



1  
00:00:07,349 --> 00:00:03,030  
station this is houston are you ready

2  
00:00:11,990 --> 00:00:09,910  
on this session i'm ready for the event

3  
00:00:13,830 --> 00:00:12,000  
bbc world news this is mission control

4  
00:00:26,470 --> 00:00:13,840  
houston please call station for a voice

5  
00:00:30,630 --> 00:00:29,029  
hello sir can you hear us this is bbc

6  
00:00:32,709 --> 00:00:30,640  
world news

7  
00:00:36,870 --> 00:00:32,719  
hi it's ross atkins at the bbc can you

8  
00:00:36,880 --> 00:00:42,950  
yes i can hear you okay

9  
00:00:46,549 --> 00:00:44,869  
fantastic that's very exciting thank you

10  
00:00:48,869 --> 00:00:46,559  
very much indeed for

11  
00:00:54,150 --> 00:00:48,879  
joining us how long have you got left on

12  
00:00:58,950 --> 00:00:56,709  
first of all welcome onboard the

13  
00:01:00,790 --> 00:00:58,960

space station and inside the columbus

14

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

european module

15

00:01:09,030 --> 00:01:02,879

i've been here for about four months and

16

00:01:12,310 --> 00:01:10,550

well we appreciate your time we're going

17

00:01:14,870 --> 00:01:12,320

to start recording the interview now if

18

00:01:17,030 --> 00:01:14,880

it's okay could you start by showing us

19

00:01:23,030 --> 00:01:17,040

around the room that you're in at the

20

00:01:27,190 --> 00:01:24,390

that's a pleasure

21

00:01:29,830 --> 00:01:27,200

so right now here we are um in the

22

00:01:30,789 --> 00:01:29,840

columbus module columbus is the european

23

00:01:33,350 --> 00:01:30,799

lab

24

00:01:35,190 --> 00:01:33,360

uh which is the european contribution

25

00:01:37,510 --> 00:01:35,200

the european space agency contribution

26

00:01:39,270 --> 00:01:37,520

to the international space station we

27

00:01:41,270 --> 00:01:39,280

are at the very front of the space

28

00:01:42,870 --> 00:01:41,280

station that this is the direction of

29

00:01:45,830 --> 00:01:42,880

flight to my right

30

00:01:48,310 --> 00:01:45,840

and it's called forward this is ask and

31

00:01:49,910 --> 00:01:48,320

what you see around me uh we call this

32

00:01:52,389 --> 00:01:49,920

the deck

33

00:01:53,510 --> 00:01:52,399

and this is the overhead

34

00:01:55,910 --> 00:01:53,520

and

35

00:01:57,830 --> 00:01:55,920

around me are racks

36

00:02:00,550 --> 00:01:57,840

the rafts are

37

00:02:02,069 --> 00:02:00,560

are labs in india itself so

38

00:02:04,950 --> 00:02:02,079

to my right

39

00:02:07,510 --> 00:02:04,960

there is a european drawer rack uh this

40

00:02:09,350 --> 00:02:07,520

one is basically a modular

41

00:02:12,150 --> 00:02:09,360

rack where you can install different

42

00:02:15,190 --> 00:02:12,160

kind of experiments and the rack will

43

00:02:17,430 --> 00:02:15,200

provide energy and data to them

44

00:02:20,309 --> 00:02:17,440

kubernetes and a similar concept this is

45

00:02:22,550 --> 00:02:20,319

an american rack called the express

46

00:02:25,910 --> 00:02:22,560

this is the bio lab which is the

47

00:02:28,309 --> 00:02:25,920

european uh lab for biology experiments

48

00:02:29,350 --> 00:02:28,319

and then uh behind me other different

49

00:02:32,150 --> 00:02:29,360

kind of

50

00:02:34,869 --> 00:02:32,160

racks also for experiments uh this one

51  
00:02:37,830 --> 00:02:34,879  
is working right now is for uh

52  
00:02:40,070 --> 00:02:37,840  
fluid physics and also

53  
00:02:45,990 --> 00:02:40,080  
behind me a two racks or human

54  
00:02:50,550 --> 00:02:48,309  
well thank you very much indeed for the

55  
00:02:51,830 --> 00:02:50,560  
tour let me ask you about

56  
00:02:53,910 --> 00:02:51,840  
what happened

57  
00:02:55,350 --> 00:02:53,920  
with that space walk a few weeks ago

58  
00:02:57,910 --> 00:02:55,360  
because lots of our viewers were very

59  
00:02:59,350 --> 00:02:57,920  
concerned about you tell us the moment

60  
00:03:04,630 --> 00:02:59,360  
that you realized that there was a

61  
