

Students Use Ham Radio to Call an Astronaut in Space



1
00:00:02,410 --> 00:00:07,909

[Music]

2
00:00:18,870 --> 00:00:10,709

and i want to say say i want to say

3
00:00:18,880 --> 00:00:24,560

you know what is this

4
00:00:24,570 --> 00:00:38,229

[Music]

5
00:00:41,510 --> 00:00:39,590

okay i'm gonna patch them through at

6
00:00:43,910 --> 00:00:41,520

least one minute

7
00:00:45,830 --> 00:00:43,920

this is owen how is seeing earth from

8
00:00:48,150 --> 00:00:45,840

its orbit affected you in your frame of

9
00:00:50,310 --> 00:00:48,160

reference when moving around the iss or

10
00:00:52,310 --> 00:00:50,320

your perspective of humanity as a whole

11
00:00:54,470 --> 00:00:52,320

over

12
00:00:56,389 --> 00:00:54,480

hi ellen that's a great question seeing

13
00:00:58,869 --> 00:00:56,399

earth from up here is it's a beautiful

14

00:01:02,069 --> 00:00:58,879

thing it's just this peaceful place with

15

00:01:04,469 --> 00:01:02,079

no borders there and you just see this

16

00:01:06,630 --> 00:01:04,479

wonderful colors of blues and greens and

17

00:01:09,190 --> 00:01:06,640

browns and white clouds and snow

18

00:01:11,270 --> 00:01:09,200

mountains and it really gives you an

19

00:01:13,429 --> 00:01:11,280

appreciation for earth as a spaceship

20

00:01:16,310 --> 00:01:13,439

for seven billion people just like our

21

00:01:17,749 --> 00:01:16,320

spaceship is keeping us alive and how we

22

00:01:20,710 --> 00:01:17,759

need to take care of earth because it

23

00:01:23,109 --> 00:01:20,720

takes care of us over

24

00:01:25,429 --> 00:01:23,119

this is spencer what happens if you

25

00:01:27,510 --> 00:01:25,439

vomit in the space station how do you

26

00:01:29,590 --> 00:01:27,520

clean it up over

27

00:01:31,590 --> 00:01:29,600

well hi spencer fortunately we are

28

00:01:34,789 --> 00:01:31,600

prepared for vomiting in space and we

29

00:01:37,510 --> 00:01:34,799

bring special bags that if we're feeling

30

00:01:39,270 --> 00:01:37,520

the urge to go we use these bags

31

00:01:42,550 --> 00:01:39,280

occasionally

32

00:01:44,870 --> 00:01:42,560

on the launch it can surprise you and uh

33

00:01:46,710 --> 00:01:44,880

but we have bags in the launch vehicle

34

00:01:48,630 --> 00:01:46,720

as well if you didn't make it in the bag

35

00:01:50,149 --> 00:01:48,640

it would be a real mess it would go

36

00:01:52,789 --> 00:01:50,159

everywhere it would take quite a bit of

37

00:01:55,990 --> 00:01:52,799

time to clean up over

38

00:01:57,990 --> 00:01:56,000

this is lucas how has the kova 19

39

00:02:00,789 --> 00:01:58,000

pandemic affected you while you're in

40

00:02:03,670 --> 00:02:00,799

space over

41

00:02:05,830 --> 00:02:03,680

hi lucas the pandemic has affected us

42

00:02:08,710 --> 00:02:05,840

because it's affecting our families our

43

00:02:10,710 --> 00:02:08,720

daily life here on the space station

44

00:02:13,270 --> 00:02:10,720

is largely the same with or without the

45

00:02:15,030 --> 00:02:13,280

pandemic we are safe and we are

46

00:02:17,350 --> 00:02:15,040

executing our job and keeping the space

47

00:02:19,510 --> 00:02:17,360

station running and functioning and

48

00:02:20,790 --> 00:02:19,520

keeping ourselves healthy with our daily

49

00:02:22,550 --> 00:02:20,800

routine

50

00:02:25,030 --> 00:02:22,560

but we're concerned for our friends and

51
00:02:28,390 --> 00:02:25,040
family and loved ones because they're uh

52
00:02:30,390 --> 00:02:28,400
