



1
00:00:05,690 --> 00:00:04,039
yes thankfully it's tethered so station

2
00:00:08,459 --> 00:00:05,700
this is Houston are you ready for the

3
00:00:14,799 --> 00:00:12,209
we are ready for the start of the event

4
00:00:18,359 --> 00:00:14,809
kgo-tv this is Mission Control Houston

5
00:00:23,760 --> 00:00:18,369
please call station for a voice check

6
00:00:32,740 --> 00:00:26,980
TV we hear you loud and clear space

7
00:00:36,190 --> 00:00:32,750
station over that's great so I guess I

8
00:00:38,470 --> 00:00:36,200
start the first question is for Dawn you

9
00:00:40,990 --> 00:00:38,480
were in space six months and now since

10
00:00:45,360 --> 00:00:41,000
December so tell us what it's like to be

11
00:00:51,670 --> 00:00:49,210
it it's like it's a difference between

12
00:00:54,400 --> 00:00:51,680
going on a sabbatical and going on a

13
00:00:56,680 --> 00:00:54,410

vacation if you do a short space flight

14

00:00:58,630 --> 00:00:56,690

like a shuttle spaceflight you're you're

15

00:01:00,310 --> 00:00:58,640

up there for maybe two weeks on a

16

00:01:03,250 --> 00:01:00,320

mission that's a long mission and that's

17

00:01:06,040 --> 00:01:03,260

kind of like a the same amount of time

18

00:01:07,660 --> 00:01:06,050

is what you take for a vacation even

19

00:01:12,910 --> 00:01:07,670

though there's a lot of work it's not a

20

00:01:16,330 --> 00:01:12,920

vacation and and staying up here for six

21

00:01:19,060 --> 00:01:16,340

months at a time you get to really know

22

00:01:21,190 --> 00:01:19,070

the feel of the place you get acclimated

23

00:01:22,780 --> 00:01:21,200

to the weightless environment and you

24

00:01:27,070 --> 00:01:22,790

can really roll up your sleeves and get

25

00:01:29,770 --> 00:01:27,080

some work done and it sounds like you

26
00:01:34,920 --> 00:01:29,780
have done just that we want to see and

27
00:01:40,180 --> 00:01:37,540
just happen to have it available here

28
00:01:41,980 --> 00:01:40,190
and I've already put a little tea in

29
00:01:46,719 --> 00:01:41,990
this one and I'm going to hand it to

30
00:01:51,240 --> 00:01:46,729
Andre and the key to these kinds of cups

31
00:02:02,670 --> 00:01:53,340
and now I'm going to put a little tea in

32
00:02:02,680 --> 00:02:13,030
you

33
00:02:18,709 --> 00:02:16,849
and a normal cup of course will not work

34
00:02:20,599 --> 00:02:18,719
in a weightless environment the liquid

35
00:02:23,179 --> 00:02:20,609
would just stay in the bottom of the cup

36
00:02:24,949 --> 00:02:23,189
and then when you move the cup the

37
00:02:27,470 --> 00:02:24,959
liquid would splash out and make a mess

38
00:02:29,720 --> 00:02:27,480

but but this cup because of its shape

39

00:02:33,259 --> 00:02:29,730

and it has a cross-section kind of like

40

00:02:36,080 --> 00:02:33,269

an airplane wing and that acute angle a

41

00:02:38,869 --> 00:02:36,090

lap makes a channel where capillary

42

00:02:40,849 --> 00:02:38,879

forces will move the fluid up that

43

00:02:42,830 --> 00:02:40,859

channel and just Park it next to the lip

44

00:02:45,379 --> 00:02:42,840

and then the shape of the meniscus

45

00:02:47,750 --> 00:02:45,389

controls the liquid so you can move it

46

00:02:50,030 --> 00:02:47,760

around and not splash so now you could

47

00:02:53,240 --> 00:02:50,040

just put your lips up here on the lip

48

00:02:57,500 --> 00:02:53,250

and you could take a sip so Andre and I

49

00:03:10,740 --> 00:02:57,510

will just do a little toast let me get

50

00:03:16,360 --> 00:03:14,410

so so these cups even even though you

51
00:03:19,449 --> 00:03:16,370
win it you wouldn't drink out of these

52
00:03:23,170 --> 00:03:19,459
cups all the time but we're up here for

53
00:03:25,809 --> 00:03:23,180
