
PORT

1
00:00:06,710 --> 00:00:04,630
welcome to space station live a special

2
00:00:08,549 --> 00:00:06,720
report from tutv temple university

3
00:00:10,390 --> 00:00:08,559
television produced in association with

4
00:00:12,470 --> 00:00:10,400
nasa the national aeronautics and space

5
00:00:13,990 --> 00:00:12,480
administration i'm nick lucier and i'm

6
00:00:15,669 --> 00:00:14,000
karina chung let's go live to the

7
00:00:17,670 --> 00:00:15,679
destiny lab module of the international

8
00:00:19,990 --> 00:00:17,680
space station which is orbiting about

9
00:00:23,269 --> 00:00:20,000
260 miles over the indian ocean just

10
00:00:25,189 --> 00:00:23,279
south of australia at about 17 100 miles

11
00:00:27,670 --> 00:00:25,199
per hour to speak with three of the crew

12
00:00:28,870 --> 00:00:27,680
members serving on expedition 38. we are

13
00:00:30,550 --> 00:00:28,880

honored to speak with american

14
00:00:32,470 --> 00:00:30,560
astronauts rick mastricchio and mike

15
00:00:39,430 --> 00:00:32,480
hopkins and from japan astronaut koichi

16
00:00:46,549 --> 00:00:40,869
yeah we're doing great welcome to the

17
00:00:50,549 --> 00:00:48,389
great thank you so here is our first

18
00:00:53,350 --> 00:00:50,559
question

19
00:00:55,990 --> 00:00:53,360
hi uh my name is uh mark halberstadt and

20
00:00:58,310 --> 00:00:56,000
uh this is a question for uh rick

21
00:01:00,150 --> 00:00:58,320
what is one skill that you didn't think

22
00:01:02,950 --> 00:01:00,160
that you would be using on the states on

23
00:01:09,030 --> 00:01:02,960
the space station but once on board has

24
00:01:12,390 --> 00:01:10,950
well since i had been here several times

25
00:01:13,830 --> 00:01:12,400
to the international space station i

26
00:01:15,109 --> 00:01:13,840
kind of knew what to expect but i tell

27
00:01:16,710 --> 00:01:15,119
you one of the things i'm doing a lot

28
00:01:18,390 --> 00:01:16,720
more of than i do normally on the ground

29
00:01:20,310 --> 00:01:18,400
is a lot of a lot more cleaning and

30
00:01:21,109 --> 00:01:20,320
vacuuming and things like that

31
00:01:23,749 --> 00:01:21,119
it's

32
00:01:25,429 --> 00:01:23,759
up there because you know we have to

33
00:01:27,030 --> 00:01:25,439
maintain the space station ourselves

34
00:01:28,550 --> 00:01:27,040
nobody's up comes up here and cleans for

35
00:01:30,789 --> 00:01:28,560
us nobody comes up here and vacuums and

36
00:01:32,230 --> 00:01:30,799
wipes the walls so it's no matter where

37
00:01:38,630 --> 00:01:32,240
you go you still got to do the basic

38
00:01:43,109 --> 00:01:40,950

uh i guess this question is for mike uh

39
00:01:44,870 --> 00:01:43,119
what is one mistake which was made and

40
00:01:46,950 --> 00:01:44,880
how long did it take to correct on the

41
00:01:49,109 --> 00:01:46,960
space station how long would it have

42
00:01:54,310 --> 00:01:49,119
taken to fix the problem had the problem

43
00:01:59,030 --> 00:01:56,630
uh you know mistakes i guess we make

44
00:02:00,630 --> 00:01:59,040
mistakes every day just in the execution

45
00:02:02,789 --> 00:02:00,640
of our our duties up here when we're

46
00:02:05,109 --> 00:02:02,799
running uh procedures and stuff but very

47
00:02:06,950 --> 00:02:05,119
fortunately uh we have a team on the

48
00:02:08,550 --> 00:02:06,960
ground that's that's watching over our

49
00:02:10,309 --> 00:02:08,560
shoulder that's falling along with us

50
00:02:12,070 --> 00:02:10,319
and more often than not they catch the

51
00:02:14,470 --> 00:02:12,080
mistakes uh really before they have a