on in russia and in the united states uh

53
00:02:31,750 --> 00:02:30,400
having to deal with it just like you are

54
00:02:34,150 --> 00:02:31,760
over

55
00:02:37,190 --> 00:02:34,160
mr what will be your first meal when you

56
00:02:40,309 --> 00:02:37,200
get back to earth

57
00:02:41,830 --> 00:02:40,319
hi ally i i like to eat and so i'm

58
00:02:43,670 --> 00:02:41,840
looking forward to any food that

59
00:02:46,470 --> 00:02:43,680
somebody uh makes

60
00:02:48,550 --> 00:02:46,480
and but one thing we don't have is an

61
00:02:50,869 --> 00:02:48,560
oven here so something that comes out of

62
00:02:53,830 --> 00:02:50,879
the oven and you smell those smells

63
00:02:56,790 --> 00:02:53,840

uh and and you eat a nice hot meal that

64

00:02:59,270 --> 00:02:56,800

that sounds terrific to me over

65

00:03:02,630 --> 00:02:59,280

this is foyer what does it feel like

66

00:03:04,390 --> 00:03:02,640

when the rocket lifts off over

67

00:03:06,949 --> 00:03:04,400

sawyer when the rocket lifts off it's

68

00:03:09,350 --> 00:03:06,959

just tremendous feeling like somebody's

69

00:03:11,110 --> 00:03:09,360

pushing you in your back and shoving you

70

00:03:12,229 --> 00:03:11,120

faster and faster and higher and higher

71

00:03:14,390 --> 00:03:12,239

to the sky

72

00:03:17,670 --> 00:03:14,400

and there's a few periods of time where

73

00:03:20,470 --> 00:03:17,680

our engines change it's called staging

74

00:03:21,910 --> 00:03:20,480

and uh it there's some bumpiness and

75

00:03:24,149 --> 00:03:21,920

some a little bit of shaking in the

76
00:03:26,710 --> 00:03:24,159
spacecraft during those periods but the

77
00:03:27,589 --> 00:03:26,720
rest of the eight minute nine minutes is

78
00:03:29,190 --> 00:03:27,599
uh

79
00:03:30,949 --> 00:03:29,200
is just like

80
00:03:33,910 --> 00:03:30,959
a giant

81
00:03:36,309 --> 00:03:33,920
force is throwing you into the into the

82
00:03:38,470 --> 00:03:36,319
sky over

83
00:03:42,390 --> 00:03:38,480
it's okay

84
00:03:48,229 --> 00:03:45,190
jordan the space station has uh

85
00:03:51,910 --> 00:03:48,239
not too just uh different smells than

86
00:03:53,589 --> 00:03:51,920
you'd have in a home down there we we

87
00:03:55,110 --> 00:03:53,599
try to keep ourselves clean we try to

88
00:03:56,550 --> 00:03:55,120

keep the space station clean in fact

89

00:03:59,190 --> 00:03:56,560

tomorrow is saturday and that's our

90

00:04:02,309 --> 00:03:59,200

cleaning day and we do our best to to

91

00:04:04,550 --> 00:04:02,319

keep it neat and tidy but occasionally

92

00:04:05,509 --> 00:04:04,560

there's there's smells where we have to

93

00:04:07,589 --> 00:04:05,519

change

94

00:04:09,990 --> 00:04:07,599

uh

95

00:04:13,190 --> 00:04:10,000

fluid a lot of times that has to do with

96

00:04:15,030 --> 00:04:13,200

our bodily functions in the toilet and

97

00:04:17,349 --> 00:04:15,040

they can be smelly there but for the

98

00:04:20,390 --> 00:04:17,359

most part the space station to me it

99

00:04:22,710 --> 00:04:20,400

smells just like a normal home over

100

00:04:25,030 --> 00:04:22,720

this is eric was training to be an

101
00:04:27,590 --> 00:04:25,040
astronaut harder or easier than training

102
00:04:29,030 --> 00:04:27,600
to be a navy seal over

103
00:04:31,510 --> 00:04:29,040
well eric they were totally different

104
00:04:32,710 --> 00:04:31,520
the training to be a navy seal initially

105
00:04:35,270 --> 00:04:32,720
was

106
