



1
00:00:47,270 --> 00:00:37,350
station this is houston are you ready

2
00:00:54,069 --> 00:00:49,190
yes we are ready for the events we don't

3
00:00:57,430 --> 00:00:55,750
weather nation this is mission control

4
00:01:00,310 --> 00:00:57,440
houston please call station for a voice

5
00:01:04,390 --> 00:01:02,310
this is weather nation meteorologist

6
00:01:06,469 --> 00:01:04,400
meredith garfallo for voice check one

7
00:01:11,670 --> 00:01:06,479
two three four five six seven eight nine

8
00:01:16,630 --> 00:01:14,789
we have you loud and clear meredith

9
00:01:19,990 --> 00:01:16,640
excellent well let's get the show on the

10
00:01:22,310 --> 00:01:20,000
road from earth to the space station

11
00:01:24,950 --> 00:01:22,320
thank you so much for joining us we are

12
00:01:26,630 --> 00:01:24,960
very excited and honored to have two of

13
00:01:29,350 --> 00:01:26,640

our astronauts on the international

14

00:01:31,429 --> 00:01:29,360

space station joining us we have nasa

15

00:01:34,230 --> 00:01:31,439

astronaut and retired u.s army colonel

16

00:01:37,749 --> 00:01:34,240

mark vanda high and european space

17

00:01:39,510 --> 00:01:37,759

agency astronaut tomas pasque of france

18

00:01:46,789 --> 00:01:39,520

how are things going

19

00:01:50,149 --> 00:01:48,550

meredith they are going fantastic we're

20

00:01:52,069 --> 00:01:50,159

getting a lot of work done every day and

21

00:01:56,310 --> 00:01:52,079

we're having fun with each other

22

00:01:59,990 --> 00:01:58,310

that's good because we can't take life

23

00:02:02,310 --> 00:02:00,000

too seriously right and especially when

24

00:02:03,910 --> 00:02:02,320

you are watching it from above

25

00:02:05,590 --> 00:02:03,920

one of the questions i always get when

26
00:02:07,350 --> 00:02:05,600
i'm talking about the space station and

27
00:02:09,029 --> 00:02:07,360
astronauts that i'm sure you'll love to

28
00:02:11,110 --> 00:02:09,039
answer for us and people across the

29
00:02:12,869 --> 00:02:11,120
entire planet would like to know is what

30
00:02:15,270 --> 00:02:12,879
is it like calling the space station

31
00:02:20,790 --> 00:02:15,280
your home to be up there where you live

32
00:02:24,229 --> 00:02:22,470
oh it's it's absolutely fantastic

33
00:02:26,470 --> 00:02:24,239
meredith and for both for mark and

34
00:02:27,990 --> 00:02:26,480
myself it's the second mission so we

35
00:02:30,390 --> 00:02:28,000
really get to call it home because we've

36
00:02:32,309 --> 00:02:30,400
lived and worked on the space station a

37
00:02:35,110 --> 00:02:32,319
lot of days more than 200 days i think

38
00:02:36,710 --> 00:02:35,120

both of us um so it feels like home it

39

00:02:38,070 --> 00:02:36,720

means you get used to it things are a

40

00:02:40,309 --> 00:02:38,080

little bit different up here as you see

41

00:02:41,990 --> 00:02:40,319

with floating so it makes daily life

42

00:02:44,390 --> 00:02:42,000

sometimes more complicated when you have

43

00:02:45,990 --> 00:02:44,400

to eat when you have to you know shower

44

00:02:47,350 --> 00:02:46,000

but sometimes it makes it makes it

45

00:02:49,030 --> 00:02:47,360

easier in the morning you just have to

46

00:02:50,710 --> 00:02:49,040

jump into your pants for example which

47

00:02:52,869 --> 00:02:50,720

you cannot do on earth

48

00:02:54,390 --> 00:02:52,879

so it takes some getting used to but

49

00:02:56,150 --> 00:02:54,400

it's really fantastic it's a new

50

00:02:57,830 --> 00:02:56,160

environment that your body adapts to

51
00:02:59,670 --> 00:02:57,840
that your mind adapts to you live in

52
00:03:02,470 --> 00:02:59,680
three dimension and then you never get

53
00:03:07,110 --> 00:03:05,110
i was going to say and ask you guys can

54
00:03:12,710 --> 00:03:07,120
you do backflips have you mastered that

55
00:03:17,589 --> 00:03:14,710
it just so happens that mark right here

