
ce Center

1
00:00:06,389 --> 00:00:03,990
well good afternoon everybody welcome to

2
00:00:08,549 --> 00:00:06,399
nasa's johnson space center happy sunday

3
00:00:09,990 --> 00:00:08,559
it's uh flight day 10 aboard the space

4
00:00:11,749 --> 00:00:10,000
shuttle atlantis and the international

5
00:00:13,669 --> 00:00:11,759
space station and here to talk about all

6
00:00:15,110 --> 00:00:13,679
the activities going on aboard the

7
00:00:18,390 --> 00:00:15,120
international space station with the

8
00:00:20,150 --> 00:00:18,400
final hours of the joint uh mission is

9
00:00:21,910 --> 00:00:20,160
chris edelen he is the lead flight

10
00:00:23,710 --> 00:00:21,920
director for the international space

11
00:00:27,109 --> 00:00:23,720
station part of this

12
00:00:29,109 --> 00:00:27,119
sts-135 utilization logistics flight 7

13
00:00:31,109 --> 00:00:29,119

mission i'll turn it over to chris and

14
00:00:32,870 --> 00:00:31,119
let him brief you on all the activities

15
00:00:33,910 --> 00:00:32,880
and then we'll take questions chris

16
00:00:35,750 --> 00:00:33,920
thanks call

17
00:00:37,590 --> 00:00:35,760
well the crew had another very busy day

18
00:00:39,430 --> 00:00:37,600
in space today aboard the international

19
00:00:41,750 --> 00:00:39,440
space station and the space shuttle

20
00:00:44,310 --> 00:00:41,760
atlantis they reached a key milestone

21
00:00:47,190 --> 00:00:44,320
today in that the rafaello logistics

22
00:00:48,869 --> 00:00:47,200
module was uh was closed out all the

23
00:00:50,709 --> 00:00:48,879
cargo that has been coming up to space

24
00:00:52,950 --> 00:00:50,719
station has been transferred over that

25
00:00:55,910 --> 00:00:52,960
was actually completed a couple days ago

26
00:00:57,430 --> 00:00:55,920
and today they've they've packed rafaela

27
00:00:59,029 --> 00:00:57,440
with all the return cargo that's going

28
00:01:01,349 --> 00:00:59,039
to be coming back to earth

29
00:01:02,670 --> 00:01:01,359
the just for the numbers out there we

30
00:01:05,509 --> 00:01:02,680
delivered

31
00:01:07,670 --> 00:01:05,519
9403 pounds of cargo

32
00:01:12,149 --> 00:01:07,680
in the multi-purpose logistics module up

33
00:01:14,550 --> 00:01:12,159
to the station and we are returning 5666

34
00:01:16,710 --> 00:01:14,560
pounds of cargo inside the logistics

35
00:01:18,789 --> 00:01:16,720
module so all that is packed up and uh

36
00:01:19,749 --> 00:01:18,799
if you saw any of the video today from

37
00:01:21,510 --> 00:01:19,759
the crew

38
00:01:23,190 --> 00:01:21,520

the modules is real clean and

39
00:01:26,070 --> 00:01:23,200
everything's neatly put away in the

40
00:01:28,390 --> 00:01:26,080
proper place strapped down for entry in

41
00:01:30,469 --> 00:01:28,400
the shuttle later this week and the crew

42
00:01:32,069 --> 00:01:30,479
also installed the control and power

43
00:01:34,069 --> 00:01:32,079
assemblies which are the silver

44
00:01:36,870 --> 00:01:34,079
controllers there at the hatch leading

45
00:01:39,350 --> 00:01:36,880
into the multi-purpose logistics module

46
00:01:41,429 --> 00:01:39,360
those will be used tomorrow to drive the

47
00:01:42,950 --> 00:01:41,439
bolts of course once the hatches are

48
00:01:44,310 --> 00:01:42,960
closed and they'll drive the bolts to

49
00:01:46,550 --> 00:01:44,320
release

50
00:01:48,149 --> 00:01:46,560
the logistics module and then cindy

51
00:01:50,630 --> 00:01:48,159
magnus and doug hurley will use the

52
00:01:54,389 --> 00:01:50,640
station robotic arm to transfer that

53
00:01:56,870 --> 00:01:54,399
logistics module from the node to 2

54
00:01:58,950 --> 00:01:56,880
earth-facing port back into the payload

55
00:02:00,310 --> 00:01:58,960
bay of atlantis so

56
00:02:03,510 --> 00:02:00,320
we're very pleased with the crew's

57
00:02:05,990 --> 00:02:03,520
progress on mplm transfer today

58
00:02:08,389 --> 00:02:06,000
the other big part of the cargo

59
00:02:11,510 --> 00:02:08,399
plan for this mission is to transfer our

60
00:02:13,110 --> 00:02:11,520
mid-deck payload as you can recall uh

61
00:02:14,790 --> 00:02:13,120
several shuttle crew members will

62
00:02:17,110 --> 00:02:14,800
typically sit on the mid-deck of a space

63
00:02:18,869 --> 00:02:17,120

shuttle uh during launch and landing in

64
00:02:20,949 --> 00:02:18,879
this case with only four crew member we

65
00:02:24,070 --> 00:02:20,959
had an empty mid deck so we were able to

66
00:02:26,150 --> 00:02:24,080
uh to fly up about 2 000 pounds of

67
00:02:29,030 --> 00:02:26,160
supplies including the packing material

68
00:02:31,589 --> 00:02:29,040
and and the support structure so we are

69
00:02:33,670 --> 00:02:31,599
about 84 percent complete with our

70
00:02:35,670 --> 00:02:33,680
mid-deck transfer we are showing

71
00:02:38,150 --> 00:02:35,680
positive margins on the crew timeline to

72
00:02:39,030 --> 00:02:38,160
get that transfer completed by tomorrow

73
00:02:40,229 --> 00:02:39,040
morning

74
00:02:41,670 --> 00:02:40,239
some of the items that are being

75
00:02:43,990 --> 00:02:41,680
transferred

76
00:02:45,670 --> 00:02:44,000
late in the mission they consist of the

77
00:02:48,070 --> 00:02:45,680
science samples a lot of these samples

78
00:02:50,550 --> 00:02:48,080
have to remain cold and in support of

79
00:02:52,710 --> 00:02:50,560
that we did transfer a glacier

80
00:02:54,949 --> 00:02:52,720
refrigerator from the shuttle mid deck

81
00:02:56,390 --> 00:02:54,959
to the space station to provide a new

82
00:02:58,630 --> 00:02:56,400
essentially a new science refrigerator

83
00:03:01,670 --> 00:02:58,640
to the space station and one of the

84
00:03:03,910 --> 00:03:01,680
existing glaciers is coming back

85
00:03:06,390 --> 00:03:03,920
on the mid deck of atlantis full of

86
00:03:08,149 --> 00:03:06,400
science samples for return and tomorrow

87
00:03:10,630 --> 00:03:08,159
we will uh the crew will transfer the

88
00:03:12,710 --> 00:03:10,640

remaining science samples

89
00:03:15,270 --> 00:03:12,720
another couple of noteworthy mid-deck

90
00:03:17,430 --> 00:03:15,280
payloads that were transferred today ron

91
