
GOLD
AWARD
JAXA

1
00:00:07,110 --> 00:00:02,230
station this is houston are you ready

2
00:00:07,120 --> 00:00:11,990
houston we are ready for the event

3
00:00:16,310 --> 00:00:14,230
south dakota public broadcasting this is

4
00:00:17,750 --> 00:00:16,320
houston please call station for a voice

5
00:00:19,910 --> 00:00:17,760
check

6
00:00:25,349 --> 00:00:19,920
station this is south dakota public

7
00:00:29,189 --> 00:00:27,750
south dakota public broadcasting we hear

8
00:00:31,830 --> 00:00:29,199
you loud and clear and welcome aboard

9
00:00:33,190 --> 00:00:31,840
the international space station

10
00:00:36,310 --> 00:00:33,200
thank you

11
00:00:37,990 --> 00:00:36,320
mike fossum ron garan satoshi furukawa

12
00:00:42,709 --> 00:00:38,000
greetings from the state of south dakota

13
00:00:46,389 --> 00:00:44,389

well thank you paul it's good it's good

14
00:00:48,869 --> 00:00:46,399
to be on the show

15
00:00:50,549 --> 00:00:48,879
mike fossum you are the south dakota

16
00:00:51,990 --> 00:00:50,559
native uh how are you and the other

17
00:00:53,430 --> 00:00:52,000
astronauts doing

18
00:00:55,189 --> 00:00:53,440
what are you and the other astronauts

19
00:00:58,950 --> 00:00:55,199
doing

20
00:01:00,630 --> 00:00:58,960
and i i know that you've heard some of

21
00:01:02,310 --> 00:01:00,640
the things that are going on so we're in

22
00:01:03,990 --> 00:01:02,320
the process of running a lot of the

23
00:01:05,750 --> 00:01:04,000
science that's up here as well as trying

24
00:01:07,990 --> 00:01:05,760
to get ronnie packed up to go home in a

25
00:01:09,590 --> 00:01:08,000
week and a half or so

26
00:01:11,990 --> 00:01:09,600
we have been hearing that the

27
00:01:14,550 --> 00:01:12,000
international space station may have to

28
00:01:17,109 --> 00:01:14,560
fly solo this fall that all of the

29
00:01:20,469 --> 00:01:17,119
astronauts may have to leave the station

30
00:01:22,550 --> 00:01:20,479
in late november if russian spacecrafts

31
00:01:24,789 --> 00:01:22,560
can't make trips to the station a

32
00:01:26,469 --> 00:01:24,799
russian supply ship that's similar to

33
00:01:29,350 --> 00:01:26,479
what's used to launch astronauts was

34
00:01:31,670 --> 00:01:29,360
destroyed during liftoff last week

35
00:01:36,789 --> 00:01:31,680
mike fossum what do you know and what

36
00:01:42,149 --> 00:01:38,149
well what it means

37
00:01:43,910 --> 00:01:42,159
for both satoshi and me uh ron's runs uh

38
00:01:46,149 --> 00:01:43,920

been up here for five and a half months

39
00:01:47,910 --> 00:01:46,159
pushing six months and when he leaves in

40
00:01:49,830 --> 00:01:47,920
uh two weeks that'll be a week later

41
00:01:51,670 --> 00:01:49,840
than normal they had about a week delay

42
00:01:53,350 --> 00:01:51,680
as we considered actually keeping them

43
00:01:55,270 --> 00:01:53,360
up here until the end of october and

44
00:01:57,030 --> 00:01:55,280
then decided against it

45
00:01:58,789 --> 00:01:57,040
so satoshi and i will be here we were

46
00:02:01,190 --> 00:01:58,799
planned to go home in the middle of

47
00:02:03,190 --> 00:02:01,200
november that when we launched in june

48
00:02:05,670 --> 00:02:03,200
that was the plans and that's currently

49
00:02:07,429 --> 00:02:05,680
the plans that we we hope to get home in

50
00:02:10,229 --> 00:02:07,439
