
NASA

1
00:00:08,870 --> 00:00:04,789
station this is houston are you ready

2
00:00:13,030 --> 00:00:10,790
houston this is station we are ready for

3
00:00:15,350 --> 00:00:13,040
the event

4
00:00:17,029 --> 00:00:15,360
wboi radio this is mission control

5
00:00:18,230 --> 00:00:17,039
houston please call station for a voice

6
00:00:20,470 --> 00:00:18,240
check

7
00:00:23,910 --> 00:00:20,480
station this is wboy radio how do you

8
00:00:28,070 --> 00:00:26,550
wbui in uh fort wayne i think we hear

9
00:00:31,109 --> 00:00:28,080
you loud and clear how do you hear me on

10
00:00:32,950 --> 00:00:31,119
board the international space station

11
00:00:37,190 --> 00:00:32,960
loud and clear you guys you guys sound

12
00:00:41,350 --> 00:00:39,190
all right commander kevin ford and

13
00:00:45,910 --> 00:00:41,360

flight engineer tom marshburn thanks

14
00:00:51,029 --> 00:00:48,069
you're welcome great uh great to have

15
00:00:53,189 --> 00:00:51,039
you on board uh tom and i have put in uh

16
00:00:54,549 --> 00:00:53,199
almost a full day already of work and uh

17
00:00:56,470 --> 00:00:54,559
we get to take a little time out once in

18
00:00:58,389 --> 00:00:56,480
a while and talk to folks on the ground

19
00:01:00,709 --> 00:00:58,399
so it's uh it's great to be with you

20
00:01:02,790 --> 00:01:00,719
we're here in the destiny laboratory and

21
00:01:04,149 --> 00:01:02,800
uh doing doing various kinds of things

22
00:01:06,070 --> 00:01:04,159
today some science going on and some

23
00:01:07,270 --> 00:01:06,080
maintenance going on and we're happy to

24
00:01:09,670 --> 00:01:07,280
take any kind of questions you might

25
00:01:11,910 --> 00:01:09,680
have about what we're doing up here

26
00:01:14,310 --> 00:01:11,920
well commander ford let's uh start with

27
00:01:16,789 --> 00:01:14,320
you tell us about the mission of

28
00:01:21,270 --> 00:01:16,799
expedition 34 what are you and engineer

29
00:01:24,870 --> 00:01:22,630
well the whole purpose of the space

30
00:01:27,270 --> 00:01:24,880
station has always been to do as much

31
00:01:28,310 --> 00:01:27,280
science as we can the microgravity

32
00:01:30,069 --> 00:01:28,320
environment

33
00:01:32,630 --> 00:01:30,079
really zero gravity if you will is it's

34
00:01:35,190 --> 00:01:32,640
a very unique environment to do things

35
00:01:36,789 --> 00:01:35,200
that scientists in many cases can only

36
00:01:38,469 --> 00:01:36,799
imagine doing on earth

37
00:01:40,950 --> 00:01:38,479
science with

38
00:01:43,429 --> 00:01:40,960

with fluids for example fluid dynamics

39
00:01:45,270 --> 00:01:43,439
looking at bubble dynamics

40
00:01:47,030 --> 00:01:45,280
doing studies on

41
00:01:49,990 --> 00:01:47,040
the way bones

42
00:01:52,310 --> 00:01:50,000
bones lose and construct their mass we

43
00:01:54,550 --> 00:01:52,320
do some of that right now in the

44
00:01:56,709 --> 00:01:54,560
japanese laboratory

45
00:01:58,550 --> 00:01:56,719
we can use this as a test bed for

46
00:02:00,950 --> 00:01:58,560
spacecraft development we've just been

47
00:02:02,149 --> 00:02:00,960
doing some stuff with uh robotically

48
00:02:03,590 --> 00:02:02,159
refueling

49
00:02:06,709 --> 00:02:03,600
spacecraft

50
00:02:08,389 --> 00:02:06,719
using using spaceships that might fly up

51
00:02:09,830 --> 00:02:08,399
to a satellite that's already in orbit

52
00:02:12,150 --> 00:02:09,840
and refuel those

53
00:02:14,470 --> 00:02:12,160
and we have lots of experiments on the

54
00:02:16,229 --> 00:02:14,480
outside looking at the universe also

55
00:02:18,470 --> 00:02:16,239
looking nader toward the ground looking

56
00:02:20,150 --> 00:02:18,480
at the earth that we aren't involved in

57
00:02:21,510 --> 00:02:20,160
but on the inside there are also

58
00:02:23,830 --> 00:02:21,520
hundreds of experiments that we are

59
00:02:26,710 --> 00:02:23,840
involved in every day combustion in the

60
00:02:28,309 --> 00:02:26,720
zero gravity environment and material

61
00:02:30,790 --> 00:02:28,319
science going on right above our head

62
00:02:33,430 --> 00:02:30,800
literally today so just a lot of things

63
00:02:34,869 --> 00:02:33,440

that scientists want to do in this low

64
00:02:38,390 --> 00:02:34,879
gravity environment and we're up here to

65
00:02:40,869 --> 00:02:38,400
do it for them certainly no shortage of

66
00:02:42,710 --> 00:02:40,879
