



1
00:00:06,150 --> 00:00:04,309
good morning thank you for joining us

2
00:00:08,350 --> 00:00:06,160
here at nasa's kennedy space center in

3
00:00:11,830 --> 00:00:08,360
florida for space shuttle endeavors

4
00:00:14,390 --> 00:00:11,840
sts-134 pre-countdown status briefing

5
00:00:17,430 --> 00:00:14,400
joining me today is jeremy graber nasa

6
00:00:20,870 --> 00:00:17,440
test director good morning

7
00:00:22,150 --> 00:00:20,880
joe delai sts-134 payload manager

8
00:00:23,590 --> 00:00:22,160
good morning

9
00:00:25,589 --> 00:00:23,600
and kathy winters shuttle weather

10
00:00:26,790 --> 00:00:25,599
officer good morning

11
00:00:28,830 --> 00:00:26,800
we'll hear from our panelists and then

12
00:00:31,669 --> 00:00:28,840
we'll take some questions jeremy thanks

13
00:00:33,350 --> 00:00:31,679

kandra good morning everyone

14

00:00:35,350 --> 00:00:33,360

as always it's great to be here to talk

15

00:00:37,510 --> 00:00:35,360

about the launch countdown

16

00:00:38,950 --> 00:00:37,520

specifically scs 134 and our

17

00:00:41,510 --> 00:00:38,960

preparations for

18

00:00:43,350 --> 00:00:41,520

the 25th and final launch of space

19

00:00:44,869 --> 00:00:43,360

shuttle endeavor

20

00:00:46,869 --> 00:00:44,879

teams here at kennedy space center and

21

00:00:48,470 --> 00:00:46,879

at nasa centers around the country

22

00:00:52,389 --> 00:00:48,480

have been working for over a year to get

23

00:00:54,069 --> 00:00:52,399

endeavour ready for the sjs 134 mission

24

00:00:57,029 --> 00:00:54,079

our preparations for launch countdown

25

00:00:58,869 --> 00:00:57,039

are all complete or currently in work

26
00:01:00,150 --> 00:00:58,879
and we're not working any any issues at

27
00:01:02,150 --> 00:01:00,160
this time

28
00:01:04,630 --> 00:01:02,160
let's see over the past 10 days we've

29
00:01:06,550 --> 00:01:04,640
completed some major milestones we

30
00:01:08,550 --> 00:01:06,560
installed the ordinance into

31
00:01:09,910 --> 00:01:08,560
uh for the vehicle last week on monday

32
00:01:12,870 --> 00:01:09,920
and tuesday

33
00:01:14,390 --> 00:01:12,880
we pressurized our orbiter maneuvering

34
00:01:16,789 --> 00:01:14,400
system and

35
00:01:18,630 --> 00:01:16,799
main propulsion system high pressure

36
00:01:20,870 --> 00:01:18,640
tanks last week

37
00:01:23,190 --> 00:01:20,880
we completed the closeout of our orbiter

38
00:01:27,030 --> 00:01:23,200

aft compartments on friday

39

00:01:29,429 --> 00:01:27,040

and finally today endeavors payload bay

40

00:01:31,590 --> 00:01:29,439

doors are in the process of being uh

41

00:01:33,270 --> 00:01:31,600

closed for flight and we've we've just

42

00:01:35,190 --> 00:01:33,280

finished up our final preparations for

43

00:01:37,749 --> 00:01:35,200

the uh alpha

44

00:01:39,190 --> 00:01:37,759

magnetic spectrometer payload and uh joe

45

00:01:40,710 --> 00:01:39,200

we'll we'll give you some more details

46

00:01:41,590 --> 00:01:40,720

about that here in a little in a little

47

00:01:43,910 --> 00:01:41,600

bit

48

00:01:45,990 --> 00:01:43,920

the sts-134 flight crew is on their way

49

00:01:47,429 --> 00:01:46,000

here to kennedy space center markelly

50

00:01:49,109 --> 00:01:47,439

and his crew are very excited to get

51
00:01:50,069 --> 00:01:49,119
here and they're ready for us to pick up

52
00:01:52,630 --> 00:01:50,079
with our

53
00:01:54,789 --> 00:01:52,640
launch countdown activities

54
00:01:56,870 --> 00:01:54,799
for today we'll pick up with our call to

55
00:01:57,749 --> 00:01:56,880
stations for launch countdown at 1 30

56
00:01:59,429 --> 00:01:57,759
p.m

57
00:02:01,590 --> 00:01:59,439
and the countdown clock will begin start

58
00:02:03,190 --> 00:02:01,600
uh we'll be in begin counting excuse me

59
00:02:04,789 --> 00:02:03,200
at two o'clock

60
00:02:06,630 --> 00:02:04,799
that'll be followed by the checkout of

61
00:02:08,550 --> 00:02:06,640
our and configuration of endeavors

62
00:02:09,990 --> 00:02:08,560
avionics systems

63
00:02:11,990 --> 00:02:10,000

and then we'll proceed into several

64

00:02:14,550 --> 00:02:12,000

other vehicle and ground system

65

00:02:16,070 --> 00:02:14,560

verifications and validations

66

00:02:17,990 --> 00:02:16,080

all leading up to our first major

67

00:02:20,070 --> 00:02:18,000

milestone which is the loading of

68

00:02:21,910 --> 00:02:20,080

endeavour's onboard liquid oxygen and

69

00:02:22,869 --> 00:02:21,920

liquid hydrogen

70

00:02:24,550 --> 00:02:22,879

tanks

71

00:02:26,790 --> 00:02:24,560

and those are used for our electrical

72

00:02:28,550 --> 00:02:26,800

power generation system and that loading

73

00:02:32,150 --> 00:02:28,560

will start tomorrow at 11 30 in the

74

00:02:34,550 --> 00:02:32,160

morning and finish up around 1800

75

00:02:35,830 --> 00:02:34,560

as we move into early thursday morning

76

00:02:37,430 --> 00:02:35,840

we'll pick up with our space shuttle

77

00:02:39,110 --> 00:02:37,440

main engine checkouts

78

00:02:40,869 --> 00:02:39,120

and that'll be followed by the checkout

79

00:02:43,589 --> 00:02:40,879

of our orbiter and ground communications

80

00:02:45,350 --> 00:02:43,599

network at 1 30 pm

81

00:02:47,430 --> 00:02:45,360

and the retraction of our rotating

82

00:02:49,350 --> 00:02:47,440

service structure is scheduled for 7 pm

83

00:02:51,750 --> 00:02:49,360

on thursday evening

84

00:02:53,110 --> 00:02:51,760

as we move into friday morning early on

85

00:02:55,350 --> 00:02:53,120

friday we'll be

86

00:02:57,110 --> 00:02:55,360

