



1
00:00:04,390 --> 00:00:01,829

[Music]

2
00:00:07,990 --> 00:00:04,400

good afternoon and welcome to nasa tv in

3
00:00:10,549 --> 00:00:08,000

our expedition 5253 crew news conference

4
00:00:12,950 --> 00:00:10,559

we're here with uh three veteran space

5
00:00:15,190 --> 00:00:12,960

flight astronauts who are getting ready

6
00:00:16,550 --> 00:00:15,200

now for their upcoming

7
00:00:18,550 --> 00:00:16,560

launch training for their mission right

8
00:00:21,349 --> 00:00:18,560

now and we have with us today randy

9
00:00:22,630 --> 00:00:21,359

bresnick paolo nespoli and sergey

10
00:00:24,070 --> 00:00:22,640

ryazanskiy

11
00:00:25,509 --> 00:00:24,080

i'm going to let them all introduce

12
00:00:27,670 --> 00:00:25,519

themselves briefly and then we're going

13
00:00:29,589 --> 00:00:27,680

to take questions not only from here in

14

00:00:31,189 --> 00:00:29,599

the room and on the phone but also via

15

00:00:33,830 --> 00:00:31,199

social media you can get your question

16

00:00:35,670 --> 00:00:33,840

in by using the hashtag ask nasa

17

00:00:37,430 --> 00:00:35,680

all right randy want to let you

18

00:00:39,670 --> 00:00:37,440

introduce yourself good afternoon

19

00:00:41,030 --> 00:00:39,680

everyone uh randy bresnik

20

00:00:43,350 --> 00:00:41,040

colonel united states marine corps

21

00:00:45,510 --> 00:00:43,360

recently retired after 25 years was a

22

00:00:47,110 --> 00:00:45,520

combat fighter pilot at planet f-18s

23

00:00:50,790 --> 00:00:47,120

test pilot and then fortunate to be

24

00:00:52,069 --> 00:00:50,800

selected of the 2004 astronaut class um

25

00:00:53,510 --> 00:00:52,079

i am

26

00:00:55,270 --> 00:00:53,520

the most fortunate man on the planet to

27

00:00:56,709 --> 00:00:55,280

be married the most amazing woman on or

28

00:00:58,869 --> 00:00:56,719

off the planet my wife rebecca who

29

00:01:00,470 --> 00:00:58,879

happens to join us today uh and then

30

00:01:01,830 --> 00:01:00,480

also blessed to be a father of a

31

00:01:02,790 --> 00:01:01,840

ten-year-old son and a seven-year-old

32

00:01:05,189 --> 00:01:02,800

daughter

33

00:01:06,630 --> 00:01:05,199

and i asked these guys uh to to share at

34

00:01:08,149 --> 00:01:06,640

the end of their quick intro about

35

00:01:09,590 --> 00:01:08,159

themselves one interesting fact that

36

00:01:12,469 --> 00:01:09,600

maybe you you know you wouldn't know

37

00:01:13,590 --> 00:01:12,479

about us astronauts for me that the

38

00:01:16,310 --> 00:01:13,600

interesting tidbit i thought i'd share

39

00:01:18,070 --> 00:01:16,320

is that i've got a 66 mustang ford

40

00:01:18,870 --> 00:01:18,080

mustang that i've had for over 30 years

41

00:01:23,670 --> 00:01:18,880

now

42

00:01:25,670 --> 00:01:23,680

amazing crewmates that

43

00:01:27,109 --> 00:01:25,680

comes from italy and you know my last

44

00:01:28,230 --> 00:01:27,119

thing i'll say is that yeah i'm very

45

00:01:31,830 --> 00:01:28,240

fortunate to be flying with such

46

00:01:33,910 --> 00:01:31,840

experienced and outstanding people

47

00:01:35,830 --> 00:01:33,920

thank you thank you randy uh yes i'm

48

00:01:38,789 --> 00:01:35,840

paul and espo italian astronaut of the

49

00:01:40,390 --> 00:01:38,799

european space agency uh actually we are

50

00:01:42,789 --> 00:01:40,400

two foreigners here on this flight so

51

00:01:44,069 --> 00:01:42,799

look at this um

52

00:01:46,230 --> 00:01:44,079

uh i wanted to be an astronaut when i

53

00:01:48,310 --> 00:01:46,240

was a kid but it was kind of difficult

54

00:01:51,510 --> 00:01:48,320

uh that time for uh for an italian for a

55

00:01:54,149 --> 00:01:51,520

non-american uh i ended up uh

56

00:01:55,830 --> 00:01:54,159

being drafted for with the italian army

57

00:01:58,950 --> 00:01:55,840

and i stayed in italian army for quite

58

00:02:02,230 --> 00:01:58,960

some years and then eventually uh picked

59

00:02:04,069 --> 00:02:02,240

up again this uh childhood dream and

60

00:02:06,069 --> 00:02:04,079

got a degree in aerospace engineering

61

00:02:07,990 --> 00:02:06,079

and then continue apply work it worked

62

00:02:10,949 --> 00:02:08,000

first for the european space agency and

63

00:02:15,030 --> 00:02:10,959

then fortunate enough in 1998 to be

64

00:02:18,470 --> 00:02:15,040

selected as a european astronaut i was

65

00:02:20,150 --> 00:02:18,480

i flew on chateau in 2007 short duration

66

00:02:23,350 --> 00:02:20,160

mission to build the international space

67

00:02:25,670 --> 00:02:23,360

station another one in 2010 and 11 a

68

00:02:28,070 --> 00:02:25,680

long duration mission and i'm fortunate

69

00:02:30,390 --> 00:02:28,080

enough to be here again now

70

00:02:33,830 --> 00:02:30,400

with reindeer segue for this for this

71

00:02:35,670 --> 00:02:33,840

new adventure so looking forward uh

72

00:02:37,509 --> 00:02:35,680

special thank i was thinking about it i

73

00:02:39,910 --> 00:02:37,519

could mention that i have an italian

74

00:02:42,150 --> 00:02:39,920

moto guzzi for quite many years and the

75

00:02:44,470 --> 00:02:42,160

fact that it's not far far away from

76

00:02:46,390 --> 00:02:44,480

italy but i think one of the crazy

77

00:02:48,949 --> 00:02:46,400

things is that i like to take things

78

00:02:50,790 --> 00:02:48,959

apart and fix them most of the time with

79

00:02:52,869 --> 00:02:50,800

some spare

80

00:02:55,270 --> 00:02:52,879

things flying flying around here and

81

00:02:56,869 --> 00:02:55,280

there so i i tell people not to show me

82

00:02:59,110 --> 00:02:56,879

anything that is broken or anything like

83

00:03:00,630 --> 00:02:59,120

this because i really wanted to stop

84

00:03:02,149 --> 00:03:00,640

working on it and

85

00:03:04,710 --> 00:03:02,159

sometimes it works

86

00:03:06,550 --> 00:03:04,720

yeah exactly

87

00:03:09,670 --> 00:03:06,560

all right it's okay

88

00:03:12,550 --> 00:03:09,680

my name is sergey arizanski i'm russian

89

00:03:16,149 --> 00:03:12,560

cosmonaut and

90

00:03:19,750 --> 00:03:16,159

to be honest i never dreamed to

91

00:03:23,270 --> 00:03:19,760

become a cosmonaut

92

00:03:25,270 --> 00:03:23,280

i always wanted to be scientists so my

93

00:03:30,949 --> 00:03:25,280

background is

94

00:03:32,789 --> 00:03:30,959

biochemistry and my phd space medicine

95

00:03:35,350 --> 00:03:32,799

and i was working

96

00:03:36,229 --> 00:03:35,360

in institute of biomedical problems

97

00:03:38,390 --> 00:03:36,239

for

98

00:03:40,150 --> 00:03:38,400

almost 14 years

99

00:03:43,509 --> 00:03:40,160

performing science and

100

00:03:46,789 --> 00:03:43,519

[Music]