00:03:09,430 --> 00:03:06,869  
uh you know every every spacewalk is an

62  
00:03:11,670 --> 00:03:09,440  
adventure and uh mine ended up being a

63  
00:03:14,790 --> 00:03:11,680

special adventurous and what happened is

64

00:03:17,030 --> 00:03:14,800

that um i was i was outside outside for

65

00:03:20,070 --> 00:03:17,040

about 40 minutes uh

66

00:03:22,229 --> 00:03:20,080

doing one of the tasks and i was about

67

00:03:25,030 --> 00:03:22,239

to complete my second task when i felt

68

00:03:28,309 --> 00:03:25,040

some cold water in the back of my head

69

00:03:30,789 --> 00:03:28,319

now since i don't have any hair uh that

70

00:03:33,110 --> 00:03:30,799

holes in concessional was very strong

71

00:03:35,830 --> 00:03:33,120

and i realized that something didn't

72

00:03:38,710 --> 00:03:35,840

feel right i contacted ground

73

00:03:40,949 --> 00:03:38,720

uh telling them that i felt this water i

74

00:03:43,190 --> 00:03:40,959

felt cold water behind my head and i

75

00:03:46,149 --> 00:03:43,200

didn't think he was either sweat i

76

00:03:48,070 --> 00:03:46,159

didn't think he came from my didv bag

77

00:03:52,550 --> 00:03:48,080

which is the bag that we use right in

78

00:03:57,350 --> 00:03:54,869

at that moment my

79

00:03:59,830 --> 00:03:57,360

my my colleague chris cassidy was

80

00:04:02,550 --> 00:03:59,840

already was outside with me he finished

81

00:04:05,110 --> 00:04:02,560

his task and came towards me to check my

82

00:04:07,990 --> 00:04:05,120

helmet and he noticed the water crawling

83

00:04:09,830 --> 00:04:08,000

towards the front of my on my visor

84

00:04:11,830 --> 00:04:09,840

he started covering my eyebrows and my

85

00:04:13,270 --> 00:04:11,840

ears and that's when ground very

86

00:04:15,429 --> 00:04:13,280

promptly called

87

00:04:16,469 --> 00:04:15,439

terminate which means we stop where we

88

00:04:19,909 --> 00:04:16,479

are

89

00:04:22,550 --> 00:04:19,919

and we go back inside and repress

90

00:04:25,110 --> 00:04:22,560

uh the the airlock so i did that i

91

00:04:27,030 --> 00:04:25,120

started walk i started moving towards

92

00:04:27,830 --> 00:04:27,040

the airlock in the meantime the water

93

00:04:29,510 --> 00:04:27,840

kept

94

00:04:32,310 --> 00:04:29,520

crawling through the front of the helmet

95

00:04:35,430 --> 00:04:32,320

the problem in in zero g is that the

96

00:04:37,430 --> 00:04:35,440

water uh just uh creates a glob and it

97

00:04:39,510 --> 00:04:37,440

doesn't flow so it just kept

98

00:04:41,749 --> 00:04:39,520

accumulating until it covered completely

99

00:04:44,310 --> 00:04:41,759

covered my ears and my eyes and then

100

00:04:47,430 --> 00:04:44,320

finally even my nose so i was only left

101  
00:04:49,270 --> 00:04:47,440  
with my mouth to breathe which luckily

102  
00:04:51,350 --> 00:04:49,280  
it never the water never reached my

103  
00:04:53,670 --> 00:04:51,360  
mouth i was always able to breathe

104  
00:04:55,590 --> 00:04:53,680  
through my mouth i just couldn't hear or

105  
00:04:57,430 --> 00:04:55,600  
couldn't see anything

106  
00:05:00,390 --> 00:04:57,440  
but thanks to the training and thanks to

107  
00:05:02,790 --> 00:05:00,400  
the support from the ground uh all the

108  
00:05:04,870 --> 00:05:02,800  
engineers and and the ground support

109  
00:05:07,110 --> 00:05:04,880  
people that helped me they guided me

110  
00:05:09,430 --> 00:05:07,120  
back they got me back inside the airlock

111  
00:05:12,150 --> 00:05:09,440  
pressurized very quickly the airlock uh

112  
00:05:13,670 --> 00:05:12,160  
the crew on board uh karen nyberg she

113  
00:05:15,590 --> 00:05:13,680

was at she had the controls for the

114

00:05:18,790 --> 00:05:15,600

repository session she did an excellent

115

00:05:20,790 --> 00:05:18,800

job uh keeping keeping us updated on on

116

00:05:23,590 --> 00:05:20,800

the state of the uh the reverse

117

00:05:25,430 --> 00:05:23,600

transaction and in in few minutes really

118

00:05:28,070 --> 00:05:25,440