mid-november

51
00:02:12,309 --> 00:02:10,239
they are or the russian space agency is

52
00:02:14,630 --> 00:02:12,319
working through the problems that they

53
00:02:17,350 --> 00:02:14,640
had with the soyuz booster that same

54
00:02:18,710 --> 00:02:17,360
booster is used for the cargo ship that

55
00:02:20,630 --> 00:02:18,720
uh that

56
00:02:23,510 --> 00:02:20,640
failed to reach orbit or crashed if you

57
00:02:26,070 --> 00:02:23,520
will a week ago that and it's all it's

58
00:02:28,390 --> 00:02:26,080
used for launching humans we all rode up

59
00:02:32,070 --> 00:02:28,400
on that uh on that in a very very

60
00:02:34,229 --> 00:02:32,080
similar booster so the new crews are are

61
00:02:36,470 --> 00:02:34,239
currently will not be coming up

62
00:02:38,309 --> 00:02:36,480
immediately to the space station

63
00:02:39,830 --> 00:02:38,319

until they get this problem sorted out

64
00:02:42,070 --> 00:02:39,840
they're working hard on it they have

65
00:02:44,630 --> 00:02:42,080
some insight they had a lot of data from

66
00:02:47,030 --> 00:02:44,640
the uh from the rocket during the uh

67
00:02:49,430 --> 00:02:47,040
engine shutdown so they're working it

68
00:02:51,190 --> 00:02:49,440
and it's possible that i mean we will be

69
00:02:53,990 --> 00:02:51,200
here with just three people certainly

70
00:02:55,190 --> 00:02:54,000
for a while for a month or two months

71
00:02:57,270 --> 00:02:55,200
uh

72
00:02:59,350 --> 00:02:57,280
with a little luck they will find the

73
00:03:01,910 --> 00:02:59,360
problems and our you know next crew will

74
00:03:03,910 --> 00:03:01,920
join us up here for a couple about one

75
00:03:05,830 --> 00:03:03,920
to two weeks of handover before we leave

76
00:03:07,990 --> 00:03:05,840
and go home

77
00:03:11,190 --> 00:03:08,000
how concerned are you that the

78
00:03:19,990 --> 00:03:11,200
experiments you are involved in could

79
00:03:24,550 --> 00:03:21,990
there is that possibility a lot of the

80
00:03:27,270 --> 00:03:24,560
data are transmitted to the ground as

81
00:03:29,270 --> 00:03:27,280
we're doing the testing up here so that

82
00:03:30,869 --> 00:03:29,280
there is no loss if you will the samples

83
00:03:32,789 --> 00:03:30,879
don't need to go home some of the

84
00:03:33,830 --> 00:03:32,799
samples do need to go home and i'm

85
00:03:37,190 --> 00:03:33,840
confident we'll get them there

86
00:03:39,990 --> 00:03:37,200
eventually if we have to leave here in

87
00:03:42,149 --> 00:03:40,000
november or sometime this winter without

88
00:03:44,309 --> 00:03:42,159

a replacement chrome board it's possible

89
00:03:46,149 --> 00:03:44,319
the crew could be without or the space

90
00:03:47,910 --> 00:03:46,159
station could be without a crew on board

91
00:03:50,470 --> 00:03:47,920
for a period of time

92
00:03:52,390 --> 00:03:50,480
there is some elevated risk associated

93
00:03:54,149 --> 00:03:52,400
with that not to humans of course but to

94
00:03:56,470 --> 00:03:54,159
our you know investment here to the

95
00:03:57,990 --> 00:03:56,480
station itself without people to help

96
00:03:59,830 --> 00:03:58,000
keep things running

97
00:04:01,190 --> 00:03:59,840
there is a chance that that something

98
00:04:04,229 --> 00:04:01,200
could happen which would be really

99
00:04:05,910 --> 00:04:04,239
