



1
00:00:55,350 --> 00:00:03,990
hi i'm nicole stott of the sts-133 crew

2
00:00:55,360 --> 00:01:01,910
hey

3
00:01:01,920 --> 00:01:19,990
so

4
00:01:24,310 --> 00:01:22,390
good morning discovery we hope you

5
00:01:26,710 --> 00:01:24,320
enjoyed that music that music comes to

6
00:01:28,630 --> 00:01:26,720
you from your training team they're very

7
00:01:29,990 --> 00:01:28,640
proud of the job you're doing and making

8
00:01:34,310 --> 00:01:30,000
them look good

9
00:01:37,830 --> 00:01:35,670
well thanks mike good morning to you

10
00:01:39,910 --> 00:01:37,840
guys and uh and thanks to our training

11
00:01:42,789 --> 00:01:39,920
team we've had a just a super training

12
00:01:44,950 --> 00:01:42,799
team that did a great job with us and uh

13
00:01:47,190 --> 00:01:44,960

and we really enjoyed training and uh

14

00:01:49,190 --> 00:01:47,200

and had a lot of fun with them uh all

15

00:02:32,470 --> 00:01:49,200

the way through the flow so uh thanks to

16

00:02:35,589 --> 00:02:34,150

good morning from inside the payload

17

00:02:37,430 --> 00:02:35,599

operations center at the marshall space

18

00:02:39,509 --> 00:02:37,440

flight center i'm heather smith writer

19

00:02:41,670 --> 00:02:39,519

of the nasa education taking up space

20

00:02:43,670 --> 00:02:41,680

blog we are excited to ask you questions

21

00:02:45,430 --> 00:02:43,680

chosen by our blog readers today the

22

00:02:47,589 --> 00:02:45,440

first question is for commander scott

23

00:02:49,350 --> 00:02:47,599

kelly what are some ways that the work

24

00:02:50,949 --> 00:02:49,360

you do in space can encourage both our

25

00:02:55,030 --> 00:02:50,959

youth and scientists working on the

26

00:02:58,790 --> 00:02:57,670

well i think uh one of the ways we can

27

00:03:02,070 --> 00:02:58,800

encourage

28

00:03:04,470 --> 00:03:02,080

kids and and scientists is that we have

29

00:03:05,990 --> 00:03:04,480

a incredibly challenging work

30

00:03:08,149 --> 00:03:06,000

environment and a

31

00:03:10,550 --> 00:03:08,159

challenging problem building a space

32

00:03:11,910 --> 00:03:10,560

station and then and then utilizing it

33

00:03:13,270 --> 00:03:11,920

and the way we do that is through

34

00:03:14,070 --> 00:03:13,280

teamwork

35

00:03:16,790 --> 00:03:14,080

and

36

00:03:19,110 --> 00:03:16,800

teamwork is critical i think not only

37

00:03:21,670 --> 00:03:19,120

here but getting things accomplished on

38

00:03:23,830 --> 00:03:21,680

the ground so hopefully

39

00:03:25,350 --> 00:03:23,840

in kids and scientists and other

40

00:03:27,830 --> 00:03:25,360

professionals looking at the teamwork

41

00:03:30,630 --> 00:03:27,840

that nasa uses to get things done they

42

00:03:32,949 --> 00:03:30,640

can take inspiration from that and

43

00:03:34,710 --> 00:03:32,959

and use that themselves

44

00:03:38,149 --> 00:03:34,720

for whatever they're involved with on

45

00:03:41,030 --> 00:03:40,070

great the next question is for katie

46

00:03:42,949 --> 00:03:41,040

coleman

47

00:03:44,710 --> 00:03:42,959

what kinds of experiments are currently

48

00:03:46,390 --> 00:03:44,720

being conducted on the station and how

49

00:03:52,070 --> 00:03:46,400

will the research benefit people on

50

00:03:56,630 --> 00:03:53,830

we're doing some really exciting

51
00:03:59,429 --> 00:03:56,640
experiments in crystal growth in fluid

52
00:04:01,110 --> 00:03:59,439
physics and combustion and sometimes

53
00:04:02,949 --> 00:04:01,120
those things sound like well why would i

54
00:04:05,190 --> 00:04:02,959
want to know about that well combustion

55
00:04:07,190 --> 00:04:05,200
it's all about pollution up here where

56
00:04:10,070 --> 00:04:07,200
everything is weightless those hot gases

57
00:04:12,309 --> 00:04:10,080
don't rise and we can understand how we

58
00:04:14,470 --> 00:04:12,319
can actually look at how things burn and

59
00:04:16,550 --> 00:04:14,480
how pollution products are generated so

60
00:04:18,469 --> 00:04:16,560
we can do combustion research we get to

61
00:04:21,349 --> 00:04:18,479
see for fluid physics we get to see what

62
00:04:23,590 --> 00:04:21,359
liquids really want to do down on earth

63
00:04:25,749 --> 00:04:23,600

gravity actually dictates it's such a

64

00:04:27,270 --> 00:04:25,759

big force compared to all the other ones

65

00:04:29,030 --> 00:04:27,280

gravity dictates and so we can

66

00:04:32,150 --> 00:04:29,040

understand what liquids really want to

67

00:04:33,990 --> 00:04:32,160

do and so many processes on earth are

68

00:04:36,390 --> 00:04:34,000

liquids going through pipes everything

69

00:04:38,950 --> 00:04:36,400

that you want to play with or that is

70

00:04:40,469 --> 00:04:38,960

that is made and manufactured is liquid

71

00:04:42,390 --> 00:04:40,479

flowing through a pipe and making a

72

00:04:44,070 --> 00:04:42,400

product so we learn a lot about how to

73

00:04:48,070 --> 00:04:44,080

make things on earth by experimenting

74

00:04:52,150 --> 00:04:50,550

okay for commander lindsey how has the

75

00:04:57,110 --> 00:04:52,160

station changed since you were first

76

00:05:01,830 --> 00:04:59,670

well the the station is probably on the

77

00:05:03,830 --> 00:05:01,840

inside and the outside about three times

78

00:05:06,550 --> 00:05:03,840

bigger than the last time i was here uh

79

00:05:08,870 --> 00:05:06,560