52
00:02:16,710 --> 00:02:14,480
chance to to develop into anything

53
00:02:18,550 --> 00:02:16,720
and and so i'm happy to say there hasn't

54
00:02:21,110 --> 00:02:18,560
been any real major mistakes that that

55
00:02:22,630 --> 00:02:21,120
have been made on procedures up here but

56
00:02:24,309 --> 00:02:22,640
there's been little mistakes but again

57
00:02:26,550 --> 00:02:24,319
the ground has has caught us and helped

58
00:02:28,630 --> 00:02:26,560
us out in terms of failures of course we

59
00:02:31,750 --> 00:02:28,640
had a big failure last december with one

60
00:02:33,750 --> 00:02:31,760
of the cooling systems outside and and

61
00:02:35,589 --> 00:02:33,760
that took three weeks before we were

62
00:02:38,309 --> 00:02:35,599
able to get it fixed by planning and

63
00:02:39,430 --> 00:02:38,319

executing a couple of space walks so on

64
00:02:41,509 --> 00:02:39,440
the ground that certainly would have

65
00:02:43,110 --> 00:02:41,519
been quite a bit easier and i suspect we

66
00:02:48,550 --> 00:02:43,120
would have had it fixed within a few

67
00:02:52,470 --> 00:02:50,630
hi my name is zach uh this question is

68
00:02:59,030 --> 00:02:52,480
for koichi what is your favorite

69
00:03:03,750 --> 00:03:01,990
yeah first of all i enjoy working on all

70
00:03:06,470 --> 00:03:03,760
the science activities on both the space

71
00:03:09,110 --> 00:03:06,480
station especially i really enjoy

72
00:03:10,949 --> 00:03:09,120
working on hands-on type experiments we

73
00:03:12,869 --> 00:03:10,959
have a variety of experiments but some

74
00:03:14,949 --> 00:03:12,879
of the examples are like

75
00:03:16,869 --> 00:03:14,959
a spheres experiment that is for the

76
00:03:19,430 --> 00:03:16,879
development of algorithm of the

77
00:03:21,830 --> 00:03:19,440
multi-spacecraft and robotics control

78
00:03:23,670 --> 00:03:21,840
and a capillary flow experiment for

79
00:03:26,390 --> 00:03:23,680
fluid dynamics experiments those are

80
00:03:28,949 --> 00:03:26,400
really hands-on experiment and i really

81
00:03:31,270 --> 00:03:28,959
enjoy working with this actual execution

82
00:03:33,589 --> 00:03:31,280
of the experiments in a direct contact

83
00:03:39,110 --> 00:03:33,599
with the science scientists on board on

84
00:03:42,710 --> 00:03:41,270
hi my name is kaylee roberson

85
00:03:44,869 --> 00:03:42,720
my question is for rick it has been

86
00:03:46,149 --> 00:03:44,879
reported that in 2014 a 3d printer will

87
00:03:47,990 --> 00:03:46,159
be sent to the international space

88
00:03:49,350 --> 00:03:48,000

station what types of projects will the

89
00:03:51,110 --> 00:03:49,360
printer be used on and what are the

90
00:03:57,509 --> 00:03:51,120
challenges of building and implementing

91
00:04:00,710 --> 00:03:59,110
yeah that's a great question i've read

92
00:04:02,710 --> 00:04:00,720
articles about how the 3d printer is

93
00:04:04,869 --> 00:04:02,720
coming up and i've heard about it back

94
00:04:06,149 --> 00:04:04,879
at the johnson space center we haven't

95
00:04:08,229 --> 00:04:06,159
been involved

96
00:04:10,869 --> 00:04:08,239
in the printer development in any way

97
00:04:12,390 --> 00:04:10,879
but i'm sure that uh it's had some

98
00:04:14,070 --> 00:04:12,400
challenges due to be you know just

99
00:04:15,910 --> 00:04:14,080
because we're in a zero g environment

100
00:04:17,349 --> 00:04:15,920
how it will be used

101
00:04:18,710 --> 00:04:17,359
i'm sure in the beginning it will be

102
00:04:20,710 --> 00:04:18,720
more just kind of a test thing where

103