56
00:03:19,830 --> 00:03:17,599
is the grand master of backflips so it's

57
00:03:21,509 --> 00:03:19,840
gonna demonstrate

58
00:03:23,350 --> 00:03:21,519
look at this

59
00:03:25,350 --> 00:03:23,360
wow

60
00:03:28,949 --> 00:03:25,360
very nicely done

61
00:03:33,589 --> 00:03:31,270
hey who knows maybe in the next decade

62
00:03:35,589 --> 00:03:33,599
we will have space olympics and you guys

63
00:03:37,030 --> 00:03:35,599

are already ready for that i'm a

64

00:03:38,630 --> 00:03:37,040

scientist a meteorologist here at

65

00:03:40,390 --> 00:03:38,640

weather nation i find all the work that

66

00:03:42,789 --> 00:03:40,400

you're doing in space absolutely

67

00:03:44,710 --> 00:03:42,799

fascinating from the research to all the

68

00:03:46,630 --> 00:03:44,720

experiments the topics you're studying

69

00:03:49,030 --> 00:03:46,640

human anatomy botany space weather

70

00:03:51,589 --> 00:03:49,040

microgravity what have you personally

71

00:03:53,750 --> 00:03:51,599

worked on during your first mission and

72

00:03:59,750 --> 00:03:53,760

what are you looking to accomplish now

73

00:04:02,789 --> 00:04:01,110

you know i have to think about the

74

00:04:04,710 --> 00:04:02,799

previous mission um i've been very

75

00:04:06,789 --> 00:04:04,720

focused on the current mission and the

76
00:04:07,589 --> 00:04:06,799
celestial immunity experiment we've been

77
00:04:09,830 --> 00:04:07,599
doing

78
00:04:12,550 --> 00:04:09,840
um one of the challenges with

79
00:04:15,589 --> 00:04:12,560
simulating human systems on the earth as

80
00:04:17,509 --> 00:04:15,599
you're well aware of

81
00:04:19,749 --> 00:04:17,519
as a meteorologist are the forces of

82
00:04:21,509 --> 00:04:19,759
convection and buoyancy have a huge

83
00:04:23,830 --> 00:04:21,519
impact on the surface of the earth and

84
00:04:26,390 --> 00:04:23,840
the atmosphere of the earth

85
00:04:28,790 --> 00:04:26,400
up here in space those

86
00:04:31,830 --> 00:04:28,800
those effects are very minimal as we're

87
00:04:33,430 --> 00:04:31,840
in a free fall around the planet

88
00:04:35,189 --> 00:04:33,440

so we're taking advantage of that

89

00:04:37,189 --> 00:04:35,199

because we can

90

00:04:37,909 --> 00:04:37,199

better study three-dimensional systems

91

00:04:39,909 --> 00:04:37,919

like

92

00:04:41,749 --> 00:04:39,919

uh human cells

93

00:04:44,070 --> 00:04:41,759

we're taking advantage of that to study

94

00:04:45,510 --> 00:04:44,080

the immune system with this experiment

95

00:04:48,230 --> 00:04:45,520

cellular immunity that we've been

96

00:04:56,390 --> 00:04:48,240

spending a good chunk of every day in

97

00:04:59,430 --> 00:04:57,990

that's so cool how you passed the mic i

98

00:05:06,469 --> 00:04:59,440

just have to put that out there thomas

99

00:05:10,790 --> 00:05:09,270

and uh for me um with uh there's

100

00:05:12,629 --> 00:05:10,800

actually a nice experiment that that's

101

00:05:14,310 --> 00:05:12,639

called grip and grasp it's it's a

102

00:05:15,830 --> 00:05:14,320

european experiment that i've that

103

00:05:17,990 --> 00:05:15,840

commissioned last time i was here four

104

00:05:19,909 --> 00:05:18,000

years ago and to them the last subject

105

00:05:21,830 --> 00:05:19,919

so i'm kind of closing the loop and uh

106

00:05:23,590 --> 00:05:21,840

so it's kind of nice to follow this this

107

00:05:26,629 --> 00:05:23,600

experiment from beginning to end and it

108

00:05:29,189 --> 00:05:26,639

really looks at the way your brain

109

00:05:30,629 --> 00:05:29,199

is wired in space because being in space

110

00:05:32,710 --> 00:05:30,639

is a learning experience it's like

111

00:05:34,790 --> 00:05:32,720

learning how to ride a bike and then you

112

00:05:37,430 --> 00:05:34,800

can't forget uh and there's not that

113

00:05:39,430 --> 00:05:37,440