when i was here last time we had the u.s

80

00:05:11,029 --> 00:05:08,880

lab and the airlock and

81

00:05:13,029 --> 00:05:11,039

and the russian segment um but since

82

00:05:15,510 --> 00:05:13,039

then uh the russians have added uh i

83

00:05:17,830 --> 00:05:15,520

guess three modules uh we've we've added

84

00:05:20,870 --> 00:05:17,840

the uh module we're in here now the uh

85

00:05:22,469 --> 00:05:20,880

the the japanese module the columbus

86

00:05:24,870 --> 00:05:22,479

module of course the

87

00:05:26,550 --> 00:05:24,880

multi-purpose module that we just added

88

00:05:27,909 --> 00:05:26,560

we have a couple of transfer vehicles

89

00:05:30,310 --> 00:05:27,919

here that we didn't have before we've

90

00:05:32,150 --> 00:05:30,320

added an additional two additional nodes

91

00:05:34,629 --> 00:05:32,160

and the cupola

92

00:05:36,629 --> 00:05:34,639

and it's a magnificent place now i when

93

00:05:39,350 --> 00:05:36,639

i first opened the hatches and floated

94

00:05:41,430 --> 00:05:39,360

in a few days ago after docking i was

95

00:05:42,870 --> 00:05:41,440

just shocked at the size of the station

96

00:05:45,110 --> 00:05:42,880

additionally we've

97

00:05:47,110 --> 00:05:45,120

added three more solar arrays since i

98

00:05:48,310 --> 00:05:47,120

was here and so even coming up to

99

00:05:49,749 --> 00:05:48,320

rendezvous

100

00:05:51,350 --> 00:05:49,759

looking out and seeing the station it

101
00:05:53,270 --> 00:05:51,360
looked like almost a totally different

102
00:05:53,990 --> 00:05:53,280
place so it has changed dramatically and

103
00:05:55,830 --> 00:05:54,000
i'm

104
00:05:58,070 --> 00:05:55,840
it's really excited

105
00:06:00,790 --> 00:05:58,080
exciting for all of us to see the the

106
00:06:02,070 --> 00:06:00,800
space station completely assembled

107
00:06:03,909 --> 00:06:02,080
great thank you

108
00:06:05,670 --> 00:06:03,919
this is joe charbonnet i'm an intern

109
00:06:08,150 --> 00:06:05,680
from georgia tech and my question is for

110
00:06:09,830 --> 00:06:08,160
colonel bowe a fellow ramblin wreck

111
00:06:12,070 --> 00:06:09,840
what role do you think that robots will

112
00:06:18,150 --> 00:06:12,080
play in the future of space exploration

113
00:06:21,990 --> 00:06:19,670

go jackets

114

00:06:24,870 --> 00:06:22,000

i think uh robots will take a more and

115

00:06:26,710 --> 00:06:24,880

more a much bigger role as time goes on

116

00:06:28,870 --> 00:06:26,720

just like computers if i had someone

117

00:06:30,469 --> 00:06:28,880

back in the 60s and 70s what

118

00:06:32,230 --> 00:06:30,479

what would the role be of computers in

119

00:06:34,230 --> 00:06:32,240

the average person's life most people

120

00:06:35,590 --> 00:06:34,240

probably said not a whole lot but now we

121

00:06:37,909 --> 00:06:35,600

have computers and everything so i think

122

00:06:40,070 --> 00:06:37,919

robots is the same way and that's

123

00:06:42,469 --> 00:06:40,080

robots will allow us we'll have a good

124

00:06:43,909 --> 00:06:42,479

synergy between the human and the robot

125

00:06:46,230 --> 00:06:43,919

and they'll be able to do things that we

126

00:06:47,670 --> 00:06:46,240

consider mundane or dangerous like going

127

00:06:49,510 --> 00:06:47,680

into smoke-filled compartments and

128

00:06:51,589 --> 00:06:49,520

that's the purpose of a robonaut r2 that

129

00:06:53,270 --> 00:06:51,599

we have up here is to start looking at

130

00:06:55,670 --> 00:06:53,280

those tasks and trying to refine them

131

00:06:58,390 --> 00:06:55,680

and optimize them so i see a bigger role

132

00:07:01,189 --> 00:06:58,400

as time continues for robonaut

133

00:07:02,870 --> 00:07:01,199

and robotics

134

00:07:05,510 --> 00:07:02,880

okay back to heather this question is

135

00:07:07,270 --> 00:07:05,520

for aldrue how well does reduced gravity

136

00:07:14,550 --> 00:07:07,280

flight prepare you for what it's like to

137

00:07:18,070 --> 00:07:16,710

well the short answer is very useful i'm

138

00:07:19,749 --> 00:07:18,080

preparing for space we have a number of

139

00:07:21,670 --> 00:07:19,759

different things we can use

140

00:07:23,350 --> 00:07:21,680

we have the neutral buoyancy laboratory

141

00:07:24,390 --> 00:07:23,360

the pool that helps us but it doesn't

142

00:07:26,309 --> 00:07:24,400

necessarily

143

00:07:27,830 --> 00:07:26,319

give us that free-flowing feel because

144

00:07:28,710 --> 00:07:27,840

the water is viscous and it resists our

145

00:07:30,150 --> 00:07:28,720

motion

146

00:07:32,070 --> 00:07:30,160

we also have virtual reality

147

00:07:34,070 --> 00:07:32,080

laboratories which give us a good visual

148

00:07:35,749 --> 00:07:34,080

sense of what it's like to be in space

149

00:07:37,270 --> 00:07:35,759

but it doesn't also doesn't all it

150

00:07:38,070 --> 00:07:37,280

doesn't give us that same the dynamics

151
00:07:42,870 --> 00:07:38,080
of

152
00:07:44,790 --> 00:07:42,880
the reduced gravity flights give you all

153
00:07:46,950 --> 00:07:44,800
that you are weightless just like you'd

154
00:07:48,550 --> 00:07:46,960
be in orbit for brief periods of time so

155
00:07:51,510 --> 00:07:48,560
you can get a sense of you know how

156
00:07:55,189 --> 00:07:51,520
things can move around freely without

157
00:07:59,350 --> 00:07:57,510
this question is for steve bowen how has