00:03:20,149 --> 00:03:17,440
garan today performed

92
00:03:22,470 --> 00:03:20,159
a removal of the mass spectrometer in

93
00:03:26,229 --> 00:03:22,480
our mass constituent analyzer it's it's

94
00:03:28,070 --> 00:03:26,239
a a device in the us laboratory that

95
00:03:30,309 --> 00:03:28,080
that samples the air from different

96
00:03:31,750 --> 00:03:30,319
parts of space station and it can

97
00:03:33,910 --> 00:03:31,760
determine what the constituents are

98
00:03:37,030 --> 00:03:33,920
whether they be water vapor co2 and

99
00:03:40,309 --> 00:03:37,040
other gases and o2 of course so uh that

100
00:03:41,030 --> 00:03:40,319
uh has been broken uh for sever for for

101
00:03:49,030 --> 00:03:41,040
uh

102
00:03:50,550 --> 00:03:49,040
atmosphere iraq and he has packaged that

103
00:03:52,229 --> 00:03:50,560
up and transferred that to the mid-deck

104
00:03:54,070 --> 00:03:52,239
of atlantis for return

105
00:03:56,789 --> 00:03:54,080
and also

106
00:03:58,070 --> 00:03:56,799
yesterday sergei volkov one of our

107
00:03:59,589 --> 00:03:58,080
cosmonauts aboard the international

108
00:04:01,990 --> 00:03:59,599
space station

109
00:04:03,509 --> 00:04:02,000
he performed some work on the treadmill

110
00:04:05,429 --> 00:04:03,519
the tvis treadmill down the russian

111
00:04:07,589 --> 00:04:05,439
segment that was yesterday and the day

112
00:04:09,990 --> 00:04:07,599
before he uh one of the things he did

113
00:04:11,910 --> 00:04:10,000

was remove the gyroscope that was

114
00:04:14,149 --> 00:04:11,920
suspect he removed that that has been

115
00:04:15,670 --> 00:04:14,159
placed in the mid deck for return and he

116
00:04:18,390 --> 00:04:15,680
installed a new gyroscope and then

117
00:04:19,909 --> 00:04:18,400
yesterday he had also installed a

118
00:04:22,150 --> 00:04:19,919
another controller upstream of the

119
00:04:24,150 --> 00:04:22,160
gyroscope that did fix the problem we

120
00:04:26,150 --> 00:04:24,160
now have a good good treadmill for the

121
00:04:29,030 --> 00:04:26,160
russian cosmonauts down in the service

122
00:04:31,270 --> 00:04:29,040
module and of course the us ground

123
00:04:32,950 --> 00:04:31,280
specialists were of uh

124
00:04:34,550 --> 00:04:32,960
key members of that troubleshooting plan

125
00:04:36,070 --> 00:04:34,560
because the tvis was

126
00:04:37,749 --> 00:04:36,080
designed and built in the u.s and it's

127
00:04:40,629 --> 00:04:37,759
been an item that was transferred to the

128
00:04:42,469 --> 00:04:40,639
russian segment some time ago so

129
00:04:43,350 --> 00:04:42,479
all around good work and good results

130
00:04:45,670 --> 00:04:43,360
there

131
00:04:48,070 --> 00:04:45,680
so uh with that tomorrow again we'll be

132
00:04:49,510 --> 00:04:48,080
uh returning the mplm to the payload bay

133
00:04:51,749 --> 00:04:49,520
we will be completing the mid deck

134
00:04:54,230 --> 00:04:51,759
transfers and then at the end of the day

135
00:04:56,230 --> 00:04:54,240
the crews will uh will shake hands

136
00:04:58,310 --> 00:04:56,240
and say their farewells and close the

137
00:05:00,469 --> 00:04:58,320
close the hatch and then atlantis will

138
00:05:01,830 --> 00:05:00,479

undock early tuesday morning and that's

139
00:05:03,590 --> 00:05:01,840
all i have for the status and i'll be

140
00:05:05,590 --> 00:05:03,600
glad to open it up for questions

141
00:05:07,830 --> 00:05:05,600
okay great we'll start here

142
00:05:10,150 --> 00:05:07,840
uh if you don't mind walk step up to

143
00:05:11,990 --> 00:05:10,160
that microphone so everybody on the net

144
00:05:14,230 --> 00:05:12,000
watching can hear you and we'll start

145
00:05:16,310 --> 00:05:14,240
with mark uh mark crowe for aviation

146
00:05:18,469 --> 00:05:16,320
week and i just wonder if there's

147
00:05:21,670 --> 00:05:18,479
anything you're still really evaluating

148
00:05:24,790 --> 00:05:21,680
on whether to send back or not

149
00:05:26,790 --> 00:05:24,800
on the shuttle one place or the other

150
00:05:29,189 --> 00:05:26,800
we are pretty much closed out our

151
00:05:31,189 --> 00:05:29,199
paperwork for return one item that we're

152
00:05:33,670 --> 00:05:31,199
considering is whether we might

153
00:05:35,510 --> 00:05:33,680
grab a few of the extra camera lenses on

154
00:05:37,670 --> 00:05:35,520
the shuttle and bring those back there's

155
00:05:39,590 --> 00:05:37,680
also a laser range finder that we were

156
00:05:41,830 --> 00:05:39,600
considering to uh to return the shuttle

157
00:05:43,430 --> 00:05:41,840
has two of those and we were considering

158
00:05:45,189 --> 00:05:43,440
perhaps leaving one of those onboard the

159
00:05:46,870 --> 00:05:45,199
international space station so that

160
00:05:52,469 --> 00:05:46,880
paperwork will get closed out overnight

161
00:05:56,870 --> 00:05:54,870
hi robert perelman with collectspace.com

162
00:05:58,550 --> 00:05:56,880
uh can you give a rough idea maybe by

163
00:06:01,029 --> 00:05:58,560

percentage of

164
00:06:03,189 --> 00:06:01,039
the contents of raphael now is it mostly

165
00:06:05,830 --> 00:06:03,199
trash is it mostly equipment to be

166
00:06:07,350 --> 00:06:05,840
reused how does it break down between

167
00:06:10,390 --> 00:06:07,360
the types of items that are coming back

168
00:06:11,909 --> 00:06:10,400
to earth i do not have a percentage

169
00:06:14,790 --> 00:06:11,919
breakdown but

170
00:06:16,950 --> 00:06:14,800
by volume there is a lot of foam because

171
00:06:19,590 --> 00:06:16,960
every every

172
00:06:21,430 --> 00:06:19,600
mechanical system every oru an orbital

173
00:06:24,150 --> 00:06:21,440
replacement unit that comes up to the

174
00:06:25,590 --> 00:06:24,160
station comes up in protective foam so

175
00:06:27,510 --> 00:06:25,600
there's a lot of foam that takes up a

176
00:06:28,629 --> 00:06:27,520
lot of volume on station and that was

177
00:06:31,270 --> 00:06:28,639
one of the key objectives for this

178
00:06:32,870 --> 00:06:31,280
flight was to uh to bring down trash and

179
00:06:35,110 --> 00:06:32,880
especially foam because it takes up so

180
00:06:36,790 --> 00:06:35,120