the emergency was solved

119

00:05:29,909 --> 00:05:28,080

now for me those were very long minutes

120

00:05:30,870 --> 00:05:29,919

but i was always confident the whole

121

00:05:32,550 --> 00:05:30,880

time

122

00:05:34,230 --> 00:05:32,560

that chris

123

00:05:36,390 --> 00:05:34,240

was there to help me and that the ground

124

00:05:42,150 --> 00:05:36,400

was there to help me and the crew board

125

00:05:45,670 --> 00:05:43,830

lucas thank goodness you're okay it

126

00:05:47,990 --> 00:05:45,680

sounds absolutely terrifying you sound

127

00:05:50,230 --> 00:05:48,000

far calmer uh when you talk about it

128

00:05:52,870 --> 00:05:50,240

than i think most of us would have felt

129

00:05:54,629 --> 00:05:52,880

now we've been telling uh the people who

130

00:05:56,150 --> 00:05:54,639

follow us on facebook that you were

131

00:05:58,230 --> 00:05:56,160

speaking to us here on global and

132

00:06:00,550 --> 00:05:58,240

they've been leaving lots of questions

133

00:06:01,990 --> 00:06:00,560

for you i wonder if i could ask you a

134

00:06:04,710 --> 00:06:02,000

couple um

135

00:06:07,430 --> 00:06:04,720

thomas would like to ask you how far do

136

00:06:09,430 --> 00:06:07,440

you go from the iss when you go on a

137

00:06:13,749 --> 00:06:09,440

space walk how's the what's the furthest

138

00:06:20,150 --> 00:06:16,870

so when we go outside we are never

139

00:06:21,749 --> 00:06:20,160

we never leave contact with the with the

140

00:06:24,070 --> 00:06:21,759

space station we're always in contact

141

00:06:26,309 --> 00:06:24,080

with the structure so we come out of the

142

00:06:27,749 --> 00:06:26,319

airlock and we have

143

00:06:30,309 --> 00:06:27,759

tables they're called

144

00:06:32,150 --> 00:06:30,319

safety headers they they kind of like

145

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

the ones that you use with little dogs

146

00:06:37,510 --> 00:06:34,400

to let them move around and then and

147

00:06:39,590 --> 00:06:37,520

then get back they uh they you know you

148

00:06:40,870 --> 00:06:39,600

can get them long and they're 85 feet

149

00:06:43,670 --> 00:06:40,880

long

150

00:06:46,790 --> 00:06:43,680

and so technically we could only go

151  
00:06:48,629 --> 00:06:46,800  
about 185 feet away from the airlock

152  
00:06:50,870 --> 00:06:48,639  
which is where we position ourselves

153  
00:06:53,029 --> 00:06:50,880  
however we have picks that we do in

154  
00:06:55,350 --> 00:06:53,039  
order to go further away which is all

155  
00:06:57,589 --> 00:06:55,360  
the way if we want all the way to the to

156  
00:07:00,230 --> 00:06:57,599  
the end of the trucks which is about 100

157  
00:07:03,830 --> 00:07:00,240  
meters wide and in order to do that

158  
00:07:06,070 --> 00:07:03,840  
anchor different uh safety patterns we

159  
00:07:08,790 --> 00:07:06,080  
call them packs so that we always have a

160  
00:07:11,189 --> 00:07:08,800  
way back we always safely attach the

161  
00:07:13,510 --> 00:07:11,199  
session and uh and we can go all the way

162  
00:07:15,909 --> 00:07:13,520  
to the end of the truss all the way to

163  
00:07:17,749 --> 00:07:15,919

the front of the of the station special

164

00:07:20,070 --> 00:07:17,759

coming out of the airlock

165

00:07:21,749 --> 00:07:20,080

in my first tva i was all the way to the

166

00:07:28,390 --> 00:07:21,759

front to the very tip of the space

167

00:07:31,670 --> 00:07:29,830

thank you very much for answering that

168

00:07:34,390 --> 00:07:31,680

question i must ask you can you give us

169

00:07:36,309 --> 00:07:34,400

a demonstration of zero gravity i'm sure

170

00:07:43,589 --> 00:07:36,319

lots of our viewers would like to see

171

00:07:48,950 --> 00:07:46,150

so i have here things that most people

172

00:07:51,749 --> 00:07:48,960

find important and it's it's a food and

173

00:07:54,550 --> 00:07:51,759

a drink so this is a special food that i

174

00:07:56,469 --> 00:07:54,560