101
00:03:49,910 --> 00:03:46,799
accidentally i was

102
00:03:50,869 --> 00:03:49,920
i was selected of course why not and i'm

103
00:03:55,110 --> 00:03:50,879
really

104
00:03:57,990 --> 00:03:55,120
glad that uh this uh nice thing happened

105
00:04:01,190 --> 00:03:58,000
uh this is this will be my second flight

106
00:04:02,470 --> 00:04:01,200
my previous mission was with alec cordov

107
00:04:03,350 --> 00:04:02,480
and

108
00:04:05,030 --> 00:04:03,360
mike

109
00:04:08,470 --> 00:04:05,040
hopkins

110
00:04:11,910 --> 00:04:08,480
i really enjoyed working on board the

111
00:04:13,270 --> 00:04:11,920
iss so i'm looking forward to work

112
00:04:16,150 --> 00:04:13,280
together with

113
00:04:17,430 --> 00:04:16,160

such nice team

114

00:04:19,990 --> 00:04:17,440

and

115

00:04:20,789 --> 00:04:20,000

something special i'm

116

00:04:45,990 --> 00:04:20,799

a

117

00:04:47,990 --> 00:04:46,000

here in the room with the reporters

118

00:04:49,510 --> 00:04:48,000

we've got on hand and then we'll take

119

00:04:51,430 --> 00:04:49,520

some questions from the phone bridge if

120

00:04:54,230 --> 00:04:51,440

we get any reporters who would like to

121

00:04:55,110 --> 00:04:54,240

ask questions via phone you can use um

122

00:04:57,590 --> 00:04:55,120

the

123

00:04:59,270 --> 00:04:57,600

star one press star one to actually let

124

00:05:01,029 --> 00:04:59,280

us know that you have a question and if

125

00:05:03,189 --> 00:05:01,039

you uh if your question gets answered

126

00:05:04,790 --> 00:05:03,199

you can use star two to withdraw it and

127

00:05:06,469 --> 00:05:04,800

one more reminder we are gonna be taking

128

00:05:09,590 --> 00:05:06,479

questions from social media using the

129

00:05:10,550 --> 00:05:09,600

hashtag ask nasa so get those in as well

130

00:05:12,629 --> 00:05:10,560

we'll start here in the room and if you

131

00:05:14,950 --> 00:05:12,639

can say who you're with and

132

00:05:17,590 --> 00:05:14,960

who you want to ask your question to

133

00:05:18,629 --> 00:05:17,600

oh thank you mark caro with aviation

134

00:05:21,510 --> 00:05:18,639

week

135

00:05:23,510 --> 00:05:21,520

and i have a question for randy and

136

00:05:26,790 --> 00:05:23,520

sergey

137

00:05:29,830 --> 00:05:26,800

for randy what sorts of activities are

138

00:05:32,230 --> 00:05:29,840

you prepared or and or planned to do

139

00:05:35,430 --> 00:05:32,240

for a commercial crew enhancement and

140

00:05:38,390 --> 00:05:35,440

for sergey are there any activities that

141

00:05:40,469 --> 00:05:38,400

you will participate in uh to prepare

142

00:05:42,629 --> 00:05:40,479

for the science module i think nuaka if

143

00:05:44,790 --> 00:05:42,639

i say it right

144

00:05:48,950 --> 00:05:44,800

mlm

145

00:05:52,950 --> 00:05:48,960

for the science point their science the

146

00:05:56,710 --> 00:05:55,430

for the commercial crew the big things

147

00:05:58,790 --> 00:05:56,720

that could possibly be happening during

148

00:06:01,189 --> 00:05:58,800

our increment um the main things would

149

00:06:02,790 --> 00:06:01,199

be relocating the the pma

150

00:06:05,670 --> 00:06:02,800

from where it is over on node three over

151
00:06:07,189 --> 00:06:05,680
to node two on the zenith side so we can

152
00:06:08,469 --> 00:06:07,199
allow for docking of vehicles at that

153
00:06:11,909 --> 00:06:08,479
point and so

154
00:06:13,990 --> 00:06:11,919
the work to remove the pma um

155
00:06:16,150 --> 00:06:14,000
and then putting it in the no two

156
00:06:18,309 --> 00:06:16,160
position they're right now forecasting

157
00:06:21,270 --> 00:06:18,319
to be done maybe in the march time frame

158
00:06:23,189 --> 00:06:21,280
which is a little ahead of us

159
00:06:25,749 --> 00:06:23,199
but depending on the physical vehicle

160
00:06:27,909 --> 00:06:25,759
traffic uh bring up the elements that

161
00:06:29,830 --> 00:06:27,919
are needed for that uh it could slip uh

162
00:06:32,150 --> 00:06:29,840
ideally they get that done and then the

163
00:06:34,390 --> 00:06:32,160

only things left

164

00:06:36,390 --> 00:06:34,400

are things like with the ida uh the

165

00:06:38,230 --> 00:06:36,400

docking adapter getting put on that pma

166

00:06:40,550 --> 00:06:38,240

and the different parts that go to

167

00:06:42,550 --> 00:06:40,560

protect the uh the interface between the

168

00:06:44,390 --> 00:06:42,560

docking adapter and the pma those are

169

00:06:46,070 --> 00:06:44,400

things that could fall into evas during

170

00:06:47,749 --> 00:06:46,080

our time frame there's some interior

171

00:06:48,950 --> 00:06:47,759

outfitting that goes with that but

172

00:06:51,270 --> 00:06:48,960

ideally

173

00:06:53,589 --> 00:06:51,280

that's done before we get there um and

174

00:06:55,350 --> 00:06:53,599

then allow us to be completely ready and

175

00:06:56,550 --> 00:06:55,360

then obviously we wait you know

176
00:06:58,309 --> 00:06:56,560
hopefully our commercial providers with

177
00:07:00,070 --> 00:06:58,319
boeing and spacex are able to get

178
00:07:01,990 --> 00:07:00,080
ideally great to see

179
00:07:03,510 --> 00:07:02,000
their demo vehicles but i think with the

180
00:07:06,390 --> 00:07:03,520
current schedule that's probably going

181
00:07:09,270 --> 00:07:06,400
to push out beyond our expedition

182
00:07:09,280 --> 00:07:13,670
what about science model

183
00:07:19,589 --> 00:07:15,670
really

184
00:07:22,870 --> 00:07:19,599
russian science model mlm is not a very

185
00:07:26,870 --> 00:07:22,880
lucky piece of equipment

186
00:07:31,270 --> 00:07:28,830
sliding a little bit

187
00:07:35,189 --> 00:07:31,280
but for now

188
00:07:39,270 --> 00:07:35,199

i received training and certified for a

189

00:07:45,749 --> 00:07:42,950

prepare for mlm arrival and

190

00:07:47,189 --> 00:07:45,759

i'm receiving training on mlm docking so

191

00:07:50,629 --> 00:07:47,199

hopefully

192

00:07:52,950 --> 00:07:50,639

uh our crew or maybe next crew finally

193

00:07:54,150 --> 00:07:52,960

will see this model

194

00:07:55,589 --> 00:07:54,160

arrived

195

00:07:57,749 --> 00:07:55,599

on station

196

00:07:59,430 --> 00:07:57,759

it's really nice lab and

197

00:08:00,469 --> 00:07:59,440

looking forward

198

00:08:01,670 --> 00:08:00,479

to work

199

00:08:03,270 --> 00:08:01,680

on it

200

00:08:05,430 --> 00:08:03,280

we'll have plenty of work to do

201
00:08:08,710 --> 00:08:05,440
regardless

202
00:08:10,950 --> 00:08:08,720
all right jim over for is spectrum

203
00:08:13,189 --> 00:08:10,960
uh i believe you're in a situation

204
00:08:15,430 --> 00:08:13,199
sergey where you're in a two-person

205
00:08:17,589 --> 00:08:15,440
russian segment crew for a while

206
00:08:19,510 --> 00:08:17,599
because you all you comment on what the

207
00:08:20,710 --> 00:08:19,520
reduction to a five-person station

208
00:08:23,749 --> 00:08:20,720
complement is going to mean for a

209
00:08:25,430 --> 00:08:23,759
workload for everybody on the station

210
00:08:26,869 --> 00:08:25,440
thank you

211
00:08:28,710 --> 00:08:26,879
well um

212
00:08:32,709 --> 00:08:28,720
it's mostly

213
00:08:35,110 --> 00:08:32,719

concerns the russian uh program

214

00:08:40,070 --> 00:08:35,120

uh we will be really busy because there

215

00:08:40,949 --> 00:08:40,080

will be only two of us so um

216

00:08:42,070 --> 00:08:40,959

uh

217

00:08:43,750 --> 00:08:42,080

i have

218

00:08:45,430 --> 00:08:43,760

lots of science

219

00:08:49,430 --> 00:08:45,440

that is now

220

00:08:50,230 --> 00:08:49,440

uh going into task list so

221

00:08:52,310 --> 00:08:50,240

some

222

00:08:53,430 --> 00:08:52,320

experiments that will be done in my free

223

00:08:56,470 --> 00:08:53,440

time

224

00:08:57,430 --> 00:08:56,480

on board the station

225

00:08:59,190 --> 00:08:57,440

but

226
00:09:02,550 --> 00:08:59,200
overall for

227
00:09:06,070 --> 00:09:02,560
life support and for technical issues

228
00:09:08,870 --> 00:09:06,080
two russian crew members will be enough

229
00:09:10,630 --> 00:09:08,880
on the usa

230
00:09:12,550 --> 00:09:10,640
on board we'll still have you know three

231
00:09:14,790 --> 00:09:12,560
us and then up to up to four ideally

232
00:09:16,470 --> 00:09:14,800
soon very soon the only place where it

233
00:09:18,550 --> 00:09:16,480
affected us so much was in the training

234
00:09:19,910 --> 00:09:18,560
where you know our original sergei and i

235
00:09:22,230 --> 00:09:19,920
originally supposed to launch in in

236
00:09:24,070 --> 00:09:22,240
november with exhibition 55 now or

237
00:09:25,910 --> 00:09:24,080
exhibition 5253

238
00:09:27,269 --> 00:09:25,920

and we had uh

239

00:09:28,630 --> 00:09:27,279

three u.s crew members that were

240

00:09:30,070 --> 00:09:28,640

originally slated for the right sea of

241

00:09:31,910 --> 00:09:30,080

soyuz now have to train for the left

242

00:09:33,590 --> 00:09:31,920

seat and so that's that's where we think

243

00:09:34,630 --> 00:09:33,600

it's all pre-flight and then during the

244

00:09:36,150 --> 00:09:34,640

flight we shouldn't see that much

245

00:09:37,910 --> 00:09:36,160

difference other than maybe seeing

246

00:09:39,269 --> 00:09:37,920

sergey and fyodor a little tireder than

247

00:09:44,790 --> 00:09:39,279

they normally would be

248

00:09:49,590 --> 00:09:47,910

hi robert perlman with collectspace.com

249

00:09:51,190 --> 00:09:49,600

you sort of touched a little bit on this

250

00:09:53,269 --> 00:09:51,200

in terms of training but

251
00:09:55,350 --> 00:09:53,279
with so many moving parts in terms of

252
00:09:57,190 --> 00:09:55,360
when commercial crew vehicle commercial

253
00:09:58,550 --> 00:09:57,200
cargo vehicles will arrive

254
00:10:00,389 --> 00:09:58,560
when um

255
00:10:03,110 --> 00:10:00,399
the progress will arrive when when

256
00:10:04,710 --> 00:10:03,120
you'll actually launch yourself

257
00:10:06,470 --> 00:10:04,720
how does that how is that impacted

258
00:10:07,509 --> 00:10:06,480
training in terms of

259
00:10:09,269 --> 00:10:07,519
um

260
00:10:10,310 --> 00:10:09,279
knowing which science payloads will be

261
00:10:13,269 --> 00:10:10,320
on board

262
00:10:15,829 --> 00:10:13,279
um knowing uh if you'll do space walks

263
00:10:19,350 --> 00:10:15,839

if you don't have to do space walks um

264

00:10:21,350 --> 00:10:19,360

what's that what's that impact

265

00:10:23,190 --> 00:10:21,360

certainly uh

266

00:10:24,790 --> 00:10:23,200

you know it's not shuttle and we've been

267

00:10:26,310 --> 00:10:24,800

doing that for for quite a few years now

268

00:10:27,990 --> 00:10:26,320

and we know that we're not able to train

269

00:10:29,430 --> 00:10:28,000

every specific day and every specific

270

00:10:30,790 --> 00:10:29,440

task and so that's the training is

271

00:10:32,389 --> 00:10:30,800

geared towards towards skills-based

272

00:10:34,470 --> 00:10:32,399

training where

273

00:10:35,829 --> 00:10:34,480

if we can turn one wrench on this piece

274

00:10:37,750 --> 00:10:35,839

of coin we can tune it on 100 pieces of

275

00:10:39,990 --> 00:10:37,760

equipment so

276

00:10:41,829 --> 00:10:40,000

while it'd be nice to have details we've

277

00:10:43,990 --> 00:10:41,839

been able to structure our training

278

00:10:45,670 --> 00:10:44,000

where we're generically ready for any of

279

00:10:48,710 --> 00:10:45,680

the space vehicles you know if the cargo

280

00:10:50,470 --> 00:10:48,720

vehicles slip uh if the eva slip if you

281

00:10:52,470 --> 00:10:50,480

guys get moved up and stuff we can

282

00:10:54,550 --> 00:10:52,480

pretty much adapt to and the interesting

283

00:10:56,870 --> 00:10:54,560

thing about being in that that mindset

284

00:10:59,110 --> 00:10:56,880

nowadays is that the just-in-time

285

00:11:00,310 --> 00:10:59,120

training has really really come along

286

00:11:02,630 --> 00:11:00,320

and we're able to get procedures that

287

00:11:05,190 --> 00:11:02,640

are tailored uh for this specific

288

00:11:06,949 --> 00:11:05,200

training they're able to make videos um

289

00:11:08,870 --> 00:11:06,959

that are tailored and embedded in the

290

00:11:11,110 --> 00:11:08,880

procedure so you can watch a 20-second

291

00:11:12,710 --> 00:11:11,120

or 30-second video of 10 steps of a

292

00:11:15,110 --> 00:11:12,720

procedure that gives you the visual of

293

00:11:16,630 --> 00:11:15,120

it and it takes the place of being able

294

00:11:18,310 --> 00:11:16,640

to have that repeated repetitive

295

00:11:20,069 --> 00:11:18,320

training on the ground

296

00:11:21,590 --> 00:11:20,079

to give you that you know

297

00:11:23,269 --> 00:11:21,600

level experience that you would have

298

00:11:26,630 --> 00:11:23,279

normally had on previous training so

299

00:11:29,110 --> 00:11:26,640

that's that's very helpful and also even

300

00:11:30,710 --> 00:11:29,120

be able to have the people in real time

301
00:11:33,269 --> 00:11:30,720
calm um

302
00:11:34,949 --> 00:11:33,279
and experimenting with things like uh um

303
00:11:36,069 --> 00:11:34,959
the heads-up display type like the

304
00:11:37,350 --> 00:11:36,079
google glass type stuff where they're

305
00:11:39,030 --> 00:11:37,360
able to see what we're doing and be able

306
00:11:40,310 --> 00:11:39,040
to talk to us real time like another

307
00:11:41,509 --> 00:11:40,320
crew member who's experienced right

308
00:11:43,030 --> 00:11:41,519
there with us while we're putting their

309
00:11:44,470 --> 00:11:43,040
hands on the equipment so things like

310
00:11:47,590 --> 00:11:44,480
that really help make up for the fact

311
00:11:49,509 --> 00:11:47,600
that there is this fluidity and i think

312
00:11:51,670 --> 00:11:49,519
all of us having been flown crew members

313
00:11:52,550 --> 00:11:51,680

before we're used to things changing and

314

00:11:55,110 --> 00:11:52,560

so we

315

00:11:56,389 --> 00:11:55,120

say stand by to stand by and we'll

316

00:11:58,870 --> 00:11:56,399

we'll be prepared for whatever is

317

00:12:00,470 --> 00:11:58,880

whenever it is um and we'll look to see

318

00:12:01,990 --> 00:12:00,480

what flavor it happens to be and execute

319

00:12:05,590 --> 00:12:02,000

it the best we can

320

00:12:09,590 --> 00:12:07,829

anything

321

00:12:11,110 --> 00:12:09,600

eric berger with arts technica for

322

00:12:12,790 --> 00:12:11,120

sergey um

323

00:12:15,990 --> 00:12:12,800

just wondering what your experiences

324

00:12:17,990 --> 00:12:16,000

were in the mars 500

325

00:12:19,910 --> 00:12:18,000

mission that you did what surprised you

326

00:12:21,829 --> 00:12:19,920

about that and what do you think is

327

00:12:23,670 --> 00:12:21,839

different about sort of that kind of

328

00:12:26,230 --> 00:12:23,680

long duration mission and the six months

329

00:12:30,130 --> 00:12:26,240

you'll spend on station

330

00:12:31,750 --> 00:12:30,140

uh really march 500 project was

331

00:12:35,110 --> 00:12:31,760

[Music]