of science to be done on the station up

67
00:02:45,030 --> 00:02:42,720
there it sounds terribly exciting

68
00:02:46,710 --> 00:02:45,040
engineer tom marshburn um i want to

69
00:02:47,910 --> 00:02:46,720
bring you in can you tell us a little

70
00:02:53,589 --> 00:02:47,920
bit about

71
00:02:57,670 --> 00:02:55,190
well we've come a long way in our space

72
00:02:59,750 --> 00:02:57,680
program the daily life is nice

73
00:03:01,670 --> 00:02:59,760
obviously we're isolated up here in our

74
00:03:02,790 --> 00:03:01,680
space station however we've got great

75
00:03:03,830 --> 00:03:02,800
food

76
00:03:07,430 --> 00:03:03,840
we've got

77
00:03:09,190 --> 00:03:07,440
plenty to drink and lots of busy work

78
00:03:11,350 --> 00:03:09,200
or good work to keep us busy and that's

79
00:03:12,309 --> 00:03:11,360
really great for keeping mental health

80
00:03:14,470 --> 00:03:12,319
as well

81
00:03:16,790 --> 00:03:14,480
so we have a little bit of time off

82
00:03:18,390 --> 00:03:16,800
when we do have some time we'll look out

83
00:03:19,670 --> 00:03:18,400
the window and that's usually how we

84
00:03:21,430 --> 00:03:19,680
spend our free time take a lot of

85
00:03:23,830 --> 00:03:21,440
photographs the view of the earth

86
00:03:25,190 --> 00:03:23,840
obviously is is just stunning and it

87
00:03:28,229 --> 00:03:25,200
completely captures our attention

88
00:03:30,869 --> 00:03:28,239

whenever we have a free moment

89
00:03:33,910 --> 00:03:30,879
you guys have any culinary favorites on

90
00:03:35,270 --> 00:03:33,920
the menu maybe maybe special dishes that

91
00:03:40,869 --> 00:03:35,280
you'd uh

92
00:03:44,390 --> 00:03:42,949
well one thing we prefer is fresh food

93
00:03:46,229 --> 00:03:44,400
we miss it a bit because we don't have

94
00:03:48,229 --> 00:03:46,239
any except when your cargo vehicle

95
00:03:50,229 --> 00:03:48,239
arrives and so we just got some fresh

96
00:03:51,509 --> 00:03:50,239
apples today we've each enjoyed one of

97
00:03:52,869 --> 00:03:51,519
those

98
00:03:55,509 --> 00:03:52,879
other than that

99
00:03:57,830 --> 00:03:55,519
tortillas are a favorite item

100
00:04:00,229 --> 00:03:57,840
put anything on it you want

101
00:04:02,229 --> 00:04:00,239
my personal favorite is beef brisket but

102
00:04:03,910 --> 00:04:02,239
there's all kinds of stuff up here we

103
00:04:05,110 --> 00:04:03,920
also get some food supplied from the

104
00:04:09,190 --> 00:04:05,120
russian side

105
00:04:14,550 --> 00:04:11,990
a lot of us have i think this romantic

106
00:04:16,310 --> 00:04:14,560
idea about space flight it's one of

107
00:04:18,629 --> 00:04:16,320
those jobs you know we dream of as kids

108
00:04:20,550 --> 00:04:18,639
growing up i i certainly did but i i

109
00:04:23,110 --> 00:04:20,560
know you won't you guys go through years

110
00:04:24,230 --> 00:04:23,120
of training before ever making it into

111
00:04:26,950 --> 00:04:24,240
space but

112
00:04:29,749 --> 00:04:26,960
is that sense of wonder still a part of

113
00:04:31,030 --> 00:04:29,759

the job are are there still uh good

114
00:04:33,510 --> 00:04:31,040
surprises that

115
00:04:37,350 --> 00:04:33,520
that you find in day to day life up

116
00:04:42,150 --> 00:04:39,670
well the sense of wonder i think has

117
00:04:44,390 --> 00:04:42,160
even increased when you get up here i

118
00:04:46,710 --> 00:04:44,400
remember the first time i reached orbit

119
00:04:48,790 --> 00:04:46,720
in a space shuttle and the first thing i

120
00:04:50,310 --> 00:04:48,800
thought of i was i was a pilot for

121
00:04:52,390 --> 00:04:50,320
discovery and

122
00:04:54,150 --> 00:04:52,400
very busy with all my technical duties

123
00:04:56,710 --> 00:04:54,160
and as soon as we got to main engine

124
00:04:59,590 --> 00:04:56,720
cutoff and we were in orbit and at zero

125
00:05:01,830 --> 00:04:59,600
g i absolutely could not believe what we

126
00:05:03,430 --> 00:05:01,840
had just done i i just thought the the

127
00:05:05,510 --> 00:05:03,440
engineers who designed this really

128
00:05:07,110 --> 00:05:05,520
pulled this off you know because you

129
00:05:08,150 --> 00:05:07,120
know it happens you read about it you

130
00:05:09,749 --> 00:05:08,160
see it on

131
00:05:12,150 --> 00:05:09,759
on film and so forth but when you really

132
00:05:15,830 --> 00:05:12,160
