1
00:01:20,830 --> 00:01:17,350
let me a Houston we're set up down here

2
00:01:22,890 --> 00:01:20,840
for pmc on your call no rush we realize

3
00:01:27,010 --> 00:01:22,900
you're finishing up with the ifm and

4
00:01:28,960 --> 00:01:27,020
will be el Oso in about 11 minutes we

5
00:01:30,090 --> 00:01:28,970
get it in before the elois great if not

6
00:01:32,770 --> 00:01:30,100
we'll pick it up on the other side

7
00:01:34,510 --> 00:01:32,780
astronaut dr. Michael gurnard who is

8
00:01:36,880 --> 00:01:34,520
from Mansfield is joining us right now

9
00:01:39,760 --> 00:01:36,890
along with astronaut Roger crouch and

10
00:01:41,470 --> 00:01:39,770
astronaut Janice Voss and Michael let's

11
00:01:43,360 --> 00:01:41,480
start with you if it's okay I understand

12
00:01:46,120 --> 00:01:43,370
that you're over the South Atlantic just

13
00:01:48,490 --> 00:01:46,130

about now 185 statute miles straight up

14
00:01:50,560 --> 00:01:48,500
what's the most significant part of this

15
00:01:55,690 --> 00:01:50,570
mission that you are directly involved

16
00:01:57,850 --> 00:01:55,700
with Omar on this mission is to be the

17
00:01:59,230 --> 00:01:57,860
lead of the orbiter during now it's

18
00:02:01,450 --> 00:01:59,240
called the blue ship it's a two ship

19
00:02:04,150 --> 00:02:01,460
mission if some red job is to keep the

20
00:02:06,790 --> 00:02:04,160
Space Shuttle flying and working on the

21
00:02:08,919 --> 00:02:06,800
lease or that Roger and Janice back in

22
00:02:10,600 --> 00:02:08,929
the lab here can tell you on two very

23
00:02:13,660 --> 00:02:10,610
important science side that they're

24
00:02:15,460 --> 00:02:13,670
doing it's certainly impressive that

25
00:02:18,940 --> 00:02:15,470
you've been able to come back into space

26
00:02:21,310 --> 00:02:18,950
so quickly after the shortened mission

27
00:02:25,840 --> 00:02:21,320
this past spring how are the fuel cells

28
00:02:28,720 --> 00:02:25,850
doing this go-around they're doing great

29
00:02:30,250 --> 00:02:28,730
then as you can imagine that NASA good

30
00:02:33,390 --> 00:02:30,260
to them with a front tooth comb and

31
00:02:36,010 --> 00:02:33,400
they've been performing flawlessly and

32
00:02:47,100 --> 00:02:36,020
we don't just been having that same

33
00:02:58,470 --> 00:02:52,620
I'm still Spacelab 760 was phenomenal

34
00:03:00,390 --> 00:02:58,480
and we had more of a elliptical slave as

35
00:03:02,550 --> 00:03:00,400
opposed to the when the jobs were the

36
00:03:04,470 --> 00:03:02,560
same size it was more spherical this

37
00:03:06,480 --> 00:03:04,480
time it seemed to be more elliptical it

38
00:03:09,480 --> 00:03:06,490

wasn't biased towards the Roger drop at

39
00:03:12,120 --> 00:03:09,490
all Bevers maybe we're clear and Leo I

40
00:03:14,990 --> 00:03:12,130
adore today I'm doing great Jim yeah

41
00:03:17,850 --> 00:03:15,000
lucky son of a god how are you doing

42
00:03:19,290 --> 00:03:17,860
George is right about yourself well

43
00:03:21,420 --> 00:03:19,300
we're doing great y'all looking pretty

44
00:03:23,400 --> 00:03:21,430
good up there on sts 94 judge just went

45
00:03:24,780 --> 00:03:23,410
out there because I noticed a few

46
00:03:26,760 --> 00:03:24,790
minutes ago you were passing over the

47
00:03:28,229 --> 00:03:26,770
Gulf of Mexico and silly me I thought I

48
00:03:29,910 --> 00:03:28,239
might be able to actually see you there

49
00:03:31,770 --> 00:03:29,920
another southern hemisphere but either

50
00:03:36,120 --> 00:03:31,780
you pass too fast and there was too much

51
00:03:37,890 --> 00:03:36,130