detrimental uh but those those kind of

100
00:04:07,750 --> 00:04:05,920
stretches you know especially for a

101
00:04:10,949 --> 00:04:07,760
shorter period of time you know it's not

102
00:04:12,470 --> 00:04:10,959
that severe uh i certainly don't believe

103
00:04:14,789 --> 00:04:12,480
that this is going to be a long-term

104
00:04:17,509 --> 00:04:14,799
problem the the russians have a lot of

105
00:04:20,150 --> 00:04:17,519
experience with this particular rocket

106
00:04:21,590 --> 00:04:20,160
many many years and hundreds of launches

107
00:04:23,110 --> 00:04:21,600
and i think they're going to figure this

108
00:04:24,790 --> 00:04:23,120
out we're going to get back on the road

109
00:04:26,870 --> 00:04:24,800
soon

110
00:04:29,270 --> 00:04:26,880
mike you are a flight engineer for this

111
00:04:31,590 --> 00:04:29,280
current expedition expedition 28 you're

112
00:04:34,790 --> 00:04:31,600
scheduled to take over as commander

113
00:04:36,790 --> 00:04:34,800

later this month for expedition 29 how

114
00:04:41,590 --> 00:04:36,800
excited are you to take over as

115
00:04:46,710 --> 00:04:44,390
well i am excited it's the to to live

116
00:04:49,110 --> 00:04:46,720
and work up here has been a dream since

117
00:04:50,870 --> 00:04:49,120
since childhood really and i was

118
00:04:53,110 --> 00:04:50,880
involved at nasa when the space station

119
00:04:54,870 --> 00:04:53,120
program was was uh you know first being

120
00:04:56,710 --> 00:04:54,880
worked on in the early 80s and announced

121
00:04:59,110 --> 00:04:56,720
by the president in 84 and i've had the

122
00:05:01,350 --> 00:04:59,120
chance to work on the the redesign team

123
00:05:03,510 --> 00:05:01,360
in the 90s and and then helped build it

124
00:05:04,790 --> 00:05:03,520
on two shuttle missions now to me it's

125
00:05:07,590 --> 00:05:04,800
just mind-boggling to have the

126
00:05:09,430 --> 00:05:07,600
opportunity to to not not just live here

127
00:05:11,830 --> 00:05:09,440
but then be in charge up here to take

128
00:05:14,870 --> 00:05:11,840
command it's an awesome responsibility

129
00:05:16,390 --> 00:05:14,880
the the hopes and visions of of many

130
00:05:18,310 --> 00:05:16,400
nations around the world particularly

131
00:05:20,950 --> 00:05:18,320
the 15 partners that contributed to the

132
00:05:22,870 --> 00:05:20,960
space station program are riding on the

133
00:05:25,350 --> 00:05:22,880
continued success and it's my

134
00:05:27,670 --> 00:05:25,360
responsibility really our responsibility

135
00:05:29,749 --> 00:05:27,680
to keep it running

136
00:05:30,870 --> 00:05:29,759
ron garan uh what are some of the

137
00:05:36,310 --> 00:05:30,880
experiments and research you're

138
00:05:39,909 --> 00:05:38,230

well that would actually take a long

139
00:05:41,590 --> 00:05:39,919
time to answer that question we've got

140
00:05:43,430 --> 00:05:41,600
quite a few experiments going on you

141
00:05:44,710 --> 00:05:43,440
know over over the course of the last 10

142
00:05:46,710 --> 00:05:44,720
years that we've been operating the

143
00:05:48,710 --> 00:05:46,720
space station uh with humans on board

144
00:05:50,310 --> 00:05:48,720
we've conducted over 600 experiments but

145
00:05:53,270 --> 00:05:50,320
we've got everything

146
00:05:55,430 --> 00:05:53,280
