



1
00:00:07,909 --> 00:00:03,110
station houston on two we're ready for

2
00:00:12,230 --> 00:00:10,230
okay i'm ready right here

3
00:00:17,990 --> 00:00:12,240
okay station this is houston are you

4
00:00:23,269 --> 00:00:21,230
station is ready for the event

5
00:00:25,269 --> 00:00:23,279
spacerest.com this is mission control

6
00:00:26,070 --> 00:00:25,279
houston please call station for a voice

7
00:00:28,230 --> 00:00:26,080
check

8
00:00:39,510 --> 00:00:28,240
station this is spacewrap.com how do you

9
00:00:46,470 --> 00:00:41,910
i've got you loud and clear how me

10
00:00:51,189 --> 00:00:49,029
well for my first question sonny um when

11
00:00:53,510 --> 00:00:51,199
i do these interviews i usually get to

12
00:00:55,430 --> 00:00:53,520
the word expedition since that is how

13
00:00:56,630 --> 00:00:55,440

all of your uh trips up there have been

14

00:00:58,709 --> 00:00:56,640

described

15

00:01:00,790 --> 00:00:58,719

and usually that word means going

16

00:01:02,869 --> 00:01:00,800

somewhere but in the case of the station

17

00:01:04,950 --> 00:01:02,879

it's more like an ocean going expedition

18

00:01:08,070 --> 00:01:04,960

you go in circles and you come back to

19

00:01:10,070 --> 00:01:08,080

where you started so i guess it also has

20

00:01:11,270 --> 00:01:10,080

some attributes of being like a base

21

00:01:13,510 --> 00:01:11,280

camp so

22

00:01:15,670 --> 00:01:13,520

your take on this whole thing of being

23

00:01:17,749 --> 00:01:15,680

on an expedition what are you

24

00:01:19,590 --> 00:01:17,759

accomplishing in a greater sense on this

25

00:01:21,510 --> 00:01:19,600

and how does this enable future

26

00:01:27,350 --> 00:01:21,520

expeditions where we would go to places

27

00:01:31,590 --> 00:01:29,429

hey keith that's a great question and uh

28

00:01:33,749 --> 00:01:31,600

you are right we're a lot of people ask

29

00:01:35,510 --> 00:01:33,759

me you know where is the space station

30

00:01:38,469 --> 00:01:35,520

and where is it going and it it is

31

00:01:39,749 --> 00:01:38,479

orbiting the the planet 16 times a day

32

00:01:41,830 --> 00:01:39,759

and so we are living up here in

33

00:01:44,230 --> 00:01:41,840

microgravity that allows us to do all

34

00:01:46,789 --> 00:01:44,240

sorts of science experiments that we

35

00:01:49,190 --> 00:01:46,799

cannot do on the ground you know on the

36

00:01:51,109 --> 00:01:49,200

ground we can have a couple seconds 30

37

00:01:53,350 --> 00:01:51,119

seconds of microgravity and a drop tower

38

00:01:55,270 --> 00:01:53,360

but here you can test out all sorts of

39

00:01:57,510 --> 00:01:55,280

systems in their

40

00:01:59,350 --> 00:01:57,520

completeness and their complexity while

41

00:02:01,030 --> 00:01:59,360

we're up here you know for example we're

42

00:02:03,350 --> 00:02:01,040

doing a lot of experiments on ourself

43

00:02:04,950 --> 00:02:03,360

that's going to help understand what

44

00:02:06,950 --> 00:02:04,960

happens to humans when they're in space

45

00:02:09,190 --> 00:02:06,960

for a long time we're doing material

46

00:02:10,949 --> 00:02:09,200

science uh combustion experiments

47

00:02:12,869 --> 00:02:10,959

capillary flow experiments all of that

48

00:02:14,550 --> 00:02:12,879

type of stuff helps us build better

49

00:02:16,390 --> 00:02:14,560

spacecraft

50

00:02:18,949 --> 00:02:16,400

we have engineering things that are

51
00:02:20,470 --> 00:02:18,959
going on obviously we're living up here

52
00:02:23,430 --> 00:02:20,480
in a

53
00:02:25,750 --> 00:02:23,440
hotel or a house and so it has its own

54
00:02:27,830 --> 00:02:25,760
uh parts and pieces that we're testing