158
00:08:00,869 --> 00:07:59,360
greater internet connectivity and social

159
00:08:11,589 --> 00:08:00,879
media affected the space flight

160
00:08:14,869 --> 00:08:13,749
sorry about the delay

161
00:08:17,430 --> 00:08:14,879
well that's actually an interesting

162
00:08:20,070 --> 00:08:17,440
question because i actually spent 14

163
00:08:22,469 --> 00:08:20,080

years in submarine force where we had

164

00:08:23,909 --> 00:08:22,479

zero internet connection

165

00:08:25,350 --> 00:08:23,919

and so

166

00:08:27,830 --> 00:08:25,360

the similarities between space flight

167

00:08:31,110 --> 00:08:27,840

and submarines uh

168

00:08:32,870 --> 00:08:31,120

is very real and this communication up

169

00:08:35,350 --> 00:08:32,880

here with the

170

00:08:37,829 --> 00:08:35,360

internet with the ability to tweet

171

00:08:39,990 --> 00:08:37,839

it's all about communication and

172

00:08:43,029 --> 00:08:40,000

communication

173

00:08:47,670 --> 00:08:44,949

some deception as well you know just

174

00:08:49,269 --> 00:08:47,680

like the internet is full of information

175

00:08:51,910 --> 00:08:49,279

but it's not necessarily the knowledge

176

00:08:53,910 --> 00:08:51,920

it's data it's

177

00:08:56,389 --> 00:08:53,920

information but it's not real knowledge

178

00:08:59,269 --> 00:08:56,399

it's not real action you know tweeting

179

00:09:01,430 --> 00:08:59,279

provides little bits and glimmers of

180

00:09:03,350 --> 00:09:01,440

data and little hints and information

181

00:09:04,710 --> 00:09:03,360

but unless you're actually there and

182

00:09:06,150 --> 00:09:04,720

they have the ability to perform some

183

00:09:08,230 --> 00:09:06,160

action

184

00:09:09,990 --> 00:09:08,240

you know it can give you a slight sense

185

00:09:11,190 --> 00:09:10,000

of it but you really need to be there in

186

00:09:12,870 --> 00:09:11,200

any of these communication forms

187

00:09:14,870 --> 00:09:12,880

regardless whether it's

188

00:09:17,350 --> 00:09:14,880

social media or whatever term you want

189

00:09:18,949 --> 00:09:17,360

to use now for modern communication

190

00:09:22,070 --> 00:09:18,959

so it's

191

00:09:24,470 --> 00:09:22,080

it can lead to the

192

00:09:25,990 --> 00:09:24,480

missed idea this misapprehension that

193

00:09:27,110 --> 00:09:26,000

you have control over something when you

194

00:09:29,030 --> 00:09:27,120

don't so you don't want to be running

195

00:09:30,630 --> 00:09:29,040

your life on the internet from here you

196

00:09:33,269 --> 00:09:30,640

actually need to be someplace to do

197

00:09:33,990 --> 00:09:33,279

something so while it helps bring people

198

00:09:38,949 --> 00:09:34,000

in

199

00:09:39,990 --> 00:09:38,959

and of itself it's not sufficient to

200

00:09:41,750 --> 00:09:40,000

replace

201

00:09:45,509 --> 00:09:41,760

you know space flight or any other

202

00:09:49,829 --> 00:09:47,990

okay this question is for mike barrett

203

00:09:56,230 --> 00:09:49,839

what do you think is the greatest legacy

204

00:09:59,829 --> 00:09:57,590

well that's a great question with a

205

00:10:01,910 --> 00:09:59,839

really big answer you know the space

206

00:10:03,910 --> 00:10:01,920

shuttle has become such an icon of human

207

00:10:05,030 --> 00:10:03,920

space flight and i think that's well

208

00:10:06,949 --> 00:10:05,040

deserved

209

00:10:09,350 --> 00:10:06,959

if you look at it you have a the biggest

210

00:10:12,230 --> 00:10:09,360

thing is really a broad-based knowledge

211

00:10:14,230 --> 00:10:12,240

base of how to work in space as a space

212

00:10:15,990 --> 00:10:14,240

medicine guy i look at the hundreds of

213

00:10:18,150 --> 00:10:16,000

human spaceflight experiences we have

214

00:10:20,150 --> 00:10:18,160

off the shuttle and that's what you need

215

00:10:21,750 --> 00:10:20,160

to really solidify your your knowledge

216

00:10:23,430 --> 00:10:21,760

of how the human reacts to the short

217

00:10:24,230 --> 00:10:23,440

term space flight the shuttle has given

218

00:10:26,710 --> 00:10:24,240

us

219

00:10:29,990 --> 00:10:26,720

and beyond that we've got

220

00:10:32,150 --> 00:10:30,000

propulsion robotics hypersonic flight

221

00:10:33,590 --> 00:10:32,160

physics of low earth orbit i mean the

222

00:10:36,069 --> 00:10:33,600

space shuttle has just given us a

223

00:10:37,670 --> 00:10:36,079

tremendous knowledge base of how to do

224

00:10:41,509 --> 00:10:37,680

business in space so i think that's

225

00:10:45,269 --> 00:10:43,750

okay for nicole stott what would life in

226

00:10:50,230 --> 00:10:45,279

space be like without the use of

227

00:10:54,710 --> 00:10:52,710

well i think very simply it would be

228

00:10:57,190 --> 00:10:54,720

a lot more difficult

229

00:10:58,790 --> 00:10:57,200

if we just look at the space station as

230

00:11:01,430 --> 00:10:58,800

an example whether it's

231

00:11:03,350 --> 00:11:01,440

assembly or the eva tasks that we have

232

00:11:05,030 --> 00:11:03,360

or some of the

233

00:11:06,389 --> 00:11:05,040

what might be thought of today because

234

00:11:08,150 --> 00:11:06,399

of robotics

235

00:11:10,710 --> 00:11:08,160

simple maintenance tasks that we have on

236

00:11:13,509 --> 00:11:10,720

the outside of the vehicle it would be a

237

00:11:15,590 --> 00:11:13,519