beginning our clearing of the launch pad

87

00:02:59,350 --> 00:02:57,120

in preparation for our external tank

88

00:03:01,030 --> 00:02:59,360

loading and we expect the start of

89

00:03:02,630 --> 00:03:01,040

external tank loading to

90

00:03:05,750 --> 00:03:02,640

be at 6 22

91

00:03:08,229 --> 00:03:05,760

friday morning and that three-hour

92

00:03:09,589 --> 00:03:08,239

operation finish up around 9 22

93

00:03:11,030 --> 00:03:09,599

at which time we'll send our final

94

00:03:12,710 --> 00:03:11,040

inspection team

95

00:03:14,790 --> 00:03:12,720

out to the launch pad to conduct their

96

00:03:15,509 --> 00:03:14,800

inspection as well as our closeout crew

97

00:03:21,190 --> 00:03:15,519

to

98

00:03:23,030 --> 00:03:21,200

noon

99

00:03:25,350 --> 00:03:23,040

and then we'll proceed down to our

100

00:03:26,470 --> 00:03:25,360

launch window and for friday our launch

101
00:03:28,229 --> 00:03:26,480
window

102
00:03:30,149 --> 00:03:28,239
as typical for an international space

103
00:03:32,390 --> 00:03:30,159
station mission

104
00:03:36,070 --> 00:03:32,400
it's about 10 minutes in length

105
00:03:37,670 --> 00:03:36,080
it opens at 3 42 p.m on friday afternoon

106
00:03:40,390 --> 00:03:37,680
we generally target the middle of that

107
00:03:42,390 --> 00:03:40,400
window which correlates to about 3 47

108
00:03:44,309 --> 00:03:42,400
p.m

109
00:03:47,110 --> 00:03:44,319
for any subsequent attempts we do have

110
00:03:49,270 --> 00:03:47,120
flight day 3 and flight day 4 rendezvous

111
00:03:51,750 --> 00:03:49,280
capability starting with our launch

112
00:03:54,390 --> 00:03:51,760
attempt on saturday the 30th

113
00:03:56,630 --> 00:03:54,400

and if we were to use that it would give

114

00:03:58,229 --> 00:03:56,640

us the capability capability of about

115

00:03:59,429 --> 00:03:58,239

three additional minutes to our launch

116

00:04:01,429 --> 00:03:59,439

window

117

00:04:03,429 --> 00:04:01,439

for this mission

118

00:04:05,830 --> 00:04:03,439

we are currently billed for a 14-day

119

00:04:06,550 --> 00:04:05,840

mission with two contingency days and

120

00:04:08,470 --> 00:04:06,560

two

121

00:04:10,149 --> 00:04:08,480

weather contingency days i know the

122

00:04:11,830 --> 00:04:10,159

program is interested in potentially

123

00:04:14,630 --> 00:04:11,840

extending the mission and they'll talk

124

00:04:16,550 --> 00:04:14,640

about that once we're on orbit the end

125

00:04:20,150 --> 00:04:16,560

of mission currently is planned here at

126

00:04:22,870 --> 00:04:20,160

kennedy space center for 9 29 a.m

127

00:04:24,070 --> 00:04:22,880

on friday may 13th and if we did extend

128

00:04:25,909 --> 00:04:24,080

those

129

00:04:29,510 --> 00:04:25,919

by an additional day that would be on

130

00:04:30,629 --> 00:04:29,520

saturday at 9 52 a.m

131

00:04:32,390 --> 00:04:30,639

in summary

132

00:04:36,070 --> 00:04:32,400

all of our vehicle and ground systems

133

00:04:37,909 --> 00:04:36,080

are ready uh the sts-134 flight crew

134

00:04:39,189 --> 00:04:37,919

endeavor and the launch team here at

135

00:04:40,150 --> 00:04:39,199

kennedy space center are all ready to

136

00:04:41,990 --> 00:04:40,160

proceed

137

00:04:44,230 --> 00:04:42,000

we're looking forward to getting sts-134

138

00:04:46,550 --> 00:04:44,240

launch countdown underway leading to a

139

00:04:50,710 --> 00:04:46,560

spectacular friday afternoon launch of

140

00:04:52,150 --> 00:04:50,720

endeavour and the ams2 payload thank you

141

00:04:54,310 --> 00:04:52,160

thank you joe

142

00:04:57,189 --> 00:04:54,320

okay thank you good morning

143

00:04:58,950 --> 00:04:57,199

okay my name is uh joe duly and i'm the

144

00:05:01,990 --> 00:04:58,960

nasa kc

145

00:05:03,590 --> 00:05:02,000

mission manager for ulf6

146

00:05:05,830 --> 00:05:03,600

and of course this thursday i think at

147

00:05:06,870 --> 00:05:05,840

10 o'clock i'll have a very detailed

148

00:05:08,469 --> 00:05:06,880

briefing

149

00:05:12,390 --> 00:05:08,479

on our payloads

150

00:05:16,070 --> 00:05:13,909

okay so this thursday as i mentioned

151

00:05:18,710 --> 00:05:16,080

around 10 o'clock we will have a

152

00:05:20,710 --> 00:05:18,720

detailed briefing of the payloads for

153

00:05:22,629 --> 00:05:20,720

this mission we're very excited about

154

00:05:23,830 --> 00:05:22,639

this mission but i do want to spend a

155

00:05:25,909 --> 00:05:23,840

second or two

156

00:05:27,110 --> 00:05:25,919

just uh talking to you about the

157

00:05:28,550 --> 00:05:27,120

payloads

158

00:05:30,469 --> 00:05:28,560

so we're all very excited about the

159

00:05:32,469 --> 00:05:30,479

launch this friday all the years i've

160

00:05:33,830 --> 00:05:32,479

been here this probably the most one of

161

00:05:36,550 --> 00:05:33,840

the most complicated missions i've

162

00:05:39,670 --> 00:05:36,560

worked on and yet the most exciting

163

00:05:41,430 --> 00:05:39,680

from the picture you can see we have ams

164

00:05:43,189 --> 00:05:41,440

towards the aft of the orbiter payload

165

00:05:45,510 --> 00:05:43,199

bay and the deck

166

00:05:47,590 --> 00:05:45,520

deck 3 is in the center and we're also

167

00:05:49,430 --> 00:05:47,600

carrying up the missy and storm payloads

168

00:05:51,670 --> 00:05:49,440

on this mission

169

00:05:53,830 --> 00:05:51,680

the weight of the ams

170

00:05:55,909 --> 00:05:53,840

and the deck are about 29

171

00:05:58,790 --> 00:05:55,919

221 pounds

172

00:06:01,350 --> 00:05:58,800