55
00:02:30,470 --> 00:02:27,840
out for the very first time like how to

56
00:02:32,470 --> 00:02:30,480
process urine back into water um and how

57
00:02:34,070 --> 00:02:32,480
that works and other types of

58
00:02:37,110 --> 00:02:34,080
engineering experiments that are going

59
00:02:39,509 --> 00:02:37,120
on up here as well as ams which is

60
00:02:42,869 --> 00:02:39,519
outside uh you know doing experiments on

61
00:02:45,509 --> 00:02:42,879
the uh universe and also robotics and

62
00:02:47,589 --> 00:02:45,519
eva all of that stuff is needed and we

63
00:02:49,190 --> 00:02:47,599

need to test it out understand it figure

64

00:02:51,910 --> 00:02:49,200

it out before we can

65

00:02:54,150 --> 00:02:51,920

ever venture to an asteroid asteroid or

66

00:02:56,470 --> 00:02:54,160

onto mars

67

00:02:58,390 --> 00:02:56,480

a related question with regards to

68

00:03:00,710 --> 00:02:58,400

exploration in the cupola there's a

69

00:03:02,790 --> 00:03:00,720

little plaque has four little moon rocks

70

00:03:04,309 --> 00:03:02,800

that were picked up by neil armstrong

71

00:03:05,750 --> 00:03:04,319

and a piece of the summit about ever is

72

00:03:08,550 --> 00:03:05,760

picked up by another astronaut scott

73

00:03:10,309 --> 00:03:08,560

parazynski and in the national cathedral

74

00:03:12,390 --> 00:03:10,319

where there will be a service on

75

00:03:14,390 --> 00:03:12,400

thursday for uh neil armstrong there's

76

00:03:16,470 --> 00:03:14,400

also a little moon rock in the window

77

00:03:18,390 --> 00:03:16,480

how often do you all float by that

78

00:03:19,830 --> 00:03:18,400

plaque and do you you know have any

79

00:03:21,110 --> 00:03:19,840

thoughts when you look down at the earth

80

00:03:23,110 --> 00:03:21,120

or out at the moon

81

00:03:24,949 --> 00:03:23,120

and also given that neil armstrong and

82

00:03:26,390 --> 00:03:24,959

sir edmund hillary were good friends

83

00:03:27,910 --> 00:03:26,400

later in life

84

00:03:29,830 --> 00:03:27,920

what would you have to say if you were

85

00:03:34,789 --> 00:03:29,840

virtually participating in the memorial

86

00:03:38,949 --> 00:03:37,750

wow that would be an amazing honor um

87

00:03:41,830 --> 00:03:38,959

i don't i think i'd be a little bit

88

00:03:43,509 --> 00:03:41,840

speechless first and foremost

89

00:03:45,190 --> 00:03:43,519

you you are right every time we go up to

90

00:03:47,190 --> 00:03:45,200

the cupola you see that plaque there and

91

00:03:48,710 --> 00:03:47,200

you think about the great things that

92

00:03:50,470 --> 00:03:48,720

humans can do

93

00:03:52,710 --> 00:03:50,480

when they work together and doing

94

00:03:55,350 --> 00:03:52,720

expeditions and exploring i think is

95

00:03:57,589 --> 00:03:55,360

just in our human nature i think neil

96

00:04:00,949 --> 00:03:57,599

armstrong you know really epitomized

97

00:04:03,990 --> 00:04:00,959

that as well as scott uh for that matter

98

00:04:05,509 --> 00:04:04,000

in his quest for everest um so gosh i

99

00:04:06,630 --> 00:04:05,519

don't know i don't know what i would say

100

00:04:09,190 --> 00:04:06,640

except for

101
00:04:10,949 --> 00:04:09,200
you know exploration is in our hearts

102
00:04:14,630 --> 00:04:10,959
and uh both of those people definitely

103
00:04:16,949 --> 00:04:14,640
um were our role models

104
00:04:18,710 --> 00:04:16,959
okay again speaking of expeditions you

105
00:04:21,110 --> 00:04:18,720
know try as i might when i've gone off

106
00:04:22,710 --> 00:04:21,120
on expeditions i have a really hard time

107
00:04:24,629 --> 00:04:22,720
finding things and like after two or