lot more difficult if we didn't have

238

00:11:18,230 --> 00:11:15,600

the robotic arms that we use to

239

00:11:20,550 --> 00:11:18,240

manipulate both our eva crew members and

240

00:11:22,150 --> 00:11:20,560

the hardware that we have outside

241

00:11:24,870 --> 00:11:22,160

and i think that's just one simple

242

00:11:28,310 --> 00:11:24,880

example of how robotics has helped us uh

243

00:11:32,069 --> 00:11:30,389

for commander lindsey what do you do for

244

00:11:37,750 --> 00:11:32,079

fun and microgravity and do you have any

245

00:11:40,630 --> 00:11:39,430

yeah we call those stupid astronaut

246

00:11:42,630 --> 00:11:40,640

tricks and

247

00:11:44,389 --> 00:11:42,640

i have several that i'm not very good at

248

00:11:46,230 --> 00:11:44,399

but uh

249

00:11:47,509 --> 00:11:46,240

and i have the bruises to show for it

250

00:11:49,430 --> 00:11:47,519

but uh

251
00:11:52,310 --> 00:11:49,440
you know just uh you can just see one of

252
00:11:54,389 --> 00:11:52,320
our crew members just floated away uh

253
00:11:55,590 --> 00:11:54,399
you see scott's uh doing a little flip

254
00:11:57,670 --> 00:11:55,600
for you

255
00:11:59,990 --> 00:11:57,680
so we can do that all day long what's

256
00:12:01,350 --> 00:12:00,000
really interesting is uh

257
00:12:04,069 --> 00:12:01,360
i'll give you a little physics lesson

258
00:12:05,750 --> 00:12:04,079
here uh is that when you throw a ball on

259
00:12:08,150 --> 00:12:05,760
the earth and play catch or something

260
00:12:10,629 --> 00:12:08,160
like that you you have to actually loft

261
00:12:12,870 --> 00:12:10,639
that ball for uh because gravity will

262
00:12:14,550 --> 00:12:12,880
cause that ball to drop

263
00:12:16,069 --> 00:12:14,560

and and we do it subconsciously just

264

00:12:17,590 --> 00:12:16,079

because we're used to living in one g

265

00:12:19,829 --> 00:12:17,600

when you come up here in space the first

266

00:12:22,230 --> 00:12:19,839

time you try to throw a ball or

267

00:12:23,910 --> 00:12:22,240

or any item to another crew member you

268

00:12:25,750 --> 00:12:23,920

invariably will throw it over that

269

00:12:27,430 --> 00:12:25,760

person's head because you are used to

270

00:12:30,150 --> 00:12:27,440

lofting all the time so the one of the

271

00:12:32,069 --> 00:12:30,160

biggest challenges in just moving around

272

00:12:34,470 --> 00:12:32,079

and floating through the modules is to

273

00:12:36,150 --> 00:12:34,480

not loft yourself so that you don't slam

274

00:12:37,430 --> 00:12:36,160

into the top of uh wherever you're

275

00:12:39,430 --> 00:12:37,440

traveling but

276

00:12:41,190 --> 00:12:39,440

but you never get tired of playing in

277

00:12:44,470 --> 00:12:41,200

microgravity and learning how to move

278

00:12:45,829 --> 00:12:44,480

around and do things

279

00:12:51,990 --> 00:12:45,839

thank you all so much for joining us

280

00:12:56,069 --> 00:12:54,310

you're welcome and uh thanks for uh

281

00:12:58,470 --> 00:12:56,079

joining us we uh we enjoyed your

282

00:12:59,829 --> 00:12:58,480

questions

283

00:13:01,509 --> 00:12:59,839

uh for your earlier question about the

284

00:13:04,629 --> 00:13:01,519

abnc brackets

285

00:13:08,870 --> 00:13:04,639

um we do expect to install all of those

286

00:13:12,310 --> 00:13:10,550

but that's not the question stan we have

287

00:13:14,230 --> 00:13:12,320

installed all of those

288

00:13:16,230 --> 00:13:14,240

and the question is uh i think there

289

00:13:17,910 --> 00:13:16,240

might be some spots that don't have them

290

00:13:31,829 --> 00:13:17,920

does that mean that there's more called

291

00:13:36,150 --> 00:13:33,430

excellent all right you're standing in

292

00:13:37,829 --> 00:13:36,160

front of uh one of our glacier units and

293

00:13:39,829 --> 00:13:37,839

i just want you to confirm for me that

294

00:13:41,990 --> 00:13:39,839

uh you did see me removing that and

295

00:13:43,750 --> 00:13:42,000

transferring it with one on the station

296

00:13:45,509 --> 00:13:43,760

i do see that and i see serial number

297

00:13:46,629 --> 00:13:45,519

zero zero three for confirmation

298

00:13:48,389 --> 00:13:46,639

excellent you didn't just swap the

299

00:13:50,310 --> 00:13:48,399

stickers i did not swap the stickers i

300

00:13:52,230 --> 00:13:50,320

swapped the units good call and we're

301
00:13:59,910 --> 00:13:52,240
getting ready to do some transfers into

302
00:14:04,310 --> 00:14:02,150
now we're entering into the lab module

303
00:14:05,910 --> 00:14:04,320
the us lab module

304
00:14:09,269 --> 00:14:05,920
and down on the deck

305
00:14:10,870 --> 00:14:09,279
we'll find i believe

306
00:14:12,710 --> 00:14:10,880
dr mike barrett would be in the

307
00:14:14,790 --> 00:14:12,720
commander steve lindsey little people

308
00:14:15,910 --> 00:14:14,800
called to um

309
00:14:17,590 --> 00:14:15,920
make them out right here but what

310
00:14:20,230 --> 00:14:17,600
they're doing is they have just

311
00:14:23,030 --> 00:14:20,240
transferred this big large rack

312
00:14:24,150 --> 00:14:23,040
from our pmm the new module that was

313
00:14:25,829 --> 00:14:24,160

installed

314

00:14:27,670 --> 00:14:25,839

and they transferred it here into the

315

00:14:30,230 --> 00:14:27,680

lab module for uh

316

00:14:32,550 --> 00:14:30,240

operation i believe this has another