and as jeremy slater the uh as he stated

173

00:06:03,430 --> 00:06:01,360

the uh flight is going to be 14 days and

174

00:06:06,550 --> 00:06:03,440

two more possible days

175

00:06:08,870 --> 00:06:06,560

so deck 3 will be installed on the p3

176

00:06:10,870 --> 00:06:08,880

trust on flight day three

177

00:06:13,670 --> 00:06:10,880

and then ams will come out and it will

178

00:06:17,510 --> 00:06:13,680

be stalled on the s3 truss

179

00:06:21,670 --> 00:06:19,270

and this is just a picture that's

180

00:06:23,189 --> 00:06:21,680

showing the deck with the 10 orbital

181

00:06:24,390 --> 00:06:23,199

replacement units that will be bringing

182

00:06:25,990 --> 00:06:24,400

up this flight

183

00:06:28,629 --> 00:06:26,000

and again i'm going a lot more detail

184

00:06:31,510 --> 00:06:28,639

this this thursday

185

00:06:32,469 --> 00:06:31,520

and this is ams that as it was seen in

186

00:06:34,629 --> 00:06:32,479

our

187

00:06:37,029 --> 00:06:34,639

payload processing facility sspf where

188

00:06:37,670 --> 00:06:37,039

we finish the integration and testing of

189

00:06:40,390 --> 00:06:37,680

it

190

00:06:42,469 --> 00:06:40,400

so payloads are closed for flight um

191

00:06:44,469 --> 00:06:42,479

we're not working any issues

192

00:06:46,390 --> 00:06:44,479

and we're ready to support lunch

193

00:06:48,070 --> 00:06:46,400

and i look forward to seeing you guys

194

00:06:49,830 --> 00:06:48,080

and i look forward to the

195

00:06:51,830 --> 00:06:49,840

payload briefing at the I minus one

196

00:06:55,830 --> 00:06:51,840

thank you

197

00:06:57,749 --> 00:06:55,840

well weather is almost like summertime

198

00:06:59,110 --> 00:06:57,759

outside there's a lot of moisture in the

199

00:07:00,790 --> 00:06:59,120

atmosphere we have a lot of cumulus

200

00:07:02,950 --> 00:07:00,800

clouds outside and even some coastal

201
00:07:04,550 --> 00:07:02,960
showers that are coming in on shore we

202
00:07:06,230 --> 00:07:04,560
also have a sea breeze developing today

203
00:07:08,150 --> 00:07:06,240
so we may see an isolated thunderstorm

204
00:07:10,309 --> 00:07:08,160
even pop up with the afternoon sea

205
00:07:12,629 --> 00:07:10,319
breeze both today and tomorrow our main

206
00:07:13,990 --> 00:07:12,639
concern is a frontal frontal boundary

207
00:07:16,150 --> 00:07:14,000
that's going to be moving into the area

208
00:07:17,670 --> 00:07:16,160
on thursday it's not going to be a

209
00:07:18,870 --> 00:07:17,680
problem for launch it should be moved

210
00:07:20,309 --> 00:07:18,880
through and the good thing about it will

211
00:07:22,710 --> 00:07:20,319
be that it will actually clear things

212
00:07:24,550 --> 00:07:22,720
out for launch but the problem will be

213
00:07:26,070 --> 00:07:24,560

as we go into rss free track on thursday

214

00:07:27,990 --> 00:07:26,080

evening we'll probably be dealing with

215

00:07:29,430 --> 00:07:28,000

some thunderstorms in the area and

216

00:07:30,950 --> 00:07:29,440

there's even potential that a

217

00:07:32,629 --> 00:07:30,960

thunderstorm could be severe due to the

218

00:07:34,550 --> 00:07:32,639

fact we may also set up a sea breeze in

219

00:07:36,230 --> 00:07:34,560

the afternoon and have a combination of

220

00:07:38,150 --> 00:07:36,240

the frontal boundary and an afternoon

221

00:07:40,550 --> 00:07:38,160

sea breeze both coming together

222

00:07:42,469 --> 00:07:40,560

late in the day on thursday so for

223

00:07:44,070 --> 00:07:42,479

pre-launch preparations or maybe some

224

00:07:46,150 --> 00:07:44,080

concerns thursday evening but as we get

225

00:07:47,990 --> 00:07:46,160

into launch on friday that front will

226
00:07:49,350 --> 00:07:48,000
move through and we'll have some cloudy

227
00:07:51,830 --> 00:07:49,360
conditions for tanking but then the

228
00:07:53,350 --> 00:07:51,840
weather will improve by launch time

229
00:07:55,510 --> 00:07:53,360
looking at the satellite picture you can

230
00:07:57,029 --> 00:07:55,520
see the frontal boundary is in louisiana

231
00:07:58,309 --> 00:07:57,039
right now it's not going to be moving

232
00:08:00,070 --> 00:07:58,319
along real quick until it gets another

233
00:08:02,150 --> 00:08:00,080
push from the upper levels and then

234
00:08:04,710 --> 00:08:02,160
starts moving towards us on thursday we

235
00:08:07,110 --> 00:08:04,720
do have a little track a little tropical

236
00:08:08,550 --> 00:08:07,120
type wave if you will or easterly wave

237
00:08:10,469 --> 00:08:08,560
that's offshore

238
00:08:12,070 --> 00:08:10,479

northwest of the bahamas it's not going

239

00:08:13,830 --> 00:08:12,080

to be affecting us it's just adding some

240

00:08:15,510 --> 00:08:13,840

increased moisture in the area and

241

00:08:17,670 --> 00:08:15,520

that's just giving us a very summertime

242

00:08:19,749 --> 00:08:17,680

feel outside with our southeast flow and

243

00:08:20,950 --> 00:08:19,759

the moisture feeding in from off the

244

00:08:22,950 --> 00:08:20,960

water

245

00:08:25,270 --> 00:08:22,960

looking at our tanking forecast you can

246

00:08:26,469 --> 00:08:25,280

see that for tanking weather looks good

247

00:08:28,070 --> 00:08:26,479

the front should be moved through by

248

00:08:29,670 --> 00:08:28,080

this time you can see there's some

249

00:08:32,070 --> 00:08:29,680

cloudy conditions expected though still

250

00:08:34,070 --> 00:08:32,080

a tanking time but there's no lightning

251
00:08:35,670 --> 00:08:34,080
expected to be in the area i only put a

252