many examples of such a soft rewiring of

114

00:05:41,510 --> 00:05:39,440

your brain for an adult

115

00:05:43,110 --> 00:05:41,520

and by looking at what happens when you

116

00:05:44,790 --> 00:05:43,120

interact with your environment in space

117

00:05:46,629 --> 00:05:44,800

then scientists find out new connections

118

00:05:48,469 --> 00:05:46,639

in the brain and then it can help

119

00:05:50,390 --> 00:05:48,479

cure people with disabilities and things

120

00:05:52,550 --> 00:05:50,400

like that on the earth so uh so this is

121

00:05:55,350 --> 00:05:52,560

an experiment i took a lot of pride of

122

00:05:58,070 --> 00:05:55,360

in and very happy to conclude the cycle

123

00:05:59,830 --> 00:05:58,080

of this experiment today

124

00:06:01,909 --> 00:05:59,840

that's very exciting and we look forward

125

00:06:04,390 --> 00:06:01,919

to seeing the research that comes out of

126

00:06:06,309 --> 00:06:04,400

it in the future as you know here on

127

00:06:08,710 --> 00:06:06,319

earth we rely on satellites to get

128

00:06:10,950 --> 00:06:08,720

weather information and for you up in

129

00:06:12,790 --> 00:06:10,960

space what type of earth remote sensing

130

00:06:14,710 --> 00:06:12,800

instruments are currently operating on

131

00:06:21,110 --> 00:06:14,720

the space station and what are they

132

00:06:24,070 --> 00:06:22,629

so there's a there's a few experiments

133

00:06:25,749 --> 00:06:24,080

looking down at the earth and looking at

134

00:06:27,990 --> 00:06:25,759

the atmosphere uh one that i

135

00:06:31,350 --> 00:06:28,000

particularly like uh it's called azim or

136

00:06:33,350 --> 00:06:31,360

azim asim it's actually european made

137

00:06:34,790 --> 00:06:33,360

danish made even

138

00:06:36,230 --> 00:06:34,800

and it operates on the outside of the

139

00:06:37,670 --> 00:06:36,240

space station it looks at the

140

00:06:39,110 --> 00:06:37,680

phenomenons that that happen in the

141

00:06:41,830 --> 00:06:39,120

upper atmosphere whenever there's a

142

00:06:43,990 --> 00:06:41,840

thunderstorm uh we got what we call

143

00:06:45,749 --> 00:06:44,000

sprites or else those are electrical

144

00:06:47,110 --> 00:06:45,759

discharges in the upper atmosphere you

145

00:06:48,710 --> 00:06:47,120

can actually see them from the space

146

00:06:50,710 --> 00:06:48,720

station we were talking to megan one of

147

00:06:52,150 --> 00:06:50,720

our crew members she saw one yesterday

148

00:06:55,029 --> 00:06:52,160

and it looks like it's really

149

00:06:57,909 --> 00:06:55,039

cool it looks like a blue um kind of a

150

00:06:59,670 --> 00:06:57,919

um electrical discharge in a but that

151

00:07:01,189 --> 00:06:59,680

goes vertically up from uh from a

152

00:07:03,110 --> 00:07:01,199

thunderstorm instead of going down to

153

00:07:05,909 --> 00:07:03,120

the to the ground and this instrument is

154

00:07:07,430 --> 00:07:05,919

tracking them um and and performing some

155

00:07:08,629 --> 00:07:07,440

kind of a survey and it really helps as

156

00:07:10,150 --> 00:07:08,639

you know as a meteorologist

157

00:07:11,029 --> 00:07:10,160

understanding what happens in a storm

158

00:07:12,870 --> 00:07:11,039

cell

159

00:07:17,270 --> 00:07:12,880

and help to deal with them on the ground

160

00:07:22,469 --> 00:07:19,909

you get to observe our planet every

161

00:07:24,950 --> 00:07:22,479

single day for more than 200 miles above

162

00:07:26,710 --> 00:07:24,960

what unique phenomena have you both seen

163

00:07:28,710 --> 00:07:26,720

and observed that you can share with us

164

00:07:35,510 --> 00:07:28,720

we know we have typhoons during the

165

00:07:39,110 --> 00:07:37,430

meredith on my last flight i got to see

166

00:07:40,150 --> 00:07:39,120

a hurricane

167

00:07:41,670 --> 00:07:40,160

it's

168

00:07:42,629 --> 00:07:41,680