317

00:14:33,990 --> 00:14:32,560

refrigerator in it and some other one

318

00:14:36,629 --> 00:14:34,000

that says wrenches

319

00:14:39,430 --> 00:14:36,639

some other science lockers as well

320

00:14:41,189 --> 00:14:39,440

all right this is paulo nescoli

321

00:14:43,030 --> 00:14:41,199

hello one of our very gracious hosts

322

00:14:46,710 --> 00:14:43,040

here on the space station

323

00:14:48,230 --> 00:14:46,720

and he's working with the csacps

324

00:14:51,509 --> 00:14:48,240

these are some little units that we use

325

00:14:55,269 --> 00:14:51,519

to monitor things like our oxygen

326

00:14:56,710 --> 00:14:55,279

carbon monoxide and and other things in

327

00:14:58,310 --> 00:14:56,720

the air here to make sure that we're

328

00:15:00,150 --> 00:14:58,320

safe and he's getting those all ready so

329

00:15:02,150 --> 00:15:00,160

we can swap some out and take some back

330

00:15:04,389 --> 00:15:02,160

is that correct yeah that's correct

331

00:15:06,790 --> 00:15:04,399

exactly we are checking all the ones we

332

00:15:09,030 --> 00:15:06,800

have a bunch of those on the station

333

00:15:11,590 --> 00:15:09,040

some here some of the soyuz some on the

334

00:15:12,870 --> 00:15:11,600

russian uh segment and we check all of

335

00:15:13,829 --> 00:15:12,880

them make sure we have everything

336

00:15:16,230 --> 00:15:13,839

working

337

00:15:17,829 --> 00:15:16,240

and we'll give you back whatever it does

338

00:15:20,310 --> 00:15:17,839

all right and we'll take i'm getting

339

00:15:22,310 --> 00:15:20,320

good thank you

340

00:15:26,069 --> 00:15:22,320

oh the alvin drew

341

00:15:27,829 --> 00:15:26,079

coming out of the newest and as we know

342

00:15:29,829 --> 00:15:27,839

right now final

343

00:15:31,509 --> 00:15:29,839

u.s module

344

00:15:32,870 --> 00:15:31,519

to be attached to the international

345

00:15:34,949 --> 00:15:32,880

space station

346

00:15:36,870 --> 00:15:34,959

what's going on and down in there today

347

00:15:38,790 --> 00:15:36,880

we're installing brackets

348

00:15:40,790 --> 00:15:38,800

brackets brackets

349

00:15:41,990 --> 00:15:40,800

brackets for racks all right because

350

00:15:43,110 --> 00:15:42,000

there's a lot of rack sound in there

351

00:15:45,749 --> 00:15:43,120

aren't there a lot of racks a lot of

352

00:15:47,990 --> 00:15:45,759

rack spaces down there

353

00:15:49,910 --> 00:15:48,000

so this is a nice big new closet kind of

354

00:15:51,590 --> 00:15:49,920

storage area yep

355

00:15:53,110 --> 00:15:51,600

all right and we're gonna move things

356

00:15:56,470 --> 00:15:53,120

from the station in here and take some

357

00:16:00,790 --> 00:15:56,480

stuff back um

358

00:16:00,800 --> 00:16:08,949

nice music

359

00:16:13,030 --> 00:16:10,949

and back in the corner

360

00:16:14,870 --> 00:16:13,040

there he is

361

00:16:17,590 --> 00:16:14,880

steve bowen

362

00:16:23,030 --> 00:16:17,600

working hard on a bracket

363

00:16:27,910 --> 00:16:24,870

it's just like a saturday afternoon in

364

00:16:36,230 --> 00:16:27,920

the garage all right thank you steve

365

00:16:39,749 --> 00:16:37,829

the lovely katie coleman entering the

366

00:16:41,829 --> 00:16:39,759

pmm

367

00:16:43,189 --> 00:16:41,839

with tools ooh maybe it's the right

368

00:16:51,590 --> 00:16:43,199

tools

369

00:16:57,350 --> 00:16:54,550

it's got nicole transferring some very

370

00:16:59,189 --> 00:16:57,360

cold stuff all right

371

00:17:04,789 --> 00:16:59,199

don't stick your tongue on

372

00:17:08,870 --> 00:17:06,150

these are some of the cold packs that

373

00:17:10,230 --> 00:17:08,880

come from our minus 80 degree laboratory

374

00:17:12,949 --> 00:17:10,240

freezer

375

00:17:15,669 --> 00:17:12,959

we're going to be using to bring it down

376

00:17:19,510 --> 00:17:17,829

our morning rush right here it's our

377

00:17:25,270 --> 00:17:19,520

only weather we have here on the space

378

00:17:30,870 --> 00:17:27,829

with you scott and crew and we'll start

379

00:17:33,190 --> 00:17:30,880

off questions with robert perlman

380

00:17:34,950 --> 00:17:33,200

hi robert perlman with collectspace.com

381

00:17:38,150 --> 00:17:34,960

with a question for commander steve

382

00:17:40,310 --> 00:17:38,160

lindsey and his uh discovery crewmates

383

00:17:42,549 --> 00:17:40,320

outside of times when the media like

384

00:17:43,750 --> 00:17:42,559

myself ask about this being discovery's

385

00:17:45,830 --> 00:17:43,760

last mission

386

00:17:47,350 --> 00:17:45,840

how prevalent has the finality of this

387

00:17:49,350 --> 00:17:47,360

flight been during the course of your

388

00:17:51,190 --> 00:17:49,360

mission have there been specific times

389

00:17:57,669 --> 00:17:51,200

where the legacy and history of the

390

00:18:01,270 --> 00:17:59,270

well that's a that's a difficult

391

00:18:03,190 --> 00:18:01,280

question um

392

00:18:05,110 --> 00:18:03,200

we've been very busy during our mission

393

00:18:07,029 --> 00:18:05,120

as all shuttle missions are in space

394

00:18:09,750 --> 00:18:07,039

station missions and so mostly we've

395

00:18:12,870 --> 00:18:09,760

been probably spent spending 95 of our

396

00:18:14,710 --> 00:18:12,880

time to 99 on just doing the work and

397

00:18:16,070 --> 00:18:14,720

and getting the work done and and so