00:08:37,589 --> 00:08:35,680
five percent chance of ksc weather

253
00:08:39,029 --> 00:08:37,599
prohibiting tanking just in the event

254
00:08:40,469 --> 00:08:39,039
that frontal boundary happens to linger

255
00:08:42,230 --> 00:08:40,479
a little bit longer

256
00:08:44,070 --> 00:08:42,240
than expected

257
00:08:46,310 --> 00:08:44,080
for our launch forecast the the front

258
00:08:47,750 --> 00:08:46,320
should be wait down to the southeast and

259
00:08:48,949 --> 00:08:47,760
so with that our only concern will be

260
00:08:50,870 --> 00:08:48,959
that the winds start to turn around a

261
00:08:52,710 --> 00:08:50,880
little bit more from the north northeast

262
00:08:54,630 --> 00:08:52,720
and there could be some crosswind

263
00:08:56,310 --> 00:08:54,640

concern although right now it's still

264

00:08:57,350 --> 00:08:56,320

northerly enough that it doesn't look

265

00:08:59,030 --> 00:08:57,360

like it's going to be an issue it's

266

00:09:00,790 --> 00:08:59,040

right on the edge though and so with

267

00:09:02,949 --> 00:09:00,800

that we move the 20 chance of ksc

268

00:09:04,949 --> 00:09:02,959

weather prohibiting launch usually we

269

00:09:07,269 --> 00:09:04,959

can get some help from the aircraft in

270

00:09:09,190 --> 00:09:07,279

this situation where we can go up to

271

00:09:10,230 --> 00:09:09,200

17 knots if the aircraft is getting

272

00:09:12,870 --> 00:09:10,240

favorable

273

00:09:14,790 --> 00:09:12,880

conditions on their approaches so right

274

00:09:15,990 --> 00:09:14,800

now our concern is just crosswinds for

275

00:09:17,990 --> 00:09:16,000

launch

276
00:09:19,829 --> 00:09:18,000
for srb recovery the weather is going to

277
00:09:21,829 --> 00:09:19,839
be just a little bit choppy out there so

278
00:09:23,350 --> 00:09:21,839
it's going to be a five to six foot seas

279
00:09:26,070 --> 00:09:23,360
but overall should not be an issue for

280
00:09:28,550 --> 00:09:26,080
the srb recovery

281
00:09:30,150 --> 00:09:28,560
and for our abort landing sites in the

282
00:09:32,230 --> 00:09:30,160
u.s there are some windy conditions

283
00:09:34,230 --> 00:09:32,240
expected both at edwards and at northrop

284
00:09:36,550 --> 00:09:34,240
and northrop the crosswind is expected

285
00:09:38,230 --> 00:09:36,560
to be 32 knots so pretty significant

286
00:09:41,750 --> 00:09:38,240
weather there at northrop but

287
00:09:43,110 --> 00:09:41,760
edward's still within constraints

288
00:09:44,389 --> 00:09:43,120

and space flight meteorology group is

289

00:09:46,389 --> 00:09:44,399

forecasting

290

00:09:48,710 --> 00:09:46,399

some bad conditions both as aragosa and

291

00:09:50,230 --> 00:09:48,720

marone with chance for showers within 20

292

00:09:51,509 --> 00:09:50,240

and for istras though the weather does

293

00:09:52,710 --> 00:09:51,519

look good

294

00:09:54,470 --> 00:09:52,720

the talc

295

00:09:56,310 --> 00:09:54,480

sites are probably best on this first

296

00:09:58,070 --> 00:09:56,320

day but estrus is looking good on day

297

00:10:00,470 --> 00:09:58,080

one

298

00:10:01,750 --> 00:10:00,480

if you do happen to delay 24 hours the

299

00:10:03,509 --> 00:10:01,760

winds actually come a little bit more

300

00:10:06,470 --> 00:10:03,519

easterly on this day so there is more of

301
00:10:08,550 --> 00:10:06,480
a crosswind concern with winds

302
00:10:10,230 --> 00:10:08,560
the crosswind component

303
00:10:11,509 --> 00:10:10,240
being a little bit stronger given that

304
00:10:13,030 --> 00:10:11,519
it's more of an easterly wind so with

305
00:10:15,269 --> 00:10:13,040
that we did increase the probability to

306
00:10:18,069 --> 00:10:15,279
a 30 percent chance of ksc weather

307
00:10:20,630 --> 00:10:18,079
prohibiting launch

308
00:10:23,030 --> 00:10:20,640
smg's is forecasting again windy

309
00:10:25,350 --> 00:10:23,040
conditions at northrop field on day two

310
00:10:27,509 --> 00:10:25,360
with a crosswind of 26 knots but edwards

311
00:10:28,949 --> 00:10:27,519
is still within constraints

312
00:10:31,269 --> 00:10:28,959
and the town sites get a little bit

313
00:10:34,150 --> 00:10:31,279

worse on a day two two to a front in the

314

00:10:38,470 --> 00:10:34,160

area but the estrus again is still one

315

00:10:42,710 --> 00:10:40,790

and for the 48 hour forecast the winds

316

00:10:44,230 --> 00:10:42,720

come more southeasterly so the weather

317

00:10:46,069 --> 00:10:44,240

the crosswind conditions actually

318

00:10:47,910 --> 00:10:46,079

improve so our concern on this day would

319

00:10:49,509 --> 00:10:47,920

just be more showers coming in or not

320

00:10:51,030 --> 00:10:49,519

excuse me not showers but cumulus cloud

321

00:10:52,550 --> 00:10:51,040

potential coming in off the water or a

322

00:10:54,630 --> 00:10:52,560

low cloud ceiling but overall the

323

00:10:56,870 --> 00:10:54,640

conditions look favorable on day three

324

00:10:59,350 --> 00:10:56,880

so just a 20 percent chance of ksc

325

00:11:00,710 --> 00:10:59,360

weather prohibiting launch

326

00:11:02,550 --> 00:11:00,720

the abort landing sites improved

327

00:11:04,949 --> 00:11:02,560

significantly on day three with good

328

00:11:06,470 --> 00:11:04,959

weather at both edwards and northrop and

329

00:11:08,069 --> 00:11:06,480

space flight meteorology group is still

330

00:11:10,630 --> 00:11:08,079

forecasting chance for showers and then

331

00:11:12,389 --> 00:11:10,640

20 at both zaragoza and maroon

332

00:11:15,190 --> 00:11:12,399

but uh istres again still looks like a

333