much volume there is a lot of just

181
00:06:38,790 --> 00:06:36,800
general trash and

182
00:06:40,150 --> 00:06:38,800
broken items and of course some items

183
00:06:47,270 --> 00:06:40,160
for reuse

184
00:06:51,350 --> 00:06:49,670
clara moskowitz for space.com i

185
00:06:52,870 --> 00:06:51,360
understand the crew had some off-duty

186
00:06:54,710 --> 00:06:52,880
time today and i just wonder if you can

187
00:06:56,390 --> 00:06:54,720
give us an idea of some of the

188
00:06:57,990 --> 00:06:56,400

activities that are available to them on

189
00:07:00,390 --> 00:06:58,000
their day off i mean did they call home

190
00:07:02,950 --> 00:07:00,400
or watch movies anything like that well

191
00:07:04,870 --> 00:07:02,960
unfortunately today it uh appeared to me

192
00:07:06,150 --> 00:07:04,880
from the the video downlink that they

193
00:07:08,790 --> 00:07:06,160
were having to work through most of

194
00:07:11,589 --> 00:07:08,800
their off-duty time they uh this was a

195
00:07:12,309 --> 00:07:11,599
big job to get this mplm loaded up and

196
00:07:14,390 --> 00:07:12,319
uh

197
00:07:16,550 --> 00:07:14,400
the timeline tomorrow is very tight they

198
00:07:18,870 --> 00:07:16,560
wake up and they go ahead and start

199
00:07:21,350 --> 00:07:18,880
deconfiguring and

200
00:07:22,790 --> 00:07:21,360
basically powering down that module in

201
00:07:24,390 --> 00:07:22,800
preparation to close the hatch and

202
00:07:26,150 --> 00:07:24,400
transfer so

203
00:07:28,629 --> 00:07:26,160
there's not any spare time tomorrow to

204
00:07:30,150 --> 00:07:28,639
finish things up and the crew used a lot

205
00:07:31,510 --> 00:07:30,160
of their spare time today to make sure

206
00:07:32,870 --> 00:07:31,520
that everything was in place in the

207
00:07:33,670 --> 00:07:32,880
module

208
00:07:35,110 --> 00:07:33,680
so

209
00:07:37,029 --> 00:07:35,120
unfortunately they had to work through

210
00:07:39,189 --> 00:07:37,039
some of their off-duty time now just

211
00:07:40,950 --> 00:07:39,199
generally speaking on the space station

212
00:07:42,950 --> 00:07:40,960
and and this applies to space shuttle

213
00:07:45,189 --> 00:07:42,960

crews that come over to use some of the

214
00:07:47,029 --> 00:07:45,199
resources on the space station off-duty

215
00:07:49,029 --> 00:07:47,039
time crews love looking out the window

216
00:07:50,950 --> 00:07:49,039
of course with the cupola that provides

217
00:07:52,790 --> 00:07:50,960
a great view of the world they can use

218
00:07:55,029 --> 00:07:52,800
the internet phone to call home if we

219
00:07:56,710 --> 00:07:55,039
have a com coverage with our high gain

220
00:07:58,469 --> 00:07:56,720
dish antenna

221
00:08:00,790 --> 00:07:58,479
and then of course they can uh listen to

222
00:08:02,790 --> 00:08:00,800
music and and hang out with their

223
00:08:04,309 --> 00:08:02,800
friends you know so typical kind of

224
00:08:07,110 --> 00:08:04,319
things you do on you know if you were

225
00:08:09,430 --> 00:08:07,120
having some quiet time at home

226
00:08:13,350 --> 00:08:09,440
anybody else

227
00:08:18,550 --> 00:08:16,230
thanks irene klotz with reuters um

228
00:08:20,550 --> 00:08:18,560
that uh that mass spectrometer are you

229
00:08:21,909 --> 00:08:20,560
planning on repairing that and re-flying

230
00:08:25,270 --> 00:08:21,919
it on uh

231
00:08:27,749 --> 00:08:25,280
one of the uh atv htv or

232
00:08:29,270 --> 00:08:27,759
proton or progress i'm sorry

233
00:08:32,070 --> 00:08:29,280
or one of the other vehicles

234
00:08:33,750 --> 00:08:32,080
no firm plans yet to re-fly that the

235
00:08:35,350 --> 00:08:33,760
main thing we need to do now is get it

236
00:08:37,589 --> 00:08:35,360
on the ground to understand why it has

237
00:08:40,630 --> 00:08:37,599
failed we actually have uh two of the

238
00:08:41,829 --> 00:08:40,640

mass or the uh

239
00:08:44,710 --> 00:08:41,839
constituent

240
00:08:46,470 --> 00:08:44,720
analysis machines onboard station and

241
00:08:48,790 --> 00:08:46,480
both of them are not functioning right

242
00:08:51,030 --> 00:08:48,800
now so we're having to rely on russian

243
00:08:53,190 --> 00:08:51,040
equipment to be able to to determine you

244
00:08:55,110 --> 00:08:53,200
know the components in the atmosphere on

245
00:08:57,829 --> 00:08:55,120
space station as well as handheld

246
00:08:59,110 --> 00:08:57,839
devices that we can use so uh since both

247
00:09:00,870 --> 00:08:59,120
are failed

248
00:09:03,110 --> 00:09:00,880
the common failure mode has been the the

249
00:09:05,430 --> 00:09:03,120
mass spectrometer assembly we do want to

250
00:09:07,350 --> 00:09:05,440
understand what uh you know what is

251
00:09:09,590 --> 00:09:07,360
going on with that piece of hardware

252
00:09:11,750 --> 00:09:09,600
before we actually try to plug in our

253
00:09:13,910 --> 00:09:11,760
spare we have one on board

254
00:09:14,710 --> 00:09:13,920
that we can use and actually we have one

255
00:09:16,230 --> 00:09:14,720
that's

256
00:09:18,389 --> 00:09:16,240
that may be functional but we're afraid

257
00:09:20,470 --> 00:09:18,399
to use it because we don't want to we

258
00:09:22,389 --> 00:09:20,480
don't want to mess it up in in the spot

259
00:09:25,030 --> 00:09:22,399
where we've had two failures before

260
00:09:27,110 --> 00:09:25,040
so we have spares on board we just want

261
00:09:28,870 --> 00:09:27,120
to analyze the failure that actually

262
00:09:30,710 --> 00:09:28,880
occurred before we commit to using that

263
00:09:32,870 --> 00:09:30,720

hardware on board but eventually we

264
00:09:35,430 --> 00:09:32,880
could refly those thanks and after the

265
00:09:37,509 --> 00:09:35,440
eva there was some discussion about

266
00:09:39,910 --> 00:09:37,519
leaving up an emu versus bringing it

267
00:09:42,310 --> 00:09:39,920
back the i think ron guerin was

268
00:09:44,710 --> 00:09:42,320
saying that their druthers was to leave

269
00:09:46,870 --> 00:09:44,720
it there even though it you all wanted

270
00:09:49,110 --> 00:09:46,880
to or there was some discussion to bring

271
00:09:51,030 --> 00:09:49,120
it back and repair it and refly so do

