:03:56,680 --> 00:03:52,549
the space station and hopefully we'll

46
00:03:59,770 --> 00:03:56,690
keep you entertained introduce my good

47
00:04:01,539 --> 00:03:59,780
friend and colleague Aaron Anthony hey

48
00:04:03,400 --> 00:04:01,549
guys so yeah really excited to be with

49
00:04:05,319 --> 00:04:03,410
you today typically I don't get to come

50
00:04:06,849 --> 00:04:05,329
down to Kennedy for the NASA social so

51
00:04:08,349 --> 00:04:06,859
really excited that I can actually be

52
00:04:10,449 --> 00:04:08,359
involved since we are doing it virtually

53
00:04:11,920 --> 00:04:10,459
this time and hoping that we can share

54
00:04:13,760 --> 00:04:11,930
with you a little bit about what we do

55
00:04:16,610 --> 00:04:13,770
how we got to NASA

56
00:04:18,080 --> 00:04:16,620
and why station science is so awesome so

57
00:04:19,820 --> 00:04:18,090
to kick it off

58
00:04:22,280 --> 00:04:19,830
I'll pass or Rachel just talked a little

59
00:04:23,720 --> 00:04:22,290
bit about what we do in like why we're

60
00:04:26,600 --> 00:04:23,730
here talking to you today can I do with

61
00:04:29,540 --> 00:04:26,610
the demo too much our office we are

62
00:04:32,210 --> 00:04:29,550
based in Houston Texas at Johnson Space

63
00:04:33,920 --> 00:04:32,220

Center and we are part of the

64
00:04:36,020 --> 00:04:33,930
International Space Station program

65
00:04:39,260 --> 00:04:36,030
research office and that means this is

66
00:04:40,760 --> 00:04:39,270
the group that manages and organizes all

67
00:04:43,070 --> 00:04:40,770
the science that's happening on the

68
00:04:44,660 --> 00:04:43,080
space station because the whole point of

69
00:04:47,690 --> 00:04:44,670
the space station is that it's this

70
00:04:51,290 --> 00:04:47,700
massive football field-sized orbiting

71
00:04:53,270 --> 00:04:51,300
laboratory and we can conduct really

72
00:04:55,730 --> 00:04:53,280
amazing research there that helps us

73
00:04:57,110 --> 00:04:55,740
back here on earth as well as test a lot

74
00:04:59,210 --> 00:04:57,120
of the technologies and things that

75
00:05:01,970 --> 00:04:59,220
we're going to need to know to use to

76
00:05:04,970 --> 00:05:01,980
travel further out into space and so

77
00:05:06,890 --> 00:05:04,980
Aaron and I are very lucky to be part of

78
00:05:08,870 --> 00:05:06,900
a communications team that is embedded

79
00:05:11,810 --> 00:05:08,880
within that office so our day-to-day

80
00:05:13,040 --> 00:05:11,820
jobs are literally getting to share the

81
00:05:15,800 --> 00:05:13,050
stories of the science that's happening

82
00:05:17,570 --> 00:05:15,810
on the space station working with

83
00:05:19,340 --> 00:05:17,580
astronauts to help them understand the

84
00:05:22,460 --> 00:05:19,350
science that they're conducting each day

85
00:05:25,100 --> 00:05:22,470
and and get to share that with you guys

86
00:05:27,980 --> 00:05:25,110
and it's it's really incredible it's a

87
00:05:30,590 --> 00:05:27,990
lot of fun and of course you know now we

88
00:05:32,720 --> 00:05:30,600

are getting ready to launch Americans

89
00:05:34,490 --> 00:05:32,730
from American soil on an American rocket

90
00:05:37,340 --> 00:05:34,500
for the first time in almost a decade

91
00:05:40,310 --> 00:05:37,350
and what does that mean for us and

92
00:05:42,470 --> 00:05:40,320
science on the space station well it's a

93
00:05:45,080 --> 00:05:42,480
big part of how we're going to continue

94
00:05:47,540 --> 00:05:45,090
to increase what we're able to do on the

95
00:05:50,180 --> 00:05:47,550
space station and have more time for

96
00:05:52,460 --> 00:05:50,190
more science which means more benefits

97
00:05:56,210 --> 00:05:52,470
to us and stronger exploration efforts

98
00:05:58,190 --> 00:05:56,220
so so we're really excited to share that

99
00:06:01,010 --> 00:05:58,200
with you guys here today share some

100
00:06:04,520 --> 00:06:01,020
other resources for how you can learn

101
00:06:06,710 --> 00:06:04,530
more about what we're doing and get to

102
00:06:08,450 --> 00:06:06,720
follow along with all the fun yeah and

103
00:06:10,910 --> 00:06:08,460
was pretty cool in those jobs too we

104
00:06:12,740 --> 00:06:10,920
also get to use social media so part of

105
00:06:14,660 --> 00:06:12,750
our job is sharing these messages

106
00:06:16,580 --> 00:06:14,670
through Twitter and Instagram I helped

107
00:06:18,530 --> 00:06:16,590
run the ISS research Twitter account and

108
00:06:18,940 --> 00:06:18,540
so it's cool to be able to talk to you

109
00:06:21,070 --> 00:06:18,950
guys

110
00:06:22,210 --> 00:06:21,080
such avid social media users when part

111
00:06:24,670 --> 00:06:22,220
of the storytelling that we do is

112
00:06:26,170 --> 00:06:24,680
through the social media so we're

113
00:06:27,790 --> 00:06:26,180

talking about that I think it's a good

114
00:06:30,160 --> 00:06:27,800
bridge to talk about how we both came to

115
00:06:32,140 --> 00:06:30,170
NASA because you know we both have a

116
00:06:33,940 --> 00:06:32,150