of course those are devastating on the

169

00:07:43,830 --> 00:07:42,639

ground

170

00:07:45,029 --> 00:07:43,840

up here it's hard to believe that

171

00:07:46,710 --> 00:07:45,039

something that looks that beautiful is

172

00:07:47,909 --> 00:07:46,720

causing that much damage

173

00:07:49,430 --> 00:07:47,919

um

174

00:07:52,390 --> 00:07:49,440

just recently when we were traveling

175

00:07:56,150 --> 00:07:52,400

over central africa i saw uh

176

00:07:58,710 --> 00:07:56,160

thunderstorms lightning storms um

177

00:08:00,629 --> 00:07:58,720

from space it's you can see so many

178

00:08:02,469 --> 00:08:00,639

flashes of lightning

179

00:08:04,309 --> 00:08:02,479

all over the place it's a very unique

180

00:08:06,390 --> 00:08:04,319

experience to be able to get that view

181

00:08:08,469 --> 00:08:06,400

and it's shocking how broad

182

00:08:14,150 --> 00:08:08,479

and intense those electrical storms can

183

00:08:14,160 --> 00:08:19,430

and how about for you thomas

184

00:08:23,589 --> 00:08:21,510

yeah i can i can only agree agree with

185

00:08:26,070 --> 00:08:23,599

mark's thunderstorms are not at night

186

00:08:28,309 --> 00:08:26,080

are actually actually wonderful they're

187

00:08:30,390 --> 00:08:28,319

really cool to look at almost impossible

188

00:08:31,350 --> 00:08:30,400

to take a picture of i've tried trust me

189

00:08:33,029 --> 00:08:31,360

but

190

00:08:36,469 --> 00:08:33,039

i still have some some time on this

191

00:08:38,790 --> 00:08:36,479

mission to try to to succeed um

192

00:08:40,949 --> 00:08:38,800

and obviously tropical storms are are a

193

00:08:42,469 --> 00:08:40,959

big one if you see

194

00:08:44,070 --> 00:08:42,479

if you see some pictures that were taken

195

00:08:45,990 --> 00:08:44,080

by i think a colleague

196

00:08:48,870 --> 00:08:46,000

not so long ago you can look straight

197

00:08:50,710 --> 00:08:48,880

down into the eye of the of the storm

198

00:08:53,030 --> 00:08:50,720

which is hugely impressive you see those

199

00:08:55,350 --> 00:08:53,040

massive walls they're kilometers high i

200

00:08:57,670 --> 00:08:55,360

don't exactly know how many um but they

201
00:08:59,350 --> 00:08:57,680
really look like cloud walls and then

202
00:09:01,750 --> 00:08:59,360
you look straight down from the space

203
00:09:04,150 --> 00:09:01,760
station with a big lens with our biggest

204
00:09:05,910 --> 00:09:04,160
telephoto lens that's one of the most

205
00:09:08,550 --> 00:09:05,920
impressive pictures i've ever seen taken

206
00:09:10,230 --> 00:09:08,560
from the space station

207
00:09:12,550 --> 00:09:10,240
well i would love to trade places with

208
00:09:15,350 --> 00:09:12,560
you and be able to see that myself being

209
00:09:17,190 --> 00:09:15,360
a science and space geek let me ask both

210
00:09:19,990 --> 00:09:17,200
of you this you had careers before you

211
00:09:22,389 --> 00:09:20,000
became astronauts and gone up to space

212
00:09:23,750 --> 00:09:22,399
what has it been like being an astronaut

213
00:09:29,190 --> 00:09:23,760

what makes that different from your

214

00:09:33,190 --> 00:09:31,509

it's a great question it's a question we

215

00:09:35,030 --> 00:09:33,200

generally love to answer to try to help

216

00:09:36,710 --> 00:09:35,040

out the kids who are trying to decide

217

00:09:38,550 --> 00:09:36,720

what to do for the future mark has

218

00:09:40,150 --> 00:09:38,560

really good advice or he's the one who's

219

00:09:42,550 --> 00:09:40,160

going to answer that question for me

220

00:09:44,470 --> 00:09:42,560

it's it's really just

221

00:09:46,870 --> 00:09:44,480

don't don't limit yourself don't don't

222

00:09:48,389 --> 00:09:46,880

ensor yourself i almost didn't apply

223

00:09:50,150 --> 00:09:48,399

for the astronaut selection because i

224

00:09:51,670 --> 00:09:50,160