00:11:16,870 --> 00:11:15,200

good towel site all three days

334

00:11:18,550 --> 00:11:16,880

so overall our main concern for launch

335

00:11:20,630 --> 00:11:18,560

day is going to be cross winds and

336

00:11:22,230 --> 00:11:20,640

there's a twin just a 20 chance of ksi

337

00:11:23,670 --> 00:11:22,240

weather prohibiting launch

338

00:11:25,030 --> 00:11:23,680

the main thing will just be if we want

339

00:11:26,550 --> 00:11:25,040

to get that frontal system through us on

340

00:11:27,750 --> 00:11:26,560

thursday evening and still be able to

341

00:11:30,389 --> 00:11:27,760

complete all of our pre-launch

342

00:11:33,670 --> 00:11:32,069

thank you we'll now take questions when

343

00:11:35,509 --> 00:11:33,680

a microphone comes your way please state

344

00:11:36,790 --> 00:11:35,519

your name affiliation and to whom you're

345

00:11:38,790 --> 00:11:36,800

addressing your question we'll start

346

00:11:40,630 --> 00:11:38,800

over here with marcia

347

00:11:42,069 --> 00:11:40,640

marcia done associated press for mr

348

00:11:43,350 --> 00:11:42,079

graber

349

00:11:45,750 --> 00:11:43,360

if you could just talk about the

350

00:11:47,430 --> 00:11:45,760

excitement the anticipation of having

351
00:11:50,069 --> 00:11:47,440
the president and his family come

352
00:11:52,069 --> 00:11:50,079
congresswoman giffords and how you as a

353
00:11:53,990 --> 00:11:52,079
team

354
00:11:56,310 --> 00:11:54,000
might be planning to really stay focused

355
00:11:57,750 --> 00:11:56,320
despite all the hubbub surrounding all

356
00:12:00,150 --> 00:11:57,760
of that

357
00:12:01,910 --> 00:12:00,160
well well it is exciting to have uh

358
00:12:03,670 --> 00:12:01,920
those special guests that you mentioned

359
00:12:07,430 --> 00:12:03,680
um i know

360
00:12:08,790 --> 00:12:07,440
the the launch team particularly

361
00:12:10,949 --> 00:12:08,800
we've really worked very hard to make

362
00:12:13,509 --> 00:12:10,959
sure that all of that excitement and

363
00:12:14,949 --> 00:12:13,519

those potential

364

00:12:16,790 --> 00:12:14,959

different things that might be going on

365

00:12:20,069 --> 00:12:16,800

because of those visits

366

00:12:21,590 --> 00:12:20,079

don't impact the launch team at all

367

00:12:23,030 --> 00:12:21,600

a lot of the organization and

368

00:12:25,350 --> 00:12:23,040

coordination that we've done with the

369

00:12:26,550 --> 00:12:25,360

different uh folks that we needed to for

370

00:12:29,190 --> 00:12:26,560

those visits

371

00:12:31,750 --> 00:12:29,200

are very aware of the fact that we've

372

00:12:32,710 --> 00:12:31,760

got a job to go do we've got a a launch

373

00:12:34,949 --> 00:12:32,720

to go

374

00:12:36,870 --> 00:12:34,959

successfully and safely

375

00:12:38,949 --> 00:12:36,880

accomplish on friday and they don't want

376

00:12:40,870 --> 00:12:38,959

to interfere with that whatsoever so

377

00:12:42,949 --> 00:12:40,880

from a launch countdown perspective

378

00:12:45,590 --> 00:12:42,959

there won't be any impact to the launch

379

00:12:47,269 --> 00:12:45,600

team and the job they have to go do

380

00:12:48,310 --> 00:12:47,279

that being said it's always great to

381

00:12:52,629 --> 00:12:48,320

have

382

00:12:55,030 --> 00:12:52,639

to to see a space shuttle launch i know

383

00:12:57,110 --> 00:12:55,040

with friends of mine and and other

384

00:12:58,790 --> 00:12:57,120

opportunities to get somebody who's

385

00:13:01,110 --> 00:12:58,800

never seen a launch before that

386

00:13:03,190 --> 00:13:01,120

opportunity it really is a

387

00:13:05,590 --> 00:13:03,200

a life-changing experience and i think

388

00:13:09,590 --> 00:13:05,600

it's a great opportunity for those

389

00:13:13,829 --> 00:13:11,750

a real quick technical follow-up um if

390

00:13:15,430 --> 00:13:13,839

the weather is bad thursday how late

391

00:13:17,509 --> 00:13:15,440

could you delay

392

00:13:19,509 --> 00:13:17,519

rss roll back before it would start to

393

00:13:22,949 --> 00:13:19,519

impact the tanking time

394

00:13:25,750 --> 00:13:22,959

well we we have some uh um contingency

395

00:13:28,069 --> 00:13:25,760

time built into our schedule um each

396

00:13:30,389 --> 00:13:28,079

launch countdown is uh is an individual

397

00:13:32,629 --> 00:13:30,399

experience and and so really we have to

398

00:13:34,949 --> 00:13:32,639

see how that plays out i'm hoping that

399

00:13:38,870 --> 00:13:34,959

the the weather forecast won't be quite

400

00:13:40,310 --> 00:13:38,880

as uh as rough as as uh kathy has uh has

401
00:13:42,629 --> 00:13:40,320
put out there and that there might be

402
00:13:44,710 --> 00:13:42,639
some opportunities of windows for us to

403
00:13:47,590 --> 00:13:44,720
get some of the preparation work done

404
00:13:49,590 --> 00:13:47,600
between thunderstorms um that being said

405
00:13:51,430 --> 00:13:49,600
we'll we'll see what the the

406
00:13:53,269 --> 00:13:51,440
weather of the day gives us and we'll

407
00:13:55,590 --> 00:13:53,279
make sure we do as much as we can ahead

408
00:13:57,110 --> 00:13:55,600
of time so that we can be poised to pick

409
00:13:59,430 --> 00:13:57,120
right back up with the work after the

410
00:14:01,030 --> 00:13:59,440
storms are cleared

411
00:14:03,509 --> 00:14:01,040
there's definitely

412
00:14:05,269 --> 00:14:03,519
some contingency time in there

413
00:14:07,750 --> 00:14:05,279

i can't give you an exact number but it

414

00:14:09,750 --> 00:14:07,760

is with hours that we can

415