little bit of social media and you know

117
00:06:35,680 --> 00:06:33,950
storytelling in our backgrounds so my

118
00:06:39,010 --> 00:06:35,690
background is actually in journalism I

119
00:06:41,470 --> 00:06:39,020
have a journalism degree and and I've

120
00:06:44,170 --> 00:06:41,480
been using social media for I don't know

121
00:06:47,800 --> 00:06:44,180
10 to 15 years now just on different

122
00:06:50,590 --> 00:06:47,810
platforms and a big part of what got me

123
00:06:52,690 --> 00:06:50,600
to NASA was actually Twitter because

124
00:06:55,210 --> 00:06:52,700
about 10 or 12 years ago there was a

125
00:06:57,660 --> 00:06:55,220
group of really avid space enthusiasts

126
00:07:00,220 --> 00:06:57,670
on Twitter called the space tweets and

127
00:07:02,230 --> 00:07:00,230
and I was able to connect with a lot of

128
00:07:03,550 --> 00:07:02,240
folks and make a lot of great

129
00:07:05,050 --> 00:07:03,560
connections and form a lot of

130
00:07:07,900 --> 00:07:05,060
friendships some of my very best friends

131
00:07:09,910 --> 00:07:07,910
today are people I met through that so

132
00:07:12,280 --> 00:07:09,920
that's why I tend to identify a lot with

133
00:07:14,560 --> 00:07:12,290
the NASA social crowd because I was part

134
00:07:16,060 --> 00:07:14,570
of that crowd back in the day they were

135
00:07:19,210 --> 00:07:16,070
called tweet up so we didn't have nasa

136
00:07:20,920 --> 00:07:19,220
socials we had tweet ups and and i would

137
00:07:22,480 --> 00:07:20,930
meet people and literally we would share

138
00:07:24,490 --> 00:07:22,490

a house and these are people i had only

139
00:07:26,170 --> 00:07:24,500
met on the internet and we would share a

140
00:07:28,480 --> 00:07:26,180
house to watch a shuttle launch i had

141
00:07:30,040 --> 00:07:28,490
been a space geek from a young age space

142
00:07:32,440 --> 00:07:30,050
camp when i was 12

143
00:07:34,720 --> 00:07:32,450
always loved it followed along with the

144
00:07:37,570 --> 00:07:34,730
shuttle missions but it was really that

145
00:07:40,780 --> 00:07:37,580
turn in creating community around social

146
00:07:43,270 --> 00:07:40,790
media and space enthusiasts that helped

147
00:07:46,420 --> 00:07:43,280
get me to where I am now and it also

148
00:07:48,730 --> 00:07:46,430
ended up helping connect me to Erin

149
00:07:50,980 --> 00:07:48,740
which she can share on how she got here

150
00:07:53,950 --> 00:07:50,990
as well yeah specifically on how I

151
00:07:56,680 --> 00:07:53,960
actually got this job I found the job

152
00:07:59,050 --> 00:07:56,690
through Twitter so I often search like

153
00:08:02,410 --> 00:07:59,060
hashtags like sicom sicom job and stuff

154
00:08:04,690 --> 00:08:02,420
to find new jobs and stuff for me and I

155
00:08:05,230 --> 00:08:04,700
came across a tweet that Rachel it went

156
00:08:07,360 --> 00:08:05,240
on saying

157
00:08:09,670 --> 00:08:07,370
the job opening it's a company to was

158
00:08:10,870 --> 00:08:09,680
doing social media and storytelling in

159
00:08:12,939 --> 00:08:10,880
science communication for the space

160
00:08:14,800 --> 00:08:12,949
station and I was like this is amazing

161
00:08:17,050 --> 00:08:14,810
I've never seen a job like this before

162
00:08:19,120 --> 00:08:17,060
it jumped on it and was lucky enough to

163
00:08:20,469 --> 00:08:19,130

be able to get it so pretty amazing I'd

164
00:08:22,210 --> 00:08:20,479
say I would not have gotten this job

165
00:08:24,900 --> 00:08:22,220
without Twitter so that's that's pretty

166
00:08:26,980 --> 00:08:24,910
well but I similar to Rachel I grew up

167
00:08:28,600 --> 00:08:26,990
absolutely loving space I grew up in

168
00:08:30,820 --> 00:08:28,610
Florida so not too far from Kennedy's

169
00:08:33,159 --> 00:08:30,830
based on our group in Tampa and also had

170
00:08:35,769 --> 00:08:33,169
family that worked on the shuttle and on

171
00:08:37,810 --> 00:08:35,779
the Apollo program so we our family just

172
00:08:39,909 --> 00:08:37,820
always had a really tight you know

173
00:08:41,350 --> 00:08:39,919
connection to space and really valued

174
00:08:43,420 --> 00:08:41,360
space which is a cool thing to be able

175
00:08:45,310 --> 00:08:43,430
to grow up in that atmosphere of having

176
00:08:47,440 --> 00:08:45,320
a telescope in my grandma's backyard to

177
00:08:48,850 --> 00:08:47,450
go out and look in look at the stars and

178
00:08:51,070 --> 00:08:48,860
to be able to go to launches I actually

179
00:08:52,750 --> 00:08:51,080
went to the last shuttle launch you know

180
00:08:54,790 --> 00:08:52,760
I think it was over summer when I was in

181
00:08:56,380 --> 00:08:54,800
high school and drove over there with my

182
00:08:59,440 --> 00:08:56,390
mom and it was a really cool experience

183
00:09:01,300 --> 00:08:59,450
so now really awesome to be a part of

184
00:09:03,670 --> 00:09:01,310
NASA when we're watching again from

185
00:09:06,010 --> 00:09:03,680
American soil it's such a cool book into

186
00:09:07,540 --> 00:09:06,020