332

00:12:37,350 --> 00:12:35,120

interesting and

333

00:12:38,389 --> 00:12:37,360

it brought some valuable

334

00:12:40,710 --> 00:12:38,399

experience

335

00:12:44,790 --> 00:12:40,720

first of all i

336

00:12:47,430 --> 00:12:44,800

realized how hard is to be the boss

337

00:12:50,829 --> 00:12:47,440

to be commander because you have all

338

00:12:54,629 --> 00:12:50,839

this responsibility and trying

339

00:12:56,230 --> 00:12:54,639

to negotiate things between your crew

340

00:12:57,509 --> 00:12:56,240

members to

341

00:13:00,389 --> 00:12:57,519

keep

342

00:13:03,110 --> 00:13:00,399

the nice ecological

343

00:13:07,509 --> 00:13:03,120

environment inside

344

00:13:11,990 --> 00:13:07,519

compared with iss mars 500 and future

345

00:13:16,629 --> 00:13:13,190

they are

346

00:13:17,509 --> 00:13:16,639

absolutely autonomous

347

00:13:22,629 --> 00:13:17,519

so

348

00:13:24,949 --> 00:13:22,639

on iss as randy said we're able to call

349

00:13:29,750 --> 00:13:24,959

scientists to the ground

350

00:13:37,269 --> 00:13:33,269

flying to mars you will not have this

351
00:13:39,990 --> 00:13:38,230
that's

352
00:13:41,990 --> 00:13:40,000
that means that

353
00:13:43,590 --> 00:13:42,000
crew should be

354
00:13:44,790 --> 00:13:43,600
next level

355
00:13:49,269 --> 00:13:44,800
of

356
00:13:53,910 --> 00:13:49,279
the same is for

357
00:13:56,710 --> 00:13:53,920
a ground support team they should um

358
00:13:58,389 --> 00:13:56,720
delegate their responsibility to the

359
00:14:00,310 --> 00:13:58,399
crew

360
00:14:01,670 --> 00:14:00,320
and

361
00:14:03,829 --> 00:14:01,680
crew should

362
00:14:06,470 --> 00:14:03,839
be able to

363
00:14:07,509 --> 00:14:06,480

do anything to make decision

364

00:14:11,110 --> 00:14:07,519

um

365

00:14:15,110 --> 00:14:11,120

honestly when we're working on iss

366

00:14:19,189 --> 00:14:15,120

99 percentage of all decisions are made

367

00:14:22,949 --> 00:14:20,949

and we're also you know to add to that

368

00:14:25,990 --> 00:14:22,959

thankful that you know here sergey is

369

00:14:27,829 --> 00:14:26,000

the first scientist commander of a soyuz

370

00:14:29,350 --> 00:14:27,839

and with this mars experience and just

371

00:14:31,269 --> 00:14:29,360

the good character of the person that he

372

00:14:33,430 --> 00:14:31,279

is he's been an outstanding commander

373

00:14:35,750 --> 00:14:33,440

for us to prepare us for our flight on

374

00:14:38,150 --> 00:14:35,760

the you know new soyuz ms vehicle and

375

00:14:41,590 --> 00:14:38,160

deflects from a november with a japanese

376

00:14:43,670 --> 00:14:41,600

crew member to a you know april may now

377

00:14:45,590 --> 00:14:43,680

maybe july launch with an italian crew

378

00:14:47,189 --> 00:14:45,600

member you know it's been seamless and

379

00:14:48,710 --> 00:14:47,199

and we've been ready to go uh the whole

380

00:14:50,790 --> 00:14:48,720

time so it's really you know good

381

00:14:52,069 --> 00:14:50,800

testament to sergey's work ethic and who

382

00:14:53,750 --> 00:14:52,079

he is

383

00:14:56,150 --> 00:14:53,760

and rita you've done a couple of analog

384

00:14:58,150 --> 00:14:56,160

missions as well i think nemo and caves

385

00:14:59,829 --> 00:14:58,160

right i know that's not quite the same

386

00:15:01,590 --> 00:14:59,839

as mars but you probably got some

387

00:15:02,870 --> 00:15:01,600

valuable experience from those as well

388

00:15:03,670 --> 00:15:02,880

certainly and that's something that is

389

00:15:04,790 --> 00:15:03,680

just

390

00:15:07,590 --> 00:15:04,800

so

391

00:15:09,590 --> 00:15:07,600

amazing that here on planet earth

392

00:15:12,069 --> 00:15:09,600

we can go ahead and use these extreme

393

00:15:14,710 --> 00:15:12,079

environments to prepare astronauts and

394

00:15:16,310 --> 00:15:14,720

people for uh for the training

395

00:15:18,150 --> 00:15:16,320

space is such a

396

00:15:19,670 --> 00:15:18,160

unique experience where you're seeing

397

00:15:21,350 --> 00:15:19,680

the curvature of the earth every time

398

00:15:23,110 --> 00:15:21,360

you look out the window and you're

399

00:15:25,350 --> 00:15:23,120

feeling things in your body that you've

400

00:15:26,949 --> 00:15:25,360

never felt before in zero g

401
00:15:28,949 --> 00:15:26,959
and it's you know it's an assault on the

402
00:15:30,389 --> 00:15:28,959
senses i think we'd all agree the first

403
00:15:31,829 --> 00:15:30,399
time that you do it

404
00:15:34,629 --> 00:15:31,839
and so we're able to use these extreme

405
00:15:36,870 --> 00:15:34,639
environments to put groups of

406
00:15:38,550 --> 00:15:36,880
astronauts and cosmonauts tyco nuts all

407
00:15:40,069 --> 00:15:38,560
together

408
00:15:41,590 --> 00:15:40,079
and use experiences like the nemo

409
00:15:43,910 --> 00:15:41,600
mission underwater and the aquarius

410
00:15:45,509 --> 00:15:43,920
habitat off the florida keys the only

411
00:15:47,110 --> 00:15:45,519
underwater habitat left in the world for

412
00:15:49,269 --> 00:15:47,120
where people can train you can live down

413
00:15:51,030 --> 00:15:49,279

there for for uh you know we spent a

414

00:15:52,150 --> 00:15:51,040

week and now you know we've had two week

415

00:15:54,069 --> 00:15:52,160

missions

416

00:15:56,310 --> 00:15:54,079

and what that allows you to do is you

417

00:15:58,470 --> 00:15:56,320

know a lot of people have scuba dove or

418

00:15:59,670 --> 00:15:58,480

or snorkeled and you've seen fish and

419

00:16:01,590 --> 00:15:59,680

been in the environment but it's been

420

00:16:03,590 --> 00:16:01,600

you know maximum 45 minutes or an hour

421

00:16:05,509 --> 00:16:03,600

or something like that not live there

422

00:16:08,069 --> 00:16:05,519

and see the sun go up and down and see

423

00:16:10,470 --> 00:16:08,079

how the wildlife you know moves and

424

00:16:12,230 --> 00:16:10,480

changes and different creatures adapt

425

00:16:13,749 --> 00:16:12,240

and seeing how the environment is

426

00:16:15,829 --> 00:16:13,759

different when you're going out on

427

00:16:17,189 --> 00:16:15,839

simulated spacewalks uh during the

428

00:16:19,749 --> 00:16:17,199

daytime and during the night time down

429

00:16:23,030 --> 00:16:19,759

there and knowing that even though you

430

00:16:25,110 --> 00:16:23,040

know surfaces is only you know um

431

00:16:27,509 --> 00:16:25,120

uh about 42 feet away

432

00:16:28,310 --> 00:16:27,519

um the fact that if you go there if you

433

00:16:30,069 --> 00:16:28,320

have a problem when you're on a

434

00:16:32,230 --> 00:16:30,079

spacewalk it kills you because you get

435

00:16:33,509 --> 00:16:32,240

the bends and so you know knowing your

436

00:16:35,269 --> 00:16:33,519

equipment making sure you're doing your

437

00:16:36,710 --> 00:16:35,279

buddy checks making sure you know your

438

00:16:39,030 --> 00:16:36,720

safety and your emergency training is

439

00:16:40,790 --> 00:16:39,040

ready to go to get back into the the uh

440

00:16:43,110 --> 00:16:40,800

the airlock and back into the habitat

441

00:16:45,030 --> 00:16:43,120

where relative safety is if there's any

442

00:16:47,110 --> 00:16:45,040

type of problem um that that was the

443

00:16:48,949 --> 00:16:47,120

nemo mission and the caves expedition

444

00:16:51,269 --> 00:16:48,959

which was uh uh

445

00:16:52,790 --> 00:16:51,279

you know amazing in the fact that now

446

00:16:53,910 --> 00:16:52,800

you're going in and the base camp at

447

00:16:56,949 --> 00:16:53,920

least for us because we were the first

448

00:16:58,310 --> 00:16:56,959

one um first crew ever to do it was a

449

00:17:00,230 --> 00:16:58,320

kilometer and a half in from the

450

00:17:02,310 --> 00:17:00,240

entrance of the cave and you're in an

451
00:17:03,910 --> 00:17:02,320
environment where it is dark

452
00:17:05,990 --> 00:17:03,920
24 hours a day you don't know what time

453
00:17:07,590 --> 00:17:06,000
it is just like on space station you're

454
00:17:09,429 --> 00:17:07,600
now constant temperature constant

455
00:17:11,510 --> 00:17:09,439
humidity inside the cave just like you

456
00:17:13,750 --> 00:17:11,520
are on space station you've got you know

457
00:17:15,029 --> 00:17:13,760
tethers and and you're rappelling and

458
00:17:17,029 --> 00:17:15,039
doing all kinds of things that you're

459
00:17:18,710 --> 00:17:17,039
required to attach on for safety just

460
00:17:20,390 --> 00:17:18,720
like you do during a spacewalk and

461
00:17:22,069 --> 00:17:20,400
you're able to do that and guess what

462
00:17:23,829 --> 00:17:22,079
you're in a cave where there's no paths

463
00:17:25,270 --> 00:17:23,839

no trails no lights except what you have

464

00:17:26,549 --> 00:17:25,280

on your helmet and you've got to point

465

00:17:28,390 --> 00:17:26,559

it to see be able to see something just

466

00:17:30,870 --> 00:17:28,400

like you do on a spacewalk and so that

467

00:17:32,789 --> 00:17:30,880

realism at every moment every step has

468

00:17:35,029 --> 00:17:32,799

to be you know put precisely otherwise

469

00:17:36,470 --> 00:17:35,039

you slip and there are consequences to

470

00:17:39,110 --> 00:17:36,480

you know being in the cave and you know

471

00:17:40,630 --> 00:17:39,120

you could easily cause a fatal injury uh

472

00:17:41,590 --> 00:17:40,640

if you're not careful in the caves and

473

00:17:43,029 --> 00:17:41,600

so

474

00:17:44,230 --> 00:17:43,039

there's all that risk and that the

475

00:17:46,150 --> 00:17:44,240

heightened sense of awareness of the

476
00:17:48,150 --> 00:17:46,160
environment and then there's the simple

477
00:17:50,470 --> 00:17:48,160
fact that it is completely unique there

478
00:17:52,870 --> 00:17:50,480
are very few people that have ever lived

479
00:17:54,870 --> 00:17:52,880
and spent a night let alone a week in a

480
00:17:56,390 --> 00:17:54,880
cave somewhere you know in this unique

481
00:17:59,190 --> 00:17:56,400
environment and you're able to take it

482
00:18:02,390 --> 00:17:59,200
in and adapt to it and by the end of the

483
00:18:03,750 --> 00:18:02,400
week be able to operate and you know you

484
00:18:04,710 --> 00:18:03,760
have some sort of sense of when your

485
00:18:05,990 --> 00:18:04,720
battery's going to run out in your

486
00:18:07,750 --> 00:18:06,000
helmet light you're able to conserve

487
00:18:09,510 --> 00:18:07,760
things it's amazing how much you get

488
00:18:10,789 --> 00:18:09,520

used to using the the toilet facilities

489

00:18:13,590 --> 00:18:10,799

because that's a unique experience just

490

00:18:15,110 --> 00:18:13,600

like up in space and so now you know

491

00:18:16,710 --> 00:18:15,120

getting astronauts through either one of

492

00:18:18,470 --> 00:18:16,720

those or both of those now they've got a

493

00:18:20,070 --> 00:18:18,480

couple of unique extreme experiences

494

00:18:21,990 --> 00:18:20,080

they've been through so when they go to

495

00:18:23,830 --> 00:18:22,000

space it's not the first time they get

496

00:18:25,110 --> 00:18:23,840

the assault on the senses in the mind

497

00:18:27,110 --> 00:18:25,120

and in a picture of something very

498

00:18:28,230 --> 00:18:27,120

unique it's just another one and so

499

00:18:29,430 --> 00:18:28,240

therefore hopefully they'd be more

500

00:18:32,310 --> 00:18:29,440

effective

501
00:18:33,990 --> 00:18:32,320
as a crewmate um as well as

502
00:18:35,750 --> 00:18:34,000
just as an individual to operate in this

503
00:18:37,510 --> 00:18:35,760
unique experience a lot quicker than if

504
00:18:39,029 --> 00:18:37,520
they had without that training paul

505
00:18:40,710 --> 00:18:39,039
anything else that you want to add on

506
00:18:43,270 --> 00:18:40,720
caves

507
00:18:46,230 --> 00:18:43,280
well i've done uh myself a bunch of this

508
00:18:48,150 --> 00:18:46,240
uh of this uh simulated space mission i

509
00:18:50,870 --> 00:18:48,160
mean the first one in 1990 i was

510
00:18:52,950 --> 00:18:50,880
isolating a in a small

511
00:18:55,510 --> 00:18:52,960
environment with six other five other

512
00:18:57,110 --> 00:18:55,520
crew members in a 28-day long duration

513
00:18:59,350 --> 00:18:57,120

mission and i ended up being the

514

00:19:01,270 --> 00:18:59,360

commander by the way so i appreciate

515

00:19:03,510 --> 00:19:01,280

your difficulty or negotiating what's

516

00:19:05,830 --> 00:19:03,520

happening inside with the outside

517

00:19:08,390 --> 00:19:05,840

uh but they the fact of being an

518

00:19:10,470 --> 00:19:08,400

isolated confined environment where you

519

00:19:12,549 --> 00:19:10,480

build up your own reality that though

520

00:19:14,789 --> 00:19:12,559

has to go with the outside so it's a

521

00:19:17,270 --> 00:19:14,799

it's a very interesting uh learning

522

00:19:20,310 --> 00:19:17,280

experience that really pushes uh your

523

00:19:22,470 --> 00:19:20,320

capability and makes you explore

524

00:19:24,470 --> 00:19:22,480

more one of the things that because i

525

00:19:26,630 --> 00:19:24,480

didn't do nemo i was the ground crew i

526

00:19:30,070 --> 00:19:26,640

did i did knowles several times in

527

00:19:32,549 --> 00:19:30,080

alaska i was up in the mountain wyoming

528

00:19:34,150 --> 00:19:32,559

things like this

529

00:19:36,230 --> 00:19:34,160

i did caves and that was very

530

00:19:39,029 --> 00:19:36,240

interesting and what got me there in

531

00:19:40,870 --> 00:19:39,039

caves was the fact that at certain point

532

00:19:43,110 --> 00:19:40,880

i don't know how far away you went from

533

00:19:46,070 --> 00:19:43,120

from base camp but we end up going

534

00:19:47,750 --> 00:19:46,080

really really really deep from base camp

535

00:19:49,590 --> 00:19:47,760

and we were like

536

00:19:51,190 --> 00:19:49,600

10 hours away

537

00:19:54,870 --> 00:19:51,200

literally

538

00:19:56,070 --> 00:19:54,880

soaking wet cold because it's it's low

539

00:19:58,630 --> 00:19:56,080

temperature

540

00:20:01,909 --> 00:19:58,640

and still we wanted to push

541

00:20:04,710 --> 00:20:01,919

to to see what's beyond that rock or

542

00:20:07,510 --> 00:20:04,720

under that tunnel we wanted to push this

543

00:20:10,390 --> 00:20:07,520

sense of discovery that we have as human

544

00:20:12,149 --> 00:20:10,400

the the the the the thing that you have

545

00:20:14,390 --> 00:20:12,159

and the fact that you really need to

546

00:20:16,310 --> 00:20:14,400

make sure that you have enough uh you

547

00:20:18,710 --> 00:20:16,320

know strength enough capability to go

548

00:20:22,070 --> 00:20:18,720

back to base camp because this discovery

549

00:20:24,549 --> 00:20:22,080

thing is so so strong on us that makes

550

00:20:27,029 --> 00:20:24,559

you forget about everything else so that

551