do it yourself you really can't believe

133
00:05:18,310 --> 00:05:15,840
uh that you were just accelerated to 17

134
00:05:20,230 --> 00:05:18,320
500 miles an hour and you're suspended

135
00:05:21,510 --> 00:05:20,240
in microgravity and you're orbiting the

136
00:05:23,270 --> 00:05:21,520
earth and you can see it all down below

137
00:05:24,790 --> 00:05:23,280
you so the wonder is uh has only

138
00:05:27,189 --> 00:05:24,800

increased

139
00:05:29,430 --> 00:05:27,199
the the realism though is is something

140
00:05:31,830 --> 00:05:29,440
that from day to day

141
00:05:33,430 --> 00:05:31,840
things like the hygiene that you have to

142
00:05:36,070 --> 00:05:33,440
do in space

143
00:05:38,629 --> 00:05:36,080
working in space working in all corners

144
00:05:40,710 --> 00:05:38,639
working in a closed environment and

145
00:05:42,390 --> 00:05:40,720
having to really maintain the systems

146
00:05:43,749 --> 00:05:42,400
you have with help from the ground of

147
00:05:45,909 --> 00:05:43,759
course huge help from the ground

148
00:05:47,990 --> 00:05:45,919
instruction but having to put your hands

149
00:05:50,790 --> 00:05:48,000
on everything to keep the ship running

150
00:05:52,870 --> 00:05:50,800
and just working in this very it is a

151
00:05:54,469 --> 00:05:52,880
difficult environment to work in uh the

152
00:05:57,270 --> 00:05:54,479
training to get here is also very

153
00:05:59,430 --> 00:05:57,280
difficult so all along the way uh you

154
00:06:01,029 --> 00:05:59,440
you do put in some some blood sweat and

155
00:06:03,189 --> 00:06:01,039
tears to get here but

156
00:06:05,110 --> 00:06:03,199
uh it's it's doubly worth it uh when you

157
00:06:08,150 --> 00:06:05,120
get here and really get to to see what

158
00:06:10,629 --> 00:06:08,160
uh what living in space is like

159
00:06:11,510 --> 00:06:10,639
commander kevin ford you're a hoosier

160
00:06:13,590 --> 00:06:11,520
boy

161
00:06:15,270 --> 00:06:13,600
and part of a a long long line of

162
00:06:16,070 --> 00:06:15,280
hoosiers and midwesterners who have

163
00:06:18,150 --> 00:06:16,080

helped

164
00:06:21,430 --> 00:06:18,160
kind of build and expand our knowledge

165
00:06:23,110 --> 00:06:21,440
of space i have to ask do you think your

166
00:06:25,990 --> 00:06:23,120
roots in this part of the country helped

167
00:06:32,469 --> 00:06:26,000
you get excited about space or or help

168
00:06:37,270 --> 00:06:34,950
well i think so there were a few things

169
00:06:39,990 --> 00:06:37,280
in my family history that struck my

170
00:06:42,629 --> 00:06:40,000
interest in aviation for example and uh

171
00:06:44,390 --> 00:06:42,639
looking skyward uh the kinds of stuff my

172
00:06:46,150 --> 00:06:44,400
brothers were interested in is kind of

173
00:06:48,550 --> 00:06:46,160
what what you know got me interested

174
00:06:51,029 --> 00:06:48,560
also but i think um you know we have a

175
00:06:53,670 --> 00:06:51,039
lot of technical history in indiana a

176
00:06:55,189 --> 00:06:53,680
lot of uh great a lot of astronauts for

177
00:06:57,270 --> 00:06:55,199
example went to purdue and people hear

178
00:06:58,710 --> 00:06:57,280
that i'm from indiana and that i'm an

179
00:07:01,350 --> 00:06:58,720
astronaut think oh you went to purdue

180
00:07:02,950 --> 00:07:01,360
and i i went to notre dame myself but

181
00:07:05,189 --> 00:07:02,960
you know purdue has this very rich

182
00:07:07,510 --> 00:07:05,199
history and i just think that part of

183
00:07:09,830 --> 00:07:07,520
the country uh the work ethic and the

184
00:07:12,710 --> 00:07:09,840
study and and perhaps it's the

185
00:07:15,029 --> 00:07:12,720
midwestern education that inspired me so

186
00:07:16,950 --> 00:07:15,039
i think that was all really strong and

187
00:07:19,110 --> 00:07:16,960
kind of maybe is what took me down this

188
00:07:19,909 --> 00:07:19,120

path so i still see it strong today i

189
00:07:22,150 --> 00:07:19,919
know

190
00:07:24,309 --> 00:07:22,160
education is just really big focus for

191
00:07:26,790 --> 00:07:24,319
indiana for the for the legislature down

192
00:07:29,189 --> 00:07:26,800
in indianapolis and uh it's it's it's

193
00:07:39,909 --> 00:07:29,199
really a wonderful part of our hoosier

194
00:07:43,029 --> 00:07:41,830
station this is houston acr uh we lost

195
00:07:47,270 --> 00:07:43,039