like where I really got into it and felt

187
00:09:09,220 --> 00:09:07,550
an inspiration to know actually being in

188
00:09:11,829 --> 00:09:09,230

NASA and be able to help share that

189
00:09:14,319 --> 00:09:11,839
story so so yeah I excited to help

190
00:09:15,850 --> 00:09:14,329
connect you guys to that today too I was

191
00:09:17,920 --> 00:09:15,860
there as well for that last shuttle

192
00:09:20,710 --> 00:09:17,930
launch the first shuttle launch I saw

193
00:09:22,600 --> 00:09:20,720
was sts-130 which is the mission that

194
00:09:26,019 --> 00:09:22,610
installed the cupola the big beautiful

195
00:09:27,760 --> 00:09:26,029
bay window on the space station and and

196
00:09:30,190 --> 00:09:27,770
that was actually 10 years ago this

197
00:09:32,019 --> 00:09:30,200
February that that launched and I was at

198
00:09:33,940 --> 00:09:32,029
that launch because I was covering it

199
00:09:36,850 --> 00:09:33,950
for a publication called Make Magazine

200
00:09:38,620 --> 00:09:36,860
and if you had told me when I was

201
00:09:40,750 --> 00:09:38,630
standing out at the press site by the

202
00:09:42,519 --> 00:09:40,760
countdown clock watching this launch if

203
00:09:44,530 --> 00:09:42,529
you had said to me then you know in 10

204
00:09:46,660 --> 00:09:44,540
years you're gonna be working at NASA

205
00:09:48,160 --> 00:09:46,670
you're gonna be you know completely

206
00:09:50,920 --> 00:09:48,170
embedded in all of the science that's

207
00:09:53,079 --> 00:09:50,930
happening on the space station I would

208
00:09:55,000 --> 00:09:53,089
have thought you were crazy and so it is

209
00:09:56,650 --> 00:09:55,010
just like Erin said it's a great book in

210
00:09:59,980 --> 00:09:56,660
that's why I always love talking to the

211
00:10:02,590 --> 00:09:59,990
NASA social crowds because it is sort of

212
00:10:04,420 --> 00:10:02,600
a complete full circle from from where I

213
00:10:06,040 --> 00:10:04,430

had been in my career before and I never

214
00:10:08,560 --> 00:10:06,050
would have thought that I'd end up here

215
00:10:09,910 --> 00:10:08,570
so it's pretty yeah and Benji the cupola

216
00:10:11,949 --> 00:10:09,920
you gave me a good plug

217
00:10:14,500 --> 00:10:11,959
to show off I have a skirt on right now

218
00:10:17,590 --> 00:10:14,510
that is a picture that was taken from

219
00:10:19,750 --> 00:10:17,600
the cupola on the space station so the

220
00:10:22,060 --> 00:10:19,760
job is we get to look at a ton of the

221
00:10:23,769 --> 00:10:22,070
pictures they come down from the space

222
00:10:25,000 --> 00:10:23,779
station and it's just seeing those

223
00:10:26,920 --> 00:10:25,010
beautiful pictures all day I just

224
00:10:28,329 --> 00:10:26,930
couldn't not find a way to turn that

225
00:10:29,920 --> 00:10:28,339
into something I can wear we both love

226
00:10:39,310 --> 00:10:29,930
space fashion you can tell by them

227
00:10:40,870 --> 00:10:39,320
shirts we're both wearing so so much in

228
00:10:42,189 --> 00:10:40,880
addition to that looking at tons of

229
00:10:43,990 --> 00:10:42,199
pictures you want to talk a little bit

230
00:10:45,610 --> 00:10:44,000
more about what you do on a daily basis

231
00:10:47,230 --> 00:10:45,620
Rachel and connection with station signs

232
00:10:50,560 --> 00:10:47,240
yeah absolutely

233
00:10:52,120 --> 00:10:50,570
day to day we're keeping up with what's

234
00:10:53,590 --> 00:10:52,130
happening on the space station there's

235
00:10:57,310 --> 00:10:53,600
all kinds of reports that come through

236
00:10:58,900 --> 00:10:57,320
emails and things like that we look at

237
00:11:00,670 --> 00:10:58,910
all the pictures that come down from the

238
00:11:03,610 --> 00:11:00,680

space station which can be hundreds to

239
00:11:05,710 --> 00:11:03,620
thousands and week and we're just

240
00:11:08,259 --> 00:11:05,720
understanding what science the

241
00:11:10,870 --> 00:11:08,269
astronauts are conducting each day also

242
00:11:13,120 --> 00:11:10,880
looking at what science is coming up so

243
00:11:15,250 --> 00:11:13,130
we have commercial resupply missions

244
00:11:17,860 --> 00:11:15,260
launch to the space station every couple

245
00:11:19,420 --> 00:11:17,870
of months and so we look at those we

246
00:11:23,139 --> 00:11:19,430
understand what science is going to be

247
00:11:25,900 --> 00:11:23,149
launched we talked to the scientists we

248
00:11:28,810 --> 00:11:25,910
work with them for televised briefings

249
00:11:32,019 --> 00:11:28,820
telephone briefings feature stories that

250
00:11:35,170 --> 00:11:32,029
we write and so that's really what we're

251
00:11:36,939 --> 00:11:35,180
doing is we are just immersed in the

252
00:11:38,800 --> 00:11:36,949
science that's happening on the station

253
00:11:41,560 --> 00:11:38,810
and then figuring out how to best

254
00:11:44,110 --> 00:11:41,570
communicate that with the public so

255
00:11:46,180 --> 00:11:44,120
sometimes that may be a feature story on

256
00:11:48,490 --> 00:11:46,190
nasa.gov sometimes it may be

257