00:20:28,789 --> 00:20:27,039

was a really interesting discovery for

552

00:20:31,029 --> 00:20:28,799

me but we discover all sorts of other

553

00:20:33,270 --> 00:20:31,039

things and i'm grateful for for these

554

00:20:35,430 --> 00:20:33,280

experiences that at the end prepare us

555

00:20:37,669 --> 00:20:35,440

to go in space in a much better

556

00:20:39,669 --> 00:20:37,679

conditions well and then just taking

557

00:20:41,510 --> 00:20:39,679

that a step farther i guess you know the

558

00:20:43,190 --> 00:20:41,520

space station itself is kind of meant to

559

00:20:45,350 --> 00:20:43,200

be an analog for going to mars or

560

00:20:47,350 --> 00:20:45,360

further longer duration missions further

561

00:20:49,190 --> 00:20:47,360

into the to the solar system i know

562

00:20:51,909 --> 00:20:49,200

there's probably um a few things on

563

00:20:53,510 --> 00:20:51,919

y'all's on y'all's uh science um radar

564

00:20:55,510 --> 00:20:53,520

that is meant to

565

00:20:57,029 --> 00:20:55,520

uh find out what you know kind of

566

00:20:58,470 --> 00:20:57,039

changes on the body we should expect and

567

00:20:59,750 --> 00:20:58,480

things like that do you think it's that

568

00:21:01,830 --> 00:20:59,760

something you think about you you've

569

00:21:03,430 --> 00:21:01,840

been there for a long duration already

570

00:21:05,110 --> 00:21:03,440

paolo do you well

571

00:21:06,710 --> 00:21:05,120

yeah

572

00:21:08,230 --> 00:21:06,720

say any questions sorry do you think

573

00:21:10,390 --> 00:21:08,240

about that a lot about how this could be

574

00:21:13,430 --> 00:21:10,400

like going to mars

575

00:21:15,990 --> 00:21:13,440

well for sure it's uh it's building up

576
00:21:18,230 --> 00:21:16,000
the knowledge that we absolutely need

577
00:21:20,789 --> 00:21:18,240
before we push forward

578
00:21:23,350 --> 00:21:20,799
outside earth i absolutely concur with

579
00:21:24,310 --> 00:21:23,360
what segier said before about the fact

580
00:21:27,510 --> 00:21:24,320
that

581
00:21:29,990 --> 00:21:27,520
emission to mars require a level of

582
00:21:33,029 --> 00:21:30,000
redundancy in the hardware a level of

583
00:21:34,149 --> 00:21:33,039
capability of decision by the crew a

584
00:21:37,430 --> 00:21:34,159
level of

585
00:21:41,909 --> 00:21:39,830
operational capabilities today we don't

586
00:21:44,549 --> 00:21:41,919
have on station we don't need on station

587
00:21:47,590 --> 00:21:44,559
and we are focused mostly on science and

588
00:21:50,230 --> 00:21:47,600

acquiring information now but later on

589

00:21:52,470 --> 00:21:50,240

when we push when we go as i said in the

590

00:21:54,549 --> 00:21:52,480

cave and and you want to push push push

591

00:21:56,390 --> 00:21:54,559

and you start forgetting that you know

592

00:21:58,710 --> 00:21:56,400

you keep pushing but you have to come

593

00:22:00,230 --> 00:21:58,720

back sooner or later i think though all

594

00:22:02,230 --> 00:22:00,240

those experiences that we do on space

595

00:22:06,230 --> 00:22:02,240

station are extremely important to give

596

00:22:08,230 --> 00:22:06,240

us the basis to keep going forward later

597

00:22:11,270 --> 00:22:08,240

all right we are going to go to the

598

00:22:13,990 --> 00:22:11,280

phone now for a minute i think we have

599

00:22:23,350 --> 00:22:14,000

space.com online if you can go ahead and

600

00:22:30,789 --> 00:22:26,149

okay we'll maybe come back to space.com

601
00:22:34,630 --> 00:22:32,549
uh great thanks so much

602
00:22:35,909 --> 00:22:34,640
i was just wondering uh

603
00:22:37,669 --> 00:22:35,919
wristwatch has played an interesting

604
00:22:39,590 --> 00:22:37,679
part in the history of space travel i

605
00:22:40,470 --> 00:22:39,600
was hoping you tell me

606
00:22:41,750 --> 00:22:40,480
which

607
00:22:44,549 --> 00:22:41,760
wrist watches you guys are going to be

608
00:22:47,590 --> 00:22:44,559
bringing up to space and why

609
00:22:49,029 --> 00:22:47,600
wrist watches this one

610
00:22:53,270 --> 00:22:49,039
all right

611
00:22:57,270 --> 00:22:55,190
speedmaster was it

612
00:22:58,230 --> 00:22:57,280
two or three is that i don't know it's

613
00:22:59,909 --> 00:22:58,240

like that

614

00:23:01,909 --> 00:22:59,919

it's the omega speedmaster the one

615

00:23:03,830 --> 00:23:01,919

that's you know that uh american

616

00:23:05,909 --> 00:23:03,840

astronauts have been wearing for decades

617

00:23:10,070 --> 00:23:05,919

now uh when they travel to space uh this

618

00:23:13,430 --> 00:23:10,080

one this one flew with me an sts-129

619

00:23:16,310 --> 00:23:13,440

it was a gift from my wife thank you

620

00:23:17,990 --> 00:23:16,320

this time i i got one and don't tell

621

00:23:20,310 --> 00:23:18,000

anyone because it's a secret but i've

622

00:23:22,470 --> 00:23:20,320

got one for my son

623

00:23:24,470 --> 00:23:22,480

he's 10 years old and that my hope is

624

00:23:26,390 --> 00:23:24,480

that when he graduates from high school

625

00:23:31,029 --> 00:23:26,400

i can get it to him as a gift

626

00:23:34,230 --> 00:23:32,630

well i'm

627

00:23:37,029 --> 00:23:34,240

time

628

00:23:39,110 --> 00:23:37,039

in space and especially on duration

629

00:23:41,909 --> 00:23:39,120

my experience is very very difficult to

630

00:23:43,830 --> 00:23:41,919

handle and in fact i ended up when i was

631

00:23:45,750 --> 00:23:43,840

in space having two watches and people

632

00:23:48,149 --> 00:23:45,760

asking why do you have two in fact i had

633

00:23:50,710 --> 00:23:48,159

three on one here one here and one

634

00:23:53,029 --> 00:23:50,720

attached there because i needed to have

635

00:23:54,950 --> 00:23:53,039

to keep track of so many times what time

636

00:23:57,110 --> 00:23:54,960

is in italy what time is in the united

637

00:23:59,029 --> 00:23:57,120

states what time is on the space station

638

00:24:01,350 --> 00:23:59,039

and and they keep changing the time by

639

00:24:02,870 --> 00:24:01,360

the way so i would get totally confused

640

00:24:04,630 --> 00:24:02,880

the the watches like this are very

641

00:24:07,029 --> 00:24:04,640

confusing in space because you look and

642

00:24:08,789 --> 00:24:07,039

you don't know it's one o'clock

643

00:24:11,830 --> 00:24:08,799

during the day one o'clock during the

644

00:24:13,830 --> 00:24:11,840

night and it's very very confusing so so

645

00:24:15,669 --> 00:24:13,840

i'm still looking around i will bring up

646

00:24:17,750 --> 00:24:15,679

in space several watches this time just

647

00:24:20,870 --> 00:24:17,760

to to play with them i would like to

648

00:24:22,549 --> 00:24:20,880

have my own we even have some uh of

649

00:24:24,070 --> 00:24:22,559

course being the space station we cannot

650

00:24:27,110 --> 00:24:24,080

bring up whatever we want i would love

651
00:24:29,830 --> 00:24:27,120
to bring one of those uh modern watches

652
00:24:31,510 --> 00:24:29,840
where you have a link with the computer

653
00:24:33,909 --> 00:24:31,520
different type of batteries but there

654
00:24:36,149 --> 00:24:33,919
are all sorts of things of safety issues

655
00:24:36,870 --> 00:24:36,159
with that

656
00:24:38,870 --> 00:24:36,880
so

657
00:24:40,230 --> 00:24:38,880
i will experiment a little bit one of

658
00:24:43,029 --> 00:24:40,240
the things that i'm

659
00:24:45,830 --> 00:24:43,039
i'm having one watch personalize with my

660
00:24:48,390 --> 00:24:45,840
name at the end and i will i will bring

661
00:24:49,750 --> 00:24:48,400
up that one just to just to give it

662
00:24:55,830 --> 00:24:49,760
around and it's a secret but i should

663
00:25:00,549 --> 00:24:57,430

um

664

00:25:02,470 --> 00:25:00,559

russian cosmos also use omega

665

00:25:05,430 --> 00:25:02,480

watches and

666

00:25:07,269 --> 00:25:05,440

really i don't care they just

667

00:25:10,390 --> 00:25:07,279

need to work

668

00:25:12,870 --> 00:25:11,909

i like that

669

00:25:14,870 --> 00:25:12,880

all right

670

00:25:15,909 --> 00:25:14,880

okay and i think we have some special

671

00:25:17,110 --> 00:25:15,919

guests in the room that we're going to

672

00:25:20,149 --> 00:25:17,120

talk to um

673

00:25:21,669 --> 00:25:20,159

one of randy's particular interest in uh

674

00:25:23,510 --> 00:25:21,679

when he's on orbit is going to be i

675

00:25:26,630 --> 00:25:23,520

believe photography so we've invited

676

00:25:28,230 --> 00:25:26,640

some uh local photographers to come and

677

00:25:29,909 --> 00:25:28,240

ask questions if they had any and just

678

00:25:32,630 --> 00:25:29,919

another reminder

679

00:25:35,430 --> 00:25:32,640

that we are also taking questions via

680

00:25:36,950 --> 00:25:35,440

social media at ask nasa you can use the

681

00:25:38,230 --> 00:25:36,960

ask nasa on twitter and we'll take a

682

00:25:39,430 --> 00:25:38,240

look at those questions and try and get

683

00:25:40,390 --> 00:25:39,440

a few of them answered before the end of

684

00:25:41,990 --> 00:25:40,400

the day

685

00:25:45,909 --> 00:25:42,000

all right do we have any questions from

686

00:25:50,310 --> 00:25:48,310

hi my name is jamara kufi and i'm a

687

00:25:52,070 --> 00:25:50,320

hobbyist photographer

688

00:25:53,750 --> 00:25:52,080

i saw in a note that you've taken

689

00:25:55,750 --> 00:25:53,760

pictures all over the world and while

690

00:25:58,789 --> 00:25:55,760

you're on the space station you plan to

691

00:26:00,070 --> 00:25:58,799

photograph those areas from space

692

00:26:01,909 --> 00:26:00,080

when you match them up will you be

693

00:26:04,149 --> 00:26:01,919

sharing them on social media or putting

694

00:26:06,070 --> 00:26:04,159

together a book that we can see later

695

00:26:07,269 --> 00:26:06,080

how can we see when you match those

696

00:26:09,269 --> 00:26:07,279

pictures

697

00:26:12,070 --> 00:26:09,279

the intent and the hope of the project

698

00:26:14,549 --> 00:26:12,080

is to be able to send out the pictures

699

00:26:16,390 --> 00:26:14,559

together um you know over social media

700

00:26:18,390 --> 00:26:16,400

um

701

00:26:20,870 --> 00:26:18,400

the the genesis behind the project is

702

00:26:22,070 --> 00:26:20,880

i've been a you know photographer for my

703

00:26:23,350 --> 00:26:22,080

whole life my grandfather was a

704

00:26:24,789 --> 00:26:23,360

professional photographer so i kind of

705

00:26:27,110 --> 00:26:24,799

grew up with a camera in my hands and

706

00:26:29,909 --> 00:26:27,120

that was that was kind of a

707

00:26:32,789 --> 00:26:29,919

a normal thing for me as a kid you know

708

00:26:34,390 --> 00:26:32,799

it wasn't a bicycle or you know a

709

00:26:36,470 --> 00:26:34,400

baseball mid you know first i ever

710

00:26:38,390 --> 00:26:36,480

bought was a pentax emmy super and and

711

00:26:41,029 --> 00:26:38,400

you know i still got it today

712

00:26:42,230 --> 00:26:41,039

all right so we're dating ourselves

713

00:26:43,669 --> 00:26:42,240

and you know i still have it in all the

714

00:26:45,669 --> 00:26:43,679

lenses you know and that was that was

715

00:26:46,950 --> 00:26:45,679

just that was normal and so

716

00:26:48,549 --> 00:26:46,960

you know i've been very fortunate to be

717

00:26:50,870 --> 00:26:48,559

able to to travel and see the world and

718

00:26:51,990 --> 00:26:50,880

to be able to photograph its beauty and

719

00:26:54,230 --> 00:26:52,000

you know we always say that a picture's

720

00:26:55,830 --> 00:26:54,240

worth a thousand words and and

721

00:26:57,669 --> 00:26:55,840

we do that from space and we have these

722

00:26:59,909 --> 00:26:57,679

wonderful images but it's from our

723

00:27:00,870 --> 00:26:59,919

perspective in space only and people can

724

00:27:03,269 --> 00:27:00,880

see it

725

00:27:05,510 --> 00:27:03,279

but my hope is that by sending out a

726

00:27:07,029 --> 00:27:05,520

picture of of a place from space and

727

00:27:09,269 --> 00:27:07,039

picture from the you know from the

728

00:27:11,350 --> 00:27:09,279

ground as well you know taking with the

729

00:27:12,710 --> 00:27:11,360

same set of eyes that

730

00:27:14,310 --> 00:27:12,720

people will be able to that that are

731

00:27:15,909 --> 00:27:14,320

from that area will go hey i recognize

732

00:27:17,510 --> 00:27:15,919

that place and then they're able to see

733

00:27:18,710 --> 00:27:17,520

their place from space

734

00:27:20,470 --> 00:27:18,720

and then the people who are not from

735

00:27:21,430 --> 00:27:20,480

that place will look at it from space so

736

00:27:22,230 --> 00:27:21,440

that's beautiful and they're looking

737

00:27:23,350 --> 00:27:22,240

from the ground going wow that's

738

00:27:24,870 --> 00:27:23,360

beautiful and then maybe they'll want to

739

00:27:26,630 --> 00:27:24,880

go there and then make the world a

740

00:27:29,190 --> 00:27:26,640

little smaller of a place so that's

741

00:27:31,269 --> 00:27:29,200

that's the hope

742

00:27:33,350 --> 00:27:31,279

we'll share this again at the end of the

743

00:27:35,590 --> 00:27:33,360

of the hour but

744

00:27:37,789 --> 00:27:35,600

randy is on instagram and twitter and

745

00:27:41,350 --> 00:27:37,799

facebook all with the hashtag

746

00:27:43,269 --> 00:27:41,360

astrocomrad k-o-m-r-a-d-e

747

00:27:45,269 --> 00:27:43,279

so you can look for him there for those

748

00:27:46,950 --> 00:27:45,279

photos and i'm sure others and we've got

749

00:27:48,950 --> 00:27:46,960

some

750

00:27:51,430 --> 00:27:48,960

accounts for the uh rest the crew as

751

00:27:55,269 --> 00:27:51,440

well uh paulo's on twitter astro

752

00:27:58,310 --> 00:27:55,279

underscore paulo the p-a-o-l-o and uh

753

00:28:01,350 --> 00:27:58,320

sergey is at uh on twitter at

754

00:28:07,190 --> 00:28:01,360

ryzanski underscore iss and that is

755

00:28:10,789 --> 00:28:09,110

at iss for international space station

756

00:28:12,789 --> 00:28:10,799

we'll go over those again at the end but

757

00:28:14,470 --> 00:28:12,799

i think hopefully we'll be seeing lots

758

00:28:15,750 --> 00:28:14,480

from all of you on social media do you

759

00:28:16,870 --> 00:28:15,760

want to talk about any of your own

760

00:28:18,389 --> 00:28:16,880

personal

761

00:28:21,909 --> 00:28:18,399

pursuits or things you'll do for in your

762

00:28:24,470 --> 00:28:23,430

well i

763

00:28:29,990 --> 00:28:24,480

really

764

00:28:32,710 --> 00:28:30,000

like uh to make photos and

765

00:28:35,430 --> 00:28:32,720

from my previous mission i brought

766

00:28:37,590 --> 00:28:35,440

more than 65 000

767

00:28:39,190 --> 00:28:37,600

photos

768

00:28:41,130 --> 00:28:39,200

and

769

00:28:42,630 --> 00:28:41,140

just nowadays i'm working

770

00:28:46,789 --> 00:28:42,640

[Music]