that client please stand by we're going

196
00:07:47,280 --> 00:08:00,230
okay copy that no problem

197
00:08:04,070 --> 00:08:02,550
and station this is houston acr uh we'll

198
00:08:05,749 --> 00:08:04,080
try to re-establish that first client

199
00:08:07,830 --> 00:08:05,759
we're going to pass you over now to news

200
00:08:11,830 --> 00:08:07,840
14 carolina please stand by for a voice

201
00:08:11,840 --> 00:08:19,589
okay going over to news 14. copy that

202
00:08:26,230 --> 00:08:21,749
station this is sean flynn with news 14

203
00:08:33,269 --> 00:08:28,550
read you loud and clear this is uh tom

204
00:08:35,990 --> 00:08:34,550
excellent

205
00:08:37,350 --> 00:08:36,000
welcome gentlemen

206
00:08:38,790 --> 00:08:37,360
um

207
00:08:40,949 --> 00:08:38,800
first commander ford you've been there

208
00:08:42,310 --> 00:08:40,959
since october dr marshburn you arrived

209
00:08:44,470 --> 00:08:42,320
in december how are both of you

210
00:08:46,150 --> 00:08:44,480
adjusting to your time in space and are

211
00:08:51,430 --> 00:08:46,160
you getting used to the sun rising and

212
00:08:55,190 --> 00:08:53,030
well commander ford's been here a couple

213
00:08:56,870 --> 00:08:55,200

of months before we arrived but i think

214
00:08:58,070 --> 00:08:56,880
chris hadfield and myself are adapting

215
00:08:59,829 --> 00:08:58,080
quite well

216
00:09:02,630 --> 00:08:59,839
it takes the body about a month to get

217
00:09:04,150 --> 00:09:02,640
used to the zero gravity i'd say and

218
00:09:06,070 --> 00:09:04,160
about that long maybe a little longer to

219
00:09:07,590 --> 00:09:06,080
get used to the station environment

220
00:09:09,670 --> 00:09:07,600
where everything's located and how the

221
00:09:12,710 --> 00:09:09,680
operations run uh despite all the

222
00:09:14,310 --> 00:09:12,720
training uh the reality is always uh

223
00:09:15,910 --> 00:09:14,320
offers lots of uh

224
00:09:18,710 --> 00:09:15,920
new things new opportunities a lot of

225
00:09:20,550 --> 00:09:18,720
things to learn but uh we're in full

226
00:09:25,269 --> 00:09:20,560
force now and getting a lot of work done

227
00:09:29,190 --> 00:09:27,190
for both of you your previous experience

228
00:09:30,630 --> 00:09:29,200
in space was measured in hours now we're

229
00:09:32,070 --> 00:09:30,640
talking months what's the biggest

230
00:09:38,550 --> 00:09:32,080
difference and how are your bodies

231
00:09:44,230 --> 00:09:41,590
well i've been here about 110 days now

232
00:09:46,389 --> 00:09:44,240
and uh it is a completely different

233
00:09:49,430 --> 00:09:46,399
experience no doubt about it

234
00:09:51,910 --> 00:09:49,440
the the space shuttle flight was uh was

235
00:09:53,670 --> 00:09:51,920
trained for and very well choreographed

236
00:09:55,590 --> 00:09:53,680
before you come

237
00:09:57,590 --> 00:09:55,600
there are hopefully few surprises on a

238
00:09:59,910 --> 00:09:57,600

14-week shuttle flight

239
00:10:01,269 --> 00:09:59,920
almost every procedure i ran

240
00:10:03,269 --> 00:10:01,279
i had run

241
00:10:04,790 --> 00:10:03,279
before in simulations and i had made

242
00:10:06,870 --> 00:10:04,800
notes in those procedures about what i

243
00:10:08,870 --> 00:10:06,880
was going to do and up on space station

244
00:10:10,630 --> 00:10:08,880
day-to-day life and week to week

245
00:10:12,470 --> 00:10:10,640
can be very different very surprising

246
00:10:13,910 --> 00:10:12,480
you really know never know what's coming

247
00:10:15,670 --> 00:10:13,920
your way in terms of you know maybe

248
00:10:17,670 --> 00:10:15,680
systems malfunctions and and fixing

249
00:10:19,750 --> 00:10:17,680
things up and that sort of thing so it's

250
00:10:21,910 --> 00:10:19,760
a different kind of mindset coming up

251
00:10:23,990 --> 00:10:21,920
here for a long long duration flight and

252
00:10:25,590 --> 00:10:24,000
then of course just living here when you

253
00:10:27,030 --> 00:10:25,600
when you set up camp you know it's not a

254
00:10:28,710 --> 00:10:27,040
temporary sleeping bag you know you're

255
00:10:29,829 --> 00:10:28,720
gonna you're gonna be here for months on

256
00:10:31,509 --> 00:10:29,839
end and you gotta make yourself

257
00:10:33,829 --> 00:10:31,519
comfortable learn to do things

258
00:10:35,910 --> 00:10:33,839
efficiently i'm still learning things

259
00:10:38,470 --> 00:10:35,920