for many holidays and and and other

54
00:03:28,150 --> 00:03:25,819
occasions and it's kind of nice to be

55
00:03:29,949 --> 00:03:28,160
able to drink in a manner that's not

56
00:03:32,170 --> 00:03:29,959
unlike what human beings are used to

57
00:03:33,940 --> 00:03:32,180
drinking on earth when we go into a

58
00:03:36,430 --> 00:03:33,950
weightless environment where we don't

59
00:03:41,770 --> 00:03:36,440
have to suck all our fluids out from a

60
00:03:46,089 --> 00:03:41,780
bag through a straw ten-four on that

61
00:03:47,710 --> 00:03:46,099
next questions for Andre so you they say

62
00:03:49,119 --> 00:03:47,720
dreamed of being an astronaut since you

63
00:03:53,980 --> 00:03:49,129

were a teenager but you went to medical

64

00:04:00,550 --> 00:03:57,160

well actually it has to save origin I

65

00:04:03,100 --> 00:04:00,560

was I caught some science fiction books

66

00:04:05,290 --> 00:04:03,110

for my grandmother and in there there

67

00:04:08,200 --> 00:04:05,300

were also some some planets where I did

68

00:04:11,050 --> 00:04:08,210

a lot of biochemical research very

69

00:04:12,940 --> 00:04:11,060

futuristic and so I have the same source

70

00:04:14,650 --> 00:04:12,950

as the dream to become an astronaut and

71

00:04:17,290 --> 00:04:14,660

astronauts come from all disciplines

72

00:04:20,620 --> 00:04:17,300

there at the technicians and engineers

73

00:04:24,540 --> 00:04:20,630

the pilots medical doctors scientists so

74

00:04:27,700 --> 00:04:24,550

actually it's not such a strange choice

75

00:04:29,170 --> 00:04:27,710

and with that background what have you

76

00:04:31,660 --> 00:04:29,180

learned or what are you looking to learn

77

00:04:34,090 --> 00:04:31,670

about like the human body and how it can

78

00:04:40,360 --> 00:04:34,100

endure space missions and long spacious

79

00:04:42,580 --> 00:04:40,370

space missions like this of course the

80

00:04:45,310 --> 00:04:42,590

human body is not really made to be in

81

00:04:47,740 --> 00:04:45,320

this condition we have to deal with with

82

00:04:48,940 --> 00:04:47,750

several short-term issues like a fluid

83

00:04:51,040 --> 00:04:48,950

shifts and especially in the beginning

84

00:04:52,900 --> 00:04:51,050

of the flight space motion sickness and

85

00:04:55,680 --> 00:04:52,910

then later on we have problems with a

86

00:04:58,390 --> 00:04:55,690

big muscle muscle loss and bone loss

87

00:05:00,400 --> 00:04:58,400

emit radiation and these are very

88

00:05:03,190 --> 00:05:00,410

challenging topics how to deal with

89

00:05:04,690 --> 00:05:03,200

those we're training a lot to to keep

90

00:05:07,300 --> 00:05:04,700

the bone mass in order and these are

91

00:05:08,860 --> 00:05:07,310

things that we can also use for four

92

00:05:10,750 --> 00:05:08,870

people on ground the population is

93

00:05:14,830 --> 00:05:10,760

growing older and older so this might be

94

00:05:17,950 --> 00:05:14,840

fair useful information and I like to

95

00:05:20,560 --> 00:05:17,960

add a little bit to that life evolved on

96

00:05:22,210 --> 00:05:20,570

earth with all kinds of changing

97

00:05:23,950 --> 00:05:22,220

environments temperatures change

98

00:05:26,950 --> 00:05:23,960

pressures changed the chemical

99

00:05:29,620 --> 00:05:26,960

environment changed acid base except

100

00:05:32,620 --> 00:05:29,630

gravity gravity has been held constant

101
00:05:35,050 --> 00:05:32,630
for billions of years as if we have

102
00:05:37,780 --> 00:05:35,060
evolved in the tenderest of incubator

103
00:05:40,630 --> 00:05:37,790
and now by going into an orbital

104
00:05:43,660 --> 00:05:40,640
environment we can reduce the magnitude

105
00:05:47,590 --> 00:05:43,670