00:04:22,469 --> 00:04:20,720
we'll maybe we'll make some small pieces

104
00:04:24,710 --> 00:04:22,479
and see how they work out but i could

105
00:04:26,629 --> 00:04:24,720
see this being a very very useful thing

106
00:04:28,950 --> 00:04:26,639
in the future as we move on beyond low

107
00:04:30,790 --> 00:04:28,960
earth orbit when we don't have cargo

108
00:04:33,270 --> 00:04:30,800
ships coming up every few weeks in the

109
00:04:35,030 --> 00:04:33,280
ground uh can't send us spare parts on a

110
00:04:36,950 --> 00:04:35,040
regular basis you know when we're up

111
00:04:38,629 --> 00:04:36,960
here we're on our own we have all the

112
00:04:39,909 --> 00:04:38,639
tools necessary we have a lot of spare

113
00:04:41,270 --> 00:04:39,919

parts but there's times where we just

114
00:04:43,030 --> 00:04:41,280
run out of spare parts we just don't

115
00:04:45,189 --> 00:04:43,040
have the right parts so i think a 3d

116
00:04:46,550 --> 00:04:45,199
printer is going to prove very useful up

117
00:04:48,230 --> 00:04:46,560
here in the international space station

118
00:04:55,189 --> 00:04:48,240
but even more useful as we go on to the

119
00:04:58,870 --> 00:04:57,189
mike how much is having a 3d printer

120
00:05:00,710 --> 00:04:58,880
expected to expedite design

121
00:05:05,590 --> 00:05:00,720
experimentation and research happening

122
00:05:10,710 --> 00:05:07,350
yeah you know just to kind of follow

123
00:05:12,310 --> 00:05:10,720
with with rick's comment there i think

124
00:05:14,629 --> 00:05:12,320
first of all we just need to to figure

125
00:05:16,310 --> 00:05:14,639
out if it'll even work up here

126
00:05:18,790 --> 00:05:16,320
and then how will it help with

127
00:05:21,029 --> 00:05:18,800
experiments and execution and things of

128
00:05:22,550 --> 00:05:21,039
that nature i think a lot of it we're

129
00:05:23,990 --> 00:05:22,560
going to be dependent upon the ground

130
00:05:26,070 --> 00:05:24,000
because a lot of that design work that

131
00:05:27,510 --> 00:05:26,080
you're talking about to actually execute

132
00:05:29,110 --> 00:05:27,520
i think our ground teams will most

133
00:05:31,909 --> 00:05:29,120
likely be doing a lot of that kind of

134
00:05:33,670 --> 00:05:31,919
activity and and then we'll just do the

135
00:05:35,270 --> 00:05:33,680
execution part if you will the actual

136
00:05:38,070 --> 00:05:35,280
printing out of the part and then the

137
00:05:39,670 --> 00:05:38,080
utilization of it and so i think it'll

138
00:05:41,670 --> 00:05:39,680

certainly help out

139
00:05:49,029 --> 00:05:41,680
but again i think first we need to just

140
00:05:52,870 --> 00:05:50,790
hi my name is john morris uh this

141
00:05:54,629 --> 00:05:52,880
question is for kuwaiti

142
00:05:56,230 --> 00:05:54,639
what is the process of getting ready for

143
00:06:01,830 --> 00:05:56,240
a spacewalk both physical and

144
00:06:06,950 --> 00:06:04,469
yeah as a support crew member to

145
00:06:09,029 --> 00:06:06,960
for a spacewalk that mike and rick

146
00:06:11,029 --> 00:06:09,039
conducted in december it was a very

147
00:06:11,830 --> 00:06:11,039
challenging experience for me

148
00:06:14,550 --> 00:06:11,840
uh

149
00:06:16,710 --> 00:06:14,560
as i needed to make sure that i can send

150
00:06:18,390 --> 00:06:16,720
out those guys to the outer space safely

151
00:06:21,670 --> 00:06:18,400
and help them come back to the airlock

152
00:06:23,029 --> 00:06:21,680
safely so uh i had to go back to the

153
00:06:23,830 --> 00:06:23,039
basics

154
00:06:26,390 --> 00:06:23,840