tom and chris are teaching me things in

260
00:10:41,110 --> 00:10:38,480
the space spacecraft to make my my days

261
00:10:42,310 --> 00:10:41,120
and life more efficient and it's just

262
00:10:44,150 --> 00:10:42,320
kind of

263
00:10:47,110 --> 00:10:44,160

a chance to really learn to live in

264
00:10:49,350 --> 00:10:47,120
space and you really do adapt to the to

265
00:10:51,269 --> 00:10:49,360
the different dimensions for a while you

266
00:10:52,870 --> 00:10:51,279
start to to try to look at things in

267
00:10:54,310 --> 00:10:52,880
three dimensions and find new ways to do

268
00:10:56,710 --> 00:10:54,320
things and then after a while you just

269
00:10:58,949 --> 00:10:56,720
automatically do after a few months so

270
00:11:00,550 --> 00:10:58,959
um it's it's a very interesting thing to

271
00:11:03,190 --> 00:11:00,560
do it's a very strange and novel

272
00:11:07,030 --> 00:11:03,200
environment but one i when i loved

273
00:11:10,870 --> 00:11:08,710
well i see you guys are tossing that

274
00:11:11,990 --> 00:11:10,880
apple around you had a resupply shift

275
00:11:14,150 --> 00:11:12,000
land there

276
00:11:15,829 --> 00:11:14,160
yesterday with three tons of supplies

277
00:11:20,630 --> 00:11:15,839
any specific thing you were on there you

278
00:11:24,150 --> 00:11:22,630
well it is uh full of hardware there are

279
00:11:27,110 --> 00:11:24,160
a lot of important things are going to

280
00:11:29,509 --> 00:11:27,120
keep our our vital uh the station's

281
00:11:30,949 --> 00:11:29,519
vital functions going uh but also

282
00:11:33,430 --> 00:11:30,959
experimental hardware we're always

283
00:11:34,790 --> 00:11:33,440
excited about that when that comes up

284
00:11:35,750 --> 00:11:34,800
there's a lot of a lot of work to be

285
00:11:38,230 --> 00:11:35,760
done

286
00:11:41,030 --> 00:11:38,240
uh and in some ways the space station is

287
00:11:42,630 --> 00:11:41,040
assembly line some things come up we

288
00:11:45,670 --> 00:11:42,640

work with the

289
00:11:47,590 --> 00:11:45,680
with the experimental hardware with uh

290
00:11:49,190 --> 00:11:47,600
materials and such that come up and then

291
00:11:51,350 --> 00:11:49,200
we were able to bring it back back down

292
00:11:54,150 --> 00:11:51,360
on our soyuz so we were able to get a

293
00:11:56,710 --> 00:11:54,160
rapid turnaround of uh experimental

294
00:11:58,230 --> 00:11:56,720
results and that's exciting we probably

295
00:12:00,069 --> 00:11:58,240
each have a little bit of bonus food a

296
00:12:01,990 --> 00:12:00,079
little bit of extra food that we like on

297
00:12:03,350 --> 00:12:02,000
there and as you saw just a little bit

298
00:12:05,269 --> 00:12:03,360
of fresh fruit that they throw in the

299
00:12:06,470 --> 00:12:05,279
hatch right before it launches and so we

300
00:12:10,389 --> 00:12:06,480
get to enjoy that and that's very

301
00:12:15,269 --> 00:12:12,870
dr marshburn we are monitoring your

302
00:12:16,949 --> 00:12:15,279
twitter feed uh you are seriously in the

303
00:12:18,790 --> 00:12:16,959
twitter verse uh you've taken some

304
00:12:20,310 --> 00:12:18,800
beautiful pictures up there including

305
00:12:21,910 --> 00:12:20,320
the north carolina mountains and the

306
00:12:23,670 --> 00:12:21,920
outer banks what has been your favorite

307
00:12:25,670 --> 00:12:23,680
part and have you been able to identify

308
00:12:26,870 --> 00:12:25,680
your hometown of statesville or davidson

309
00:12:28,470 --> 00:12:26,880
college where you got your physics

310
00:12:32,790 --> 00:12:28,480
degree or wake forest where you got your

311
00:12:37,190 --> 00:12:35,190
well the southeast united states is very

312
00:12:38,389 --> 00:12:37,200
unique and where we where i grew up in

313
00:12:40,230 --> 00:12:38,399

north carolina

314
00:12:41,750 --> 00:12:40,240
and where you live now is a very unique

315
00:12:43,990 --> 00:12:41,760
place on the planet one of the nice

316
00:12:45,750 --> 00:12:44,000
things about it is it's it's so green

317
00:12:47,350 --> 00:12:45,760
and so verdant there

318
00:12:49,350 --> 00:12:47,360
even in the wintertime that's a little

319
00:12:50,150 --> 00:12:49,360
bit hard to pick out the cities i have

320
00:12:53,350 --> 00:12:50,160
seen

321
00:12:54,710 --> 00:12:53,360
area

322
00:12:56,710 --> 00:12:54,720
and i'm going to try to get a picture at