cloud cover below you'll be glad to know

52
00:03:39,300 --> 00:03:37,900
that just as you were looking for us we

53
00:03:41,310 --> 00:03:39,310
were looking at on here we had a

54
00:03:42,840 --> 00:03:41,320
beautiful sunrise pants over the United

55
00:03:44,790 --> 00:03:42,850
States it look like we hit Baton Rouge

56
00:03:46,500 --> 00:03:44,800
Louisiana just about the time the Sun

57
00:03:48,690 --> 00:03:46,510
was coming up for you and there was a

58
00:03:50,340 --> 00:03:48,700
lot of high cloudiness that kept them in

59
00:03:51,690 --> 00:03:50,350
the ground really clearly which is

60
00:03:53,130 --> 00:03:51,700
probably what committed you from seeing

61
00:03:55,800 --> 00:03:53,140
us because i think the lighting would be

62
00:03:57,150 --> 00:03:55,810
pretty good for that bass yeah i was

63
00:03:58,410 --> 00:03:57,160

really kind of had my hopes out there

64
00:04:00,120 --> 00:03:58,420
but anyway i had to come back in here

65
00:04:04,770 --> 00:04:00,130
and talk to you this way where are you

66
00:04:06,449 --> 00:04:04,780
right now well let's see right now we

67
00:04:08,430 --> 00:04:06,459
are talked about to hit africa after

68
00:04:11,310 --> 00:04:08,440
having passed over the United States

69
00:04:13,740 --> 00:04:11,320
we're about to hit the Africa and then

70
00:04:15,890 --> 00:04:13,750
of course there we had Arthur head on

71
00:04:19,710 --> 00:04:15,900
eastbound and next up will be Australian

72
00:04:21,210 --> 00:04:19,720
Susan still the pilot of STS 94 Susan

73
00:04:24,570 --> 00:04:21,220
you're a pioneer not only just for women

74
00:04:27,300 --> 00:04:24,580
but for all of us who love the idea of

75
00:04:33,719 --> 00:04:27,310
space travel what inspired you to be

76
00:04:35,640 --> 00:04:33,729
sort of an amelia earhart type this is

77
00:04:38,370 --> 00:04:35,650
watching TV with day and thoughts and

78
00:04:40,290 --> 00:04:38,380
saw something on flying in airplanes and

79
00:04:42,659 --> 00:04:40,300
decided that I wanted to be a pilot and

80
00:04:45,810 --> 00:04:42,669
I just couldn't stop there I had to go

81
00:04:47,520 --> 00:04:45,820
and fly the the fastest airplane we have

82
00:04:52,810 --> 00:04:47,530
in the United States the space shuttle

83
00:04:58,000 --> 00:04:55,450
gotta be honest I gotta fly yet our

84
00:05:00,160 --> 00:04:58,010
commander does the landing so I can't

85
00:05:02,200 --> 00:05:00,170
really speak to that I have for Michelle

86
00:05:05,590 --> 00:05:02,210
training airplanes and a handle kinda

87
00:05:08,770 --> 00:05:05,600
like a very old commercial jet plane

88
00:05:10,570 --> 00:05:08,780

kind of like a Mack truck compare it

89
00:05:13,780 --> 00:05:10,580
compared to the fighter jets and I'm

90
00:05:15,670 --> 00:05:13,790
used to wine well be careful now in

91
00:05:18,100 --> 00:05:15,680
Colombia there is just 16 years old so

92
00:05:19,570 --> 00:05:18,110
she's kind of on the old side Jim I went

93
00:05:21,070 --> 00:05:19,580
through pilot training to didn't get

94
00:05:22,420 --> 00:05:21,080
quite as far as you did because I don't

95
00:05:23,830 --> 00:05:22,430
think i can get past those power on

96
00:05:26,140 --> 00:05:23,840
stalls I kept turning those things in

97
00:05:28,750 --> 00:05:26,150
the spins and couldn't quite follow you

98
00:05:30,820 --> 00:05:28,760
on the sr-71 blackhawk but a lot of

99
00:05:33,340 --> 00:05:30,830
pilots here do wonder is the Columbia

100
00:05:34,750 --> 00:05:33,350
for the most part on autopilot or do you

101
00:05:39,250 --> 00:05:34,760
have to take the stick and fly that