00:14:11,829 --> 00:14:09,760

affect that and again

416

00:14:13,990 --> 00:14:11,839

uh we'll put that story together for the

417

00:14:15,990 --> 00:14:14,000

launch director early on friday morning

418

00:14:18,470 --> 00:14:16,000

when we have our external take weather

419

00:14:20,150 --> 00:14:18,480

briefing and we'll we'll uh present

420

00:14:21,990 --> 00:14:20,160

those details to the program and and

421

00:14:23,670 --> 00:14:22,000

we'll go make the decision on how we'll

422

00:14:25,509 --> 00:14:23,680

proceed throughout the rest of the day

423

00:14:26,470 --> 00:14:25,519

on friday

424

00:14:30,389 --> 00:14:26,480

bill

425

00:14:31,670 --> 00:14:30,399

talking about crowds that are expected

426

00:14:33,030 --> 00:14:31,680

for this launch and i know there's been

427

00:14:35,269 --> 00:14:33,040

some talk about whether or not you can

428

00:14:36,629 --> 00:14:35,279

even do a 24-hour scrub because of the

429

00:14:38,710 --> 00:14:36,639

time it's going to take the launch team

430

00:14:40,550 --> 00:14:38,720

to get home and get back where does that

431

00:14:41,750 --> 00:14:40,560

discussion stand right now

432

00:14:43,670 --> 00:14:41,760

well

433

00:14:46,710 --> 00:14:43,680

like everything else it's it's very

434

00:14:48,710 --> 00:14:46,720

dependent on uh the situation of the day

435

00:14:50,790 --> 00:14:48,720

and so um

436

00:14:52,949 --> 00:14:50,800

that our going in philosophy is we're

437

00:14:55,189 --> 00:14:52,959

gonna take a look at what the conditions

438

00:14:57,030 --> 00:14:55,199

give us and that is

439

00:14:59,030 --> 00:14:57,040

what the scrub condition is when it

440

00:15:01,269 --> 00:14:59,040

occurs and and

441

00:15:02,230 --> 00:15:01,279

make the smart decision our our leaders

442

00:15:06,550 --> 00:15:02,240

will

443

00:15:08,470 --> 00:15:06,560

all of the details of the day

444

00:15:10,150 --> 00:15:08,480

and understand if it makes sense to do a

445

00:15:11,030 --> 00:15:10,160

48 or a 24

446

00:15:13,110 --> 00:15:11,040

and

447

00:15:15,430 --> 00:15:13,120

we have some going in ideas about what

448

00:15:18,310 --> 00:15:15,440

we think that is but again we'll we'll

449

00:15:20,870 --> 00:15:18,320

take that information um as we get it on

450

00:15:23,430 --> 00:15:20,880

launch day and and go from there

451
00:15:25,670 --> 00:15:23,440
well what are your going in ideas about

452
00:15:28,790 --> 00:15:25,680
well there there is a

453
00:15:30,230 --> 00:15:28,800
time frame about the I minus four uh

454
00:15:32,629 --> 00:15:30,240
time frame that

455
00:15:33,829 --> 00:15:32,639
yes launch minus four hours that

456
00:15:36,629 --> 00:15:33,839
basically

457
00:15:39,350 --> 00:15:36,639
if you look at it it may be is an

458
00:15:41,910 --> 00:15:39,360
opportunity to be a line that you say

459
00:15:44,310 --> 00:15:41,920
before this we do it 24 after

460
00:15:46,870 --> 00:15:44,320
maybe we do a 48 but but we're not

461
00:15:48,310 --> 00:15:46,880
locked into that philosophy we we we

462
00:15:49,910 --> 00:15:48,320
understand that that's maybe our going

463
00:15:52,310 --> 00:15:49,920

in but we need to look at what happens

464

00:15:53,430 --> 00:15:52,320

on the day to understand if that is uh

465

00:15:54,550 --> 00:15:53,440

the way that we're going to handle it

466

00:15:55,350 --> 00:15:54,560

that day

467

00:15:56,870 --> 00:15:55,360

okay

468

00:15:59,350 --> 00:15:56,880

todd please

469

00:16:02,389 --> 00:15:59,360

uh todd halverson of florida today for

470

00:16:03,670 --> 00:16:02,399

uh jeremy um could you give us an idea

471

00:16:06,069 --> 00:16:03,680

of our or

472

00:16:07,030 --> 00:16:06,079

what your launch opportunities are for

473

00:16:09,110 --> 00:16:07,040

the next

474

00:16:11,990 --> 00:16:09,120

several days in other words there's a

475

00:16:14,230 --> 00:16:12,000

range conflict out there on may the 6th

476

00:16:17,110 --> 00:16:14,240

how many attempts can you get in between

477

00:16:19,030 --> 00:16:17,120

now and then and what does the launch

478

00:16:21,030 --> 00:16:19,040

calendar if you will look like in may

479

00:16:23,030 --> 00:16:21,040

because i believe there's a soyuz

480

00:16:25,749 --> 00:16:23,040

returning and a soyuz going up and then

481

00:16:27,269 --> 00:16:25,759

a big beta angle cut out and it does not

482

00:16:28,949 --> 00:16:27,279

look like you're going to have a lot of

483

00:16:32,470 --> 00:16:28,959

opportunity in may and i'm just trying

484

00:16:34,790 --> 00:16:32,480

to figure out what the situation is

485

00:16:37,110 --> 00:16:34,800

well you're absolutely right there's

486

00:16:39,670 --> 00:16:37,120

it's a busy schedule uh for launches

487

00:16:40,470 --> 00:16:39,680

here in may uh for for our opportunities

488

00:16:44,550 --> 00:16:40,480

we

489

00:16:45,670 --> 00:16:44,560

have four opportunities to launch within

490

00:16:47,030 --> 00:16:45,680

six days

491

00:16:50,629 --> 00:16:47,040

so um

492

00:16:56,230 --> 00:16:50,639

with the atlas launch

493

00:16:57,430 --> 00:16:56,240

scheduled for may 5th i'm sorry may 6th

494

00:16:59,430 --> 00:16:57,440

we have to give them a day to

495

00:17:01,910 --> 00:16:59,440

reconfigure the range so we have

496

00:17:04,870 --> 00:17:01,920

opportunities up through may 4th

497

00:17:07,189 --> 00:17:04,880

uh 29th through the 4th then we get one

498

00:17:09,350 --> 00:17:07,199

day on may the 8th

499

00:17:11,909 --> 00:17:09,360

and that assumes that the atlas launched