00:11:51,970 --> 00:11:48,500
collaborating with Instagram to do a

258
00:11:54,670 --> 00:11:51,980
story on their on their account and it

259
00:11:56,889 --> 00:11:54,680
just it's just ways to communicate all

260
00:11:58,660 --> 00:11:56,899
that science and connect with the

261
00:12:00,460 --> 00:11:58,670
general public so they know what the

262
00:12:02,829 --> 00:12:00,470
space station is doing for them and why

263
00:12:04,569 --> 00:12:02,839

it's important yeah it's been really

264
00:12:06,189 --> 00:12:04,579
interesting I just started here in July

265
00:12:08,860 --> 00:12:06,199
and over this time that I've been here

266
00:12:10,900 --> 00:12:08,870
you really get to appreciate how much

267
00:12:11,760 --> 00:12:10,910
the space station is really bringing to

268
00:12:13,770 --> 00:12:11,770
humanity

269
00:12:15,060 --> 00:12:13,780
and to like exploration stuff this you

270
00:12:16,860 --> 00:12:15,070
know I've always loved space obviously

271
00:12:18,120 --> 00:12:16,870
unit I knew it was up there and I knew

272
00:12:20,610 --> 00:12:18,130
generally what it was doing but there

273
00:12:22,080 --> 00:12:20,620
are just so many experiments happening

274
00:12:24,840 --> 00:12:22,090
they're doing so many incredible things

275
00:12:26,460 --> 00:12:24,850
you know the stats is nearly been 3,000

276
00:12:28,470 --> 00:12:26,470
experiments now little bit up there in

277
00:12:30,720 --> 00:12:28,480
the 20 years that humans have been on

278
00:12:32,100 --> 00:12:30,730
board this year is actually the 20th

279
00:12:34,680 --> 00:12:32,110
anniversary of continuous human presence

280
00:12:36,660 --> 00:12:34,690
on the space station so there has been

281
00:12:39,060 --> 00:12:36,670
so much that's happened in almost every

282
00:12:41,100 --> 00:12:39,070
area of science ranging from the Alpha

283
00:12:43,380 --> 00:12:41,110
Magnetic Spectrometer that looks at dark

284
00:12:45,360 --> 00:12:43,390
matter to microgravity crystals and

285
00:12:47,910 --> 00:12:45,370
other protein crystal growth experiments

286
00:12:49,290 --> 00:12:47,920
that have analyzed crystal growth which

287
00:12:52,290 --> 00:12:49,300
can help with drug development here on

288
00:12:53,640 --> 00:12:52,300

her so you know there's you understand

289
00:12:55,500 --> 00:12:53,650
it at the surface level but then in this

290
00:12:57,360 --> 00:12:55,510
job it's getting to dive in and really

291
00:12:59,010 --> 00:12:57,370
see all the experiments that the

292
00:13:01,890 --> 00:12:59,020
astronauts are working on on a daily

293
00:13:03,420 --> 00:13:01,900
basis has been really incredible that's

294
00:13:05,280 --> 00:13:03,430
super interesting I always joke that I

295
00:13:08,400 --> 00:13:05,290
feel like I'm getting like another

296
00:13:09,810 --> 00:13:08,410
degree because of all the stuff that

297
00:13:12,720 --> 00:13:09,820
I've learned over the last five years

298
00:13:15,870 --> 00:13:12,730
you really start to understand this

299
00:13:18,030 --> 00:13:15,880
stuff and and it's just it's it's

300
00:13:19,440 --> 00:13:18,040
fascinating that's probably one of my

301
00:13:21,630 --> 00:13:19,450
favorite parts of the job is getting to

302
00:13:23,430 --> 00:13:21,640
learn something new every single thing

303
00:13:25,290 --> 00:13:23,440
yeah do you have any favorite

304
00:13:29,640 --> 00:13:25,300
experiments that you've seen happen over

305
00:13:32,160 --> 00:13:29,650
the years Rachel gosh those are that's a

306
00:13:35,340 --> 00:13:32,170
good question I know there's been so

307
00:13:37,440 --> 00:13:35,350
many but I'm trying to think and I've

308
00:13:39,840 --> 00:13:37,450
done a lot lately of like looking back

309
00:13:41,940 --> 00:13:39,850
because we're also celebrating this year

310
00:13:44,430 --> 00:13:41,950
the 20th anniversary of continuous human

311
00:13:48,000 --> 00:13:44,440
presence aboard the space station so

312
00:13:50,070 --> 00:13:48,010
we've been looking back a lot about all

313
00:13:52,230 --> 00:13:50,080

the things that have happened and so

314
00:13:53,760 --> 00:13:52,240
I've seen like I remember that that was

315
00:13:56,070 --> 00:13:53,770
really cool that was really fun because

316
00:13:58,710 --> 00:13:56,080
one of the cool things that we get to do

317
00:14:00,540 --> 00:13:58,720
when we are on-site at JSC we're all

318
00:14:02,970 --> 00:14:00,550
working from home now obviously but when

319
00:14:05,880 --> 00:14:02,980
we're on-site at JSC we actually can

320
00:14:07,560 --> 00:14:05,890
plug in and watch the live feeds from

321
00:14:10,200 --> 00:14:07,570
the space station on several different

322
00:14:12,660 --> 00:14:10,210
camera angles and so something that I

323
00:14:15,030 --> 00:14:12,670
always would love to do was watching the

324
00:14:17,250 --> 00:14:15,040
astronauts work on experiments in real

325
00:14:18,720 --> 00:14:17,260
time and I would just be blown away that

326
00:14:21,570 --> 00:14:18,730
I could sit at my desk and you know

327