108
00:04:26,070 --> 00:04:24,639
three weeks my tent's a mess

109
00:04:27,990 --> 00:04:26,080
and i was just listening to air and

110
00:04:30,710 --> 00:04:28,000
ground just a few minutes ago where you

111
00:04:32,629 --> 00:04:30,720
were looking for something and you know

112
00:04:34,790 --> 00:04:32,639
i look at the photos that come down and

113
00:04:36,390 --> 00:04:34,800

some of the bags have barcodes some of

114

00:04:38,310 --> 00:04:36,400

them have handwritten labels in two or

115

00:04:40,390 --> 00:04:38,320

three different languages and you can't

116

00:04:42,310 --> 00:04:40,400

see inside the bags

117

00:04:44,230 --> 00:04:42,320

is it my exaggeration or do you guys

118

00:04:45,350 --> 00:04:44,240

spend a little bit too much time looking

119

00:04:47,749 --> 00:04:45,360

for stuff

120

00:04:49,830 --> 00:04:47,759

and is there maybe one example the most

121

00:04:54,070 --> 00:04:49,840

frustrating thing you've never found or

122

00:04:57,590 --> 00:04:55,990

well it's funny that you mentioned this

123

00:04:59,350 --> 00:04:57,600

um

124

00:05:00,550 --> 00:04:59,360

one of the kids on a ham radio pass just

125

00:05:02,230 --> 00:05:00,560

asked me that the other day what's the

126

00:05:03,670 --> 00:05:02,240

best thing and the worst thing about

127

00:05:05,590 --> 00:05:03,680

being in space and of course the best

128

00:05:07,510 --> 00:05:05,600

thing is floating it's pretty awesome

129

00:05:09,749 --> 00:05:07,520

but the worst thing about space is also

130

00:05:11,670 --> 00:05:09,759

stuff floating and you're right you

131

00:05:13,029 --> 00:05:11,680

can't just put something down because

132

00:05:14,790 --> 00:05:13,039

you know a couple seconds later it's

133

00:05:16,629 --> 00:05:14,800

going to float away sort of like this

134

00:05:19,749 --> 00:05:16,639

microphone

135

00:05:21,830 --> 00:05:19,759

and just yesterday i lost a bag of

136

00:05:23,510 --> 00:05:21,840

coffee if you can believe it i just

137

00:05:24,950 --> 00:05:23,520

thought i velcroed it down and then it

138

00:05:27,189 --> 00:05:24,960

was gone

139

00:05:29,270 --> 00:05:27,199

so but but what hap typically happens is

140

00:05:31,510 --> 00:05:29,280

you find it not too long afterwards and

141

00:05:33,510 --> 00:05:31,520

you you get to know the airflow patterns

142

00:05:35,270 --> 00:05:33,520

in the space station because air is

143

00:05:36,790 --> 00:05:35,280

flowing in and out of the vents and

144

00:05:39,909 --> 00:05:36,800

through the vestibules and so you sort

145

00:05:41,430 --> 00:05:39,919

of get an idea of where something is but

146

00:05:43,029 --> 00:05:41,440

you know there's there's times when

147

00:05:44,950 --> 00:05:43,039

things are velcroed on and somebody

148

00:05:47,029 --> 00:05:44,960

comes by and kicks it with their foot so

149

00:05:48,950 --> 00:05:47,039

of course it's going to float away

150

00:05:50,550 --> 00:05:48,960

and so you do spend a little bit of time

151
00:05:52,629 --> 00:05:50,560
looking for stuff but we do have a

152
00:05:54,469 --> 00:05:52,639
really good inventory management system

153
00:05:56,550 --> 00:05:54,479
it's gotten better and better and you

154
00:05:58,790 --> 00:05:56,560
know garbage in garbage out all of us

155
00:06:00,710 --> 00:05:58,800
have been conscientious about it and

156
00:06:02,710 --> 00:06:00,720
trying to keep it up to date and up and

157
00:06:04,390 --> 00:06:02,720
up to speed and it's it's really good i

158
00:06:06,870 --> 00:06:04,400
was actually sort of surprised the space

159
00:06:08,790 --> 00:06:06,880
station is huge and since i've been up

160