398

00:18:17,510 --> 00:18:16,080

when you're really busy like that you're

399

00:18:19,590 --> 00:18:17,520

focusing on doing the tasks doing the

400

00:18:21,510 --> 00:18:19,600

task correctly making sure you uh you

401
00:18:23,510 --> 00:18:21,520
get everything done how it's supposed to

402
00:18:25,029 --> 00:18:23,520
done and don't miss anything

403
00:18:26,549 --> 00:18:25,039
however there are times i know

404
00:18:28,789 --> 00:18:26,559
personally when i've been reflecting

405
00:18:31,029 --> 00:18:28,799
about it being the last mission and what

406
00:18:32,549 --> 00:18:31,039
a wonderful vehicle it is and probably

407
00:18:34,710 --> 00:18:32,559
you know we were coming up and docking

408
00:18:36,390 --> 00:18:34,720
and when you look out the cupola windows

409
00:18:38,390 --> 00:18:36,400
you can look right into discovery's

410
00:18:40,230 --> 00:18:38,400
payload bay and see the wings and see

411
00:18:42,710 --> 00:18:40,240
discovery written on the wings and times

412
00:18:45,669 --> 00:18:42,720
like that i really reflect about uh what

413
00:18:48,070 --> 00:18:45,679

a great vehicle it's been 39 missions uh

414

00:18:50,470 --> 00:18:48,080

nearly one year on orbit and uh think

415

00:18:52,710 --> 00:18:50,480

about all the things that that vehicle

416

00:18:54,470 --> 00:18:52,720

has done and and uh it's just really

417

00:18:55,669 --> 00:18:54,480

inspiring to me and and kind of

418

00:18:57,990 --> 00:18:55,679

bittersweet

419

00:18:59,909 --> 00:18:58,000

and and quite frankly sad that knowing

420

00:19:02,789 --> 00:18:59,919

that when we land that will be it for

421

00:19:08,470 --> 00:19:05,190

thank you and and to follow up on that

422

00:19:09,990 --> 00:19:08,480

a question for steve bowen and al drew

423

00:19:12,310 --> 00:19:10,000

they say a picture is worth a thousand

424

00:19:14,310 --> 00:19:12,320

words and through your helmet cam we got

425

00:19:16,310 --> 00:19:14,320

to see uh when you took a glance at

426

00:19:19,590 --> 00:19:16,320

discovery uh docked to the station

427

00:19:22,150 --> 00:19:19,600

during your spacewalks um would you one

428

00:19:25,190 --> 00:19:22,160

or both of you describe what it was like

429

00:19:27,029 --> 00:19:25,200

to see discovery there and uh and

430

00:19:34,789 --> 00:19:27,039

reflect on its uh

431

00:19:38,390 --> 00:19:36,789

a lot of us captured repeated what steve

432

00:19:39,750 --> 00:19:38,400

had from the cupola just to have

433

00:19:41,990 --> 00:19:39,760

discovery right there and filling our

434

00:19:44,150 --> 00:19:42,000

entire visor up close and personal you

435

00:19:46,950 --> 00:19:44,160

realize it's just a magnificent ship

436

00:19:48,710 --> 00:19:46,960

it's huge it's complex just a wonderful

437

00:19:50,470 --> 00:19:48,720

completely capable vehicle

438

00:19:52,390 --> 00:19:50,480

and to be out there

439

00:19:53,990 --> 00:19:52,400
working on around near it's just a

440

00:19:56,710 --> 00:19:54,000
privilege to be part of the legacy of

441

00:20:01,909 --> 00:19:56,720
discovery is just a um i guess it just

442

00:20:06,149 --> 00:20:03,830
this is gera dahmer the german aerospace

443

00:20:08,149 --> 00:20:06,159
center and space expo association

444

00:20:10,070 --> 00:20:08,159
question for el true what was the most

445

00:20:17,990 --> 00:20:10,080
difficult and the most exciting moment

446

00:20:22,070 --> 00:20:20,070
that's easy they were both the same uh

447

00:20:24,310 --> 00:20:22,080
when i first exited the airlock on my

448

00:20:25,669 --> 00:20:24,320
first eva uh we were over top the

449

00:20:28,470 --> 00:20:25,679
jungles it looked like it was maybe

450

00:20:30,310 --> 00:20:28,480
south america the amazon basin somewhere

451
00:20:32,470 --> 00:20:30,320
just beautiful the clouds the river

452
00:20:34,310 --> 00:20:32,480
valleys down there all the greenery and

453
00:20:35,669 --> 00:20:34,320
i had to remind myself that i had work

454
00:20:36,789 --> 00:20:35,679
to do and i couldn't just take in the

455
00:20:38,310 --> 00:20:36,799
scenery

456
00:20:39,990 --> 00:20:38,320
so it's exciting and it was difficult to

457
00:20:41,750 --> 00:20:40,000
tear my eyes away from that and actually

458
00:20:44,549 --> 00:20:41,760
focus on getting things ready for our

459
00:20:49,029 --> 00:20:47,110
question for paolo you accomplished

460
00:20:51,029 --> 00:20:49,039
about half of your long duration mission

461
00:20:52,950 --> 00:20:51,039
what was your most challenging task and

462
00:21:01,110 --> 00:20:52,960
did you have any surprises and what was

463
00:21:05,669 --> 00:21:03,430

well it's been a pleasure so far here

464

00:21:07,510 --> 00:21:05,679

we've been spent uh yeah two months uh

465

00:21:10,950 --> 00:21:07,520

expedition 26

466

00:21:13,190 --> 00:21:10,960

and uh i think the most challenging

467

00:21:15,430 --> 00:21:13,200

time here is not there is not really a

468

00:21:16,950 --> 00:21:15,440

time i mean it's the challenge is when i

469

00:21:18,950 --> 00:21:16,960

look at a procedure for the first time

470

00:21:20,870 --> 00:21:18,960

it looks very complex and i try to

471

00:21:23,029 --> 00:21:20,880

understand and interpret it try to do it

472

00:21:24,710 --> 00:21:23,039

without making mistakes and sometimes i

473

00:21:25,510 --> 00:21:24,720

do

474

00:21:27,350 --> 00:21:25,520