will eat uh next week for an experiment

175

00:07:58,790 --> 00:07:56,479

and the demonstration on zero g is that

176

00:08:00,790 --> 00:07:58,800

food is very light on the space station

177

00:08:02,790 --> 00:08:00,800

it's

178

00:08:16,070 --> 00:08:02,800

actually so light that it floats and the

179

00:08:19,589 --> 00:08:17,749

this is some orange juice that i

180

00:08:27,670 --> 00:08:19,599

rehydrated and i better get it before it

181

00:08:31,270 --> 00:08:29,350

so that's uh one of the things that we

182

00:08:35,029 --> 00:08:31,280

can do he's practicing that luca that's

183

00:08:38,389 --> 00:08:36,709

fantastic well that leads me on to the

184

00:08:40,709 --> 00:08:38,399

next question

185

00:08:43,350 --> 00:08:40,719

facebook page uh we've a viewer in ghana

186

00:08:51,030 --> 00:08:45,110

a viewer in ghana would like to ask you

187

00:08:54,550 --> 00:08:52,870

oh that's a that's a great question

188

00:08:56,710 --> 00:08:54,560

actually the food on the space station

189

00:08:58,710 --> 00:08:56,720

is really good we have all different

190

00:09:00,710 --> 00:08:58,720

kinds of food some provided by the

191

00:09:03,350 --> 00:09:00,720

russians some provided by

192

00:09:05,910 --> 00:09:03,360

the europeans that are provided by

193

00:09:08,550 --> 00:09:05,920

uh by the americans and we all share

194

00:09:09,509 --> 00:09:08,560

this food but if i have if i have bread

195

00:09:12,070 --> 00:09:09,519

massa

196

00:09:12,949 --> 00:09:12,080

i had some bonus food that was created

197

00:09:18,949 --> 00:09:12,959

by

198

00:09:22,389 --> 00:09:18,959

for me uh and it was italian food and i

199

00:09:25,190 --> 00:09:22,399

say it was because it we we finished it

200

00:09:26,949 --> 00:09:25,200

all basically uh as soon as we found out

201  
00:09:29,829 --> 00:09:26,959  
we found it on the section we had one

202  
00:09:32,070 --> 00:09:29,839  
big italian dinner and i made lasagna

203  
00:09:33,829 --> 00:09:32,080  
risotto and all kinds of different

204  
00:09:40,150 --> 00:09:33,839  
specialty and it was delicious and

205  
00:09:43,829 --> 00:09:41,590  
it's not the same though as when you're

206  
00:09:46,150 --> 00:09:43,839  
back in italy i'm sure and i have to

207  
00:09:48,949 --> 00:09:46,160  
tell you the single question that people

208  
00:09:51,430 --> 00:09:48,959  
are asking the most for you is can you

209  
00:09:53,190 --> 00:09:51,440  
give an example of the most important

210  
00:09:55,269 --> 00:09:53,200  
discovery that's been made on the

211  
00:10:00,870 --> 00:09:55,279  
international space station how do you

212  
00:10:05,910 --> 00:10:03,350  
it's a very important question

213  
00:10:08,150 --> 00:10:05,920

i would like to go on to go off and say

214

00:10:10,630 --> 00:10:08,160

that actually we the money that we spend

215

00:10:12,630 --> 00:10:10,640

on the station is not that much really

216

00:10:15,590 --> 00:10:12,640

if you put things in perspective a

217

00:10:18,069 --> 00:10:15,600

european citizen spent about 10 euros in

218

00:10:19,910 --> 00:10:18,079

a year for the for the space program

219

00:10:21,990 --> 00:10:19,920

which is all the space program not just

220

00:10:23,430 --> 00:10:22,000

a space station a human space flight but

221

00:10:26,389 --> 00:10:23,440

i'll tell you why the money is well

222

00:10:29,190 --> 00:10:26,399

spent on the space station we do we do

223

00:10:31,430 --> 00:10:29,200

three things that are very important

224

00:10:33,590 --> 00:10:31,440

one is of course the science and science

225

00:10:35,190 --> 00:10:33,600

speaks for itself it's it's what makes

226

00:10:36,470 --> 00:10:35,200

us different from all the other animals

227

00:10:39,910 --> 00:10:36,480

it's knowledge

228

00:10:41,590 --> 00:10:39,920

uh we are we we do uh at least 30 hours

229

00:10:43,430 --> 00:10:41,600

of science a week here on the space

230

00:10:46,470 --> 00:10:43,440

station which generates an incredible

231