didn't think it was something i could do

225

00:09:53,590 --> 00:09:51,680

and just a friend of mine told me no you

226

00:09:55,269 --> 00:09:53,600

should you know you're a pilot you're an

227

00:09:57,269 --> 00:09:55,279

engineer you should try it i was like

228

00:09:58,230 --> 00:09:57,279

hey he's right but i almost didn't do it

229

00:10:00,070 --> 00:09:58,240

and i would have been the biggest

230

00:10:01,990 --> 00:10:00,080

mistake of my life so just just try

231

00:10:03,430 --> 00:10:02,000

things maybe they succeed maybe they

232

00:10:05,190 --> 00:10:03,440

don't but every time you try something

233

00:10:06,630 --> 00:10:05,200

you take a step on the on the path and

234

00:10:08,150 --> 00:10:06,640

maybe it's not gonna lead you where you

235

00:10:10,230 --> 00:10:08,160

thought it was gonna lead you but but

236

00:10:12,630 --> 00:10:10,240

it's gonna uh it's gonna revolve it's

237

00:10:14,550 --> 00:10:12,640

gonna uh you're gonna find out uh what's

238

00:10:16,870 --> 00:10:14,560

happening you're gonna find new uh new

239

00:10:18,949 --> 00:10:16,880

crossroads if you engage and if you

240

00:10:20,389 --> 00:10:18,959

start on that path so just just do it

241

00:10:24,069 --> 00:10:20,399

don't be scared and something's going to

242

00:10:28,150 --> 00:10:25,829

megan's demonstrating our

243

00:10:30,790 --> 00:10:28,160

flying through space for us

244

00:10:33,030 --> 00:10:30,800

yeah i would add to that by saying um

245

00:10:34,949 --> 00:10:33,040

much like what tomas said do things that

246

00:10:37,590 --> 00:10:34,959

risk failure even if it's possible that

247

00:10:38,550 --> 00:10:37,600

you might fail give it a shot

248

00:10:40,550 --> 00:10:38,560

also

249

00:10:42,550 --> 00:10:40,560

always do your best

250

00:10:44,310 --> 00:10:42,560

but put more emphasis on all the people

251
00:10:46,389 --> 00:10:44,320
around you that you're working with

252
00:10:48,550 --> 00:10:46,399
doing their best and then you always

253
00:10:52,069 --> 00:10:48,560
being the best of the group so be you

254
00:10:57,269 --> 00:10:53,670
that's great to hear and i'm sure a lot

255
00:10:58,949 --> 00:10:57,279
of boys and girls are looking forward to

256
00:11:00,710 --> 00:10:58,959
becoming astronauts down the road and

257
00:11:03,110 --> 00:11:00,720
hearing that from you and from the other

258
00:11:04,870 --> 00:11:03,120
astronauts is just very motivating and

259
00:11:06,550 --> 00:11:04,880
inspirational i've asked you guys a lot

260
00:11:08,949 --> 00:11:06,560
of hard questions so how about we have

261
00:11:10,790 --> 00:11:08,959
some fun what do you guys do for fun

262
00:11:17,190 --> 00:11:10,800
when you're not doing research or

263
00:11:21,110 --> 00:11:19,430

uh so so the good thing is we're all

264

00:11:22,550 --> 00:11:21,120

good friends here on the crew we're from

265

00:11:23,829 --> 00:11:22,560

the same class with mark and we've

266

00:11:25,350 --> 00:11:23,839

trained together before we've had

267

00:11:27,350 --> 00:11:25,360

underwater missions before i flew with

268

00:11:29,590 --> 00:11:27,360

shane we had missions with so we all

269

00:11:31,350 --> 00:11:29,600

know each other uh which means

270

00:11:33,430 --> 00:11:31,360

um there can be some fun in the evenings

271

00:11:35,750 --> 00:11:33,440

or on the sundays when we're not working

272

00:11:37,590 --> 00:11:35,760

um everybody's taking pictures sometimes

273

00:11:39,430 --> 00:11:37,600

looking at the earth some people write a

274

00:11:41,670 --> 00:11:39,440

journal or a diary you know they might

275

00:11:43,509 --> 00:11:41,680

want to write a book later on

276

00:11:45,910 --> 00:11:43,519

people are reading people are sometimes

277

00:11:48,630 --> 00:11:45,920

coming up with fun games to play that

278

00:11:50,710 --> 00:11:48,640

that actually use the the environment of