00:06:10,230 --> 00:06:08,800
here i've really had a lot of luck

161
00:06:11,590 --> 00:06:10,240
finding anything that i'm looking for

162
00:06:14,469 --> 00:06:11,600
including all that stuff that we made

163
00:06:16,950 --> 00:06:14,479

those tools for the other day

164

00:06:19,189 --> 00:06:16,960

okay i gotta ask about gorby uh how's he

165

00:06:21,590 --> 00:06:19,199

doing uh is he vacationing up at the

166

00:06:23,830 --> 00:06:21,600

cape again and do you have any uh gorby

167

00:06:25,510 --> 00:06:23,840

avatars up there with you and i should

168

00:06:26,309 --> 00:06:25,520

also pass on that i just learned today

169

00:06:28,309 --> 00:06:26,319

that

170

00:06:29,749 --> 00:06:28,319

two uh gorby avatars are going to

171

00:06:31,110 --> 00:06:29,759

antarctica one's going to lake

172

00:06:32,870 --> 00:06:31,120

interstate with dale anderson and

173

00:06:35,670 --> 00:06:32,880

another one's going on a grand tour with

174

00:06:39,830 --> 00:06:35,680

scott down to the south pole so

175

00:06:43,350 --> 00:06:41,670

oh yeah gorby's all around here as a

176

00:06:45,430 --> 00:06:43,360

matter of fact i do have something that

177

00:06:47,590 --> 00:06:45,440

actually went to on a couple expeditions

178

00:06:49,749 --> 00:06:47,600

almost like those uh

179

00:06:51,589 --> 00:06:49,759

almost like that rock from mount everest

180

00:06:52,790 --> 00:06:51,599

you might recognize this little picture

181

00:07:01,110 --> 00:06:52,800

right here which

182

00:07:04,390 --> 00:07:02,790

and you might also recognize this little

183

00:07:06,629 --> 00:07:04,400

guy right here

184

00:07:08,629 --> 00:07:06,639

he hangs out with me and uh speaking of

185

00:07:11,749 --> 00:07:08,639

getting lost one time he flew out of my

186

00:07:13,670 --> 00:07:11,759

coyote or my sleep station and uh he was

187

00:07:15,589 --> 00:07:13,680

lost for a little bit but luckily he's

188

00:07:17,510 --> 00:07:15,599

um he's light enough that he got sucked

189

00:07:19,430 --> 00:07:17,520

into a fan so i found him not too long

190

00:07:21,909 --> 00:07:19,440

after

191

00:07:22,950 --> 00:07:21,919

yes i recognized the dog picture

192

00:07:26,469 --> 00:07:22,960

uh

193

00:07:28,070 --> 00:07:26,479

finding stuff

194

00:07:29,670 --> 00:07:28,080

uh what's with the toothbrush

195

00:07:31,430 --> 00:07:29,680

contraption that that's got to join the

196

00:07:33,749 --> 00:07:31,440

space hacker hall of fame along with

197

00:07:35,589 --> 00:07:33,759

this fly swat and the hockey stick

198

00:07:37,189 --> 00:07:35,599

did this just occur to somebody was this

199

00:07:38,870 --> 00:07:37,199

one of these big things that a bunch of

200

00:07:40,390 --> 00:07:38,880

people at nasa had a meeting or did you

201
00:07:42,469 --> 00:07:40,400
just get the duct tape and look for

202
00:07:46,150 --> 00:07:42,479
something and just sort of macgyver it

203
00:07:51,110 --> 00:07:48,550
no that that's our big team at nasa not

204
00:07:52,790 --> 00:07:51,120
just uh us guys up here you know we have

205
00:07:55,430 --> 00:07:52,800
we do of course like you know have

206
00:07:57,029 --> 00:07:55,440
supplies for uh people to come up for a

207
00:07:58,550 --> 00:07:57,039
while and be able to live up here for a

208
00:08:00,550 --> 00:07:58,560
while so we do have a little bit of a

209
00:08:02,390 --> 00:08:00,560
stash of toothbrushes and other things

210
00:08:04,390 --> 00:08:02,400
like that but you know that's just

211
00:08:07,029 --> 00:08:04,400
typical garage stuff when you're trying

212
00:08:09,189 --> 00:08:07,039
to clean out a bolt or trying to re-tap

213