from fluid physics experiments uh

147
00:05:57,830 --> 00:05:55,440
materials um uh

148
00:05:59,909 --> 00:05:57,840
mike and satoshi just got robonaut out

149
00:06:01,670 --> 00:05:59,919
our seventh crew member uh so we've got

150
00:06:03,749 --> 00:06:01,680
a lot of robotics experiments going on

151
00:06:05,350 --> 00:06:03,759
we've got experiments studying the human

152
00:06:07,110 --> 00:06:05,360
body um

153
00:06:10,070 --> 00:06:07,120
experiments designed to hopefully

154
00:06:11,909 --> 00:06:10,080
develop new medicines new materials uh

155
00:06:13,590 --> 00:06:11,919
safer cleaner energy

156
00:06:15,350 --> 00:06:13,600
the list goes on and on this is an

157
00:06:17,270 --> 00:06:15,360
incredible orbiting research facility

158
00:06:19,510 --> 00:06:17,280
and we're making the most out of it and

159
00:06:21,270 --> 00:06:19,520
i think it's a really going to prove to

160
00:06:23,510 --> 00:06:21,280
be a very tremendous investment in our

161
00:06:26,070 --> 00:06:23,520
future

162
00:06:28,309 --> 00:06:26,080
ron you were a mission specialist aboard

163
00:06:30,710 --> 00:06:28,319

space shuttle discovery you previously

164
00:06:33,270 --> 00:06:30,720
visited the station as an sts-124

165
00:06:35,430 --> 00:06:33,280
mission specialist aboard space shuttle

166
00:06:37,830 --> 00:06:35,440
discovery in june of 2008 how would you

167
00:06:39,830 --> 00:06:37,840
describe life aboard the international

168
00:06:45,029 --> 00:06:39,840
space station as the post shuttle era

169
00:06:47,670 --> 00:06:46,309
well um

170
00:06:49,589 --> 00:06:47,680
that's also an interesting question

171
00:06:51,830 --> 00:06:49,599
because you know

172
00:06:54,150 --> 00:06:51,840
all of us on board right now got to see

173
00:06:55,430 --> 00:06:54,160
that transition from when we went from

174
00:06:57,510 --> 00:06:55,440
the construction phase when the

175
00:06:59,909 --> 00:06:57,520
construction phase ended to the pure

176
00:07:02,309 --> 00:06:59,919
utilization phase started to kick off

177
00:07:04,870 --> 00:07:02,319
and uh you know there really was a

178
00:07:06,710 --> 00:07:04,880
definite uh transition that the science

179
00:07:08,070 --> 00:07:06,720
really ramped up you know with six of us

180
00:07:10,070 --> 00:07:08,080
on board with that affords us the

181
00:07:11,430 --> 00:07:10,080
opportunity to do a lot more science uh

182
00:07:13,430 --> 00:07:11,440
and that's in addition to all the

183
00:07:14,629 --> 00:07:13,440
autonomous science that that goes on

184
00:07:15,990 --> 00:07:14,639
whether we're here or not there's

185
00:07:18,309 --> 00:07:16,000
there's still a great deal of that as

186
00:07:19,990 --> 00:07:18,319
well and so you know it was it was a

187
00:07:21,909 --> 00:07:20,000
little bittersweet seeing the shuttle

188
00:07:23,510 --> 00:07:21,919

leave for the last time you know you

189
00:07:25,430 --> 00:07:23,520
know mark in the end of that chapter in

190
00:07:26,870 --> 00:07:25,440
our history but uh you know we're all

191
00:07:28,629 --> 00:07:26,880
filled with a lot of optimism in our

192
00:07:30,469 --> 00:07:28,639
future and uh we're hoping that this is

193
00:07:32,710 --> 00:07:30,479
going to be a stepping stone to

194
00:07:34,309 --> 00:07:32,720
continued exploration you know beyond

195