272
00:09:52,790 --> 00:09:51,040
you know what the upshot of that was and

273
00:09:54,870 --> 00:09:52,800
then just in general

274
00:09:57,269 --> 00:09:54,880
how have you been kind of deciding what

275
00:09:58,710 --> 00:09:57,279
to bring back and repair not knowing

276
00:10:01,350 --> 00:09:58,720
when you're going to get to fly it back

277
00:10:04,310 --> 00:10:01,360
up there because of what the uncertainty

278
00:10:06,310 --> 00:10:04,320
with the commercial resupply and how's

279
00:10:08,069 --> 00:10:06,320
that how's that been kind of working out

280
00:10:09,190 --> 00:10:08,079
as you make your way through the end of

281
00:10:11,430 --> 00:10:09,200
this flight

282
00:10:14,790 --> 00:10:11,440
okay uh just to specifically address the

283
00:10:16,710 --> 00:10:14,800
the emu yes uh ron garan's

284
00:10:18,710 --> 00:10:16,720
emu

285
00:10:20,949 --> 00:10:18,720
was a bit of a tight fit that was known

286
00:10:23,110 --> 00:10:20,959
going into the uh his emu as a spacesuit

287
00:10:25,829 --> 00:10:23,120
by the way that was known to be a tight

288
00:10:28,389 --> 00:10:25,839

fit for him he did report that it

289
00:10:30,069 --> 00:10:28,399
he he had some trouble at just a few

290
00:10:32,470 --> 00:10:30,079
points in the eva actually being able to

291
00:10:34,790 --> 00:10:32,480
move his his arm through the full range

292
00:10:36,389 --> 00:10:34,800
of motion and the ground teams were

293
00:10:37,910 --> 00:10:36,399
initially concerned that that could have

294
00:10:39,190 --> 00:10:37,920
indicated a problem with the bearings

295
00:10:41,590 --> 00:10:39,200
and the shoulder one of the shoulder

296
00:10:44,470 --> 00:10:41,600
joints we did have a conference with him

297
00:10:47,110 --> 00:10:44,480
and get the details on on what what he

298
00:10:47,910 --> 00:10:47,120
observed and we actually had him uh

299
00:10:49,750 --> 00:10:47,920
you know

300
00:10:51,430 --> 00:10:49,760
examine the spacesuit and move it

301
00:10:52,870 --> 00:10:51,440
through its full range of motion in the

302
00:10:54,150 --> 00:10:52,880
airlock comparing against the other

303
00:10:56,470 --> 00:10:54,160
spacesuit to make sure that it was

304
00:10:58,310 --> 00:10:56,480
absolutely fine and the ground team and

305
00:10:59,750 --> 00:10:58,320
the crew did reach the unanimous

306
00:11:01,829 --> 00:10:59,760
conclusion that it was just fine it was

307
00:11:03,910 --> 00:11:01,839
more of a fit issue where a couple you

308
00:11:06,949 --> 00:11:03,920
know orientations it was hard to move it

309
00:11:09,190 --> 00:11:06,959
so uh that spacesuit that he used

310
00:11:11,350 --> 00:11:09,200
is in the shuttle it has been resized

311
00:11:14,150 --> 00:11:11,360
for rex walheim if it's required for a

312
00:11:15,350 --> 00:11:14,160
contingency eva and everybody's is

313
00:11:16,790 --> 00:11:15,360

comfortable that that suit will be

314
00:11:19,030 --> 00:11:16,800
perfectly usable

315
00:11:22,870 --> 00:11:19,040
if it's required and of course replacing

316
00:11:25,829 --> 00:11:22,880
that one on the spacesuit is a brand new

317
00:11:27,910 --> 00:11:25,839
what we call a mega plus which has been

318
00:11:29,670 --> 00:11:27,920
upgraded to last anywhere from three to

319
00:11:31,430 --> 00:11:29,680
six years so it'll give us a good good

320
00:11:32,870 --> 00:11:31,440
lifetime so

321
00:11:34,870 --> 00:11:32,880
the decision process we went through the

322
00:11:36,470 --> 00:11:34,880
spacesuit is similar to what we do with

323
00:11:37,910 --> 00:11:36,480
any piece of equipment it's a real

324
00:11:40,230 --> 00:11:37,920
whenever there's problems with equipment

325
00:11:42,069 --> 00:11:40,240
we always make a real careful evaluation

326
00:11:45,190 --> 00:11:42,079
whether it's better to leave it on board

327
00:11:47,190 --> 00:11:45,200
if we perhaps can can address any issues

328
00:11:48,710 --> 00:11:47,200
with onboard maintenance or whether we

329
00:11:50,550 --> 00:11:48,720
should bring it home and you're right

330
00:11:53,190 --> 00:11:50,560
the fact that you know we're somewhat

331
00:11:54,710 --> 00:11:53,200
limited in how we can deliver cargo to

332
00:11:56,550 --> 00:11:54,720
space station

333
00:11:58,949 --> 00:11:56,560
requires us to carefully weigh the pros

334
00:12:01,030 --> 00:11:58,959
and cons and and really we have to do

335
00:12:03,190 --> 00:12:01,040
that on a case-by-case basis with each

336
00:12:04,550 --> 00:12:03,200
piece of hardware

337
00:12:06,790 --> 00:12:04,560
thanks and um

338
00:12:08,550 --> 00:12:06,800

the last question i had was just uh as

339
00:12:10,949 --> 00:12:08,560
the as your shifts are starting to

340
00:12:13,110 --> 00:12:10,959
dwindle in numbers now

341
00:12:15,190 --> 00:12:13,120
has there have you noticed anything just

342
00:12:17,590 --> 00:12:15,200
kind of different the mood and mission

343
00:12:19,590 --> 00:12:17,600
control are people

344
00:12:22,069 --> 00:12:19,600
starting to kind of get their arms

345
00:12:24,790 --> 00:12:22,079
around the idea that this is the end

346
00:12:27,030 --> 00:12:24,800
thanks actually um

347
00:12:29,350 --> 00:12:27,040
we we've been very busy uh working the

348
00:12:30,629 --> 00:12:29,360
flight and and most of the time uh we're

349
00:12:32,470 --> 00:12:30,639
just answering the questions from the

350
00:12:34,710 --> 00:12:32,480
crew and and working through the

351
00:12:36,310 --> 00:12:34,720
replanting issues for the timeline but i

352
00:12:38,629 --> 00:12:36,320
actually had a dream last night that i

353
00:12:40,629 --> 00:12:38,639
was in mission control and

354
00:12:42,870 --> 00:12:40,639
looking at the downlink video and seeing

355
00:12:44,710 --> 00:12:42,880
the beautiful wings of atlantis you know

356
00:12:45,750 --> 00:12:44,720
docked to the front of the space station

357
00:12:47,750 --> 00:12:45,760
and

358
00:12:49,990 --> 00:12:47,760
in my dream when i woke up i realized

359
00:12:51,670 --> 00:12:50,000
hey i really do need to savor these

360
00:12:53,509 --> 00:12:51,680
moments because this will be the last

361