102
00:05:41,080 --> 00:05:39,260
thing well of assets we stay on

103
00:05:42,580 --> 00:05:41,090
autopilot that we do practice in the

104
00:05:44,290 --> 00:05:42,590
simulator if something were to go wrong

105
00:05:45,880 --> 00:05:44,300
with the automatic guidance we can't

106
00:05:49,810 --> 00:05:45,890
take over banjo and fly it up into orbit

107
00:05:51,400 --> 00:05:49,820
on on orbit as we are now we can let the

108
00:05:52,870 --> 00:05:51,410
autopilot Wyatt or if we're doing a

109
00:05:54,340 --> 00:05:52,880
run-through which we're not this Bishop

110
00:05:56,710 --> 00:05:54,350
but we have on other bishops that will

111
00:05:58,510 --> 00:05:56,720
do in the future we can fly it manually

112
00:06:00,940 --> 00:05:58,520
as we approach it dark with some the

113
00:06:03,370 --> 00:06:00,950

target dental or landing we typically

114
00:06:04,840 --> 00:06:03,380
take over manual control at about 50,000

115
00:06:06,910 --> 00:06:04,850
feet or somewhere around five minutes

116
00:06:08,650 --> 00:06:06,920
prior to the actual touchdown that's

117
00:06:11,110 --> 00:06:08,660
about the time on TV when you see us

118
00:06:12,700 --> 00:06:11,120
making them wide sweeping turn the

119
00:06:15,160 --> 00:06:12,710
lineup with final approach that's about

120
00:06:16,690 --> 00:06:15,170
when I've taken over manual control and

121
00:06:18,310 --> 00:06:16,700
i'll be applying it down and then

122
00:06:20,260 --> 00:06:18,320
landing a manually from that point on

123
00:06:22,000 --> 00:06:20,270
don't let sue the kid you he has an

124
00:06:23,710 --> 00:06:22,010
important job that only she backing me

125
00:06:26,380 --> 00:06:23,720
up in case I should do something wrong

126
00:06:28,240 --> 00:06:26,390
but also she uh she does such important

127
00:06:29,950 --> 00:06:28,250
assets but the landing gear down he also

128
00:06:32,410 --> 00:06:29,960
pops the drag chute out after touchdown

129
00:06:34,630 --> 00:06:32,420
so it's very much a team effort we also

130
00:06:36,190 --> 00:06:34,640
have a flight at it again between us all

131
00:06:38,530 --> 00:06:36,200
behind us that he's watching over

132
00:06:40,000 --> 00:06:38,540
everything so we have three people till

133
00:06:42,670 --> 00:06:40,010
the flight deck and laughing really

134
00:06:44,260 --> 00:06:42,680
concentrating on the task by the way

135
00:06:46,120 --> 00:06:44,270
speaking of Selma still we just flew

136
00:06:48,490 --> 00:06:46,130
over of course we sleep I Baton Rouge

137
00:06:50,260 --> 00:06:48,500
that means we also flew by monroe and i

138
00:06:52,330 --> 00:06:50,270

was able to see the airport in the Dom

139
00:06:55,450 --> 00:06:52,340
as we flew right well they show up

140
00:06:59,410 --> 00:06:55,460
pretty good in the binoculars you're

141
00:07:00,540 --> 00:06:59,420
pulling my leg right no absolutely no

142
00:07:03,010 --> 00:07:00,550
we've got to play high-powered

143
00:07:05,860 --> 00:07:03,020
binoculars here here I'll get Greg

144
00:07:06,610 --> 00:07:05,870
Garcia the gyro stabilized and it's

145
00:07:09,159 --> 00:07:06,620
amazing

146
00:07:13,000 --> 00:07:09,169
my position to south of New Orleans and

147
00:07:14,680 --> 00:07:13,010
Baton Rouge we could see very far north

148
00:07:17,140 --> 00:07:14,690
as matter of fact the Twin Lakes of

149
00:07:19,270 --> 00:07:17,150
around Paducah Kentucky come into view

150
00:07:21,520 --> 00:07:19,280
we can't quite see up to the Great Lakes

151
00:07:22,900 --> 00:07:21,530
but in any given direction you can see

152
00:07:25,270 --> 00:07:22,910