771

00:28:48,630 --> 00:28:46,799

on a book uh with photos and stories

772

00:28:51,590 --> 00:28:48,640

um

773

00:28:53,750 --> 00:28:51,600

personally i prefer instagram because uh

774

00:28:56,149 --> 00:28:53,760

it's

775

00:28:58,510 --> 00:28:56,159

easier to share

776
00:28:59,830 --> 00:28:58,520
your visual um

777
00:29:02,230 --> 00:28:59,840
[Music]

778
00:29:03,269 --> 00:29:02,240
visual experience and with the small

779
00:29:05,029 --> 00:29:03,279
notes

780
00:29:06,870 --> 00:29:05,039
but

781
00:29:07,669 --> 00:29:06,880
now we have

782
00:29:14,630 --> 00:29:07,679
so

783
00:29:16,070 --> 00:29:14,640
channels um i will try to use

784
00:29:17,350 --> 00:29:16,080
most popular

785
00:29:18,710 --> 00:29:17,360
and

786
00:29:23,750 --> 00:29:18,720
by the way my

787
00:29:29,269 --> 00:29:27,510
sharing all this on social media and

788
00:29:30,789 --> 00:29:29,279

preparing the book

789

00:29:34,950 --> 00:29:30,799

it's really

790

00:29:37,190 --> 00:29:36,230

necessary

791

00:29:41,830 --> 00:29:37,200

to

792

00:29:44,149 --> 00:29:41,840

all these wonderful things that you can

793

00:29:45,990 --> 00:29:44,159

see from above

794

00:29:49,830 --> 00:29:46,000

and

795

00:29:54,549 --> 00:29:52,389

it's impossible even with the photos

796

00:29:55,990 --> 00:29:54,559

because it's much more

797

00:29:59,029 --> 00:29:56,000

beautiful or

798

00:30:02,870 --> 00:30:01,990

but still we should try we should try to

799

00:30:05,269 --> 00:30:02,880

share

800

00:30:07,110 --> 00:30:05,279

our experience with other

801
00:30:09,510 --> 00:30:07,120
people that

802
00:30:12,630 --> 00:30:09,520
maybe in future we'll have a chance also

803
00:30:15,590 --> 00:30:12,640
to fly and we'll have a dream to

804
00:30:19,269 --> 00:30:17,110
pal anything

805
00:30:21,430 --> 00:30:19,279
well we were talking about photography

806
00:30:24,630 --> 00:30:21,440
and photography was also one of my

807
00:30:26,230 --> 00:30:24,640
passions when i was uh still young and

808
00:30:29,190 --> 00:30:26,240
actually i would even say that if today

809
00:30:31,909 --> 00:30:29,200
i'm an astronaut probably i also to

810
00:30:33,830 --> 00:30:31,919
to having a camera and being in certain

811
00:30:36,710 --> 00:30:33,840
strange places at a certain strange

812
00:30:38,389 --> 00:30:36,720
times in any case i took quite some

813
00:30:40,149 --> 00:30:38,399

some pictures last time i was in space

814

00:30:42,630 --> 00:30:40,159

and i'm looking forward to be able to do

815

00:30:45,190 --> 00:30:42,640

it again i think the capability of

816

00:30:47,590 --> 00:30:45,200

seeing the earth and this special way

817

00:30:48,789 --> 00:30:47,600

when you're rotating around the earth

818

00:30:51,190 --> 00:30:48,799

and in an hour and a half you

819

00:30:53,669 --> 00:30:51,200

essentially go around it and and

820

00:30:55,430 --> 00:30:53,679

i always tell people if you have an hour

821

00:30:57,750 --> 00:30:55,440

an hour and a half today and you are

822

00:30:59,909 --> 00:30:57,760

here you can probably take the picture

823

00:31:02,389 --> 00:30:59,919

of the center around here with the sun

824

00:31:03,750 --> 00:31:02,399

at two o'clock in the afternoon but if

825

00:31:05,750 --> 00:31:03,760

you are on the space station you have an

826
00:31:08,389 --> 00:31:05,760
hour and a half and you go to the cupola

827
00:31:11,029 --> 00:31:08,399
you're actually seeing an eye then a day

828
00:31:14,070 --> 00:31:11,039
and four season and five continents and

829
00:31:16,070 --> 00:31:14,080
all the oceans so it's it's incredible

830
00:31:18,230 --> 00:31:16,080
and it becomes a different way of taking

831
00:31:20,070 --> 00:31:18,240
pictures you know it's like you see

832
00:31:21,830 --> 00:31:20,080
something and you better grab the camera

833
00:31:22,950 --> 00:31:21,840
and take the picture there because it's

834
00:31:25,029 --> 00:31:22,960
going to last

835
00:31:27,750 --> 00:31:25,039
that pictures like few seconds and then

836
00:31:29,269 --> 00:31:27,760
it's gone and it may repeat may not so

837
00:31:31,669 --> 00:31:29,279
it's a very good

838
00:31:33,509 --> 00:31:31,679

impressive capability that you get in

839

00:31:35,430 --> 00:31:33,519

space and it's one of the things that i

840

00:31:37,509 --> 00:31:35,440

think will make the

841

00:31:39,990 --> 00:31:37,519

the space travel

842

00:31:41,509 --> 00:31:40,000

appealing to tourists because uh because

843

00:31:43,990 --> 00:31:41,519

that's the only place where you can see

844

00:31:46,470 --> 00:31:44,000

the earth like that and and by the way

845

00:31:48,549 --> 00:31:46,480

this view in the earth with this way

846

00:31:51,669 --> 00:31:48,559

i personally think it eventually makes

847

00:31:53,430 --> 00:31:51,679

you a better terrestrial person so

848

00:31:56,389 --> 00:31:53,440

paradoxically you need to go outside of

849

00:31:59,509 --> 00:31:56,399

the earth to appreciate the earth in a

850

00:32:00,549 --> 00:31:59,519

in a new way so

851

00:32:02,149 --> 00:32:00,559

sure

852

00:32:03,669 --> 00:32:02,159

well give us just a minute to get the

853

00:32:05,830 --> 00:32:03,679

microphone back over here sounds like

854

00:32:07,590 --> 00:32:05,840

we've got lots of good photos to to look

855

00:32:09,509 --> 00:32:07,600

forward to on y'all's mission that'll be

856

00:32:11,430 --> 00:32:09,519

great and um for those of you who do

857

00:32:14,950 --> 00:32:11,440

follow nasa on social media i think we

858

00:32:17,830 --> 00:32:14,960

have a an instagram story going on today

859

00:32:19,190 --> 00:32:17,840

about uh photography from space and

860

00:32:20,149 --> 00:32:19,200

multiple different aspects of that

861

00:32:21,269 --> 00:32:20,159

that's really interesting that you

862

00:32:23,190 --> 00:32:21,279

should check out

863

00:32:24,789 --> 00:32:23,200

and uh let's go to this photo this

864

00:32:27,269 --> 00:32:24,799

question to follow up on the photos from

865

00:32:28,789 --> 00:32:27,279

space of course you you all carry much

866

00:32:31,990 --> 00:32:28,799

better instruments than the cameras and

867

00:32:33,990 --> 00:32:32,000

that's your own eyes but i've told i

868

00:32:35,509 --> 00:32:34,000

haven't seen myself yet but i've been

869

00:32:37,029 --> 00:32:35,519

told that there was actually an

870

00:32:38,789 --> 00:32:37,039

adjustment period

871

00:32:42,230 --> 00:32:38,799

on a flight in which

872

00:32:44,870 --> 00:32:42,240

after a number of hours of looking out

873

00:32:46,789 --> 00:32:44,880

your brain suddenly gets it and you see

874

00:32:49,350 --> 00:32:46,799

much more sharply you see him in three

875

00:32:51,430 --> 00:32:49,360

dimension can each you describe

876

00:32:53,990 --> 00:32:51,440

how that has happened to you with this

877

00:32:57,750 --> 00:32:54,000

adjustment period and how a tourist for

878

00:32:59,909 --> 00:32:57,760

example could short-circuit that process

879

00:33:01,830 --> 00:32:59,919

so that they could perhaps perhaps plan

880

00:33:04,230 --> 00:33:01,840

on the ground to practice in the ground

881

00:33:08,710 --> 00:33:04,240

to be ready to see space as soon as they

882

00:33:14,149 --> 00:33:11,750

what happened to me um

883

00:33:16,149 --> 00:33:14,159

is that you are in space and you know

884

00:33:17,590 --> 00:33:16,159

that you're so excited you are in space

885

00:33:19,750 --> 00:33:17,600

and i still remember the first time i

886

00:33:21,430 --> 00:33:19,760

flew on the shuttle i was downstairs so

887

00:33:23,750 --> 00:33:21,440

no window i was working working working

888

00:33:25,669 --> 00:33:23,760

working working four hours finally

889

00:33:27,669 --> 00:33:25,679

everything is ready and before going to

890

00:33:30,950 --> 00:33:27,679

bed i want to take a peek outside and i

891

00:33:32,710 --> 00:33:30,960

went up and i saw these huge blue things

892

00:33:34,870 --> 00:33:32,720

and that's it that's all i saw

893

00:33:37,350 --> 00:33:34,880

and then i said hmm interesting so next

894

00:33:39,190 --> 00:33:37,360

morning i will kappa go up blue thanks

895

00:33:41,830 --> 00:33:39,200

again so i

896

00:33:43,750 --> 00:33:41,840

before it i started synthetic it took

897

00:33:45,590 --> 00:33:43,760

quite some time and and it was

898

00:33:46,950 --> 00:33:45,600

incredible instead on the space station

899

00:33:49,029 --> 00:33:46,960

that the same thing happened and you

900

00:33:50,710 --> 00:33:49,039

look outside and you don't understand

901
00:33:53,669 --> 00:33:50,720
where you are it's difficult even to

902
00:33:56,470 --> 00:33:53,679
make out the the land from that and so

903
00:33:57,590 --> 00:33:56,480
but suddenly after a while for some

904
00:34:00,310 --> 00:33:57,600
reason

905
00:34:01,909 --> 00:34:00,320
you get this this click thing and and

906
00:34:03,269 --> 00:34:01,919
you know where you are

907
00:34:04,470 --> 00:34:03,279
you know it happened to me many times

908
00:34:06,630 --> 00:34:04,480
you just look out at the window and i

909
00:34:08,629 --> 00:34:06,640
know oh that's australia

910
00:34:10,149 --> 00:34:08,639
you know it and it takes takes several

911
00:34:12,389 --> 00:34:10,159
weeks by the way it takes like i would

912
00:34:14,069 --> 00:34:12,399
say a month before you or even more

913
00:34:15,510 --> 00:34:14,079

before you get to that point where you

914

00:34:17,829 --> 00:34:15,520

actually know where you are you just

915

00:34:20,470 --> 00:34:17,839

just take a pic quick pick in your over

916

00:34:23,349 --> 00:34:20,480

africa over europe and not only that

917

00:34:25,750 --> 00:34:23,359

you start processing your orbit and you

918

00:34:28,389 --> 00:34:25,760

know that if now you are over

919

00:34:29,750 --> 00:34:28,399

let's say africa in

920

00:34:30,710 --> 00:34:29,760

five minutes you're going to be over

921

00:34:32,710 --> 00:34:30,720

europe

922

00:34:35,109 --> 00:34:32,720

so if i want to take picture of italy

923

00:34:36,710 --> 00:34:35,119

which i'm pretty much interested on i

924

00:34:38,550 --> 00:34:36,720

better prepare

925

00:34:40,950 --> 00:34:38,560