00:07:35,909 --> 00:07:34,319
low earth orbit out into the solar

196
00:07:38,390 --> 00:07:35,919
system and this is going to be a very

197
00:07:40,550 --> 00:07:38,400
crucial step in that process

198
00:07:42,790 --> 00:07:40,560
satoshi furukawa you have a medical

199
00:07:46,230 --> 00:07:42,800
background a doctorate in medicine what

200
00:07:53,909 --> 00:07:46,240
can you tell us about how extended life

201
00:07:57,430 --> 00:07:54,950
okay

202
00:07:59,589 --> 00:07:57,440
that is a very good question

203
00:08:04,309 --> 00:07:59,599
okay extended life

204
00:08:08,869 --> 00:08:07,110
okay six months ah okay uh

205
00:08:11,589 --> 00:08:08,879
well uh

206
00:08:12,550 --> 00:08:11,599
if you do nothing over the six months uh

207
00:08:15,909 --> 00:08:12,560
you

208
00:08:17,589 --> 00:08:15,919
encounter bone muscle loss and uh muscle

209
00:08:20,950 --> 00:08:17,599
atrophy but we

210
00:08:23,110 --> 00:08:20,960
exercise every day plus we volunteer to

211
00:08:26,230 --> 00:08:23,120
use our own bodies to

212
00:08:29,430 --> 00:08:26,240
test the preventive effect of medicine

213
00:08:32,949 --> 00:08:29,440

uh bisphosphonate which is a remedy for

214
00:08:34,630 --> 00:08:32,959
osteoporosis on the ground and uh

215
00:08:36,070 --> 00:08:34,640
inhibits us

216
00:08:37,509 --> 00:08:36,080
bone

217
00:08:39,110 --> 00:08:37,519
absorption

218
00:08:41,029 --> 00:08:39,120
and plus

219
00:08:42,389 --> 00:08:41,039
we uh have

220
00:08:45,910 --> 00:08:42,399
radiation

221
00:08:49,509 --> 00:08:45,920
uh about 100 times uh bigger

222
00:08:53,110 --> 00:08:49,519
more than that on the ground so we will

223
00:08:56,310 --> 00:08:53,120
get about 100 to 150 milli

224
00:08:58,550 --> 00:08:56,320
sievert per six months but

225
00:09:00,550 --> 00:08:58,560
we are not worried about that because it

226
00:09:02,790 --> 00:09:00,560
is acceptable

227
00:09:05,750 --> 00:09:02,800
and that the probability of getting a

228
00:09:08,790 --> 00:09:05,760
cancer increase is about one percent and

229
00:09:10,949 --> 00:09:08,800
i think it is acceptable

230
00:09:13,190 --> 00:09:10,959
we're talking with mike fossum ron garan

231
00:09:15,030 --> 00:09:13,200
satoshi furukawa astronauts on the

232
00:09:16,230 --> 00:09:15,040
international space station mike fossum

233
00:09:18,470 --> 00:09:16,240
by the time

234
00:09:20,389 --> 00:09:18,480
your time on the space station is up in

235
00:09:23,030 --> 00:09:20,399
november you will have been in space for

236
00:09:25,590 --> 00:09:23,040
six months you have a wife and four

237
00:09:32,070 --> 00:09:25,600
children and a grandchild how hard is it

238
00:09:35,910 --> 00:09:34,070

i'd say the separation from family is

239
00:09:38,070 --> 00:09:35,920
probably the hardest part of this i'm

240
00:09:40,230 --> 00:09:38,080
living my dream and i say that and they

241
00:09:41,829 --> 00:09:40,240
know that and they've they have my kids

242
00:09:44,150 --> 00:09:41,839
have all grown up knowing that it was my

243
00:09:45,110 --> 00:09:44,160
dream to do this and to be here right

244
00:09:47,750 --> 00:09:45,120
now

245
00:09:49,829 --> 00:09:47,760
and so that that really helps i am in

246
00:09:52,790 --> 00:09:49,839
contact with my family i talk to family

247
00:09:54,870 --> 00:09:52,800