just

155
00:06:29,189 --> 00:06:26,400
think through before you take actions

156
00:06:31,430 --> 00:06:29,199
and follow the procedure precisely and

157
00:06:33,590 --> 00:06:31,440
efficiently and this this is what i

158
00:06:39,909 --> 00:06:33,600
forced myself to do as a support crew

159
00:06:43,590 --> 00:06:41,830
in 2016 the cold atom lab will be

160
00:06:45,110 --> 00:06:43,600
installed on the iss what is the

161
00:06:46,790 --> 00:06:45,120
overarching goal of the cold adam lab

162
00:06:53,430 --> 00:06:46,800
and why is it being installed on the iss

163
00:06:57,189 --> 00:06:55,189

well that's a great question i'm sorry

164
00:06:59,430 --> 00:06:57,199
i'm not familiar with the uh with the

165
00:07:01,990 --> 00:06:59,440
cold adam lab or that experiment or that

166
00:07:02,950 --> 00:07:02,000
research but it's good news to hear i i

167
00:07:04,309 --> 00:07:02,960
enjoy

168
00:07:05,749 --> 00:07:04,319
uh hearing that the fact that we're

169
00:07:07,189 --> 00:07:05,759
going to get new experiments and new

170
00:07:08,629 --> 00:07:07,199
research come coming up here to the

171
00:07:10,629 --> 00:07:08,639
international space station one of the

172
00:07:12,309 --> 00:07:10,639
things we find is that

173
00:07:13,990 --> 00:07:12,319
there's all kinds of opportunities up

174
00:07:16,070 --> 00:07:14,000
here the space station's an incredible

175
00:07:18,230 --> 00:07:16,080
place can support just about any type of

176
00:07:19,589 --> 00:07:18,240
research or experiment going on and we

177
00:07:20,870 --> 00:07:19,599
are involved in many different things

178
00:07:22,230 --> 00:07:20,880
right now but it's always good to hear

179
00:07:23,430 --> 00:07:22,240
that there's more experiments coming up

180
00:07:27,830 --> 00:07:23,440
here because we always have room for

181
00:07:31,670 --> 00:07:29,830
for mike nasa is testing a new way to

182
00:07:34,230 --> 00:07:31,680
transfer fuel by space robots called the

183
00:07:36,230 --> 00:07:34,240
remote robotic oxidizer transfer test

184
00:07:37,830 --> 00:07:36,240
the fuel is used and used in space it's

185
00:07:39,189 --> 00:07:37,840
extremely corrosive but if the testing

186
00:07:46,150 --> 00:07:39,199
is successful what could it mean for

187
00:07:50,790 --> 00:07:47,749
yeah so again that's another one of

188
00:07:52,150 --> 00:07:50,800

these uh these new experiments that um

189
00:07:53,430 --> 00:07:52,160
is going to be coming up here i guess

190
00:07:55,670 --> 00:07:53,440
later on

191
00:07:57,110 --> 00:07:55,680
and and so just like what rick said

192
00:07:59,189 --> 00:07:57,120
that's that's very exciting because it's

193
00:08:01,029 --> 00:07:59,199
good to see those kind of activities

194
00:08:03,270 --> 00:08:01,039
happening and and this one in particular

195
00:08:05,270 --> 00:08:03,280
i think uh it's going to be very useful

196
00:08:07,510 --> 00:08:05,280
for as we go beyond low earth orbit and

197
00:08:09,029 --> 00:08:07,520
we start to do a deeper uh exploration

198
00:08:11,110 --> 00:08:09,039
into the solar system whether it be to

199
00:08:12,469 --> 00:08:11,120
the moon or asteroids or mars

200
00:08:13,830 --> 00:08:12,479
so i think those are critical

201
00:08:15,350 --> 00:08:13,840
technologies that that need to be

202
00:08:20,869 --> 00:08:15,360
demonstrated and i think it's going to

203
00:08:23,990 --> 00:08:22,309
for koichi how do you feel about

204
00:08:30,150 --> 00:08:24,000
becoming the first japanese commander of

205
00:08:35,509 --> 00:08:32,310
it is a great owner for me to serve as