00:12:56,150 --> 00:12:53,519
time we see a you know likely it'll be

362
00:12:58,069 --> 00:12:56,160
the last time we ever see a a big winged

363
00:12:59,910 --> 00:12:58,079

vehicle like that uh docked to the space

364
00:13:01,829 --> 00:12:59,920
station so i pointed that out to the

365
00:13:03,509 --> 00:13:01,839
team to make sure that they you know as

366
00:13:05,509 --> 00:13:03,519
time permits of course to take a few

367
00:13:07,190 --> 00:13:05,519
moments to to really savor these these

368
00:13:08,470 --> 00:13:07,200
moments because you know it'll

369
00:13:10,230 --> 00:13:08,480
definitely be something to tell your

370
00:13:12,710 --> 00:13:10,240
grandchildren about and hopefully when

371
00:13:15,110 --> 00:13:12,720
you tell your grandchildren about it uh

372
00:13:17,829 --> 00:13:15,120
it might be over a phone link to a to a

373
00:13:19,750 --> 00:13:17,839
space spacecraft somewhere in deep space

374
00:13:21,509 --> 00:13:19,760
but even though we're losing the shuttle

375
00:13:23,509 --> 00:13:21,519
um we're looking forward to seeing some

376
00:13:25,509 --> 00:13:23,519
new vehicles come up the space station

377
00:13:28,389 --> 00:13:25,519
uh we're looking forward to you know the

378
00:13:30,710 --> 00:13:28,399
commercial providers uh that that are

379
00:13:33,110 --> 00:13:30,720
now finalizing their vehicles and and in

380
00:13:34,870 --> 00:13:33,120
the test phase and beginning to do uh

381
00:13:36,870 --> 00:13:34,880
flight testing we're looking forward to

382
00:13:39,269 --> 00:13:36,880
seeing those new vehicles different

383
00:13:40,069 --> 00:13:39,279
shapes arriving on space station and uh

384
00:13:41,829 --> 00:13:40,079
so

385
00:13:45,030 --> 00:13:41,839
you know it'll be it'll be an exciting

386
00:13:48,870 --> 00:13:46,550
dana

387
00:13:51,350 --> 00:13:48,880
uh genus gina cinceri abc news we've

388
00:13:53,350 --> 00:13:51,360

seen that uh sandy and satoshi are

389
00:13:54,629 --> 00:13:53,360
really following the soccer game even

390
00:13:56,790 --> 00:13:54,639
though it'll be they'll be sleeping

391
00:13:59,110 --> 00:13:56,800
tonight can you upload video to them and

392
00:14:02,550 --> 00:13:59,120
how will you get them updates

393
00:14:04,870 --> 00:14:02,560
we uh we do routinely provide video for

394
00:14:07,430 --> 00:14:04,880
our space station crew they can provide

395
00:14:08,949 --> 00:14:07,440
uh inputs to a team of support folks on

396
00:14:09,829 --> 00:14:08,959
the ground that that

397
00:14:11,829 --> 00:14:09,839
that

398
00:14:13,509 --> 00:14:11,839
they tell them what their favorite tv

399
00:14:15,670 --> 00:14:13,519
shows are and we do try to tape those

400
00:14:17,750 --> 00:14:15,680
and provide of course on a delayed basis

401
00:14:21,750 --> 00:14:17,760
uh we'll uplink that through our high

402
00:14:24,949 --> 00:14:21,760
gain ku band antenna our dish antenna

403
00:14:26,470 --> 00:14:24,959
the game uh i expect will probably

404
00:14:27,910 --> 00:14:26,480
tape that and send that up as well

405
00:14:29,430 --> 00:14:27,920
although i think

406
00:14:30,790 --> 00:14:29,440
right now that the crew has got a very

407
00:14:32,389 --> 00:14:30,800
busy day tomorrow they're not going to

408
00:14:33,750 --> 00:14:32,399
have any time to watch it tomorrow and

409
00:14:35,030 --> 00:14:33,760
they better not stay up all night and

410
00:14:38,710 --> 00:14:35,040
watch it either because they've got way

411
00:14:38,720 --> 00:14:41,829
anybody else yeah phil

412
00:14:47,030 --> 00:14:43,590
phillips lost with nasa spaceflight.com

413
00:14:48,629 --> 00:14:47,040

i had a question uh on the tvs gyro um

414
00:14:51,350 --> 00:14:48,639
last time you were here i think you said

415
00:14:53,350 --> 00:14:51,360
there was still some uncertainty about

416
00:14:55,350 --> 00:14:53,360
whether the problems with with the gyro

417
00:14:56,790 --> 00:14:55,360
or with something else in the system and

418
00:14:58,150 --> 00:14:56,800
maybe i missed it in the commentary in

419
00:14:59,910 --> 00:14:58,160
the air to ground but could you just

420
00:15:02,389 --> 00:14:59,920
review what happened in terms of the

421
00:15:04,069 --> 00:15:02,399
troubleshooting there okay

422
00:15:05,350 --> 00:15:04,079
just to summarize

423
00:15:07,990 --> 00:15:05,360
two days ago

424
00:15:09,750 --> 00:15:08,000
sergey vocal replaced the gyroscope in

425
00:15:11,990 --> 00:15:09,760
the treadmill the treadmill down in the

426
00:15:14,069 --> 00:15:12,000
russian segment and that did not work it

427
00:15:17,990 --> 00:15:14,079
powered on but did not spin up

428
00:15:20,550 --> 00:15:18,000
so um yesterday we had him replace the

429
00:15:22,710 --> 00:15:20,560
vibration isolation system controller

430
00:15:24,629 --> 00:15:22,720
the vis controller which was the next

431
00:15:26,949 --> 00:15:24,639
component upstream and we also had him

432
00:15:28,790 --> 00:15:26,959
replace the the cable as well so we

433
00:15:30,949 --> 00:15:28,800
basically worked from the gyroscope

434
00:15:33,350 --> 00:15:30,959
upstream and when he replaced the this

435
00:15:35,590 --> 00:15:33,360
controller that did the trick that fixed

436
00:15:37,509 --> 00:15:35,600
it and we had him test the treadmill he

437
00:15:39,590 --> 00:15:37,519
did some more testing today and we

438
00:15:42,069 --> 00:15:39,600

verified we've got a good treadmill and

439
00:15:44,470 --> 00:15:42,079
it's good to go so we are returning

440
00:15:47,189 --> 00:15:44,480
the failed vis controller to the ground

441
00:15:50,230 --> 00:15:47,199
and the gyroscope that was previously

442
00:15:52,790 --> 00:15:51,509
i don't have the exact date that it

443
00:15:55,189 --> 00:15:52,800
failed but it was earlier this month

444
00:15:56,949 --> 00:15:55,199
approximately april time frame that will

445
00:15:58,150 --> 00:15:56,959
be brought back to the ground there was

446
00:15:59,990 --> 00:15:58,160
some discussion of whether we should

447
00:16:01,350 --> 00:16:00,000
leave it on board or not because now it

448
00:16:03,749 --> 00:16:01,360
appears that the vis controller was at

449