about a thousand miles with the naked

153
00:07:27,909 --> 00:07:25,280
eye at about 1,500 miles but these

154
00:07:29,320 --> 00:07:27,919
binoculars to work so it's just a

155
00:07:31,110 --> 00:07:29,330
fantastic view out here that you've

156
00:07:33,159 --> 00:07:31,120
never get tired of taking advantage of

157
00:07:43,360 --> 00:07:33,169
okay well how many fingers am i holding

158
00:07:45,610 --> 00:07:43,370
up now okay it's pretty good you're also

159
00:07:47,260 --> 00:07:45,620
telepathic that's pretty good welcome

160
00:07:49,360 --> 00:07:47,270
back to the experiments I got to ask you

161
00:07:51,040 --> 00:07:49,370
this of course would come from a prime

162
00:07:52,450 --> 00:07:51,050
timber growing area we understand you're

163
00:07:56,350 --> 00:07:52,460

growing trees up there too what's that

164
00:07:58,570 --> 00:07:56,360
about yeah that's one of the experiments

165
00:07:59,950 --> 00:07:58,580
that both Susan and I have we're helping

166
00:08:01,870 --> 00:07:59,960
out on i should say they were

167
00:08:05,200 --> 00:08:01,880
conducting it we do have a little garden

168
00:08:07,420 --> 00:08:05,210
back in the laboratory that we're going

169
00:08:10,270 --> 00:08:07,430
pine saplings in addition to some other

170
00:08:12,070 --> 00:08:10,280
plants it's a small box with a

171
00:08:13,960 --> 00:08:12,080
controlled environment with the

172
00:08:17,110 --> 00:08:13,970
pineapple is growing at one of our jobs

173
00:08:19,510 --> 00:08:17,120
every day is a new video take video

174
00:08:22,719 --> 00:08:19,520
photography to track the progress of the

175
00:08:25,089 --> 00:08:22,729
growth of those plants you know in

176
00:08:26,920 --> 00:08:25,099
talking to some professor of LSU this

177
00:08:28,690 --> 00:08:26,930
week as well as people who are just

178
00:08:30,040 --> 00:08:28,700
outside the academic fields you touch

179
00:08:31,240 --> 00:08:30,050
with a very good point there it seems

180
00:08:34,060 --> 00:08:31,250
like the by now we should have already

181
00:08:35,949 --> 00:08:34,070
had more manned missions there and it

182
00:08:37,630 --> 00:08:35,959
seems like that the Mars Pathfinder sort

183
00:08:39,839 --> 00:08:37,640
of rekindled that sort of the romance of

184
00:08:42,219 --> 00:08:39,849
space travel interplanetary

185
00:08:44,440 --> 00:08:42,229
interplanetary travel do you suppose

186
00:08:48,600 --> 00:08:44,450
that that we can kind of get back on

187
00:08:52,750 --> 00:08:51,220
only off at about willing to admit the

188
00:08:54,850 --> 00:08:52,760

river off track you know when you think

189
00:08:58,750 --> 00:08:54,860
about it it's only that's not even been

190
00:09:01,720 --> 00:08:58,760
40 years since we first hesitating steps

191
00:09:04,930 --> 00:09:01,730
up into up into space especially about

192
00:09:07,900 --> 00:09:04,940
40 years or even less so up and here we

193
00:09:09,970 --> 00:09:07,910
are on a tremendously complex vehicle

194
00:09:12,040 --> 00:09:09,980
man by seven people with a laboratory

195
00:09:14,199 --> 00:09:12,050
full of experiments were up here for

196
00:09:16,060 --> 00:09:14,209
more than two weeks so in that in that

197
00:09:18,520 --> 00:09:16,070
light it looks like we've come quite a

198
00:09:20,350 --> 00:09:18,530
long way in a short period of time so

199
00:09:23,920 --> 00:09:20,360
but but yeah I think

200
00:09:26,710 --> 00:09:23,930
it's may I the future to continue to

201
00:09:29,380 --> 00:09:26,720
seek to continue to explore to commit

202
00:09:31,060 --> 00:09:29,390
continue to go forward and to be a