00:14:25,170 --> 00:14:21,580
here's this space station 250 miles

328
00:14:28,140 --> 00:14:25,180
above the earth you know flying over

329
00:14:30,780 --> 00:14:28,150
at 17,500 miles an hour and I'm watching

330
00:14:33,420 --> 00:14:30,790
an HD feed of someone conducting an

331
00:14:35,940 --> 00:14:33,430
experiment and so a couple of those that

332
00:14:37,590 --> 00:14:35,950
I've had fun watching one was when we

333
00:14:39,600 --> 00:14:37,600
were doing the first sequencing of DNA

334
00:14:42,180 --> 00:14:39,610
on the space station and that was with

335
00:14:46,260 --> 00:14:42,190
Kate Rubin's several years ago I want to

336
00:14:48,030 --> 00:14:46,270
say maybe 2016-2017 and and then

337
00:14:50,990 --> 00:14:48,040
watching that because that was one of

338
00:14:53,820 --> 00:14:51,000

the early experiments that I saw happen

339
00:14:55,770 --> 00:14:53,830
within like a year starting at NASA and

340
00:14:57,390 --> 00:14:55,780
so now we've had several iterations of

341
00:15:00,440 --> 00:14:57,400
that experiment where we've gone from

342
00:15:05,880 --> 00:15:00,450
just yes we can sequence DNA in space to

343
00:15:08,880 --> 00:15:05,890
yes we can go from swabbing to sampling

344
00:15:12,060 --> 00:15:08,890
and sequencing or swabbing the sample

345
00:15:14,460 --> 00:15:12,070
and sequencing ons on Space Station yes

346
00:15:16,320 --> 00:15:14,470
we can sequence RNA on space station yes

347
00:15:18,180 --> 00:15:16,330
we can use CRISPR on space station and

348
00:15:21,600 --> 00:15:18,190
so to be able to watch the progression

349
00:15:23,310 --> 00:15:21,610
of that that experiment and that series

350
00:15:25,590 --> 00:15:23,320
of experiments has been really

351
00:15:26,910 --> 00:15:25,600
fascinating yeah and for me my

352
00:15:28,470 --> 00:15:26,920
background is actually mechanical

353
00:15:30,390 --> 00:15:28,480
engineering before I went down with

354
00:15:31,680 --> 00:15:30,400
storytelling ground so I one of the ones

355
00:15:35,100 --> 00:15:31,690
that's loved watching recently it's

356
00:15:36,930 --> 00:15:35,110
Astro B which is this pair of four three

357
00:15:39,090 --> 00:15:36,940
robots I'm on space station they're

358
00:15:41,550 --> 00:15:39,100
these cubes that are basically serving

359
00:15:43,290 --> 00:15:41,560
as like an autonomous assistant to the

360
00:15:44,730 --> 00:15:43,300
astronauts or they're testing it right

361
00:15:45,810 --> 00:15:44,740
now it's a technology demonstration and

362
00:15:48,120 --> 00:15:45,820
then they're also hoping to do some

363
00:15:50,190 --> 00:15:48,130

experiments on board these and one

364
00:15:51,330 --> 00:15:50,200
they're adorable and two and it's really

365
00:15:53,550 --> 00:15:51,340
cool the technology that they're

366
00:15:54,690 --> 00:15:53,560
actually testing so and that's one again

367
00:15:56,070 --> 00:15:54,700
that we've been able to watch on the

368
00:15:58,920 --> 00:15:56,080
live streams which is it's really

369
00:16:00,840 --> 00:15:58,930
awesome yeah it's really cool just the

370
00:16:02,640 --> 00:16:00,850
variety and that speaks to the variety

371
00:16:05,310 --> 00:16:02,650
of what's happening on the space station

372
00:16:08,240 --> 00:16:05,320
because you have all disciplines of

373
00:16:10,650 --> 00:16:08,250
science biological physical

374
00:16:12,240 --> 00:16:10,660
environmental we have incredible

375
00:16:14,070 --> 00:16:12,250
instruments that are watching our planet

376
00:16:16,670 --> 00:16:14,080
from the space station and taking all

377
00:16:19,830 --> 00:16:16,680
kinds of measurements on everything from

378
00:16:22,890 --> 00:16:19,840
carbon to measuring the canopies of the

379
00:16:24,810 --> 00:16:22,900
Earth's forests we have astronauts

380
00:16:26,910 --> 00:16:24,820
taking pictures of the Earth's that are

381
00:16:29,780 --> 00:16:26,920
beautiful but also can contribute to

382
00:16:34,040 --> 00:16:29,790
things like Disaster Response and

383
00:16:36,079 --> 00:16:34,050
understanding changes on our planet from

384
00:16:40,070 --> 00:16:36,089
from any kind of disasters that happen

385
00:16:42,170 --> 00:16:40,080
and to technology development and even

386
00:16:44,960 --> 00:16:42,180
educational activities that we do like

387
00:16:48,230 --> 00:16:44,970
the ham radio where you know kids can

388
00:16:50,389 --> 00:16:48,240

get on a ham radio and talk directly to

389
00:16:54,199 --> 00:16:50,399
the astronauts on the space station and

390
00:16:56,780 --> 00:16:54,209
so just the breadth of science that

391
00:16:57,860 --> 00:16:56,790
happens up there is amazing and

392
00:16:59,960 --> 00:16:57,870
sometimes a little hard to wrap your

393
00:17:01,490 --> 00:16:59,970
head around it's pretty cool yeah and

394
00:17:03,230 --> 00:17:01,500
then to bring home that back to why

395
00:17:05,030 --> 00:17:03,240
we're talking to you guys today demo two

396
00:17:06,860 --> 00:17:05,040
astronauts launching as part of the

397
00:17:08,990 --> 00:17:06,870