00:16:06,310 --> 00:16:03,759
least part of the problem but um when it

450
00:16:08,310 --> 00:16:06,320
failed it the crew had reported that it

451
00:16:10,150 --> 00:16:08,320
made up somewhat of a grinding sound and

452
00:16:11,430 --> 00:16:10,160
it spun down very quickly so it

453
00:16:13,269 --> 00:16:11,440
indicated there could be a problem with

454
00:16:15,269 --> 00:16:13,279
the bearings now we can do bearing

455
00:16:17,269 --> 00:16:15,279
repair in orbit but as you can imagine

456
00:16:19,110 --> 00:16:17,279
that that is that is potentially a very

457
00:16:21,110 --> 00:16:19,120
uh messy uh

458
00:16:22,470 --> 00:16:21,120
problem so we'd rather go and get that

459
00:16:24,310 --> 00:16:22,480
unit on the ground

460
00:16:26,949 --> 00:16:24,320
with the vis controller we can set those

461
00:16:28,710 --> 00:16:26,959
up in our ground uh our ground unit and

462
00:16:30,389 --> 00:16:28,720
test those and then if the bearings need

463
00:16:32,470 --> 00:16:30,399

to be repacked we'll do that on the

464
00:16:34,550 --> 00:16:32,480
ground and then make that unit available

465
00:16:35,910 --> 00:16:34,560
for launch again of course since this is

466
00:16:37,910 --> 00:16:35,920
now russian hardware it will be the

467
00:16:39,910 --> 00:16:37,920
russians responsibility to launch it but

468
00:16:41,829 --> 00:16:39,920
we'll uh we'll go ahead and and do the

469
00:16:43,829 --> 00:16:41,839
troubleshooting and do any repairs uh as

470
00:16:49,670 --> 00:16:43,839
necessary on the ground

471
00:16:55,430 --> 00:16:53,829
hi i'm pete crow grove sun daily um

472
00:16:58,069 --> 00:16:55,440
given that a significant amount of

473
00:17:00,230 --> 00:16:58,079
what's coming back down is trash and

474
00:17:03,269 --> 00:17:00,240
foam and one thing in another um i'm

475
00:17:05,270 --> 00:17:03,279
curious how you get to such a precise uh

476
00:17:07,510 --> 00:17:05,280
figure down to the pound and perhaps

477
00:17:09,110 --> 00:17:07,520
down to the ounce i got it how you know

478
00:17:10,470 --> 00:17:09,120
what you took out but how are you

479
00:17:13,350 --> 00:17:10,480
figuring out what you're bringing back

480
00:17:15,110 --> 00:17:13,360
down well we are nasa so we do work in

481
00:17:18,470 --> 00:17:15,120
exact numbers rounding is definitely not

482
00:17:20,549 --> 00:17:18,480
in our dna uh around here but um

483
00:17:22,710 --> 00:17:20,559
you know every item on the space station

484
00:17:24,870 --> 00:17:22,720
is tracked we have a database

485
00:17:26,390 --> 00:17:24,880
that tracks where every item is of

486
00:17:28,789 --> 00:17:26,400
course what the mass was because

487
00:17:30,789 --> 00:17:28,799
anything you launch into space that you

488
00:17:32,390 --> 00:17:30,799

know mass and volume are the the two

489
00:17:34,789 --> 00:17:32,400
most important uh physical

490
00:17:36,390 --> 00:17:34,799
characteristics in order to physically

491
00:17:38,230 --> 00:17:36,400
fit it into a spacecraft and get it off

492
00:17:39,750 --> 00:17:38,240
the ground so we keep all those in an

493
00:17:43,110 --> 00:17:39,760
extensive database and when we tell the

494
00:17:44,549 --> 00:17:43,120
true to crew to transfer an item uh we

495
00:17:46,310 --> 00:17:44,559
you know we have the mass and they can

496
00:17:48,789 --> 00:17:46,320
add them all up in spreadsheets i have

497
00:17:52,070 --> 00:17:48,799
to admit i also sometimes roll my eyes

498
00:17:56,070 --> 00:17:52,080
when i see the weight for a cd or a dvd

499
00:18:00,950 --> 00:17:58,150
okay i think we've got a couple of folks

500
00:18:03,029 --> 00:18:00,960
on the phone bridge uh bill harwood cbs

501
00:18:05,110 --> 00:18:03,039
news are you there bill

502
00:18:06,549 --> 00:18:05,120
yeah i'm here kyle thanks um chris i

503
00:18:08,150 --> 00:18:06,559
just want to follow up on one of irene's

504
00:18:09,350 --> 00:18:08,160
questions about uh

505
00:18:11,990 --> 00:18:09,360
that's your thoughts here as this is

506
00:18:13,510 --> 00:18:12,000
winding down i mean the mplm's done

507
00:18:15,830 --> 00:18:13,520
yeoman's work on the station i think

508
00:18:17,190 --> 00:18:15,840
they told sandy taking up 150 tons or

509
00:18:18,789 --> 00:18:17,200
something like that over his career and

510
00:18:21,190 --> 00:18:18,799
20 tons back to earth i mean that's

511
00:18:23,590 --> 00:18:21,200
going to be a big loss to you guys you

512
00:18:24,710 --> 00:18:23,600
know commercial cargo or not um i know

513
00:18:26,310 --> 00:18:24,720

you're still looking at the end of the

514
00:18:28,549 --> 00:18:26,320
mission and getting everything done but

515
00:18:29,990 --> 00:18:28,559
you know any thoughts you had on on on

516
00:18:32,710 --> 00:18:30,000
the roll this is all played and keeping

517
00:18:34,789 --> 00:18:32,720
station resupplied i'd appreciate thanks

518
00:18:36,630 --> 00:18:34,799
that's that's a good question bill um

519
00:18:38,630 --> 00:18:36,640
when when the space station was first

520
00:18:39,909 --> 00:18:38,640
being built obviously it couldn't have

521
00:18:41,750 --> 00:18:39,919
been done without the space shuttle i

522
00:18:43,830 --> 00:18:41,760
mean the space shuttle's payload bays is

523
00:18:45,669 --> 00:18:43,840
enormous and nothing nothing matches it

524
00:18:47,110 --> 00:18:45,679
so you know the shuttle was absolutely

525
00:18:48,950 --> 00:18:47,120
essential for the assembly of the big

526
00:18:51,190 --> 00:18:48,960
modules and truss segments on the space

527
00:18:53,270 --> 00:18:51,200
station uh with the mplms we've been

528
00:18:55,510 --> 00:18:53,280
able to bring up not only spare parts

529
00:18:57,669 --> 00:18:55,520
but we brought up you know big rack

530
00:18:59,830 --> 00:18:57,679
units the big refrigerator size units

531
00:19:01,990 --> 00:18:59,840
that plug in but now that we've got all

532
00:19:03,830 --> 00:19:02,000
of that hardware in place and we've got

533
00:19:05,430 --> 00:19:03,840
lots of spares you know

534
00:19:07,270 --> 00:19:05,440
the past several years of shuttle

535
00:19:09,430 --> 00:19:07,280
flights we've we've flown up many