203
00:09:34,210 --> 00:09:31,070
little part of that is it's really a

204
00:09:35,500 --> 00:09:34,220
privilege any parting words for people

205
00:09:40,780 --> 00:09:35,510
who would be looking out there right now

206
00:09:43,440 --> 00:09:40,790
saying I want to do this one day oh yeah

207
00:09:45,699 --> 00:09:43,450
certainly any young people in particular

208
00:09:48,130 --> 00:09:45,709
don't be afraid to have a dream and to

209
00:09:49,750 --> 00:09:48,140
go for it only good things can come from

210
00:09:51,190 --> 00:09:49,760
that don't let anybody ever tell you

211
00:09:53,380 --> 00:09:51,200
that you can't do something cuz you have

212
00:09:55,420 --> 00:09:53,390
no idea what you can or can't do you put

213
00:09:56,560 --> 00:09:55,430

your best foot forward so I think the

214
00:10:00,100 --> 00:09:56,570
message from all of us here on

215
00:10:01,870 --> 00:10:00,110
colombia's go for it great well we'd

216
00:10:04,060 --> 00:10:01,880
like to say happy Saturday's everybody

217
00:10:06,009 --> 00:10:04,070
at the I know it's a rest day for most

218
00:10:07,720 --> 00:10:06,019
people but a young Columbia we're still

219
00:10:09,850 --> 00:10:07,730
continuing to do the round quad science

220
00:10:11,860 --> 00:10:09,860
that we've been doing for the last laugh

221
00:10:13,480 --> 00:10:11,870
almost two weeks now what we'd like to

222
00:10:15,579 --> 00:10:13,490
do for Chris Royce dowling today is

223
00:10:17,590 --> 00:10:15,589
answer a few internet questions but with

224
00:10:19,120 --> 00:10:17,600
a little bit of an added twist in

225
00:10:21,579 --> 00:10:19,130
addition to talking about the answers

226
00:10:23,230 --> 00:10:21,589
would like to present some visual

227
00:10:25,120 --> 00:10:23,240
demonstrations to maybe get across the

228
00:10:30,550 --> 00:10:25,130
answers a little bit better first up is

229
00:10:32,860 --> 00:10:30,560
done with an internet question from

230
00:10:34,600 --> 00:10:32,870
James garlits from lansing michigan and

231
00:10:36,670 --> 00:10:34,610
james was wondering could you tell me

232
00:10:39,490 --> 00:10:36,680
what fire actually does in microgravity

233
00:10:41,500 --> 00:10:39,500
i'm not writing my senior paper for

234
00:10:43,689 --> 00:10:41,510
college and i chose fire characteristics

235
00:10:45,579 --> 00:10:43,699
and 0 microgravity i'm having a tough

236
00:10:47,980 --> 00:10:45,589
time finding out exactly what Fire

237
00:10:49,300 --> 00:10:47,990
doesn't space well James you've come to

238
00:10:51,370 --> 00:10:49,310

the right place for the answer here

239
00:10:52,660 --> 00:10:51,380
today for the last two days I've been

240
00:10:54,490 --> 00:10:52,670
working on one of our glove box

241
00:10:57,400 --> 00:10:54,500
experiments called fiber supported

242
00:10:58,990 --> 00:10:57,410
droplet combustion and the principal

243
00:11:01,090 --> 00:10:59,000
investigator for this experiment is

244
00:11:03,069 --> 00:11:01,100
Professor Foreman Williams from the

245
00:11:05,139 --> 00:11:03,079
University of California San Diego that

246
00:11:06,819 --> 00:11:05,149
shows me working at the glove box and

247
00:11:10,240 --> 00:11:06,829
pulling out one of our fuel cartridges

248
00:11:13,170 --> 00:11:10,250
for the combustion experiment in our

249
00:11:16,720 --> 00:11:13,180
samples rain from methanol ethanol

250
00:11:19,480 --> 00:11:16,730
heptane decane and different mixtures

251
00:11:22,750 --> 00:11:19,490
and this is a unique combustion facility

252
00:11:24,610 --> 00:11:22,760
because we put the drop of a fuel on a