Commercial Crew program and we're really

398
00:17:11,140 --> 00:17:09,000
excited because more people on station

399
00:17:13,970 --> 00:17:11,150
needs more time to do science and

400
00:17:16,250 --> 00:17:13,980
actually typically the number of people

401
00:17:18,770 --> 00:17:16,260
on station is the standard crew for the

402
00:17:21,410 --> 00:17:18,780
u.s. operating segment it's three and by

403
00:17:23,510 --> 00:17:21,420
increasing up to four it doubles them at

404
00:17:26,120 --> 00:17:23,520
a time available for science so we're

405
00:17:27,890 --> 00:17:26,130
super excited seeing what gets to come

406
00:17:29,480 --> 00:17:27,900
in the next year or two and about how

407
00:17:31,190 --> 00:17:29,490
many more people up there is gonna need

408
00:17:35,360 --> 00:17:31,200
us to do all of this life-changing

409
00:17:38,180 --> 00:17:35,370
science yeah it's pretty phenomenal it's

410
00:17:40,310 --> 00:17:38,190
pretty incredible yeah and so I think

411
00:17:41,720 --> 00:17:40,320
we're about at a time so Rachel do you

412
00:17:43,280 --> 00:17:41,730
want to give any plugs to some places

413
00:17:44,450 --> 00:17:43,290

that people can check out all this cool

414
00:17:48,020 --> 00:17:44,460
stuff we've been talking about that

415
00:17:50,330 --> 00:17:48,030
we're producing yeah absolutely of

416
00:17:52,690 --> 00:17:50,340
course there is the Twitter account ISS

417
00:17:55,760 --> 00:17:52,700
underscore research where you can get

418
00:17:58,970 --> 00:17:55,770
constant doses of space station science

419
00:18:01,790 --> 00:17:58,980
news we also post through the ISS

420
00:18:04,460 --> 00:18:01,800
Instagram account which is just at ISS

421
00:18:07,340 --> 00:18:04,470
the ISS Facebook account which is also

422
00:18:10,159 --> 00:18:07,350
at ISS and then you'll also see through

423
00:18:13,250 --> 00:18:10,169
all of the big channels like the NASA

424
00:18:14,690 --> 00:18:13,260
flagship channel you'll see projects and

425
00:18:16,900 --> 00:18:14,700
things like that come out from us

426
00:18:19,730 --> 00:18:16,910
another project that we did recently

427
00:18:23,540 --> 00:18:19,740
that's really incredible was called the

428
00:18:25,880 --> 00:18:23,550
NASA explorers series and our season of

429
00:18:29,419 --> 00:18:25,890
that series was called microgravity and

430
00:18:32,810 --> 00:18:29,429
in that season we take you behind the

431
00:18:35,600 --> 00:18:32,820
scenes for a look at what it takes to

432
00:18:37,460 --> 00:18:35,610
get science planned and launched and

433
00:18:39,620 --> 00:18:37,470
executed and returned on the space

434
00:18:41,980 --> 00:18:39,630
station and so we followed a team of

435
00:18:44,290 --> 00:18:41,990
scientists for two years

436
00:18:46,480 --> 00:18:44,300
they did this as they prepped their work

437
00:18:48,790 --> 00:18:46,490
as the astronauts worked on it on Space

438
00:18:51,340 --> 00:18:48,800

Station and as it splashed back down in

439
00:18:53,080 --> 00:18:51,350
the ocean from Dragon capsule and got

440
00:18:55,780 --> 00:18:53,090
back to the scientists for their

441
00:18:57,910 --> 00:18:55,790
analysis and results and it gives you a

442
00:19:00,220 --> 00:18:57,920
really cool look at how many people it

443
00:19:02,919 --> 00:19:00,230
takes at the amount of work that it

444
00:19:06,220 --> 00:19:02,929
takes and just what happens in the

445
00:19:07,780 --> 00:19:06,230
lifespan of an experiment and so you can

446
00:19:09,730 --> 00:19:07,790
check that out on the NASA flagship

447
00:19:12,700 --> 00:19:09,740
channel there's a microgravity playlist

448
00:19:15,010 --> 00:19:12,710
there and and then of course on nasa.gov

449
00:19:17,830 --> 00:19:15,020
you can keep up with all of our feature

450
00:19:19,750 --> 00:19:17,840
stories and things like that yeah and so

451
00:19:21,190 --> 00:19:19,760
since we're not there to do Q&A if you

452
00:19:24,669 --> 00:19:21,200
guys have any questions feel free to

453
00:19:26,980 --> 00:19:24,679
tweet about the ACT underscore research

454
00:19:28,780 --> 00:19:26,990
account so thank you guys so much for

455
00:19:30,280 --> 00:19:28,790
joining feel free to reach out if you

456
00:19:32,560 --> 00:19:30,290
have any questions we'd love to talk to

457
00:19:34,900 --> 00:19:32,570
you and hope you have an awesome time

458
00:19:38,560 --> 00:19:34,910
watching this launch yeah absolutely

459
00:19:40,120 --> 00:19:38,570
have fun soak it up take advantage of

460
00:19:41,799 --> 00:19:40,130
all the opportunities even if you can't

461
00:19:43,930 --> 00:19:41,809
be there in person there's still so much

462
00:19:45,430 --> 00:19:43,940
that can be done online and there's so

463
00:19:47,440 --> 00:19:45,440

much interesting stuff that you can

464
00:19:49,299 --> 00:19:47,450
share with your followers who we think

465
00:19:51,880 --> 00:19:49,309
they'll they'll really enjoy all of this

466
00:19:56,690 --> 00:19:51,890
so thank you for your interest your care

467
00:19:56,700 --> 00:20:05,489
[Music]