00:04:37,909 --> 00:04:35,280
very hard for six months training to be

107
00:04:39,590 --> 00:04:37,919
an astronaut or a cosmonaut is a long

108
00:04:43,430 --> 00:04:39,600
process and it takes

109
00:04:45,670 --> 00:04:43,440
many years of hard work so and it's more

110
00:04:48,070 --> 00:04:45,680
academic more um

111
00:04:49,350 --> 00:04:48,080
having to do with your brain in seal

112
00:04:52,469 --> 00:04:49,360
training we had

113
00:04:54,469 --> 00:04:52,479

some some academics but largely it was a

114

00:04:56,469 --> 00:04:54,479

physical thing so two entirely different

115

00:04:58,710 --> 00:04:56,479

programs over

116

00:05:01,029 --> 00:04:58,720

this is owen what experiment that you

117

00:05:03,270 --> 00:05:01,039

don't have the most unexpected results

118

00:05:06,390 --> 00:05:03,280

who's the expected and actual outcome of

119

00:05:08,550 --> 00:05:06,400

said experiment over

120

00:05:10,550 --> 00:05:08,560

wow well that's a very detailed question

121

00:05:13,029 --> 00:05:10,560

we have lots of experiments going on up

122

00:05:15,590 --> 00:05:13,039

here but one that uh when i first

123

00:05:17,830 --> 00:05:15,600

arrived we were growing some plants and

124

00:05:19,830 --> 00:05:17,840

i thought that they would grow more than

125

00:05:20,790 --> 00:05:19,840

they did over the course of several

126
00:05:22,310 --> 00:05:20,800
weeks

127
00:05:25,510 --> 00:05:22,320
they were

128
00:05:27,830 --> 00:05:25,520
just a small sprout which surprised me

129
00:05:29,830 --> 00:05:27,840
because uh pictures i had never seen

130
00:05:31,830 --> 00:05:29,840
grown growth in space before on my

131
00:05:33,510 --> 00:05:31,840
previous missions so i'm looking forward

132
00:05:35,670 --> 00:05:33,520
to trying that again and getting better

133
00:05:38,310 --> 00:05:35,680
results over

134
00:05:41,430 --> 00:05:38,320
this is spencer how successful is your

135
00:05:44,070 --> 00:05:41,440
3d printer on the station ever

136
00:05:49,990 --> 00:05:44,080
spencer we have the 3d printer has been

137
00:05:55,749 --> 00:05:53,510
a few years and we've printed many parts

138
00:05:58,150 --> 00:05:55,759

we don't have it deployed and active all

139

00:06:00,870 --> 00:05:58,160

all the time but when we need to we can

140

00:06:03,270 --> 00:06:00,880

we can uh we can print what we need if

141

00:06:05,510 --> 00:06:03,280

it meets the criteria it's a very

142

00:06:06,390 --> 00:06:05,520

effective way of having spare parts on

143

00:06:08,790 --> 00:06:06,400

in space

144

00:06:12,870 --> 00:06:10,309

this is lucas

145

00:06:15,110 --> 00:06:12,880

we are a model rocket building club did

146

00:06:17,430 --> 00:06:15,120

you ever do model rockets when you were

147

00:06:20,309 --> 00:06:17,440

young over

148

00:06:23,590 --> 00:06:20,319

lucas i wish i did but i never i never

149

00:06:26,309 --> 00:06:23,600

had a club or or a mentor in my area

150

00:06:28,550 --> 00:06:26,319

that that was uh involved with moral

151
00:06:31,110 --> 00:06:28,560
rockets so i never really launched a

152
00:06:40,950 --> 00:06:31,120
model rocket as a young person

153
00:06:46,550 --> 00:06:43,510
microgravity is um

154
00:06:48,390 --> 00:06:46,560
is more of a feel of how to move around

155
00:06:51,029 --> 00:06:48,400
your body in my opinion

156
00:06:52,790 --> 00:06:51,039
feels kind of the same everything you do

157
00:06:54,950 --> 00:06:52,800
on earth with your body eating going to

158
00:06:57,189 --> 00:06:54,960