so

475

00:21:30,470 --> 00:21:27,360

i think those are the for me are the

476

00:21:32,950 --> 00:21:30,480

most challenging times but

477

00:21:35,669 --> 00:21:32,960

as usual with the familiarity we're

478

00:21:38,230 --> 00:21:35,679

repeating things things get familiar and

479

00:21:39,909 --> 00:21:38,240

we get to do it with no problems and of

480

00:21:41,990 --> 00:21:39,919

course we always have the

481

00:21:47,750 --> 00:21:42,000

ground control mission control helping

482

00:21:52,070 --> 00:21:49,510

this is jill tulk representing the

483

00:21:54,230 --> 00:21:52,080

cohasset mariner in massachusetts a

484

00:21:56,390 --> 00:21:54,240

question for the east coast steve

485

00:21:58,310 --> 00:21:56,400

what has been the most challenging part

486

00:22:05,110 --> 00:21:58,320

and the most rewarding part of your

487

00:22:09,110 --> 00:22:07,110

i think the most challenging part was

488

00:22:10,950 --> 00:22:09,120

trying to get up to speed to understand

489

00:22:12,950 --> 00:22:10,960

the evas and then

490

00:22:14,549 --> 00:22:12,960

uh even more so trying to get that to

491

00:22:16,230 --> 00:22:14,559

speed with everything else that goes on

492

00:22:17,909 --> 00:22:16,240

on a shuttle flight and where my tasks

493

00:22:19,590 --> 00:22:17,919

would be and what they were and how

494

00:22:21,510 --> 00:22:19,600

familiar i was with them and how much

495

00:22:23,750 --> 00:22:21,520

more training i had to have so

496

00:22:24,870 --> 00:22:23,760

that was uh clearly the most difficult

497

00:22:26,470 --> 00:22:24,880

part of it

498

00:22:28,230 --> 00:22:26,480

uh

499

00:22:30,950 --> 00:22:28,240

the the best part really was you know

500

00:22:32,870 --> 00:22:30,960

getting to to work with the crew it's uh

501

00:22:34,789 --> 00:22:32,880

four of my classmates from

502

00:22:36,149 --> 00:22:34,799

uh 2000 and

503

00:22:38,789 --> 00:22:36,159

commander steve lindsey and that's been

504

00:22:40,549 --> 00:22:38,799

great great crew just having the ability

505

00:22:42,149 --> 00:22:40,559

to spend time with them it's been

506

00:22:44,870 --> 00:22:42,159

fantastic and then getting up here with

507

00:22:47,750 --> 00:22:44,880

the iss crew it's been really the best

508

00:22:52,710 --> 00:22:50,070

thanks for the good word stevo now a

509

00:22:55,750 --> 00:22:52,720

question for the west coast steve and

510

00:22:57,669 --> 00:22:55,760

for eric beau what good bow and anecdote

511

00:23:05,990 --> 00:22:57,679

from this week could you share with

512

00:23:06,000 --> 00:23:11,669

we're consulting hang on

513

00:23:16,470 --> 00:23:14,230

i i i think the favorite uh our favorite

514

00:23:18,710 --> 00:23:16,480

uh steve bowen story for uh for this

515

00:23:22,149 --> 00:23:18,720

mission so far was uh i'm sure there are

516

00:23:24,710 --> 00:23:22,159

more to come um was uh when uh when

517

00:23:27,350 --> 00:23:24,720

steve was taking a pump module off of uh

518

00:23:30,390 --> 00:23:27,360

off of a a transporter on the on the

519

00:23:32,310 --> 00:23:30,400

truss segment uh eva and mike barrett

520

00:23:34,070 --> 00:23:32,320

and scott kelly were driving him on the

521

00:23:35,750 --> 00:23:34,080

robotic arm

522

00:23:38,310 --> 00:23:35,760

about the time they released that pump

523

00:23:40,789 --> 00:23:38,320

module um which about a uh

524

00:23:42,390 --> 00:23:40,799

several hundred pounds for steve to uh

525

00:23:44,789 --> 00:23:42,400

to take in his arm so they could fly him

526

00:23:46,950 --> 00:23:44,799

over to where it belonged um the the

527

00:23:49,669 --> 00:23:46,960

entire uh space station robotic arm

528

00:23:52,470 --> 00:23:49,679

crashed and uh which means he was stuck

529

00:23:54,390 --> 00:23:52,480

there holding this uh payload for

530

00:23:56,549 --> 00:23:54,400

not for for what seemed like a really

531

00:23:58,950 --> 00:23:56,559

long time for him but actually uh the

532

00:24:00,870 --> 00:23:58,960

crew did a great job reconfiguring to an

533

00:24:02,950 --> 00:24:00,880

alternate to robotic workstation to get

534

00:24:04,310 --> 00:24:02,960

it back alive pretty quickly but steve

535

00:24:06,549 --> 00:24:04,320

was stuck there for probably i don't

536

00:24:07,510 --> 00:24:06,559

know 30 35 minutes holding this pump

537

00:24:10,149 --> 00:24:07,520

module

538

00:24:12,310 --> 00:24:10,159

loose and so it gave us an opportunity

539

00:24:14,310 --> 00:24:12,320

to uh to joke with him and kind of make

540

00:24:18,230 --> 00:24:14,320

fun of him while he was out there stuck

541

00:24:22,230 --> 00:24:20,310

uh mark caro for aviation week and i

542

00:24:23,830 --> 00:24:22,240

have a couple of questions the first is

543

00:24:25,510 --> 00:24:23,840

for scott kelly could you sort of

544

00:24:27,830 --> 00:24:25,520

explain how the

545

00:24:30,070 --> 00:24:27,840

extra time that discovery is spending at

546

00:24:34,549 --> 00:24:30,080

the space station benefits the station

547

00:24:40,070 --> 00:24:37,909

well in the original plan they were

548

00:24:41,669 --> 00:24:40,080

not going to have much involvement in

549

00:24:44,789 --> 00:24:41,679

getting uh

550

00:24:46,789 --> 00:24:44,799

pmm basically emptied out of a lot of

551
00:24:48,870 --> 00:24:46,799
the hardware that needs to be disposed