of the local gravity by a factor of a

106
00:05:50,260 --> 00:05:47,600
million and this gives an amazing

107
00:05:53,080 --> 00:05:50,270
laboratory environment to study life

108
00:05:55,480 --> 00:05:53,090
itself and how it operates it's a new

109
00:05:57,310 --> 00:05:55,490
experimental knob to vary and the fact

110
00:06:00,430 --> 00:05:57,320
that a complex organism like a human

111
00:06:02,950 --> 00:06:00,440
being can come here where we've changed

112
00:06:06,219 --> 00:06:02,960
an environmental factor by a million and

113
00:06:07,540 --> 00:06:06,229

we could still basically operate I find

114

00:06:12,520 --> 00:06:07,550

to be amazed

115

00:06:14,260 --> 00:06:12,530

zeen one more quick question for Andre

116

00:06:16,630 --> 00:06:14,270

and I want to ask you both about the

117

00:06:18,430 --> 00:06:16,640

mission to Mars but well Andre two

118

00:06:20,650 --> 00:06:18,440

things one can you pronounce your last

119

00:06:22,120 --> 00:06:20,660

name for me so I get that correct and

120

00:06:24,220 --> 00:06:22,130

also it sounds like you're going to be

121

00:06:29,749 --> 00:06:24,230

up there longer than expected little a

122

00:06:38,249 --> 00:06:33,719

yeah first my name is gopis gopis which

123

00:06:39,810 --> 00:06:38,259

in English would be Cooper and well it's

124

00:06:41,969 --> 00:06:39,820

indeed a bit longer it's six weeks

125

00:06:44,670 --> 00:06:41,979

longer but actually three weeks because

126
00:06:47,790 --> 00:06:44,680
we launched it at three weeks delay and

127
00:06:53,279 --> 00:06:47,800
yeah it's so special appear I don't mind

128
00:06:55,529 --> 00:06:53,289
to stay a bit longer okay and then you

129
00:06:57,900 --> 00:06:55,539
can each answer this but it looks like

130
00:06:59,879 --> 00:06:57,910
because of budget cuts the Obama

131
00:07:03,060 --> 00:06:59,889
administration is saying no to the

132
00:07:05,159 --> 00:07:03,070
mission to Mars for 2016 and 18 a lot of

133
00:07:12,060 --> 00:07:05,169
scientists are disappointed how do you

134
00:07:18,550 --> 00:07:14,740
actually I haven't been following the

135
00:07:20,379 --> 00:07:18,560
politics since I've been up here and and

136
00:07:21,790 --> 00:07:20,389
I've heard a little bit about this but I

137
00:07:25,180 --> 00:07:21,800
haven't really read any of the details

138
00:07:28,540 --> 00:07:25,190

about what's going on so so I'm going to

139

00:07:33,490 --> 00:07:28,550

have to plead ignorance to the details

140

00:07:36,670 --> 00:07:33,500

of this I do think that doing creative

141

00:07:40,990 --> 00:07:36,680

and far-reaching exploration is a metric

142

00:07:43,450 --> 00:07:41,000

for how viable your society is viable

143

00:07:44,920 --> 00:07:43,460

societies societies that are setting the

144

00:07:47,740 --> 00:07:44,930

pace for what's happening in the world

145

00:07:50,770 --> 00:07:47,750

these societies are the kind that

146

00:07:53,529 --> 00:07:50,780

explore and so this is a facet of

147

00:08:01,400 --> 00:07:53,539

American culture that we do not want to

148

00:08:06,540 --> 00:08:04,290

Andre it's not your budget I realize but

149

00:08:10,069 --> 00:08:06,550

do you find exploration on Mars to be

150

00:08:17,269 --> 00:08:14,009

well actually a lot of these these

151

00:08:20,989 --> 00:08:17,279

missions are international and also for

152

00:08:23,789 --> 00:08:20,999

the poor European Space Agency of course

153

00:08:24,949 --> 00:08:23,799

the cancellations of programs where you

154

00:08:28,350 --> 00:08:24,959

sighs and falls are of course

155

00:08:31,829 --> 00:08:28,360

disappointment but are pretty sure that

156

00:08:36,149 --> 00:08:31,839

this is all temporarily because we will