323
00:12:58,230 --> 00:12:56,720
night so i can say that i can pinpoint

324
00:13:00,230 --> 00:12:58,240
it exactly

325
00:13:02,550 --> 00:13:00,240
but it's a beautiful place there and we

326
00:13:03,910 --> 00:13:02,560
love to love to catch it as we

327
00:13:06,310 --> 00:13:03,920
uh go across

328
00:13:08,949 --> 00:13:06,320
the piedmont area it's a little bit more

329
00:13:10,949 --> 00:13:08,959
rare than i ever realized before it goes

330
00:13:12,230 --> 00:13:10,959
by fast when we cross it as on our

331
00:13:14,069 --> 00:13:12,240
orbital track

332
00:13:16,310 --> 00:13:14,079
but we all have our favorite spots i

333
00:13:17,509 --> 00:13:16,320
love mountains i love the

334
00:13:19,269 --> 00:13:17,519
southern part of south america the

335
00:13:21,829 --> 00:13:19,279
patagonian mountains and the himalayas

336
00:13:23,509 --> 00:13:21,839
when we go across there that's

337
00:13:28,150 --> 00:13:23,519
supposed that we all have our favorite

338
00:13:32,310 --> 00:13:30,389

i only wish i could uh get some of those

339
00:13:33,829 --> 00:13:32,320
uh get a view of that you know our

340
00:13:35,190 --> 00:13:33,839
parent company time warner cable is

341
00:13:36,949 --> 00:13:35,200
heavily involved in the connect a

342
00:13:38,389 --> 00:13:36,959
million minds movement basically we're

343
00:13:40,550 --> 00:13:38,399
trying to get more kids involved in

344
00:13:42,389 --> 00:13:40,560
science technology and math how critical

345
00:13:48,069 --> 00:13:42,399
were these areas of study for getting

346
00:13:51,829 --> 00:13:49,990
well one thing astronauts frequently

347
00:13:54,310 --> 00:13:51,839
tell students and it's it's a very true

348
00:13:56,629 --> 00:13:54,320
statement is first of all you fall in

349
00:13:59,189 --> 00:13:56,639
love with something and

350
00:14:01,670 --> 00:13:59,199
studying hard and taking a wide

351
00:14:03,269 --> 00:14:01,680
breadth of types of courses

352
00:14:04,710 --> 00:14:03,279
helps you in that regard if you're

353
00:14:07,350 --> 00:14:04,720
curious if you fall in love with

354
00:14:09,509 --> 00:14:07,360
something then i would use the time in

355
00:14:11,189 --> 00:14:09,519
school to get really good at learning

356
00:14:12,790 --> 00:14:11,199
how to learn and learning how to learn

357
00:14:14,230 --> 00:14:12,800
anything but particularly the subject

358
00:14:16,310 --> 00:14:14,240
that you love and if you love it you'll

359
00:14:18,230 --> 00:14:16,320
do well in it but maintaining a high

360
00:14:20,629 --> 00:14:18,240
level of curiosity doing as well as you

361
00:14:21,990 --> 00:14:20,639
can in school so that you have the tools

362
00:14:24,150 --> 00:14:22,000
you need

363
00:14:25,990 --> 00:14:24,160

then you're on your road to becoming an

364
00:14:27,590 --> 00:14:26,000
astronaut if that's what you want to be

365
00:14:29,670 --> 00:14:27,600
up here we're learning every day it's

366
00:14:31,110 --> 00:14:29,680
it's a skill that

367
00:14:34,389 --> 00:14:31,120
never goes away particularly in this

368
00:14:36,230 --> 00:14:34,399
type of job so i highly encourage

369
00:14:38,629 --> 00:14:36,240
students to fall in love with something

370
00:14:43,430 --> 00:14:38,639
look around and then get really good at

371
00:14:47,590 --> 00:14:45,670
and this question is for uh one or both

372
00:14:49,430 --> 00:14:47,600
of you this mission is being called the

373
00:14:51,430 --> 00:14:49,440
beehive of activity can you explain some

374
00:14:53,110 --> 00:14:51,440
of the experiments you're conducting

375
00:14:58,150 --> 00:14:53,120
so that we can understand it and how

376
00:15:01,829 --> 00:15:00,790
well uh yesterday i did an experiment

377
00:15:03,430 --> 00:15:01,839
called cap

378
00:15:04,870 --> 00:15:03,440
capillary flow experiment we just call

379
00:15:07,430 --> 00:15:04,880
it cfe for short because we love

380
00:15:09,590 --> 00:15:07,440
acronyms at nasa and this experiment is

381
00:15:11,350 --> 00:15:09,600
looking at different kinds of vessels

382
00:15:14,230 --> 00:15:11,360
and how best

383
00:15:16,230 --> 00:15:14,240
to control fluid in a vessel

384
00:15:18,389 --> 00:15:16,240
with a particular emphasis on bubbles

385
00:15:20,629 --> 00:15:18,399
and how bubbles move around i don't know

386
00:15:22,230 --> 00:15:20,639
if perhaps you've uh you've been in a