468
00:20:11,409 --> 00:20:08,560
so we'll jump right in and introduce our

469
00:20:14,680 --> 00:20:11,419
guests today first up we have Rachel

470
00:20:17,499 --> 00:20:14,690
Berry who is joining us from Houston

471
00:20:20,769 --> 00:20:17,509
Texas Rachel you want to tell us a

472
00:20:22,659 --> 00:20:20,779
little bit about yourself yeah you

473
00:20:26,379 --> 00:20:22,669
probably just got to fill your complete

474
00:20:29,139 --> 00:20:26,389
fill of this of what we get to do every

475
00:20:31,840 --> 00:20:29,149
day which is a dream job

476
00:20:34,659 --> 00:20:31,850
so yeah turn stories of science that

477
00:20:37,359 --> 00:20:34,669
happens on the space station perfect and

478
00:20:39,340 --> 00:20:37,369
then joining us as well is Erin Anthony

479
00:20:41,739 --> 00:20:39,350
also in Houston Texas

480
00:20:48,639 --> 00:20:41,749
Erin you want to give us a quick intro

481
00:20:49,899 --> 00:20:48,649
to what you do sure yeah you know I get

482
00:20:51,580 --> 00:20:49,909
to work really closely with Rachel on

483
00:20:53,979 --> 00:20:51,590
sharing these stories of Space Station

484
00:20:57,129 --> 00:20:53,989
science and and you know the best thing

485
00:20:58,869 --> 00:20:57,139
is be able to help rates but all of this

486
00:21:01,479 --> 00:20:58,879
in shâm social media which is perfect

487
00:21:03,999 --> 00:21:01,489
for talking to a NASA social science yes

488
00:21:06,820 --> 00:21:04,009

for sure so we're gonna jump right in

489
00:21:08,499 --> 00:21:06,830
with your questions alright so we have

490
00:21:10,149 --> 00:21:08,509
one question from our audience they want

491
00:21:12,249 --> 00:21:10,159
to know how does the research in space

492
00:21:17,080 --> 00:21:12,259
help prepare to send humans on a journey

493
00:21:20,409 --> 00:21:17,090
to Mars and beyond as an Amin that's a

494
00:21:22,810 --> 00:21:20,419
great question I can start that off if

495
00:21:24,669 --> 00:21:22,820
boy right now we're looking a lot into

496
00:21:26,349 --> 00:21:24,679
how it can help us get to the moon and

497
00:21:28,149 --> 00:21:26,359
then how we can go on from there to Mars

498
00:21:29,769 --> 00:21:28,159
you know the space station is an

499
00:21:32,739 --> 00:21:29,779
environment where people can live in

500
00:21:34,869 --> 00:21:32,749
space long term we're able to learn both

501
00:21:36,039 --> 00:21:34,879
about how the human body behaves in

502
00:21:38,739 --> 00:21:36,049
response to the microgravity environment

503
00:21:40,989 --> 00:21:38,749
and to space but they're also able to

504
00:21:44,229 --> 00:21:40,999
test technologies help us live on the

505
00:21:46,090 --> 00:21:44,239
moon for example beam it's an explorer

506
00:21:47,499 --> 00:21:46,100
module that is connected to the space

507
00:21:49,960 --> 00:21:47,509
station and we were able to test that

508
00:21:52,299 --> 00:21:49,970
how an expandable module could work in

509
00:21:54,460 --> 00:21:52,309
space and then later we can transfer it

510
00:21:56,229 --> 00:21:54,470
on to our exploration on the moon and

511
00:21:57,460 --> 00:21:56,239
possibly don't so there's looking on I

512
00:22:00,460 --> 00:21:57,470
don't know Rachel you have any others

513
00:22:02,739 --> 00:22:00,470

you want to mention - yeah absolutely in

514
00:22:04,629 --> 00:22:02,749
the last year or two we've had a series

515
00:22:08,499 --> 00:22:04,639
of experiments called mix which is

516
00:22:11,840 --> 00:22:08,509
understanding how cement solidifies in

517
00:22:15,110 --> 00:22:11,850
microgravity and looking at that as an

518
00:22:16,630 --> 00:22:15,120
or being able to you know use the mills

519
00:22:21,830 --> 00:22:16,640
that are on the moon the regolith and

520
00:22:23,630 --> 00:22:21,840
create 3d printed structures so this

521
00:22:25,940 --> 00:22:23,640
study was doing that first step of

522
00:22:28,160 --> 00:22:25,950
understanding how does cement even set

523
00:22:29,630 --> 00:22:28,170
up in microgravity and there have been

524
00:22:31,310 --> 00:22:29,640
some really interesting results from

525
00:22:32,870 --> 00:22:31,320
that so those are just a couple of the

526
00:22:36,340 --> 00:22:32,880
ways that what we're studying it's

527
00:22:39,050 --> 00:22:36,350
helping us get further out into space

528
00:22:40,880 --> 00:22:39,060
really cool thank you to you both I have

529
00:22:42,350 --> 00:22:40,890
another one from Kurt and he wants to

530
00:22:44,840 --> 00:22:42,360
know how many hours per day do

531
00:22:46,700 --> 00:22:44,850
astronauts work versus time off how much

532
00:22:51,890 --> 00:22:46,710
of their work day is doing research

533
00:22:52,880 --> 00:22:51,900
versus maintenance that's a great

534
00:22:55,700 --> 00:22:52,890
question

535
00:22:59,690 --> 00:22:55,710
they usually have about 12 hour work

536
00:23:01,700 --> 00:22:59,700
days and it depends it fluctuates on how

537
00:23:05,030 --> 00:23:01,710
much of that time is spent doing science

538
00:23:08,060 --> 00:23:05,040

versus maintenance usually and I would

539
00:23:10,850 --> 00:23:08,070
have to check with hours to confirm but

540
00:23:14,000 --> 00:23:10,860
usually about a 20 split on the science

541
00:23:16,280 --> 00:23:14,010
and maintenance they also have about two

542
00:23:19,400 --> 00:23:16,290
hours a day doing exercises I'm sure

543
00:23:21,380 --> 00:23:19,410
that their bones and muscles healthy but

544
00:23:23,480 --> 00:23:21,390
yeah they we've had astronauts talk

545
00:23:25,340 --> 00:23:23,490
about how in the morning they can be

546
00:23:26,870 --> 00:23:25,350
plumbers working on the toilet and in

547
00:23:29,630 --> 00:23:26,880
the afternoon they're working on cancer