253
00:11:27,040 --> 00:11:24,620
fiber and that's why it's called fiber

254
00:11:29,019 --> 00:11:27,050
supported droplet combustion and because

255
00:11:30,490 --> 00:11:29,029
we have a topless on a fiber we can

256
00:11:32,559 --> 00:11:30,500
manipulate them in position exactly

257
00:11:33,730 --> 00:11:32,569
where we want to wear some of the other

258
00:11:35,770 --> 00:11:33,740
experiments

259
00:11:37,480 --> 00:11:35,780
free floating in there this is looking

260
00:11:39,400 --> 00:11:37,490
inside the glove box this is their

261
00:11:41,740 --> 00:11:39,410
little test cell with clear windows on

262
00:11:43,240 --> 00:11:41,750
it we have a fiber or full of silicon

263
00:11:45,790 --> 00:11:43,250

carbide running down the middle of it

264
00:11:47,470 --> 00:11:45,800
and we've been deploying drops of one

265
00:11:50,320 --> 00:11:47,480
millimeter up to the six millimeter in

266
00:11:52,840 --> 00:11:50,330
size and putting multiple drops on the

267
00:11:54,510 --> 00:11:52,850
same fiber to see how they interact with

268
00:11:57,460 --> 00:11:54,520
one another during the burning process

269
00:11:59,140 --> 00:11:57,470
live a couple of burns coming up there's

270
00:12:00,910 --> 00:11:59,150
two drops on a wire here on the

271
00:12:03,640 --> 00:12:00,920
right-hand side of the image you'll see

272
00:12:05,980 --> 00:12:03,650
the igniter igniting there the drops

273
00:12:09,100 --> 00:12:05,990
will ignite in a almost explosive manner

274
00:12:10,750 --> 00:12:09,110
there we have an orange flame it turns

275
00:12:12,790 --> 00:12:10,760
to a bluish flame in right now you can

276
00:12:15,040 --> 00:12:12,800
see that than two drops is nearly

277
00:12:16,590 --> 00:12:15,050
invisible flame but they're still still

278
00:12:18,850 --> 00:12:16,600
burning and getting smaller and smaller

279
00:12:21,120 --> 00:12:18,860
here's another burn will show it to you

280
00:12:24,130 --> 00:12:21,130
one more time with the two other jobs

281
00:12:26,470 --> 00:12:24,140
well the igniter come up heats them up

282
00:12:29,470 --> 00:12:26,480
to their ignition point where there's an

283
00:12:31,180 --> 00:12:29,480
explosive ignition just about there you

284
00:12:33,430 --> 00:12:31,190
go you see some soot particles coming

285
00:12:35,080 --> 00:12:33,440
out it's a spherical flame as they're

286
00:12:36,700 --> 00:12:35,090
burning at microgravity because we don't

287
00:12:38,320 --> 00:12:36,710
have the competitive forces like we have

288
00:12:40,630 --> 00:12:38,330

on the ground with hot air rising cold

289
00:12:41,950 --> 00:12:40,640
air settling we can simulate the ground

290
00:12:43,690 --> 00:12:41,960
effects like turning on a fan of

291
00:12:45,940 --> 00:12:43,700
microgravity and that's what we're doing

292
00:12:47,830 --> 00:12:45,950
here we'll turn on a fan as soon as we

293
00:12:49,540 --> 00:12:47,840
have the ignition it'll create a

294
00:12:52,150 --> 00:12:49,550
convective flow and you'll see the flame

295
00:12:56,740 --> 00:12:52,160
form a point similar to a candle burning

296
00:12:58,720 --> 00:12:56,750
on the ground hers ignition the fan

297
00:13:00,280 --> 00:12:58,730
comes on and that's probably a typical

298
00:13:05,200 --> 00:13:00,290
flame that you used to sing on the

299
00:13:07,210 --> 00:13:05,210
ground okay next up de su this I have

300
00:13:08,670 --> 00:13:07,220
two questions from different people but

301
00:13:12,070 --> 00:13:08,680
they basically are asking the same thing

302
00:13:14,350 --> 00:13:12,080
Mac users of Ontario Canada and Joe

303