157

00:08:38,639 --> 00:08:36,159

continue to explore the universe and be

158

00:08:41,699 --> 00:08:38,649

it nationally or internationally so I

159

00:08:43,800 --> 00:08:41,709

have optimistic and I'll see these

160

00:08:49,199 --> 00:08:43,810

missions in the future happening for

161

00:08:50,910 --> 00:08:49,209

sure gentlemen those are all of my

162

00:08:52,980 --> 00:08:50,920

questions for you this has been really

163

00:08:59,819 --> 00:08:52,990

cool and amazing for me I appreciate it

164

00:09:03,569 --> 00:08:59,829

anything else you want to add or say it

165

00:09:06,689 --> 00:09:03,579

the International Space Station is an

166

00:09:10,519 --> 00:09:06,699

amazing place to work and explore and

167

00:09:13,129 --> 00:09:10,529

it's very much on the frontier much like

168

00:09:15,720 --> 00:09:13,139

explorations of centuries past and

169

00:09:18,150 --> 00:09:15,730

people may not think about space as

170

00:09:20,280 --> 00:09:18,160

being a frontier but it really is the

171

00:09:24,150 --> 00:09:20,290

the answers are not in the back of the

172

00:09:25,920 --> 00:09:24,160

book and we discover things that that we

173

00:09:27,720 --> 00:09:25,930

can't just look in the back of the book

174

00:09:31,139 --> 00:09:27,730

and and and figure out what's going on

175

00:09:33,420 --> 00:09:31,149

we have to go huh and and sort out the

176

00:09:34,980 --> 00:09:33,430

solution ourselves and and it really

177

00:09:36,540 --> 00:09:34,990

doesn't get any better than that when

178

00:09:38,340 --> 00:09:36,550

you're living on a frontier and in fact

179

00:09:43,910 --> 00:09:38,350

that's one of the reasons why we go to

180

00:09:46,379 --> 00:09:43,920

frontiers is to to learn new things so

181

00:09:47,819 --> 00:09:46,389

Space Station it's an amazing place to

182

00:09:53,700 --> 00:09:47,829

be it's something we should all be proud

183

00:10:05,290 --> 00:10:01,960

last thoughts Andre yeah well I'm here

184

00:10:07,540 --> 00:10:05,300

now for for half a year and it's it's

185

00:10:10,900 --> 00:10:07,550

really a place that I could be longer

186

00:10:13,150 --> 00:10:10,910

even it's a special place an

187

00:10:14,620 --> 00:10:13,160

international the place which is very

188

00:10:16,870 --> 00:10:14,630

nice to work with all the different

189

00:10:20,020 --> 00:10:16,880

nationalities here and all the different

190

00:10:23,050 --> 00:10:20,030

ground stations and this is something i

191

00:10:25,930 --> 00:10:23,060

like very much we are now in lowered

192

00:10:28,150 --> 00:10:25,940

orbit and i hope really in the future

193

00:10:33,900 --> 00:10:28,160

that this kind of missions million to

194

00:10:42,400 --> 00:10:36,550

gentlemen thank you both very much you

195

00:10:47,319 --> 00:10:45,100

station this is Houston ACR that

196

00:10:49,210 --> 00:10:47,329

concludes the kgo-tv portion of the

197

00:10:55,689 --> 00:10:49,220

event please stand by for a voice check

198

00:10:58,780 --> 00:10:55,699

from ABC Radio Network hello station

199

00:11:03,800 --> 00:10:58,790

this is ABC Radio News in Washington DC

200

00:11:10,350 --> 00:11:07,290

ABC radio in Washington DC Andy we read

201
00:11:11,970 --> 00:11:10,360
you loud and clear thank you gentlemen

202
00:11:15,060 --> 00:11:11,980
thank you for taking time to talk with

203
00:11:17,820 --> 00:11:15,070
us waiting about and watching what you

204
00:11:21,360 --> 00:11:17,830
do there is fascinating too many folks

205
00:11:24,329 --> 00:11:21,370
on earth and in the United States many

206
00:11:29,090 --> 00:11:24,339
people don't realize the value of what

207
00:11:32,940 --> 00:11:29,100
you are doing there can you explain dr.