387
00:15:23,829 --> 00:15:22,240
hospital environment or a doctor's

388
00:15:25,350 --> 00:15:23,839

office and you've seen

389
00:15:27,509 --> 00:15:25,360
maybe the doctor or nurse trying to

390
00:15:29,110 --> 00:15:27,519
flick a bubble out the end before they

391
00:15:30,790 --> 00:15:29,120
before they hook it up and give you an

392
00:15:33,189 --> 00:15:30,800
iv or give you a shot or something like

393
00:15:36,150 --> 00:15:33,199
that and uh we have the same problem in

394
00:15:38,150 --> 00:15:36,160
fuel tanks for example and spacecraft

395
00:15:41,269 --> 00:15:38,160
and you might have these uh same kinds

396
00:15:43,829 --> 00:15:41,279
of problems in water lines and pumps on

397
00:15:45,829 --> 00:15:43,839
the ground and pumps don't like to mix

398
00:15:47,030 --> 00:15:45,839
water and air they like just pumping or

399
00:15:48,949 --> 00:15:47,040
fluid in air they like to just pump

400
00:15:50,150 --> 00:15:48,959
their fluid so this is a particular area

401
00:15:51,670 --> 00:15:50,160
of study that's been troubling for

402
00:15:53,590 --> 00:15:51,680
engineers for a long time and we did

403
00:15:55,110 --> 00:15:53,600
that i spent the afternoon yesterday

404
00:15:56,230 --> 00:15:55,120
working an experiment with some science

405
00:15:59,030 --> 00:15:56,240
scientists

406
00:16:00,629 --> 00:15:59,040
in portland oregon who who are focusing

407
00:16:02,230 --> 00:16:00,639
on this and because you can look at it

408
00:16:03,590 --> 00:16:02,240
in the microgravity environment you can

409
00:16:05,189 --> 00:16:03,600
look at bigger bubbles and how these

410
00:16:07,030 --> 00:16:05,199
move around and it's very very

411
00:16:08,389 --> 00:16:07,040
interesting extremely interesting we're

412
00:16:10,389 --> 00:16:08,399
able to control these things and move

413
00:16:12,629 --> 00:16:10,399

them to where we want so that's a big

414
00:16:15,189 --> 00:16:12,639
advance when i first arrived i did some

415
00:16:17,030 --> 00:16:15,199
work with some fish called madoka that

416
00:16:19,030 --> 00:16:17,040
have bone structure that's

417
00:16:20,389 --> 00:16:19,040
just like mammals and they can look at

418
00:16:21,990 --> 00:16:20,399
the way the bone is created and

419
00:16:24,870 --> 00:16:22,000
destroyed the osteoclasts and

420
00:16:27,110 --> 00:16:24,880
osteoblasts and learn a lot about what

421
00:16:29,269 --> 00:16:27,120
happens to us in space when our bones

422
00:16:31,509 --> 00:16:29,279
are unloaded for long periods of time

423
00:16:33,189 --> 00:16:31,519
and take this research back and maybe at

424
00:16:35,189 --> 00:16:33,199
some point eliminate something like

425
00:16:38,150 --> 00:16:35,199
osteoporosis some down sometime down the

426
00:16:40,230 --> 00:16:38,160
line would be a huge uh huge advance of

427
00:16:43,430 --> 00:16:40,240
course for so many so many people who

428
00:16:45,269 --> 00:16:43,440
suffer from that as elderly so um those

429
00:16:47,189 --> 00:16:45,279
are things we do weekly i'll let tom

430
00:16:49,670 --> 00:16:47,199
talk about a few others

431
00:16:50,790 --> 00:16:49,680
yeah we could keep on going and take up

432
00:16:53,030 --> 00:16:50,800
all the time with this there are over

433
00:16:54,550 --> 00:16:53,040
130 experiments going on uh some of

434
00:16:55,990 --> 00:16:54,560
which we're involved in some of which

435
00:16:57,910 --> 00:16:56,000
are going on to control from the ground

436
00:16:59,670 --> 00:16:57,920
or just even automatically i've been

437
00:17:01,910 --> 00:16:59,680
involved in some medical experiments as

438
00:17:03,269 --> 00:17:01,920

well we've been using ultrasound to look

439
00:17:05,590 --> 00:17:03,279
at the the ways in which the body

440
00:17:07,270 --> 00:17:05,600
changes here in zero gravity ultrasound

441
00:17:09,350 --> 00:17:07,280
obviously is not new but we're using it

442
00:17:11,189 --> 00:17:09,360
in ways that it's not used on the ground

443
00:17:14,230 --> 00:17:11,199
and as it turns out it has a lot of

444
00:17:16,069 --> 00:17:14,240
applications uh in medicine terrestrial

445
00:17:17,909 --> 00:17:16,079
medicine particularly in areas that are

446
00:17:20,470 --> 00:17:17,919
generally underserved and so it's been

447
00:17:24,549 --> 00:17:20,480
expanding medical care in underserved

448
00:17:31,669 --> 00:17:25,750