500

00:17:13,909 --> 00:17:11,919

on time if they use their

501
00:17:15,029 --> 00:17:13,919
optional second day then we'd lose the

502
00:17:17,990 --> 00:17:15,039
8th

503
00:17:19,829 --> 00:17:18,000
our next opportunity would start on may

504
00:17:22,309 --> 00:17:19,839
10th and takes us almost through the end

505
00:17:23,990 --> 00:17:22,319
of the month out to the 26th we have the

506
00:17:26,630 --> 00:17:24,000
capability to go launch in that time

507
00:17:28,710 --> 00:17:26,640
frame so when you look at when you look

508
00:17:29,669 --> 00:17:28,720
at it it seems like there's a lot but we

509
00:17:32,070 --> 00:17:29,679
really

510
00:17:34,549 --> 00:17:32,080
we always try to plan for having four

511
00:17:37,270 --> 00:17:34,559
launch attempts in six days five six

512
00:17:38,870 --> 00:17:37,280
days and based on where we are we've got

513
00:17:40,549 --> 00:17:38,880

that and and we're confident that in

514

00:17:43,190 --> 00:17:40,559

that time frame we've got good

515

00:17:45,830 --> 00:17:43,200

opportunity to get off the ground

516

00:17:48,710 --> 00:17:45,840

uh thanks and just one clarification on

517

00:17:51,750 --> 00:17:48,720

that um does that mean that uh soyuz

518

00:17:54,390 --> 00:17:51,760

returning from station around mid-month

519

00:17:55,990 --> 00:17:54,400

does not uh you know hamper you guys in

520

00:17:58,310 --> 00:17:56,000

terms of being able to launch and get

521

00:18:01,110 --> 00:17:58,320

docked and the other question i had is

522

00:18:02,789 --> 00:18:01,120

whether or not nasa has sought out or

523

00:18:05,110 --> 00:18:02,799

gotten any

524

00:18:07,909 --> 00:18:05,120

estimate on how many people are expected

525

00:18:10,150 --> 00:18:07,919

to be on the space coast to watch this

526
00:18:12,230 --> 00:18:10,160
launch

527
00:18:13,110 --> 00:18:12,240
for your first question uh

528
00:18:18,150 --> 00:18:13,120
the

529
00:18:20,950 --> 00:18:18,160
undock and and return and and

530
00:18:22,630 --> 00:18:20,960
and our launch uh

531
00:18:24,789 --> 00:18:22,640
there are many ways for them to go

532
00:18:26,230 --> 00:18:24,799
deconflict that work and so i think that

533
00:18:27,510 --> 00:18:26,240
um i think

534
00:18:28,870 --> 00:18:27,520
based on the information that we've got

535
00:18:30,549 --> 00:18:28,880
at this point that i think we would be

536
00:18:32,710 --> 00:18:30,559
have we would have the opportunity to go

537
00:18:35,350 --> 00:18:32,720
launch in that time frame um as far as

538
00:18:36,470 --> 00:18:35,360

visitors um to the local area

539

00:18:39,110 --> 00:18:36,480

i've heard

540

00:18:41,750 --> 00:18:39,120

several different estimates but it's

541

00:18:43,190 --> 00:18:41,760

if you were here for sts-133 and

542

00:18:45,029 --> 00:18:43,200

understood that

543

00:18:47,270 --> 00:18:45,039

the estimate is that it'll be more how

544

00:18:50,870 --> 00:18:47,280

much more i i can't really tell you but

545

00:18:55,990 --> 00:18:51,990

clara

546

00:18:58,150 --> 00:18:56,000

i'm not sure if this is for jeremy or

547

00:19:00,470 --> 00:18:58,160

kathy but i was hoping you could clarify

548

00:19:01,909 --> 00:19:00,480

the rss retract weather constraints a

549

00:19:04,310 --> 00:19:01,919

little bit more can you do it in the

550

00:19:06,230 --> 00:19:04,320

rain just not thunder or you know what

551
00:19:09,029 --> 00:19:06,240
exactly are the constraints and also the

552
00:19:10,549 --> 00:19:09,039
crosswind constraints for launch just a

553
00:19:12,630 --> 00:19:10,559
little bit more details on why that's a

554
00:19:14,470 --> 00:19:12,640
constraint

555
00:19:17,110 --> 00:19:14,480
okay i can i can cover the weather

556
00:19:18,390 --> 00:19:17,120
constraints for rss3 track we want no

557
00:19:20,390 --> 00:19:18,400
more than a 20 percent chance of

558
00:19:22,950 --> 00:19:20,400
lightning within five nautical miles for

559
00:19:24,950 --> 00:19:22,960
our accessory tracks also

560
00:19:26,710 --> 00:19:24,960
heavy rain could be an issue not so much

561
00:19:28,230 --> 00:19:26,720
for the actual operation but there's a

562
00:19:29,830 --> 00:19:28,240
lot of people that are out there during

563
00:19:31,510 --> 00:19:29,840

that operation so it becomes it can

564

00:19:33,029 --> 00:19:31,520

become a worker safety

565

00:19:34,549 --> 00:19:33,039

issue so those are going to be our main

566

00:19:36,230 --> 00:19:34,559

concerns there's a very high wind

567

00:19:37,830 --> 00:19:36,240

constraint i don't have it from me but i

568

00:19:39,270 --> 00:19:37,840

think it's like 40 knots sustained wind

569

00:19:42,310 --> 00:19:39,280

so that's not usually the issue it's

570

00:19:45,190 --> 00:19:42,320

usually lightning or heavy rain

571

00:19:48,150 --> 00:19:45,200

the crosswind constraint is 15 knots we

572

00:19:49,590 --> 00:19:48,160

can get some help up to 17 knots if the

573

00:19:51,270 --> 00:19:49,600

aircraft the the shuttle training

574

00:19:53,270 --> 00:19:51,280

aircraft is

575

00:19:56,070 --> 00:19:53,280

doing approaches and getting good uh

576

00:19:58,150 --> 00:19:56,080

performance and so that all comes from

577

00:19:59,510 --> 00:19:58,160

the pilot who will be reporting that

578

00:20:02,070 --> 00:19:59,520

back to the weather coordinator in the

579

00:20:04,230 --> 00:20:02,080

firing room to uh and and reporting it

580

00:20:05,510 --> 00:20:04,240

back to the flight director also

581

00:20:07,190 --> 00:20:05,520

so that's the kind of information