206
00:08:37,509 --> 00:08:35,519
an iss commander and

207
00:08:39,750 --> 00:08:37,519
it is a it is a challenge

208
00:08:42,709 --> 00:08:39,760
and but i'm humbled to take up this

209
00:08:44,550 --> 00:08:42,719
challenge and having this responsibility

210
00:08:45,990 --> 00:08:44,560
uh is a welcome challenge for me to

211
00:08:48,230 --> 00:08:46,000
serve my duties on both the space

212
00:08:49,910 --> 00:08:48,240
station while keeping mine the best

213
00:08:51,750 --> 00:08:49,920

interests of safe and efficient

214
00:08:53,430 --> 00:08:51,760
operation of the space station it's

215
00:08:57,990 --> 00:08:53,440
really great to be part of the wonderful

216
00:09:02,150 --> 00:09:00,389
and rick what role might the iss play in

217
00:09:03,670 --> 00:09:02,160
the united states plan to possibly

218
00:09:12,070 --> 00:09:03,680
return to the moon and then move on to

219
00:09:12,080 --> 00:09:17,110
can you repeat the question please

220
00:09:21,509 --> 00:09:19,350
what role might the iss play in the

221
00:09:25,990 --> 00:09:21,519
united states plan to possibly return to

222
00:09:30,230 --> 00:09:27,910
oh yeah the iss is a big part of that

223
00:09:30,949 --> 00:09:30,240
it's like the first step in returning to

224
00:09:32,630 --> 00:09:30,959
uh

225
00:09:34,710 --> 00:09:32,640
going beyond low earth orbit returning

226
00:09:35,990 --> 00:09:34,720
to the moon or going to mars

227
00:09:37,670 --> 00:09:36,000
you know we're developing a lot of the

228
00:09:39,269 --> 00:09:37,680
technologies we're developing a lot of

229
00:09:41,750 --> 00:09:39,279
the procedures right here we could test

230
00:09:44,070 --> 00:09:41,760
out new ideas up here we're learning how

231
00:09:45,269 --> 00:09:44,080
to recycle water recycle air we're

232
00:09:47,590 --> 00:09:45,279
learning all the things that it's going

233
00:09:49,509 --> 00:09:47,600
to take to go beyond low earth orbit so

234
00:09:52,150 --> 00:09:49,519
all the things that we are doing here

235
00:09:53,750 --> 00:09:52,160
are the first step and a big part of

236
00:09:55,670 --> 00:09:53,760
moving on beyond low earth orbit going

237
00:10:01,110 --> 00:09:55,680
to the moon and asteroids and mars and

238
00:10:07,110 --> 00:10:02,550

mike can you tell us about your college

239
00:10:10,870 --> 00:10:09,430
well it seems like a very long time ago

240
00:10:12,310 --> 00:10:10,880
yeah it was a it was a wonderful

241
00:10:14,389 --> 00:10:12,320
experience

242
00:10:16,230 --> 00:10:14,399
and it's a big part of why i have the

243
00:10:18,150 --> 00:10:16,240
opportunity to be with nasa and to be up

244
00:10:19,350 --> 00:10:18,160
here today and working with such a great

245
00:10:20,790 --> 00:10:19,360
team

246
00:10:22,310 --> 00:10:20,800
you know when i went to college at the

247
00:10:24,550 --> 00:10:22,320
university of illinois and then on to

248
00:10:26,389 --> 00:10:24,560
stanford in aerospace engineering i i

249
00:10:28,230 --> 00:10:26,399
had no idea that i was going to get this

250
00:10:29,829 --> 00:10:28,240
opportunity it was certainly something i

251
00:10:31,670 --> 00:10:29,839
dreamed about but

252
00:10:33,910 --> 00:10:31,680
at the same time it was something i i

253
00:10:35,590 --> 00:10:33,920
just had a had a great time with

254
00:10:37,430 --> 00:10:35,600
studying there i had opportunity to play

255
00:10:39,829 --> 00:10:37,440
football in college i was part of the

256
00:10:42,949 --> 00:10:39,839
rotc program and the pi kappa alpha

257
00:10:45,030 --> 00:10:42,959