00:08:10,629 --> 00:08:09,199

a bolt you don't want to damage anything

214

00:08:12,309 --> 00:08:10,639

so you want to find something that's a

215

00:08:13,990 --> 00:08:12,319

little bit soft but it has a little bit

216

00:08:16,070 --> 00:08:14,000

of structure to it so it could get

217

00:08:19,110 --> 00:08:16,080

inside of those grooves and so i think

218

00:08:20,629 --> 00:08:19,120

uh the typical as i call them you know

219

00:08:22,390 --> 00:08:20,639

motor heads and

220

00:08:23,749 --> 00:08:22,400

guys who work in the garage got together

221

00:08:25,589 --> 00:08:23,759

thinking about how we're going to fix

222

00:08:27,990 --> 00:08:25,599

this bolt in this housing that just

223

00:08:29,830 --> 00:08:28,000

seemed natural and typical

224

00:08:31,830 --> 00:08:29,840

my husband has all these tools and uh

225

00:08:33,509 --> 00:08:31,840

you know from craftsman in his garage

226

00:08:35,509 --> 00:08:33,519

and

227

00:08:37,909 --> 00:08:35,519

we use we do the same thing at home as

228

00:08:39,509 --> 00:08:37,919

we did out here on the space station you

229

00:08:41,029 --> 00:08:39,519

know when there's something broken we

230

00:08:42,949 --> 00:08:41,039

got to fix it and sometimes you don't

231

00:08:45,110 --> 00:08:42,959

have the absolutely correct tool because

232

00:08:47,110 --> 00:08:45,120

you didn't plan on it so you you make do

233

00:08:49,190 --> 00:08:47,120

and you try to figure out how to how to

234

00:08:51,750 --> 00:08:49,200

um make sure the thing works you know

235

00:08:53,269 --> 00:08:51,760

and that's that's typical of exploration

236

00:08:54,630 --> 00:08:53,279

sometimes you don't always you can't

237

00:08:56,550 --> 00:08:54,640

carry all the things that you want to

238

00:08:58,389 --> 00:08:56,560

carry and so you got to make do with

239

00:09:00,150 --> 00:08:58,399

what you have

240

00:09:02,870 --> 00:09:00,160

yeah one last question i noticed you had

241

00:09:05,910 --> 00:09:02,880

a can of authentic bar harbor

242

00:09:07,030 --> 00:09:05,920

maine lobster and you did not use the

243

00:09:09,269 --> 00:09:07,040

little bib

244

00:09:14,310 --> 00:09:09,279

now it was that can just up there or did

245

00:09:18,230 --> 00:09:16,150

that was special ordered it was a gift

246

00:09:19,670 --> 00:09:18,240

from home i think you know i'm a i'm a

247

00:09:21,910 --> 00:09:19,680

new englander

248

00:09:24,550 --> 00:09:21,920

lobster is one of my favorite foods in

249

00:09:26,550 --> 00:09:24,560

the world and uh my fa my parents and my

250

00:09:28,150 --> 00:09:26,560

sister know that um

251
00:09:30,150 --> 00:09:28,160
it would be hard for me to go you know

252
00:09:31,509 --> 00:09:30,160
with months without having lobster so

253
00:09:33,030 --> 00:09:31,519
they made sure that there was some up

254
00:09:35,509 --> 00:09:33,040
here for me and it was a nice

255
00:09:37,509 --> 00:09:35,519
celebration with all of us the six of us

256
00:09:38,790 --> 00:09:37,519
last weekend is probably our last free

257
00:09:40,630 --> 00:09:38,800
weekend

258
00:09:42,630 --> 00:09:40,640
with not you know not a lot of things

259
00:09:44,550 --> 00:09:42,640
going on uh so we had a nice little

260
00:09:46,630 --> 00:09:44,560
party together and i got to share my

261
00:09:48,630 --> 00:09:46,640
lobster

262
00:09:53,509 --> 00:09:48,640
okay thank you very much for to you and

263
00:09:57,910 --> 00:09:54,870

all right keith thanks again great

264

00:10:03,509 --> 00:10:00,550

station this is houston acr thank you

265

00:10:04,430 --> 00:10:03,519

that concludes the event

266

00:10:06,870 --> 00:10:04,440

thank you