552
00:24:49,990 --> 00:24:48,880
of on htv so when they were going to

553
00:24:52,950 --> 00:24:50,000
leave

554
00:24:55,510 --> 00:24:52,960
uh we were going to really be in a uh

555
00:24:57,830 --> 00:24:55,520
time crunch to get

556
00:25:00,710 --> 00:24:57,840
all this you know all these metal

557
00:25:02,950 --> 00:25:00,720
structures and foam and stuff that we

558
00:25:04,630 --> 00:25:02,960
want to dispose of in htv because htv

559
00:25:06,789 --> 00:25:04,640
has to leave at a certain time so by

560
00:25:09,510 --> 00:25:06,799
having the uh

561
00:25:11,110 --> 00:25:09,520
the extension gives us two extra days of

562
00:25:14,149 --> 00:25:11,120
six people which is a lot of crew time

563
00:25:17,029 --> 00:25:14,159

to get all that stuff or or some of it

564

00:25:18,230 --> 00:25:17,039

uh done uh before they leave and then it

565

00:25:20,789 --> 00:25:18,240

kind of

566

00:25:22,789 --> 00:25:20,799

you know it just helps maximize our time

567

00:25:25,190 --> 00:25:22,799

uh post undocking for things like

568

00:25:26,710 --> 00:25:25,200

science and

569

00:25:28,870 --> 00:25:26,720

you know other activities we have to

570

00:25:31,029 --> 00:25:28,880

perform onboard the space station on a

571

00:25:34,470 --> 00:25:31,039

daily basis

572

00:25:39,350 --> 00:25:37,269

we're working very hard inside the

573

00:25:42,070 --> 00:25:39,360

leonardo

574

00:25:43,669 --> 00:25:42,080

module because it came in a flight

575

00:25:46,230 --> 00:25:43,679

configuration so

576

00:25:47,669 --> 00:25:46,240

everything is fastened uh in a way to

577

00:25:49,990 --> 00:25:47,679

secure it

578

00:25:51,269 --> 00:25:50,000

for launch so we're removing

579

00:25:54,789 --> 00:25:51,279

all the

580

00:25:57,590 --> 00:25:55,590

and

581

00:26:00,390 --> 00:25:57,600

so that we can store it in the japanese

582

00:26:02,549 --> 00:26:00,400

module that's going to be leaving soon

583

00:26:04,630 --> 00:26:02,559

so we're using all the astronauts

584

00:26:06,070 --> 00:26:04,640

including the uh discovery crew that are

585

00:26:21,750 --> 00:26:06,080

staying here another couple of days to

586

00:26:27,430 --> 00:26:24,310

in less than two weeks on march 17th

587

00:26:29,750 --> 00:26:27,440

it's 150 years of the unity of italy

588

00:26:32,549 --> 00:26:29,760

so how do you plan on celebrating aboard

589

00:26:35,350 --> 00:26:32,559

the international space station

590

00:26:51,430 --> 00:26:35,360

an event that's so important for the

591

00:26:55,510 --> 00:26:53,029

a little flag

592

00:26:56,950 --> 00:26:55,520

that i will be able to uh fly on that

593

00:27:00,070 --> 00:26:56,960

day

594

00:27:02,149 --> 00:27:00,080

and uh from the cupola which is also an

595

00:27:05,110 --> 00:27:02,159

italian product

596

00:27:06,470 --> 00:27:05,120

seeing italy from up here is

597

00:27:10,310 --> 00:27:06,480

a beautiful

598

00:27:12,950 --> 00:27:10,320

view and i have tried to uh

599

00:27:15,029 --> 00:27:12,960

have everyone partake in it by sending

600

00:27:17,269 --> 00:27:15,039

pictures and it's a country that stands

601
00:27:19,350 --> 00:27:17,279
out from the mediterranean both during

602
00:27:22,230 --> 00:27:19,360
the day and at night

603
00:27:24,470 --> 00:27:22,240
it's uh it's easy to see how beautiful

604
00:27:25,750 --> 00:27:24,480
it is from a geographical and natural

605
00:27:28,549 --> 00:27:25,760
point of view

606
00:28:03,110 --> 00:27:28,559
and we have to keep it in that

607
00:28:03,120 --> 00:28:09,830
full lens cover mlis go in that bag

608
00:28:16,710 --> 00:28:12,310
so that was uh airlock deck 2

609
00:28:19,110 --> 00:28:16,720
bag 1078 that's where those two mli lens

610
00:28:21,029 --> 00:28:19,120
covers with lens covers in them

611
00:28:28,950 --> 00:28:21,039
uh goes

612
00:28:28,960 --> 00:28:32,389
used to know two for water

613
00:28:32,399 --> 00:28:35,190

go ahead katie

614

00:28:35,200 --> 00:28:40,070

can you verify step 2.1 for me

615

00:28:40,080 --> 00:28:44,230

checking

616

00:28:48,630 --> 00:28:46,310

station crew members

617

00:28:51,430 --> 00:28:48,640

routinely also have a daily planning

618

00:28:53,110 --> 00:28:51,440

conference a dpc

619

00:28:55,990 --> 00:28:53,120

early in their day

620

00:28:58,070 --> 00:28:56,000

a couple of hours after wake up

621

00:29:02,070 --> 00:28:58,080

in each case they check in with their

622

00:29:06,630 --> 00:29:05,830

to review the plan for the day ahead

623

00:29:09,750 --> 00:29:06,640

and

624

00:29:22,310 --> 00:29:11,430

to touch base on what they have been

625

00:29:26,549 --> 00:29:23,909

go ahead

626
00:29:30,789 --> 00:29:26,559
and houston the approximate time hello

627
00:29:35,430 --> 00:29:30,799
um i am working in the pmm on um step 10

628
00:29:41,830 --> 00:29:37,110
and katie stand by air ground two we'll

629
00:29:41,840 --> 00:29:47,430
okay nicole go ahead for 10.2

630
00:29:47,440 --> 00:29:50,870
step 10

631
00:29:50,880 --> 00:30:06,230
copy 10 delta

632
00:30:06,240 --> 00:30:21,590
yep

633
00:30:26,950 --> 00:30:23,750
we will look

634
00:30:32,630 --> 00:30:28,789
and you don't see those inside the melfi

635
00:30:38,470 --> 00:30:36,870
inside of the m1 bag there are

636
00:30:40,070 --> 00:30:38,480
six cushions

637
00:30:43,190 --> 00:30:40,080
so am i supposed to leave one of those