208
00:11:35,370 --> 00:11:32,950
CalPERS and dr. Pettitte can you explain

209
00:11:39,210 --> 00:11:35,380
to folks here on earth who are facing

210
00:11:41,100 --> 00:11:39,220
tremendous budget problems why it is

211
00:11:47,910 --> 00:11:41,110
what you're doing is so important to

212
00:11:51,030 --> 00:11:47,920
those of us here on earth yes well Space

213
00:11:53,190 --> 00:11:51,040

Flight is it's not something that is

214

00:11:56,460 --> 00:11:53,200

standing alone what we're doing here is

215

00:11:59,579 --> 00:11:56,470

research that is done by institutes and

216

00:12:02,670 --> 00:11:59,589

universities on ground these scientists

217

00:12:04,380 --> 00:12:02,680

are doing all kind of research that that

218

00:12:07,790 --> 00:12:04,390

brings us further that gives us more

219

00:12:10,440 --> 00:12:07,800

knowledge and technical applications and

220

00:12:14,030 --> 00:12:10,450

some of the end some of the aspects of

221

00:12:16,769 --> 00:12:14,040

their research can only be done in

222

00:12:19,380 --> 00:12:16,779

microgravity conditions and that's why

223

00:12:21,960 --> 00:12:19,390

we have this fantastic facility up here

224

00:12:24,210 --> 00:12:21,970

to support all the scientists on the

225

00:12:27,510 --> 00:12:24,220

ground so it's not something that is let

226

00:12:29,819 --> 00:12:27,520

the people that are only doing space

227

00:12:32,550 --> 00:12:29,829

research it's part of their of the

228

00:12:37,160 --> 00:12:32,560

general research which gives us all this

229

00:12:40,319 --> 00:12:37,170

this extra knowledge and applications

230

00:12:44,280 --> 00:12:40,329

doctor and I'd like to add to add to

231

00:12:48,990 --> 00:12:44,290

that about the value of doing research

232

00:12:50,790 --> 00:12:49,000

much a research in the here and now does

233

00:12:55,530 --> 00:12:50,800

not give you a tangible result the

234

00:12:58,230 --> 00:12:55,540

result doesn't doesn't come forth for

235

00:13:00,600 --> 00:12:58,240

maybe 5 10 15 years in the future

236

00:13:02,790 --> 00:13:00,610

sometimes even more it's like planting

237

00:13:05,819 --> 00:13:02,800

trees you plant this little seedling and

238

00:13:09,300 --> 00:13:05,829

you don't get any shade for 20 years and

239

00:13:13,230 --> 00:13:09,310

and research is much like that another

240

00:13:15,449 --> 00:13:13,240

aspect we're exploring we're living and

241

00:13:19,790 --> 00:13:15,459

working in a frontier

242

00:13:23,790 --> 00:13:19,800

unlike any other place on the planet and

243

00:13:26,850 --> 00:13:23,800

exploring as a society I think isn't as

244

00:13:30,150 --> 00:13:26,860

a metric for the viability of your

245

00:13:32,730 --> 00:13:30,160

country when countries decide they don't

246

00:13:36,389 --> 00:13:32,740

want to explore any more when they can

247

00:13:38,249 --> 00:13:36,399

when they focus all their resources on

248

00:13:40,679 --> 00:13:38,259

themselves for themselves in the here

249

00:13:43,199 --> 00:13:40,689

and now that sets you in a different

250

00:13:45,299 --> 00:13:43,209

category then than societies and

251

00:13:47,160 --> 00:13:45,309

countries that continue to explore and

252

00:13:49,850 --> 00:13:47,170

you can look at the history of what's

253

00:13:53,519 --> 00:13:49,860

happened on planet earth and you can see

254

00:13:55,650 --> 00:13:53,529

which countries are defining what's

255

00:13:58,319 --> 00:13:55,660

going on and and these countries

256

00:14:01,230 --> 00:13:58,329

continue to explore so so we need to

257

00:14:04,350 --> 00:14:01,240

continue to explore space in this epic

258

00:14:08,540 --> 00:14:04,360

of time happens to be the premier

259

00:14:12,179 --> 00:14:08,550

frontier this question for dr. Pat it

260

00:14:15,030 --> 00:14:12,189

how is the the fact that we no longer

261

00:14:16,410 --> 00:14:15,040

have space shuttle flights coming to you

262

00:14:19,559 --> 00:14:16,420

that you have to rely on other countries

263

00:14:22,139 --> 00:14:19,569

how has that affected what you do on the

264

00:14:27,019 --> 00:14:22,149

space station there any concerns about

265

00:14:33,660 --> 00:14:31,439

well we're reliant on the Russian space

266

00:14:37,679 --> 00:14:33,670