279

00:11:51,829 --> 00:11:50,720

microgravity and mark has a few ideas i

280

00:11:53,509 --> 00:11:51,839

don't want to throw him under the bus

281

00:11:55,269 --> 00:11:53,519

but he's actually really good at finding

282

00:11:56,710 --> 00:11:55,279

out good fun ideas to do in

283

00:11:58,230 --> 00:11:56,720

weightlessness

284

00:12:00,150 --> 00:11:58,240

so really there's a there's a lot that

285

00:12:01,829 --> 00:12:00,160

that you could do obviously it's a

286

00:12:04,389 --> 00:12:01,839

confined environment so you don't go out

287

00:12:05,910 --> 00:12:04,399

for a walk uh not so often but but

288

00:12:07,750 --> 00:12:05,920

everything that we can do and we're

289

00:12:09,430 --> 00:12:07,760

trying to make use of that environment

290

00:12:11,430 --> 00:12:09,440

to do things that you cannot do on earth

291

00:12:16,870 --> 00:12:11,440

like double backflips

292

00:12:20,069 --> 00:12:17,750

hopefully i'm not going to get in

293

00:12:22,389 --> 00:12:20,079

trouble with sharing this game but we we

294

00:12:23,990 --> 00:12:22,399

played a game with the previous crew

295

00:12:25,430 --> 00:12:24,000

where as you can see the space station's

296

00:12:26,230 --> 00:12:25,440

really long there's a long path through

297

00:12:28,310 --> 00:12:26,240

here

298

00:12:29,910 --> 00:12:28,320

and i called it human darts because we

299

00:12:31,670 --> 00:12:29,920

would have somebody push off the front

300

00:12:33,750 --> 00:12:31,680

end of the space station and try to see

301
00:12:35,269 --> 00:12:33,760
how far they could go

302
00:12:36,870 --> 00:12:35,279
before they make contact with any

303
00:12:38,310 --> 00:12:36,880
surfaces and

304
00:12:40,550 --> 00:12:38,320
some people were really impressive they

305
00:12:41,990 --> 00:12:40,560
got you have to be very very precise and

306
00:12:44,710 --> 00:12:42,000
do a lot of gyrations as you're trying

307
00:12:46,470 --> 00:12:44,720
to avoid making contact with anything um

308
00:12:47,829 --> 00:12:46,480
but that was a lot of fun like shane

309
00:12:51,030 --> 00:12:47,839
just demonstrated quite well even though

310
00:12:54,790 --> 00:12:53,269
well done shane well i'm impressed here

311
00:12:57,269 --> 00:12:54,800
i think that's a game i would like to

312
00:13:00,150 --> 00:12:57,279
try some time you know down the road

313
00:13:01,670 --> 00:13:00,160

maybe when we all get out to space but

314

00:13:03,350 --> 00:13:01,680

one of the the things that we always

315

00:13:04,629 --> 00:13:03,360

talk about here on weather nation is the

316

00:13:07,110 --> 00:13:04,639

difference we're going to make for the

317

00:13:09,110 --> 00:13:07,120

artemis generation and for the next

318

00:13:11,509 --> 00:13:09,120

decades to come with the space

319

00:13:13,110 --> 00:13:11,519

exploration program what do you hope

320

00:13:15,350 --> 00:13:13,120

that on your current mission they can

321

00:13:20,949 --> 00:13:15,360

take to put toward going to the moon and

322

00:13:25,269 --> 00:13:23,030

it's a it's a great question and then uh

323

00:13:26,710 --> 00:13:25,279

and it is true that we have so we're

324

00:13:28,389 --> 00:13:26,720

doing science and research on the space

325

00:13:30,470 --> 00:13:28,399

station that benefit the earth and it's

326

00:13:32,150 --> 00:13:30,480

this is uh like part of our goals but we

327

00:13:34,470 --> 00:13:32,160

have we have also bigger goals longer

328

00:13:36,949 --> 00:13:34,480

term goals and and one of them is to go

329

00:13:38,790 --> 00:13:36,959

forward to the moon and go to mars

330

00:13:40,629 --> 00:13:38,800

and for that we have a wide array of

331

00:13:42,710 --> 00:13:40,639

experiments that we're doing as well to

332

00:13:44,710 --> 00:13:42,720

prepare experiments in tech demo to

333

00:13:46,870 --> 00:13:44,720