fraternity so the college experience was

258
00:10:50,710 --> 00:10:45,040
was just absolutely fantastic and best

259
00:10:54,069 --> 00:10:52,550
koichi what is the training process like

260
00:11:01,110 --> 00:10:54,079
to prepare for a mission to the space

261
00:11:04,870 --> 00:11:03,269
yeah the trading flow is for about two

262
00:11:06,550 --> 00:11:04,880
and a half years after assigned to a

263
00:11:09,670 --> 00:11:06,560

space flight on both the space station

264
00:11:12,710 --> 00:11:09,680
we have training in houston in moscow

265
00:11:14,630 --> 00:11:12,720
uh cologne germany montreal canada and

266
00:11:17,030 --> 00:11:14,640
in scuba in japan it's a very extensive

267
00:11:19,670 --> 00:11:17,040
training and we learn about the space

268
00:11:22,550 --> 00:11:19,680
systems operation experiments payloads

269
00:11:24,870 --> 00:11:22,560
spacewalks robotics operation etc and it

270
00:11:26,870 --> 00:11:24,880
is very exciting to learn from the

271
00:11:33,590 --> 00:11:26,880
experts of the subject matter in

272
00:11:43,509 --> 00:11:35,509
rick besides friends and family what is

273
00:11:47,509 --> 00:11:45,670
so that's easy uh food

274
00:11:49,110 --> 00:11:47,519
you know all our favorite foods we had a

275
00:11:50,870 --> 00:11:49,120
wide selection of food up here and it's

276
00:11:52,389 --> 00:11:50,880
actually pretty good but uh obviously

277
00:11:54,389 --> 00:11:52,399
our favorite foods

278
00:11:55,990 --> 00:11:54,399
uh it's been a while since we've had

279
00:11:57,509 --> 00:11:56,000
them and we i look forward to having

280
00:12:03,190 --> 00:11:57,519
them again once i land here in a couple

281
00:12:11,509 --> 00:12:04,949
mike can you describe the experience of

282
00:12:15,190 --> 00:12:13,590
yeah it was uh it was a bit surreal uh

283
00:12:17,430 --> 00:12:15,200
you suppose koichi talked about you

284
00:12:19,829 --> 00:12:17,440
spent two and a half years preparing for

285
00:12:21,190 --> 00:12:19,839
that moment and and at some point you

286
00:12:22,870 --> 00:12:21,200
you kind of wonder if it's ever really

287
00:12:24,470 --> 00:12:22,880
going to happen and you don't really

288
00:12:26,230 --> 00:12:24,480

believe it's going to happen until you

289
00:12:28,069 --> 00:12:26,240
actually start to lift off because you

290
00:12:29,590 --> 00:12:28,079
you just think oh man you might get hurt

291
00:12:30,790 --> 00:12:29,600
you might get sick

292
00:12:32,790 --> 00:12:30,800
or something else could happen that

293
00:12:34,150 --> 00:12:32,800
would that would pull you out of that so

294
00:12:36,310 --> 00:12:34,160
first of all there's there's a bit of a

295
00:12:37,430 --> 00:12:36,320
sense of relief that hey i'm actually

296
00:12:39,590 --> 00:12:37,440
launching

297
00:12:41,030 --> 00:12:39,600
at the same time there's this uh jumble

298
00:12:42,550 --> 00:12:41,040
of emotions that are going through you

299
00:12:44,470 --> 00:12:42,560
you know there's for me it is my first

300
00:12:46,470 --> 00:12:44,480
launch so you're very nervous you're

301
00:12:48,069 --> 00:12:46,480
very excited uh but you're also very

302
00:12:49,430 --> 00:12:48,079
focused because you do have you've

303
00:12:50,790 --> 00:12:49,440
trained a long time for this you know

304
00:12:52,550 --> 00:12:50,800
the procedure so you're just basically

305
00:12:53,750 --> 00:12:52,560
walking through the checklist

306
00:12:55,750 --> 00:12:53,760
and and making sure everything's

307
00:12:57,030 --> 00:12:55,760
performing the way uh the way it's

308