536
00:19:11,110 --> 00:19:09,440
external spares they're all they're

537
00:19:13,350 --> 00:19:11,120
stationed and positioned all throughout

538
00:19:15,430 --> 00:19:13,360

the outside of the space station we've

539
00:19:17,430 --> 00:19:15,440
got all these spares in place the space

540
00:19:19,190 --> 00:19:17,440
station program is actually in very good

541
00:19:21,830 --> 00:19:19,200
shape now for the retirement of the

542
00:19:24,230 --> 00:19:21,840
space shuttle if you look at the uh what

543
00:19:26,549 --> 00:19:24,240
what sustaining logistics are required

544
00:19:29,990 --> 00:19:26,559
we can support that uh but we do need

545
00:19:31,990 --> 00:19:30,000
our our us commercial cargo providers to

546
00:19:33,750 --> 00:19:32,000
uh you know to to be

547
00:19:35,190 --> 00:19:33,760
brought online next year i mean that

548
00:19:37,990 --> 00:19:35,200
will be absolutely essential and you

549
00:19:40,230 --> 00:19:38,000
know if if if they fail in in their

550
00:19:42,549 --> 00:19:40,240
effort to to reach the space station

551
00:19:45,270 --> 00:19:42,559
then then the the program will have to

552
00:19:46,870 --> 00:19:45,280
find another source to uh to uh keep the

553
00:19:48,870 --> 00:19:46,880
supplies going or we'll have to consider

554
00:19:50,070 --> 00:19:48,880
scaling back the number of crew and then

555
00:19:52,070 --> 00:19:50,080
the amount of science that we're doing

556
00:19:54,070 --> 00:19:52,080
on space station so our commercial

557
00:19:56,070 --> 00:19:54,080
providers uh you know understand this

558
00:19:57,510 --> 00:19:56,080
responsibility and and they're uh

559
00:19:59,430 --> 00:19:57,520
they're savoring the chance now to get

560
00:20:01,510 --> 00:19:59,440
to step in to fill the shoes that the

561
00:20:03,909 --> 00:20:01,520
shuttle has filled but uh

562
00:20:05,909 --> 00:20:03,919
the numbers have been analyzed and it is

563
00:20:10,470 --> 00:20:05,919

not only possible but it is it is

564
00:20:10,480 --> 00:20:14,070
anything else bill

565
00:20:19,830 --> 00:20:18,230
how about uh james dean are you on james

566
00:20:21,110 --> 00:20:19,840
yeah kyle thank you james dean with

567
00:20:22,950 --> 00:20:21,120
florida today

568
00:20:23,990 --> 00:20:22,960
chris uh what one more way of asking the

569
00:20:25,830 --> 00:20:24,000
uh

570
00:20:27,350 --> 00:20:25,840
this this car goes

571
00:20:28,789 --> 00:20:27,360
um

572
00:20:30,310 --> 00:20:28,799
down mass specifically could you speak a

573
00:20:32,470 --> 00:20:30,320
little bit to the challenge of losing

574
00:20:34,710 --> 00:20:32,480
that capability for a while and wondered

575
00:20:36,710 --> 00:20:34,720
if you could compare uh the capability

576
00:20:38,710 --> 00:20:36,720
you'll ultimately gain hopefully with

577
00:20:40,710 --> 00:20:38,720
dragon to uh

578
00:20:43,750 --> 00:20:40,720
to what you're putting into you know

579
00:20:45,830 --> 00:20:43,760
either the mid deck or the mplm

580
00:20:48,630 --> 00:20:45,840
well dragon does have as you alluded to

581
00:20:50,310 --> 00:20:48,640
dragon can bring back supplies it will

582
00:20:52,390 --> 00:20:50,320
parachute down into the ocean as they

583
00:20:55,110 --> 00:20:52,400
demonstrated on their previous mission

584
00:20:57,590 --> 00:20:55,120
so we can bring back science samples on

585
00:20:59,270 --> 00:20:57,600
dragon we have multiple vehicles we can

586
00:21:01,190 --> 00:20:59,280
use to get rid of trash whether it be a

587
00:21:02,789 --> 00:21:01,200
russian progress

588
00:21:07,430 --> 00:21:02,799

supply ship with

589
00:21:10,789 --> 00:21:07,440
a japanese htv supply ship or a european

590
00:21:13,990 --> 00:21:10,799
atv so any one of those can be used to

591
00:21:15,830 --> 00:21:14,000
empty out the uh the trash type cargo

592
00:21:18,149 --> 00:21:15,840
that gets burned up in the atmosphere

593
00:21:19,029 --> 00:21:18,159
when the craft re-enters the atmosphere

594
00:21:21,430 --> 00:21:19,039
so

595
00:21:23,029 --> 00:21:21,440
the models have all been run we can

596
00:21:25,029 --> 00:21:23,039
maintain safe

597
00:21:27,270 --> 00:21:25,039
sustainable space station operations out

598
00:21:31,029 --> 00:21:27,280
through 2020 with

599
00:21:32,950 --> 00:21:31,039
that mix of russian japanese european

600
00:21:35,350 --> 00:21:32,960
and american spacecraft i don't have any

601
00:21:36,710 --> 00:21:35,360
exact numbers for you on on you know

602
00:21:38,870 --> 00:21:36,720
what the contribution for each of those

603
00:21:40,789 --> 00:21:38,880
are

604
00:21:43,110 --> 00:21:40,799
thanks and just another question on

605
00:21:45,430 --> 00:21:43,120
things kind of winding to an end i just

606
00:21:47,270 --> 00:21:45,440
wondered if you're thinking that uh

607
00:21:49,510 --> 00:21:47,280
this farewell ceremony tomorrow is going

608
00:21:50,870 --> 00:21:49,520
to be kind of hard to watch uh something

609
00:21:51,990 --> 00:21:50,880
uh you know difficult to see the last

610
00:21:54,470 --> 00:21:52,000
shuttle crew

611
00:21:55,909 --> 00:21:54,480
uh exiting the station hatches for the

612
00:21:58,549 --> 00:21:55,919
last time and

613
00:22:00,549 --> 00:21:58,559

also i was wondering if you know if um

614
00:22:02,310 --> 00:22:00,559
is this the last time that

615
00:22:04,390 --> 00:22:02,320
we'll ever see more than six people

616
00:22:07,590 --> 00:22:04,400
together on station or are there plans

617
00:22:09,350 --> 00:22:07,600
to uh you know eventually later

618
00:22:13,029 --> 00:22:09,360
even if not for long duration for short

619
00:22:15,909 --> 00:22:13,039
trips to have bigger crowds at one time

620
00:22:17,750 --> 00:22:15,919
okay well i fully expect when we have

621
00:22:20,230 --> 00:22:17,760
commercial vehicles providing crew

622
00:22:21,909 --> 00:22:20,240
transport to the space station that that

623
00:22:24,789 --> 00:22:21,919
we will see

624
00:22:25,909 --> 00:22:24,799
you know crews of of six or more

625
00:22:28,390 --> 00:22:25,919
especially when they're doing crew

626
00:22:31,110 --> 00:22:28,400
rotation perhaps we certainly have the