members you know almost every day and we

248
00:09:56,790 --> 00:09:54,880
have email contact and every weekend we

249
00:09:58,870 --> 00:09:56,800
have the chance for a short video

250
00:10:02,470 --> 00:09:58,880
conference you know with our families so

251
00:10:07,030 --> 00:10:04,389
mike you were born in sioux falls i know

252
00:10:09,269 --> 00:10:07,040
you grew up in mcallen texas but uh

253
00:10:14,470 --> 00:10:09,279
born in sioux falls how proud of you are

254
00:10:18,030 --> 00:10:16,949
oh my south dakota roots go back to the

255
00:10:23,750 --> 00:10:18,040
18

256
00:10:26,389 --> 00:10:23,760
pioneers in that area

257
00:10:28,150 --> 00:10:26,399
and so i i just like to think that i'm

258
00:10:30,389 --> 00:10:28,160
carrying on that pioneering tradition

259
00:10:32,389 --> 00:10:30,399
here living in an outpost and

260
00:10:35,670 --> 00:10:32,399
in a really outrageous

261
00:10:38,310 --> 00:10:35,680
far out place uh it's a very different

262
00:10:40,310 --> 00:10:38,320
and at times the conditions are harsh

263
00:10:41,990 --> 00:10:40,320

it's really not that bad in here but

264
00:10:43,509 --> 00:10:42,000
it's looking for a better future looking

265
00:10:45,750 --> 00:10:43,519
for a better tomorrow and that's when

266
00:10:47,750 --> 00:10:45,760
they when they came my ancestors came

267
00:10:49,829 --> 00:10:47,760
from norway and then headed across the

268
00:10:51,110 --> 00:10:49,839
united states to the first opportunities

269
00:10:52,710 --> 00:10:51,120
that they found

270
00:10:54,389 --> 00:10:52,720
that's that's where they stayed and i

271
00:10:56,389 --> 00:10:54,399
have a lot of family that's in the sioux

272
00:10:58,470 --> 00:10:56,399
falls area and around canton south

273
00:11:00,389 --> 00:10:58,480
dakota and i consider that to be my

274
00:11:05,430 --> 00:11:00,399
second hometown you want to say a quick

275
00:11:09,430 --> 00:11:07,030
oh you bet i actually have families

276
00:11:12,069 --> 00:11:09,440
scattered all over the state uh but uh

277
00:11:13,509 --> 00:11:12,079
just to hide everybody where i i i

278
00:11:14,630 --> 00:11:13,519
talked to them they had a big launch

279
00:11:16,949 --> 00:11:14,640
party

280
00:11:19,430 --> 00:11:16,959
in mitchell south dakota

281
00:11:21,030 --> 00:11:19,440
for for us where they watched the video

282
00:11:23,190 --> 00:11:21,040
and the whole family got together there

283
00:11:26,550 --> 00:11:23,200
and things are going great i can't wait

284
00:11:29,269 --> 00:11:26,560
to get back up there and see everybody

285
00:11:31,750 --> 00:11:29,279
well mike fossum ron garan satoshi

286
00:11:33,990 --> 00:11:31,760
furukawa it's been a pleasure talking

287
00:11:35,509 --> 00:11:34,000
with you our time is up but uh thank you

288
00:11:37,430 --> 00:11:35,519

for taking time out of your busy day to

289
00:11:42,150 --> 00:11:37,440
visit with us here on dakota midday we

290
00:11:45,430 --> 00:11:43,990
thank you much it's great talking to you

291
00:11:48,389 --> 00:11:45,440
and this is the international space

292
00:11:50,389 --> 00:11:48,399
station signing out

293
00:11:55,110 --> 00:11:50,399
the station this is houston acr that

294
00:11:59,110 --> 00:11:57,110
thank you south dakota public

295
00:12:01,110 --> 00:11:59,120
broadcasting station please stand by