vehicle so use now to get cruise up and

267

00:14:40,439 --> 00:14:37,689

down from space station and so they are

268

00:14:42,090 --> 00:14:40,449

the ones that run that program and and

269

00:14:45,449 --> 00:14:42,100

they're the ones that that when there's

270

00:14:47,309 --> 00:14:45,459

a technical issue they have to be they

271

00:14:51,329 --> 00:14:47,319

have to be the ones that solve it and so

272

00:14:54,299 --> 00:14:51,339

we stand by and wait for them to figure

273

00:14:57,530 --> 00:14:54,309

out what the issues are so so if you

274

00:15:00,539 --> 00:14:57,540

don't have your vehicle then you can't

275

00:15:04,019 --> 00:15:00,549

you can't call the shots anymore it's

276

00:15:05,999 --> 00:15:04,029

sort of like if you have a colony across

277

00:15:07,769 --> 00:15:06,009

the ocean but you don't have any ships

278

00:15:09,030 --> 00:15:07,779

but you want to maintain the colony you

279

00:15:12,689 --> 00:15:09,040

have to rely on those that have the

280

00:15:15,090 --> 00:15:12,699

ships and we as America are in the

281

00:15:17,460 --> 00:15:15,100

process of making a new vehicle which is

282

00:15:20,400 --> 00:15:17,470

a real good thing it's unfortunate that

283

00:15:22,829 --> 00:15:20,410

we we stopped flying the old vehicle

284

00:15:25,049 --> 00:15:22,839

before we had a new vehicle operation on

285

00:15:28,560 --> 00:15:25,059

and I understand some of the reasons for

286

00:15:31,770 --> 00:15:28,570

that and it is what it is so

287

00:15:34,050 --> 00:15:31,780

we will we will have another vehicle

288

00:15:37,470 --> 00:15:34,060

sometime in the future and and when we

289

00:15:40,800 --> 00:15:37,480

do it will add to the robustness of our

290

00:15:45,000 --> 00:15:40,810

space program gentlemen for both of you

291

00:15:47,580 --> 00:15:45,010

when when we were all children in the

292

00:15:50,400 --> 00:15:47,590

60s and 70s we were just energized by

293

00:15:52,170 --> 00:15:50,410

the space program now you are doing this

294

00:15:54,810 --> 00:15:52,180

research and some of its extraordinary

295

00:15:56,670 --> 00:15:54,820

but people don't know what it is and

296

00:15:59,280 --> 00:15:56,680

NASA is a little more out of the public

297

00:16:01,590 --> 00:15:59,290

eye how do you get that excitement back

298

00:16:04,320 --> 00:16:01,600

for students for children for people in

299

00:16:10,350 --> 00:16:04,330

this country so that they buy into the

300

00:16:11,880 --> 00:16:10,360

exploration well one thing I I don't

301

00:16:13,470 --> 00:16:11,890

think the excitement is gone

302

00:16:15,690 --> 00:16:13,480

particularly when you talk to children

303

00:16:19,290 --> 00:16:15,700

more children now want to be astronauts

304

00:16:22,410 --> 00:16:19,300

and president united states and add kids

305

00:16:24,570 --> 00:16:22,420

in particularly are really excited about

306

00:16:27,510 --> 00:16:24,580

space so when i talk to kids anywhere

307

00:16:30,060 --> 00:16:27,520

from K through university level they all

308

00:16:31,440 --> 00:16:30,070

want my job and of course I tell them

309

00:16:34,860 --> 00:16:31,450

you have to study math and engineering

310

00:16:37,800 --> 00:16:34,870

and and science if you want to do my job

311

00:16:40,050 --> 00:16:37,810

and you can still see that there are

312

00:16:42,270 --> 00:16:40,060

some bright eyes in the audience so so I

313

00:16:45,300 --> 00:16:42,280

don't think the enthusiasm for the

314

00:16:47,880 --> 00:16:45,310

younger generation has waned at all one

315

00:16:50,570 --> 00:16:47,890

thing i will say space station is a

316

00:16:53,700 --> 00:16:50,580

laboratory we're doing science and

317

00:16:55,830 --> 00:16:53,710

science in the process of being done is

318

00:16:58,110 --> 00:16:55,840

sort of boring it's kind of like

319

00:17:01,020 --> 00:16:58,120

watching a rider sitting at his

320

00:17:03,720 --> 00:17:01,030

typewriter typing up his latest novel it

321

00:17:05,370 --> 00:17:03,730

goes pretty slow and you read a little

322

00:17:07,170 --> 00:17:05,380

bit over your shoulder and you don't

323

00:17:09,960 --> 00:17:07,180

quite figure out what the story is and

324

00:17:11,790 --> 00:17:09,970

and it's kind of boring however when the