very good and

449
00:17:35,750 --> 00:17:33,430
well that's a great question all the

450
00:17:37,669 --> 00:17:35,760
fish have gone to science now so they

451
00:17:39,909 --> 00:17:37,679
all launched on my soyuz actually there

452
00:17:41,750 --> 00:17:39,919
were three crew members two cosmonauts

453
00:17:44,150 --> 00:17:41,760
oleg and yep guinea and myself on board

454
00:17:46,789 --> 00:17:44,160
of soyuz that launched back in october

455
00:17:49,190 --> 00:17:46,799
and 32 of these madoka fish and at

456
00:17:51,750 --> 00:17:49,200
various stages uh in their lives and

457
00:17:53,430 --> 00:17:51,760
development uh we fix them and they're

458
00:17:56,230 --> 00:17:53,440
ready for science now so they'll go home

459
00:17:57,909 --> 00:17:56,240
with us as well but uh as frozen as

460
00:18:00,630 --> 00:17:57,919
frozen fish and

461
00:18:02,950 --> 00:18:00,640
they'll look at how their bone was at

462
00:18:05,270 --> 00:18:02,960
the time that they were fixed so that's

463
00:18:06,710 --> 00:18:05,280

that's the way this experiment works and

464
00:18:07,830 --> 00:18:06,720
like i say it's just got so much

465
00:18:09,510 --> 00:18:07,840
potential

466
00:18:12,830 --> 00:18:09,520
to tell us a lot about

467
00:18:16,710 --> 00:18:14,870
degradation very good they gave their

468
00:18:19,029 --> 00:18:16,720
lives for science commander ford your

469
00:18:20,470 --> 00:18:19,039
time is uh on the space station is up

470
00:18:22,470 --> 00:18:20,480
next month dr marshburn you're coming

471
00:18:24,230 --> 00:18:22,480
home in may what will you miss most when

472
00:18:25,830 --> 00:18:24,240
you come home and what are you most

473
00:18:30,150 --> 00:18:25,840
looking forward to when you get back on

474
00:18:34,789 --> 00:18:32,549
though i'd say we all miss those we love

475
00:18:36,710 --> 00:18:34,799
uh the most in our friends

476
00:18:38,390 --> 00:18:36,720
but besides that

477
00:18:40,150 --> 00:18:38,400
i'll be looking forward forward to a hot

478
00:18:42,230 --> 00:18:40,160
shower some running water feeling the

479
00:18:45,190 --> 00:18:42,240
wind and maybe the grass or the sand on

480
00:18:47,510 --> 00:18:45,200
my feet and after that some food some

481
00:18:48,470 --> 00:18:47,520
fresh food would be great

482
00:18:50,870 --> 00:18:48,480
kevin

483
00:18:53,750 --> 00:18:50,880
and uh you know i'll just add uh we do

484
00:18:56,789 --> 00:18:53,760
live in a uh a beautiful space station

485
00:18:58,950 --> 00:18:56,799
it's about the interior volume of a 747

486
00:19:01,029 --> 00:18:58,960
but uh try spending uh four months into

487
00:19:03,510 --> 00:19:01,039
747 sometime

488
00:19:05,990 --> 00:19:03,520

so we we love it it's a very very

489
00:19:08,390 --> 00:19:06,000
special thing to get to do but i'm an

490
00:19:10,710 --> 00:19:08,400
outdoorsy kind of guy so i love being

491
00:19:11,510 --> 00:19:10,720
outside playing golf and going out for a

492
00:19:13,990 --> 00:19:11,520
run

493
00:19:16,230 --> 00:19:14,000
in my neighborhood in seabrook texas

494
00:19:18,870 --> 00:19:16,240
right now and so i'm looking forward to

495
00:19:21,029 --> 00:19:18,880
some time outside and like tom said uh

496
00:19:23,510 --> 00:19:21,039
seeing seeing wildlife again smelling

497
00:19:25,750 --> 00:19:23,520
grass and just really enjoying the

498
00:19:28,310 --> 00:19:25,760
planet because as beautiful as it is

499
00:19:30,549 --> 00:19:28,320
here uh really you live on the best the

500
00:19:32,150 --> 00:19:30,559
best uh spaceship that that is the

501
00:19:34,310 --> 00:19:32,160
planet earth so i'm looking forward to

502
00:19:36,830 --> 00:19:34,320
getting back and uh learning to live on

503
00:19:41,590 --> 00:19:39,909
again right commander ford dr marshburn

504
00:19:43,590 --> 00:19:41,600
thank you so much for joining us and dr

505
00:19:45,510 --> 00:19:43,600
marshburn when you get back down here we

506
00:19:50,630 --> 00:19:45,520
definitely want to catch up when you uh

507
00:19:53,510 --> 00:19:52,230
i can't wait looking forward to it very

508
00:19:58,070 --> 00:19:53,520
much thanks for the chance to talk to

509
00:20:05,750 --> 00:19:59,909
a station this is houston acr that

510
00:20:10,310 --> 00:20:08,630
thank you wboi radio and news hey kathy

511
00:20:11,909 --> 00:20:10,320
thanks very much station we are now