so that so you get this this

926
00:34:43,909 --> 00:34:40,960
consciousness of where you are and how

927
00:34:45,990 --> 00:34:43,919
the orbit uh happens including the fact

928
00:34:47,589 --> 00:34:46,000
that you know you're going to be able to

929
00:34:49,190 --> 00:34:47,599
take certain things and you already

930
00:34:51,190 --> 00:34:49,200
tried but there were clouds so maybe

931
00:34:52,550 --> 00:34:51,200
this time no clouds or the sun what time

932
00:34:54,550 --> 00:34:52,560
of the day it is it's four o'clock in

933
00:34:56,550 --> 00:34:54,560
the afternoon it's going to be the sun

934
00:34:58,390 --> 00:34:56,560
in a certain angle and all of this kind

935
00:35:00,390 --> 00:34:58,400
of kind of come together at least that

936
00:35:03,030 --> 00:35:00,400
was my experience and and so if you look

937
00:35:05,030 --> 00:35:03,040
up if i look at my pictures that i took

938
00:35:06,470 --> 00:35:05,040

towards the end of the mission were

939

00:35:08,550 --> 00:35:06,480

completely different than the one that i

940

00:35:09,990 --> 00:35:08,560

took at the beginning uh because the

941

00:35:12,150 --> 00:35:10,000

beginning it looks like a you know i was

942

00:35:18,470 --> 00:35:12,160

just snapping stuff and didn't know what

943

00:35:24,390 --> 00:35:22,630

yeah but this is um this is because of

944

00:35:25,270 --> 00:35:24,400

your everyday

945

00:35:28,829 --> 00:35:25,280

work

946

00:35:34,790 --> 00:35:28,839

trying to

947

00:35:39,510 --> 00:35:36,790

really because we have some

948

00:35:43,430 --> 00:35:39,520

ecological

949

00:35:46,950 --> 00:35:43,440

science projects we are investigating

950

00:35:48,950 --> 00:35:46,960

rains tornadoes and some other

951
00:35:49,990 --> 00:35:48,960
things

952
00:35:52,150 --> 00:35:50,000
and it's

953
00:35:54,870 --> 00:35:52,160
really difficult

954
00:35:56,470 --> 00:35:54,880
from the beginning to

955
00:35:59,430 --> 00:35:56,480
understand

956
00:36:00,470 --> 00:35:59,440
where is everything but training your

957
00:36:05,829 --> 00:36:00,480
eye

958
00:36:05,839 --> 00:36:14,150
maybe a couple couple weeks yeah

959
00:36:20,630 --> 00:36:17,030
well um every

960
00:36:22,310 --> 00:36:20,640
moment free free time you have you're

961
00:36:23,750 --> 00:36:22,320
looking outside

962
00:36:25,589 --> 00:36:23,760
yeah i think it would be

963
00:36:28,550 --> 00:36:25,599

difficult for a tourist that goes up for

964

00:36:29,430 --> 00:36:28,560

a day or two to to actually get this

965

00:36:31,030 --> 00:36:29,440

this

966

00:36:33,670 --> 00:36:31,040

um

967

00:36:36,150 --> 00:36:33,680

but it's also different because you know

968

00:36:37,910 --> 00:36:36,160

our primary my primary task is not to go

969

00:36:40,470 --> 00:36:37,920

out go up there and look out of the

970

00:36:42,310 --> 00:36:40,480

window and see what's going on or

971

00:36:44,150 --> 00:36:42,320

so i'm concentrating on something else

972

00:36:45,670 --> 00:36:44,160

and i think if if i would fly as a

973

00:36:48,069 --> 00:36:45,680

tourist by the way i'm looking forward

974

00:36:49,430 --> 00:36:48,079

to fly as a tourist you know everybody

975

00:36:51,910 --> 00:36:49,440

says oh this is going to be your last

976
00:36:54,390 --> 00:36:51,920
flight and i say who said that you know

977
00:36:56,069 --> 00:36:54,400
in in 20 years maybe i've got enough

978
00:36:58,230 --> 00:36:56,079
money and i still have enough health

979
00:37:00,870 --> 00:36:58,240
that i could fly in space this time as a

980
00:37:02,950 --> 00:37:00,880
tourist and um

981
00:37:04,150 --> 00:37:02,960
i would i would make people concentrate

982
00:37:06,550 --> 00:37:04,160
on what they want to see you know

983
00:37:08,390 --> 00:37:06,560
understanding this orbit things you can

984
00:37:12,870 --> 00:37:08,400
you can understand what comes before you

985
00:37:14,790 --> 00:37:12,880
can practice with the with a map uh you

986
00:37:17,990 --> 00:37:14,800
i mean you can do a few things to to

987
00:37:19,109 --> 00:37:18,000
accelerate this process of acquiring

988
00:37:21,349 --> 00:37:19,119

this uh

989

00:37:23,270 --> 00:37:21,359

there's this understanding

990

00:37:25,109 --> 00:37:23,280

i think though

991

00:37:27,030 --> 00:37:25,119

you know it would probably take some

992

00:37:28,550 --> 00:37:27,040

time so

993

00:37:31,829 --> 00:37:28,560

i you know was there for an eleven day

994

00:37:34,390 --> 00:37:31,839

mission so i didn't have a you know aha

995

00:37:35,510 --> 00:37:34,400

moment um where things suddenly click so

996

00:37:37,430 --> 00:37:35,520

you know i was only up there for that

997

00:37:39,510 --> 00:37:37,440

long for me it wasn't such a visual

998

00:37:42,390 --> 00:37:39,520

acuity change it was the

999

00:37:45,270 --> 00:37:42,400

um just the mental grasping where you

1000

00:37:46,790 --> 00:37:45,280

are i mean to get up there on orbit and

1001
00:37:48,069 --> 00:37:46,800
have the main engines cut off things

1002
00:37:49,750 --> 00:37:48,079
start floating and all of a sudden you

1003
00:37:51,750 --> 00:37:49,760
can see the curvature of the earth you

1004
00:37:53,829 --> 00:37:51,760
know and the whole horizon well as you

1005
00:37:55,750 --> 00:37:53,839
see me do this in the picture your mind

1006
00:37:57,270 --> 00:37:55,760
can exactly extrapolate what the rest of

1007
00:37:58,550 --> 00:37:57,280
that circle is

1008
00:38:00,950 --> 00:37:58,560
and all of a sudden for the first time

1009
00:38:02,470 --> 00:38:00,960
in your life the earth is very finite

1010
00:38:05,510 --> 00:38:02,480
and it is just out here in front of you

1011
00:38:07,270 --> 00:38:05,520
and it's only this big and every human

1012
00:38:08,710 --> 00:38:07,280
that's ever lived

1013
00:38:09,990 --> 00:38:08,720

throughout human history and every

1014

00:38:11,270 --> 00:38:10,000

experience you've ever had your entire

1015

00:38:12,950 --> 00:38:11,280

life is happening on this little thing

1016

00:38:15,430 --> 00:38:12,960

that's only this big in front of you and

1017

00:38:18,230 --> 00:38:15,440

you're going around every 90 minutes

1018

00:38:20,710 --> 00:38:18,240

that you know humbling and and just

1019

00:38:22,230 --> 00:38:20,720

visually amazing things is what i think

1020

00:38:23,829 --> 00:38:22,240

is you know one of the biggest things to

1021

00:38:25,589 --> 00:38:23,839

grasp when when church first get up

1022

00:38:27,910 --> 00:38:25,599

there for that first impression

1023

00:38:30,150 --> 00:38:27,920

um i think being familiar

1024

00:38:32,230 --> 00:38:30,160

with the earth before you go is is the

1025

00:38:33,990 --> 00:38:32,240

thing that would make it easiest um on

1026

00:38:35,270 --> 00:38:34,000

our last eva bobby satcher and i were

1027

00:38:37,349 --> 00:38:35,280

coming inside and coming down the seat

1028

00:38:39,270 --> 00:38:37,359

of spur connecting the truss back to the

1029

00:38:40,710 --> 00:38:39,280

airlock and it's just basically a

1030

00:38:42,150 --> 00:38:40,720

handrail like you see the truss up up in

1031

00:38:43,829 --> 00:38:42,160

this room where you're maneuvering down

1032

00:38:47,349 --> 00:38:43,839

there's nothing underneath you as you're

1033

00:38:49,430 --> 00:38:47,359

crossing the gap between the segments

1034

00:38:51,270 --> 00:38:49,440

yeah 200 you know 20 to 250 miles below

1035

00:38:52,790 --> 00:38:51,280

you and we're coming down we just have

1036

00:38:56,069 --> 00:38:52,800

to be going right over the south island

1037

00:38:57,670 --> 00:38:56,079

of new zealand i can look down and uh

1038

00:39:00,230 --> 00:38:57,680

mission control heard me say hey bobby

1039

00:39:01,910 --> 00:39:00,240

there's the franz joseph glacier and i

1040

00:39:04,069 --> 00:39:01,920

get back later and they're like how did

1041

00:39:05,589 --> 00:39:04,079

you know that you know i mean

1042

00:39:07,829 --> 00:39:05,599

well my wife and i had been there you

1043

00:39:08,950 --> 00:39:07,839

know a couple years prior and so we had

1044

00:39:10,470 --> 00:39:08,960

seen that and that'll be one of the

1045

00:39:11,670 --> 00:39:10,480

pictures i'll also if i can get that

1046

00:39:12,710 --> 00:39:11,680

picture from space i'll send out the

1047

00:39:15,589 --> 00:39:12,720

picture from the ground with it so

1048

00:39:17,030 --> 00:39:15,599

people can see that and you know

1049

00:39:18,310 --> 00:39:17,040

people in metro control like these

1050

00:39:21,190 --> 00:39:18,320

astronauts know everything no i just

1051
00:39:22,470 --> 00:39:21,200
happened to have been there

1052
00:39:23,430 --> 00:39:22,480
all right i think we have a question

1053
00:39:25,349 --> 00:39:23,440
back here and then we're gonna go back

1054
00:39:27,190 --> 00:39:25,359
to the phone bridge briefly hi um i'm

1055
00:39:29,910 --> 00:39:27,200
leslie with houston

1056
00:39:31,589 --> 00:39:29,920
photographic society and i actually have

1057
00:39:34,230 --> 00:39:31,599
two questions one the first one is for

1058
00:39:35,670 --> 00:39:34,240
randy and then the next one would be for

1059
00:39:38,950 --> 00:39:35,680
all three but

1060
00:39:40,710 --> 00:39:38,960
um going back you know you're a cave nod

1061
00:39:43,829 --> 00:39:40,720
aqua now then

1062
00:39:46,630 --> 00:39:43,839
astronaut on space station um

1063
00:39:47,430 --> 00:39:46,640

i was i was wondering um

1064

00:39:49,750 --> 00:39:47,440

what

1065

00:39:51,589 --> 00:39:49,760

were the parallels with each of those

1066

00:39:53,750 --> 00:39:51,599

experiences i we touched on the

1067

00:39:56,470 --> 00:39:53,760

differences earlier but

1068

00:39:59,109 --> 00:39:56,480

were there any parallels in living in an

1069

00:40:01,190 --> 00:39:59,119

environment like that for an extended

1070

00:40:04,150 --> 00:40:01,200

period of time or something that

1071

00:40:05,510 --> 00:40:04,160

surprised you that you didn't think

1072

00:40:07,270 --> 00:40:05,520

ever think about

1073

00:40:08,390 --> 00:40:07,280

but except when you were going through

1074

00:40:11,670 --> 00:40:08,400

those

1075

00:40:14,630 --> 00:40:12,830

i think um

1076

00:40:16,630 --> 00:40:14,640

[Music]