the bathroom sleeping

159
00:06:59,990 --> 00:06:57,199
your hair growing all that stuff is very

160
00:07:02,309 --> 00:07:00,000
normal i think but moving around in

161
00:07:04,710 --> 00:07:02,319
microgravity is not normal and it takes

162
00:07:06,629 --> 00:07:04,720
some practice to to get used to how to

163
00:07:09,830 --> 00:07:06,639

do it

164

00:07:15,670 --> 00:07:12,629

this is eric does the earth look any

165

00:07:19,110 --> 00:07:15,680

clearer or less polluted now compared to

166

00:07:21,720 --> 00:07:19,120

when you flew in 2009 and with canadian

167

00:07:23,670 --> 00:07:21,730

chris hatfield in 2013 over

168

00:07:25,909 --> 00:07:23,680

[Music]

169

00:07:27,909 --> 00:07:25,919

uh i actually flew with another canadian

170

00:07:29,830 --> 00:07:27,919

your governor general julie payet in

171

00:07:31,670 --> 00:07:29,840

2009

172

00:07:35,029 --> 00:07:31,680

so this is my first mission in space

173

00:07:37,909 --> 00:07:35,039

without a a canadian crewmate but the

174

00:07:40,390 --> 00:07:37,919

earth does not look any different

175

00:07:43,189 --> 00:07:40,400

from our with our eyes than than the

176

00:07:45,350 --> 00:07:43,199

previous times and my my my crewmate and

177

00:07:47,749 --> 00:07:45,360

friend anatoly has been in space several

178

00:07:49,670 --> 00:07:47,759

times and we both have tried to see any

179

00:07:53,430 --> 00:07:49,680

differences and and we we can't really

180

00:07:57,029 --> 00:07:56,309

this is sawyer do you play any game so

181

00:07:59,510 --> 00:07:57,039

you

182

00:08:01,110 --> 00:07:59,520

are on the iss

183

00:08:03,830 --> 00:08:01,120

over

184

00:08:05,749 --> 00:08:03,840

well sawyer we're pretty busy people up

185

00:08:06,710 --> 00:08:05,759

here we have lots of work to do during

186

00:08:08,950 --> 00:08:06,720

the day

187

00:08:12,230 --> 00:08:08,960

and by the time night time comes around

188

00:08:13,830 --> 00:08:12,240

we just have the energy to eat and uh

189

00:08:16,550 --> 00:08:13,840

clean up from our day

190

00:08:17,830 --> 00:08:16,560

and prepare for the next day maybe make

191

00:08:19,029 --> 00:08:17,840

a phone call

192

00:08:21,749 --> 00:08:19,039

or something

193

00:08:23,990 --> 00:08:21,759

or answer an email but we we don't have

194

00:08:26,070 --> 00:08:24,000

a lot of time to play

195

00:08:27,029 --> 00:08:26,080

any games probably the closest thing to

196

00:08:28,390 --> 00:08:27,039

a game

197

00:08:31,189 --> 00:08:28,400

is um

198

00:08:33,509 --> 00:08:31,199

seeing how straight you can fly without

199

00:08:34,230 --> 00:08:33,519

crashing into a wall and how far you can

200

00:08:35,590 --> 00:08:34,240

go

201
00:08:36,709 --> 00:08:35,600
like this over

202
00:08:38,469 --> 00:08:36,719
[Music]

203
00:08:41,190 --> 00:08:38,479
well i tell you what for all the folks

204
00:08:43,990 --> 00:08:41,200
on the phone let's go ahead and give

205
00:08:53,350 --> 00:08:44,000
commander chris cassidy and the crew on

206
00:08:58,630 --> 00:08:55,829
sending my greetings along to all of you

207
00:09:01,509 --> 00:08:58,640
in traditional amateur radio terms

208
00:09:03,829 --> 00:09:01,519
seven threes of best wishes and thank

209
00:09:05,430 --> 00:09:03,839
you for participating in this activity

210
00:09:06,720 --> 00:09:05,440
thank you everybody this is just

211
00:09:17,030 --> 00:09:06,730
excellent

212
00:09:25,750 --> 00:09:19,640
subscribe for more space