325

00:17:14,280 --> 00:17:11,800

novel gets written then it could be

326

00:17:16,140 --> 00:17:14,290

exciting and captivate your attention

327

00:17:17,910 --> 00:17:16,150

and science is a lot like that in the

328

00:17:19,860 --> 00:17:17,920

process of doing page like this morning

329

00:17:22,410 --> 00:17:19,870

I was doing combustion experiments we

330

00:17:24,810 --> 00:17:22,420

are working on flames and and if you

331

00:17:26,970 --> 00:17:24,820

watch the video of that and put you to

332

00:17:29,610 --> 00:17:26,980

sleep but if you look at the science

333

00:17:31,680 --> 00:17:29,620

behind it it's really really exciting to

334

00:17:34,110 --> 00:17:31,690

look at what happens with combustion in

335

00:17:35,970 --> 00:17:34,120

a weightless environment so so when the

336

00:17:40,320 --> 00:17:35,980

story is told it will be exciting but

337

00:17:42,159 --> 00:17:40,330

the process it's boring well can I

338

00:17:44,830 --> 00:17:42,169

follow up with that in and

339

00:17:47,979 --> 00:17:44,840

ask you a question about the isolation

340

00:17:49,690 --> 00:17:47,989

of being on the space station you are

341

00:17:51,759 --> 00:17:49,700

looking at this beautiful earth every

342

00:17:54,489 --> 00:17:51,769

day out your window and yet you can't

343

00:17:59,519 --> 00:17:54,499

touch it and you have to wait months to

344

00:18:04,570 --> 00:18:02,590

well actually you're not so isolated we

345

00:18:07,810 --> 00:18:04,580

are in constant contact with the ground

346

00:18:10,720 --> 00:18:07,820

be it on a professional level of course

347

00:18:14,619 --> 00:18:10,730

with reduced in Huntsville and the other

348

00:18:16,419 --> 00:18:14,629

centers but also on a private level we

349

00:18:18,519 --> 00:18:16,429

can talk about families we can we can

350

00:18:21,190 --> 00:18:18,529

make our phone calls and we even have

351
00:18:23,739 --> 00:18:21,200
video context so we can see the families

352
00:18:25,869 --> 00:18:23,749
once per week so I don't feel isolated

353
00:18:29,169 --> 00:18:25,879
at all I feel really connected to the

354
00:18:31,119 --> 00:18:29,179
planet although I'm out of it so I can I

355
00:18:34,680 --> 00:18:31,129
can easily switch my Mountain my mind

356
00:18:38,109 --> 00:18:34,690
and I can be I can feel that I'm really

357
00:18:39,970 --> 00:18:38,119
outside the planet and in space and then

358
00:18:43,960 --> 00:18:39,980
the next moment I can feel very attached

359
00:18:46,149 --> 00:18:43,970
to the beautiful planet down below or

360
00:18:54,070 --> 00:18:46,159
above depending on how I look out of the

361
00:18:55,509 --> 00:18:54,080
window and dr. Bennett how do you deal

362
00:18:58,750 --> 00:18:55,519
with the isolation of being away with it

363
00:19:05,030 --> 00:19:03,530

actually I agree with Andre we don't

364

00:19:06,950 --> 00:19:05,040

feel like we're isolated up here we

365

00:19:10,070 --> 00:19:06,960

don't feel like there's any any form of

366

00:19:12,740 --> 00:19:10,080

isolation because we we're at constant

367

00:19:17,120 --> 00:19:12,750

contact with the ground I I send emails

368

00:19:18,920 --> 00:19:17,130

to my boys and my wife every day and we

369

00:19:21,680 --> 00:19:18,930

have video conferences we've got an

370

00:19:23,090 --> 00:19:21,690

internet telephone and and we could call

371

00:19:26,540 --> 00:19:23,100

whenever we have the right kind of K you

372

00:19:28,460 --> 00:19:26,550

ban coverage so so I don't really feel

373

00:19:32,330 --> 00:19:28,470

isolated I felt more isolated when I

374

00:19:36,170 --> 00:19:32,340

spent two months in Antarctica then I do

375

00:19:37,790 --> 00:19:36,180

here on the space station and gentlemen

376

00:19:39,770 --> 00:19:37,800

I've always wanted I've always wanted to

377

00:19:41,450 --> 00:19:39,780

ask this question of astronauts what is

378

00:19:46,300 --> 00:19:41,460

it like to be weightless all the time

379

00:19:52,160 --> 00:19:49,490

being weightless is one of the enjoyable

380

00:19:55,010 --> 00:19:52,170

aspects of being up here it's something

381

00:20:00,020 --> 00:19:55,020

that you can't do on the surface of

382

00:20:05,060 --> 00:20:00,030

Earth being weightless is is is just out