1077

00:40:17,990 --> 00:40:16,640

it wasn't said by me someone else uh

1078

00:40:19,589 --> 00:40:18,000

said this before you know the first day

1079

00:40:20,870 --> 00:40:19,599

in space you're looking for your for

1080

00:40:22,630 --> 00:40:20,880

your hometown

1081

00:40:23,750 --> 00:40:22,640

and then by the second day of space

1082

00:40:25,670 --> 00:40:23,760

you're just looking you know for your

1083

00:40:28,069 --> 00:40:25,680

home country and by the third day you're

1084

00:40:30,230 --> 00:40:28,079

looking at earth spaceship earth as a

1085

00:40:31,750 --> 00:40:30,240

human being and you're looking at it

1086

00:40:33,270 --> 00:40:31,760

globally

1087

00:40:36,069 --> 00:40:33,280

and

1088

00:40:38,069 --> 00:40:36,079

humans we share experiences you know by

1089

00:40:39,270 --> 00:40:38,079

just us talking to you guys we're able

1090

00:40:40,470 --> 00:40:39,280

to share the experience that we were

1091

00:40:42,790 --> 00:40:40,480

fortunate enough to see in space we've

1092

00:40:44,390 --> 00:40:42,800

only had 550 something humans ever ever

1093

00:40:45,990 --> 00:40:44,400

go to space

1094

00:40:48,710 --> 00:40:46,000

and you know now being married and

1095

00:40:50,470 --> 00:40:48,720

having kids when i do stuff i feel like

1096

00:40:52,550 --> 00:40:50,480

it doesn't exist unless i can share it

1097

00:40:54,150 --> 00:40:52,560

with them you know and that's i think a

1098

00:40:56,150 --> 00:40:54,160

lot of us feel that that time that's i

1099

00:40:57,589 --> 00:40:56,160

think social media is such a draw to

1100

00:40:59,670 --> 00:40:57,599

people these days because you're able to

1101

00:41:01,589 --> 00:40:59,680

share your experiences with them

1102

00:41:03,589 --> 00:41:01,599

and the parallel i think for for all

1103

00:41:06,790 --> 00:41:03,599

three of the cave the underwater and the

1104

00:41:08,069 --> 00:41:06,800

orbit was just the absolute beauty of

1105

00:41:10,230 --> 00:41:08,079

the earth

1106

00:41:11,750 --> 00:41:10,240

and you want to take the picture because

1107

00:41:13,510 --> 00:41:11,760

you see that with your mind's eye and

1108

00:41:16,069 --> 00:41:13,520

you want to at least try and share it in

1109

00:41:17,589 --> 00:41:16,079

some manner you know even if it's just a

1110

00:41:20,470 --> 00:41:17,599

two-dimensional thing that's only this

1111

00:41:23,510 --> 00:41:20,480

big to show people what that beauty is

1112

00:41:25,430 --> 00:41:23,520

um i've done a presentation at schools

1113

00:41:27,030 --> 00:41:25,440

and with other

1114

00:41:29,190 --> 00:41:27,040

groups of people where i take a picture

1115

00:41:31,190 --> 00:41:29,200

from space from underwater in the cave

1116

00:41:32,870 --> 00:41:31,200

and show you how water looks so

1117

00:41:34,950 --> 00:41:32,880

absolutely mesmerizing and beautiful in

1118

00:41:36,470 --> 00:41:34,960

the blue of waters in all three of those

1119

00:41:38,870 --> 00:41:36,480

different areas even though they're

1120

00:41:40,710 --> 00:41:38,880

completely extremely different

1121

00:41:42,230 --> 00:41:40,720

the beauty is still is still the same

1122

00:41:44,870 --> 00:41:42,240

and just as is wonderful and something

1123

00:41:47,349 --> 00:41:44,880

you want to share with people

1124

00:41:50,390 --> 00:41:47,359

uh the next question for

1125

00:41:52,309 --> 00:41:50,400

any or all was

1126

00:41:54,309 --> 00:41:52,319

what are the noticeable differences

1127

00:41:57,910 --> 00:41:54,319

perhaps with

1128

00:41:59,510 --> 00:41:57,920

training now uh for going to the space

1129

00:42:01,109 --> 00:41:59,520

station as opposed to when you've

1130

00:42:02,309 --> 00:42:01,119

previously trained

1131

00:42:03,750 --> 00:42:02,319

and

1132

00:42:06,069 --> 00:42:03,760

what are

1133

00:42:09,670 --> 00:42:06,079

i would think some of the improvements

1134

00:42:19,349 --> 00:42:09,680

that have been made over the years that

1135

00:42:25,990 --> 00:42:22,870

i think one of the major uh changes uh

1136

00:42:27,910 --> 00:42:26,000

is the fact that uh uh especially here

1137

00:42:32,069 --> 00:42:27,920

at nasa they used to plan shuttle

1138

00:42:33,510 --> 00:42:32,079

missions uh which were very condensed

1139

00:42:36,309 --> 00:42:33,520

incredibly

1140

00:42:41,270 --> 00:42:38,630

series of activities and had to be

1141

00:42:42,230 --> 00:42:41,280

planned minute by minute and required a

1142

00:42:44,710 --> 00:42:42,240

high

1143

00:42:47,109 --> 00:42:44,720

coordination in fact uh we used to

1144

00:42:48,870 --> 00:42:47,119

measure it down by met mission elapsed

1145

00:42:49,910 --> 00:42:48,880

time and that was the timeline you look

1146

00:42:52,309 --> 00:42:49,920

how long

1147

00:42:54,950 --> 00:42:52,319

uh how how far you have launched and

1148

00:42:57,510 --> 00:42:54,960

what you're supposed to do let's say 15

1149

00:42:59,670 --> 00:42:57,520

hours after you launched and they

1150

00:43:01,030 --> 00:42:59,680

started planning the the space station

1151
00:43:03,109 --> 00:43:01,040
mission in this way and then they

1152
00:43:04,950 --> 00:43:03,119
realized that this doesn't work because

1153
00:43:06,790 --> 00:43:04,960
they're always something that happens

1154
00:43:09,109 --> 00:43:06,800
and and we used to be training the

1155
00:43:11,910 --> 00:43:09,119
shuttle in that way you try you train

1156
00:43:14,630 --> 00:43:11,920
every single minute of what is happening

1157
00:43:16,550 --> 00:43:14,640
uh we started the space station training

1158
00:43:19,589 --> 00:43:16,560
in that way and it turns out that you

1159
00:43:21,589 --> 00:43:19,599
need to train like for 15 years and and

1160
00:43:24,150 --> 00:43:21,599
then you still don't know because things

1161
00:43:27,190 --> 00:43:24,160
are changing so we went away from this

1162
00:43:29,270 --> 00:43:27,200
kind of training to the

1163
00:43:33,589 --> 00:43:29,280

task

1164

00:43:35,750 --> 00:43:33,599

skills-based uh skills-based training

1165

00:43:37,589 --> 00:43:35,760

where where you you train to operate

1166

00:43:38,710 --> 00:43:37,599

with a certain piece of equipment

1167

00:43:40,309 --> 00:43:38,720

nothing is

1168

00:43:41,990 --> 00:43:40,319

not necessarily what you're going to do

1169

00:43:45,030 --> 00:43:42,000

but a certain piece of equipment you

1170

00:43:47,829 --> 00:43:45,040

train to operate in general uh doing uh

1171

00:43:49,270 --> 00:43:47,839

science experiments in biology or or or

1172

00:43:50,550 --> 00:43:49,280

anything

1173

00:43:52,470 --> 00:43:50,560

and then

1174

00:43:54,470 --> 00:43:52,480

toward the the

1175

00:43:56,550 --> 00:43:54,480

last part of your training you you see

1176
00:43:58,230 --> 00:43:56,560
specifically what you're going to do but

1177
00:43:59,990 --> 00:43:58,240
you're not focusing totally on that

1178
00:44:01,510 --> 00:44:00,000
you're focusing on being able to do a

1179
00:44:03,349 --> 00:44:01,520
lot of things there

1180
00:44:05,270 --> 00:44:03,359
uh i think this is the first the first

1181
00:44:07,589 --> 00:44:05,280
thing the second one that i would say is

1182
00:44:09,750 --> 00:44:07,599
that we look a little bit more now about

1183
00:44:12,069 --> 00:44:09,760
the composition of the crew make sure

1184
00:44:14,390 --> 00:44:12,079
that the crew works uh is able to work

1185
00:44:16,390 --> 00:44:14,400
together because again you're not alone

1186
00:44:18,390 --> 00:44:16,400
up in in space you are an isolated and

1187
00:44:20,230 --> 00:44:18,400
combined confined environment it's not

1188
00:44:22,470 --> 00:44:20,240

that i can get away from these guys up

1189

00:44:24,069 --> 00:44:22,480

there for six months

1190

00:44:26,630 --> 00:44:24,079

so we better

1191

00:44:28,630 --> 00:44:26,640

be very comfortable with each other and

1192

00:44:31,030 --> 00:44:28,640

have an environment that make us work

1193

00:44:33,430 --> 00:44:31,040

together including by the way the ground

1194

00:44:36,150 --> 00:44:33,440

team which in a certain way it's even

1195

00:44:38,710 --> 00:44:36,160

it's extremely important to make this

1196

00:44:41,510 --> 00:44:38,720

success of a mission and this uh this

1197

00:44:43,829 --> 00:44:41,520

this capabilities this awareness i think

1198

00:44:47,990 --> 00:44:43,839

is much more present now than it was uh

1199

00:44:51,510 --> 00:44:50,069

i think another thing to add to that you

1200

00:44:55,190 --> 00:44:51,520

know

1201
00:44:57,430 --> 00:44:55,200
with our russian partners on the soyuz

1202
00:44:58,870 --> 00:44:57,440
and so you know this time from my

1203
00:45:00,150 --> 00:44:58,880
previous flight i'm sixty percent of my

1204
00:45:01,510 --> 00:45:00,160
time during the past year and a half has

1205
00:45:03,589 --> 00:45:01,520
been in russia you know training for

1206
00:45:05,829 --> 00:45:03,599
that that soyuz uh soyuz flight and on

1207
00:45:07,430 --> 00:45:05,839
the russian segment um

1208
00:45:09,829 --> 00:45:07,440
and you know from speaking from the

1209
00:45:10,870 --> 00:45:09,839
early you know expeditions you know with

1210
00:45:13,270 --> 00:45:10,880
uh

1211
00:45:14,790 --> 00:45:13,280
expedition one you know 16 years ago and

1212
00:45:17,109 --> 00:45:14,800
all the time they spent training

1213
00:45:19,190 --> 00:45:17,119

technology has allowed us while we're in

1214

00:45:21,510 --> 00:45:19,200

training to be a lot more connected to

1215

00:45:23,510 --> 00:45:21,520

back home uh with your family you know

1216

00:45:25,430 --> 00:45:23,520

where you whether it's just simply email

1217

00:45:27,910 --> 00:45:25,440

or phone calls or the fact that you've

1218

00:45:29,670 --> 00:45:27,920

got now things like skype uh and

1219

00:45:31,190 --> 00:45:29,680

facetime we're actually visually able to

1220

00:45:33,270 --> 00:45:31,200

see your and be much more connected well

1221

00:45:36,230 --> 00:45:33,280

those things on space as well also help

1222

00:45:39,109 --> 00:45:36,240

you feel much less isolated and so the

1223

00:45:41,270 --> 00:45:39,119

the the uh the training is different

1224

00:45:43,430 --> 00:45:41,280

but yet we have really allowed people to

1225

00:45:45,190 --> 00:45:43,440

be a lot more connected to what anchors

1226
00:45:46,950 --> 00:45:45,200
them and what's important to them while

1227
00:45:49,030 --> 00:45:46,960
they're doing it whether that be in

1228
00:45:51,109 --> 00:45:49,040
training or in space which is going to

1229
00:45:53,750 --> 00:45:51,119
be a huge part of when we start going

1230
00:45:54,950 --> 00:45:53,760
beyond low earth orbit and outside the

1231
00:45:56,309 --> 00:45:54,960
point where when we look back to the

1232
00:45:58,470 --> 00:45:56,319
earth it not only doesn't fit under our

1233
00:46:01,030 --> 00:45:58,480
thumb earth is just a star that we see

1234
00:46:02,870 --> 00:46:01,040
in the sky as we get closer to mars and

1235
00:46:04,630 --> 00:46:02,880
you or suddenly are not seeing that

1236
00:46:06,470 --> 00:46:04,640
beautiful spaceship earth that

1237
00:46:07,990 --> 00:46:06,480
everything you know is on and love you

1238
00:46:09,430 --> 00:46:08,000

know is there

1239

00:46:10,950 --> 00:46:09,440

and how we're going to psychologically

1240

00:46:12,550 --> 00:46:10,960

deal with that and keep our crew members

1241

00:46:15,910 --> 00:46:12,560

grounded and connected you know with

1242

00:46:18,790 --> 00:46:17,190

okay we're going to go back to the phone

1243

00:46:20,150 --> 00:46:18,800

bridge and then uh we'll come and take

1244

00:46:21,430 --> 00:46:20,160

some social media questions so be sure

1245

00:46:24,230 --> 00:46:21,440

and send your questions in using the

1246

00:46:29,670 --> 00:46:24,240

hashtag ask nasa but for now let's hear

1247

00:46:33,829 --> 00:46:31,109

hi this is hanukkah whitering with

1248

00:46:35,990 --> 00:46:33,839

space.com my question is mainly for

1249

00:46:37,589 --> 00:46:36,000

sergey but randy and paulo are welcome

1250

00:46:39,190 --> 00:46:37,599

to answer as well

1251
00:46:40,870 --> 00:46:39,200
so what are some of the scientific

1252
00:46:42,550 --> 00:46:40,880
research projects that you are looking

1253
00:46:45,589 --> 00:46:42,560
forward to working on at the space

1254
00:46:47,270 --> 00:46:45,599
station and will any of that work relate

1255
00:46:51,349 --> 00:46:47,280
to some of the research you've done

1256
00:46:51,359 --> 00:46:54,069
um

1257
00:47:00,230 --> 00:46:57,270
during our mission we will have uh

1258
00:47:03,430 --> 00:47:00,240
lots of different science projects

1259
00:47:06,069 --> 00:47:04,790
they are

1260
00:47:07,829 --> 00:47:06,079
um

1261
00:47:09,910 --> 00:47:07,839
they're equal for

1262
00:47:12,470 --> 00:47:09,920
uh each of us so

1263
00:47:16,630 --> 00:47:12,480

my background is biology but i will have

1264

00:47:19,589 --> 00:47:16,640

some experiments in physics in

1265

00:47:24,710 --> 00:47:20,470

but

1266

00:47:26,950 --> 00:47:24,720

of course i'm mostly interested in

1267

00:47:28,230 --> 00:47:26,960

biology and medicine

1268

00:47:30,630 --> 00:47:28,240

so

1269

00:47:32,630 --> 00:47:30,640

hopefully we will have

1270

00:47:36,069 --> 00:47:32,640

experiment circle lab

1271

00:47:39,510 --> 00:47:37,109

joint

1272

00:47:40,630 --> 00:47:39,520

experiment with our european colleagues

1273

00:47:43,430 --> 00:47:40,640

and

1274

00:47:49,750 --> 00:47:47,109

that's really close to that

1275

00:47:53,270 --> 00:47:49,760

question of muscle physiology that i was

1276

00:47:55,349 --> 00:47:53,280

researching during my phd work so

1277

00:47:56,790 --> 00:47:55,359

looking forward to

1278

00:47:57,670 --> 00:47:56,800

working

1279

00:48:00,950 --> 00:47:57,680

with

1280

00:48:04,309 --> 00:48:00,960

paolo as the subject and

1281

00:48:07,349 --> 00:48:06,150

also we have um

1282

00:48:09,349 --> 00:48:07,359

several

1283

00:48:11,190 --> 00:48:09,359

such type

1284

00:48:13,910 --> 00:48:11,200

of experiments

1285

00:48:17,430 --> 00:48:13,920

on russian side so i will be

1286

00:48:21,030 --> 00:48:17,440

uh working on them also so

1287

00:48:22,470 --> 00:48:21,040

but but still our science program is uh

1288

00:48:26,309 --> 00:48:22,480

really

1289

00:48:28,069 --> 00:48:26,319

different and i think interesting

1290

00:48:29,829 --> 00:48:28,079

and the neat part about what the science

1291

00:48:31,510 --> 00:48:29,839

is going on on the space station you

1292

00:48:33,109 --> 00:48:31,520