627
00:22:33,830 --> 00:22:31,120
docking ports to support it of course

628
00:22:35,750 --> 00:22:33,840
without a specific vehicle being defined

629
00:22:37,909 --> 00:22:35,760
we have no traffic models so can't

630
00:22:40,789 --> 00:22:37,919
answer the questions specifically but

631
00:22:42,950 --> 00:22:40,799
you know it it may be or it may not be

632
00:22:45,830 --> 00:22:42,960
um well will tomorrow's ceremony be

633
00:22:47,669 --> 00:22:45,840
especially poignant i'm sure it will um

634
00:22:49,669 --> 00:22:47,679
for the crew and the folks on the ground

635
00:22:51,029 --> 00:22:49,679
especially our space shuttle flight

636
00:22:52,310 --> 00:22:51,039
control team and engineers that have

637
00:22:54,390 --> 00:22:52,320
supported the space shuttle over the

638
00:22:56,310 --> 00:22:54,400

years uh you know seeing the space

639
00:22:58,310 --> 00:22:56,320
shuttle being retired is is like seeing

640
00:23:02,549 --> 00:22:58,320
a good friend retiring someone who's uh

641
00:23:04,070 --> 00:23:02,559
put in many years of service and uh so

642
00:23:07,029 --> 00:23:04,080
you know it's always sad when you see

643
00:23:09,190 --> 00:23:07,039
someone retire but uh you also you know

644
00:23:10,789 --> 00:23:09,200
look forward to you know new people

645
00:23:12,390 --> 00:23:10,799
coming online and it does create

646
00:23:14,789 --> 00:23:12,400
opportunities with shuttle retirement

647
00:23:16,870 --> 00:23:14,799
for new vehicles to come online to to

648
00:23:18,870 --> 00:23:16,880
service the space station but for the

649
00:23:21,029 --> 00:23:18,880
for the space station team uh

650
00:23:23,669 --> 00:23:21,039
you know we're looking forward to moving

651
00:23:26,149 --> 00:23:23,679
from the space shuttle era where it was

652
00:23:28,230 --> 00:23:26,159
focused on assembly operations to now

653
00:23:30,230 --> 00:23:28,240
the space station is is completely built

654
00:23:32,710 --> 00:23:30,240
the shuttle was uh was the key enabler

655
00:23:34,470 --> 00:23:32,720
for that and now we've got this amazing

656
00:23:35,990 --> 00:23:34,480
yeah we call it a world-class facility

657
00:23:38,310 --> 00:23:36,000
but really it's beyond world class

658
00:23:39,990 --> 00:23:38,320
because it's out of this world and it's

659
00:23:42,789 --> 00:23:40,000
you know it's it's an international

660
00:23:44,950 --> 00:23:42,799
facility you know with six people living

661
00:23:47,190 --> 00:23:44,960
240 miles up in the sky i mean that's

662
00:23:49,110 --> 00:23:47,200
just an amazing concept you know in

663
00:23:51,750 --> 00:23:49,120

terms of human history and it's this

664
00:23:53,510 --> 00:23:51,760
research base where you know

665
00:23:55,830 --> 00:23:53,520
amazing science operations are going to

666
00:23:58,149 --> 00:23:55,840
be performed and we'll learn how to how

667
00:23:59,830 --> 00:23:58,159
to survive in the harsh environment of

668
00:24:02,630 --> 00:23:59,840
space and apply that knowledge back to

669
00:24:04,710 --> 00:24:02,640
earth so you know it the the future is

670
00:24:06,710 --> 00:24:04,720
exciting and uh yeah we're optimistic

671
00:24:08,070 --> 00:24:06,720
about where we're going and uh yeah

672
00:24:10,390 --> 00:24:08,080
we'll have a lot of

673
00:24:11,990 --> 00:24:10,400
near-term science operations planned uh

674
00:24:13,590 --> 00:24:12,000
once atlantis departs we'll we'll be

675
00:24:17,430 --> 00:24:13,600
getting busy with uh with science

676
00:24:21,990 --> 00:24:19,590
see that all james

677
00:24:24,470 --> 00:24:22,000
yes thank you okay we're back here

678
00:24:27,029 --> 00:24:24,480
anybody have any uh wrap ups

679
00:24:29,350 --> 00:24:27,039
okay uh let's see a couple of quick

680
00:24:30,630 --> 00:24:29,360
programming notes hopefully uh after the

681
00:24:32,390 --> 00:24:30,640
briefing of course we'll head back to

682
00:24:34,310 --> 00:24:32,400
mission control but then we'll have the

683
00:24:37,269 --> 00:24:34,320
flight day 10 highlights that starts at

684
00:24:39,590 --> 00:24:37,279
3 central 4 eastern today

685
00:24:41,830 --> 00:24:39,600
then we'll play the features that you

686
00:24:43,669 --> 00:24:41,840
might have seen if you haven't the space

687
00:24:46,710 --> 00:24:43,679
shuttle feature narrated by william

688
00:24:48,630 --> 00:24:46,720

shatner is up this evening at 7 pm

689
00:24:51,750 --> 00:24:48,640
central then the launching our dream

690
00:24:53,750 --> 00:24:51,760
space shuttle program video at 8.

691
00:24:55,510 --> 00:24:53,760
we'll have an iss flight director update

692
00:24:57,029 --> 00:24:55,520
from the public affairs council again i

693
00:24:59,669 --> 00:24:57,039
think that's again with courtney

694
00:25:02,870 --> 00:24:59,679
mcmillan when she gets off console

695
00:25:04,789 --> 00:25:02,880
that's a little after 9 p.m central

696
00:25:06,310 --> 00:25:04,799
wake up call tonight for atlantis and

697
00:25:09,990 --> 00:25:06,320
the international space station crew is

698
00:25:12,230 --> 00:25:10,000
at 9 29 central 10 29 eastern they'll

699
00:25:15,269 --> 00:25:12,240
get into that busy day of activity that

700
00:25:16,630 --> 00:25:15,279
chris laid out for you and

701
00:25:18,230 --> 00:25:16,640
the two crews of course will bid

702
00:25:19,590 --> 00:25:18,240
farewell and close the hatches as you

703
00:25:20,950 --> 00:25:19,600
heard a little after eight o'clock

704
00:25:21,990 --> 00:25:20,960
tomorrow morning

705
00:25:24,230 --> 00:25:22,000
and

706
00:25:26,149 --> 00:25:24,240
go to bed about one o'clock monday

707
00:25:28,310 --> 00:25:26,159
afternoon

708
00:25:30,149 --> 00:25:28,320
so with that we'll uh close the briefing

709
00:25:32,310 --> 00:25:30,159
thanks to chris and thanks to everybody

710
00:25:33,750 --> 00:25:32,320
else for showing up today we'll head

711
00:25:38,230 --> 00:25:33,760
back to mission control and back to

712
00:25:43,750 --> 00:25:41,190
hi i'm steve sides reuben de leon shanna

713
00:25:45,269 --> 00:25:43,760

andrew and i'm heidi brewer we are the

714
00:25:47,590 --> 00:25:45,279
instrumentation and communication