00:10:50,710 --> 00:10:46,480

amount or more science on the ground

232

00:10:53,030 --> 00:10:50,720

we do technology where we uh we test and

233

00:10:55,430 --> 00:10:53,040

create a new technology that then is

234

00:10:57,030 --> 00:10:55,440

used uh on the ground then we do

235

00:10:58,870 --> 00:10:57,040

exploration what i mean is that in the

236

00:10:59,750 --> 00:10:58,880

future thanks to what we are learning

237

00:11:01,590 --> 00:10:59,760

today

238

00:11:03,190 --> 00:11:01,600

we will be able to go further away but

239

00:11:06,150 --> 00:11:03,200

to give you an example of something that

240

00:11:08,630 --> 00:11:06,160

we are doing now that is of uh immediate

241

00:11:11,990 --> 00:11:08,640

effect on the stone on the ground

242

00:11:14,550 --> 00:11:12,000

we are doing a study on on how our spine

243

00:11:17,110 --> 00:11:14,560

changes when we are 3g of to do this to

244

00:11:19,910 --> 00:11:17,120

do this science we are using a new

245

00:11:22,470 --> 00:11:19,920

new uh software in um

246

00:11:25,430 --> 00:11:22,480

for an ultrasound machine a very small

247

00:11:26,949 --> 00:11:25,440

ultrasound machine to make the diagnosis

248

00:11:30,069 --> 00:11:26,959

on our spine

249

00:11:32,230 --> 00:11:30,079

on the ground the same technology can be

250

00:11:35,269 --> 00:11:32,240

used to do diagnosis on the spine in

251

00:11:37,110 --> 00:11:35,279

areas that are not easily reachable by

252

00:11:39,590 --> 00:11:37,120

big machines like

253

00:11:41,990 --> 00:11:39,600

mr is or or

254

00:11:43,750 --> 00:11:42,000

attack scan machines and those machines

255

00:11:45,829 --> 00:11:43,760

are usually expensive and if you want to

256

00:11:48,470 --> 00:11:45,839

go in a remote area and you can do a

257

00:11:50,949 --> 00:11:48,480

diagnosis an ultrasound machine is cheap

258

00:11:52,710 --> 00:11:50,959

and inexpensive and very portable

259

00:11:54,550 --> 00:11:52,720

another one that we're doing and another

260

00:11:57,190 --> 00:11:54,560

experiment that we're running

261

00:11:59,829 --> 00:11:57,200

that is osteoporosis here in orbit an

262

00:12:01,670 --> 00:11:59,839

astronaut loses bone mass but we are

263

00:12:04,870 --> 00:12:01,680

studying a diet

264

00:12:06,790 --> 00:12:04,880

that balances potassium and proteins to

265

00:12:07,990 --> 00:12:06,800

figure out what's the best combination

266

00:12:12,310 --> 00:12:08,000

to

267

00:12:14,069 --> 00:12:12,320

loss of calcium from the bones but

268

00:12:16,389 --> 00:12:14,079

imagine if all the millions of people

269

00:12:19,110 --> 00:12:16,399

that suffer from osteoporosis could

270

00:12:20,150 --> 00:12:19,120

benefit from just a diet rather than

271

00:12:22,629 --> 00:12:20,160

cures

272

00:12:24,949 --> 00:12:22,639

or medicines just to improve their their

273

00:12:26,870 --> 00:12:24,959

health i think these are these studies

274

00:12:33,269 --> 00:12:26,880

are of immediate impact and are just a

275

00:12:37,590 --> 00:12:35,590

luca we really do appreciate your time i

276

00:12:39,990 --> 00:12:37,600

wonder if you could do me a favor would

277

00:12:42,150 --> 00:12:40,000

you be able to say hello to all of our

278

00:12:47,750 --> 00:12:42,160

viewers who use the bbc world news

279

00:12:52,949 --> 00:12:50,230

absolutely i would like to

280

00:12:55,509 --> 00:12:52,959

to shout out to all the uh all the

281

00:12:57,670 --> 00:12:55,519

followers on facebook of the bbc world

282

00:13:00,230 --> 00:12:57,680

news i'm luca parmitano from the

283

00:13:01,990 --> 00:13:00,240

international space station and please

284

00:13:07,910 --> 00:13:02,000

continue following the news continue

285

00:13:07,920 --> 00:13:12,949

goodbye lucas thank you very much

286

00:13:12,959 --> 00:13:17,269

you're very welcome great talking to you

287

00:13:22,470 --> 00:13:19,190

station this is houston acr that

288

00:13:26,870 --> 00:13:24,790

thank you bbc world news station we are