00:12:59,269 --> 00:12:57,040
supposed to and really the training

309
00:13:05,030 --> 00:12:59,279
kicks in at that point and it's it's a

310
00:13:13,750 --> 00:13:06,949
cochi what is the best piece of advice

311
00:13:17,509 --> 00:13:14,710
okay

312
00:13:20,790 --> 00:13:17,519
from my previous crew commanders of my

313
00:13:23,030 --> 00:13:20,800

previous space missions i learned that

314
00:13:25,350 --> 00:13:23,040
keeping a good communication with the

315
00:13:26,389 --> 00:13:25,360
ground team is a key to a successful

316
00:13:28,870 --> 00:13:26,399
mission

317
00:13:31,269 --> 00:13:28,880
space station is such a complicated

318
00:13:32,310 --> 00:13:31,279
technological

319
00:13:35,110 --> 00:13:32,320
asset

320
00:13:36,949 --> 00:13:35,120
and we have uh outstanding ground

321
00:13:38,949 --> 00:13:36,959
support team in the different control

322
00:13:42,150 --> 00:13:38,959
centers throughout the world

323
00:13:43,590 --> 00:13:42,160
and uh we greatly uh depend on the

324
00:13:45,750 --> 00:13:43,600
success uh

325
00:13:47,590 --> 00:13:45,760
on on the mission control center so uh

326
00:13:52,949 --> 00:13:47,600
keeping good communication is really a

327
00:13:58,310 --> 00:13:55,670
and for mike final question the sun

328
00:13:59,990 --> 00:13:58,320
rises and sets every 90 minutes what's

329
00:14:05,829 --> 00:14:00,000
it like to see that and how do you get

330
00:14:11,509 --> 00:14:07,030
i'm sorry we didn't catch the question

331
00:14:16,069 --> 00:14:14,230
sure the sun sets and rises every 90

332
00:14:18,310 --> 00:14:16,079
minutes how it how does it just

333
00:14:22,230 --> 00:14:18,320
experience that and how do you get some

334
00:14:26,550 --> 00:14:24,470
okay yeah that is it's actually pretty

335
00:14:27,829 --> 00:14:26,560
neat to have that many sunrises and

336
00:14:29,509 --> 00:14:27,839
sunsets

337
00:14:30,710 --> 00:14:29,519
and to be honest we don't really notice

338
00:14:31,990 --> 00:14:30,720

it too much though when we're working

339
00:14:33,430 --> 00:14:32,000
inside the space station because we

340
00:14:35,990 --> 00:14:33,440
really don't have a lot of windows that

341
00:14:38,389 --> 00:14:36,000
are looking out um on the earth and and

342
00:14:39,750 --> 00:14:38,399
seeing the the night and day cycles and

343
00:14:41,269 --> 00:14:39,760
so really

344
00:14:42,870 --> 00:14:41,279
in terms of impacting our sleep it's not

345
00:14:44,310 --> 00:14:42,880
too bad when it's time to go to bed we

346
00:14:45,990 --> 00:14:44,320
simply just turn off the lights and as

347
00:14:47,350 --> 00:14:46,000
far as we know it's it's nighttime just

348
00:14:49,030 --> 00:14:47,360
like down on earth

349
00:14:50,389 --> 00:14:49,040
but getting to see that many sunrises

350
00:14:52,870 --> 00:14:50,399
and sunsets in fact when the when the

351
00:14:55,590 --> 00:14:52,880
sun rises you start out with just this

352
00:14:57,910 --> 00:14:55,600
this little uh line of blue on the

353
00:14:59,590 --> 00:14:57,920
horizon and the limb of the earth and

354
00:15:01,590 --> 00:14:59,600
then you get a little bit of orange and

355
00:15:04,069 --> 00:15:01,600
then this brilliant sun just

356
00:15:10,230 --> 00:15:04,079
just blinds you and and getting to see

357
00:15:13,670 --> 00:15:11,829
all right thank you very much we want to

358
00:15:17,590 --> 00:15:13,680
thank mike rick and koichi for talking

359
00:15:17,600 --> 00:15:24,470
thank you very much we appreciate it

360
00:15:28,949 --> 00:15:26,310
and joining us now back here on earth is