548
00:23:32,860 --> 00:23:29,640
research so it's a pretty it's a pretty

549
00:23:35,450 --> 00:23:32,870
diverse worth day for them sure

550
00:23:37,220 --> 00:23:35,460
definitely an interesting life those

551
00:23:39,170 --> 00:23:37,230
astronauts have so we have another

552
00:23:44,870 --> 00:23:39,180
question for you how can students get

553
00:23:46,820 --> 00:23:44,880
involved in Space Station research start

554
00:23:48,350 --> 00:23:46,830
this off one interesting thing to

555
00:23:49,970 --> 00:23:48,360
mention it might seem unrelated but is

556
00:23:52,040 --> 00:23:49,980
actually would have been Kelly Ryan's

557
00:23:55,600 --> 00:23:52,050
birthday and she left a pretty cool

558
00:23:58,040 --> 00:23:55,610
legacy as far as implement with

559
00:23:59,510 --> 00:23:58,050
education and should research we have a

560
00:24:00,860 --> 00:23:59,520
really cool program called earth cam

561
00:24:02,780 --> 00:24:00,870
I'll let Rachel talk on it though a

562
00:24:07,580 --> 00:24:02,790
little bit I she's a huge Sally Ride and

563
00:24:10,280 --> 00:24:07,590

so I can't take from her yeah so earth

564
00:24:12,530 --> 00:24:10,290
cam is an awesome program that has we

565
00:24:15,770 --> 00:24:12,540
have a camera that's on space station

566
00:24:17,990 --> 00:24:15,780
and students can actually sign up

567
00:24:20,180 --> 00:24:18,000
teachers and students can sign up to be

568
00:24:23,180 --> 00:24:20,190
able to program that camera on the space

569
00:24:24,780 --> 00:24:23,190
station to snap pictures of different

570
00:24:26,340 --> 00:24:24,790
parts of the world and then get

571
00:24:29,340 --> 00:24:26,350
those pictures back to them so they're

572
00:24:31,920 --> 00:24:29,350
actually able to interact and take these

573
00:24:34,010 --> 00:24:31,930
pictures on the space station and I am a

574
00:24:37,200 --> 00:24:34,020
huge Sally Ride and I have a Sally Ride

575
00:24:39,810 --> 00:24:37,210
tattoo because she was just a really

576
00:24:43,560 --> 00:24:39,820
inspiring educator and scientists and

577
00:24:45,840 --> 00:24:43,570
and a big advocate for representation in

578
00:24:47,310 --> 00:24:45,850
science so we love that we get to

579
00:24:48,200 --> 00:24:47,320
continue that legacy on the space

580
00:24:51,000 --> 00:24:48,210
station

581
00:24:53,160 --> 00:24:51,010
that's incredible thank you so much so

582
00:24:55,140 --> 00:24:53,170
we have time for one more question what

583
00:25:06,650 --> 00:24:55,150
is the most exciting thing about space

584
00:25:12,540 --> 00:25:10,770
I'd say for me the human aspect I've

585
00:25:15,060 --> 00:25:12,550
always been a huge fan of human

586
00:25:16,830 --> 00:25:15,070
spaceflight and what humans are able to

587
00:25:19,470 --> 00:25:16,840
bring to this it's amazing

588
00:25:22,020 --> 00:25:19,480

that humans created this space program

589
00:25:24,390 --> 00:25:22,030
we make all this stuff happen and it's

590
00:25:26,790 --> 00:25:24,400
incredible to watch this research in

591
00:25:27,740 --> 00:25:26,800
space every day so for me it's all about

592
00:25:30,960 --> 00:25:27,750
the people

593
00:25:33,420 --> 00:25:30,970
Erin yeah and you know I just joined the

594
00:25:34,920 --> 00:25:33,430
team last July so I a lot of the time

595
00:25:36,750 --> 00:25:34,930
I've been looking at space from the

596
00:25:38,940 --> 00:25:36,760
outside and for the last year to be able

597
00:25:41,520 --> 00:25:38,950
to experience but the hard work that

598
00:25:43,890 --> 00:25:41,530
people put into it on the inside and

599
00:25:45,930 --> 00:25:43,900
honestly it's not just the humans that

600
00:25:47,280 --> 00:25:45,940
are in space but Murat's Dury of

601
00:25:49,380 --> 00:25:47,290
everyone on the ground who's working

602
00:25:50,820 --> 00:25:49,390
together on this joint pin it's the

603
00:25:52,410 --> 00:25:50,830
international collaboration that's

604
00:25:55,050 --> 00:25:52,420
involved with space and human

605
00:25:57,630 --> 00:25:55,060
collaboration if we think incredible

606
00:25:59,130 --> 00:25:57,640
well we get to work the people we get to

607
00:26:00,540 --> 00:25:59,140
see that are helping spread this message

608
00:26:03,200 --> 00:26:00,550
through communications and everything

609
00:26:06,210 --> 00:26:03,210
it's really a joy to work on this

610
00:26:08,370 --> 00:26:06,220
worldwide project and really see

611
00:26:10,260 --> 00:26:08,380
outcomes the benefits to humanity that

612
00:26:11,610 --> 00:26:10,270
come from it it's not just about going

613
00:26:13,200 --> 00:26:11,620

for their damara's it's really about

614
00:26:15,810 --> 00:26:13,210
what we can do here on earth and help

615
00:26:17,760 --> 00:26:15,820
learn more about our planet as well yes

616
00:26:19,890 --> 00:26:17,770
absolutely great and through answers

617
00:26:22,500 --> 00:26:19,900
from both of you unfortunately we are

618
00:26:24,900 --> 00:26:22,510
out of time but I just want to say thank

619
00:26:27,120 --> 00:26:24,910
you to Aaron and Rachel for taking the

620
00:26:29,490 --> 00:26:27,130
time to video chat with us which you too

621
00:26:33,420 --> 00:26:29,500
are here in person of course but I thank

622
00:26:35,250 --> 00:26:33,430
you for chatting with us don't go away

623
00:26:37,870 --> 00:26:35,260
we actually have another episode coming

624
00:26:40,150 --> 00:26:37,880
up in just a few minutes

625
00:26:42,340 --> 00:26:40,160
for all the educators and students out

626
00:26:44,200 --> 00:26:42,350
there who are looking to learn a little

627
00:26:46,960 --> 00:26:44,210
bit more about the mission and some

628
00:26:48,580 --> 00:26:46,970
interactive activities they can do so