383

00:20:06,560 --> 00:20:05,070

of this world now that's definitely

384

00:20:10,070 --> 00:20:06,570

something you cannot do on the planet

385

00:20:13,300 --> 00:20:10,080

here dr. CalPERS other nights it's

386

00:20:16,250 --> 00:20:13,310

really a pleasure to be weightless and

387

00:20:18,620 --> 00:20:16,260

it's even it makes your space station

388

00:20:21,620 --> 00:20:18,630

four times as big because your eyes are

389

00:20:25,100 --> 00:20:21,630

the dominant factor so whatever you look

390

00:20:27,320 --> 00:20:25,110

at that's the ground meaning that you if

391

00:20:31,010 --> 00:20:27,330

you if you want to change of scenery you

392

00:20:32,540 --> 00:20:31,020

just take another place and then you

393

00:20:37,610 --> 00:20:32,550

have a new space station it's really

394

00:20:40,460 --> 00:20:37,620

nice so what is next for the space

395

00:20:42,680 --> 00:20:40,470

program here what is it that that people

396

00:20:44,330 --> 00:20:42,690

here in the United States who are again

397

00:20:47,090 --> 00:20:44,340

dealing with the original question about

398

00:20:48,860 --> 00:20:47,100

budgets can get excited about and say

399

00:20:55,020 --> 00:20:48,870

wow this is something we're going to

400

00:20:59,040 --> 00:20:55,030

look forward to well

401
00:21:00,990 --> 00:20:59,050
part of it is just we we have a program

402
00:21:03,150 --> 00:21:01,000
to reap the rewards you gotta roll up

403
00:21:04,590 --> 00:21:03,160
your sleeves that do a lot of detailed

404
00:21:06,360 --> 00:21:04,600
work and that's what we're doing right

405
00:21:08,820 --> 00:21:06,370
now in terms of the science on space

406
00:21:10,230 --> 00:21:08,830
station and you know the space station

407
00:21:11,970 --> 00:21:10,240
the space program is not about

408
00:21:14,580 --> 00:21:11,980
entertainment it's not really about

409
00:21:17,850 --> 00:21:14,590
wowing the public the space program

410
00:21:20,010 --> 00:21:17,860
itself is about exploration it's about

411
00:21:22,020 --> 00:21:20,020
advancing our knowledge and sometimes

412
00:21:23,520 --> 00:21:22,030
this comes very slow and like I said

413
00:21:25,980 --> 00:21:23,530

before sometimes it could be a bit on

414

00:21:28,650 --> 00:21:25,990

the boring side so so I think the

415

00:21:30,810 --> 00:21:28,660

fundamental thing to to plant in your

416

00:21:34,080 --> 00:21:30,820

mind is the space program is not about

417

00:21:36,000 --> 00:21:34,090

entertainment and there are aspects

418

00:21:37,830 --> 00:21:36,010

about the space program that are

419

00:21:39,630 --> 00:21:37,840

entertaining there are aspects about the

420

00:21:42,240 --> 00:21:39,640

space program that hold your interest

421

00:21:45,810 --> 00:21:42,250

but the fundamental purpose is to do

422

00:21:47,520 --> 00:21:45,820

this detailed exploration this detailed

423

00:21:49,680 --> 00:21:47,530

advancement of our knowledge whether

424

00:21:51,450 --> 00:21:49,690

it's in low-earth orbit like we're doing

425

00:21:53,760 --> 00:21:51,460

now or whether it's going back to the

426

00:21:55,530 --> 00:21:53,770

moon or going to Mars or doing a

427

00:21:58,250 --> 00:21:55,540

near-earth object like an earth-crossing

428

00:22:01,650 --> 00:21:58,260

asteroid it doesn't matter these are all

429

00:22:05,220 --> 00:22:01,660

aspects of exploring space and there's

430

00:22:08,970 --> 00:22:05,230

all kinds of benefits and knowledge to

431

00:22:11,250 --> 00:22:08,980

be gained by doing these and the process

432

00:22:12,720 --> 00:22:11,260

is going to be slow and sometimes it

433

00:22:16,470 --> 00:22:12,730

will be exciting sometimes it will be

434

00:22:20,130 --> 00:22:16,480

boring but the purpose is not about

435

00:22:22,110 --> 00:22:20,140

entertainment doctors thank you so much

436

00:22:28,470 --> 00:22:22,120

for your time for talking to ABC Radio

437

00:22:35,250 --> 00:22:31,350

it's been a pleasure you've asked really

438

00:22:36,870 --> 00:22:35,260

good questions I appreciate you and your

439

00:22:41,700 --> 00:22:36,880

listeners taking an interest in our

440

00:22:46,480 --> 00:22:41,710

space program a station this is Houston

441

00:22:51,190 --> 00:22:49,210

Thank You kgo-tv an ABC radio network