know we've been up there for 16 years

1293

00:48:34,950 --> 00:48:33,119

continuously man on the space station

1294

00:48:36,309 --> 00:48:34,960

over you know 2 300

1295

00:48:37,910 --> 00:48:36,319

you know

1296

00:48:39,670 --> 00:48:37,920

experiments and things that have gone on

1297

00:48:41,510 --> 00:48:39,680

during that time frame and it doesn't

1298

00:48:43,109 --> 00:48:41,520

matter what crew is up there or what

1299

00:48:45,430 --> 00:48:43,119

crews in training the science keeps

1300

00:48:46,790 --> 00:48:45,440

going and our launch dates may change

1301

00:48:49,190 --> 00:48:46,800

and people may shift and all that kind

1302

00:48:49,990 --> 00:48:49,200

of stuff but the science keeps going and

1303

00:48:52,230 --> 00:48:50,000

so

1304

00:48:54,150 --> 00:48:52,240

while ideally you know you're a little

1305

00:48:55,990 --> 00:48:54,160

more scheduled or a little more settled

1306

00:48:57,589 --> 00:48:56,000

on the schedule and you have a more

1307

00:48:58,710 --> 00:48:57,599

specific idea of the experience we've

1308

00:48:59,829 --> 00:48:58,720

moved around a little bit so we're still

1309

00:49:01,910 --> 00:48:59,839

kind of waiting to see where the dust

1310

00:49:03,030 --> 00:49:01,920

settles and what exactly you know we'll

1311

00:49:05,349 --> 00:49:03,040

be up there in the timeframe that we're

1312

00:49:06,950 --> 00:49:05,359

there but we've been trained and and you

1313

00:49:09,109 --> 00:49:06,960

know we're prepared to execute whatever

1314

00:49:11,990 --> 00:49:09,119

the the science experiments are um that

1315

00:49:13,109 --> 00:49:12,000

are up there uh in our time frame

1316

00:49:14,950 --> 00:49:13,119

okay

1317

00:49:17,109 --> 00:49:14,960

all right well hopefully uh my colleague

1318

00:49:19,190 --> 00:49:17,119

here haley fick has some questions here

1319

00:49:20,470 --> 00:49:19,200

from social media yeah um so we've heard

1320

00:49:22,549 --> 00:49:20,480

from all of you about how you plan to

1321

00:49:25,829 --> 00:49:22,559

use social media we have a question from

1322

00:49:27,829 --> 00:49:25,839

gavin morrow on twitter and he asks mr

1323

00:49:29,510 --> 00:49:27,839

bresnik how did you pick your twitter

1324

00:49:30,870 --> 00:49:29,520

handle i'm guessing there is a story

1325

00:49:34,309 --> 00:49:30,880

there

1326

00:49:36,309 --> 00:49:34,319

um the uh comrade is it was my uh

1327

00:49:37,910 --> 00:49:36,319

fighter pilot call sign from

1328

00:49:39,829 --> 00:49:37,920

back in the early 90s when i started

1329

00:49:41,829 --> 00:49:39,839

flying f-18s typically you get a call

1330

00:49:43,430 --> 00:49:41,839

sign you know from either somebody with

1331

00:49:45,270 --> 00:49:43,440

your name or something you've done

1332

00:49:47,349 --> 00:49:45,280

stupid you know that's just

1333

00:49:48,390 --> 00:49:47,359

there's a guy who who held the brakes

1334

00:49:50,069 --> 00:49:48,400

while he's on the catapult on the

1335

00:49:51,750 --> 00:49:50,079

aircraft carrier and so as soon as the

1336

00:49:54,790 --> 00:49:51,760

catapult launched it blew both his tires

1337

00:49:56,470 --> 00:49:54,800

he got a call sign bam bam so

1338

00:49:58,950 --> 00:49:56,480

mine i didn't do anything stupid enough

1339

00:50:00,710 --> 00:49:58,960

and so when i got to the uh start f-18s

1340

00:50:01,829 --> 00:50:00,720

they said bresnik

1341

00:50:04,470 --> 00:50:01,839

and then some

1342

00:50:06,150 --> 00:50:04,480

you know more experienced guy said hey

1343

00:50:08,150 --> 00:50:06,160

bresnik that sounds like brezhnev

1344

00:50:09,829 --> 00:50:08,160

comrade brezhnev okay all right

1345

00:50:11,430 --> 00:50:09,839

that's it you're a comrade and then

1346

00:50:12,710 --> 00:50:11,440

fortunately the next 25 years of flying

1347

00:50:15,589 --> 00:50:12,720

i didn't do something stupid to get a

1348

00:50:17,270 --> 00:50:15,599

new one so um that's kind of stuck and

1349

00:50:19,750 --> 00:50:17,280

it's it's it's strange coming here to

1350

00:50:21,190 --> 00:50:19,760

nasa where it's not the military

1351

00:50:23,030 --> 00:50:21,200

um you know i first got here people

1352

00:50:24,710 --> 00:50:23,040

would you know call out hey randy and

1353

00:50:25,990 --> 00:50:24,720

i'd be looking around because for you

1354

00:50:28,069 --> 00:50:26,000

know a decade and a half everybody's

1355

00:50:30,069 --> 00:50:28,079

calling me comrade it's also fun when i

1356

00:50:32,630 --> 00:50:30,079

first got to space station you know my

1357

00:50:34,470 --> 00:50:32,640

crewmates you know on scs-129 here all

1358

00:50:36,390 --> 00:50:34,480

were calling me comrade and and a few of

1359

00:50:37,589 --> 00:50:36,400

them had their own call signs and we got

1360

00:50:39,270 --> 00:50:37,599

on the space station and i've got max

1361

00:50:40,390 --> 00:50:39,280

suryav and roman romanenko and they're

1362

00:50:41,670 --> 00:50:40,400

floating around

1363

00:50:43,430 --> 00:50:41,680

and you know hear one of them i go hey

1364

00:50:46,390 --> 00:50:43,440

comrade and you see them turn their

1365

00:50:50,069 --> 00:50:48,150

that's a great story so you've touched

1366

00:50:53,510 --> 00:50:50,079

on staying connected with your family

1367

00:50:55,270 --> 00:50:53,520

but this user andrew malaro on twitter

1368

00:50:57,270 --> 00:50:55,280

wants to know do do any of the

1369

00:50:59,990 --> 00:50:57,280

astronauts have pets and can they talk

1370

00:51:02,150 --> 00:51:00,000

to them on the webcam as well

1371

00:51:05,670 --> 00:51:02,160

pets

1372

00:51:07,030 --> 00:51:05,680

um we we have a dog named stormy she's a

1373

00:51:10,390 --> 00:51:07,040

nine-year-old

1374

00:51:12,150 --> 00:51:10,400

mini sharpay blue sharpie um we've tried

1375

00:51:13,990 --> 00:51:12,160

it we know i'd be in russia via facetime

1376

00:51:14,790 --> 00:51:14,000

and skype on with the kids

1377

00:51:16,549 --> 00:51:14,800

she doesn't get the whole

1378

00:51:18,549 --> 00:51:16,559

two-dimensional thing she hears the

1379

00:51:20,150 --> 00:51:18,559

sound you see her looking around but she

1380

00:51:21,190 --> 00:51:20,160

doesn't come up and look into the thing

1381

00:51:23,430 --> 00:51:21,200

you know kind of like doesn't get the

1382

00:51:25,670 --> 00:51:23,440

whole tv thing i have seen dogs that do

1383

00:51:27,190 --> 00:51:25,680

get it but she's not one of them

1384

00:51:29,589 --> 00:51:27,200

so i'll be able to see her but she won't

1385

00:51:31,990 --> 00:51:29,599

probably participate on that we we do

1386

00:51:33,829 --> 00:51:32,000

have fish so a couple of fish so it's

1387

00:51:35,510 --> 00:51:33,839

kind of going to be difficult to talk to

1388

00:51:37,829 --> 00:51:35,520

them but i guess i will have already my

1389

00:51:39,589 --> 00:51:37,839

hands full and trying to talk to my kids

1390

00:51:41,670 --> 00:51:39,599

uh which you know

1391

00:51:43,589 --> 00:51:41,680

my son picks up the phone when i call my

1392

00:51:45,109 --> 00:51:43,599

wife and will answer i will not give the

1393

00:51:47,109 --> 00:51:45,119

phone to her i'm not saying anything i

1394

00:51:49,510 --> 00:51:47,119

love papa i love papa is a

1395

00:51:51,109 --> 00:51:49,520

three-year-old guy so it's gonna be it's

1396

00:51:52,870 --> 00:51:51,119

going to be something like this in space

1397

00:51:55,109 --> 00:51:52,880

i guess

1398

00:51:57,829 --> 00:51:55,119

awesome so we have one more question um

1399

00:52:00,069 --> 00:51:57,839

from m reichel chesser cheshire on

1400

00:52:02,230 --> 00:52:00,079

twitter and he asked what is it like to

1401
00:52:11,670 --> 00:52:02,240
be cramped in the soyuz for two days

1402
00:52:11,680 --> 00:52:14,710
hopefully

1403
00:52:21,589 --> 00:52:19,270
our crew again as my previous flight we

1404
00:52:26,309 --> 00:52:21,599
will have fast rendezvous

1405
00:52:30,069 --> 00:52:26,319
so it will be six hours and how you feel

1406
00:52:32,870 --> 00:52:30,079
two days in soyuz you can ask paolo

1407
00:52:33,670 --> 00:52:32,880
well i actually had this experience and

1408
00:52:38,549 --> 00:52:33,680
uh

1409
00:52:40,870 --> 00:52:38,559
i think the the the

1410
00:52:43,349 --> 00:52:40,880
the worst part is when you're actually

1411
00:52:44,710 --> 00:52:43,359
strapped in for launch and entry and

1412
00:52:47,270 --> 00:52:44,720
especially so where you are really

1413
00:52:49,910 --> 00:52:47,280

sitting in your seat in a fetal position

1414

00:52:51,910 --> 00:52:49,920

all hunkered down that's uncomfortable

1415

00:52:55,910 --> 00:52:51,920

but uh you know when when you are

1416

00:52:58,150 --> 00:52:55,920

actually in space and and for two days

1417

00:53:01,109 --> 00:52:58,160

we used to be there because you need to

1418

00:53:03,190 --> 00:53:01,119

acquire data to point your spacecraft to

1419

00:53:04,870 --> 00:53:03,200

the space station now the the soyuz can

1420

00:53:06,950 --> 00:53:04,880

do it by itself so we don't need to do

1421

00:53:08,790 --> 00:53:06,960

that anymore uh

1422

00:53:10,630 --> 00:53:08,800

it's actually not that bad you know

1423

00:53:12,470 --> 00:53:10,640

space is small or something but you get

1424

00:53:14,950 --> 00:53:12,480

to stretch a little bit and you get to

1425

00:53:15,750 --> 00:53:14,960

eat something i heard scott kelly they

1426

00:53:18,710 --> 00:53:15,760

said

1427

00:53:20,790 --> 00:53:18,720

i know now how that a cat feels you know

1428

00:53:22,470 --> 00:53:20,800

you wake up a little bit you eat

1429

00:53:24,069 --> 00:53:22,480

something you go to sleep but then

1430

00:53:25,670 --> 00:53:24,079

you're the money to go to sleep again

1431

00:53:27,109 --> 00:53:25,680

then you wake up then you listen to the

1432

00:53:28,870 --> 00:53:27,119

radio where they talk and then you'll

1433

00:53:30,069 --> 00:53:28,880

sleep a little bit it's actually not a

1434

00:53:31,510 --> 00:53:30,079

bad time

1435

00:53:33,030 --> 00:53:31,520

because you

1436

00:53:35,270 --> 00:53:33,040

really you get to space you're really

1437

00:53:37,670 --> 00:53:35,280

tired i mean it's a really really really

1438

00:53:39,829 --> 00:53:37,680

long day your body is going through all

1439

00:53:42,549 --> 00:53:39,839

these changes of this sensation it's

1440

00:53:44,630 --> 00:53:42,559

kind of crazy and and some people got to

1441

00:53:46,630 --> 00:53:44,640

say that it's not bad the fact that you

1442

00:53:48,790 --> 00:53:46,640

have you know few hours where you can

1443

00:53:50,950 --> 00:53:48,800

really do nothing just just hang around

1444

00:53:53,190 --> 00:53:50,960

there and so i would

1445

00:53:55,510 --> 00:53:53,200

i would say it's not the best time but

1446

00:53:57,190 --> 00:53:55,520

it's not bad either and after having

1447

00:53:59,589 --> 00:53:57,200

spent a few hundred hours now in the

1448

00:54:00,710 --> 00:53:59,599

soyuz next to sergey uh doing our

1449

00:54:03,030 --> 00:54:00,720

training in the simulators and

1450

00:54:05,430 --> 00:54:03,040

everything i i give a lot more credit to

1451
00:54:07,510 --> 00:54:05,440
the early cosmonauts and astronauts uh

1452
00:54:09,349 --> 00:54:07,520
when they were flying these flights and

1453
00:54:10,870 --> 00:54:09,359
from one me the one that stands out it

1454
00:54:13,750 --> 00:54:10,880
was the gemini mission it was tom

1455
00:54:15,270 --> 00:54:13,760
stafford and jim lovell two weeks in a

1456
00:54:17,190 --> 00:54:15,280
gemini capsule

1457
00:54:18,710 --> 00:54:17,200
if people don't know what that's like go

1458
00:54:20,390 --> 00:54:18,720
google it and see how much space there

1459
00:54:22,230 --> 00:54:20,400
was they're basically their seats and

1460
00:54:23,750 --> 00:54:22,240
that was it for two weeks they could go

1461
00:54:25,349 --> 00:54:23,760
into their refrigerator and close the

1462
00:54:27,430 --> 00:54:25,359
door and be there for two weeks you know

1463
00:54:29,430 --> 00:54:27,440

maybe shut it off before i mean it's

1464

00:54:30,950 --> 00:54:29,440

amazing what these early pioneers did in

1465

00:54:33,190 --> 00:54:30,960

space exploration

1466

00:54:35,109 --> 00:54:33,200

and for whatever part it is that we're

1467

00:54:36,950 --> 00:54:35,119

doing in that step of humans going to

1468

00:54:38,950 --> 00:54:36,960

into another terrestrial body we hope

1469

00:54:41,670 --> 00:54:38,960

that we're you know doing our part to

1470

00:54:43,990 --> 00:54:41,680

you know further the advance of our our

1471

00:54:45,910 --> 00:54:44,000

species uh exploring the solar system in

1472

00:54:47,990 --> 00:54:45,920

the in the universe

1473

00:54:49,829 --> 00:54:48,000

all right well it's been a lot of fun

1474

00:54:51,510 --> 00:54:49,839

talking with you i learned a lot but

1475

00:54:52,789 --> 00:54:51,520

we're just about out of time now so

1476
00:54:55,030 --> 00:54:52,799
we're going to wrap it up by letting you

1477
00:54:56,870 --> 00:54:55,040
know that you can keep up with the

1478
00:55:01,030 --> 00:54:56,880
all the news on on the space station and

1479
00:55:02,150 --> 00:55:01,040
what's going on up there at www.nasa.gov

1480
00:55:04,710 --> 00:55:02,160
station

1481
00:55:06,549 --> 00:55:04,720
and again to give you an idea of how you

1482
00:55:07,910 --> 00:55:06,559
can follow along with it with these guys

1483
00:55:09,750 --> 00:55:07,920
while they're

1484
00:55:11,750 --> 00:55:09,760
training and then when they get to space

1485
00:55:15,109 --> 00:55:11,760
again their social media accounts for

1486
00:55:17,910 --> 00:55:15,119
randy bresnik is astro comrade astro

1487
00:55:20,309 --> 00:55:17,920
comrade and he is on

1488
00:55:21,430 --> 00:55:20,319

twitter facebook and instagram so you'll

1489

00:55:22,230 --> 00:55:21,440

want to keep an eye on all three of

1490

00:55:24,069 --> 00:55:22,240

those

1491

00:55:27,589 --> 00:55:24,079

for paulo he's on twitter and you can

1492

00:55:29,270 --> 00:55:27,599

find him at astro underscore paulo

1493

00:55:32,789 --> 00:55:29,280

and then finally

1494

00:55:35,190 --> 00:55:32,799

sergey also on twitter is at ryzanski

1495

00:55:36,950 --> 00:55:35,200

underscore iss and that is for

1496

00:55:38,470 --> 00:55:36,960

international space station

1497

00:55:40,950 --> 00:55:38,480

thanks so much for joining us today and

1498

00:55:43,270 --> 00:55:40,960

you can keep again keeping up with not

1499

00:55:46,470 --> 00:55:43,280

only all of this but other nasa news at