prepare those missions uh one of them

334

00:13:48,629 --> 00:13:46,880

that i was doing not so long ago in a

335

00:13:51,189 --> 00:13:48,639

columbus laboratory

336

00:13:53,269 --> 00:13:51,199

is about again how do you pilot a

337

00:13:55,350 --> 00:13:53,279

spacecraft or a rover on a distant

338

00:13:57,030 --> 00:13:55,360

planet like you would be orbiting in the

339

00:13:58,870 --> 00:13:57,040

space station or in spacecraft around

340

00:14:00,470 --> 00:13:58,880

the planet and remote controlling some

341

00:14:02,629 --> 00:14:00,480

assets on the ground this is one of the

342

00:14:04,949 --> 00:14:02,639

scenarios for future exploration and

343

00:14:09,990 --> 00:14:04,959

we're preparing this today on board the

344

00:14:10,000 --> 00:14:15,990

and how about for you mark

345

00:14:20,389 --> 00:14:18,710

um actually even understanding how to

346

00:14:22,710 --> 00:14:20,399

have the human body

347

00:14:24,790 --> 00:14:22,720

perform well after being in orbit for

348

00:14:26,710 --> 00:14:24,800

months at a time is part of the

349

00:14:28,150 --> 00:14:26,720

experiment to be for us to be able to

350

00:14:29,350 --> 00:14:28,160

explore further and further into the

351

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

solar system

352

00:14:32,710 --> 00:14:31,279

we we have the benefit of return to

353

00:14:34,470 --> 00:14:32,720

earth and having medical support as soon

354

00:14:35,990 --> 00:14:34,480

as we return but of course it's very

355

00:14:38,150 --> 00:14:36,000

important in the future that when people

356

00:14:40,069 --> 00:14:38,160

get to places where they're establishing

357

00:14:42,230 --> 00:14:40,079

human presence for the first time

358

00:14:44,870 --> 00:14:42,240

that they we understand how they'll be

359

00:14:47,189 --> 00:14:44,880

able to perform after a really long

360

00:14:50,710 --> 00:14:47,199

trip in an environment probably smaller

361

00:14:52,310 --> 00:14:50,720

than this but certainly with the the uh

362

00:14:54,870 --> 00:14:52,320

same type of free fall environment that

363

00:14:56,870 --> 00:14:54,880

we're in here um even little we've got

364

00:14:59,430 --> 00:14:56,880

uh regenerative systems that we're using

365

00:15:01,430 --> 00:14:59,440

all the time that help us recycle all of

366

00:15:02,790 --> 00:15:01,440

our water and tomah mentioned

367

00:15:05,269 --> 00:15:02,800

demonstrations we're getting ready to

368

00:15:07,030 --> 00:15:05,279

install a new toilet that should help us

369

00:15:09,350 --> 00:15:07,040

understand better

370

00:15:12,389 --> 00:15:09,360

how future systems are improved systems

371

00:15:15,030 --> 00:15:12,399

to use for future spacecraft

372

00:15:16,310 --> 00:15:15,040

hey a better toilet benefits everybody

373

00:15:18,470 --> 00:15:16,320

right

374

00:15:21,030 --> 00:15:18,480

thank you so much thomas and mark for

375

00:15:22,470 --> 00:15:21,040

joining us we are very appreciative of

376

00:15:23,670 --> 00:15:22,480

everything that you and your teams are

377

00:15:25,189 --> 00:15:23,680

doing and i don't know if you can go out

378

00:15:27,670 --> 00:15:25,199

with a double backflip if that's

379

00:15:33,269 --> 00:15:27,680

possible but we appreciate everything

380

00:15:36,870 --> 00:15:35,110

thanks meredith it was a pleasure

381

00:15:38,230 --> 00:15:36,880

talking to you from the space station

382

00:15:39,910 --> 00:15:38,240

and i will keep looking for those

383

00:15:43,030 --> 00:15:39,920

weather phenomenas when we look outside

384

00:15:47,269 --> 00:15:45,590

thank you guys so much

385

00:15:53,110 --> 00:15:47,279

yes

386

00:16:01,670 --> 00:15:55,829

station this is houston acr

387

00:16:04,629 --> 00:16:03,110

thank you to all participants from

388

00:16:06,150 --> 00:16:04,639

weather nation station we're now