00:13:16,240 --> 00:13:14,360
margarine a victorville california they

304
00:13:19,300 --> 00:13:16,250
both want to know how blood pressure

305
00:13:22,390 --> 00:13:19,310
pulse and respiration change as we go

306
00:13:24,730 --> 00:13:22,400
into space I'm going to take my blood

307
00:13:26,890 --> 00:13:24,740
pressure now I know what it is from what

308
00:13:29,650 --> 00:13:26,900
I left it was about a hundred over sixty

309
00:13:31,870 --> 00:13:29,660
two days before we put into space and

310
00:13:34,840 --> 00:13:31,880
now that we're up here i'm going to go

311
00:13:42,170 --> 00:13:34,850
ahead and take it we've been up here now

312
00:13:48,090 --> 00:13:45,660
okay my blood pressure is a hundred fold

313
00:13:50,160 --> 00:13:48,100

over 65 which is very close to what it

314
00:13:54,240 --> 00:13:50,170
was on the ground I do take my pulse

315
00:13:56,580 --> 00:13:54,250
earlier today my pulse was 53 which is

316
00:14:01,230 --> 00:13:56,590
about my resting place on earth and my

317
00:14:04,920 --> 00:14:01,240
respiration is unchanged thanks Susan

318
00:14:07,710 --> 00:14:04,930
okay next from the redshift is Bregman

319
00:14:09,660 --> 00:14:07,720
Terence we have a question from Harry

320
00:14:12,540 --> 00:14:09,670
Seabrook and Hotch bill hodgenville

321
00:14:14,970 --> 00:14:12,550
ottsville was pretend I've known as it

322
00:14:16,500 --> 00:14:14,980
air bubbles in water on Earth or pretty

323
00:14:18,840 --> 00:14:16,510
much went on the bottom I'm wondering

324
00:14:21,570 --> 00:14:18,850
how that would work in space where we

325
00:14:23,250 --> 00:14:21,580
can't do air bubbles in water but we can

326
00:14:25,770 --> 00:14:23,260
do the efforts they can sue water

327
00:14:29,340 --> 00:14:25,780
bubbles in air and my able assistant

328
00:14:31,770 --> 00:14:29,350
here is going to deploy a drop of

329
00:14:36,800 --> 00:14:31,780
tropical punch you're going to see just

330
00:14:47,700 --> 00:14:40,320
after all the vibration staff found it

331
00:14:49,380 --> 00:14:47,710
is a perfect sphere it's because of the

332
00:14:50,940 --> 00:14:49,390
microgravity environment and the the

333
00:14:52,380 --> 00:14:50,950
lack of gravity that were able to do

334
00:14:54,260 --> 00:14:52,390
some of the research projects here at

335
00:15:00,660 --> 00:14:54,270
space that we're not able to do on earth

336
00:15:05,130 --> 00:15:00,670
okay Greg okay here I hope that answers

337
00:15:12,170 --> 00:15:05,140
your question so stiff that Stefan go

338
00:15:16,980 --> 00:15:14,940

ok we copy that DOM and as soon as you

339
00:15:19,350 --> 00:15:16,990
wrap up the rest of the LIF steps we're

340
00:15:20,640 --> 00:15:19,360
ready to call it a day for you and want

341
00:15:26,040 --> 00:15:20,650
to thank you again for putting in an

342
00:15:29,460 --> 00:15:26,050
extra hard and long day today yeah we're

343
00:15:31,470 --> 00:15:29,470
complete with LIF involved with a weight

344
00:15:33,990 --> 00:15:31,480
also for the great training that we had

345
00:15:37,860 --> 00:15:34,000
on the LIF I've worked with him both on

346
00:15:40,770 --> 00:15:37,870
IM l2 and msl one here and i did a great

347
00:15:43,650 --> 00:15:40,780
job training us and I know we're running

348
00:15:45,750 --> 00:15:43,660
out of samples here from LA I'm also and

349
00:15:46,890 --> 00:15:45,760
appreciate your help down there Kimberly

350
00:15:49,800 --> 00:15:46,900
you were looking over my shoulder all

351
00:15:50,850 --> 00:15:49,810
day and keep an eye on the pre tripped

352
00:15:52,890 --> 00:15:50,860
and procedures