582

00:20:08,870 --> 00:20:07,200

that'll be shared and and to determine

583

00:20:12,549 --> 00:20:08,880

if the crosswinds will will allow the

584

00:20:16,549 --> 00:20:14,710

i covered that all correctly jeremy yeah

585

00:20:18,630 --> 00:20:16,559

yeah you definitely did and and i mean

586

00:20:21,270 --> 00:20:18,640

the the main point that uh that kathy

587

00:20:23,270 --> 00:20:21,280

made was you know worker safety that

588

00:20:25,590 --> 00:20:23,280

it's also vehicle safety you know the

589

00:20:27,830 --> 00:20:25,600

whole reason when we rotate the rss back

590

00:20:29,750 --> 00:20:27,840

is we have many observers up there to

591

00:20:31,909 --> 00:20:29,760

make sure that everything's moving as it

592

00:20:33,830 --> 00:20:31,919

should and so if you do have those heavy

593

00:20:35,350 --> 00:20:33,840

rains you want to make sure that the

594

00:20:36,789 --> 00:20:35,360

folks are safe and that they can do

595

00:20:40,710 --> 00:20:36,799

their jobs appropriately and if they

596

00:20:44,870 --> 00:20:42,789

hi ken crain with space flight magazine

597

00:20:47,270 --> 00:20:44,880

for uh joe duly please can you just go

598

00:20:49,590 --> 00:20:47,280

in any payload related activities that

599

00:20:51,990 --> 00:20:49,600

you have today and tomorrow any late

600

00:20:53,350 --> 00:20:52,000

stow experiments thank you

601
00:20:55,990 --> 00:20:53,360
okay we um

602
00:20:58,549 --> 00:20:56,000
we did complete our closeouts yesterday

603
00:21:00,710 --> 00:20:58,559
and that went fine no issues there

604
00:21:02,789 --> 00:21:00,720
of course we're supporting uh

605
00:21:05,190 --> 00:21:02,799
the payload bay door closure the

606
00:21:07,270 --> 00:21:05,200
activity that's going on this morning

607
00:21:08,710 --> 00:21:07,280
and we have um

608
00:21:11,590 --> 00:21:08,720
and i'll go a little more detail on I

609
00:21:13,270 --> 00:21:11,600
minus one but we do have our our midtech

610
00:21:14,710 --> 00:21:13,280
activity

611
00:21:17,270 --> 00:21:14,720
and we have uh

612
00:21:22,950 --> 00:21:17,280
two two am gonna be powered glacier and

613
00:21:26,789 --> 00:21:24,870

i hope i answered your question

614

00:21:33,590 --> 00:21:26,799

thanks

615

00:21:35,990 --> 00:21:33,600

um irene klotz with reuters uh for

616

00:21:38,310 --> 00:21:36,000

jeremy um how many launch attempts can

617

00:21:39,350 --> 00:21:38,320

be made and still preserve the option

618

00:21:43,190 --> 00:21:39,360

for the

619

00:21:47,190 --> 00:21:45,270

well we've got uh

620

00:21:49,110 --> 00:21:47,200

our hold times for our

621

00:21:50,470 --> 00:21:49,120

liquid oxygen and liquid hydrogen for

622

00:21:52,549 --> 00:21:50,480

our uh

623

00:21:55,830 --> 00:21:52,559

onboard tanks is really what drives that

624

00:21:57,350 --> 00:21:55,840

and we've got seven uh

625

00:22:00,149 --> 00:21:57,360

seven days of hold time for for the

626
00:22:01,909 --> 00:22:00,159
hydrogen side and 12 days on the oxygen

627
00:22:03,669 --> 00:22:01,919
side and really

628
00:22:06,310 --> 00:22:03,679
all of our launch attempts

629
00:22:08,230 --> 00:22:06,320
that we have in in that initial uh

630
00:22:09,750 --> 00:22:08,240
window uh the four launch attempts in

631
00:22:12,070 --> 00:22:09,760
six days

632
00:22:14,230 --> 00:22:12,080
would all then be able to go support

633
00:22:16,230 --> 00:22:14,240
those additional uh

634
00:22:17,029 --> 00:22:16,240
two extension days so

635
00:22:18,630 --> 00:22:17,039
so

636
00:22:19,510 --> 00:22:18,640
any of the days up through may the

637
00:22:20,950 --> 00:22:19,520
fourth

638
00:22:23,669 --> 00:22:20,960

if we launch on any of those we'd still

639

00:22:26,710 --> 00:22:23,679

have that capability

640

00:22:27,590 --> 00:22:26,720

and for joe were there any um relatively

641

00:22:29,029 --> 00:22:27,600

late

642

00:22:31,750 --> 00:22:29,039

additions

643

00:22:34,070 --> 00:22:31,760

from the station program to

644

00:22:35,990 --> 00:22:34,080

fly on shuttle and if so can you give us

645

00:22:37,909 --> 00:22:36,000

a little idea of what some of those

646

00:22:39,830 --> 00:22:37,919

might be

647

00:22:41,510 --> 00:22:39,840

i haven't um i have not heard of any

648

00:22:42,390 --> 00:22:41,520

like you're talking mid deck item stored

649

00:22:44,230 --> 00:22:42,400

items

650

00:22:46,950 --> 00:22:44,240

um

651
00:22:51,029 --> 00:22:46,960
no the my list hasn't changed recently

652
00:22:53,350 --> 00:22:51,039
and um no late ones that i'm aware of

653
00:22:54,950 --> 00:22:53,360
no everything's nominal and we have a

654
00:22:58,870 --> 00:22:54,960
list of candidates and we're processing

655
00:22:58,880 --> 00:23:03,270
are there any further questions

656
00:23:08,630 --> 00:23:05,590
that will conclude today's pre-countdown

657
00:23:11,430 --> 00:23:08,640
status briefing as jeremy mentioned the

658
00:23:13,909 --> 00:23:11,440
six astronauts for the sts-134 mission

659
00:23:15,990 --> 00:23:13,919
have departed ellington field in texas

660
00:23:18,310 --> 00:23:16,000
and are on their way here and they are

661
00:23:22,149 --> 00:23:18,320
expected to arrive at approximately 12

662
00:23:24,870 --> 00:23:22,159
15 pm eastern time that will be shown

663
00:23:26,549 --> 00:23:24,880

live on nasa television again as a

664

00:23:29,029 --> 00:23:26,559

reminder the countdown will officially

665

00:23:31,110 --> 00:23:29,039

begin at 2 pm eastern that will not be

666

00:23:33,750 --> 00:23:31,120

shown live on nasa tv for more